



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 26, 2021 – 05:07 pm BST

PDB ID : 7OK9
Title : Crystal structure of Penicillin-Binding Protein 1 (PBP1) from *Staphylococcus aureus* in complex with pentaglycine
Authors : Martinez Caballero, S.; Hermoso, J.A.
Deposited on : 2021-05-17
Resolution : 3.36 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 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 : 2.23.2
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0267
CCP4 : 7.1.010 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.23.2

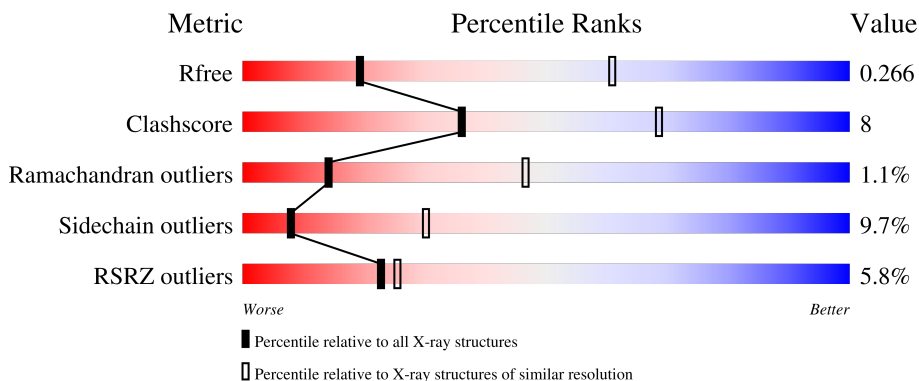
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.36 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.



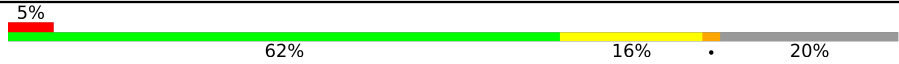

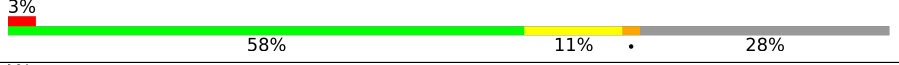



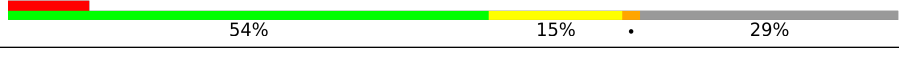

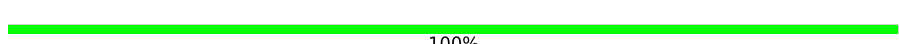
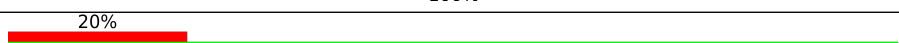
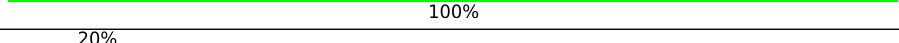
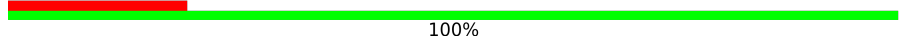

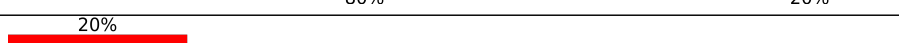


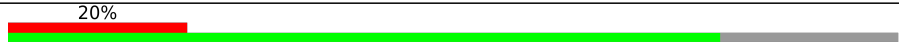
| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| R_{free} | 130704 | 1558 (3.42-3.30) |
| Clashscore | 141614 | 1627 (3.42-3.30) |
| Ramachandran outliers | 138981 | 1599 (3.42-3.30) |
| Sidechain outliers | 138945 | 1598 (3.42-3.30) |
| RSRZ outliers | 127900 | 1507 (3.42-3.30) |

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 | 650 | <div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 60%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 20%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">2% 60% 17% • 20%</p> |
| 1 | B | 650 | <div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 62%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 19%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">2% 62% 16% •• 19%</p> |
| 1 | C | 650 | <div style="display: flex; align-items: center;"> <div style="width: 6%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 62%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 20%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">6% 62% 15% • 20%</p> |
| 1 | D | 650 | <div style="display: flex; align-items: center;"> <div style="width: 7%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 60%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 14%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 24%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">7% 60% 14% • 24%</p> |
| 1 | E | 650 | <div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 62%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 19%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">2% 62% 16% • 19%</p> |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 1 | F | 650 |  |
| 1 | G | 650 |  |
| 1 | H | 650 |  |
| 1 | I | 650 |  |
| 1 | J | 650 |  |
| 1 | K | 650 |  |
| 1 | L | 650 |  |
| 2 | P | 5 |  |
| 2 | Q | 5 |  |
| 2 | R | 5 |  |
| 2 | S | 5 |  |
| 2 | T | 5 |  |
| 2 | U | 5 |  |
| 2 | V | 5 |  |
| 2 | W | 5 |  |
| 2 | X | 5 |  |
| 2 | Y | 5 |  |

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 4 | CL | D | 802 | - | - | X | - |

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 47917 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 Penicillin-binding protein 1.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 1 | A | 522 | 4113 | 2613 | 707 | 777 | 16 | 0 | 0 | 0 |
| 1 | B | 525 | 4138 | 2628 | 712 | 782 | 16 | 0 | 0 | 0 |
| 1 | C | 522 | 4114 | 2614 | 708 | 776 | 16 | 0 | 0 | 0 |
| 1 | D | 496 | 3913 | 2489 | 668 | 740 | 16 | 0 | 0 | 0 |
| 1 | E | 524 | 4129 | 2623 | 711 | 779 | 16 | 0 | 0 | 0 |
| 1 | F | 523 | 4122 | 2618 | 710 | 778 | 16 | 0 | 0 | 0 |
| 1 | G | 520 | 4098 | 2604 | 705 | 773 | 16 | 0 | 0 | 0 |
| 1 | H | 465 | 3661 | 2326 | 626 | 694 | 15 | 0 | 0 | 0 |
| 1 | I | 519 | 4089 | 2598 | 703 | 772 | 16 | 0 | 0 | 0 |
| 1 | J | 518 | 4080 | 2592 | 701 | 771 | 16 | 0 | 0 | 0 |
| 1 | K | 462 | 3629 | 2306 | 619 | 690 | 14 | 0 | 0 | 0 |
| 1 | L | 462 | 3646 | 2318 | 622 | 691 | 15 | 0 | 0 | 0 |

There are 12 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|------------------|----------------|
| A | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |
| B | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |
| C | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |
| D | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |
| E | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|------------------|----------------|
| F | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |
| G | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |
| H | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |
| I | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |
| J | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |
| K | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |
| L | 64 | MET | - | cloning artifact | UNP A0A0H2WVW5 |

- Molecule 2 is a protein called pentaglycine.

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|----|---|---|---------|---------|-------|
| | | | Total | C | N | O | | | |
| 2 | P | 5 | Total | C | N | O | 0 | 0 | 0 |
| | | | 21 | 10 | 5 | 6 | | | |
| 2 | Q | 5 | Total | C | N | O | 0 | 0 | 0 |
| | | | 21 | 10 | 5 | 6 | | | |
| 2 | R | 5 | Total | C | N | O | 0 | 0 | 1 |
| | | | 17 | 8 | 5 | 4 | | | |
| 2 | S | 5 | Total | C | N | O | 0 | 0 | 1 |
| | | | 17 | 8 | 5 | 4 | | | |
| 2 | T | 5 | Total | C | N | O | 0 | 0 | 1 |
| | | | 17 | 8 | 5 | 4 | | | |
| 2 | U | 5 | Total | C | N | O | 0 | 0 | 1 |
| | | | 17 | 8 | 5 | 4 | | | |
| 2 | V | 5 | Total | C | N | O | 0 | 0 | 1 |
| | | | 17 | 8 | 5 | 4 | | | |
| 2 | W | 4 | Total | C | N | O | 0 | 0 | 1 |
| | | | 13 | 6 | 4 | 3 | | | |
| 2 | X | 4 | Total | C | N | O | 0 | 0 | 1 |
| | | | 13 | 6 | 4 | 3 | | | |
| 2 | Y | 4 | Total | C | N | O | 0 | 0 | 1 |
| | | | 13 | 6 | 4 | 3 | | | |

- Molecule 3 is CADMIUM ION (three-letter code: CD) (formula: Cd).

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 3 | A | 1 | Total | Cd | 0 | 0 |
| | | | 1 | 1 | | |
| 3 | B | 1 | Total | Cd | 0 | 0 |
| | | | 1 | 1 | | |
| 3 | C | 1 | Total | Cd | 0 | 0 |
| | | | 1 | 1 | | |
| 3 | D | 1 | Total | Cd | 0 | 0 |
| | | | 1 | 1 | | |

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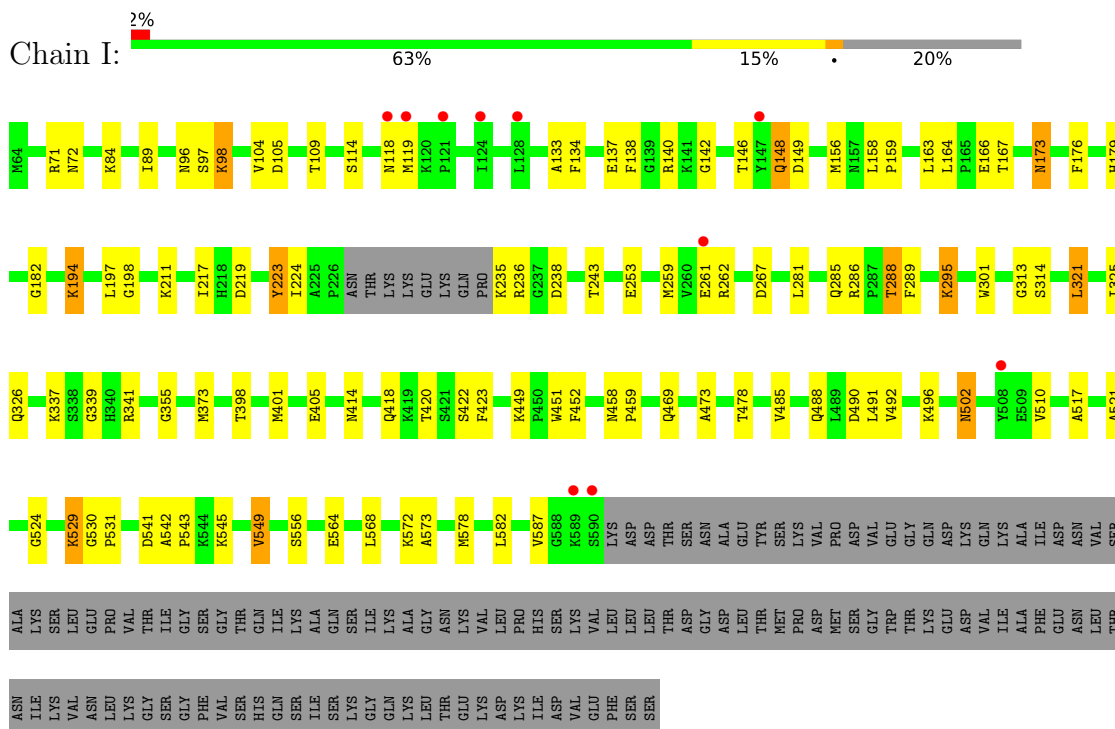
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 3 | E | 1 | Total Cd 1 1 | 0 | 0 |
| 3 | F | 1 | Total Cd 1 1 | 0 | 0 |
| 3 | G | 1 | Total Cd 1 1 | 0 | 0 |
| 3 | H | 1 | Total Cd 1 1 | 0 | 0 |
| 3 | I | 1 | Total Cd 1 1 | 0 | 0 |
| 3 | J | 1 | Total Cd 1 1 | 0 | 0 |

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

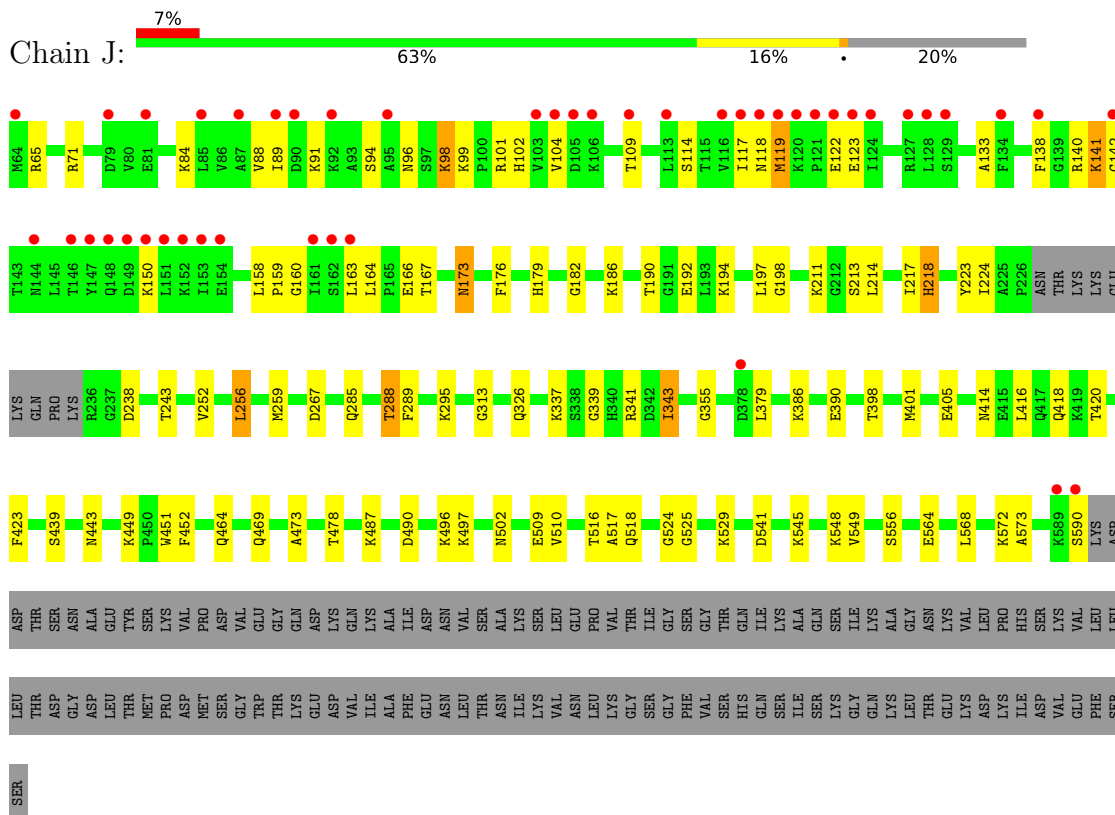
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 4 | D | 1 | Total Cl 1 1 | 0 | 0 |
| 4 | F | 1 | Total Cl 1 1 | 0 | 0 |
| 4 | H | 1 | Total Cl 1 1 | 0 | 0 |

- Molecule 5 is water.

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|----------------|---------|---------|
| 5 | A | 1 | Total O 1 1 | 0 | 0 |
| 5 | B | 1 | Total O 1 1 | 0 | 0 |
| 5 | F | 2 | Total O 2 2 | 0 | 0 |
| 5 | H | 1 | Total O 1 1 | 0 | 0 |
| 5 | J | 1 | Total O 1 1 | 0 | 0 |

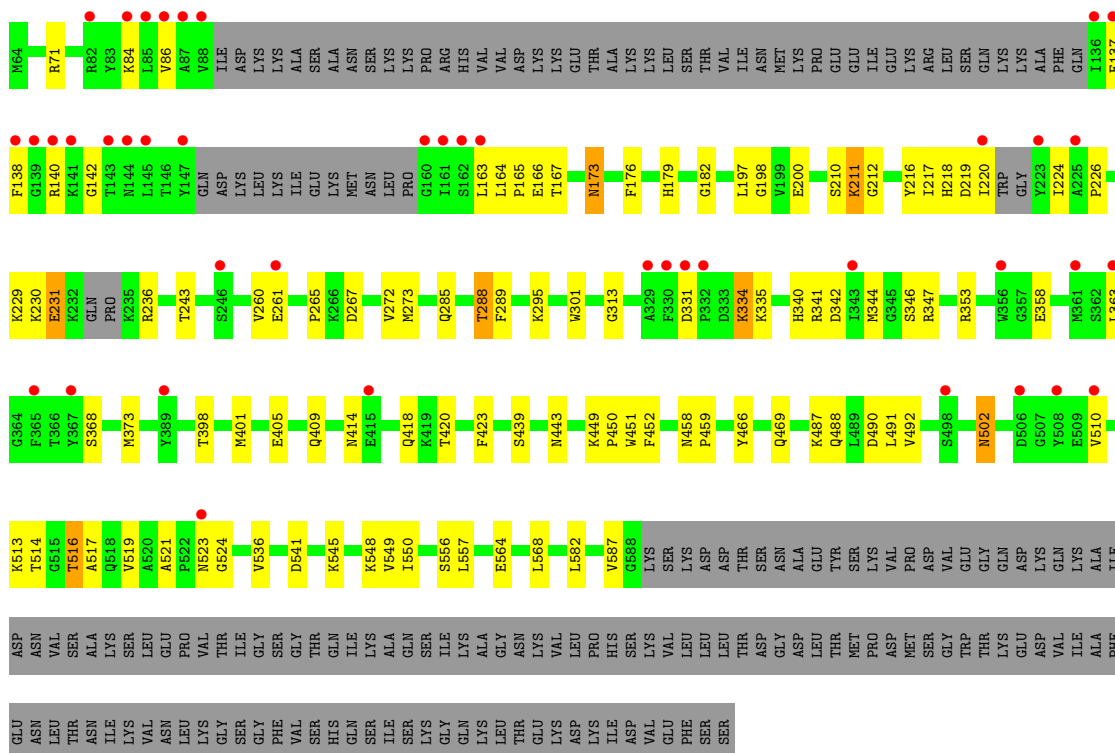


- Molecule 1: Penicillin-binding protein 1

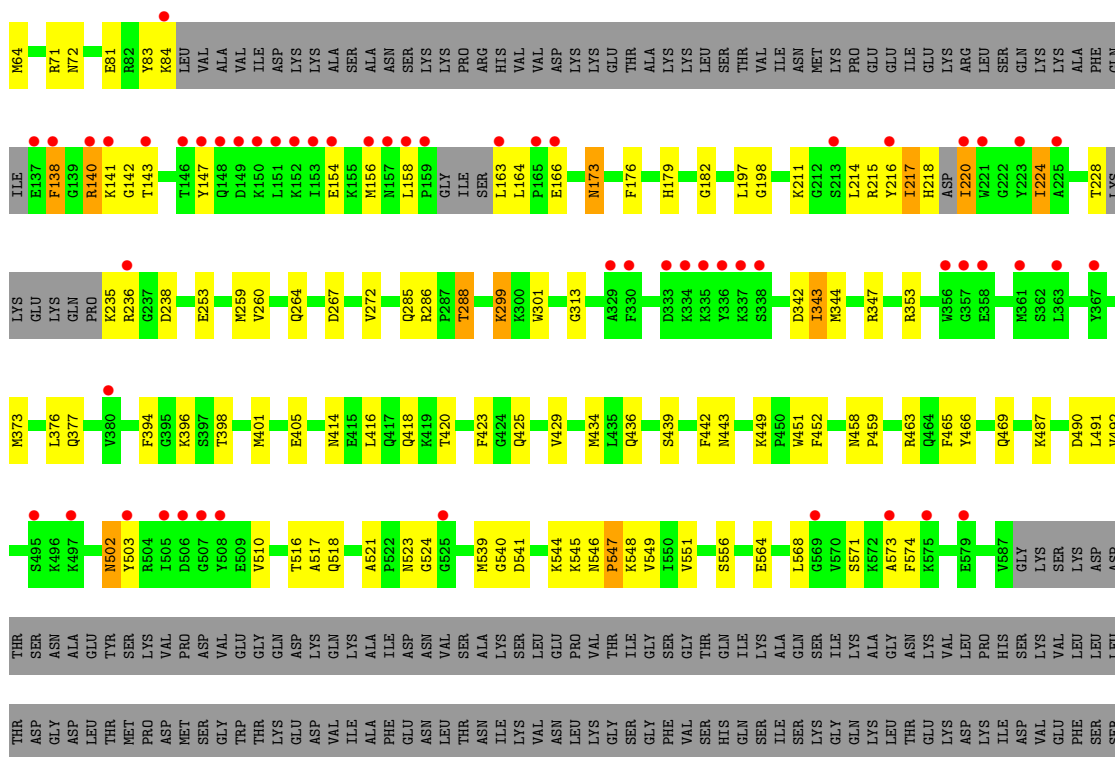



- Molecule 1: Penicillin-binding protein 1





• Molecule 1: Penicillin-binding protein 1



Chain P:  80% 20%



- Molecule 2: pentaglycine

Chain Q:  100%

There are no outlier residues recorded for this chain.

- Molecule 2: pentaglycine

Chain R:  20% 100%




- Molecule 2: pentaglycine

Chain S:  20% 100%




- Molecule 2: pentaglycine

Chain T:  80% 20%




- Molecule 2: pentaglycine

Chain U:  20% 80% 20%




- Molecule 2: pentaglycine

Chain V:  80% 20%



- Molecule 2: pentaglycine

Chain W:  20% 80% 20%



- Molecule 2: pentaglycine



- Molecule 2: pentaglycine



4 Data and refinement statistics

| Property | Value | Source |
|---|---|------------------|
| Space group | P 21 21 2 | Depositor |
| Cell constants a, b, c, α , β , γ | 313.99Å 198.19Å 220.90Å 90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 49.32 – 3.36 49.32 – 3.36 | Depositor EDS |
| % Data completeness (in resolution range) | 44.1 (49.32-3.36) 44.0 (49.32-3.36) | Depositor EDS |
| R_{merge} | 0.67 | Depositor |
| R_{sym} | (Not available) | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 1.50 (at 3.33Å) | Xtriage |
| Refinement program | REFMAC 5.8.0267 | Depositor |
| R, R_{free} | 0.230 , 0.267 0.233 , 0.266 | Depositor DCC |
| R_{free} test set | 4313 reflections (4.99%) | wwPDB-VP |
| Wilson B-factor (Å ²) | 69.4 | Xtriage |
| Anisotropy | 0.066 | Xtriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | (Not available) , (Not available) | EDS |
| L-test for twinning ² | $\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$ | Xtriage |
| Estimated twinning fraction | No twinning to report. | Xtriage |
| F_o, F_c correlation | 0.89 | EDS |
| Total number of atoms | 47917 | wwPDB-VP |
| Average B, all atoms (Å ²) | 103.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.00% 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](#)

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

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 | 0.70 | 0/4203 | 0.80 | 0/5652 |
| 1 | B | 0.70 | 0/4228 | 0.80 | 0/5685 |
| 1 | C | 0.72 | 0/4204 | 0.79 | 0/5654 |
| 1 | D | 0.72 | 0/3998 | 0.78 | 0/5378 |
| 1 | E | 0.70 | 0/4219 | 0.79 | 0/5673 |
| 1 | F | 0.72 | 0/4211 | 0.78 | 0/5662 |
| 1 | G | 0.70 | 0/4188 | 0.79 | 0/5633 |
| 1 | H | 0.73 | 0/3743 | 0.80 | 0/5037 |
| 1 | I | 0.71 | 0/4178 | 0.78 | 0/5619 |
| 1 | J | 0.72 | 0/4169 | 0.79 | 0/5608 |
| 1 | K | 0.72 | 0/3708 | 0.79 | 0/4989 |
| 1 | L | 0.71 | 0/3728 | 0.78 | 0/5017 |
| 2 | P | 1.05 | 0/20 | 1.72 | 0/22 |
| 2 | Q | 0.98 | 0/20 | 1.76 | 0/22 |
| 2 | R | 1.30 | 0/16 | 0.74 | 0/19 |
| 2 | S | 1.33 | 0/16 | 0.91 | 0/19 |
| 2 | T | 1.80 | 0/16 | 0.95 | 0/19 |
| 2 | U | 1.14 | 0/16 | 1.17 | 0/19 |
| 2 | V | 1.25 | 0/16 | 1.12 | 0/19 |
| 2 | W | 1.04 | 0/12 | 1.32 | 0/14 |
| 2 | X | 1.30 | 0/12 | 1.19 | 0/14 |
| 2 | Y | 1.07 | 0/12 | 0.81 | 0/14 |
| All | All | 0.71 | 0/48933 | 0.79 | 0/65788 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | A | 4113 | 0 | 4100 | 94 | 0 |
| 1 | B | 4138 | 0 | 4128 | 78 | 0 |
| 1 | C | 4114 | 0 | 4104 | 63 | 0 |
| 1 | D | 3913 | 0 | 3877 | 67 | 0 |
| 1 | E | 4129 | 0 | 4122 | 64 | 0 |
| 1 | F | 4122 | 0 | 4114 | 69 | 0 |
| 1 | G | 4098 | 0 | 4084 | 74 | 0 |
| 1 | H | 3661 | 0 | 3597 | 51 | 0 |
| 1 | I | 4089 | 0 | 4075 | 58 | 0 |
| 1 | J | 4080 | 0 | 4062 | 58 | 0 |
| 1 | K | 3629 | 0 | 3570 | 49 | 0 |
| 1 | L | 3646 | 0 | 3579 | 67 | 0 |
| 2 | P | 21 | 0 | 17 | 1 | 0 |
| 2 | Q | 21 | 0 | 17 | 0 | 0 |
| 2 | R | 17 | 0 | 14 | 0 | 0 |
| 2 | S | 17 | 0 | 14 | 0 | 0 |
| 2 | T | 17 | 0 | 14 | 0 | 0 |
| 2 | U | 17 | 0 | 14 | 0 | 0 |
| 2 | V | 17 | 0 | 14 | 1 | 0 |
| 2 | W | 13 | 0 | 11 | 0 | 0 |
| 2 | X | 13 | 0 | 11 | 1 | 0 |
| 2 | Y | 13 | 0 | 11 | 1 | 0 |
| 3 | A | 1 | 0 | 0 | 0 | 0 |
| 3 | B | 1 | 0 | 0 | 0 | 0 |
| 3 | C | 1 | 0 | 0 | 0 | 0 |
| 3 | D | 1 | 0 | 0 | 0 | 0 |
| 3 | E | 1 | 0 | 0 | 0 | 0 |
| 3 | F | 1 | 0 | 0 | 0 | 0 |
| 3 | G | 1 | 0 | 0 | 0 | 0 |
| 3 | H | 1 | 0 | 0 | 0 | 0 |
| 3 | I | 1 | 0 | 0 | 0 | 0 |
| 3 | J | 1 | 0 | 0 | 0 | 0 |
| 4 | D | 1 | 0 | 0 | 2 | 0 |
| 4 | F | 1 | 0 | 0 | 0 | 0 |
| 4 | H | 1 | 0 | 0 | 1 | 0 |
| 5 | A | 1 | 0 | 0 | 0 | 0 |
| 5 | B | 1 | 0 | 0 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 5 | F | 2 | 0 | 0 | 0 | 0 |
| 5 | H | 1 | 0 | 0 | 0 | 0 |
| 5 | J | 1 | 0 | 0 | 0 | 0 |
| All | All | 47917 | 0 | 47549 | 761 | 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 8.

All (761) 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:D:66:GLY:HA2 | 1:D:236:ARG:NH2 | 1.40 | 1.36 |
| 1:D:84:LYS:CE | 1:D:137:GLU:HG2 | 1.71 | 1.17 |
| 1:F:439:SER:HB2 | 1:F:448:LEU:CD1 | 1.80 | 1.11 |
| 1:G:581:THR:O | 1:G:585:LEU:HD22 | 1.49 | 1.10 |
| 1:F:439:SER:HB2 | 1:F:448:LEU:HD12 | 1.32 | 1.09 |
| 1:D:84:LYS:HE2 | 1:D:137:GLU:CG | 1.81 | 1.09 |
| 1:H:164:LEU:HD22 | 1:H:165:PRO:HD2 | 1.17 | 1.09 |
| 1:A:539:MET:CE | 1:A:550:ILE:HG23 | 1.82 | 1.09 |
| 1:A:539:MET:CE | 1:A:550:ILE:CG2 | 2.31 | 1.09 |
| 1:A:539:MET:HE3 | 1:A:550:ILE:HG23 | 1.34 | 1.06 |
| 1:D:84:LYS:HE2 | 1:D:137:GLU:HG2 | 1.09 | 1.03 |
| 1:B:136:ILE:HD13 | 1:B:137:GLU:O | 1.59 | 1.01 |
| 1:A:539:MET:HE3 | 1:A:550:ILE:CG2 | 1.89 | 1.01 |
| 1:F:439:SER:CB | 1:F:448:LEU:HD12 | 1.97 | 0.94 |
| 1:A:539:MET:HE1 | 1:A:550:ILE:HG21 | 1.47 | 0.93 |
| 1:D:66:GLY:HA2 | 1:D:236:ARG:HH21 | 1.32 | 0.91 |
| 1:C:161:ILE:HD12 | 1:C:161:ILE:O | 1.72 | 0.90 |
| 1:D:66:GLY:HA2 | 1:D:236:ARG:HH22 | 1.25 | 0.90 |
| 1:G:584:TYR:CD1 | 1:G:585:LEU:HD13 | 2.08 | 0.89 |
| 1:D:66:GLY:CA | 1:D:236:ARG:NH2 | 2.33 | 0.88 |
| 1:A:539:MET:HE1 | 1:A:550:ILE:CG2 | 2.03 | 0.88 |
| 1:C:109:THR:HG23 | 1:C:158:LEU:HD22 | 1.57 | 0.87 |
| 1:J:119:MET:HE2 | 1:J:141:LYS:HG3 | 1.59 | 0.85 |
| 1:A:120:LYS:HB3 | 1:A:122:GLU:OE2 | 1.76 | 0.85 |
| 1:L:425:GLN:OE1 | 1:L:518:GLN:HG3 | 1.77 | 0.85 |
| 1:J:109:THR:HG23 | 1:J:158:LEU:HD22 | 1.57 | 0.83 |
| 1:J:117:ILE:HD11 | 1:J:141:LYS:HB2 | 1.60 | 0.82 |
| 1:A:116:VAL:O | 1:A:117:ILE:HG22 | 1.81 | 0.80 |
| 1:F:343:ILE:HD11 | 1:F:416:LEU:HA | 1.64 | 0.79 |
| 1:L:214:LEU:HB2 | 1:L:228:THR:HG21 | 1.64 | 0.79 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:136:ILE:CD1 | 1:B:137:GLU:O | 2.32 | 0.77 |
| 1:G:584:TYR:HD1 | 1:G:585:LEU:HD13 | 1.48 | 0.76 |
| 1:G:551:VAL:CG1 | 1:G:574:PHE:CE2 | 2.69 | 0.75 |
| 1:F:271:VAL:HG22 | 1:F:283:TYR:HD1 | 1.52 | 0.75 |
| 1:L:343:ILE:HD11 | 1:L:416:LEU:HA | 1.70 | 0.74 |
| 1:L:217:ILE:HG23 | 1:L:466:TYR:HB2 | 1.70 | 0.74 |
| 1:G:271:VAL:HG22 | 1:G:283:TYR:HD1 | 1.52 | 0.74 |
| 1:A:301:TRP:CE3 | 1:B:194:LYS:HD2 | 2.22 | 0.74 |
| 1:D:214:LEU:HB2 | 1:D:227:ASN:HB2 | 1.69 | 0.73 |
| 1:A:271:VAL:HG22 | 1:A:283:TYR:HD1 | 1.53 | 0.73 |
| 1:L:429:VAL:HG21 | 1:L:434:MET:CE | 2.18 | 0.73 |
| 1:E:260:VAL:O | 1:E:264:GLN:NE2 | 2.22 | 0.73 |
| 1:L:260:VAL:O | 1:L:264:GLN:NE2 | 2.22 | 0.72 |
| 1:G:462:LYS:HE3 | 1:G:462:LYS:HA | 1.72 | 0.71 |
| 1:J:343:ILE:HD11 | 1:J:416:LEU:HA | 1.72 | 0.71 |
| 1:B:343:ILE:HD11 | 1:B:416:LEU:HA | 1.71 | 0.71 |
| 1:D:84:LYS:HE2 | 1:D:137:GLU:CD | 2.11 | 0.71 |
| 1:A:117:ILE:HG13 | 1:A:118:ASN:H | 1.57 | 0.70 |
| 1:A:118:ASN:ND2 | 1:A:141:LYS:HG2 | 2.07 | 0.69 |
| 1:A:114:SER:O | 1:A:119:MET:HB3 | 1.92 | 0.69 |
| 1:J:194:LYS:HD2 | 1:L:301:TRP:CE3 | 2.28 | 0.69 |
| 1:G:581:THR:HG22 | 1:G:585:LEU:CD2 | 2.23 | 0.69 |
| 1:A:166:GLU:HA | 1:B:523:ASN:OD1 | 1.92 | 0.68 |
| 1:C:136:ILE:HD12 | 1:C:137:GLU:H | 1.58 | 0.68 |
| 1:D:84:LYS:HE3 | 1:D:137:GLU:HG2 | 1.68 | 0.68 |
| 1:A:221:TRP:HE1 | 1:B:225:ALA:HB3 | 1.57 | 0.67 |
| 1:L:217:ILE:CG2 | 1:L:466:TYR:HB2 | 2.25 | 0.67 |
| 1:I:321:LEU:HD11 | 1:I:325:ILE:HD11 | 1.77 | 0.67 |
| 1:J:194:LYS:HD2 | 1:L:301:TRP:CD2 | 2.29 | 0.67 |
| 1:F:531:PRO:HD3 | 1:I:134:PHE:CD2 | 2.30 | 0.67 |
| 1:A:120:LYS:HB2 | 1:A:123:GLU:HB2 | 1.76 | 0.66 |
| 1:G:112:LYS:O | 1:G:115:THR:HG22 | 1.94 | 0.66 |
| 1:L:429:VAL:HG21 | 1:L:434:MET:HE2 | 1.78 | 0.66 |
| 1:A:104:VAL:HG22 | 1:A:159:PRO:HG3 | 1.77 | 0.65 |
| 1:G:551:VAL:CG1 | 1:G:574:PHE:CD2 | 2.79 | 0.65 |
| 1:K:420:THR:HA | 1:K:423:PHE:CZ | 2.32 | 0.65 |
| 1:A:420:THR:HA | 1:A:423:PHE:CZ | 2.32 | 0.65 |
| 1:B:420:THR:HA | 1:B:423:PHE:CZ | 2.32 | 0.65 |
| 1:C:519:VAL:O | 1:C:528:VAL:HG12 | 1.97 | 0.65 |
| 1:L:439:SER:O | 1:L:443:ASN:ND2 | 2.30 | 0.65 |
| 1:C:420:THR:HA | 1:C:423:PHE:CZ | 2.32 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:217:ILE:HA | 1:F:224:ILE:HG12 | 1.76 | 0.65 |
| 1:F:420:THR:HA | 1:F:423:PHE:CZ | 2.32 | 0.65 |
| 1:I:420:THR:HA | 1:I:423:PHE:CZ | 2.32 | 0.65 |
| 1:J:420:THR:HA | 1:J:423:PHE:CZ | 2.32 | 0.65 |
| 1:D:420:THR:HA | 1:D:423:PHE:CZ | 2.32 | 0.65 |
| 1:G:420:THR:HA | 1:G:423:PHE:CZ | 2.31 | 0.65 |
| 1:H:420:THR:HA | 1:H:423:PHE:CZ | 2.32 | 0.65 |
| 1:D:84:LYS:HE2 | 1:D:137:GLU:OE1 | 1.97 | 0.64 |
| 1:E:420:THR:HA | 1:E:423:PHE:CZ | 2.32 | 0.64 |
| 1:A:439:SER:O | 1:A:443:ASN:ND2 | 2.30 | 0.64 |
| 1:F:443:ASN:OD1 | 1:F:448:LEU:HD11 | 1.98 | 0.64 |
| 1:H:164:LEU:HD22 | 1:H:165:PRO:CD | 2.11 | 0.64 |
| 1:B:439:SER:O | 1:B:443:ASN:ND2 | 2.30 | 0.64 |
| 1:G:439:SER:O | 1:G:443:ASN:ND2 | 2.30 | 0.64 |
| 1:K:260:VAL:HA | 1:K:265:PRO:HD2 | 1.79 | 0.64 |
| 1:L:420:THR:HA | 1:L:423:PHE:CZ | 2.32 | 0.64 |
| 1:E:343:ILE:HD11 | 1:E:416:LEU:HA | 1.79 | 0.63 |
| 1:E:439:SER:O | 1:E:443:ASN:ND2 | 2.30 | 0.63 |
| 1:G:116:VAL:HG13 | 1:G:117:ILE:H | 1.61 | 0.63 |
| 1:H:71:ARG:NH1 | 1:H:243:THR:O | 2.31 | 0.63 |
| 1:H:227:ASN:HD21 | 1:H:465:PHE:HE2 | 1.46 | 0.63 |
| 1:A:207:LEU:HD11 | 1:A:240:VAL:HG23 | 1.81 | 0.63 |
| 1:L:425:GLN:OE1 | 1:L:518:GLN:CG | 2.46 | 0.63 |
| 1:E:212:GLY:O | 1:E:214:LEU:HD22 | 1.99 | 0.62 |
| 1:J:285:GLN:O | 1:J:288:THR:HB | 1.99 | 0.62 |
| 1:A:214:LEU:HD11 | 1:H:214:LEU:HD11 | 1.81 | 0.62 |
| 1:C:439:SER:O | 1:C:443:ASN:ND2 | 2.30 | 0.62 |
| 1:D:439:SER:O | 1:D:443:ASN:ND2 | 2.30 | 0.62 |
| 1:K:71:ARG:NH1 | 1:K:243:THR:O | 2.32 | 0.62 |
| 1:L:64:MET:HG3 | 1:L:236:ARG:NH1 | 2.14 | 0.62 |
| 1:L:217:ILE:CG2 | 1:L:465:PHE:O | 2.47 | 0.62 |
| 1:L:342:ASP:O | 1:L:342:ASP:OD1 | 2.18 | 0.62 |
| 1:A:105:ASP:OD2 | 1:A:108:GLU:HG2 | 2.00 | 0.62 |
| 1:G:116:VAL:HG13 | 1:G:117:ILE:N | 2.13 | 0.62 |
| 1:B:285:GLN:O | 1:B:288:THR:HB | 2.00 | 0.62 |
| 1:G:503:TYR:CE2 | 1:G:538:PHE:CD2 | 2.88 | 0.62 |
| 1:I:285:GLN:O | 1:I:288:THR:HB | 2.00 | 0.62 |
| 1:C:71:ARG:NH1 | 1:C:243:THR:O | 2.32 | 0.62 |
| 1:I:71:ARG:NH1 | 1:I:243:THR:O | 2.32 | 0.62 |
| 1:F:285:GLN:O | 1:F:288:THR:HB | 1.99 | 0.62 |
| 1:K:439:SER:O | 1:K:443:ASN:ND2 | 2.30 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:486:GLU:CD | 1:B:545:LYS:HD2 | 2.21 | 0.62 |
| 1:D:68:ILE:HG12 | 1:D:240:VAL:HG13 | 1.81 | 0.62 |
| 1:D:285:GLN:O | 1:D:288:THR:HB | 1.99 | 0.62 |
| 1:L:138:PHE:HB2 | 1:L:142:GLY:HA3 | 1.82 | 0.62 |
| 1:K:285:GLN:O | 1:K:288:THR:HB | 1.99 | 0.62 |
| 1:F:71:ARG:NH1 | 1:F:243:THR:O | 2.33 | 0.61 |
| 1:L:285:GLN:O | 1:L:288:THR:HB | 1.99 | 0.61 |
| 1:D:71:ARG:NH1 | 1:D:243:THR:O | 2.32 | 0.61 |
| 1:C:285:GLN:O | 1:C:288:THR:HB | 2.00 | 0.61 |
| 1:H:285:GLN:O | 1:H:288:THR:HB | 1.99 | 0.61 |
| 1:B:216:TYR:HE1 | 1:B:463:ARG:NH1 | 1.98 | 0.61 |
| 1:A:285:GLN:O | 1:A:288:THR:HB | 2.00 | 0.61 |
| 1:B:71:ARG:NH1 | 1:B:243:THR:O | 2.33 | 0.61 |
| 1:A:71:ARG:NH1 | 1:A:243:THR:O | 2.32 | 0.61 |
| 1:E:71:ARG:NH1 | 1:E:243:THR:O | 2.33 | 0.61 |
| 1:A:116:VAL:O | 1:A:117:ILE:CG2 | 2.49 | 0.60 |
| 1:I:321:LEU:HD13 | 1:I:485:VAL:HG22 | 1.83 | 0.60 |
| 1:A:301:TRP:CD2 | 1:B:194:LYS:HD2 | 2.35 | 0.60 |
| 1:G:285:GLN:O | 1:G:288:THR:HB | 2.00 | 0.60 |
| 1:H:439:SER:O | 1:H:443:ASN:ND2 | 2.30 | 0.60 |
| 1:J:119:MET:HE1 | 1:J:141:LYS:HE2 | 1.82 | 0.60 |
| 1:J:439:SER:O | 1:J:443:ASN:ND2 | 2.30 | 0.60 |
| 1:G:71:ARG:NH1 | 1:G:243:THR:O | 2.32 | 0.60 |
| 1:F:439:SER:CB | 1:F:448:LEU:CD1 | 2.66 | 0.60 |
| 1:A:564:GLU:HG3 | 1:A:568:LEU:HD12 | 1.84 | 0.60 |
| 1:E:564:GLU:HG3 | 1:E:568:LEU:HD12 | 1.84 | 0.60 |
| 1:E:211:LYS:HG2 | 1:E:228:THR:HB | 1.84 | 0.60 |
| 1:J:564:GLU:HG3 | 1:J:568:LEU:HD12 | 1.84 | 0.59 |
| 1:C:508:TYR:OH | 1:C:589:LYS:NZ | 2.30 | 0.59 |
| 1:B:564:GLU:HG3 | 1:B:568:LEU:HD12 | 1.84 | 0.59 |
| 1:I:564:GLU:HG3 | 1:I:568:LEU:HD12 | 1.84 | 0.59 |
| 1:A:105:ASP:OD2 | 1:A:108:GLU:CG | 2.50 | 0.59 |
| 1:E:214:LEU:HB2 | 1:E:227:ASN:HD21 | 1.67 | 0.59 |
| 1:D:564:GLU:HG3 | 1:D:568:LEU:HD12 | 1.84 | 0.59 |
| 1:F:564:GLU:HG3 | 1:F:568:LEU:HD12 | 1.85 | 0.59 |
| 1:C:564:GLU:HG3 | 1:C:568:LEU:HD12 | 1.83 | 0.59 |
| 1:I:146:THR:HG22 | 1:I:149:ASP:OD2 | 2.02 | 0.59 |
| 1:J:252:VAL:O | 1:J:256:LEU:HD13 | 2.01 | 0.59 |
| 1:H:564:GLU:HG3 | 1:H:568:LEU:HD12 | 1.84 | 0.59 |
| 1:A:138:PHE:O | 1:A:141:LYS:HE2 | 2.03 | 0.59 |
| 1:J:71:ARG:NH1 | 1:J:243:THR:O | 2.32 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:564:GLU:HG3 | 1:G:568:LEU:HD12 | 1.84 | 0.58 |
| 1:L:564:GLU:HG3 | 1:L:568:LEU:HD12 | 1.84 | 0.58 |
| 1:B:109:THR:HG23 | 1:B:158:LEU:HD23 | 1.84 | 0.58 |
| 1:D:220:ILE:HG12 | 1:D:401:MET:HA | 1.86 | 0.58 |
| 1:H:164:LEU:CD2 | 1:H:165:PRO:HD2 | 2.12 | 0.58 |
| 1:H:281:LEU:HD13 | 1:H:281:LEU:N | 2.18 | 0.58 |
| 1:A:207:LEU:CD1 | 1:A:240:VAL:HG23 | 2.33 | 0.58 |
| 1:D:66:GLY:CA | 1:D:236:ARG:HH22 | 2.06 | 0.58 |
| 1:K:331:ASP:HB3 | 1:K:334:LYS:HB2 | 1.86 | 0.58 |
| 1:A:281:LEU:HD13 | 1:A:281:LEU:N | 2.19 | 0.57 |
| 1:C:137:GLU:HG2 | 1:C:138:PHE:N | 2.19 | 0.57 |
| 1:J:88:VAL:CG1 | 1:J:101:ARG:O | 2.53 | 0.57 |
| 1:C:281:LEU:HD13 | 1:C:281:LEU:N | 2.19 | 0.57 |
| 1:A:582:LEU:HB3 | 1:A:587:VAL:CG2 | 2.34 | 0.57 |
| 1:J:138:PHE:HB2 | 1:J:142:GLY:HA3 | 1.87 | 0.57 |
| 1:G:352:ASN:HB2 | 1:I:105:ASP:HB2 | 1.86 | 0.57 |
| 1:K:164:LEU:HD23 | 1:K:165:PRO:O | 2.04 | 0.57 |
| 1:K:564:GLU:HG3 | 1:K:568:LEU:HD12 | 1.85 | 0.57 |
| 1:K:513:LYS:NZ | 1:K:514:THR:HG22 | 2.19 | 0.57 |
| 1:K:582:LEU:HB3 | 1:K:587:VAL:CG2 | 2.35 | 0.57 |
| 1:D:164:LEU:HD23 | 1:D:165:PRO:O | 2.04 | 0.57 |
| 1:B:582:LEU:HB3 | 1:B:587:VAL:CG2 | 2.35 | 0.56 |
| 1:G:551:VAL:HG11 | 1:G:574:PHE:CD2 | 2.40 | 0.56 |
| 1:A:523:ASN:ND2 | 1:B:167:THR:OG1 | 2.39 | 0.56 |
| 1:C:213:SER:O | 1:C:214:LEU:C | 2.44 | 0.56 |
| 1:G:105:ASP:O | 1:G:109:THR:HG23 | 2.06 | 0.56 |
| 1:I:109:THR:HG23 | 1:I:158:LEU:HD23 | 1.86 | 0.56 |
| 1:A:109:THR:HG23 | 1:A:158:LEU:HD23 | 1.87 | 0.56 |
| 1:G:584:TYR:CD1 | 1:G:585:LEU:CD1 | 2.87 | 0.56 |
| 1:I:582:LEU:HB3 | 1:I:587:VAL:CG2 | 2.35 | 0.56 |
| 1:A:219:ASP:OD1 | 1:B:225:ALA:HB2 | 2.05 | 0.56 |
| 1:E:582:LEU:HB3 | 1:E:587:VAL:CG2 | 2.34 | 0.56 |
| 1:F:220:ILE:HG12 | 1:F:401:MET:HA | 1.85 | 0.56 |
| 1:J:88:VAL:HG11 | 1:J:101:ARG:O | 2.05 | 0.56 |
| 1:D:375:HIS:CE1 | 4:D:802:CL:CL | 2.96 | 0.56 |
| 1:J:119:MET:HE2 | 1:J:141:LYS:CG | 2.35 | 0.56 |
| 1:B:205:SER:HB3 | 1:B:226:PRO:HG3 | 1.88 | 0.55 |
| 1:H:164:LEU:HD13 | 1:H:165:PRO:O | 2.06 | 0.55 |
| 1:K:502:ASN:OD1 | 1:K:502:ASN:N | 2.38 | 0.55 |
| 1:D:221:TRP:HH2 | 1:H:214:LEU:HD12 | 1.70 | 0.55 |
| 1:J:313:GLY:HA3 | 1:J:517:ALA:HB2 | 1.89 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:105:ASP:O | 1:E:109:THR:HG23 | 2.04 | 0.55 |
| 1:G:551:VAL:HG11 | 1:G:574:PHE:CE2 | 2.42 | 0.55 |
| 1:D:66:GLY:CA | 1:D:236:ARG:HH21 | 2.08 | 0.55 |
| 1:F:502:ASN:OD1 | 1:F:502:ASN:N | 2.39 | 0.55 |
| 1:G:503:TYR:CD2 | 1:G:538:PHE:CD2 | 2.95 | 0.55 |
| 1:I:529:LYS:HE3 | 1:I:530:GLY:H | 1.72 | 0.55 |
| 1:B:88:VAL:HG13 | 1:B:160:GLY:HA2 | 1.89 | 0.55 |
| 1:C:93:ALA:O | 1:C:101:ARG:NH1 | 2.40 | 0.55 |
| 1:J:89:ILE:HD11 | 1:J:133:ALA:HB3 | 1.89 | 0.54 |
| 1:A:448:LEU:HD12 | 1:A:448:LEU:N | 2.22 | 0.54 |
| 1:F:472:ILE:H | 1:J:464:GLN:HE21 | 1.54 | 0.54 |
| 1:E:502:ASN:OD1 | 1:E:502:ASN:N | 2.39 | 0.54 |
| 1:E:96:ASN:O | 1:E:98:LYS:HD3 | 2.08 | 0.54 |
| 1:C:161:ILE:HD12 | 1:C:161:ILE:C | 2.28 | 0.54 |
| 1:E:89:ILE:HD11 | 1:E:133:ALA:HB3 | 1.88 | 0.54 |
| 1:H:281:LEU:N | 1:H:281:LEU:CD1 | 2.70 | 0.54 |
| 1:K:549:VAL:CG1 | 1:K:550:ILE:N | 2.70 | 0.54 |
| 1:B:89:ILE:HD11 | 1:B:133:ALA:HB3 | 1.89 | 0.54 |
| 1:E:546:ASN:OD1 | 1:E:546:ASN:O | 2.26 | 0.54 |
| 1:B:156:MET:HB3 | 1:B:158:LEU:HD13 | 1.90 | 0.54 |
| 1:E:285:GLN:O | 1:E:288:THR:HB | 2.07 | 0.54 |
| 1:F:89:ILE:HD11 | 1:F:133:ALA:HB3 | 1.89 | 0.54 |
| 1:G:271:VAL:HG22 | 1:G:283:TYR:CD1 | 2.40 | 0.54 |
| 1:L:502:ASN:HD22 | 1:L:568:LEU:HA | 1.73 | 0.54 |
| 1:C:549:VAL:CG1 | 1:C:550:ILE:N | 2.70 | 0.53 |
| 1:F:472:ILE:H | 1:J:464:GLN:NE2 | 2.05 | 0.53 |
| 1:B:88:VAL:HG22 | 1:B:102:HIS:HA | 1.89 | 0.53 |
| 1:L:217:ILE:HG23 | 1:L:465:PHE:O | 2.08 | 0.53 |
| 1:C:103:VAL:O | 1:C:103:VAL:HG13 | 2.07 | 0.53 |
| 1:L:377:GLN:HE22 | 1:L:418:GLN:HB3 | 1.74 | 0.53 |
| 1:B:502:ASN:OD1 | 1:B:502:ASN:N | 2.39 | 0.53 |
| 1:C:281:LEU:N | 1:C:281:LEU:CD1 | 2.71 | 0.53 |
| 1:G:503:TYR:CE2 | 1:G:538:PHE:CG | 2.96 | 0.53 |
| 1:I:156:MET:HB3 | 1:I:158:LEU:HD13 | 1.90 | 0.53 |
| 1:A:281:LEU:N | 1:A:281:LEU:CD1 | 2.70 | 0.53 |
| 1:L:425:GLN:HE22 | 1:L:517:ALA:HB1 | 1.74 | 0.53 |
| 1:B:220:ILE:HG12 | 1:B:401:MET:HA | 1.91 | 0.53 |
| 1:F:217:ILE:HB | 1:F:466:TYR:HB2 | 1.91 | 0.53 |
| 1:I:89:ILE:HD11 | 1:I:133:ALA:HB3 | 1.91 | 0.52 |
| 1:F:84:LYS:HB2 | 1:F:166:GLU:OE2 | 2.09 | 0.52 |
| 1:F:516:THR:HB | 2:X:1:GLY:HA2 | 1.90 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:502:ASN:HD22 | 1:K:568:LEU:HA | 1.75 | 0.52 |
| 1:F:271:VAL:HG21 | 1:F:305:LEU:HD13 | 1.92 | 0.52 |
| 1:K:260:VAL:HG23 | 1:K:265:PRO:HD2 | 1.91 | 0.52 |
| 1:B:85:LEU:CD2 | 1:B:117:ILE:HD11 | 2.40 | 0.52 |
| 1:C:138:PHE:HB2 | 1:C:142:GLY:HA3 | 1.91 | 0.52 |
| 1:D:221:TRP:CH2 | 1:H:214:LEU:HD12 | 2.44 | 0.52 |
| 1:E:138:PHE:HB2 | 1:E:142:GLY:HA3 | 1.91 | 0.52 |
| 1:B:343:ILE:HD13 | 1:B:343:ILE:O | 2.10 | 0.52 |
| 1:G:551:VAL:CG1 | 1:G:574:PHE:HE2 | 2.21 | 0.52 |
| 1:A:117:ILE:HG13 | 1:A:118:ASN:N | 2.23 | 0.52 |
| 1:B:216:TYR:CE1 | 1:B:463:ARG:NH1 | 2.77 | 0.52 |
| 1:F:112:LYS:O | 1:F:115:THR:HG22 | 2.10 | 0.52 |
| 1:F:446:ASN:HD22 | 1:F:472:ILE:HG21 | 1.75 | 0.52 |
| 1:I:104:VAL:HG22 | 1:I:159:PRO:HG3 | 1.92 | 0.52 |
| 1:I:259:MET:SD | 1:I:573:ALA:HB2 | 2.50 | 0.52 |
| 1:G:502:ASN:HD22 | 1:G:568:LEU:HA | 1.75 | 0.52 |
| 1:C:259:MET:SD | 1:C:573:ALA:HB2 | 2.50 | 0.51 |
| 1:F:94:SER:O | 1:F:97:SER:N | 2.43 | 0.51 |
| 1:J:343:ILE:HD13 | 1:J:343:ILE:O | 2.11 | 0.51 |
| 1:A:271:VAL:HG21 | 1:A:305:LEU:HD13 | 1.92 | 0.51 |
| 1:D:259:MET:SD | 1:D:573:ALA:HB2 | 2.51 | 0.51 |
| 1:E:259:MET:SD | 1:E:573:ALA:HB2 | 2.50 | 0.51 |
| 1:A:156:MET:HB3 | 1:A:158:LEU:HD13 | 1.93 | 0.51 |
| 1:D:502:ASN:HD22 | 1:D:568:LEU:HA | 1.76 | 0.51 |
| 1:G:551:VAL:HG13 | 1:G:574:PHE:CD2 | 2.44 | 0.51 |
| 1:H:259:MET:SD | 1:H:573:ALA:HB2 | 2.50 | 0.51 |
| 1:J:190:THR:OG1 | 1:J:192:GLU:HG2 | 2.11 | 0.51 |
| 1:K:313:GLY:HA3 | 1:K:517:ALA:HB2 | 1.93 | 0.51 |
| 1:G:259:MET:SD | 1:G:573:ALA:HB2 | 2.50 | 0.51 |
| 1:I:549:VAL:HG23 | 1:I:578:MET:HE1 | 1.91 | 0.51 |
| 1:A:126:LYS:O | 1:A:130:GLN:HG3 | 2.11 | 0.51 |
| 1:A:313:GLY:HA3 | 1:A:517:ALA:HB2 | 1.93 | 0.51 |
| 1:H:502:ASN:HD22 | 1:H:568:LEU:HA | 1.75 | 0.51 |
| 1:A:130:GLN:HB3 | 1:A:131:LYS:HE2 | 1.93 | 0.51 |
| 1:B:259:MET:SD | 1:B:573:ALA:HB2 | 2.50 | 0.51 |
| 1:E:502:ASN:HD22 | 1:E:568:LEU:HA | 1.75 | 0.51 |
| 1:G:116:VAL:CG1 | 1:G:117:ILE:H | 2.23 | 0.51 |
| 1:G:502:ASN:OD1 | 1:G:502:ASN:N | 2.39 | 0.51 |
| 1:J:259:MET:SD | 1:J:573:ALA:HB2 | 2.50 | 0.51 |
| 1:B:502:ASN:HD22 | 1:B:568:LEU:HA | 1.76 | 0.51 |
| 1:C:215:ARG:HH11 | 1:C:227:ASN:HD22 | 1.59 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:271:VAL:HG21 | 1:G:305:LEU:HD13 | 1.93 | 0.51 |
| 1:F:439:SER:HB2 | 1:F:448:LEU:HD11 | 1.85 | 0.50 |
| 1:G:180:LEU:HD23 | 1:G:244:ILE:HD11 | 1.92 | 0.50 |
| 1:B:313:GLY:HA3 | 1:B:517:ALA:HB2 | 1.94 | 0.50 |
| 1:D:341:ARG:C | 1:D:343:ILE:HD12 | 2.32 | 0.50 |
| 1:I:313:GLY:HA3 | 1:I:517:ALA:HB2 | 1.92 | 0.50 |
| 1:D:313:GLY:HA3 | 1:D:517:ALA:HB2 | 1.93 | 0.50 |
| 1:G:313:GLY:HA3 | 1:G:517:ALA:HB2 | 1.93 | 0.50 |
| 1:H:341:ARG:C | 1:H:343:ILE:HD12 | 2.32 | 0.50 |
| 1:L:259:MET:SD | 1:L:573:ALA:HB2 | 2.52 | 0.50 |
| 1:B:217:ILE:HB | 1:B:466:TYR:HB2 | 1.93 | 0.50 |
| 1:C:341:ARG:C | 1:C:343:ILE:HD12 | 2.32 | 0.50 |
| 1:F:259:MET:SD | 1:F:573:ALA:HB2 | 2.51 | 0.50 |
| 1:F:313:GLY:HA3 | 1:F:517:ALA:HB2 | 1.94 | 0.50 |
| 1:F:502:ASN:HD22 | 1:F:568:LEU:HA | 1.75 | 0.50 |
| 1:H:502:ASN:OD1 | 1:H:502:ASN:N | 2.39 | 0.50 |
| 1:A:259:MET:SD | 1:A:573:ALA:HB2 | 2.50 | 0.50 |
| 1:E:190:THR:OG1 | 1:E:192:GLU:HG2 | 2.10 | 0.50 |
| 1:E:549:VAL:HG23 | 1:E:578:MET:HE1 | 1.93 | 0.50 |
| 1:I:502:ASN:HD22 | 1:I:568:LEU:HA | 1.76 | 0.50 |
| 1:E:313:GLY:HA3 | 1:E:517:ALA:HB2 | 1.94 | 0.50 |
| 1:G:261:GLU:OE1 | 1:G:262:ARG:N | 2.45 | 0.50 |
| 1:G:507:GLY:HA3 | 1:G:589:LYS:CE | 2.41 | 0.50 |
| 1:K:138:PHE:HB2 | 1:K:142:GLY:HA3 | 1.94 | 0.50 |
| 1:L:299:LYS:HB2 | 1:L:299:LYS:NZ | 2.25 | 0.50 |
| 1:A:118:ASN:HD22 | 1:A:141:LYS:HB3 | 1.77 | 0.49 |
| 1:B:217:ILE:HG23 | 1:B:224:ILE:HG21 | 1.94 | 0.49 |
| 1:C:182:GLY:HA3 | 1:C:197:LEU:O | 2.12 | 0.49 |
| 1:D:182:GLY:HA3 | 1:D:197:LEU:O | 2.12 | 0.49 |
| 1:E:217:ILE:HB | 1:E:466:TYR:HB2 | 1.94 | 0.49 |
| 1:I:182:GLY:HA3 | 1:I:197:LEU:O | 2.12 | 0.49 |
| 1:F:271:VAL:HG22 | 1:F:283:TYR:CD1 | 2.40 | 0.49 |
| 1:H:182:GLY:HA3 | 1:H:197:LEU:O | 2.13 | 0.49 |
| 1:L:313:GLY:HA3 | 1:L:517:ALA:HB2 | 1.93 | 0.49 |
| 1:B:182:GLY:HA3 | 1:B:197:LEU:O | 2.12 | 0.49 |
| 1:C:313:GLY:HA3 | 1:C:517:ALA:HB2 | 1.93 | 0.49 |
| 1:E:182:GLY:HA3 | 1:E:197:LEU:O | 2.12 | 0.49 |
| 1:E:104:VAL:HG22 | 1:E:159:PRO:HG3 | 1.94 | 0.49 |
| 1:E:261:GLU:OE1 | 1:E:262:ARG:N | 2.45 | 0.49 |
| 1:E:582:LEU:HB3 | 1:E:587:VAL:HG21 | 1.93 | 0.49 |
| 1:I:321:LEU:CD1 | 1:I:485:VAL:HG22 | 2.42 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:273:MET:CE | 1:K:450:PRO:HB3 | 2.42 | 0.49 |
| 1:K:398:THR:HG23 | 1:K:405:GLU:OE2 | 2.13 | 0.49 |
| 1:E:549:VAL:HG23 | 1:E:578:MET:CE | 2.43 | 0.49 |
| 1:F:182:GLY:HA3 | 1:F:197:LEU:O | 2.12 | 0.49 |
| 1:F:531:PRO:HG3 | 1:I:134:PHE:CD1 | 2.47 | 0.49 |
| 1:H:398:THR:HG23 | 1:H:405:GLU:OE2 | 2.13 | 0.49 |
| 1:J:117:ILE:HD11 | 1:J:141:LYS:CB | 2.38 | 0.49 |
| 1:J:182:GLY:HA3 | 1:J:197:LEU:O | 2.13 | 0.49 |
| 1:C:398:THR:HG23 | 1:C:405:GLU:OE2 | 2.13 | 0.49 |
| 1:K:182:GLY:HA3 | 1:K:197:LEU:O | 2.13 | 0.49 |
| 1:E:216:TYR:HE1 | 1:E:463:ARG:NH1 | 2.11 | 0.49 |
| 1:G:182:GLY:HA3 | 1:G:197:LEU:O | 2.12 | 0.49 |
| 1:I:398:THR:HG23 | 1:I:405:GLU:OE2 | 2.13 | 0.49 |
| 1:L:182:GLY:HA3 | 1:L:197:LEU:O | 2.12 | 0.49 |
| 1:A:182:GLY:HA3 | 1:A:197:LEU:O | 2.13 | 0.49 |
| 1:B:136:ILE:HD13 | 1:B:137:GLU:N | 2.27 | 0.49 |
| 1:B:138:PHE:HB2 | 1:B:142:GLY:HA3 | 1.94 | 0.49 |
| 1:F:317:LYS:HD2 | 1:F:513:LYS:NZ | 2.28 | 0.49 |
| 1:G:138:PHE:HB2 | 1:G:142:GLY:HA3 | 1.94 | 0.49 |
| 1:A:207:LEU:HD11 | 1:A:240:VAL:CG2 | 2.43 | 0.49 |
| 1:A:279:GLU:O | 1:A:281:LEU:HD13 | 2.13 | 0.49 |
| 1:F:261:GLU:OE1 | 1:F:262:ARG:N | 2.45 | 0.49 |
| 1:G:398:THR:HG23 | 1:G:405:GLU:OE2 | 2.13 | 0.49 |
| 1:I:321:LEU:CD1 | 1:I:325:ILE:HD11 | 2.41 | 0.49 |
| 1:A:582:LEU:HB3 | 1:A:587:VAL:HG21 | 1.94 | 0.49 |
| 1:B:104:VAL:HG13 | 1:B:159:PRO:HG3 | 1.94 | 0.49 |
| 1:B:213:SER:HA | 1:B:226:PRO:HB2 | 1.94 | 0.48 |
| 1:C:66:GLY:HA2 | 1:C:236:ARG:HH22 | 1.78 | 0.48 |
| 1:C:279:GLU:O | 1:C:281:LEU:HD13 | 2.13 | 0.48 |
| 1:H:313:GLY:HA3 | 1:H:517:ALA:HB2 | 1.93 | 0.48 |
| 1:I:138:PHE:HB2 | 1:I:142:GLY:HA3 | 1.94 | 0.48 |
| 1:L:217:ILE:HG22 | 1:L:465:PHE:O | 2.12 | 0.48 |
| 1:E:220:ILE:HG22 | 1:E:224:ILE:HD11 | 1.95 | 0.48 |
| 1:H:190:THR:OG1 | 1:H:192:GLU:HG2 | 2.12 | 0.48 |
| 1:I:549:VAL:HG23 | 1:I:578:MET:CE | 2.44 | 0.48 |
| 1:B:398:THR:HG22 | 1:B:405:GLU:OE2 | 2.13 | 0.48 |
| 1:B:218:HIS:ND1 | 1:H:221:TRP:O | 2.45 | 0.48 |
| 1:H:279:GLU:O | 1:H:281:LEU:HD13 | 2.13 | 0.48 |
| 1:B:582:LEU:HB3 | 1:B:587:VAL:HG21 | 1.95 | 0.48 |
| 1:F:463:ARG:HD2 | 1:J:473:ALA:O | 2.13 | 0.48 |
| 1:H:82:ARG:NH1 | 1:H:144:ASN:OD1 | 2.46 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:217:ILE:HD12 | 1:J:223:TYR:CD2 | 2.49 | 0.48 |
| 1:K:347:ARG:HE | 1:K:353:ARG:HH22 | 1.62 | 0.48 |
| 1:K:549:VAL:HG13 | 1:K:550:ILE:N | 2.29 | 0.48 |
| 1:D:398:THR:HG22 | 1:D:405:GLU:OE2 | 2.13 | 0.48 |
| 1:E:398:THR:HG22 | 1:E:405:GLU:OE2 | 2.13 | 0.48 |
| 1:I:473:ALA:O | 1:L:463:ARG:HD2 | 2.14 | 0.48 |
| 1:J:398:THR:HG23 | 1:J:405:GLU:OE2 | 2.13 | 0.48 |
| 1:A:267:ASP:HB3 | 1:A:556:SER:HB3 | 1.96 | 0.48 |
| 1:F:398:THR:HG22 | 1:F:405:GLU:OE2 | 2.13 | 0.48 |
| 1:B:267:ASP:HB3 | 1:B:556:SER:HB3 | 1.96 | 0.48 |
| 1:E:339:GLY:HA2 | 1:E:355:GLY:HA3 | 1.95 | 0.47 |
| 1:A:398:THR:HG22 | 1:A:405:GLU:OE2 | 2.13 | 0.47 |
| 1:F:267:ASP:HB3 | 1:F:556:SER:HB3 | 1.96 | 0.47 |
| 1:I:582:LEU:HB3 | 1:I:587:VAL:HG21 | 1.95 | 0.47 |
| 1:A:116:VAL:C | 1:A:117:ILE:HG22 | 2.35 | 0.47 |
| 1:E:217:ILE:HD12 | 1:E:466:TYR:HB3 | 1.96 | 0.47 |
| 1:J:173:ASN:HB2 | 1:J:176:PHE:CB | 2.44 | 0.47 |
| 1:D:210:SER:O | 1:D:212:GLY:N | 2.47 | 0.47 |
| 1:L:81:GLU:OE1 | 1:L:83:TYR:CZ | 2.67 | 0.47 |
| 1:L:173:ASN:HB2 | 1:L:176:PHE:CB | 2.44 | 0.47 |
| 1:G:104:VAL:HG22 | 1:G:159:PRO:HG3 | 1.96 | 0.47 |
| 1:G:507:GLY:HA3 | 1:G:589:LYS:HE3 | 1.97 | 0.47 |
| 1:L:398:THR:HG23 | 1:L:405:GLU:OE2 | 2.13 | 0.47 |
| 1:A:217:ILE:HD12 | 1:A:223:TYR:CD2 | 2.50 | 0.47 |
| 1:C:452:PHE:CD1 | 1:C:452:PHE:N | 2.83 | 0.47 |
| 1:C:549:VAL:HG13 | 1:C:550:ILE:N | 2.29 | 0.47 |
| 1:E:94:SER:O | 1:E:97:SER:N | 2.41 | 0.47 |
| 1:G:173:ASN:HB2 | 1:G:176:PHE:CB | 2.45 | 0.47 |
| 1:J:104:VAL:HG22 | 1:J:159:PRO:HG3 | 1.96 | 0.47 |
| 1:B:210:SER:O | 1:B:212:GLY:N | 2.48 | 0.47 |
| 1:B:217:ILE:HD12 | 1:B:466:TYR:HB3 | 1.97 | 0.47 |
| 1:C:194:LYS:HB3 | 1:K:301:TRP:CE2 | 2.49 | 0.47 |
| 1:C:213:SER:O | 1:C:214:LEU:O | 2.32 | 0.47 |
| 1:D:161:ILE:HD13 | 1:D:161:ILE:HA | 1.84 | 0.47 |
| 1:D:452:PHE:CD1 | 1:D:452:PHE:N | 2.83 | 0.47 |
| 1:E:220:ILE:HG12 | 1:E:401:MET:HA | 1.97 | 0.47 |
| 1:F:452:PHE:CD1 | 1:F:452:PHE:N | 2.83 | 0.47 |
| 1:G:116:VAL:CG1 | 1:G:117:ILE:N | 2.77 | 0.47 |
| 1:I:173:ASN:HB2 | 1:I:176:PHE:CB | 2.45 | 0.47 |
| 1:J:88:VAL:CG1 | 1:J:160:GLY:HA2 | 2.45 | 0.47 |
| 1:L:267:ASP:HB3 | 1:L:556:SER:HB3 | 1.97 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:173:ASN:HB2 | 1:A:176:PHE:CB | 2.45 | 0.47 |
| 1:E:452:PHE:CD1 | 1:E:452:PHE:N | 2.83 | 0.47 |
| 1:K:217:ILE:HB | 1:K:466:TYR:HB2 | 1.96 | 0.47 |
| 1:K:267:ASP:HB3 | 1:K:556:SER:HB3 | 1.97 | 0.47 |
| 1:A:253:GLU:OE1 | 1:A:286:ARG:NH2 | 2.44 | 0.47 |
| 1:A:452:PHE:N | 1:A:452:PHE:CD1 | 2.83 | 0.47 |
| 1:C:173:ASN:HB2 | 1:C:176:PHE:CB | 2.45 | 0.47 |
| 1:G:267:ASP:HB3 | 1:G:556:SER:HB3 | 1.97 | 0.47 |
| 1:J:452:PHE:N | 1:J:452:PHE:CD1 | 2.83 | 0.47 |
| 1:K:452:PHE:N | 1:K:452:PHE:CD1 | 2.83 | 0.47 |
| 1:K:582:LEU:HB3 | 1:K:587:VAL:HG21 | 1.96 | 0.47 |
| 1:A:84:LYS:O | 1:A:163:LEU:HA | 2.14 | 0.47 |
| 1:C:103:VAL:HG23 | 1:C:109:THR:HG21 | 1.97 | 0.47 |
| 1:D:217:ILE:HB | 1:D:466:TYR:HB2 | 1.96 | 0.47 |
| 1:H:173:ASN:HB2 | 1:H:176:PHE:CB | 2.45 | 0.47 |
| 1:I:339:GLY:HA2 | 1:I:355:GLY:HA3 | 1.96 | 0.47 |
| 1:L:156:MET:HB3 | 1:L:158:LEU:HD13 | 1.96 | 0.47 |
| 1:B:173:ASN:HB2 | 1:B:176:PHE:CB | 2.45 | 0.46 |
| 1:C:267:ASP:HB3 | 1:C:556:SER:HB3 | 1.97 | 0.46 |
| 1:E:216:TYR:CE1 | 1:E:463:ARG:NH1 | 2.83 | 0.46 |
| 1:E:267:ASP:HB3 | 1:E:556:SER:HB3 | 1.97 | 0.46 |
| 1:F:84:LYS:O | 1:F:163:LEU:HA | 2.15 | 0.46 |
| 1:F:104:VAL:HG22 | 1:F:159:PRO:HG3 | 1.96 | 0.46 |
| 1:L:442:PHE:HB3 | 1:L:547:PRO:HG3 | 1.97 | 0.46 |
| 1:E:173:ASN:HB2 | 1:E:176:PHE:CB | 2.45 | 0.46 |
| 1:I:84:LYS:O | 1:I:163:LEU:HA | 2.15 | 0.46 |
| 1:I:452:PHE:N | 1:I:452:PHE:CD1 | 2.83 | 0.46 |
| 1:K:173:ASN:HB2 | 1:K:176:PHE:CB | 2.46 | 0.46 |
| 1:E:210:SER:O | 1:E:212:GLY:N | 2.48 | 0.46 |
| 1:G:89:ILE:HD11 | 1:G:133:ALA:HB3 | 1.98 | 0.46 |
| 1:A:114:SER:CA | 1:A:119:MET:HB3 | 2.46 | 0.46 |
| 1:B:84:LYS:O | 1:B:163:LEU:HA | 2.15 | 0.46 |
| 1:D:84:LYS:HG3 | 1:D:142:GLY:O | 2.15 | 0.46 |
| 1:G:84:LYS:O | 1:G:163:LEU:HA | 2.15 | 0.46 |
| 1:J:88:VAL:HG12 | 1:J:160:GLY:HA2 | 1.96 | 0.46 |
| 1:J:516:THR:HB | 2:Y:1:GLY:HA2 | 1.97 | 0.46 |
| 1:A:115:THR:HG21 | 1:A:156:MET:HE2 | 1.97 | 0.46 |
| 1:G:503:TYR:CE2 | 1:G:538:PHE:HB2 | 2.50 | 0.46 |
| 1:K:340:HIS:CD2 | 1:K:347:ARG:NH1 | 2.83 | 0.46 |
| 1:F:217:ILE:HD12 | 1:F:466:TYR:HB3 | 1.97 | 0.46 |
| 1:H:197:LEU:HD23 | 1:H:198:GLY:N | 2.31 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:115:THR:HG23 | 1:D:116:VAL:HG23 | 1.98 | 0.46 |
| 1:F:439:SER:OG | 1:F:448:LEU:HD12 | 2.15 | 0.46 |
| 1:H:267:ASP:HB3 | 1:H:556:SER:HB3 | 1.97 | 0.46 |
| 1:K:521:ALA:HB3 | 1:K:524:GLY:O | 2.16 | 0.46 |
| 1:D:267:ASP:HB3 | 1:D:556:SER:HB3 | 1.97 | 0.46 |
| 1:E:84:LYS:O | 1:E:163:LEU:HA | 2.15 | 0.46 |
| 1:E:197:LEU:HD23 | 1:E:198:GLY:N | 2.31 | 0.46 |
| 1:H:452:PHE:N | 1:H:452:PHE:CD1 | 2.83 | 0.46 |
| 1:B:452:PHE:N | 1:B:452:PHE:CD1 | 2.83 | 0.46 |
| 1:C:84:LYS:O | 1:C:163:LEU:HA | 2.16 | 0.46 |
| 1:C:140:ARG:HD2 | 1:C:140:ARG:HA | 1.60 | 0.46 |
| 1:I:197:LEU:HD23 | 1:I:198:GLY:N | 2.31 | 0.46 |
| 1:K:84:LYS:O | 1:K:163:LEU:HA | 2.15 | 0.46 |
| 1:K:210:SER:O | 1:K:212:GLY:N | 2.48 | 0.46 |
| 1:A:120:LYS:HE3 | 1:A:123:GLU:CB | 2.45 | 0.46 |
| 1:D:68:ILE:HG12 | 1:D:240:VAL:CG1 | 2.46 | 0.46 |
| 1:K:197:LEU:HD23 | 1:K:198:GLY:N | 2.31 | 0.46 |
| 1:C:235:LYS:HB3 | 1:C:235:LYS:HE3 | 1.58 | 0.45 |
| 1:D:173:ASN:HB2 | 1:D:176:PHE:CB | 2.46 | 0.45 |
| 1:G:452:PHE:CD1 | 1:G:452:PHE:N | 2.83 | 0.45 |
| 1:G:503:TYR:CE2 | 1:G:538:PHE:CB | 2.99 | 0.45 |
| 1:J:94:SER:OG | 1:J:101:ARG:N | 2.44 | 0.45 |
| 1:J:197:LEU:HD23 | 1:J:198:GLY:N | 2.31 | 0.45 |
| 1:L:452:PHE:CD1 | 1:L:452:PHE:N | 2.83 | 0.45 |
| 1:A:132:LYS:HD3 | 1:A:132:LYS:HA | 1.69 | 0.45 |
| 1:B:218:HIS:HB3 | 1:H:223:TYR:CZ | 2.51 | 0.45 |
| 1:H:81:GLU:OE2 | 1:H:165:PRO:HB2 | 2.16 | 0.45 |
| 1:J:84:LYS:O | 1:J:163:LEU:HA | 2.15 | 0.45 |
| 1:L:503:TYR:CE2 | 1:L:571:SER:OG | 2.69 | 0.45 |
| 1:H:375:HIS:ND1 | 4:H:802:CL:CL | 2.77 | 0.45 |
| 1:I:267:ASP:HB3 | 1:I:556:SER:HB3 | 1.98 | 0.45 |
| 1:F:516:THR:HG23 | 1:F:536:VAL:HG12 | 1.98 | 0.45 |
| 1:G:197:LEU:HD23 | 1:G:198:GLY:N | 2.31 | 0.45 |
| 1:K:519:VAL:HG21 | 1:K:557:LEU:HD13 | 1.98 | 0.45 |
| 1:K:582:LEU:HB3 | 1:K:587:VAL:HG22 | 1.99 | 0.45 |
| 1:A:197:LEU:HD23 | 1:A:198:GLY:N | 2.31 | 0.45 |
| 1:D:502:ASN:ND2 | 1:D:568:LEU:HA | 2.32 | 0.45 |
| 1:F:173:ASN:HB2 | 1:F:176:PHE:CB | 2.47 | 0.45 |
| 1:A:271:VAL:HG22 | 1:A:283:TYR:CD1 | 2.41 | 0.45 |
| 1:A:448:LEU:N | 1:A:448:LEU:CD1 | 2.79 | 0.45 |
| 1:B:502:ASN:ND2 | 1:B:568:LEU:HA | 2.32 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:197:LEU:HD23 | 1:C:198:GLY:N | 2.31 | 0.45 |
| 1:D:112:LYS:HB2 | 1:D:112:LYS:HE3 | 1.79 | 0.45 |
| 1:H:341:ARG:O | 1:H:343:ILE:HD12 | 2.17 | 0.45 |
| 1:L:503:TYR:CZ | 1:L:571:SER:OG | 2.70 | 0.45 |
| 1:B:197:LEU:HD23 | 1:B:198:GLY:N | 2.31 | 0.45 |
| 1:J:267:ASP:HB3 | 1:J:556:SER:HB3 | 1.97 | 0.45 |
| 1:D:259:MET:CE | 1:D:572:LYS:HB2 | 2.47 | 0.45 |
| 1:F:301:TRP:CD2 | 1:I:194:LYS:HD3 | 2.52 | 0.45 |
| 1:F:502:ASN:ND2 | 1:F:568:LEU:HA | 2.32 | 0.45 |
| 1:J:119:MET:CE | 1:J:141:LYS:HE2 | 2.45 | 0.45 |
| 1:J:259:MET:CE | 1:J:572:LYS:HB2 | 2.47 | 0.45 |
| 1:A:582:LEU:HB3 | 1:A:587:VAL:HG22 | 1.99 | 0.45 |
| 1:B:259:MET:CE | 1:B:572:LYS:HB2 | 2.47 | 0.45 |
| 1:D:197:LEU:HD23 | 1:D:198:GLY:N | 2.31 | 0.45 |
| 1:L:502:ASN:ND2 | 1:L:568:LEU:HA | 2.31 | 0.45 |
| 1:B:516:THR:HG23 | 1:B:536:VAL:HG12 | 1.99 | 0.44 |
| 1:C:259:MET:CE | 1:C:572:LYS:HB2 | 2.47 | 0.44 |
| 1:I:502:ASN:OD1 | 1:I:502:ASN:N | 2.39 | 0.44 |
| 1:K:502:ASN:ND2 | 1:K:568:LEU:HA | 2.32 | 0.44 |
| 1:L:197:LEU:HD23 | 1:L:198:GLY:N | 2.32 | 0.44 |
| 1:L:502:ASN:OD1 | 1:L:502:ASN:N | 2.38 | 0.44 |
| 1:C:136:ILE:HD12 | 1:C:137:GLU:N | 2.29 | 0.44 |
| 1:B:486:GLU:CD | 1:B:545:LYS:CD | 2.86 | 0.44 |
| 1:E:259:MET:CE | 1:E:572:LYS:HB2 | 2.47 | 0.44 |
| 1:F:197:LEU:HD23 | 1:F:198:GLY:N | 2.31 | 0.44 |
| 1:G:502:ASN:ND2 | 1:G:568:LEU:HA | 2.32 | 0.44 |
| 1:I:502:ASN:ND2 | 1:I:568:LEU:HA | 2.32 | 0.44 |
| 1:J:88:VAL:HG12 | 1:J:160:GLY:CA | 2.47 | 0.44 |
| 1:J:386:LYS:NZ | 1:J:390:GLU:OE2 | 2.48 | 0.44 |
| 1:E:117:ILE:HD11 | 1:E:141:LYS:CB | 2.47 | 0.44 |
| 1:G:259:MET:CE | 1:G:572:LYS:HB2 | 2.48 | 0.44 |
| 1:G:581:THR:CG2 | 1:G:585:LEU:CD2 | 2.95 | 0.44 |
| 1:L:394:PHE:HE1 | 1:L:434:MET:HE2 | 1.83 | 0.44 |
| 1:C:272:VAL:HG13 | 1:C:549:VAL:HG11 | 2.00 | 0.44 |
| 1:H:502:ASN:ND2 | 1:H:568:LEU:HA | 2.32 | 0.44 |
| 1:J:88:VAL:HG13 | 1:J:102:HIS:HA | 2.00 | 0.44 |
| 1:K:516:THR:HG23 | 1:K:536:VAL:HG12 | 2.00 | 0.44 |
| 1:A:259:MET:CE | 1:A:572:LYS:HB2 | 2.47 | 0.44 |
| 1:J:138:PHE:O | 1:J:141:LYS:HG2 | 2.18 | 0.44 |
| 1:A:115:THR:HG21 | 1:A:156:MET:CE | 2.48 | 0.44 |
| 1:A:523:ASN:OD1 | 1:B:191:GLY:HA3 | 2.17 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:71:ARG:HH22 | 1:I:281:LEU:HD22 | 1.83 | 0.44 |
| 1:K:342:ASP:OD1 | 1:K:342:ASP:O | 2.35 | 0.44 |
| 1:L:140:ARG:HH11 | 1:L:141:LYS:H | 1.65 | 0.44 |
| 1:L:429:VAL:HG21 | 1:L:434:MET:HE3 | 1.98 | 0.44 |
| 1:G:94:SER:OG | 1:G:101:ARG:N | 2.43 | 0.44 |
| 1:J:192:GLU:HG3 | 1:L:301:TRP:HZ2 | 1.83 | 0.44 |
| 1:K:272:VAL:HG13 | 1:K:549:VAL:HG11 | 2.00 | 0.44 |
| 1:B:491:LEU:O | 1:B:492:VAL:C | 2.56 | 0.44 |
| 1:D:516:THR:HG23 | 1:D:536:VAL:HG12 | 2.00 | 0.44 |
| 1:F:214:LEU:H | 1:F:226:PRO:HB2 | 1.82 | 0.44 |
| 1:I:259:MET:CE | 1:I:572:LYS:HB2 | 2.47 | 0.44 |
| 1:C:401:MET:HB2 | 1:C:452:PHE:CE1 | 2.53 | 0.43 |
| 1:F:134:PHE:CD2 | 1:I:531:PRO:HD3 | 2.53 | 0.43 |
| 1:D:84:LYS:O | 1:D:163:LEU:HA | 2.18 | 0.43 |
| 1:J:194:LYS:HB3 | 1:L:301:TRP:CE2 | 2.52 | 0.43 |
| 1:L:401:MET:HB2 | 1:L:452:PHE:CE1 | 2.53 | 0.43 |
| 1:B:582:LEU:HB3 | 1:B:587:VAL:HG22 | 1.99 | 0.43 |
| 1:E:117:ILE:HD11 | 1:E:141:LYS:HB2 | 2.00 | 0.43 |
| 1:E:210:SER:OG | 1:E:211:LYS:N | 2.51 | 0.43 |
| 1:E:491:LEU:O | 1:E:492:VAL:C | 2.56 | 0.43 |
| 1:G:491:LEU:O | 1:G:492:VAL:C | 2.57 | 0.43 |
| 1:K:519:VAL:HG21 | 1:K:557:LEU:CD1 | 2.48 | 0.43 |
| 1:L:253:GLU:OE1 | 1:L:286:ARG:NH2 | 2.44 | 0.43 |
| 1:L:491:LEU:O | 1:L:492:VAL:C | 2.57 | 0.43 |
| 1:A:217:ILE:HD12 | 1:A:223:TYR:HD2 | 1.83 | 0.43 |
| 1:B:220:ILE:H | 1:B:220:ILE:HG13 | 1.53 | 0.43 |
| 1:C:341:ARG:O | 1:C:343:ILE:HD12 | 2.18 | 0.43 |
| 1:L:217:ILE:CG2 | 1:L:466:TYR:CB | 2.94 | 0.43 |
| 1:A:117:ILE:O | 1:A:119:MET:HG3 | 2.18 | 0.43 |
| 1:D:375:HIS:ND1 | 4:D:802:CL:CL | 2.88 | 0.43 |
| 1:J:401:MET:HB2 | 1:J:452:PHE:CE1 | 2.54 | 0.43 |
| 1:L:217:ILE:HG21 | 1:L:466:TYR:CB | 2.48 | 0.43 |
| 1:L:272:VAL:HG22 | 1:L:551:VAL:HG22 | 2.00 | 0.43 |
| 1:A:173:ASN:HB2 | 1:A:176:PHE:HB2 | 2.01 | 0.43 |
| 1:A:516:THR:HG23 | 1:A:536:VAL:HG12 | 1.99 | 0.43 |
| 1:B:210:SER:OG | 1:B:211:LYS:N | 2.51 | 0.43 |
| 1:H:516:THR:HG23 | 1:H:536:VAL:HG12 | 1.99 | 0.43 |
| 1:L:224:ILE:H | 1:L:224:ILE:HG13 | 1.44 | 0.43 |
| 1:F:401:MET:HB2 | 1:F:452:PHE:CE1 | 2.54 | 0.43 |
| 1:I:582:LEU:HB3 | 1:I:587:VAL:HG22 | 1.99 | 0.43 |
| 1:L:173:ASN:HB2 | 1:L:176:PHE:HB2 | 2.01 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:191:GLY:HA3 | 1:B:523:ASN:ND2 | 2.34 | 0.43 |
| 1:B:401:MET:HB2 | 1:B:452:PHE:CE1 | 2.54 | 0.43 |
| 1:E:109:THR:HG22 | 1:E:158:LEU:CD2 | 2.48 | 0.43 |
| 1:E:217:ILE:HG13 | 1:E:465:PHE:HB3 | 2.01 | 0.43 |
| 1:E:502:ASN:ND2 | 1:E:568:LEU:HA | 2.32 | 0.43 |
| 1:F:194:LYS:HD3 | 1:I:301:TRP:CZ3 | 2.53 | 0.43 |
| 1:F:542:ALA:HA | 1:F:543:PRO:C | 2.39 | 0.43 |
| 1:G:538:PHE:HE1 | 1:G:540:GLY:HA3 | 1.84 | 0.43 |
| 1:K:401:MET:HB2 | 1:K:452:PHE:CE1 | 2.54 | 0.43 |
| 1:K:451:TRP:CD1 | 1:K:451:TRP:N | 2.87 | 0.43 |
| 1:D:253:GLU:OE1 | 1:D:286:ARG:NH2 | 2.44 | 0.43 |
| 1:H:259:MET:CE | 1:H:572:LYS:HB2 | 2.48 | 0.43 |
| 1:H:401:MET:HB2 | 1:H:452:PHE:CE1 | 2.54 | 0.43 |
| 1:H:436:GLN:O | 1:H:439:SER:OG | 2.36 | 0.43 |
| 1:A:150:LYS:HA | 1:A:163:LEU:HD13 | 2.01 | 0.43 |
| 1:C:91:LYS:H | 1:C:91:LYS:HG2 | 1.62 | 0.43 |
| 1:C:491:LEU:O | 1:C:492:VAL:C | 2.57 | 0.43 |
| 1:D:451:TRP:CD1 | 1:D:451:TRP:N | 2.87 | 0.43 |
| 1:E:103:VAL:HG21 | 1:E:128:LEU:HD22 | 2.01 | 0.43 |
| 1:E:582:LEU:HB3 | 1:E:587:VAL:HG22 | 2.00 | 0.43 |
| 1:F:220:ILE:H | 1:F:220:ILE:HG13 | 1.54 | 0.43 |
| 1:F:491:LEU:O | 1:F:492:VAL:C | 2.57 | 0.43 |
| 1:G:401:MET:HB2 | 1:G:452:PHE:CE1 | 2.54 | 0.43 |
| 1:L:451:TRP:CD1 | 1:L:451:TRP:N | 2.87 | 0.43 |
| 1:A:341:ARG:HD3 | 1:A:341:ARG:HA | 1.72 | 0.42 |
| 1:C:89:ILE:HD11 | 1:C:133:ALA:HB3 | 2.00 | 0.42 |
| 1:C:516:THR:HG23 | 1:C:536:VAL:HG12 | 2.00 | 0.42 |
| 1:D:210:SER:OG | 1:D:211:LYS:N | 2.51 | 0.42 |
| 1:D:542:ALA:HA | 1:D:543:PRO:C | 2.39 | 0.42 |
| 1:G:516:THR:HG23 | 1:G:536:VAL:HG12 | 2.00 | 0.42 |
| 1:H:491:LEU:O | 1:H:492:VAL:C | 2.56 | 0.42 |
| 1:L:429:VAL:HG11 | 1:L:434:MET:HE2 | 2.01 | 0.42 |
| 1:A:114:SER:HA | 1:A:119:MET:HB3 | 2.01 | 0.42 |
| 1:A:401:MET:HB2 | 1:A:452:PHE:CE1 | 2.54 | 0.42 |
| 1:D:491:LEU:O | 1:D:492:VAL:C | 2.57 | 0.42 |
| 1:G:109:THR:HG22 | 1:G:158:LEU:CD2 | 2.49 | 0.42 |
| 1:G:240:VAL:HG12 | 1:G:242:LEU:CD1 | 2.49 | 0.42 |
| 1:G:451:TRP:CD1 | 1:G:451:TRP:N | 2.87 | 0.42 |
| 1:H:542:ALA:HA | 1:H:543:PRO:C | 2.39 | 0.42 |
| 1:I:373:MET:HB3 | 1:I:422:SER:HB2 | 2.02 | 0.42 |
| 1:I:491:LEU:O | 1:I:492:VAL:C | 2.57 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:81:GLU:OE1 | 1:B:83:TYR:CZ | 2.73 | 0.42 |
| 1:B:173:ASN:HB2 | 1:B:176:PHE:HB2 | 2.01 | 0.42 |
| 1:D:217:ILE:HA | 1:D:224:ILE:HG21 | 2.00 | 0.42 |
| 1:F:257:ASP:O | 1:F:260:VAL:CG2 | 2.67 | 0.42 |
| 1:F:451:TRP:CD1 | 1:F:451:TRP:N | 2.87 | 0.42 |
| 1:I:173:ASN:HB2 | 1:I:176:PHE:HB2 | 2.01 | 0.42 |
| 1:I:542:ALA:HA | 1:I:543:PRO:C | 2.39 | 0.42 |
| 1:K:210:SER:OG | 1:K:211:LYS:N | 2.51 | 0.42 |
| 1:A:98:LYS:H | 1:A:98:LYS:HG3 | 1.67 | 0.42 |
| 1:C:451:TRP:CD1 | 1:C:451:TRP:N | 2.87 | 0.42 |
| 1:D:112:LYS:O | 1:D:115:THR:HG22 | 2.19 | 0.42 |
| 1:F:116:VAL:HG21 | 1:F:153:ILE:HG12 | 2.01 | 0.42 |
| 1:F:122:GLU:H | 1:F:122:GLU:HG3 | 1.68 | 0.42 |
| 1:H:173:ASN:HB2 | 1:H:176:PHE:HB2 | 2.01 | 0.42 |
| 1:K:491:LEU:O | 1:K:492:VAL:C | 2.57 | 0.42 |
| 1:A:491:LEU:O | 1:A:492:VAL:C | 2.57 | 0.42 |
| 1:B:85:LEU:HD22 | 1:B:117:ILE:HD11 | 2.00 | 0.42 |
| 1:B:451:TRP:CD1 | 1:B:451:TRP:N | 2.87 | 0.42 |
| 1:D:401:MET:HB2 | 1:D:452:PHE:CE1 | 2.54 | 0.42 |
| 1:F:257:ASP:O | 1:F:260:VAL:HG23 | 2.19 | 0.42 |
| 1:G:542:ALA:HA | 1:G:543:PRO:C | 2.39 | 0.42 |
| 1:J:449:LYS:O | 1:J:451:TRP:HD1 | 2.03 | 0.42 |
| 1:L:429:VAL:HG11 | 1:L:434:MET:CE | 2.49 | 0.42 |
| 1:C:363:LEU:O | 1:C:364:GLY:C | 2.58 | 0.42 |
| 1:H:449:LYS:O | 1:H:451:TRP:HD1 | 2.03 | 0.42 |
| 1:B:542:ALA:HA | 1:B:543:PRO:C | 2.39 | 0.42 |
| 1:D:341:ARG:O | 1:D:343:ILE:HD12 | 2.19 | 0.42 |
| 1:J:173:ASN:HB2 | 1:J:176:PHE:HB2 | 2.01 | 0.42 |
| 1:J:192:GLU:HG3 | 1:L:301:TRP:CZ2 | 2.54 | 0.42 |
| 1:A:542:ALA:HA | 1:A:543:PRO:C | 2.39 | 0.42 |
| 1:B:127:ARG:HB3 | 1:B:136:ILE:HD12 | 2.02 | 0.42 |
| 1:E:451:TRP:CD1 | 1:E:451:TRP:N | 2.87 | 0.42 |
| 1:H:150:LYS:HE2 | 1:H:150:LYS:HB3 | 1.75 | 0.42 |
| 1:I:253:GLU:OE1 | 1:I:286:ARG:NH2 | 2.44 | 0.42 |
| 1:B:217:ILE:HG13 | 1:B:465:PHE:HB3 | 2.02 | 0.42 |
| 1:C:173:ASN:HB2 | 1:C:176:PHE:HB2 | 2.01 | 0.42 |
| 1:C:242:LEU:CD1 | 1:C:242:LEU:N | 2.83 | 0.42 |
| 1:C:542:ALA:HA | 1:C:543:PRO:C | 2.40 | 0.42 |
| 1:E:401:MET:HB2 | 1:E:452:PHE:CE1 | 2.54 | 0.42 |
| 1:J:451:TRP:CD1 | 1:J:451:TRP:N | 2.87 | 0.42 |
| 1:L:414:ASN:O | 1:L:418:GLN:HG3 | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:363:LEU:O | 1:B:364:GLY:C | 2.58 | 0.42 |
| 1:D:220:ILE:H | 1:D:220:ILE:HG13 | 1.59 | 0.42 |
| 1:E:542:ALA:HA | 1:E:543:PRO:C | 2.39 | 0.42 |
| 1:I:401:MET:HB2 | 1:I:452:PHE:CE1 | 2.55 | 0.42 |
| 1:E:215:ARG:HG2 | 1:E:226:PRO:HA | 2.02 | 0.41 |
| 1:G:449:LYS:O | 1:G:451:TRP:HD1 | 2.03 | 0.41 |
| 1:H:414:ASN:O | 1:H:418:GLN:HG3 | 2.20 | 0.41 |
| 1:A:458:ASN:OD1 | 1:A:459:PRO:HD2 | 2.20 | 0.41 |
| 1:D:449:LYS:O | 1:D:451:TRP:HD1 | 2.03 | 0.41 |
| 1:E:173:ASN:HB2 | 1:E:176:PHE:HB2 | 2.02 | 0.41 |
| 1:E:363:LEU:O | 1:E:364:GLY:C | 2.58 | 0.41 |
| 1:E:414:ASN:O | 1:E:418:GLN:HG3 | 2.21 | 0.41 |
| 1:G:551:VAL:HG13 | 1:G:574:PHE:HD2 | 1.84 | 0.41 |
| 1:I:314:SER:OG | 2:V:1:GLY:N | 2.53 | 0.41 |
| 1:I:414:ASN:O | 1:I:418:GLN:HG3 | 2.21 | 0.41 |
| 1:I:458:ASN:OD1 | 1:I:459:PRO:HD2 | 2.20 | 0.41 |
| 1:L:449:LYS:O | 1:L:451:TRP:HD1 | 2.03 | 0.41 |
| 1:A:137:GLU:OE2 | 1:A:137:GLU:C | 2.59 | 0.41 |
| 1:A:398:THR:OG1 | 1:A:436:GLN:NE2 | 2.54 | 0.41 |
| 1:A:451:TRP:CD1 | 1:A:451:TRP:N | 2.87 | 0.41 |
| 1:B:398:THR:HG22 | 1:B:405:GLU:CD | 2.41 | 0.41 |
| 1:C:458:ASN:OD1 | 1:C:459:PRO:HD2 | 2.20 | 0.41 |
| 1:D:398:THR:HG22 | 1:D:405:GLU:CD | 2.41 | 0.41 |
| 1:G:242:LEU:CD1 | 1:G:242:LEU:N | 2.83 | 0.41 |
| 1:G:458:ASN:OD1 | 1:G:459:PRO:HD2 | 2.20 | 0.41 |
| 1:J:117:ILE:HD13 | 1:J:141:LYS:O | 2.20 | 0.41 |
| 1:L:540:GLY:HA3 | 1:L:574:PHE:CE2 | 2.55 | 0.41 |
| 1:B:458:ASN:OD1 | 1:B:459:PRO:HD2 | 2.20 | 0.41 |
| 1:C:343:ILE:HD13 | 1:C:374:MET:CE | 2.50 | 0.41 |
| 1:C:449:LYS:O | 1:C:451:TRP:HD1 | 2.03 | 0.41 |
| 1:D:363:LEU:O | 1:D:364:GLY:C | 2.58 | 0.41 |
| 1:D:414:ASN:O | 1:D:418:GLN:HG3 | 2.20 | 0.41 |
| 1:E:398:THR:HG22 | 1:E:405:GLU:CD | 2.41 | 0.41 |
| 1:H:451:TRP:CD1 | 1:H:451:TRP:N | 2.87 | 0.41 |
| 1:H:458:ASN:OD1 | 1:H:459:PRO:HD2 | 2.20 | 0.41 |
| 1:A:566:TYR:CE1 | 2:P:4:GLY:HA3 | 2.56 | 0.41 |
| 1:C:161:ILE:C | 1:C:161:ILE:CD1 | 2.89 | 0.41 |
| 1:C:289:PHE:HB2 | 1:C:295:LYS:O | 2.21 | 0.41 |
| 1:D:289:PHE:HB2 | 1:D:295:LYS:O | 2.21 | 0.41 |
| 1:F:91:LYS:HA | 1:F:102:HIS:ND1 | 2.35 | 0.41 |
| 1:F:94:SER:OG | 1:F:101:ARG:N | 2.43 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:173:ASN:HB2 | 1:G:176:PHE:HB2 | 2.01 | 0.41 |
| 1:G:507:GLY:HA3 | 1:G:589:LYS:HE2 | 2.03 | 0.41 |
| 1:I:289:PHE:HB2 | 1:I:295:LYS:O | 2.21 | 0.41 |
| 1:I:449:LYS:O | 1:I:451:TRP:HD1 | 2.03 | 0.41 |
| 1:I:451:TRP:N | 1:I:451:TRP:CD1 | 2.87 | 0.41 |
| 1:I:521:ALA:HB3 | 1:I:524:GLY:O | 2.20 | 0.41 |
| 1:L:521:ALA:HB3 | 1:L:524:GLY:O | 2.21 | 0.41 |
| 1:A:138:PHE:HB2 | 1:A:142:GLY:HA3 | 2.02 | 0.41 |
| 1:A:398:THR:HG22 | 1:A:405:GLU:CD | 2.41 | 0.41 |
| 1:A:414:ASN:O | 1:A:418:GLN:HG3 | 2.21 | 0.41 |
| 1:B:150:LYS:HA | 1:B:163:LEU:HD13 | 2.01 | 0.41 |
| 1:B:339:GLY:HA2 | 1:B:355:GLY:HA3 | 2.03 | 0.41 |
| 1:B:414:ASN:O | 1:B:418:GLN:HG3 | 2.20 | 0.41 |
| 1:D:488:GLN:O | 1:D:492:VAL:HG23 | 2.21 | 0.41 |
| 1:F:414:ASN:O | 1:F:418:GLN:HG3 | 2.20 | 0.41 |
| 1:H:154:GLU:HB2 | 1:H:155:LYS:NZ | 2.35 | 0.41 |
| 1:I:488:GLN:O | 1:I:492:VAL:HG23 | 2.21 | 0.41 |
| 1:J:339:GLY:HA2 | 1:J:355:GLY:HA3 | 2.01 | 0.41 |
| 1:A:449:LYS:O | 1:A:451:TRP:HD1 | 2.03 | 0.41 |
| 1:C:108:GLU:C | 1:C:108:GLU:OE1 | 2.58 | 0.41 |
| 1:C:488:GLN:O | 1:C:492:VAL:HG23 | 2.21 | 0.41 |
| 1:D:207:LEU:HD21 | 1:D:240:VAL:HG12 | 2.03 | 0.41 |
| 1:D:502:ASN:OD1 | 1:D:502:ASN:N | 2.39 | 0.41 |
| 1:F:458:ASN:OD1 | 1:F:459:PRO:HD2 | 2.21 | 0.41 |
| 1:G:253:GLU:OE1 | 1:G:286:ARG:NH2 | 2.44 | 0.41 |
| 1:A:289:PHE:HB2 | 1:A:295:LYS:O | 2.21 | 0.41 |
| 1:B:289:PHE:HB2 | 1:B:295:LYS:O | 2.21 | 0.41 |
| 1:B:488:GLN:O | 1:B:492:VAL:HG23 | 2.21 | 0.41 |
| 1:E:150:LYS:HA | 1:E:163:LEU:HD13 | 2.03 | 0.41 |
| 1:F:289:PHE:HB2 | 1:F:295:LYS:O | 2.21 | 0.41 |
| 1:F:398:THR:OG1 | 1:F:436:GLN:NE2 | 2.54 | 0.41 |
| 1:G:581:THR:O | 1:G:585:LEU:CD2 | 2.42 | 0.41 |
| 1:J:414:ASN:O | 1:J:418:GLN:HG3 | 2.20 | 0.41 |
| 1:K:289:PHE:HB2 | 1:K:295:LYS:O | 2.21 | 0.41 |
| 1:K:414:ASN:O | 1:K:418:GLN:HG3 | 2.20 | 0.41 |
| 1:A:114:SER:C | 1:A:119:MET:HB3 | 2.41 | 0.41 |
| 1:A:521:ALA:HB3 | 1:A:524:GLY:O | 2.21 | 0.41 |
| 1:E:94:SER:OG | 1:E:101:ARG:N | 2.43 | 0.41 |
| 1:F:398:THR:HG22 | 1:F:405:GLU:CD | 2.41 | 0.41 |
| 1:F:449:LYS:O | 1:F:451:TRP:HD1 | 2.03 | 0.41 |
| 1:H:326:GLN:CD | 1:H:478:THR:HG23 | 2.42 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:173:ASN:HB2 | 1:K:176:PHE:HB2 | 2.02 | 0.41 |
| 1:A:363:LEU:O | 1:A:364:GLY:C | 2.58 | 0.40 |
| 1:A:531:PRO:HD3 | 1:B:134:PHE:CD2 | 2.56 | 0.40 |
| 1:D:458:ASN:OD1 | 1:D:459:PRO:HD2 | 2.20 | 0.40 |
| 1:H:488:GLN:O | 1:H:492:VAL:HG23 | 2.21 | 0.40 |
| 1:J:166:GLU:HG2 | 1:L:523:ASN:HD22 | 1.85 | 0.40 |
| 1:B:449:LYS:O | 1:B:451:TRP:HD1 | 2.03 | 0.40 |
| 1:C:497:LYS:HE2 | 1:C:497:LYS:HB3 | 1.72 | 0.40 |
| 1:J:289:PHE:HB2 | 1:J:295:LYS:O | 2.21 | 0.40 |
| 1:K:449:LYS:O | 1:K:451:TRP:HD1 | 2.03 | 0.40 |
| 1:K:488:GLN:O | 1:K:492:VAL:HG23 | 2.21 | 0.40 |
| 1:L:436:GLN:O | 1:L:439:SER:OG | 2.36 | 0.40 |
| 1:L:458:ASN:OD1 | 1:L:459:PRO:HD2 | 2.21 | 0.40 |
| 1:C:414:ASN:O | 1:C:418:GLN:HG3 | 2.21 | 0.40 |
| 1:C:529:LYS:HE2 | 1:C:529:LYS:HB2 | 1.91 | 0.40 |
| 1:D:81:GLU:OE1 | 1:D:83:TYR:CZ | 2.75 | 0.40 |
| 1:E:488:GLN:O | 1:E:492:VAL:HG23 | 2.21 | 0.40 |
| 1:G:326:GLN:CD | 1:G:478:THR:HG23 | 2.42 | 0.40 |
| 1:H:363:LEU:O | 1:H:364:GLY:C | 2.58 | 0.40 |
| 1:L:220:ILE:HG12 | 1:L:224:ILE:HG12 | 2.03 | 0.40 |
| 1:C:240:VAL:HG12 | 1:C:242:LEU:CD1 | 2.52 | 0.40 |
| 1:G:91:LYS:HA | 1:G:102:HIS:ND1 | 2.36 | 0.40 |
| 1:G:206:TYR:OH | 1:G:223:TYR:O | 2.40 | 0.40 |
| 1:I:148:GLN:H | 1:I:148:GLN:HG3 | 1.73 | 0.40 |
| 1:I:326:GLN:CD | 1:I:478:THR:HG23 | 2.42 | 0.40 |
| 1:K:458:ASN:OD1 | 1:K:459:PRO:HD2 | 2.22 | 0.40 |
| 1:B:326:GLN:CD | 1:B:478:THR:HG23 | 2.42 | 0.40 |
| 1:D:173:ASN:HB2 | 1:D:176:PHE:HB2 | 2.02 | 0.40 |
| 1:E:220:ILE:H | 1:E:220:ILE:HG13 | 1.55 | 0.40 |
| 1:F:326:GLN:CD | 1:F:478:THR:HG23 | 2.42 | 0.40 |
| 1:F:488:GLN:O | 1:F:492:VAL:HG23 | 2.21 | 0.40 |
| 1:G:414:ASN:O | 1:G:418:GLN:HG3 | 2.21 | 0.40 |
| 1:J:326:GLN:CD | 1:J:478:THR:HG23 | 2.42 | 0.40 |
| 1:L:71:ARG:HG3 | 1:L:72:ASN:N | 2.37 | 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 | 518/650 (80%) | 468 (90%) | 43 (8%) | 7 (1%) | 11 | 40 |
| 1 | B | 521/650 (80%) | 473 (91%) | 40 (8%) | 8 (2%) | 10 | 39 |
| 1 | C | 518/650 (80%) | 467 (90%) | 46 (9%) | 5 (1%) | 15 | 49 |
| 1 | D | 488/650 (75%) | 438 (90%) | 40 (8%) | 10 (2%) | 7 | 33 |
| 1 | E | 520/650 (80%) | 473 (91%) | 39 (8%) | 8 (2%) | 10 | 39 |
| 1 | F | 519/650 (80%) | 479 (92%) | 36 (7%) | 4 (1%) | 19 | 53 |
| 1 | G | 516/650 (79%) | 472 (92%) | 40 (8%) | 4 (1%) | 19 | 53 |
| 1 | H | 457/650 (70%) | 416 (91%) | 38 (8%) | 3 (1%) | 22 | 56 |
| 1 | I | 515/650 (79%) | 472 (92%) | 40 (8%) | 3 (1%) | 25 | 59 |
| 1 | J | 514/650 (79%) | 465 (90%) | 43 (8%) | 6 (1%) | 13 | 44 |
| 1 | K | 452/650 (70%) | 409 (90%) | 39 (9%) | 4 (1%) | 17 | 51 |
| 1 | L | 452/650 (70%) | 414 (92%) | 37 (8%) | 1 (0%) | 47 | 78 |
| 2 | P | 3/5 (60%) | 2 (67%) | 1 (33%) | 0 | 100 | 100 |
| 2 | Q | 3/5 (60%) | 2 (67%) | 1 (33%) | 0 | 100 | 100 |
| 2 | R | 3/5 (60%) | 1 (33%) | 2 (67%) | 0 | 100 | 100 |
| 2 | S | 3/5 (60%) | 2 (67%) | 1 (33%) | 0 | 100 | 100 |
| 2 | T | 3/5 (60%) | 2 (67%) | 0 | 1 (33%) | 0 | 0 |
| 2 | U | 3/5 (60%) | 2 (67%) | 0 | 1 (33%) | 0 | 0 |
| 2 | V | 3/5 (60%) | 3 (100%) | 0 | 0 | 100 | 100 |
| 2 | W | 2/5 (40%) | 2 (100%) | 0 | 0 | 100 | 100 |
| 2 | X | 2/5 (40%) | 2 (100%) | 0 | 0 | 100 | 100 |
| 2 | Y | 2/5 (40%) | 1 (50%) | 1 (50%) | 0 | 100 | 100 |
| All | All | 6017/7850 (77%) | 5465 (91%) | 487 (8%) | 65 (1%) | 14 | 46 |

All (65) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 218 | HIS |
| 1 | B | 211 | LYS |
| 1 | B | 218 | HIS |
| 1 | D | 211 | LYS |
| 1 | E | 98 | LYS |
| 1 | E | 211 | LYS |
| 1 | E | 218 | HIS |
| 1 | I | 223 | TYR |
| 1 | J | 218 | HIS |
| 1 | K | 211 | LYS |
| 1 | A | 117 | ILE |
| 1 | B | 226 | PRO |
| 1 | C | 214 | LEU |
| 1 | C | 524 | GLY |
| 1 | D | 116 | VAL |
| 1 | D | 228 | THR |
| 1 | E | 226 | PRO |
| 1 | F | 98 | LYS |
| 1 | F | 228 | THR |
| 1 | F | 368 | SER |
| 1 | G | 132 | LYS |
| 1 | G | 211 | LYS |
| 1 | H | 368 | SER |
| 1 | J | 524 | GLY |
| 1 | A | 368 | SER |
| 1 | B | 368 | SER |
| 1 | B | 523 | ASN |
| 1 | C | 368 | SER |
| 1 | D | 368 | SER |
| 1 | E | 368 | SER |
| 1 | G | 98 | LYS |
| 1 | H | 211 | LYS |
| 1 | I | 98 | LYS |
| 1 | J | 213 | SER |
| 1 | K | 218 | HIS |
| 1 | A | 98 | LYS |
| 1 | A | 131 | LYS |
| 1 | A | 213 | SER |
| 1 | B | 98 | LYS |
| 1 | B | 220 | ILE |
| 1 | C | 98 | LYS |
| 1 | D | 135 | GLN |
| 1 | D | 218 | HIS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | D | 226 | PRO |
| 1 | E | 97 | SER |
| 1 | F | 220 | ILE |
| 1 | H | 213 | SER |
| 1 | I | 211 | LYS |
| 1 | J | 98 | LYS |
| 1 | J | 224 | ILE |
| 1 | J | 525 | GLY |
| 1 | K | 231 | GLU |
| 2 | U | 3 | GLY |
| 1 | B | 224 | ILE |
| 1 | D | 136 | ILE |
| 1 | G | 368 | SER |
| 1 | L | 547 | PRO |
| 2 | T | 3 | GLY |
| 1 | C | 525 | GLY |
| 1 | K | 226 | PRO |
| 1 | D | 224 | ILE |
| 1 | E | 220 | ILE |
| 1 | E | 525 | GLY |
| 1 | A | 224 | ILE |
| 1 | D | 220 | 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 | 439/552 (80%) | 396 (90%) | 43 (10%) | 8 | 30 |
| 1 | B | 442/552 (80%) | 398 (90%) | 44 (10%) | 7 | 29 |
| 1 | C | 439/552 (80%) | 390 (89%) | 49 (11%) | 6 | 23 |
| 1 | D | 417/552 (76%) | 377 (90%) | 40 (10%) | 8 | 30 |
| 1 | E | 441/552 (80%) | 401 (91%) | 40 (9%) | 9 | 33 |
| 1 | F | 440/552 (80%) | 397 (90%) | 43 (10%) | 8 | 30 |
| 1 | G | 437/552 (79%) | 396 (91%) | 41 (9%) | 8 | 31 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|-----------|-------------|----|
| 1 | H | 387/552 (70%) | 355 (92%) | 32 (8%) | 11 | 37 |
| 1 | I | 436/552 (79%) | 397 (91%) | 39 (9%) | 9 | 34 |
| 1 | J | 435/552 (79%) | 392 (90%) | 43 (10%) | 8 | 29 |
| 1 | K | 384/552 (70%) | 346 (90%) | 38 (10%) | 8 | 29 |
| 1 | L | 386/552 (70%) | 344 (89%) | 42 (11%) | 6 | 25 |
| All | All | 5083/6624 (77%) | 4589 (90%) | 494 (10%) | 8 | 30 |

All (494) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 72 | ASN |
| 1 | A | 79 | ASP |
| 1 | A | 82 | ARG |
| 1 | A | 97 | SER |
| 1 | A | 98 | LYS |
| 1 | A | 114 | SER |
| 1 | A | 116 | VAL |
| 1 | A | 119 | MET |
| 1 | A | 120 | LYS |
| 1 | A | 122 | GLU |
| 1 | A | 125 | GLU |
| 1 | A | 131 | LYS |
| 1 | A | 137 | GLU |
| 1 | A | 140 | ARG |
| 1 | A | 164 | LEU |
| 1 | A | 166 | GLU |
| 1 | A | 167 | THR |
| 1 | A | 173 | ASN |
| 1 | A | 179 | HIS |
| 1 | A | 194 | LYS |
| 1 | A | 211 | LYS |
| 1 | A | 214 | LEU |
| 1 | A | 236 | ARG |
| 1 | A | 238 | ASP |
| 1 | A | 281 | LEU |
| 1 | A | 284 | SER |
| 1 | A | 288 | THR |
| 1 | A | 295 | LYS |
| 1 | A | 341 | ARG |
| 1 | A | 346 | SER |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | A | 368 | SER |
| 1 | A | 397 | SER |
| 1 | A | 469 | GLN |
| 1 | A | 487 | LYS |
| 1 | A | 490 | ASP |
| 1 | A | 496 | LYS |
| 1 | A | 502 | ASN |
| 1 | A | 510 | VAL |
| 1 | A | 516 | THR |
| 1 | A | 541 | ASP |
| 1 | A | 545 | LYS |
| 1 | A | 548 | LYS |
| 1 | A | 549 | VAL |
| 1 | B | 64 | MET |
| 1 | B | 88 | VAL |
| 1 | B | 92 | LYS |
| 1 | B | 97 | SER |
| 1 | B | 114 | SER |
| 1 | B | 117 | ILE |
| 1 | B | 119 | MET |
| 1 | B | 123 | GLU |
| 1 | B | 125 | GLU |
| 1 | B | 136 | ILE |
| 1 | B | 137 | GLU |
| 1 | B | 140 | ARG |
| 1 | B | 164 | LEU |
| 1 | B | 166 | GLU |
| 1 | B | 167 | THR |
| 1 | B | 173 | ASN |
| 1 | B | 179 | HIS |
| 1 | B | 194 | LYS |
| 1 | B | 211 | LYS |
| 1 | B | 216 | TYR |
| 1 | B | 218 | HIS |
| 1 | B | 220 | ILE |
| 1 | B | 224 | ILE |
| 1 | B | 230 | LYS |
| 1 | B | 231 | GLU |
| 1 | B | 235 | LYS |
| 1 | B | 238 | ASP |
| 1 | B | 288 | THR |
| 1 | B | 295 | LYS |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | B | 341 | ARG |
| 1 | B | 343 | ILE |
| 1 | B | 368 | SER |
| 1 | B | 463 | ARG |
| 1 | B | 469 | GLN |
| 1 | B | 470 | LYS |
| 1 | B | 490 | ASP |
| 1 | B | 496 | LYS |
| 1 | B | 502 | ASN |
| 1 | B | 510 | VAL |
| 1 | B | 516 | THR |
| 1 | B | 523 | ASN |
| 1 | B | 541 | ASP |
| 1 | B | 548 | LYS |
| 1 | B | 549 | VAL |
| 1 | C | 81 | GLU |
| 1 | C | 90 | ASP |
| 1 | C | 91 | LYS |
| 1 | C | 92 | LYS |
| 1 | C | 96 | ASN |
| 1 | C | 97 | SER |
| 1 | C | 101 | ARG |
| 1 | C | 108 | GLU |
| 1 | C | 111 | LYS |
| 1 | C | 113 | LEU |
| 1 | C | 116 | VAL |
| 1 | C | 117 | ILE |
| 1 | C | 122 | GLU |
| 1 | C | 131 | LYS |
| 1 | C | 136 | ILE |
| 1 | C | 137 | GLU |
| 1 | C | 140 | ARG |
| 1 | C | 148 | GLN |
| 1 | C | 161 | ILE |
| 1 | C | 164 | LEU |
| 1 | C | 166 | GLU |
| 1 | C | 167 | THR |
| 1 | C | 173 | ASN |
| 1 | C | 179 | HIS |
| 1 | C | 217 | ILE |
| 1 | C | 219 | ASP |
| 1 | C | 227 | ASN |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | C | 229 | LYS |
| 1 | C | 235 | LYS |
| 1 | C | 281 | LEU |
| 1 | C | 288 | THR |
| 1 | C | 341 | ARG |
| 1 | C | 353 | ARG |
| 1 | C | 368 | SER |
| 1 | C | 409 | GLN |
| 1 | C | 463 | ARG |
| 1 | C | 469 | GLN |
| 1 | C | 487 | LYS |
| 1 | C | 490 | ASP |
| 1 | C | 496 | LYS |
| 1 | C | 497 | LYS |
| 1 | C | 502 | ASN |
| 1 | C | 510 | VAL |
| 1 | C | 516 | THR |
| 1 | C | 529 | LYS |
| 1 | C | 541 | ASP |
| 1 | C | 545 | LYS |
| 1 | C | 548 | LYS |
| 1 | C | 589 | LYS |
| 1 | D | 81 | GLU |
| 1 | D | 112 | LYS |
| 1 | D | 113 | LEU |
| 1 | D | 118 | ASN |
| 1 | D | 119 | MET |
| 1 | D | 120 | LYS |
| 1 | D | 123 | GLU |
| 1 | D | 125 | GLU |
| 1 | D | 127 | ARG |
| 1 | D | 130 | GLN |
| 1 | D | 137 | GLU |
| 1 | D | 140 | ARG |
| 1 | D | 147 | TYR |
| 1 | D | 161 | ILE |
| 1 | D | 166 | GLU |
| 1 | D | 167 | THR |
| 1 | D | 173 | ASN |
| 1 | D | 179 | HIS |
| 1 | D | 194 | LYS |
| 1 | D | 216 | TYR |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | D | 219 | ASP |
| 1 | D | 220 | ILE |
| 1 | D | 224 | ILE |
| 1 | D | 229 | LYS |
| 1 | D | 235 | LYS |
| 1 | D | 236 | ARG |
| 1 | D | 240 | VAL |
| 1 | D | 288 | THR |
| 1 | D | 337 | LYS |
| 1 | D | 341 | ARG |
| 1 | D | 368 | SER |
| 1 | D | 469 | GLN |
| 1 | D | 490 | ASP |
| 1 | D | 496 | LYS |
| 1 | D | 502 | ASN |
| 1 | D | 510 | VAL |
| 1 | D | 516 | THR |
| 1 | D | 541 | ASP |
| 1 | D | 545 | LYS |
| 1 | D | 549 | VAL |
| 1 | E | 91 | LYS |
| 1 | E | 103 | VAL |
| 1 | E | 107 | LYS |
| 1 | E | 114 | SER |
| 1 | E | 118 | ASN |
| 1 | E | 119 | MET |
| 1 | E | 122 | GLU |
| 1 | E | 132 | LYS |
| 1 | E | 137 | GLU |
| 1 | E | 140 | ARG |
| 1 | E | 164 | LEU |
| 1 | E | 166 | GLU |
| 1 | E | 167 | THR |
| 1 | E | 173 | ASN |
| 1 | E | 179 | HIS |
| 1 | E | 189 | ASP |
| 1 | E | 194 | LYS |
| 1 | E | 214 | LEU |
| 1 | E | 216 | TYR |
| 1 | E | 218 | HIS |
| 1 | E | 219 | ASP |
| 1 | E | 220 | ILE |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | E | 224 | ILE |
| 1 | E | 229 | LYS |
| 1 | E | 238 | ASP |
| 1 | E | 261 | GLU |
| 1 | E | 343 | ILE |
| 1 | E | 344 | MET |
| 1 | E | 346 | SER |
| 1 | E | 368 | SER |
| 1 | E | 469 | GLN |
| 1 | E | 487 | LYS |
| 1 | E | 490 | ASP |
| 1 | E | 496 | LYS |
| 1 | E | 502 | ASN |
| 1 | E | 510 | VAL |
| 1 | E | 541 | ASP |
| 1 | E | 545 | LYS |
| 1 | E | 548 | LYS |
| 1 | E | 549 | VAL |
| 1 | F | 97 | SER |
| 1 | F | 98 | LYS |
| 1 | F | 99 | LYS |
| 1 | F | 105 | ASP |
| 1 | F | 106 | LYS |
| 1 | F | 107 | LYS |
| 1 | F | 116 | VAL |
| 1 | F | 117 | ILE |
| 1 | F | 119 | MET |
| 1 | F | 120 | LYS |
| 1 | F | 122 | GLU |
| 1 | F | 123 | GLU |
| 1 | F | 131 | LYS |
| 1 | F | 132 | LYS |
| 1 | F | 137 | GLU |
| 1 | F | 164 | LEU |
| 1 | F | 166 | GLU |
| 1 | F | 167 | THR |
| 1 | F | 173 | ASN |
| 1 | F | 179 | HIS |
| 1 | F | 214 | LEU |
| 1 | F | 216 | TYR |
| 1 | F | 219 | ASP |
| 1 | F | 220 | ILE |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | F | 229 | LYS |
| 1 | F | 235 | LYS |
| 1 | F | 238 | ASP |
| 1 | F | 261 | GLU |
| 1 | F | 288 | THR |
| 1 | F | 343 | ILE |
| 1 | F | 368 | SER |
| 1 | F | 373 | MET |
| 1 | F | 469 | GLN |
| 1 | F | 487 | LYS |
| 1 | F | 490 | ASP |
| 1 | F | 496 | LYS |
| 1 | F | 502 | ASN |
| 1 | F | 510 | VAL |
| 1 | F | 516 | THR |
| 1 | F | 541 | ASP |
| 1 | F | 545 | LYS |
| 1 | F | 549 | VAL |
| 1 | F | 591 | LYS |
| 1 | G | 72 | ASN |
| 1 | G | 81 | GLU |
| 1 | G | 84 | LYS |
| 1 | G | 97 | SER |
| 1 | G | 98 | LYS |
| 1 | G | 108 | GLU |
| 1 | G | 114 | SER |
| 1 | G | 119 | MET |
| 1 | G | 123 | GLU |
| 1 | G | 125 | GLU |
| 1 | G | 137 | GLU |
| 1 | G | 164 | LEU |
| 1 | G | 166 | GLU |
| 1 | G | 167 | THR |
| 1 | G | 173 | ASN |
| 1 | G | 179 | HIS |
| 1 | G | 194 | LYS |
| 1 | G | 215 | ARG |
| 1 | G | 217 | ILE |
| 1 | G | 219 | ASP |
| 1 | G | 224 | ILE |
| 1 | G | 227 | ASN |
| 1 | G | 235 | LYS |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | G | 238 | ASP |
| 1 | G | 261 | GLU |
| 1 | G | 284 | SER |
| 1 | G | 288 | THR |
| 1 | G | 341 | ARG |
| 1 | G | 344 | MET |
| 1 | G | 368 | SER |
| 1 | G | 469 | GLN |
| 1 | G | 487 | LYS |
| 1 | G | 490 | ASP |
| 1 | G | 496 | LYS |
| 1 | G | 502 | ASN |
| 1 | G | 510 | VAL |
| 1 | G | 516 | THR |
| 1 | G | 541 | ASP |
| 1 | G | 545 | LYS |
| 1 | G | 549 | VAL |
| 1 | G | 585 | LEU |
| 1 | H | 140 | ARG |
| 1 | H | 141 | LYS |
| 1 | H | 148 | GLN |
| 1 | H | 154 | GLU |
| 1 | H | 155 | LYS |
| 1 | H | 164 | LEU |
| 1 | H | 166 | GLU |
| 1 | H | 167 | THR |
| 1 | H | 173 | ASN |
| 1 | H | 179 | HIS |
| 1 | H | 211 | LYS |
| 1 | H | 214 | LEU |
| 1 | H | 215 | ARG |
| 1 | H | 217 | ILE |
| 1 | H | 218 | HIS |
| 1 | H | 227 | ASN |
| 1 | H | 235 | LYS |
| 1 | H | 238 | ASP |
| 1 | H | 281 | LEU |
| 1 | H | 288 | THR |
| 1 | H | 341 | ARG |
| 1 | H | 353 | ARG |
| 1 | H | 368 | SER |
| 1 | H | 469 | GLN |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | H | 490 | ASP |
| 1 | H | 496 | LYS |
| 1 | H | 502 | ASN |
| 1 | H | 510 | VAL |
| 1 | H | 516 | THR |
| 1 | H | 541 | ASP |
| 1 | H | 545 | LYS |
| 1 | H | 549 | VAL |
| 1 | I | 72 | ASN |
| 1 | I | 96 | ASN |
| 1 | I | 97 | SER |
| 1 | I | 98 | LYS |
| 1 | I | 114 | SER |
| 1 | I | 118 | ASN |
| 1 | I | 119 | MET |
| 1 | I | 137 | GLU |
| 1 | I | 140 | ARG |
| 1 | I | 148 | GLN |
| 1 | I | 164 | LEU |
| 1 | I | 166 | GLU |
| 1 | I | 167 | THR |
| 1 | I | 173 | ASN |
| 1 | I | 179 | HIS |
| 1 | I | 194 | LYS |
| 1 | I | 217 | ILE |
| 1 | I | 219 | ASP |
| 1 | I | 223 | TYR |
| 1 | I | 224 | ILE |
| 1 | I | 235 | LYS |
| 1 | I | 236 | ARG |
| 1 | I | 238 | ASP |
| 1 | I | 261 | GLU |
| 1 | I | 262 | ARG |
| 1 | I | 288 | THR |
| 1 | I | 295 | LYS |
| 1 | I | 321 | LEU |
| 1 | I | 337 | LYS |
| 1 | I | 341 | ARG |
| 1 | I | 469 | GLN |
| 1 | I | 490 | ASP |
| 1 | I | 496 | LYS |
| 1 | I | 502 | ASN |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | I | 510 | VAL |
| 1 | I | 529 | LYS |
| 1 | I | 541 | ASP |
| 1 | I | 545 | LYS |
| 1 | I | 549 | VAL |
| 1 | J | 65 | ARG |
| 1 | J | 91 | LYS |
| 1 | J | 96 | ASN |
| 1 | J | 98 | LYS |
| 1 | J | 99 | LYS |
| 1 | J | 114 | SER |
| 1 | J | 118 | ASN |
| 1 | J | 119 | MET |
| 1 | J | 122 | GLU |
| 1 | J | 123 | GLU |
| 1 | J | 140 | ARG |
| 1 | J | 141 | LYS |
| 1 | J | 150 | LYS |
| 1 | J | 164 | LEU |
| 1 | J | 167 | THR |
| 1 | J | 173 | ASN |
| 1 | J | 179 | HIS |
| 1 | J | 186 | LYS |
| 1 | J | 211 | LYS |
| 1 | J | 214 | LEU |
| 1 | J | 218 | HIS |
| 1 | J | 238 | ASP |
| 1 | J | 256 | LEU |
| 1 | J | 288 | THR |
| 1 | J | 337 | LYS |
| 1 | J | 341 | ARG |
| 1 | J | 343 | ILE |
| 1 | J | 379 | LEU |
| 1 | J | 469 | GLN |
| 1 | J | 487 | LYS |
| 1 | J | 490 | ASP |
| 1 | J | 496 | LYS |
| 1 | J | 497 | LYS |
| 1 | J | 502 | ASN |
| 1 | J | 509 | GLU |
| 1 | J | 510 | VAL |
| 1 | J | 518 | GLN |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | J | 529 | LYS |
| 1 | J | 541 | ASP |
| 1 | J | 545 | LYS |
| 1 | J | 548 | LYS |
| 1 | J | 549 | VAL |
| 1 | J | 590 | SER |
| 1 | K | 86 | VAL |
| 1 | K | 137 | GLU |
| 1 | K | 140 | ARG |
| 1 | K | 166 | GLU |
| 1 | K | 167 | THR |
| 1 | K | 173 | ASN |
| 1 | K | 179 | HIS |
| 1 | K | 200 | GLU |
| 1 | K | 216 | TYR |
| 1 | K | 219 | ASP |
| 1 | K | 220 | ILE |
| 1 | K | 224 | ILE |
| 1 | K | 229 | LYS |
| 1 | K | 230 | LYS |
| 1 | K | 231 | GLU |
| 1 | K | 236 | ARG |
| 1 | K | 261 | GLU |
| 1 | K | 288 | THR |
| 1 | K | 334 | LYS |
| 1 | K | 335 | LYS |
| 1 | K | 341 | ARG |
| 1 | K | 344 | MET |
| 1 | K | 346 | SER |
| 1 | K | 358 | GLU |
| 1 | K | 363 | LEU |
| 1 | K | 368 | SER |
| 1 | K | 373 | MET |
| 1 | K | 409 | GLN |
| 1 | K | 469 | GLN |
| 1 | K | 487 | LYS |
| 1 | K | 490 | ASP |
| 1 | K | 502 | ASN |
| 1 | K | 510 | VAL |
| 1 | K | 516 | THR |
| 1 | K | 523 | ASN |
| 1 | K | 541 | ASP |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | K | 545 | LYS |
| 1 | K | 548 | LYS |
| 1 | L | 84 | LYS |
| 1 | L | 138 | PHE |
| 1 | L | 140 | ARG |
| 1 | L | 143 | THR |
| 1 | L | 147 | TYR |
| 1 | L | 154 | GLU |
| 1 | L | 163 | LEU |
| 1 | L | 164 | LEU |
| 1 | L | 166 | GLU |
| 1 | L | 173 | ASN |
| 1 | L | 179 | HIS |
| 1 | L | 211 | LYS |
| 1 | L | 215 | ARG |
| 1 | L | 216 | TYR |
| 1 | L | 217 | ILE |
| 1 | L | 218 | HIS |
| 1 | L | 220 | ILE |
| 1 | L | 224 | ILE |
| 1 | L | 235 | LYS |
| 1 | L | 238 | ASP |
| 1 | L | 288 | THR |
| 1 | L | 299 | LYS |
| 1 | L | 343 | ILE |
| 1 | L | 344 | MET |
| 1 | L | 347 | ARG |
| 1 | L | 353 | ARG |
| 1 | L | 373 | MET |
| 1 | L | 376 | LEU |
| 1 | L | 396 | LYS |
| 1 | L | 469 | GLN |
| 1 | L | 487 | LYS |
| 1 | L | 490 | ASP |
| 1 | L | 502 | ASN |
| 1 | L | 510 | VAL |
| 1 | L | 516 | THR |
| 1 | L | 539 | MET |
| 1 | L | 541 | ASP |
| 1 | L | 544 | LYS |
| 1 | L | 545 | LYS |
| 1 | L | 546 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | L | 548 | LYS |
| 1 | L | 549 | VAL |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (46) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 102 | HIS |
| 1 | A | 118 | ASN |
| 1 | A | 436 | GLN |
| 1 | A | 499 | HIS |
| 1 | A | 523 | ASN |
| 1 | A | 559 | GLN |
| 1 | B | 102 | HIS |
| 1 | B | 499 | HIS |
| 1 | B | 559 | GLN |
| 1 | C | 102 | HIS |
| 1 | C | 227 | ASN |
| 1 | C | 377 | GLN |
| 1 | C | 409 | GLN |
| 1 | C | 499 | HIS |
| 1 | C | 559 | GLN |
| 1 | D | 227 | ASN |
| 1 | D | 377 | GLN |
| 1 | D | 559 | GLN |
| 1 | E | 102 | HIS |
| 1 | E | 499 | HIS |
| 1 | E | 546 | ASN |
| 1 | E | 559 | GLN |
| 1 | F | 173 | ASN |
| 1 | F | 436 | GLN |
| 1 | F | 446 | ASN |
| 1 | F | 499 | HIS |
| 1 | F | 523 | ASN |
| 1 | F | 559 | GLN |
| 1 | G | 559 | GLN |
| 1 | G | 561 | ASN |
| 1 | H | 218 | HIS |
| 1 | H | 377 | GLN |
| 1 | H | 499 | HIS |
| 1 | H | 523 | ASN |
| 1 | J | 102 | HIS |
| 1 | J | 464 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | J | 523 | ASN |
| 1 | J | 559 | GLN |
| 1 | J | 561 | ASN |
| 1 | K | 377 | GLN |
| 1 | K | 559 | GLN |
| 1 | K | 561 | ASN |
| 1 | K | 580 | ASN |
| 1 | L | 377 | GLN |
| 1 | L | 499 | HIS |
| 1 | L | 580 | ASN |

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 13 ligands modelled in this entry, 13 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data i

6.1 Protein, DNA and RNA chains i

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 | 522/650 (80%) | 0.09 | 15 (2%) 51 54 | 38, 80, 156, 226 | 0 |
| 1 | B | 525/650 (80%) | 0.02 | 13 (2%) 57 59 | 39, 84, 140, 184 | 1 (0%) |
| 1 | C | 522/650 (80%) | 0.26 | 38 (7%) 15 17 | 50, 93, 183, 243 | 0 |
| 1 | D | 496/650 (76%) | 0.34 | 46 (9%) 8 10 | 44, 89, 212, 320 | 0 |
| 1 | E | 524/650 (80%) | 0.11 | 16 (3%) 49 52 | 45, 97, 141, 192 | 1 (0%) |
| 1 | F | 523/650 (80%) | 0.22 | 31 (5%) 22 25 | 56, 101, 172, 236 | 1 (0%) |
| 1 | G | 520/650 (80%) | 0.03 | 15 (2%) 51 54 | 43, 87, 134, 195 | 0 |
| 1 | H | 465/650 (71%) | 0.05 | 22 (4%) 31 34 | 46, 85, 148, 206 | 0 |
| 1 | I | 519/650 (79%) | 0.03 | 10 (1%) 66 70 | 48, 96, 137, 173 | 0 |
| 1 | J | 518/650 (79%) | 0.32 | 46 (8%) 9 11 | 46, 102, 197, 236 | 0 |
| 1 | K | 462/650 (71%) | 0.41 | 42 (9%) 9 11 | 65, 119, 175, 229 | 0 |
| 1 | L | 462/650 (71%) | 0.56 | 56 (12%) 4 4 | 69, 131, 181, 236 | 0 |
| 2 | P | 5/5 (100%) | 0.11 | 0 100 100 | 103, 103, 120, 131 | 0 |
| 2 | Q | 5/5 (100%) | 0.38 | 0 100 100 | 90, 107, 144, 158 | 0 |
| 2 | R | 5/5 (100%) | 0.57 | 1 (20%) 1 1 | 96, 100, 134, 135 | 0 |
| 2 | S | 5/5 (100%) | 0.34 | 1 (20%) 1 1 | 84, 86, 122, 128 | 0 |
| 2 | T | 5/5 (100%) | 0.47 | 0 100 100 | 96, 98, 129, 132 | 0 |
| 2 | U | 5/5 (100%) | 0.51 | 1 (20%) 1 1 | 103, 106, 129, 133 | 0 |
| 2 | V | 5/5 (100%) | 0.35 | 0 100 100 | 90, 106, 134, 135 | 0 |
| 2 | W | 4/5 (80%) | 0.62 | 1 (25%) 0 0 | 84, 87, 108, 122 | 0 |
| 2 | X | 4/5 (80%) | 0.50 | 0 100 100 | 97, 111, 115, 116 | 0 |
| 2 | Y | 4/5 (80%) | 0.09 | 0 100 100 | 80, 93, 97, 105 | 0 |
| All | All | 6105/7850 (77%) | 0.20 | 354 (5%) 23 25 | 38, 97, 169, 320 | 3 (0%) |

All (354) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | D | 147 | TYR | 7.1 |
| 1 | D | 124 | ILE | 7.0 |
| 1 | D | 161 | ILE | 6.7 |
| 1 | C | 89 | ILE | 6.3 |
| 1 | K | 85 | LEU | 5.9 |
| 1 | K | 160 | GLY | 5.9 |
| 1 | D | 123 | GLU | 5.8 |
| 1 | D | 160 | GLY | 5.6 |
| 1 | D | 138 | PHE | 5.6 |
| 1 | K | 161 | ILE | 5.6 |
| 1 | L | 153 | ILE | 5.6 |
| 1 | H | 86 | VAL | 5.5 |
| 1 | J | 150 | LYS | 5.4 |
| 1 | F | 109 | THR | 5.4 |
| 1 | L | 151 | LEU | 5.3 |
| 1 | J | 109 | THR | 5.1 |
| 1 | J | 153 | ILE | 5.0 |
| 1 | L | 152 | LYS | 5.0 |
| 1 | H | 85 | LEU | 4.9 |
| 1 | D | 136 | ILE | 4.9 |
| 1 | F | 104 | VAL | 4.8 |
| 1 | L | 150 | LYS | 4.8 |
| 1 | J | 103 | VAL | 4.8 |
| 1 | D | 127 | ARG | 4.7 |
| 1 | C | 116 | VAL | 4.7 |
| 1 | J | 128 | LEU | 4.7 |
| 1 | D | 122 | GLU | 4.7 |
| 1 | D | 150 | LYS | 4.7 |
| 1 | K | 136 | ILE | 4.7 |
| 1 | L | 149 | ASP | 4.6 |
| 1 | D | 137 | GLU | 4.6 |
| 1 | D | 153 | ILE | 4.5 |
| 1 | L | 508 | TYR | 4.5 |
| 1 | D | 113 | LEU | 4.5 |
| 1 | A | 592 | ASP | 4.4 |
| 1 | D | 117 | ILE | 4.4 |
| 1 | K | 331 | ASP | 4.4 |
| 1 | J | 163 | LEU | 4.4 |
| 1 | C | 149 | ASP | 4.3 |
| 1 | H | 157 | ASN | 4.3 |
| 1 | D | 118 | ASN | 4.3 |
| 1 | D | 85 | LEU | 4.2 |
| 1 | C | 161 | ILE | 4.2 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | L | 525 | GLY | 4.1 |
| 1 | J | 85 | LEU | 4.1 |
| 1 | J | 113 | LEU | 4.1 |
| 1 | K | 508 | TYR | 4.1 |
| 1 | L | 363 | LEU | 4.1 |
| 1 | F | 122 | GLU | 4.1 |
| 1 | K | 141 | LYS | 4.0 |
| 1 | C | 150 | LYS | 4.0 |
| 1 | D | 135 | GLN | 4.0 |
| 1 | D | 128 | LEU | 4.0 |
| 1 | C | 113 | LEU | 4.0 |
| 1 | J | 154 | GLU | 3.9 |
| 1 | L | 358 | GLU | 3.9 |
| 1 | D | 151 | LEU | 3.9 |
| 1 | L | 140 | ARG | 3.8 |
| 1 | L | 138 | PHE | 3.8 |
| 1 | F | 120 | LYS | 3.8 |
| 1 | D | 149 | ASP | 3.8 |
| 1 | C | 138 | PHE | 3.8 |
| 1 | J | 149 | ASP | 3.8 |
| 1 | A | 590 | SER | 3.8 |
| 1 | B | 120 | LYS | 3.7 |
| 1 | D | 112 | LYS | 3.7 |
| 1 | L | 84 | LYS | 3.7 |
| 1 | L | 141 | LYS | 3.7 |
| 1 | L | 154 | GLU | 3.6 |
| 1 | J | 138 | PHE | 3.6 |
| 1 | K | 138 | PHE | 3.6 |
| 1 | F | 142 | GLY | 3.6 |
| 1 | C | 117 | ILE | 3.6 |
| 1 | L | 356 | TRP | 3.6 |
| 1 | K | 147 | TYR | 3.6 |
| 1 | D | 141 | LYS | 3.5 |
| 1 | H | 152 | LYS | 3.5 |
| 1 | L | 158 | LEU | 3.5 |
| 1 | C | 154 | GLU | 3.5 |
| 1 | F | 113 | LEU | 3.5 |
| 1 | H | 151 | LEU | 3.5 |
| 1 | B | 590 | SER | 3.5 |
| 1 | K | 137 | GLU | 3.5 |
| 1 | D | 148 | GLN | 3.5 |
| 1 | D | 158 | LEU | 3.5 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | L | 367 | TYR | 3.5 |
| 1 | H | 141 | LYS | 3.5 |
| 1 | E | 379 | LEU | 3.5 |
| 1 | L | 506 | ASP | 3.5 |
| 1 | D | 119 | MET | 3.5 |
| 1 | J | 162 | SER | 3.5 |
| 1 | L | 330 | PHE | 3.4 |
| 1 | F | 588 | GLY | 3.4 |
| 1 | J | 64 | MET | 3.4 |
| 1 | L | 361 | MET | 3.4 |
| 1 | K | 363 | LEU | 3.4 |
| 1 | K | 143 | THR | 3.4 |
| 1 | L | 507 | GLY | 3.3 |
| 1 | K | 330 | PHE | 3.3 |
| 1 | K | 84 | LYS | 3.3 |
| 1 | C | 109 | THR | 3.3 |
| 1 | J | 117 | ILE | 3.3 |
| 1 | J | 104 | VAL | 3.3 |
| 1 | J | 590 | SER | 3.3 |
| 1 | J | 127 | ARG | 3.2 |
| 1 | A | 588 | GLY | 3.2 |
| 1 | J | 106 | LYS | 3.2 |
| 1 | F | 103 | VAL | 3.2 |
| 1 | A | 113 | LEU | 3.2 |
| 1 | D | 130 | GLN | 3.2 |
| 1 | J | 120 | LYS | 3.2 |
| 1 | E | 380 | VAL | 3.2 |
| 1 | C | 151 | LEU | 3.2 |
| 1 | J | 151 | LEU | 3.2 |
| 1 | F | 589 | LYS | 3.2 |
| 1 | F | 127 | ARG | 3.2 |
| 1 | L | 380 | VAL | 3.2 |
| 1 | C | 227 | ASN | 3.2 |
| 1 | A | 122 | GLU | 3.2 |
| 1 | D | 129 | SER | 3.1 |
| 1 | H | 140 | ARG | 3.1 |
| 1 | I | 147 | TYR | 3.1 |
| 1 | C | 120 | LYS | 3.1 |
| 1 | K | 506 | ASP | 3.1 |
| 1 | L | 334 | LYS | 3.0 |
| 1 | H | 147 | TYR | 3.0 |
| 1 | E | 225 | ALA | 3.0 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | D | 588 | GLY | 3.0 |
| 1 | J | 95 | ALA | 3.0 |
| 1 | A | 109 | THR | 3.0 |
| 1 | B | 222 | GLY | 3.0 |
| 1 | J | 161 | ILE | 3.0 |
| 1 | D | 142 | GLY | 3.0 |
| 1 | C | 153 | ILE | 3.0 |
| 1 | J | 118 | ASN | 3.0 |
| 1 | K | 361 | MET | 3.0 |
| 1 | B | 123 | GLU | 3.0 |
| 1 | L | 213 | SER | 3.0 |
| 1 | F | 138 | PHE | 3.0 |
| 1 | A | 219 | ASP | 2.9 |
| 1 | J | 79 | ASP | 2.9 |
| 1 | D | 120 | LYS | 2.9 |
| 1 | F | 379 | LEU | 2.9 |
| 1 | D | 159 | PRO | 2.9 |
| 1 | B | 117 | ILE | 2.9 |
| 1 | H | 156 | MET | 2.9 |
| 1 | E | 221 | TRP | 2.9 |
| 1 | C | 130 | GLN | 2.9 |
| 1 | C | 152 | LYS | 2.9 |
| 1 | A | 589 | LYS | 2.9 |
| 1 | L | 156 | MET | 2.9 |
| 1 | H | 148 | GLN | 2.9 |
| 1 | C | 128 | LEU | 2.9 |
| 1 | B | 147 | TYR | 2.8 |
| 1 | J | 134 | PHE | 2.8 |
| 1 | H | 523 | ASN | 2.8 |
| 1 | F | 119 | MET | 2.8 |
| 1 | C | 148 | GLN | 2.8 |
| 1 | L | 147 | TYR | 2.8 |
| 1 | C | 119 | MET | 2.8 |
| 1 | J | 147 | TYR | 2.8 |
| 1 | E | 343 | ILE | 2.8 |
| 1 | L | 220 | ILE | 2.8 |
| 1 | B | 150 | LYS | 2.8 |
| 1 | L | 497 | LYS | 2.8 |
| 1 | L | 579 | GLU | 2.8 |
| 1 | K | 367 | TYR | 2.8 |
| 1 | K | 140 | ARG | 2.8 |
| 1 | K | 246 | SER | 2.8 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | J | 122 | GLU | 2.8 |
| 1 | G | 508 | TYR | 2.8 |
| 1 | L | 159 | PRO | 2.8 |
| 1 | F | 124 | ILE | 2.7 |
| 1 | E | 123 | GLU | 2.7 |
| 1 | K | 162 | SER | 2.7 |
| 1 | D | 143 | THR | 2.7 |
| 1 | L | 146 | THR | 2.7 |
| 1 | K | 163 | LEU | 2.7 |
| 1 | L | 166 | GLU | 2.7 |
| 1 | J | 142 | GLY | 2.7 |
| 1 | L | 216 | TYR | 2.7 |
| 1 | A | 128 | LEU | 2.7 |
| 1 | H | 164 | LEU | 2.7 |
| 1 | K | 225 | ALA | 2.7 |
| 1 | C | 85 | LEU | 2.7 |
| 1 | F | 128 | LEU | 2.7 |
| 1 | J | 124 | ILE | 2.7 |
| 1 | L | 336 | TYR | 2.6 |
| 1 | J | 146 | THR | 2.6 |
| 1 | L | 148 | GLN | 2.6 |
| 1 | K | 87 | ALA | 2.6 |
| 1 | A | 591 | LYS | 2.6 |
| 1 | J | 148 | GLN | 2.6 |
| 1 | G | 123 | GLU | 2.6 |
| 1 | J | 116 | VAL | 2.6 |
| 1 | D | 156 | MET | 2.6 |
| 1 | H | 524 | GLY | 2.6 |
| 1 | F | 141 | LYS | 2.6 |
| 1 | J | 81 | GLU | 2.6 |
| 1 | L | 505 | ILE | 2.6 |
| 1 | G | 138 | PHE | 2.6 |
| 1 | L | 503 | TYR | 2.6 |
| 1 | H | 149 | ASP | 2.6 |
| 1 | K | 88 | VAL | 2.6 |
| 1 | H | 150 | LYS | 2.5 |
| 1 | L | 335 | LYS | 2.5 |
| 1 | C | 160 | GLY | 2.5 |
| 1 | F | 508 | TYR | 2.5 |
| 1 | K | 365 | PHE | 2.5 |
| 1 | I | 128 | LEU | 2.5 |
| 1 | C | 115 | THR | 2.5 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | J | 119 | MET | 2.5 |
| 1 | D | 162 | SER | 2.5 |
| 1 | G | 219 | ASP | 2.5 |
| 1 | H | 144 | ASN | 2.5 |
| 1 | L | 143 | THR | 2.5 |
| 1 | L | 569 | GLY | 2.5 |
| 1 | F | 158 | LEU | 2.5 |
| 1 | L | 137 | GLU | 2.5 |
| 1 | C | 90 | ASP | 2.5 |
| 1 | L | 495 | SER | 2.5 |
| 1 | A | 85 | LEU | 2.5 |
| 1 | E | 588 | GLY | 2.5 |
| 1 | G | 85 | LEU | 2.5 |
| 1 | A | 136 | ILE | 2.5 |
| 1 | E | 117 | ILE | 2.5 |
| 1 | K | 86 | VAL | 2.5 |
| 1 | J | 589 | LYS | 2.5 |
| 1 | C | 219 | ASP | 2.5 |
| 1 | F | 587 | VAL | 2.4 |
| 1 | H | 146 | THR | 2.4 |
| 1 | K | 415 | GLU | 2.4 |
| 1 | K | 498 | SER | 2.4 |
| 1 | L | 357 | GLY | 2.4 |
| 1 | I | 118 | ASN | 2.4 |
| 1 | B | 128 | LEU | 2.4 |
| 1 | I | 508 | TYR | 2.4 |
| 1 | J | 105 | ASP | 2.4 |
| 1 | L | 221 | TRP | 2.4 |
| 1 | K | 261 | GLU | 2.4 |
| 1 | L | 338 | SER | 2.4 |
| 1 | F | 105 | ASP | 2.4 |
| 1 | L | 236 | ARG | 2.4 |
| 1 | K | 82 | ARG | 2.4 |
| 1 | L | 225 | ALA | 2.4 |
| 1 | E | 163 | LEU | 2.4 |
| 1 | C | 156 | MET | 2.4 |
| 1 | F | 107 | LYS | 2.4 |
| 1 | L | 337 | LYS | 2.4 |
| 1 | F | 330 | PHE | 2.3 |
| 1 | C | 162 | SER | 2.3 |
| 1 | K | 220 | ILE | 2.3 |
| 1 | K | 523 | ASN | 2.3 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | J | 121 | PRO | 2.3 |
| 1 | I | 589 | LYS | 2.3 |
| 1 | G | 119 | MET | 2.3 |
| 1 | C | 94 | SER | 2.3 |
| 1 | K | 356 | TRP | 2.3 |
| 1 | L | 333 | ASP | 2.3 |
| 1 | K | 139 | GLY | 2.3 |
| 2 | W | 4 | GLY | 2.3 |
| 1 | C | 127 | ARG | 2.3 |
| 1 | D | 116 | VAL | 2.3 |
| 1 | D | 154 | GLU | 2.3 |
| 1 | I | 124 | ILE | 2.3 |
| 1 | B | 109 | THR | 2.3 |
| 1 | D | 86 | VAL | 2.3 |
| 1 | J | 89 | ILE | 2.3 |
| 1 | K | 510 | VAL | 2.3 |
| 1 | E | 219 | ASP | 2.3 |
| 1 | K | 145 | LEU | 2.3 |
| 1 | D | 216 | TYR | 2.3 |
| 1 | L | 223 | TYR | 2.3 |
| 1 | L | 575 | LYS | 2.3 |
| 1 | D | 146 | THR | 2.3 |
| 1 | C | 163 | LEU | 2.3 |
| 1 | H | 84 | LYS | 2.3 |
| 1 | C | 95 | ALA | 2.3 |
| 1 | E | 358 | GLU | 2.2 |
| 1 | G | 118 | ASN | 2.2 |
| 1 | H | 143 | THR | 2.2 |
| 1 | L | 157 | ASN | 2.2 |
| 1 | L | 163 | LEU | 2.2 |
| 1 | E | 124 | ILE | 2.2 |
| 1 | D | 125 | GLU | 2.2 |
| 2 | U | 5 | GLY | 2.2 |
| 1 | F | 156 | MET | 2.2 |
| 1 | A | 226 | PRO | 2.2 |
| 1 | L | 329 | ALA | 2.2 |
| 1 | F | 373 | MET | 2.2 |
| 1 | H | 589 | LYS | 2.2 |
| 1 | B | 589 | LYS | 2.2 |
| 1 | I | 261 | GLU | 2.2 |
| 1 | A | 117 | ILE | 2.2 |
| 1 | D | 344 | MET | 2.2 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | D | 126 | LYS | 2.2 |
| 1 | C | 108 | GLU | 2.2 |
| 1 | G | 84 | LYS | 2.2 |
| 1 | G | 218 | HIS | 2.2 |
| 1 | G | 117 | ILE | 2.2 |
| 1 | J | 129 | SER | 2.2 |
| 1 | C | 525 | GLY | 2.2 |
| 1 | G | 588 | GLY | 2.2 |
| 1 | I | 121 | PRO | 2.2 |
| 1 | L | 165 | PRO | 2.2 |
| 1 | F | 344 | MET | 2.2 |
| 1 | J | 123 | GLU | 2.2 |
| 1 | F | 389 | TYR | 2.2 |
| 1 | G | 165 | PRO | 2.2 |
| 1 | K | 343 | ILE | 2.2 |
| 1 | J | 90 | ASP | 2.2 |
| 1 | E | 222 | GLY | 2.2 |
| 1 | D | 145 | LEU | 2.2 |
| 1 | J | 152 | LYS | 2.2 |
| 1 | C | 121 | PRO | 2.2 |
| 1 | F | 380 | VAL | 2.2 |
| 1 | K | 144 | ASN | 2.2 |
| 1 | A | 138 | PHE | 2.1 |
| 1 | K | 332 | PRO | 2.1 |
| 1 | J | 144 | ASN | 2.1 |
| 1 | F | 111 | LYS | 2.1 |
| 1 | B | 124 | ILE | 2.1 |
| 1 | B | 153 | ILE | 2.1 |
| 1 | D | 222 | GLY | 2.1 |
| 1 | J | 378 | ASP | 2.1 |
| 1 | C | 146 | THR | 2.1 |
| 1 | D | 225 | ALA | 2.1 |
| 1 | I | 590 | SER | 2.1 |
| 1 | D | 152 | LYS | 2.1 |
| 1 | K | 223 | TYR | 2.1 |
| 1 | G | 582 | LEU | 2.1 |
| 2 | R | 3 | GLY | 2.1 |
| 1 | I | 119 | MET | 2.1 |
| 1 | H | 525 | GLY | 2.1 |
| 1 | E | 127 | ARG | 2.1 |
| 1 | C | 104 | VAL | 2.1 |
| 1 | K | 329 | ALA | 2.1 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 2 | S | 7 | GLY | 2.1 |
| 1 | E | 149 | ASP | 2.1 |
| 1 | H | 87 | ALA | 2.0 |
| 1 | C | 114 | SER | 2.0 |
| 1 | K | 389 | TYR | 2.0 |
| 1 | F | 153 | ILE | 2.0 |
| 1 | C | 545 | LYS | 2.0 |
| 1 | G | 126 | LYS | 2.0 |
| 1 | J | 87 | ALA | 2.0 |
| 1 | J | 92 | LYS | 2.0 |
| 1 | C | 147 | TYR | 2.0 |
| 1 | F | 117 | ILE | 2.0 |
| 1 | L | 573 | ALA | 2.0 |
| 1 | F | 108 | GLU | 2.0 |
| 1 | B | 225 | ALA | 2.0 |
| 1 | E | 344 | MET | 2.0 |
| 1 | G | 141 | LYS | 2.0 |

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å ²) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|----------------------------|-------|
| 3 | CD | E | 801 | 1/1 | 0.68 | 0.08 | 181,181,181,181 | 0 |
| 3 | CD | F | 801 | 1/1 | 0.82 | 0.07 | 184,184,184,184 | 0 |
| 3 | CD | B | 801 | 1/1 | 0.91 | 0.06 | 243,243,243,243 | 0 |
| 4 | CL | F | 802 | 1/1 | 0.91 | 0.12 | 80,80,80,80 | 0 |
| 3 | CD | G | 801 | 1/1 | 0.93 | 0.09 | 150,150,150,150 | 0 |
| 3 | CD | I | 801 | 1/1 | 0.96 | 0.06 | 171,171,171,171 | 0 |

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| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 3 | CD | D | 801 | 1/1 | 0.96 | 0.11 | 120,120,120,120 | 0 |
| 4 | CL | H | 802 | 1/1 | 0.96 | 0.12 | 67,67,67,67 | 0 |
| 3 | CD | A | 801 | 1/1 | 0.97 | 0.09 | 139,139,139,139 | 0 |
| 3 | CD | C | 801 | 1/1 | 0.98 | 0.10 | 72,72,72,72 | 0 |
| 4 | CL | D | 802 | 1/1 | 0.98 | 0.11 | 77,77,77,77 | 0 |
| 3 | CD | J | 801 | 1/1 | 0.99 | 0.13 | 104,104,104,104 | 0 |
| 3 | CD | H | 801 | 1/1 | 0.99 | 0.14 | 76,76,76,76 | 0 |

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

There are no such residues in this entry.