



# Full wwPDB X-ray Structure Validation Report ⓘ

May 21, 2020 – 07:43 pm BST

PDB ID : 2OVP  
Title : Structure of the Skp1-Fbw7 complex  
Authors : Hao, B.; Oehlmann, S.; Sowa, M.E.; Harper, J.W.; Pavletich, N.P.  
Deposited on : 2007-02-14  
Resolution : 2.90 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  
Xtrriage (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

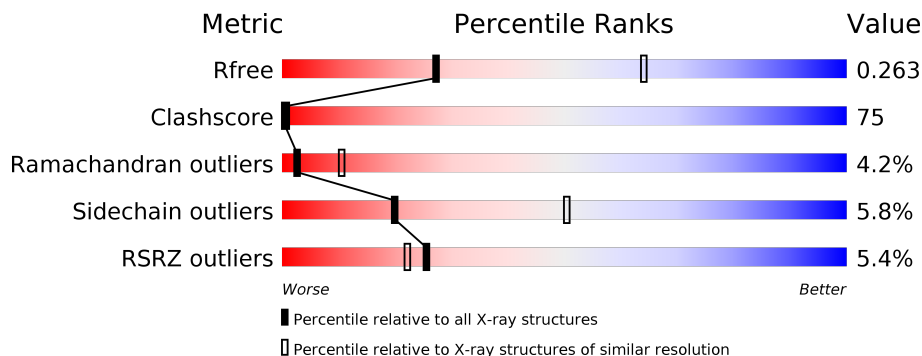
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.90 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                      | 1957 (2.90-2.90)                                      |
| Clashscore            | 141614                      | 2172 (2.90-2.90)                                      |
| Ramachandran outliers | 138981                      | 2115 (2.90-2.90)                                      |
| Sidechain outliers    | 138945                      | 2117 (2.90-2.90)                                      |
| RSRZ outliers         | 127900                      | 1906 (2.90-2.90)                                      |

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     | 149    |                  |
| 2   | B     | 445    |                  |

## 2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 4676 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 S-phase kinase-associated protein 1A.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
|     |       |          | Total | C   | N   | O   | S |         |         |       |
| 1   | A     | 134      | 1073  | 686 | 174 | 208 | 5 | 0       | 0       | 0     |

There are 18 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment  | Reference  |
|-------|---------|----------|--------|----------|------------|
| A     | ?       | -        | ASP    | DELETION | UNP P63208 |
| A     | ?       | -        | ASP    | DELETION | UNP P63208 |
| A     | ?       | -        | GLU    | DELETION | UNP P63208 |
| A     | ?       | -        | GLY    | DELETION | UNP P63208 |
| A     | ?       | -        | ASP    | DELETION | UNP P63208 |
| A     | ?       | -        | ASP    | DELETION | UNP P63208 |
| A     | ?       | -        | PRO    | DELETION | UNP P63208 |
| A     | ?       | -        | PRO    | DELETION | UNP P63208 |
| A     | ?       | -        | PRO    | DELETION | UNP P63208 |
| A     | ?       | -        | GLU    | DELETION | UNP P63208 |
| A     | ?       | -        | ASP    | DELETION | UNP P63208 |
| A     | ?       | -        | ASP    | DELETION | UNP P63208 |
| A     | ?       | -        | GLU    | DELETION | UNP P63208 |
| A     | ?       | -        | ASN    | DELETION | UNP P63208 |
| A     | 1078    | GLY      | LYS    | LINKER   | UNP P63208 |
| A     | 1079    | GLY      | GLU    | LINKER   | UNP P63208 |
| A     | 1080    | SER      | LYS    | LINKER   | UNP P63208 |
| A     | 1081    | GLY      | ARG    | LINKER   | UNP P63208 |

- Molecule 2 is a protein called F-box/WD repeat protein 7.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 2   | B     | 441      | 3484  | 2187 | 627 | 648 | 22 | 0       | 0       | 0     |

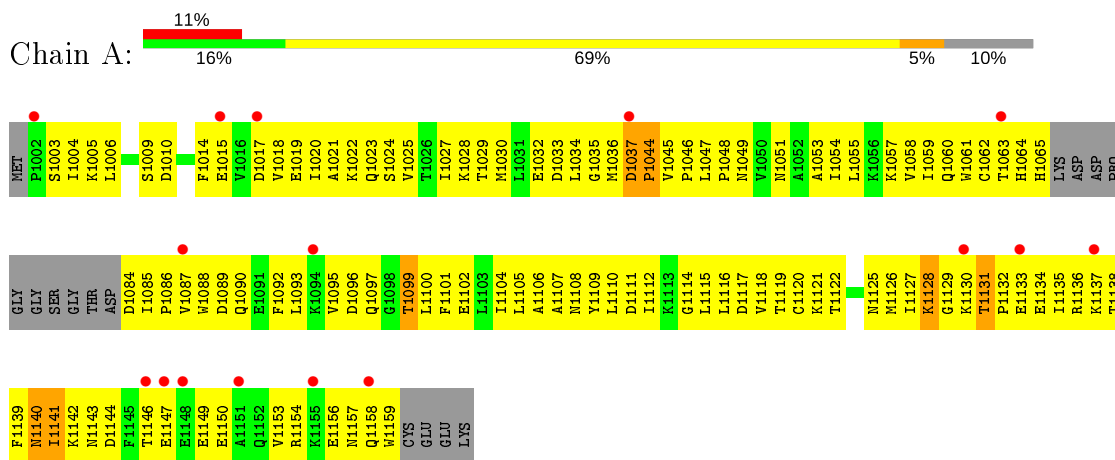
- Molecule 3 is water.

| <b>Mol</b> | <b>Chain</b> | <b>Residues</b> | <b>Atoms</b> |          | <b>ZeroOcc</b> | <b>AltConf</b> |
|------------|--------------|-----------------|--------------|----------|----------------|----------------|
| 3          | A            | 10              | Total<br>10  | O<br>10  | 0              | 0              |
| 3          | B            | 109             | Total<br>109 | O<br>109 | 0              | 0              |

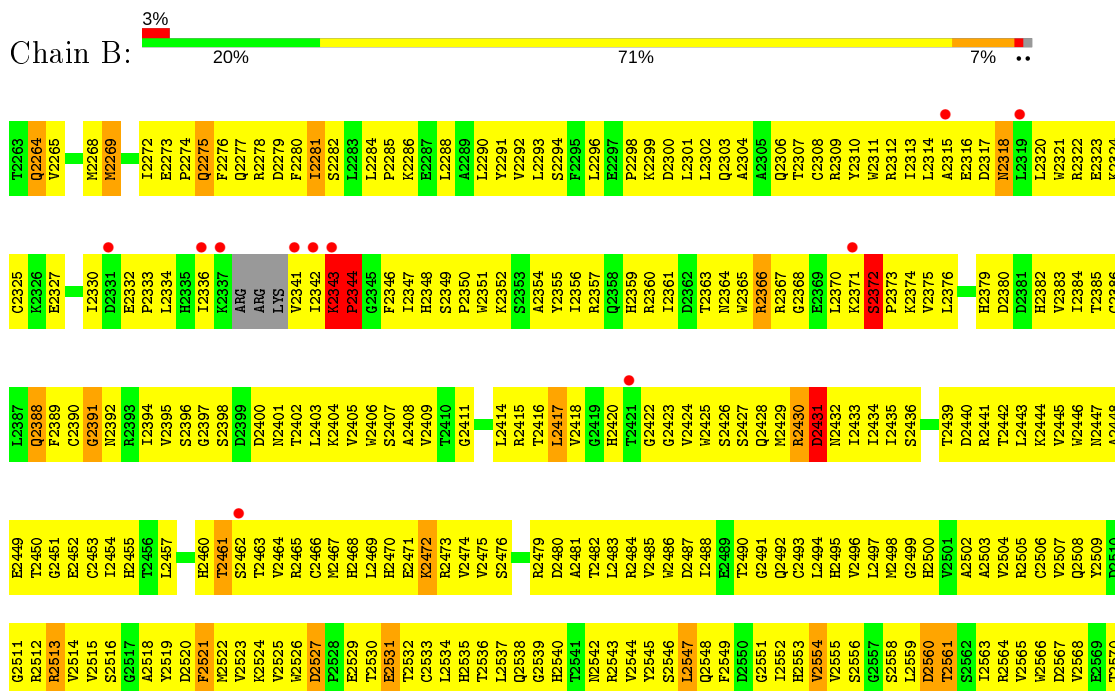
### 3 Residue-property plots [i](#)

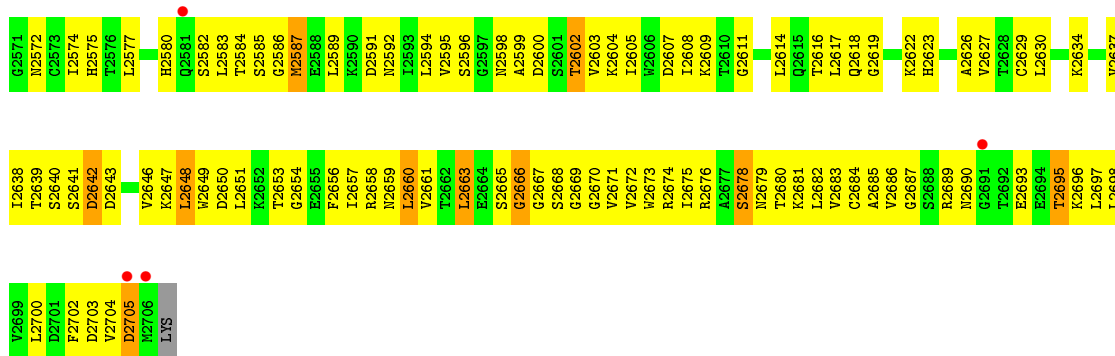
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are 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: S-phase kinase-associated protein 1A



- Molecule 2: F-box/WD repeat protein 7





## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | I 41 2 2  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 222.70Å 222.70Å 102.88Å<br>90.00° 90.00° 90.00°             | Depositor        |
| Resolution (Å)  | 19.94 – 2.90<br>19.94 – 2.88                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 98.5 (19.94-2.90)<br>97.9 (19.94-2.88)                      | Depositor<br>EDS |
| $R_{merge}$   | 0.09  | Depositor        |
| $R_{sym}$   | 0.09  | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 5.10 (at 2.88Å)   | Xtrriage         |
| Refinement program  | CNS 1.0   | Depositor        |
| R, $R_{free}$   | 0.235 , 0.268<br>0.234 , 0.263                              | Depositor<br>DCC |
| $R_{free}$ test set   | 1959 reflections (6.72%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 37.8  | Xtrriage         |
| Anisotropy  | 0.011   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.34 , 42.6   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$ | Xtrriage         |
| Estimated twinning fraction   | No twinning to report.                                      | Xtrriage         |
| $F_o, F_c$ correlation  | 0.89  | EDS              |
| Total number of atoms   | 4676  | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 43.0  | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.24% 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     | 0.34         | 0/1091  | 0.61        | 0/1476        |
| 2   | B     | 0.48         | 0/3554  | 0.76        | 3/4815 (0.1%) |
| All | All   | 0.45         | 0/4645  | 0.73        | 3/6291 (0.0%) |

There are no bond length outliers.

All (3) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms  | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|--------|-------|-------------|----------|
| 2   | B     | 2372 | SER  | N-CA-C | -5.73 | 95.52       | 111.00   |
| 2   | B     | 2527 | ASP  | N-CA-C | -5.36 | 96.54       | 111.00   |
| 2   | B     | 2678 | SER  | N-CA-C | -5.18 | 97.01       | 111.00   |

There are no chirality outliers.

There are no planarity outliers.

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

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 1073  | 0        | 1083     | 168     | 0            |
| 2   | B     | 3484  | 0        | 3468     | 557     | 0            |
| 3   | A     | 10    | 0        | 0        | 2       | 0            |
| 3   | B     | 109   | 0        | 0        | 12      | 0            |
| All | All   | 4676  | 0        | 4551     | 687     | 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 75.



All (687) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2343:LYS:HB3  | 2:B:2344:PRO:HD2  | 1.16                     | 1.13              |
| 2:B:2487:ASP:HB2  | 2:B:2494:LEU:HD11 | 1.29                     | 1.12              |
| 1:A:1037:ASP:HB2  | 1:A:1044:PRO:HD3  | 1.27                     | 1.09              |
| 2:B:2642:ASP:HA   | 2:B:2671:VAL:HG23 | 1.07                     | 1.07              |
| 2:B:2554:VAL:HG13 | 2:B:2566:TRP:HB2  | 1.35                     | 1.02              |
| 2:B:2642:ASP:HA   | 2:B:2671:VAL:CG2  | 1.88                     | 1.01              |
| 2:B:2462:SER:OG   | 2:B:2479:ARG:HB2  | 1.61                     | 1.01              |
| 2:B:2549:PHE:HE1  | 2:B:2568:VAL:HG21 | 1.23                     | 0.99              |
| 1:A:1130:LYS:HG3  | 2:B:2303:GLN:HG3  | 1.46                     | 0.98              |
| 1:A:1017:ASP:HB2  | 1:A:1020:ILE:HD12 | 1.47                     | 0.97              |
| 2:B:2642:ASP:CA   | 2:B:2671:VAL:HG23 | 1.97                     | 0.94              |
| 2:B:2468:HIS:HD2  | 2:B:2509:TYR:H    | 1.16                     | 0.92              |
| 2:B:2468:HIS:CD2  | 2:B:2509:TYR:H    | 1.87                     | 0.92              |
| 2:B:2334:LEU:H    | 2:B:2354:ALA:HB2  | 1.34                     | 0.92              |
| 2:B:2343:LYS:HB3  | 2:B:2344:PRO:CD   | 2.01                     | 0.89              |
| 1:A:1020:ILE:HG21 | 1:A:1063:THR:HG22 | 1.56                     | 0.88              |
| 2:B:2549:PHE:CE1  | 2:B:2568:VAL:HG21 | 2.09                     | 0.87              |
| 2:B:2366:ARG:O    | 2:B:2658:ARG:HD2  | 1.73                     | 0.87              |
| 2:B:2513:ARG:HG2  | 2:B:2513:ARG:HH11 | 1.40                     | 0.87              |
| 2:B:2382:HIS:H    | 2:B:2695:THR:HG21 | 1.38                     | 0.86              |
| 2:B:2415:ARG:HD2  | 2:B:2451:GLY:HA3  | 1.57                     | 0.86              |
| 1:A:1006:LEU:HD13 | 1:A:1055:LEU:HD11 | 1.57                     | 0.86              |
| 2:B:2554:VAL:HG12 | 2:B:2568:VAL:HG22 | 1.58                     | 0.86              |
| 2:B:2388:GLN:HB3  | 2:B:2429:MET:HE1  | 1.60                     | 0.83              |
| 2:B:2457:LEU:HB3  | 2:B:2486:TRP:CE3  | 2.13                     | 0.83              |
| 2:B:2479:ARG:HA   | 2:B:2503:ALA:HB1  | 1.59                     | 0.83              |
| 2:B:2648:LEU:HD13 | 2:B:2657:ILE:HD12 | 1.60                     | 0.83              |
| 2:B:2352:LYS:HE2  | 2:B:2356:ILE:HD11 | 1.60                     | 0.83              |
| 2:B:2334:LEU:HD23 | 2:B:2357:ARG:HD3  | 1.61                     | 0.83              |
| 2:B:2325:CYS:HB3  | 2:B:2330:ILE:HB   | 1.61                     | 0.82              |
| 2:B:2316:GLU:HG3  | 2:B:2346:PHE:CZ   | 2.15                     | 0.81              |
| 2:B:2663:LEU:HD21 | 2:B:2686:VAL:HG13 | 1.61                     | 0.81              |
| 2:B:2665:SER:OG   | 2:B:2693:GLU:HG2  | 1.79                     | 0.81              |
| 1:A:1089:ASP:HB3  | 1:A:1118:VAL:HG11 | 1.63                     | 0.81              |
| 2:B:2647:LYS:HG2  | 2:B:2659:ASN:ND2  | 1.95                     | 0.80              |
| 2:B:2603:VAL:HG21 | 2:B:2639:THR:HG21 | 1.62                     | 0.79              |
| 2:B:2272:ILE:HD12 | 2:B:2313:ILE:HD11 | 1.64                     | 0.79              |
| 2:B:2672:VAL:HG22 | 2:B:2686:VAL:HG22 | 1.64                     | 0.79              |
| 2:B:2404:LYS:HG2  | 2:B:2416:THR:HG23 | 1.65                     | 0.79              |
| 2:B:2475:VAL:HG21 | 2:B:2514:VAL:HG22 | 1.64                     | 0.79              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1037:ASP:HB2  | 1:A:1044:PRO:CD   | 2.11                     | 0.79              |
| 2:B:2486:TRP:CZ3  | 2:B:2493:CYS:HB2  | 2.18                     | 0.78              |
| 2:B:2647:LYS:HG2  | 2:B:2659:ASN:HD22 | 1.47                     | 0.78              |
| 2:B:2646:VAL:HG11 | 2:B:2682:LEU:HD21 | 1.64                     | 0.78              |
| 2:B:2481:ALA:HB1  | 2:B:2500:HIS:O    | 1.84                     | 0.77              |
| 2:B:2494:LEU:HD12 | 2:B:2494:LEU:H    | 1.49                     | 0.77              |
| 2:B:2483:LEU:HD21 | 2:B:2516:SER:HB3  | 1.67                     | 0.77              |
| 2:B:2521:PHE:HB3  | 2:B:2540:HIS:O    | 1.85                     | 0.76              |
| 1:A:1131:THR:HG21 | 1:A:1134:GLU:HG3  | 1.68                     | 0.76              |
| 1:A:1130:LYS:HG3  | 2:B:2303:GLN:CG   | 2.15                     | 0.75              |
| 2:B:2432:ASN:ND2  | 2:B:2449:GLU:H    | 1.84                     | 0.75              |
| 2:B:2487:ASP:HB2  | 2:B:2494:LEU:CD1  | 2.14                     | 0.75              |
| 2:B:2523:VAL:HB   | 2:B:2537:LEU:HB2  | 1.67                     | 0.75              |
| 2:B:2318:ASN:ND2  | 2:B:2350:PRO:HD2  | 2.01                     | 0.74              |
| 2:B:2443:LEU:HD21 | 2:B:2476:SER:HB3  | 1.69                     | 0.74              |
| 2:B:2441:ARG:HG2  | 2:B:2461:THR:O    | 1.87                     | 0.74              |
| 2:B:2580:HIS:HB3  | 2:B:2598:ASN:ND2  | 2.03                     | 0.74              |
| 2:B:2686:VAL:HG21 | 2:B:2698:LEU:HD22 | 1.69                     | 0.74              |
| 2:B:2567:ASP:HB2  | 2:B:2574:ILE:HD11 | 1.70                     | 0.73              |
| 2:B:2414:LEU:O    | 2:B:2415:ARG:HG2  | 1.88                     | 0.73              |
| 2:B:2513:ARG:HG2  | 2:B:2513:ARG:NH1  | 2.03                     | 0.72              |
| 2:B:2682:LEU:HD23 | 2:B:2700:LEU:HD12 | 1.72                     | 0.72              |
| 2:B:2435:ILE:HG12 | 2:B:2488:ILE:CD1  | 2.20                     | 0.72              |
| 2:B:2647:LYS:NZ   | 2:B:2659:ASN:HD21 | 1.88                     | 0.72              |
| 2:B:2426:SER:HA   | 3:B:114:HOH:O     | 1.89                     | 0.72              |
| 2:B:2617:LEU:HD13 | 2:B:2649:TRP:CG   | 2.25                     | 0.72              |
| 2:B:2513:ARG:HG3  | 3:B:8:HOH:O       | 1.89                     | 0.72              |
| 2:B:2373:PRO:HB3  | 2:B:2700:LEU:HD23 | 1.72                     | 0.71              |
| 2:B:2443:LEU:HB2  | 2:B:2457:LEU:HB2  | 1.73                     | 0.71              |
| 1:A:1131:THR:H    | 2:B:2303:GLN:HE21 | 1.36                     | 0.71              |
| 2:B:2472:LYS:HD3  | 2:B:2472:LYS:H    | 1.56                     | 0.70              |
| 1:A:1141:ILE:HD13 | 2:B:2307:THR:HG21 | 1.73                     | 0.70              |
| 1:A:1009:SER:HB3  | 1:A:1048:PRO:O    | 1.92                     | 0.69              |
| 2:B:2552:ILE:O    | 2:B:2568:VAL:HG23 | 1.92                     | 0.69              |
| 1:A:1141:ILE:HG21 | 2:B:2307:THR:HG23 | 1.74                     | 0.69              |
| 2:B:2523:VAL:HG21 | 2:B:2556:SER:HB3  | 1.75                     | 0.69              |
| 2:B:2558:SER:HB3  | 2:B:2560:ASP:OD1  | 1.92                     | 0.69              |
| 2:B:2634:LYS:HD3  | 3:B:94:HOH:O      | 1.91                     | 0.69              |
| 2:B:2595:VAL:HG12 | 2:B:2630:LEU:HD22 | 1.74                     | 0.69              |
| 2:B:2316:GLU:HG3  | 2:B:2346:PHE:HZ   | 1.58                     | 0.68              |
| 2:B:2502:ALA:HB3  | 2:B:2520:ASP:N    | 2.07                     | 0.68              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1055:LEU:HD23 | 1:A:1055:LEU:O    | 1.93                     | 0.68              |
| 1:A:1127:ILE:HB   | 2:B:2296:LEU:HD21 | 1.73                     | 0.68              |
| 2:B:2324:LYS:O    | 2:B:2327:GLU:HB3  | 1.92                     | 0.68              |
| 2:B:2426:SER:HB3  | 2:B:2465:ARG:O    | 1.92                     | 0.68              |
| 2:B:2403:LEU:HD21 | 2:B:2436:SER:HB3  | 1.74                     | 0.68              |
| 2:B:2559:LEU:HD23 | 2:B:2559:LEU:O    | 1.93                     | 0.68              |
| 1:A:1141:ILE:HG21 | 2:B:2307:THR:CG2  | 2.24                     | 0.68              |
| 2:B:2285:PRO:HD2  | 2:B:2288:LEU:HD12 | 1.74                     | 0.68              |
| 2:B:2537:LEU:HD13 | 2:B:2566:TRP:CG   | 2.27                     | 0.68              |
| 2:B:2530:THR:OG1  | 2:B:2532:THR:HG22 | 1.93                     | 0.68              |
| 1:A:1017:ASP:HB2  | 1:A:1020:ILE:CD1  | 2.22                     | 0.68              |
| 2:B:2484:ARG:HG2  | 2:B:2496:VAL:HG22 | 1.76                     | 0.68              |
| 2:B:2342:ILE:HG13 | 2:B:2343:LYS:H    | 1.58                     | 0.67              |
| 2:B:2333:PRO:HB3  | 2:B:2351:TRP:CD2  | 2.29                     | 0.67              |
| 2:B:2426:SER:HB2  | 2:B:2467:MET:HG2  | 1.74                     | 0.67              |
| 1:A:1003:SER:HA   | 1:A:1018:VAL:H    | 1.59                     | 0.67              |
| 2:B:2282:SER:HA   | 2:B:2310:TYR:CE2  | 2.30                     | 0.67              |
| 2:B:2398:SER:HB3  | 2:B:2400:ASP:OD1  | 1.94                     | 0.67              |
| 2:B:2432:ASN:HA   | 2:B:2448:ALA:HB3  | 1.77                     | 0.67              |
| 2:B:2502:ALA:H    | 2:B:2520:ASP:HB3  | 1.60                     | 0.67              |
| 2:B:2540:HIS:ND1  | 2:B:2558:SER:HB2  | 2.09                     | 0.67              |
| 1:A:1037:ASP:CB   | 1:A:1044:PRO:HD3  | 2.10                     | 0.66              |
| 2:B:2357:ARG:NH2  | 3:B:4:HOH:O       | 2.29                     | 0.66              |
| 2:B:2472:LYS:HE3  | 2:B:2473:ARG:HG3  | 1.76                     | 0.66              |
| 1:A:1055:LEU:O    | 1:A:1059:ILE:HG12 | 1.96                     | 0.66              |
| 1:A:1141:ILE:HD13 | 2:B:2307:THR:CG2  | 2.26                     | 0.66              |
| 2:B:2473:ARG:HB2  | 2:B:2509:TYR:HE2  | 1.60                     | 0.66              |
| 2:B:2342:ILE:HG13 | 2:B:2343:LYS:N    | 2.10                     | 0.66              |
| 2:B:2433:ILE:HG21 | 2:B:2488:ILE:HG21 | 1.78                     | 0.66              |
| 2:B:2363:THR:HG23 | 2:B:2367:ARG:CZ   | 2.25                     | 0.65              |
| 1:A:1122:THR:O    | 1:A:1126:MET:HG3  | 1.97                     | 0.65              |
| 2:B:2522:MET:SD   | 2:B:2538:GLN:HG2  | 2.37                     | 0.65              |
| 1:A:1006:LEU:O    | 1:A:1006:LEU:HD12 | 1.97                     | 0.65              |
| 2:B:2280:PHE:HE2  | 2:B:2284:LEU:HD11 | 1.62                     | 0.65              |
| 2:B:2430:ARG:HB2  | 2:B:2469:LEU:HD21 | 1.79                     | 0.65              |
| 1:A:1047:LEU:HD12 | 1:A:1055:LEU:HD11 | 1.79                     | 0.64              |
| 1:A:1101:PHE:CE1  | 1:A:1105:LEU:HD11 | 2.32                     | 0.64              |
| 2:B:2366:ARG:O    | 2:B:2658:ARG:CD   | 2.45                     | 0.64              |
| 2:B:2479:ARG:HA   | 2:B:2503:ALA:CB   | 2.28                     | 0.64              |
| 2:B:2524:LYS:HZ3  | 2:B:2536:THR:HG23 | 1.62                     | 0.64              |
| 2:B:2523:VAL:CG1  | 2:B:2537:LEU:HD12 | 2.28                     | 0.64              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2647:LYS:HZ2  | 2:B:2659:ASN:HD21 | 1.46                     | 0.64              |
| 2:B:2650:ASP:HB3  | 2:B:2653:THR:OG1  | 1.98                     | 0.64              |
| 2:B:2379:HIS:HE1  | 2:B:2396:SER:OG   | 1.81                     | 0.63              |
| 2:B:2445:VAL:HG12 | 2:B:2454:ILE:HD11 | 1.80                     | 0.63              |
| 2:B:2494:LEU:N    | 2:B:2494:LEU:HD12 | 2.13                     | 0.63              |
| 2:B:2483:LEU:HD21 | 2:B:2516:SER:CB   | 2.27                     | 0.63              |
| 1:A:1133:GLU:CD   | 1:A:1133:GLU:H    | 2.02                     | 0.63              |
| 1:A:1130:LYS:HA   | 2:B:2303:GLN:HG3  | 1.80                     | 0.63              |
| 2:B:2500:HIS:CE1  | 2:B:2524:LYS:HG3  | 2.34                     | 0.63              |
| 2:B:2521:PHE:N    | 2:B:2521:PHE:HD2  | 1.96                     | 0.63              |
| 2:B:2441:ARG:HA   | 2:B:2462:SER:O    | 1.98                     | 0.63              |
| 2:B:2322:ARG:HA   | 2:B:2351:TRP:CD2  | 2.34                     | 0.63              |
| 2:B:2604:LYS:HG2  | 2:B:2616:THR:HG23 | 1.81                     | 0.62              |
| 2:B:2364:ASN:HA   | 2:B:2368:GLY:HA3  | 1.80                     | 0.62              |
| 2:B:2455:HIS:ND1  | 2:B:2491:GLY:HA3  | 2.14                     | 0.62              |
| 2:B:2333:PRO:HB3  | 2:B:2351:TRP:CE2  | 2.34                     | 0.62              |
| 2:B:2481:ALA:O    | 2:B:2500:HIS:HB2  | 1.99                     | 0.62              |
| 2:B:2524:LYS:NZ   | 2:B:2536:THR:OG1  | 2.32                     | 0.62              |
| 2:B:2523:VAL:HG21 | 2:B:2556:SER:CB   | 2.30                     | 0.62              |
| 2:B:2603:VAL:HG21 | 2:B:2639:THR:CG2  | 2.30                     | 0.62              |
| 2:B:2684:CYS:HB2  | 2:B:2698:LEU:HB2  | 1.81                     | 0.62              |
| 2:B:2382:HIS:CG   | 2:B:2400:ASP:HB3  | 2.34                     | 0.62              |
| 2:B:2417:LEU:HD13 | 2:B:2446:TRP:CG   | 2.35                     | 0.62              |
| 2:B:2599:ALA:HA   | 2:B:2626:ALA:HB1  | 1.82                     | 0.62              |
| 2:B:2605:ILE:HD13 | 2:B:2651:LEU:HD12 | 1.82                     | 0.62              |
| 2:B:2281:ILE:HG12 | 2:B:2311:TRP:NE1  | 2.15                     | 0.61              |
| 1:A:1062:CYS:C    | 1:A:1064:HIS:H    | 2.01                     | 0.61              |
| 2:B:2273:GLU:N    | 2:B:2274:PRO:HD3  | 2.14                     | 0.61              |
| 2:B:2415:ARG:HE   | 2:B:2450:THR:C    | 2.04                     | 0.61              |
| 2:B:2281:ILE:HG12 | 2:B:2311:TRP:CE2  | 2.35                     | 0.61              |
| 2:B:2521:PHE:N    | 2:B:2521:PHE:CD2  | 2.67                     | 0.61              |
| 2:B:2417:LEU:HB3  | 2:B:2446:TRP:CE3  | 2.35                     | 0.61              |
| 2:B:2604:LYS:HE2  | 2:B:2616:THR:HG23 | 1.83                     | 0.61              |
| 2:B:2422:GLY:N    | 2:B:2440:ASP:HB3  | 2.16                     | 0.61              |
| 2:B:2364:ASN:O    | 2:B:2368:GLY:HA3  | 2.01                     | 0.61              |
| 2:B:2469:LEU:HB2  | 2:B:2474:VAL:HG22 | 1.82                     | 0.61              |
| 2:B:2392:ASN:HD22 | 2:B:2392:ASN:N    | 1.99                     | 0.60              |
| 2:B:2374:LYS:HE2  | 2:B:2409:VAL:O    | 2.01                     | 0.60              |
| 2:B:2439:THR:HA   | 2:B:2463:THR:OG1  | 2.02                     | 0.60              |
| 1:A:1150:GLU:O    | 1:A:1154:ARG:HG3  | 2.01                     | 0.60              |
| 2:B:2435:ILE:CD1  | 2:B:2469:LEU:HD22 | 2.32                     | 0.60              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2487:ASP:HB3  | 2:B:2490:THR:OG1  | 2.01                     | 0.60              |
| 2:B:2435:ILE:HG12 | 2:B:2488:ILE:HD12 | 1.82                     | 0.60              |
| 2:B:2646:VAL:HG23 | 2:B:2661:VAL:HB   | 1.83                     | 0.60              |
| 2:B:2334:LEU:HD12 | 2:B:2334:LEU:O    | 2.02                     | 0.60              |
| 2:B:2434:ILE:HB   | 2:B:2446:TRP:HB2  | 1.82                     | 0.60              |
| 2:B:2483:LEU:HB2  | 2:B:2497:LEU:HD23 | 1.84                     | 0.60              |
| 2:B:2469:LEU:HD12 | 2:B:2473:ARG:O    | 2.02                     | 0.60              |
| 1:A:1139:PHE:HB3  | 2:B:2279:ASP:HB2  | 1.82                     | 0.60              |
| 2:B:2370:LEU:HD22 | 2:B:2658:ARG:NH2  | 2.17                     | 0.60              |
| 2:B:2457:LEU:HD13 | 2:B:2486:TRP:HB3  | 1.84                     | 0.60              |
| 2:B:2304:ALA:O    | 2:B:2307:THR:HB   | 2.02                     | 0.59              |
| 2:B:2522:MET:CE   | 2:B:2538:GLN:HG2  | 2.32                     | 0.59              |
| 1:A:1101:PHE:HE1  | 1:A:1105:LEU:HD11 | 1.67                     | 0.59              |
| 1:A:1006:LEU:CD2  | 1:A:1027:ILE:HD13 | 2.31                     | 0.59              |
| 2:B:2476:SER:O    | 2:B:2483:LEU:HA   | 2.01                     | 0.59              |
| 1:A:1005:LYS:HB3  | 1:A:1015:GLU:OE1  | 2.01                     | 0.59              |
| 2:B:2321:TRP:CE2  | 2:B:2352:LYS:HG3  | 2.37                     | 0.59              |
| 1:A:1054:ILE:HG13 | 1:A:1102:GLU:HB3  | 1.83                     | 0.59              |
| 2:B:2439:THR:HA   | 2:B:2463:THR:HG23 | 1.83                     | 0.59              |
| 1:A:1057:LYS:NZ   | 1:A:1095:VAL:HG21 | 2.17                     | 0.58              |
| 2:B:2334:LEU:N    | 2:B:2354:ALA:HB2  | 2.14                     | 0.58              |
| 2:B:2357:ARG:CZ   | 2:B:2361:ILE:HD11 | 2.34                     | 0.58              |
| 2:B:2314:LEU:C    | 2:B:2316:GLU:H    | 2.05                     | 0.58              |
| 2:B:2515:VAL:HG12 | 2:B:2547:LEU:HD11 | 1.85                     | 0.58              |
| 2:B:2334:LEU:HD23 | 2:B:2357:ARG:CD   | 2.31                     | 0.58              |
| 2:B:2416:THR:O    | 2:B:2418:VAL:HG13 | 2.04                     | 0.58              |
| 2:B:2595:VAL:HA   | 2:B:2604:LYS:O    | 2.02                     | 0.58              |
| 2:B:2370:LEU:HD22 | 2:B:2658:ARG:HH21 | 1.69                     | 0.58              |
| 2:B:2352:LYS:HE2  | 2:B:2356:ILE:CD1  | 2.31                     | 0.58              |
| 2:B:2462:SER:HB3  | 2:B:2480:ASP:N    | 2.18                     | 0.58              |
| 2:B:2495:HIS:HB3  | 2:B:2531:GLU:HG2  | 1.86                     | 0.58              |
| 1:A:1055:LEU:HD23 | 1:A:1059:ILE:HG12 | 1.85                     | 0.57              |
| 2:B:2309:ARG:O    | 2:B:2313:ILE:HG13 | 2.04                     | 0.57              |
| 2:B:2457:LEU:HD13 | 2:B:2486:TRP:CB   | 2.34                     | 0.57              |
| 2:B:2689:ARG:HD2  | 3:B:37:HOH:O      | 2.03                     | 0.57              |
| 1:A:1057:LYS:HG3  | 1:A:1092:PHE:CZ   | 2.39                     | 0.57              |
| 1:A:1095:VAL:HG12 | 1:A:1096:ASP:H    | 1.70                     | 0.57              |
| 1:A:1136:ARG:O    | 1:A:1140:ASN:N    | 2.37                     | 0.57              |
| 2:B:2650:ASP:O    | 2:B:2654:GLY:N    | 2.36                     | 0.57              |
| 2:B:2454:ILE:HG13 | 2:B:2455:HIS:HD2  | 1.69                     | 0.57              |
| 2:B:2386:CYS:SG   | 2:B:2427:SER:HB2  | 2.45                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2525:VAL:HB   | 2:B:2535:HIS:HB2  | 1.86                     | 0.57              |
| 2:B:2343:LYS:N    | 2:B:2343:LYS:HE3  | 2.20                     | 0.57              |
| 2:B:2375:VAL:HG13 | 2:B:2696:LYS:CD   | 2.34                     | 0.57              |
| 2:B:2394:ILE:HG21 | 2:B:2683:VAL:HG11 | 1.87                     | 0.57              |
| 2:B:2483:LEU:CD2  | 2:B:2516:SER:HB3  | 2.34                     | 0.57              |
| 2:B:2457:LEU:HB3  | 2:B:2486:TRP:CZ3  | 2.39                     | 0.57              |
| 2:B:2684:CYS:O    | 2:B:2697:LEU:HA   | 2.04                     | 0.57              |
| 1:A:1024:SER:OG   | 1:A:1027:ILE:HG13 | 2.05                     | 0.57              |
| 2:B:2417:LEU:N    | 2:B:2417:LEU:HD23 | 2.19                     | 0.56              |
| 2:B:2561:THR:HG23 | 2:B:2580:HIS:O    | 2.05                     | 0.56              |
| 2:B:2554:VAL:CG1  | 2:B:2566:TRP:HB2  | 2.25                     | 0.56              |
| 2:B:2509:TYR:CZ   | 2:B:2511:GLY:HA2  | 2.40                     | 0.56              |
| 2:B:2560:ASP:O    | 2:B:2561:THR:HB   | 2.05                     | 0.56              |
| 1:A:1004:ILE:C    | 1:A:1004:ILE:HD12 | 2.26                     | 0.56              |
| 2:B:2641:SER:HB3  | 2:B:2643:ASP:OD2  | 2.06                     | 0.56              |
| 2:B:2475:VAL:HG21 | 2:B:2514:VAL:CG2  | 2.33                     | 0.56              |
| 2:B:2333:PRO:HD3  | 2:B:2351:TRP:CH2  | 2.40                     | 0.56              |
| 2:B:2376:LEU:HB3  | 2:B:2406:TRP:CZ3  | 2.41                     | 0.56              |
| 2:B:2400:ASP:O    | 2:B:2402:THR:HG23 | 2.06                     | 0.56              |
| 2:B:2472:LYS:HD3  | 2:B:2472:LYS:N    | 2.21                     | 0.56              |
| 2:B:2343:LYS:O    | 2:B:2344:PRO:C    | 2.42                     | 0.56              |
| 1:A:1136:ARG:NH2  | 1:A:1143:ASN:HD22 | 2.03                     | 0.56              |
| 2:B:2435:ILE:HG12 | 2:B:2488:ILE:HD11 | 1.88                     | 0.56              |
| 2:B:2497:LEU:HB3  | 2:B:2526:TRP:CD2  | 2.41                     | 0.56              |
| 2:B:2603:VAL:HB   | 2:B:2617:LEU:HB2  | 1.86                     | 0.56              |
| 2:B:2334:LEU:HD12 | 2:B:2334:LEU:C    | 2.27                     | 0.55              |
| 2:B:2640:SER:HB2  | 2:B:2672:VAL:CG1  | 2.36                     | 0.55              |
| 2:B:2316:GLU:HG3  | 2:B:2346:PHE:CE2  | 2.41                     | 0.55              |
| 1:A:1058:VAL:HG23 | 1:A:1059:ILE:N    | 2.22                     | 0.55              |
| 2:B:2272:ILE:HD12 | 2:B:2313:ILE:CD1  | 2.36                     | 0.55              |
| 2:B:2280:PHE:CE2  | 2:B:2284:LEU:HD11 | 2.40                     | 0.55              |
| 2:B:2318:ASN:HA   | 2:B:2349:SER:OG   | 2.07                     | 0.55              |
| 2:B:2364:ASN:ND2  | 2:B:2702:PHE:HA   | 2.22                     | 0.55              |
| 2:B:2549:PHE:CZ   | 2:B:2551:GLY:HA2  | 2.42                     | 0.55              |
| 2:B:2554:VAL:HG22 | 2:B:2566:TRP:CD1  | 2.42                     | 0.55              |
| 2:B:2269:MET:SD   | 2:B:2310:TYR:CE1  | 2.99                     | 0.55              |
| 2:B:2439:THR:HG22 | 2:B:2463:THR:OG1  | 2.07                     | 0.55              |
| 1:A:1006:LEU:HD12 | 1:A:1014:PHE:HB2  | 1.87                     | 0.55              |
| 1:A:1153:VAL:HG11 | 2:B:2306:GLN:HA   | 1.88                     | 0.55              |
| 2:B:2432:ASN:HD21 | 2:B:2449:GLU:H    | 1.56                     | 0.54              |
| 2:B:2457:LEU:HD13 | 2:B:2486:TRP:CG   | 2.42                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2630:LEU:HA   | 2:B:2638:ILE:O    | 2.07                     | 0.54              |
| 1:A:1020:ILE:HG23 | 1:A:1063:THR:HA   | 1.89                     | 0.54              |
| 1:A:1018:VAL:HG23 | 1:A:1022:LYS:HE3  | 1.90                     | 0.54              |
| 1:A:1054:ILE:HG21 | 1:A:1106:ALA:HB2  | 1.89                     | 0.54              |
| 2:B:2379:HIS:CD2  | 2:B:2398:SER:CB   | 2.91                     | 0.54              |
| 2:B:2403:LEU:HD11 | 2:B:2436:SER:CB   | 2.38                     | 0.54              |
| 2:B:2475:VAL:HG11 | 2:B:2514:VAL:CG1  | 2.38                     | 0.54              |
| 2:B:2365:TRP:O    | 2:B:2658:ARG:NH1  | 2.40                     | 0.54              |
| 1:A:1006:LEU:HA   | 1:A:1045:VAL:H    | 1.73                     | 0.54              |
| 2:B:2520:ASP:C    | 2:B:2522:MET:H    | 2.09                     | 0.54              |
| 2:B:2603:VAL:HG22 | 2:B:2627:VAL:HG11 | 1.90                     | 0.54              |
| 1:A:1018:VAL:O    | 1:A:1019:GLU:HB2  | 2.08                     | 0.54              |
| 1:A:1144:ASP:OD1  | 2:B:2308:CYS:HB2  | 2.07                     | 0.54              |
| 2:B:2500:HIS:CD2  | 2:B:2504:VAL:HG22 | 2.43                     | 0.54              |
| 2:B:2475:VAL:HG11 | 2:B:2514:VAL:HG11 | 1.90                     | 0.54              |
| 2:B:2472:LYS:CD   | 2:B:2472:LYS:H    | 2.21                     | 0.53              |
| 2:B:2665:SER:O    | 2:B:2668:SER:N    | 2.41                     | 0.53              |
| 2:B:2530:THR:OG1  | 2:B:2532:THR:CG2  | 2.56                     | 0.53              |
| 1:A:1049:ASN:HB2  | 1:A:1109:TYR:CG   | 2.44                     | 0.53              |
| 1:A:1131:THR:CG2  | 1:A:1134:GLU:HG3  | 2.39                     | 0.53              |
| 2:B:2296:LEU:O    | 2:B:2301:LEU:HD21 | 2.08                     | 0.53              |
| 2:B:2314:LEU:C    | 2:B:2316:GLU:N    | 2.62                     | 0.53              |
| 2:B:2585:SER:OG   | 2:B:2586:GLY:N    | 2.40                     | 0.53              |
| 2:B:2584:THR:HG23 | 2:B:2596:SER:HB2  | 1.89                     | 0.53              |
| 2:B:2301:LEU:H    | 2:B:2301:LEU:HD22 | 1.73                     | 0.53              |
| 2:B:2521:PHE:HA   | 2:B:2542:ASN:O    | 2.09                     | 0.53              |
| 2:B:2623:HIS:ND1  | 2:B:2641:SER:HB3  | 2.24                     | 0.53              |
| 1:A:1025:VAL:HA   | 1:A:1028:LYS:HB3  | 1.89                     | 0.53              |
| 2:B:2518:ALA:C    | 2:B:2520:ASP:H    | 2.11                     | 0.53              |
| 2:B:2470:HIS:CD2  | 2:B:2511:GLY:HA3  | 2.43                     | 0.53              |
| 2:B:2445:VAL:CG1  | 2:B:2454:ILE:HD11 | 2.39                     | 0.53              |
| 2:B:2548:GLN:HB2  | 2:B:2555:VAL:HB   | 1.91                     | 0.53              |
| 2:B:2365:TRP:CH2  | 2:B:2682:LEU:HB2  | 2.44                     | 0.53              |
| 1:A:1030:MET:HA   | 1:A:1034:LEU:HD23 | 1.91                     | 0.52              |
| 2:B:2444:LYS:O    | 2:B:2446:TRP:CD1  | 2.62                     | 0.52              |
| 2:B:2663:LEU:HD21 | 2:B:2686:VAL:CG1  | 2.35                     | 0.52              |
| 2:B:2474:VAL:HG23 | 2:B:2488:ILE:HG12 | 1.91                     | 0.52              |
| 1:A:1136:ARG:NH1  | 1:A:1143:ASN:HB2  | 2.24                     | 0.52              |
| 2:B:2375:VAL:HG13 | 2:B:2696:LYS:HD2  | 1.91                     | 0.52              |
| 2:B:2532:THR:O    | 2:B:2532:THR:HG23 | 2.09                     | 0.52              |
| 1:A:1136:ARG:NH2  | 1:A:1143:ASN:ND2  | 2.58                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2312:ARG:HG2  | 2:B:2346:PHE:CZ   | 2.44                     | 0.52              |
| 2:B:2580:HIS:CE1  | 2:B:2602:THR:HG22 | 2.45                     | 0.52              |
| 1:A:1062:CYS:C    | 1:A:1064:HIS:N    | 2.62                     | 0.52              |
| 2:B:2357:ARG:NH1  | 2:B:2703:ASP:OD1  | 2.43                     | 0.52              |
| 2:B:2434:ILE:O    | 2:B:2446:TRP:N    | 2.39                     | 0.52              |
| 2:B:2467:MET:HA   | 2:B:2476:SER:HA   | 1.91                     | 0.52              |
| 2:B:2417:LEU:HB3  | 2:B:2446:TRP:CD2  | 2.44                     | 0.52              |
| 2:B:2648:LEU:HD13 | 2:B:2657:ILE:CD1  | 2.37                     | 0.52              |
| 1:A:1029:THR:O    | 1:A:1033:ASP:HB2  | 2.10                     | 0.52              |
| 1:A:1130:LYS:HD3  | 2:B:2299:LYS:HE2  | 1.91                     | 0.52              |
| 2:B:2629:CYS:HB2  | 2:B:2674:ARG:HA   | 1.91                     | 0.52              |
| 1:A:1006:LEU:HD11 | 1:A:1055:LEU:HD21 | 1.92                     | 0.52              |
| 1:A:1047:LEU:HD12 | 1:A:1055:LEU:CD1  | 2.40                     | 0.52              |
| 2:B:2293:LEU:O    | 2:B:2301:LEU:HD11 | 2.10                     | 0.52              |
| 2:B:2465:ARG:NH2  | 3:B:1:HOH:O       | 2.30                     | 0.52              |
| 2:B:2468:HIS:HD2  | 2:B:2509:TYR:N    | 1.98                     | 0.52              |
| 1:A:1136:ARG:NH1  | 1:A:1143:ASN:HD22 | 2.07                     | 0.51              |
| 1:A:1157:ASN:HB3  | 2:B:2302:LEU:HB3  | 1.93                     | 0.51              |
| 1:A:1136:ARG:HH22 | 1:A:1143:ASN:ND2  | 2.08                     | 0.51              |
| 2:B:2512:ARG:NH1  | 2:B:2513:ARG:NE   | 2.58                     | 0.51              |
| 2:B:2600:ASP:OD1  | 2:B:2602:THR:HB   | 2.11                     | 0.51              |
| 1:A:1024:SER:HB2  | 1:A:1112:ILE:HD11 | 1.93                     | 0.51              |
| 2:B:2565:VAL:HB   | 2:B:2575:HIS:HB2  | 1.92                     | 0.51              |
| 1:A:1131:THR:HG22 | 1:A:1134:GLU:H    | 1.76                     | 0.51              |
| 2:B:2403:LEU:CD2  | 2:B:2436:SER:HB3  | 2.41                     | 0.51              |
| 2:B:2598:ASN:HB3  | 2:B:2600:ASP:OD1  | 2.09                     | 0.51              |
| 2:B:2430:ARG:HD3  | 3:B:79:HOH:O      | 2.10                     | 0.51              |
| 2:B:2360:ARG:HB3  | 2:B:2704:VAL:HG21 | 1.91                     | 0.51              |
| 2:B:2334:LEU:HD13 | 2:B:2336:ILE:HG23 | 1.91                     | 0.51              |
| 2:B:2416:THR:O    | 2:B:2418:VAL:N    | 2.44                     | 0.51              |
| 2:B:2545:TYR:HB2  | 2:B:2583:LEU:HD21 | 1.92                     | 0.51              |
| 2:B:2554:VAL:HG22 | 2:B:2566:TRP:HD1  | 1.75                     | 0.51              |
| 2:B:2577:LEU:HD21 | 2:B:2611:GLY:HA2  | 1.93                     | 0.51              |
| 1:A:1044:PRO:O    | 1:A:1046:PRO:HD3  | 2.10                     | 0.51              |
| 2:B:2307:THR:HG22 | 2:B:2308:CYS:N    | 2.25                     | 0.51              |
| 2:B:2445:VAL:HB   | 2:B:2455:HIS:HB2  | 1.93                     | 0.51              |
| 2:B:2673:TRP:CH2  | 2:B:2687:GLY:HA3  | 2.46                     | 0.51              |
| 2:B:2365:TRP:HA   | 2:B:2702:PHE:CD1  | 2.45                     | 0.51              |
| 1:A:1006:LEU:CD1  | 1:A:1055:LEU:HD11 | 2.36                     | 0.51              |
| 1:A:1156:GLU:O    | 2:B:2356:ILE:HD13 | 2.11                     | 0.51              |
| 2:B:2288:LEU:O    | 2:B:2292:VAL:HG23 | 2.11                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2334:LEU:CD1  | 2:B:2336:ILE:HG23 | 2.40                     | 0.51              |
| 2:B:2544:VAL:HA   | 2:B:2558:SER:HA   | 1.92                     | 0.51              |
| 2:B:2559:LEU:C    | 2:B:2561:THR:H    | 2.13                     | 0.51              |
| 1:A:1006:LEU:HD22 | 1:A:1027:ILE:HD13 | 1.93                     | 0.50              |
| 2:B:2269:MET:HE3  | 2:B:2269:MET:HA   | 1.93                     | 0.50              |
| 2:B:2376:LEU:HB3  | 2:B:2406:TRP:CE3  | 2.46                     | 0.50              |
| 2:B:2474:VAL:HG23 | 2:B:2488:ILE:CG1  | 2.41                     | 0.50              |
| 2:B:2318:ASN:HD21 | 2:B:2350:PRO:HD2  | 1.75                     | 0.50              |
| 1:A:1020:ILE:CG2  | 1:A:1063:THR:HG22 | 2.36                     | 0.50              |
| 2:B:2303:GLN:OE1  | 2:B:2303:GLN:HA   | 2.09                     | 0.50              |
| 2:B:2415:ARG:HD2  | 2:B:2451:GLY:CA   | 2.35                     | 0.50              |
| 2:B:2268:MET:HG2  | 2:B:2347:ILE:HD12 | 1.93                     | 0.50              |
| 1:A:1006:LEU:CD1  | 1:A:1014:PHE:HB2  | 2.41                     | 0.50              |
| 1:A:1130:LYS:CG   | 2:B:2303:GLN:HE21 | 2.25                     | 0.50              |
| 2:B:2384:ILE:HB   | 2:B:2685:ALA:HB1  | 1.93                     | 0.50              |
| 1:A:1102:GLU:HA   | 1:A:1102:GLU:OE1  | 2.10                     | 0.50              |
| 2:B:2390:CYS:HB2  | 2:B:2429:MET:CE   | 2.41                     | 0.50              |
| 2:B:2386:CYS:SG   | 2:B:2397:GLY:HA3  | 2.51                     | 0.50              |
| 2:B:2630:LEU:C    | 2:B:2630:LEU:HD12 | 2.32                     | 0.50              |
| 1:A:1057:LYS:HZ3  | 1:A:1095:VAL:HG21 | 1.75                     | 0.50              |
| 1:A:1055:LEU:O    | 1:A:1058:VAL:HG22 | 2.12                     | 0.50              |
| 1:A:1061:TRP:O    | 1:A:1064:HIS:HB3  | 2.11                     | 0.50              |
| 1:A:1114:GLY:O    | 1:A:1118:VAL:HG23 | 2.12                     | 0.50              |
| 1:A:1153:VAL:HG12 | 2:B:2306:GLN:HG2  | 1.94                     | 0.50              |
| 2:B:2648:LEU:O    | 2:B:2657:ILE:HB   | 2.12                     | 0.50              |
| 2:B:2333:PRO:HD3  | 2:B:2351:TRP:CZ2  | 2.47                     | 0.49              |
| 1:A:1049:ASN:HB2  | 1:A:1109:TYR:CD2  | 2.46                     | 0.49              |
| 1:A:1136:ARG:CZ   | 1:A:1143:ASN:HD22 | 2.25                     | 0.49              |
| 2:B:2365:TRP:HH2  | 2:B:2682:LEU:HB2  | 1.76                     | 0.49              |
| 2:B:2418:VAL:HG23 | 2:B:2418:VAL:O    | 2.11                     | 0.49              |
| 1:A:1085:ILE:HD11 | 1:A:1125:ASN:ND2  | 2.26                     | 0.49              |
| 2:B:2296:LEU:HB3  | 2:B:2300:ASP:HB2  | 1.94                     | 0.49              |
| 2:B:2325:CYS:C    | 2:B:2327:GLU:H    | 2.14                     | 0.49              |
| 2:B:2430:ARG:O    | 2:B:2431:ASP:O    | 2.29                     | 0.49              |
| 2:B:2269:MET:HG3  | 2:B:2286:LYS:HE2  | 1.95                     | 0.49              |
| 2:B:2435:ILE:HD13 | 2:B:2474:VAL:HG21 | 1.94                     | 0.49              |
| 2:B:2519:TYR:CD1  | 2:B:2543:ARG:HD3  | 2.47                     | 0.49              |
| 2:B:2523:VAL:HG11 | 2:B:2537:LEU:HD12 | 1.94                     | 0.49              |
| 2:B:2599:ALA:HA   | 2:B:2626:ALA:CB   | 2.43                     | 0.49              |
| 2:B:2514:VAL:HB   | 2:B:2526:TRP:HB2  | 1.93                     | 0.49              |
| 2:B:2540:HIS:HD1  | 2:B:2558:SER:HB2  | 1.76                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2494:LEU:HD21 | 3:B:113:HOH:O     | 2.12                     | 0.49              |
| 2:B:2669:GLY:HA3  | 2:B:2690:ASN:HD21 | 1.77                     | 0.49              |
| 2:B:2405:VAL:HG22 | 2:B:2434:ILE:CD1  | 2.42                     | 0.49              |
| 2:B:2473:ARG:NH1  | 2:B:2529:GLU:OE2  | 2.45                     | 0.49              |
| 2:B:2584:THR:CG2  | 2:B:2596:SER:HB2  | 2.42                     | 0.49              |
| 2:B:2665:SER:OG   | 2:B:2670:GLY:HA3  | 2.12                     | 0.49              |
| 1:A:1095:VAL:HG12 | 1:A:1096:ASP:N    | 2.28                     | 0.49              |
| 1:A:1107:ALA:O    | 1:A:1111:ASP:N    | 2.46                     | 0.49              |
| 2:B:2629:CYS:HB3  | 2:B:2675:ILE:HG12 | 1.93                     | 0.49              |
| 1:A:1085:ILE:HG22 | 1:A:1090:GLN:HB2  | 1.95                     | 0.48              |
| 1:A:1061:TRP:HB2  | 1:A:1092:PHE:CZ   | 2.48                     | 0.48              |
| 2:B:2382:HIS:N    | 2:B:2695:THR:HG21 | 2.17                     | 0.48              |
| 1:A:1142:LYS:NZ   | 3:A:56:HOH:O      | 2.45                     | 0.48              |
| 2:B:2368:GLY:O    | 2:B:2658:ARG:NH2  | 2.44                     | 0.48              |
| 2:B:2379:HIS:CD2  | 2:B:2398:SER:HB2  | 2.48                     | 0.48              |
| 2:B:2376:LEU:HD13 | 2:B:2406:TRP:CE3  | 2.48                     | 0.48              |
| 2:B:2520:ASP:O    | 2:B:2522:MET:HG2  | 2.13                     | 0.48              |
| 2:B:2515:VAL:HG12 | 2:B:2547:LEU:CD1  | 2.43                     | 0.48              |
| 2:B:2439:THR:HA   | 2:B:2463:THR:CG2  | 2.44                     | 0.48              |
| 2:B:2480:ASP:O    | 2:B:2481:ALA:HB3  | 2.13                     | 0.48              |
| 1:A:1132:PRO:O    | 1:A:1136:ARG:HG3  | 2.13                     | 0.48              |
| 2:B:2264:GLN:HG2  | 2:B:2347:ILE:HG21 | 1.96                     | 0.48              |
| 2:B:2375:VAL:HG13 | 2:B:2696:LYS:HD3  | 1.94                     | 0.48              |
| 2:B:2398:SER:C    | 2:B:2400:ASP:H    | 2.17                     | 0.48              |
| 1:A:1010:ASP:OD2  | 1:A:1051:ASN:HB2  | 2.14                     | 0.48              |
| 1:A:1030:MET:O    | 1:A:1035:GLY:N    | 2.47                     | 0.48              |
| 1:A:1106:ALA:O    | 1:A:1110:LEU:HG   | 2.14                     | 0.48              |
| 2:B:2274:PRO:HG2  | 2:B:2313:ILE:HD12 | 1.95                     | 0.48              |
| 2:B:2474:VAL:HG21 | 2:B:2488:ILE:HD11 | 1.96                     | 0.48              |
| 2:B:2343:LYS:CB   | 2:B:2344:PRO:HD2  | 2.09                     | 0.48              |
| 2:B:2450:THR:OG1  | 2:B:2452:GLU:HG2  | 2.13                     | 0.48              |
| 2:B:2465:ARG:HG3  | 2:B:2465:ARG:HH11 | 1.79                     | 0.48              |
| 2:B:2430:ARG:HB2  | 2:B:2469:LEU:CD2  | 2.42                     | 0.48              |
| 2:B:2607:ASP:OD1  | 2:B:2609:LYS:HB2  | 2.14                     | 0.48              |
| 2:B:2589:LEU:HD11 | 2:B:2608:ILE:HD13 | 1.95                     | 0.48              |
| 2:B:2604:LYS:HE2  | 2:B:2616:THR:CG2  | 2.43                     | 0.48              |
| 1:A:1057:LYS:HD2  | 1:A:1060:GLN:NE2  | 2.28                     | 0.48              |
| 2:B:2330:ILE:C    | 2:B:2332:GLU:H    | 2.16                     | 0.48              |
| 2:B:2494:LEU:CD1  | 2:B:2494:LEU:H    | 2.21                     | 0.48              |
| 2:B:2321:TRP:CZ2  | 2:B:2352:LYS:HG3  | 2.49                     | 0.47              |
| 2:B:2408:ALA:HB1  | 2:B:2681:LYS:HD2  | 1.96                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2473:ARG:HD2  | 2:B:2509:TYR:OH   | 2.13                     | 0.47              |
| 2:B:2619:GLY:O    | 2:B:2622:LYS:HD2  | 2.14                     | 0.47              |
| 2:B:2540:HIS:C    | 2:B:2542:ASN:H    | 2.17                     | 0.47              |
| 1:A:1061:TRP:HE3  | 1:A:1062:CYS:HG   | 1.60                     | 0.47              |
| 2:B:2505:ARG:HG2  | 2:B:2545:TYR:CD1  | 2.50                     | 0.47              |
| 2:B:2600:ASP:CG   | 2:B:2602:THR:HB   | 2.35                     | 0.47              |
| 2:B:2314:LEU:O    | 2:B:2316:GLU:N    | 2.47                     | 0.47              |
| 2:B:2435:ILE:HD13 | 2:B:2474:VAL:CG2  | 2.45                     | 0.47              |
| 1:A:1136:ARG:HH22 | 1:A:1143:ASN:HD22 | 1.60                     | 0.47              |
| 2:B:2325:CYS:C    | 2:B:2327:GLU:N    | 2.68                     | 0.47              |
| 1:A:1051:ASN:OD1  | 1:A:1053:ALA:HB3  | 2.13                     | 0.47              |
| 2:B:2420:HIS:NE2  | 2:B:2444:LYS:HB2  | 2.29                     | 0.47              |
| 2:B:2567:ASP:CB   | 2:B:2574:ILE:HD11 | 2.41                     | 0.47              |
| 2:B:2646:VAL:HG21 | 2:B:2684:CYS:SG   | 2.54                     | 0.47              |
| 2:B:2432:ASN:O    | 2:B:2447:ASN:HA   | 2.14                     | 0.47              |
| 2:B:2439:THR:HA   | 2:B:2463:THR:CB   | 2.45                     | 0.47              |
| 2:B:2518:ALA:C    | 2:B:2520:ASP:N    | 2.67                     | 0.47              |
| 2:B:2646:VAL:HG22 | 2:B:2672:VAL:HG11 | 1.96                     | 0.47              |
| 2:B:2408:ALA:HB1  | 2:B:2681:LYS:CD   | 2.44                     | 0.47              |
| 1:A:1018:VAL:O    | 1:A:1019:GLU:CB   | 2.63                     | 0.46              |
| 2:B:2469:LEU:HD13 | 2:B:2474:VAL:CG2  | 2.45                     | 0.46              |
| 2:B:2497:LEU:HB3  | 2:B:2526:TRP:CE2  | 2.50                     | 0.46              |
| 1:A:1021:ALA:C    | 1:A:1023:GLN:H    | 2.19                     | 0.46              |
| 1:A:1034:LEU:H    | 1:A:1034:LEU:HD22 | 1.80                     | 0.46              |
| 1:A:1131:THR:O    | 1:A:1135:ILE:HG13 | 2.15                     | 0.46              |
| 2:B:2269:MET:CE   | 2:B:2313:ILE:HD12 | 2.45                     | 0.46              |
| 2:B:2469:LEU:HD13 | 2:B:2474:VAL:HG23 | 1.98                     | 0.46              |
| 2:B:2523:VAL:HG12 | 2:B:2537:LEU:HD12 | 1.95                     | 0.46              |
| 1:A:1093:LEU:HD13 | 1:A:1119:THR:HA   | 1.97                     | 0.46              |
| 2:B:2285:PRO:O    | 2:B:2286:LYS:C    | 2.54                     | 0.46              |
| 2:B:2447:ASN:O    | 2:B:2451:GLY:N    | 2.48                     | 0.46              |
| 2:B:2520:ASP:OD1  | 2:B:2522:MET:HB2  | 2.15                     | 0.46              |
| 2:B:2605:ILE:HD13 | 2:B:2651:LEU:CD1  | 2.44                     | 0.46              |
| 2:B:2648:LEU:HB2  | 2:B:2660:LEU:CD2  | 2.46                     | 0.46              |
| 2:B:2308:CYS:SG   | 2:B:2311:TRP:CD1  | 3.09                     | 0.46              |
| 2:B:2352:LYS:O    | 2:B:2356:ILE:HG13 | 2.16                     | 0.46              |
| 2:B:2373:PRO:HB3  | 2:B:2700:LEU:CD2  | 2.44                     | 0.46              |
| 1:A:1036:MET:O    | 1:A:1037:ASP:C    | 2.54                     | 0.46              |
| 1:A:1142:LYS:HE3  | 2:B:2278:ARG:HH11 | 1.81                     | 0.46              |
| 2:B:2376:LEU:HD22 | 2:B:2411:GLY:O    | 2.16                     | 0.46              |
| 2:B:2394:ILE:CG2  | 2:B:2683:VAL:HG11 | 2.45                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2470:HIS:O    | 2:B:2471:GLU:HB2  | 2.14                     | 0.46              |
| 2:B:2495:HIS:NE2  | 2:B:2529:GLU:HA   | 2.30                     | 0.46              |
| 2:B:2496:VAL:HG12 | 2:B:2498:MET:HG3  | 1.97                     | 0.46              |
| 2:B:2592:ASN:O    | 2:B:2608:ILE:HG12 | 2.16                     | 0.46              |
| 1:A:1141:ILE:HG12 | 2:B:2279:ASP:HB3  | 1.97                     | 0.46              |
| 2:B:2317:ASP:O    | 2:B:2320:LEU:HB3  | 2.16                     | 0.46              |
| 2:B:2383:VAL:HG13 | 2:B:2673:TRP:CE2  | 2.50                     | 0.46              |
| 2:B:2506:CYS:HB2  | 3:B:102:HOH:O     | 2.14                     | 0.46              |
| 2:B:2512:ARG:HG2  | 2:B:2513:ARG:HG3  | 1.97                     | 0.46              |
| 1:A:1099:THR:O    | 1:A:1102:GLU:HB2  | 2.15                     | 0.46              |
| 2:B:2574:ILE:HG22 | 2:B:2575:HIS:CD2  | 2.51                     | 0.46              |
| 2:B:2546:SER:HB3  | 2:B:2585:SER:O    | 2.16                     | 0.46              |
| 1:A:1024:SER:OG   | 1:A:1110:LEU:HB3  | 2.16                     | 0.46              |
| 2:B:2392:ASN:ND2  | 2:B:2392:ASN:N    | 2.62                     | 0.46              |
| 2:B:2640:SER:HB2  | 2:B:2672:VAL:HG12 | 1.97                     | 0.46              |
| 1:A:1034:LEU:HD22 | 1:A:1034:LEU:N    | 2.31                     | 0.45              |
| 2:B:2330:ILE:O    | 2:B:2332:GLU:N    | 2.49                     | 0.45              |
| 2:B:2425:TRP:CD1  | 2:B:2439:THR:HG23 | 2.51                     | 0.45              |
| 1:A:1024:SER:HB3  | 1:A:1027:ILE:HD12 | 1.99                     | 0.45              |
| 1:A:1137:LYS:HB3  | 1:A:1137:LYS:NZ   | 2.31                     | 0.45              |
| 2:B:2647:LYS:NZ   | 2:B:2659:ASN:ND2  | 2.61                     | 0.45              |
| 1:A:1135:ILE:O    | 1:A:1139:PHE:HD2  | 2.00                     | 0.45              |
| 2:B:2316:GLU:OE2  | 2:B:2352:LYS:HD3  | 2.16                     | 0.45              |
| 1:A:1085:ILE:HG13 | 1:A:1121:LYS:HD2  | 1.97                     | 0.45              |
| 1:A:1018:VAL:HG22 | 1:A:1019:GLU:N    | 2.32                     | 0.45              |
| 2:B:2390:CYS:O    | 2:B:2391:GLY:O    | 2.35                     | 0.45              |
| 2:B:2440:ASP:O    | 2:B:2441:ARG:HB2  | 2.17                     | 0.45              |
| 2:B:2475:VAL:CG1  | 2:B:2507:VAL:HG21 | 2.47                     | 0.45              |
| 2:B:2623:HIS:ND1  | 2:B:2641:SER:CB   | 2.80                     | 0.45              |
| 2:B:2665:SER:OG   | 2:B:2693:GLU:CG   | 2.58                     | 0.45              |
| 2:B:2685:ALA:HA   | 2:B:2697:LEU:HD13 | 1.99                     | 0.45              |
| 1:A:1004:ILE:HD12 | 1:A:1004:ILE:O    | 2.17                     | 0.45              |
| 1:A:1025:VAL:HG13 | 1:A:1111:ASP:HB3  | 1.98                     | 0.45              |
| 2:B:2321:TRP:C    | 2:B:2323:GLU:N    | 2.67                     | 0.45              |
| 2:B:2460:HIS:CD2  | 2:B:2476:SER:HG   | 2.31                     | 0.45              |
| 2:B:2526:TRP:CZ3  | 2:B:2533:CYS:HB2  | 2.52                     | 0.45              |
| 2:B:2618:GLN:C    | 2:B:2622:LYS:HB3  | 2.37                     | 0.45              |
| 2:B:2638:ILE:HG22 | 2:B:2675:ILE:HD12 | 1.98                     | 0.45              |
| 2:B:2663:LEU:CD2  | 2:B:2686:VAL:HG13 | 2.39                     | 0.45              |
| 2:B:2422:GLY:H    | 2:B:2440:ASP:HB3  | 1.81                     | 0.45              |
| 2:B:2475:VAL:HG23 | 2:B:2509:TYR:CG   | 2.51                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2360:ARG:CB   | 2:B:2704:VAL:HG21 | 2.47                     | 0.45              |
| 2:B:2540:HIS:NE2  | 2:B:2564:ARG:HB2  | 2.31                     | 0.45              |
| 1:A:1156:GLU:OE1  | 2:B:2348:HIS:CE1  | 2.69                     | 0.45              |
| 1:A:1159:TRP:HA   | 2:B:2359:HIS:NE2  | 2.32                     | 0.45              |
| 2:B:2407:SER:C    | 2:B:2409:VAL:N    | 2.67                     | 0.45              |
| 2:B:2407:SER:O    | 2:B:2411:GLY:N    | 2.48                     | 0.45              |
| 2:B:2436:SER:O    | 2:B:2443:LEU:HA   | 2.16                     | 0.45              |
| 2:B:2580:HIS:CE1  | 2:B:2604:LYS:HG3  | 2.52                     | 0.45              |
| 1:A:1064:HIS:HD2  | 1:A:1065:HIS:CE1  | 2.35                     | 0.45              |
| 2:B:2385:THR:OG1  | 2:B:2424:VAL:O    | 2.19                     | 0.45              |
| 2:B:2490:THR:O    | 2:B:2492:GLN:NE2  | 2.50                     | 0.45              |
| 2:B:2460:HIS:HE1  | 2:B:2482:THR:O    | 1.99                     | 0.44              |
| 1:A:1101:PHE:HB2  | 2:B:2280:PHE:CE1  | 2.51                     | 0.44              |
| 2:B:2364:ASN:CA   | 2:B:2368:GLY:HA3  | 2.46                     | 0.44              |
| 2:B:2483:LEU:HD12 | 2:B:2483:LEU:N    | 2.32                     | 0.44              |
| 2:B:2618:GLN:HB3  | 2:B:2622:LYS:HE2  | 2.00                     | 0.44              |
| 2:B:2617:LEU:HB3  | 2:B:2649:TRP:CD2  | 2.52                     | 0.44              |
| 2:B:2665:SER:O    | 2:B:2667:GLY:N    | 2.50                     | 0.44              |
| 2:B:2660:LEU:HB3  | 2:B:2700:LEU:CD1  | 2.47                     | 0.44              |
| 1:A:1115:LEU:HD23 | 1:A:1119:THR:HG23 | 1.99                     | 0.44              |
| 1:A:1136:ARG:HH12 | 1:A:1143:ASN:HD22 | 1.65                     | 0.44              |
| 2:B:2392:ASN:O    | 2:B:2407:SER:HA   | 2.17                     | 0.44              |
| 2:B:2396:SER:O    | 2:B:2403:LEU:HA   | 2.18                     | 0.44              |
| 1:A:1130:LYS:CG   | 1:A:1131:THR:H    | 2.30                     | 0.44              |
| 2:B:2294:SER:HA   | 2:B:2320:LEU:HD11 | 1.98                     | 0.44              |
| 2:B:2547:LEU:HD23 | 2:B:2555:VAL:O    | 2.17                     | 0.44              |
| 1:A:1130:LYS:HG2  | 2:B:2303:GLN:HE21 | 1.82                     | 0.44              |
| 2:B:2269:MET:CE   | 2:B:2269:MET:HA   | 2.48                     | 0.44              |
| 2:B:2342:ILE:CG1  | 2:B:2343:LYS:N    | 2.80                     | 0.44              |
| 2:B:2379:HIS:CD2  | 2:B:2398:SER:HB3  | 2.53                     | 0.44              |
| 2:B:2479:ARG:NH2  | 3:B:9:HOH:O       | 2.50                     | 0.44              |
| 2:B:2473:ARG:HA   | 2:B:2486:TRP:O    | 2.17                     | 0.44              |
| 2:B:2504:VAL:HA   | 2:B:2518:ALA:HA   | 2.00                     | 0.44              |
| 2:B:2545:TYR:HE2  | 2:B:2559:LEU:HD12 | 1.82                     | 0.44              |
| 2:B:2607:ASP:O    | 2:B:2611:GLY:N    | 2.44                     | 0.44              |
| 1:A:1117:ASP:OD2  | 2:B:2291:TYR:OH   | 2.33                     | 0.44              |
| 1:A:1132:PRO:HD3  | 2:B:2303:GLN:NE2  | 2.33                     | 0.44              |
| 2:B:2279:ASP:OD2  | 2:B:2282:SER:N    | 2.42                     | 0.44              |
| 2:B:2269:MET:HE3  | 2:B:2313:ILE:HD12 | 1.99                     | 0.44              |
| 2:B:2443:LEU:HD11 | 2:B:2476:SER:CB   | 2.47                     | 0.44              |
| 2:B:2512:ARG:HG2  | 2:B:2513:ARG:CG   | 2.47                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2561:THR:HA   | 2:B:2582:SER:O    | 2.18                     | 0.44              |
| 2:B:2486:TRP:CE3  | 2:B:2493:CYS:HB2  | 2.53                     | 0.44              |
| 2:B:2649:TRP:CZ3  | 2:B:2656:PHE:HB2  | 2.52                     | 0.44              |
| 2:B:2269:MET:HE2  | 2:B:2274:PRO:HD2  | 1.99                     | 0.44              |
| 2:B:2401:ASN:O    | 2:B:2420:HIS:HB2  | 2.18                     | 0.44              |
| 2:B:2443:LEU:HD22 | 2:B:2457:LEU:HD12 | 1.99                     | 0.44              |
| 2:B:2300:ASP:O    | 2:B:2301:LEU:C    | 2.56                     | 0.43              |
| 2:B:2388:GLN:HE22 | 2:B:2676:ARG:NH2  | 2.16                     | 0.43              |
| 2:B:2527:ASP:HB2  | 2:B:2534:LEU:HD11 | 2.00                     | 0.43              |
| 2:B:2647:LYS:HZ3  | 2:B:2659:ASN:HD21 | 1.63                     | 0.43              |
| 2:B:2426:SER:HB3  | 2:B:2466:CYS:HA   | 2.00                     | 0.43              |
| 2:B:2475:VAL:HG22 | 2:B:2485:VAL:HG22 | 1.99                     | 0.43              |
| 2:B:2396:SER:HB3  | 2:B:2697:LEU:HD21 | 2.01                     | 0.43              |
| 1:A:1131:THR:HG23 | 1:A:1133:GLU:OE1  | 2.18                     | 0.43              |
| 2:B:2277:GLN:HB3  | 2:B:2279:ASP:OD1  | 2.19                     | 0.43              |
| 1:A:1130:LYS:CG   | 2:B:2303:GLN:HG3  | 2.33                     | 0.43              |
| 2:B:2364:ASN:O    | 2:B:2368:GLY:CA   | 2.66                     | 0.43              |
| 2:B:2383:VAL:O    | 2:B:2398:SER:HA   | 2.19                     | 0.43              |
| 2:B:2467:MET:HG3  | 2:B:2467:MET:O    | 2.17                     | 0.43              |
| 2:B:2520:ASP:C    | 2:B:2522:MET:N    | 2.72                     | 0.43              |
| 2:B:2379:HIS:O    | 2:B:2380:ASP:C    | 2.56                     | 0.43              |
| 2:B:2647:LYS:HZ3  | 2:B:2659:ASN:ND2  | 2.15                     | 0.43              |
| 1:A:1018:VAL:HG13 | 1:A:1019:GLU:HG2  | 2.01                     | 0.43              |
| 1:A:1136:ARG:C    | 1:A:1138:THR:N    | 2.72                     | 0.43              |
| 1:A:1153:VAL:CG1  | 2:B:2306:GLN:HA   | 2.49                     | 0.43              |
| 2:B:2320:LEU:O    | 2:B:2324:LYS:HG2  | 2.19                     | 0.43              |
| 2:B:2483:LEU:HD11 | 2:B:2500:HIS:HD2  | 1.82                     | 0.43              |
| 2:B:2617:LEU:HB3  | 2:B:2649:TRP:CE3  | 2.53                     | 0.43              |
| 2:B:2364:ASN:HD22 | 2:B:2702:PHE:C    | 2.20                     | 0.43              |
| 1:A:1146:THR:OG1  | 1:A:1149:GLU:HG3  | 2.19                     | 0.43              |
| 2:B:2401:ASN:HA   | 2:B:2422:GLY:O    | 2.18                     | 0.43              |
| 2:B:2540:HIS:CE1  | 2:B:2556:SER:OG   | 2.72                     | 0.43              |
| 2:B:2605:ILE:HG22 | 2:B:2614:LEU:HD12 | 2.01                     | 0.43              |
| 1:A:1084:ASP:O    | 1:A:1086:PRO:HD3  | 2.19                     | 0.43              |
| 1:A:1101:PHE:HA   | 2:B:2280:PHE:CZ   | 2.54                     | 0.43              |
| 1:A:1132:PRO:CG   | 2:B:2306:GLN:HB2  | 2.49                     | 0.43              |
| 2:B:2556:SER:O    | 2:B:2563:ILE:HA   | 2.19                     | 0.43              |
| 2:B:2665:SER:O    | 2:B:2666:GLY:C    | 2.56                     | 0.43              |
| 1:A:1084:ASP:N    | 1:A:1121:LYS:NZ   | 2.66                     | 0.43              |
| 1:A:1149:GLU:O    | 1:A:1150:GLU:C    | 2.57                     | 0.43              |
| 2:B:2401:ASN:H    | 2:B:2423:GLY:HA2  | 1.83                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2440:ASP:O    | 2:B:2441:ARG:CB   | 2.67                     | 0.43              |
| 2:B:2605:ILE:HD11 | 2:B:2637:VAL:HG21 | 2.01                     | 0.43              |
| 2:B:2395:VAL:CG2  | 2:B:2429:MET:SD   | 3.07                     | 0.43              |
| 2:B:2460:HIS:NE2  | 2:B:2476:SER:OG   | 2.35                     | 0.43              |
| 2:B:2475:VAL:HG12 | 2:B:2507:VAL:HG21 | 2.00                     | 0.43              |
| 2:B:2555:VAL:HG11 | 2:B:2594:LEU:HD22 | 2.00                     | 0.43              |
| 2:B:2583:LEU:HD13 | 2:B:2583:LEU:O    | 2.19                     | 0.43              |
| 2:B:2503:ALA:O    | 2:B:2519:TYR:N    | 2.44                     | 0.42              |
| 2:B:2515:VAL:HG21 | 2:B:2549:PHE:CG   | 2.55                     | 0.42              |
| 1:A:1093:LEU:CD1  | 1:A:1118:VAL:HG12 | 2.49                     | 0.42              |
| 1:A:1100:LEU:O    | 1:A:1104:ILE:HG12 | 2.19                     | 0.42              |
| 1:A:1125:ASN:HA   | 1:A:1128:LYS:HD2  | 2.00                     | 0.42              |
| 2:B:2321:TRP:O    | 2:B:2322:ARG:C    | 2.57                     | 0.42              |
| 1:A:1139:PHE:HB2  | 1:A:1141:ILE:CD1  | 2.49                     | 0.42              |
| 2:B:2298:PRO:HA   | 2:B:2301:LEU:HD23 | 2.00                     | 0.42              |
| 2:B:2420:HIS:HE1  | 2:B:2442:THR:O    | 2.02                     | 0.42              |
| 1:A:1158:GLN:HG3  | 1:A:1159:TRP:N    | 2.34                     | 0.42              |
| 1:A:1142:LYS:HE3  | 2:B:2278:ARG:CD   | 2.50                     | 0.42              |
| 2:B:2389:PHE:CZ   | 2:B:2681:LYS:HG3  | 2.55                     | 0.42              |
| 2:B:2443:LEU:CD2  | 2:B:2467:MET:HE2  | 2.50                     | 0.42              |
| 2:B:2454:ILE:HG13 | 2:B:2455:HIS:CD2  | 2.50                     | 0.42              |
| 2:B:2443:LEU:HD13 | 2:B:2486:TRP:CE2  | 2.55                     | 0.42              |
| 2:B:2520:ASP:O    | 2:B:2522:MET:N    | 2.51                     | 0.42              |
| 2:B:2506:CYS:SG   | 2:B:2547:LEU:HB2  | 2.59                     | 0.42              |
| 2:B:2575:HIS:CD2  | 2:B:2608:ILE:O    | 2.72                     | 0.42              |
| 2:B:2582:SER:OG   | 2:B:2583:LEU:N    | 2.51                     | 0.42              |
| 2:B:2290:LEU:C    | 2:B:2292:VAL:N    | 2.72                     | 0.42              |
| 2:B:2441:ARG:CG   | 2:B:2461:THR:O    | 2.65                     | 0.42              |
| 2:B:2505:ARG:HH11 | 2:B:2505:ARG:HG3  | 1.84                     | 0.42              |
| 2:B:2514:VAL:O    | 2:B:2526:TRP:HD1  | 2.02                     | 0.42              |
| 2:B:2567:ASP:HB2  | 2:B:2574:ILE:CD1  | 2.46                     | 0.42              |
| 2:B:2594:LEU:O    | 2:B:2605:ILE:HA   | 2.19                     | 0.42              |
| 1:A:1019:GLU:HA   | 1:A:1022:LYS:HB2  | 2.01                     | 0.42              |
| 1:A:1130:LYS:HG3  | 2:B:2303:GLN:NE2  | 2.34                     | 0.42              |
| 2:B:2321:TRP:HB2  | 2:B:2351:TRP:HB2  | 2.01                     | 0.42              |
| 2:B:2403:LEU:HB2  | 2:B:2417:LEU:HB2  | 2.00                     | 0.42              |
| 2:B:2503:ALA:O    | 2:B:2518:ALA:HA   | 2.19                     | 0.42              |
| 1:A:1139:PHE:CD1  | 2:B:2280:PHE:HB3  | 2.55                     | 0.42              |
| 2:B:2298:PRO:O    | 2:B:2302:LEU:HG   | 2.20                     | 0.42              |
| 2:B:2386:CYS:SG   | 2:B:2427:SER:CB   | 3.08                     | 0.42              |
| 2:B:2503:ALA:O    | 2:B:2518:ALA:HB1  | 2.20                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2516:SER:O    | 2:B:2523:VAL:HA   | 2.20                     | 0.42              |
| 2:B:2390:CYS:HB2  | 2:B:2429:MET:HE2  | 2.01                     | 0.42              |
| 2:B:2417:LEU:HB3  | 2:B:2446:TRP:CZ3  | 2.54                     | 0.42              |
| 1:A:1028:LYS:HG2  | 1:A:1032:GLU:OE1  | 2.20                     | 0.42              |
| 2:B:2268:MET:HE3  | 2:B:2346:PHE:CD1  | 2.55                     | 0.42              |
| 1:A:1142:LYS:HE3  | 2:B:2278:ARG:HD3  | 2.02                     | 0.42              |
| 1:A:1139:PHE:HD1  | 2:B:2280:PHE:HB3  | 1.85                     | 0.42              |
| 1:A:1108:ASN:ND2  | 2:B:2288:LEU:HD11 | 2.34                     | 0.42              |
| 2:B:2389:PHE:CE2  | 2:B:2678:SER:HB3  | 2.55                     | 0.42              |
| 1:A:1104:ILE:HD13 | 1:A:1119:THR:OG1  | 2.20                     | 0.41              |
| 2:B:2269:MET:SD   | 2:B:2286:LYS:HE3  | 2.59                     | 0.41              |
| 2:B:2342:ILE:CG1  | 2:B:2343:LYS:H    | 2.28                     | 0.41              |
| 2:B:2371:LYS:O    | 2:B:2372:SER:OG   | 2.29                     | 0.41              |
| 2:B:2553:HIS:HD2  | 2:B:2574:ILE:HD12 | 1.85                     | 0.41              |
| 2:B:2515:VAL:HG11 | 2:B:2554:VAL:CG2  | 2.50                     | 0.41              |
| 1:A:1058:VAL:CG2  | 1:A:1059:ILE:N    | 2.83                     | 0.41              |
| 1:A:1116:LEU:HD12 | 1:A:1120:CYS:SG   | 2.59                     | 0.41              |
| 2:B:2307:THR:HG22 | 2:B:2308:CYS:SG   | 2.59                     | 0.41              |
| 2:B:2508:GLN:HB3  | 2:B:2549:PHE:HB3  | 2.02                     | 0.41              |
| 2:B:2395:VAL:HG21 | 2:B:2429:MET:SD   | 2.61                     | 0.41              |
| 2:B:2469:LEU:HD11 | 2:B:2471:GLU:O    | 2.20                     | 0.41              |
| 1:A:1084:ASP:N    | 1:A:1121:LYS:HZ2  | 2.17                     | 0.41              |
| 1:A:1085:ILE:CG2  | 1:A:1090:GLN:HB2  | 2.50                     | 0.41              |
| 1:A:1158:GLN:HB3  | 3:A:35:HOH:O      | 2.19                     | 0.41              |
| 2:B:2439:THR:C    | 2:B:2441:ARG:H    | 2.24                     | 0.41              |
| 2:B:2580:HIS:CB   | 2:B:2598:ASN:ND2  | 2.79                     | 0.41              |
| 1:A:1143:ASN:HD21 | 1:A:1150:GLU:CD   | 2.23                     | 0.41              |
| 1:A:1117:ASP:OD2  | 2:B:2291:TYR:CE2  | 2.73                     | 0.41              |
| 2:B:2704:VAL:HG12 | 2:B:2705:ASP:N    | 2.36                     | 0.41              |
| 1:A:1055:LEU:HA   | 1:A:1058:VAL:HG22 | 2.01                     | 0.41              |
| 1:A:1020:ILE:CG2  | 1:A:1063:THR:HA   | 2.51                     | 0.41              |
| 1:A:1006:LEU:CB   | 1:A:1045:VAL:HB   | 2.50                     | 0.41              |
| 2:B:2265:VAL:O    | 2:B:2269:MET:HG2  | 2.21                     | 0.41              |
| 2:B:2432:ASN:ND2  | 2:B:2449:GLU:N    | 2.63                     | 0.41              |
| 2:B:2441:ARG:HB3  | 2:B:2460:HIS:O    | 2.21                     | 0.41              |
| 2:B:2467:MET:HA   | 2:B:2475:VAL:O    | 2.21                     | 0.41              |
| 2:B:2547:LEU:HD23 | 2:B:2556:SER:HA   | 2.03                     | 0.41              |
| 2:B:2649:TRP:CE3  | 2:B:2656:PHE:HA   | 2.55                     | 0.41              |
| 2:B:2476:SER:O    | 2:B:2483:LEU:CA   | 2.69                     | 0.41              |
| 2:B:2524:LYS:HZ3  | 2:B:2524:LYS:HG2  | 1.80                     | 0.41              |
| 2:B:2552:ILE:C    | 2:B:2568:VAL:HG23 | 2.40                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:B:2570:THR:OG1  | 2:B:2572:ASN:HB2  | 2.21                     | 0.41              |
| 1:A:1062:CYS:O    | 1:A:1064:HIS:N    | 2.54                     | 0.41              |
| 2:B:2355:TYR:CD2  | 2:B:2355:TYR:C    | 2.93                     | 0.41              |
| 2:B:2440:ASP:OD1  | 2:B:2440:ASP:C    | 2.59                     | 0.41              |
| 2:B:2379:HIS:O    | 2:B:2695:THR:HG21 | 2.21                     | 0.41              |
| 2:B:2394:ILE:HB   | 2:B:2406:TRP:HB2  | 2.03                     | 0.41              |
| 2:B:2497:LEU:H    | 2:B:2497:LEU:HD22 | 1.86                     | 0.41              |
| 2:B:2704:VAL:HA   | 3:B:60:HOH:O      | 2.20                     | 0.41              |
| 1:A:1054:ILE:CD1  | 1:A:1102:GLU:HB3  | 2.51                     | 0.41              |
| 1:A:1055:LEU:HD23 | 1:A:1055:LEU:C    | 2.40                     | 0.41              |
| 1:A:1141:ILE:CG1  | 2:B:2279:ASP:HB3  | 2.51                     | 0.41              |
| 2:B:2296:LEU:O    | 2:B:2324:LYS:NZ   | 2.41                     | 0.41              |
| 2:B:2311:TRP:O    | 2:B:2312:ARG:C    | 2.59                     | 0.41              |
| 1:A:1085:ILE:CD1  | 1:A:1125:ASN:ND2  | 2.84                     | 0.40              |
| 1:A:1097:GLN:HB3  | 2:B:2280:PHE:HD1  | 1.87                     | 0.40              |
| 2:B:2443:LEU:HG   | 2:B:2464:VAL:HG11 | 2.04                     | 0.40              |
| 2:B:2453:CYS:SG   | 2:B:2455:HIS:O    | 2.78                     | 0.40              |
| 2:B:2482:THR:CG2  | 2:B:2498:MET:HG2  | 2.51                     | 0.40              |
| 2:B:2273:GLU:C    | 2:B:2275:GLN:H    | 2.24                     | 0.40              |
| 2:B:2368:GLY:O    | 2:B:2658:ARG:NH1  | 2.52                     | 0.40              |
| 2:B:2497:LEU:N    | 2:B:2497:LEU:HD22 | 2.36                     | 0.40              |
| 2:B:2537:LEU:HB3  | 2:B:2566:TRP:CE3  | 2.57                     | 0.40              |
| 1:A:1018:VAL:CG2  | 1:A:1022:LYS:HE3  | 2.52                     | 0.40              |
| 1:A:1130:LYS:HG2  | 1:A:1131:THR:H    | 1.85                     | 0.40              |
| 2:B:2341:VAL:HA   | 3:B:72:HOH:O      | 2.22                     | 0.40              |
| 2:B:2318:ASN:CG   | 2:B:2350:PRO:HD2  | 2.41                     | 0.40              |
| 2:B:2357:ARG:NH1  | 2:B:2361:ILE:HD11 | 2.36                     | 0.40              |
| 2:B:2428:GLN:HG2  | 2:B:2467:MET:HG3  | 2.03                     | 0.40              |
| 1:A:1104:ILE:HD13 | 1:A:1119:THR:CB   | 2.51                     | 0.40              |
| 2:B:2488:ILE:HD13 | 2:B:2488:ILE:HA   | 1.73                     | 0.40              |
| 2:B:2509:TYR:CE1  | 2:B:2511:GLY:HA2  | 2.57                     | 0.40              |
| 2:B:2563:ILE:HD11 | 2:B:2584:THR:HG21 | 2.03                     | 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     | 130/149 (87%) | 102 (78%) | 19 (15%) | 9 (7%)   | 1           | 3  |
| 2   | B     | 437/445 (98%) | 360 (82%) | 62 (14%) | 15 (3%)  | 3           | 15 |
| All | All   | 567/594 (96%) | 462 (82%) | 81 (14%) | 24 (4%)  | 3           | 10 |

All (24) Ramachandran outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | B     | 2275 | GLN  |
| 2   | B     | 2344 | PRO  |
| 2   | B     | 2366 | ARG  |
| 2   | B     | 2391 | GLY  |
| 2   | B     | 2431 | ASP  |
| 1   | A     | 1088 | TRP  |
| 1   | A     | 1128 | LYS  |
| 1   | A     | 1141 | ILE  |
| 2   | B     | 2276 | PHE  |
| 2   | B     | 2343 | LYS  |
| 2   | B     | 2417 | LEU  |
| 1   | A     | 1044 | PRO  |
| 1   | A     | 1129 | GLY  |
| 1   | A     | 1131 | THR  |
| 1   | A     | 1140 | ASN  |
| 2   | B     | 2372 | SER  |
| 2   | B     | 2666 | GLY  |
| 2   | B     | 2315 | ALA  |
| 2   | B     | 2499 | GLY  |
| 1   | A     | 1147 | GLU  |
| 2   | B     | 2531 | GLU  |
| 2   | B     | 2587 | MET  |
| 1   | A     | 1087 | VAL  |
| 2   | B     | 2539 | GLY  |

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

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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     | 122/134 (91%) | 120 (98%) | 2 (2%)   | 62          | 86 |
| 2   | B     | 391/395 (99%) | 363 (93%) | 28 (7%)  | 14          | 39 |
| All | All   | 513/529 (97%) | 483 (94%) | 30 (6%)  | 20          | 50 |

All (30) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1037 | ASP  |
| 1   | A     | 1099 | THR  |
| 2   | B     | 2264 | GLN  |
| 2   | B     | 2269 | MET  |
| 2   | B     | 2281 | ILE  |
| 2   | B     | 2318 | ASN  |
| 2   | B     | 2343 | LYS  |
| 2   | B     | 2344 | PRO  |
| 2   | B     | 2388 | GLN  |
| 2   | B     | 2430 | ARG  |
| 2   | B     | 2431 | ASP  |
| 2   | B     | 2461 | THR  |
| 2   | B     | 2472 | LYS  |
| 2   | B     | 2513 | ARG  |
| 2   | B     | 2521 | PHE  |
| 2   | B     | 2547 | LEU  |
| 2   | B     | 2554 | VAL  |
| 2   | B     | 2560 | ASP  |
| 2   | B     | 2561 | THR  |
| 2   | B     | 2587 | MET  |
| 2   | B     | 2591 | ASP  |
| 2   | B     | 2602 | THR  |
| 2   | B     | 2642 | ASP  |
| 2   | B     | 2648 | LEU  |
| 2   | B     | 2660 | LEU  |
| 2   | B     | 2663 | LEU  |
| 2   | B     | 2679 | ASN  |
| 2   | B     | 2680 | THR  |
| 2   | B     | 2695 | THR  |
| 2   | B     | 2705 | ASP  |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (25) such sidechains are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1060 | GLN  |
| 1   | A     | 1064 | HIS  |
| 1   | A     | 1108 | ASN  |
| 1   | A     | 1143 | ASN  |
| 2   | B     | 2275 | GLN  |
| 2   | B     | 2303 | GLN  |
| 2   | B     | 2306 | GLN  |
| 2   | B     | 2318 | ASN  |
| 2   | B     | 2348 | HIS  |
| 2   | B     | 2364 | ASN  |
| 2   | B     | 2379 | HIS  |
| 2   | B     | 2382 | HIS  |
| 2   | B     | 2388 | GLN  |
| 2   | B     | 2392 | ASN  |
| 2   | B     | 2432 | ASN  |
| 2   | B     | 2468 | HIS  |
| 2   | B     | 2470 | HIS  |
| 2   | B     | 2538 | GLN  |
| 2   | B     | 2540 | HIS  |
| 2   | B     | 2553 | HIS  |
| 2   | B     | 2572 | ASN  |
| 2   | B     | 2581 | GLN  |
| 2   | B     | 2612 | GLN  |
| 2   | B     | 2615 | GLN  |
| 2   | B     | 2659 | 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     | 134/149 (89%) | 0.40   | 16 (11%) <b>4</b> <b>3</b> | 34, 58, 83, 91        | 0     |
| 2   | B     | 441/445 (99%) | 0.09   | 15 (3%) 45 40              | 9, 36, 73, 89         | 0     |
| All | All   | 575/594 (96%) | 0.17   | 31 (5%) 25 22              | 9, 41, 77, 91         | 0     |

All (31) RSRZ outliers are listed below:

| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | A     | 1087 | VAL  | 5.0  |
| 2   | B     | 2341 | VAL  | 4.9  |
| 1   | A     | 1002 | PRO  | 4.2  |
| 2   | B     | 2343 | LYS  | 4.0  |
| 2   | B     | 2705 | ASP  | 3.4  |
| 2   | B     | 2421 | THR  | 3.2  |
| 1   | A     | 1130 | LYS  | 3.1  |
| 2   | B     | 2342 | ILE  | 3.0  |
| 1   | A     | 1137 | LYS  | 2.9  |
| 1   | A     | 1148 | GLU  | 2.9  |
| 2   | B     | 2331 | ASP  | 2.8  |
| 1   | A     | 1133 | GLU  | 2.8  |
| 2   | B     | 2706 | MET  | 2.7  |
| 1   | A     | 1146 | THR  | 2.7  |
| 2   | B     | 2371 | LYS  | 2.6  |
| 2   | B     | 2319 | LEU  | 2.5  |
| 1   | A     | 1151 | ALA  | 2.5  |
| 2   | B     | 2315 | ALA  | 2.4  |
| 2   | B     | 2336 | ILE  | 2.4  |
| 1   | A     | 1037 | ASP  | 2.3  |
| 1   | A     | 1094 | LYS  | 2.3  |
| 1   | A     | 1158 | GLN  | 2.2  |
| 2   | B     | 2691 | GLY  | 2.2  |
| 2   | B     | 2337 | LYS  | 2.2  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 2   | B     | 2581 | GLN  | 2.2  |
| 1   | A     | 1155 | LYS  | 2.1  |
| 1   | A     | 1017 | ASP  | 2.1  |
| 1   | A     | 1147 | GLU  | 2.1  |
| 1   | A     | 1063 | THR  | 2.0  |
| 1   | A     | 1015 | GLU  | 2.0  |
| 2   | B     | 2462 | SER  | 2.0  |

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

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

## 6.3 Carbohydrates [i](#)

There are no 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.