



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 23, 2024 – 06:05 AM EDT

PDB ID : 5D06
Title : Crystal Structure of the Candida Glabrata Glycogen Debranching Enzyme
Authors : Zhai, L.; Xiang, S.
Deposited on : 2015-08-02
Resolution : 3.10 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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 : 2.37.1
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

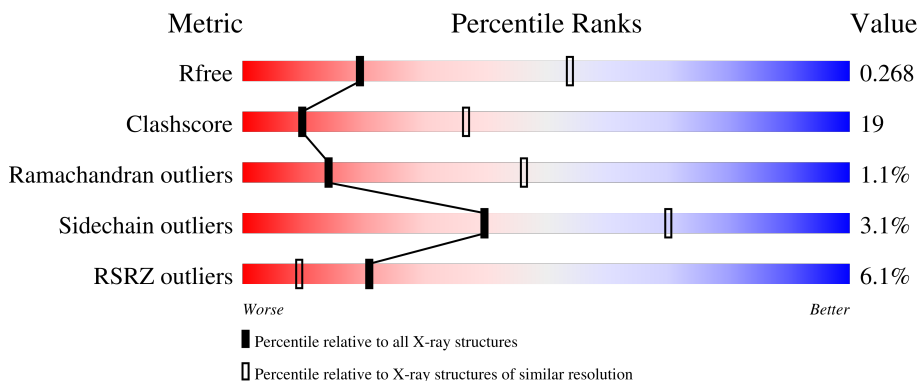
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.10 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 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 | 1528 | |
| 1 | B | 1528 | |

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 24403 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.

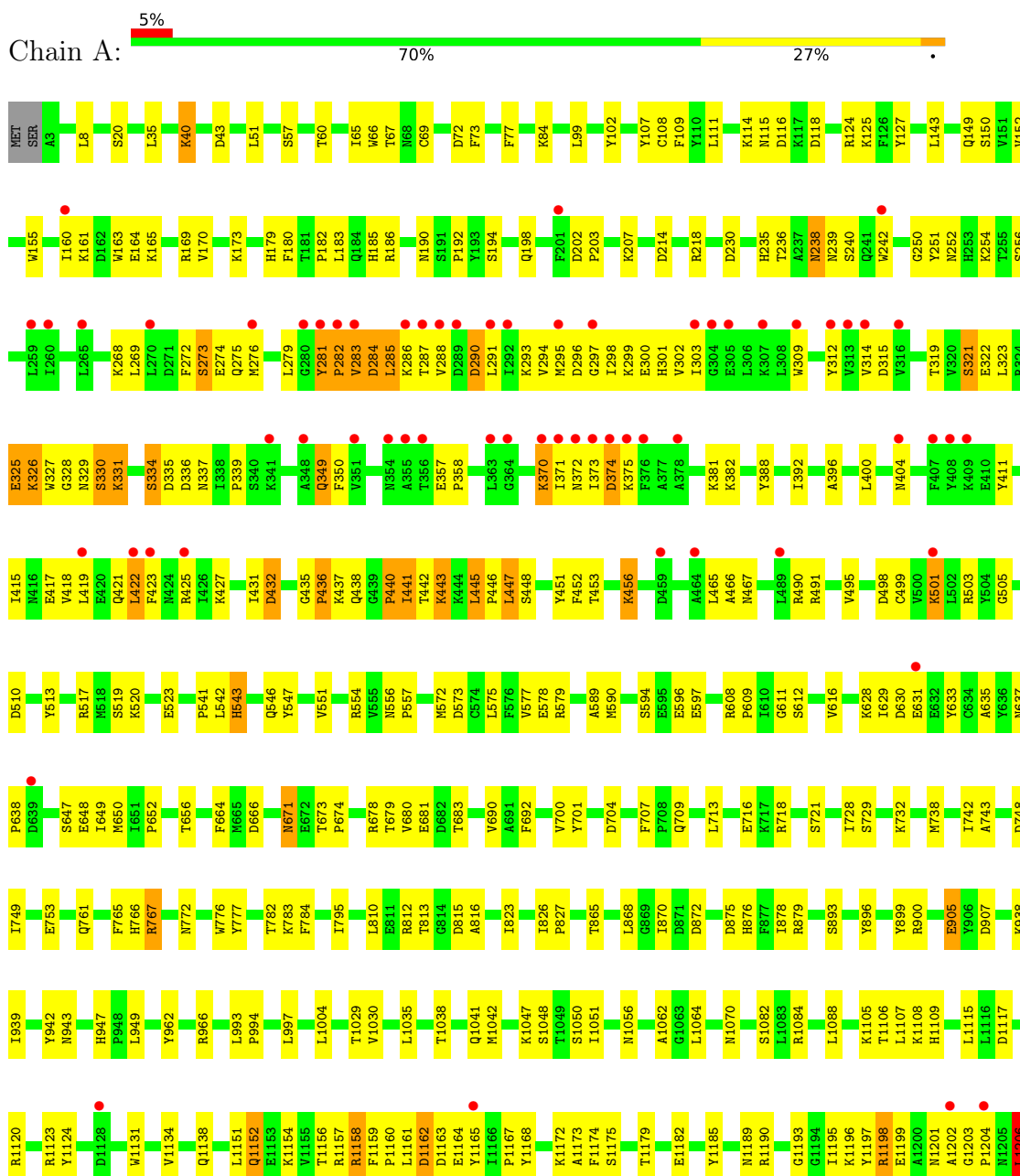
- Molecule 1 is a protein called Uncharacterized protein.

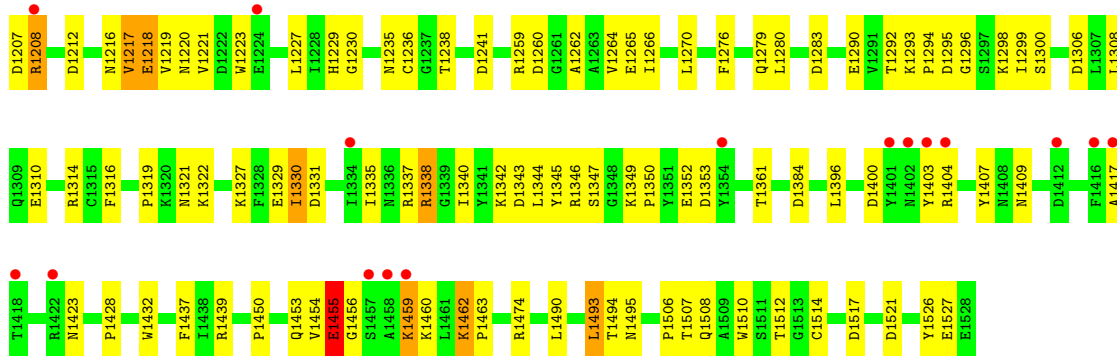
| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 1 | A | 1526 | 12278 | 7830 | 2065 | 2331 | 52 | 0 | 0 | 0 |
| 1 | B | 1506 | 12125 | 7736 | 2038 | 2299 | 52 | 0 | 0 | 0 |

3 Residue-property plots [i](#)

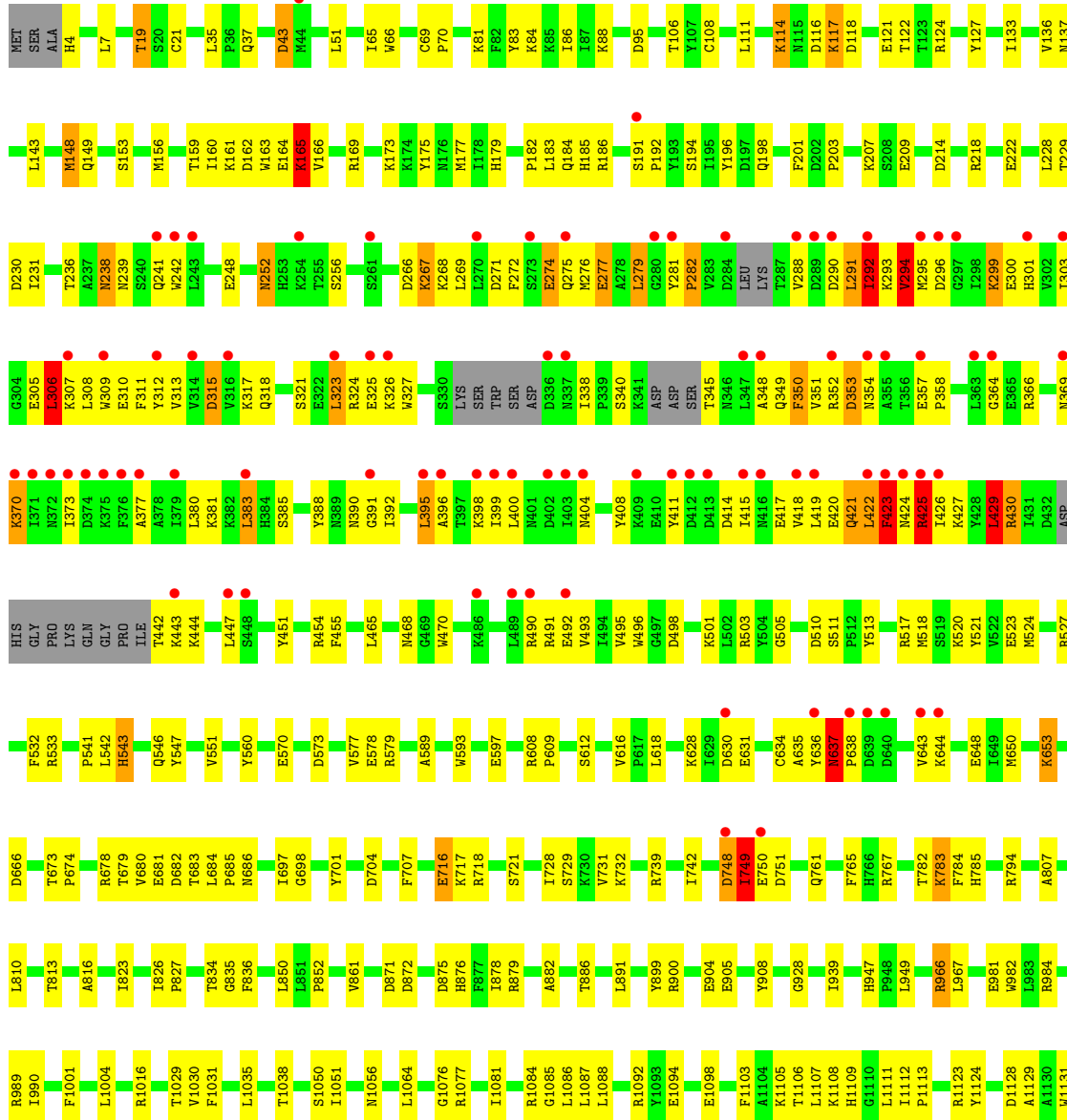
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density.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

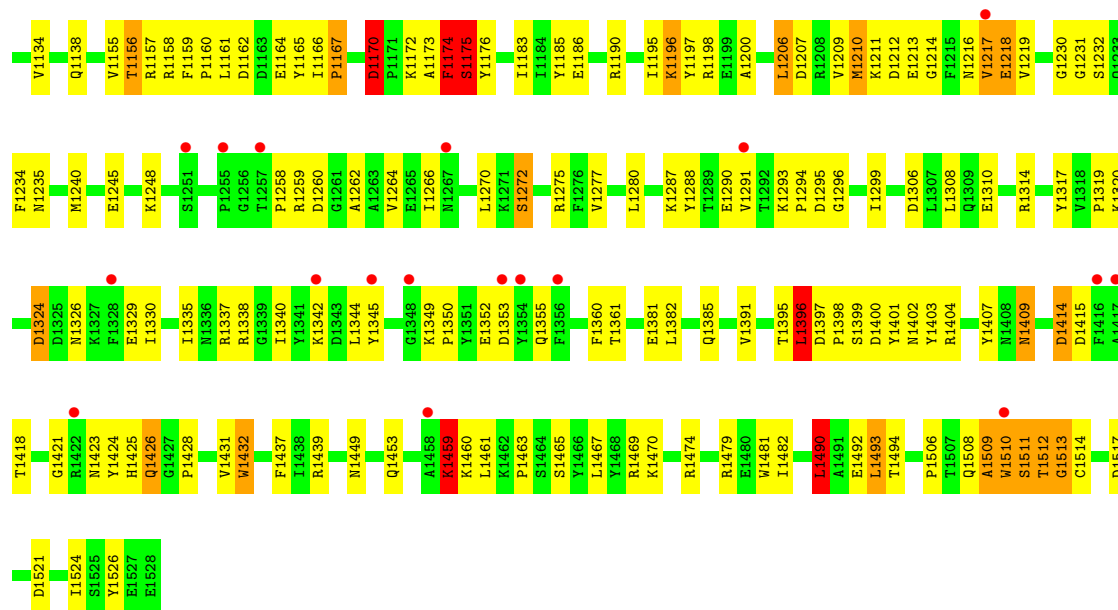
- Molecule 1: Uncharacterized protein





• Molecule 1: Uncharacterized protein





4 Data and refinement statistics

| Property | Value | Source |
|---|---|------------------|
| Space group | C 2 2 21 | Depositor |
| Cell constants a, b, c, α , β , γ | 159.27Å 198.95Å 261.55Å 90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 47.75 – 3.10 48.22 – 3.10 | Depositor EDS |
| % Data completeness (in resolution range) | 97.2 (47.75-3.10) 97.3 (48.22-3.10) | Depositor EDS |
| R_{merge} | (Not available) | Depositor |
| R_{sym} | 0.11 | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 2.06 (at 3.12Å) | Xtrriage |
| Refinement program | PHENIX 1.9_1692 | Depositor |
| R, R_{free} | 0.234 , 0.268 0.235 , 0.268 | Depositor DCC |
| R_{free} test set | 2607 reflections (3.56%) | wwPDB-VP |
| Wilson B-factor (Å ²) | 78.9 | Xtrriage |
| Anisotropy | 0.666 | Xtrriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | 0.30 , 41.4 | EDS |
| L-test for twinning ² | $\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$ | Xtrriage |
| Estimated twinning fraction | No twinning to report. | Xtrriage |
| F_o, F_c correlation | 0.91 | EDS |
| Total number of atoms | 24403 | wwPDB-VP |
| Average B, all atoms (Å ²) | 96.0 | wwPDB-VP |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.16% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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 | 0.41 | 1/12589 (0.0%) | 0.77 | 21/17071 (0.1%) |
| 1 | B | 0.91 | 13/12427 (0.1%) | 0.90 | 48/16845 (0.3%) |
| All | All | 0.71 | 14/25016 (0.1%) | 0.84 | 69/33916 (0.2%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1 | A | 0 | 7 |
| 1 | B | 0 | 8 |
| All | All | 0 | 15 |

All (14) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1 | B | 1174 | PHE | CG-CD1 | 67.60 | 2.40 | 1.38 |
| 1 | B | 1174 | PHE | CD2-CE2 | 27.54 | 1.94 | 1.39 |
| 1 | B | 1174 | PHE | CG-CD2 | 22.46 | 1.72 | 1.38 |
| 1 | B | 1174 | PHE | CB-CG | 20.87 | 1.86 | 1.51 |
| 1 | B | 1174 | PHE | CD1-CE1 | 20.43 | 1.80 | 1.39 |
| 1 | B | 1174 | PHE | CE1-CZ | 20.41 | 1.76 | 1.37 |
| 1 | B | 1174 | PHE | CE2-CZ | 13.35 | 1.62 | 1.37 |
| 1 | B | 1510 | TRP | CB-CG | 11.64 | 1.71 | 1.50 |
| 1 | B | 1174 | PHE | CA-CB | 7.72 | 1.71 | 1.53 |
| 1 | A | 1208 | ARG | CG-CD | 6.96 | 1.69 | 1.51 |
| 1 | B | 1511 | SER | N-CA | -5.65 | 1.35 | 1.46 |
| 1 | B | 1510 | TRP | CA-CB | 5.57 | 1.66 | 1.53 |
| 1 | B | 1217 | VAL | CB-CG2 | -5.47 | 1.41 | 1.52 |
| 1 | B | 1432 | TRP | CB-CG | -5.37 | 1.40 | 1.50 |

All (69) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|--------|-------------|----------|
| 1 | B | 1174 | PHE | CB-CG-CD1 | 25.99 | 138.99 | 120.80 |
| 1 | B | 1174 | PHE | CB-CG-CD2 | -16.14 | 109.50 | 120.80 |
| 1 | A | 285 | LEU | CB-CG-CD2 | -10.37 | 93.38 | 111.00 |
| 1 | B | 425 | ARG | CB-CG-CD | 10.31 | 138.41 | 111.60 |
| 1 | B | 291 | LEU | CA-CB-CG | 8.81 | 135.56 | 115.30 |
| 1 | A | 445 | LEU | CA-CB-CG | 8.77 | 135.46 | 115.30 |
| 1 | B | 429 | LEU | CA-CB-CG | 8.46 | 134.77 | 115.30 |
| 1 | B | 383 | LEU | CA-CB-CG | -7.88 | 97.16 | 115.30 |
| 1 | B | 1490 | LEU | CB-CG-CD2 | -7.66 | 97.98 | 111.00 |
| 1 | B | 1510 | TRP | CA-C-N | -7.61 | 100.46 | 117.20 |
| 1 | B | 1156 | THR | CA-CB-CG2 | -7.42 | 102.02 | 112.40 |
| 1 | B | 1510 | TRP | CA-CB-CG | 7.21 | 127.40 | 113.70 |
| 1 | B | 1512 | THR | CA-CB-CG2 | 7.15 | 122.41 | 112.40 |
| 1 | B | 370 | LYS | CD-CE-NZ | -6.95 | 95.72 | 111.70 |
| 1 | B | 1206 | LEU | CA-CB-CG | 6.95 | 131.28 | 115.30 |
| 1 | B | 1493 | LEU | CA-CB-CG | 6.84 | 131.04 | 115.30 |
| 1 | B | 1511 | SER | N-CA-CB | -6.83 | 100.26 | 110.50 |
| 1 | B | 1512 | THR | N-CA-CB | 6.82 | 123.27 | 110.30 |
| 1 | A | 422 | LEU | CB-CG-CD2 | -6.82 | 99.41 | 111.00 |
| 1 | B | 1396 | LEU | CA-CB-CG | 6.78 | 130.89 | 115.30 |
| 1 | A | 432 | ASP | CB-CG-OD1 | -6.75 | 112.23 | 118.30 |
| 1 | B | 395 | LEU | CA-CB-CG | 6.67 | 130.63 | 115.30 |
| 1 | A | 422 | LEU | CA-CB-CG | 6.55 | 130.38 | 115.30 |
| 1 | B | 165 | LYS | CG-CD-CE | -6.52 | 92.35 | 111.90 |
| 1 | B | 966 | ARG | NE-CZ-NH1 | -6.47 | 117.06 | 120.30 |
| 1 | B | 1512 | THR | CB-CA-C | -6.47 | 94.12 | 111.60 |
| 1 | B | 1509 | ALA | CA-C-N | -6.39 | 103.15 | 117.20 |
| 1 | A | 1208 | ARG | CB-CG-CD | 6.27 | 127.91 | 111.60 |
| 1 | A | 1203 | GLY | N-CA-C | -6.25 | 97.46 | 113.10 |
| 1 | B | 279 | LEU | CA-CB-CG | 6.22 | 129.61 | 115.30 |
| 1 | B | 291 | LEU | CB-CG-CD1 | -5.89 | 100.98 | 111.00 |
| 1 | A | 290 | ASP | CB-CG-OD2 | 5.82 | 123.53 | 118.30 |
| 1 | B | 1174 | PHE | N-CA-C | -5.81 | 95.32 | 111.00 |
| 1 | B | 1174 | PHE | CZ-CE2-CD2 | 5.74 | 126.99 | 120.10 |
| 1 | B | 1490 | LEU | CA-CB-CG | 5.73 | 128.48 | 115.30 |
| 1 | B | 1174 | PHE | CD1-CE1-CZ | -5.66 | 113.31 | 120.10 |
| 1 | B | 1174 | PHE | CD1-CG-CD2 | -5.62 | 110.99 | 118.30 |
| 1 | B | 292 | ILE | CA-CB-CG1 | -5.60 | 100.35 | 111.00 |
| 1 | B | 423 | PHE | CB-CG-CD1 | -5.56 | 116.91 | 120.80 |
| 1 | A | 1493 | LEU | CB-CG-CD1 | -5.55 | 101.56 | 111.00 |
| 1 | B | 1175 | SER | N-CA-C | 5.54 | 125.97 | 111.00 |
| 1 | A | 290 | ASP | CB-CG-OD1 | -5.50 | 113.35 | 118.30 |
| 1 | A | 1208 | ARG | NE-CZ-NH1 | -5.50 | 117.55 | 120.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 1 | A | 283 | VAL | N-CA-C | -5.49 | 96.19 | 111.00 |
| 1 | A | 419 | LEU | CA-CB-CG | 5.48 | 127.91 | 115.30 |
| 1 | B | 1426 | GLN | CA-CB-CG | 5.43 | 125.35 | 113.40 |
| 1 | B | 306 | LEU | CA-CB-CG | 5.43 | 127.79 | 115.30 |
| 1 | B | 1174 | PHE | CE1-CZ-CE2 | 5.42 | 129.75 | 120.00 |
| 1 | A | 281 | TYR | C-N-CA | -5.41 | 99.30 | 122.00 |
| 1 | B | 294 | VAL | CB-CA-C | -5.39 | 101.16 | 111.40 |
| 1 | B | 748 | ASP | CB-CG-OD1 | 5.38 | 123.14 | 118.30 |
| 1 | B | 349 | GLN | CA-CB-CG | 5.36 | 125.19 | 113.40 |
| 1 | B | 1170 | ASP | CB-CG-OD2 | -5.36 | 113.48 | 118.30 |
| 1 | B | 277 | GLU | CA-CB-CG | -5.30 | 101.75 | 113.40 |
| 1 | B | 315 | ASP | CB-CG-OD2 | -5.28 | 113.55 | 118.30 |
| 1 | A | 1493 | LEU | CA-CB-CG | 5.27 | 127.43 | 115.30 |
| 1 | B | 1210 | MET | CA-CB-CG | 5.25 | 122.22 | 113.30 |
| 1 | B | 423 | PHE | CB-CG-CD2 | 5.19 | 124.43 | 120.80 |
| 1 | B | 1509 | ALA | N-CA-C | -5.19 | 97.00 | 111.00 |
| 1 | A | 1152 | GLN | CA-CB-CG | -5.15 | 102.07 | 113.40 |
| 1 | A | 1208 | ARG | NE-CZ-NH2 | 5.14 | 122.87 | 120.30 |
| 1 | B | 353 | ASP | N-CA-C | 5.13 | 124.86 | 111.00 |
| 1 | A | 1206 | LEU | CA-CB-CG | 5.13 | 127.09 | 115.30 |
| 1 | A | 309 | TRP | CA-CB-CG | -5.12 | 103.98 | 113.70 |
| 1 | B | 1414 | ASP | N-CA-C | 5.09 | 124.74 | 111.00 |
| 1 | B | 429 | LEU | CB-CG-CD2 | 5.08 | 119.64 | 111.00 |
| 1 | A | 447 | LEU | CA-CB-CG | 5.04 | 126.90 | 115.30 |
| 1 | B | 1513 | GLY | N-CA-C | -5.04 | 100.50 | 113.10 |
| 1 | A | 876 | HIS | CB-CA-C | -5.03 | 100.34 | 110.40 |

There are no chirality outliers.

All (15) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|---------|
| 1 | A | 1158 | ARG | Peptide |
| 1 | A | 1217 | VAL | Peptide |
| 1 | A | 1218 | GLU | Peptide |
| 1 | A | 330 | SER | Peptide |
| 1 | A | 331 | LYS | Peptide |
| 1 | A | 436 | PRO | Peptide |
| 1 | A | 650 | MET | Peptide |
| 1 | B | 1174 | PHE | Peptide |
| 1 | B | 1218 | GLU | Peptide |
| 1 | B | 1509 | ALA | Peptide |
| 1 | B | 277 | GLU | Peptide |

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| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|---------|
| 1 | B | 306 | LEU | Peptide |
| 1 | B | 421 | GLN | Peptide |
| 1 | B | 442 | THR | Peptide |
| 1 | B | 783 | LYS | Peptide |

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 | 12278 | 0 | 11960 | 403 | 0 |
| 1 | B | 12125 | 0 | 11812 | 522 | 4 |
| All | All | 24403 | 0 | 23772 | 925 | 4 |

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 19.

All (925) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:1174:PHE:CZ | 1:B:1174:PHE:CE1 | 1.76 | 1.68 |
| 1:B:1174:PHE:CE1 | 1:B:1174:PHE:CD1 | 1.80 | 1.64 |
| 1:B:1174:PHE:CG | 1:B:1174:PHE:CB | 1.86 | 1.56 |
| 1:B:1174:PHE:CE2 | 1:B:1174:PHE:CD2 | 1.94 | 1.55 |
| 1:B:1508:GLN:HB3 | 1:B:1510:TRP:HB3 | 1.21 | 1.16 |
| 1:B:1510:TRP:CE3 | 1:B:1511:SER:HB2 | 1.88 | 1.08 |
| 1:B:1174:PHE:CD1 | 1:B:1174:PHE:CG | 2.40 | 1.08 |
| 1:B:425:ARG:HG2 | 1:B:426:ILE:N | 1.69 | 1.07 |
| 1:B:678:ARG:HB2 | 1:B:783:LYS:HD3 | 1.30 | 1.07 |
| 1:B:1196:LYS:HG3 | 1:B:1218:GLU:HG3 | 1.33 | 1.02 |
| 1:A:282:PRO:HG2 | 1:A:294:VAL:HG22 | 1.40 | 1.02 |
| 1:B:165:LYS:HG3 | 1:B:166:VAL:H | 0.89 | 1.02 |
| 1:B:165:LYS:HG3 | 1:B:166:VAL:N | 1.72 | 1.01 |
| 1:A:1196:LYS:HA | 1:A:1218:GLU:CG | 1.90 | 1.01 |
| 1:B:1160:PRO:HG3 | 1:B:1164:GLU:H | 1.28 | 0.99 |
| 1:B:682:ASP:HB2 | 1:B:783:LYS:HB3 | 1.43 | 0.98 |
| 1:A:1196:LYS:CA | 1:A:1218:GLU:HG3 | 1.92 | 0.97 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1361:THR:HG21 | 1:A:1437:PHE:HA | 1.46 | 0.97 |
| 1:B:425:ARG:HG2 | 1:B:426:ILE:H | 1.19 | 0.95 |
| 1:B:165:LYS:CG | 1:B:166:VAL:H | 1.80 | 0.95 |
| 1:B:1361:THR:HG21 | 1:B:1437:PHE:HA | 1.46 | 0.95 |
| 1:B:1510:TRP:HE3 | 1:B:1511:SER:HB2 | 1.27 | 0.94 |
| 1:B:198:GLN:OE1 | 1:B:517:ARG:NH1 | 2.01 | 0.92 |
| 1:B:156:MET:O | 1:B:165:LYS:NZ | 2.03 | 0.92 |
| 1:B:422:LEU:HB3 | 1:B:425:ARG:HD3 | 1.53 | 0.90 |
| 1:B:468:ASN:HB3 | 1:B:501:LYS:HB2 | 1.54 | 0.90 |
| 1:B:679:THR:O | 1:B:783:LYS:NZ | 2.04 | 0.90 |
| 1:B:1035:LEU:HD22 | 1:B:1512:THR:HG22 | 1.55 | 0.89 |
| 1:A:1123:ARG:HH22 | 1:A:1207:ASP:HB2 | 1.38 | 0.89 |
| 1:B:1490:LEU:HB2 | 1:B:1510:TRP:CZ2 | 2.07 | 0.88 |
| 1:B:1320:LYS:O | 1:B:1338:ARG:NH1 | 2.06 | 0.87 |
| 1:A:1196:LYS:HA | 1:A:1218:GLU:HG3 | 0.96 | 0.87 |
| 1:A:400:LEU:O | 1:A:404:ASN:ND2 | 2.08 | 0.86 |
| 1:B:425:ARG:HD2 | 1:B:426:ILE:HD12 | 1.57 | 0.86 |
| 1:A:349:GLN:O | 1:A:349:GLN:HG2 | 1.76 | 0.85 |
| 1:A:432:ASP:OD1 | 1:A:435:GLY:N | 2.07 | 0.85 |
| 1:B:1401:TYR:O | 1:B:1404:ARG:NH2 | 2.09 | 0.85 |
| 1:A:283:VAL:HG11 | 1:A:441:ILE:HG12 | 1.57 | 0.84 |
| 1:B:742:ILE:HG21 | 1:B:767:ARG:HH21 | 1.41 | 0.84 |
| 1:B:1508:GLN:CB | 1:B:1510:TRP:HB3 | 2.04 | 0.84 |
| 1:B:323:LEU:HD21 | 1:B:377:ALA:HB2 | 1.60 | 0.83 |
| 1:B:307:LYS:O | 1:B:309:TRP:N | 2.11 | 0.83 |
| 1:A:1198:ARG:NH2 | 1:A:1212:ASP:O | 2.11 | 0.83 |
| 1:B:426:ILE:HA | 1:B:429:LEU:HB2 | 1.60 | 0.83 |
| 1:B:608:ARG:HE | 1:B:750:GLU:HB3 | 1.44 | 0.82 |
| 1:A:452:PHE:HA | 1:A:466:ALA:HA | 1.59 | 0.82 |
| 1:B:678:ARG:CB | 1:B:783:LYS:HD3 | 2.10 | 0.82 |
| 1:B:1432:TRP:HB3 | 1:B:1511:SER:OG | 1.80 | 0.82 |
| 1:B:313:VAL:HG13 | 1:B:404:ASN:HD22 | 1.44 | 0.82 |
| 1:A:721:SER:OG | 1:A:823:ILE:O | 1.97 | 0.82 |
| 1:A:328:GLY:H | 1:A:331:LYS:HZ3 | 1.28 | 0.81 |
| 1:B:682:ASP:OD2 | 1:B:686:ASN:HB2 | 1.79 | 0.81 |
| 1:B:721:SER:OG | 1:B:823:ILE:O | 1.97 | 0.81 |
| 1:A:1204:PRO:HB2 | 1:A:1208:ARG:HH11 | 1.45 | 0.81 |
| 1:A:1204:PRO:HB2 | 1:A:1208:ARG:NH1 | 1.96 | 0.81 |
| 1:A:295:MET:SD | 1:A:423:PHE:HB3 | 2.20 | 0.81 |
| 1:B:682:ASP:HB2 | 1:B:783:LYS:CB | 2.10 | 0.80 |
| 1:B:1158:ARG:HA | 1:B:1173:ALA:O | 1.81 | 0.80 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:353:ASP:OD1 | 1:B:354:ASN:N | 2.15 | 0.80 |
| 1:A:1217:VAL:O | 1:A:1218:GLU:HG2 | 1.81 | 0.79 |
| 1:B:1172:LYS:HA | 1:B:1175:SER:HB3 | 1.64 | 0.79 |
| 1:A:186:ARG:NH2 | 1:A:202:ASP:OD2 | 2.16 | 0.78 |
| 1:B:1103:PHE:HB3 | 1:B:1112:ILE:HD11 | 1.66 | 0.78 |
| 1:A:251:TYR:HB2 | 1:A:501:LYS:HE2 | 1.66 | 0.78 |
| 1:B:296:ASP:HA | 1:B:299:LYS:HB3 | 1.65 | 0.78 |
| 1:A:1342:LYS:HE2 | 1:A:1353:ASP:HB3 | 1.65 | 0.77 |
| 1:A:325:GLU:N | 1:A:325:GLU:OE1 | 2.17 | 0.77 |
| 1:A:72:ASP:OD1 | 1:A:73:PHE:N | 2.15 | 0.77 |
| 1:A:1220:ASN:OD1 | 1:A:1221:VAL:N | 2.13 | 0.77 |
| 1:B:520:LYS:HA | 1:B:523:GLU:HB2 | 1.67 | 0.77 |
| 1:B:1217:VAL:HG13 | 1:B:1231:GLY:HA2 | 1.65 | 0.77 |
| 1:B:1508:GLN:HB3 | 1:B:1510:TRP:CB | 2.10 | 0.77 |
| 1:A:326:LYS:CE | 1:A:374:ASP:HB3 | 2.14 | 0.77 |
| 1:A:1322:LYS:H | 1:A:1322:LYS:HD2 | 1.49 | 0.77 |
| 1:A:1158:ARG:O | 1:A:1159:PHE:HD2 | 1.68 | 0.76 |
| 1:B:353:ASP:CG | 1:B:354:ASN:HD22 | 1.89 | 0.75 |
| 1:A:442:THR:HG22 | 1:A:443:LYS:H | 1.51 | 0.75 |
| 1:B:315:ASP:H | 1:B:370:LYS:NZ | 1.84 | 0.75 |
| 1:B:1510:TRP:CZ2 | 1:B:1512:THR:HG23 | 2.22 | 0.74 |
| 1:A:291:LEU:HA | 1:A:294:VAL:HG23 | 1.69 | 0.74 |
| 1:A:748:ASP:OD1 | 1:A:749:ILE:N | 2.20 | 0.74 |
| 1:B:1396:LEU:HD23 | 1:B:1426:GLN:HB2 | 1.70 | 0.74 |
| 1:B:156:MET:HB3 | 1:B:165:LYS:HZ1 | 1.53 | 0.73 |
| 1:A:114:LYS:NZ | 1:A:118:ASP:OD1 | 2.21 | 0.73 |
| 1:B:117:LYS:HD3 | 1:B:117:LYS:N | 2.02 | 0.73 |
| 1:B:1196:LYS:CG | 1:B:1218:GLU:HG3 | 2.14 | 0.73 |
| 1:B:1160:PRO:HG3 | 1:B:1164:GLU:N | 2.03 | 0.73 |
| 1:A:1062:ALA:HB1 | 1:A:1510:TRP:HZ3 | 1.54 | 0.73 |
| 1:A:238:ASN:OD1 | 1:A:239:ASN:ND2 | 2.21 | 0.73 |
| 1:B:634:CYS:HB3 | 1:B:636:TYR:HE1 | 1.52 | 0.73 |
| 1:B:1400:ASP:OD2 | 1:B:1402:ASN:N | 2.17 | 0.73 |
| 1:B:162:ASP:O | 1:B:165:LYS:NZ | 2.21 | 0.73 |
| 1:B:143:LEU:HD23 | 1:B:560:TYR:HE2 | 1.53 | 0.72 |
| 1:B:443:LYS:O | 1:B:444:LYS:HG2 | 1.89 | 0.72 |
| 1:B:1108:LYS:HE2 | 1:B:1109:HIS:CE1 | 2.23 | 0.72 |
| 1:A:1108:LYS:HG2 | 1:A:1109:HIS:CD2 | 2.24 | 0.72 |
| 1:A:1259:ARG:NH2 | 1:A:1265:GLU:OE2 | 2.22 | 0.72 |
| 1:B:185:HIS:HB2 | 1:B:203:PRO:HD3 | 1.71 | 0.72 |
| 1:B:1165:TYR:O | 1:B:1167:PRO:HD3 | 1.89 | 0.72 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:466:ALA:HB3 | 1:A:501:LYS:HE3 | 1.72 | 0.72 |
| 1:B:1156:THR:HG22 | 1:B:1156:THR:O | 1.83 | 0.72 |
| 1:B:1197:TYR:H | 1:B:1218:GLU:CD | 1.92 | 0.72 |
| 1:B:422:LEU:O | 1:B:424:ASN:N | 2.23 | 0.72 |
| 1:A:1316:PHE:O | 1:A:1342:LYS:HB2 | 1.89 | 0.72 |
| 1:B:680:VAL:HG11 | 1:B:826:ILE:HD13 | 1.72 | 0.71 |
| 1:B:306:LEU:HD23 | 1:B:309:TRP:HE1 | 1.56 | 0.71 |
| 1:A:738:MET:HB3 | 1:A:776:TRP:CH2 | 2.26 | 0.71 |
| 1:A:1117:ASP:O | 1:A:1120:ARG:HG2 | 1.91 | 0.71 |
| 1:A:1306:ASP:O | 1:A:1310:GLU:HG3 | 1.91 | 0.70 |
| 1:B:1108:LYS:HD2 | 1:B:1159:PHE:CE2 | 2.27 | 0.70 |
| 1:B:636:TYR:CE1 | 1:B:643:VAL:HG13 | 2.27 | 0.70 |
| 1:A:335:ASP:OD1 | 1:A:336:ASP:N | 2.24 | 0.70 |
| 1:A:680:VAL:HG11 | 1:A:826:ILE:HD13 | 1.74 | 0.70 |
| 1:A:962:TYR:CZ | 1:A:966:ARG:HD3 | 2.27 | 0.70 |
| 1:B:1407:TYR:CE1 | 1:B:1424:TYR:HD1 | 2.10 | 0.69 |
| 1:B:169:ARG:NH1 | 1:B:701:TYR:OH | 2.24 | 0.69 |
| 1:B:608:ARG:NE | 1:B:750:GLU:HB3 | 2.07 | 0.69 |
| 1:B:143:LEU:HD23 | 1:B:560:TYR:CE2 | 2.28 | 0.69 |
| 1:A:251:TYR:HB2 | 1:A:501:LYS:CE | 2.21 | 0.69 |
| 1:A:251:TYR:O | 1:A:501:LYS:NZ | 2.26 | 0.69 |
| 1:A:40:LYS:N | 1:A:43:ASP:OD2 | 2.25 | 0.69 |
| 1:A:169:ARG:NH1 | 1:A:701:TYR:OH | 2.25 | 0.69 |
| 1:A:328:GLY:N | 1:A:331:LYS:HZ3 | 1.91 | 0.69 |
| 1:B:292:ILE:HA | 1:B:294:VAL:HG22 | 1.75 | 0.69 |
| 1:B:636:TYR:O | 1:B:637:ASN:HB3 | 1.92 | 0.69 |
| 1:A:590:MET:HB2 | 1:A:671:ASN:HD22 | 1.57 | 0.69 |
| 1:B:306:LEU:HD23 | 1:B:309:TRP:NE1 | 2.08 | 0.69 |
| 1:B:716:GLU:OE2 | 1:B:718:ARG:NH1 | 2.25 | 0.69 |
| 1:A:629:ILE:HD13 | 1:A:631:GLU:HB2 | 1.73 | 0.68 |
| 1:B:420:GLU:HA | 1:B:423:PHE:CB | 2.23 | 0.68 |
| 1:A:647:SER:OG | 1:A:648:GLU:N | 2.27 | 0.68 |
| 1:B:513:TYR:CZ | 1:B:517:ARG:HD3 | 2.29 | 0.68 |
| 1:A:326:LYS:HE2 | 1:A:329:ASN:HB2 | 1.75 | 0.67 |
| 1:B:1432:TRP:N | 1:B:1511:SER:HB3 | 2.10 | 0.67 |
| 1:A:1163:ASP:OD1 | 1:A:1190:ARG:NH2 | 2.28 | 0.67 |
| 1:B:238:ASN:OD1 | 1:B:239:ASN:ND2 | 2.25 | 0.67 |
| 1:B:1508:GLN:O | 1:B:1510:TRP:HD1 | 1.76 | 0.67 |
| 1:A:1407:TYR:OH | 1:A:1409:ASN:ND2 | 2.27 | 0.67 |
| 1:B:784:PHE:O | 1:B:785:HIS:ND1 | 2.27 | 0.67 |
| 1:B:1213:GLU:HG3 | 1:B:1234:PHE:HB3 | 1.75 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:156:MET:HB3 | 1:B:165:LYS:NZ | 2.09 | 0.66 |
| 1:B:290:ASP:OD1 | 1:B:293:LYS:HB2 | 1.96 | 0.66 |
| 1:B:520:LYS:HD2 | 1:B:520:LYS:O | 1.96 | 0.66 |
| 1:B:1232:SER:N | 1:B:1235:ASN:HD22 | 1.92 | 0.66 |
| 1:A:287:THR:HG22 | 1:A:288:VAL:H | 1.60 | 0.65 |
| 1:B:292:ILE:HD13 | 1:B:427:LYS:HE2 | 1.76 | 0.65 |
| 1:A:1327:LYS:O | 1:A:1327:LYS:HG2 | 1.97 | 0.65 |
| 1:B:299:LYS:HG2 | 1:B:300:GLU:N | 2.10 | 0.65 |
| 1:A:179:HIS:NE2 | 1:A:230:ASP:OD1 | 2.26 | 0.65 |
| 1:B:1391:VAL:O | 1:B:1431:VAL:HG13 | 1.97 | 0.65 |
| 1:A:240:SER:HB3 | 1:A:242:TRP:NE1 | 2.11 | 0.65 |
| 1:A:422:LEU:HA | 1:A:425:ARG:HG3 | 1.79 | 0.65 |
| 1:A:150:SER:OG | 1:A:700:VAL:HA | 1.96 | 0.65 |
| 1:A:326:LYS:O | 1:A:326:LYS:NZ | 2.21 | 0.65 |
| 1:A:161:LYS:HD2 | 1:A:161:LYS:O | 1.96 | 0.64 |
| 1:A:327:TRP:CE2 | 1:A:381:LYS:HE2 | 2.32 | 0.64 |
| 1:A:422:LEU:HG | 1:A:425:ARG:HH21 | 1.62 | 0.64 |
| 1:B:268:LYS:O | 1:B:268:LYS:HG3 | 1.95 | 0.64 |
| 1:B:1232:SER:OG | 1:B:1235:ASN:ND2 | 2.31 | 0.64 |
| 1:A:520:LYS:HA | 1:A:523:GLU:HG2 | 1.78 | 0.64 |
| 1:B:323:LEU:HD22 | 1:B:327:TRP:HE3 | 1.62 | 0.64 |
| 1:A:748:ASP:OD1 | 1:A:749:ILE:HG22 | 1.97 | 0.64 |
| 1:A:671:ASN:OD1 | 1:A:671:ASN:N | 2.31 | 0.64 |
| 1:A:1108:LYS:HE3 | 1:A:1159:PHE:CD1 | 2.33 | 0.64 |
| 1:A:1219:VAL:HG22 | 1:A:1230:GLY:HA3 | 1.80 | 0.64 |
| 1:A:452:PHE:CD1 | 1:A:466:ALA:HB2 | 2.33 | 0.63 |
| 1:B:267:LYS:HE3 | 1:B:454:ARG:NH1 | 2.14 | 0.63 |
| 1:B:682:ASP:HB2 | 1:B:783:LYS:CD | 2.28 | 0.63 |
| 1:B:1481:TRP:HB3 | 1:B:1490:LEU:HD21 | 1.80 | 0.63 |
| 1:A:284:ASP:OD1 | 1:A:440:PRO:HA | 1.99 | 0.63 |
| 1:B:312:TYR:OH | 1:B:414:ASP:OD2 | 2.15 | 0.63 |
| 1:B:1157:ARG:HH12 | 1:B:1186:GLU:CD | 2.02 | 0.63 |
| 1:B:451:TYR:CZ | 1:B:491:ARG:HD2 | 2.34 | 0.63 |
| 1:B:267:LYS:HE3 | 1:B:454:ARG:HH11 | 1.64 | 0.62 |
| 1:B:1164:GLU:HG3 | 1:B:1165:TYR:O | 1.99 | 0.62 |
| 1:B:628:LYS:HE2 | 1:B:630:ASP:O | 2.00 | 0.62 |
| 1:B:682:ASP:HB2 | 1:B:783:LYS:HE3 | 1.81 | 0.62 |
| 1:A:1432:TRP:CG | 1:A:1510:TRP:HD1 | 2.17 | 0.62 |
| 1:B:269:LEU:HA | 1:B:272:PHE:HB3 | 1.82 | 0.62 |
| 1:B:317:LYS:O | 1:B:321:SER:OG | 2.15 | 0.62 |
| 1:A:273:SER:OG | 1:A:273:SER:O | 2.17 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:345:THR:O | 1:B:348:ALA:HB3 | 2.00 | 0.62 |
| 1:B:116:ASP:HB2 | 1:B:117:LYS:NZ | 2.15 | 0.62 |
| 1:B:608:ARG:HE | 1:B:750:GLU:CB | 2.12 | 0.62 |
| 1:B:749:ILE:HG23 | 1:B:750:GLU:H | 1.65 | 0.62 |
| 1:A:905:GLU:OE1 | 1:A:966:ARG:NH1 | 2.32 | 0.62 |
| 1:B:1159:PHE:HB3 | 1:B:1160:PRO:CD | 2.30 | 0.62 |
| 1:B:1402:ASN:HB3 | 1:B:1426:GLN:HE21 | 1.63 | 0.62 |
| 1:B:1490:LEU:HB2 | 1:B:1510:TRP:CH2 | 2.34 | 0.62 |
| 1:A:466:ALA:H | 1:A:501:LYS:HZ2 | 1.47 | 0.62 |
| 1:B:1481:TRP:HB3 | 1:B:1490:LEU:CD2 | 2.30 | 0.62 |
| 1:A:327:TRP:CZ2 | 1:A:381:LYS:HE2 | 2.34 | 0.61 |
| 1:A:427:LYS:O | 1:A:431:ILE:N | 2.33 | 0.61 |
| 1:B:114:LYS:HE2 | 1:B:118:ASP:HA | 1.82 | 0.61 |
| 1:B:423:PHE:HA | 1:B:425:ARG:NH2 | 2.15 | 0.61 |
| 1:A:314:VAL:N | 1:A:404:ASN:OD1 | 2.30 | 0.61 |
| 1:A:1160:PRO:HG2 | 1:A:1164:GLU:HB3 | 1.82 | 0.61 |
| 1:B:682:ASP:CB | 1:B:783:LYS:HB3 | 2.26 | 0.61 |
| 1:B:1293:LYS:HB3 | 1:B:1294:PRO:HD2 | 1.81 | 0.61 |
| 1:A:513:TYR:CZ | 1:A:517:ARG:HG3 | 2.35 | 0.61 |
| 1:B:156:MET:C | 1:B:165:LYS:HZ2 | 2.01 | 0.61 |
| 1:B:417:GLU:OE1 | 1:B:417:GLU:N | 2.33 | 0.61 |
| 1:B:1295:ASP:OD1 | 1:B:1296:GLY:N | 2.32 | 0.61 |
| 1:B:323:LEU:HD22 | 1:B:327:TRP:CE3 | 2.34 | 0.61 |
| 1:B:505:GLY:HA3 | 1:B:510:ASP:HB3 | 1.83 | 0.61 |
| 1:A:1396:LEU:HD21 | 1:A:1400:ASP:HB3 | 1.81 | 0.61 |
| 1:B:1381:GLU:O | 1:B:1385:GLN:HG3 | 2.00 | 0.61 |
| 1:A:326:LYS:HE3 | 1:A:374:ASP:HB3 | 1.82 | 0.61 |
| 1:B:185:HIS:CD2 | 1:B:196:TYR:CD1 | 2.89 | 0.61 |
| 1:B:875:ASP:OD2 | 1:B:879:ARG:NH1 | 2.34 | 0.61 |
| 1:A:1428:PRO:HB3 | 1:A:1493:LEU:HD21 | 1.82 | 0.61 |
| 1:B:182:PRO:HG2 | 1:B:192:PRO:O | 2.01 | 0.60 |
| 1:B:1439:ARG:HD2 | 1:B:1521:ASP:OD2 | 2.02 | 0.60 |
| 1:A:422:LEU:HD23 | 1:A:425:ARG:HE | 1.66 | 0.60 |
| 1:B:1510:TRP:CE2 | 1:B:1512:THR:HG23 | 2.36 | 0.60 |
| 1:A:1432:TRP:CB | 1:A:1510:TRP:HD1 | 2.14 | 0.60 |
| 1:A:608:ARG:HD2 | 1:A:749:ILE:HG12 | 1.83 | 0.60 |
| 1:A:1490:LEU:HD12 | 1:A:1512:THR:HG22 | 1.83 | 0.60 |
| 1:B:1337:ARG:HD3 | 1:B:1382:LEU:HD22 | 1.83 | 0.60 |
| 1:B:748:ASP:CG | 1:B:749:ILE:H | 2.00 | 0.60 |
| 1:B:1398:PRO:HA | 1:B:1403:TYR:CD2 | 2.37 | 0.60 |
| 1:A:425:ARG:NH2 | 1:A:491:ARG:HB3 | 2.17 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:422:LEU:CB | 1:B:425:ARG:HD3 | 2.29 | 0.60 |
| 1:B:1105:LYS:HE2 | 1:B:1156:THR:O | 2.01 | 0.60 |
| 1:A:236:THR:HG21 | 1:A:242:TRP:CZ2 | 2.37 | 0.59 |
| 1:A:321:SER:OG | 1:A:322:GLU:N | 2.33 | 0.59 |
| 1:A:520:LYS:HA | 1:A:523:GLU:CG | 2.32 | 0.59 |
| 1:B:900:ARG:NH1 | 1:B:904:GLU:O | 2.34 | 0.59 |
| 1:A:421:GLN:O | 1:A:425:ARG:HG2 | 2.02 | 0.59 |
| 1:B:1138:GLN:HE22 | 1:B:1275:ARG:HH21 | 1.49 | 0.59 |
| 1:A:198:GLN:NE2 | 1:A:236:THR:OG1 | 2.35 | 0.59 |
| 1:B:1035:LEU:CD2 | 1:B:1512:THR:HG22 | 2.31 | 0.59 |
| 1:B:1508:GLN:O | 1:B:1510:TRP:CD1 | 2.55 | 0.59 |
| 1:A:441:ILE:O | 1:A:442:THR:OG1 | 2.18 | 0.59 |
| 1:A:328:GLY:H | 1:A:331:LYS:NZ | 1.99 | 0.59 |
| 1:A:1108:LYS:HE3 | 1:A:1159:PHE:HD1 | 1.66 | 0.59 |
| 1:A:1295:ASP:OD1 | 1:A:1296:GLY:N | 2.34 | 0.59 |
| 1:A:1350:PRO:O | 1:A:1353:ASP:HB2 | 2.02 | 0.59 |
| 1:A:281:TYR:CE2 | 1:A:293:LYS:HD3 | 2.37 | 0.58 |
| 1:A:1204:PRO:CB | 1:A:1208:ARG:HG2 | 2.33 | 0.58 |
| 1:A:1229:HIS:HE1 | 1:A:1346:ARG:HG2 | 1.68 | 0.58 |
| 1:B:420:GLU:HA | 1:B:423:PHE:HB2 | 1.84 | 0.58 |
| 1:B:1166:ILE:HD12 | 1:B:1166:ILE:N | 2.18 | 0.58 |
| 1:B:1217:VAL:HG22 | 1:B:1235:ASN:CG | 2.23 | 0.58 |
| 1:A:185:HIS:HB2 | 1:A:203:PRO:HD3 | 1.85 | 0.58 |
| 1:B:1213:GLU:HG3 | 1:B:1234:PHE:CB | 2.33 | 0.58 |
| 1:B:1314:ARG:NH1 | 1:B:1329:GLU:OE2 | 2.35 | 0.58 |
| 1:B:1402:ASN:HB3 | 1:B:1426:GLN:NE2 | 2.18 | 0.58 |
| 1:A:766:HIS:CE1 | 1:A:865:THR:HG21 | 2.38 | 0.58 |
| 1:B:420:GLU:HA | 1:B:423:PHE:HB3 | 1.85 | 0.58 |
| 1:B:682:ASP:HB2 | 1:B:783:LYS:CE | 2.33 | 0.58 |
| 1:B:421:GLN:HE22 | 1:B:492:GLU:CG | 2.16 | 0.58 |
| 1:B:673:THR:HG21 | 1:B:707:PHE:O | 2.02 | 0.58 |
| 1:B:425:ARG:CG | 1:B:426:ILE:N | 2.57 | 0.58 |
| 1:A:765:PHE:HE2 | 1:A:767:ARG:HB2 | 1.68 | 0.58 |
| 1:B:1407:TYR:OH | 1:B:1409:ASN:OD1 | 2.21 | 0.58 |
| 1:A:326:LYS:NZ | 1:A:374:ASP:HB3 | 2.18 | 0.58 |
| 1:A:1042:MET:HE1 | 1:A:1507:THR:HG22 | 1.86 | 0.58 |
| 1:A:1217:VAL:HG12 | 1:A:1235:ASN:OD1 | 2.04 | 0.58 |
| 1:B:398:LYS:HG3 | 1:B:399:ILE:N | 2.18 | 0.58 |
| 1:A:1439:ARG:HD2 | 1:A:1521:ASP:OD2 | 2.04 | 0.57 |
| 1:A:1292:THR:HG22 | 1:A:1298:LYS:NZ | 2.18 | 0.57 |
| 1:A:283:VAL:CG1 | 1:A:441:ILE:HG12 | 2.32 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1299:ILE:HG22 | 1:A:1300:SER:O | 2.04 | 0.57 |
| 1:B:1403:TYR:O | 1:B:1404:ARG:HD3 | 2.03 | 0.57 |
| 1:A:1041:GLN:OE1 | 1:A:1507:THR:HG21 | 2.05 | 0.57 |
| 1:B:682:ASP:CB | 1:B:783:LYS:HD2 | 2.35 | 0.57 |
| 1:A:290:ASP:N | 1:A:290:ASP:OD1 | 2.37 | 0.57 |
| 1:B:315:ASP:HB2 | 1:B:370:LYS:HZ1 | 1.68 | 0.57 |
| 1:B:1272:SER:HB2 | 1:B:1275:ARG:NH2 | 2.20 | 0.57 |
| 1:A:1204:PRO:HB3 | 1:A:1208:ARG:HG2 | 1.85 | 0.57 |
| 1:B:309:TRP:CD1 | 1:B:411:TYR:CE1 | 2.93 | 0.57 |
| 1:B:312:TYR:HE2 | 1:B:411:TYR:HD1 | 1.52 | 0.57 |
| 1:A:312:TYR:HE2 | 1:A:411:TYR:HD1 | 1.52 | 0.57 |
| 1:A:1417:ALA:O | 1:A:1423:ASN:ND2 | 2.37 | 0.57 |
| 1:B:636:TYR:C | 1:B:638:PRO:HD3 | 2.25 | 0.57 |
| 1:A:325:GLU:CD | 1:A:326:LYS:HB3 | 2.25 | 0.56 |
| 1:B:1510:TRP:CG | 1:B:1511:SER:N | 2.68 | 0.56 |
| 1:A:1105:LYS:NZ | 1:A:1158:ARG:HE | 2.03 | 0.56 |
| 1:A:1106:THR:O | 1:A:1124:TYR:OH | 2.05 | 0.56 |
| 1:A:1190:ARG:HG3 | 1:A:1195:ILE:HG22 | 1.87 | 0.56 |
| 1:B:369:ASN:C | 1:B:370:LYS:HG2 | 2.25 | 0.56 |
| 1:A:276:MET:HA | 1:A:279:LEU:HG | 1.88 | 0.56 |
| 1:A:423:PHE:O | 1:A:427:LYS:HG3 | 2.06 | 0.56 |
| 1:A:630:ASP:OD1 | 1:A:635:ALA:HB3 | 2.06 | 0.56 |
| 1:A:1038:THR:HG21 | 1:A:1512:THR:OG1 | 2.06 | 0.56 |
| 1:B:682:ASP:OD1 | 1:B:685:PRO:HG2 | 2.05 | 0.56 |
| 1:A:331:LYS:HG3 | 1:A:381:LYS:HZ1 | 1.70 | 0.56 |
| 1:A:1195:ILE:HD11 | 1:A:1219:VAL:HB | 1.87 | 0.56 |
| 1:B:148:MET:HE1 | 1:B:228:LEU:HD11 | 1.88 | 0.56 |
| 1:B:313:VAL:HG21 | 1:B:408:TYR:CE1 | 2.40 | 0.56 |
| 1:B:292:ILE:HD13 | 1:B:427:LYS:CE | 2.35 | 0.56 |
| 1:B:1195:ILE:O | 1:B:1218:GLU:HB3 | 2.05 | 0.56 |
| 1:A:466:ALA:H | 1:A:501:LYS:NZ | 2.03 | 0.56 |
| 1:A:1117:ASP:HB3 | 1:A:1120:ARG:O | 2.06 | 0.56 |
| 1:B:1361:THR:HG21 | 1:B:1437:PHE:CA | 2.29 | 0.56 |
| 1:B:505:GLY:HA3 | 1:B:510:ASP:CB | 2.36 | 0.56 |
| 1:A:893:SER:HA | 1:A:896:TYR:CD2 | 2.40 | 0.56 |
| 1:B:121:GLU:HG2 | 1:B:122:THR:H | 1.71 | 0.55 |
| 1:B:315:ASP:H | 1:B:370:LYS:HZ3 | 1.55 | 0.55 |
| 1:B:315:ASP:CB | 1:B:370:LYS:NZ | 2.68 | 0.55 |
| 1:A:1197:TYR:CD2 | 1:A:1218:GLU:OE2 | 2.59 | 0.55 |
| 1:B:1510:TRP:CE3 | 1:B:1511:SER:CB | 2.77 | 0.55 |
| 1:A:312:TYR:CE2 | 1:A:411:TYR:HD1 | 2.25 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:704:ASP:OD2 | 1:B:732:LYS:HG3 | 2.07 | 0.55 |
| 1:B:1396:LEU:HD11 | 1:B:1400:ASP:HB3 | 1.88 | 0.55 |
| 1:B:1482:ILE:HB | 1:B:1490:LEU:CD1 | 2.36 | 0.55 |
| 1:B:1217:VAL:HG22 | 1:B:1235:ASN:ND2 | 2.22 | 0.55 |
| 1:B:1330:ILE:HD11 | 1:B:1335:ILE:HD12 | 1.89 | 0.55 |
| 1:A:1195:ILE:HD12 | 1:A:1218:GLU:CD | 2.27 | 0.55 |
| 1:B:65:ILE:HG12 | 1:B:111:LEU:HD22 | 1.88 | 0.55 |
| 1:B:1245:GLU:HG2 | 1:B:1245:GLU:O | 2.07 | 0.55 |
| 1:B:1050:SER:HB2 | 1:B:1056:ASN:HA | 1.87 | 0.55 |
| 1:B:1350:PRO:O | 1:B:1353:ASP:HB2 | 2.07 | 0.55 |
| 1:A:326:LYS:NZ | 1:A:331:LYS:NZ | 2.55 | 0.55 |
| 1:B:1428:PRO:HB3 | 1:B:1493:LEU:HD21 | 1.88 | 0.55 |
| 1:A:505:GLY:HA3 | 1:A:510:ASP:HB3 | 1.87 | 0.55 |
| 1:A:519:SER:O | 1:A:523:GLU:HG2 | 2.06 | 0.55 |
| 1:B:717:LYS:HD2 | 1:B:717:LYS:O | 2.06 | 0.55 |
| 1:A:1158:ARG:HA | 1:A:1173:ALA:O | 2.07 | 0.54 |
| 1:A:1361:THR:HG21 | 1:A:1437:PHE:CA | 2.28 | 0.54 |
| 1:A:1450:PRO:HA | 1:A:1453:GLN:OE1 | 2.07 | 0.54 |
| 1:B:1211:LYS:HB2 | 1:B:1213:GLU:CD | 2.28 | 0.54 |
| 1:B:1418:THR:HA | 1:B:1423:ASN:HB2 | 1.87 | 0.54 |
| 1:B:1465:SER:O | 1:B:1469:ARG:HG2 | 2.07 | 0.54 |
| 1:A:273:SER:HA | 1:A:276:MET:HB3 | 1.90 | 0.54 |
| 1:A:1493:LEU:HD23 | 1:A:1494:THR:N | 2.22 | 0.54 |
| 1:A:251:TYR:HD1 | 1:A:501:LYS:HD3 | 1.73 | 0.54 |
| 1:A:65:ILE:HG12 | 1:A:111:LEU:HD22 | 1.90 | 0.54 |
| 1:A:330:SER:C | 1:A:331:LYS:HD3 | 2.28 | 0.54 |
| 1:A:1342:LYS:HD3 | 1:A:1344:LEU:O | 2.07 | 0.54 |
| 1:B:184:GLN:HA | 1:B:201:PHE:HA | 1.90 | 0.54 |
| 1:B:291:LEU:O | 1:B:294:VAL:HG13 | 2.08 | 0.54 |
| 1:B:1157:ARG:NH1 | 1:B:1186:GLU:OE2 | 2.37 | 0.54 |
| 1:B:218:ARG:O | 1:B:222:GLU:HG2 | 2.08 | 0.54 |
| 1:B:327:TRP:HZ3 | 1:B:392:ILE:HG21 | 1.72 | 0.54 |
| 1:B:391:GLY:O | 1:B:395:LEU:HB2 | 2.08 | 0.54 |
| 1:B:395:LEU:HG | 1:B:398:LYS:HZ2 | 1.73 | 0.54 |
| 1:B:116:ASP:HB2 | 1:B:117:LYS:HZ2 | 1.73 | 0.53 |
| 1:B:718:ARG:HH21 | 1:B:823:ILE:HG13 | 1.73 | 0.53 |
| 1:B:1510:TRP:CD2 | 1:B:1512:THR:N | 2.76 | 0.53 |
| 1:B:276:MET:O | 1:B:279:LEU:HB3 | 2.08 | 0.53 |
| 1:B:256:SER:O | 1:B:256:SER:OG | 2.23 | 0.53 |
| 1:B:276:MET:O | 1:B:279:LEU:N | 2.37 | 0.53 |
| 1:B:1031:PHE:CG | 1:B:1479:ARG:HG3 | 2.43 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:1398:PRO:HA | 1:B:1403:TYR:CG | 2.43 | 0.53 |
| 1:B:1404:ARG:HB2 | 1:B:1423:ASN:OD1 | 2.08 | 0.53 |
| 1:A:1432:TRP:HB3 | 1:A:1510:TRP:HD1 | 1.73 | 0.53 |
| 1:B:19:THR:HG22 | 1:B:21:CYS:O | 2.07 | 0.53 |
| 1:B:1170:ASP:HB2 | 1:B:1172:LYS:H | 1.74 | 0.53 |
| 1:A:1050:SER:OG | 1:A:1051:ILE:N | 2.39 | 0.53 |
| 1:B:248:GLU:HA | 1:B:252:ASN:HD21 | 1.74 | 0.53 |
| 1:B:761:GLN:O | 1:B:782:THR:HG22 | 2.09 | 0.53 |
| 1:A:315:ASP:O | 1:A:319:THR:OG1 | 2.24 | 0.53 |
| 1:A:1292:THR:HG22 | 1:A:1298:LYS:HZ2 | 1.73 | 0.53 |
| 1:B:7:LEU:HD22 | 1:B:653:LYS:HB2 | 1.91 | 0.53 |
| 1:B:470:TRP:HZ3 | 1:B:496:TRP:HE1 | 1.56 | 0.53 |
| 1:B:1160:PRO:O | 1:B:1176:TYR:OH | 2.05 | 0.53 |
| 1:B:1166:ILE:HD11 | 1:B:1200:ALA:HB1 | 1.90 | 0.53 |
| 1:B:1186:GLU:O | 1:B:1190:ARG:HB2 | 2.09 | 0.53 |
| 1:B:1213:GLU:HG2 | 1:B:1214:GLY:N | 2.23 | 0.53 |
| 1:A:1279:GLN:NE2 | 1:A:1283:ASP:OD2 | 2.42 | 0.53 |
| 1:B:318:GLN:HA | 1:B:321:SER:HG | 1.74 | 0.53 |
| 1:B:1474:ARG:HG2 | 1:B:1474:ARG:HH11 | 1.73 | 0.53 |
| 1:B:185:HIS:HD2 | 1:B:196:TYR:CD1 | 2.26 | 0.53 |
| 1:B:395:LEU:O | 1:B:398:LYS:HG2 | 2.09 | 0.53 |
| 1:B:1077:ARG:O | 1:B:1081:ILE:HD12 | 2.09 | 0.53 |
| 1:B:1209:VAL:HG11 | 1:B:1245:GLU:HG3 | 1.91 | 0.53 |
| 1:B:1337:ARG:HD2 | 1:B:1340:ILE:HD11 | 1.90 | 0.53 |
| 1:A:630:ASP:HB3 | 1:A:633:TYR:HA | 1.90 | 0.53 |
| 1:B:313:VAL:HG13 | 1:B:404:ASN:ND2 | 2.18 | 0.53 |
| 1:B:589:ALA:HB3 | 1:B:666:ASP:HA | 1.91 | 0.53 |
| 1:A:1220:ASN:CG | 1:A:1221:VAL:H | 2.07 | 0.52 |
| 1:B:420:GLU:O | 1:B:423:PHE:HB3 | 2.10 | 0.52 |
| 1:B:593:TRP:CD1 | 1:B:597:GLU:HG3 | 2.44 | 0.52 |
| 1:A:589:ALA:HB3 | 1:A:666:ASP:HA | 1.91 | 0.52 |
| 1:A:1432:TRP:HB3 | 1:A:1510:TRP:CD1 | 2.45 | 0.52 |
| 1:B:1160:PRO:HG3 | 1:B:1164:GLU:HB3 | 1.89 | 0.52 |
| 1:A:1172:LYS:HA | 1:A:1175:SER:HB2 | 1.92 | 0.52 |
| 1:B:422:LEU:O | 1:B:425:ARG:HB3 | 2.09 | 0.52 |
| 1:B:939:ILE:HD11 | 1:B:947:HIS:CD2 | 2.44 | 0.52 |
| 1:B:981:GLU:OE1 | 1:B:984:ARG:NH2 | 2.39 | 0.52 |
| 1:B:1453:GLN:HB3 | 1:B:1461:LEU:HD23 | 1.91 | 0.52 |
| 1:A:678:ARG:HB3 | 1:A:784:PHE:HA | 1.91 | 0.52 |
| 1:A:1204:PRO:O | 1:A:1208:ARG:HG3 | 2.10 | 0.52 |
| 1:A:1217:VAL:O | 1:A:1218:GLU:CG | 2.55 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:323:LEU:O | 1:B:327:TRP:N | 2.42 | 0.52 |
| 1:A:182:PRO:HG2 | 1:A:192:PRO:O | 2.09 | 0.52 |
| 1:A:281:TYR:HE2 | 1:A:293:LYS:HD3 | 1.74 | 0.52 |
| 1:B:1352:GLU:HA | 1:B:1355:GLN:HG3 | 1.90 | 0.52 |
| 1:A:326:LYS:HZ1 | 1:A:331:LYS:HZ2 | 1.56 | 0.52 |
| 1:A:673:THR:HG21 | 1:A:707:PHE:O | 2.10 | 0.52 |
| 1:B:1106:THR:O | 1:B:1124:TYR:OH | 2.16 | 0.52 |
| 1:A:296:ASP:HA | 1:A:299:LYS:HB3 | 1.90 | 0.52 |
| 1:A:337:ASN:HB3 | 1:A:350:PHE:CZ | 2.44 | 0.52 |
| 1:A:870:ILE:HG12 | 1:A:993:LEU:HD22 | 1.91 | 0.52 |
| 1:A:1494:THR:HG22 | 1:A:1495:ASN:O | 2.10 | 0.52 |
| 1:B:816:ALA:HB2 | 1:B:826:ILE:HG13 | 1.91 | 0.52 |
| 1:B:1160:PRO:CG | 1:B:1164:GLU:HB3 | 2.39 | 0.52 |
| 1:B:1262:ALA:HB3 | 1:B:1345:TYR:HB3 | 1.91 | 0.52 |
| 1:A:1156:THR:HG21 | 1:A:1174:PHE:CD1 | 2.45 | 0.52 |
| 1:A:331:LYS:HB3 | 1:A:381:LYS:HZ2 | 1.74 | 0.52 |
| 1:A:505:GLY:HA3 | 1:A:510:ASP:CB | 2.40 | 0.52 |
| 1:A:1260:ASP:OD1 | 1:A:1347:SER:HB2 | 2.09 | 0.52 |
| 1:A:1270:LEU:HD23 | 1:A:1308:LEU:HD11 | 1.92 | 0.52 |
| 1:B:309:TRP:HD1 | 1:B:411:TYR:HH | 1.58 | 0.52 |
| 1:A:296:ASP:HB3 | 1:A:299:LYS:HE3 | 1.92 | 0.51 |
| 1:A:870:ILE:HD11 | 1:A:997:LEU:CD1 | 2.40 | 0.51 |
| 1:A:1107:LEU:O | 1:A:1157:ARG:NH2 | 2.43 | 0.51 |
| 1:B:315:ASP:H | 1:B:370:LYS:HZ1 | 1.57 | 0.51 |
| 1:B:1432:TRP:N | 1:B:1511:SER:CB | 2.73 | 0.51 |
| 1:A:288:VAL:N | 1:A:290:ASP:OD1 | 2.43 | 0.51 |
| 1:A:1109:HIS:CG | 1:A:1197:TYR:CE2 | 2.98 | 0.51 |
| 1:A:452:PHE:CE1 | 1:A:466:ALA:HB2 | 2.45 | 0.51 |
| 1:A:466:ALA:HB3 | 1:A:501:LYS:CE | 2.39 | 0.51 |
| 1:A:629:ILE:HG22 | 1:A:649:ILE:HA | 1.91 | 0.51 |
| 1:B:813:THR:O | 1:B:827:PRO:HG2 | 2.10 | 0.51 |
| 1:B:1160:PRO:HG2 | 1:B:1162:ASP:C | 2.29 | 0.51 |
| 1:A:1346:ARG:HG3 | 1:A:1346:ARG:O | 2.09 | 0.51 |
| 1:B:1329:GLU:OE1 | 1:B:1329:GLU:N | 2.43 | 0.51 |
| 1:A:813:THR:O | 1:A:827:PRO:HG2 | 2.11 | 0.51 |
| 1:B:1210:MET:HE1 | 1:B:1234:PHE:O | 2.11 | 0.51 |
| 1:A:1474:ARG:HG2 | 1:A:1474:ARG:HH11 | 1.76 | 0.51 |
| 1:B:323:LEU:HG | 1:B:373:ILE:HG23 | 1.92 | 0.51 |
| 1:B:419:LEU:O | 1:B:423:PHE:N | 2.38 | 0.51 |
| 1:B:682:ASP:HA | 1:B:685:PRO:HD2 | 1.93 | 0.51 |
| 1:B:1198:ARG:HG2 | 1:B:1216:ASN:HB3 | 1.93 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:236:THR:HG21 | 1:B:242:TRP:CZ2 | 2.46 | 0.51 |
| 1:A:72:ASP:HA | 1:A:102:TYR:CE2 | 2.46 | 0.51 |
| 1:A:240:SER:HB3 | 1:A:242:TRP:CD1 | 2.46 | 0.51 |
| 1:A:337:ASN:O | 1:A:339:PRO:HD3 | 2.11 | 0.51 |
| 1:A:1160:PRO:CG | 1:A:1164:GLU:HB3 | 2.41 | 0.51 |
| 1:A:1474:ARG:HG2 | 1:A:1474:ARG:NH1 | 2.26 | 0.51 |
| 1:B:252:ASN:OD1 | 1:B:465:LEU:HD22 | 2.11 | 0.51 |
| 1:B:765:PHE:HE2 | 1:B:767:ARG:HB2 | 1.76 | 0.51 |
| 1:A:322:GLU:O | 1:A:373:ILE:HG21 | 2.11 | 0.50 |
| 1:B:1463:PRO:HD3 | 1:B:1526:TYR:CE1 | 2.46 | 0.50 |
| 1:A:1432:TRP:CG | 1:A:1510:TRP:CD1 | 2.98 | 0.50 |
| 1:A:312:TYR:HE2 | 1:A:411:TYR:CD1 | 2.30 | 0.50 |
| 1:B:165:LYS:HD2 | 1:B:166:VAL:HG23 | 1.93 | 0.50 |
| 1:B:268:LYS:O | 1:B:269:LEU:HD23 | 2.10 | 0.50 |
| 1:B:513:TYR:OH | 1:B:517:ARG:HD3 | 2.10 | 0.50 |
| 1:B:836:PHE:CD1 | 1:B:852:PRO:HD3 | 2.46 | 0.50 |
| 1:B:1185:TYR:CG | 1:B:1288:TYR:HD2 | 2.30 | 0.50 |
| 1:A:114:LYS:NZ | 1:A:118:ASP:HA | 2.27 | 0.50 |
| 1:A:160:ILE:O | 1:A:163:TRP:HB2 | 2.11 | 0.50 |
| 1:A:1029:THR:HG22 | 1:A:1030:VAL:H | 1.77 | 0.50 |
| 1:A:1403:TYR:O | 1:A:1404:ARG:HD3 | 2.11 | 0.50 |
| 1:B:191:SER:HB3 | 1:B:498:ASP:OD2 | 2.12 | 0.50 |
| 1:B:1404:ARG:O | 1:B:1423:ASN:ND2 | 2.42 | 0.50 |
| 1:B:1432:TRP:CA | 1:B:1511:SER:HB3 | 2.42 | 0.50 |
| 1:A:296:ASP:CB | 1:A:299:LYS:HE3 | 2.42 | 0.50 |
| 1:A:629:ILE:CD1 | 1:A:631:GLU:HB2 | 2.39 | 0.50 |
| 1:A:704:ASP:OD2 | 1:A:732:LYS:HG3 | 2.11 | 0.50 |
| 1:B:307:LYS:C | 1:B:309:TRP:H | 2.15 | 0.50 |
| 1:B:513:TYR:CE2 | 1:B:517:ARG:HD3 | 2.47 | 0.50 |
| 1:B:541:PRO:HB2 | 1:B:543:HIS:CE1 | 2.46 | 0.50 |
| 1:B:681:GLU:HA | 1:B:810:LEU:HD23 | 1.93 | 0.50 |
| 1:A:411:TYR:CZ | 1:A:415:ILE:HG13 | 2.47 | 0.50 |
| 1:B:318:GLN:HA | 1:B:321:SER:OG | 2.12 | 0.50 |
| 1:B:423:PHE:HA | 1:B:425:ARG:CZ | 2.42 | 0.50 |
| 1:B:1131:TRP:CD1 | 1:B:1266:ILE:HG23 | 2.47 | 0.50 |
| 1:A:325:GLU:HG2 | 1:A:326:LYS:HB3 | 1.94 | 0.50 |
| 1:A:812:ARG:NH2 | 1:A:815:ASP:OD1 | 2.45 | 0.50 |
| 1:B:1219:VAL:HG22 | 1:B:1230:GLY:HA3 | 1.94 | 0.50 |
| 1:B:1431:VAL:CG1 | 1:B:1510:TRP:HZ3 | 2.25 | 0.50 |
| 1:A:939:ILE:HD11 | 1:A:947:HIS:CD2 | 2.46 | 0.49 |
| 1:A:1262:ALA:HB3 | 1:A:1345:TYR:HB3 | 1.93 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:453:THR:N | 1:A:465:LEU:O | 2.30 | 0.49 |
| 1:A:1198:ARG:HA | 1:A:1216:ASN:HA | 1.93 | 0.49 |
| 1:A:1259:ARG:NH1 | 1:A:1343:ASP:OD2 | 2.44 | 0.49 |
| 1:B:1402:ASN:N | 1:B:1402:ASN:HD22 | 2.11 | 0.49 |
| 1:B:1403:TYR:C | 1:B:1404:ARG:HD3 | 2.33 | 0.49 |
| 1:B:1431:VAL:HG11 | 1:B:1510:TRP:HZ3 | 1.78 | 0.49 |
| 1:A:114:LYS:HZ1 | 1:A:118:ASP:CG | 2.14 | 0.49 |
| 1:A:273:SER:HA | 1:A:276:MET:CB | 2.42 | 0.49 |
| 1:A:447:LEU:HD12 | 1:A:448:SER:HB3 | 1.95 | 0.49 |
| 1:A:692:PHE:C | 1:A:767:ARG:HH21 | 2.15 | 0.49 |
| 1:B:303:ILE:O | 1:B:306:LEU:HD22 | 2.12 | 0.49 |
| 1:B:1396:LEU:HD12 | 1:B:1396:LEU:C | 2.32 | 0.49 |
| 1:A:283:VAL:HG11 | 1:A:441:ILE:CG1 | 2.35 | 0.49 |
| 1:A:418:VAL:HG22 | 1:A:490:ARG:HA | 1.94 | 0.49 |
| 1:A:1105:LYS:NZ | 1:A:1158:ARG:HH21 | 2.11 | 0.49 |
| 1:A:1330:ILE:HD12 | 1:A:1331:ASP:N | 2.28 | 0.49 |
| 1:B:742:ILE:HG21 | 1:B:767:ARG:NH2 | 2.20 | 0.49 |
| 1:B:882:ALA:HB2 | 1:B:982:TRP:CZ2 | 2.47 | 0.49 |
| 1:A:285:LEU:HD21 | 1:A:290:ASP:OD2 | 2.13 | 0.49 |
| 1:A:1462:LYS:HG3 | 1:A:1463:PRO:N | 2.28 | 0.49 |
| 1:B:679:THR:OG1 | 1:B:783:LYS:HE2 | 2.12 | 0.49 |
| 1:B:1213:GLU:CG | 1:B:1214:GLY:N | 2.76 | 0.49 |
| 1:A:8:LEU:HB2 | 1:A:652:PRO:HG2 | 1.94 | 0.49 |
| 1:B:353:ASP:CG | 1:B:354:ASN:N | 2.65 | 0.49 |
| 1:B:162:ASP:O | 1:B:165:LYS:HG2 | 2.12 | 0.49 |
| 1:B:1185:TYR:HE1 | 1:B:1290:GLU:O | 1.95 | 0.49 |
| 1:A:816:ALA:HB2 | 1:A:826:ILE:HG13 | 1.95 | 0.49 |
| 1:A:1105:LYS:HE2 | 1:A:1156:THR:O | 2.12 | 0.49 |
| 1:A:1229:HIS:CE1 | 1:A:1346:ARG:HG2 | 2.48 | 0.49 |
| 1:B:274:GLU:HG2 | 1:B:275:GLN:HG3 | 1.95 | 0.49 |
| 1:B:315:ASP:CB | 1:B:370:LYS:HZ1 | 2.26 | 0.48 |
| 1:B:1432:TRP:CA | 1:B:1511:SER:CB | 2.91 | 0.48 |
| 1:A:1161:LEU:HD23 | 1:A:1161:LEU:O | 2.13 | 0.48 |
| 1:A:1223:TRP:HD1 | 1:A:1293:LYS:HZ3 | 1.51 | 0.48 |
| 1:A:1330:ILE:HD11 | 1:A:1335:ILE:HD12 | 1.94 | 0.48 |
| 1:B:1396:LEU:CD2 | 1:B:1426:GLN:HB2 | 2.40 | 0.48 |
| 1:B:1407:TYR:CZ | 1:B:1424:TYR:HD1 | 2.30 | 0.48 |
| 1:B:1459:LYS:HD2 | 1:B:1459:LYS:HA | 1.36 | 0.48 |
| 1:A:1223:TRP:CD1 | 1:A:1293:LYS:NZ | 2.76 | 0.48 |
| 1:B:127:TYR:HB2 | 1:B:578:GLU:HG2 | 1.94 | 0.48 |
| 1:B:357:GLU:HB3 | 1:B:358:PRO:HD2 | 1.95 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:309:TRP:HE3 | 1:B:311:PHE:HB2 | 1.77 | 0.48 |
| 1:B:312:TYR:CE2 | 1:B:411:TYR:HD1 | 2.29 | 0.48 |
| 1:B:421:GLN:HE22 | 1:B:492:GLU:HG2 | 1.78 | 0.48 |
| 1:A:1115:LEU:HB3 | 1:A:1123:ARG:HB3 | 1.95 | 0.48 |
| 1:B:231:ILE:HD12 | 1:B:532:PHE:CG | 2.48 | 0.48 |
| 1:B:338:ILE:HG23 | 1:B:383:LEU:HD22 | 1.96 | 0.48 |
| 1:B:682:ASP:H | 1:B:783:LYS:HE3 | 1.77 | 0.48 |
| 1:B:1287:LYS:HE3 | 1:B:1288:TYR:CE1 | 2.49 | 0.48 |
| 1:B:1291:VAL:HB | 1:B:1299:ILE:HG13 | 1.96 | 0.48 |
| 1:A:357:GLU:HB3 | 1:A:358:PRO:HD2 | 1.95 | 0.48 |
| 1:A:1238:THR:HG21 | 1:A:1259:ARG:HE | 1.78 | 0.48 |
| 1:B:422:LEU:HA | 1:B:425:ARG:HB3 | 1.96 | 0.48 |
| 1:B:1259:ARG:HB3 | 1:B:1344:LEU:HD21 | 1.96 | 0.48 |
| 1:B:728:ILE:HD11 | 1:B:810:LEU:HD22 | 1.95 | 0.48 |
| 1:A:299:LYS:HD2 | 1:A:300:GLU:HB3 | 1.95 | 0.48 |
| 1:B:748:ASP:CG | 1:B:749:ILE:HG22 | 2.33 | 0.48 |
| 1:A:252:ASN:OD1 | 1:A:254:LYS:HB2 | 2.14 | 0.48 |
| 1:A:683:THR:HG22 | 1:A:728:ILE:HG13 | 1.96 | 0.48 |
| 1:A:1107:LEU:C | 1:A:1157:ARG:HH22 | 2.17 | 0.48 |
| 1:A:1342:LYS:NZ | 1:A:1345:TYR:HA | 2.29 | 0.48 |
| 1:B:159:THR:O | 1:B:163:TRP:CD1 | 2.67 | 0.48 |
| 1:B:1400:ASP:OD2 | 1:B:1401:TYR:N | 2.47 | 0.48 |
| 1:A:761:GLN:O | 1:A:782:THR:OG1 | 2.30 | 0.48 |
| 1:B:274:GLU:OE1 | 1:B:274:GLU:N | 2.47 | 0.48 |
| 1:B:396:ALA:O | 1:B:400:LEU:HG | 2.13 | 0.48 |
| 1:B:871:ASP:OD1 | 1:B:872:ASP:N | 2.47 | 0.48 |
| 1:B:1230:GLY:O | 1:B:1260:ASP:HA | 2.13 | 0.48 |
| 1:A:907:ASP:OD1 | 1:A:1047:LYS:HB2 | 2.14 | 0.47 |
| 1:A:1082:SER:OG | 1:A:1510:TRP:HB3 | 2.13 | 0.47 |
| 1:A:251:TYR:CD1 | 1:A:503:ARG:HB2 | 2.49 | 0.47 |
| 1:A:326:LYS:CE | 1:A:329:ASN:HB2 | 2.42 | 0.47 |
| 1:A:326:LYS:O | 1:A:331:LYS:NZ | 2.44 | 0.47 |
| 1:B:1272:SER:HB2 | 1:B:1275:ARG:HH22 | 1.79 | 0.47 |
| 1:B:1449:ASN:O | 1:B:1453:GLN:NE2 | 2.46 | 0.47 |
| 1:A:326:LYS:NZ | 1:A:331:LYS:HZ2 | 2.13 | 0.47 |
| 1:A:1154:LYS:HB2 | 1:A:1154:LYS:HE2 | 1.65 | 0.47 |
| 1:B:161:LYS:N | 1:B:161:LYS:HD3 | 2.28 | 0.47 |
| 1:B:749:ILE:HG23 | 1:B:750:GLU:HG2 | 1.96 | 0.47 |
| 1:B:900:ARG:HH22 | 1:B:908:TYR:HE1 | 1.63 | 0.47 |
| 1:B:1342:LYS:HB2 | 1:B:1353:ASP:O | 2.14 | 0.47 |
| 1:B:1431:VAL:C | 1:B:1511:SER:HB3 | 2.35 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:256:SER:O | 1:A:256:SER:OG | 2.24 | 0.47 |
| 1:A:1293:LYS:HG3 | 1:A:1294:PRO:N | 2.29 | 0.47 |
| 1:B:35:LEU:CD1 | 1:B:133:ILE:HD13 | 2.45 | 0.47 |
| 1:B:315:ASP:OD2 | 1:B:318:GLN:HB3 | 2.15 | 0.47 |
| 1:B:470:TRP:HZ3 | 1:B:496:TRP:NE1 | 2.13 | 0.47 |
| 1:A:1064:LEU:O | 1:A:1506:PRO:HD2 | 2.14 | 0.47 |
| 1:B:1197:TYR:O | 1:B:1218:GLU:OE2 | 2.33 | 0.47 |
| 1:A:269:LEU:HA | 1:A:272:PHE:HB3 | 1.97 | 0.47 |
| 1:A:440:PRO:HB2 | 1:A:441:ILE:H | 1.44 | 0.47 |
| 1:A:947:HIS:CD2 | 1:A:949:LEU:H | 2.33 | 0.47 |
| 1:A:1138:GLN:HG3 | 1:A:1276:PHE:CD1 | 2.50 | 0.47 |
| 1:A:1349:LYS:HG3 | 1:A:1352:GLU:HG3 | 1.97 | 0.47 |
| 1:B:236:THR:HG21 | 1:B:242:TRP:CH2 | 2.50 | 0.47 |
| 1:A:165:LYS:HD2 | 1:A:165:LYS:HA | 1.57 | 0.47 |
| 1:A:235:HIS:CG | 1:A:499:CYS:HB3 | 2.50 | 0.47 |
| 1:A:284:ASP:HB3 | 1:A:438:GLN:HE21 | 1.78 | 0.47 |
| 1:A:334:SER:HA | 1:A:382:LYS:NZ | 2.29 | 0.47 |
| 1:A:1048:SER:HB2 | 1:A:1070:ASN:ND2 | 2.29 | 0.47 |
| 1:A:1084:ARG:HG3 | 1:A:1088:LEU:HD12 | 1.97 | 0.47 |
| 1:A:1259:ARG:HH21 | 1:A:1265:GLU:CD | 2.18 | 0.47 |
| 1:B:381:LYS:HA | 1:B:385:SER:O | 2.15 | 0.47 |
| 1:B:679:THR:N | 1:B:783:LYS:HE2 | 2.29 | 0.47 |
| 1:B:682:ASP:HB2 | 1:B:783:LYS:HD2 | 1.95 | 0.47 |
| 1:B:1107:LEU:HD22 | 1:B:1183:ILE:HG23 | 1.97 | 0.47 |
| 1:B:1159:PHE:HB3 | 1:B:1160:PRO:HD2 | 1.94 | 0.47 |
| 1:A:66:TRP:CH2 | 1:A:84:LYS:HG3 | 2.50 | 0.47 |
| 1:A:716:GLU:CD | 1:A:718:ARG:HH21 | 2.18 | 0.47 |
| 1:A:728:ILE:HD11 | 1:A:810:LEU:HD22 | 1.96 | 0.47 |
| 1:A:966:ARG:NH1 | 1:A:966:ARG:HB3 | 2.30 | 0.47 |
| 1:B:377:ALA:O | 1:B:381:LYS:HG2 | 2.15 | 0.47 |
| 1:A:312:TYR:CD2 | 1:A:411:TYR:HB2 | 2.50 | 0.47 |
| 1:A:1109:HIS:CE1 | 1:A:1163:ASP:HB3 | 2.50 | 0.47 |
| 1:B:148:MET:HA | 1:B:177:MET:O | 2.15 | 0.47 |
| 1:B:311:PHE:HE2 | 1:B:364:GLY:O | 1.98 | 0.47 |
| 1:B:315:ASP:HB2 | 1:B:370:LYS:NZ | 2.30 | 0.47 |
| 1:B:324:ARG:HB2 | 1:B:388:TYR:CZ | 2.50 | 0.47 |
| 1:B:518:MET:HA | 1:B:521:TYR:HB3 | 1.97 | 0.47 |
| 1:B:648:GLU:OE2 | 1:B:876:HIS:HD2 | 1.97 | 0.47 |
| 1:A:251:TYR:CD1 | 1:A:501:LYS:HD3 | 2.50 | 0.47 |
| 1:A:1062:ALA:HB1 | 1:A:1510:TRP:CZ3 | 2.42 | 0.47 |
| 1:B:163:TRP:HA | 1:B:165:LYS:NZ | 2.30 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:443:LYS:HA | 1:B:443:LYS:HD2 | 1.74 | 0.47 |
| 1:B:634:CYS:HB3 | 1:B:636:TYR:CE1 | 2.40 | 0.47 |
| 1:B:1108:LYS:HD2 | 1:B:1159:PHE:HE2 | 1.79 | 0.47 |
| 1:A:250:GLY:HA3 | 1:A:465:LEU:HD13 | 1.98 | 0.46 |
| 1:A:323:LEU:C | 1:A:325:GLU:OE1 | 2.53 | 0.46 |
| 1:A:1259:ARG:HH12 | 1:A:1343:ASP:CG | 2.18 | 0.46 |
| 1:B:1112:ILE:HG13 | 1:B:1113:PRO:HD2 | 1.97 | 0.46 |
| 1:B:395:LEU:HG | 1:B:398:LYS:NZ | 2.31 | 0.46 |
| 1:B:451:TYR:CD1 | 1:B:495:VAL:HG21 | 2.50 | 0.46 |
| 1:B:966:ARG:HG3 | 1:B:967:LEU:N | 2.31 | 0.46 |
| 1:B:1198:ARG:NH1 | 1:B:1212:ASP:O | 2.49 | 0.46 |
| 1:A:268:LYS:O | 1:A:269:LEU:HD23 | 2.15 | 0.46 |
| 1:A:1157:ARG:HH11 | 1:A:1157:ARG:HG3 | 1.80 | 0.46 |
| 1:A:1204:PRO:O | 1:A:1208:ARG:CG | 2.63 | 0.46 |
| 1:B:160:ILE:C | 1:B:163:TRP:H | 2.19 | 0.46 |
| 1:A:170:VAL:HA | 1:A:173:LYS:HE2 | 1.98 | 0.46 |
| 1:A:329:ASN:H | 1:A:331:LYS:NZ | 2.13 | 0.46 |
| 1:A:1342:LYS:CE | 1:A:1353:ASP:HB3 | 2.40 | 0.46 |
| 1:B:66:TRP:CZ3 | 1:B:84:LYS:HB2 | 2.51 | 0.46 |
| 1:B:353:ASP:OD2 | 1:B:354:ASN:ND2 | 2.46 | 0.46 |
| 1:B:707:PHE:CD1 | 1:B:823:ILE:HD11 | 2.51 | 0.46 |
| 1:A:251:TYR:H | 1:A:501:LYS:HD3 | 1.81 | 0.46 |
| 1:A:1179:THR:OG1 | 1:A:1182:GLU:HG2 | 2.16 | 0.46 |
| 1:B:1109:HIS:O | 1:B:1111:LEU:HD13 | 2.15 | 0.46 |
| 1:B:1196:LYS:HA | 1:B:1218:GLU:CD | 2.36 | 0.46 |
| 1:A:541:PRO:HB2 | 1:A:543:HIS:CE1 | 2.50 | 0.46 |
| 1:A:893:SER:HA | 1:A:896:TYR:HD2 | 1.81 | 0.46 |
| 1:A:1035:LEU:O | 1:A:1038:THR:HB | 2.16 | 0.46 |
| 1:B:173:LYS:HE2 | 1:B:175:TYR:HE2 | 1.81 | 0.46 |
| 1:B:267:LYS:HE2 | 1:B:267:LYS:HB3 | 1.66 | 0.46 |
| 1:B:491:ARG:HA | 1:B:491:ARG:HD3 | 1.79 | 0.46 |
| 1:B:573:ASP:O | 1:B:577:VAL:HG23 | 2.16 | 0.46 |
| 1:A:161:LYS:HA | 1:A:164:GLU:HB2 | 1.98 | 0.46 |
| 1:A:287:THR:HG22 | 1:A:288:VAL:N | 2.27 | 0.46 |
| 1:A:331:LYS:HD2 | 1:A:331:LYS:HA | 1.60 | 0.46 |
| 1:A:542:LEU:O | 1:A:546:GLN:HG3 | 2.16 | 0.46 |
| 1:A:594:SER:OG | 1:A:596:GLU:HG2 | 2.16 | 0.46 |
| 1:B:136:VAL:HG13 | 1:B:137:ASN:H | 1.81 | 0.46 |
| 1:B:296:ASP:HB3 | 1:B:299:LYS:HD3 | 1.96 | 0.46 |
| 1:B:327:TRP:CZ3 | 1:B:392:ILE:HG21 | 2.51 | 0.46 |
| 1:A:279:LEU:HD12 | 1:A:279:LEU:O | 2.16 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:1064:LEU:O | 1:B:1506:PRO:HD2 | 2.15 | 0.46 |
| 1:A:275:GLN:N | 1:A:275:GLN:OE1 | 2.49 | 0.46 |
| 1:A:417:GLU:O | 1:A:421:GLN:HB2 | 2.15 | 0.46 |
| 1:A:738:MET:HB3 | 1:A:776:TRP:CZ2 | 2.50 | 0.46 |
| 1:B:309:TRP:CD1 | 1:B:411:TYR:HE1 | 2.34 | 0.46 |
| 1:B:312:TYR:CD2 | 1:B:411:TYR:HB2 | 2.51 | 0.46 |
| 1:B:503:ARG:NH2 | 1:B:511:SER:OG | 2.49 | 0.46 |
| 1:B:748:ASP:OD1 | 1:B:749:ILE:N | 2.40 | 0.46 |
| 1:B:1174:PHE:CZ | 1:B:1174:PHE:CD1 | 2.97 | 0.46 |
| 1:B:1349:LYS:HG3 | 1:B:1352:GLU:HG3 | 1.98 | 0.46 |
| 1:A:1123:ARG:NH2 | 1:A:1207:ASP:HB2 | 2.19 | 0.46 |
| 1:B:891:LEU:HD23 | 1:B:891:LEU:HA | 1.81 | 0.46 |
| 1:A:127:TYR:HB2 | 1:A:578:GLU:HG2 | 1.98 | 0.45 |
| 1:A:1158:ARG:O | 1:A:1159:PHE:CD2 | 2.59 | 0.45 |
| 1:B:149:GLN:HG2 | 1:B:175:TYR:CE1 | 2.51 | 0.45 |
| 1:B:1185:TYR:CE1 | 1:B:1290:GLU:O | 2.69 | 0.45 |
| 1:B:1206:LEU:HD12 | 1:B:1207:ASP:N | 2.31 | 0.45 |
| 1:A:329:ASN:H | 1:A:331:LYS:HZ3 | 1.63 | 0.45 |
| 1:A:742:ILE:HG22 | 1:A:743:ALA:N | 2.30 | 0.45 |
| 1:A:1508:GLN:NE2 | 1:A:1510:TRP:CH2 | 2.85 | 0.45 |
| 1:B:429:LEU:O | 1:B:430:ARG:HB2 | 2.15 | 0.45 |
| 1:B:1270:LEU:HD23 | 1:B:1308:LEU:HD11 | 1.98 | 0.45 |
| 1:A:325:GLU:OE2 | 1:A:326:LYS:HB3 | 2.16 | 0.45 |
| 1:B:307:LYS:O | 1:B:310:GLU:OE1 | 2.35 | 0.45 |
| 1:B:1432:TRP:HA | 1:B:1511:SER:HB3 | 1.98 | 0.45 |
| 1:A:435:GLY:HA2 | 1:A:436:PRO:HD2 | 1.77 | 0.45 |
| 1:B:424:ASN:OD1 | 1:B:424:ASN:O | 2.34 | 0.45 |
| 1:B:1196:LYS:HE2 | 1:B:1218:GLU:HB2 | 1.98 | 0.45 |
| 1:A:679:THR:HG21 | 1:A:783:LYS:HE3 | 1.98 | 0.45 |
| 1:A:896:TYR:HD1 | 1:A:900:ARG:HD3 | 1.80 | 0.45 |
| 1:B:1407:TYR:CZ | 1:B:1424:TYR:CD1 | 3.04 | 0.45 |
| 1:B:1510:TRP:NE1 | 1:B:1512:THR:HG23 | 2.31 | 0.45 |
| 1:A:713:LEU:H | 1:A:713:LEU:HD12 | 1.81 | 0.45 |
| 1:A:1131:TRP:CD1 | 1:A:1266:ILE:HG23 | 2.52 | 0.45 |
| 1:B:266:ASP:HB3 | 1:B:454:ARG:HH22 | 1.82 | 0.45 |
| 1:B:268:LYS:HZ1 | 1:B:301:HIS:CE1 | 2.35 | 0.45 |
| 1:B:274:GLU:H | 1:B:274:GLU:CD | 2.19 | 0.45 |
| 1:B:312:TYR:HE2 | 1:B:411:TYR:CD1 | 2.34 | 0.45 |
| 1:B:928:GLY:CA | 1:B:966:ARG:HH12 | 2.30 | 0.45 |
| 1:B:947:HIS:CD2 | 1:B:949:LEU:H | 2.34 | 0.45 |
| 1:B:1108:LYS:HD2 | 1:B:1159:PHE:CD2 | 2.51 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:1128:ASP:OD1 | 1:B:1129:ALA:N | 2.49 | 0.45 |
| 1:B:1211:LYS:HB2 | 1:B:1213:GLU:OE2 | 2.16 | 0.45 |
| 1:B:1235:ASN:O | 1:B:1258:PRO:HB3 | 2.16 | 0.45 |
| 1:A:681:GLU:HA | 1:A:810:LEU:HD23 | 1.97 | 0.45 |
| 1:B:1421:GLY:O | 1:B:1424:TYR:HB2 | 2.17 | 0.45 |
| 1:B:1467:LEU:O | 1:B:1470:LYS:HB2 | 2.17 | 0.45 |
| 1:A:761:GLN:HE21 | 1:A:761:GLN:HB3 | 1.44 | 0.45 |
| 1:B:183:LEU:N | 1:B:184:GLN:OE1 | 2.50 | 0.45 |
| 1:A:287:THR:HB | 1:A:290:ASP:CG | 2.36 | 0.45 |
| 1:A:1105:LYS:HZ3 | 1:A:1158:ARG:HE | 1.65 | 0.45 |
| 1:B:267:LYS:O | 1:B:271:ASP:HB2 | 2.17 | 0.45 |
| 1:B:1161:LEU:O | 1:B:1161:LEU:HD23 | 2.17 | 0.45 |
| 1:A:325:GLU:CG | 1:A:326:LYS:HB3 | 2.47 | 0.45 |
| 1:A:649:ILE:H | 1:A:649:ILE:HG13 | 1.56 | 0.45 |
| 1:B:179:HIS:NE2 | 1:B:533:ARG:HD2 | 2.32 | 0.45 |
| 1:A:302:VAL:HG23 | 1:A:303:ILE:H | 1.82 | 0.44 |
| 1:A:664:PHE:CE2 | 1:A:690:VAL:HG22 | 2.52 | 0.44 |
| 1:A:1193:GLY:O | 1:A:1294:PRO:HD3 | 2.17 | 0.44 |
| 1:B:43:ASP:N | 1:B:43:ASP:OD1 | 2.49 | 0.44 |
| 1:B:1397:ASP:OD2 | 1:B:1399:SER:N | 2.48 | 0.44 |
| 1:A:938:LYS:HE2 | 1:A:942:TYR:HE2 | 1.83 | 0.44 |
| 1:A:1454:VAL:HG12 | 1:A:1455:GLU:N | 2.32 | 0.44 |
| 1:B:1087:LEU:HA | 1:B:1092:ARG:HB2 | 1.99 | 0.44 |
| 1:A:575:LEU:HD11 | 1:A:579:ARG:NH2 | 2.33 | 0.44 |
| 1:A:649:ILE:HD12 | 1:A:649:ILE:O | 2.16 | 0.44 |
| 1:A:1050:SER:HB2 | 1:A:1056:ASN:HA | 1.98 | 0.44 |
| 1:B:186:ARG:HD2 | 1:B:192:PRO:HA | 1.99 | 0.44 |
| 1:B:350:PHE:CD1 | 1:B:353:ASP:OD2 | 2.70 | 0.44 |
| 1:B:421:GLN:HE22 | 1:B:492:GLU:CA | 2.30 | 0.44 |
| 1:B:451:TYR:CE1 | 1:B:491:ARG:HD2 | 2.53 | 0.44 |
| 1:B:1029:THR:HG22 | 1:B:1030:VAL:N | 2.33 | 0.44 |
| 1:A:69:CYS:SG | 1:A:107:TYR:HB3 | 2.58 | 0.44 |
| 1:A:1107:LEU:O | 1:A:1157:ARG:NH1 | 2.48 | 0.44 |
| 1:A:1223:TRP:HD1 | 1:A:1293:LYS:NZ | 2.15 | 0.44 |
| 1:B:81:LYS:HG2 | 1:B:83:TYR:CZ | 2.53 | 0.44 |
| 1:B:184:GLN:O | 1:B:186:ARG:HG2 | 2.17 | 0.44 |
| 1:B:1324:ASP:OD2 | 1:B:1324:ASP:N | 2.50 | 0.44 |
| 1:A:388:TYR:HA | 1:A:392:ILE:HG13 | 1.99 | 0.44 |
| 1:A:1029:THR:HG22 | 1:A:1030:VAL:N | 2.33 | 0.44 |
| 1:B:117:LYS:N | 1:B:117:LYS:CD | 2.76 | 0.44 |
| 1:B:274:GLU:CD | 1:B:275:GLN:H | 2.20 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:B:1094:GLU:O | 1:B:1098:GLU:HG2 | 2.16 | 0.44 |
| 1:B:1185:TYR:CG | 1:B:1288:TYR:CD2 | 3.05 | 0.44 |
| 1:A:57:SER:O | 1:A:60:THR:OG1 | 2.33 | 0.44 |
| 1:B:761:GLN:HE21 | 1:B:761:GLN:HB3 | 1.50 | 0.44 |
| 1:A:396:ALA:O | 1:A:400:LEU:HG | 2.17 | 0.44 |
| 1:A:1108:LYS:NZ | 1:A:1164:GLU:O | 2.47 | 0.44 |
| 1:A:182:PRO:HD3 | 1:A:230:ASP:HB2 | 1.99 | 0.44 |
| 1:A:186:ARG:HD2 | 1:A:190:ASN:OD1 | 2.18 | 0.44 |
| 1:B:108:CYS:HB3 | 1:B:127:TYR:CD2 | 2.52 | 0.44 |
| 1:B:1085:GLY:HA3 | 1:B:1513:GLY:CA | 2.48 | 0.44 |
| 1:A:35:LEU:HD12 | 1:A:35:LEU:H | 1.83 | 0.44 |
| 1:A:108:CYS:HB3 | 1:A:127:TYR:CD2 | 2.52 | 0.44 |
| 1:A:609:PRO:O | 1:A:612:SER:HB2 | 2.18 | 0.44 |
| 1:A:875:ASP:OD2 | 1:A:879:ARG:NH1 | 2.51 | 0.44 |
| 1:A:1514:CYS:O | 1:A:1517:ASP:HB2 | 2.18 | 0.44 |
| 1:B:520:LYS:NZ | 1:B:527:ARG:NH2 | 2.66 | 0.44 |
| 1:B:782:THR:OG1 | 1:B:783:LYS:N | 2.49 | 0.44 |
| 1:B:834:THR:HG22 | 1:B:835:GLY:H | 1.83 | 0.44 |
| 1:B:1320:LYS:HB3 | 1:B:1320:LYS:HE3 | 1.84 | 0.44 |
| 1:A:291:LEU:HA | 1:A:294:VAL:CG2 | 2.45 | 0.43 |
| 1:B:307:LYS:HG2 | 1:B:310:GLU:OE2 | 2.18 | 0.43 |
| 1:B:351:VAL:HG21 | 1:B:399:ILE:HD13 | 1.99 | 0.43 |
| 1:B:415:ILE:HG22 | 1:B:418:VAL:HG21 | 2.01 | 0.43 |
| 1:B:631:GLU:HB2 | 1:B:650:MET:SD | 2.58 | 0.43 |
| 1:B:674:PRO:HB3 | 1:B:783:LYS:NZ | 2.33 | 0.43 |
| 1:B:899:TYR:O | 1:B:900:ARG:HB2 | 2.19 | 0.43 |
| 1:A:637:ASN:HA | 1:A:638:PRO:HD3 | 1.85 | 0.43 |
| 1:B:404:ASN:OD1 | 1:B:404:ASN:N | 2.52 | 0.43 |
| 1:B:542:LEU:O | 1:B:546:GLN:HG3 | 2.18 | 0.43 |
| 1:B:717:LYS:HD2 | 1:B:717:LYS:C | 2.37 | 0.43 |
| 1:B:928:GLY:HA2 | 1:B:966:ARG:NH1 | 2.33 | 0.43 |
| 1:A:66:TRP:O | 1:A:109:PHE:HA | 2.18 | 0.43 |
| 1:A:143:LEU:HD23 | 1:A:143:LEU:O | 2.18 | 0.43 |
| 1:A:899:TYR:O | 1:A:900:ARG:HB2 | 2.19 | 0.43 |
| 1:A:962:TYR:O | 1:A:966:ARG:HG3 | 2.19 | 0.43 |
| 1:B:114:LYS:HE2 | 1:B:118:ASP:CA | 2.45 | 0.43 |
| 1:B:425:ARG:CD | 1:B:426:ILE:HD12 | 2.38 | 0.43 |
| 1:B:900:ARG:HD3 | 1:B:900:ARG:HA | 1.74 | 0.43 |
| 1:B:1084:ARG:HG3 | 1:B:1088:LEU:HD12 | 2.00 | 0.43 |
| 1:A:312:TYR:CE2 | 1:A:411:TYR:CD1 | 3.05 | 0.43 |
| 1:A:1185:TYR:CE1 | 1:A:1189:ASN:HB2 | 2.53 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1456:GLY:HA3 | 1:A:1460:LYS:O | 2.18 | 0.43 |
| 1:B:637:ASN:N | 1:B:638:PRO:HD3 | 2.34 | 0.43 |
| 1:B:1050:SER:OG | 1:B:1051:ILE:N | 2.52 | 0.43 |
| 1:A:947:HIS:HD2 | 1:A:949:LEU:H | 1.67 | 0.43 |
| 1:B:794:ARG:HH21 | 1:B:850:LEU:HD21 | 1.84 | 0.43 |
| 1:A:67:THR:HG21 | 1:A:99:LEU:HD22 | 2.00 | 0.43 |
| 1:A:1201:ASN:HB2 | 1:A:1206:LEU:HD11 | 2.00 | 0.43 |
| 1:B:414:ASP:O | 1:B:417:GLU:HG2 | 2.19 | 0.43 |
| 1:B:835:GLY:HA3 | 1:B:852:PRO:HB3 | 2.00 | 0.43 |
| 1:A:1293:LYS:HD2 | 1:A:1294:PRO:HD2 | 1.99 | 0.43 |
| 1:A:1463:PRO:HD3 | 1:A:1526:TYR:CE1 | 2.54 | 0.43 |
| 1:B:327:TRP:CE3 | 1:B:388:TYR:CD1 | 3.07 | 0.43 |
| 1:B:422:LEU:CA | 1:B:425:ARG:HD3 | 2.48 | 0.43 |
| 1:B:426:ILE:HD13 | 1:B:447:LEU:HD11 | 1.99 | 0.43 |
| 1:B:455:PHE:HE2 | 1:B:465:LEU:HG | 1.82 | 0.43 |
| 1:B:1031:PHE:CD1 | 1:B:1479:ARG:HG3 | 2.54 | 0.43 |
| 1:A:302:VAL:HG23 | 1:A:303:ILE:N | 2.34 | 0.43 |
| 1:A:594:SER:OG | 1:A:597:GLU:HG3 | 2.19 | 0.43 |
| 1:B:106:THR:HG21 | 1:B:579:ARG:O | 2.18 | 0.43 |
| 1:B:214:ASP:O | 1:B:218:ARG:HB2 | 2.19 | 0.43 |
| 1:B:1108:LYS:HD3 | 1:B:1124:TYR:CE1 | 2.54 | 0.43 |
| 1:B:1160:PRO:HG2 | 1:B:1162:ASP:O | 2.19 | 0.43 |
| 1:A:1337:ARG:HB2 | 1:A:1340:ILE:HD12 | 2.01 | 0.43 |
| 1:B:318:GLN:O | 1:B:318:GLN:HG2 | 2.18 | 0.43 |
| 1:B:728:ILE:O | 1:B:731:VAL:N | 2.49 | 0.43 |
| 1:A:285:LEU:HD21 | 1:A:290:ASP:CB | 2.48 | 0.42 |
| 1:A:868:LEU:O | 1:A:994:PRO:HD3 | 2.18 | 0.42 |
| 1:B:697:ILE:HD11 | 1:B:739:ARG:NE | 2.35 | 0.42 |
| 1:B:1131:TRP:HA | 1:B:1134:VAL:HG12 | 2.00 | 0.42 |
| 1:B:1493:LEU:HD23 | 1:B:1494:THR:N | 2.34 | 0.42 |
| 1:A:446:PRO:HG2 | 1:A:448:SER:O | 2.19 | 0.42 |
| 1:A:1322:LYS:H | 1:A:1322:LYS:CD | 2.27 | 0.42 |
| 1:B:493:VAL:HG12 | 1:B:495:VAL:HG22 | 2.01 | 0.42 |
| 1:A:77:PHE:O | 1:A:554:ARG:NH1 | 2.52 | 0.42 |
| 1:A:451:TYR:CD1 | 1:A:495:VAL:HG11 | 2.55 | 0.42 |
| 1:B:350:PHE:O | 1:B:353:ASP:CG | 2.58 | 0.42 |
| 1:B:395:LEU:HA | 1:B:398:LYS:HG2 | 2.00 | 0.42 |
| 1:B:1248:LYS:NZ | 1:B:1414:ASP:HB3 | 2.34 | 0.42 |
| 1:B:1514:CYS:O | 1:B:1517:ASP:HB2 | 2.19 | 0.42 |
| 1:A:611:GLY:N | 1:A:753:GLU:OE1 | 2.52 | 0.42 |
| 1:B:520:LYS:HZ2 | 1:B:524:MET:HB2 | 1.84 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:295:MET:HA | 1:A:298:ILE:HB | 2.02 | 0.42 |
| 1:A:447:LEU:HD12 | 1:A:448:SER:N | 2.34 | 0.42 |
| 1:B:69:CYS:HA | 1:B:70:PRO:HD2 | 1.92 | 0.42 |
| 1:B:281:TYR:HA | 1:B:282:PRO:HD3 | 1.60 | 0.42 |
| 1:A:114:LYS:HZ3 | 1:A:118:ASP:HA | 1.84 | 0.42 |
| 1:B:966:ARG:CG | 1:B:967:LEU:N | 2.83 | 0.42 |
| 1:B:1174:PHE:CB | 1:B:1174:PHE:CD2 | 2.93 | 0.42 |
| 1:A:115:ASN:OD1 | 1:A:116:ASP:N | 2.51 | 0.42 |
| 1:A:214:ASP:O | 1:A:218:ARG:HB2 | 2.19 | 0.42 |
| 1:B:51:LEU:HD13 | 1:B:65:ILE:HD13 | 2.02 | 0.42 |
| 1:B:136:VAL:HG13 | 1:B:137:ASN:N | 2.34 | 0.42 |
| 1:B:1240:MET:HA | 1:B:1425:HIS:CE1 | 2.54 | 0.42 |
| 1:B:1306:ASP:O | 1:B:1310:GLU:HG3 | 2.20 | 0.42 |
| 1:A:417:GLU:HG3 | 1:A:490:ARG:CZ | 2.49 | 0.42 |
| 1:B:325:GLU:OE2 | 1:B:326:LYS:HG2 | 2.18 | 0.42 |
| 1:A:547:TYR:O | 1:A:551:VAL:HG23 | 2.19 | 0.42 |
| 1:A:1120:ARG:O | 1:A:1120:ARG:CG | 2.66 | 0.42 |
| 1:A:1190:ARG:HG3 | 1:A:1195:ILE:CG2 | 2.49 | 0.42 |
| 1:B:149:GLN:HG2 | 1:B:175:TYR:CD1 | 2.55 | 0.42 |
| 1:B:153:SER:HA | 1:B:156:MET:SD | 2.60 | 0.42 |
| 1:B:541:PRO:HB2 | 1:B:543:HIS:HE1 | 1.85 | 0.42 |
| 1:B:682:ASP:CB | 1:B:783:LYS:CD | 2.95 | 0.42 |
| 1:B:682:ASP:O | 1:B:683:THR:C | 2.56 | 0.42 |
| 1:A:1195:ILE:O | 1:A:1218:GLU:HB3 | 2.20 | 0.42 |
| 1:B:834:THR:HG22 | 1:B:835:GLY:N | 2.35 | 0.42 |
| 1:A:51:LEU:HD13 | 1:A:65:ILE:HD13 | 2.01 | 0.41 |
| 1:A:1151:LEU:HD11 | 1:A:1280:LEU:HD21 | 2.01 | 0.41 |
| 1:A:1319:PRO:O | 1:A:1338:ARG:HB2 | 2.20 | 0.41 |
| 1:B:229:THR:OG1 | 1:B:230:ASP:O | 2.34 | 0.41 |
| 1:B:426:ILE:HA | 1:B:429:LEU:CB | 2.43 | 0.41 |
| 1:B:490:ARG:NH2 | 1:B:492:GLU:OE2 | 2.53 | 0.41 |
| 1:B:742:ILE:HD13 | 1:B:767:ARG:HE | 1.84 | 0.41 |
| 1:B:891:LEU:HD13 | 1:B:1092:ARG:HD3 | 2.01 | 0.41 |
| 1:B:947:HIS:HD2 | 1:B:949:LEU:H | 1.68 | 0.41 |
| 1:B:1196:LYS:HA | 1:B:1218:GLU:CG | 2.49 | 0.41 |
| 1:A:194:SER:HB3 | 1:A:498:ASP:HB3 | 2.01 | 0.41 |
| 1:A:573:ASP:O | 1:A:577:VAL:HG23 | 2.20 | 0.41 |
| 1:B:315:ASP:HB3 | 1:B:370:LYS:NZ | 2.35 | 0.41 |
| 1:B:1105:LYS:HG2 | 1:B:1155:VAL:HB | 2.02 | 0.41 |
| 1:A:203:PRO:O | 1:A:207:LYS:NZ | 2.53 | 0.41 |
| 1:B:182:PRO:HD3 | 1:B:230:ASP:HB2 | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:B:194:SER:OG | 1:B:498:ASP:OD2 | 2.31 | 0.41 |
| 1:B:310:GLU:H | 1:B:310:GLU:CD | 2.23 | 0.41 |
| 1:B:313:VAL:HG21 | 1:B:408:TYR:CD1 | 2.55 | 0.41 |
| 1:B:989:ARG:HE | 1:B:989:ARG:HB2 | 1.62 | 0.41 |
| 1:B:1077:ARG:NE | 1:B:1128:ASP:OD2 | 2.53 | 0.41 |
| 1:B:1395:THR:HB | 1:B:1425:HIS:O | 2.20 | 0.41 |
| 1:A:286:LYS:HG2 | 1:A:438:GLN:OE1 | 2.21 | 0.41 |
| 1:A:681:GLU:HB2 | 1:A:783:LYS:HG2 | 2.02 | 0.41 |
| 1:A:905:GLU:OE2 | 1:A:966:ARG:HD2 | 2.19 | 0.41 |
| 1:A:1107:LEU:HB3 | 1:A:1157:ARG:NH1 | 2.36 | 0.41 |
| 1:A:1218:GLU:HB3 | 1:A:1219:VAL:H | 1.44 | 0.41 |
| 1:A:1264:VAL:HG23 | 1:A:1343:ASP:O | 2.20 | 0.41 |
| 1:B:267:LYS:HD2 | 1:B:454:ARG:HD2 | 2.02 | 0.41 |
| 1:B:1198:ARG:HD3 | 1:B:1216:ASN:ND2 | 2.35 | 0.41 |
| 1:A:456:LYS:CD | 1:A:456:LYS:N | 2.83 | 0.41 |
| 1:A:466:ALA:C | 1:A:501:LYS:HG3 | 2.40 | 0.41 |
| 1:B:520:LYS:NZ | 1:B:527:ARG:HH22 | 2.17 | 0.41 |
| 1:B:1035:LEU:O | 1:B:1038:THR:HB | 2.20 | 0.41 |
| 1:B:1086:LEU:HD21 | 1:B:1512:THR:OG1 | 2.20 | 0.41 |
| 1:A:149:GLN:HG2 | 1:A:170:VAL:HG11 | 2.01 | 0.41 |
| 1:A:1107:LEU:HB3 | 1:A:1157:ARG:CZ | 2.51 | 0.41 |
| 1:B:307:LYS:HB3 | 1:B:366:ARG:HH21 | 1.85 | 0.41 |
| 1:B:875:ASP:O | 1:B:879:ARG:HG3 | 2.21 | 0.41 |
| 1:B:1396:LEU:HD12 | 1:B:1397:ASP:O | 2.20 | 0.41 |
| 1:A:20:SER:HB2 | 1:A:656:THR:OG1 | 2.20 | 0.41 |
| 1:A:297:GLY:O | 1:A:301:HIS:HB2 | 2.20 | 0.41 |
| 1:A:1198:ARG:HB2 | 1:A:1216:ASN:HB3 | 2.02 | 0.41 |
| 1:A:1199:GLU:O | 1:A:1202:ALA:HB2 | 2.20 | 0.41 |
| 1:B:350:PHE:O | 1:B:351:VAL:C | 2.59 | 0.41 |
| 1:B:547:TYR:O | 1:B:551:VAL:HG23 | 2.20 | 0.41 |
| 1:B:635:ALA:C | 1:B:636:TYR:HD1 | 2.24 | 0.41 |
| 1:B:1317:TYR:CE2 | 1:B:1319:PRO:HA | 2.56 | 0.41 |
| 1:A:152:VAL:HB | 1:A:155:TRP:CE3 | 2.55 | 0.41 |
| 1:A:326:LYS:HZ3 | 1:A:331:LYS:NZ | 2.18 | 0.41 |
| 1:B:88:LYS:HE2 | 1:B:95:ASP:OD1 | 2.21 | 0.41 |
| 1:B:636:TYR:N | 1:B:636:TYR:CD1 | 2.87 | 0.41 |
| 1:B:679:THR:C | 1:B:783:LYS:HZ3 | 2.07 | 0.41 |
| 1:B:680:VAL:CG1 | 1:B:826:ILE:HD13 | 2.47 | 0.41 |
| 1:B:794:ARG:HE | 1:B:850:LEU:HD21 | 1.86 | 0.41 |
| 1:A:180:PHE:HB3 | 1:A:183:LEU:HD13 | 2.02 | 0.41 |
| 1:A:285:LEU:CD2 | 1:A:290:ASP:OD2 | 2.69 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:772:ASN:HB3 | 1:A:872:ASP:OD1 | 2.21 | 0.41 |
| 1:A:1196:LYS:HD2 | 1:A:1218:GLU:HB2 | 2.03 | 0.41 |
| 1:B:323:LEU:HD21 | 1:B:377:ALA:CB | 2.40 | 0.41 |
| 1:B:340:SER:OG | 1:B:383:LEU:HD21 | 2.21 | 0.41 |
| 1:B:697:ILE:HG22 | 1:B:698:GLY:N | 2.35 | 0.41 |
| 1:B:990:ILE:HG12 | 1:B:1001:PHE:HB3 | 2.03 | 0.41 |
| 1:B:1076:GLY:HA2 | 1:B:1103:PHE:CE2 | 2.55 | 0.41 |
| 1:B:1158:ARG:O | 1:B:1159:PHE:HD1 | 2.04 | 0.41 |
| 1:B:1432:TRP:CB | 1:B:1511:SER:OG | 2.61 | 0.41 |
| 1:A:319:THR:OG1 | 1:A:370:LYS:HE3 | 2.21 | 0.41 |
| 1:A:1131:TRP:HA | 1:A:1134:VAL:HG12 | 2.01 | 0.41 |
| 1:B:380:LEU:HD22 | 1:B:395:LEU:HD23 | 2.03 | 0.41 |
| 1:B:682:ASP:C | 1:B:684:LEU:N | 2.72 | 0.41 |
| 1:B:718:ARG:HH21 | 1:B:823:ILE:CG1 | 2.34 | 0.41 |
| 1:B:1460:LYS:HE2 | 1:B:1460:LYS:HB3 | 1.94 | 0.41 |
| 1:A:185:HIS:CD2 | 1:A:186:ARG:N | 2.89 | 0.40 |
| 1:A:326:LYS:HZ3 | 1:A:331:LYS:HZ1 | 1.69 | 0.40 |
| 1:A:674:PRO:O | 1:A:679:THR:N | 2.54 | 0.40 |
| 1:B:160:ILE:O | 1:B:163:TRP:HB2 | 2.21 | 0.40 |
| 1:B:303:ILE:HA | 1:B:306:LEU:HD21 | 2.02 | 0.40 |
| 1:A:556:ASN:HA | 1:A:557:PRO:HD2 | 1.89 | 0.40 |
| 1:A:1236:CYS:HB3 | 1:A:1241:ASP:HB2 | 2.02 | 0.40 |
| 1:A:1384:ASP:OD1 | 1:A:1474:ARG:CZ | 2.68 | 0.40 |
| 1:B:293:LYS:HD2 | 1:B:293:LYS:HA | 1.88 | 0.40 |
| 1:B:323:LEU:O | 1:B:323:LEU:HD23 | 2.22 | 0.40 |
| 1:B:609:PRO:O | 1:B:612:SER:HB2 | 2.19 | 0.40 |
| 1:A:878:ILE:HG21 | 1:A:1004:LEU:HD23 | 2.03 | 0.40 |
| 1:A:1185:TYR:HE1 | 1:A:1290:GLU:O | 2.05 | 0.40 |
| 1:B:350:PHE:O | 1:B:352:ARG:N | 2.54 | 0.40 |
| 1:B:1277:VAL:HA | 1:B:1280:LEU:HB2 | 2.04 | 0.40 |
| 1:B:1432:TRP:HA | 1:B:1511:SER:CB | 2.51 | 0.40 |
| 1:A:370:LYS:CD | 1:A:371:ILE:H | 2.35 | 0.40 |
| 1:A:425:ARG:NH2 | 1:A:491:ARG:CB | 2.84 | 0.40 |
| 1:A:612:SER:OG | 1:A:943:ASN:ND2 | 2.55 | 0.40 |
| 1:A:777:TYR:CE1 | 1:A:795:ILE:HD13 | 2.57 | 0.40 |
| 1:A:1108:LYS:CE | 1:A:1159:PHE:HD1 | 2.33 | 0.40 |
| 1:B:749:ILE:HG13 | 1:B:750:GLU:N | 2.37 | 0.40 |
| 1:B:878:ILE:HG21 | 1:B:1004:LEU:HD23 | 2.04 | 0.40 |
| 1:B:1264:VAL:HG11 | 1:B:1360:PHE:HA | 2.04 | 0.40 |
| 1:B:1407:TYR:CE1 | 1:B:1424:TYR:CD1 | 3.00 | 0.40 |
| 1:A:284:ASP:OD2 | 1:A:438:GLN:HG3 | 2.22 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:372:ASN:ND2 | 1:A:375:LYS:HD2 | 2.37 | 0.40 |
| 1:A:1314:ARG:NH1 | 1:A:1329:GLU:HG3 | 2.36 | 0.40 |
| 1:B:182:PRO:HB2 | 1:B:184:GLN:OE1 | 2.22 | 0.40 |
| 1:B:807:ALA:HB2 | 1:B:861:VAL:HG13 | 2.04 | 0.40 |
| 1:B:1016:ARG:HH11 | 1:B:1016:ARG:HD3 | 1.76 | 0.40 |
| 1:B:1209:VAL:HG11 | 1:B:1245:GLU:CG | 2.51 | 0.40 |

All (4) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------------|--------------------------|-------------------|
| 1:B:1174:PHE:CG | 1:B:1174:PHE:CD1[3_656] | 1.88 | 0.32 |
| 1:B:1174:PHE:CD1 | 1:B:1174:PHE:CD1[3_656] | 1.88 | 0.32 |
| 1:B:1174:PHE:CG | 1:B:1174:PHE:CG[3_656] | 1.91 | 0.29 |
| 1:B:116:ASP:O | 1:B:390:ASN:ND2[4_567] | 2.13 | 0.07 |

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|------------------|------------|----------|----------|-------------|----|
| 1 | A | 1524/1528 (100%) | 1376 (90%) | 133 (9%) | 15 (1%) | 15 | 49 |
| 1 | B | 1496/1528 (98%) | 1337 (89%) | 140 (9%) | 19 (1%) | 12 | 42 |
| All | All | 3020/3056 (99%) | 2713 (90%) | 273 (9%) | 34 (1%) | 14 | 46 |

All (34) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 282 | PRO |
| 1 | A | 437 | LYS |
| 1 | A | 440 | PRO |
| 1 | A | 1165 | TYR |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 1167 | PRO |
| 1 | A | 1455 | GLU |
| 1 | A | 1459 | LYS |
| 1 | B | 238 | ASN |
| 1 | B | 282 | PRO |
| 1 | B | 308 | LEU |
| 1 | B | 423 | PHE |
| 1 | B | 430 | ARG |
| 1 | B | 637 | ASN |
| 1 | B | 1167 | PRO |
| 1 | B | 1175 | SER |
| 1 | A | 124 | ARG |
| 1 | A | 238 | ASN |
| 1 | A | 501 | LYS |
| 1 | B | 1459 | LYS |
| 1 | A | 326 | LYS |
| 1 | A | 1162 | ASP |
| 1 | B | 37 | GLN |
| 1 | B | 422 | LEU |
| 1 | B | 729 | SER |
| 1 | A | 729 | SER |
| 1 | B | 124 | ARG |
| 1 | B | 165 | LYS |
| 1 | A | 321 | SER |
| 1 | B | 299 | LYS |
| 1 | B | 425 | ARG |
| 1 | A | 1168 | TYR |
| 1 | B | 294 | VAL |
| 1 | B | 350 | PHE |
| 1 | B | 749 | ILE |

5.3.2 Protein sidechains [i](#)

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

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|-----|-------|------------------|------------|----------|-------------|
| 1 | A | 1344/1346 (100%) | 1309 (97%) | 35 (3%) | 46 74 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|-------------|----|
| 1 | B | 1327/1346 (99%) | 1279 (96%) | 48 (4%) | 35 | 67 |
| All | All | 2671/2692 (99%) | 2588 (97%) | 83 (3%) | 40 | 70 |

All (83) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 40 | LYS |
| 1 | A | 125 | LYS |
| 1 | A | 273 | SER |
| 1 | A | 274 | GLU |
| 1 | A | 284 | ASP |
| 1 | A | 325 | GLU |
| 1 | A | 334 | SER |
| 1 | A | 349 | GLN |
| 1 | A | 370 | LYS |
| 1 | A | 374 | ASP |
| 1 | A | 441 | ILE |
| 1 | A | 443 | LYS |
| 1 | A | 445 | LEU |
| 1 | A | 456 | LYS |
| 1 | A | 467 | ASN |
| 1 | A | 543 | HIS |
| 1 | A | 572 | MET |
| 1 | A | 616 | VAL |
| 1 | A | 628 | LYS |
| 1 | A | 671 | ASN |
| 1 | A | 709 | GLN |
| 1 | A | 767 | ARG |
| 1 | A | 905 | GLU |
| 1 | A | 1152 | GLN |
| 1 | A | 1162 | ASP |
| 1 | A | 1198 | ARG |
| 1 | A | 1206 | LEU |
| 1 | A | 1227 | LEU |
| 1 | A | 1321 | ASN |
| 1 | A | 1330 | ILE |
| 1 | A | 1338 | ARG |
| 1 | A | 1455 | GLU |
| 1 | A | 1459 | LYS |
| 1 | A | 1462 | LYS |
| 1 | A | 1527 | GLU |
| 1 | B | 4 | HIS |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | B | 19 | THR |
| 1 | B | 43 | ASP |
| 1 | B | 86 | ILE |
| 1 | B | 114 | LYS |
| 1 | B | 117 | LYS |
| 1 | B | 148 | MET |
| 1 | B | 164 | GLU |
| 1 | B | 207 | LYS |
| 1 | B | 209 | GLU |
| 1 | B | 241 | GLN |
| 1 | B | 252 | ASN |
| 1 | B | 267 | LYS |
| 1 | B | 274 | GLU |
| 1 | B | 288 | VAL |
| 1 | B | 292 | ILE |
| 1 | B | 295 | MET |
| 1 | B | 305 | GLU |
| 1 | B | 306 | LEU |
| 1 | B | 323 | LEU |
| 1 | B | 425 | ARG |
| 1 | B | 429 | LEU |
| 1 | B | 543 | HIS |
| 1 | B | 570 | GLU |
| 1 | B | 616 | VAL |
| 1 | B | 618 | LEU |
| 1 | B | 637 | ASN |
| 1 | B | 644 | LYS |
| 1 | B | 653 | LYS |
| 1 | B | 716 | GLU |
| 1 | B | 749 | ILE |
| 1 | B | 751 | ASP |
| 1 | B | 886 | THR |
| 1 | B | 905 | GLU |
| 1 | B | 1123 | ARG |
| 1 | B | 1170 | ASP |
| 1 | B | 1174 | PHE |
| 1 | B | 1196 | LYS |
| 1 | B | 1272 | SER |
| 1 | B | 1324 | ASP |
| 1 | B | 1326 | ASN |
| 1 | B | 1396 | LEU |
| 1 | B | 1409 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | B | 1415 | ASP |
| 1 | B | 1459 | LYS |
| 1 | B | 1490 | LEU |
| 1 | B | 1492 | GLU |
| 1 | B | 1524 | ILE |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (24) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 1 | A | 185 | HIS |
| 1 | A | 198 | GLN |
| 1 | A | 337 | ASN |
| 1 | A | 536 | ASN |
| 1 | A | 675 | ASN |
| 1 | A | 947 | HIS |
| 1 | A | 1070 | ASN |
| 1 | A | 1152 | GLN |
| 1 | A | 1409 | ASN |
| 1 | B | 185 | HIS |
| 1 | B | 354 | ASN |
| 1 | B | 421 | GLN |
| 1 | B | 424 | ASN |
| 1 | B | 661 | HIS |
| 1 | B | 669 | HIS |
| 1 | B | 675 | ASN |
| 1 | B | 876 | HIS |
| 1 | B | 947 | HIS |
| 1 | B | 1070 | ASN |
| 1 | B | 1109 | HIS |
| 1 | B | 1216 | ASN |
| 1 | B | 1235 | ASN |
| 1 | B | 1385 | GLN |
| 1 | B | 1402 | ASN |

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th 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 ²) | Q<0.9 |
|-----|-------|-----------------|--------|---------------|-----------------------|-------|
| 1 | A | 1526/1528 (99%) | 0.24 | 79 (5%) 27 12 | 52, 93, 140, 187 | 0 |
| 1 | B | 1506/1528 (98%) | 0.34 | 107 (7%) 16 6 | 47, 87, 148, 190 | 0 |
| All | All | 3032/3056 (99%) | 0.29 | 186 (6%) 21 9 | 47, 90, 146, 190 | 0 |

All (186) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 1 | B | 323 | LEU | 6.0 |
| 1 | B | 447 | LEU | 5.6 |
| 1 | A | 374 | ASP | 5.4 |
| 1 | B | 1354 | TYR | 5.0 |
| 1 | B | 314 | VAL | 4.9 |
| 1 | B | 289 | ASP | 4.8 |
| 1 | B | 288 | VAL | 4.8 |
| 1 | A | 303 | ILE | 4.6 |
| 1 | A | 1458 | ALA | 4.5 |
| 1 | B | 375 | LYS | 4.5 |
| 1 | B | 415 | ILE | 4.4 |
| 1 | B | 363 | LEU | 4.4 |
| 1 | A | 281 | TYR | 4.3 |
| 1 | B | 379 | ILE | 4.3 |
| 1 | B | 1510 | TRP | 4.2 |
| 1 | A | 1417 | ALA | 4.2 |
| 1 | B | 492 | GLU | 4.2 |
| 1 | A | 364 | GLY | 4.1 |
| 1 | A | 288 | VAL | 4.0 |
| 1 | A | 371 | ILE | 4.0 |
| 1 | B | 355 | ALA | 4.0 |
| 1 | B | 292 | ILE | 4.0 |
| 1 | A | 287 | THR | 4.0 |
| 1 | B | 399 | ILE | 3.9 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | A | 309 | TRP | 3.9 |
| 1 | A | 419 | LEU | 3.9 |
| 1 | B | 337 | ASN | 3.8 |
| 1 | A | 270 | LEU | 3.8 |
| 1 | A | 289 | ASP | 3.8 |
| 1 | B | 395 | LEU | 3.8 |
| 1 | B | 486 | LYS | 3.8 |
| 1 | B | 404 | ASN | 3.7 |
| 1 | A | 363 | LEU | 3.7 |
| 1 | B | 489 | LEU | 3.7 |
| 1 | A | 1457 | SER | 3.7 |
| 1 | B | 638 | PRO | 3.6 |
| 1 | B | 371 | ILE | 3.6 |
| 1 | B | 423 | PHE | 3.6 |
| 1 | A | 1208 | ARG | 3.6 |
| 1 | B | 1416 | PHE | 3.6 |
| 1 | B | 296 | ASP | 3.5 |
| 1 | B | 400 | LEU | 3.4 |
| 1 | B | 419 | LEU | 3.4 |
| 1 | B | 416 | ASN | 3.4 |
| 1 | B | 403 | ILE | 3.3 |
| 1 | B | 336 | ASP | 3.3 |
| 1 | A | 292 | ILE | 3.2 |
| 1 | A | 282 | PRO | 3.2 |
| 1 | B | 284 | ASP | 3.2 |
| 1 | B | 290 | ASP | 3.2 |
| 1 | A | 295 | MET | 3.2 |
| 1 | B | 373 | ILE | 3.2 |
| 1 | A | 313 | VAL | 3.2 |
| 1 | B | 354 | ASN | 3.1 |
| 1 | B | 643 | VAL | 3.1 |
| 1 | B | 383 | LEU | 3.1 |
| 1 | B | 295 | MET | 3.1 |
| 1 | B | 398 | LYS | 3.1 |
| 1 | A | 354 | ASN | 3.0 |
| 1 | B | 316 | VAL | 3.0 |
| 1 | B | 364 | GLY | 3.0 |
| 1 | B | 241 | GLN | 3.0 |
| 1 | B | 372 | ASN | 3.0 |
| 1 | A | 1334 | ILE | 3.0 |
| 1 | B | 1217 | VAL | 3.0 |
| 1 | A | 314 | VAL | 2.9 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | A | 280 | GLY | 2.9 |
| 1 | B | 1458 | ALA | 2.9 |
| 1 | B | 640 | ASP | 2.9 |
| 1 | B | 1348 | GLY | 2.9 |
| 1 | A | 312 | TYR | 2.9 |
| 1 | B | 396 | ALA | 2.9 |
| 1 | B | 370 | LYS | 2.9 |
| 1 | A | 286 | LYS | 2.9 |
| 1 | A | 1224 | GLU | 2.8 |
| 1 | A | 355 | ALA | 2.8 |
| 1 | A | 378 | ALA | 2.8 |
| 1 | B | 411 | TYR | 2.8 |
| 1 | A | 265 | LEU | 2.8 |
| 1 | B | 280 | GLY | 2.8 |
| 1 | B | 348 | ALA | 2.8 |
| 1 | A | 1416 | PHE | 2.8 |
| 1 | B | 409 | LYS | 2.8 |
| 1 | B | 281 | TYR | 2.8 |
| 1 | B | 426 | ILE | 2.8 |
| 1 | A | 422 | LEU | 2.7 |
| 1 | B | 301 | HIS | 2.7 |
| 1 | B | 412 | ASP | 2.7 |
| 1 | B | 1291 | VAL | 2.7 |
| 1 | B | 377 | ALA | 2.7 |
| 1 | B | 374 | ASP | 2.7 |
| 1 | A | 348 | ALA | 2.7 |
| 1 | A | 201 | PHE | 2.7 |
| 1 | B | 490 | ARG | 2.7 |
| 1 | B | 402 | ASP | 2.6 |
| 1 | B | 326 | LYS | 2.6 |
| 1 | B | 644 | LYS | 2.6 |
| 1 | A | 464 | ALA | 2.6 |
| 1 | A | 291 | LEU | 2.6 |
| 1 | B | 376 | PHE | 2.6 |
| 1 | A | 1459 | LYS | 2.6 |
| 1 | B | 1267 | ASN | 2.6 |
| 1 | B | 309 | TRP | 2.6 |
| 1 | B | 1353 | ASP | 2.6 |
| 1 | B | 391 | GLY | 2.6 |
| 1 | A | 501 | LYS | 2.6 |
| 1 | B | 303 | ILE | 2.6 |
| 1 | A | 459 | ASP | 2.6 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | B | 448 | SER | 2.6 |
| 1 | B | 270 | LEU | 2.6 |
| 1 | A | 408 | TYR | 2.5 |
| 1 | A | 1165 | TYR | 2.5 |
| 1 | A | 373 | ILE | 2.5 |
| 1 | A | 1401 | TYR | 2.5 |
| 1 | A | 370 | LYS | 2.5 |
| 1 | A | 409 | LYS | 2.5 |
| 1 | B | 312 | TYR | 2.5 |
| 1 | B | 1251 | SER | 2.5 |
| 1 | A | 351 | VAL | 2.4 |
| 1 | A | 304 | GLY | 2.4 |
| 1 | A | 376 | PHE | 2.4 |
| 1 | B | 1417 | ALA | 2.4 |
| 1 | B | 1342 | LYS | 2.4 |
| 1 | A | 489 | LEU | 2.4 |
| 1 | B | 297 | GLY | 2.4 |
| 1 | B | 275 | GLN | 2.4 |
| 1 | B | 325 | GLU | 2.4 |
| 1 | A | 1402 | ASN | 2.4 |
| 1 | A | 259 | LEU | 2.4 |
| 1 | A | 316 | VAL | 2.4 |
| 1 | A | 425 | ARG | 2.4 |
| 1 | B | 413 | ASP | 2.3 |
| 1 | A | 242 | TRP | 2.3 |
| 1 | B | 418 | VAL | 2.3 |
| 1 | B | 630 | ASP | 2.3 |
| 1 | B | 352 | ARG | 2.3 |
| 1 | B | 639 | ASP | 2.3 |
| 1 | B | 347 | LEU | 2.3 |
| 1 | A | 341 | LYS | 2.3 |
| 1 | A | 276 | MET | 2.3 |
| 1 | B | 357 | GLU | 2.3 |
| 1 | B | 1345 | TYR | 2.3 |
| 1 | B | 1328 | PHE | 2.3 |
| 1 | A | 1128 | ASP | 2.3 |
| 1 | B | 425 | ARG | 2.3 |
| 1 | B | 422 | LEU | 2.3 |
| 1 | A | 1202 | ALA | 2.3 |
| 1 | A | 307 | LYS | 2.2 |
| 1 | B | 242 | TRP | 2.2 |
| 1 | B | 273 | SER | 2.2 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|------|------|------|
| 1 | A | 356 | THR | 2.2 |
| 1 | A | 1418 | THR | 2.2 |
| 1 | A | 407 | PHE | 2.2 |
| 1 | A | 631 | GLU | 2.2 |
| 1 | B | 1422 | ARG | 2.2 |
| 1 | A | 1403 | TYR | 2.2 |
| 1 | B | 443 | LYS | 2.2 |
| 1 | A | 639 | ASP | 2.2 |
| 1 | B | 636 | TYR | 2.2 |
| 1 | B | 44 | MET | 2.2 |
| 1 | B | 424 | ASN | 2.2 |
| 1 | A | 305 | GLU | 2.2 |
| 1 | A | 372 | ASN | 2.2 |
| 1 | A | 1404 | ARG | 2.2 |
| 1 | A | 160 | ILE | 2.2 |
| 1 | B | 254 | LYS | 2.2 |
| 1 | A | 1412 | ASP | 2.1 |
| 1 | B | 243 | LEU | 2.1 |
| 1 | A | 283 | VAL | 2.1 |
| 1 | B | 750 | GLU | 2.1 |
| 1 | B | 369 | ASN | 2.1 |
| 1 | B | 307 | LYS | 2.1 |
| 1 | A | 1204 | PRO | 2.1 |
| 1 | B | 261 | SER | 2.1 |
| 1 | A | 1354 | TYR | 2.1 |
| 1 | B | 1257 | THR | 2.1 |
| 1 | B | 1356 | PHE | 2.1 |
| 1 | A | 1422 | ARG | 2.1 |
| 1 | B | 748 | ASP | 2.1 |
| 1 | A | 423 | PHE | 2.0 |
| 1 | B | 191 | SER | 2.0 |
| 1 | A | 260 | ILE | 2.0 |
| 1 | A | 297 | GLY | 2.0 |
| 1 | A | 404 | ASN | 2.0 |
| 1 | B | 1255 | PRO | 2.0 |
| 1 | A | 375 | LYS | 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 monosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.