



# Full wwPDB X-ray Structure Validation Report ⓘ

May 15, 2020 – 09:19 pm BST

PDB ID : 1R3H  
Title : Crystal Structure of T10  
Authors : Rudolph, M.G.; Wilson, I.A.  
Deposited on : 2003-10-02  
Resolution : 2.50 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.

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

MolProbity : 4.02b-467  
Xtriage (Phenix) : 1.13  
EDS : 2.11  
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) : 2.11

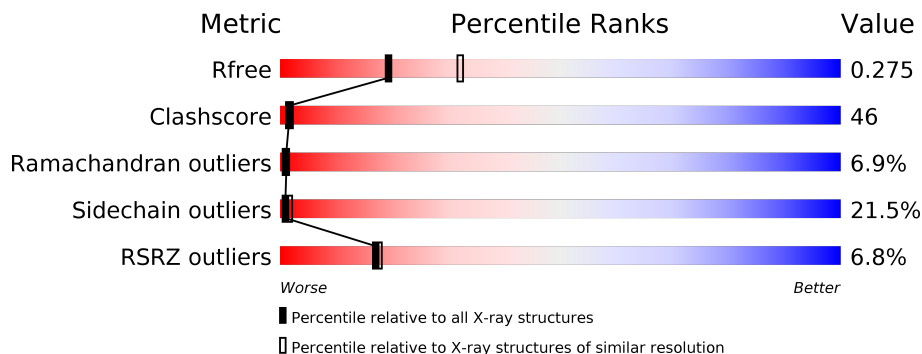
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.50 Å.

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



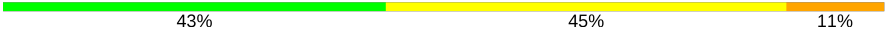

| Metric                | Whole archive<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| $R_{free}$            | 130704                      | 4661 (2.50-2.50)                                      |
| Clashscore            | 141614                      | 5346 (2.50-2.50)                                      |
| Ramachandran outliers | 138981                      | 5231 (2.50-2.50)                                      |
| Sidechain outliers    | 138945                      | 5233 (2.50-2.50)                                      |
| RSRZ outliers         | 127900                      | 4559 (2.50-2.50)                                      |

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 on 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     | 260    |                  |
| 1   | C     | 260    |                  |
| 1   | E     | 260    |                  |
| 1   | G     | 260    |                  |
| 2   | B     | 99     |                  |
| 2   | D     | 99     |                  |

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| Mol | Chain | Length | Quality of chain  |
|-----|-------|--------|---|
| 2   | F     | 99     | <br>43% 45% 11% |
| 2   | H     | 99     | <br>32% 51% 17% |

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 11327 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 MHC H2-TL-T10-129.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 1   | A     | 248      | 2019  | 1278 | 345 | 386 | 10 | 0       | 0       | 0     |
| 1   | C     | 248      | 2001  | 1263 | 344 | 384 | 10 | 0       | 0       | 0     |
| 1   | E     | 247      | 2005  | 1266 | 344 | 385 | 10 | 0       | 0       | 0     |
| 1   | G     | 245      | 1986  | 1256 | 341 | 379 | 10 | 0       | 0       | 0     |

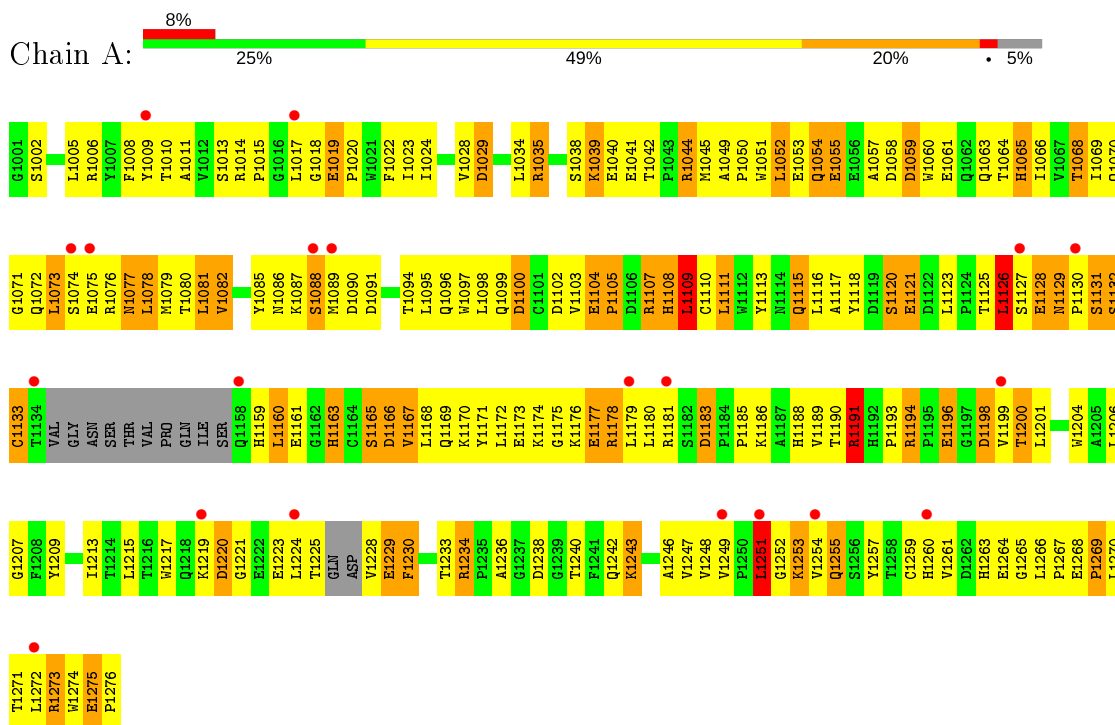
- Molecule 2 is a protein called Beta-2-microglobulin.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
|     |       |          | Total | C   | N   | O   | S |         |         |       |
| 2   | B     | 99       | 829   | 528 | 140 | 158 | 3 | 0       | 0       | 0     |
| 2   | D     | 99       | 829   | 528 | 140 | 158 | 3 | 0       | 0       | 0     |
| 2   | F     | 99       | 829   | 528 | 140 | 158 | 3 | 0       | 0       | 0     |
| 2   | H     | 99       | 829   | 528 | 140 | 158 | 3 | 0       | 0       | 0     |

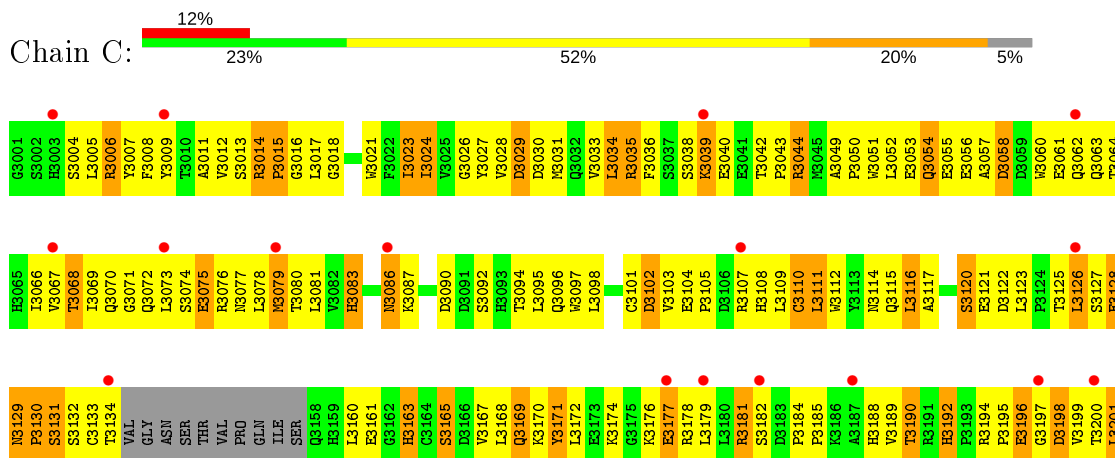
### 3 Residue-property plots [i](#)

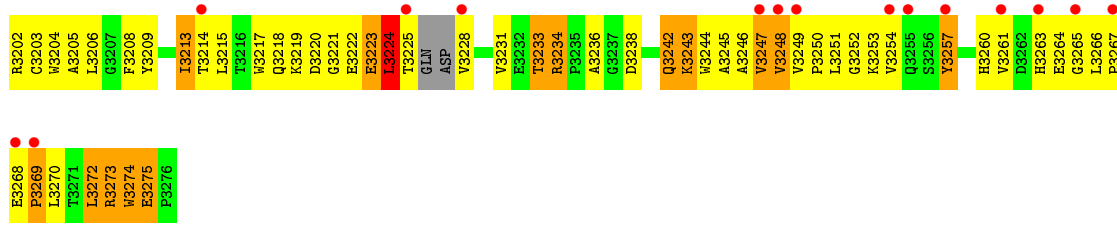
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are 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: MHC H2-TL-T10-129

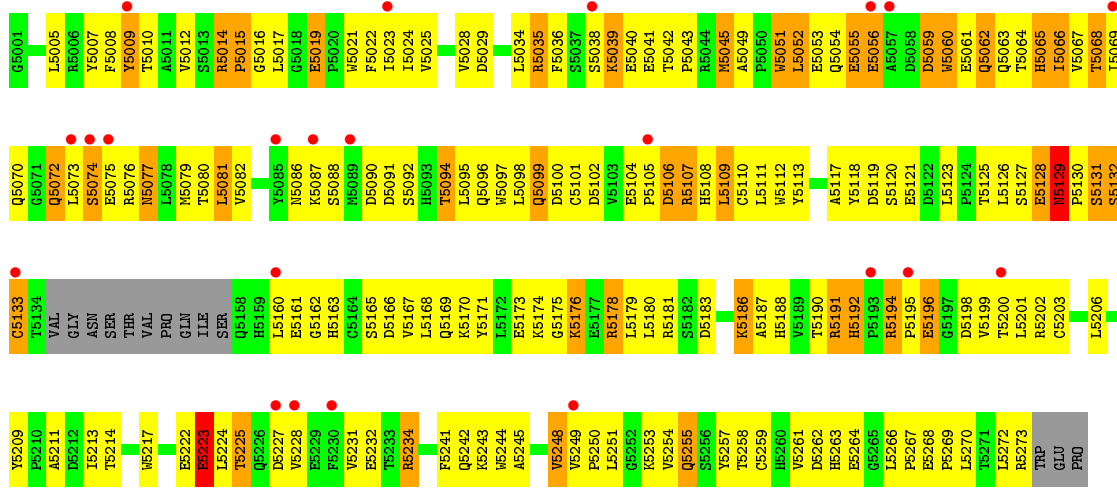


- Molecule 1: MHC H2-TL-T10-129

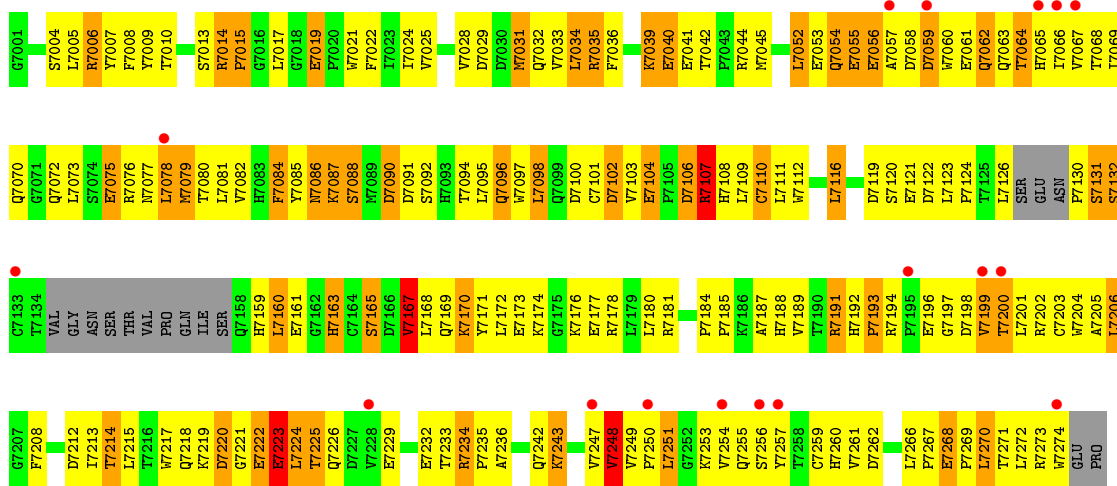




• Molecule 1: MHC H2-TL-T10-129

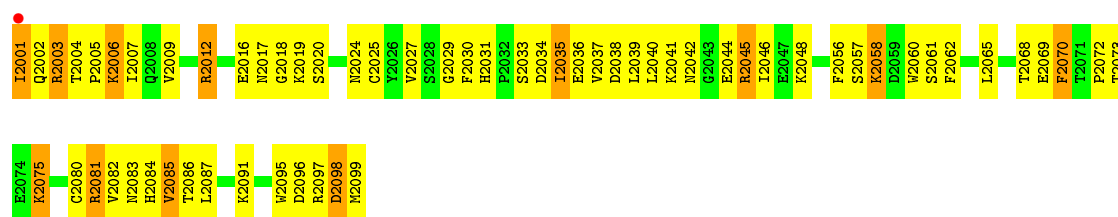


• Molecule 1: MHC H2-TL-T10-129

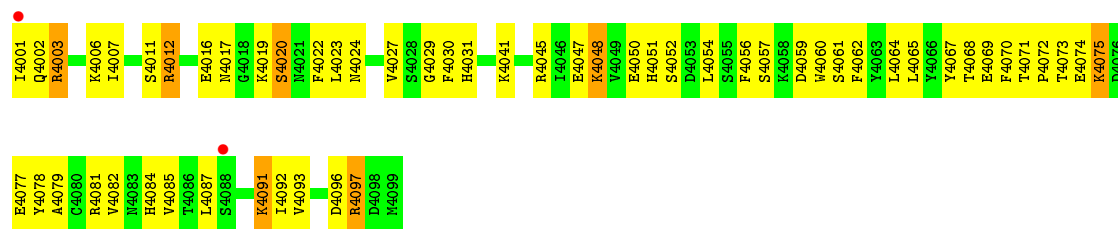
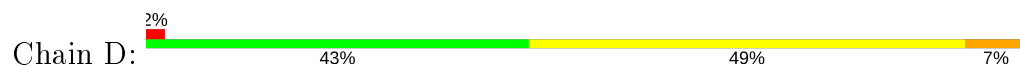


• Molecule 2: Beta-2-microglobulin

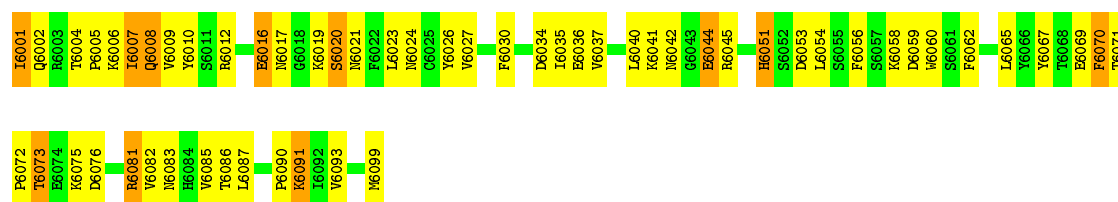




- Molecule 2: Beta-2-microglobulin



- Molecule 2: Beta-2-microglobulin



- Molecule 2: Beta-2-microglobulin



## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | P 1 21 1  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 78.16Å 70.05Å 139.22Å<br>90.00° 106.79° 90.00°              | Depositor        |
| Resolution (Å)  | 46.00 – 2.50<br>45.10 – 2.50                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 93.5 (46.00-2.50)<br>90.2 (45.10-2.50)                      | Depositor<br>EDS |
| $R_{merge}$   | (Not available)   | Depositor        |
| $R_{sym}$   | 0.10  | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 3.79 (at 2.51Å)   | Xtrriage         |
| Refinement program  | CNS 1.1   | Depositor        |
| R, $R_{free}$   | 0.231 , 0.272<br>0.238 , 0.275                              | Depositor<br>DCC |
| $R_{free}$ test set   | 2225 reflections (4.74%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 29.4  | Xtrriage         |
| Anisotropy  | 0.483   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.31 , 35.2   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.43$ , $\langle L^2 \rangle = 0.25$ | Xtrriage         |
| Estimated twinning fraction   | 0.407 for h,-k,-h-l   | Xtrriage         |
| $F_o, F_c$ correlation  | 0.88  | EDS              |
| Total number of atoms   | 11327   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 23.0  | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 17.20% 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](#)

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

| Mol | Chain | Bond lengths |         | Bond angles |                |
|-----|-------|--------------|---------|-------------|----------------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5        |
| 1   | A     | 0.39         | 0/2078  | 0.68        | 1/2830 (0.0%)  |
| 1   | C     | 0.38         | 0/2058  | 0.68        | 0/2803         |
| 1   | E     | 0.37         | 0/2062  | 0.69        | 1/2809 (0.0%)  |
| 1   | G     | 0.39         | 0/2043  | 0.71        | 0/2784         |
| 2   | B     | 0.30         | 0/852   | 0.67        | 0/1152         |
| 2   | D     | 0.31         | 0/852   | 0.63        | 0/1152         |
| 2   | F     | 0.32         | 0/852   | 0.66        | 0/1152         |
| 2   | H     | 0.32         | 0/852   | 0.67        | 0/1152         |
| All | All   | 0.36         | 0/11649 | 0.68        | 2/15834 (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     | 1191 | ARG  | NE-CZ-NH2 | 5.89 | 123.25      | 120.30   |
| 1   | E     | 5009 | TYR  | CA-CB-CG  | 5.82 | 124.47      | 113.40   |

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     | 2019  | 0        | 1901     | 245     | 0            |
| 1   | C     | 2001  | 0        | 1871     | 221     | 0            |
| 1   | E     | 2005  | 0        | 1891     | 181     | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | G     | 1986  | 0        | 1866     | 177     | 0            |
| 2   | B     | 829   | 0        | 791      | 61      | 0            |
| 2   | D     | 829   | 0        | 791      | 41      | 0            |
| 2   | F     | 829   | 0        | 791      | 55      | 0            |
| 2   | H     | 829   | 0        | 791      | 76      | 0            |
| All | All   | 11327 | 0        | 10693    | 1011    | 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 46.

All (1011) 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:C:3201:LEU:HD11 | 1:C:3254:VAL:HG13 | 1.27                     | 1.10              |
| 2:F:6007:ILE:HD12 | 2:F:6027:VAL:HG22 | 1.18                     | 1.09              |
| 1:A:1201:LEU:HD11 | 1:A:1254:VAL:HG13 | 1.35                     | 1.06              |
| 1:C:3104:GLU:H    | 1:C:3109:LEU:HB3  | 1.26                     | 1.01              |
| 1:C:3014:ARG:HH21 | 1:C:3018:GLY:HA3  | 1.26                     | 1.00              |
| 1:E:5198:ASP:HA   | 1:E:5251:LEU:HB2  | 1.37                     | 1.00              |
| 1:A:1185:PRO:HD2  | 1:A:1266:LEU:HD21 | 1.45                     | 0.99              |
| 1:C:3201:LEU:CD1  | 1:C:3254:VAL:HG13 | 1.96                     | 0.94              |
| 2:H:8083:ASN:HD21 | 2:H:8090:PRO:HG3  | 1.29                     | 0.93              |
| 1:G:7189:VAL:HG23 | 1:G:7272:LEU:HD13 | 1.51                     | 0.92              |
| 2:H:8020:SER:HA   | 2:H:8071:THR:HG22 | 1.51                     | 0.92              |
| 2:B:2035:ILE:HD13 | 2:B:2084:HIS:HD2  | 1.34                     | 0.90              |
| 2:B:2035:ILE:HD13 | 2:B:2084:HIS:CD2  | 2.07                     | 0.90              |
| 1:A:1110:CYS:HB3  | 1:A:1133:CYS:H    | 1.38                     | 0.89              |
| 1:C:3178:ARG:HA   | 1:C:3181:ARG:HD3  | 1.53                     | 0.89              |
| 1:A:1170:LYS:HG3  | 1:A:1174:LYS:HE2  | 1.55                     | 0.88              |
| 1:E:5261:VAL:HB   | 1:E:5270:LEU:HB3  | 1.53                     | 0.88              |
| 1:C:3265:GLY:O    | 1:C:3267:PRO:HD3  | 1.73                     | 0.88              |
| 1:G:7206:LEU:HD22 | 1:G:7242:GLN:HG2  | 1.53                     | 0.88              |
| 2:H:8037:VAL:HG22 | 2:H:8082:VAL:HG13 | 1.55                     | 0.87              |
| 1:A:1014:ARG:HH21 | 1:A:1018:GLY:HA3  | 1.37                     | 0.87              |
| 1:E:5194:ARG:HD3  | 1:E:5196:GLU:OE2  | 1.76                     | 0.86              |
| 2:B:2035:ILE:HD12 | 2:B:2083:ASN:O    | 1.74                     | 0.86              |
| 1:E:5061:GLU:HA   | 1:E:5064:THR:HG22 | 1.57                     | 0.85              |
| 1:E:5066:ILE:O    | 1:E:5070:GLN:HG3  | 1.77                     | 0.85              |
| 1:G:7170:LYS:HE3  | 1:G:7170:LYS:HA   | 1.59                     | 0.85              |
| 1:A:1095:LEU:HD21 | 1:A:1116:LEU:HD23 | 1.60                     | 0.84              |
| 1:E:5225:THR:O    | 1:E:5228:VAL:HG12 | 1.76                     | 0.84              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1103:VAL:HG11 | 1:A:1165:SER:HB3  | 1.60                     | 0.84              |
| 1:G:7078:LEU:O    | 1:G:7082:VAL:HG23 | 1.77                     | 0.83              |
| 1:A:1199:VAL:HG23 | 1:A:1251:LEU:HB2  | 1.59                     | 0.83              |
| 2:F:6007:ILE:HG13 | 2:F:6082:VAL:HG21 | 1.61                     | 0.83              |
| 1:G:7249:VAL:HG21 | 1:G:7254:VAL:HG22 | 1.61                     | 0.83              |
| 1:A:1249:VAL:HG11 | 1:A:1254:VAL:HG22 | 1.60                     | 0.83              |
| 2:H:8081:ARG:HB2  | 2:H:8092:ILE:HD13 | 1.60                     | 0.83              |
| 1:A:1120:SER:HB2  | 2:B:2031:HIS:CE1  | 2.14                     | 0.82              |
| 1:E:5199:VAL:HG23 | 1:E:5251:LEU:HA   | 1.62                     | 0.82              |
| 1:E:5127:SER:O    | 1:E:5128:GLU:HG2  | 1.79                     | 0.81              |
| 1:A:1249:VAL:CG1  | 1:A:1254:VAL:HG22 | 2.09                     | 0.81              |
| 1:A:1108:HIS:O    | 1:A:1109:LEU:HD13 | 1.80                     | 0.81              |
| 1:A:1228:VAL:HG13 | 1:A:1228:VAL:O    | 1.80                     | 0.80              |
| 1:G:7060:TRP:O    | 1:G:7064:THR:HG23 | 1.81                     | 0.80              |
| 1:A:1059:ASP:H    | 1:A:1170:LYS:HZ3  | 1.27                     | 0.80              |
| 1:G:7076:ARG:O    | 1:G:7080:THR:HG23 | 1.80                     | 0.80              |
| 2:H:8006:LYS:HE2  | 2:H:8029:GLY:HA3  | 1.63                     | 0.79              |
| 1:C:3063:GLN:O    | 1:C:3067:VAL:HG23 | 1.82                     | 0.79              |
| 1:A:1118:TYR:O    | 1:A:1121:GLU:HG3  | 1.83                     | 0.79              |
| 1:A:1128:GLU:HG2  | 1:A:1129:ASN:H    | 1.48                     | 0.79              |
| 1:A:1263:HIS:CD2  | 1:A:1265:GLY:H    | 2.01                     | 0.79              |
| 1:C:3202:ARG:HG3  | 1:C:3246:ALA:HB2  | 1.63                     | 0.78              |
| 1:C:3076:ARG:O    | 1:C:3080:THR:HG23 | 1.83                     | 0.78              |
| 1:A:1005:LEU:HB2  | 1:A:1168:LEU:HD13 | 1.64                     | 0.78              |
| 1:C:3036:PHE:HA   | 1:C:3040:GLU:OE1  | 1.83                     | 0.78              |
| 1:E:5007:TYR:O    | 1:E:5098:LEU:HD12 | 1.84                     | 0.77              |
| 1:A:1201:LEU:HD12 | 1:A:1249:VAL:HG21 | 1.67                     | 0.77              |
| 1:E:5061:GLU:O    | 1:E:5065:HIS:HB2  | 1.83                     | 0.77              |
| 1:C:3201:LEU:HG   | 1:C:3249:VAL:HB   | 1.67                     | 0.77              |
| 1:A:1194:ARG:NH1  | 1:A:1196:GLU:OE2  | 2.17                     | 0.77              |
| 1:C:3201:LEU:HD11 | 1:C:3254:VAL:CG1  | 2.14                     | 0.77              |
| 1:G:7119:ASP:O    | 1:G:7120:SER:OG   | 2.02                     | 0.77              |
| 1:C:3050:PRO:HA   | 1:C:3054:GLN:NE2  | 2.00                     | 0.76              |
| 1:A:1194:ARG:HB2  | 1:A:1194:ARG:HH11 | 1.50                     | 0.76              |
| 1:C:3160:LEU:HD12 | 1:C:3163:HIS:ND1  | 2.01                     | 0.76              |
| 1:E:5095:LEU:HD12 | 1:E:5117:ALA:O    | 1.85                     | 0.76              |
| 2:H:8007:ILE:CD1  | 2:H:8082:VAL:HG21 | 2.15                     | 0.76              |
| 1:A:1129:ASN:HB3  | 1:A:1130:PRO:HD3  | 1.69                     | 0.75              |
| 1:E:5183:ASP:HB2  | 1:E:5209:TYR:HB3  | 1.67                     | 0.75              |
| 1:C:3023:ILE:HD13 | 1:C:3023:ILE:O    | 1.85                     | 0.75              |
| 1:C:3051:TRP:CD2  | 1:C:3178:ARG:HD2  | 2.21                     | 0.75              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3246:ALA:O    | 1:C:3247:VAL:HG13 | 1.86                     | 0.75              |
| 2:B:2037:VAL:HG22 | 2:B:2082:VAL:HG13 | 1.67                     | 0.75              |
| 1:C:3205:ALA:O    | 1:C:3206:LEU:HD23 | 1.86                     | 0.75              |
| 1:E:5052:LEU:HD22 | 1:E:5174:LYS:HB2  | 1.69                     | 0.75              |
| 2:B:2002:GLN:HE21 | 2:B:2086:THR:HG22 | 1.51                     | 0.75              |
| 1:A:1015:PRO:O    | 1:A:1017:LEU:HG   | 1.87                     | 0.74              |
| 1:C:3110:CYS:HB3  | 1:C:3133:CYS:O    | 1.87                     | 0.74              |
| 1:E:5186:LYS:HG2  | 1:E:5206:LEU:O    | 1.88                     | 0.74              |
| 1:E:5079:MET:O    | 1:E:5082:VAL:HG12 | 1.88                     | 0.74              |
| 1:A:1233:THR:HG22 | 1:A:1243:LYS:HD2  | 1.69                     | 0.73              |
| 2:D:4020:SER:HA   | 2:D:4071:THR:HG22 | 1.70                     | 0.73              |
| 1:A:1069:ILE:O    | 1:A:1073:LEU:HD21 | 1.87                     | 0.73              |
| 1:A:1055:GLU:HA   | 1:A:1058:ASP:HB2  | 1.69                     | 0.73              |
| 1:C:3007:TYR:O    | 1:C:3098:LEU:HD12 | 1.88                     | 0.73              |
| 1:E:5051:TRP:CE3  | 1:E:5178:ARG:HG3  | 2.23                     | 0.73              |
| 1:G:7063:GLN:O    | 1:G:7067:VAL:HG23 | 1.87                     | 0.73              |
| 1:G:7062:GLN:O    | 1:G:7066:ILE:HG12 | 1.87                     | 0.73              |
| 2:F:6007:ILE:HD12 | 2:F:6027:VAL:CG2  | 2.11                     | 0.73              |
| 1:A:1194:ARG:HH12 | 1:A:1198:ASP:HB2  | 1.53                     | 0.73              |
| 1:C:3192:HIS:HB2  | 1:C:3200:THR:HB   | 1.70                     | 0.73              |
| 1:C:3189:VAL:HG13 | 1:C:3202:ARG:O    | 1.89                     | 0.73              |
| 1:E:5065:HIS:O    | 1:E:5069:ILE:HG12 | 1.88                     | 0.73              |
| 2:H:8016:GLU:O    | 2:H:8019:LYS:HB2  | 1.88                     | 0.73              |
| 2:D:4023:LEU:HB3  | 2:D:4068:THR:HG22 | 1.71                     | 0.73              |
| 1:A:1009:TYR:HE1  | 1:A:1071:GLY:HA2  | 1.53                     | 0.72              |
| 1:G:7194:ARG:HE   | 1:G:7196:GLU:HB2  | 1.52                     | 0.72              |
| 1:E:5102:ASP:HB2  | 1:E:5111:LEU:HB2  | 1.70                     | 0.72              |
| 1:E:5201:LEU:HD21 | 1:E:5254:VAL:HG21 | 1.70                     | 0.72              |
| 1:G:7077:ASN:O    | 1:G:7081:LEU:HD13 | 1.90                     | 0.72              |
| 1:A:1103:VAL:HG12 | 1:A:1104:GLU:H    | 1.54                     | 0.72              |
| 1:A:1017:LEU:HD22 | 2:H:8070:PHE:HA   | 1.72                     | 0.72              |
| 1:A:1274:TRP:O    | 1:A:1275:GLU:HB2  | 1.89                     | 0.72              |
| 1:C:3249:VAL:HG11 | 1:C:3254:VAL:HA   | 1.72                     | 0.72              |
| 1:G:7170:LYS:HA   | 1:G:7170:LYS:CE   | 2.16                     | 0.72              |
| 1:G:7197:GLY:O    | 1:G:7251:LEU:HD21 | 1.90                     | 0.72              |
| 1:C:3111:LEU:HD13 | 1:C:3130:PRO:HB3  | 1.70                     | 0.71              |
| 1:C:3104:GLU:HB3  | 1:C:3109:LEU:HB2  | 1.71                     | 0.71              |
| 2:B:2073:THR:HG22 | 2:B:2075:LYS:H    | 1.54                     | 0.71              |
| 1:C:3069:ILE:O    | 1:C:3073:LEU:HD12 | 1.90                     | 0.71              |
| 1:E:5101:CYS:HA   | 1:E:5111:LEU:O    | 1.89                     | 0.71              |
| 2:D:4003:ARG:HG2  | 2:D:4029:GLY:O    | 1.89                     | 0.71              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2001:ILE:HD12 | 2:B:2002:GLN:CG   | 2.21                     | 0.71              |
| 1:G:7172:LEU:O    | 1:G:7176:LYS:HG2  | 1.91                     | 0.71              |
| 1:A:1120:SER:HB2  | 2:B:2031:HIS:NE2  | 2.06                     | 0.71              |
| 1:E:5163:HIS:HA   | 1:E:5166:ASP:OD1  | 1.91                     | 0.71              |
| 1:E:5105:PRO:O    | 1:E:5106:ASP:OD1  | 2.09                     | 0.70              |
| 1:C:3062:GLN:O    | 1:C:3066:ILE:HG12 | 1.91                     | 0.70              |
| 1:C:3213:ILE:HD11 | 1:C:3261:VAL:HG13 | 1.73                     | 0.70              |
| 1:E:5068:THR:O    | 1:E:5072:GLN:NE2  | 2.20                     | 0.70              |
| 1:G:7101:CYS:HA   | 1:G:7111:LEU:O    | 1.90                     | 0.70              |
| 1:A:1215:LEU:HD21 | 1:A:1261:VAL:HG22 | 1.74                     | 0.70              |
| 1:G:7223:GLU:O    | 1:G:7224:LEU:HG   | 1.91                     | 0.70              |
| 1:G:7109:LEU:HD11 | 1:G:7111:LEU:HD11 | 1.72                     | 0.70              |
| 1:C:3224:LEU:O    | 1:C:3228:VAL:HG23 | 1.92                     | 0.70              |
| 2:B:2001:ILE:HD12 | 2:B:2002:GLN:HG3  | 1.73                     | 0.70              |
| 2:B:2041:LYS:O    | 2:B:2044:GLU:HG2  | 1.92                     | 0.70              |
| 2:D:4001:ILE:HG23 | 2:D:4002:GLN:H    | 1.56                     | 0.70              |
| 1:C:3133:CYS:O    | 1:C:3134:THR:HG23 | 1.92                     | 0.69              |
| 2:H:8073:THR:OG1  | 2:H:8075:LYS:HD3  | 1.92                     | 0.69              |
| 1:G:7102:ASP:HB2  | 1:G:7111:LEU:HD13 | 1.74                     | 0.69              |
| 1:C:3073:LEU:HG   | 1:C:3076:ARG:NH1  | 2.07                     | 0.69              |
| 1:E:5217:TRP:O    | 1:E:5224:LEU:HB2  | 1.92                     | 0.69              |
| 1:A:1273:ARG:HH11 | 1:A:1273:ARG:HB2  | 1.58                     | 0.69              |
| 1:E:5008:PHE:O    | 1:E:5024:ILE:HG23 | 1.92                     | 0.69              |
| 1:G:7201:LEU:HB2  | 1:G:7247:VAL:HG22 | 1.75                     | 0.69              |
| 2:F:6083:ASN:ND2  | 2:F:6090:PRO:HG3  | 2.07                     | 0.69              |
| 1:A:1051:TRP:CE3  | 1:A:1178:ARG:HG3  | 2.28                     | 0.69              |
| 2:F:6099:MET:OXT  | 2:F:6099:MET:HG3  | 1.92                     | 0.69              |
| 1:A:1193:PRO:N    | 1:A:1199:VAL:HG13 | 2.08                     | 0.69              |
| 1:G:7176:LYS:HE2  | 1:G:7180:LEU:HG   | 1.74                     | 0.68              |
| 2:F:6020:SER:HA   | 2:F:6071:THR:HG22 | 1.74                     | 0.68              |
| 1:G:7249:VAL:CG2  | 1:G:7254:VAL:HG22 | 2.22                     | 0.68              |
| 1:G:7119:ASP:HB3  | 2:H:8001:ILE:HD13 | 1.74                     | 0.68              |
| 1:C:3024:ILE:HD12 | 1:C:3067:VAL:CG1  | 2.24                     | 0.68              |
| 1:A:1111:LEU:HA   | 1:A:1132:SER:HA   | 1.76                     | 0.68              |
| 1:A:1230:PHE:HD1  | 1:A:1230:PHE:C    | 1.97                     | 0.68              |
| 1:C:3021:TRP:HB2  | 1:C:3038:SER:OG   | 1.93                     | 0.68              |
| 1:A:1201:LEU:CD1  | 1:A:1254:VAL:HG13 | 2.18                     | 0.68              |
| 1:A:1009:TYR:OH   | 1:A:1074:SER:HB3  | 1.95                     | 0.67              |
| 1:G:7053:GLU:CD   | 1:G:7174:LYS:HD3  | 2.14                     | 0.67              |
| 1:E:5111:LEU:HD23 | 1:E:5113:TYR:OH   | 1.95                     | 0.67              |
| 1:E:5228:VAL:HG13 | 1:E:5228:VAL:O    | 1.94                     | 0.67              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3213:ILE:HD13 | 1:C:3214:THR:C    | 2.15                     | 0.67              |
| 1:A:1034:LEU:HD12 | 1:A:1045:MET:CE   | 2.25                     | 0.66              |
| 1:A:1260:HIS:HA   | 1:A:1270:LEU:O    | 1.95                     | 0.66              |
| 1:C:3069:ILE:HD13 | 1:C:3072:GLN:OE1  | 1.96                     | 0.66              |
| 1:C:3075:GLU:O    | 1:C:3079:MET:HB2  | 1.96                     | 0.66              |
| 2:B:2098:ASP:O    | 2:B:2099:MET:HG3  | 1.95                     | 0.66              |
| 2:D:4007:ILE:HD12 | 2:D:4027:VAL:HG12 | 1.77                     | 0.66              |
| 1:G:7185:PRO:HB3  | 1:G:7208:PHE:HD2  | 1.60                     | 0.66              |
| 1:A:1188:HIS:HE1  | 1:A:1206:LEU:HD11 | 1.61                     | 0.66              |
| 2:D:4017:ASN:ND2  | 2:D:4074:GLU:HG2  | 2.11                     | 0.66              |
| 1:A:1060:TRP:CH2  | 1:A:1170:LYS:HG2  | 2.30                     | 0.66              |
| 1:A:1110:CYS:HB3  | 1:A:1133:CYS:N    | 2.10                     | 0.66              |
| 2:D:4007:ILE:CD1  | 2:D:4082:VAL:HG21 | 2.26                     | 0.66              |
| 2:H:8016:GLU:HG2  | 2:H:8019:LYS:HD2  | 1.77                     | 0.66              |
| 1:E:5113:TYR:HA   | 1:E:5129:ASN:O    | 1.96                     | 0.66              |
| 1:A:1254:VAL:O    | 1:A:1254:VAL:HG12 | 1.96                     | 0.65              |
| 1:A:1059:ASP:H    | 1:A:1170:LYS:NZ   | 1.95                     | 0.65              |
| 1:C:3185:PRO:HA   | 1:C:3206:LEU:O    | 1.97                     | 0.65              |
| 2:D:4003:ARG:HB3  | 2:D:4030:PHE:HA   | 1.79                     | 0.65              |
| 1:A:1052:LEU:HB2  | 1:A:1054:GLN:HE22 | 1.62                     | 0.65              |
| 1:C:3213:ILE:HD13 | 1:C:3214:THR:N    | 2.12                     | 0.65              |
| 1:C:3189:VAL:HG12 | 1:C:3274:TRP:HD1  | 1.59                     | 0.65              |
| 2:F:6073:THR:HG22 | 2:F:6075:LYS:H    | 1.61                     | 0.65              |
| 1:A:1073:LEU:O    | 1:A:1077:ASN:HB2  | 1.96                     | 0.65              |
| 1:E:5201:LEU:HD11 | 1:E:5254:VAL:CG2  | 2.27                     | 0.65              |
| 1:E:5059:ASP:OD1  | 1:E:5061:GLU:HG3  | 1.97                     | 0.65              |
| 1:A:1052:LEU:HB2  | 1:A:1054:GLN:NE2  | 2.12                     | 0.64              |
| 1:A:1263:HIS:H    | 1:A:1266:LEU:HD12 | 1.62                     | 0.64              |
| 1:C:3028:VAL:HG11 | 1:C:3179:LEU:HD13 | 1.79                     | 0.64              |
| 1:G:7185:PRO:HB3  | 1:G:7208:PHE:CD2  | 2.32                     | 0.64              |
| 1:G:7215:LEU:HD12 | 1:G:7261:VAL:HG22 | 1.78                     | 0.64              |
| 1:A:1013:SER:HA   | 1:A:1020:PRO:HB3  | 1.79                     | 0.64              |
| 1:A:1230:PHE:C    | 1:A:1230:PHE:CD1  | 2.69                     | 0.64              |
| 2:B:2046:ILE:HD13 | 1:G:7017:LEU:HD21 | 1.77                     | 0.64              |
| 1:E:5063:GLN:NE2  | 1:E:5171:TYR:OH   | 2.29                     | 0.64              |
| 1:G:7194:ARG:HH21 | 1:G:7196:GLU:HB3  | 1.61                     | 0.64              |
| 2:D:4084:HIS:O    | 2:D:4087:LEU:HB2  | 1.98                     | 0.64              |
| 1:A:1194:ARG:HH21 | 1:A:1248:VAL:HB   | 1.63                     | 0.64              |
| 1:G:7192:HIS:O    | 1:G:7200:THR:HG23 | 1.96                     | 0.64              |
| 1:A:1049:ALA:O    | 1:A:1054:GLN:NE2  | 2.30                     | 0.64              |
| 1:A:1191:ARG:HG3  | 1:A:1274:TRP:HE1  | 1.63                     | 0.64              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3035:ARG:O    | 1:C:3043:PRO:HA   | 1.98                     | 0.64              |
| 1:G:7069:ILE:HD13 | 1:G:7072:GLN:NE2  | 2.13                     | 0.64              |
| 1:A:1191:ARG:HD3  | 1:A:1274:TRP:CE2  | 2.33                     | 0.63              |
| 2:D:4079:ALA:HB1  | 2:D:4093:VAL:O    | 1.97                     | 0.63              |
| 2:H:8081:ARG:HB2  | 2:H:8092:ILE:CD1  | 2.28                     | 0.63              |
| 1:A:1252:GLY:HA3  | 1:A:1253:LYS:HE2  | 1.80                     | 0.63              |
| 1:E:5009:TYR:HB3  | 1:E:5097:TRP:HB3  | 1.81                     | 0.63              |
| 1:E:5118:TYR:O    | 1:E:5121:GLU:HG3  | 1.98                     | 0.63              |
| 1:E:5015:PRO:HD3  | 1:E:5092:SER:HB2  | 1.81                     | 0.63              |
| 1:C:3247:VAL:O    | 1:C:3248:VAL:HG13 | 1.99                     | 0.63              |
| 2:B:2027:VAL:HG21 | 2:B:2037:VAL:HG21 | 1.80                     | 0.63              |
| 1:E:5131:SER:OG   | 1:E:5132:SER:N    | 2.30                     | 0.63              |
| 2:F:6087:LEU:HD13 | 2:F:6091:LYS:HG2  | 1.80                     | 0.63              |
| 2:F:6024:ASN:HB3  | 2:F:6065:LEU:HD11 | 1.80                     | 0.63              |
| 1:G:7249:VAL:HB   | 1:G:7253:LYS:O    | 1.98                     | 0.63              |
| 1:A:1008:PHE:O    | 1:A:1024:ILE:HG23 | 1.99                     | 0.63              |
| 1:G:7096:GLN:HE21 | 1:G:7096:GLN:H    | 1.47                     | 0.63              |
| 1:A:1199:VAL:CG2  | 1:A:1251:LEU:HB2  | 2.28                     | 0.62              |
| 1:A:1052:LEU:HD22 | 1:A:1174:LYS:HB2  | 1.80                     | 0.62              |
| 1:A:1103:VAL:HG21 | 1:A:1165:SER:HB3  | 1.80                     | 0.62              |
| 1:A:1191:ARG:NH1  | 1:A:1199:VAL:HG11 | 2.14                     | 0.62              |
| 1:C:3030:ASP:HB2  | 1:C:3209:TYR:CE1  | 2.35                     | 0.62              |
| 1:C:3104:GLU:N    | 1:C:3109:LEU:HB3  | 2.07                     | 0.62              |
| 1:A:1194:ARG:HG3  | 1:A:1198:ASP:O    | 2.00                     | 0.62              |
| 1:C:3015:PRO:HD3  | 1:C:3092:SER:HB2  | 1.81                     | 0.62              |
| 1:E:5249:VAL:HG22 | 1:E:5257:TYR:CZ   | 2.34                     | 0.62              |
| 1:A:1128:GLU:CG   | 1:A:1129:ASN:H    | 2.12                     | 0.62              |
| 1:A:1193:PRO:HA   | 1:A:1199:VAL:HG22 | 1.82                     | 0.62              |
| 1:C:3112:TRP:HB3  | 1:C:3131:SER:HB3  | 1.82                     | 0.62              |
| 2:H:8056:PHE:HA   | 2:H:8062:PHE:HA   | 1.82                     | 0.62              |
| 1:C:3009:TYR:HB3  | 1:C:3097:TRP:HB3  | 1.82                     | 0.61              |
| 1:C:3178:ARG:O    | 1:C:3181:ARG:HB3  | 2.00                     | 0.61              |
| 1:C:3260:HIS:HA   | 1:C:3270:LEU:O    | 2.00                     | 0.61              |
| 2:D:4007:ILE:HD12 | 2:D:4082:VAL:HG21 | 1.83                     | 0.61              |
| 1:C:3233:THR:HA   | 1:C:3243:LYS:HB2  | 1.81                     | 0.61              |
| 1:E:5213:ILE:HG13 | 1:E:5262:ASP:O    | 2.00                     | 0.61              |
| 1:G:7028:VAL:HG23 | 1:G:7033:VAL:HG21 | 1.82                     | 0.61              |
| 1:G:7201:LEU:HD11 | 1:G:7254:VAL:HG13 | 1.81                     | 0.61              |
| 1:A:1066:ILE:HD13 | 1:A:1160:LEU:HB2  | 1.83                     | 0.61              |
| 1:C:3112:TRP:O    | 1:C:3130:PRO:O    | 2.18                     | 0.61              |
| 2:H:8007:ILE:HD11 | 2:H:8082:VAL:HG21 | 1.82                     | 0.61              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1169:GLN:HG2  | 1:A:1169:GLN:O    | 2.00                     | 0.61              |
| 2:F:6016:GLU:HB3  | 2:F:6019:LYS:HD3  | 1.82                     | 0.61              |
| 1:G:7068:THR:O    | 1:G:7072:GLN:HG3  | 2.00                     | 0.61              |
| 1:E:5082:VAL:HG23 | 1:E:5118:TYR:OH   | 2.01                     | 0.61              |
| 1:G:7201:LEU:HB2  | 1:G:7247:VAL:CG2  | 2.31                     | 0.61              |
| 1:A:1010:THR:O    | 1:A:1022:PHE:HA   | 2.01                     | 0.61              |
| 1:A:1263:HIS:N    | 1:A:1266:LEU:HD12 | 2.16                     | 0.61              |
| 1:C:3095:LEU:HG   | 1:C:3116:LEU:HD21 | 1.83                     | 0.60              |
| 2:D:4073:THR:OG1  | 2:D:4075:LYS:HD3  | 2.01                     | 0.60              |
| 1:G:7189:VAL:HG12 | 1:G:7274:TRP:HD1  | 1.64                     | 0.60              |
| 2:H:8075:LYS:HB2  | 2:H:8075:LYS:NZ   | 2.16                     | 0.60              |
| 2:F:6037:VAL:HG22 | 2:F:6082:VAL:HG13 | 1.83                     | 0.60              |
| 1:A:1273:ARG:O    | 1:A:1274:TRP:HB3  | 2.02                     | 0.60              |
| 1:C:3215:LEU:HD12 | 1:C:3261:VAL:HG22 | 1.82                     | 0.60              |
| 2:B:2095:TRP:CH2  | 2:B:2097:ARG:HG2  | 2.36                     | 0.60              |
| 2:H:8083:ASN:HD21 | 2:H:8090:PRO:CG   | 2.08                     | 0.60              |
| 1:A:1040:GLU:HG3  | 1:A:1042:THR:H    | 1.67                     | 0.60              |
| 1:C:3250:PRO:HB2  | 1:C:3253:LYS:CG   | 2.31                     | 0.60              |
| 2:D:4006:LYS:NZ   | 2:D:4029:GLY:HA3  | 2.16                     | 0.60              |
| 1:C:3112:TRP:CE2  | 1:C:3161:GLU:HB2  | 2.37                     | 0.60              |
| 1:A:1236:ALA:O    | 2:B:2012:ARG:HD2  | 2.01                     | 0.60              |
| 1:E:5062:GLN:O    | 1:E:5066:ILE:HG13 | 2.01                     | 0.60              |
| 1:C:3014:ARG:NH2  | 1:C:3017:LEU:HD12 | 2.17                     | 0.60              |
| 1:C:3263:HIS:O    | 1:C:3266:LEU:HB2  | 2.02                     | 0.60              |
| 1:A:1255:GLN:NE2  | 1:A:1255:GLN:HA   | 2.17                     | 0.60              |
| 1:E:5034:LEU:HD23 | 1:E:5035:ARG:N    | 2.17                     | 0.60              |
| 1:A:1052:LEU:HD23 | 1:A:1175:GLY:HA3  | 1.84                     | 0.59              |
| 1:A:1252:GLY:CA   | 1:A:1253:LYS:HE2  | 2.31                     | 0.59              |
| 1:E:5249:VAL:HG22 | 1:E:5257:TYR:CE2  | 2.37                     | 0.59              |
| 1:A:1028:VAL:O    | 1:A:1028:VAL:HG12 | 2.01                     | 0.59              |
| 1:A:1105:PRO:O    | 1:A:1108:HIS:N    | 2.34                     | 0.59              |
| 1:E:5070:GLN:OE1  | 1:E:5160:LEU:HD13 | 2.03                     | 0.59              |
| 1:E:5176:LYS:O    | 1:E:5180:LEU:HB2  | 2.01                     | 0.59              |
| 1:C:3168:LEU:HG   | 1:C:3169:GLN:NE2  | 2.18                     | 0.59              |
| 1:C:3030:ASP:HB2  | 1:C:3209:TYR:HE1  | 1.67                     | 0.59              |
| 1:G:7247:VAL:O    | 1:G:7248:VAL:HG13 | 2.02                     | 0.59              |
| 1:C:3201:LEU:HD12 | 1:C:3249:VAL:HG21 | 1.83                     | 0.59              |
| 1:G:7103:VAL:HG23 | 1:G:7168:LEU:HD23 | 1.83                     | 0.59              |
| 1:G:7170:LYS:O    | 1:G:7174:LYS:HB2  | 2.03                     | 0.59              |
| 1:A:1103:VAL:HG21 | 1:A:1165:SER:HA   | 1.84                     | 0.59              |
| 1:A:1170:LYS:CG   | 1:A:1174:LYS:HE2  | 2.30                     | 0.59              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3034:LEU:HD12 | 1:C:3043:PRO:HB2  | 1.83                     | 0.59              |
| 1:C:3215:LEU:HD23 | 1:C:3245:ALA:CB   | 2.33                     | 0.59              |
| 1:E:5024:ILE:HD12 | 1:E:5067:VAL:HG13 | 1.83                     | 0.59              |
| 1:E:5024:ILE:CD1  | 1:E:5067:VAL:HG13 | 2.33                     | 0.59              |
| 1:G:7194:ARG:NE   | 1:G:7196:GLU:HB2  | 2.17                     | 0.59              |
| 1:A:1066:ILE:O    | 1:A:1070:GLN:HB3  | 2.02                     | 0.59              |
| 1:G:7024:ILE:HG21 | 1:G:7067:VAL:HG13 | 1.84                     | 0.59              |
| 1:G:7202:ARG:NH1  | 2:H:8099:MET:HG3  | 2.17                     | 0.59              |
| 1:C:3228:VAL:N    | 1:C:3247:VAL:HG12 | 2.17                     | 0.59              |
| 1:G:7075:GLU:O    | 1:G:7079:MET:HB2  | 2.02                     | 0.59              |
| 1:C:3051:TRP:CG   | 1:C:3178:ARG:HD2  | 2.38                     | 0.58              |
| 1:A:1126:LEU:N    | 1:A:1126:LEU:HD13 | 2.17                     | 0.58              |
| 1:E:5258:THR:HA   | 1:E:5273:ARG:HA   | 1.84                     | 0.58              |
| 2:H:8019:LYS:O    | 2:H:8072:PRO:HD2  | 2.03                     | 0.58              |
| 1:E:5224:LEU:O    | 1:E:5228:VAL:HB   | 2.03                     | 0.58              |
| 2:F:6005:PRO:HB2  | 2:F:6007:ILE:HD11 | 1.86                     | 0.58              |
| 2:F:6036:GLU:HG2  | 2:F:6081:ARG:NH2  | 2.18                     | 0.58              |
| 1:C:3049:ALA:O    | 1:C:3052:LEU:HG   | 2.03                     | 0.58              |
| 2:F:6007:ILE:N    | 2:F:6007:ILE:HD13 | 2.18                     | 0.58              |
| 1:G:7214:THR:HB   | 1:G:7262:ASP:HB2  | 1.85                     | 0.58              |
| 1:A:1183:ASP:HB2  | 1:A:1209:TYR:HB3  | 1.86                     | 0.58              |
| 1:A:1049:ALA:HB1  | 1:A:1051:TRP:NE1  | 2.19                     | 0.58              |
| 1:C:3028:VAL:O    | 1:C:3029:ASP:HB2  | 2.04                     | 0.58              |
| 2:H:8040:LEU:HD23 | 2:H:8045:ARG:HA   | 1.85                     | 0.58              |
| 1:A:1005:LEU:O    | 1:A:1005:LEU:HG   | 2.03                     | 0.58              |
| 2:B:2045:ARG:HG2  | 2:B:2045:ARG:O    | 2.04                     | 0.58              |
| 2:B:2095:TRP:CZ3  | 2:B:2097:ARG:HG2  | 2.38                     | 0.58              |
| 1:A:1028:VAL:O    | 1:A:1029:ASP:HB2  | 2.03                     | 0.58              |
| 1:C:3073:LEU:CD2  | 1:C:3076:ARG:HH11 | 2.16                     | 0.58              |
| 1:C:3120:SER:HB2  | 2:D:4003:ARG:HH22 | 1.69                     | 0.58              |
| 1:C:3194:ARG:NH1  | 1:C:3198:ASP:HB3  | 2.19                     | 0.58              |
| 1:C:3198:ASP:OD1  | 1:C:3250:PRO:HA   | 2.04                     | 0.58              |
| 1:C:3263:HIS:HB3  | 1:C:3266:LEU:HD12 | 1.84                     | 0.58              |
| 1:A:1014:ARG:NH2  | 1:A:1019:GLU:H    | 2.01                     | 0.57              |
| 1:E:5010:THR:HG1  | 2:F:6062:PHE:HE2  | 1.52                     | 0.57              |
| 1:E:5062:GLN:HA   | 1:E:5062:GLN:NE2  | 2.19                     | 0.57              |
| 2:F:6027:VAL:HG11 | 2:F:6035:ILE:CD1  | 2.34                     | 0.57              |
| 1:G:7119:ASP:HB3  | 2:H:8001:ILE:CD1  | 2.34                     | 0.57              |
| 1:A:1172:LEU:HA   | 1:A:1179:LEU:HD12 | 1.87                     | 0.57              |
| 2:B:2017:ASN:HA   | 2:B:2072:PRO:O    | 2.02                     | 0.57              |
| 1:A:1049:ALA:HB1  | 1:A:1051:TRP:CE2  | 2.40                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1191:ARG:HD2  | 1:A:1201:LEU:CD2  | 2.34                     | 0.57              |
| 1:C:3215:LEU:HD23 | 1:C:3245:ALA:HB3  | 1.85                     | 0.57              |
| 1:C:3202:ARG:CG   | 1:C:3246:ALA:HB2  | 2.34                     | 0.57              |
| 1:E:5104:GLU:HB3  | 1:E:5109:LEU:HB3  | 1.85                     | 0.57              |
| 2:F:6007:ILE:HG13 | 2:F:6082:VAL:CG2  | 2.34                     | 0.57              |
| 1:G:7102:ASP:O    | 1:G:7110:CYS:HA   | 2.03                     | 0.57              |
| 1:A:1104:GLU:OE1  | 1:A:1107:ARG:HB2  | 2.05                     | 0.57              |
| 1:E:5014:ARG:HD3  | 1:E:5021:TRP:HZ3  | 1.67                     | 0.57              |
| 1:G:7015:PRO:HG2  | 1:G:7091:ASP:O    | 2.04                     | 0.57              |
| 1:E:5107:ARG:HG2  | 1:E:5107:ARG:HH11 | 1.69                     | 0.57              |
| 1:A:1185:PRO:HD2  | 1:A:1266:LEU:CD2  | 2.28                     | 0.57              |
| 2:H:8003:ARG:HB3  | 2:H:8030:PHE:HA   | 1.86                     | 0.57              |
| 1:C:3172:LEU:HD23 | 1:C:3179:LEU:HB3  | 1.86                     | 0.57              |
| 1:G:7104:GLU:HG2  | 1:G:7104:GLU:O    | 2.05                     | 0.57              |
| 1:E:5073:LEU:O    | 1:E:5077:ASN:HB2  | 2.04                     | 0.56              |
| 2:F:6001:ILE:HD12 | 2:F:6002:GLN:HG3  | 1.87                     | 0.56              |
| 1:C:3005:LEU:O    | 1:C:3006:ARG:HD3  | 2.05                     | 0.56              |
| 1:E:5190:THR:CG2  | 1:E:5192:HIS:CE1  | 2.88                     | 0.56              |
| 1:G:7009:TYR:HE1  | 1:G:7022:PHE:HB2  | 1.70                     | 0.56              |
| 1:A:1065:HIS:O    | 1:A:1069:ILE:HG12 | 2.05                     | 0.56              |
| 1:G:7080:THR:OG1  | 1:G:7081:LEU:HD12 | 2.05                     | 0.56              |
| 1:C:3219:LYS:O    | 1:C:3220:ASP:HB2  | 2.04                     | 0.56              |
| 1:C:3075:GLU:HG3  | 1:C:3075:GLU:O    | 2.05                     | 0.56              |
| 1:E:5087:LYS:O    | 1:E:5088:SER:OG   | 2.22                     | 0.56              |
| 1:G:7034:LEU:HG   | 1:G:7035:ARG:N    | 2.20                     | 0.56              |
| 1:G:7103:VAL:HG12 | 1:G:7104:GLU:H    | 1.70                     | 0.56              |
| 1:G:7204:TRP:CZ2  | 2:H:8099:MET:HA   | 2.40                     | 0.56              |
| 2:H:8051:HIS:HA   | 2:H:8065:LEU:O    | 2.06                     | 0.56              |
| 1:A:1039:LYS:HE2  | 1:A:1039:LYS:O    | 2.06                     | 0.56              |
| 2:F:6027:VAL:HG12 | 2:F:6030:PHE:CD2  | 2.41                     | 0.56              |
| 1:E:5010:THR:HG21 | 2:F:6054:LEU:CD2  | 2.36                     | 0.56              |
| 1:A:1125:THR:C    | 1:A:1126:LEU:HD22 | 2.26                     | 0.56              |
| 1:C:3250:PRO:HB2  | 1:C:3253:LYS:HG3  | 1.86                     | 0.56              |
| 2:F:6001:ILE:O    | 2:F:6001:ILE:HD13 | 2.05                     | 0.56              |
| 1:G:7206:LEU:CD2  | 1:G:7242:GLN:HG2  | 2.33                     | 0.56              |
| 2:B:2087:LEU:HD13 | 2:B:2091:LYS:HG3  | 1.87                     | 0.56              |
| 1:A:1009:TYR:HD1  | 1:A:1024:ILE:HD11 | 1.71                     | 0.56              |
| 1:A:1061:GLU:O    | 1:A:1064:THR:HG22 | 2.06                     | 0.56              |
| 1:C:3234:ARG:HH11 | 1:C:3242:GLN:HB3  | 1.70                     | 0.56              |
| 2:B:2024:ASN:HB3  | 2:B:2065:LEU:HD11 | 1.87                     | 0.56              |
| 1:G:7107:ARG:O    | 1:G:7108:HIS:HB2  | 2.06                     | 0.56              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3024:ILE:HD12 | 1:C:3067:VAL:HG12 | 1.86                     | 0.55              |
| 1:C:3125:THR:O    | 1:C:3127:SER:N    | 2.39                     | 0.55              |
| 1:C:3172:LEU:O    | 1:C:3176:LYS:HG2  | 2.06                     | 0.55              |
| 1:G:7039:LYS:HE3  | 1:G:7040:GLU:N    | 2.21                     | 0.55              |
| 2:H:8027:VAL:HG23 | 2:H:8064:LEU:HB2  | 1.88                     | 0.55              |
| 1:A:1242:GLN:O    | 1:A:1243:LYS:HB2  | 2.06                     | 0.55              |
| 2:B:2056:PHE:HB3  | 2:B:2062:PHE:CD2  | 2.41                     | 0.55              |
| 1:E:5035:ARG:NH2  | 1:E:5040:GLU:OE1  | 2.39                     | 0.55              |
| 1:E:5258:THR:HB   | 1:E:5273:ARG:HG2  | 1.88                     | 0.55              |
| 1:G:7081:LEU:HD22 | 1:G:7095:LEU:HD13 | 1.89                     | 0.55              |
| 2:B:2001:ILE:HD13 | 2:B:2001:ILE:O    | 2.06                     | 0.55              |
| 1:G:7167:VAL:HG12 | 1:G:7171:TYR:CE2  | 2.41                     | 0.55              |
| 2:H:8022:PHE:CE2  | 2:H:8069:GLU:HG3  | 2.41                     | 0.55              |
| 1:C:3014:ARG:HG3  | 1:C:3021:TRP:HZ3  | 1.70                     | 0.55              |
| 1:C:3236:ALA:O    | 2:D:4024:ASN:ND2  | 2.40                     | 0.55              |
| 2:B:2096:ASP:HB3  | 2:B:2099:MET:HB2  | 1.88                     | 0.55              |
| 1:C:3249:VAL:HG22 | 1:C:3257:TYR:CD2  | 2.41                     | 0.55              |
| 1:G:7202:ARG:HG2  | 1:G:7204:TRP:NE1  | 2.21                     | 0.55              |
| 1:A:1002:SER:HB2  | 1:A:1103:VAL:O    | 2.06                     | 0.55              |
| 1:G:7087:LYS:O    | 1:G:7088:SER:OG   | 2.17                     | 0.55              |
| 1:G:7088:SER:HB3  | 1:G:7091:ASP:HB2  | 1.89                     | 0.55              |
| 1:C:3101:CYS:HA   | 1:C:3111:LEU:O    | 2.06                     | 0.55              |
| 1:C:3129:ASN:HB2  | 1:C:3130:PRO:HD3  | 1.88                     | 0.55              |
| 1:C:3203:CYS:HB2  | 1:C:3217:TRP:CZ2  | 2.41                     | 0.55              |
| 1:E:5199:VAL:CG2  | 1:E:5251:LEU:HA   | 2.35                     | 0.55              |
| 1:G:7215:LEU:HB3  | 1:G:7243:LYS:NZ   | 2.22                     | 0.55              |
| 1:A:1058:ASP:HA   | 1:A:1170:LYS:HZ1  | 1.72                     | 0.55              |
| 1:C:3040:GLU:OE2  | 1:C:3044:ARG:NH2  | 2.39                     | 0.55              |
| 1:A:1009:TYR:HB3  | 1:A:1097:TRP:O    | 2.07                     | 0.55              |
| 2:B:2003:ARG:HD3  | 2:B:2031:HIS:HB3  | 1.88                     | 0.55              |
| 1:E:5061:GLU:HA   | 1:E:5064:THR:CG2  | 2.34                     | 0.55              |
| 1:G:7102:ASP:HB2  | 1:G:7111:LEU:CD1  | 2.37                     | 0.55              |
| 1:A:1215:LEU:CD2  | 1:A:1261:VAL:HG22 | 2.36                     | 0.55              |
| 2:B:2007:ILE:HD13 | 2:B:2082:VAL:CG2  | 2.37                     | 0.55              |
| 1:E:5169:GLN:O    | 1:E:5169:GLN:HG2  | 2.08                     | 0.55              |
| 2:F:6005:PRO:HB2  | 2:F:6007:ILE:CD1  | 2.36                     | 0.55              |
| 1:A:1082:VAL:HG22 | 1:A:1089:MET:HG2  | 1.89                     | 0.54              |
| 1:A:1201:LEU:HD11 | 1:A:1254:VAL:CG1  | 2.24                     | 0.54              |
| 1:C:3222:GLU:HG3  | 1:C:3223:GLU:N    | 2.22                     | 0.54              |
| 1:C:3231:VAL:O    | 1:C:3243:LYS:HG3  | 2.06                     | 0.54              |
| 1:C:3272:LEU:HD12 | 1:C:3273:ARG:O    | 2.06                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:E:5010:THR:HG21 | 2:F:6054:LEU:HD23 | 1.90                     | 0.54              |
| 1:G:7213:ILE:CG2  | 1:G:7243:LYS:HE2  | 2.37                     | 0.54              |
| 1:C:3242:GLN:O    | 1:C:3243:LYS:HB2  | 2.07                     | 0.54              |
| 1:G:7185:PRO:HA   | 1:G:7206:LEU:O    | 2.07                     | 0.54              |
| 1:G:7200:THR:HA   | 1:G:7248:VAL:HA   | 1.88                     | 0.54              |
| 1:G:7250:PRO:HD2  | 1:G:7253:LYS:HB2  | 1.89                     | 0.54              |
| 1:C:3128:GLU:HG2  | 1:C:3129:ASN:N    | 2.23                     | 0.54              |
| 1:G:7215:LEU:CD1  | 1:G:7261:VAL:HG22 | 2.37                     | 0.54              |
| 1:A:1053:GLU:HG3  | 1:A:1174:LYS:HA   | 1.89                     | 0.54              |
| 1:C:3005:LEU:CD1  | 1:C:3028:VAL:HG22 | 2.38                     | 0.54              |
| 1:C:3009:TYR:HB2  | 1:C:3070:GLN:NE2  | 2.23                     | 0.54              |
| 1:E:5034:LEU:CD1  | 1:E:5063:GLN:NE2  | 2.71                     | 0.54              |
| 1:G:7191:ARG:HH12 | 1:G:7193:PRO:HB3  | 1.73                     | 0.54              |
| 1:G:7219:LYS:O    | 1:G:7221:GLY:N    | 2.41                     | 0.54              |
| 1:G:7235:PRO:HG2  | 2:H:8065:LEU:HD13 | 1.89                     | 0.54              |
| 1:A:1191:ARG:HD3  | 1:A:1274:TRP:NE1  | 2.23                     | 0.54              |
| 1:C:3200:THR:HG22 | 1:C:3200:THR:O    | 2.07                     | 0.54              |
| 1:A:1085:TYR:HB3  | 1:A:1087:LYS:NZ   | 2.23                     | 0.54              |
| 2:F:6006:LYS:C    | 2:F:6007:ILE:HD13 | 2.27                     | 0.54              |
| 2:F:6024:ASN:HD22 | 2:F:6067:TYR:HB3  | 1.72                     | 0.54              |
| 1:A:1170:LYS:O    | 1:A:1174:LYS:HG2  | 2.07                     | 0.54              |
| 1:A:1229:GLU:O    | 1:A:1230:PHE:HB3  | 2.08                     | 0.54              |
| 1:G:7189:VAL:CG1  | 1:G:7274:TRP:HD1  | 2.21                     | 0.54              |
| 1:A:1189:VAL:H    | 1:A:1275:GLU:HG3  | 1.72                     | 0.53              |
| 2:B:2016:GLU:HA   | 2:B:2016:GLU:OE2  | 2.09                     | 0.53              |
| 2:B:2025:CYS:HB2  | 2:B:2039:LEU:HD21 | 1.90                     | 0.53              |
| 1:C:3050:PRO:HA   | 1:C:3054:GLN:HE21 | 1.72                     | 0.53              |
| 1:A:1111:LEU:HD23 | 1:A:1113:TYR:OH   | 2.08                     | 0.53              |
| 1:A:1194:ARG:CB   | 1:A:1194:ARG:HH11 | 2.19                     | 0.53              |
| 1:E:5254:VAL:O    | 1:E:5254:VAL:HG22 | 2.07                     | 0.53              |
| 1:A:1194:ARG:NH2  | 1:A:1248:VAL:HB   | 2.23                     | 0.53              |
| 1:C:3028:VAL:HG11 | 1:C:3179:LEU:CD1  | 2.38                     | 0.53              |
| 1:G:7109:LEU:O    | 1:G:7110:CYS:HB2  | 2.09                     | 0.53              |
| 1:G:7249:VAL:HG12 | 1:G:7257:TYR:CE2  | 2.44                     | 0.53              |
| 1:C:3051:TRP:CE3  | 1:C:3178:ARG:HD2  | 2.43                     | 0.53              |
| 1:E:5249:VAL:HG11 | 1:E:5254:VAL:HG23 | 1.90                     | 0.53              |
| 2:B:2087:LEU:HD13 | 2:B:2091:LYS:CG   | 2.38                     | 0.53              |
| 1:C:3081:LEU:HD22 | 1:C:3095:LEU:CD1  | 2.38                     | 0.53              |
| 1:C:3103:VAL:O    | 1:C:3105:PRO:HD3  | 2.09                     | 0.53              |
| 1:C:3128:GLU:HG2  | 1:C:3129:ASN:H    | 1.73                     | 0.53              |
| 1:C:3189:VAL:HB   | 1:C:3274:TRP:HA   | 1.90                     | 0.53              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:E:5038:SER:O    | 1:E:5039:LYS:HB3  | 2.08                     | 0.53              |
| 2:F:6017:ASN:N    | 2:F:6017:ASN:HD22 | 2.06                     | 0.53              |
| 1:G:7010:THR:O    | 1:G:7022:PHE:HA   | 2.08                     | 0.53              |
| 2:H:8081:ARG:HA   | 2:H:8091:LYS:O    | 2.09                     | 0.53              |
| 2:H:8055:SER:HB3  | 2:H:8063:TYR:CE1  | 2.44                     | 0.53              |
| 1:A:1126:LEU:H    | 1:A:1126:LEU:HD13 | 1.72                     | 0.53              |
| 1:A:1189:VAL:HG12 | 1:A:1190:THR:H    | 1.74                     | 0.53              |
| 1:G:7028:VAL:O    | 1:G:7029:ASP:HB2  | 2.08                     | 0.53              |
| 1:G:7009:TYR:HD2  | 1:G:7097:TRP:HB3  | 1.73                     | 0.53              |
| 1:A:1213:ILE:HD11 | 1:A:1261:VAL:HG13 | 1.91                     | 0.53              |
| 1:C:3104:GLU:HB3  | 1:C:3109:LEU:CB   | 2.39                     | 0.53              |
| 1:E:5181:ARG:HD2  | 1:E:5183:ASP:OD2  | 2.08                     | 0.53              |
| 1:C:3079:MET:HE1  | 1:C:3083:HIS:HB2  | 1.91                     | 0.52              |
| 1:G:7123:LEU:HB3  | 1:G:7124:PRO:HD2  | 1.90                     | 0.52              |
| 1:G:7191:ARG:HD2  | 1:G:7274:TRP:CZ2  | 2.44                     | 0.52              |
| 1:C:3023:ILE:HD11 | 2:D:4054:LEU:O    | 2.09                     | 0.52              |
| 1:G:7233:THR:HG22 | 1:G:7243:LYS:HD3  | 1.90                     | 0.52              |
| 2:H:8056:PHE:HB3  | 2:H:8062:PHE:CD2  | 2.44                     | 0.52              |
| 1:A:1128:GLU:HG2  | 1:A:1129:ASN:N    | 2.19                     | 0.52              |
| 1:C:3249:VAL:HG13 | 1:C:3257:TYR:CE1  | 2.44                     | 0.52              |
| 1:E:5041:GLU:O    | 1:E:5041:GLU:HG2  | 2.09                     | 0.52              |
| 1:A:1128:GLU:OE2  | 1:A:1131:SER:N    | 2.43                     | 0.52              |
| 1:C:3125:THR:C    | 1:C:3126:LEU:HD23 | 2.29                     | 0.52              |
| 1:E:5194:ARG:CD   | 1:E:5196:GLU:OE2  | 2.55                     | 0.52              |
| 1:G:7194:ARG:NH2  | 1:G:7196:GLU:HB3  | 2.24                     | 0.52              |
| 1:A:1061:GLU:HA   | 1:A:1064:THR:HG22 | 1.90                     | 0.52              |
| 1:A:1081:LEU:HD12 | 1:A:1095:LEU:HD13 | 1.91                     | 0.52              |
| 2:H:8009:VAL:HG12 | 2:H:8023:LEU:HD11 | 1.92                     | 0.52              |
| 2:H:8027:VAL:CG2  | 2:H:8064:LEU:HB2  | 2.40                     | 0.52              |
| 1:E:5112:TRP:O    | 1:E:5129:ASN:O    | 2.27                     | 0.52              |
| 2:F:6027:VAL:HG12 | 2:F:6030:PHE:CE2  | 2.44                     | 0.52              |
| 1:A:1081:LEU:CD1  | 1:A:1095:LEU:HD13 | 2.40                     | 0.52              |
| 1:C:3008:PHE:CD2  | 1:C:3098:LEU:HD13 | 2.45                     | 0.52              |
| 1:C:3096:GLN:HE22 | 2:D:4031:HIS:CD2  | 2.27                     | 0.52              |
| 1:G:7036:PHE:CD2  | 1:G:7067:VAL:HG12 | 2.45                     | 0.52              |
| 1:G:7103:VAL:CG2  | 1:G:7168:LEU:HD23 | 2.40                     | 0.52              |
| 1:C:3064:THR:O    | 1:C:3068:THR:OG1  | 2.28                     | 0.52              |
| 1:C:3096:GLN:O    | 1:C:3116:LEU:HA   | 2.10                     | 0.52              |
| 1:C:3028:VAL:CG1  | 1:C:3179:LEU:HD13 | 2.40                     | 0.52              |
| 1:G:7095:LEU:HD21 | 1:G:7116:LEU:HD21 | 1.92                     | 0.52              |
| 1:G:7232:GLU:HA   | 1:G:7232:GLU:OE1  | 2.09                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:E:5043:PRO:HG2  | 1:E:5064:THR:CB   | 2.40                     | 0.51              |
| 2:F:6041:LYS:HG2  | 2:F:6041:LYS:O    | 2.10                     | 0.51              |
| 2:B:2069:GLU:O    | 1:G:7017:LEU:HG   | 2.10                     | 0.51              |
| 1:A:1248:VAL:HG23 | 1:A:1248:VAL:O    | 2.10                     | 0.51              |
| 1:E:5206:LEU:HD23 | 1:E:5242:GLN:HG2  | 1.92                     | 0.51              |
| 1:C:3104:GLU:HG2  | 1:C:3107:ARG:HB2  | 1.91                     | 0.51              |
| 1:E:5008:PHE:HB2  | 1:E:5025:VAL:HB   | 1.92                     | 0.51              |
| 1:G:7006:ARG:HG3  | 1:G:7098:LEU:HD11 | 1.93                     | 0.51              |
| 1:G:7160:LEU:HD12 | 1:G:7160:LEU:O    | 2.09                     | 0.51              |
| 1:A:1052:LEU:HD23 | 1:A:1175:GLY:CA   | 2.41                     | 0.51              |
| 2:B:2056:PHE:HB3  | 2:B:2062:PHE:CE2  | 2.45                     | 0.51              |
| 1:C:3251:LEU:HD22 | 1:C:3252:GLY:N    | 2.25                     | 0.51              |
| 2:F:6036:GLU:HG2  | 2:F:6081:ARG:HH22 | 1.75                     | 0.51              |
| 2:F:6083:ASN:HD22 | 2:F:6090:PRO:HG3  | 1.75                     | 0.51              |
| 1:A:1059:ASP:HA   | 1:A:1061:GLU:OE1  | 2.10                     | 0.51              |
| 1:A:1252:GLY:C    | 1:A:1253:LYS:HE2  | 2.30                     | 0.51              |
| 1:C:3120:SER:HG   | 2:D:4001:ILE:N    | 2.09                     | 0.51              |
| 1:E:5034:LEU:HD12 | 1:E:5045:MET:SD   | 2.50                     | 0.51              |
| 2:F:6041:LYS:O    | 2:F:6042:ASN:HB2  | 2.09                     | 0.51              |
| 1:A:1076:ARG:HG2  | 1:A:1076:ARG:HH11 | 1.75                     | 0.51              |
| 1:C:3058:ASP:OD2  | 1:C:3174:LYS:NZ   | 2.39                     | 0.51              |
| 2:D:4019:LYS:O    | 2:D:4071:THR:HB   | 2.09                     | 0.51              |
| 1:E:5234:ARG:NH1  | 1:E:5242:GLN:OE1  | 2.44                     | 0.51              |
| 1:E:5263:HIS:HB3  | 1:E:5266:LEU:HD12 | 1.93                     | 0.51              |
| 1:G:7131:SER:O    | 1:G:7132:SER:O    | 2.29                     | 0.51              |
| 1:A:1163:HIS:HA   | 1:A:1166:ASP:OD1  | 2.11                     | 0.51              |
| 2:B:2018:GLY:O    | 2:B:2019:LYS:HE3  | 2.11                     | 0.51              |
| 1:C:3077:ASN:O    | 1:C:3081:LEU:HD13 | 2.10                     | 0.51              |
| 1:C:3218:GLN:OE1  | 1:C:3221:GLY:HA2  | 2.11                     | 0.51              |
| 1:G:7068:THR:HG22 | 1:G:7072:GLN:OE1  | 2.11                     | 0.51              |
| 1:G:7163:HIS:N    | 1:G:7163:HIS:CD2  | 2.77                     | 0.51              |
| 1:G:7191:ARG:HH11 | 1:G:7193:PRO:HD3  | 1.76                     | 0.51              |
| 1:A:1002:SER:HB3  | 1:A:1104:GLU:HB2  | 1.93                     | 0.51              |
| 1:A:1077:ASN:O    | 1:A:1081:LEU:HB2  | 2.11                     | 0.51              |
| 1:A:1103:VAL:HG21 | 1:A:1165:SER:CA   | 2.41                     | 0.51              |
| 1:C:3131:SER:OG   | 1:C:3132:SER:N    | 2.41                     | 0.51              |
| 2:F:6001:ILE:CD1  | 2:F:6002:GLN:HG3  | 2.41                     | 0.51              |
| 2:H:8009:VAL:CG1  | 2:H:8023:LEU:HD11 | 2.40                     | 0.51              |
| 2:H:8006:LYS:CE   | 2:H:8029:GLY:HA3  | 2.37                     | 0.51              |
| 1:A:1194:ARG:HH22 | 1:A:1198:ASP:HB3  | 1.76                     | 0.50              |
| 1:C:3168:LEU:CD2  | 1:C:3169:GLN:HE22 | 2.25                     | 0.50              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1006:ARG:HG3  | 1:A:1006:ARG:HH11 | 1.76                     | 0.50              |
| 2:B:2009:VAL:HG22 | 2:B:2080:CYS:HB2  | 1.93                     | 0.50              |
| 1:E:5227:ASP:OD1  | 1:E:5248:VAL:HG23 | 2.10                     | 0.50              |
| 1:G:7086:ASN:O    | 1:G:7086:ASN:OD1  | 2.29                     | 0.50              |
| 1:G:7199:VAL:HG23 | 1:G:7251:LEU:CD1  | 2.41                     | 0.50              |
| 1:G:7032:GLN:NE2  | 2:H:8053:ASP:OD2  | 2.44                     | 0.50              |
| 1:E:5162:GLY:O    | 1:E:5166:ASP:OD1  | 2.30                     | 0.50              |
| 2:H:8004:THR:O    | 2:H:8029:GLY:O    | 2.29                     | 0.50              |
| 1:A:1009:TYR:CD1  | 1:A:1024:ILE:HD11 | 2.46                     | 0.50              |
| 1:A:1014:ARG:NH2  | 1:A:1018:GLY:HA3  | 2.16                     | 0.50              |
| 1:A:1161:GLU:O    | 1:A:1161:GLU:HG2  | 2.11                     | 0.50              |
| 1:A:1273:ARG:NH1  | 1:A:1273:ARG:HB2  | 2.24                     | 0.50              |
| 2:B:2096:ASP:OD1  | 2:B:2098:ASP:OD2  | 2.29                     | 0.50              |
| 1:C:3199:VAL:O    | 1:C:3248:VAL:HA   | 2.12                     | 0.50              |
| 2:D:4041:LYS:HG3  | 2:D:4078:TYR:CE1  | 2.45                     | 0.50              |
| 2:F:6051:HIS:HA   | 2:F:6065:LEU:O    | 2.12                     | 0.50              |
| 1:A:1177:GLU:O    | 1:A:1181:ARG:HB2  | 2.11                     | 0.50              |
| 1:E:5170:LYS:O    | 1:E:5173:GLU:HB2  | 2.12                     | 0.50              |
| 1:A:1160:LEU:HD12 | 1:A:1160:LEU:O    | 2.11                     | 0.50              |
| 1:A:1253:LYS:HE2  | 1:A:1253:LYS:N    | 2.27                     | 0.50              |
| 1:E:5249:VAL:HG13 | 1:E:5250:PRO:HD2  | 1.94                     | 0.50              |
| 1:G:7106:ASP:O    | 1:G:7107:ARG:HG2  | 2.11                     | 0.50              |
| 1:G:7168:LEU:O    | 1:G:7172:LEU:HG   | 2.12                     | 0.50              |
| 1:G:7187:ALA:HA   | 1:G:7204:TRP:O    | 2.11                     | 0.50              |
| 1:E:5195:PRO:O    | 1:E:5196:GLU:HG3  | 2.11                     | 0.50              |
| 1:A:1005:LEU:CD2  | 1:A:1167:VAL:HG12 | 2.41                     | 0.50              |
| 1:A:1247:VAL:HG23 | 1:A:1249:VAL:HG23 | 1.94                     | 0.50              |
| 1:C:3190:THR:HA   | 1:C:3274:TRP:HE1  | 1.75                     | 0.50              |
| 1:E:5090:ASP:O    | 1:E:5091:ASP:OD2  | 2.30                     | 0.50              |
| 1:C:3006:ARG:NH1  | 1:C:3102:ASP:OD1  | 2.44                     | 0.50              |
| 2:D:4077:GLU:OE2  | 2:D:4078:TYR:N    | 2.45                     | 0.50              |
| 2:D:4041:LYS:HG3  | 2:D:4078:TYR:CZ   | 2.47                     | 0.50              |
| 1:E:5181:ARG:NH1  | 1:E:5183:ASP:OD2  | 2.44                     | 0.50              |
| 1:G:7069:ILE:HD13 | 1:G:7072:GLN:HE22 | 1.77                     | 0.50              |
| 1:G:7176:LYS:CE   | 1:G:7180:LEU:HG   | 2.41                     | 0.50              |
| 1:A:1064:THR:O    | 1:A:1068:THR:OG1  | 2.29                     | 0.49              |
| 1:A:1087:LYS:O    | 1:A:1088:SER:O    | 2.30                     | 0.49              |
| 1:A:1221:GLY:O    | 1:A:1223:GLU:OE2  | 2.30                     | 0.49              |
| 2:B:2001:ILE:HD12 | 2:B:2002:GLN:HG2  | 1.93                     | 0.49              |
| 1:C:3251:LEU:HD22 | 1:C:3252:GLY:H    | 1.77                     | 0.49              |
| 1:G:7077:ASN:ND2  | 1:G:7097:TRP:HZ3  | 2.10                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:G:7199:VAL:HG23 | 1:G:7251:LEU:HD12 | 1.93                     | 0.49              |
| 2:H:8080:CYS:O    | 2:H:8092:ILE:HA   | 2.12                     | 0.49              |
| 1:A:1085:TYR:HB3  | 1:A:1087:LYS:CE   | 2.42                     | 0.49              |
| 1:A:1172:LEU:HD23 | 1:A:1179:LEU:HD13 | 1.93                     | 0.49              |
| 1:A:1189:VAL:H    | 1:A:1275:GLU:CG   | 2.25                     | 0.49              |
| 1:E:5170:LYS:HZ2  | 1:E:5174:LYS:HE3  | 1.76                     | 0.49              |
| 1:G:7025:VAL:HG21 | 2:H:8053:ASP:HB2  | 1.93                     | 0.49              |
| 1:A:1103:VAL:CG1  | 1:A:1165:SER:HB3  | 2.37                     | 0.49              |
| 1:C:3083:HIS:O    | 1:C:3086:ASN:HB3  | 2.11                     | 0.49              |
| 1:E:5095:LEU:HA   | 1:E:5117:ALA:O    | 2.13                     | 0.49              |
| 1:G:7111:LEU:HD23 | 1:G:7130:PRO:HG2  | 1.93                     | 0.49              |
| 1:G:7223:GLU:OE1  | 1:G:7225:THR:OG1  | 2.25                     | 0.49              |
| 1:A:1207:GLY:O    | 1:A:1240:THR:HG22 | 2.13                     | 0.49              |
| 1:E:5130:PRO:O    | 1:E:5131:SER:O    | 2.30                     | 0.49              |
| 1:G:7009:TYR:CD2  | 1:G:7097:TRP:HB3  | 2.47                     | 0.49              |
| 1:E:5202:ARG:HA   | 1:E:5245:ALA:O    | 2.12                     | 0.49              |
| 1:G:7208:PHE:CE2  | 1:G:7213:ILE:HD12 | 2.48                     | 0.49              |
| 2:H:8017:ASN:HA   | 2:H:8072:PRO:O    | 2.13                     | 0.49              |
| 1:C:3050:PRO:HA   | 1:C:3054:GLN:HE22 | 1.75                     | 0.49              |
| 1:E:5126:LEU:HD22 | 1:E:5126:LEU:N    | 2.28                     | 0.49              |
| 1:E:5194:ARG:NH1  | 1:E:5196:GLU:OE2  | 2.45                     | 0.49              |
| 1:G:7013:SER:O    | 1:G:7092:SER:OG   | 2.28                     | 0.49              |
| 1:A:1017:LEU:HD23 | 2:H:8071:THR:HG23 | 1.93                     | 0.49              |
| 1:E:5112:TRP:HB2  | 1:E:5133:CYS:SG   | 2.52                     | 0.49              |
| 2:H:8003:ARG:O    | 2:H:8086:THR:HG21 | 2.13                     | 0.49              |
| 1:A:1072:GLN:HG3  | 1:A:1072:GLN:O    | 2.13                     | 0.49              |
| 1:C:3024:ILE:HD12 | 1:C:3067:VAL:HG13 | 1.93                     | 0.49              |
| 1:C:3034:LEU:HG   | 1:C:3035:ARG:N    | 2.28                     | 0.49              |
| 1:E:5034:LEU:HD13 | 1:E:5063:GLN:NE2  | 2.28                     | 0.49              |
| 1:E:5077:ASN:O    | 1:E:5081:LEU:HB2  | 2.13                     | 0.49              |
| 1:G:7095:LEU:HD11 | 1:G:7116:LEU:HD23 | 1.95                     | 0.49              |
| 1:G:7096:GLN:N    | 1:G:7096:GLN:HE21 | 2.11                     | 0.49              |
| 1:G:7222:GLU:O    | 1:G:7223:GLU:O    | 2.30                     | 0.49              |
| 1:C:3014:ARG:NH2  | 1:C:3018:GLY:HA3  | 2.10                     | 0.49              |
| 2:D:4077:GLU:OE2  | 2:D:4078:TYR:O    | 2.31                     | 0.49              |
| 2:H:8041:LYS:O    | 2:H:8042:ASN:HB2  | 2.13                     | 0.49              |
| 1:C:3055:GLU:O    | 1:C:3057:ALA:N    | 2.38                     | 0.48              |
| 1:C:3112:TRP:HB3  | 1:C:3131:SER:CB   | 2.43                     | 0.48              |
| 1:E:5213:ILE:HD11 | 1:E:5261:VAL:HG13 | 1.95                     | 0.48              |
| 1:A:1204:TRP:CZ2  | 2:B:2099:MET:HA   | 2.48                     | 0.48              |
| 1:A:1217:TRP:CZ3  | 1:A:1257:TYR:HB3  | 2.47                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3056:GLU:O    | 1:C:3057:ALA:HB3  | 2.13                     | 0.48              |
| 1:C:3215:LEU:HD12 | 1:C:3261:VAL:CG2  | 2.43                     | 0.48              |
| 1:C:3228:VAL:O    | 1:C:3228:VAL:HG12 | 2.13                     | 0.48              |
| 1:E:5007:TYR:OH   | 1:E:5063:GLN:OE1  | 2.31                     | 0.48              |
| 1:E:5104:GLU:CB   | 1:E:5109:LEU:HD22 | 2.43                     | 0.48              |
| 1:G:7203:CYS:HB2  | 1:G:7217:TRP:CZ2  | 2.48                     | 0.48              |
| 1:A:1261:VAL:HB   | 1:A:1270:LEU:HB2  | 1.95                     | 0.48              |
| 1:C:3177:GLU:N    | 1:C:3177:GLU:OE2  | 2.46                     | 0.48              |
| 1:E:5075:GLU:O    | 1:E:5079:MET:HB2  | 2.12                     | 0.48              |
| 1:E:5170:LYS:NZ   | 1:E:5174:LYS:HE3  | 2.28                     | 0.48              |
| 1:E:5200:THR:O    | 1:E:5201:LEU:HD23 | 2.12                     | 0.48              |
| 1:E:5194:ARG:HE   | 1:E:5248:VAL:HG11 | 1.77                     | 0.48              |
| 1:G:7200:THR:O    | 1:G:7201:LEU:HD23 | 2.13                     | 0.48              |
| 2:H:8033:SER:O    | 2:H:8035:ILE:N    | 2.46                     | 0.48              |
| 1:A:1172:LEU:HD22 | 1:A:1180:LEU:CD1  | 2.43                     | 0.48              |
| 1:C:3128:GLU:CG   | 1:C:3129:ASN:H    | 2.26                     | 0.48              |
| 1:C:3261:VAL:O    | 1:C:3266:LEU:HD13 | 2.13                     | 0.48              |
| 2:H:8016:GLU:HG2  | 2:H:8019:LYS:CD   | 2.42                     | 0.48              |
| 1:C:3181:ARG:HG2  | 1:C:3181:ARG:O    | 2.13                     | 0.48              |
| 1:E:5201:LEU:HD11 | 1:E:5254:VAL:HG23 | 1.93                     | 0.48              |
| 1:E:5035:ARG:HG3  | 2:F:6053:ASP:CG   | 2.34                     | 0.48              |
| 1:G:7208:PHE:CD2  | 1:G:7213:ILE:HD12 | 2.49                     | 0.48              |
| 1:C:3036:PHE:HB2  | 1:C:3043:PRO:HB3  | 1.96                     | 0.48              |
| 1:C:3050:PRO:C    | 1:C:3052:LEU:H    | 2.16                     | 0.48              |
| 1:E:5217:TRP:CZ3  | 1:E:5257:TYR:HB3  | 2.49                     | 0.48              |
| 1:G:7194:ARG:NH1  | 1:G:7198:ASP:OD2  | 2.47                     | 0.48              |
| 1:G:7188:HIS:HA   | 1:G:7272:LEU:HD11 | 1.96                     | 0.48              |
| 1:G:7189:VAL:HG12 | 1:G:7274:TRP:CD1  | 2.47                     | 0.48              |
| 1:A:1060:TRP:HZ2  | 1:A:1174:LYS:HG3  | 1.79                     | 0.48              |
| 1:C:3111:LEU:HB3  | 1:C:3130:PRO:HB3  | 1.95                     | 0.48              |
| 1:C:3185:PRO:HD3  | 1:C:3263:HIS:CD2  | 2.48                     | 0.48              |
| 1:G:7006:ARG:HB3  | 1:G:7008:PHE:CE1  | 2.49                     | 0.48              |
| 1:G:7199:VAL:O    | 1:G:7199:VAL:HG12 | 2.13                     | 0.48              |
| 1:G:7268:GLU:HG2  | 1:G:7269:PRO:HD2  | 1.96                     | 0.48              |
| 1:A:1034:LEU:HD12 | 1:A:1045:MET:HE1  | 1.94                     | 0.48              |
| 1:C:3218:GLN:HG2  | 1:C:3222:GLU:N    | 2.29                     | 0.48              |
| 2:D:4006:LYS:HZ3  | 2:D:4029:GLY:HA3  | 1.77                     | 0.48              |
| 2:H:8030:PHE:CE1  | 2:H:8035:ILE:HD12 | 2.49                     | 0.48              |
| 1:A:1088:SER:O    | 1:A:1090:ASP:OD1  | 2.32                     | 0.48              |
| 1:A:1193:PRO:CA   | 1:A:1199:VAL:HG13 | 2.43                     | 0.48              |
| 1:C:3127:SER:O    | 1:C:3128:GLU:HB3  | 2.13                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3178:ARG:C    | 1:C:3181:ARG:HB3  | 2.35                     | 0.48              |
| 1:C:3199:VAL:HG22 | 1:C:3249:VAL:O    | 2.13                     | 0.48              |
| 1:E:5052:LEU:HD23 | 1:E:5175:GLY:N    | 2.28                     | 0.48              |
| 1:G:7185:PRO:HG3  | 1:G:7208:PHE:HB3  | 1.96                     | 0.48              |
| 1:A:1017:LEU:HD22 | 2:H:8070:PHE:CA   | 2.43                     | 0.47              |
| 1:A:1103:VAL:O    | 1:A:1104:GLU:HB2  | 2.13                     | 0.47              |
| 1:A:1191:ARG:HG3  | 1:A:1274:TRP:NE1  | 2.28                     | 0.47              |
| 1:C:3026:GLY:O    | 1:C:3033:VAL:HG22 | 2.14                     | 0.47              |
| 1:C:3043:PRO:HD2  | 1:C:3064:THR:HB   | 1.96                     | 0.47              |
| 1:A:1079:MET:O    | 1:A:1082:VAL:HG13 | 2.14                     | 0.47              |
| 1:A:1110:CYS:O    | 1:A:1111:LEU:HD12 | 2.13                     | 0.47              |
| 1:A:1095:LEU:HD12 | 1:A:1117:ALA:O    | 2.13                     | 0.47              |
| 1:E:5036:PHE:CE2  | 1:E:5068:THR:HG23 | 2.48                     | 0.47              |
| 1:E:5097:TRP:NE1  | 1:E:5099:GLN:NE2  | 2.62                     | 0.47              |
| 2:B:2001:ILE:HG23 | 2:B:2002:GLN:HG3  | 1.97                     | 0.47              |
| 1:A:1228:VAL:CG1  | 1:A:1228:VAL:O    | 2.53                     | 0.47              |
| 1:C:3073:LEU:HB3  | 1:C:3077:ASN:ND2  | 2.30                     | 0.47              |
| 1:C:3268:GLU:HG3  | 1:C:3269:PRO:HD2  | 1.96                     | 0.47              |
| 1:E:5054:GLN:O    | 1:E:5056:GLU:N    | 2.46                     | 0.47              |
| 1:E:5107:ARG:HG2  | 1:E:5107:ARG:NH1  | 2.29                     | 0.47              |
| 1:E:5227:ASP:OD2  | 1:E:5227:ASP:O    | 2.32                     | 0.47              |
| 1:E:5249:VAL:HG21 | 1:E:5254:VAL:HG23 | 1.96                     | 0.47              |
| 2:H:8027:VAL:O    | 2:H:8063:TYR:HA   | 2.14                     | 0.47              |
| 1:A:1014:ARG:NH1  | 2:H:8048:LYS:HD3  | 2.29                     | 0.47              |
| 2:D:4048:LYS:O    | 2:D:4048:LYS:HG3  | 2.14                     | 0.47              |
| 1:G:7055:GLU:HG3  | 1:G:7056:GLU:N    | 2.29                     | 0.47              |
| 1:G:7079:MET:O    | 1:G:7082:VAL:HB   | 2.15                     | 0.47              |
| 1:E:5095:LEU:HD12 | 1:E:5117:ALA:C    | 2.35                     | 0.47              |
| 1:E:5170:LYS:HZ2  | 1:E:5174:LYS:CE   | 2.27                     | 0.47              |
| 1:G:7014:ARG:HG2  | 1:G:7021:TRP:HZ3  | 1.78                     | 0.47              |
| 2:H:8007:ILE:O    | 2:H:8008:GLN:HG3  | 2.15                     | 0.47              |
| 1:C:3111:LEU:HD22 | 1:C:3130:PRO:HB2  | 1.96                     | 0.47              |
| 1:A:1070:GLN:O    | 1:A:1073:LEU:HG   | 2.15                     | 0.47              |
| 1:A:1194:ARG:NH1  | 1:A:1198:ASP:O    | 2.48                     | 0.47              |
| 1:A:1009:TYR:O    | 1:A:1096:GLN:HA   | 2.14                     | 0.47              |
| 2:B:2069:GLU:HG2  | 2:B:2070:PHE:N    | 2.30                     | 0.47              |
| 2:F:6023:LEU:HD13 | 2:F:6070:PHE:CE2  | 2.50                     | 0.47              |
| 1:G:7015:PRO:HB2  | 1:G:7090:ASP:HA   | 1.97                     | 0.47              |
| 1:G:7249:VAL:HG12 | 1:G:7257:TYR:CZ   | 2.50                     | 0.47              |
| 1:A:1189:VAL:O    | 1:A:1275:GLU:OE1  | 2.32                     | 0.46              |
| 1:A:1273:ARG:CB   | 1:A:1273:ARG:NH1  | 2.78                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3218:GLN:HG2  | 1:C:3222:GLU:C    | 2.35                     | 0.46              |
| 1:E:5223:GLU:OE2  | 1:E:5223:GLU:N    | 2.49                     | 0.46              |
| 1:G:7088:SER:CB   | 1:G:7091:ASP:HB2  | 2.46                     | 0.46              |
| 1:A:1050:PRO:O    | 1:A:1054:GLN:NE2  | 2.48                     | 0.46              |
| 1:A:1006:ARG:HH21 | 1:A:1102:ASP:CG   | 2.17                     | 0.46              |
| 1:A:1274:TRP:O    | 1:A:1275:GLU:CB   | 2.62                     | 0.46              |
| 1:A:1085:TYR:OH   | 1:A:1123:LEU:HD21 | 2.15                     | 0.46              |
| 1:A:1103:VAL:HG21 | 1:A:1165:SER:CB   | 2.43                     | 0.46              |
| 1:C:3052:LEU:O    | 1:C:3053:GLU:HG3  | 2.15                     | 0.46              |
| 1:E:5014:ARG:NH2  | 1:E:5019:GLU:O    | 2.48                     | 0.46              |
| 1:A:1191:ARG:HH22 | 1:A:1199:VAL:HG21 | 1.80                     | 0.46              |
| 1:A:1254:VAL:O    | 1:A:1254:VAL:CG1  | 2.62                     | 0.46              |
| 1:C:3095:LEU:CG   | 1:C:3116:LEU:HD21 | 2.45                     | 0.46              |
| 1:C:3111:LEU:HD22 | 1:C:3130:PRO:CB   | 2.46                     | 0.46              |
| 1:C:3178:ARG:HA   | 1:C:3181:ARG:HB3  | 1.98                     | 0.46              |
| 1:E:5060:TRP:CE3  | 1:E:5060:TRP:HA   | 2.51                     | 0.46              |
| 1:E:5109:LEU:HG   | 1:E:5110:CYS:N    | 2.30                     | 0.46              |
| 1:E:5052:LEU:HA   | 1:E:5174:LYS:O    | 2.15                     | 0.46              |
| 1:A:1005:LEU:HD22 | 1:A:1167:VAL:HG12 | 1.96                     | 0.46              |
| 1:A:1194:ARG:NE   | 1:A:1200:THR:HG22 | 2.31                     | 0.46              |
| 1:C:3182:SER:OG   | 1:C:3265:GLY:CA   | 2.63                     | 0.46              |
| 1:C:3182:SER:OG   | 1:C:3265:GLY:HA2  | 2.15                     | 0.46              |
| 1:E:5012:VAL:HG22 | 1:E:5094:THR:HB   | 1.98                     | 0.46              |
| 1:G:7192:HIS:O    | 1:G:7194:ARG:N    | 2.48                     | 0.46              |
| 2:H:8016:GLU:HG3  | 2:H:8016:GLU:O    | 2.14                     | 0.46              |
| 1:A:1108:HIS:O    | 1:A:1109:LEU:CD1  | 2.58                     | 0.46              |
| 1:A:1271:THR:O    | 1:A:1271:THR:HG22 | 2.15                     | 0.46              |
| 1:C:3112:TRP:CE3  | 1:C:3161:GLU:HA   | 2.50                     | 0.46              |
| 1:A:1104:GLU:HA   | 1:A:1105:PRO:HD3  | 1.80                     | 0.46              |
| 2:B:2081:ARG:HE   | 2:B:2081:ARG:HB3  | 1.55                     | 0.46              |
| 1:C:3063:GLN:NE2  | 1:C:3171:TYR:OH   | 2.49                     | 0.46              |
| 1:E:5005:LEU:HB2  | 1:E:5168:LEU:HD13 | 1.97                     | 0.46              |
| 1:E:5014:ARG:O    | 1:E:5016:GLY:N    | 2.49                     | 0.46              |
| 1:E:5211:ALA:HB2  | 1:E:5241:PHE:CE1  | 2.51                     | 0.46              |
| 2:B:2046:ILE:HG21 | 1:G:7017:LEU:CD2  | 2.45                     | 0.46              |
| 1:C:3007:TYR:OH   | 1:C:3063:GLN:NE2  | 2.49                     | 0.46              |
| 1:C:3160:LEU:HD12 | 1:C:3163:HIS:CE1  | 2.51                     | 0.46              |
| 1:C:3224:LEU:O    | 1:C:3225:THR:O    | 2.34                     | 0.46              |
| 1:E:5223:GLU:O    | 1:E:5224:LEU:HD23 | 2.16                     | 0.46              |
| 2:F:6035:ILE:HG12 | 2:F:6036:GLU:N    | 2.31                     | 0.46              |
| 1:G:7273:ARG:O    | 1:G:7273:ARG:HG2  | 2.16                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:H:8095:TRP:CZ3  | 2:H:8097:ARG:HD2  | 2.51                     | 0.46              |
| 1:A:1201:LEU:HD12 | 1:A:1249:VAL:CG2  | 2.43                     | 0.46              |
| 2:D:4071:THR:HA   | 2:D:4072:PRO:HD2  | 1.83                     | 0.46              |
| 1:E:5019:GLU:H    | 1:E:5019:GLU:HG3  | 1.54                     | 0.46              |
| 1:E:5231:VAL:CG2  | 1:E:5244:TRP:H    | 2.29                     | 0.46              |
| 2:F:6040:LEU:HA   | 2:F:6044:GLU:O    | 2.16                     | 0.46              |
| 1:G:7073:LEU:O    | 1:G:7077:ASN:ND2  | 2.49                     | 0.46              |
| 1:A:1107:ARG:O    | 1:A:1107:ARG:HD3  | 2.16                     | 0.45              |
| 1:C:3005:LEU:HD12 | 1:C:3028:VAL:HG22 | 1.97                     | 0.45              |
| 1:C:3060:TRP:O    | 1:C:3064:THR:HG23 | 2.15                     | 0.45              |
| 1:C:3218:GLN:HG2  | 1:C:3222:GLU:H    | 1.81                     | 0.45              |
| 1:E:5082:VAL:O    | 1:E:5086:ASN:N    | 2.49                     | 0.45              |
| 1:A:1040:GLU:HG3  | 1:A:1041:GLU:N    | 2.31                     | 0.45              |
| 1:A:1108:HIS:O    | 1:A:1109:LEU:CB   | 2.64                     | 0.45              |
| 2:B:2040:LEU:HD11 | 2:B:2081:ARG:HB2  | 1.99                     | 0.45              |
| 1:E:5010:THR:O    | 1:E:5022:PHE:HA   | 2.15                     | 0.45              |
| 2:F:6009:VAL:HG23 | 2:F:6093:VAL:HG12 | 1.98                     | 0.45              |
| 1:G:7061:GLU:O    | 1:G:7065:HIS:ND1  | 2.48                     | 0.45              |
| 1:G:7080:THR:OG1  | 1:G:7081:LEU:N    | 2.50                     | 0.45              |
| 1:G:7172:LEU:N    | 1:G:7172:LEU:HD23 | 2.31                     | 0.45              |
| 1:G:7172:LEU:O    | 1:G:7176:LYS:N    | 2.49                     | 0.45              |
| 1:A:1014:ARG:HH12 | 2:H:8048:LYS:HZ2  | 1.63                     | 0.45              |
| 2:B:2003:ARG:HH12 | 2:B:2061:SER:CA   | 2.29                     | 0.45              |
| 1:C:3215:LEU:HB3  | 1:C:3243:LYS:HZ3  | 1.82                     | 0.45              |
| 1:E:5163:HIS:O    | 1:E:5167:VAL:HG23 | 2.16                     | 0.45              |
| 2:F:6017:ASN:HA   | 2:F:6072:PRO:O    | 2.16                     | 0.45              |
| 1:G:7007:TYR:OH   | 1:G:7063:GLN:NE2  | 2.49                     | 0.45              |
| 1:G:7069:ILE:HG22 | 1:G:7070:GLN:N    | 2.31                     | 0.45              |
| 1:A:1090:ASP:OD1  | 1:A:1091:ASP:N    | 2.49                     | 0.45              |
| 1:A:1191:ARG:HD2  | 1:A:1201:LEU:HD21 | 1.99                     | 0.45              |
| 1:A:1238:ASP:OD1  | 1:A:1238:ASP:N    | 2.50                     | 0.45              |
| 1:E:5174:LYS:HA   | 1:E:5174:LYS:HD3  | 1.78                     | 0.45              |
| 1:A:1194:ARG:NH2  | 1:A:1198:ASP:HB3  | 2.31                     | 0.45              |
| 1:C:3234:ARG:NH1  | 1:C:3242:GLN:OE1  | 2.50                     | 0.45              |
| 2:D:4091:LYS:HA   | 2:D:4091:LYS:HD2  | 1.50                     | 0.45              |
| 2:D:4096:ASP:OD2  | 2:D:4097:ARG:N    | 2.50                     | 0.45              |
| 1:E:5192:HIS:CD2  | 1:E:5192:HIS:N    | 2.82                     | 0.45              |
| 1:E:5234:ARG:HB3  | 2:F:6026:TYR:CD2  | 2.52                     | 0.45              |
| 1:E:5268:GLU:CD   | 1:E:5269:PRO:HD2  | 2.36                     | 0.45              |
| 1:G:7165:SER:O    | 1:G:7169:GLN:NE2  | 2.45                     | 0.45              |
| 1:G:7271:THR:HG22 | 1:G:7272:LEU:N    | 2.31                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3014:ARG:O    | 1:C:3016:GLY:N    | 2.50                     | 0.45              |
| 1:E:5067:VAL:HA   | 1:E:5070:GLN:HB2  | 1.98                     | 0.45              |
| 2:F:6059:ASP:O    | 2:F:6060:TRP:HB2  | 2.17                     | 0.45              |
| 1:G:7028:VAL:HG23 | 1:G:7033:VAL:CG2  | 2.46                     | 0.45              |
| 1:A:1103:VAL:HG12 | 1:A:1104:GLU:N    | 2.29                     | 0.45              |
| 1:A:1191:ARG:HD2  | 1:A:1201:LEU:HD23 | 1.99                     | 0.45              |
| 1:A:1249:VAL:HG22 | 1:A:1257:TYR:CE2  | 2.51                     | 0.45              |
| 1:C:3004:SER:HB2  | 1:C:3006:ARG:NH1  | 2.32                     | 0.45              |
| 1:C:3034:LEU:HD12 | 1:C:3043:PRO:CB   | 2.47                     | 0.45              |
| 1:C:3115:GLN:O    | 1:C:3116:LEU:HB2  | 2.16                     | 0.45              |
| 1:E:5199:VAL:HG12 | 1:E:5200:THR:N    | 2.32                     | 0.45              |
| 1:E:5201:LEU:HD11 | 1:E:5249:VAL:HG21 | 1.99                     | 0.45              |
| 1:G:7073:LEU:HB3  | 1:G:7077:ASN:ND2  | 2.31                     | 0.45              |
| 1:G:7095:LEU:HD11 | 1:G:7116:LEU:CD2  | 2.46                     | 0.45              |
| 1:G:7215:LEU:HB3  | 1:G:7243:LYS:HZ1  | 1.82                     | 0.45              |
| 2:F:6021:ASN:N    | 2:F:6070:PHE:O    | 2.50                     | 0.45              |
| 1:A:1115:GLN:HB2  | 1:A:1115:GLN:HE21 | 1.53                     | 0.45              |
| 2:B:2058:LYS:HE2  | 2:B:2058:LYS:HB3  | 1.44                     | 0.45              |
| 1:C:3014:ARG:NH2  | 1:C:3017:LEU:O    | 2.50                     | 0.45              |
| 1:C:3246:ALA:O    | 1:C:3247:VAL:CG1  | 2.63                     | 0.45              |
| 2:D:4023:LEU:O    | 2:D:4067:TYR:HA   | 2.17                     | 0.45              |
| 2:D:4027:VAL:HG22 | 2:D:4064:LEU:O    | 2.17                     | 0.45              |
| 1:G:7102:ASP:N    | 1:G:7102:ASP:OD1  | 2.50                     | 0.45              |
| 1:A:1234:ARG:NH1  | 1:A:1242:GLN:OE1  | 2.50                     | 0.44              |
| 1:C:3055:GLU:O    | 1:C:3055:GLU:OE2  | 2.35                     | 0.44              |
| 1:C:3077:ASN:O    | 1:C:3081:LEU:HB2  | 2.16                     | 0.44              |
| 2:D:4012:ARG:HD3  | 2:D:4022:PHE:HB2  | 1.99                     | 0.44              |
| 1:E:5190:THR:HB   | 1:E:5192:HIS:CE1  | 2.53                     | 0.44              |
| 2:F:6008:GLN:NE2  | 2:F:6026:TYR:O    | 2.50                     | 0.44              |
| 2:H:8035:ILE:HG13 | 2:H:8084:HIS:HD2  | 1.81                     | 0.44              |
| 2:F:6056:PHE:HA   | 2:F:6062:PHE:HA   | 2.00                     | 0.44              |
| 1:G:7169:GLN:O    | 1:G:7173:GLU:HG3  | 2.16                     | 0.44              |
| 1:A:1017:LEU:HD21 | 2:H:8071:THR:OG1  | 2.17                     | 0.44              |
| 1:A:1109:LEU:HD12 | 1:A:1109:LEU:HA   | 1.79                     | 0.44              |
| 1:C:3102:ASP:OD1  | 1:C:3102:ASP:N    | 2.49                     | 0.44              |
| 1:E:5199:VAL:HG22 | 1:E:5251:LEU:HD23 | 1.98                     | 0.44              |
| 1:G:7014:ARG:HD2  | 1:G:7019:GLU:O    | 2.17                     | 0.44              |
| 1:G:7045:MET:HB3  | 1:G:7052:LEU:HD12 | 1.99                     | 0.44              |
| 2:H:8059:ASP:OD1  | 2:H:8059:ASP:N    | 2.45                     | 0.44              |
| 1:A:1035:ARG:HH12 | 1:A:1044:ARG:NH1  | 2.15                     | 0.44              |
| 1:A:1268:GLU:CD   | 1:A:1269:PRO:HD2  | 2.38                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3221:GLY:O    | 1:C:3222:GLU:HB2  | 2.17                     | 0.44              |
| 1:E:5052:LEU:HD22 | 1:E:5174:LYS:CB   | 2.42                     | 0.44              |
| 2:F:6023:LEU:O    | 2:F:6067:TYR:HA   | 2.18                     | 0.44              |
| 2:B:2085:VAL:HG12 | 2:H:8044:GLU:HG2  | 1.99                     | 0.44              |
| 1:C:3112:TRP:CZ3  | 1:C:3161:GLU:HA   | 2.52                     | 0.44              |
| 1:C:3194:ARG:HH11 | 1:C:3198:ASP:HB3  | 1.82                     | 0.44              |
| 2:H:8096:ASP:HB3  | 2:H:8099:MET:HB3  | 1.99                     | 0.44              |
| 1:A:1061:GLU:C    | 1:A:1064:THR:HG22 | 2.38                     | 0.44              |
| 1:A:1076:ARG:NH1  | 1:A:1076:ARG:HG2  | 2.33                     | 0.44              |
| 1:A:1078:LEU:O    | 1:A:1081:LEU:N    | 2.49                     | 0.44              |
| 1:A:1128:GLU:OE2  | 1:A:1131:SER:HB3  | 2.18                     | 0.44              |
| 2:B:2038:ASP:OD2  | 2:H:8036:GLU:OE2  | 2.35                     | 0.44              |
| 1:C:3011:ALA:HA   | 1:C:3021:TRP:O    | 2.17                     | 0.44              |
| 1:C:3111:LEU:CB   | 1:C:3130:PRO:HB3  | 2.48                     | 0.44              |
| 1:C:3263:HIS:CB   | 1:C:3266:LEU:HD12 | 2.47                     | 0.44              |
| 2:F:6001:ILE:HD13 | 2:F:6001:ILE:C    | 2.38                     | 0.44              |
| 1:A:1039:LYS:CE   | 1:A:1039:LYS:O    | 2.66                     | 0.44              |
| 2:B:2007:ILE:CD1  | 2:B:2082:VAL:HG21 | 2.48                     | 0.44              |
| 2:B:2006:LYS:HD2  | 2:B:2029:GLY:HA3  | 2.00                     | 0.44              |
| 1:C:3188:HIS:O    | 1:C:3204:TRP:HB2  | 2.17                     | 0.44              |
| 1:E:5096:GLN:NE2  | 2:F:6056:PHE:CG   | 2.86                     | 0.44              |
| 2:F:6073:THR:HG22 | 2:F:6076:ASP:H    | 1.82                     | 0.44              |
| 1:C:3071:GLY:O    | 1:C:3074:SER:HB3  | 2.17                     | 0.44              |
| 1:E:5188:HIS:HE1  | 1:E:5206:LEU:HD11 | 1.83                     | 0.44              |
| 1:E:5249:VAL:HG12 | 1:E:5250:PRO:O    | 2.18                     | 0.44              |
| 1:G:7005:LEU:HD13 | 1:G:7028:VAL:HG22 | 1.99                     | 0.44              |
| 2:H:8053:ASP:N    | 2:H:8053:ASP:OD1  | 2.50                     | 0.44              |
| 1:C:3103:VAL:HG21 | 1:C:3165:SER:HA   | 1.99                     | 0.43              |
| 1:C:3103:VAL:HG11 | 1:C:3165:SER:HB2  | 1.99                     | 0.43              |
| 2:H:8038:ASP:OD1  | 2:H:8045:ARG:NH1  | 2.51                     | 0.43              |
| 1:A:1079:MET:HB3  | 1:A:1079:MET:HE3  | 1.87                     | 0.43              |
| 1:C:3196:GLU:O    | 1:C:3198:ASP:N    | 2.50                     | 0.43              |
| 1:E:5066:ILE:O    | 1:E:5070:GLN:CG   | 2.58                     | 0.43              |
| 1:E:5194:ARG:HA   | 1:E:5195:PRO:HD3  | 1.85                     | 0.43              |
| 1:A:1061:GLU:CA   | 1:A:1064:THR:HG22 | 2.48                     | 0.43              |
| 1:A:1273:ARG:O    | 1:A:1276:PRO:HD2  | 2.18                     | 0.43              |
| 2:B:2019:LYS:HA   | 2:B:2019:LYS:HD3  | 1.88                     | 0.43              |
| 1:G:7054:GLN:OE1  | 1:G:7055:GLU:N    | 2.33                     | 0.43              |
| 2:H:8007:ILE:HD12 | 2:H:8082:VAL:HG21 | 1.97                     | 0.43              |
| 1:A:1215:LEU:HD23 | 1:A:1215:LEU:HA   | 1.90                     | 0.43              |
| 1:C:3035:ARG:HG3  | 1:C:3036:PHE:N    | 2.32                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:E:5258:THR:CG2  | 1:E:5273:ARG:HG2  | 2.48                     | 0.43              |
| 1:G:7040:GLU:O    | 1:G:7041:GLU:OE2  | 2.36                     | 0.43              |
| 1:G:7064:THR:O    | 1:G:7068:THR:OG1  | 2.19                     | 0.43              |
| 1:A:1191:ARG:CG   | 1:A:1274:TRP:NE1  | 2.81                     | 0.43              |
| 2:D:4051:HIS:HA   | 2:D:4065:LEU:O    | 2.19                     | 0.43              |
| 1:G:7111:LEU:HB3  | 1:G:7130:PRO:HB3  | 2.00                     | 0.43              |
| 1:A:1006:ARG:HG3  | 1:A:1006:ARG:NH1  | 2.34                     | 0.43              |
| 1:C:3073:LEU:CD2  | 1:C:3076:ARG:NH1  | 2.81                     | 0.43              |
| 1:E:5023:ILE:O    | 1:E:5023:ILE:HG23 | 2.19                     | 0.43              |
| 2:F:6051:HIS:ND1  | 2:F:6051:HIS:N    | 2.67                     | 0.43              |
| 1:A:1015:PRO:HG3  | 1:A:1091:ASP:O    | 2.19                     | 0.43              |
| 1:A:1191:ARG:HH22 | 1:A:1251:LEU:HD12 | 1.84                     | 0.43              |
| 1:E:5118:TYR:HB2  | 1:E:5123:LEU:HD11 | 2.01                     | 0.43              |
| 1:G:7266:LEU:HA   | 1:G:7267:PRO:HD3  | 1.87                     | 0.43              |
| 1:A:1035:ARG:CZ   | 1:A:1044:ARG:HD2  | 2.48                     | 0.43              |
| 1:A:1199:VAL:HG21 | 1:A:1251:LEU:HD12 | 2.00                     | 0.43              |
| 2:B:2005:PRO:HB3  | 2:B:2030:PHE:HB3  | 2.01                     | 0.43              |
| 1:G:7184:PRO:HA   | 1:G:7185:PRO:HD3  | 1.76                     | 0.43              |
| 1:A:1011:ALA:CB   | 1:A:1074:SER:HB2  | 2.49                     | 0.43              |
| 1:C:3095:LEU:CD1  | 1:C:3116:LEU:HD21 | 2.48                     | 0.43              |
| 1:E:5203:CYS:O    | 1:E:5244:TRP:HA   | 2.18                     | 0.43              |
| 1:A:1009:TYR:HB3  | 1:A:1097:TRP:HB3  | 2.01                     | 0.43              |
| 1:A:1128:GLU:CD   | 1:A:1130:PRO:HD2  | 2.40                     | 0.43              |
| 1:A:1189:VAL:HG12 | 1:A:1190:THR:N    | 2.32                     | 0.43              |
| 1:A:1215:LEU:HD23 | 1:A:1260:HIS:O    | 2.19                     | 0.43              |
| 1:C:3238:ASP:OD1  | 1:C:3238:ASP:N    | 2.50                     | 0.43              |
| 1:E:5074:SER:OG   | 1:E:5075:GLU:N    | 2.50                     | 0.43              |
| 2:F:6005:PRO:HB2  | 2:F:6027:VAL:HG13 | 1.99                     | 0.43              |
| 1:G:7112:TRP:CE2  | 1:G:7161:GLU:HB2  | 2.54                     | 0.43              |
| 1:G:7234:ARG:HB3  | 2:H:8026:TYR:CE2  | 2.54                     | 0.43              |
| 1:A:1180:LEU:N    | 1:A:1180:LEU:HD12 | 2.34                     | 0.42              |
| 1:C:3009:TYR:OH   | 1:C:3074:SER:HB3  | 2.19                     | 0.42              |
| 1:C:3073:LEU:CG   | 1:C:3076:ARG:NH1  | 2.80                     | 0.42              |
| 1:E:5028:VAL:O    | 1:E:5029:ASP:HB2  | 2.19                     | 0.42              |
| 2:H:8052:SER:O    | 2:H:8064:LEU:HD22 | 2.18                     | 0.42              |
| 1:A:1172:LEU:HD22 | 1:A:1180:LEU:HD11 | 2.01                     | 0.42              |
| 1:A:1199:VAL:HG12 | 1:A:1200:THR:N    | 2.33                     | 0.42              |
| 1:E:5014:ARG:HB2  | 1:E:5017:LEU:HB2  | 2.01                     | 0.42              |
| 1:E:5199:VAL:CG2  | 1:E:5251:LEU:HD23 | 2.48                     | 0.42              |
| 2:F:6007:ILE:N    | 2:F:6007:ILE:CD1  | 2.82                     | 0.42              |
| 1:G:7192:HIS:HA   | 1:G:7193:PRO:HD2  | 1.86                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1229:GLU:N    | 1:A:1246:ALA:O    | 2.43                     | 0.42              |
| 1:E:5228:VAL:O    | 1:E:5228:VAL:CG1  | 2.63                     | 0.42              |
| 1:A:1011:ALA:HB1  | 1:A:1074:SER:HB2  | 2.00                     | 0.42              |
| 2:B:2005:PRO:CA   | 2:B:2030:PHE:HB3  | 2.50                     | 0.42              |
| 2:B:2007:ILE:HD13 | 2:B:2082:VAL:HG21 | 2.00                     | 0.42              |
| 1:C:3208:PHE:HB2  | 1:C:3263:HIS:NE2  | 2.35                     | 0.42              |
| 1:E:5234:ARG:HD3  | 2:F:6010:TYR:CE2  | 2.54                     | 0.42              |
| 1:E:5096:GLN:HB3  | 2:F:6056:PHE:CE2  | 2.54                     | 0.42              |
| 1:G:7053:GLU:OE2  | 1:G:7174:LYS:HA   | 2.19                     | 0.42              |
| 1:G:7243:LYS:HB3  | 1:G:7243:LYS:HE3  | 1.51                     | 0.42              |
| 2:H:8082:VAL:N    | 2:H:8091:LYS:O    | 2.50                     | 0.42              |
| 1:A:1073:LEU:N    | 1:A:1073:LEU:HD23 | 2.35                     | 0.42              |
| 2:B:2045:ARG:O    | 2:H:8034:ASP:OD2  | 2.37                     | 0.42              |
| 1:C:3217:TRP:O    | 1:C:3218:GLN:HG3  | 2.18                     | 0.42              |
| 1:E:5111:LEU:HB3  | 1:E:5113:TYR:CE1  | 2.54                     | 0.42              |
| 1:E:5266:LEU:HA   | 1:E:5267:PRO:HD3  | 1.85                     | 0.42              |
| 1:G:7031:MET:CE   | 1:G:7178:ARG:HB3  | 2.50                     | 0.42              |
| 1:G:7055:GLU:O    | 1:G:7056:GLU:HB2  | 2.19                     | 0.42              |
| 1:G:7236:ALA:O    | 2:H:8012:ARG:HD2  | 2.19                     | 0.42              |
| 1:A:1072:GLN:C    | 1:A:1073:LEU:HD23 | 2.39                     | 0.42              |
| 1:E:5010:THR:HB   | 1:E:5023:ILE:CG2  | 2.49                     | 0.42              |
| 1:E:5052:LEU:HD23 | 1:E:5175:GLY:CA   | 2.49                     | 0.42              |
| 1:E:5009:TYR:CB   | 1:E:5097:TRP:HB3  | 2.47                     | 0.42              |
| 1:G:7035:ARG:HG3  | 1:G:7036:PHE:N    | 2.34                     | 0.42              |
| 1:G:7109:LEU:HG   | 1:G:7110:CYS:N    | 2.34                     | 0.42              |
| 2:H:8039:LEU:O    | 2:H:8045:ARG:HA   | 2.18                     | 0.42              |
| 2:B:2058:LYS:HG2  | 2:B:2058:LYS:H    | 1.41                     | 0.42              |
| 1:C:3184:PRO:HA   | 1:C:3185:PRO:HD3  | 1.82                     | 0.42              |
| 1:C:3228:VAL:HA   | 1:C:3247:VAL:CG1  | 2.50                     | 0.42              |
| 1:E:5052:LEU:HD23 | 1:E:5175:GLY:HA3  | 2.02                     | 0.42              |
| 2:D:4075:LYS:H    | 2:D:4075:LYS:HD3  | 1.84                     | 0.42              |
| 2:D:4091:LYS:HD2  | 2:D:4092:ILE:N    | 2.35                     | 0.42              |
| 1:E:5175:GLY:O    | 1:E:5179:LEU:HG   | 2.20                     | 0.42              |
| 2:H:8030:PHE:CD1  | 2:H:8035:ILE:HD12 | 2.55                     | 0.42              |
| 1:A:1014:ARG:NH1  | 2:H:8048:LYS:NZ   | 2.68                     | 0.42              |
| 2:H:8071:THR:HA   | 2:H:8072:PRO:HD2  | 1.94                     | 0.42              |
| 2:H:8096:ASP:CG   | 2:H:8099:MET:HB3  | 2.40                     | 0.42              |
| 1:C:3234:ARG:N    | 1:C:3242:GLN:O    | 2.53                     | 0.42              |
| 1:A:1219:LYS:O    | 1:A:1220:ASP:HB2  | 2.20                     | 0.41              |
| 1:A:1249:VAL:HG12 | 1:A:1254:VAL:HG22 | 1.96                     | 0.41              |
| 1:C:3014:ARG:HG2  | 1:C:3014:ARG:HH11 | 1.85                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:E:5036:PHE:HE2  | 1:E:5068:THR:HG23 | 1.85                     | 0.41              |
| 1:G:7081:LEU:O    | 1:G:7085:TYR:HD2  | 2.03                     | 0.41              |
| 1:A:1274:TRP:C    | 1:A:1276:PRO:HD3  | 2.41                     | 0.41              |
| 1:C:3111:LEU:CD1  | 1:C:3130:PRO:HB3  | 2.44                     | 0.41              |
| 1:E:5049:ALA:HB3  | 1:E:5052:LEU:HD12 | 2.02                     | 0.41              |
| 1:E:5242:GLN:O    | 1:E:5243:LYS:HB2  | 2.20                     | 0.41              |
| 1:C:3031:MET:CE   | 1:C:3178:ARG:HD3  | 2.50                     | 0.41              |
| 1:G:7005:LEU:CD1  | 1:G:7028:VAL:HG22 | 2.50                     | 0.41              |
| 1:G:7103:VAL:HG12 | 1:G:7104:GLU:N    | 2.33                     | 0.41              |
| 1:A:1069:ILE:O    | 1:A:1073:LEU:CD2  | 2.64                     | 0.41              |
| 1:A:1266:LEU:HA   | 1:A:1267:PRO:HD3  | 1.85                     | 0.41              |
| 2:B:2036:GLU:OE1  | 2:H:8038:ASP:OD2  | 2.38                     | 0.41              |
| 1:C:3231:VAL:HG13 | 1:C:3244:TRP:CZ2  | 2.56                     | 0.41              |
| 1:C:3249:VAL:HG13 | 1:C:3250:PRO:HD2  | 2.02                     | 0.41              |
| 1:E:5060:TRP:CZ3  | 1:E:5170:LYS:HD3  | 2.55                     | 0.41              |
| 2:H:8097:ARG:HE   | 2:H:8097:ARG:HB3  | 1.80                     | 0.41              |
| 1:A:1111:LEU:HD23 | 1:A:1113:TYR:CZ   | 2.55                     | 0.41              |
| 1:C:3014:ARG:CZ   | 1:C:3017:LEU:HD12 | 2.49                     | 0.41              |
| 1:E:5064:THR:O    | 1:E:5068:THR:OG1  | 2.36                     | 0.41              |
| 1:E:5194:ARG:O    | 1:E:5196:GLU:N    | 2.50                     | 0.41              |
| 1:G:7025:VAL:CG2  | 2:H:8053:ASP:HB2  | 2.51                     | 0.41              |
| 2:B:2041:LYS:O    | 2:B:2042:ASN:HB2  | 2.20                     | 0.41              |
| 1:C:3117:ALA:HB2  | 2:D:4060:TRP:CE2  | 2.55                     | 0.41              |
| 1:E:5077:ASN:HA   | 1:E:5077:ASN:HD22 | 1.57                     | 0.41              |
| 1:E:5104:GLU:HB3  | 1:E:5109:LEU:CB   | 2.51                     | 0.41              |
| 1:E:5118:TYR:O    | 1:E:5119:ASP:HB2  | 2.20                     | 0.41              |
| 1:E:5062:GLN:OE1  | 1:E:5163:HIS:CD2  | 2.74                     | 0.41              |
| 2:F:6069:GLU:HG2  | 2:F:6070:PHE:N    | 2.36                     | 0.41              |
| 1:C:3014:ARG:HH21 | 1:C:3018:GLY:CA   | 2.12                     | 0.41              |
| 1:C:3122:ASP:O    | 1:C:3123:LEU:HD23 | 2.20                     | 0.41              |
| 2:D:4003:ARG:HH11 | 2:D:4061:SER:HB3  | 1.86                     | 0.41              |
| 2:D:4059:ASP:O    | 2:D:4060:TRP:HB2  | 2.20                     | 0.41              |
| 1:E:5097:TRP:CE2  | 1:E:5099:GLN:NE2  | 2.89                     | 0.41              |
| 1:A:1014:ARG:NH1  | 2:H:8048:LYS:HZ2  | 2.18                     | 0.41              |
| 2:H:8048:LYS:O    | 2:H:8049:VAL:HG23 | 2.21                     | 0.41              |
| 1:A:1079:MET:HA   | 1:A:1082:VAL:CG1  | 2.51                     | 0.41              |
| 2:B:2003:ARG:HH12 | 2:B:2061:SER:HA   | 1.85                     | 0.41              |
| 1:C:3167:VAL:O    | 1:C:3167:VAL:HG12 | 2.19                     | 0.41              |
| 2:D:4050:GLU:HB2  | 2:D:4067:TYR:CZ   | 2.55                     | 0.41              |
| 2:D:4056:PHE:HA   | 2:D:4062:PHE:HA   | 2.03                     | 0.41              |
| 1:C:3122:ASP:CG   | 2:D:4060:TRP:HE1  | 2.23                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:E:5066:ILE:O    | 1:E:5066:ILE:HG22 | 2.21                     | 0.41              |
| 1:E:5255:GLN:HB3  | 1:E:5255:GLN:HE21 | 1.61                     | 0.41              |
| 1:G:7215:LEU:HD11 | 1:G:7259:CYS:SG   | 2.61                     | 0.41              |
| 1:G:7225:THR:O    | 1:G:7225:THR:HG22 | 2.20                     | 0.41              |
| 2:B:2095:TRP:CZ2  | 2:B:2097:ARG:HA   | 2.55                     | 0.41              |
| 1:C:3222:GLU:O    | 1:C:3223:GLU:O    | 2.39                     | 0.41              |
| 2:F:6016:GLU:HB3  | 2:F:6019:LYS:CD   | 2.47                     | 0.41              |
| 1:G:7205:ALA:O    | 1:G:7206:LEU:HD23 | 2.21                     | 0.41              |
| 1:A:1128:GLU:OE2  | 1:A:1131:SER:CB   | 2.69                     | 0.41              |
| 1:C:3027:TYR:HA   | 1:C:3031:MET:O    | 2.21                     | 0.41              |
| 1:C:3198:ASP:OD2  | 1:C:3248:VAL:HB   | 2.21                     | 0.41              |
| 1:E:5104:GLU:HB3  | 1:E:5109:LEU:HD22 | 2.03                     | 0.41              |
| 1:E:5128:GLU:CG   | 1:E:5131:SER:HB2  | 2.50                     | 0.41              |
| 1:A:1060:TRP:HA   | 1:A:1063:GLN:HG3  | 2.02                     | 0.41              |
| 1:A:1117:ALA:HB2  | 2:B:2060:TRP:CE2  | 2.56                     | 0.41              |
| 2:B:2036:GLU:HG2  | 2:B:2081:ARG:HH22 | 1.86                     | 0.41              |
| 2:B:2035:ILE:CD1  | 2:B:2083:ASN:O    | 2.59                     | 0.41              |
| 1:C:3012:VAL:HG12 | 1:C:3013:SER:N    | 2.36                     | 0.41              |
| 1:C:3042:THR:HA   | 1:C:3043:PRO:HD3  | 1.90                     | 0.41              |
| 1:C:3269:PRO:O    | 1:C:3270:LEU:HD13 | 2.21                     | 0.41              |
| 1:G:7167:VAL:O    | 1:G:7170:LYS:N    | 2.50                     | 0.41              |
| 1:A:1035:ARG:HH12 | 1:A:1044:ARG:CZ   | 2.34                     | 0.40              |
| 1:E:5191:ARG:HG2  | 1:E:5191:ARG:HH11 | 1.85                     | 0.40              |
| 1:E:5231:VAL:HG23 | 1:E:5243:LYS:HG3  | 2.02                     | 0.40              |
| 1:E:5187:ALA:HB3  | 1:E:5272:LEU:HD21 | 2.03                     | 0.40              |
| 1:A:1100:ASP:O    | 1:A:1113:TYR:HD1  | 2.04                     | 0.40              |
| 1:C:3096:GLN:NE2  | 2:D:4031:HIS:CD2  | 2.90                     | 0.40              |
| 1:G:7260:HIS:CD2  | 1:G:7260:HIS:N    | 2.90                     | 0.40              |
| 1:A:1059:ASP:N    | 1:A:1170:LYS:NZ   | 2.67                     | 0.40              |
| 1:C:3233:THR:HA   | 1:C:3242:GLN:O    | 2.20                     | 0.40              |
| 1:C:3274:TRP:O    | 1:C:3275:GLU:O    | 2.40                     | 0.40              |
| 1:E:5053:GLU:OE1  | 1:E:5053:GLU:HA   | 2.21                     | 0.40              |
| 1:E:5060:TRP:CH2  | 1:E:5170:LYS:HE3  | 2.56                     | 0.40              |
| 1:E:5200:THR:HG22 | 1:E:5201:LEU:N    | 2.36                     | 0.40              |
| 2:B:2033:SER:O    | 2:B:2035:ILE:N    | 2.54                     | 0.40              |
| 1:E:5125:THR:C    | 1:E:5126:LEU:HD22 | 2.42                     | 0.40              |
| 1:G:7189:VAL:HG23 | 1:G:7272:LEU:CD1  | 2.37                     | 0.40              |
| 1:G:7260:HIS:HA   | 1:G:7270:LEU:O    | 2.22                     | 0.40              |
| 1:A:1201:LEU:HD21 | 1:A:1254:VAL:HG11 | 2.02                     | 0.40              |
| 2:H:8086:THR:O    | 2:H:8087:LEU:HD23 | 2.22                     | 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     | 242/260 (93%)   | 181 (75%)  | 37 (15%)  | 24 (10%) | 0           | 0  |
| 1   | C     | 242/260 (93%)   | 180 (74%)  | 40 (16%)  | 22 (9%)  | 1           | 0  |
| 1   | E     | 243/260 (94%)   | 192 (79%)  | 39 (16%)  | 12 (5%)  | 2           | 2  |
| 1   | G     | 239/260 (92%)   | 178 (74%)  | 34 (14%)  | 27 (11%) | 0           | 0  |
| 2   | B     | 97/99 (98%)     | 89 (92%)   | 5 (5%)    | 3 (3%)   | 4           | 5  |
| 2   | D     | 97/99 (98%)     | 85 (88%)   | 11 (11%)  | 1 (1%)   | 15          | 28 |
| 2   | F     | 97/99 (98%)     | 86 (89%)   | 9 (9%)    | 2 (2%)   | 7           | 11 |
| 2   | H     | 97/99 (98%)     | 84 (87%)   | 11 (11%)  | 2 (2%)   | 7           | 11 |
| All | All   | 1354/1436 (94%) | 1075 (79%) | 186 (14%) | 93 (7%)  | 1           | 1  |

All (93) Ramachandran outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1052 | LEU  |
| 1   | A     | 1054 | GLN  |
| 1   | A     | 1057 | ALA  |
| 1   | A     | 1088 | SER  |
| 1   | A     | 1100 | ASP  |
| 1   | A     | 1109 | LEU  |
| 1   | A     | 1132 | SER  |
| 1   | A     | 1275 | GLU  |
| 1   | C     | 3015 | PRO  |
| 1   | C     | 3114 | ASN  |
| 1   | C     | 3126 | LEU  |
| 1   | C     | 3130 | PRO  |
| 1   | C     | 3197 | GLY  |
| 1   | C     | 3223 | GLU  |
| 1   | C     | 3247 | VAL  |
| 1   | E     | 5052 | LEU  |
| 1   | E     | 5100 | ASP  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | E            | 5131       | SER         |
| 1          | E            | 5223       | GLU         |
| 1          | G            | 7132       | SER         |
| 1          | G            | 7220       | ASP         |
| 1          | G            | 7223       | GLU         |
| 1          | G            | 7225       | THR         |
| 1          | A            | 1023       | ILE         |
| 1          | A            | 1029       | ASP         |
| 1          | A            | 1059       | ASP         |
| 1          | A            | 1108       | HIS         |
| 1          | A            | 1128       | GLU         |
| 1          | A            | 1131       | SER         |
| 1          | A            | 1251       | LEU         |
| 2          | B            | 2034       | ASP         |
| 2          | B            | 2057       | SER         |
| 1          | C            | 3029       | ASP         |
| 1          | C            | 3108       | HIS         |
| 1          | C            | 3248       | VAL         |
| 2          | F            | 6034       | ASP         |
| 1          | G            | 7056       | GLU         |
| 1          | G            | 7057       | ALA         |
| 1          | G            | 7058       | ASP         |
| 1          | G            | 7059       | ASP         |
| 1          | G            | 7086       | ASN         |
| 1          | G            | 7088       | SER         |
| 1          | G            | 7110       | CYS         |
| 1          | G            | 7131       | SER         |
| 1          | G            | 7226       | GLN         |
| 1          | G            | 7248       | VAL         |
| 2          | H            | 8034       | ASP         |
| 1          | A            | 1104       | GLU         |
| 1          | A            | 1126       | LEU         |
| 1          | A            | 1127       | SER         |
| 1          | A            | 1129       | ASN         |
| 1          | A            | 1243       | LYS         |
| 1          | A            | 1269       | PRO         |
| 1          | C            | 3116       | LEU         |
| 1          | C            | 3128       | GLU         |
| 1          | C            | 3224       | LEU         |
| 1          | C            | 3275       | GLU         |
| 1          | E            | 5015       | PRO         |
| 1          | E            | 5074       | SER         |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | G     | 7015 | PRO  |
| 1   | G     | 7084 | PHE  |
| 1   | G     | 7107 | ARG  |
| 1   | G     | 7193 | PRO  |
| 1   | G     | 7224 | LEU  |
| 1   | A     | 1105 | PRO  |
| 1   | A     | 1120 | SER  |
| 2   | B     | 2068 | THR  |
| 1   | C     | 3039 | LYS  |
| 1   | C     | 3110 | CYS  |
| 1   | C     | 3198 | ASP  |
| 1   | C     | 3243 | LYS  |
| 1   | C     | 3269 | PRO  |
| 2   | D     | 4047 | GLU  |
| 1   | E     | 5055 | GLU  |
| 1   | E     | 5056 | GLU  |
| 1   | E     | 5128 | GLU  |
| 1   | E     | 5129 | ASN  |
| 1   | E     | 5196 | GLU  |
| 1   | G     | 7040 | GLU  |
| 1   | G     | 7104 | GLU  |
| 1   | A     | 1055 | GLU  |
| 1   | C     | 3054 | GLN  |
| 1   | C     | 3129 | ASN  |
| 1   | G     | 7052 | LEU  |
| 1   | G     | 7054 | GLN  |
| 1   | G     | 7055 | GLU  |
| 1   | G     | 7100 | ASP  |
| 2   | H     | 8097 | ARG  |
| 1   | E     | 5106 | ASP  |
| 2   | F     | 6020 | SER  |
| 1   | C     | 3195 | PRO  |
| 1   | G     | 7167 | VAL  |
| 1   | G     | 7199 | VAL  |

### 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     | 223/235 (95%)   | 167 (75%) | 56 (25%)  | 0           | 1 |
| 1   | C     | 219/235 (93%)   | 174 (80%) | 45 (20%)  | 1           | 2 |
| 1   | E     | 222/235 (94%)   | 175 (79%) | 47 (21%)  | 1           | 2 |
| 1   | G     | 218/235 (93%)   | 163 (75%) | 55 (25%)  | 0           | 1 |
| 2   | B     | 94/94 (100%)    | 79 (84%)  | 15 (16%)  | 2           | 4 |
| 2   | D     | 94/94 (100%)    | 78 (83%)  | 16 (17%)  | 2           | 3 |
| 2   | F     | 94/94 (100%)    | 78 (83%)  | 16 (17%)  | 2           | 3 |
| 2   | H     | 94/94 (100%)    | 74 (79%)  | 20 (21%)  | 1           | 2 |
| All | All   | 1258/1316 (96%) | 988 (78%) | 270 (22%) | 1           | 1 |

All (270) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1019 | GLU  |
| 1   | A     | 1035 | ARG  |
| 1   | A     | 1038 | SER  |
| 1   | A     | 1039 | LYS  |
| 1   | A     | 1044 | ARG  |
| 1   | A     | 1065 | HIS  |
| 1   | A     | 1068 | THR  |
| 1   | A     | 1073 | LEU  |
| 1   | A     | 1075 | GLU  |
| 1   | A     | 1077 | ASN  |
| 1   | A     | 1078 | LEU  |
| 1   | A     | 1080 | THR  |
| 1   | A     | 1081 | LEU  |
| 1   | A     | 1082 | VAL  |
| 1   | A     | 1086 | ASN  |
| 1   | A     | 1094 | THR  |
| 1   | A     | 1098 | LEU  |
| 1   | A     | 1099 | GLN  |
| 1   | A     | 1107 | ARG  |
| 1   | A     | 1109 | LEU  |
| 1   | A     | 1111 | LEU  |
| 1   | A     | 1115 | GLN  |
| 1   | A     | 1121 | GLU  |
| 1   | A     | 1126 | LEU  |
| 1   | A     | 1133 | CYS  |
| 1   | A     | 1159 | HIS  |
| 1   | A     | 1160 | LEU  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 1163       | HIS         |
| 1          | A            | 1165       | SER         |
| 1          | A            | 1166       | ASP         |
| 1          | A            | 1167       | VAL         |
| 1          | A            | 1171       | TYR         |
| 1          | A            | 1173       | GLU         |
| 1          | A            | 1176       | LYS         |
| 1          | A            | 1177       | GLU         |
| 1          | A            | 1178       | ARG         |
| 1          | A            | 1183       | ASP         |
| 1          | A            | 1186       | LYS         |
| 1          | A            | 1191       | ARG         |
| 1          | A            | 1194       | ARG         |
| 1          | A            | 1196       | GLU         |
| 1          | A            | 1198       | ASP         |
| 1          | A            | 1200       | THR         |
| 1          | A            | 1220       | ASP         |
| 1          | A            | 1224       | LEU         |
| 1          | A            | 1225       | THR         |
| 1          | A            | 1229       | GLU         |
| 1          | A            | 1230       | PHE         |
| 1          | A            | 1234       | ARG         |
| 1          | A            | 1251       | LEU         |
| 1          | A            | 1253       | LYS         |
| 1          | A            | 1255       | GLN         |
| 1          | A            | 1259       | CYS         |
| 1          | A            | 1264       | GLU         |
| 1          | A            | 1272       | LEU         |
| 1          | A            | 1273       | ARG         |
| 2          | B            | 2001       | ILE         |
| 2          | B            | 2003       | ARG         |
| 2          | B            | 2004       | THR         |
| 2          | B            | 2006       | LYS         |
| 2          | B            | 2012       | ARG         |
| 2          | B            | 2020       | SER         |
| 2          | B            | 2035       | ILE         |
| 2          | B            | 2045       | ARG         |
| 2          | B            | 2048       | LYS         |
| 2          | B            | 2058       | LYS         |
| 2          | B            | 2070       | PHE         |
| 2          | B            | 2075       | LYS         |
| 2          | B            | 2081       | ARG         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | B            | 2085       | VAL         |
| 2          | B            | 2098       | ASP         |
| 1          | C            | 3006       | ARG         |
| 1          | C            | 3014       | ARG         |
| 1          | C            | 3023       | ILE         |
| 1          | C            | 3024       | ILE         |
| 1          | C            | 3034       | LEU         |
| 1          | C            | 3035       | ARG         |
| 1          | C            | 3039       | LYS         |
| 1          | C            | 3044       | ARG         |
| 1          | C            | 3058       | ASP         |
| 1          | C            | 3061       | GLU         |
| 1          | C            | 3068       | THR         |
| 1          | C            | 3075       | GLU         |
| 1          | C            | 3078       | LEU         |
| 1          | C            | 3079       | MET         |
| 1          | C            | 3083       | HIS         |
| 1          | C            | 3086       | ASN         |
| 1          | C            | 3087       | LYS         |
| 1          | C            | 3090       | ASP         |
| 1          | C            | 3094       | THR         |
| 1          | C            | 3102       | ASP         |
| 1          | C            | 3111       | LEU         |
| 1          | C            | 3120       | SER         |
| 1          | C            | 3121       | GLU         |
| 1          | C            | 3131       | SER         |
| 1          | C            | 3163       | HIS         |
| 1          | C            | 3165       | SER         |
| 1          | C            | 3169       | GLN         |
| 1          | C            | 3170       | LYS         |
| 1          | C            | 3171       | TYR         |
| 1          | C            | 3177       | GLU         |
| 1          | C            | 3181       | ARG         |
| 1          | C            | 3190       | THR         |
| 1          | C            | 3192       | HIS         |
| 1          | C            | 3196       | GLU         |
| 1          | C            | 3201       | LEU         |
| 1          | C            | 3213       | ILE         |
| 1          | C            | 3224       | LEU         |
| 1          | C            | 3233       | THR         |
| 1          | C            | 3234       | ARG         |
| 1          | C            | 3242       | GLN         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | C            | 3257       | TYR         |
| 1          | C            | 3264       | GLU         |
| 1          | C            | 3272       | LEU         |
| 1          | C            | 3273       | ARG         |
| 1          | C            | 3274       | TRP         |
| 2          | D            | 4003       | ARG         |
| 2          | D            | 4011       | SER         |
| 2          | D            | 4012       | ARG         |
| 2          | D            | 4016       | GLU         |
| 2          | D            | 4020       | SER         |
| 2          | D            | 4045       | ARG         |
| 2          | D            | 4048       | LYS         |
| 2          | D            | 4052       | SER         |
| 2          | D            | 4057       | SER         |
| 2          | D            | 4069       | GLU         |
| 2          | D            | 4070       | PHE         |
| 2          | D            | 4075       | LYS         |
| 2          | D            | 4081       | ARG         |
| 2          | D            | 4085       | VAL         |
| 2          | D            | 4091       | LYS         |
| 2          | D            | 4097       | ARG         |
| 1          | E            | 5014       | ARG         |
| 1          | E            | 5019       | GLU         |
| 1          | E            | 5035       | ARG         |
| 1          | E            | 5039       | LYS         |
| 1          | E            | 5042       | THR         |
| 1          | E            | 5045       | MET         |
| 1          | E            | 5051       | TRP         |
| 1          | E            | 5055       | GLU         |
| 1          | E            | 5059       | ASP         |
| 1          | E            | 5060       | TRP         |
| 1          | E            | 5062       | GLN         |
| 1          | E            | 5065       | HIS         |
| 1          | E            | 5066       | ILE         |
| 1          | E            | 5068       | THR         |
| 1          | E            | 5072       | GLN         |
| 1          | E            | 5076       | ARG         |
| 1          | E            | 5077       | ASN         |
| 1          | E            | 5080       | THR         |
| 1          | E            | 5081       | LEU         |
| 1          | E            | 5094       | THR         |
| 1          | E            | 5099       | GLN         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | E            | 5107       | ARG         |
| 1          | E            | 5108       | HIS         |
| 1          | E            | 5109       | LEU         |
| 1          | E            | 5120       | SER         |
| 1          | E            | 5129       | ASN         |
| 1          | E            | 5132       | SER         |
| 1          | E            | 5133       | CYS         |
| 1          | E            | 5161       | GLU         |
| 1          | E            | 5165       | SER         |
| 1          | E            | 5176       | LYS         |
| 1          | E            | 5178       | ARG         |
| 1          | E            | 5186       | LYS         |
| 1          | E            | 5191       | ARG         |
| 1          | E            | 5192       | HIS         |
| 1          | E            | 5194       | ARG         |
| 1          | E            | 5214       | THR         |
| 1          | E            | 5222       | GLU         |
| 1          | E            | 5223       | GLU         |
| 1          | E            | 5225       | THR         |
| 1          | E            | 5232       | GLU         |
| 1          | E            | 5234       | ARG         |
| 1          | E            | 5248       | VAL         |
| 1          | E            | 5253       | LYS         |
| 1          | E            | 5255       | GLN         |
| 1          | E            | 5259       | CYS         |
| 1          | E            | 5264       | GLU         |
| 2          | F            | 6001       | ILE         |
| 2          | F            | 6004       | THR         |
| 2          | F            | 6007       | ILE         |
| 2          | F            | 6008       | GLN         |
| 2          | F            | 6012       | ARG         |
| 2          | F            | 6016       | GLU         |
| 2          | F            | 6044       | GLU         |
| 2          | F            | 6045       | ARG         |
| 2          | F            | 6051       | HIS         |
| 2          | F            | 6058       | LYS         |
| 2          | F            | 6070       | PHE         |
| 2          | F            | 6073       | THR         |
| 2          | F            | 6081       | ARG         |
| 2          | F            | 6085       | VAL         |
| 2          | F            | 6086       | THR         |
| 2          | F            | 6091       | LYS         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | G            | 7004       | SER         |
| 1          | G            | 7006       | ARG         |
| 1          | G            | 7014       | ARG         |
| 1          | G            | 7019       | GLU         |
| 1          | G            | 7031       | MET         |
| 1          | G            | 7034       | LEU         |
| 1          | G            | 7035       | ARG         |
| 1          | G            | 7039       | LYS         |
| 1          | G            | 7042       | THR         |
| 1          | G            | 7044       | ARG         |
| 1          | G            | 7059       | ASP         |
| 1          | G            | 7062       | GLN         |
| 1          | G            | 7064       | THR         |
| 1          | G            | 7075       | GLU         |
| 1          | G            | 7078       | LEU         |
| 1          | G            | 7079       | MET         |
| 1          | G            | 7084       | PHE         |
| 1          | G            | 7087       | LYS         |
| 1          | G            | 7090       | ASP         |
| 1          | G            | 7094       | THR         |
| 1          | G            | 7096       | GLN         |
| 1          | G            | 7098       | LEU         |
| 1          | G            | 7102       | ASP         |
| 1          | G            | 7106       | ASP         |
| 1          | G            | 7107       | ARG         |
| 1          | G            | 7116       | LEU         |
| 1          | G            | 7121       | GLU         |
| 1          | G            | 7122       | ASP         |
| 1          | G            | 7126       | LEU         |
| 1          | G            | 7159       | HIS         |
| 1          | G            | 7160       | LEU         |
| 1          | G            | 7163       | HIS         |
| 1          | G            | 7165       | SER         |
| 1          | G            | 7167       | VAL         |
| 1          | G            | 7170       | LYS         |
| 1          | G            | 7177       | GLU         |
| 1          | G            | 7181       | ARG         |
| 1          | G            | 7191       | ARG         |
| 1          | G            | 7200       | THR         |
| 1          | G            | 7206       | LEU         |
| 1          | G            | 7212       | ASP         |
| 1          | G            | 7214       | THR         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | G            | 7218       | GLN         |
| 1          | G            | 7220       | ASP         |
| 1          | G            | 7222       | GLU         |
| 1          | G            | 7223       | GLU         |
| 1          | G            | 7229       | GLU         |
| 1          | G            | 7234       | ARG         |
| 1          | G            | 7243       | LYS         |
| 1          | G            | 7248       | VAL         |
| 1          | G            | 7251       | LEU         |
| 1          | G            | 7255       | GLN         |
| 1          | G            | 7256       | SER         |
| 1          | G            | 7268       | GLU         |
| 1          | G            | 7270       | LEU         |
| 2          | H            | 8001       | ILE         |
| 2          | H            | 8003       | ARG         |
| 2          | H            | 8004       | THR         |
| 2          | H            | 8011       | SER         |
| 2          | H            | 8012       | ARG         |
| 2          | H            | 8013       | HIS         |
| 2          | H            | 8016       | GLU         |
| 2          | H            | 8019       | LYS         |
| 2          | H            | 8020       | SER         |
| 2          | H            | 8027       | VAL         |
| 2          | H            | 8035       | ILE         |
| 2          | H            | 8053       | ASP         |
| 2          | H            | 8055       | SER         |
| 2          | H            | 8059       | ASP         |
| 2          | H            | 8070       | PHE         |
| 2          | H            | 8075       | LYS         |
| 2          | H            | 8077       | GLU         |
| 2          | H            | 8088       | SER         |
| 2          | H            | 8089       | GLN         |
| 2          | H            | 8099       | MET         |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (38) such sidechains are listed below:

| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 1003       | HIS         |
| 1          | A            | 1054       | GLN         |
| 1          | A            | 1115       | GLN         |
| 1          | A            | 1158       | GLN         |
| 1          | A            | 1169       | GLN         |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1188 | HIS  |
| 1   | A     | 1255 | GLN  |
| 1   | A     | 1260 | HIS  |
| 1   | A     | 1263 | HIS  |
| 2   | B     | 2002 | GLN  |
| 2   | B     | 2024 | ASN  |
| 1   | C     | 3032 | GLN  |
| 1   | C     | 3054 | GLN  |
| 1   | C     | 3063 | GLN  |
| 1   | C     | 3070 | GLN  |
| 1   | C     | 3086 | ASN  |
| 1   | C     | 3169 | GLN  |
| 1   | C     | 3263 | HIS  |
| 1   | E     | 5062 | GLN  |
| 1   | E     | 5077 | ASN  |
| 1   | E     | 5163 | HIS  |
| 1   | E     | 5169 | GLN  |
| 1   | E     | 5188 | HIS  |
| 1   | E     | 5192 | HIS  |
| 1   | E     | 5218 | GLN  |
| 1   | E     | 5255 | GLN  |
| 1   | E     | 5260 | HIS  |
| 2   | F     | 6008 | GLN  |
| 2   | F     | 6013 | HIS  |
| 2   | F     | 6024 | ASN  |
| 1   | G     | 7003 | HIS  |
| 1   | G     | 7063 | GLN  |
| 1   | G     | 7072 | GLN  |
| 1   | G     | 7086 | ASN  |
| 1   | G     | 7096 | GLN  |
| 2   | H     | 8042 | ASN  |
| 2   | H     | 8051 | HIS  |
| 2   | H     | 8083 | ASN  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

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

| Mol | Chain | Analysed        | <RSRZ> | #RSRZ>2       | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|-----------------|--------|---------------|-----------------------|-------|
| 1   | A     | 248/260 (95%)   | 0.74   | 20 (8%) 12 12 | 11, 26, 37, 42        | 0     |
| 1   | C     | 248/260 (95%)   | 1.00   | 32 (12%) 3 3  | 9, 29, 40, 42         | 0     |
| 1   | E     | 247/260 (95%)   | 0.61   | 22 (8%) 9 9   | 9, 24, 38, 46         | 0     |
| 1   | G     | 245/260 (94%)   | 0.60   | 17 (6%) 16 17 | 9, 24, 37, 43         | 0     |
| 2   | B     | 99/99 (100%)    | 0.19   | 1 (1%) 82 84  | 9, 15, 25, 31         | 0     |
| 2   | D     | 99/99 (100%)    | 0.39   | 2 (2%) 65 68  | 9, 17, 30, 35         | 0     |
| 2   | F     | 99/99 (100%)    | 0.18   | 0 100 100     | 9, 16, 24, 27         | 0     |
| 2   | H     | 99/99 (100%)    | 0.22   | 0 100 100     | 9, 15, 28, 36         | 0     |
| All | All   | 1384/1436 (96%) | 0.60   | 94 (6%) 17 17 | 9, 23, 37, 46         | 0     |

All (94) RSRZ outliers are listed below:

| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | A     | 1134 | THR  | 6.1  |
| 1   | C     | 3134 | THR  | 5.9  |
| 1   | A     | 1130 | PRO  | 4.9  |
| 1   | C     | 3062 | GLN  | 4.8  |
| 1   | A     | 1089 | MET  | 4.6  |
| 1   | G     | 7254 | VAL  | 4.2  |
| 1   | G     | 7257 | TYR  | 4.0  |
| 1   | C     | 3247 | VAL  | 4.0  |
| 1   | C     | 3267 | PRO  | 4.0  |
| 1   | A     | 1251 | LEU  | 3.9  |
| 1   | C     | 3067 | VAL  | 3.7  |
| 1   | C     | 3248 | VAL  | 3.6  |
| 1   | E     | 5227 | ASP  | 3.5  |
| 1   | G     | 7195 | PRO  | 3.4  |
| 1   | C     | 3187 | ALA  | 3.4  |
| 1   | G     | 7067 | VAL  | 3.3  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | C            | 3073       | LEU         | 3.3         |
| 1          | G            | 7066       | ILE         | 3.3         |
| 1          | E            | 5089       | MET         | 3.2         |
| 1          | E            | 5087       | LYS         | 3.2         |
| 1          | E            | 5074       | SER         | 3.1         |
| 1          | E            | 5133       | CYS         | 3.1         |
| 1          | G            | 7247       | VAL         | 3.1         |
| 1          | C            | 3126       | LEU         | 3.0         |
| 1          | A            | 1017       | LEU         | 3.0         |
| 1          | C            | 3086       | ASN         | 2.9         |
| 1          | E            | 5069       | ILE         | 2.8         |
| 1          | G            | 7057       | ALA         | 2.8         |
| 1          | G            | 7274       | TRP         | 2.8         |
| 1          | E            | 5193       | PRO         | 2.8         |
| 1          | E            | 5057       | ALA         | 2.8         |
| 1          | C            | 3179       | LEU         | 2.8         |
| 1          | E            | 5056       | GLU         | 2.8         |
| 1          | A            | 1272       | LEU         | 2.7         |
| 1          | E            | 5075       | GLU         | 2.7         |
| 1          | A            | 1158       | GLN         | 2.7         |
| 1          | A            | 1088       | SER         | 2.7         |
| 1          | C            | 3079       | MET         | 2.7         |
| 1          | G            | 7133       | CYS         | 2.6         |
| 1          | A            | 1179       | LEU         | 2.6         |
| 1          | A            | 1181       | ARG         | 2.6         |
| 1          | A            | 1009       | TYR         | 2.6         |
| 1          | A            | 1249       | VAL         | 2.6         |
| 1          | A            | 1254       | VAL         | 2.5         |
| 1          | G            | 7250       | PRO         | 2.5         |
| 1          | G            | 7059       | ASP         | 2.5         |
| 1          | C            | 3263       | HIS         | 2.5         |
| 1          | C            | 3265       | GLY         | 2.5         |
| 1          | C            | 3182       | SER         | 2.4         |
| 1          | C            | 3225       | THR         | 2.4         |
| 1          | E            | 5073       | LEU         | 2.4         |
| 1          | C            | 3269       | PRO         | 2.4         |
| 1          | E            | 5085       | TYR         | 2.4         |
| 1          | E            | 5105       | PRO         | 2.4         |
| 1          | G            | 7065       | HIS         | 2.3         |
| 2          | D            | 4001       | ILE         | 2.3         |
| 1          | E            | 5249       | VAL         | 2.3         |
| 1          | E            | 5230       | PHE         | 2.3         |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | C     | 3009 | TYR  | 2.3  |
| 1   | C     | 3254 | VAL  | 2.3  |
| 1   | G     | 7228 | VAL  | 2.3  |
| 1   | C     | 3200 | THR  | 2.3  |
| 1   | C     | 3255 | GLN  | 2.2  |
| 1   | C     | 3257 | TYR  | 2.2  |
| 1   | C     | 3177 | GLU  | 2.2  |
| 1   | E     | 5038 | SER  | 2.2  |
| 1   | A     | 1260 | HIS  | 2.2  |
| 1   | E     | 5023 | ILE  | 2.2  |
| 1   | G     | 7200 | THR  | 2.2  |
| 1   | E     | 5160 | LEU  | 2.2  |
| 1   | A     | 1074 | SER  | 2.2  |
| 1   | E     | 5228 | VAL  | 2.2  |
| 1   | A     | 1219 | LYS  | 2.2  |
| 1   | C     | 3249 | VAL  | 2.2  |
| 1   | G     | 7199 | VAL  | 2.2  |
| 1   | C     | 3214 | THR  | 2.2  |
| 1   | A     | 1199 | VAL  | 2.1  |
| 1   | E     | 5200 | THR  | 2.1  |
| 1   | A     | 1224 | LEU  | 2.1  |
| 1   | C     | 3003 | HIS  | 2.1  |
| 2   | D     | 4088 | SER  | 2.1  |
| 1   | C     | 3228 | VAL  | 2.1  |
| 1   | E     | 5195 | PRO  | 2.1  |
| 1   | C     | 3197 | GLY  | 2.1  |
| 1   | E     | 5009 | TYR  | 2.1  |
| 1   | C     | 3268 | GLU  | 2.1  |
| 1   | C     | 3107 | ARG  | 2.1  |
| 1   | A     | 1127 | SER  | 2.0  |
| 1   | G     | 7078 | LEU  | 2.0  |
| 1   | C     | 3039 | LYS  | 2.0  |
| 1   | A     | 1075 | GLU  | 2.0  |
| 1   | G     | 7256 | SER  | 2.0  |
| 1   | C     | 3261 | VAL  | 2.0  |
| 2   | B     | 2001 | ILE  | 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](#)

There are no carbohydrates in this entry.

### 6.4 Ligands [i](#)

There are no ligands in this entry.

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

There are no such residues in this entry.