



# Full wwPDB X-ray Structure Validation Report ⓘ

Jun 16, 2024 – 10:52 PM EDT

PDB ID : 2WRF  
Title : structure of H2 avian jena hemagglutinin with human receptor  
Authors : Liu, J.; Stevens, D.J.; Haire, L.F.; Walker, P.A.; Coombs, P.J.; Russell, R.J.;  
Gamblin, S.J.; Skehel, J.J.  
Deposited on : 2009-09-01  
Resolution : 3.10 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467  
Mogul : 2022.3.0, CSD as543be (2022)  
Xtriage (Phenix) : 1.20.1  
EDS : 2.37.1  
buster-report : 1.1.7 (2018)  
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) : 2.37.1

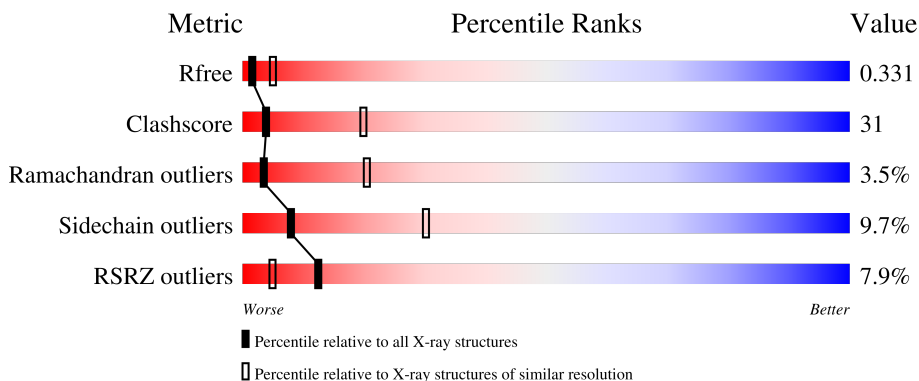
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.10 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.



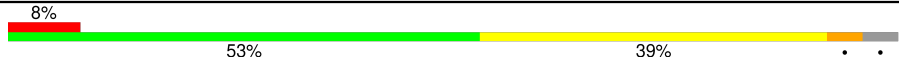

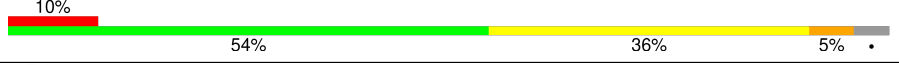


| Metric                | Whole archive<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| $R_{free}$            | 130704                      | 1094 (3.10-3.10)                                      |
| Clashscore            | 141614                      | 1184 (3.10-3.10)                                      |
| Ramachandran outliers | 138981                      | 1141 (3.10-3.10)                                      |
| Sidechain outliers    | 138945                      | 1141 (3.10-3.10)                                      |
| RSRZ outliers         | 127900                      | 1067 (3.10-3.10)                                      |

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     | 507    | <br>4% 32% 48% 15% |
| 1   | B     | 507    | <br>5% 54% 37%     |
| 1   | C     | 507    | <br>6% 55% 37%     |
| 1   | D     | 507    | <br>8% 37% 49% 9%  |
| 1   | E     | 507    | <br>12% 53% 39%    |

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| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--|
| 1   | F     | 507    |  |
| 1   | G     | 507    |  |
| 1   | H     | 507    |  |
| 1   | I     | 507    |  |
| 2   | J     | 2      |  |

## 2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 34577 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 HEMAGGLUTININ.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 1   | A     | 486      | 3837  | 2409 | 656 | 748 | 24 | 0       | 0       | 0     |
| 1   | B     | 486      | 3837  | 2409 | 656 | 748 | 24 | 0       | 0       | 0     |
| 1   | C     | 486      | 3834  | 2408 | 655 | 747 | 24 | 0       | 0       | 0     |
| 1   | D     | 486      | 3837  | 2409 | 656 | 748 | 24 | 0       | 0       | 0     |
| 1   | E     | 486      | 3837  | 2409 | 656 | 748 | 24 | 0       | 0       | 0     |
| 1   | F     | 486      | 3834  | 2408 | 655 | 747 | 24 | 0       | 0       | 0     |
| 1   | G     | 486      | 3837  | 2409 | 656 | 748 | 24 | 0       | 0       | 0     |
| 1   | H     | 486      | 3837  | 2409 | 656 | 748 | 24 | 0       | 0       | 0     |
| 1   | I     | 486      | 3834  | 2408 | 655 | 747 | 24 | 0       | 0       | 0     |

There are 36 discrepancies between the modelled and reference sequences:

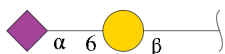
| Chain | Residue | Modelled | Actual | Comment  | Reference  |
|-------|---------|----------|--------|----------|------------|
| A     | 109     | ILE      | LEU    | conflict | UNP Q67326 |
| A     | 142     | ASP      | GLY    | conflict | UNP Q67326 |
| A     | 374     | PHE      | ILE    | conflict | UNP Q67326 |
| A     | 459     | VAL      | ALA    | conflict | UNP Q67326 |
| B     | 109     | ILE      | LEU    | conflict | UNP Q67326 |
| B     | 142     | ASP      | GLY    | conflict | UNP Q67326 |
| B     | 374     | PHE      | ILE    | conflict | UNP Q67326 |
| B     | 459     | VAL      | ALA    | conflict | UNP Q67326 |
| C     | 109     | ILE      | LEU    | conflict | UNP Q67326 |
| C     | 142     | ASP      | GLY    | conflict | UNP Q67326 |
| C     | 374     | PHE      | ILE    | conflict | UNP Q67326 |

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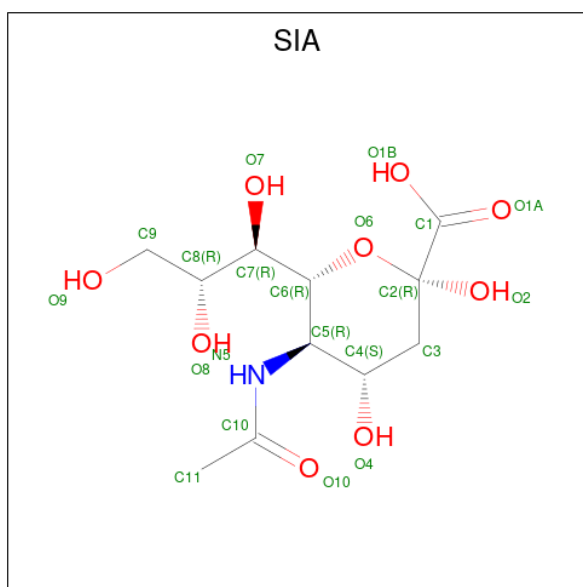
| Chain | Residue | Modelled | Actual | Comment  | Reference  |
|-------|---------|----------|--------|----------|------------|
| C     | 459     | VAL      | ALA    | conflict | UNP Q67326 |
| D     | 109     | ILE      | LEU    | conflict | UNP Q67326 |
| D     | 142     | ASP      | GLY    | conflict | UNP Q67326 |
| D     | 374     | PHE      | ILE    | conflict | UNP Q67326 |
| D     | 459     | VAL      | ALA    | conflict | UNP Q67326 |
| E     | 109     | ILE      | LEU    | conflict | UNP Q67326 |
| E     | 142     | ASP      | GLY    | conflict | UNP Q67326 |
| E     | 374     | PHE      | ILE    | conflict | UNP Q67326 |
| E     | 459     | VAL      | ALA    | conflict | UNP Q67326 |
| F     | 109     | ILE      | LEU    | conflict | UNP Q67326 |
| F     | 142     | ASP      | GLY    | conflict | UNP Q67326 |
| F     | 374     | PHE      | ILE    | conflict | UNP Q67326 |
| F     | 459     | VAL      | ALA    | conflict | UNP Q67326 |
| G     | 109     | ILE      | LEU    | conflict | UNP Q67326 |
| G     | 142     | ASP      | GLY    | conflict | UNP Q67326 |
| G     | 374     | PHE      | ILE    | conflict | UNP Q67326 |
| G     | 459     | VAL      | ALA    | conflict | UNP Q67326 |
| H     | 109     | ILE      | LEU    | conflict | UNP Q67326 |
| H     | 142     | ASP      | GLY    | conflict | UNP Q67326 |
| H     | 374     | PHE      | ILE    | conflict | UNP Q67326 |
| H     | 459     | VAL      | ALA    | conflict | UNP Q67326 |
| I     | 109     | ILE      | LEU    | conflict | UNP Q67326 |
| I     | 142     | ASP      | GLY    | conflict | UNP Q67326 |
| I     | 374     | PHE      | ILE    | conflict | UNP Q67326 |
| I     | 459     | VAL      | ALA    | conflict | UNP Q67326 |

- Molecule 2 is an oligosaccharide called N-acetyl-alpha-neuraminic acid-(2-6)-beta-D-galactopyranose.



| Mol | Chain | Residues | Atoms |    |   |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|----|---|----|---------|---------|-------|
|     |       |          | Total | C  | N | O  |         |         |       |
| 2   | J     | 2        | 32    | 17 | 1 | 14 | 0       | 0       | 0     |

- Molecule 3 is N-acetyl-alpha-neuraminic acid (three-letter code: SIA) (formula: C<sub>11</sub>H<sub>19</sub>NO<sub>9</sub>).



| Mol | Chain | Residues | Atoms |    |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---|---------|---------|
|     |       |          | Total | C  | N | O |         |         |
| 3   | D     | 1        | 21    | 11 | 1 | 9 | 0       | 0       |

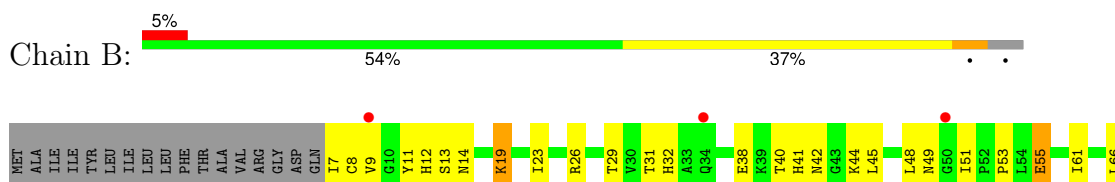
### 3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and 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: HEMAGGLUTININ

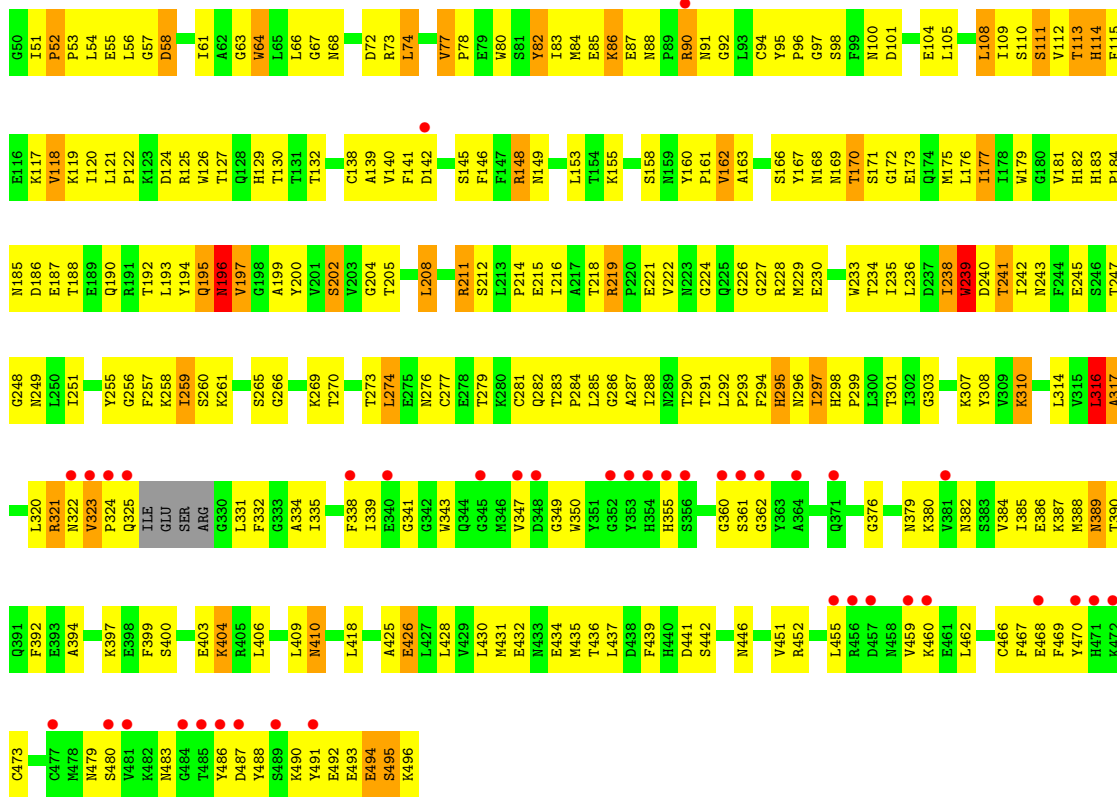


#### • Molecule 1: HEMAGGLUTININ

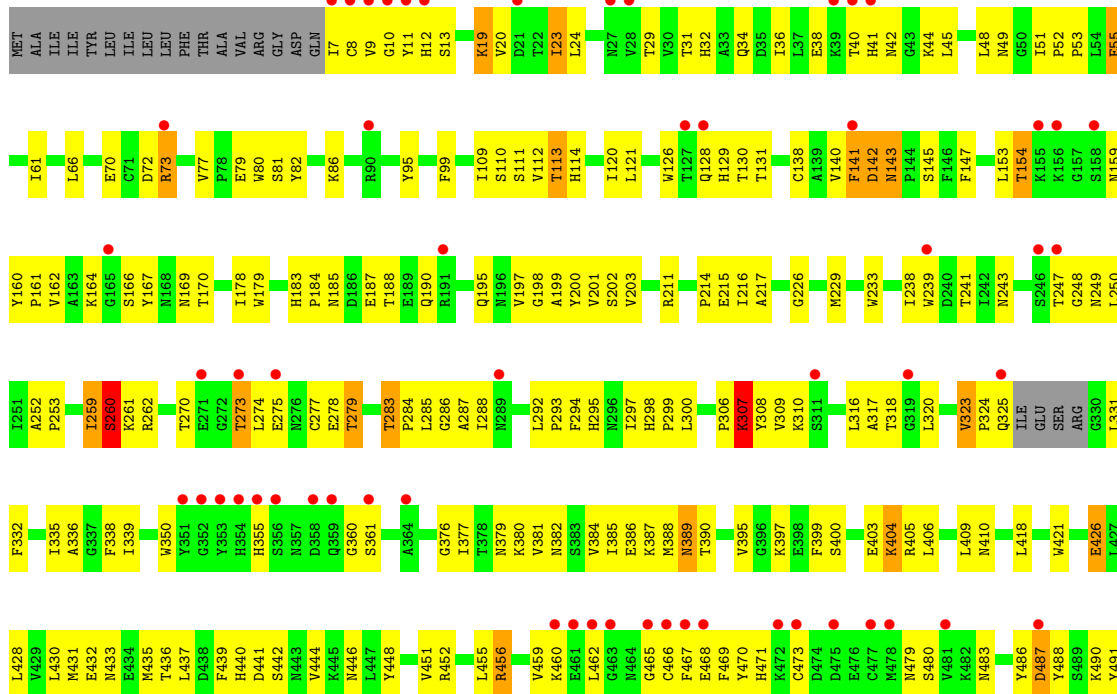


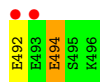




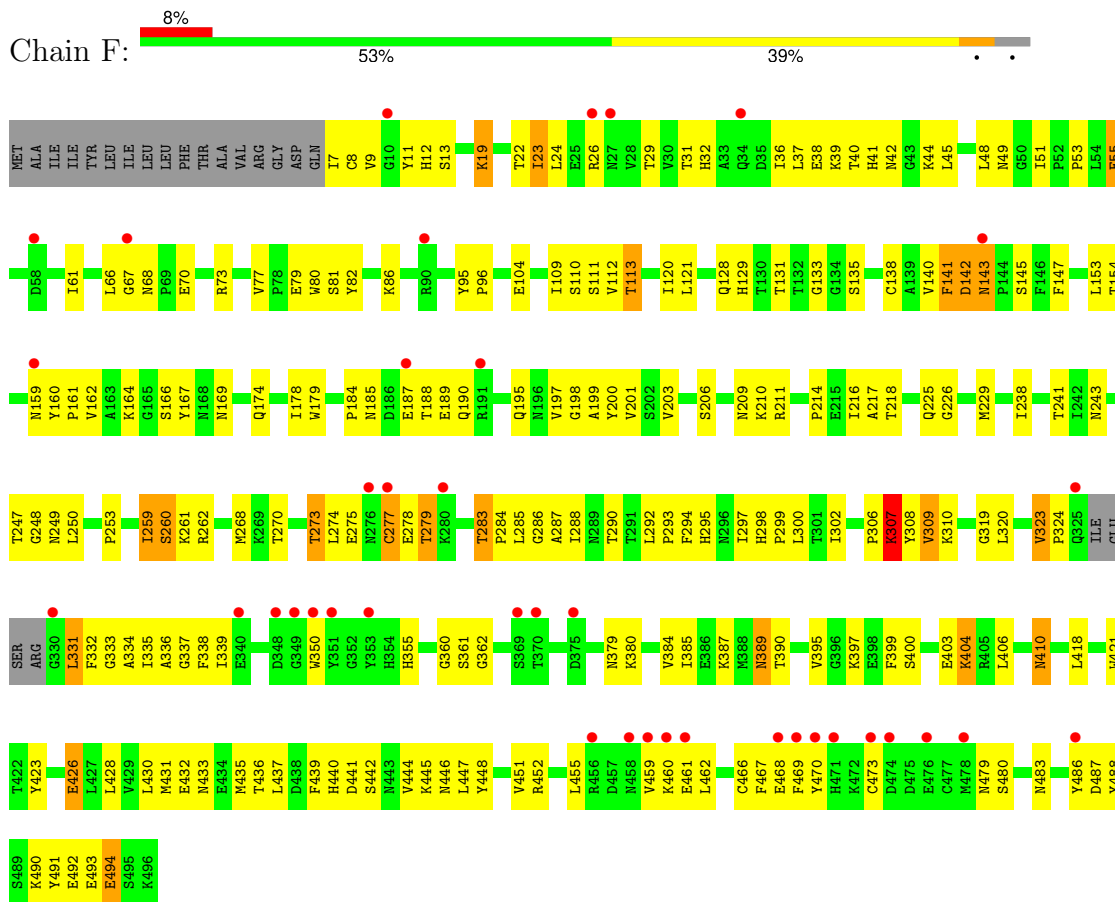


• Molecule 1: HEMAGGLUTININ

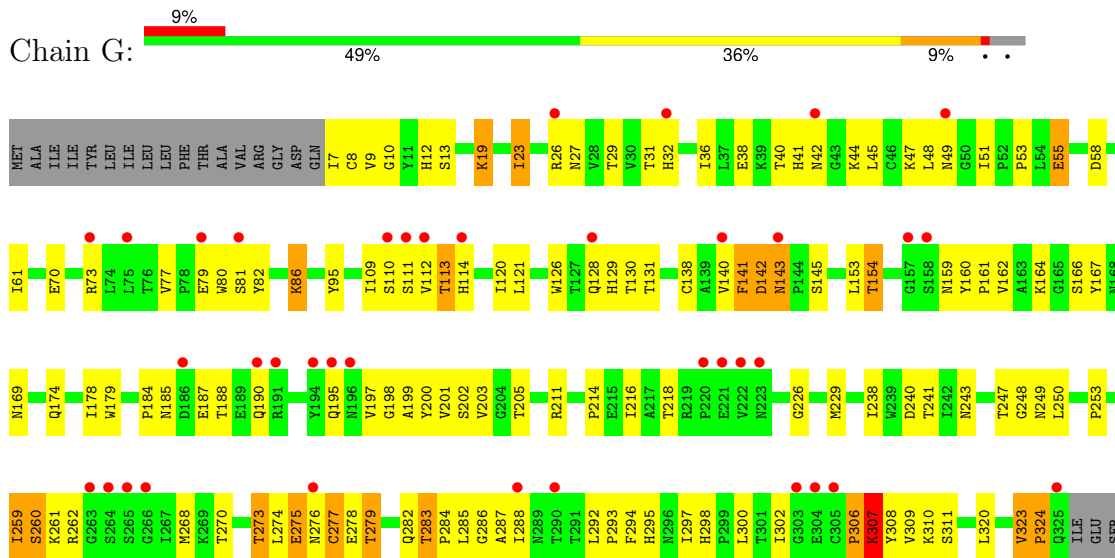




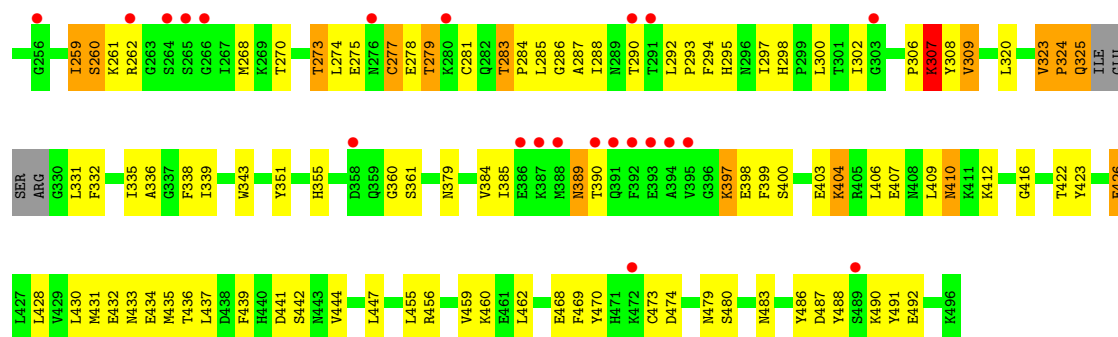
• Molecule 1: HEMAGGLUTININ



• Molecule 1: HEMAGGLUTININ







- Molecule 2: N-acetyl-alpha-neuraminic acid-(2-6)-beta-D-galactopyranose



## 4 Data and refinement statistics i

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | P 1 21 1  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 134.17Å 113.28Å 184.67Å<br>90.00° 92.20° 90.00°             | Depositor        |
| Resolution (Å)  | 29.92 – 3.10<br>29.92 – 3.10                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 92.8 (29.92-3.10)<br>99.6 (29.92-3.10)                      | Depositor<br>EDS |
| $R_{merge}$   | 0.11  | Depositor        |
| $R_{sym}$   | (Not available)   | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 2.14 (at 3.11Å)   | Xtrriage         |
| Refinement program  | PHENIX (PHENIX.REFINE)                                      | Depositor        |
| R, $R_{free}$   | 0.273 , 0.337<br>0.270 , 0.331                              | Depositor<br>DCC |
| $R_{free}$ test set   | 4993 reflections (4.99%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 68.7  | Xtrriage         |
| Anisotropy  | 0.586   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.27 , 53.0   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$ | Xtrriage         |
| Estimated twinning fraction   | 0.019 for h,-k,-l   | Xtrriage         |
| $F_o, F_c$ correlation  | 0.87  | EDS              |
| Total number of atoms   | 34577   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 87.0  | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.73% of the height of the origin peak. No significant pseudotranslation is detected.*

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

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

## 5 Model quality [i](#)

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

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

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     | 0.47         | 0/3923  | 0.68        | 1/5309 (0.0%)  |
| 1   | B     | 0.40         | 0/3923  | 0.53        | 0/5309         |
| 1   | C     | 0.38         | 0/3920  | 0.51        | 0/5305         |
| 1   | D     | 0.44         | 0/3923  | 0.63        | 1/5309 (0.0%)  |
| 1   | E     | 0.35         | 0/3923  | 0.50        | 0/5309         |
| 1   | F     | 0.34         | 0/3920  | 0.49        | 0/5305         |
| 1   | G     | 0.47         | 0/3923  | 0.63        | 0/5309         |
| 1   | H     | 0.41         | 0/3923  | 0.53        | 0/5309         |
| 1   | I     | 0.40         | 0/3920  | 0.52        | 0/5305         |
| All | All   | 0.41         | 0/35298 | 0.56        | 2/47769 (0.0%) |

There are no bond length outliers.

All (2) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 1   | A     | 314 | LEU  | CA-CB-CG | 5.74  | 128.51      | 115.30   |
| 1   | D     | 251 | ILE  | N-CA-C   | -5.12 | 97.19       | 111.00   |

There are no chirality outliers.

There are no planarity outliers.

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

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 3837  | 0        | 3674     | 344     | 0            |
| 1   | B     | 3837  | 0        | 3672     | 205     | 0            |
| 1   | C     | 3834  | 0        | 3666     | 211     | 0            |
| 1   | D     | 3837  | 0        | 3672     | 308     | 0            |
| 1   | E     | 3837  | 0        | 3672     | 264     | 0            |
| 1   | F     | 3834  | 0        | 3666     | 234     | 0            |
| 1   | G     | 3837  | 0        | 3672     | 289     | 0            |
| 1   | H     | 3837  | 0        | 3672     | 216     | 0            |
| 1   | I     | 3834  | 0        | 3666     | 185     | 0            |
| 2   | J     | 32    | 0        | 28       | 7       | 0            |
| 3   | D     | 21    | 0        | 18       | 1       | 0            |
| All | All   | 34577 | 0        | 33078    | 2079    | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 31.

All (2079) 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:B:471:HIS:HB3  | 1:B:494:GLU:HG2  | 1.19                     | 1.18              |
| 1:E:11:TYR:CE2   | 1:E:335:ILE:HA   | 1.83                     | 1.14              |
| 1:G:7:ILE:HD11   | 1:G:482:LYS:HE3  | 1.15                     | 1.12              |
| 1:C:9:VAL:HG21   | 1:C:448:TYR:HA   | 1.31                     | 1.11              |
| 1:G:459:VAL:HG12 | 1:G:469:PHE:HA   | 1.22                     | 1.11              |
| 1:H:7:ILE:HA     | 1:H:355:HIS:HA   | 1.28                     | 1.11              |
| 1:F:9:VAL:HG21   | 1:F:448:TYR:HA   | 1.31                     | 1.10              |
| 1:E:72:ASP:HB3   | 1:G:275:GLU:HB2  | 1.35                     | 1.09              |
| 1:D:293:PRO:HG3  | 1:D:385:ILE:HA   | 1.34                     | 1.09              |
| 1:E:9:VAL:HG21   | 1:E:448:TYR:HA   | 1.22                     | 1.09              |
| 1:E:387:LYS:HD3  | 1:F:426:GLU:HG2  | 1.34                     | 1.09              |
| 1:E:7:ILE:HG22   | 1:E:467:PHE:HB2  | 1.29                     | 1.06              |
| 1:D:236:LEU:HD22 | 1:D:242:ILE:HG22 | 1.37                     | 1.06              |
| 1:A:459:VAL:HG12 | 1:A:469:PHE:HA   | 1.32                     | 1.05              |
| 1:E:283:THR:HG22 | 1:E:285:LEU:H    | 1.21                     | 1.05              |
| 1:H:283:THR:HG22 | 1:H:285:LEU:H    | 1.21                     | 1.05              |
| 1:B:9:VAL:HG21   | 1:B:448:TYR:HA   | 1.35                     | 1.04              |
| 1:D:168:ASN:HA   | 1:D:241:THR:HB   | 1.38                     | 1.03              |
| 1:I:283:THR:HG22 | 1:I:285:LEU:H    | 1.21                     | 1.02              |
| 1:G:409:LEU:HD11 | 1:I:410:ASN:HB2  | 1.42                     | 1.02              |
| 1:C:283:THR:HG22 | 1:C:285:LEU:H    | 1.21                     | 1.01              |
| 1:A:181:VAL:HG22 | 1:A:201:VAL:HG21 | 1.41                     | 1.00              |
| 1:B:283:THR:HG22 | 1:B:285:LEU:H    | 1.23                     | 1.00              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:95:TYR:HD2   | 1:D:229:MET:HG3  | 1.26                     | 1.00              |
| 1:F:283:THR:HG22 | 1:F:285:LEU:H    | 1.23                     | 0.99              |
| 1:G:283:THR:HG22 | 1:G:285:LEU:H    | 1.26                     | 0.99              |
| 1:E:73:ARG:HB2   | 1:G:44:LYS:HZ1   | 1.26                     | 0.98              |
| 1:E:259:ILE:HG23 | 1:E:260:SER:H    | 1.30                     | 0.97              |
| 1:H:190:GLN:HE22 | 1:H:249:ASN:HD21 | 1.11                     | 0.97              |
| 1:C:259:ILE:HG23 | 1:C:260:SER:H    | 1.29                     | 0.96              |
| 1:G:7:ILE:HA     | 1:G:355:HIS:HA   | 1.48                     | 0.96              |
| 1:E:9:VAL:O      | 1:E:339:ILE:HD13 | 1.65                     | 0.95              |
| 1:H:384:VAL:HG22 | 1:H:428:LEU:HD21 | 1.48                     | 0.95              |
| 1:B:190:GLN:HE22 | 1:B:249:ASN:HD21 | 1.06                     | 0.95              |
| 1:B:259:ILE:HG23 | 1:B:260:SER:H    | 1.31                     | 0.95              |
| 1:E:141:PHE:CE1  | 1:G:47:LYS:HE2   | 2.02                     | 0.95              |
| 1:C:190:GLN:HE22 | 1:C:249:ASN:HD21 | 1.11                     | 0.95              |
| 1:D:95:TYR:CD2   | 1:D:229:MET:HG3  | 2.03                     | 0.94              |
| 1:B:459:VAL:HG12 | 1:B:469:PHE:HA   | 1.49                     | 0.93              |
| 1:D:23:ILE:HG13  | 1:F:380:LYS:HA   | 1.48                     | 0.93              |
| 1:G:190:GLN:HE22 | 1:G:249:ASN:HD21 | 1.11                     | 0.93              |
| 1:A:410:ASN:HB2  | 1:B:409:LEU:HD11 | 1.50                     | 0.93              |
| 1:E:9:VAL:HG11   | 1:E:448:TYR:HB2  | 1.49                     | 0.93              |
| 1:G:408:ASN:HD21 | 1:I:397:LYS:NZ   | 1.67                     | 0.93              |
| 1:I:459:VAL:HG12 | 1:I:469:PHE:HA   | 1.50                     | 0.92              |
| 1:B:7:ILE:HG22   | 1:B:467:PHE:HB2  | 1.52                     | 0.92              |
| 1:D:283:THR:HG22 | 1:D:285:LEU:H    | 1.33                     | 0.92              |
| 1:D:23:ILE:HD11  | 1:F:380:LYS:HE2  | 1.51                     | 0.92              |
| 1:H:8:CYS:N      | 1:H:354:HIS:O    | 2.02                     | 0.92              |
| 1:H:23:ILE:HG22  | 1:H:434:GLU:HG2  | 1.49                     | 0.92              |
| 1:A:282:GLN:HE21 | 1:A:283:THR:H    | 1.17                     | 0.92              |
| 1:E:190:GLN:HE22 | 1:E:249:ASN:HD21 | 1.10                     | 0.92              |
| 1:F:190:GLN:HE22 | 1:F:249:ASN:HD21 | 1.08                     | 0.92              |
| 1:H:455:LEU:HD23 | 1:H:459:VAL:HG21 | 1.52                     | 0.91              |
| 1:A:197:VAL:HG12 | 1:A:198:GLY:H    | 1.32                     | 0.91              |
| 1:F:259:ILE:HG23 | 1:F:260:SER:H    | 1.35                     | 0.91              |
| 1:E:459:VAL:HG12 | 1:E:469:PHE:HA   | 1.51                     | 0.91              |
| 1:G:8:CYS:O      | 1:G:353:TYR:HA   | 1.70                     | 0.91              |
| 1:I:190:GLN:HE22 | 1:I:249:ASN:HD21 | 1.11                     | 0.90              |
| 1:I:259:ILE:HG23 | 1:I:260:SER:H    | 1.36                     | 0.90              |
| 1:B:259:ILE:HG23 | 1:B:260:SER:N    | 1.86                     | 0.90              |
| 1:I:384:VAL:HG22 | 1:I:428:LEU:HD21 | 1.54                     | 0.90              |
| 1:B:387:LYS:HD3  | 1:C:426:GLU:HG2  | 1.51                     | 0.90              |
| 1:D:459:VAL:HG12 | 1:D:469:PHE:HA   | 1.54                     | 0.89              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:259:ILE:HG23 | 1:F:260:SER:N    | 1.87                     | 0.89              |
| 1:A:282:GLN:HE21 | 1:A:283:THR:N    | 1.71                     | 0.89              |
| 1:H:459:VAL:HG12 | 1:H:469:PHE:HA   | 1.51                     | 0.89              |
| 1:E:259:ILE:HG23 | 1:E:260:SER:N    | 1.86                     | 0.89              |
| 1:A:190:GLN:HE22 | 1:A:249:ASN:HD21 | 1.21                     | 0.89              |
| 1:H:259:ILE:HG23 | 1:H:260:SER:H    | 1.35                     | 0.89              |
| 1:E:9:VAL:HB     | 1:E:448:TYR:HD1  | 1.37                     | 0.89              |
| 1:E:11:TYR:HB3   | 1:E:444:VAL:HG21 | 1.55                     | 0.89              |
| 1:E:72:ASP:HB3   | 1:G:275:GLU:CB   | 2.02                     | 0.88              |
| 1:F:459:VAL:HG12 | 1:F:469:PHE:HA   | 1.53                     | 0.88              |
| 1:C:459:VAL:HG12 | 1:C:469:PHE:HA   | 1.55                     | 0.88              |
| 1:D:279:THR:HB   | 1:D:287:ALA:HB1  | 1.56                     | 0.88              |
| 1:G:259:ILE:HG23 | 1:G:260:SER:H    | 1.36                     | 0.88              |
| 1:D:227:GLY:O    | 1:D:228:ARG:HD3  | 1.73                     | 0.88              |
| 1:C:7:ILE:HG22   | 1:C:467:PHE:HB2  | 1.53                     | 0.88              |
| 1:D:384:VAL:HG22 | 1:D:428:LEU:HD21 | 1.56                     | 0.87              |
| 1:G:243:ASN:HB2  | 1:H:218:THR:O    | 1.74                     | 0.87              |
| 1:C:259:ILE:HG23 | 1:C:260:SER:N    | 1.87                     | 0.87              |
| 1:E:169:ASN:HD22 | 1:E:238:ILE:HA   | 1.39                     | 0.87              |
| 1:D:141:PHE:N    | 1:D:142:ASP:HA   | 1.89                     | 0.87              |
| 1:A:53:PRO:HD2   | 1:A:274:LEU:HD22 | 1.57                     | 0.86              |
| 1:I:23:ILE:HG22  | 1:I:434:GLU:HG2  | 1.58                     | 0.86              |
| 1:B:384:VAL:HG22 | 1:B:428:LEU:HD21 | 1.57                     | 0.86              |
| 1:D:53:PRO:HD2   | 1:D:274:LEU:HD13 | 1.58                     | 0.86              |
| 1:D:108:LEU:HD21 | 1:D:235:ILE:HD11 | 1.57                     | 0.86              |
| 1:E:7:ILE:O      | 1:E:467:PHE:N    | 2.09                     | 0.86              |
| 1:I:259:ILE:HG23 | 1:I:260:SER:N    | 1.90                     | 0.86              |
| 1:E:471:HIS:HB3  | 1:E:494:GLU:HG2  | 1.57                     | 0.86              |
| 1:G:395:VAL:HG22 | 1:H:412:LYS:HE2  | 1.57                     | 0.86              |
| 1:A:184:PRO:HB3  | 1:A:189:GLU:HG2  | 1.58                     | 0.86              |
| 1:E:72:ASP:CB    | 1:G:275:GLU:HB2  | 2.06                     | 0.86              |
| 1:G:459:VAL:CG1  | 1:G:469:PHE:HA   | 2.06                     | 0.85              |
| 1:A:431:MET:O    | 1:A:433:ASN:N    | 2.09                     | 0.85              |
| 1:A:94:CYS:HB2   | 1:A:138:CYS:SG   | 2.17                     | 0.85              |
| 1:G:7:ILE:CD1    | 1:G:482:LYS:HE3  | 2.03                     | 0.85              |
| 1:G:259:ILE:HG23 | 1:G:260:SER:N    | 1.91                     | 0.85              |
| 1:G:283:THR:HB   | 1:G:286:GLY:O    | 1.77                     | 0.85              |
| 1:C:141:PHE:N    | 1:C:142:ASP:HA   | 1.90                     | 0.85              |
| 1:H:259:ILE:HG23 | 1:H:260:SER:N    | 1.91                     | 0.85              |
| 1:C:455:LEU:HD23 | 1:C:459:VAL:HG21 | 1.59                     | 0.84              |
| 1:E:384:VAL:HG22 | 1:E:428:LEU:HD21 | 1.58                     | 0.84              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:283:THR:HB   | 1:E:286:GLY:O    | 1.76                     | 0.84              |
| 1:A:335:ILE:HG13 | 1:A:441:ASP:HA   | 1.59                     | 0.84              |
| 1:A:262:ARG:HH11 | 1:A:262:ARG:HG3  | 1.42                     | 0.84              |
| 1:G:432:GLU:OE1  | 1:G:432:GLU:HA   | 1.76                     | 0.84              |
| 1:D:120:ILE:O    | 1:D:121:LEU:HD23 | 1.78                     | 0.84              |
| 1:E:73:ARG:CB    | 1:G:44:LYS:HZ1   | 1.89                     | 0.84              |
| 1:A:166:SER:HB2  | 1:A:243:ASN:ND2  | 1.93                     | 0.83              |
| 1:B:471:HIS:CB   | 1:B:494:GLU:HG2  | 2.04                     | 0.83              |
| 1:I:462:LEU:HD11 | 1:I:468:GLU:HB2  | 1.60                     | 0.83              |
| 1:H:283:THR:HB   | 1:H:286:GLY:O    | 1.78                     | 0.83              |
| 1:I:141:PHE:N    | 1:I:142:ASP:HA   | 1.93                     | 0.83              |
| 1:D:205:THR:HG22 | 1:D:242:ILE:HA   | 1.59                     | 0.83              |
| 1:C:384:VAL:HG22 | 1:C:428:LEU:HD21 | 1.59                     | 0.83              |
| 1:F:384:VAL:HG22 | 1:F:428:LEU:HD21 | 1.58                     | 0.83              |
| 1:F:462:LEU:HD11 | 1:F:468:GLU:HB2  | 1.61                     | 0.83              |
| 1:H:169:ASN:HD22 | 1:H:238:ILE:HA   | 1.43                     | 0.83              |
| 1:E:141:PHE:HE1  | 1:G:47:LYS:HE2   | 1.43                     | 0.83              |
| 1:I:143:ASN:HD22 | 1:I:143:ASN:N    | 1.77                     | 0.83              |
| 1:G:259:ILE:O    | 1:G:260:SER:HB2  | 1.78                     | 0.83              |
| 1:F:141:PHE:N    | 1:F:142:ASP:HA   | 1.93                     | 0.83              |
| 1:A:399:PHE:CG   | 1:A:407:GLU:HB2  | 2.15                     | 0.82              |
| 1:G:41:HIS:HB3   | 1:G:297:ILE:HD13 | 1.60                     | 0.82              |
| 1:G:141:PHE:N    | 1:G:142:ASP:HA   | 1.93                     | 0.82              |
| 1:E:141:PHE:N    | 1:E:142:ASP:HA   | 1.94                     | 0.82              |
| 1:C:143:ASN:HD22 | 1:C:143:ASN:N    | 1.74                     | 0.82              |
| 1:D:455:LEU:HD23 | 1:D:459:VAL:HG21 | 1.60                     | 0.82              |
| 1:E:455:LEU:HD23 | 1:E:459:VAL:HG21 | 1.59                     | 0.82              |
| 1:F:169:ASN:HD22 | 1:F:238:ILE:HA   | 1.43                     | 0.82              |
| 1:H:41:HIS:HB3   | 1:H:297:ILE:HD13 | 1.60                     | 0.82              |
| 1:F:41:HIS:HB3   | 1:F:297:ILE:HD13 | 1.60                     | 0.82              |
| 1:H:143:ASN:HD22 | 1:H:143:ASN:N    | 1.76                     | 0.82              |
| 1:B:455:LEU:HD23 | 1:B:459:VAL:HG21 | 1.62                     | 0.82              |
| 1:E:9:VAL:HG21   | 1:E:448:TYR:CA   | 2.09                     | 0.82              |
| 1:E:320:LEU:HD12 | 1:E:335:ILE:HD13 | 1.61                     | 0.82              |
| 1:F:185:ASN:HD21 | 1:F:226:GLY:HA3  | 1.45                     | 0.82              |
| 1:F:283:THR:HB   | 1:F:286:GLY:O    | 1.80                     | 0.82              |
| 1:C:185:ASN:HD21 | 1:C:226:GLY:HA3  | 1.43                     | 0.81              |
| 1:E:143:ASN:HD22 | 1:E:143:ASN:N    | 1.75                     | 0.81              |
| 1:E:300:LEU:HA   | 1:E:395:VAL:HB   | 1.60                     | 0.81              |
| 1:G:143:ASN:HD22 | 1:G:143:ASN:N    | 1.76                     | 0.81              |
| 1:I:185:ASN:HD21 | 1:I:226:GLY:HA3  | 1.44                     | 0.81              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:259:ILE:O    | 1:E:260:SER:HB2  | 1.78                     | 0.81              |
| 1:F:7:ILE:HG22   | 1:F:467:PHE:HB2  | 1.61                     | 0.81              |
| 1:B:143:ASN:N    | 1:B:143:ASN:HD22 | 1.75                     | 0.81              |
| 1:B:169:ASN:HD22 | 1:B:238:ILE:HA   | 1.45                     | 0.81              |
| 1:B:185:ASN:HD21 | 1:B:226:GLY:HA3  | 1.43                     | 0.81              |
| 1:G:185:ASN:HD21 | 1:G:226:GLY:HA3  | 1.45                     | 0.81              |
| 1:I:169:ASN:HD22 | 1:I:238:ILE:HA   | 1.46                     | 0.81              |
| 1:F:455:LEU:HD23 | 1:F:459:VAL:HG21 | 1.63                     | 0.81              |
| 1:A:44:LYS:O     | 1:A:286:GLY:HA2  | 1.81                     | 0.81              |
| 1:A:334:ALA:HB2  | 1:A:445:LYS:HB2  | 1.61                     | 0.81              |
| 1:B:141:PHE:N    | 1:B:142:ASP:HA   | 1.93                     | 0.81              |
| 1:B:462:LEU:HD11 | 1:B:468:GLU:HB2  | 1.62                     | 0.81              |
| 1:C:169:ASN:HD22 | 1:C:238:ILE:HA   | 1.44                     | 0.81              |
| 1:H:141:PHE:N    | 1:H:142:ASP:HA   | 1.93                     | 0.81              |
| 1:C:143:ASN:HD21 | 1:G:19:LYS:HD3   | 1.46                     | 0.81              |
| 1:I:455:LEU:HD23 | 1:I:459:VAL:HG21 | 1.61                     | 0.81              |
| 1:H:8:CYS:O      | 1:H:343:TRP:HH2  | 1.65                     | 0.81              |
| 1:B:320:LEU:HD12 | 1:B:335:ILE:HD13 | 1.61                     | 0.80              |
| 1:D:175:MET:HA   | 1:D:257:PHE:O    | 1.81                     | 0.80              |
| 1:D:283:THR:HB   | 1:D:286:GLY:O    | 1.82                     | 0.80              |
| 1:I:283:THR:HB   | 1:I:286:GLY:O    | 1.79                     | 0.80              |
| 1:C:283:THR:HB   | 1:C:286:GLY:O    | 1.81                     | 0.80              |
| 1:D:12:HIS:CD2   | 1:D:13:SER:H     | 1.99                     | 0.80              |
| 1:D:462:LEU:HD11 | 1:D:468:GLU:HB2  | 1.64                     | 0.80              |
| 1:G:387:LYS:NZ   | 1:H:426:GLU:HG2  | 1.97                     | 0.80              |
| 1:I:295:HIS:HD2  | 1:I:297:ILE:H    | 1.27                     | 0.80              |
| 1:D:28:VAL:O     | 1:D:30:VAL:HG13  | 1.80                     | 0.80              |
| 1:B:9:VAL:HB     | 1:B:448:TYR:HD1  | 1.46                     | 0.80              |
| 1:E:380:LYS:HA   | 1:F:23:ILE:HG12  | 1.63                     | 0.80              |
| 1:B:283:THR:HB   | 1:B:286:GLY:O    | 1.81                     | 0.80              |
| 1:H:462:LEU:HD11 | 1:H:468:GLU:HB2  | 1.63                     | 0.79              |
| 1:C:41:HIS:HB3   | 1:C:297:ILE:HD13 | 1.64                     | 0.79              |
| 1:D:168:ASN:CA   | 1:D:241:THR:HB   | 2.12                     | 0.79              |
| 1:E:41:HIS:HB3   | 1:E:297:ILE:HD13 | 1.63                     | 0.79              |
| 1:E:471:HIS:CB   | 1:E:494:GLU:HG2  | 2.12                     | 0.79              |
| 1:G:8:CYS:O      | 1:G:354:HIS:N    | 2.14                     | 0.79              |
| 1:A:346:MET:HE3  | 1:A:352:GLY:HA3  | 1.64                     | 0.79              |
| 1:A:56:LEU:HD12  | 1:A:85:GLU:HB2   | 1.64                     | 0.79              |
| 1:B:259:ILE:O    | 1:B:260:SER:HB2  | 1.80                     | 0.79              |
| 1:E:293:PRO:HG3  | 1:E:385:ILE:HA   | 1.64                     | 0.79              |
| 1:F:143:ASN:HD22 | 1:F:143:ASN:N    | 1.77                     | 0.79              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:462:LEU:HD11 | 1:C:468:GLU:HB2  | 1.62                     | 0.79              |
| 1:D:80:TRP:CE2   | 1:D:112:VAL:HG22 | 2.17                     | 0.79              |
| 1:E:185:ASN:HD21 | 1:E:226:GLY:HA3  | 1.46                     | 0.79              |
| 1:G:169:ASN:HD22 | 1:G:238:ILE:HA   | 1.46                     | 0.79              |
| 1:E:320:LEU:CD1  | 1:E:335:ILE:HD13 | 2.12                     | 0.79              |
| 1:A:321:ARG:HH21 | 1:A:437:LEU:HD23 | 1.48                     | 0.79              |
| 1:E:295:HIS:HD2  | 1:E:297:ILE:H    | 1.30                     | 0.79              |
| 1:C:295:HIS:HD2  | 1:C:297:ILE:H    | 1.31                     | 0.78              |
| 1:D:218:THR:O    | 1:F:243:ASN:HB2  | 1.82                     | 0.78              |
| 1:E:11:TYR:CD2   | 1:E:335:ILE:HG12 | 2.17                     | 0.78              |
| 1:F:11:TYR:CE2   | 1:F:335:ILE:HA   | 2.19                     | 0.78              |
| 1:H:185:ASN:HD21 | 1:H:226:GLY:HA3  | 1.46                     | 0.78              |
| 1:D:41:HIS:CD2   | 1:D:297:ILE:HD13 | 2.18                     | 0.78              |
| 1:E:379:ASN:HD22 | 1:F:26:ARG:NH1   | 1.81                     | 0.78              |
| 1:D:36:ILE:HA    | 1:D:292:LEU:HD22 | 1.63                     | 0.78              |
| 1:E:462:LEU:HD11 | 1:E:468:GLU:HB2  | 1.63                     | 0.78              |
| 1:F:295:HIS:HD2  | 1:F:297:ILE:H    | 1.30                     | 0.78              |
| 1:B:41:HIS:HB3   | 1:B:297:ILE:HD13 | 1.66                     | 0.78              |
| 1:G:493:GLU:O    | 1:G:494:GLU:HB2  | 1.81                     | 0.78              |
| 1:B:11:TYR:CE2   | 1:B:335:ILE:HA   | 2.19                     | 0.78              |
| 1:H:7:ILE:HG13   | 1:H:355:HIS:HB3  | 1.64                     | 0.77              |
| 1:A:451:VAL:O    | 1:A:467:PHE:HE2  | 1.67                     | 0.77              |
| 1:E:7:ILE:HG22   | 1:E:467:PHE:CB   | 2.11                     | 0.77              |
| 1:G:458:ASN:O    | 1:G:459:VAL:HG13 | 1.84                     | 0.77              |
| 1:D:202:SER:OG   | 1:E:217:ALA:HB2  | 1.84                     | 0.77              |
| 1:C:9:VAL:O      | 1:C:339:ILE:HD13 | 1.85                     | 0.77              |
| 1:C:324:PRO:O    | 1:C:325:GLN:HB2  | 1.85                     | 0.77              |
| 1:D:187:GLU:O    | 1:D:190:GLN:HB3  | 1.84                     | 0.77              |
| 1:A:47:LYS:HB3   | 1:A:51:ILE:O     | 1.84                     | 0.76              |
| 1:A:282:GLN:HE21 | 1:A:282:GLN:HA   | 1.50                     | 0.76              |
| 1:F:9:VAL:O      | 1:F:339:ILE:HD13 | 1.85                     | 0.76              |
| 1:C:259:ILE:O    | 1:C:260:SER:HB2  | 1.86                     | 0.76              |
| 1:F:320:LEU:HB3  | 1:F:440:HIS:CG   | 2.20                     | 0.76              |
| 1:F:259:ILE:O    | 1:F:260:SER:HB2  | 1.82                     | 0.76              |
| 1:I:259:ILE:O    | 1:I:260:SER:HB2  | 1.82                     | 0.76              |
| 1:A:332:PHE:CE2  | 1:A:442:SER:HB2  | 2.21                     | 0.76              |
| 1:H:7:ILE:HA     | 1:H:355:HIS:CA   | 2.12                     | 0.75              |
| 1:C:11:TYR:CE2   | 1:C:335:ILE:HA   | 2.22                     | 0.75              |
| 1:I:41:HIS:HB3   | 1:I:297:ILE:HD13 | 1.66                     | 0.75              |
| 1:C:143:ASN:HD21 | 1:G:19:LYS:CD    | 1.99                     | 0.75              |
| 1:A:12:HIS:HB2   | 1:A:350:TRP:O    | 1.86                     | 0.75              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:9:VAL:HB     | 1:C:448:TYR:HD1  | 1.51                     | 0.75              |
| 1:A:323:VAL:N    | 1:A:324:PRO:HD3  | 2.02                     | 0.75              |
| 1:D:26:ARG:HH11  | 1:F:379:ASN:HD22 | 1.35                     | 0.75              |
| 1:E:320:LEU:HB3  | 1:E:440:HIS:CG   | 2.22                     | 0.75              |
| 1:A:302:ILE:HG23 | 1:A:394:ALA:HB2  | 1.69                     | 0.75              |
| 1:A:307:LYS:HE2  | 1:A:421:TRP:CE2  | 2.22                     | 0.75              |
| 1:E:202:SER:HB2  | 1:F:217:ALA:HB2  | 1.68                     | 0.75              |
| 1:A:282:GLN:NE2  | 1:A:283:THR:H    | 1.84                     | 0.75              |
| 1:I:283:THR:CG2  | 1:I:285:LEU:H    | 2.00                     | 0.75              |
| 1:A:66:LEU:O     | 1:A:149:ASN:HB2  | 1.86                     | 0.74              |
| 1:C:320:LEU:HB3  | 1:C:440:HIS:CG   | 2.22                     | 0.74              |
| 1:G:211:ARG:NH1  | 1:H:216:ILE:HB   | 2.00                     | 0.74              |
| 1:I:283:THR:HG22 | 1:I:285:LEU:N    | 2.00                     | 0.74              |
| 1:B:320:LEU:HB3  | 1:B:440:HIS:CG   | 2.22                     | 0.74              |
| 1:E:376:GLY:C    | 1:F:24:LEU:HD22  | 2.07                     | 0.74              |
| 1:A:38:GLU:OE1   | 1:A:290:THR:HB   | 1.88                     | 0.73              |
| 1:B:190:GLN:HE22 | 1:B:249:ASN:ND2  | 1.83                     | 0.73              |
| 1:H:8:CYS:O      | 1:H:354:HIS:N    | 2.20                     | 0.73              |
| 1:F:189:GLU:OE2  | 2:J:2:SIA:H92    | 1.87                     | 0.73              |
| 1:G:7:ILE:HD11   | 1:G:482:LYS:CE   | 2.08                     | 0.73              |
| 1:G:409:LEU:HD11 | 1:I:410:ASN:CB   | 2.16                     | 0.73              |
| 1:A:58:ASP:HB3   | 1:A:86:LYS:HD3   | 1.70                     | 0.73              |
| 1:D:22:THR:HB    | 1:D:434:GLU:OE2  | 1.89                     | 0.73              |
| 1:H:283:THR:HG22 | 1:H:285:LEU:N    | 2.00                     | 0.73              |
| 1:A:19:LYS:HZ3   | 1:A:27:ASN:HB3   | 1.53                     | 0.73              |
| 1:D:45:LEU:HD11  | 1:D:270:THR:HG21 | 1.71                     | 0.73              |
| 1:H:259:ILE:O    | 1:H:260:SER:HB2  | 1.88                     | 0.73              |
| 1:E:283:THR:HG22 | 1:E:285:LEU:N    | 2.02                     | 0.73              |
| 1:F:320:LEU:HD12 | 1:F:335:ILE:HD13 | 1.71                     | 0.73              |
| 1:B:278:GLU:HG3  | 1:B:279:THR:N    | 2.04                     | 0.72              |
| 1:G:308:TYR:CD2  | 1:G:418:LEU:HD11 | 2.24                     | 0.72              |
| 1:B:7:ILE:O      | 1:B:467:PHE:N    | 2.22                     | 0.72              |
| 1:B:283:THR:HG22 | 1:B:285:LEU:N    | 2.02                     | 0.72              |
| 1:E:278:GLU:HG3  | 1:E:279:THR:N    | 2.03                     | 0.72              |
| 1:H:295:HIS:HD2  | 1:H:297:ILE:H    | 1.36                     | 0.72              |
| 1:C:283:THR:HG22 | 1:C:285:LEU:N    | 2.01                     | 0.72              |
| 1:G:8:CYS:HB2    | 1:G:354:HIS:HB3  | 1.69                     | 0.72              |
| 1:B:190:GLN:NE2  | 1:B:249:ASN:HD21 | 1.85                     | 0.72              |
| 1:B:283:THR:CG2  | 1:B:285:LEU:H    | 2.02                     | 0.72              |
| 1:F:190:GLN:HE22 | 1:F:249:ASN:ND2  | 1.86                     | 0.72              |
| 1:D:26:ARG:HD3   | 1:F:379:ASN:HD22 | 1.53                     | 0.72              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:283:THR:HG22 | 1:F:285:LEU:N    | 2.03                     | 0.72              |
| 1:A:493:GLU:O    | 1:A:494:GLU:HB2  | 1.90                     | 0.72              |
| 1:E:320:LEU:HB3  | 1:E:440:HIS:CB   | 2.20                     | 0.71              |
| 1:B:323:VAL:HG11 | 1:B:336:ALA:HB2  | 1.72                     | 0.71              |
| 1:C:9:VAL:HG11   | 1:C:448:TYR:HB2  | 1.72                     | 0.71              |
| 1:E:11:TYR:CE1   | 1:E:335:ILE:HG23 | 2.25                     | 0.71              |
| 1:A:158:SER:O    | 1:A:195:GLN:HG2  | 1.89                     | 0.71              |
| 1:B:295:HIS:HD2  | 1:B:297:ILE:H    | 1.37                     | 0.71              |
| 1:E:141:PHE:CZ   | 1:G:47:LYS:HE2   | 2.25                     | 0.71              |
| 1:E:379:ASN:HD22 | 1:F:26:ARG:CZ    | 2.03                     | 0.71              |
| 1:A:380:LYS:HG3  | 1:A:380:LYS:O    | 1.87                     | 0.71              |
| 1:C:143:ASN:ND2  | 1:G:19:LYS:HE3   | 2.05                     | 0.71              |
| 1:C:199:ALA:HB3  | 1:C:249:ASN:HD22 | 1.56                     | 0.71              |
| 1:C:283:THR:CG2  | 1:C:285:LEU:H    | 2.00                     | 0.71              |
| 1:F:320:LEU:HD23 | 1:F:320:LEU:H    | 1.55                     | 0.71              |
| 1:D:282:GLN:HG3  | 1:D:283:THR:H    | 1.56                     | 0.70              |
| 1:G:8:CYS:O      | 1:G:353:TYR:CA   | 2.39                     | 0.70              |
| 1:G:295:HIS:HD2  | 1:G:297:ILE:H    | 1.36                     | 0.70              |
| 1:I:190:GLN:HE22 | 1:I:249:ASN:ND2  | 1.88                     | 0.70              |
| 1:I:324:PRO:O    | 1:I:325:GLN:HB2  | 1.90                     | 0.70              |
| 1:C:320:LEU:HD12 | 1:C:335:ILE:HD13 | 1.73                     | 0.70              |
| 1:G:382:ASN:O    | 1:G:386:GLU:HG3  | 1.91                     | 0.70              |
| 1:H:7:ILE:CA     | 1:H:355:HIS:HA   | 2.16                     | 0.70              |
| 1:A:99:PHE:HZ    | 1:A:178:ILE:HD13 | 1.57                     | 0.70              |
| 1:A:282:GLN:HE21 | 1:A:282:GLN:CA   | 2.03                     | 0.70              |
| 1:B:9:VAL:HG11   | 1:B:448:TYR:HB2  | 1.73                     | 0.70              |
| 1:H:283:THR:CG2  | 1:H:285:LEU:H    | 2.01                     | 0.70              |
| 1:D:41:HIS:HD2   | 1:D:297:ILE:HD13 | 1.56                     | 0.70              |
| 1:F:9:VAL:HB     | 1:F:448:TYR:HD1  | 1.56                     | 0.70              |
| 1:E:320:LEU:HD23 | 1:E:320:LEU:H    | 1.56                     | 0.70              |
| 1:A:208:LEU:HD12 | 1:A:209:ASN:H    | 1.57                     | 0.70              |
| 1:B:379:ASN:HD22 | 1:C:26:ARG:CZ    | 2.05                     | 0.69              |
| 1:D:139:ALA:HB1  | 1:D:142:ASP:HB2  | 1.73                     | 0.69              |
| 1:H:496:LYS:HD2  | 1:H:496:LYS:N    | 2.07                     | 0.69              |
| 1:A:201:VAL:HG13 | 1:A:250:LEU:HB2  | 1.74                     | 0.69              |
| 1:G:480:SER:HB2  | 1:G:485:THR:O    | 1.91                     | 0.69              |
| 1:C:293:PRO:HG3  | 1:C:385:ILE:HA   | 1.75                     | 0.69              |
| 1:E:387:LYS:CD   | 1:F:426:GLU:HG2  | 2.19                     | 0.69              |
| 1:A:197:VAL:HG12 | 1:A:198:GLY:N    | 2.08                     | 0.69              |
| 1:F:283:THR:CG2  | 1:F:285:LEU:H    | 2.01                     | 0.69              |
| 1:E:8:CYS:HA     | 1:E:466:CYS:HA   | 1.74                     | 0.69              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:9:VAL:CB     | 1:E:448:TYR:HD1  | 2.04                     | 0.69              |
| 1:E:190:GLN:HE22 | 1:E:249:ASN:ND2  | 1.88                     | 0.69              |
| 1:G:408:ASN:HD21 | 1:I:397:LYS:HZ3  | 1.41                     | 0.69              |
| 1:H:24:LEU:HD12  | 1:H:434:GLU:OE1  | 1.93                     | 0.69              |
| 1:G:283:THR:HG22 | 1:G:285:LEU:N    | 2.05                     | 0.69              |
| 1:B:379:ASN:HD22 | 1:C:26:ARG:NH1   | 1.90                     | 0.69              |
| 1:E:9:VAL:CG2    | 1:E:448:TYR:HA   | 2.12                     | 0.69              |
| 1:E:11:TYR:CZ    | 1:E:335:ILE:HA   | 2.27                     | 0.69              |
| 1:F:300:LEU:HA   | 1:F:395:VAL:HB   | 1.74                     | 0.68              |
| 1:A:97:GLY:HA3   | 1:A:229:MET:O    | 1.93                     | 0.68              |
| 1:E:190:GLN:NE2  | 1:E:249:ASN:HD21 | 1.89                     | 0.68              |
| 1:H:199:ALA:HB3  | 1:H:249:ASN:HD22 | 1.58                     | 0.68              |
| 1:D:426:GLU:HG2  | 1:F:387:LYS:HD3  | 1.74                     | 0.68              |
| 1:I:19:LYS:HE2   | 1:I:29:THR:OG1   | 1.93                     | 0.68              |
| 1:A:203:VAL:HG22 | 1:A:244:PHE:CD1  | 2.29                     | 0.68              |
| 1:A:95:TYR:CE1   | 1:A:225:GLN:HG3  | 2.29                     | 0.68              |
| 1:E:9:VAL:HB     | 1:E:448:TYR:CD1  | 2.26                     | 0.68              |
| 1:G:346:MET:SD   | 1:G:352:GLY:HA3  | 2.34                     | 0.68              |
| 1:G:479:ASN:O    | 1:G:483:ASN:HB2  | 1.92                     | 0.68              |
| 1:I:199:ALA:HB3  | 1:I:249:ASN:HD22 | 1.58                     | 0.68              |
| 1:A:14:ASN:H     | 1:A:322:ASN:HD21 | 1.40                     | 0.68              |
| 1:A:281:CYS:HB2  | 1:A:304:GLU:O    | 1.94                     | 0.68              |
| 1:D:387:LYS:HD3  | 1:E:426:GLU:HG2  | 1.76                     | 0.68              |
| 1:G:448:TYR:CE1  | 1:G:465:GLY:HA2  | 2.29                     | 0.68              |
| 1:A:410:ASN:HB2  | 1:B:409:LEU:CD1  | 2.23                     | 0.67              |
| 1:F:190:GLN:NE2  | 1:F:249:ASN:HD21 | 1.88                     | 0.67              |
| 1:I:190:GLN:NE2  | 1:I:249:ASN:HD21 | 1.90                     | 0.67              |
| 1:A:154:THR:O    | 1:A:155:LYS:HB3  | 1.94                     | 0.67              |
| 1:B:293:PRO:CG   | 1:B:385:ILE:HG12 | 2.24                     | 0.67              |
| 1:G:190:GLN:HE22 | 1:G:249:ASN:ND2  | 1.89                     | 0.67              |
| 1:A:282:GLN:HA   | 1:A:282:GLN:NE2  | 2.09                     | 0.67              |
| 1:C:143:ASN:ND2  | 1:G:19:LYS:HD3   | 2.08                     | 0.67              |
| 1:C:190:GLN:HE22 | 1:C:249:ASN:ND2  | 1.88                     | 0.67              |
| 1:A:205:THR:HG22 | 1:A:242:ILE:HA   | 1.75                     | 0.67              |
| 1:D:26:ARG:HD3   | 1:F:379:ASN:ND2  | 2.09                     | 0.67              |
| 1:E:283:THR:CG2  | 1:E:285:LEU:H    | 2.03                     | 0.67              |
| 1:G:199:ALA:HB3  | 1:G:249:ASN:HD22 | 1.59                     | 0.67              |
| 1:F:199:ALA:HB3  | 1:F:249:ASN:HD22 | 1.60                     | 0.67              |
| 1:H:459:VAL:CG1  | 1:H:469:PHE:HA   | 2.25                     | 0.67              |
| 1:A:379:ASN:HD22 | 1:B:26:ARG:NH1   | 1.91                     | 0.67              |
| 1:G:332:PHE:HB2  | 1:G:441:ASP:OD2  | 1.94                     | 0.67              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:95:TYR:CD2   | 1:H:229:MET:HG3  | 2.30                     | 0.67              |
| 1:I:320:LEU:HD23 | 1:I:320:LEU:H    | 1.60                     | 0.67              |
| 1:G:259:ILE:O    | 1:G:260:SER:CB   | 2.43                     | 0.67              |
| 1:H:355:HIS:H    | 1:H:355:HIS:CD2  | 2.12                     | 0.67              |
| 1:I:278:GLU:HG3  | 1:I:279:THR:N    | 2.09                     | 0.67              |
| 1:A:455:LEU:HB3  | 1:A:459:VAL:CG2  | 2.25                     | 0.67              |
| 1:F:293:PRO:HG3  | 1:F:385:ILE:HA   | 1.77                     | 0.67              |
| 1:A:302:ILE:HG23 | 1:A:394:ALA:CB   | 2.24                     | 0.67              |
| 1:B:320:LEU:CD1  | 1:B:335:ILE:HD13 | 2.24                     | 0.67              |
| 1:F:133:GLY:HA3  | 2:J:2:SIA:H113   | 1.75                     | 0.67              |
| 1:B:199:ALA:HB3  | 1:B:249:ASN:HD22 | 1.59                     | 0.66              |
| 1:D:53:PRO:CD    | 1:D:274:LEU:HD13 | 2.25                     | 0.66              |
| 1:E:199:ALA:HB3  | 1:E:249:ASN:HD22 | 1.58                     | 0.66              |
| 1:G:425:ALA:O    | 1:G:427:LEU:N    | 2.27                     | 0.66              |
| 1:A:486:TYR:CG   | 1:A:487:ASP:N    | 2.64                     | 0.66              |
| 1:F:9:VAL:HG11   | 1:F:448:TYR:HB2  | 1.76                     | 0.66              |
| 1:H:8:CYS:O      | 1:H:343:TRP:CH2  | 2.48                     | 0.66              |
| 1:D:12:HIS:CG    | 1:D:13:SER:H     | 2.14                     | 0.66              |
| 1:I:459:VAL:CG1  | 1:I:469:PHE:HA   | 2.26                     | 0.66              |
| 1:A:9:VAL:HG21   | 1:A:448:TYR:HA   | 1.77                     | 0.66              |
| 1:C:278:GLU:HG3  | 1:C:279:THR:N    | 2.11                     | 0.66              |
| 1:A:399:PHE:CD2  | 1:A:407:GLU:HB2  | 2.30                     | 0.66              |
| 1:A:457:ASP:C    | 1:A:459:VAL:H    | 1.99                     | 0.66              |
| 1:B:320:LEU:HD23 | 1:B:320:LEU:H    | 1.61                     | 0.66              |
| 1:C:190:GLN:NE2  | 1:C:249:ASN:HD21 | 1.89                     | 0.66              |
| 1:D:248:GLY:O    | 1:D:249:ASN:HB2  | 1.94                     | 0.66              |
| 1:A:12:HIS:CD2   | 1:A:13:SER:N     | 2.64                     | 0.66              |
| 1:A:248:GLY:C    | 1:A:249:ASN:HD22 | 1.99                     | 0.66              |
| 1:A:476:GLU:O    | 1:A:480:SER:HB3  | 1.95                     | 0.66              |
| 1:G:320:LEU:HD23 | 1:G:320:LEU:H    | 1.60                     | 0.66              |
| 1:H:190:GLN:HE22 | 1:H:249:ASN:ND2  | 1.89                     | 0.66              |
| 1:E:95:TYR:CD2   | 1:E:229:MET:HG3  | 2.31                     | 0.66              |
| 1:G:283:THR:CG2  | 1:G:285:LEU:H    | 2.05                     | 0.66              |
| 1:A:320:LEU:HD23 | 1:A:320:LEU:H    | 1.61                     | 0.66              |
| 1:E:323:VAL:HG11 | 1:E:336:ALA:HB2  | 1.78                     | 0.66              |
| 1:A:166:SER:HB2  | 1:A:243:ASN:HD22 | 1.56                     | 0.66              |
| 1:G:346:MET:HE1  | 1:G:365:ALA:CA   | 2.25                     | 0.66              |
| 1:D:45:LEU:HA    | 1:D:282:GLN:NE2  | 2.11                     | 0.65              |
| 1:F:479:ASN:O    | 1:F:483:ASN:HB2  | 1.96                     | 0.65              |
| 1:G:211:ARG:HH11 | 1:H:216:ILE:HB   | 1.61                     | 0.65              |
| 1:G:345:GLY:O    | 1:G:347:VAL:HG22 | 1.97                     | 0.65              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:408:ASN:HD21 | 1:I:397:LYS:HZ1  | 1.44                     | 0.65              |
| 1:I:95:TYR:CD2   | 1:I:229:MET:HG3  | 2.31                     | 0.65              |
| 1:B:431:MET:O    | 1:B:432:GLU:HB2  | 1.96                     | 0.65              |
| 1:D:109:ILE:HG22 | 1:D:259:ILE:HD11 | 1.77                     | 0.65              |
| 1:D:182:HIS:O    | 1:D:184:PRO:HD3  | 1.96                     | 0.65              |
| 1:E:11:TYR:HB3   | 1:E:444:VAL:CG2  | 2.25                     | 0.65              |
| 1:H:8:CYS:H      | 1:H:354:HIS:C    | 2.00                     | 0.65              |
| 1:H:190:GLN:NE2  | 1:H:249:ASN:HD21 | 1.91                     | 0.65              |
| 1:E:259:ILE:O    | 1:E:260:SER:CB   | 2.44                     | 0.65              |
| 1:G:95:TYR:CD2   | 1:G:229:MET:HG3  | 2.32                     | 0.65              |
| 1:D:186:ASP:HA   | 1:D:216:ILE:HG21 | 1.77                     | 0.65              |
| 1:E:73:ARG:HD2   | 1:G:276:ASN:O    | 1.96                     | 0.65              |
| 1:E:211:ARG:HD2  | 1:F:216:ILE:O    | 1.96                     | 0.65              |
| 1:F:278:GLU:HG3  | 1:F:279:THR:N    | 2.12                     | 0.65              |
| 1:G:379:ASN:HB3  | 1:H:26:ARG:CZ    | 2.26                     | 0.65              |
| 1:A:38:GLU:HG2   | 1:A:290:THR:HG21 | 1.78                     | 0.65              |
| 1:C:11:TYR:HB3   | 1:C:444:VAL:HG21 | 1.77                     | 0.65              |
| 1:A:343:TRP:CZ3  | 1:A:354:HIS:HB2  | 2.32                     | 0.65              |
| 1:B:459:VAL:CG1  | 1:B:469:PHE:HA   | 2.24                     | 0.65              |
| 1:C:7:ILE:O      | 1:C:467:PHE:N    | 2.28                     | 0.65              |
| 1:D:32:HIS:CE1   | 1:D:350:TRP:HE1  | 2.15                     | 0.65              |
| 1:D:479:ASN:O    | 1:D:483:ASN:HB2  | 1.97                     | 0.65              |
| 1:F:133:GLY:CA   | 2:J:2:SIA:H113   | 2.27                     | 0.65              |
| 1:F:320:LEU:HB3  | 1:F:440:HIS:CB   | 2.27                     | 0.65              |
| 1:G:166:SER:HB2  | 1:G:243:ASN:HD22 | 1.62                     | 0.65              |
| 1:A:23:ILE:HD11  | 1:C:380:LYS:HG3  | 1.79                     | 0.65              |
| 1:A:41:HIS:HB3   | 1:A:297:ILE:HD13 | 1.78                     | 0.65              |
| 1:A:105:LEU:HB2  | 1:A:233:TRP:CE2  | 2.32                     | 0.65              |
| 1:C:320:LEU:HD23 | 1:C:320:LEU:H    | 1.61                     | 0.65              |
| 1:D:24:LEU:HD12  | 1:D:434:GLU:CD   | 2.16                     | 0.65              |
| 1:D:182:HIS:CD2  | 1:D:194:TYR:OH   | 2.50                     | 0.65              |
| 1:D:238:ILE:HG23 | 1:D:239:TRP:CD2  | 2.33                     | 0.64              |
| 1:F:11:TYR:HB3   | 1:F:444:VAL:HG21 | 1.78                     | 0.64              |
| 1:G:367:LYS:HA   | 1:G:367:LYS:HE2  | 1.79                     | 0.64              |
| 1:H:278:GLU:HG3  | 1:H:279:THR:N    | 2.12                     | 0.64              |
| 1:H:293:PRO:HB2  | 1:H:294:PHE:CE2  | 2.32                     | 0.64              |
| 1:A:455:LEU:HB3  | 1:A:459:VAL:HG22 | 1.79                     | 0.64              |
| 1:B:202:SER:HB2  | 1:C:217:ALA:HB2  | 1.80                     | 0.64              |
| 1:H:455:LEU:HB3  | 1:H:459:VAL:HG22 | 1.78                     | 0.64              |
| 1:C:78:PRO:HG2   | 1:E:114:HIS:CE1  | 2.32                     | 0.64              |
| 1:G:379:ASN:HB3  | 1:H:26:ARG:NH2   | 2.13                     | 0.64              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:387:LYS:HD2  | 1:B:426:GLU:HG2  | 1.78                     | 0.64              |
| 1:D:111:SER:O    | 1:D:261:LYS:HE3  | 1.98                     | 0.64              |
| 1:D:431:MET:O    | 1:D:432:GLU:HB2  | 1.97                     | 0.64              |
| 1:E:159:ASN:O    | 1:E:161:PRO:HD3  | 1.98                     | 0.64              |
| 1:H:479:ASN:O    | 1:H:483:ASN:HB2  | 1.98                     | 0.64              |
| 1:E:11:TYR:CZ    | 1:E:335:ILE:HG23 | 2.32                     | 0.64              |
| 1:H:293:PRO:HB2  | 1:H:294:PHE:CD2  | 2.32                     | 0.64              |
| 1:D:120:ILE:HG12 | 1:D:256:GLY:H    | 1.63                     | 0.64              |
| 1:D:282:GLN:HG3  | 1:D:283:THR:N    | 2.13                     | 0.64              |
| 1:E:7:ILE:HG23   | 1:E:467:PHE:CD2  | 2.33                     | 0.64              |
| 1:I:431:MET:O    | 1:I:432:GLU:HB2  | 1.98                     | 0.64              |
| 1:A:26:ARG:HD3   | 1:C:379:ASN:ND2  | 2.13                     | 0.64              |
| 1:A:451:VAL:O    | 1:A:467:PHE:CE2  | 2.51                     | 0.64              |
| 1:H:10:GLY:N     | 1:H:343:TRP:CH2  | 2.65                     | 0.64              |
| 1:I:159:ASN:O    | 1:I:161:PRO:HD3  | 1.98                     | 0.64              |
| 1:C:199:ALA:HB3  | 1:C:249:ASN:ND2  | 2.13                     | 0.64              |
| 1:E:459:VAL:CG1  | 1:E:469:PHE:HA   | 2.26                     | 0.64              |
| 1:E:479:ASN:O    | 1:E:483:ASN:HB2  | 1.98                     | 0.63              |
| 1:F:259:ILE:O    | 1:F:260:SER:CB   | 2.46                     | 0.63              |
| 1:A:108:LEU:HD12 | 1:A:261:LYS:HD2  | 1.80                     | 0.63              |
| 1:B:293:PRO:HG3  | 1:B:385:ILE:HA   | 1.80                     | 0.63              |
| 1:D:37:LEU:HB2   | 1:D:314:LEU:HB2  | 1.80                     | 0.63              |
| 1:D:294:PHE:CE1  | 1:D:425:ALA:HB2  | 2.33                     | 0.63              |
| 1:G:19:LYS:HE2   | 1:G:29:THR:OG1   | 1.97                     | 0.63              |
| 1:B:320:LEU:HB3  | 1:B:440:HIS:CB   | 2.27                     | 0.63              |
| 1:B:479:ASN:O    | 1:B:483:ASN:HB2  | 1.98                     | 0.63              |
| 1:C:455:LEU:HB3  | 1:C:459:VAL:HG22 | 1.80                     | 0.63              |
| 1:E:143:ASN:N    | 1:E:143:ASN:ND2  | 2.45                     | 0.63              |
| 1:G:293:PRO:HB2  | 1:G:294:PHE:CE2  | 2.33                     | 0.63              |
| 1:A:413:MET:HG2  | 1:A:414:GLU:N    | 2.13                     | 0.63              |
| 1:E:73:ARG:CB    | 1:G:44:LYS:NZ    | 2.61                     | 0.63              |
| 1:I:259:ILE:O    | 1:I:260:SER:CB   | 2.46                     | 0.63              |
| 1:A:334:ALA:HB3  | 1:A:441:ASP:OD1  | 1.98                     | 0.63              |
| 1:D:108:LEU:HD12 | 1:D:261:LYS:HD2  | 1.80                     | 0.63              |
| 1:E:7:ILE:N      | 1:E:467:PHE:O    | 2.31                     | 0.63              |
| 1:E:11:TYR:OH    | 1:E:336:ALA:N    | 2.24                     | 0.63              |
| 1:E:307:LYS:HE2  | 1:E:421:TRP:CE2  | 2.34                     | 0.63              |
| 1:G:159:ASN:O    | 1:G:161:PRO:HD3  | 1.98                     | 0.63              |
| 1:A:42:ASN:HB2   | 1:A:287:ALA:HB3  | 1.79                     | 0.63              |
| 1:A:478:MET:C    | 1:A:480:SER:H    | 2.00                     | 0.63              |
| 1:C:335:ILE:HG13 | 1:C:441:ASP:HA   | 1.81                     | 0.63              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:455:LEU:HB3  | 1:E:459:VAL:HG22 | 1.80                     | 0.63              |
| 1:I:479:ASN:O    | 1:I:483:ASN:HB2  | 1.98                     | 0.63              |
| 1:D:109:ILE:CG2  | 1:D:259:ILE:HD11 | 2.29                     | 0.63              |
| 1:B:259:ILE:O    | 1:B:260:SER:CB   | 2.46                     | 0.63              |
| 1:C:141:PHE:O    | 1:G:19:LYS:HB2   | 1.99                     | 0.63              |
| 1:A:10:GLY:HA3   | 1:A:343:TRP:CZ2  | 2.34                     | 0.62              |
| 1:B:293:PRO:HB2  | 1:B:294:PHE:CD2  | 2.34                     | 0.62              |
| 1:C:143:ASN:N    | 1:C:143:ASN:ND2  | 2.46                     | 0.62              |
| 1:D:288:ILE:HG12 | 1:D:297:ILE:HD12 | 1.81                     | 0.62              |
| 1:C:389:ASN:HD22 | 1:C:390:THR:H    | 1.47                     | 0.62              |
| 1:C:479:ASN:O    | 1:C:483:ASN:HB2  | 1.98                     | 0.62              |
| 1:D:182:HIS:HD2  | 1:D:194:TYR:OH   | 1.82                     | 0.62              |
| 1:F:389:ASN:HD22 | 1:F:390:THR:H    | 1.47                     | 0.62              |
| 1:A:379:ASN:HD22 | 1:B:26:ARG:CZ    | 2.12                     | 0.62              |
| 1:A:431:MET:C    | 1:A:433:ASN:H    | 2.01                     | 0.62              |
| 1:D:205:THR:CG2  | 1:D:242:ILE:HA   | 2.29                     | 0.62              |
| 1:D:120:ILE:HD13 | 1:D:177:ILE:HD13 | 1.80                     | 0.62              |
| 1:D:298:HIS:ND1  | 1:D:299:PRO:HD2  | 2.13                     | 0.62              |
| 1:F:455:LEU:HB3  | 1:F:459:VAL:HG22 | 1.82                     | 0.62              |
| 1:G:53:PRO:HD2   | 1:G:274:LEU:HD13 | 1.81                     | 0.62              |
| 1:A:335:ILE:CG1  | 1:A:441:ASP:HA   | 2.28                     | 0.62              |
| 1:A:462:LEU:HD13 | 1:A:466:CYS:O    | 1.99                     | 0.62              |
| 1:H:23:ILE:HG22  | 1:H:434:GLU:CG   | 2.27                     | 0.62              |
| 1:I:55:GLU:OE2   | 1:I:273:THR:HG22 | 1.99                     | 0.62              |
| 1:A:183:HIS:HB3  | 1:A:219:ARG:NH2  | 2.15                     | 0.62              |
| 1:G:293:PRO:HB2  | 1:G:294:PHE:CD2  | 2.35                     | 0.62              |
| 1:H:431:MET:O    | 1:H:432:GLU:HB2  | 1.99                     | 0.62              |
| 1:A:51:ILE:HG22  | 1:A:52:PRO:CD    | 2.30                     | 0.62              |
| 1:B:295:HIS:CE1  | 1:B:308:TYR:HB2  | 2.35                     | 0.62              |
| 1:C:320:LEU:HB3  | 1:C:440:HIS:CB   | 2.29                     | 0.62              |
| 1:D:459:VAL:CG1  | 1:D:469:PHE:HA   | 2.30                     | 0.62              |
| 1:F:159:ASN:O    | 1:F:161:PRO:HD3  | 2.00                     | 0.62              |
| 1:F:199:ALA:HB3  | 1:F:249:ASN:ND2  | 2.15                     | 0.62              |
| 1:G:455:LEU:HB3  | 1:G:459:VAL:CG2  | 2.30                     | 0.62              |
| 1:A:168:ASN:CA   | 1:A:241:THR:HG22 | 2.30                     | 0.62              |
| 1:C:159:ASN:O    | 1:C:161:PRO:HD3  | 1.99                     | 0.62              |
| 1:E:166:SER:HB2  | 1:E:243:ASN:HD22 | 1.65                     | 0.62              |
| 1:H:22:THR:HG22  | 1:H:433:ASN:HB3  | 1.82                     | 0.62              |
| 1:F:178:ILE:O    | 1:F:253:PRO:HG3  | 1.99                     | 0.62              |
| 1:F:389:ASN:HD22 | 1:F:390:THR:N    | 1.97                     | 0.62              |
| 1:G:190:GLN:NE2  | 1:G:249:ASN:HD21 | 1.91                     | 0.62              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:305:CYS:HB3  | 1:A:306:PRO:HD2  | 1.81                     | 0.61              |
| 1:C:338:PHE:CE1  | 1:C:339:ILE:HG13 | 2.35                     | 0.61              |
| 1:D:310:LYS:NZ   | 1:D:418:LEU:HD23 | 2.15                     | 0.61              |
| 1:E:166:SER:CB   | 1:E:243:ASN:HD22 | 2.13                     | 0.61              |
| 1:D:108:LEU:CD1  | 1:D:261:LYS:HD2  | 2.31                     | 0.61              |
| 1:F:143:ASN:N    | 1:F:143:ASN:ND2  | 2.48                     | 0.61              |
| 1:H:332:PHE:CZ   | 1:I:331:LEU:HD12 | 2.35                     | 0.61              |
| 1:A:118:VAL:HG11 | 1:A:258:LYS:HD2  | 1.82                     | 0.61              |
| 1:B:95:TYR:CD2   | 1:B:229:MET:HG3  | 2.35                     | 0.61              |
| 1:D:7:ILE:HG22   | 1:D:467:PHE:HB2  | 1.82                     | 0.61              |
| 1:A:282:GLN:NE2  | 1:A:283:THR:N    | 2.43                     | 0.61              |
| 1:B:389:ASN:HD22 | 1:B:390:THR:H    | 1.48                     | 0.61              |
| 1:C:143:ASN:ND2  | 1:G:19:LYS:CE    | 2.63                     | 0.61              |
| 1:H:19:LYS:HE2   | 1:H:29:THR:OG1   | 2.00                     | 0.61              |
| 1:A:168:ASN:HA   | 1:A:241:THR:HG22 | 1.81                     | 0.61              |
| 1:C:259:ILE:O    | 1:C:260:SER:CB   | 2.47                     | 0.61              |
| 1:H:178:ILE:O    | 1:H:253:PRO:HG3  | 1.99                     | 0.61              |
| 1:B:278:GLU:HG3  | 1:B:279:THR:H    | 1.66                     | 0.61              |
| 1:G:346:MET:HE1  | 1:G:365:ALA:HA   | 1.82                     | 0.61              |
| 1:H:159:ASN:O    | 1:H:161:PRO:HD3  | 2.00                     | 0.61              |
| 1:H:199:ALA:HB3  | 1:H:249:ASN:ND2  | 2.15                     | 0.61              |
| 1:A:183:HIS:HB3  | 1:A:219:ARG:HH22 | 1.66                     | 0.61              |
| 1:G:455:LEU:HB3  | 1:G:459:VAL:HG21 | 1.83                     | 0.61              |
| 1:I:142:ASP:C    | 1:I:143:ASN:HD22 | 2.04                     | 0.61              |
| 1:I:248:GLY:O    | 1:I:249:ASN:HB2  | 2.00                     | 0.61              |
| 1:B:9:VAL:O      | 1:B:339:ILE:HD13 | 2.01                     | 0.61              |
| 1:C:495:SER:C    | 1:C:496:LYS:HD2  | 2.21                     | 0.61              |
| 1:E:389:ASN:HD22 | 1:E:390:THR:H    | 1.48                     | 0.61              |
| 1:F:225:GLN:NE2  | 2:J:2:SIA:O1A    | 2.34                     | 0.61              |
| 1:G:248:GLY:O    | 1:G:249:ASN:HB2  | 2.01                     | 0.61              |
| 1:G:357:ASN:HB3  | 1:G:359:GLN:H    | 1.66                     | 0.61              |
| 1:H:389:ASN:HD22 | 1:H:390:THR:H    | 1.48                     | 0.61              |
| 1:B:159:ASN:O    | 1:B:161:PRO:HD3  | 2.00                     | 0.61              |
| 1:C:12:HIS:N     | 1:C:350:TRP:O    | 2.24                     | 0.61              |
| 1:E:389:ASN:HD22 | 1:E:390:THR:N    | 1.99                     | 0.61              |
| 1:G:278:GLU:HG3  | 1:G:279:THR:N    | 2.15                     | 0.61              |
| 1:C:140:VAL:C    | 1:C:142:ASP:HA   | 2.22                     | 0.61              |
| 1:D:389:ASN:HD22 | 1:D:390:THR:N    | 1.98                     | 0.61              |
| 1:D:455:LEU:HB3  | 1:D:459:VAL:HG22 | 1.81                     | 0.61              |
| 1:F:323:VAL:HG11 | 1:F:336:ALA:HB2  | 1.82                     | 0.61              |
| 1:D:11:TYR:CE2   | 1:D:335:ILE:HA   | 2.36                     | 0.60              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:195:GLN:HE21 | 1:D:195:GLN:HA   | 1.66                     | 0.60              |
| 1:E:19:LYS:HE2   | 1:E:29:THR:OG1   | 2.01                     | 0.60              |
| 1:E:248:GLY:O    | 1:E:249:ASN:HB2  | 2.01                     | 0.60              |
| 1:B:355:HIS:H    | 1:B:355:HIS:CD2  | 2.19                     | 0.60              |
| 1:E:199:ALA:HB3  | 1:E:249:ASN:ND2  | 2.15                     | 0.60              |
| 1:E:431:MET:O    | 1:E:432:GLU:HB2  | 2.00                     | 0.60              |
| 1:G:7:ILE:HA     | 1:G:355:HIS:CA   | 2.28                     | 0.60              |
| 1:G:111:SER:O    | 1:G:261:LYS:HE3  | 2.01                     | 0.60              |
| 1:H:248:GLY:O    | 1:H:249:ASN:HB2  | 2.00                     | 0.60              |
| 1:H:389:ASN:HD22 | 1:H:390:THR:N    | 2.00                     | 0.60              |
| 1:A:283:THR:HG23 | 1:A:298:HIS:HB3  | 1.82                     | 0.60              |
| 1:A:382:ASN:HD22 | 1:A:382:ASN:N    | 1.99                     | 0.60              |
| 1:B:338:PHE:CE1  | 1:B:339:ILE:HG13 | 2.36                     | 0.60              |
| 1:C:53:PRO:HD2   | 1:C:274:LEU:HD13 | 1.84                     | 0.60              |
| 1:C:166:SER:HB2  | 1:C:243:ASN:HD22 | 1.65                     | 0.60              |
| 1:D:310:LYS:HZ2  | 1:D:418:LEU:HD23 | 1.66                     | 0.60              |
| 1:B:55:GLU:OE2   | 1:B:273:THR:HG22 | 2.01                     | 0.60              |
| 1:B:143:ASN:N    | 1:B:143:ASN:ND2  | 2.46                     | 0.60              |
| 1:C:300:LEU:HA   | 1:C:395:VAL:HB   | 1.83                     | 0.60              |
| 1:D:130:THR:HG22 | 1:D:132:THR:H    | 1.67                     | 0.60              |
| 1:D:171:SER:HB2  | 1:D:258:LYS:NZ   | 2.16                     | 0.60              |
| 1:D:322:ASN:O    | 1:D:323:VAL:HG13 | 2.01                     | 0.60              |
| 1:A:37:LEU:HB2   | 1:A:314:LEU:HB2  | 1.83                     | 0.60              |
| 1:A:452:ARG:HG3  | 1:A:467:PHE:CZ   | 2.36                     | 0.60              |
| 1:D:20:VAL:HG13  | 1:D:30:VAL:HG21  | 1.83                     | 0.60              |
| 1:F:95:TYR:CD2   | 1:F:229:MET:HG3  | 2.37                     | 0.60              |
| 1:I:389:ASN:HD22 | 1:I:390:THR:H    | 1.48                     | 0.60              |
| 1:A:338:PHE:CE1  | 1:A:339:ILE:HG13 | 2.35                     | 0.60              |
| 1:B:455:LEU:HB3  | 1:B:459:VAL:HG22 | 1.83                     | 0.60              |
| 1:C:459:VAL:CG1  | 1:C:469:PHE:HA   | 2.30                     | 0.60              |
| 1:F:355:HIS:H    | 1:F:355:HIS:CD2  | 2.18                     | 0.60              |
| 1:G:346:MET:HE1  | 1:G:365:ALA:N    | 2.16                     | 0.60              |
| 1:A:30:VAL:HA    | 1:A:321:ARG:HA   | 1.82                     | 0.60              |
| 1:E:355:HIS:H    | 1:E:355:HIS:CD2  | 2.19                     | 0.60              |
| 1:E:471:HIS:HB3  | 1:E:494:GLU:CG   | 2.31                     | 0.60              |
| 1:H:259:ILE:O    | 1:H:260:SER:CB   | 2.49                     | 0.60              |
| 1:B:111:SER:O    | 1:B:261:LYS:HE3  | 2.01                     | 0.60              |
| 1:D:279:THR:CB   | 1:D:287:ALA:HB1  | 2.31                     | 0.60              |
| 1:E:338:PHE:CE1  | 1:E:339:ILE:HG13 | 2.36                     | 0.60              |
| 1:I:355:HIS:H    | 1:I:355:HIS:CD2  | 2.20                     | 0.60              |
| 1:D:66:LEU:O     | 1:D:149:ASN:HB2  | 2.01                     | 0.60              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:211:ARG:NH1  | 1:E:216:ILE:O    | 2.35                     | 0.60              |
| 1:F:431:MET:O    | 1:F:432:GLU:HB2  | 2.00                     | 0.60              |
| 1:G:199:ALA:HB3  | 1:G:249:ASN:ND2  | 2.15                     | 0.60              |
| 1:H:53:PRO:HD2   | 1:H:274:LEU:HD13 | 1.83                     | 0.60              |
| 1:E:111:SER:O    | 1:E:261:LYS:HE3  | 2.01                     | 0.60              |
| 1:I:323:VAL:HG11 | 1:I:336:ALA:HB2  | 1.83                     | 0.60              |
| 1:I:455:LEU:HB3  | 1:I:459:VAL:HG22 | 1.82                     | 0.60              |
| 1:B:389:ASN:HD22 | 1:B:390:THR:N    | 1.99                     | 0.59              |
| 1:F:166:SER:HB2  | 1:F:243:ASN:HD22 | 1.67                     | 0.59              |
| 1:G:178:ILE:O    | 1:G:253:PRO:HG3  | 2.02                     | 0.59              |
| 1:E:32:HIS:CE1   | 1:E:350:TRP:HE1  | 2.21                     | 0.59              |
| 1:H:143:ASN:N    | 1:H:143:ASN:ND2  | 2.47                     | 0.59              |
| 1:I:259:ILE:CG2  | 1:I:260:SER:N    | 2.63                     | 0.59              |
| 1:A:424:ASN:O    | 1:A:426:GLU:N    | 2.33                     | 0.59              |
| 1:G:420:VAL:HG12 | 1:G:421:TRP:N    | 2.17                     | 0.59              |
| 1:H:142:ASP:C    | 1:H:143:ASN:HD22 | 2.06                     | 0.59              |
| 1:D:24:LEU:HA    | 1:F:379:ASN:HB2  | 1.85                     | 0.59              |
| 1:D:162:VAL:CG2  | 1:D:247:THR:HG22 | 2.31                     | 0.59              |
| 1:A:471:HIS:CE1  | 1:A:491:TYR:CD1  | 2.90                     | 0.59              |
| 1:C:295:HIS:CE1  | 1:C:308:TYR:HB2  | 2.37                     | 0.59              |
| 1:E:278:GLU:HG3  | 1:E:279:THR:H    | 1.67                     | 0.59              |
| 1:F:185:ASN:HD21 | 1:F:226:GLY:CA   | 2.15                     | 0.59              |
| 1:B:11:TYR:HB3   | 1:B:444:VAL:HG21 | 1.85                     | 0.59              |
| 1:H:111:SER:O    | 1:H:261:LYS:HE3  | 2.02                     | 0.59              |
| 1:H:166:SER:CB   | 1:H:243:ASN:HD22 | 2.16                     | 0.59              |
| 1:I:199:ALA:HB3  | 1:I:249:ASN:ND2  | 2.16                     | 0.59              |
| 1:A:47:LYS:O     | 1:A:279:THR:HG22 | 2.02                     | 0.59              |
| 1:A:282:GLN:NE2  | 1:A:282:GLN:CA   | 2.66                     | 0.59              |
| 1:A:455:LEU:HD12 | 1:A:486:TYR:CE2  | 2.38                     | 0.59              |
| 1:F:53:PRO:HD2   | 1:F:274:LEU:HD13 | 1.84                     | 0.59              |
| 1:D:238:ILE:O    | 1:D:240:ASP:N    | 2.36                     | 0.59              |
| 1:F:338:PHE:CE1  | 1:F:339:ILE:HG13 | 2.38                     | 0.59              |
| 1:A:140:VAL:HG12 | 1:A:141:PHE:N    | 2.18                     | 0.59              |
| 1:E:142:ASP:C    | 1:E:143:ASN:HD22 | 2.05                     | 0.59              |
| 1:G:409:LEU:CD1  | 1:I:410:ASN:HB2  | 2.25                     | 0.59              |
| 1:I:389:ASN:HD22 | 1:I:390:THR:N    | 2.00                     | 0.59              |
| 1:B:293:PRO:HB2  | 1:B:294:PHE:CE2  | 2.38                     | 0.58              |
| 1:C:293:PRO:CG   | 1:C:385:ILE:HG12 | 2.33                     | 0.58              |
| 1:D:389:ASN:HD22 | 1:D:390:THR:H    | 1.48                     | 0.58              |
| 1:F:295:HIS:CE1  | 1:F:308:TYR:HB2  | 2.38                     | 0.58              |
| 1:G:166:SER:CB   | 1:G:243:ASN:HD22 | 2.15                     | 0.58              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:382:ASN:HB3  | 1:G:386:GLU:OE2  | 2.03                     | 0.58              |
| 1:B:248:GLY:O    | 1:B:249:ASN:HB2  | 2.01                     | 0.58              |
| 1:D:23:ILE:CD1   | 1:F:380:LYS:HE2  | 2.30                     | 0.58              |
| 1:D:118:VAL:HG23 | 1:D:120:ILE:HG23 | 1.84                     | 0.58              |
| 1:D:183:HIS:HB3  | 1:D:219:ARG:HH22 | 1.68                     | 0.58              |
| 1:D:214:PRO:HG3  | 1:D:249:ASN:OD1  | 2.02                     | 0.58              |
| 1:G:458:ASN:ND2  | 1:G:491:TYR:HB2  | 2.18                     | 0.58              |
| 1:A:93:LEU:H     | 1:A:93:LEU:HD12  | 1.68                     | 0.58              |
| 1:D:108:LEU:CD2  | 1:D:235:ILE:HD11 | 2.31                     | 0.58              |
| 1:H:335:ILE:HG13 | 1:H:441:ASP:HA   | 1.84                     | 0.58              |
| 1:A:382:ASN:N    | 1:A:382:ASN:ND2  | 2.51                     | 0.58              |
| 1:C:389:ASN:HD22 | 1:C:390:THR:N    | 1.99                     | 0.58              |
| 1:F:11:TYR:HB3   | 1:F:444:VAL:CG2  | 2.33                     | 0.58              |
| 1:G:142:ASP:C    | 1:G:143:ASN:HD22 | 2.06                     | 0.58              |
| 1:A:282:GLN:HE22 | 1:A:286:GLY:C    | 2.07                     | 0.58              |
| 1:A:351:TYR:CD2  | 1:A:351:TYR:N    | 2.65                     | 0.58              |
| 1:A:418:LEU:O    | 1:A:422:THR:HB   | 2.04                     | 0.58              |
| 1:D:53:PRO:HG3   | 1:D:82:TYR:CE2   | 2.38                     | 0.58              |
| 1:D:355:HIS:CD2  | 1:D:355:HIS:H    | 2.20                     | 0.58              |
| 1:E:7:ILE:CG2    | 1:E:467:PHE:CD2  | 2.86                     | 0.58              |
| 1:H:320:LEU:HD23 | 1:H:320:LEU:H    | 1.67                     | 0.58              |
| 1:I:185:ASN:HD21 | 1:I:226:GLY:CA   | 2.16                     | 0.58              |
| 1:I:293:PRO:HB2  | 1:I:294:PHE:CE2  | 2.38                     | 0.58              |
| 1:A:219:ARG:HG3  | 1:A:226:GLY:O    | 2.04                     | 0.58              |
| 1:A:413:MET:O    | 1:A:416:GLY:N    | 2.35                     | 0.58              |
| 1:C:355:HIS:H    | 1:C:355:HIS:CD2  | 2.20                     | 0.58              |
| 1:D:265:SER:OG   | 1:D:266:GLY:N    | 2.37                     | 0.58              |
| 1:E:259:ILE:CG2  | 1:E:260:SER:H    | 2.06                     | 0.58              |
| 1:F:480:SER:HA   | 1:F:483:ASN:HB2  | 1.85                     | 0.58              |
| 1:A:176:LEU:HA   | 1:A:235:ILE:HD13 | 1.84                     | 0.58              |
| 1:A:396:GLY:O    | 1:A:397:LYS:HG2  | 2.03                     | 0.58              |
| 1:B:142:ASP:C    | 1:B:143:ASN:HD22 | 2.05                     | 0.58              |
| 1:C:95:TYR:CD2   | 1:C:229:MET:HG3  | 2.38                     | 0.58              |
| 1:D:19:LYS:HE2   | 1:D:29:THR:OG1   | 2.04                     | 0.58              |
| 1:E:9:VAL:C      | 1:E:339:ILE:HD13 | 2.23                     | 0.58              |
| 1:E:295:HIS:CE1  | 1:E:308:TYR:HB2  | 2.38                     | 0.58              |
| 1:E:310:LYS:HD2  | 1:E:418:LEU:CD2  | 2.33                     | 0.58              |
| 1:C:111:SER:O    | 1:C:261:LYS:HE3  | 2.04                     | 0.58              |
| 1:C:185:ASN:HD21 | 1:C:226:GLY:CA   | 2.15                     | 0.58              |
| 1:D:295:HIS:HD2  | 1:D:296:ASN:N    | 2.02                     | 0.58              |
| 1:A:490:LYS:HE3  | 1:A:491:TYR:CE2  | 2.37                     | 0.58              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:8:CYS:HA     | 1:B:466:CYS:HA   | 1.86                     | 0.58              |
| 1:B:166:SER:CB   | 1:B:243:ASN:HD22 | 2.17                     | 0.58              |
| 1:F:19:LYS:HE2   | 1:F:29:THR:OG1   | 2.03                     | 0.58              |
| 1:H:259:ILE:CG2  | 1:H:260:SER:N    | 2.63                     | 0.58              |
| 1:A:56:LEU:O     | 1:A:57:GLY:C     | 2.42                     | 0.58              |
| 1:B:243:ASN:HB2  | 1:C:218:THR:O    | 2.04                     | 0.58              |
| 1:G:489:SER:O    | 1:G:490:LYS:HB2  | 2.04                     | 0.58              |
| 1:I:288:ILE:CD1  | 1:I:297:ILE:HD12 | 2.34                     | 0.58              |
| 1:I:480:SER:HA   | 1:I:483:ASN:HB2  | 1.85                     | 0.58              |
| 1:A:155:LYS:HE2  | 1:A:192:THR:O    | 2.04                     | 0.57              |
| 1:D:310:LYS:NZ   | 1:D:418:LEU:CD2  | 2.67                     | 0.57              |
| 1:G:357:ASN:ND2  | 1:G:473:CYS:O    | 2.34                     | 0.57              |
| 1:I:53:PRO:HD2   | 1:I:274:LEU:HD13 | 1.86                     | 0.57              |
| 1:A:279:THR:C    | 1:A:280:LYS:HD2  | 2.24                     | 0.57              |
| 1:A:451:VAL:O    | 1:A:451:VAL:HG12 | 2.04                     | 0.57              |
| 1:B:199:ALA:HB3  | 1:B:249:ASN:ND2  | 2.19                     | 0.57              |
| 1:E:480:SER:HA   | 1:E:483:ASN:HB2  | 1.85                     | 0.57              |
| 1:F:459:VAL:CG1  | 1:F:469:PHE:HA   | 2.29                     | 0.57              |
| 1:G:259:ILE:CG2  | 1:G:260:SER:N    | 2.63                     | 0.57              |
| 1:G:308:TYR:HD2  | 1:G:418:LEU:HD11 | 1.68                     | 0.57              |
| 1:D:193:LEU:HB2  | 1:D:194:TYR:CD2  | 2.40                     | 0.57              |
| 1:G:143:ASN:N    | 1:G:143:ASN:ND2  | 2.46                     | 0.57              |
| 1:A:283:THR:HG22 | 1:A:285:LEU:H    | 1.69                     | 0.57              |
| 1:A:350:TRP:H    | 1:A:370:THR:CG2  | 2.17                     | 0.57              |
| 1:C:431:MET:O    | 1:C:432:GLU:HB2  | 2.03                     | 0.57              |
| 1:F:335:ILE:HG13 | 1:F:441:ASP:HA   | 1.86                     | 0.57              |
| 1:B:179:TRP:CE2  | 1:B:203:VAL:HG21 | 2.40                     | 0.57              |
| 1:C:11:TYR:HB3   | 1:C:444:VAL:CG2  | 2.34                     | 0.57              |
| 1:D:13:SER:CB    | 1:D:324:PRO:HG3  | 2.34                     | 0.57              |
| 1:D:42:ASN:HD22  | 1:D:44:LYS:HB2   | 1.70                     | 0.57              |
| 1:F:142:ASP:C    | 1:F:143:ASN:HD22 | 2.06                     | 0.57              |
| 1:H:480:SER:HA   | 1:H:483:ASN:HB2  | 1.86                     | 0.57              |
| 1:B:211:ARG:NH1  | 1:C:216:ILE:HB   | 2.19                     | 0.57              |
| 1:D:376:GLY:C    | 1:E:24:LEU:HD22  | 2.24                     | 0.57              |
| 1:F:12:HIS:HB2   | 1:F:350:TRP:HA   | 1.85                     | 0.57              |
| 1:I:111:SER:O    | 1:I:261:LYS:HE3  | 2.04                     | 0.57              |
| 1:A:19:LYS:HD2   | 1:A:29:THR:HG23  | 1.87                     | 0.57              |
| 1:D:308:TYR:O    | 1:D:418:LEU:HD12 | 2.05                     | 0.57              |
| 1:A:45:LEU:HD11  | 1:A:270:THR:HG21 | 1.87                     | 0.57              |
| 1:A:203:VAL:HG22 | 1:A:244:PHE:HD1  | 1.69                     | 0.57              |
| 1:D:295:HIS:C    | 1:D:295:HIS:CD2  | 2.78                     | 0.57              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:53:PRO:HD2   | 1:E:274:LEU:HD13 | 1.85                     | 0.57              |
| 1:F:248:GLY:O    | 1:F:249:ASN:HB2  | 2.05                     | 0.57              |
| 1:F:293:PRO:HB2  | 1:F:294:PHE:CE2  | 2.40                     | 0.57              |
| 1:G:381:VAL:HG12 | 1:G:382:ASN:N    | 2.18                     | 0.57              |
| 1:A:10:GLY:HA3   | 1:A:343:TRP:CH2  | 2.39                     | 0.57              |
| 1:A:23:ILE:HB    | 1:A:430:LEU:HB3  | 1.86                     | 0.57              |
| 1:B:480:SER:HA   | 1:B:483:ASN:HB2  | 1.87                     | 0.57              |
| 1:C:248:GLY:O    | 1:C:249:ASN:HB2  | 2.04                     | 0.57              |
| 1:C:294:PHE:HB3  | 1:C:309:VAL:HG22 | 1.87                     | 0.57              |
| 1:C:320:LEU:CD1  | 1:C:335:ILE:HD13 | 2.34                     | 0.57              |
| 1:D:228:ARG:NH2  | 1:F:206:SER:HA   | 2.20                     | 0.57              |
| 1:D:493:GLU:O    | 1:D:494:GLU:HB2  | 2.05                     | 0.57              |
| 1:A:51:ILE:HD13  | 1:A:51:ILE:N     | 2.20                     | 0.57              |
| 1:A:54:LEU:HD13  | 1:A:80:TRP:CE3   | 2.40                     | 0.57              |
| 1:A:284:PRO:HD2  | 1:A:298:HIS:ND1  | 2.20                     | 0.57              |
| 1:E:335:ILE:HG13 | 1:E:441:ASP:HA   | 1.86                     | 0.57              |
| 1:G:379:ASN:HB3  | 1:H:26:ARG:NH1   | 2.20                     | 0.57              |
| 1:G:473:CYS:SG   | 1:G:478:MET:HE2  | 2.45                     | 0.57              |
| 1:D:168:ASN:HA   | 1:D:241:THR:CB   | 2.25                     | 0.56              |
| 1:F:12:HIS:CB    | 1:F:350:TRP:HA   | 2.35                     | 0.56              |
| 1:G:387:LYS:HZ2  | 1:H:426:GLU:HG2  | 1.69                     | 0.56              |
| 1:H:387:LYS:HD3  | 1:I:426:GLU:HG2  | 1.86                     | 0.56              |
| 1:A:165:GLY:O    | 1:A:244:PHE:N    | 2.34                     | 0.56              |
| 1:D:338:PHE:CE1  | 1:D:339:ILE:HG13 | 2.40                     | 0.56              |
| 1:A:189:GLU:HG3  | 1:A:193:LEU:HD12 | 1.86                     | 0.56              |
| 1:C:179:TRP:CE2  | 1:C:203:VAL:HG21 | 2.40                     | 0.56              |
| 1:C:480:SER:HA   | 1:C:483:ASN:HB2  | 1.87                     | 0.56              |
| 1:E:456:ARG:HD2  | 1:F:461:GLU:O    | 2.05                     | 0.56              |
| 1:F:293:PRO:HB2  | 1:F:294:PHE:CD2  | 2.40                     | 0.56              |
| 1:G:140:VAL:C    | 1:G:142:ASP:HA   | 2.25                     | 0.56              |
| 1:H:379:ASN:HB3  | 1:I:26:ARG:CZ    | 2.36                     | 0.56              |
| 1:H:379:ASN:HD22 | 1:I:26:ARG:CZ    | 2.18                     | 0.56              |
| 1:I:166:SER:HB2  | 1:I:243:ASN:HD22 | 1.70                     | 0.56              |
| 1:I:178:ILE:O    | 1:I:253:PRO:HG3  | 2.05                     | 0.56              |
| 1:I:306:PRO:O    | 1:I:308:TYR:N    | 2.38                     | 0.56              |
| 1:A:81:SER:HB2   | 1:A:82:TYR:HD2   | 1.70                     | 0.56              |
| 1:A:332:PHE:CD2  | 1:A:442:SER:HB2  | 2.41                     | 0.56              |
| 1:C:32:HIS:CE1   | 1:C:350:TRP:HE1  | 2.24                     | 0.56              |
| 1:C:166:SER:CB   | 1:C:243:ASN:HD22 | 2.17                     | 0.56              |
| 1:D:63:GLY:HA2   | 1:D:92:GLY:O     | 2.05                     | 0.56              |
| 1:I:166:SER:CB   | 1:I:243:ASN:HD22 | 2.18                     | 0.56              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:197:VAL:HG12 | 1:I:198:GLY:N    | 2.21                     | 0.56              |
| 1:A:23:ILE:CD1   | 1:C:380:LYS:HE2  | 2.35                     | 0.56              |
| 1:C:12:HIS:HB2   | 1:C:350:TRP:HA   | 1.88                     | 0.56              |
| 1:H:114:HIS:O    | 1:H:259:ILE:O    | 2.24                     | 0.56              |
| 1:A:366:ASP:HB3  | 1:A:369:SER:HB3  | 1.87                     | 0.56              |
| 1:B:140:VAL:C    | 1:B:142:ASP:HA   | 2.25                     | 0.56              |
| 1:F:197:VAL:HG12 | 1:F:198:GLY:N    | 2.21                     | 0.56              |
| 1:H:460:LYS:HD2  | 1:H:470:TYR:CE1  | 2.40                     | 0.56              |
| 1:I:293:PRO:HB2  | 1:I:294:PHE:CD2  | 2.39                     | 0.56              |
| 1:E:141:PHE:CE2  | 1:G:274:LEU:HD11 | 2.41                     | 0.56              |
| 1:H:140:VAL:C    | 1:H:142:ASP:HA   | 2.25                     | 0.56              |
| 1:H:410:ASN:HB2  | 1:I:409:LEU:CD1  | 2.35                     | 0.56              |
| 1:B:332:PHE:CE2  | 1:B:442:SER:HB2  | 2.41                     | 0.56              |
| 1:C:19:LYS:HE2   | 1:C:29:THR:OG1   | 2.06                     | 0.56              |
| 1:D:195:GLN:O    | 1:D:195:GLN:HG3  | 2.05                     | 0.56              |
| 1:F:140:VAL:C    | 1:F:142:ASP:HA   | 2.26                     | 0.56              |
| 1:G:214:PRO:HG2  | 1:G:249:ASN:ND2  | 2.21                     | 0.56              |
| 1:G:470:TYR:O    | 1:G:471:HIS:HB3  | 2.06                     | 0.56              |
| 1:A:160:TYR:CE2  | 1:A:248:GLY:N    | 2.74                     | 0.56              |
| 1:G:384:VAL:O    | 1:G:384:VAL:HG12 | 2.06                     | 0.56              |
| 1:I:160:TYR:CZ   | 1:I:248:GLY:HA2  | 2.41                     | 0.56              |
| 1:A:45:LEU:HD22  | 1:A:84:MET:CE    | 2.36                     | 0.56              |
| 1:B:284:PRO:HG2  | 1:B:298:HIS:CE1  | 2.40                     | 0.56              |
| 1:C:12:HIS:CB    | 1:C:350:TRP:HA   | 2.36                     | 0.56              |
| 1:D:124:ASP:O    | 1:D:126:TRP:N    | 2.39                     | 0.56              |
| 1:D:295:HIS:CD2  | 1:D:296:ASN:N    | 2.74                     | 0.56              |
| 1:G:55:GLU:OE2   | 1:G:273:THR:HG22 | 2.06                     | 0.56              |
| 1:H:379:ASN:HB3  | 1:I:26:ARG:NH1   | 2.21                     | 0.56              |
| 1:I:278:GLU:HG3  | 1:I:279:THR:H    | 1.69                     | 0.56              |
| 1:C:142:ASP:C    | 1:C:143:ASN:HD22 | 2.09                     | 0.55              |
| 1:D:113:THR:HG23 | 1:D:113:THR:O    | 2.06                     | 0.55              |
| 1:D:238:ILE:HG23 | 1:D:239:TRP:CE2  | 2.40                     | 0.55              |
| 1:F:111:SER:O    | 1:F:261:LYS:HE3  | 2.06                     | 0.55              |
| 1:G:428:LEU:O    | 1:G:432:GLU:HB2  | 2.05                     | 0.55              |
| 1:A:211:ARG:HD2  | 1:B:216:ILE:O    | 2.05                     | 0.55              |
| 1:D:120:ILE:CD1  | 1:D:177:ILE:HD13 | 2.36                     | 0.55              |
| 1:E:140:VAL:C    | 1:E:142:ASP:HA   | 2.26                     | 0.55              |
| 1:E:460:LYS:HD2  | 1:E:470:TYR:CE1  | 2.41                     | 0.55              |
| 1:H:197:VAL:HG12 | 1:H:198:GLY:N    | 2.22                     | 0.55              |
| 1:I:187:GLU:O    | 1:I:190:GLN:HB3  | 2.07                     | 0.55              |
| 1:B:376:GLY:C    | 1:C:24:LEU:HD22  | 2.26                     | 0.55              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:12:HIS:HE1   | 1:D:347:VAL:HA   | 1.71                     | 0.55              |
| 1:D:124:ASP:C    | 1:D:126:TRP:H    | 2.09                     | 0.55              |
| 1:G:420:VAL:O    | 1:G:423:TYR:HB3  | 2.07                     | 0.55              |
| 1:H:399:PHE:CE1  | 1:H:406:LEU:HG   | 2.41                     | 0.55              |
| 1:A:55:GLU:O     | 1:A:74:LEU:HD21  | 2.07                     | 0.55              |
| 1:D:288:ILE:CG1  | 1:D:297:ILE:HD12 | 2.37                     | 0.55              |
| 1:F:293:PRO:CG   | 1:F:385:ILE:HG12 | 2.36                     | 0.55              |
| 1:G:387:LYS:HZ1  | 1:H:426:GLU:HG2  | 1.71                     | 0.55              |
| 1:C:55:GLU:HG3   | 1:C:274:LEU:HD22 | 1.88                     | 0.55              |
| 1:C:143:ASN:ND2  | 1:G:19:LYS:CD    | 2.69                     | 0.55              |
| 1:D:129:HIS:NE2  | 1:D:161:PRO:O    | 2.39                     | 0.55              |
| 1:F:460:LYS:HD2  | 1:F:470:TYR:CE1  | 2.41                     | 0.55              |
| 1:G:42:ASN:OD1   | 1:G:44:LYS:HE2   | 2.07                     | 0.55              |
| 1:I:214:PRO:HG2  | 1:I:249:ASN:ND2  | 2.21                     | 0.55              |
| 1:I:460:LYS:HD2  | 1:I:470:TYR:CE1  | 2.42                     | 0.55              |
| 1:I:42:ASN:HB3   | 1:I:287:ALA:H    | 1.71                     | 0.55              |
| 1:B:185:ASN:HD21 | 1:B:226:GLY:CA   | 2.17                     | 0.55              |
| 1:C:197:VAL:HG12 | 1:C:198:GLY:N    | 2.22                     | 0.55              |
| 1:F:11:TYR:CD2   | 1:F:335:ILE:HG12 | 2.42                     | 0.55              |
| 1:F:259:ILE:CG2  | 1:F:260:SER:N    | 2.59                     | 0.55              |
| 1:G:185:ASN:HD21 | 1:G:226:GLY:CA   | 2.17                     | 0.55              |
| 1:E:55:GLU:OE2   | 1:E:273:THR:HG22 | 2.07                     | 0.55              |
| 1:E:310:LYS:HD2  | 1:E:418:LEU:HD21 | 1.89                     | 0.55              |
| 1:H:55:GLU:OE2   | 1:H:273:THR:HG22 | 2.07                     | 0.55              |
| 1:A:382:ASN:ND2  | 1:A:382:ASN:H    | 2.05                     | 0.55              |
| 1:B:211:ARG:NH1  | 1:C:216:ILE:O    | 2.40                     | 0.55              |
| 1:D:53:PRO:HG3   | 1:D:82:TYR:CZ    | 2.42                     | 0.55              |
| 1:E:288:ILE:CD1  | 1:E:297:ILE:HD12 | 2.37                     | 0.55              |
| 1:E:317:ALA:N    | 1:E:433:ASN:OD1  | 2.26                     | 0.55              |
| 1:F:12:HIS:N     | 1:F:350:TRP:O    | 2.26                     | 0.55              |
| 1:F:166:SER:CB   | 1:F:243:ASN:HD22 | 2.19                     | 0.55              |
| 1:F:320:LEU:CD1  | 1:F:335:ILE:HD13 | 2.35                     | 0.55              |
| 1:B:293:PRO:HG3  | 1:B:385:ILE:HG23 | 1.88                     | 0.55              |
| 1:C:259:ILE:CG2  | 1:C:260:SER:H    | 2.06                     | 0.55              |
| 1:I:143:ASN:N    | 1:I:143:ASN:ND2  | 2.47                     | 0.55              |
| 1:B:55:GLU:HG3   | 1:B:274:LEU:HD22 | 1.89                     | 0.54              |
| 1:B:310:LYS:HD2  | 1:B:418:LEU:HD21 | 1.89                     | 0.54              |
| 1:D:108:LEU:HD12 | 1:D:108:LEU:C    | 2.28                     | 0.54              |
| 1:D:480:SER:HA   | 1:D:483:ASN:HB2  | 1.88                     | 0.54              |
| 1:E:169:ASN:ND2  | 1:E:238:ILE:HA   | 2.17                     | 0.54              |
| 1:E:197:VAL:HG12 | 1:E:198:GLY:N    | 2.21                     | 0.54              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:288:ILE:CD1  | 1:G:297:ILE:HD12 | 2.37                     | 0.54              |
| 1:G:343:TRP:HE3  | 1:G:346:MET:CG   | 2.20                     | 0.54              |
| 1:I:293:PRO:HG3  | 1:I:385:ILE:HG12 | 1.88                     | 0.54              |
| 1:A:51:ILE:HG21  | 1:A:79:GLU:HG2   | 1.87                     | 0.54              |
| 1:A:77:VAL:HG22  | 1:A:79:GLU:H     | 1.70                     | 0.54              |
| 1:F:179:TRP:CE2  | 1:F:203:VAL:HG21 | 2.43                     | 0.54              |
| 1:H:42:ASN:HB3   | 1:H:287:ALA:H    | 1.72                     | 0.54              |
| 1:H:166:SER:HB2  | 1:H:243:ASN:HD22 | 1.71                     | 0.54              |
| 1:H:185:ASN:HD21 | 1:H:226:GLY:CA   | 2.16                     | 0.54              |
| 1:I:140:VAL:C    | 1:I:142:ASP:HA   | 2.27                     | 0.54              |
| 1:A:36:ILE:O     | 1:A:292:LEU:HD22 | 2.07                     | 0.54              |
| 1:A:445:LYS:HG3  | 1:A:445:LYS:O    | 2.07                     | 0.54              |
| 1:B:166:SER:HB2  | 1:B:243:ASN:HD22 | 1.73                     | 0.54              |
| 1:B:197:VAL:HG12 | 1:B:198:GLY:N    | 2.21                     | 0.54              |
| 1:A:160:TYR:CZ   | 1:A:248:GLY:HA2  | 2.42                     | 0.54              |
| 1:G:26:ARG:CZ    | 1:I:379:ASN:HD22 | 2.21                     | 0.54              |
| 1:G:197:VAL:HG12 | 1:G:198:GLY:N    | 2.22                     | 0.54              |
| 1:H:278:GLU:HG3  | 1:H:279:THR:H    | 1.71                     | 0.54              |
| 1:A:460:LYS:HG3  | 1:A:468:GLU:CG   | 2.37                     | 0.54              |
| 1:C:460:LYS:HD2  | 1:C:470:TYR:CE1  | 2.43                     | 0.54              |
| 1:A:351:TYR:HE2  | 1:A:370:THR:HA   | 1.73                     | 0.54              |
| 1:E:376:GLY:HA2  | 1:F:24:LEU:HB3   | 1.89                     | 0.54              |
| 1:F:399:PHE:CE1  | 1:F:406:LEU:HG   | 2.43                     | 0.54              |
| 1:A:64:TRP:HE1   | 1:A:76:THR:HG22  | 1.73                     | 0.54              |
| 1:A:117:LYS:HG3  | 1:A:257:PHE:CE1  | 2.43                     | 0.54              |
| 1:D:158:SER:O    | 1:D:195:GLN:HG2  | 2.08                     | 0.54              |
| 1:D:239:TRP:CD2  | 1:D:239:TRP:N    | 2.76                     | 0.54              |
| 1:E:320:LEU:HD13 | 1:E:335:ILE:HD13 | 1.90                     | 0.54              |
| 1:E:376:GLY:CA   | 1:F:24:LEU:HB3   | 2.37                     | 0.54              |
| 1:G:179:TRP:CE2  | 1:G:203:VAL:HG21 | 2.43                     | 0.54              |
| 1:G:455:LEU:CG   | 1:G:459:VAL:HG21 | 2.38                     | 0.54              |
| 1:H:160:TYR:CZ   | 1:H:248:GLY:HA2  | 2.43                     | 0.54              |
| 1:A:78:PRO:O     | 1:A:114:HIS:HB2  | 2.07                     | 0.54              |
| 1:E:488:TYR:O    | 1:E:492:GLU:HB2  | 2.07                     | 0.54              |
| 1:G:379:ASN:HD22 | 1:H:26:ARG:CZ    | 2.20                     | 0.54              |
| 1:B:53:PRO:HD2   | 1:B:274:LEU:HD13 | 1.89                     | 0.54              |
| 1:B:436:THR:O    | 1:B:439:PHE:HB3  | 2.07                     | 0.54              |
| 1:D:160:TYR:CZ   | 1:D:248:GLY:HA2  | 2.42                     | 0.54              |
| 1:H:432:GLU:H    | 1:H:435:MET:HG3  | 1.71                     | 0.54              |
| 1:C:323:VAL:HG11 | 1:C:336:ALA:HB2  | 1.90                     | 0.54              |
| 1:F:187:GLU:O    | 1:F:190:GLN:HB3  | 2.08                     | 0.54              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:8:CYS:O      | 1:G:353:TYR:C    | 2.47                     | 0.54              |
| 1:D:55:GLU:OE1   | 1:D:274:LEU:HD23 | 2.08                     | 0.53              |
| 1:D:108:LEU:HD21 | 1:D:235:ILE:CD1  | 2.34                     | 0.53              |
| 1:D:140:VAL:HG12 | 1:D:141:PHE:CD2  | 2.43                     | 0.53              |
| 1:D:290:THR:OG1  | 1:D:291:THR:N    | 2.41                     | 0.53              |
| 1:G:23:ILE:HG22  | 1:G:434:GLU:HG2  | 1.90                     | 0.53              |
| 1:D:303:GLY:HA2  | 1:D:392:PHE:CD1  | 2.43                     | 0.53              |
| 1:G:42:ASN:HB3   | 1:G:287:ALA:H    | 1.74                     | 0.53              |
| 1:G:360:GLY:O    | 1:G:361:SER:HB2  | 2.08                     | 0.53              |
| 1:A:417:PHE:CD1  | 1:C:417:PHE:HE1  | 2.26                     | 0.53              |
| 1:C:288:ILE:CD1  | 1:C:297:ILE:HD12 | 2.38                     | 0.53              |
| 1:F:284:PRO:HG2  | 1:F:298:HIS:CE1  | 2.44                     | 0.53              |
| 1:G:160:TYR:CZ   | 1:G:248:GLY:HA2  | 2.43                     | 0.53              |
| 1:G:448:TYR:HE1  | 1:G:465:GLY:HA2  | 1.72                     | 0.53              |
| 1:A:202:SER:HB3  | 1:A:211:ARG:HG3  | 1.91                     | 0.53              |
| 1:B:288:ILE:CD1  | 1:B:297:ILE:HD12 | 2.38                     | 0.53              |
| 1:B:380:LYS:HA   | 1:C:23:ILE:HG12  | 1.90                     | 0.53              |
| 1:D:80:TRP:CE2   | 1:D:112:VAL:CG2  | 2.90                     | 0.53              |
| 1:D:460:LYS:HD2  | 1:D:470:TYR:CE1  | 2.43                     | 0.53              |
| 1:E:293:PRO:HB2  | 1:E:294:PHE:CD2  | 2.44                     | 0.53              |
| 1:G:427:LEU:HD12 | 1:G:431:MET:HE2  | 1.91                     | 0.53              |
| 1:I:268:MET:HE3  | 1:I:302:ILE:HD12 | 1.90                     | 0.53              |
| 1:I:462:LEU:HD11 | 1:I:468:GLU:CB   | 2.37                     | 0.53              |
| 1:C:214:PRO:HG2  | 1:C:249:ASN:ND2  | 2.24                     | 0.53              |
| 1:F:214:PRO:HG2  | 1:F:249:ASN:ND2  | 2.22                     | 0.53              |
| 1:G:184:PRO:O    | 1:G:216:ILE:HG23 | 2.09                     | 0.53              |
| 1:I:24:LEU:HD12  | 1:I:434:GLU:OE1  | 2.08                     | 0.53              |
| 1:I:490:LYS:HE3  | 1:I:491:TYR:CE2  | 2.44                     | 0.53              |
| 1:A:51:ILE:HG22  | 1:A:52:PRO:HD2   | 1.90                     | 0.53              |
| 1:D:36:ILE:HG13  | 1:D:314:LEU:HB3  | 1.91                     | 0.53              |
| 1:D:288:ILE:HG12 | 1:D:297:ILE:CD1  | 2.38                     | 0.53              |
| 1:G:166:SER:HB2  | 1:G:243:ASN:ND2  | 2.24                     | 0.53              |
| 1:G:408:ASN:ND2  | 1:I:397:LYS:NZ   | 2.48                     | 0.53              |
| 1:G:455:LEU:O    | 1:G:456:ARG:HB2  | 2.08                     | 0.53              |
| 1:I:306:PRO:O    | 1:I:307:LYS:C    | 2.47                     | 0.53              |
| 1:B:494:GLU:O    | 1:B:495:SER:C    | 2.47                     | 0.53              |
| 1:E:379:ASN:HB2  | 1:F:24:LEU:HA    | 1.91                     | 0.53              |
| 1:G:9:VAL:HA     | 1:G:352:GLY:O    | 2.09                     | 0.53              |
| 1:G:284:PRO:HG2  | 1:G:298:HIS:CE1  | 2.44                     | 0.53              |
| 1:G:404:LYS:HA   | 1:G:404:LYS:HE3  | 1.90                     | 0.53              |
| 1:I:128:GLN:HB3  | 1:I:161:PRO:HG2  | 1.91                     | 0.53              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:488:TYR:O    | 1:B:492:GLU:HB2  | 2.08                     | 0.53              |
| 1:C:160:TYR:CZ   | 1:C:248:GLY:HA2  | 2.43                     | 0.53              |
| 1:D:26:ARG:O     | 1:D:27:ASN:HB2   | 2.08                     | 0.53              |
| 1:D:42:ASN:HB2   | 1:D:44:LYS:H     | 1.74                     | 0.53              |
| 1:F:55:GLU:OE2   | 1:F:273:THR:HG22 | 2.08                     | 0.53              |
| 1:G:26:ARG:CZ    | 1:I:379:ASN:HB3  | 2.39                     | 0.53              |
| 1:G:408:ASN:ND2  | 1:G:408:ASN:C    | 2.62                     | 0.53              |
| 1:A:461:GLU:HG3  | 1:A:467:PHE:HE1  | 1.72                     | 0.53              |
| 1:C:178:ILE:O    | 1:C:253:PRO:HG3  | 2.09                     | 0.53              |
| 1:D:215:GLU:OE1  | 1:F:210:LYS:HA   | 2.09                     | 0.53              |
| 1:E:284:PRO:HG2  | 1:E:298:HIS:CE1  | 2.44                     | 0.53              |
| 1:F:462:LEU:HD11 | 1:F:468:GLU:CB   | 2.36                     | 0.53              |
| 1:A:218:THR:HG22 | 1:A:218:THR:O    | 2.09                     | 0.53              |
| 1:A:451:VAL:O    | 1:A:452:ARG:HB2  | 2.08                     | 0.53              |
| 1:B:294:PHE:HB3  | 1:B:309:VAL:HG22 | 1.90                     | 0.53              |
| 1:C:114:HIS:O    | 1:C:259:ILE:O    | 2.26                     | 0.53              |
| 1:D:310:LYS:HZ2  | 1:D:418:LEU:CD2  | 2.22                     | 0.53              |
| 1:E:376:GLY:C    | 1:F:24:LEU:CD2   | 2.77                     | 0.53              |
| 1:F:55:GLU:HG3   | 1:F:274:LEU:HD22 | 1.91                     | 0.53              |
| 1:G:460:LYS:HD3  | 1:G:470:TYR:OH   | 2.09                     | 0.53              |
| 1:H:338:PHE:CE1  | 1:H:339:ILE:HG13 | 2.44                     | 0.53              |
| 1:H:436:THR:O    | 1:H:439:PHE:HB3  | 2.09                     | 0.53              |
| 1:A:199:ALA:HA   | 1:A:247:THR:OG1  | 2.09                     | 0.52              |
| 1:C:55:GLU:OE2   | 1:C:273:THR:HG22 | 2.08                     | 0.52              |
| 1:D:57:GLY:O     | 1:D:86:LYS:HD3   | 2.10                     | 0.52              |
| 1:D:72:ASP:O     | 1:D:74:LEU:N     | 2.41                     | 0.52              |
| 1:E:293:PRO:HB2  | 1:E:294:PHE:CE2  | 2.43                     | 0.52              |
| 1:H:214:PRO:HG2  | 1:H:249:ASN:ND2  | 2.23                     | 0.52              |
| 1:A:23:ILE:O     | 1:A:23:ILE:HG12  | 2.08                     | 0.52              |
| 1:A:38:GLU:N     | 1:A:294:PHE:O    | 2.39                     | 0.52              |
| 1:B:200:TYR:CE1  | 1:B:247:THR:HG23 | 2.44                     | 0.52              |
| 1:B:460:LYS:HD2  | 1:B:470:TYR:CE1  | 2.44                     | 0.52              |
| 1:E:214:PRO:HG2  | 1:E:249:ASN:ND2  | 2.23                     | 0.52              |
| 1:F:307:LYS:HE2  | 1:F:421:TRP:CE2  | 2.44                     | 0.52              |
| 1:A:392:PHE:C    | 1:A:392:PHE:CD2  | 2.83                     | 0.52              |
| 1:B:160:TYR:CZ   | 1:B:248:GLY:HA2  | 2.44                     | 0.52              |
| 1:C:8:CYS:HA     | 1:C:466:CYS:HA   | 1.92                     | 0.52              |
| 1:D:12:HIS:CD2   | 1:D:13:SER:N     | 2.74                     | 0.52              |
| 1:E:8:CYS:HA     | 1:E:465:GLY:O    | 2.09                     | 0.52              |
| 1:E:55:GLU:HG3   | 1:E:274:LEU:HD22 | 1.90                     | 0.52              |
| 1:H:9:VAL:C      | 1:H:343:TRP:CH2  | 2.82                     | 0.52              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:26:ARG:HD3   | 1:C:379:ASN:HD22 | 1.75                     | 0.52              |
| 1:A:82:TYR:CE1   | 1:A:268:MET:HE2  | 2.44                     | 0.52              |
| 1:A:190:GLN:HG2  | 1:A:197:VAL:HG22 | 1.90                     | 0.52              |
| 1:A:495:SER:O    | 1:A:496:LYS:HB2  | 2.09                     | 0.52              |
| 1:B:11:TYR:CD2   | 1:B:335:ILE:HG12 | 2.44                     | 0.52              |
| 1:B:201:VAL:HG22 | 1:B:250:LEU:HB2  | 1.91                     | 0.52              |
| 1:D:30:VAL:HG12  | 1:D:321:ARG:HA   | 1.92                     | 0.52              |
| 1:D:45:LEU:CD1   | 1:D:270:THR:HG21 | 2.37                     | 0.52              |
| 1:D:80:TRP:CZ2   | 1:D:112:VAL:HG21 | 2.45                     | 0.52              |
| 1:F:278:GLU:HG3  | 1:F:279:THR:H    | 1.74                     | 0.52              |
| 1:H:488:TYR:O    | 1:H:492:GLU:HB2  | 2.08                     | 0.52              |
| 1:A:53:PRO:HG3   | 1:A:82:TYR:CZ    | 2.44                     | 0.52              |
| 1:A:94:CYS:CB    | 1:A:138:CYS:SG   | 2.95                     | 0.52              |
| 1:A:460:LYS:HG2  | 1:A:470:TYR:CE1  | 2.44                     | 0.52              |
| 1:D:105:LEU:HB2  | 1:D:233:TRP:CE2  | 2.45                     | 0.52              |
| 1:D:162:VAL:HG22 | 1:D:247:THR:HG22 | 1.91                     | 0.52              |
| 1:E:42:ASN:HB3   | 1:E:287:ALA:H    | 1.75                     | 0.52              |
| 1:E:294:PHE:HB3  | 1:E:309:VAL:HG22 | 1.92                     | 0.52              |
| 1:F:288:ILE:CD1  | 1:F:297:ILE:HD12 | 2.40                     | 0.52              |
| 1:G:55:GLU:HG3   | 1:G:274:LEU:HD22 | 1.92                     | 0.52              |
| 1:G:167:TYR:CE2  | 1:G:169:ASN:HA   | 2.45                     | 0.52              |
| 1:G:311:SER:HB3  | 1:G:426:GLU:OE2  | 2.10                     | 0.52              |
| 1:B:11:TYR:HB3   | 1:B:444:VAL:CG2  | 2.40                     | 0.52              |
| 1:C:162:VAL:HG12 | 1:C:164:LYS:HG3  | 1.92                     | 0.52              |
| 1:D:67:GLY:O     | 1:D:68:ASN:C     | 2.47                     | 0.52              |
| 1:D:120:ILE:HG12 | 1:D:256:GLY:N    | 2.24                     | 0.52              |
| 1:G:7:ILE:HG13   | 1:G:355:HIS:HB3  | 1.90                     | 0.52              |
| 1:G:493:GLU:O    | 1:G:494:GLU:CB   | 2.57                     | 0.52              |
| 1:G:243:ASN:CB   | 1:H:218:THR:HB   | 2.40                     | 0.52              |
| 1:G:397:LYS:HG2  | 1:G:397:LYS:O    | 2.10                     | 0.52              |
| 1:A:331:LEU:HD22 | 1:C:442:SER:OG   | 2.10                     | 0.52              |
| 1:F:169:ASN:ND2  | 1:F:238:ILE:HA   | 2.20                     | 0.52              |
| 1:G:367:LYS:HE2  | 1:G:367:LYS:CA   | 2.40                     | 0.52              |
| 1:A:23:ILE:HD11  | 1:C:380:LYS:CG   | 2.40                     | 0.52              |
| 1:A:420:VAL:HG12 | 1:A:421:TRP:N    | 2.25                     | 0.52              |
| 1:B:259:ILE:CG2  | 1:B:260:SER:N    | 2.59                     | 0.52              |
| 1:C:493:GLU:O    | 1:C:494:GLU:CB   | 2.58                     | 0.52              |
| 1:D:67:GLY:O     | 1:D:148:ARG:HG2  | 2.09                     | 0.52              |
| 1:E:160:TYR:CZ   | 1:E:248:GLY:HA2  | 2.45                     | 0.52              |
| 1:E:307:LYS:HD2  | 1:E:421:TRP:CD1  | 2.45                     | 0.52              |
| 1:G:162:VAL:HG12 | 1:G:164:LYS:HG3  | 1.92                     | 0.52              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:306:PRO:O    | 1:G:307:LYS:C    | 2.47                     | 0.52              |
| 1:G:343:TRP:HE3  | 1:G:346:MET:HG2  | 1.75                     | 0.52              |
| 1:A:151:VAL:N    | 1:A:252:ALA:O    | 2.36                     | 0.52              |
| 1:A:197:VAL:CG1  | 1:A:198:GLY:H    | 2.15                     | 0.52              |
| 1:B:214:PRO:HG2  | 1:B:249:ASN:ND2  | 2.25                     | 0.52              |
| 1:B:300:LEU:HA   | 1:B:395:VAL:HB   | 1.91                     | 0.52              |
| 1:C:42:ASN:HB3   | 1:C:287:ALA:H    | 1.74                     | 0.52              |
| 1:D:183:HIS:CE1  | 1:D:215:GLU:HB2  | 2.44                     | 0.52              |
| 1:D:195:GLN:O    | 1:D:196:ASN:HB3  | 2.09                     | 0.52              |
| 1:E:442:SER:OG   | 1:F:331:LEU:O    | 2.26                     | 0.52              |
| 1:F:294:PHE:HB3  | 1:F:309:VAL:HG22 | 1.92                     | 0.52              |
| 1:H:332:PHE:CE2  | 1:H:442:SER:HB2  | 2.45                     | 0.52              |
| 1:I:332:PHE:CE2  | 1:I:442:SER:HB2  | 2.45                     | 0.52              |
| 1:A:195:GLN:O    | 1:A:196:ASN:HB3  | 2.10                     | 0.51              |
| 1:C:462:LEU:HD11 | 1:C:468:GLU:CB   | 2.37                     | 0.51              |
| 1:D:219:ARG:HD3  | 1:D:226:GLY:O    | 2.09                     | 0.51              |
| 1:D:221:GLU:OE1  | 1:D:224:GLY:HA2  | 2.10                     | 0.51              |
| 1:G:379:ASN:O    | 1:G:380:LYS:C    | 2.46                     | 0.51              |
| 1:A:116:GLU:OE1  | 1:A:258:LYS:HD3  | 2.10                     | 0.51              |
| 1:A:417:PHE:CD1  | 1:C:417:PHE:CE1  | 2.97                     | 0.51              |
| 1:C:187:GLU:O    | 1:C:190:GLN:HB3  | 2.10                     | 0.51              |
| 1:F:310:LYS:HD2  | 1:F:418:LEU:HD21 | 1.91                     | 0.51              |
| 1:I:53:PRO:HG3   | 1:I:82:TYR:CZ    | 2.45                     | 0.51              |
| 1:A:478:MET:C    | 1:A:480:SER:N    | 2.64                     | 0.51              |
| 1:B:48:LEU:O     | 1:B:49:ASN:HB2   | 2.10                     | 0.51              |
| 1:C:259:ILE:CG2  | 1:C:260:SER:N    | 2.60                     | 0.51              |
| 1:C:284:PRO:HG2  | 1:C:298:HIS:CE1  | 2.45                     | 0.51              |
| 1:C:293:PRO:HB2  | 1:C:294:PHE:CE2  | 2.45                     | 0.51              |
| 1:E:12:HIS:HB2   | 1:E:350:TRP:HA   | 1.91                     | 0.51              |
| 1:G:128:GLN:HB3  | 1:G:161:PRO:HG2  | 1.92                     | 0.51              |
| 1:G:457:ASP:C    | 1:G:459:VAL:H    | 2.13                     | 0.51              |
| 1:A:59:CYS:O     | 1:A:89:PRO:HB3   | 2.10                     | 0.51              |
| 1:A:305:CYS:O    | 1:A:306:PRO:O    | 2.29                     | 0.51              |
| 1:D:10:GLY:HA2   | 1:D:339:ILE:HG21 | 1.92                     | 0.51              |
| 1:F:162:VAL:HG12 | 1:F:164:LYS:HG3  | 1.92                     | 0.51              |
| 1:F:332:PHE:CE2  | 1:F:442:SER:HB2  | 2.46                     | 0.51              |
| 1:H:174:GLN:O    | 1:H:259:ILE:HG22 | 2.11                     | 0.51              |
| 1:A:102:TYR:O    | 1:A:106:LYS:HB2  | 2.10                     | 0.51              |
| 1:B:32:HIS:CE1   | 1:B:350:TRP:HE1  | 2.29                     | 0.51              |
| 1:D:23:ILE:CG1   | 1:F:380:LYS:HA   | 2.30                     | 0.51              |
| 1:D:96:PRO:HG3   | 1:D:222:VAL:O    | 2.10                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:195:GLN:O    | 1:D:196:ASN:CB   | 2.59                     | 0.51              |
| 1:E:9:VAL:CG2    | 1:E:448:TYR:HD1  | 2.23                     | 0.51              |
| 1:F:488:TYR:O    | 1:F:492:GLU:HB2  | 2.10                     | 0.51              |
| 1:G:409:LEU:HD11 | 1:I:410:ASN:OD1  | 2.10                     | 0.51              |
| 1:I:432:GLU:H    | 1:I:435:MET:HG3  | 1.76                     | 0.51              |
| 1:A:323:VAL:N    | 1:A:324:PRO:CD   | 2.74                     | 0.51              |
| 1:A:424:ASN:C    | 1:A:426:GLU:H    | 2.13                     | 0.51              |
| 1:B:9:VAL:CB     | 1:B:448:TYR:HD1  | 2.22                     | 0.51              |
| 1:C:293:PRO:HB2  | 1:C:294:PHE:CD2  | 2.45                     | 0.51              |
| 1:D:404:LYS:HB2  | 1:F:104:GLU:OE1  | 2.10                     | 0.51              |
| 1:F:7:ILE:O      | 1:F:467:PHE:N    | 2.38                     | 0.51              |
| 1:F:160:TYR:CZ   | 1:F:248:GLY:HA2  | 2.45                     | 0.51              |
| 1:H:10:GLY:HA3   | 1:H:343:TRP:CE2  | 2.46                     | 0.51              |
| 1:A:13:SER:CB    | 1:A:324:PRO:HG3  | 2.40                     | 0.51              |
| 1:E:243:ASN:HB2  | 1:F:218:THR:O    | 2.10                     | 0.51              |
| 1:E:400:SER:OG   | 1:E:403:GLU:HG3  | 2.11                     | 0.51              |
| 1:I:184:PRO:O    | 1:I:216:ILE:HG23 | 2.11                     | 0.51              |
| 1:D:126:TRP:CZ3  | 1:D:153:LEU:HD11 | 2.46                     | 0.51              |
| 1:E:48:LEU:O     | 1:E:49:ASN:HB2   | 2.11                     | 0.51              |
| 1:E:185:ASN:HD21 | 1:E:226:GLY:CA   | 2.19                     | 0.51              |
| 1:G:218:THR:O    | 1:I:243:ASN:HB2  | 2.11                     | 0.51              |
| 1:A:7:ILE:O      | 1:A:467:PHE:HB2  | 2.11                     | 0.51              |
| 1:D:216:ILE:HB   | 1:F:211:ARG:NH1  | 2.25                     | 0.51              |
| 1:D:332:PHE:CE2  | 1:D:442:SER:HB2  | 2.46                     | 0.51              |
| 1:I:399:PHE:CE1  | 1:I:406:LEU:HG   | 2.46                     | 0.51              |
| 1:A:9:VAL:O      | 1:A:339:ILE:HD13 | 2.10                     | 0.51              |
| 1:A:83:ILE:HB    | 1:A:267:ILE:HG13 | 1.93                     | 0.51              |
| 1:C:48:LEU:O     | 1:C:49:ASN:HB2   | 2.10                     | 0.51              |
| 1:C:166:SER:HB2  | 1:C:243:ASN:ND2  | 2.25                     | 0.51              |
| 1:I:335:ILE:HG13 | 1:I:441:ASP:HA   | 1.92                     | 0.51              |
| 1:A:178:ILE:O    | 1:A:253:PRO:HG3  | 2.11                     | 0.50              |
| 1:A:457:ASP:C    | 1:A:459:VAL:N    | 2.65                     | 0.50              |
| 1:A:475:ASP:O    | 1:A:479:ASN:HB3  | 2.11                     | 0.50              |
| 1:D:52:PRO:O     | 1:D:80:TRP:HA    | 2.11                     | 0.50              |
| 1:E:10:GLY:HA2   | 1:E:339:ILE:HG21 | 1.91                     | 0.50              |
| 1:E:20:VAL:HB    | 1:E:433:ASN:ND2  | 2.26                     | 0.50              |
| 1:I:22:THR:HG22  | 1:I:433:ASN:HB3  | 1.93                     | 0.50              |
| 1:A:179:TRP:CE2  | 1:A:203:VAL:HG21 | 2.46                     | 0.50              |
| 1:A:181:VAL:CG2  | 1:A:201:VAL:HG21 | 2.29                     | 0.50              |
| 1:A:461:GLU:HG3  | 1:A:467:PHE:CE1  | 2.46                     | 0.50              |
| 1:D:11:TYR:CZ    | 1:D:335:ILE:HG23 | 2.46                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:166:SER:HB2  | 1:E:243:ASN:ND2  | 2.25                     | 0.50              |
| 1:F:295:HIS:HD2  | 1:F:297:ILE:N    | 2.06                     | 0.50              |
| 1:G:458:ASN:C    | 1:G:459:VAL:HG22 | 2.31                     | 0.50              |
| 1:H:486:TYR:CG   | 1:H:487:ASP:N    | 2.79                     | 0.50              |
| 1:I:294:PHE:HB3  | 1:I:309:VAL:HG22 | 1.93                     | 0.50              |
| 1:A:166:SER:CB   | 1:A:243:ASN:ND2  | 2.71                     | 0.50              |
| 1:A:395:VAL:O    | 1:A:396:GLY:O    | 2.29                     | 0.50              |
| 1:D:83:ILE:HD11  | 1:D:109:ILE:O    | 2.12                     | 0.50              |
| 1:E:332:PHE:CE2  | 1:E:442:SER:HB2  | 2.45                     | 0.50              |
| 1:G:405:ARG:HD2  | 1:I:398:GLU:O    | 2.11                     | 0.50              |
| 1:A:462:LEU:HD12 | 1:A:462:LEU:N    | 2.27                     | 0.50              |
| 1:C:310:LYS:HD2  | 1:C:418:LEU:HD21 | 1.94                     | 0.50              |
| 1:D:196:ASN:O    | 1:D:196:ASN:ND2  | 2.33                     | 0.50              |
| 1:D:293:PRO:HD3  | 1:D:385:ILE:HG12 | 1.93                     | 0.50              |
| 1:D:335:ILE:HG13 | 1:D:441:ASP:HA   | 1.93                     | 0.50              |
| 1:I:284:PRO:HG2  | 1:I:298:HIS:CE1  | 2.46                     | 0.50              |
| 1:A:351:TYR:H    | 1:A:351:TYR:HD2  | 1.56                     | 0.50              |
| 1:B:169:ASN:ND2  | 1:B:238:ILE:HA   | 2.23                     | 0.50              |
| 1:C:317:ALA:O    | 1:C:436:THR:HG21 | 2.12                     | 0.50              |
| 1:H:7:ILE:CG1    | 1:H:355:HIS:HB3  | 2.38                     | 0.50              |
| 1:H:167:TYR:CE2  | 1:H:169:ASN:HA   | 2.46                     | 0.50              |
| 1:I:486:TYR:CG   | 1:I:487:ASP:N    | 2.79                     | 0.50              |
| 1:D:488:TYR:O    | 1:D:492:GLU:HB2  | 2.12                     | 0.50              |
| 1:E:7:ILE:O      | 1:E:467:PHE:HD2  | 1.94                     | 0.50              |
| 1:F:129:HIS:NE2  | 1:F:161:PRO:HD2  | 2.27                     | 0.50              |
| 1:G:458:ASN:HD21 | 1:G:491:TYR:HB2  | 1.74                     | 0.50              |
| 1:H:490:LYS:HE3  | 1:H:491:TYR:CE2  | 2.46                     | 0.50              |
| 1:I:293:PRO:CG   | 1:I:385:ILE:HG12 | 2.41                     | 0.50              |
| 1:A:282:GLN:HE22 | 1:A:287:ALA:N    | 2.10                     | 0.50              |
| 1:C:129:HIS:NE2  | 1:C:161:PRO:HD2  | 2.26                     | 0.50              |
| 1:C:332:PHE:CE2  | 1:C:442:SER:HB2  | 2.46                     | 0.50              |
| 1:E:141:PHE:HE2  | 1:G:274:LEU:HD11 | 1.76                     | 0.50              |
| 1:E:278:GLU:CG   | 1:E:279:THR:N    | 2.73                     | 0.50              |
| 1:E:388:MET:HE2  | 1:F:423:TYR:CE1  | 2.47                     | 0.50              |
| 1:E:490:LYS:HE3  | 1:E:491:TYR:CE2  | 2.47                     | 0.50              |
| 1:A:219:ARG:HG2  | 1:A:219:ARG:HH11 | 1.77                     | 0.50              |
| 1:A:283:THR:HA   | 1:A:301:THR:HG22 | 1.94                     | 0.50              |
| 1:A:452:ARG:C    | 1:A:454:GLN:H    | 2.14                     | 0.50              |
| 1:E:73:ARG:CZ    | 1:G:276:ASN:O    | 2.59                     | 0.50              |
| 1:E:436:THR:O    | 1:E:439:PHE:HB3  | 2.12                     | 0.50              |
| 1:G:366:ASP:C    | 1:G:368:GLU:H    | 2.15                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:451:VAL:HG12 | 1:H:452:ARG:N    | 2.26                     | 0.50              |
| 1:C:42:ASN:OD1   | 1:C:44:LYS:HE2   | 2.12                     | 0.50              |
| 1:C:294:PHE:HB3  | 1:C:309:VAL:CG2  | 2.41                     | 0.50              |
| 1:C:432:GLU:H    | 1:C:435:MET:HG3  | 1.77                     | 0.50              |
| 1:C:490:LYS:HE3  | 1:C:491:TYR:CE2  | 2.46                     | 0.50              |
| 1:E:259:ILE:CG2  | 1:E:260:SER:N    | 2.59                     | 0.50              |
| 1:H:128:GLN:HB3  | 1:H:161:PRO:HG2  | 1.94                     | 0.50              |
| 1:I:120:ILE:O    | 1:I:121:LEU:HD23 | 2.12                     | 0.50              |
| 1:A:389:ASN:HD22 | 1:A:390:THR:H    | 1.59                     | 0.49              |
| 1:C:444:VAL:O    | 1:C:447:LEU:N    | 2.44                     | 0.49              |
| 1:D:36:ILE:O     | 1:D:292:LEU:HB3  | 2.11                     | 0.49              |
| 1:D:211:ARG:HB2  | 1:E:215:GLU:HB3  | 1.93                     | 0.49              |
| 1:D:380:LYS:HA   | 1:E:23:ILE:HG12  | 1.93                     | 0.49              |
| 1:D:409:LEU:CD1  | 1:F:410:ASN:HB2  | 2.42                     | 0.49              |
| 1:E:178:ILE:O    | 1:E:253:PRO:HG3  | 2.11                     | 0.49              |
| 1:E:184:PRO:O    | 1:E:216:ILE:HG23 | 2.12                     | 0.49              |
| 1:G:53:PRO:CD    | 1:G:274:LEU:HD13 | 2.42                     | 0.49              |
| 1:A:94:CYS:SG    | 1:A:138:CYS:SG   | 3.10                     | 0.49              |
| 1:A:216:ILE:HB   | 1:C:211:ARG:NH1  | 2.27                     | 0.49              |
| 1:B:332:PHE:CD2  | 1:B:442:SER:HB2  | 2.48                     | 0.49              |
| 1:D:240:ASP:C    | 1:D:241:THR:HG22 | 2.32                     | 0.49              |
| 1:E:138:CYS:O    | 1:E:145:SER:HB3  | 2.12                     | 0.49              |
| 1:E:432:GLU:H    | 1:E:435:MET:HG3  | 1.76                     | 0.49              |
| 1:C:128:GLN:HB3  | 1:C:161:PRO:HG2  | 1.94                     | 0.49              |
| 1:D:8:CYS:HB3    | 1:D:343:TRP:HZ2  | 1.78                     | 0.49              |
| 1:D:12:HIS:CG    | 1:D:13:SER:N     | 2.78                     | 0.49              |
| 1:D:20:VAL:CG1   | 1:D:30:VAL:HG21  | 2.41                     | 0.49              |
| 1:A:320:LEU:HD23 | 1:A:320:LEU:N    | 2.27                     | 0.49              |
| 1:C:307:LYS:HE2  | 1:C:421:TRP:CE2  | 2.47                     | 0.49              |
| 1:D:100:ASN:O    | 1:D:101:ASP:HB2  | 2.12                     | 0.49              |
| 1:D:283:THR:HG22 | 1:D:285:LEU:N    | 2.14                     | 0.49              |
| 1:D:432:GLU:H    | 1:D:435:MET:HG3  | 1.78                     | 0.49              |
| 1:E:11:TYR:HE2   | 1:E:335:ILE:HA   | 1.62                     | 0.49              |
| 1:E:162:VAL:HG12 | 1:E:164:LYS:HG3  | 1.94                     | 0.49              |
| 1:F:120:ILE:O    | 1:F:121:LEU:HD23 | 2.12                     | 0.49              |
| 1:G:26:ARG:NH1   | 1:I:379:ASN:HB3  | 2.27                     | 0.49              |
| 1:G:45:LEU:H     | 1:G:45:LEU:HD12  | 1.77                     | 0.49              |
| 1:G:306:PRO:O    | 1:G:308:TYR:N    | 2.45                     | 0.49              |
| 1:G:430:LEU:C    | 1:G:431:MET:O    | 2.48                     | 0.49              |
| 1:G:474:ASP:O    | 1:G:477:CYS:HB3  | 2.13                     | 0.49              |
| 1:D:14:ASN:O     | 1:D:16:SER:N     | 2.45                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:120:ILE:O    | 1:E:121:LEU:HD23 | 2.12                     | 0.49              |
| 1:F:184:PRO:O    | 1:F:216:ILE:HG23 | 2.12                     | 0.49              |
| 1:F:338:PHE:CE1  | 1:F:339:ILE:CG1  | 2.96                     | 0.49              |
| 1:G:243:ASN:HB3  | 1:H:218:THR:HB   | 1.95                     | 0.49              |
| 1:G:424:ASN:O    | 1:G:425:ALA:O    | 2.30                     | 0.49              |
| 1:H:53:PRO:HG3   | 1:H:82:TYR:CZ    | 2.48                     | 0.49              |
| 1:H:493:GLU:O    | 1:H:494:GLU:CB   | 2.60                     | 0.49              |
| 1:H:493:GLU:O    | 1:H:494:GLU:HB3  | 2.12                     | 0.49              |
| 1:A:28:VAL:HG12  | 1:A:30:VAL:HG12  | 1.93                     | 0.49              |
| 1:A:282:GLN:HE21 | 1:A:282:GLN:C    | 2.16                     | 0.49              |
| 1:A:460:LYS:O    | 1:A:468:GLU:HB3  | 2.12                     | 0.49              |
| 1:C:142:ASP:OD2  | 1:G:27:ASN:OD1   | 2.31                     | 0.49              |
| 1:D:23:ILE:CG1   | 1:D:23:ILE:O     | 2.61                     | 0.49              |
| 1:I:174:GLN:O    | 1:I:259:ILE:HG22 | 2.13                     | 0.49              |
| 1:I:201:VAL:HG22 | 1:I:250:LEU:HB2  | 1.95                     | 0.49              |
| 1:A:107:HIS:ND1  | 1:A:107:HIS:C    | 2.65                     | 0.49              |
| 1:B:162:VAL:HG12 | 1:B:164:LYS:HG3  | 1.94                     | 0.49              |
| 1:C:167:TYR:CE2  | 1:C:169:ASN:HA   | 2.48                     | 0.49              |
| 1:D:14:ASN:OD1   | 1:D:16:SER:HB2   | 2.11                     | 0.49              |
| 1:D:42:ASN:CB    | 1:D:44:LYS:H     | 2.25                     | 0.49              |
| 1:D:486:TYR:CG   | 1:D:487:ASP:N    | 2.79                     | 0.49              |
| 1:F:189:GLU:OE2  | 2:J:2:SIA:C9     | 2.59                     | 0.49              |
| 1:H:10:GLY:O     | 1:H:346:MET:HE1  | 2.12                     | 0.49              |
| 1:C:143:ASN:HD21 | 1:G:19:LYS:CE    | 2.23                     | 0.49              |
| 1:F:128:GLN:HB3  | 1:F:161:PRO:HG2  | 1.93                     | 0.49              |
| 1:G:295:HIS:CE1  | 1:G:308:TYR:HB2  | 2.48                     | 0.49              |
| 1:B:317:ALA:O    | 1:B:436:THR:HG21 | 2.12                     | 0.49              |
| 1:D:204:GLY:HA2  | 1:D:208:LEU:O    | 2.13                     | 0.49              |
| 1:E:9:VAL:HG11   | 1:E:448:TYR:CB   | 2.34                     | 0.49              |
| 1:G:187:GLU:O    | 1:G:190:GLN:HB3  | 2.12                     | 0.49              |
| 1:G:288:ILE:HD11 | 1:G:297:ILE:HD12 | 1.95                     | 0.49              |
| 1:I:167:TYR:CE2  | 1:I:169:ASN:HA   | 2.47                     | 0.49              |
| 1:B:128:GLN:HB3  | 1:B:161:PRO:HG2  | 1.94                     | 0.49              |
| 1:B:432:GLU:H    | 1:B:435:MET:HG3  | 1.77                     | 0.49              |
| 1:D:80:TRP:CZ2   | 1:D:112:VAL:CG2  | 2.96                     | 0.49              |
| 1:E:167:TYR:CE2  | 1:E:169:ASN:HA   | 2.47                     | 0.49              |
| 1:E:179:TRP:CE2  | 1:E:203:VAL:HG21 | 2.48                     | 0.49              |
| 1:E:471:HIS:HB2  | 1:E:494:GLU:HG2  | 1.91                     | 0.49              |
| 1:F:32:HIS:CE1   | 1:F:350:TRP:HE1  | 2.31                     | 0.49              |
| 1:F:48:LEU:O     | 1:F:49:ASN:HB2   | 2.12                     | 0.49              |
| 1:H:55:GLU:HG3   | 1:H:274:LEU:HD22 | 1.94                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:284:PRO:HG2  | 1:H:298:HIS:CE1  | 2.47                     | 0.49              |
| 1:I:179:TRP:CE2  | 1:I:203:VAL:HG21 | 2.48                     | 0.49              |
| 1:I:295:HIS:CE1  | 1:I:308:TYR:HB2  | 2.48                     | 0.49              |
| 1:A:135:SER:N    | 1:A:144:PRO:HB3  | 2.28                     | 0.48              |
| 1:B:293:PRO:HG3  | 1:B:385:ILE:HG12 | 1.93                     | 0.48              |
| 1:E:7:ILE:HG23   | 1:E:467:PHE:HD2  | 1.78                     | 0.48              |
| 1:E:295:HIS:HD2  | 1:E:297:ILE:N    | 2.06                     | 0.48              |
| 1:F:42:ASN:OD1   | 1:F:44:LYS:HE2   | 2.13                     | 0.48              |
| 1:G:205:THR:C    | 1:H:220:PRO:HD2  | 2.34                     | 0.48              |
| 1:G:428:LEU:O    | 1:G:431:MET:O    | 2.31                     | 0.48              |
| 1:H:410:ASN:HB2  | 1:I:409:LEU:HD11 | 1.95                     | 0.48              |
| 1:I:169:ASN:ND2  | 1:I:238:ILE:HA   | 2.23                     | 0.48              |
| 1:B:335:ILE:HG13 | 1:B:441:ASP:HA   | 1.95                     | 0.48              |
| 1:D:462:LEU:HD11 | 1:D:468:GLU:CB   | 2.38                     | 0.48              |
| 1:E:486:TYR:CG   | 1:E:487:ASP:N    | 2.79                     | 0.48              |
| 1:H:53:PRO:CD    | 1:H:274:LEU:HD13 | 2.43                     | 0.48              |
| 1:A:369:SER:H    | 1:A:371:GLN:H    | 1.61                     | 0.48              |
| 1:A:460:LYS:HE2  | 1:A:468:GLU:HG2  | 1.95                     | 0.48              |
| 1:B:167:TYR:CE2  | 1:B:169:ASN:HA   | 2.48                     | 0.48              |
| 1:B:462:LEU:HD11 | 1:B:468:GLU:CB   | 2.39                     | 0.48              |
| 1:D:12:HIS:CE1   | 1:D:347:VAL:HA   | 2.48                     | 0.48              |
| 1:E:140:VAL:HG12 | 1:E:141:PHE:N    | 2.28                     | 0.48              |
| 1:F:45:LEU:CD2   | 1:F:270:THR:HG21 | 2.43                     | 0.48              |
| 1:F:133:GLY:HA3  | 2:J:2:SIA:C11    | 2.41                     | 0.48              |
| 1:F:490:LYS:HE3  | 1:F:491:TYR:CE2  | 2.48                     | 0.48              |
| 1:H:184:PRO:O    | 1:H:216:ILE:HG23 | 2.13                     | 0.48              |
| 1:H:187:GLU:O    | 1:H:190:GLN:HB3  | 2.13                     | 0.48              |
| 1:A:140:VAL:HG12 | 1:A:141:PHE:H    | 1.78                     | 0.48              |
| 1:B:184:PRO:O    | 1:B:216:ILE:HG23 | 2.14                     | 0.48              |
| 1:E:128:GLN:HB3  | 1:E:161:PRO:HG2  | 1.94                     | 0.48              |
| 1:E:316:LEU:HD11 | 1:E:384:VAL:HG11 | 1.95                     | 0.48              |
| 1:E:399:PHE:CE1  | 1:E:406:LEU:HG   | 2.49                     | 0.48              |
| 1:H:31:THR:C     | 1:H:32:HIS:CG    | 2.86                     | 0.48              |
| 1:H:294:PHE:HB3  | 1:H:309:VAL:CG2  | 2.43                     | 0.48              |
| 1:A:17:THR:O     | 1:A:18:GLU:C     | 2.50                     | 0.48              |
| 1:A:262:ARG:HG3  | 1:A:262:ARG:NH1  | 2.19                     | 0.48              |
| 1:B:294:PHE:HB3  | 1:B:309:VAL:CG2  | 2.43                     | 0.48              |
| 1:D:23:ILE:O     | 1:F:379:ASN:C    | 2.52                     | 0.48              |
| 1:D:87:GLU:OE1   | 1:D:269:LYS:HD2  | 2.14                     | 0.48              |
| 1:D:168:ASN:O    | 1:D:170:THR:HG22 | 2.13                     | 0.48              |
| 1:E:9:VAL:CG2    | 1:E:448:TYR:CD1  | 2.97                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:310:LYS:HB2  | 1:E:418:LEU:HD21 | 1.95                     | 0.48              |
| 1:F:42:ASN:HB3   | 1:F:287:ALA:H    | 1.79                     | 0.48              |
| 1:G:278:GLU:HG3  | 1:G:279:THR:H    | 1.79                     | 0.48              |
| 1:G:355:HIS:CD2  | 1:G:361:SER:HB3  | 2.48                     | 0.48              |
| 1:G:455:LEU:HD23 | 1:G:459:VAL:HG21 | 1.95                     | 0.48              |
| 1:I:294:PHE:HB3  | 1:I:309:VAL:CG2  | 2.43                     | 0.48              |
| 1:I:488:TYR:O    | 1:I:492:GLU:HB2  | 2.13                     | 0.48              |
| 1:A:206:SER:HG   | 1:A:240:ASP:CG   | 2.17                     | 0.48              |
| 1:B:19:LYS:HE2   | 1:B:29:THR:OG1   | 2.14                     | 0.48              |
| 1:C:338:PHE:CE1  | 1:C:339:ILE:CG1  | 2.97                     | 0.48              |
| 1:C:486:TYR:CG   | 1:C:487:ASP:N    | 2.79                     | 0.48              |
| 1:D:108:LEU:HD12 | 1:D:108:LEU:O    | 2.14                     | 0.48              |
| 1:D:494:GLU:O    | 1:D:494:GLU:HG3  | 2.12                     | 0.48              |
| 1:E:114:HIS:O    | 1:E:259:ILE:O    | 2.32                     | 0.48              |
| 1:F:53:PRO:HG3   | 1:F:82:TYR:CZ    | 2.49                     | 0.48              |
| 1:I:66:LEU:O     | 1:I:147:PHE:HB3  | 2.13                     | 0.48              |
| 1:I:278:GLU:O    | 1:I:279:THR:HB   | 2.13                     | 0.48              |
| 1:B:42:ASN:HB3   | 1:B:287:ALA:H    | 1.79                     | 0.48              |
| 1:C:293:PRO:HG3  | 1:C:385:ILE:HG23 | 1.95                     | 0.48              |
| 1:E:42:ASN:OD1   | 1:E:44:LYS:HE2   | 2.13                     | 0.48              |
| 1:H:45:LEU:H     | 1:H:45:LEU:HD12  | 1.79                     | 0.48              |
| 1:H:48:LEU:O     | 1:H:49:ASN:HB2   | 2.14                     | 0.48              |
| 1:H:306:PRO:O    | 1:H:308:TYR:N    | 2.47                     | 0.48              |
| 1:C:488:TYR:O    | 1:C:492:GLU:HB2  | 2.13                     | 0.48              |
| 1:D:83:ILE:HD12  | 1:D:110:SER:HA   | 1.96                     | 0.48              |
| 1:D:183:HIS:ND1  | 1:F:209:ASN:ND2  | 2.59                     | 0.48              |
| 1:D:294:PHE:O    | 1:D:295:HIS:HB3  | 2.13                     | 0.48              |
| 1:H:77:VAL:HG22  | 1:H:79:GLU:O     | 2.14                     | 0.48              |
| 1:H:278:GLU:O    | 1:H:279:THR:HB   | 2.14                     | 0.48              |
| 1:I:42:ASN:OD1   | 1:I:44:LYS:HE2   | 2.13                     | 0.48              |
| 1:I:436:THR:O    | 1:I:439:PHE:HB3  | 2.13                     | 0.48              |
| 1:B:278:GLU:CG   | 1:B:279:THR:N    | 2.74                     | 0.48              |
| 1:D:119:LYS:HA   | 1:D:255:TYR:CD1  | 2.48                     | 0.48              |
| 1:D:294:PHE:CZ   | 1:D:425:ALA:HB2  | 2.49                     | 0.48              |
| 1:D:490:LYS:HE3  | 1:D:491:TYR:CE2  | 2.48                     | 0.48              |
| 1:G:38:GLU:OE2   | 1:G:40:THR:HG22  | 2.14                     | 0.48              |
| 1:G:200:TYR:CE1  | 1:G:211:ARG:NH2  | 2.82                     | 0.48              |
| 1:G:332:PHE:CZ   | 1:H:331:LEU:HD12 | 2.49                     | 0.48              |
| 1:A:262:ARG:HH11 | 1:A:262:ARG:CG   | 2.17                     | 0.48              |
| 1:B:53:PRO:HG3   | 1:B:82:TYR:CZ    | 2.48                     | 0.48              |
| 1:D:36:ILE:C     | 1:D:292:LEU:HD13 | 2.34                     | 0.48              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:104:GLU:OE2  | 1:E:405:ARG:HB2  | 2.14                     | 0.48              |
| 1:D:242:ILE:HG12 | 1:D:243:ASN:N    | 2.29                     | 0.48              |
| 1:F:200:TYR:CE1  | 1:F:211:ARG:NH2  | 2.82                     | 0.48              |
| 1:H:162:VAL:HG12 | 1:H:164:LYS:HG3  | 1.95                     | 0.48              |
| 1:H:166:SER:HB2  | 1:H:243:ASN:ND2  | 2.29                     | 0.48              |
| 1:A:61:ILE:O     | 1:A:65:LEU:HD12  | 2.14                     | 0.47              |
| 1:A:124:ASP:OD2  | 1:A:125:ARG:HG3  | 2.14                     | 0.47              |
| 1:B:490:LYS:HE3  | 1:B:491:TYR:CE2  | 2.49                     | 0.47              |
| 1:C:200:TYR:CE1  | 1:C:247:THR:HG23 | 2.49                     | 0.47              |
| 1:G:268:MET:HE3  | 1:G:302:ILE:HD12 | 1.95                     | 0.47              |
| 1:H:179:TRP:CE2  | 1:H:203:VAL:HG21 | 2.49                     | 0.47              |
| 1:H:200:TYR:CE1  | 1:H:211:ARG:NH2  | 2.82                     | 0.47              |
| 1:A:36:ILE:HD11  | 1:A:429:VAL:CG2  | 2.44                     | 0.47              |
| 1:A:375:ASP:OD1  | 1:A:375:ASP:N    | 2.35                     | 0.47              |
| 1:A:417:PHE:CE1  | 1:C:417:PHE:CE1  | 3.02                     | 0.47              |
| 1:B:399:PHE:CE1  | 1:B:406:LEU:HG   | 2.49                     | 0.47              |
| 1:F:432:GLU:H    | 1:F:435:MET:HG3  | 1.78                     | 0.47              |
| 1:G:417:PHE:CE1  | 1:H:416:GLY:C    | 2.87                     | 0.47              |
| 1:G:490:LYS:O    | 1:G:493:GLU:HB2  | 2.15                     | 0.47              |
| 1:H:200:TYR:CE1  | 1:H:247:THR:HG23 | 2.49                     | 0.47              |
| 1:I:162:VAL:HG12 | 1:I:164:LYS:HG3  | 1.95                     | 0.47              |
| 1:I:166:SER:HB2  | 1:I:243:ASN:ND2  | 2.29                     | 0.47              |
| 1:A:378:THR:O    | 1:A:381:VAL:HB   | 2.15                     | 0.47              |
| 1:E:490:LYS:C    | 1:E:492:GLU:H    | 2.17                     | 0.47              |
| 1:F:277:CYS:HB2  | 1:F:278:GLU:H    | 1.59                     | 0.47              |
| 1:H:120:ILE:O    | 1:H:121:LEU:HD23 | 2.15                     | 0.47              |
| 1:I:55:GLU:HG3   | 1:I:274:LEU:HD22 | 1.96                     | 0.47              |
| 1:I:114:HIS:O    | 1:I:259:ILE:O    | 2.32                     | 0.47              |
| 1:A:171:SER:HB2  | 1:A:258:LYS:HE3  | 1.97                     | 0.47              |
| 1:B:11:TYR:CZ    | 1:B:335:ILE:HA   | 2.50                     | 0.47              |
| 1:D:186:ASP:HA   | 1:D:216:ILE:CG2  | 2.42                     | 0.47              |
| 1:D:325:GLN:HG3  | 1:D:341:GLY:HA3  | 1.95                     | 0.47              |
| 1:D:400:SER:OG   | 1:D:403:GLU:HG3  | 2.14                     | 0.47              |
| 1:E:73:ARG:CA    | 1:G:44:LYS:NZ    | 2.78                     | 0.47              |
| 1:E:293:PRO:CG   | 1:E:385:ILE:HG12 | 2.44                     | 0.47              |
| 1:F:400:SER:OG   | 1:F:403:GLU:HG3  | 2.15                     | 0.47              |
| 1:G:174:GLN:O    | 1:G:259:ILE:HG22 | 2.13                     | 0.47              |
| 1:H:332:PHE:CD2  | 1:H:442:SER:HB2  | 2.48                     | 0.47              |
| 1:B:130:THR:HB   | 1:B:154:THR:OG1  | 2.13                     | 0.47              |
| 1:C:143:ASN:HD21 | 1:G:19:LYS:HE3   | 1.79                     | 0.47              |
| 1:C:169:ASN:ND2  | 1:C:238:ILE:HA   | 2.22                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:278:GLU:HG3  | 1:C:279:THR:H    | 1.77                     | 0.47              |
| 1:D:266:GLY:HA3  | 1:D:394:ALA:HB1  | 1.95                     | 0.47              |
| 1:F:53:PRO:CD    | 1:F:274:LEU:HD13 | 2.45                     | 0.47              |
| 1:H:306:PRO:O    | 1:H:307:LYS:C    | 2.51                     | 0.47              |
| 1:I:404:LYS:HA   | 1:I:404:LYS:HD2  | 1.63                     | 0.47              |
| 1:C:11:TYR:CD2   | 1:C:335:ILE:HG12 | 2.49                     | 0.47              |
| 1:E:66:LEU:O     | 1:E:147:PHE:HB3  | 2.15                     | 0.47              |
| 1:E:278:GLU:O    | 1:E:279:THR:HB   | 2.15                     | 0.47              |
| 1:E:294:PHE:HB3  | 1:E:309:VAL:CG2  | 2.45                     | 0.47              |
| 1:A:178:ILE:HG12 | 1:A:233:TRP:HB3  | 1.96                     | 0.47              |
| 1:A:458:ASN:OD1  | 1:A:488:TYR:CE1  | 2.68                     | 0.47              |
| 1:A:460:LYS:HG3  | 1:A:468:GLU:HG2  | 1.95                     | 0.47              |
| 1:C:80:TRP:CE2   | 1:C:112:VAL:HG22 | 2.49                     | 0.47              |
| 1:C:129:HIS:CD2  | 1:C:161:PRO:HD2  | 2.50                     | 0.47              |
| 1:D:20:VAL:HG13  | 1:D:30:VAL:CG2   | 2.43                     | 0.47              |
| 1:D:34:GLN:CG    | 1:D:35:ASP:N     | 2.78                     | 0.47              |
| 1:D:163:ALA:O    | 1:D:245:GLU:HA   | 2.15                     | 0.47              |
| 1:D:219:ARG:NH2  | 1:F:209:ASN:OD1  | 2.44                     | 0.47              |
| 1:E:187:GLU:O    | 1:E:190:GLN:HB3  | 2.15                     | 0.47              |
| 1:E:201:VAL:HG22 | 1:E:250:LEU:HB2  | 1.96                     | 0.47              |
| 1:E:211:ARG:NH1  | 1:F:216:ILE:HB   | 2.29                     | 0.47              |
| 1:E:324:PRO:O    | 1:E:325:GLN:HB2  | 2.15                     | 0.47              |
| 1:F:66:LEU:O     | 1:F:147:PHE:HB3  | 2.14                     | 0.47              |
| 1:F:310:LYS:HD2  | 1:F:418:LEU:CD2  | 2.44                     | 0.47              |
| 1:G:240:ASP:OD1  | 1:H:220:PRO:HG2  | 2.15                     | 0.47              |
| 1:G:462:LEU:CD1  | 1:G:462:LEU:H    | 2.27                     | 0.47              |
| 1:H:42:ASN:OD1   | 1:H:44:LYS:HE2   | 2.15                     | 0.47              |
| 1:H:201:VAL:HG22 | 1:H:250:LEU:HB2  | 1.96                     | 0.47              |
| 1:I:295:HIS:HD2  | 1:I:297:ILE:N    | 2.05                     | 0.47              |
| 1:I:490:LYS:C    | 1:I:492:GLU:H    | 2.17                     | 0.47              |
| 1:A:248:GLY:O    | 1:A:249:ASN:HB2  | 2.14                     | 0.47              |
| 1:B:277:CYS:HB2  | 1:B:278:GLU:H    | 1.60                     | 0.47              |
| 1:B:307:LYS:HE2  | 1:B:421:TRP:CE2  | 2.50                     | 0.47              |
| 1:D:436:THR:O    | 1:D:439:PHE:HB3  | 2.14                     | 0.47              |
| 1:E:379:ASN:HB3  | 1:F:23:ILE:O     | 2.14                     | 0.47              |
| 1:G:42:ASN:HB2   | 1:G:287:ALA:O    | 2.15                     | 0.47              |
| 1:G:471:HIS:CE1  | 1:G:491:TYR:CD1  | 3.03                     | 0.47              |
| 1:A:38:GLU:OE2   | 1:A:39:LYS:N     | 2.44                     | 0.47              |
| 1:A:81:SER:HB2   | 1:A:82:TYR:CD2   | 2.50                     | 0.47              |
| 1:A:117:LYS:HE3  | 1:A:255:TYR:CG   | 2.50                     | 0.47              |
| 1:E:73:ARG:CD    | 1:G:276:ASN:O    | 2.63                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:7:ILE:HB     | 1:G:478:MET:SD   | 2.54                     | 0.47              |
| 1:H:23:ILE:CG2   | 1:H:434:GLU:HG2  | 2.34                     | 0.47              |
| 1:H:42:ASN:HB2   | 1:H:287:ALA:O    | 2.14                     | 0.47              |
| 1:H:268:MET:HE3  | 1:H:302:ILE:HD12 | 1.95                     | 0.47              |
| 1:H:288:ILE:CD1  | 1:H:297:ILE:HD12 | 2.44                     | 0.47              |
| 1:H:417:PHE:CZ   | 1:I:416:GLY:HA3  | 2.49                     | 0.47              |
| 1:A:95:TYR:HD2   | 1:A:229:MET:HG3  | 1.79                     | 0.47              |
| 1:A:138:CYS:O    | 1:A:145:SER:HB3  | 2.15                     | 0.47              |
| 1:A:455:LEU:HB3  | 1:A:459:VAL:HG21 | 1.97                     | 0.47              |
| 1:B:120:ILE:O    | 1:B:121:LEU:HD23 | 2.15                     | 0.47              |
| 1:B:178:ILE:O    | 1:B:253:PRO:HG3  | 2.15                     | 0.47              |
| 1:D:155:LYS:HE2  | 1:D:192:THR:O    | 2.14                     | 0.47              |
| 1:F:294:PHE:HB3  | 1:F:309:VAL:CG2  | 2.45                     | 0.47              |
| 1:I:288:ILE:HD11 | 1:I:297:ILE:HD12 | 1.97                     | 0.47              |
| 1:A:77:VAL:HG23  | 1:A:78:PRO:HD2   | 1.97                     | 0.46              |
| 1:A:404:LYS:HA   | 1:A:404:LYS:HD3  | 1.54                     | 0.46              |
| 1:B:166:SER:HB2  | 1:B:243:ASN:ND2  | 2.30                     | 0.46              |
| 1:H:31:THR:O     | 1:H:32:HIS:CD2   | 2.69                     | 0.46              |
| 1:H:462:LEU:HD11 | 1:H:468:GLU:CB   | 2.39                     | 0.46              |
| 1:I:142:ASP:OD2  | 1:I:142:ASP:N    | 2.48                     | 0.46              |
| 1:A:154:THR:O    | 1:A:193:LEU:O    | 2.34                     | 0.46              |
| 1:A:168:ASN:CB   | 1:A:241:THR:HG22 | 2.45                     | 0.46              |
| 1:A:459:VAL:HG12 | 1:A:469:PHE:CA   | 2.23                     | 0.46              |
| 1:B:80:TRP:CE2   | 1:B:112:VAL:HG22 | 2.50                     | 0.46              |
| 1:C:138:CYS:O    | 1:C:145:SER:HB3  | 2.14                     | 0.46              |
| 1:D:185:ASN:O    | 1:D:186:ASP:HB3  | 2.15                     | 0.46              |
| 1:D:248:GLY:C    | 1:D:249:ASN:HD22 | 2.18                     | 0.46              |
| 1:E:9:VAL:O      | 1:E:339:ILE:CD1  | 2.50                     | 0.46              |
| 1:E:200:TYR:CE1  | 1:E:211:ARG:NH2  | 2.82                     | 0.46              |
| 1:H:169:ASN:ND2  | 1:H:238:ILE:HA   | 2.22                     | 0.46              |
| 1:I:138:CYS:O    | 1:I:145:SER:HB3  | 2.14                     | 0.46              |
| 1:A:12:HIS:CD2   | 1:A:13:SER:C     | 2.89                     | 0.46              |
| 1:A:95:TYR:CD2   | 1:A:229:MET:HG3  | 2.50                     | 0.46              |
| 1:B:42:ASN:OD1   | 1:B:44:LYS:HE2   | 2.16                     | 0.46              |
| 1:B:382:ASN:O    | 1:B:386:GLU:N    | 2.47                     | 0.46              |
| 1:D:193:LEU:HB2  | 1:D:194:TYR:CE2  | 2.50                     | 0.46              |
| 1:E:462:LEU:HD11 | 1:E:468:GLU:CB   | 2.39                     | 0.46              |
| 1:G:48:LEU:O     | 1:G:49:ASN:HB2   | 2.14                     | 0.46              |
| 1:G:200:TYR:CE1  | 1:G:247:THR:HG23 | 2.51                     | 0.46              |
| 1:G:448:TYR:OH   | 1:G:461:GLU:HG3  | 2.15                     | 0.46              |
| 1:H:410:ASN:HB2  | 1:I:409:LEU:HD13 | 1.96                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:7:ILE:HA     | 1:I:355:HIS:HA   | 1.96                     | 0.46              |
| 1:I:338:PHE:CE1  | 1:I:339:ILE:HG13 | 2.50                     | 0.46              |
| 1:A:154:THR:O    | 1:A:155:LYS:CB   | 2.60                     | 0.46              |
| 1:B:12:HIS:N     | 1:B:350:TRP:O    | 2.32                     | 0.46              |
| 1:B:268:MET:HE3  | 1:B:302:ILE:HD12 | 1.98                     | 0.46              |
| 1:B:310:LYS:HD2  | 1:B:418:LEU:CD2  | 2.45                     | 0.46              |
| 1:B:323:VAL:HA   | 1:B:324:PRO:HD3  | 1.62                     | 0.46              |
| 1:E:7:ILE:HG22   | 1:E:467:PHE:CG   | 2.51                     | 0.46              |
| 1:E:456:ARG:CD   | 1:F:461:GLU:O    | 2.64                     | 0.46              |
| 1:F:166:SER:HB2  | 1:F:243:ASN:ND2  | 2.29                     | 0.46              |
| 1:G:357:ASN:OD1  | 1:G:475:ASP:OD1  | 2.33                     | 0.46              |
| 1:A:117:LYS:HG3  | 1:A:257:PHE:CD1  | 2.51                     | 0.46              |
| 1:A:402:LEU:HD23 | 1:A:402:LEU:HA   | 1.67                     | 0.46              |
| 1:A:428:LEU:C    | 1:A:428:LEU:HD23 | 2.35                     | 0.46              |
| 1:B:187:GLU:O    | 1:B:190:GLN:HB3  | 2.15                     | 0.46              |
| 1:D:155:LYS:HD3  | 1:D:195:GLN:HB2  | 1.98                     | 0.46              |
| 1:F:278:GLU:O    | 1:F:279:THR:HB   | 2.15                     | 0.46              |
| 1:F:490:LYS:C    | 1:F:492:GLU:H    | 2.19                     | 0.46              |
| 1:G:383:SER:HB3  | 1:H:26:ARG:NH2   | 2.30                     | 0.46              |
| 1:I:332:PHE:CD2  | 1:I:442:SER:HB2  | 2.50                     | 0.46              |
| 1:A:94:CYS:HB3   | 1:A:137:GLY:O    | 2.15                     | 0.46              |
| 1:B:12:HIS:CB    | 1:B:350:TRP:HA   | 2.46                     | 0.46              |
| 1:C:141:PHE:N    | 1:C:142:ASP:CA   | 2.73                     | 0.46              |
| 1:C:436:THR:O    | 1:C:439:PHE:HB3  | 2.15                     | 0.46              |
| 1:D:118:VAL:CG2  | 1:D:120:ILE:HG23 | 2.46                     | 0.46              |
| 1:D:183:HIS:HB3  | 1:D:219:ARG:NH2  | 2.30                     | 0.46              |
| 1:E:53:PRO:HG3   | 1:E:82:TYR:CZ    | 2.51                     | 0.46              |
| 1:G:488:TYR:O    | 1:G:490:LYS:N    | 2.49                     | 0.46              |
| 1:H:36:ILE:O     | 1:H:292:LEU:HB3  | 2.16                     | 0.46              |
| 1:A:61:ILE:CG2   | 1:A:109:ILE:HD11 | 2.45                     | 0.46              |
| 1:A:182:HIS:HD2  | 1:A:194:TYR:HE2  | 1.63                     | 0.46              |
| 1:B:338:PHE:CE1  | 1:B:339:ILE:CG1  | 2.98                     | 0.46              |
| 1:C:295:HIS:HD2  | 1:C:297:ILE:N    | 2.07                     | 0.46              |
| 1:D:399:PHE:CE1  | 1:D:406:LEU:HG   | 2.51                     | 0.46              |
| 1:F:442:SER:O    | 1:F:446:ASN:HB2  | 2.16                     | 0.46              |
| 1:G:201:VAL:HG22 | 1:G:250:LEU:HB2  | 1.97                     | 0.46              |
| 1:H:12:HIS:CE1   | 1:H:13:SER:O     | 2.68                     | 0.46              |
| 1:I:42:ASN:HB2   | 1:I:287:ALA:O    | 2.15                     | 0.46              |
| 1:I:53:PRO:CD    | 1:I:274:LEU:HD13 | 2.45                     | 0.46              |
| 1:C:77:VAL:HG22  | 1:C:79:GLU:O     | 2.16                     | 0.46              |
| 1:C:490:LYS:C    | 1:C:492:GLU:H    | 2.20                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:11:TYR:HE2   | 1:D:335:ILE:HA   | 1.80                     | 0.46              |
| 1:D:58:ASP:HB3   | 1:D:90:ARG:HB2   | 1.97                     | 0.46              |
| 1:E:338:PHE:CE1  | 1:E:339:ILE:CG1  | 2.99                     | 0.46              |
| 1:F:167:TYR:CE2  | 1:F:169:ASN:HA   | 2.50                     | 0.46              |
| 1:G:310:LYS:HD3  | 1:I:389:ASN:OD1  | 2.15                     | 0.46              |
| 1:I:200:TYR:CE1  | 1:I:247:THR:HG23 | 2.50                     | 0.46              |
| 1:I:324:PRO:HB2  | 1:I:325:GLN:H    | 1.53                     | 0.46              |
| 1:A:61:ILE:HD11  | 1:A:83:ILE:HD13  | 1.98                     | 0.46              |
| 1:A:93:LEU:HD12  | 1:A:93:LEU:N     | 2.31                     | 0.46              |
| 1:B:129:HIS:NE2  | 1:B:161:PRO:HD2  | 2.31                     | 0.46              |
| 1:B:278:GLU:O    | 1:B:279:THR:HB   | 2.16                     | 0.46              |
| 1:B:387:LYS:CD   | 1:C:426:GLU:HG2  | 2.34                     | 0.46              |
| 1:C:38:GLU:OE2   | 1:C:40:THR:HG22  | 2.16                     | 0.46              |
| 1:C:201:VAL:HG22 | 1:C:250:LEU:HB2  | 1.96                     | 0.46              |
| 1:C:333:GLY:O    | 1:C:337:GLY:HA3  | 2.16                     | 0.46              |
| 1:D:7:ILE:O      | 1:D:466:CYS:HA   | 2.16                     | 0.46              |
| 1:D:51:ILE:HG23  | 1:D:52:PRO:HD2   | 1.97                     | 0.46              |
| 1:D:54:LEU:HD21  | 1:D:64:TRP:CZ3   | 2.51                     | 0.46              |
| 1:D:293:PRO:HG3  | 1:D:385:ILE:CA   | 2.25                     | 0.46              |
| 1:E:288:ILE:HD11 | 1:E:297:ILE:HD12 | 1.97                     | 0.46              |
| 1:G:399:PHE:HB2  | 1:G:407:GLU:HG2  | 1.98                     | 0.46              |
| 1:H:140:VAL:HG12 | 1:H:141:PHE:N    | 2.30                     | 0.46              |
| 1:H:400:SER:OG   | 1:H:403:GLU:HG3  | 2.16                     | 0.46              |
| 1:I:38:GLU:OE2   | 1:I:40:THR:HG22  | 2.16                     | 0.46              |
| 1:B:306:PRO:O    | 1:B:308:TYR:N    | 2.49                     | 0.46              |
| 1:E:211:ARG:NH1  | 1:F:216:ILE:O    | 2.45                     | 0.46              |
| 1:F:278:GLU:CG   | 1:F:279:THR:N    | 2.79                     | 0.46              |
| 1:G:346:MET:HA   | 1:G:346:MET:HE3  | 1.98                     | 0.46              |
| 1:H:10:GLY:HA3   | 1:H:343:TRP:CZ2  | 2.52                     | 0.46              |
| 1:H:490:LYS:C    | 1:H:492:GLU:H    | 2.19                     | 0.46              |
| 1:I:23:ILE:H     | 1:I:434:GLU:HB2  | 1.81                     | 0.46              |
| 1:I:200:TYR:CE1  | 1:I:211:ARG:NH2  | 2.84                     | 0.46              |
| 1:A:61:ILE:HG21  | 1:A:109:ILE:HD11 | 1.97                     | 0.45              |
| 1:A:229:MET:SD   | 1:A:251:ILE:HG13 | 2.56                     | 0.45              |
| 1:A:371:GLN:CA   | 1:A:371:GLN:HE21 | 2.29                     | 0.45              |
| 1:C:53:PRO:HG3   | 1:C:82:TYR:CZ    | 2.51                     | 0.45              |
| 1:C:278:GLU:O    | 1:C:279:THR:HB   | 2.15                     | 0.45              |
| 1:C:404:LYS:HA   | 1:C:404:LYS:HD2  | 1.65                     | 0.45              |
| 1:D:53:PRO:HG2   | 1:D:84:MET:SD    | 2.57                     | 0.45              |
| 1:D:490:LYS:C    | 1:D:492:GLU:H    | 2.19                     | 0.45              |
| 1:E:200:TYR:CE1  | 1:E:247:THR:HG23 | 2.50                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:11:TYR:CZ    | 1:F:335:ILE:HG23 | 2.51                     | 0.45              |
| 1:F:36:ILE:O     | 1:F:292:LEU:HB3  | 2.16                     | 0.45              |
| 1:F:38:GLU:OE2   | 1:F:40:THR:HG22  | 2.17                     | 0.45              |
| 1:G:138:CYS:O    | 1:G:145:SER:HB3  | 2.16                     | 0.45              |
| 1:G:480:SER:HA   | 1:G:483:ASN:HB2  | 1.97                     | 0.45              |
| 1:H:460:LYS:CG   | 1:H:468:GLU:HB3  | 2.46                     | 0.45              |
| 1:I:36:ILE:O     | 1:I:292:LEU:HB3  | 2.16                     | 0.45              |
| 1:I:48:LEU:O     | 1:I:49:ASN:HB2   | 2.15                     | 0.45              |
| 1:A:36:ILE:HG13  | 1:A:314:LEU:HB3  | 1.98                     | 0.45              |
| 1:B:105:LEU:O    | 1:B:109:ILE:HG12 | 2.16                     | 0.45              |
| 1:B:288:ILE:HD11 | 1:B:297:ILE:HD12 | 1.97                     | 0.45              |
| 1:C:174:GLN:O    | 1:C:259:ILE:HG22 | 2.17                     | 0.45              |
| 1:C:184:PRO:O    | 1:C:216:ILE:HG23 | 2.16                     | 0.45              |
| 1:D:37:LEU:CB    | 1:D:314:LEU:HB2  | 2.46                     | 0.45              |
| 1:D:181:VAL:O    | 1:D:181:VAL:HG12 | 2.16                     | 0.45              |
| 1:A:477:CYS:O    | 1:A:481:VAL:HG23 | 2.16                     | 0.45              |
| 1:C:278:GLU:CG   | 1:C:279:THR:N    | 2.78                     | 0.45              |
| 1:D:288:ILE:HG22 | 1:D:290:THR:HG22 | 1.98                     | 0.45              |
| 1:G:140:VAL:HG12 | 1:G:141:PHE:N    | 2.30                     | 0.45              |
| 1:G:288:ILE:HG12 | 1:G:297:ILE:HD12 | 1.98                     | 0.45              |
| 1:H:45:LEU:CD2   | 1:H:270:THR:HG21 | 2.46                     | 0.45              |
| 1:A:353:TYR:CD2  | 1:A:482:LYS:HE3  | 2.52                     | 0.45              |
| 1:A:380:LYS:HE3  | 1:A:380:LYS:HB2  | 1.55                     | 0.45              |
| 1:A:397:LYS:NZ   | 1:B:408:ASN:HD22 | 2.15                     | 0.45              |
| 1:B:496:LYS:N    | 1:B:496:LYS:HE3  | 2.32                     | 0.45              |
| 1:D:216:ILE:O    | 1:F:211:ARG:HD2  | 2.17                     | 0.45              |
| 1:E:53:PRO:CD    | 1:E:274:LEU:HD13 | 2.46                     | 0.45              |
| 1:F:486:TYR:CG   | 1:F:487:ASP:N    | 2.80                     | 0.45              |
| 1:G:366:ASP:O    | 1:G:368:GLU:N    | 2.49                     | 0.45              |
| 1:G:459:VAL:HG12 | 1:G:468:GLU:O    | 2.17                     | 0.45              |
| 1:H:295:HIS:CE1  | 1:H:308:TYR:HB2  | 2.51                     | 0.45              |
| 1:I:10:GLY:HA3   | 1:I:343:TRP:CZ2  | 2.52                     | 0.45              |
| 1:I:460:LYS:CG   | 1:I:468:GLU:HB3  | 2.46                     | 0.45              |
| 1:A:173:GLU:CD   | 1:A:260:SER:HB2  | 2.37                     | 0.45              |
| 1:B:31:THR:C     | 1:B:32:HIS:CG    | 2.89                     | 0.45              |
| 1:C:45:LEU:CD2   | 1:C:270:THR:HG21 | 2.46                     | 0.45              |
| 1:C:306:PRO:O    | 1:C:308:TYR:N    | 2.49                     | 0.45              |
| 1:D:293:PRO:HB2  | 1:D:294:PHE:CE2  | 2.52                     | 0.45              |
| 1:C:277:CYS:HB2  | 1:C:278:GLU:H    | 1.58                     | 0.45              |
| 1:D:146:PHE:HE1  | 1:D:229:MET:HE3  | 1.80                     | 0.45              |
| 1:G:77:VAL:HG22  | 1:G:79:GLU:O     | 2.17                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:408:ASN:O    | 1:G:412:LYS:HB2  | 2.16                     | 0.45              |
| 1:G:430:LEU:O    | 1:G:433:ASN:HB2  | 2.16                     | 0.45              |
| 1:H:38:GLU:OE2   | 1:H:40:THR:HG22  | 2.17                     | 0.45              |
| 1:I:77:VAL:HG22  | 1:I:79:GLU:O     | 2.16                     | 0.45              |
| 1:I:140:VAL:HG12 | 1:I:141:PHE:N    | 2.32                     | 0.45              |
| 1:I:277:CYS:HB2  | 1:I:278:GLU:H    | 1.60                     | 0.45              |
| 1:A:345:GLY:HA3  | 1:A:363:TYR:CE2  | 2.52                     | 0.45              |
| 1:B:45:LEU:CD2   | 1:B:270:THR:HG21 | 2.47                     | 0.45              |
| 1:C:51:ILE:HB    | 1:C:81:SER:HB3   | 1.98                     | 0.45              |
| 1:C:332:PHE:CD2  | 1:C:442:SER:HB2  | 2.51                     | 0.45              |
| 1:D:23:ILE:HD11  | 1:F:380:LYS:CG   | 2.47                     | 0.45              |
| 1:D:190:GLN:HE21 | 1:D:197:VAL:HA   | 1.82                     | 0.45              |
| 1:E:12:HIS:CE1   | 1:E:13:SER:O     | 2.70                     | 0.45              |
| 1:F:140:VAL:HG12 | 1:F:141:PHE:N    | 2.32                     | 0.45              |
| 1:G:45:LEU:HD12  | 1:G:45:LEU:N     | 2.32                     | 0.45              |
| 1:G:53:PRO:HG3   | 1:G:82:TYR:CZ    | 2.52                     | 0.45              |
| 1:G:464:ASN:OD1  | 1:G:466:CYS:HB2  | 2.17                     | 0.45              |
| 1:H:31:THR:O     | 1:H:32:HIS:CG    | 2.70                     | 0.45              |
| 1:H:58:ASP:HA    | 1:H:86:LYS:HD3   | 1.98                     | 0.45              |
| 1:H:130:THR:HB   | 1:H:154:THR:OG1  | 2.16                     | 0.45              |
| 1:H:277:CYS:HB2  | 1:H:278:GLU:H    | 1.58                     | 0.45              |
| 1:A:11:TYR:HA    | 1:A:351:TYR:HA   | 1.98                     | 0.45              |
| 1:A:13:SER:CB    | 1:A:344:GLN:NE2  | 2.79                     | 0.45              |
| 1:A:283:THR:HG22 | 1:A:284:PRO:N    | 2.32                     | 0.45              |
| 1:B:319:GLY:C    | 1:B:440:HIS:NE2  | 2.70                     | 0.45              |
| 1:B:451:VAL:HG12 | 1:B:452:ARG:N    | 2.32                     | 0.45              |
| 1:D:47:LYS:O     | 1:D:279:THR:HG22 | 2.17                     | 0.45              |
| 1:D:361:SER:HA   | 1:D:362:GLY:HA3  | 1.73                     | 0.45              |
| 1:E:332:PHE:CD2  | 1:E:442:SER:HB2  | 2.52                     | 0.45              |
| 1:E:460:LYS:CG   | 1:E:468:GLU:HB3  | 2.47                     | 0.45              |
| 1:F:80:TRP:CE2   | 1:F:112:VAL:HG22 | 2.52                     | 0.45              |
| 1:A:31:THR:HG23  | 1:A:320:LEU:O    | 2.17                     | 0.45              |
| 1:B:129:HIS:CD2  | 1:B:161:PRO:HD2  | 2.52                     | 0.45              |
| 1:C:142:ASP:OD2  | 1:C:142:ASP:N    | 2.50                     | 0.45              |
| 1:E:278:GLU:CG   | 1:E:279:THR:H    | 2.29                     | 0.45              |
| 1:E:452:ARG:HB2  | 1:E:467:PHE:HZ   | 1.81                     | 0.45              |
| 1:F:460:LYS:CG   | 1:F:468:GLU:HB3  | 2.47                     | 0.45              |
| 1:G:120:ILE:O    | 1:G:121:LEU:HD23 | 2.17                     | 0.45              |
| 1:A:170:THR:HG22 | 1:A:239:TRP:CE3  | 2.52                     | 0.45              |
| 1:B:278:GLU:CG   | 1:B:279:THR:H    | 2.29                     | 0.45              |
| 1:B:320:LEU:HB3  | 1:B:440:HIS:HB3  | 1.97                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:200:TYR:CE1  | 1:D:247:THR:HG23 | 2.52                     | 0.45              |
| 1:E:442:SER:O    | 1:E:446:ASN:HB2  | 2.17                     | 0.45              |
| 1:G:455:LEU:O    | 1:G:456:ARG:CB   | 2.65                     | 0.45              |
| 1:H:166:SER:HB3  | 1:H:243:ASN:HD22 | 1.82                     | 0.45              |
| 1:A:195:GLN:O    | 1:A:196:ASN:CB   | 2.64                     | 0.44              |
| 1:B:77:VAL:HG22  | 1:B:79:GLU:O     | 2.16                     | 0.44              |
| 1:B:138:CYS:O    | 1:B:145:SER:HB3  | 2.17                     | 0.44              |
| 1:C:53:PRO:CD    | 1:C:274:LEU:HD13 | 2.46                     | 0.44              |
| 1:C:200:TYR:CE1  | 1:C:211:ARG:NH2  | 2.85                     | 0.44              |
| 1:D:26:ARG:HG2   | 1:F:379:ASN:HD21 | 1.81                     | 0.44              |
| 1:D:77:VAL:HA    | 1:D:78:PRO:HD3   | 1.81                     | 0.44              |
| 1:G:414:GLU:OE2  | 1:H:412:LYS:NZ   | 2.49                     | 0.44              |
| 1:H:452:ARG:HB2  | 1:H:467:PHE:HZ   | 1.82                     | 0.44              |
| 1:B:179:TRP:CH2  | 1:B:208:LEU:HD21 | 2.52                     | 0.44              |
| 1:C:268:MET:HE3  | 1:C:302:ILE:HD12 | 1.99                     | 0.44              |
| 1:C:288:ILE:HD11 | 1:C:297:ILE:HD12 | 2.00                     | 0.44              |
| 1:D:172:GLY:HA2  | 1:D:239:TRP:CH2  | 2.52                     | 0.44              |
| 1:D:238:ILE:HG23 | 1:D:239:TRP:CG   | 2.52                     | 0.44              |
| 1:D:248:GLY:O    | 1:D:249:ASN:CB   | 2.65                     | 0.44              |
| 1:F:436:THR:O    | 1:F:439:PHE:HB3  | 2.16                     | 0.44              |
| 1:G:455:LEU:CB   | 1:G:459:VAL:HG21 | 2.47                     | 0.44              |
| 1:I:45:LEU:CD2   | 1:I:270:THR:HG21 | 2.47                     | 0.44              |
| 1:I:129:HIS:CD2  | 1:I:161:PRO:HD2  | 2.52                     | 0.44              |
| 1:A:126:TRP:CZ3  | 1:A:153:LEU:HD11 | 2.52                     | 0.44              |
| 1:A:469:PHE:CE1  | 1:A:471:HIS:CE1  | 3.05                     | 0.44              |
| 1:D:239:TRP:N    | 1:D:239:TRP:CE3  | 2.77                     | 0.44              |
| 1:F:493:GLU:O    | 1:F:494:GLU:HB2  | 2.17                     | 0.44              |
| 1:G:355:HIS:O    | 1:G:361:SER:HB2  | 2.18                     | 0.44              |
| 1:H:278:GLU:CG   | 1:H:279:THR:N    | 2.80                     | 0.44              |
| 1:A:67:GLY:O     | 1:A:148:ARG:HG2  | 2.18                     | 0.44              |
| 1:A:343:TRP:CH2  | 1:A:354:HIS:HB2  | 2.52                     | 0.44              |
| 1:A:436:THR:O    | 1:A:436:THR:HG22 | 2.17                     | 0.44              |
| 1:B:38:GLU:OE2   | 1:B:40:THR:HG22  | 2.17                     | 0.44              |
| 1:C:310:LYS:HD2  | 1:C:418:LEU:CD2  | 2.47                     | 0.44              |
| 1:E:250:LEU:HD21 | 1:E:252:ALA:HB2  | 1.99                     | 0.44              |
| 1:F:404:LYS:HA   | 1:F:404:LYS:HD2  | 1.60                     | 0.44              |
| 1:G:202:SER:HB2  | 1:H:216:ILE:O    | 2.17                     | 0.44              |
| 1:A:23:ILE:HD11  | 1:C:380:LYS:HE2  | 1.99                     | 0.44              |
| 1:A:418:LEU:HD12 | 1:A:418:LEU:HA   | 1.63                     | 0.44              |
| 1:B:360:GLY:O    | 1:B:361:SER:HB2  | 2.18                     | 0.44              |
| 1:B:460:LYS:CG   | 1:B:468:GLU:HB3  | 2.47                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:288:ILE:HG12 | 1:C:297:ILE:HD12 | 2.00                     | 0.44              |
| 1:D:8:CYS:O      | 1:D:343:TRP:HH2  | 2.01                     | 0.44              |
| 1:D:9:VAL:O      | 1:D:339:ILE:HD13 | 2.17                     | 0.44              |
| 1:D:332:PHE:CD2  | 1:D:442:SER:HB2  | 2.53                     | 0.44              |
| 1:G:462:LEU:HD12 | 1:G:462:LEU:N    | 2.32                     | 0.44              |
| 1:A:219:ARG:CG   | 1:A:226:GLY:O    | 2.66                     | 0.44              |
| 1:A:487:ASP:O    | 1:A:491:TYR:HD2  | 2.00                     | 0.44              |
| 1:B:140:VAL:HG12 | 1:B:141:PHE:N    | 2.31                     | 0.44              |
| 1:B:200:TYR:CE1  | 1:B:211:ARG:NH2  | 2.86                     | 0.44              |
| 1:D:48:LEU:HD23  | 1:D:392:PHE:HE1  | 1.83                     | 0.44              |
| 1:E:129:HIS:NE2  | 1:E:161:PRO:HD2  | 2.32                     | 0.44              |
| 1:E:298:HIS:HE1  | 1:E:300:LEU:HD12 | 1.83                     | 0.44              |
| 1:F:332:PHE:CD2  | 1:F:442:SER:HB2  | 2.52                     | 0.44              |
| 1:G:417:PHE:CZ   | 1:H:416:GLY:HA3  | 2.52                     | 0.44              |
| 1:I:460:LYS:HG2  | 1:I:468:GLU:HB3  | 2.00                     | 0.44              |
| 1:A:460:LYS:HG3  | 1:A:468:GLU:HB3  | 1.99                     | 0.44              |
| 1:B:388:MET:HE2  | 1:C:423:TYR:CE1  | 2.53                     | 0.44              |
| 1:C:140:VAL:HG12 | 1:C:141:PHE:N    | 2.32                     | 0.44              |
| 1:D:61:ILE:HG13  | 1:D:85:GLU:OE2   | 2.18                     | 0.44              |
| 1:D:495:SER:O    | 1:D:496:LYS:C    | 2.56                     | 0.44              |
| 1:E:376:GLY:O    | 1:F:24:LEU:HD23  | 2.17                     | 0.44              |
| 1:E:452:ARG:HB2  | 1:E:467:PHE:CZ   | 2.53                     | 0.44              |
| 1:H:288:ILE:HG12 | 1:H:297:ILE:HD12 | 2.00                     | 0.44              |
| 1:H:332:PHE:HZ   | 1:I:331:LEU:HD12 | 1.80                     | 0.44              |
| 1:A:280:LYS:HD2  | 1:A:280:LYS:N    | 2.33                     | 0.44              |
| 1:A:351:TYR:CE2  | 1:A:370:THR:HA   | 2.50                     | 0.44              |
| 1:B:7:ILE:N      | 1:B:467:PHE:O    | 2.51                     | 0.44              |
| 1:B:53:PRO:CD    | 1:B:274:LEU:HD13 | 2.48                     | 0.44              |
| 1:C:360:GLY:O    | 1:C:361:SER:HB2  | 2.18                     | 0.44              |
| 1:D:409:LEU:HD11 | 1:F:410:ASN:HB2  | 2.00                     | 0.44              |
| 1:D:410:ASN:HB2  | 1:E:409:LEU:HD11 | 2.00                     | 0.44              |
| 1:E:306:PRO:O    | 1:E:308:TYR:N    | 2.50                     | 0.44              |
| 1:E:404:LYS:HD2  | 1:E:404:LYS:HA   | 1.69                     | 0.44              |
| 1:H:8:CYS:C      | 1:H:343:TRP:HH2  | 2.18                     | 0.44              |
| 1:I:80:TRP:CE2   | 1:I:112:VAL:HG22 | 2.53                     | 0.44              |
| 1:A:160:TYR:HE2  | 1:A:248:GLY:N    | 2.15                     | 0.44              |
| 1:A:283:THR:HB   | 1:A:286:GLY:H    | 1.82                     | 0.44              |
| 1:A:455:LEU:HD23 | 1:A:459:VAL:HG21 | 2.00                     | 0.44              |
| 1:C:399:PHE:CE1  | 1:C:406:LEU:HG   | 2.53                     | 0.44              |
| 1:E:31:THR:C     | 1:E:32:HIS:CG    | 2.91                     | 0.44              |
| 1:E:80:TRP:CE2   | 1:E:112:VAL:HG22 | 2.53                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:140:VAL:HG23 | 1:E:145:SER:CB   | 2.48                     | 0.44              |
| 1:H:452:ARG:HB2  | 1:H:467:PHE:CZ   | 2.53                     | 0.44              |
| 1:A:134:GLY:O    | 1:A:135:SER:HB2  | 2.18                     | 0.43              |
| 1:A:358:ASP:HB2  | 1:A:472:LYS:NZ   | 2.33                     | 0.43              |
| 1:A:476:GLU:OE1  | 1:A:476:GLU:HA   | 2.18                     | 0.43              |
| 1:B:9:VAL:HG11   | 1:B:448:TYR:CB   | 2.45                     | 0.43              |
| 1:B:66:LEU:O     | 1:B:147:PHE:HB3  | 2.18                     | 0.43              |
| 1:C:12:HIS:CE1   | 1:C:13:SER:O     | 2.71                     | 0.43              |
| 1:C:66:LEU:O     | 1:C:147:PHE:HB3  | 2.17                     | 0.43              |
| 1:C:113:THR:HA   | 1:C:114:HIS:HA   | 1.89                     | 0.43              |
| 1:D:12:HIS:HB2   | 1:D:350:TRP:HA   | 1.99                     | 0.43              |
| 1:D:338:PHE:CE1  | 1:D:339:ILE:CG1  | 3.00                     | 0.43              |
| 1:F:494:GLU:O    | 1:F:494:GLU:HG2  | 2.17                     | 0.43              |
| 1:G:114:HIS:O    | 1:G:259:ILE:O    | 2.36                     | 0.43              |
| 1:G:354:HIS:ND1  | 1:G:354:HIS:O    | 2.51                     | 0.43              |
| 1:H:113:THR:HA   | 1:H:114:HIS:HA   | 1.88                     | 0.43              |
| 1:H:460:LYS:HG2  | 1:H:468:GLU:HB3  | 2.00                     | 0.43              |
| 1:I:129:HIS:NE2  | 1:I:161:PRO:HD2  | 2.32                     | 0.43              |
| 1:A:170:THR:HG22 | 1:A:239:TRP:HE3  | 1.83                     | 0.43              |
| 1:A:380:LYS:HZ3  | 1:A:432:GLU:HB3  | 1.84                     | 0.43              |
| 1:B:166:SER:HB3  | 1:B:243:ASN:HD22 | 1.83                     | 0.43              |
| 1:B:355:HIS:CD2  | 1:B:355:HIS:N    | 2.86                     | 0.43              |
| 1:B:452:ARG:HB2  | 1:B:467:PHE:HZ   | 1.83                     | 0.43              |
| 1:F:11:TYR:CZ    | 1:F:335:ILE:HA   | 2.53                     | 0.43              |
| 1:F:12:HIS:CE1   | 1:F:13:SER:O     | 2.71                     | 0.43              |
| 1:F:298:HIS:HA   | 1:F:299:PRO:HD3  | 1.88                     | 0.43              |
| 1:G:414:GLU:HG3  | 1:H:412:LYS:HE3  | 1.99                     | 0.43              |
| 1:H:355:HIS:CD2  | 1:H:355:HIS:N    | 2.82                     | 0.43              |
| 1:H:414:GLU:OE2  | 1:I:412:LYS:HE3  | 2.18                     | 0.43              |
| 1:A:126:TRP:CG   | 1:A:153:LEU:HD21 | 2.53                     | 0.43              |
| 1:D:146:PHE:CE1  | 1:D:229:MET:CE   | 3.01                     | 0.43              |
| 1:D:452:ARG:HB2  | 1:D:467:PHE:HZ   | 1.83                     | 0.43              |
| 1:F:31:THR:C     | 1:F:32:HIS:CG    | 2.92                     | 0.43              |
| 1:F:42:ASN:HB2   | 1:F:287:ALA:O    | 2.18                     | 0.43              |
| 1:G:471:HIS:ND1  | 1:G:472:LYS:O    | 2.39                     | 0.43              |
| 1:H:45:LEU:HD12  | 1:H:45:LEU:N     | 2.32                     | 0.43              |
| 1:I:422:THR:O    | 1:I:423:TYR:C    | 2.57                     | 0.43              |
| 1:D:228:ARG:HH22 | 1:F:206:SER:HA   | 1.83                     | 0.43              |
| 1:D:299:PRO:O    | 1:D:301:THR:HG23 | 2.18                     | 0.43              |
| 1:D:460:LYS:CG   | 1:D:468:GLU:HB3  | 2.48                     | 0.43              |
| 1:E:34:GLN:OE1   | 1:E:381:VAL:HG11 | 2.18                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:310:LYS:HD2  | 1:E:418:LEU:HD23 | 2.00                     | 0.43              |
| 1:F:268:MET:HE3  | 1:F:302:ILE:HD12 | 1.99                     | 0.43              |
| 1:G:471:HIS:NE2  | 1:G:486:TYR:OH   | 2.52                     | 0.43              |
| 1:I:140:VAL:HG23 | 1:I:145:SER:CB   | 2.49                     | 0.43              |
| 1:A:200:TYR:C    | 1:A:200:TYR:CD2  | 2.92                     | 0.43              |
| 1:A:445:LYS:C    | 1:A:446:ASN:HD22 | 2.21                     | 0.43              |
| 1:C:320:LEU:HB3  | 1:C:440:HIS:HB3  | 1.99                     | 0.43              |
| 1:E:11:TYR:CE2   | 1:E:335:ILE:CA   | 2.76                     | 0.43              |
| 1:F:129:HIS:CD2  | 1:F:161:PRO:HD2  | 2.53                     | 0.43              |
| 1:F:319:GLY:C    | 1:F:440:HIS:NE2  | 2.72                     | 0.43              |
| 1:G:36:ILE:O     | 1:G:292:LEU:HB3  | 2.17                     | 0.43              |
| 1:I:53:PRO:HG3   | 1:I:82:TYR:CE2   | 2.53                     | 0.43              |
| 1:A:7:ILE:HG21   | 1:A:451:VAL:HG11 | 2.01                     | 0.43              |
| 1:A:35:ASP:OD1   | 1:A:314:LEU:O    | 2.36                     | 0.43              |
| 1:A:38:GLU:HB3   | 1:A:294:PHE:O    | 2.18                     | 0.43              |
| 1:A:283:THR:CG2  | 1:A:298:HIS:HB3  | 2.46                     | 0.43              |
| 1:C:460:LYS:CG   | 1:C:468:GLU:HB3  | 2.48                     | 0.43              |
| 1:D:379:ASN:HB2  | 1:E:24:LEU:HA    | 2.01                     | 0.43              |
| 1:E:45:LEU:CD2   | 1:E:270:THR:HG21 | 2.48                     | 0.43              |
| 1:G:380:LYS:O    | 1:G:384:VAL:HG23 | 2.19                     | 0.43              |
| 1:H:294:PHE:HB3  | 1:H:309:VAL:HG22 | 1.99                     | 0.43              |
| 1:I:278:GLU:O    | 1:I:279:THR:CB   | 2.67                     | 0.43              |
| 1:A:156:LYS:HE2  | 1:A:156:LYS:HB3  | 1.62                     | 0.43              |
| 1:A:298:HIS:HA   | 1:A:299:PRO:HD3  | 1.74                     | 0.43              |
| 1:A:373:ALA:HB1  | 1:A:440:HIS:HE1  | 1.84                     | 0.43              |
| 1:A:410:ASN:CB   | 1:B:409:LEU:HD11 | 2.35                     | 0.43              |
| 1:B:452:ARG:HB2  | 1:B:467:PHE:CZ   | 2.54                     | 0.43              |
| 1:B:460:LYS:HG2  | 1:B:468:GLU:HB3  | 2.01                     | 0.43              |
| 1:C:451:VAL:HG12 | 1:C:452:ARG:N    | 2.34                     | 0.43              |
| 1:D:126:TRP:CE3  | 1:D:153:LEU:HD11 | 2.53                     | 0.43              |
| 1:E:202:SER:HB2  | 1:F:217:ALA:CB   | 2.45                     | 0.43              |
| 1:G:58:ASP:HA    | 1:G:86:LYS:HD3   | 2.00                     | 0.43              |
| 1:G:353:TYR:CE2  | 1:G:482:LYS:HG2  | 2.52                     | 0.43              |
| 1:H:131:THR:HG22 | 1:H:153:LEU:CD2  | 2.49                     | 0.43              |
| 1:H:295:HIS:HD2  | 1:H:297:ILE:N    | 2.09                     | 0.43              |
| 1:I:290:THR:OG1  | 1:I:292:LEU:HG   | 2.18                     | 0.43              |
| 1:I:360:GLY:O    | 1:I:361:SER:HB2  | 2.18                     | 0.43              |
| 1:A:345:GLY:HA3  | 1:A:363:TYR:CD2  | 2.53                     | 0.43              |
| 1:A:456:ARG:HB2  | 1:A:457:ASP:H    | 1.73                     | 0.43              |
| 1:B:12:HIS:CE1   | 1:B:13:SER:O     | 2.71                     | 0.43              |
| 1:B:404:LYS:HA   | 1:B:404:LYS:HD2  | 1.64                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:9:VAL:CB     | 1:C:448:TYR:HD1  | 2.26                     | 0.43              |
| 1:D:360:GLY:O    | 1:D:361:SER:HB2  | 2.19                     | 0.43              |
| 1:F:8:CYS:HA     | 1:F:466:CYS:HA   | 1.99                     | 0.43              |
| 1:A:23:ILE:HG22  | 1:A:430:LEU:O    | 2.18                     | 0.43              |
| 1:A:81:SER:O     | 1:A:111:SER:HB3  | 2.18                     | 0.43              |
| 1:A:338:PHE:CD1  | 1:A:339:ILE:N    | 2.87                     | 0.43              |
| 1:A:474:ASP:N    | 1:A:474:ASP:OD2  | 2.52                     | 0.43              |
| 1:B:113:THR:HA   | 1:B:114:HIS:HA   | 1.88                     | 0.43              |
| 1:D:121:LEU:O    | 1:D:122:PRO:C    | 2.58                     | 0.43              |
| 1:F:288:ILE:HG12 | 1:F:297:ILE:HD12 | 2.00                     | 0.43              |
| 1:F:293:PRO:HG3  | 1:F:385:ILE:HG23 | 1.99                     | 0.43              |
| 1:G:31:THR:C     | 1:G:32:HIS:CG    | 2.91                     | 0.43              |
| 1:G:80:TRP:CE2   | 1:G:112:VAL:HG22 | 2.53                     | 0.43              |
| 1:G:294:PHE:HB3  | 1:G:309:VAL:CG2  | 2.49                     | 0.43              |
| 1:H:80:TRP:CE2   | 1:H:112:VAL:HG22 | 2.54                     | 0.43              |
| 1:H:155:LYS:HE2  | 1:H:192:THR:O    | 2.19                     | 0.43              |
| 1:A:23:ILE:O     | 1:A:23:ILE:CG1   | 2.66                     | 0.43              |
| 1:D:95:TYR:CD2   | 1:D:229:MET:CG   | 2.90                     | 0.43              |
| 1:E:323:VAL:HG11 | 1:E:336:ALA:CB   | 2.47                     | 0.43              |
| 1:E:360:GLY:O    | 1:E:361:SER:HB2  | 2.18                     | 0.43              |
| 1:F:131:THR:HG22 | 1:F:153:LEU:CD2  | 2.49                     | 0.43              |
| 1:F:174:GLN:O    | 1:F:259:ILE:HG22 | 2.18                     | 0.43              |
| 1:G:411:LYS:O    | 1:G:415:ASP:HB2  | 2.18                     | 0.43              |
| 1:H:66:LEU:O     | 1:H:147:PHE:HB3  | 2.19                     | 0.43              |
| 1:I:12:HIS:CE1   | 1:I:13:SER:O     | 2.72                     | 0.43              |
| 1:A:381:VAL:HG12 | 1:A:382:ASN:HD22 | 1.84                     | 0.42              |
| 1:A:436:THR:O    | 1:A:436:THR:CG2  | 2.65                     | 0.42              |
| 1:C:36:ILE:O     | 1:C:292:LEU:HB3  | 2.18                     | 0.42              |
| 1:D:202:SER:HG   | 1:E:217:ALA:HB2  | 1.81                     | 0.42              |
| 1:D:261:LYS:HE2  | 1:D:261:LYS:HB3  | 1.84                     | 0.42              |
| 1:D:316:LEU:O    | 1:D:317:ALA:HB2  | 2.18                     | 0.42              |
| 1:E:129:HIS:CD2  | 1:E:161:PRO:HD2  | 2.54                     | 0.42              |
| 1:F:141:PHE:N    | 1:F:142:ASP:CA   | 2.76                     | 0.42              |
| 1:F:184:PRO:HD2  | 1:F:216:ILE:HG12 | 2.01                     | 0.42              |
| 1:G:12:HIS:CE1   | 1:G:13:SER:O     | 2.72                     | 0.42              |
| 1:G:405:ARG:HE   | 1:G:405:ARG:HB2  | 1.48                     | 0.42              |
| 1:G:405:ARG:NH1  | 1:I:399:PHE:HA   | 2.34                     | 0.42              |
| 1:G:427:LEU:CD1  | 1:G:431:MET:HE2  | 2.49                     | 0.42              |
| 1:H:495:SER:C    | 1:H:496:LYS:HD2  | 2.39                     | 0.42              |
| 1:D:166:SER:OG   | 1:D:243:ASN:ND2  | 2.52                     | 0.42              |
| 1:D:284:PRO:O    | 1:D:285:LEU:HD23 | 2.19                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:410:ASN:HB2  | 1:E:409:LEU:CD1  | 2.50                     | 0.42              |
| 1:H:278:GLU:O    | 1:H:279:THR:CB   | 2.66                     | 0.42              |
| 1:A:366:ASP:OD2  | 1:A:368:GLU:HB3  | 2.19                     | 0.42              |
| 1:A:462:LEU:N    | 1:A:462:LEU:CD1  | 2.82                     | 0.42              |
| 1:B:306:PRO:O    | 1:B:307:LYS:C    | 2.57                     | 0.42              |
| 1:C:31:THR:C     | 1:C:32:HIS:CG    | 2.92                     | 0.42              |
| 1:D:8:CYS:HB3    | 1:D:343:TRP:CZ2  | 2.54                     | 0.42              |
| 1:D:308:TYR:CD2  | 1:D:418:LEU:CD1  | 3.02                     | 0.42              |
| 1:E:42:ASN:HB2   | 1:E:287:ALA:O    | 2.20                     | 0.42              |
| 1:F:200:TYR:CE1  | 1:F:247:THR:HG23 | 2.54                     | 0.42              |
| 1:G:320:LEU:HD23 | 1:G:320:LEU:N    | 2.32                     | 0.42              |
| 1:G:360:GLY:O    | 1:G:361:SER:CB   | 2.66                     | 0.42              |
| 1:H:360:GLY:O    | 1:H:361:SER:HB2  | 2.19                     | 0.42              |
| 1:H:361:SER:HA   | 1:H:362:GLY:HA3  | 1.73                     | 0.42              |
| 1:H:464:ASN:OD1  | 1:H:466:CYS:HB2  | 2.18                     | 0.42              |
| 1:I:31:THR:C     | 1:I:32:HIS:CG    | 2.92                     | 0.42              |
| 1:B:490:LYS:C    | 1:B:492:GLU:H    | 2.20                     | 0.42              |
| 1:D:48:LEU:HD23  | 1:D:392:PHE:CE1  | 2.55                     | 0.42              |
| 1:D:82:TYR:CD2   | 1:D:82:TYR:N     | 2.87                     | 0.42              |
| 1:D:452:ARG:HB2  | 1:D:467:PHE:CZ   | 2.54                     | 0.42              |
| 1:E:9:VAL:HG21   | 1:E:448:TYR:CD1  | 2.54                     | 0.42              |
| 1:E:451:VAL:HG12 | 1:E:452:ARG:N    | 2.33                     | 0.42              |
| 1:F:45:LEU:H     | 1:F:45:LEU:HD12  | 1.84                     | 0.42              |
| 1:F:445:LYS:O    | 1:F:445:LYS:HG3  | 2.19                     | 0.42              |
| 1:F:452:ARG:HB2  | 1:F:467:PHE:CZ   | 2.55                     | 0.42              |
| 1:F:452:ARG:HB2  | 1:F:467:PHE:HZ   | 1.83                     | 0.42              |
| 1:G:202:SER:HB2  | 1:H:217:ALA:HB2  | 2.00                     | 0.42              |
| 1:G:278:GLU:CG   | 1:G:279:THR:N    | 2.81                     | 0.42              |
| 1:H:138:CYS:O    | 1:H:145:SER:HB3  | 2.20                     | 0.42              |
| 1:A:334:ALA:HA   | 1:A:338:PHE:CE2  | 2.54                     | 0.42              |
| 1:A:452:ARG:HH21 | 1:A:453:MET:CG   | 2.33                     | 0.42              |
| 1:B:12:HIS:HB2   | 1:B:350:TRP:HA   | 2.01                     | 0.42              |
| 1:D:293:PRO:HB3  | 1:D:388:MET:HB2  | 2.02                     | 0.42              |
| 1:F:288:ILE:HD11 | 1:F:297:ILE:HD12 | 2.01                     | 0.42              |
| 1:F:306:PRO:O    | 1:F:308:TYR:N    | 2.51                     | 0.42              |
| 1:G:130:THR:HB   | 1:G:154:THR:OG1  | 2.19                     | 0.42              |
| 1:G:278:GLU:O    | 1:G:279:THR:HB   | 2.19                     | 0.42              |
| 1:G:409:LEU:HD11 | 1:I:410:ASN:CG   | 2.39                     | 0.42              |
| 1:G:425:ALA:O    | 1:G:428:LEU:N    | 2.53                     | 0.42              |
| 1:G:457:ASP:C    | 1:G:459:VAL:N    | 2.72                     | 0.42              |
| 1:H:8:CYS:HB2    | 1:H:354:HIS:HB3  | 2.01                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:130:THR:HB   | 1:I:154:THR:OG1  | 2.20                     | 0.42              |
| 1:I:298:HIS:HE1  | 1:I:300:LEU:HD12 | 1.85                     | 0.42              |
| 1:B:174:GLN:O    | 1:B:259:ILE:HG22 | 2.19                     | 0.42              |
| 1:D:46:CYS:HB3   | 1:D:47:LYS:H     | 1.62                     | 0.42              |
| 1:D:283:THR:CB   | 1:D:286:GLY:O    | 2.61                     | 0.42              |
| 1:E:130:THR:HB   | 1:E:154:THR:OG1  | 2.19                     | 0.42              |
| 1:E:320:LEU:HD23 | 1:E:320:LEU:N    | 2.30                     | 0.42              |
| 1:F:360:GLY:O    | 1:F:361:SER:HB2  | 2.20                     | 0.42              |
| 1:G:294:PHE:HB3  | 1:G:309:VAL:HG22 | 2.00                     | 0.42              |
| 1:A:48:LEU:O     | 1:A:49:ASN:C     | 2.58                     | 0.42              |
| 1:A:454:GLN:OE1  | 1:A:484:GLY:O    | 2.37                     | 0.42              |
| 1:B:141:PHE:N    | 1:B:142:ASP:CA   | 2.75                     | 0.42              |
| 1:D:117:LYS:HG3  | 1:D:255:TYR:HB3  | 2.01                     | 0.42              |
| 1:D:169:ASN:O    | 1:D:239:TRP:HE3  | 2.03                     | 0.42              |
| 1:D:242:ILE:CG1  | 1:D:243:ASN:N    | 2.82                     | 0.42              |
| 1:E:38:GLU:OE2   | 1:E:40:THR:HG22  | 2.19                     | 0.42              |
| 1:E:45:LEU:HD12  | 1:E:45:LEU:H     | 1.84                     | 0.42              |
| 1:F:51:ILE:HB    | 1:F:81:SER:HB3   | 2.01                     | 0.42              |
| 1:F:77:VAL:HG22  | 1:F:79:GLU:O     | 2.19                     | 0.42              |
| 1:F:138:CYS:O    | 1:F:145:SER:HB3  | 2.19                     | 0.42              |
| 1:I:278:GLU:CG   | 1:I:279:THR:N    | 2.78                     | 0.42              |
| 1:A:28:VAL:HG12  | 1:A:30:VAL:CG1   | 2.50                     | 0.42              |
| 1:A:48:LEU:HB3   | 1:A:81:SER:HB3   | 2.01                     | 0.42              |
| 1:A:299:PRO:HG3  | 1:A:308:TYR:CZ   | 2.53                     | 0.42              |
| 1:A:462:LEU:HD11 | 1:A:468:GLU:N    | 2.34                     | 0.42              |
| 1:D:58:ASP:HA    | 1:D:86:LYS:HD3   | 2.01                     | 0.42              |
| 1:D:96:PRO:CG    | 1:D:222:VAL:O    | 2.68                     | 0.42              |
| 1:D:214:PRO:HG3  | 1:D:249:ASN:CG   | 2.38                     | 0.42              |
| 1:F:201:VAL:HG22 | 1:F:250:LEU:HB2  | 2.01                     | 0.42              |
| 1:F:320:LEU:HB3  | 1:F:440:HIS:HB3  | 2.00                     | 0.42              |
| 1:G:129:HIS:NE2  | 1:G:161:PRO:HD2  | 2.34                     | 0.42              |
| 1:H:37:LEU:O     | 1:H:39:LYS:HE2   | 2.20                     | 0.42              |
| 1:I:37:LEU:O     | 1:I:39:LYS:HE2   | 2.20                     | 0.42              |
| 1:I:250:LEU:HD21 | 1:I:252:ALA:HB2  | 2.01                     | 0.42              |
| 1:A:96:PRO:HG3   | 1:A:222:VAL:HG12 | 2.02                     | 0.42              |
| 1:B:348:ASP:N    | 1:B:348:ASP:OD1  | 2.53                     | 0.42              |
| 1:C:367:LYS:HE2  | 1:C:367:LYS:HB3  | 1.95                     | 0.42              |
| 1:E:379:ASN:ND2  | 1:F:26:ARG:CZ    | 2.79                     | 0.42              |
| 1:G:277:CYS:O    | 1:G:278:GLU:HB2  | 2.20                     | 0.42              |
| 1:G:348:ASP:O    | 1:G:365:ALA:CB   | 2.68                     | 0.42              |
| 1:H:430:LEU:C    | 1:H:431:MET:O    | 2.58                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:400:SER:OG   | 1:I:403:GLU:HG3  | 2.19                     | 0.42              |
| 1:B:259:ILE:CG2  | 1:B:260:SER:H    | 2.07                     | 0.42              |
| 1:D:169:ASN:C    | 1:D:169:ASN:OD1  | 2.58                     | 0.42              |
| 1:E:320:LEU:HD13 | 1:E:335:ILE:CD1  | 2.49                     | 0.42              |
| 1:F:361:SER:HA   | 1:F:362:GLY:HA3  | 1.73                     | 0.42              |
| 1:G:348:ASP:N    | 1:G:348:ASP:OD1  | 2.53                     | 0.42              |
| 1:G:432:GLU:OE2  | 1:H:23:ILE:HD13  | 2.20                     | 0.42              |
| 1:I:58:ASP:HA    | 1:I:86:LYS:HD3   | 2.02                     | 0.42              |
| 1:I:67:GLY:O     | 1:I:68:ASN:C     | 2.55                     | 0.42              |
| 1:A:107:HIS:ND1  | 1:A:107:HIS:O    | 2.53                     | 0.41              |
| 1:B:45:LEU:HD12  | 1:B:45:LEU:H     | 1.85                     | 0.41              |
| 1:E:73:ARG:C     | 1:G:44:LYS:NZ    | 2.74                     | 0.41              |
| 1:E:99:PHE:HE1   | 1:E:233:TRP:CD1  | 2.37                     | 0.41              |
| 1:E:131:THR:HG22 | 1:E:153:LEU:CD2  | 2.49                     | 0.41              |
| 1:F:444:VAL:O    | 1:F:447:LEU:N    | 2.52                     | 0.41              |
| 1:G:45:LEU:CD2   | 1:G:270:THR:HG21 | 2.50                     | 0.41              |
| 1:G:140:VAL:HG23 | 1:G:145:SER:CB   | 2.50                     | 0.41              |
| 1:G:471:HIS:CD2  | 1:G:491:TYR:HB3  | 2.55                     | 0.41              |
| 1:H:120:ILE:HB   | 1:H:167:TYR:CD1  | 2.55                     | 0.41              |
| 1:H:126:TRP:HB2  | 1:H:131:THR:HG21 | 2.02                     | 0.41              |
| 1:I:259:ILE:CG2  | 1:I:260:SER:H    | 2.12                     | 0.41              |
| 1:I:325:GLN:NE2  | 1:I:325:GLN:C    | 2.74                     | 0.41              |
| 1:A:335:ILE:HG13 | 1:A:441:ASP:CA   | 2.38                     | 0.41              |
| 1:C:355:HIS:CD2  | 1:C:355:HIS:N    | 2.87                     | 0.41              |
| 1:D:54:LEU:HB3   | 1:D:83:ILE:HG12  | 2.02                     | 0.41              |
| 1:D:222:VAL:HG23 | 1:D:228:ARG:HH12 | 1.84                     | 0.41              |
| 1:E:323:VAL:HA   | 1:E:324:PRO:HD3  | 1.79                     | 0.41              |
| 1:H:183:HIS:HA   | 1:H:184:PRO:HD3  | 1.89                     | 0.41              |
| 1:H:348:ASP:N    | 1:H:348:ASP:OD1  | 2.53                     | 0.41              |
| 1:I:51:ILE:HB    | 1:I:81:SER:HB3   | 2.00                     | 0.41              |
| 1:I:278:GLU:CG   | 1:I:279:THR:H    | 2.32                     | 0.41              |
| 1:A:38:GLU:O     | 1:A:295:HIS:HA   | 2.20                     | 0.41              |
| 1:B:67:GLY:O     | 1:B:68:ASN:C     | 2.59                     | 0.41              |
| 1:C:140:VAL:HG23 | 1:C:145:SER:CB   | 2.50                     | 0.41              |
| 1:D:23:ILE:HD11  | 1:F:380:LYS:HG3  | 2.02                     | 0.41              |
| 1:D:355:HIS:CD2  | 1:D:355:HIS:N    | 2.88                     | 0.41              |
| 1:E:51:ILE:HB    | 1:E:81:SER:HB3   | 2.01                     | 0.41              |
| 1:F:306:PRO:O    | 1:F:307:LYS:C    | 2.58                     | 0.41              |
| 1:G:51:ILE:HB    | 1:G:81:SER:HB3   | 2.00                     | 0.41              |
| 1:G:462:LEU:CD1  | 1:G:462:LEU:N    | 2.84                     | 0.41              |
| 1:H:36:ILE:HB    | 1:H:293:PRO:HD2  | 2.02                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:277:CYS:O    | 1:I:278:GLU:HB2  | 2.19                     | 0.41              |
| 1:I:338:PHE:CE1  | 1:I:339:ILE:CG1  | 3.03                     | 0.41              |
| 1:A:42:ASN:C     | 1:A:44:LYS:H     | 2.22                     | 0.41              |
| 1:B:400:SER:OG   | 1:B:403:GLU:HG3  | 2.21                     | 0.41              |
| 1:C:131:THR:HG22 | 1:C:153:LEU:CD2  | 2.50                     | 0.41              |
| 1:D:97:GLY:HA3   | 1:D:229:MET:O    | 2.20                     | 0.41              |
| 1:E:126:TRP:HB2  | 1:E:131:THR:HG21 | 2.03                     | 0.41              |
| 1:E:295:HIS:CD2  | 1:E:297:ILE:H    | 2.21                     | 0.41              |
| 1:G:77:VAL:HG22  | 1:G:79:GLU:H     | 1.85                     | 0.41              |
| 1:H:31:THR:HB    | 1:H:32:HIS:CE1   | 2.54                     | 0.41              |
| 1:H:298:HIS:HE1  | 1:H:300:LEU:HD12 | 1.85                     | 0.41              |
| 1:E:12:HIS:CB    | 1:E:350:TRP:HA   | 2.50                     | 0.41              |
| 1:E:141:PHE:HE2  | 1:G:274:LEU:CD1  | 2.33                     | 0.41              |
| 1:F:95:TYR:HA    | 1:F:96:PRO:HD3   | 1.94                     | 0.41              |
| 1:G:346:MET:SD   | 1:G:352:GLY:CA   | 3.05                     | 0.41              |
| 1:H:105:LEU:O    | 1:H:109:ILE:HG12 | 2.20                     | 0.41              |
| 1:H:456:ARG:HB2  | 1:H:457:ASP:H    | 1.66                     | 0.41              |
| 1:I:126:TRP:HB2  | 1:I:131:THR:HG21 | 2.02                     | 0.41              |
| 1:I:131:THR:HG22 | 1:I:153:LEU:CD2  | 2.51                     | 0.41              |
| 1:A:57:GLY:O     | 1:A:86:LYS:HG3   | 2.21                     | 0.41              |
| 1:B:12:HIS:CE1   | 1:B:14:ASN:HB3   | 2.55                     | 0.41              |
| 1:B:142:ASP:OD2  | 1:B:142:ASP:N    | 2.53                     | 0.41              |
| 1:C:442:SER:O    | 1:C:446:ASN:HB2  | 2.21                     | 0.41              |
| 1:D:167:TYR:CE2  | 1:D:169:ASN:HA   | 2.56                     | 0.41              |
| 1:E:183:HIS:HA   | 1:E:184:PRO:HD3  | 1.87                     | 0.41              |
| 1:E:299:PRO:O    | 1:E:395:VAL:HG21 | 2.19                     | 0.41              |
| 1:F:259:ILE:CG2  | 1:F:260:SER:H    | 2.10                     | 0.41              |
| 1:F:355:HIS:CD2  | 1:F:355:HIS:N    | 2.87                     | 0.41              |
| 1:G:412:LYS:HD2  | 1:G:412:LYS:HA   | 1.71                     | 0.41              |
| 1:H:278:GLU:CG   | 1:H:279:THR:H    | 2.33                     | 0.41              |
| 1:I:399:PHE:CG   | 1:I:407:GLU:HB2  | 2.55                     | 0.41              |
| 1:A:160:TYR:CE2  | 1:A:248:GLY:CA   | 3.03                     | 0.41              |
| 1:A:218:THR:HG22 | 1:C:243:ASN:CB   | 2.51                     | 0.41              |
| 1:A:309:VAL:HA   | 1:A:418:LEU:HD11 | 2.03                     | 0.41              |
| 1:A:344:GLN:CD   | 1:A:344:GLN:N    | 2.74                     | 0.41              |
| 1:A:397:LYS:HB3  | 1:A:397:LYS:HE3  | 1.86                     | 0.41              |
| 1:A:473:CYS:SG   | 1:A:478:MET:HG2  | 2.61                     | 0.41              |
| 1:B:222:VAL:O    | 1:B:223:ASN:HB2  | 2.21                     | 0.41              |
| 1:B:282:GLN:HG3  | 1:B:283:THR:N    | 2.35                     | 0.41              |
| 1:B:293:PRO:HG3  | 1:B:385:ILE:CA   | 2.50                     | 0.41              |
| 1:B:379:ASN:HB3  | 1:C:23:ILE:O     | 2.21                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:307:LYS:HB2  | 1:C:307:LYS:NZ   | 2.36                     | 0.41              |
| 1:D:51:ILE:CG2   | 1:D:52:PRO:CD    | 2.99                     | 0.41              |
| 1:E:460:LYS:HG2  | 1:E:468:GLU:HB3  | 2.02                     | 0.41              |
| 1:G:298:HIS:HE1  | 1:G:300:LEU:HD12 | 1.85                     | 0.41              |
| 1:G:335:ILE:HG13 | 1:G:441:ASP:HA   | 2.03                     | 0.41              |
| 1:G:346:MET:HA   | 1:G:346:MET:CE   | 2.49                     | 0.41              |
| 1:G:486:TYR:O    | 1:G:487:ASP:CB   | 2.68                     | 0.41              |
| 1:H:404:LYS:HA   | 1:H:404:LYS:HD2  | 1.69                     | 0.41              |
| 1:I:444:VAL:O    | 1:I:447:LEU:N    | 2.51                     | 0.41              |
| 1:A:56:LEU:HA    | 1:A:74:LEU:HD11  | 2.03                     | 0.41              |
| 1:B:399:PHE:CG   | 1:B:407:GLU:HB2  | 2.56                     | 0.41              |
| 1:D:293:PRO:HB2  | 1:D:294:PHE:CD2  | 2.55                     | 0.41              |
| 1:E:36:ILE:O     | 1:E:292:LEU:HB3  | 2.19                     | 0.41              |
| 1:G:282:GLN:HG3  | 1:G:283:THR:N    | 2.35                     | 0.41              |
| 1:H:355:HIS:H    | 1:H:355:HIS:HD2  | 1.66                     | 0.41              |
| 1:A:13:SER:HA    | 1:A:322:ASN:OD1  | 2.21                     | 0.41              |
| 1:A:48:LEU:HD23  | 1:A:392:PHE:HE1  | 1.86                     | 0.41              |
| 1:A:107:HIS:O    | 1:A:110:SER:HB2  | 2.21                     | 0.41              |
| 1:A:206:SER:OG   | 1:A:240:ASP:OD1  | 2.39                     | 0.41              |
| 1:A:447:LEU:HD12 | 1:A:447:LEU:HA   | 1.68                     | 0.41              |
| 1:B:42:ASN:HB2   | 1:B:287:ALA:O    | 2.21                     | 0.41              |
| 1:B:140:VAL:HG23 | 1:B:145:SER:CB   | 2.50                     | 0.41              |
| 1:C:400:SER:OG   | 1:C:403:GLU:HG3  | 2.20                     | 0.41              |
| 1:D:26:ARG:HA    | 1:D:26:ARG:HD2   | 1.84                     | 0.41              |
| 1:D:114:HIS:HB2  | 1:D:115:PHE:H    | 1.52                     | 0.41              |
| 1:D:259:ILE:O    | 1:D:259:ILE:CG2  | 2.67                     | 0.41              |
| 1:D:451:VAL:HG12 | 1:D:452:ARG:N    | 2.35                     | 0.41              |
| 3:D:1497:SIA:O1A | 3:D:1497:SIA:H6  | 2.21                     | 0.41              |
| 1:E:77:VAL:HG22  | 1:E:79:GLU:O     | 2.21                     | 0.41              |
| 1:E:197:VAL:CG1  | 1:E:198:GLY:N    | 2.84                     | 0.41              |
| 1:E:317:ALA:O    | 1:E:436:THR:HG21 | 2.21                     | 0.41              |
| 1:F:22:THR:HG22  | 1:F:433:ASN:HB3  | 2.02                     | 0.41              |
| 1:F:67:GLY:O     | 1:F:68:ASN:C     | 2.59                     | 0.41              |
| 1:F:333:GLY:O    | 1:F:337:GLY:HA3  | 2.21                     | 0.41              |
| 1:F:451:VAL:HG12 | 1:F:452:ARG:N    | 2.35                     | 0.41              |
| 1:G:10:GLY:HA3   | 1:G:343:TRP:CH2  | 2.56                     | 0.41              |
| 1:G:354:HIS:HA   | 1:G:362:GLY:O    | 2.21                     | 0.41              |
| 1:I:42:ASN:HD22  | 1:I:287:ALA:HB3  | 1.85                     | 0.41              |
| 1:I:197:VAL:CG1  | 1:I:198:GLY:N    | 2.84                     | 0.41              |
| 1:I:279:THR:OG1  | 1:I:281:CYS:O    | 2.33                     | 0.41              |
| 1:A:24:LEU:HD22  | 1:C:376:GLY:CA   | 2.51                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:222:VAL:C    | 1:A:224:GLY:N    | 2.75                     | 0.41              |
| 1:B:51:ILE:HB    | 1:B:81:SER:HB3   | 2.03                     | 0.41              |
| 1:C:293:PRO:HG3  | 1:C:385:ILE:HG12 | 2.03                     | 0.41              |
| 1:C:452:ARG:HB2  | 1:C:467:PHE:HZ   | 1.84                     | 0.41              |
| 1:D:138:CYS:O    | 1:D:145:SER:HB3  | 2.21                     | 0.41              |
| 1:E:34:GLN:NE2   | 1:E:381:VAL:HG21 | 2.36                     | 0.41              |
| 1:E:382:ASN:O    | 1:E:386:GLU:N    | 2.52                     | 0.41              |
| 1:F:37:LEU:O     | 1:F:39:LYS:HE2   | 2.21                     | 0.41              |
| 1:H:211:ARG:NH1  | 1:I:216:ILE:HB   | 2.36                     | 0.41              |
| 1:A:469:PHE:HE1  | 1:A:471:HIS:NE2  | 2.18                     | 0.40              |
| 1:B:333:GLY:O    | 1:B:337:GLY:HA3  | 2.21                     | 0.40              |
| 1:B:397:LYS:HB3  | 1:B:397:LYS:HE3  | 1.86                     | 0.40              |
| 1:B:456:ARG:HB2  | 1:B:457:ASP:H    | 1.66                     | 0.40              |
| 1:C:445:LYS:O    | 1:C:445:LYS:HG3  | 2.20                     | 0.40              |
| 1:D:12:HIS:ND1   | 1:D:349:GLY:O    | 2.53                     | 0.40              |
| 1:D:179:TRP:HZ3  | 1:D:234:THR:HG22 | 1.86                     | 0.40              |
| 1:D:199:ALA:HA   | 1:D:247:THR:OG1  | 2.21                     | 0.40              |
| 1:D:243:ASN:HD22 | 1:D:243:ASN:HA   | 1.73                     | 0.40              |
| 1:D:310:LYS:HZ1  | 1:D:418:LEU:CD2  | 2.34                     | 0.40              |
| 1:E:73:ARG:NH1   | 1:G:276:ASN:O    | 2.54                     | 0.40              |
| 1:F:45:LEU:HD12  | 1:F:45:LEU:N     | 2.36                     | 0.40              |
| 1:G:323:VAL:HA   | 1:G:324:PRO:HD3  | 1.66                     | 0.40              |
| 1:G:332:PHE:N    | 1:G:441:ASP:OD2  | 2.53                     | 0.40              |
| 1:G:427:LEU:O    | 1:G:428:LEU:C    | 2.59                     | 0.40              |
| 1:H:24:LEU:HD12  | 1:H:434:GLU:CD   | 2.41                     | 0.40              |
| 1:A:18:GLU:OE1   | 1:A:33:ALA:HB3   | 2.21                     | 0.40              |
| 1:A:218:THR:O    | 1:C:243:ASN:HB2  | 2.21                     | 0.40              |
| 1:D:51:ILE:CG2   | 1:D:52:PRO:HD2   | 2.50                     | 0.40              |
| 1:D:120:ILE:HG21 | 1:D:175:MET:SD   | 2.61                     | 0.40              |
| 1:D:200:TYR:CE1  | 1:D:247:THR:CG2  | 3.04                     | 0.40              |
| 1:D:442:SER:O    | 1:D:446:ASN:HB2  | 2.21                     | 0.40              |
| 1:E:446:ASN:HD21 | 1:F:333:GLY:N    | 2.19                     | 0.40              |
| 1:F:135:SER:OG   | 2:J:2:SIA:O1A    | 2.33                     | 0.40              |
| 1:G:278:GLU:O    | 1:G:279:THR:CB   | 2.69                     | 0.40              |
| 1:G:355:HIS:HB2  | 1:G:478:MET:SD   | 2.61                     | 0.40              |
| 1:G:455:LEU:HG   | 1:G:459:VAL:HG21 | 2.04                     | 0.40              |
| 1:A:105:LEU:HD12 | 1:A:108:LEU:HD23 | 2.02                     | 0.40              |
| 1:A:167:TYR:O    | 1:A:241:THR:HA   | 2.21                     | 0.40              |
| 1:A:191:ARG:HG2  | 1:A:195:GLN:NE2  | 2.36                     | 0.40              |
| 1:A:295:HIS:HD2  | 1:A:297:ILE:H    | 1.69                     | 0.40              |
| 1:A:475:ASP:O    | 1:A:479:ASN:N    | 2.53                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:184:PRO:HD2  | 1:B:216:ILE:HG12 | 2.03                     | 0.40              |
| 1:C:37:LEU:O     | 1:C:39:LYS:HE2   | 2.21                     | 0.40              |
| 1:C:105:LEU:O    | 1:C:109:ILE:HG12 | 2.21                     | 0.40              |
| 1:C:120:ILE:HB   | 1:C:167:TYR:CD1  | 2.57                     | 0.40              |
| 1:C:197:VAL:CG1  | 1:C:198:GLY:N    | 2.85                     | 0.40              |
| 1:C:460:LYS:HG2  | 1:C:468:GLU:HB3  | 2.03                     | 0.40              |
| 1:D:34:GLN:CG    | 1:D:35:ASP:H     | 2.35                     | 0.40              |
| 1:E:442:SER:CB   | 1:F:331:LEU:HD13 | 2.51                     | 0.40              |
| 1:F:197:VAL:CG1  | 1:F:198:GLY:N    | 2.84                     | 0.40              |
| 1:F:298:HIS:HE1  | 1:F:300:LEU:HD12 | 1.86                     | 0.40              |
| 1:G:129:HIS:CD2  | 1:G:161:PRO:HD2  | 2.56                     | 0.40              |
| 1:G:380:LYS:HD2  | 1:G:436:THR:OG1  | 2.21                     | 0.40              |
| 1:G:400:SER:OG   | 1:G:401:ASN:N    | 2.53                     | 0.40              |
| 1:H:338:PHE:CE1  | 1:H:339:ILE:CG1  | 3.05                     | 0.40              |
| 1:I:22:THR:HB    | 1:I:434:GLU:OE2  | 2.22                     | 0.40              |
| 1:A:379:ASN:ND2  | 1:B:26:ARG:CZ    | 2.83                     | 0.40              |
| 1:A:399:PHE:CB   | 1:A:407:GLU:HB2  | 2.52                     | 0.40              |
| 1:C:184:PRO:HD2  | 1:C:216:ILE:HG12 | 2.04                     | 0.40              |
| 1:C:306:PRO:O    | 1:C:307:LYS:C    | 2.60                     | 0.40              |
| 1:E:9:VAL:N      | 1:E:465:GLY:O    | 2.43                     | 0.40              |
| 1:E:51:ILE:HA    | 1:E:52:PRO:HD3   | 1.94                     | 0.40              |
| 1:E:170:THR:HA   | 1:E:239:TRP:CZ3  | 2.56                     | 0.40              |
| 1:E:184:PRO:HD2  | 1:E:216:ILE:HG12 | 2.04                     | 0.40              |
| 1:E:318:THR:HB   | 1:E:377:ILE:HG21 | 2.02                     | 0.40              |
| 1:F:140:VAL:HG23 | 1:F:145:SER:CB   | 2.51                     | 0.40              |
| 1:F:277:CYS:O    | 1:F:278:GLU:HB2  | 2.22                     | 0.40              |
| 1:G:126:TRP:HB2  | 1:G:131:THR:HG21 | 2.04                     | 0.40              |
| 1:G:131:THR:HG22 | 1:G:153:LEU:CD2  | 2.52                     | 0.40              |
| 1:G:384:VAL:O    | 1:G:384:VAL:CG1  | 2.67                     | 0.40              |
| 1:G:419:ASP:O    | 1:G:420:VAL:C    | 2.59                     | 0.40              |
| 1:H:51:ILE:HB    | 1:H:81:SER:HB3   | 2.02                     | 0.40              |
| 1:H:323:VAL:HA   | 1:H:324:PRO:HD3  | 1.87                     | 0.40              |
| 1:A:41:HIS:O     | 1:A:43:GLY:N     | 2.54                     | 0.40              |
| 1:A:297:ILE:O    | 1:A:298:HIS:HB2  | 2.20                     | 0.40              |
| 1:A:321:ARG:HG3  | 1:A:322:ASN:N    | 2.37                     | 0.40              |
| 1:A:332:PHE:CE1  | 1:C:332:PHE:HE1  | 2.39                     | 0.40              |
| 1:B:114:HIS:O    | 1:B:259:ILE:O    | 2.38                     | 0.40              |
| 1:D:146:PHE:HE1  | 1:D:229:MET:CE   | 2.34                     | 0.40              |
| 1:D:382:ASN:O    | 1:D:386:GLU:N    | 2.50                     | 0.40              |
| 1:F:77:VAL:HG22  | 1:F:79:GLU:H     | 1.87                     | 0.40              |
| 1:F:290:THR:OG1  | 1:F:292:LEU:HG   | 2.22                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:131:THR:HG22 | 1:G:153:LEU:HD22 | 2.04                     | 0.40              |
| 1:H:129:HIS:NE2  | 1:H:161:PRO:HD2  | 2.37                     | 0.40              |
| 1:H:140:VAL:HG23 | 1:H:145:SER:CB   | 2.51                     | 0.40              |
| 1:H:243:ASN:HB2  | 1:I:218:THR:O    | 2.22                     | 0.40              |
| 1:H:474:ASP:OD2  | 1:H:474:ASP:N    | 2.51                     | 0.40              |
| 1:I:474:ASP:OD2  | 1:I:474:ASP:N    | 2.54                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

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

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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     | 482/507 (95%)   | 371 (77%)  | 80 (17%)  | 31 (6%)  | 1           | 8  |
| 1   | B     | 482/507 (95%)   | 408 (85%)  | 62 (13%)  | 12 (2%)  | 5           | 27 |
| 1   | C     | 482/507 (95%)   | 407 (84%)  | 63 (13%)  | 12 (2%)  | 5           | 27 |
| 1   | D     | 482/507 (95%)   | 384 (80%)  | 74 (15%)  | 24 (5%)  | 2           | 13 |
| 1   | E     | 482/507 (95%)   | 411 (85%)  | 60 (12%)  | 11 (2%)  | 6           | 28 |
| 1   | F     | 482/507 (95%)   | 407 (84%)  | 63 (13%)  | 12 (2%)  | 5           | 27 |
| 1   | G     | 482/507 (95%)   | 393 (82%)  | 61 (13%)  | 28 (6%)  | 1           | 10 |
| 1   | H     | 482/507 (95%)   | 406 (84%)  | 64 (13%)  | 12 (2%)  | 5           | 27 |
| 1   | I     | 482/507 (95%)   | 403 (84%)  | 69 (14%)  | 10 (2%)  | 7           | 30 |
| All | All   | 4338/4563 (95%) | 3590 (83%) | 596 (14%) | 152 (4%) | 3           | 20 |

All (152) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 30  | VAL  |
| 1   | A     | 155 | LYS  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 196        | ASN         |
| 1          | A            | 276        | ASN         |
| 1          | A            | 306        | PRO         |
| 1          | A            | 357        | ASN         |
| 1          | A            | 396        | GLY         |
| 1          | A            | 432        | GLU         |
| 1          | A            | 452        | ARG         |
| 1          | A            | 479        | ASN         |
| 1          | A            | 494        | GLU         |
| 1          | B            | 260        | SER         |
| 1          | B            | 307        | LYS         |
| 1          | B            | 494        | GLU         |
| 1          | C            | 260        | SER         |
| 1          | C            | 307        | LYS         |
| 1          | C            | 494        | GLU         |
| 1          | D            | 42         | ASN         |
| 1          | D            | 113        | THR         |
| 1          | D            | 196        | ASN         |
| 1          | D            | 238        | ILE         |
| 1          | D            | 239        | TRP         |
| 1          | D            | 320        | LEU         |
| 1          | D            | 494        | GLU         |
| 1          | E            | 260        | SER         |
| 1          | E            | 307        | LYS         |
| 1          | E            | 494        | GLU         |
| 1          | F            | 260        | SER         |
| 1          | F            | 307        | LYS         |
| 1          | F            | 494        | GLU         |
| 1          | G            | 260        | SER         |
| 1          | G            | 307        | LYS         |
| 1          | G            | 425        | ALA         |
| 1          | G            | 426        | GLU         |
| 1          | G            | 433        | ASN         |
| 1          | G            | 490        | LYS         |
| 1          | G            | 494        | GLU         |
| 1          | H            | 260        | SER         |
| 1          | H            | 307        | LYS         |
| 1          | I            | 260        | SER         |
| 1          | I            | 307        | LYS         |
| 1          | A            | 42         | ASN         |
| 1          | A            | 49         | ASN         |
| 1          | A            | 57         | GLY         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 87         | GLU         |
| 1          | A            | 140        | VAL         |
| 1          | A            | 368        | GLU         |
| 1          | A            | 369        | SER         |
| 1          | A            | 431        | MET         |
| 1          | A            | 436        | THR         |
| 1          | A            | 474        | ASP         |
| 1          | B            | 113        | THR         |
| 1          | B            | 279        | THR         |
| 1          | B            | 495        | SER         |
| 1          | C            | 279        | THR         |
| 1          | D            | 13         | SER         |
| 1          | D            | 64         | TRP         |
| 1          | D            | 125        | ARG         |
| 1          | D            | 127        | THR         |
| 1          | D            | 276        | ASN         |
| 1          | D            | 277        | CYS         |
| 1          | E            | 279        | THR         |
| 1          | F            | 113        | THR         |
| 1          | F            | 279        | THR         |
| 1          | G            | 113        | THR         |
| 1          | G            | 279        | THR         |
| 1          | G            | 367        | LYS         |
| 1          | G            | 418        | LEU         |
| 1          | G            | 458        | ASN         |
| 1          | H            | 279        | THR         |
| 1          | I            | 113        | THR         |
| 1          | I            | 262        | ARG         |
| 1          | I            | 279        | THR         |
| 1          | I            | 324        | PRO         |
| 1          | A            | 209        | ASN         |
| 1          | A            | 220        | PRO         |
| 1          | A            | 425        | ALA         |
| 1          | B            | 262        | ARG         |
| 1          | C            | 113        | THR         |
| 1          | C            | 259        | ILE         |
| 1          | C            | 262        | ARG         |
| 1          | C            | 324        | PRO         |
| 1          | D            | 15         | ASN         |
| 1          | E            | 113        | THR         |
| 1          | E            | 262        | ARG         |
| 1          | F            | 262        | ARG         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | G            | 262        | ARG         |
| 1          | G            | 361        | SER         |
| 1          | G            | 400        | SER         |
| 1          | G            | 420        | VAL         |
| 1          | G            | 456        | ARG         |
| 1          | G            | 483        | ASN         |
| 1          | G            | 487        | ASP         |
| 1          | G            | 489        | SER         |
| 1          | H            | 113        | THR         |
| 1          | H            | 262        | ARG         |
| 1          | I            | 430        | LEU         |
| 1          | A            | 89         | PRO         |
| 1          | A            | 361        | SER         |
| 1          | A            | 458        | ASN         |
| 1          | B            | 195        | GLN         |
| 1          | B            | 259        | ILE         |
| 1          | C            | 195        | GLN         |
| 1          | C            | 430        | LEU         |
| 1          | D            | 27         | ASN         |
| 1          | D            | 49         | ASN         |
| 1          | D            | 317        | ALA         |
| 1          | D            | 430        | LEU         |
| 1          | E            | 195        | GLN         |
| 1          | E            | 259        | ILE         |
| 1          | E            | 430        | LEU         |
| 1          | F            | 195        | GLN         |
| 1          | F            | 259        | ILE         |
| 1          | G            | 195        | GLN         |
| 1          | G            | 259        | ILE         |
| 1          | H            | 195        | GLN         |
| 1          | H            | 259        | ILE         |
| 1          | H            | 430        | LEU         |
| 1          | H            | 494        | GLU         |
| 1          | I            | 195        | GLN         |
| 1          | I            | 259        | ILE         |
| 1          | A            | 445        | LYS         |
| 1          | A            | 456        | ARG         |
| 1          | B            | 334        | ALA         |
| 1          | B            | 340        | GLU         |
| 1          | D            | 12         | HIS         |
| 1          | D            | 73         | ARG         |
| 1          | D            | 297        | ILE         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | D     | 316 | LEU  |
| 1   | D     | 334 | ALA  |
| 1   | F     | 334 | ALA  |
| 1   | F     | 430 | LEU  |
| 1   | G     | 324 | PRO  |
| 1   | G     | 455 | LEU  |
| 1   | H     | 324 | PRO  |
| 1   | H     | 487 | ASP  |
| 1   | A     | 323 | VAL  |
| 1   | B     | 430 | LEU  |
| 1   | C     | 334 | ALA  |
| 1   | C     | 487 | ASP  |
| 1   | E     | 487 | ASP  |
| 1   | G     | 397 | LYS  |
| 1   | F     | 324 | PRO  |
| 1   | G     | 360 | GLY  |
| 1   | G     | 109 | ILE  |
| 1   | D     | 28  | VAL  |
| 1   | E     | 109 | ILE  |
| 1   | G     | 306 | PRO  |
| 1   | I     | 109 | ILE  |
| 1   | A     | 298 | HIS  |
| 1   | F     | 109 | ILE  |
| 1   | H     | 109 | ILE  |

### 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     | 422/444 (95%) | 347 (82%) | 75 (18%) | <b>2</b> <b>8</b>  |
| 1   | B     | 422/444 (95%) | 389 (92%) | 33 (8%)  | <b>12</b> 40       |
| 1   | C     | 421/444 (95%) | 392 (93%) | 29 (7%)  | <b>15</b> 45       |
| 1   | D     | 422/444 (95%) | 361 (86%) | 61 (14%) | <b>3</b> <b>13</b> |
| 1   | E     | 422/444 (95%) | 391 (93%) | 31 (7%)  | <b>14</b> 43       |

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| Mol | Chain | Analysed        | Rotameric  | Outliers  | Percentiles |    |
|-----|-------|-----------------|------------|-----------|-------------|----|
| 1   | F     | 421/444 (95%)   | 391 (93%)  | 30 (7%)   | 14          | 44 |
| 1   | G     | 422/444 (95%)   | 374 (89%)  | 48 (11%)  | 5           | 23 |
| 1   | H     | 422/444 (95%)   | 391 (93%)  | 31 (7%)   | 14          | 43 |
| 1   | I     | 421/444 (95%)   | 389 (92%)  | 32 (8%)   | 13          | 41 |
| All | All   | 3795/3996 (95%) | 3425 (90%) | 370 (10%) | 8           | 30 |

All (370) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 17  | THR  |
| 1   | A     | 19  | LYS  |
| 1   | A     | 21  | ASP  |
| 1   | A     | 23  | ILE  |
| 1   | A     | 26  | ARG  |
| 1   | A     | 29  | THR  |
| 1   | A     | 36  | ILE  |
| 1   | A     | 45  | LEU  |
| 1   | A     | 51  | ILE  |
| 1   | A     | 65  | LEU  |
| 1   | A     | 70  | GLU  |
| 1   | A     | 73  | ARG  |
| 1   | A     | 74  | LEU  |
| 1   | A     | 77  | VAL  |
| 1   | A     | 79  | GLU  |
| 1   | A     | 81  | SER  |
| 1   | A     | 93  | LEU  |
| 1   | A     | 94  | CYS  |
| 1   | A     | 98  | SER  |
| 1   | A     | 99  | PHE  |
| 1   | A     | 108 | LEU  |
| 1   | A     | 114 | HIS  |
| 1   | A     | 132 | THR  |
| 1   | A     | 136 | GLN  |
| 1   | A     | 141 | PHE  |
| 1   | A     | 145 | SER  |
| 1   | A     | 151 | VAL  |
| 1   | A     | 154 | THR  |
| 1   | A     | 158 | SER  |
| 1   | A     | 159 | ASN  |
| 1   | A     | 173 | GLU  |
| 1   | A     | 186 | ASP  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 188        | THR         |
| 1          | A            | 193        | LEU         |
| 1          | A            | 196        | ASN         |
| 1          | A            | 201        | VAL         |
| 1          | A            | 206        | SER         |
| 1          | A            | 207        | THR         |
| 1          | A            | 212        | SER         |
| 1          | A            | 219        | ARG         |
| 1          | A            | 234        | THR         |
| 1          | A            | 259        | ILE         |
| 1          | A            | 273        | THR         |
| 1          | A            | 274        | LEU         |
| 1          | A            | 280        | LYS         |
| 1          | A            | 281        | CYS         |
| 1          | A            | 282        | GLN         |
| 1          | A            | 309        | VAL         |
| 1          | A            | 315        | VAL         |
| 1          | A            | 320        | LEU         |
| 1          | A            | 323        | VAL         |
| 1          | A            | 331        | LEU         |
| 1          | A            | 335        | ILE         |
| 1          | A            | 343        | TRP         |
| 1          | A            | 348        | ASP         |
| 1          | A            | 350        | TRP         |
| 1          | A            | 351        | TYR         |
| 1          | A            | 359        | GLN         |
| 1          | A            | 366        | ASP         |
| 1          | A            | 371        | GLN         |
| 1          | A            | 375        | ASP         |
| 1          | A            | 380        | LYS         |
| 1          | A            | 382        | ASN         |
| 1          | A            | 389        | ASN         |
| 1          | A            | 390        | THR         |
| 1          | A            | 395        | VAL         |
| 1          | A            | 407        | GLU         |
| 1          | A            | 410        | ASN         |
| 1          | A            | 428        | LEU         |
| 1          | A            | 452        | ARG         |
| 1          | A            | 457        | ASP         |
| 1          | A            | 460        | LYS         |
| 1          | A            | 469        | PHE         |
| 1          | A            | 494        | GLU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 496        | LYS         |
| 1          | B            | 19         | LYS         |
| 1          | B            | 23         | ILE         |
| 1          | B            | 55         | GLU         |
| 1          | B            | 61         | ILE         |
| 1          | B            | 70         | GLU         |
| 1          | B            | 73         | ARG         |
| 1          | B            | 86         | LYS         |
| 1          | B            | 110        | SER         |
| 1          | B            | 113        | THR         |
| 1          | B            | 141        | PHE         |
| 1          | B            | 142        | ASP         |
| 1          | B            | 143        | ASN         |
| 1          | B            | 154        | THR         |
| 1          | B            | 188        | THR         |
| 1          | B            | 241        | THR         |
| 1          | B            | 273        | THR         |
| 1          | B            | 275        | GLU         |
| 1          | B            | 277        | CYS         |
| 1          | B            | 283        | THR         |
| 1          | B            | 307        | LYS         |
| 1          | B            | 309        | VAL         |
| 1          | B            | 323        | VAL         |
| 1          | B            | 325        | GLN         |
| 1          | B            | 331        | LEU         |
| 1          | B            | 389        | ASN         |
| 1          | B            | 397        | LYS         |
| 1          | B            | 404        | LYS         |
| 1          | B            | 410        | ASN         |
| 1          | B            | 426        | GLU         |
| 1          | B            | 437        | LEU         |
| 1          | B            | 456        | ARG         |
| 1          | B            | 473        | CYS         |
| 1          | B            | 496        | LYS         |
| 1          | C            | 19         | LYS         |
| 1          | C            | 23         | ILE         |
| 1          | C            | 55         | GLU         |
| 1          | C            | 61         | ILE         |
| 1          | C            | 70         | GLU         |
| 1          | C            | 73         | ARG         |
| 1          | C            | 86         | LYS         |
| 1          | C            | 110        | SER         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | C            | 113        | THR         |
| 1          | C            | 141        | PHE         |
| 1          | C            | 142        | ASP         |
| 1          | C            | 143        | ASN         |
| 1          | C            | 154        | THR         |
| 1          | C            | 188        | THR         |
| 1          | C            | 241        | THR         |
| 1          | C            | 273        | THR         |
| 1          | C            | 275        | GLU         |
| 1          | C            | 277        | CYS         |
| 1          | C            | 283        | THR         |
| 1          | C            | 307        | LYS         |
| 1          | C            | 323        | VAL         |
| 1          | C            | 331        | LEU         |
| 1          | C            | 389        | ASN         |
| 1          | C            | 397        | LYS         |
| 1          | C            | 404        | LYS         |
| 1          | C            | 410        | ASN         |
| 1          | C            | 426        | GLU         |
| 1          | C            | 437        | LEU         |
| 1          | C            | 473        | CYS         |
| 1          | D            | 17         | THR         |
| 1          | D            | 19         | LYS         |
| 1          | D            | 21         | ASP         |
| 1          | D            | 23         | ILE         |
| 1          | D            | 26         | ARG         |
| 1          | D            | 39         | LYS         |
| 1          | D            | 40         | THR         |
| 1          | D            | 52         | PRO         |
| 1          | D            | 56         | LEU         |
| 1          | D            | 58         | ASP         |
| 1          | D            | 74         | LEU         |
| 1          | D            | 77         | VAL         |
| 1          | D            | 82         | TYR         |
| 1          | D            | 86         | LYS         |
| 1          | D            | 88         | ASN         |
| 1          | D            | 90         | ARG         |
| 1          | D            | 91         | ASN         |
| 1          | D            | 94         | CYS         |
| 1          | D            | 98         | SER         |
| 1          | D            | 108        | LEU         |
| 1          | D            | 111        | SER         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | D            | 114        | HIS         |
| 1          | D            | 118        | VAL         |
| 1          | D            | 148        | ARG         |
| 1          | D            | 162        | VAL         |
| 1          | D            | 170        | THR         |
| 1          | D            | 173        | GLU         |
| 1          | D            | 176        | LEU         |
| 1          | D            | 177        | ILE         |
| 1          | D            | 188        | THR         |
| 1          | D            | 195        | GLN         |
| 1          | D            | 196        | ASN         |
| 1          | D            | 197        | VAL         |
| 1          | D            | 202        | SER         |
| 1          | D            | 208        | LEU         |
| 1          | D            | 211        | ARG         |
| 1          | D            | 212        | SER         |
| 1          | D            | 219        | ARG         |
| 1          | D            | 230        | GLU         |
| 1          | D            | 239        | TRP         |
| 1          | D            | 241        | THR         |
| 1          | D            | 259        | ILE         |
| 1          | D            | 260        | SER         |
| 1          | D            | 273        | THR         |
| 1          | D            | 274        | LEU         |
| 1          | D            | 281        | CYS         |
| 1          | D            | 295        | HIS         |
| 1          | D            | 307        | LYS         |
| 1          | D            | 310        | LYS         |
| 1          | D            | 316        | LEU         |
| 1          | D            | 321        | ARG         |
| 1          | D            | 323        | VAL         |
| 1          | D            | 331        | LEU         |
| 1          | D            | 389        | ASN         |
| 1          | D            | 397        | LYS         |
| 1          | D            | 404        | LYS         |
| 1          | D            | 410        | ASN         |
| 1          | D            | 426        | GLU         |
| 1          | D            | 437        | LEU         |
| 1          | D            | 473        | CYS         |
| 1          | D            | 495        | SER         |
| 1          | E            | 19         | LYS         |
| 1          | E            | 23         | ILE         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | E            | 55         | GLU         |
| 1          | E            | 61         | ILE         |
| 1          | E            | 70         | GLU         |
| 1          | E            | 73         | ARG         |
| 1          | E            | 86         | LYS         |
| 1          | E            | 110        | SER         |
| 1          | E            | 113        | THR         |
| 1          | E            | 141        | PHE         |
| 1          | E            | 142        | ASP         |
| 1          | E            | 143        | ASN         |
| 1          | E            | 154        | THR         |
| 1          | E            | 188        | THR         |
| 1          | E            | 241        | THR         |
| 1          | E            | 260        | SER         |
| 1          | E            | 273        | THR         |
| 1          | E            | 275        | GLU         |
| 1          | E            | 277        | CYS         |
| 1          | E            | 283        | THR         |
| 1          | E            | 307        | LYS         |
| 1          | E            | 323        | VAL         |
| 1          | E            | 331        | LEU         |
| 1          | E            | 389        | ASN         |
| 1          | E            | 397        | LYS         |
| 1          | E            | 404        | LYS         |
| 1          | E            | 410        | ASN         |
| 1          | E            | 426        | GLU         |
| 1          | E            | 437        | LEU         |
| 1          | E            | 456        | ARG         |
| 1          | E            | 473        | CYS         |
| 1          | F            | 19         | LYS         |
| 1          | F            | 23         | ILE         |
| 1          | F            | 55         | GLU         |
| 1          | F            | 61         | ILE         |
| 1          | F            | 70         | GLU         |
| 1          | F            | 73         | ARG         |
| 1          | F            | 86         | LYS         |
| 1          | F            | 110        | SER         |
| 1          | F            | 113        | THR         |
| 1          | F            | 141        | PHE         |
| 1          | F            | 142        | ASP         |
| 1          | F            | 143        | ASN         |
| 1          | F            | 154        | THR         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | F            | 188        | THR         |
| 1          | F            | 241        | THR         |
| 1          | F            | 273        | THR         |
| 1          | F            | 275        | GLU         |
| 1          | F            | 277        | CYS         |
| 1          | F            | 283        | THR         |
| 1          | F            | 307        | LYS         |
| 1          | F            | 309        | VAL         |
| 1          | F            | 323        | VAL         |
| 1          | F            | 331        | LEU         |
| 1          | F            | 389        | ASN         |
| 1          | F            | 397        | LYS         |
| 1          | F            | 404        | LYS         |
| 1          | F            | 410        | ASN         |
| 1          | F            | 426        | GLU         |
| 1          | F            | 437        | LEU         |
| 1          | F            | 473        | CYS         |
| 1          | G            | 19         | LYS         |
| 1          | G            | 23         | ILE         |
| 1          | G            | 55         | GLU         |
| 1          | G            | 61         | ILE         |
| 1          | G            | 70         | GLU         |
| 1          | G            | 73         | ARG         |
| 1          | G            | 86         | LYS         |
| 1          | G            | 110        | SER         |
| 1          | G            | 113        | THR         |
| 1          | G            | 141        | PHE         |
| 1          | G            | 142        | ASP         |
| 1          | G            | 143        | ASN         |
| 1          | G            | 154        | THR         |
| 1          | G            | 188        | THR         |
| 1          | G            | 241        | THR         |
| 1          | G            | 273        | THR         |
| 1          | G            | 275        | GLU         |
| 1          | G            | 277        | CYS         |
| 1          | G            | 283        | THR         |
| 1          | G            | 307        | LYS         |
| 1          | G            | 323        | VAL         |
| 1          | G            | 346        | MET         |
| 1          | G            | 347        | VAL         |
| 1          | G            | 351        | TYR         |
| 1          | G            | 355        | HIS         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | G            | 356        | SER         |
| 1          | G            | 357        | ASN         |
| 1          | G            | 358        | ASP         |
| 1          | G            | 359        | GLN         |
| 1          | G            | 367        | LYS         |
| 1          | G            | 381        | VAL         |
| 1          | G            | 389        | ASN         |
| 1          | G            | 390        | THR         |
| 1          | G            | 398        | GLU         |
| 1          | G            | 404        | LYS         |
| 1          | G            | 407        | GLU         |
| 1          | G            | 408        | ASN         |
| 1          | G            | 409        | LEU         |
| 1          | G            | 410        | ASN         |
| 1          | G            | 411        | LYS         |
| 1          | G            | 426        | GLU         |
| 1          | G            | 427        | LEU         |
| 1          | G            | 430        | LEU         |
| 1          | G            | 459        | VAL         |
| 1          | G            | 466        | CYS         |
| 1          | G            | 483        | ASN         |
| 1          | G            | 494        | GLU         |
| 1          | G            | 496        | LYS         |
| 1          | H            | 19         | LYS         |
| 1          | H            | 23         | ILE         |
| 1          | H            | 55         | GLU         |
| 1          | H            | 61         | ILE         |
| 1          | H            | 70         | GLU         |
| 1          | H            | 73         | ARG         |
| 1          | H            | 86         | LYS         |
| 1          | H            | 110        | SER         |
| 1          | H            | 113        | THR         |
| 1          | H            | 141        | PHE         |
| 1          | H            | 142        | ASP         |
| 1          | H            | 143        | ASN         |
| 1          | H            | 154        | THR         |
| 1          | H            | 188        | THR         |
| 1          | H            | 241        | THR         |
| 1          | H            | 273        | THR         |
| 1          | H            | 275        | GLU         |
| 1          | H            | 277        | CYS         |
| 1          | H            | 283        | THR         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | H            | 307        | LYS         |
| 1          | H            | 323        | VAL         |
| 1          | H            | 325        | GLN         |
| 1          | H            | 389        | ASN         |
| 1          | H            | 397        | LYS         |
| 1          | H            | 404        | LYS         |
| 1          | H            | 410        | ASN         |
| 1          | H            | 426        | GLU         |
| 1          | H            | 437        | LEU         |
| 1          | H            | 456        | ARG         |
| 1          | H            | 473        | CYS         |
| 1          | H            | 493        | GLU         |
| 1          | I            | 19         | LYS         |
| 1          | I            | 23         | ILE         |
| 1          | I            | 55         | GLU         |
| 1          | I            | 61         | ILE         |
| 1          | I            | 70         | GLU         |
| 1          | I            | 73         | ARG         |
| 1          | I            | 86         | LYS         |
| 1          | I            | 110        | SER         |
| 1          | I            | 113        | THR         |
| 1          | I            | 141        | PHE         |
| 1          | I            | 142        | ASP         |
| 1          | I            | 143        | ASN         |
| 1          | I            | 154        | THR         |
| 1          | I            | 188        | THR         |
| 1          | I            | 241        | THR         |
| 1          | I            | 273        | THR         |
| 1          | I            | 275        | GLU         |
| 1          | I            | 277        | CYS         |
| 1          | I            | 283        | THR         |
| 1          | I            | 307        | LYS         |
| 1          | I            | 309        | VAL         |
| 1          | I            | 323        | VAL         |
| 1          | I            | 325        | GLN         |
| 1          | I            | 351        | TYR         |
| 1          | I            | 389        | ASN         |
| 1          | I            | 397        | LYS         |
| 1          | I            | 404        | LYS         |
| 1          | I            | 410        | ASN         |
| 1          | I            | 426        | GLU         |
| 1          | I            | 437        | LEU         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | I     | 456 | ARG  |
| 1   | I     | 473 | CYS  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (147) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 34  | GLN  |
| 1   | A     | 88  | ASN  |
| 1   | A     | 129 | HIS  |
| 1   | A     | 182 | HIS  |
| 1   | A     | 196 | ASN  |
| 1   | A     | 225 | GLN  |
| 1   | A     | 243 | ASN  |
| 1   | A     | 249 | ASN  |
| 1   | A     | 282 | GLN  |
| 1   | A     | 354 | HIS  |
| 1   | A     | 359 | GLN  |
| 1   | A     | 371 | GLN  |
| 1   | A     | 379 | ASN  |
| 1   | A     | 382 | ASN  |
| 1   | A     | 389 | ASN  |
| 1   | A     | 391 | GLN  |
| 1   | A     | 440 | HIS  |
| 1   | A     | 446 | ASN  |
| 1   | B     | 34  | GLN  |
| 1   | B     | 91  | ASN  |
| 1   | B     | 136 | GLN  |
| 1   | B     | 143 | ASN  |
| 1   | B     | 159 | ASN  |
| 1   | B     | 182 | HIS  |
| 1   | B     | 185 | ASN  |
| 1   | B     | 243 | ASN  |
| 1   | B     | 249 | ASN  |
| 1   | B     | 295 | HIS  |
| 1   | B     | 354 | HIS  |
| 1   | B     | 355 | HIS  |
| 1   | B     | 371 | GLN  |
| 1   | B     | 379 | ASN  |
| 1   | B     | 389 | ASN  |
| 1   | B     | 391 | GLN  |
| 1   | B     | 408 | ASN  |
| 1   | C     | 34  | GLN  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | C            | 91         | ASN         |
| 1          | C            | 136        | GLN         |
| 1          | C            | 143        | ASN         |
| 1          | C            | 159        | ASN         |
| 1          | C            | 182        | HIS         |
| 1          | C            | 185        | ASN         |
| 1          | C            | 243        | ASN         |
| 1          | C            | 249        | ASN         |
| 1          | C            | 295        | HIS         |
| 1          | C            | 354        | HIS         |
| 1          | C            | 355        | HIS         |
| 1          | C            | 371        | GLN         |
| 1          | C            | 379        | ASN         |
| 1          | C            | 389        | ASN         |
| 1          | C            | 391        | GLN         |
| 1          | C            | 446        | ASN         |
| 1          | D            | 12         | HIS         |
| 1          | D            | 41         | HIS         |
| 1          | D            | 42         | ASN         |
| 1          | D            | 49         | ASN         |
| 1          | D            | 88         | ASN         |
| 1          | D            | 100        | ASN         |
| 1          | D            | 159        | ASN         |
| 1          | D            | 182        | HIS         |
| 1          | D            | 195        | GLN         |
| 1          | D            | 243        | ASN         |
| 1          | D            | 249        | ASN         |
| 1          | D            | 295        | HIS         |
| 1          | D            | 354        | HIS         |
| 1          | D            | 355        | HIS         |
| 1          | D            | 371        | GLN         |
| 1          | D            | 379        | ASN         |
| 1          | D            | 389        | ASN         |
| 1          | D            | 391        | GLN         |
| 1          | E            | 34         | GLN         |
| 1          | E            | 91         | ASN         |
| 1          | E            | 136        | GLN         |
| 1          | E            | 143        | ASN         |
| 1          | E            | 159        | ASN         |
| 1          | E            | 182        | HIS         |
| 1          | E            | 185        | ASN         |
| 1          | E            | 243        | ASN         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | E            | 249        | ASN         |
| 1          | E            | 295        | HIS         |
| 1          | E            | 354        | HIS         |
| 1          | E            | 355        | HIS         |
| 1          | E            | 371        | GLN         |
| 1          | E            | 379        | ASN         |
| 1          | E            | 389        | ASN         |
| 1          | E            | 391        | GLN         |
| 1          | E            | 446        | ASN         |
| 1          | F            | 34         | GLN         |
| 1          | F            | 91         | ASN         |
| 1          | F            | 143        | ASN         |
| 1          | F            | 159        | ASN         |
| 1          | F            | 182        | HIS         |
| 1          | F            | 185        | ASN         |
| 1          | F            | 243        | ASN         |
| 1          | F            | 249        | ASN         |
| 1          | F            | 295        | HIS         |
| 1          | F            | 354        | HIS         |
| 1          | F            | 355        | HIS         |
| 1          | F            | 371        | GLN         |
| 1          | F            | 379        | ASN         |
| 1          | F            | 389        | ASN         |
| 1          | F            | 391        | GLN         |
| 1          | G            | 34         | GLN         |
| 1          | G            | 91         | ASN         |
| 1          | G            | 136        | GLN         |
| 1          | G            | 143        | ASN         |
| 1          | G            | 159        | ASN         |
| 1          | G            | 182        | HIS         |
| 1          | G            | 185        | ASN         |
| 1          | G            | 243        | ASN         |
| 1          | G            | 249        | ASN         |
| 1          | G            | 295        | HIS         |
| 1          | G            | 408        | ASN         |
| 1          | H            | 34         | GLN         |
| 1          | H            | 91         | ASN         |
| 1          | H            | 136        | GLN         |
| 1          | H            | 143        | ASN         |
| 1          | H            | 159        | ASN         |
| 1          | H            | 182        | HIS         |
| 1          | H            | 185        | ASN         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | H     | 243 | ASN  |
| 1   | H     | 249 | ASN  |
| 1   | H     | 295 | HIS  |
| 1   | H     | 355 | HIS  |
| 1   | H     | 371 | GLN  |
| 1   | H     | 379 | ASN  |
| 1   | H     | 389 | ASN  |
| 1   | H     | 391 | GLN  |
| 1   | I     | 15  | ASN  |
| 1   | I     | 34  | GLN  |
| 1   | I     | 91  | ASN  |
| 1   | I     | 136 | GLN  |
| 1   | I     | 143 | ASN  |
| 1   | I     | 159 | ASN  |
| 1   | I     | 182 | HIS  |
| 1   | I     | 185 | ASN  |
| 1   | I     | 243 | ASN  |
| 1   | I     | 249 | ASN  |
| 1   | I     | 295 | HIS  |
| 1   | I     | 325 | GLN  |
| 1   | I     | 344 | GLN  |
| 1   | I     | 354 | HIS  |
| 1   | I     | 355 | HIS  |
| 1   | I     | 371 | GLN  |
| 1   | I     | 379 | ASN  |
| 1   | I     | 389 | ASN  |
| 1   | I     | 408 | 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](#)

2 monosaccharides are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and

the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 2   | GAL  | J     | 1   | 2    | 12,12,12     | 0.50 | 0        | 17,17,17    | 1.14 | 2 (11%)  |
| 2   | SIA  | J     | 2   | 2    | 20,20,21     | 0.70 | 0        | 21,28,31    | 1.61 | 3 (14%)  |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions   | Rings   |
|-----|------|-------|-----|------|---------|------------|---------|
| 2   | GAL  | J     | 1   | 2    | -       | 2/2/22/22  | 0/1/1/1 |
| 2   | SIA  | J     | 2   | 2    | -       | 0/18/34/38 | 0/1/1/1 |

There are no bond length outliers.

All (5) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 2   | J     | 2   | SIA  | C6-C5-N5  | 3.74  | 116.87      | 110.91   |
| 2   | J     | 2   | SIA  | C8-C7-C6  | -3.49 | 106.49      | 113.05   |
| 2   | J     | 2   | SIA  | O1B-C1-C2 | 2.61  | 119.50      | 112.71   |
| 2   | J     | 1   | GAL  | C1-C2-C3  | 2.52  | 115.49      | 110.36   |
| 2   | J     | 1   | GAL  | O5-C1-C2  | 2.09  | 113.98      | 110.30   |

There are no chirality outliers.

All (2) torsion outliers are listed below:

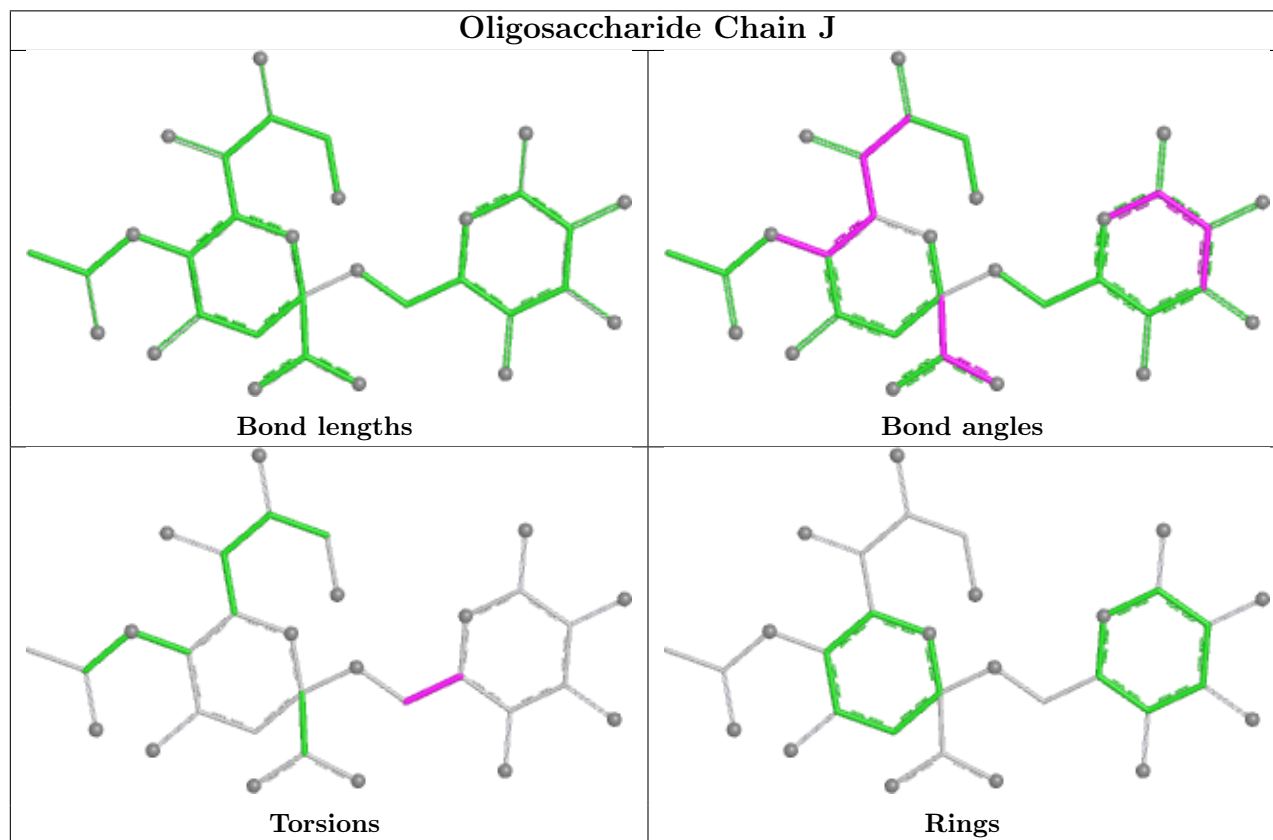
| Mol | Chain | Res | Type | Atoms       |
|-----|-------|-----|------|-------------|
| 2   | J     | 1   | GAL  | O5-C5-C6-O6 |
| 2   | J     | 1   | GAL  | C4-C5-C6-O6 |

There are no ring outliers.

1 monomer is involved in 7 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 2   | J     | 2   | SIA  | 7       | 0            |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.



## 5.6 Ligand geometry [i](#)

1 ligand is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res  | Link | Bond lengths |      |             | Bond angles |      |             |
|-----|------|-------|------|------|--------------|------|-------------|-------------|------|-------------|
|     |      |       |      |      | Counts       | RMSZ | # $ Z  > 2$ | Counts      | RMSZ | # $ Z  > 2$ |
| 3   | SIA  | D     | 1497 | -    | 21,21,21     | 0.77 | 0           | 24,31,31    | 1.30 | 2 (8%)      |

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

| Mol | Type | Chain | Res  | Link | Chirals | Torsions   | Rings   |
|-----|------|-------|------|------|---------|------------|---------|
| 3   | SIA  | D     | 1497 | -    | -       | 2/20/38/38 | 0/1/1/1 |

There are no bond length outliers.

All (2) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|----------|-------|-------------|----------|
| 3   | D     | 1497 | SIA  | C3-C2-C1 | -3.19 | 106.92      | 112.84   |
| 3   | D     | 1497 | SIA  | O6-C6-C5 | 2.74  | 112.35      | 109.84   |

There are no chirality outliers.

All (2) torsion outliers are listed below:

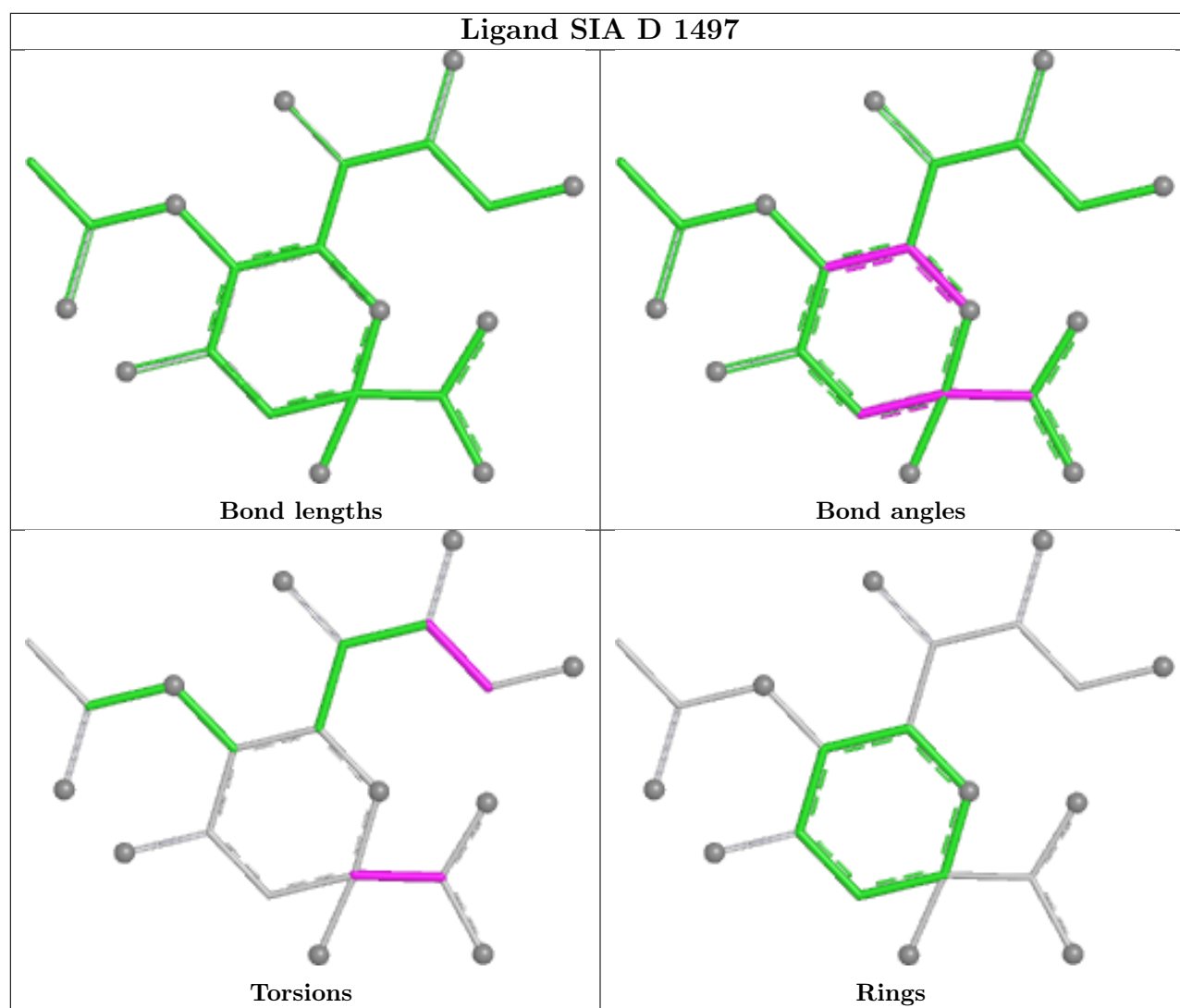
| Mol | Chain | Res  | Type | Atoms        |
|-----|-------|------|------|--------------|
| 3   | D     | 1497 | SIA  | O8-C8-C9-O9  |
| 3   | D     | 1497 | SIA  | O1B-C1-C2-O2 |

There are no ring outliers.

1 monomer is involved in 1 short contact:

| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 3   | D     | 1497 | SIA  | 1       | 0            |

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



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

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 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     | 486/507 (95%)   | -0.09  | 20 (4%) 37 18 | 23, 64, 148, 275      | 0     |
| 1   | B     | 486/507 (95%)   | 0.09   | 23 (4%) 31 15 | 27, 66, 148, 278      | 0     |
| 1   | C     | 486/507 (95%)   | 0.19   | 31 (6%) 19 8  | 24, 78, 160, 298      | 0     |
| 1   | D     | 486/507 (95%)   | 0.22   | 43 (8%) 10 4  | 26, 71, 222, 378      | 0     |
| 1   | E     | 486/507 (95%)   | 0.50   | 59 (12%) 4 1  | 31, 94, 232, 308      | 0     |
| 1   | F     | 486/507 (95%)   | 0.39   | 39 (8%) 12 5  | 40, 96, 188, 258      | 0     |
| 1   | G     | 486/507 (95%)   | 0.24   | 45 (9%) 8 3   | 20, 70, 182, 365      | 0     |
| 1   | H     | 486/507 (95%)   | 0.51   | 50 (10%) 6 2  | 20, 73, 179, 367      | 0     |
| 1   | I     | 486/507 (95%)   | 0.32   | 37 (7%) 13 5  | 26, 73, 195, 376      | 0     |
| All | All   | 4374/4563 (95%) | 0.26   | 347 (7%) 12 5 | 20, 76, 188, 378      | 0     |

All (347) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | H     | 263 | GLY  | 14.6 |
| 1   | G     | 265 | SER  | 13.0 |
| 1   | I     | 391 | GLN  | 10.3 |
| 1   | H     | 75  | LEU  | 9.9  |
| 1   | D     | 486 | TYR  | 9.3  |
| 1   | G     | 390 | THR  | 9.1  |
| 1   | I     | 390 | THR  | 8.9  |
| 1   | H     | 276 | ASN  | 8.1  |
| 1   | I     | 392 | PHE  | 8.1  |
| 1   | I     | 265 | SER  | 7.7  |
| 1   | I     | 276 | ASN  | 7.6  |
| 1   | D     | 348 | ASP  | 7.3  |
| 1   | H     | 265 | SER  | 7.0  |
| 1   | D     | 356 | SER  | 6.7  |
| 1   | F     | 460 | LYS  | 6.7  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | F            | 351        | TYR         | 6.7         |
| 1          | H            | 304        | GLU         | 6.6         |
| 1          | H            | 392        | PHE         | 6.6         |
| 1          | D            | 361        | SER         | 6.3         |
| 1          | G            | 221        | GLU         | 6.3         |
| 1          | H            | 262        | ARG         | 6.3         |
| 1          | D            | 460        | LYS         | 6.3         |
| 1          | G            | 111        | SER         | 6.3         |
| 1          | G            | 195        | GLN         | 6.2         |
| 1          | H            | 141        | PHE         | 6.2         |
| 1          | I            | 264        | SER         | 6.1         |
| 1          | I            | 51         | ILE         | 6.1         |
| 1          | F            | 469        | PHE         | 5.9         |
| 1          | B            | 358        | ASP         | 5.8         |
| 1          | G            | 264        | SER         | 5.5         |
| 1          | E            | 9          | VAL         | 5.5         |
| 1          | F            | 349        | GLY         | 5.5         |
| 1          | H            | 157        | GLY         | 5.4         |
| 1          | D            | 468        | GLU         | 5.3         |
| 1          | A            | 10         | GLY         | 5.2         |
| 1          | E            | 27         | ASN         | 5.1         |
| 1          | H            | 142        | ASP         | 5.0         |
| 1          | F            | 459        | VAL         | 5.0         |
| 1          | I            | 75         | LEU         | 5.0         |
| 1          | F            | 325        | GLN         | 5.0         |
| 1          | G            | 304        | GLU         | 4.9         |
| 1          | B            | 275        | GLU         | 4.9         |
| 1          | D            | 470        | TYR         | 4.8         |
| 1          | C            | 460        | LYS         | 4.8         |
| 1          | D            | 355        | HIS         | 4.8         |
| 1          | H            | 391        | GLN         | 4.7         |
| 1          | E            | 356        | SER         | 4.7         |
| 1          | F            | 478        | MET         | 4.7         |
| 1          | D            | 354        | HIS         | 4.7         |
| 1          | A            | 486        | TYR         | 4.7         |
| 1          | D            | 360        | GLY         | 4.6         |
| 1          | G            | 391        | GLN         | 4.6         |
| 1          | H            | 111        | SER         | 4.6         |
| 1          | G            | 263        | GLY         | 4.5         |
| 1          | I            | 15         | ASN         | 4.5         |
| 1          | D            | 456        | ARG         | 4.5         |
| 1          | B            | 475        | ASP         | 4.5         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | H            | 261        | LYS         | 4.4         |
| 1          | D            | 455        | LEU         | 4.4         |
| 1          | G            | 49         | ASN         | 4.4         |
| 1          | E            | 8          | CYS         | 4.4         |
| 1          | E            | 10         | GLY         | 4.4         |
| 1          | E            | 352        | GLY         | 4.3         |
| 1          | H            | 303        | GLY         | 4.3         |
| 1          | E            | 355        | HIS         | 4.3         |
| 1          | D            | 487        | ASP         | 4.3         |
| 1          | I            | 49         | ASN         | 4.2         |
| 1          | C            | 141        | PHE         | 4.2         |
| 1          | H            | 49         | ASN         | 4.2         |
| 1          | E            | 467        | PHE         | 4.2         |
| 1          | I            | 111        | SER         | 4.2         |
| 1          | H            | 81         | SER         | 4.1         |
| 1          | I            | 472        | LYS         | 4.1         |
| 1          | F            | 350        | TRP         | 4.1         |
| 1          | F            | 348        | ASP         | 4.1         |
| 1          | F            | 159        | ASN         | 4.1         |
| 1          | E            | 90         | ARG         | 4.1         |
| 1          | E            | 359        | GLN         | 4.0         |
| 1          | H            | 389        | ASN         | 4.0         |
| 1          | I            | 262        | ARG         | 4.0         |
| 1          | G            | 325        | GLN         | 3.9         |
| 1          | C            | 487        | ASP         | 3.9         |
| 1          | A            | 276        | ASN         | 3.9         |
| 1          | F            | 27         | ASN         | 3.9         |
| 1          | H            | 394        | ALA         | 3.9         |
| 1          | A            | 15         | ASN         | 3.8         |
| 1          | H            | 8          | CYS         | 3.8         |
| 1          | C            | 10         | GLY         | 3.8         |
| 1          | G            | 266        | GLY         | 3.8         |
| 1          | E            | 477        | CYS         | 3.8         |
| 1          | H            | 390        | THR         | 3.8         |
| 1          | C            | 262        | ARG         | 3.7         |
| 1          | B            | 271        | GLU         | 3.7         |
| 1          | E            | 73         | ARG         | 3.7         |
| 1          | E            | 40         | THR         | 3.7         |
| 1          | G            | 276        | ASN         | 3.6         |
| 1          | F            | 10         | GLY         | 3.6         |
| 1          | E            | 275        | GLU         | 3.6         |
| 1          | E            | 325        | GLN         | 3.6         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | C            | 345        | GLY         | 3.6         |
| 1          | E            | 461        | GLU         | 3.5         |
| 1          | I            | 48         | LEU         | 3.5         |
| 1          | G            | 389        | ASN         | 3.5         |
| 1          | D            | 353        | TYR         | 3.4         |
| 1          | E            | 478        | MET         | 3.4         |
| 1          | H            | 46         | CYS         | 3.4         |
| 1          | B            | 272        | GLY         | 3.4         |
| 1          | F            | 473        | CYS         | 3.4         |
| 1          | H            | 112        | VAL         | 3.3         |
| 1          | D            | 457        | ASP         | 3.3         |
| 1          | H            | 489        | SER         | 3.3         |
| 1          | E            | 493        | GLU         | 3.3         |
| 1          | E            | 358        | ASP         | 3.3         |
| 1          | E            | 289        | ASN         | 3.3         |
| 1          | F            | 187        | GLU         | 3.3         |
| 1          | F            | 458        | ASN         | 3.2         |
| 1          | E            | 141        | PHE         | 3.2         |
| 1          | B            | 460        | LYS         | 3.2         |
| 1          | D            | 371        | GLN         | 3.2         |
| 1          | H            | 137        | GLY         | 3.2         |
| 1          | D            | 340        | GLU         | 3.2         |
| 1          | G            | 81         | SER         | 3.2         |
| 1          | H            | 264        | SER         | 3.2         |
| 1          | E            | 473        | CYS         | 3.2         |
| 1          | F            | 476        | GLU         | 3.2         |
| 1          | E            | 7          | ILE         | 3.2         |
| 1          | E            | 463        | GLY         | 3.2         |
| 1          | H            | 360        | GLY         | 3.2         |
| 1          | D            | 15         | ASN         | 3.2         |
| 1          | A            | 358        | ASP         | 3.2         |
| 1          | A            | 16         | SER         | 3.2         |
| 1          | D            | 480        | SER         | 3.2         |
| 1          | F            | 474        | ASP         | 3.2         |
| 1          | G            | 194        | TYR         | 3.2         |
| 1          | H            | 395        | VAL         | 3.1         |
| 1          | D            | 484        | GLY         | 3.1         |
| 1          | F            | 470        | TYR         | 3.1         |
| 1          | A            | 487        | ASP         | 3.1         |
| 1          | H            | 114        | HIS         | 3.1         |
| 1          | I            | 172        | GLY         | 3.1         |
| 1          | C            | 277        | CYS         | 3.1         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | I            | 303        | GLY         | 3.1         |
| 1          | B            | 472        | LYS         | 3.1         |
| 1          | C            | 8          | CYS         | 3.1         |
| 1          | F            | 276        | ASN         | 3.1         |
| 1          | G            | 305        | CYS         | 3.1         |
| 1          | B            | 359        | GLN         | 3.1         |
| 1          | B            | 50         | GLY         | 3.0         |
| 1          | G            | 79         | GLU         | 3.0         |
| 1          | I            | 393        | GLU         | 3.0         |
| 1          | E            | 466        | CYS         | 3.0         |
| 1          | E            | 353        | TYR         | 3.0         |
| 1          | D            | 459        | VAL         | 3.0         |
| 1          | D            | 489        | SER         | 3.0         |
| 1          | G            | 128        | GLN         | 3.0         |
| 1          | F            | 369        | SER         | 3.0         |
| 1          | H            | 47         | LYS         | 3.0         |
| 1          | H            | 487        | ASP         | 3.0         |
| 1          | E            | 492        | GLU         | 3.0         |
| 1          | H            | 7          | ILE         | 3.0         |
| 1          | A            | 352        | GLY         | 3.0         |
| 1          | D            | 362        | GLY         | 3.0         |
| 1          | D            | 322        | ASN         | 2.9         |
| 1          | G            | 196        | ASN         | 2.9         |
| 1          | I            | 290        | THR         | 2.9         |
| 1          | H            | 44         | LYS         | 2.9         |
| 1          | E            | 271        | GLU         | 2.9         |
| 1          | I            | 358        | ASP         | 2.9         |
| 1          | H            | 386        | GLU         | 2.9         |
| 1          | B            | 192        | THR         | 2.9         |
| 1          | C            | 364        | ALA         | 2.9         |
| 1          | G            | 32         | HIS         | 2.9         |
| 1          | D            | 338        | PHE         | 2.9         |
| 1          | I            | 136        | GLN         | 2.9         |
| 1          | H            | 53         | PRO         | 2.9         |
| 1          | C            | 475        | ASP         | 2.9         |
| 1          | D            | 90         | ARG         | 2.9         |
| 1          | I            | 489        | SER         | 2.9         |
| 1          | I            | 291        | THR         | 2.9         |
| 1          | A            | 489        | SER         | 2.9         |
| 1          | E            | 354        | HIS         | 2.9         |
| 1          | G            | 394        | ALA         | 2.9         |
| 1          | I            | 394        | ALA         | 2.9         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | B            | 360        | GLY         | 2.9         |
| 1          | G            | 489        | SER         | 2.8         |
| 1          | D            | 477        | CYS         | 2.8         |
| 1          | H            | 280        | LYS         | 2.8         |
| 1          | D            | 471        | HIS         | 2.8         |
| 1          | E            | 246        | SER         | 2.8         |
| 1          | B            | 476        | GLU         | 2.8         |
| 1          | E            | 472        | LYS         | 2.8         |
| 1          | F            | 34         | GLN         | 2.8         |
| 1          | F            | 280        | LYS         | 2.8         |
| 1          | E            | 156        | LYS         | 2.8         |
| 1          | F            | 468        | GLU         | 2.8         |
| 1          | E            | 361        | SER         | 2.8         |
| 1          | G            | 303        | GLY         | 2.8         |
| 1          | D            | 347        | VAL         | 2.8         |
| 1          | I            | 280        | LYS         | 2.8         |
| 1          | H            | 325        | GLN         | 2.8         |
| 1          | D            | 364        | ALA         | 2.7         |
| 1          | H            | 195        | GLN         | 2.7         |
| 1          | E            | 11         | TYR         | 2.7         |
| 1          | F            | 471        | HIS         | 2.7         |
| 1          | G            | 114        | HIS         | 2.7         |
| 1          | G            | 140        | VAL         | 2.7         |
| 1          | G            | 190        | GLN         | 2.7         |
| 1          | I            | 388        | MET         | 2.7         |
| 1          | D            | 352        | GLY         | 2.7         |
| 1          | G            | 26         | ARG         | 2.7         |
| 1          | B            | 195        | GLN         | 2.7         |
| 1          | A            | 485        | THR         | 2.7         |
| 1          | E            | 128        | GLN         | 2.7         |
| 1          | D            | 381        | VAL         | 2.7         |
| 1          | B            | 311        | SER         | 2.7         |
| 1          | A            | 350        | TRP         | 2.7         |
| 1          | C            | 9          | VAL         | 2.7         |
| 1          | C            | 346        | MET         | 2.6         |
| 1          | D            | 481        | VAL         | 2.6         |
| 1          | B            | 467        | PHE         | 2.6         |
| 1          | C            | 136        | GLN         | 2.6         |
| 1          | H            | 359        | GLN         | 2.6         |
| 1          | F            | 375        | ASP         | 2.6         |
| 1          | C            | 340        | GLU         | 2.6         |
| 1          | E            | 21         | ASP         | 2.6         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | I            | 387        | LYS         | 2.6         |
| 1          | C            | 351        | TYR         | 2.6         |
| 1          | F            | 456        | ARG         | 2.6         |
| 1          | G            | 222        | VAL         | 2.6         |
| 1          | E            | 475        | ASP         | 2.6         |
| 1          | G            | 42         | ASN         | 2.6         |
| 1          | H            | 42         | ASN         | 2.6         |
| 1          | F            | 58         | ASP         | 2.6         |
| 1          | A            | 324        | PRO         | 2.6         |
| 1          | G            | 220        | PRO         | 2.6         |
| 1          | D            | 345        | GLY         | 2.5         |
| 1          | H            | 159        | ASN         | 2.5         |
| 1          | E            | 465        | GLY         | 2.5         |
| 1          | E            | 487        | ASP         | 2.5         |
| 1          | B            | 289        | ASN         | 2.5         |
| 1          | C            | 454        | GLN         | 2.5         |
| 1          | E            | 351        | TYR         | 2.5         |
| 1          | E            | 239        | TRP         | 2.5         |
| 1          | F            | 461        | GLU         | 2.5         |
| 1          | D            | 142        | ASP         | 2.5         |
| 1          | E            | 158        | SER         | 2.5         |
| 1          | G            | 395        | VAL         | 2.5         |
| 1          | C            | 486        | TYR         | 2.5         |
| 1          | C            | 289        | ASN         | 2.4         |
| 1          | A            | 325        | GLN         | 2.4         |
| 1          | C            | 355        | HIS         | 2.4         |
| 1          | F            | 67         | GLY         | 2.4         |
| 1          | D            | 485        | THR         | 2.4         |
| 1          | E            | 155        | LYS         | 2.4         |
| 1          | B            | 273        | THR         | 2.4         |
| 1          | H            | 222        | VAL         | 2.4         |
| 1          | D            | 16         | SER         | 2.4         |
| 1          | D            | 491        | TYR         | 2.4         |
| 1          | E            | 12         | HIS         | 2.4         |
| 1          | I            | 79         | GLU         | 2.4         |
| 1          | F            | 90         | ARG         | 2.4         |
| 1          | G            | 191        | ARG         | 2.4         |
| 1          | D            | 323        | VAL         | 2.4         |
| 1          | B            | 474        | ASP         | 2.4         |
| 1          | A            | 17         | THR         | 2.4         |
| 1          | G            | 223        | ASN         | 2.4         |
| 1          | G            | 290        | THR         | 2.4         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | F            | 353        | TYR         | 2.4         |
| 1          | E            | 460        | LYS         | 2.3         |
| 1          | I            | 386        | GLU         | 2.3         |
| 1          | I            | 42         | ASN         | 2.3         |
| 1          | C            | 15         | ASN         | 2.3         |
| 1          | E            | 468        | GLU         | 2.3         |
| 1          | B            | 356        | SER         | 2.3         |
| 1          | D            | 49         | ASN         | 2.3         |
| 1          | B            | 141        | PHE         | 2.3         |
| 1          | E            | 28         | VAL         | 2.3         |
| 1          | E            | 191        | ARG         | 2.3         |
| 1          | C            | 361        | SER         | 2.3         |
| 1          | I            | 109        | ILE         | 2.3         |
| 1          | C            | 347        | VAL         | 2.3         |
| 1          | F            | 370        | THR         | 2.3         |
| 1          | I            | 266        | GLY         | 2.3         |
| 1          | E            | 462        | LEU         | 2.3         |
| 1          | A            | 29         | THR         | 2.3         |
| 1          | E            | 364        | ALA         | 2.2         |
| 1          | I            | 395        | VAL         | 2.2         |
| 1          | G            | 157        | GLY         | 2.2         |
| 1          | B            | 361        | SER         | 2.2         |
| 1          | G            | 288        | ILE         | 2.2         |
| 1          | I            | 191        | ARG         | 2.2         |
| 1          | E            | 311        | SER         | 2.2         |
| 1          | E            | 247        | THR         | 2.2         |
| 1          | F            | 277        | CYS         | 2.2         |
| 1          | D            | 472        | LYS         | 2.2         |
| 1          | I            | 110        | SER         | 2.2         |
| 1          | H            | 128        | GLN         | 2.2         |
| 1          | H            | 73         | ARG         | 2.2         |
| 1          | I            | 81         | SER         | 2.2         |
| 1          | C            | 7          | ILE         | 2.2         |
| 1          | G            | 112        | VAL         | 2.1         |
| 1          | H            | 310        | LYS         | 2.1         |
| 1          | H            | 393        | GLU         | 2.1         |
| 1          | I            | 53         | PRO         | 2.1         |
| 1          | A            | 362        | GLY         | 2.1         |
| 1          | A            | 472        | LYS         | 2.1         |
| 1          | C            | 125        | ARG         | 2.1         |
| 1          | H            | 260        | SER         | 2.1         |
| 1          | C            | 470        | TYR         | 2.1         |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | E     | 273 | THR  | 2.1  |
| 1   | C     | 137 | GLY  | 2.1  |
| 1   | I     | 256 | GLY  | 2.1  |
| 1   | G     | 143 | ASN  | 2.1  |
| 1   | H     | 305 | CYS  | 2.1  |
| 1   | C     | 360 | GLY  | 2.1  |
| 1   | F     | 330 | GLY  | 2.1  |
| 1   | H     | 388 | MET  | 2.1  |
| 1   | F     | 340 | GLU  | 2.1  |
| 1   | B     | 34  | GLN  | 2.1  |
| 1   | E     | 319 | GLY  | 2.1  |
| 1   | C     | 348 | ASP  | 2.1  |
| 1   | G     | 73  | ARG  | 2.1  |
| 1   | G     | 110 | SER  | 2.1  |
| 1   | A     | 124 | ASP  | 2.1  |
| 1   | G     | 186 | ASP  | 2.1  |
| 1   | B     | 9   | VAL  | 2.1  |
| 1   | G     | 75  | LEU  | 2.1  |
| 1   | G     | 392 | PHE  | 2.1  |
| 1   | C     | 321 | ARG  | 2.1  |
| 1   | H     | 300 | LEU  | 2.1  |
| 1   | E     | 39  | LYS  | 2.0  |
| 1   | C     | 344 | GLN  | 2.0  |
| 1   | G     | 158 | SER  | 2.0  |
| 1   | E     | 481 | VAL  | 2.0  |
| 1   | F     | 143 | ASN  | 2.0  |
| 1   | A     | 456 | ARG  | 2.0  |
| 1   | C     | 221 | GLU  | 2.0  |
| 1   | D     | 325 | GLN  | 2.0  |
| 1   | E     | 41  | HIS  | 2.0  |
| 1   | D     | 324 | PRO  | 2.0  |
| 1   | H     | 400 | SER  | 2.0  |
| 1   | E     | 127 | THR  | 2.0  |
| 1   | A     | 491 | TYR  | 2.0  |
| 1   | F     | 486 | TYR  | 2.0  |
| 1   | E     | 165 | GLY  | 2.0  |
| 1   | F     | 26  | ARG  | 2.0  |
| 1   | F     | 191 | ARG  | 2.0  |

## 6.2 Non-standard residues in protein, DNA, RNA chains

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

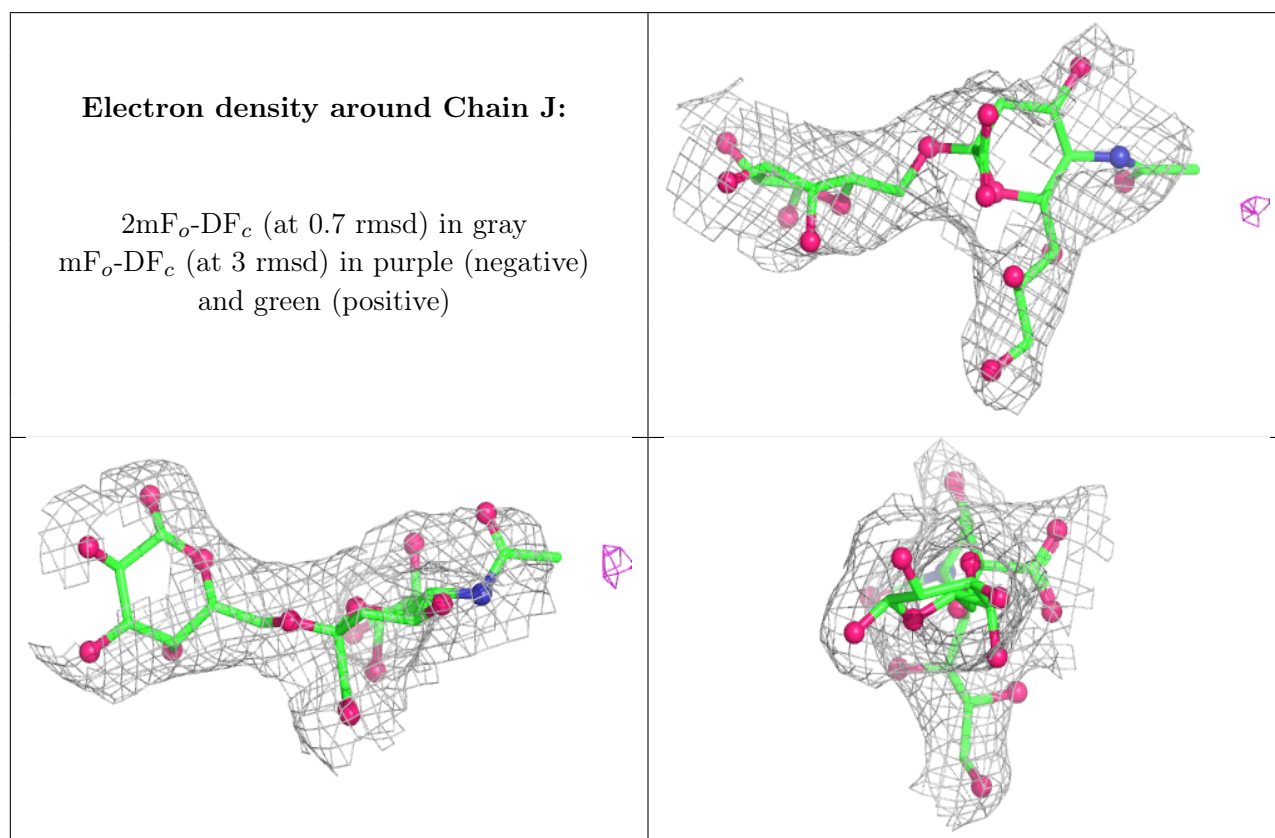


### 6.3 Carbohydrates [i](#)

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

| Mol | Type | Chain | Res | Atoms | RSCC | RSR  | B-factors(Å <sup>2</sup> ) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|----------------------------|-------|
| 2   | GAL  | J     | 1   | 12/12 | 0.88 | 0.16 | 89,89,89,89                | 0     |
| 2   | SIA  | J     | 2   | 20/21 | 0.90 | 0.16 | 89,89,89,89                | 0     |

The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

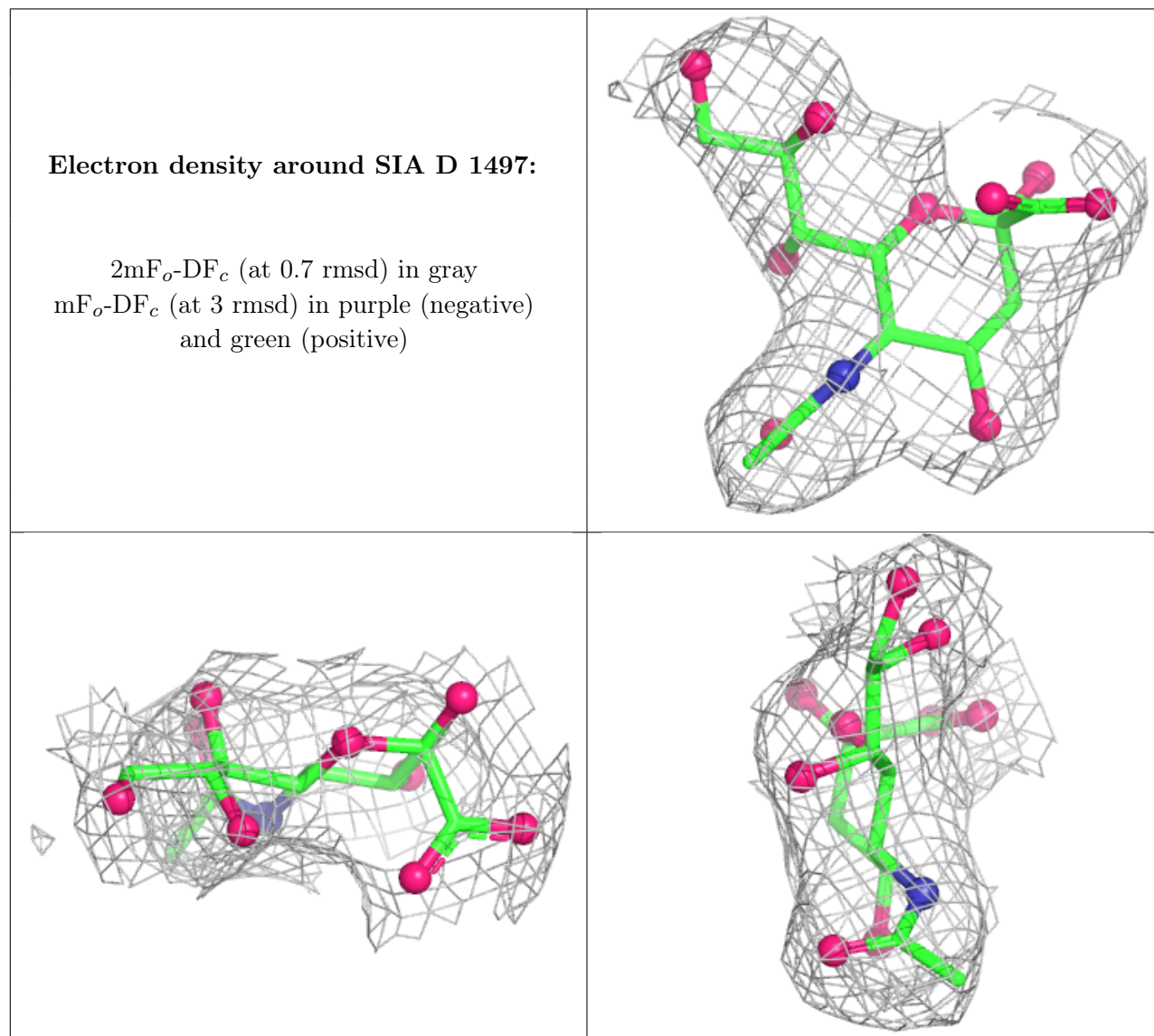


### 6.4 Ligands [i](#)

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

| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors(Å <sup>2</sup> ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|----------------------------|-------|
| 3   | SIA  | D     | 1497 | 21/21 | 0.92 | 0.17 | 52,52,52,52                | 0     |

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



## 6.5 Other polymers [i](#)

There are no such residues in this entry.