



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 31, 2023 – 01:37 PM JST

PDB ID : 5ECR
Title : Crystal Structure of FIN219-FIP1 complex with JA, VAL and Mg
Authors : Chen, C.Y.; Cheng, Y.S.
Deposited on : 2015-10-20
Resolution : 1.72 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

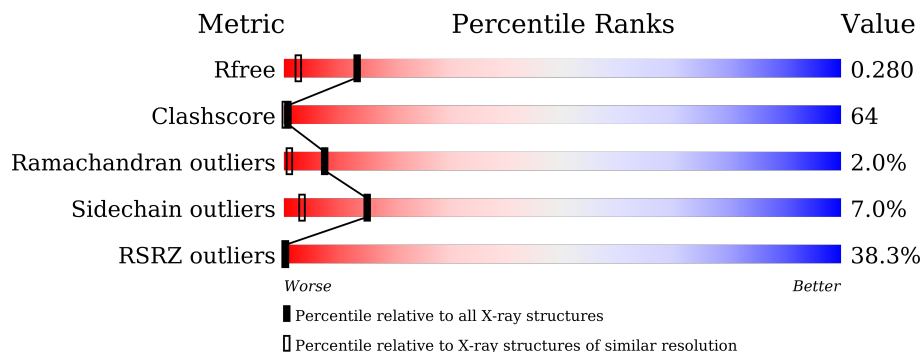
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.72 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 | 5722 (1.74-1.70) |
| Clashscore | 141614 | 6152 (1.74-1.70) |
| Ramachandran outliers | 138981 | 6051 (1.74-1.70) |
| Sidechain outliers | 138945 | 6051 (1.74-1.70) |
| RSRZ outliers | 127900 | 5629 (1.74-1.70) |

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 | 575 | |
| 1 | D | 575 | |
| 2 | B | 223 | |
| 2 | C | 223 | |
| 2 | E | 223 | |
| 2 | F | 223 | |

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 | VAL | A | 602 | - | - | X | - |

2 Entry composition i

There are 7 unique types of molecules in this entry. The entry contains 17885 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 Jasmonic acid-amido synthetase JAR1.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 1 | A | 569 | 4479 | 2859 | 748 | 850 | 22 | 0 | 0 | 0 |
| 1 | D | 569 | 4479 | 2859 | 748 | 850 | 22 | 0 | 0 | 0 |

- Molecule 2 is a protein called Glutathione S-transferase U20.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 2 | B | 214 | 1748 | 1136 | 284 | 323 | 5 | 0 | 0 | 0 |
| 2 | C | 214 | 1748 | 1136 | 284 | 323 | 5 | 0 | 0 | 0 |
| 2 | E | 214 | 1748 | 1136 | 284 | 323 | 5 | 0 | 0 | 0 |
| 2 | F | 214 | 1748 | 1136 | 284 | 323 | 5 | 0 | 0 | 0 |

There are 24 discrepancies between the modelled and reference sequences:

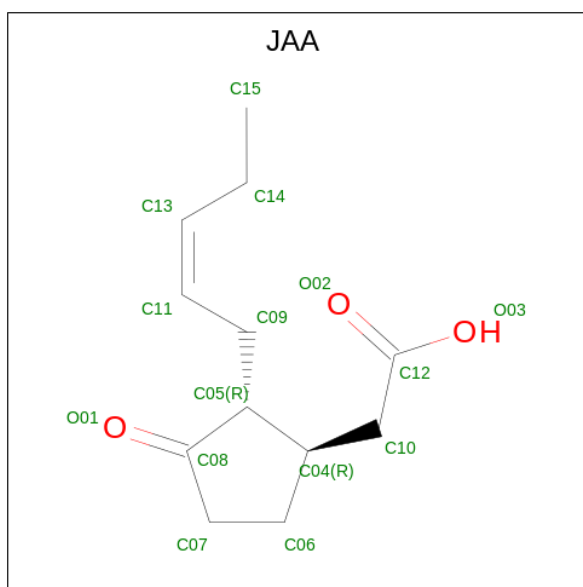
| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| B | -5 | HIS | - | expression tag | UNP Q8L7C9 |
| B | -4 | HIS | - | expression tag | UNP Q8L7C9 |
| B | -3 | HIS | - | expression tag | UNP Q8L7C9 |
| B | -2 | HIS | - | expression tag | UNP Q8L7C9 |
| B | -1 | HIS | - | expression tag | UNP Q8L7C9 |
| B | 0 | HIS | - | expression tag | UNP Q8L7C9 |
| C | -5 | HIS | - | expression tag | UNP Q8L7C9 |
| C | -4 | HIS | - | expression tag | UNP Q8L7C9 |
| C | -3 | HIS | - | expression tag | UNP Q8L7C9 |
| C | -2 | HIS | - | expression tag | UNP Q8L7C9 |
| C | -1 | HIS | - | expression tag | UNP Q8L7C9 |
| C | 0 | HIS | - | expression tag | UNP Q8L7C9 |

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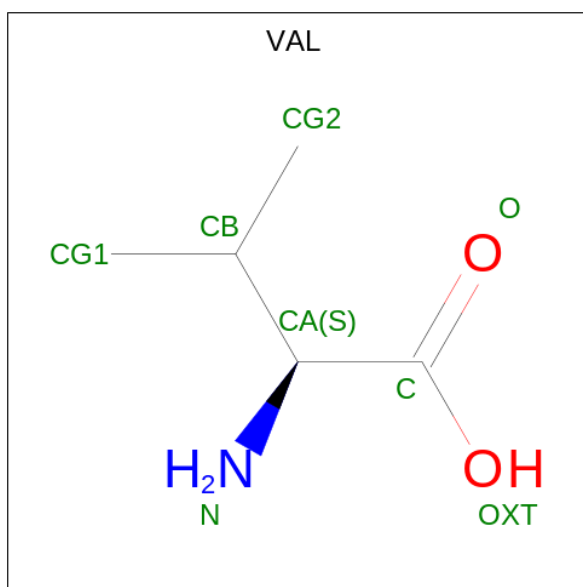
| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| E | -5 | HIS | - | expression tag | UNP Q8L7C9 |
| E | -4 | HIS | - | expression tag | UNP Q8L7C9 |
| E | -3 | HIS | - | expression tag | UNP Q8L7C9 |
| E | -2 | HIS | - | expression tag | UNP Q8L7C9 |
| E | -1 | HIS | - | expression tag | UNP Q8L7C9 |
| E | 0 | HIS | - | expression tag | UNP Q8L7C9 |
| F | -5 | HIS | - | expression tag | UNP Q8L7C9 |
| F | -4 | HIS | - | expression tag | UNP Q8L7C9 |
| F | -3 | HIS | - | expression tag | UNP Q8L7C9 |
| F | -2 | HIS | - | expression tag | UNP Q8L7C9 |
| F | -1 | HIS | - | expression tag | UNP Q8L7C9 |
| F | 0 | HIS | - | expression tag | UNP Q8L7C9 |

- Molecule 3 is {(1R,2R)-3-oxo-2-[(2Z)-pent-2-en-1-yl]cyclopentyl}acetic acid (three-letter code: JAA) (formula: C₁₂H₁₈O₃).



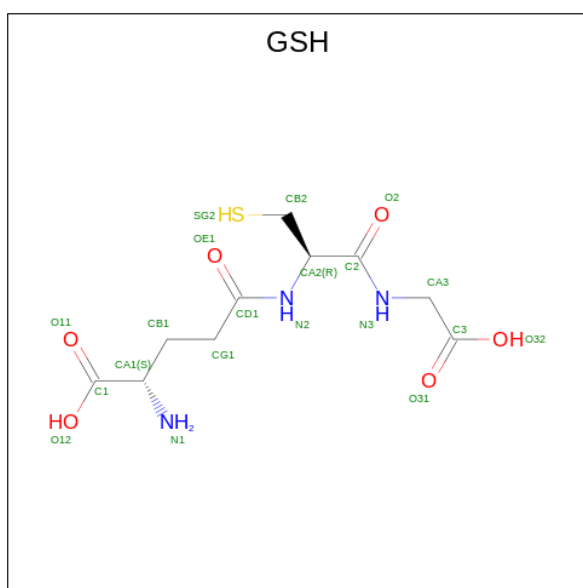
| Mol | Chain | Residues | Atoms | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---------|---------|
| 3 | A | 1 | Total | C | O | 0 | 0 |
| | | | 15 | 12 | 3 | | |
| 3 | D | 1 | Total | C | O | 0 | 0 |
| | | | 15 | 12 | 3 | | |

- Molecule 4 is VALINE (three-letter code: VAL) (formula: C₅H₁₁NO₂).



| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---|---------|---------|
| 4 | A | 1 | Total | C | N | O | 0 | 0 |
| | | | 8 | 5 | 1 | 2 | | |
| 4 | D | 1 | Total | C | N | O | 0 | 0 |
| | | | 8 | 5 | 1 | 2 | | |

- Molecule 5 is GLUTATHIONE (three-letter code: GSH) (formula: C₁₀H₁₇N₃O₆S).



| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|---------|
| 5 | B | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 20 | 10 | 3 | 6 | 1 | | |
| 5 | C | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 20 | 10 | 3 | 6 | 1 | | |

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| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|---------|
| 5 | E | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 20 | 10 | 3 | 6 | 1 | | |
| 5 | F | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 20 | 10 | 3 | 6 | 1 | | |

- Molecule 6 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 6 | D | 1 | Total | Mg | 0 | 0 |
| | | | 1 | 1 | | |

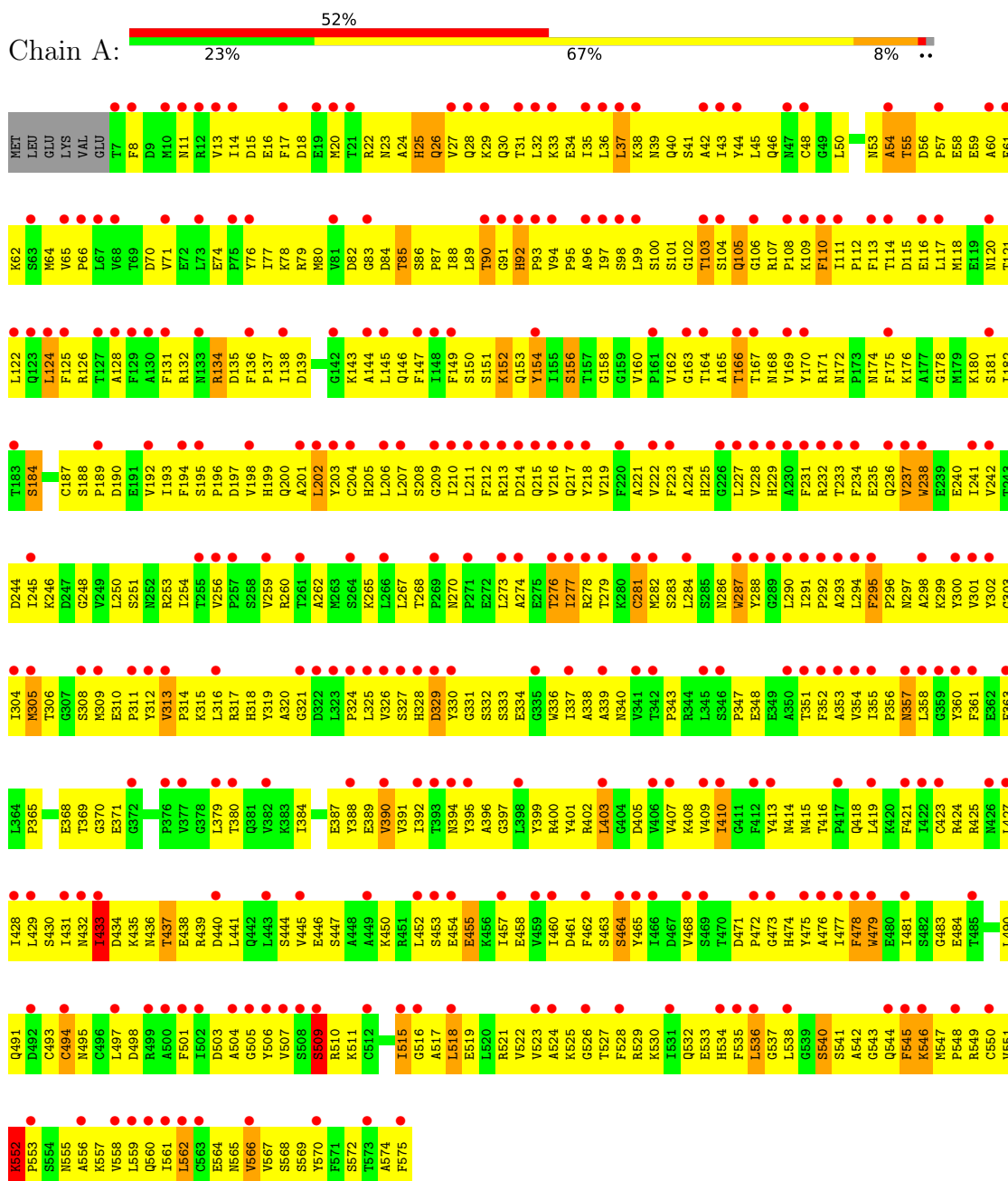
- Molecule 7 is water.

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|-------|-----|---------|---------|
| 7 | A | 512 | Total | O | 0 | 0 |
| | | | 512 | 512 | | |
| 7 | B | 203 | Total | O | 0 | 0 |
| | | | 203 | 203 | | |
| 7 | C | 198 | Total | O | 0 | 0 |
| | | | 198 | 198 | | |
| 7 | D | 510 | Total | O | 0 | 0 |
| | | | 510 | 510 | | |
| 7 | E | 186 | Total | O | 0 | 0 |
| | | | 186 | 186 | | |
| 7 | F | 199 | Total | O | 0 | 0 |
| | | | 199 | 199 | | |

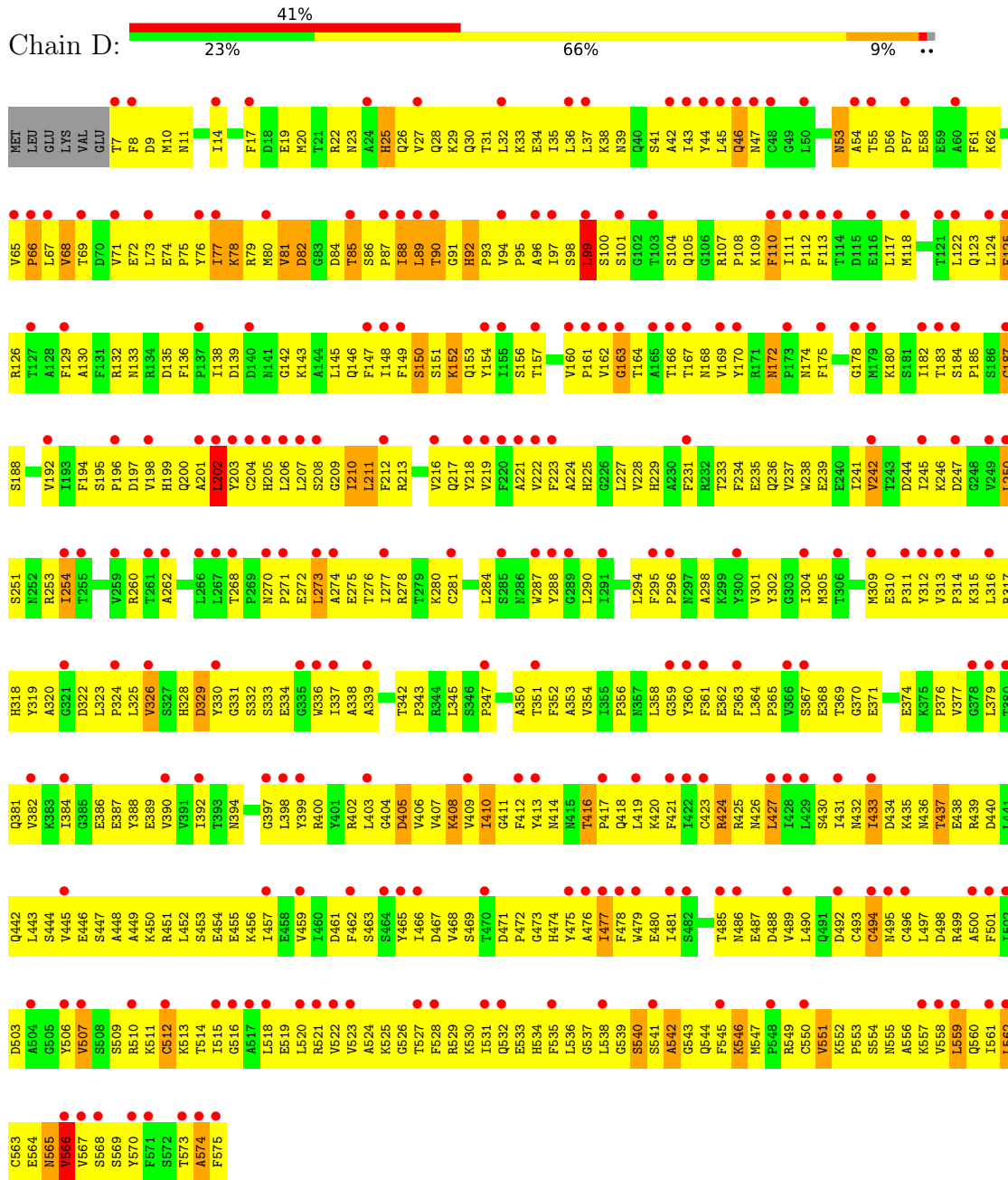
3 Residue-property plots i

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

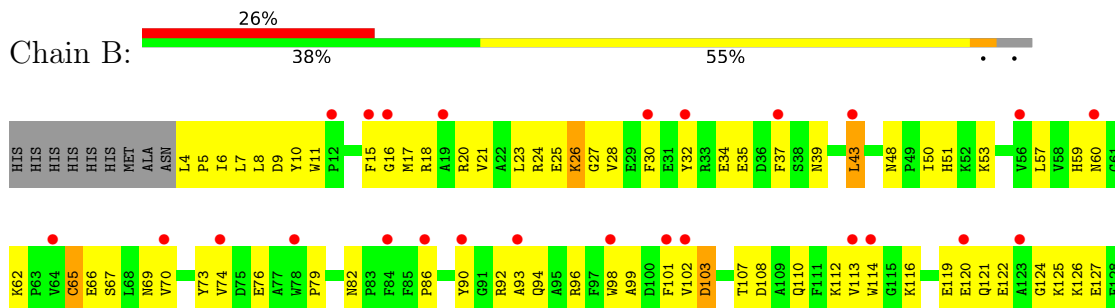
• Molecule 1: Jasmonic acid-amido synthetase JAR1

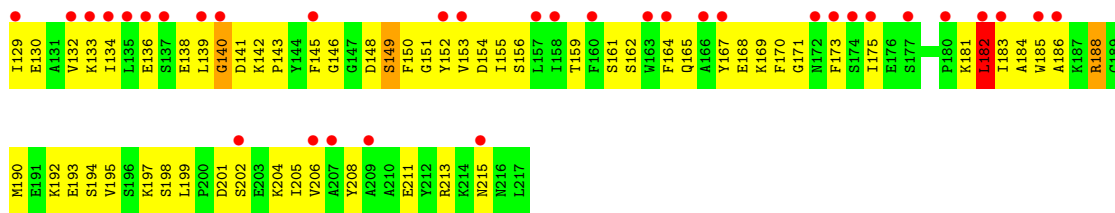


● Molecule 1: Jasmonic acid-amido synthetase JAR1

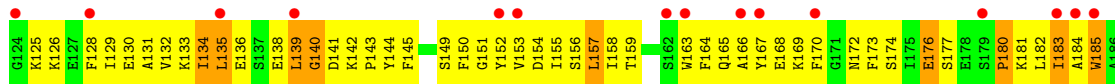
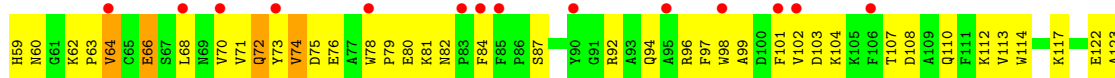
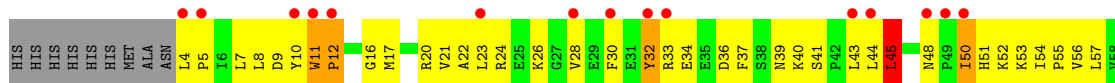


● Molecule 2: Glutathione S-transferase U20

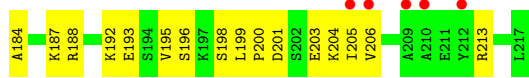
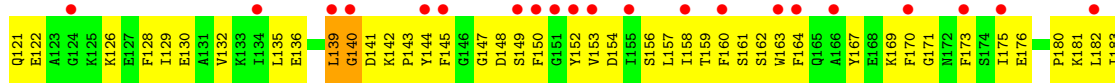
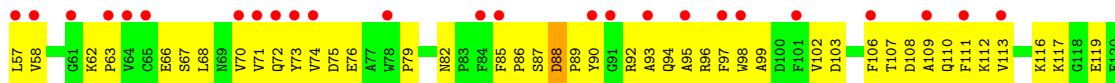
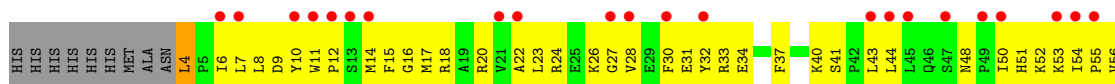




● Molecule 2: Glutathione S-transferase U20

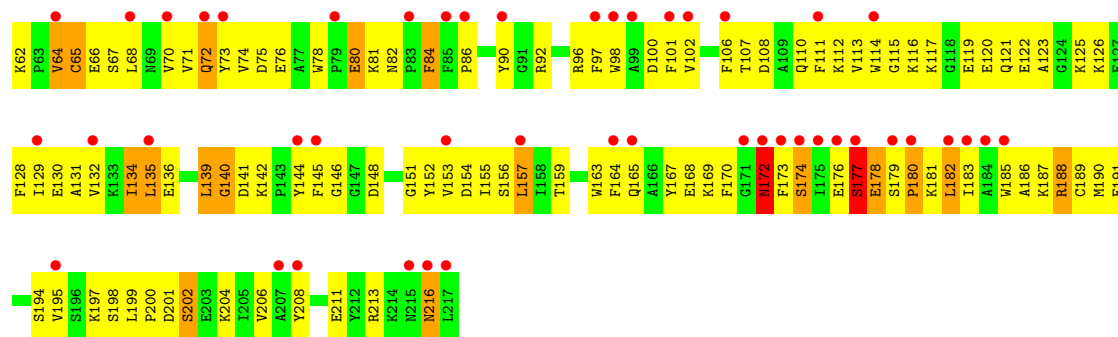


● Molecule 2: Glutathione S-transferase U20



● Molecule 2: Glutathione S-transferase U20





4 Data and refinement statistics i

| Property | Value | Source |
|---|---|------------------|
| Space group | P 1 | Depositor |
| Cell constants a, b, c, α , β , γ | 53.84Å 53.85Å 193.64Å 90.03° 90.04° 113.41° | Depositor |
| Resolution (Å) | 24.20 – 1.72 24.21 – 1.72 | Depositor EDS |
| % Data completeness (in resolution range) | 99.6 (24.20-1.72) 99.5 (24.21-1.72) | Depositor EDS |
| R_{merge} | 0.06 | Depositor |
| R_{sym} | (Not available) | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 2.05 (at 1.72Å) | Xtrriage |
| Refinement program | PHENIX 1.9_1692 | Depositor |
| R, R_{free} | 0.262 , 0.281 0.262 , 0.280 | Depositor DCC |
| R_{free} test set | 21132 reflections (10.01%) | wwPDB-VP |
| Wilson B-factor (Å ²) | 10.3 | Xtrriage |
| Anisotropy | 0.106 | Xtrriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | 0.40 , 218.4 | EDS |
| L-test for twinning ² | $\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$ | Xtrriage |
| Estimated twinning fraction | 0.099 for -h,-k,l 0.088 for k,h,-l 0.097 for -k,-h,-l | Xtrriage |
| F_o, F_c correlation | 0.86 | EDS |
| Total number of atoms | 17885 | wwPDB-VP |
| Average B, all atoms (Å ²) | 12.0 | wwPDB-VP |

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 52.28 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 4.9763e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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: GSH, JAA, MG

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 | 0.48 | 0/4581 | 0.79 | 6/6219 (0.1%) |
| 1 | D | 0.48 | 0/4581 | 0.79 | 6/6219 (0.1%) |
| 2 | B | 0.38 | 0/1799 | 0.58 | 1/2428 (0.0%) |
| 2 | C | 0.47 | 0/1799 | 0.72 | 4/2428 (0.2%) |
| 2 | E | 0.41 | 0/1799 | 0.63 | 0/2428 |
| 2 | F | 0.51 | 0/1799 | 0.73 | 1/2428 (0.0%) |
| All | All | 0.46 | 0/16358 | 0.74 | 18/22150 (0.1%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1 | A | 0 | 2 |
| 1 | D | 0 | 2 |
| 2 | E | 0 | 1 |
| 2 | F | 0 | 1 |
| All | All | 0 | 6 |

There are no bond length outliers.

All (18) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1 | A | 238 | TRP | CA-CB-CG | 7.72 | 128.38 | 113.70 |
| 2 | C | 188 | ARG | NE-CZ-NH1 | -7.70 | 116.45 | 120.30 |
| 2 | C | 188 | ARG | NE-CZ-NH2 | 6.85 | 123.72 | 120.30 |
| 2 | F | 188 | ARG | NE-CZ-NH1 | -6.77 | 116.92 | 120.30 |
| 1 | A | 562 | LEU | CA-CB-CG | 6.47 | 130.18 | 115.30 |
| 1 | D | 559 | LEU | CA-CB-CG | 6.08 | 129.30 | 115.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1 | D | 211 | LEU | CA-CB-CG | 6.01 | 129.12 | 115.30 |
| 1 | D | 562 | LEU | CA-CB-CG | 5.80 | 128.65 | 115.30 |
| 2 | B | 182 | LEU | CA-CB-CG | 5.60 | 128.18 | 115.30 |
| 1 | A | 552 | LYS | C-N-CD | 5.29 | 139.51 | 128.40 |
| 1 | A | 287 | TRP | CA-CB-CG | -5.22 | 103.79 | 113.70 |
| 1 | D | 99 | LEU | CA-CB-CG | 5.19 | 127.24 | 115.30 |
| 1 | D | 202 | LEU | CB-CG-CD1 | 5.17 | 119.79 | 111.00 |
| 2 | C | 45 | LEU | CA-CB-CG | 5.14 | 127.11 | 115.30 |
| 1 | A | 237 | VAL | N-CA-C | 5.13 | 124.85 | 111.00 |
| 1 | A | 124 | LEU | CA-CB-CG | 5.10 | 127.04 | 115.30 |
| 2 | C | 11 | TRP | C-N-CD | 5.08 | 139.06 | 128.40 |
| 1 | D | 163 | GLY | N-CA-C | 5.05 | 125.72 | 113.10 |

There are no chirality outliers.

All (6) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|---------|
| 1 | A | 427 | LEU | Peptide |
| 1 | A | 431 | ILE | Peptide |
| 1 | D | 427 | LEU | Peptide |
| 1 | D | 565 | ASN | Peptide |
| 2 | E | 140 | GLY | Peptide |
| 2 | F | 177 | SER | Peptide |

5.2 Too-close contacts [i](#)

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | A | 4479 | 0 | 4434 | 704 | 6 |
| 1 | D | 4479 | 0 | 4434 | 630 | 5 |
| 2 | B | 1748 | 0 | 1704 | 195 | 1 |
| 2 | C | 1748 | 0 | 1704 | 243 | 2 |
| 2 | E | 1748 | 0 | 1704 | 181 | 0 |
| 2 | F | 1748 | 0 | 1704 | 209 | 1 |
| 3 | A | 15 | 0 | 0 | 4 | 0 |
| 3 | D | 15 | 0 | 0 | 2 | 0 |
| 4 | A | 8 | 0 | 8 | 4 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 4 | D | 8 | 0 | 8 | 2 | 0 |
| 5 | B | 20 | 0 | 15 | 4 | 0 |
| 5 | C | 20 | 0 | 15 | 1 | 0 |
| 5 | E | 20 | 0 | 15 | 1 | 0 |
| 5 | F | 20 | 0 | 15 | 3 | 0 |
| 6 | D | 1 | 0 | 0 | 0 | 0 |
| 7 | A | 512 | 0 | 0 | 129 | 4 |
| 7 | B | 203 | 0 | 0 | 28 | 4 |
| 7 | C | 198 | 0 | 0 | 61 | 3 |
| 7 | D | 510 | 0 | 0 | 105 | 4 |
| 7 | E | 186 | 0 | 0 | 26 | 1 |
| 7 | F | 199 | 0 | 0 | 47 | 1 |
| All | All | 17885 | 0 | 15760 | 2041 | 22 |

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 64.

All (2041) 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:A:152:LYS:HZ1 | 1:A:530:LYS:NZ | 1.21 | 1.34 |
| 1:A:152:LYS:NZ | 1:A:530:LYS:HZ1 | 1.30 | 1.26 |
| 1:D:488:ASP:OD1 | 7:D:701:HOH:O | 1.53 | 1.24 |
| 2:C:188:ARG:NH1 | 1:D:499:ARG:O | 1.70 | 1.22 |
| 2:E:92:ARG:NH1 | 2:F:76:GLU:OE1 | 1.79 | 1.15 |
| 1:A:446:GLU:OE2 | 7:A:701:HOH:O | 1.67 | 1.12 |
| 1:D:152:LYS:NZ | 1:D:527:THR:OG1 | 1.81 | 1.12 |
| 2:C:188:ARG:HH12 | 1:D:500:ALA:HA | 1.11 | 1.11 |
| 1:A:176:LYS:NZ | 1:A:190:ASP:OD2 | 1.83 | 1.10 |
| 2:C:9:ASP:OD2 | 7:C:402:HOH:O | 1.71 | 1.09 |
| 1:A:134:ARG:NH1 | 7:A:702:HOH:O | 1.86 | 1.04 |
| 2:C:176:GLU:OE2 | 1:D:573:THR:OG1 | 1.76 | 1.04 |
| 2:E:139:LEU:HG | 2:E:142:LYS:HB2 | 1.35 | 1.01 |
| 2:E:26:LYS:HZ3 | 2:E:74:VAL:HG22 | 1.24 | 1.00 |
| 1:D:143:LYS:HD2 | 1:D:212:PHE:HB2 | 1.44 | 1.00 |
| 1:A:106:GLY:HA3 | 1:A:432:ASN:HD21 | 1.27 | 0.99 |
| 1:A:166:THR:HG22 | 4:A:602:VAL:HG13 | 1.44 | 0.98 |
| 1:A:510:ARG:NH1 | 1:A:516:GLY:O | 1.94 | 0.98 |
| 2:E:40:LYS:NZ | 2:E:52:LYS:O | 1.96 | 0.98 |
| 1:A:519:GLU:OE2 | 1:A:569:SER:OG | 1.84 | 0.96 |
| 2:F:60:ASN:ND2 | 7:F:409:HOH:O | 1.99 | 0.95 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:284:LEU:HD13 | 1:A:287:TRP:H | 1.30 | 0.95 |
| 2:F:120:GLU:OE1 | 7:F:401:HOH:O | 1.85 | 0.94 |
| 1:A:152:LYS:HA | 1:A:564:GLU:HB2 | 1.49 | 0.94 |
| 2:B:26:LYS:NZ | 2:B:82:ASN:H | 1.64 | 0.94 |
| 2:C:184:ALA:HB1 | 1:D:499:ARG:CZ | 1.98 | 0.93 |
| 1:A:491:GLN:OE1 | 7:A:703:HOH:O | 1.87 | 0.93 |
| 1:D:254:ILE:O | 1:D:260:ARG:NH1 | 2.01 | 0.93 |
| 1:A:510:ARG:NH1 | 1:A:515:ILE:HD12 | 1.84 | 0.93 |
| 2:C:66:GLU:OE2 | 7:C:405:HOH:O | 1.87 | 0.92 |
| 2:C:92:ARG:NH1 | 7:C:414:HOH:O | 2.03 | 0.92 |
| 2:F:190:MET:SD | 7:F:436:HOH:O | 2.26 | 0.92 |
| 1:A:39:ASN:ND2 | 2:B:141:ASP:O | 2.01 | 0.92 |
| 1:A:199:HIS:HB3 | 1:A:525:LYS:H | 1.32 | 0.92 |
| 1:D:452:LEU:HB3 | 1:D:457:ILE:HD11 | 1.49 | 0.92 |
| 1:A:93:PRO:HG3 | 2:B:184:ALA:HB3 | 1.52 | 0.91 |
| 2:C:188:ARG:NH1 | 1:D:500:ALA:HA | 1.84 | 0.91 |
| 2:B:116:LYS:O | 2:B:213:ARG:NH1 | 2.02 | 0.91 |
| 1:D:466:ILE:HB | 1:D:552:LYS:HA | 1.53 | 0.91 |
| 1:A:498:ASP:O | 7:A:704:HOH:O | 1.88 | 0.91 |
| 1:D:99:LEU:HB3 | 1:D:557:LYS:H | 1.32 | 0.91 |
| 2:B:145:PHE:HB3 | 2:B:153:VAL:HG13 | 1.52 | 0.91 |
| 1:A:208:SER:HA | 1:A:211:LEU:HD12 | 1.52 | 0.90 |
| 1:A:225:HIS:HA | 1:A:228:VAL:HG22 | 1.54 | 0.90 |
| 2:C:136:GLU:HG3 | 2:C:181:LYS:HD3 | 1.54 | 0.90 |
| 1:A:475:TYR:H | 1:A:510:ARG:HH22 | 1.15 | 0.89 |
| 1:A:165:ALA:H | 1:A:557:LYS:NZ | 1.70 | 0.89 |
| 2:F:122:GLU:OE2 | 7:F:403:HOH:O | 1.89 | 0.89 |
| 1:A:165:ALA:H | 1:A:557:LYS:HZ3 | 0.91 | 0.89 |
| 2:F:26:LYS:NZ | 2:F:82:ASN:O | 2.06 | 0.89 |
| 2:F:20:ARG:NH1 | 7:F:404:HOH:O | 1.90 | 0.88 |
| 1:A:152:LYS:NZ | 1:A:530:LYS:NZ | 2.03 | 0.88 |
| 2:C:117:LYS:NZ | 7:C:403:HOH:O | 1.77 | 0.88 |
| 2:F:136:GLU:OE2 | 2:F:180:PRO:HD3 | 1.73 | 0.88 |
| 1:D:172:ASN:ND2 | 1:D:174:ASN:OD1 | 2.07 | 0.88 |
| 2:C:26:LYS:NZ | 2:C:82:ASN:O | 2.07 | 0.87 |
| 2:C:98:TRP:O | 7:C:406:HOH:O | 1.91 | 0.87 |
| 2:C:41:SER:N | 7:C:415:HOH:O | 2.03 | 0.87 |
| 1:A:402:ARG:NH1 | 7:A:726:HOH:O | 2.08 | 0.87 |
| 1:A:100:SER:OG | 1:A:334:GLU:OE2 | 1.92 | 0.86 |
| 2:C:176:GLU:OE1 | 7:D:701:HOH:O | 1.93 | 0.86 |
| 1:D:123:GLN:NE2 | 7:D:713:HOH:O | 2.06 | 0.86 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:134:ARG:NH1 | 7:A:731:HOH:O | 2.09 | 0.86 |
| 1:A:164:THR:HG22 | 1:A:557:LYS:HD3 | 1.57 | 0.86 |
| 1:A:165:ALA:N | 1:A:557:LYS:HZ3 | 1.73 | 0.86 |
| 1:A:22:ARG:HA | 1:A:415:ASN:HB2 | 1.56 | 0.86 |
| 2:C:184:ALA:O | 1:D:499:ARG:NH2 | 2.09 | 0.86 |
| 1:D:552:LYS:O | 1:D:554:SER:N | 2.09 | 0.86 |
| 1:D:309:MET:O | 7:D:702:HOH:O | 1.92 | 0.85 |
| 1:A:143:LYS:NZ | 1:A:187:CYS:HB3 | 1.91 | 0.85 |
| 1:A:38:LYS:NZ | 1:A:395:TYR:OH | 2.10 | 0.85 |
| 1:A:277:ILE:HG23 | 1:A:278:ARG:HG3 | 1.58 | 0.85 |
| 2:C:168:GLU:OE1 | 7:C:407:HOH:O | 1.93 | 0.85 |
| 1:D:152:LYS:HB2 | 1:D:561:ILE:HA | 1.59 | 0.85 |
| 1:D:93:PRO:HG2 | 2:E:181:LYS:HA | 1.58 | 0.85 |
| 2:F:26:LYS:HG2 | 2:F:81:LYS:NZ | 1.92 | 0.84 |
| 2:F:197:LYS:O | 7:F:405:HOH:O | 1.94 | 0.84 |
| 1:D:337:ILE:HD13 | 1:D:539:GLY:HA3 | 1.59 | 0.84 |
| 2:F:132:VAL:HG23 | 2:F:182:LEU:HD13 | 1.57 | 0.84 |
| 1:A:143:LYS:HD3 | 1:A:212:PHE:HB2 | 1.59 | 0.84 |
| 1:A:551:VAL:HG11 | 1:A:559:LEU:HD11 | 1.60 | 0.84 |
| 1:A:143:LYS:HZ2 | 1:A:187:CYS:HB3 | 1.40 | 0.84 |
| 1:D:408:LYS:HG2 | 1:D:420:LYS:HG2 | 1.60 | 0.84 |
| 2:E:187:LYS:O | 7:E:401:HOH:O | 1.96 | 0.84 |
| 2:E:93:ALA:HB1 | 2:F:73:TYR:HE1 | 1.43 | 0.83 |
| 2:C:172:ASN:OD1 | 7:C:408:HOH:O | 1.96 | 0.83 |
| 1:A:74:GLU:OE2 | 7:A:706:HOH:O | 1.97 | 0.83 |
| 2:C:193:GLU:HG3 | 7:C:442:HOH:O | 1.79 | 0.83 |
| 2:E:143:PRO:HB2 | 2:E:188:ARG:HH12 | 1.44 | 0.83 |
| 2:F:18:ARG:NH2 | 7:F:414:HOH:O | 2.10 | 0.83 |
| 1:D:480:GLU:OE1 | 7:D:703:HOH:O | 1.94 | 0.83 |
| 1:D:509:SER:O | 1:D:513:LYS:N | 2.10 | 0.83 |
| 1:A:103:THR:HB | 1:A:106:GLY:HA2 | 1.61 | 0.83 |
| 2:E:143:PRO:HB2 | 2:E:188:ARG:NH1 | 1.93 | 0.83 |
| 2:C:26:LYS:HG2 | 2:C:81:LYS:NZ | 1.93 | 0.83 |
| 2:F:120:GLU:O | 7:F:406:HOH:O | 1.97 | 0.82 |
| 1:A:20:MET:HG2 | 1:A:356:PRO:HG2 | 1.61 | 0.82 |
| 1:A:87:PRO:HB2 | 2:B:143:PRO:HA | 1.60 | 0.82 |
| 1:D:199:HIS:HB3 | 1:D:525:LYS:H | 1.43 | 0.82 |
| 1:D:405:ASP:HB2 | 1:D:541:SER:HB3 | 1.58 | 0.82 |
| 1:A:106:GLY:HA3 | 1:A:432:ASN:ND2 | 1.94 | 0.82 |
| 2:E:50:ILE:HG13 | 2:E:51:HIS:H | 1.43 | 0.82 |
| 1:A:225:HIS:HB3 | 1:A:312:TYR:CE2 | 2.15 | 0.82 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:79:PRO:O | 7:C:410:HOH:O | 1.97 | 0.81 |
| 2:C:184:ALA:HB1 | 1:D:499:ARG:NH1 | 1.95 | 0.81 |
| 2:E:26:LYS:NZ | 2:E:74:VAL:HG22 | 1.93 | 0.81 |
| 1:A:478:PHE:CZ | 1:A:562:LEU:HA | 2.15 | 0.81 |
| 1:D:305:MET:SD | 7:D:1023:HOH:O | 2.38 | 0.81 |
| 1:D:213:ARG:NE | 1:D:294:LEU:O | 2.12 | 0.81 |
| 2:C:28:VAL:O | 7:C:409:HOH:O | 1.97 | 0.81 |
| 1:A:45:LEU:HD22 | 1:A:50:LEU:HD12 | 1.62 | 0.81 |
| 1:A:138:ILE:HD12 | 1:A:217:GLN:HB2 | 1.61 | 0.81 |
| 2:F:156:SER:OG | 7:F:402:HOH:O | 1.85 | 0.81 |
| 1:D:42:ALA:HA | 2:E:143:PRO:HG3 | 1.62 | 0.81 |
| 1:D:199:HIS:H | 1:D:524:ALA:HB1 | 1.44 | 0.81 |
| 1:D:239:GLU:OE2 | 7:D:704:HOH:O | 1.98 | 0.81 |
| 1:D:499:ARG:CZ | 1:D:499:ARG:HB2 | 2.08 | 0.80 |
| 1:D:531:ILE:HA | 1:D:534:HIS:CE1 | 2.15 | 0.80 |
| 2:F:72:GLN:OE1 | 7:F:407:HOH:O | 1.99 | 0.80 |
| 1:A:551:VAL:HG13 | 1:A:555:ASN:HB3 | 1.63 | 0.80 |
| 1:A:424:ARG:NH1 | 7:A:747:HOH:O | 2.15 | 0.80 |
| 1:A:18:ASP:OD1 | 1:A:414:ASN:ND2 | 2.14 | 0.80 |
| 2:F:178:GLU:O | 7:F:410:HOH:O | 2.00 | 0.80 |
| 1:D:87:PRO:HG2 | 2:E:188:ARG:HD2 | 1.64 | 0.80 |
| 1:D:150:SER:HB2 | 1:D:167:THR:HA | 1.61 | 0.80 |
| 2:B:24:ARG:HH12 | 2:B:197:LYS:HE3 | 1.47 | 0.79 |
| 1:A:198:VAL:HA | 1:A:201:ALA:HB3 | 1.63 | 0.79 |
| 1:A:458:GLU:O | 7:A:708:HOH:O | 2.01 | 0.79 |
| 2:B:136:GLU:OE2 | 7:B:401:HOH:O | 1.99 | 0.79 |
| 1:D:329:ASP:HB3 | 1:D:339:ALA:HA | 1.62 | 0.79 |
| 1:D:432:ASN:ND2 | 7:D:735:HOH:O | 2.15 | 0.79 |
| 2:C:132:VAL:HG23 | 2:C:182:LEU:HD13 | 1.63 | 0.79 |
| 2:C:9:ASP:OD1 | 7:C:412:HOH:O | 2.00 | 0.79 |
| 1:D:145:LEU:HD13 | 1:D:209:GLY:HA3 | 1.65 | 0.79 |
| 1:D:445:VAL:HG22 | 1:D:479:TRP:HE1 | 1.47 | 0.79 |
| 2:B:145:PHE:HB2 | 2:B:154:ASP:HB3 | 1.64 | 0.79 |
| 1:A:145:LEU:HD13 | 1:A:209:GLY:HA3 | 1.65 | 0.79 |
| 1:A:62:LYS:HG2 | 1:A:400:ARG:NH1 | 1.99 | 0.78 |
| 1:A:306:THR:OG1 | 1:A:330:TYR:OH | 2.01 | 0.78 |
| 1:A:117:LEU:HD11 | 1:A:333:SER:HA | 1.65 | 0.78 |
| 1:D:138:ILE:HB | 1:D:217:GLN:HG3 | 1.64 | 0.78 |
| 1:A:304:ILE:HG13 | 1:A:328:HIS:HB3 | 1.65 | 0.78 |
| 1:A:236:GLN:OE1 | 7:A:710:HOH:O | 2.02 | 0.78 |
| 2:B:215:ASN:ND2 | 7:B:405:HOH:O | 2.08 | 0.78 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:44:TYR:HB2 | 1:D:89:LEU:HG | 1.66 | 0.78 |
| 1:D:152:LYS:HD3 | 1:D:561:ILE:HG23 | 1.64 | 0.78 |
| 2:B:76:GLU:OE1 | 7:C:404:HOH:O | 2.01 | 0.78 |
| 1:D:268:THR:O | 7:D:705:HOH:O | 2.02 | 0.78 |
| 1:D:322:ASP:O | 7:D:706:HOH:O | 2.02 | 0.78 |
| 1:D:442:GLN:HG2 | 1:D:462:PHE:HZ | 1.48 | 0.78 |
| 1:A:150:SER:OG | 7:A:709:HOH:O | 2.02 | 0.78 |
| 1:A:452:LEU:HD23 | 1:A:481:ILE:HG12 | 1.64 | 0.78 |
| 1:A:425:ARG:NH2 | 7:A:734:HOH:O | 2.09 | 0.78 |
| 1:A:332:SER:HG | 1:A:534:HIS:HE2 | 1.32 | 0.78 |
| 1:A:465:TYR:HA | 1:A:551:VAL:HB | 1.66 | 0.78 |
| 1:D:495:ASN:C | 1:D:499:ARG:HH12 | 1.87 | 0.77 |
| 1:A:152:LYS:CE | 1:A:530:LYS:HZ1 | 1.97 | 0.77 |
| 1:A:224:ALA:HA | 1:A:227:LEU:HD12 | 1.64 | 0.77 |
| 1:A:501:PHE:HB2 | 1:A:506:TYR:CZ | 2.19 | 0.77 |
| 1:D:418:GLN:OE1 | 7:D:707:HOH:O | 2.02 | 0.77 |
| 2:E:40:LYS:NZ | 2:E:52:LYS:HB2 | 1.98 | 0.77 |
| 1:A:464:SER:HG | 1:A:550:CYS:HG | 1.07 | 0.77 |
| 1:D:99:LEU:HD23 | 1:D:558:VAL:H | 1.49 | 0.77 |
| 1:D:495:ASN:C | 1:D:499:ARG:NH1 | 2.37 | 0.77 |
| 2:B:18:ARG:HD3 | 2:B:156:SER:HA | 1.65 | 0.77 |
| 1:A:413:TYR:OH | 7:A:707:HOH:O | 1.97 | 0.77 |
| 1:A:527:THR:HG23 | 1:A:561:ILE:HG21 | 1.65 | 0.77 |
| 2:F:119:GLU:O | 7:F:411:HOH:O | 2.03 | 0.77 |
| 1:A:152:LYS:HD2 | 1:A:561:ILE:HG23 | 1.65 | 0.76 |
| 2:B:201:ASP:O | 7:B:402:HOH:O | 2.02 | 0.76 |
| 1:D:439:ARG:NH1 | 7:D:741:HOH:O | 2.17 | 0.76 |
| 2:F:164:PHE:HD2 | 2:F:183:ILE:HD13 | 1.49 | 0.76 |
| 1:A:92:HIS:HE1 | 2:B:185:TRP:HZ2 | 1.34 | 0.76 |
| 1:A:143:LYS:HZ2 | 1:A:209:GLY:HA2 | 1.50 | 0.76 |
| 1:D:198:VAL:HG22 | 1:D:565:ASN:HD22 | 1.48 | 0.76 |
| 2:E:70:VAL:HA | 2:E:73:TYR:CE2 | 2.21 | 0.76 |
| 1:A:454:GLU:OE1 | 7:A:711:HOH:O | 2.03 | 0.76 |
| 2:F:8:LEU:HD22 | 2:F:33:ARG:HH21 | 1.50 | 0.76 |
| 1:A:340:ASN:OD1 | 7:A:714:HOH:O | 2.04 | 0.76 |
| 2:E:93:ALA:HB1 | 2:F:73:TYR:CE1 | 2.21 | 0.75 |
| 1:A:555:ASN:N | 7:A:718:HOH:O | 2.20 | 0.75 |
| 1:D:389:GLU:OE2 | 1:D:404:GLY:HA2 | 1.87 | 0.75 |
| 1:A:238:TRP:HA | 1:A:241:ILE:HB | 1.69 | 0.75 |
| 1:A:340:ASN:ND2 | 7:A:755:HOH:O | 2.18 | 0.75 |
| 2:C:164:PHE:HD2 | 2:C:183:ILE:HD12 | 1.52 | 0.75 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:201:ASP:OD2 | 1:D:456:LYS:NZ | 2.18 | 0.75 |
| 1:A:146:GLN:NE2 | 7:A:758:HOH:O | 2.19 | 0.75 |
| 2:F:56:VAL:HG13 | 7:F:426:HOH:O | 1.85 | 0.75 |
| 2:E:122:GLU:OE2 | 7:E:402:HOH:O | 2.05 | 0.75 |
| 2:B:96:ARG:HH11 | 2:C:73:TYR:HE1 | 1.32 | 0.74 |
| 2:F:8:LEU:HD21 | 2:F:43:LEU:HD11 | 1.68 | 0.74 |
| 1:A:152:LYS:HG3 | 1:A:561:ILE:HA | 1.69 | 0.74 |
| 2:F:62:LYS:NZ | 7:F:408:HOH:O | 1.99 | 0.74 |
| 1:D:310:GLU:HG2 | 1:D:311:PRO:HD3 | 1.69 | 0.74 |
| 1:A:305:MET:HE3 | 1:A:347:PRO:HG3 | 1.69 | 0.74 |
| 2:B:96:ARG:NH1 | 2:C:73:TYR:CE1 | 2.54 | 0.74 |
| 1:D:211:LEU:O | 7:D:712:HOH:O | 2.06 | 0.74 |
| 2:C:64:VAL:HG23 | 2:C:70:VAL:HG22 | 1.69 | 0.74 |
| 1:D:246:LYS:HE2 | 1:D:271:PRO:HA | 1.69 | 0.74 |
| 1:A:108:PRO:HB3 | 1:A:555:ASN:HB2 | 1.69 | 0.74 |
| 1:A:558:VAL:O | 7:A:713:HOH:O | 2.04 | 0.74 |
| 2:C:80:GLU:OE2 | 7:C:417:HOH:O | 2.06 | 0.74 |
| 1:D:146:GLN:NE2 | 7:D:743:HOH:O | 2.17 | 0.74 |
| 1:A:361:PHE:O | 7:A:712:HOH:O | 2.04 | 0.74 |
| 1:A:552:LYS:O | 7:A:718:HOH:O | 2.06 | 0.74 |
| 2:C:33:ARG:NE | 7:C:422:HOH:O | 2.12 | 0.74 |
| 1:A:331:GLY:HA2 | 7:A:764:HOH:O | 1.87 | 0.74 |
| 1:A:143:LYS:NZ | 1:A:209:GLY:HA2 | 2.02 | 0.74 |
| 1:D:87:PRO:HB2 | 2:E:143:PRO:HA | 1.69 | 0.73 |
| 1:A:79:ARG:HH22 | 2:B:188:ARG:NH1 | 1.85 | 0.73 |
| 1:A:301:VAL:HG11 | 1:A:316:LEU:HD21 | 1.69 | 0.73 |
| 1:A:401:TYR:HE2 | 1:A:403:LEU:HD13 | 1.52 | 0.73 |
| 2:F:180:PRO:HD2 | 2:F:181:LYS:HG2 | 1.68 | 0.73 |
| 1:A:397:GLY:O | 7:A:721:HOH:O | 2.06 | 0.73 |
| 1:A:548:PRO:O | 7:A:716:HOH:O | 2.05 | 0.73 |
| 2:C:64:VAL:HB | 2:C:73:TYR:CD2 | 2.22 | 0.73 |
| 1:D:9:ASP:O | 7:D:710:HOH:O | 2.05 | 0.73 |
| 1:D:143:LYS:HD3 | 1:D:187:CYS:HB3 | 1.71 | 0.73 |
| 1:A:479:TRP:NE1 | 7:A:762:HOH:O | 2.20 | 0.73 |
| 1:A:132:ARG:NH1 | 7:A:754:HOH:O | 2.22 | 0.73 |
| 1:A:337:ILE:N | 7:A:764:HOH:O | 2.21 | 0.73 |
| 2:C:142:LYS:NZ | 7:C:401:HOH:O | 1.60 | 0.73 |
| 1:D:164:THR:OG1 | 1:D:557:LYS:O | 2.07 | 0.73 |
| 1:D:477:ILE:HG13 | 1:D:520:LEU:HA | 1.71 | 0.73 |
| 1:A:304:ILE:O | 7:A:715:HOH:O | 2.05 | 0.73 |
| 1:A:304:ILE:O | 7:A:722:HOH:O | 2.06 | 0.73 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:494:CYS:HA | 1:A:497:LEU:HD12 | 1.69 | 0.73 |
| 2:C:26:LYS:HD2 | 2:C:74:VAL:HG13 | 1.70 | 0.73 |
| 2:C:33:ARG:HH22 | 2:C:43:LEU:HD11 | 1.53 | 0.73 |
| 2:E:92:ARG:HH12 | 2:F:76:GLU:CD | 1.90 | 0.73 |
| 2:C:191:GLU:OE1 | 1:D:447:SER:OG | 2.07 | 0.73 |
| 2:B:24:ARG:NE | 2:B:198:SER:OG | 2.20 | 0.73 |
| 2:C:211:GLU:OE1 | 7:C:418:HOH:O | 2.06 | 0.73 |
| 1:A:138:ILE:HG13 | 1:A:217:GLN:OE1 | 1.88 | 0.73 |
| 1:A:351:THR:HG21 | 1:A:410:ILE:HG12 | 1.71 | 0.73 |
| 2:E:89:PRO:HB3 | 2:F:76:GLU:HG3 | 1.71 | 0.73 |
| 2:F:136:GLU:HG3 | 2:F:181:LYS:HD3 | 1.71 | 0.73 |
| 1:A:284:LEU:HD22 | 1:A:287:TRP:HA | 1.71 | 0.72 |
| 1:A:529:ARG:NH1 | 7:A:767:HOH:O | 2.22 | 0.72 |
| 1:D:236:GLN:NE2 | 7:D:748:HOH:O | 2.18 | 0.72 |
| 1:D:423:CYS:SG | 1:D:541:SER:OG | 2.46 | 0.72 |
| 2:B:50:ILE:HG13 | 2:C:134:ILE:HD12 | 1.72 | 0.72 |
| 2:F:98:TRP:HE3 | 2:F:101:PHE:HB2 | 1.54 | 0.72 |
| 2:F:122:GLU:HA | 2:F:125:LYS:HE2 | 1.69 | 0.72 |
| 1:A:329:ASP:OD1 | 7:A:717:HOH:O | 2.06 | 0.72 |
| 1:A:64:MET:O | 7:A:723:HOH:O | 2.06 | 0.72 |
| 1:D:426:ASN:ND2 | 7:D:758:HOH:O | 2.21 | 0.72 |
| 2:F:168:GLU:OE2 | 2:F:176:GLU:OE2 | 2.06 | 0.72 |
| 1:A:223:PHE:CZ | 1:A:536:LEU:HB2 | 2.24 | 0.72 |
| 1:A:150:SER:O | 1:A:171:ARG:NH1 | 2.23 | 0.72 |
| 1:A:337:ILE:HG12 | 1:A:361:PHE:CZ | 2.24 | 0.72 |
| 2:B:92:ARG:NH2 | 2:C:76:GLU:OE1 | 2.22 | 0.72 |
| 1:D:524:ALA:HB2 | 1:D:567:VAL:HG11 | 1.71 | 0.72 |
| 2:E:20:ARG:HB3 | 2:E:24:ARG:NH1 | 2.04 | 0.72 |
| 1:A:446:GLU:OE2 | 7:A:728:HOH:O | 2.08 | 0.72 |
| 1:D:518:LEU:O | 7:D:715:HOH:O | 2.08 | 0.71 |
| 1:D:534:HIS:O | 7:D:714:HOH:O | 2.07 | 0.71 |
| 1:A:331:GLY:HA3 | 1:A:336:TRP:CE3 | 2.25 | 0.71 |
| 2:C:189:CYS:HB3 | 7:C:432:HOH:O | 1.89 | 0.71 |
| 1:A:295:PHE:O | 7:A:725:HOH:O | 2.07 | 0.71 |
| 1:D:152:LYS:HE3 | 1:D:565:ASN:HB2 | 1.71 | 0.71 |
| 1:D:198:VAL:HA | 1:D:201:ALA:HB3 | 1.72 | 0.71 |
| 2:B:119:GLU:OE2 | 7:B:404:HOH:O | 2.08 | 0.71 |
| 5:B:301:GSH:O31 | 7:B:407:HOH:O | 2.09 | 0.71 |
| 1:A:139:ASP:O | 7:A:727:HOH:O | 2.08 | 0.71 |
| 1:A:244:ASP:OD2 | 7:A:724:HOH:O | 2.07 | 0.71 |
| 2:F:117:LYS:HE3 | 2:F:213:ARG:NH1 | 2.06 | 0.71 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:199:HIS:N | 1:A:524:ALA:HB1 | 2.05 | 0.71 |
| 2:C:26:LYS:HG2 | 2:C:81:LYS:HZ1 | 1.52 | 0.71 |
| 1:D:208:SER:O | 7:D:716:HOH:O | 2.08 | 0.71 |
| 1:A:199:HIS:H | 1:A:524:ALA:HB1 | 1.56 | 0.70 |
| 1:D:301:VAL:HG11 | 1:D:316:LEU:HD21 | 1.71 | 0.70 |
| 2:F:176:GLU:O | 2:F:180:PRO:HB3 | 1.91 | 0.70 |
| 2:C:4:LEU:N | 7:C:427:HOH:O | 2.23 | 0.70 |
| 2:C:187:LYS:NZ | 1:D:496:CYS:HB2 | 2.06 | 0.70 |
| 1:D:10:MET:SD | 7:D:754:HOH:O | 2.48 | 0.70 |
| 1:D:37:LEU:O | 7:D:717:HOH:O | 2.08 | 0.70 |
| 2:B:103:ASP:O | 7:B:406:HOH:O | 2.09 | 0.70 |
| 2:C:139:LEU:HD23 | 7:C:430:HOH:O | 1.90 | 0.70 |
| 1:A:331:GLY:N | 1:A:537:GLY:O | 2.25 | 0.70 |
| 2:B:24:ARG:NH2 | 2:B:193:GLU:O | 2.25 | 0.70 |
| 1:D:496:CYS:HA | 1:D:499:ARG:NH2 | 2.06 | 0.70 |
| 2:F:75:ASP:HB2 | 2:F:84:PHE:CE2 | 2.25 | 0.70 |
| 1:A:332:SER:OG | 1:A:333:SER:N | 2.23 | 0.70 |
| 1:D:108:PRO:HG2 | 1:D:552:LYS:H | 1.57 | 0.70 |
| 1:A:97:ILE:O | 7:A:732:HOH:O | 2.09 | 0.70 |
| 2:C:7:LEU:HD21 | 2:C:23:LEU:HD12 | 1.74 | 0.70 |
| 1:D:199:HIS:O | 7:D:718:HOH:O | 2.09 | 0.70 |
| 2:E:201:ASP:O | 7:E:404:HOH:O | 2.09 | 0.70 |
| 1:D:32:LEU:HA | 1:D:35:ILE:HD12 | 1.72 | 0.70 |
| 1:D:406:VAL:O | 1:D:541:SER:OG | 2.10 | 0.70 |
| 2:F:98:TRP:CE3 | 2:F:101:PHE:HB2 | 2.26 | 0.70 |
| 1:A:246:LYS:NZ | 1:A:278:ARG:HH22 | 1.89 | 0.70 |
| 1:A:181:SER:O | 7:A:730:HOH:O | 2.08 | 0.70 |
| 1:D:53:ASN:N | 2:E:90:TYR:OH | 2.24 | 0.70 |
| 1:D:549:ARG:NH1 | 7:D:726:HOH:O | 2.24 | 0.70 |
| 1:A:354:VAL:HG21 | 1:A:379:LEU:HD21 | 1.73 | 0.70 |
| 1:A:494:CYS:SG | 7:A:703:HOH:O | 2.50 | 0.70 |
| 1:A:16:GLU:OE2 | 7:A:733:HOH:O | 2.09 | 0.69 |
| 2:C:33:ARG:NH2 | 2:C:43:LEU:HD21 | 2.07 | 0.69 |
| 2:C:139:LEU:HG | 2:C:145:PHE:CZ | 2.27 | 0.69 |
| 1:D:389:GLU:OE2 | 1:D:402:ARG:NE | 2.25 | 0.69 |
| 1:A:166:THR:OG1 | 1:A:167:THR:N | 2.24 | 0.69 |
| 2:B:20:ARG:HD3 | 2:B:198:SER:HB3 | 1.73 | 0.69 |
| 1:D:109:LYS:O | 7:D:719:HOH:O | 2.09 | 0.69 |
| 1:D:451:ARG:NH1 | 1:D:454:GLU:OE2 | 2.25 | 0.69 |
| 1:A:118:MET:SD | 7:A:810:HOH:O | 2.50 | 0.69 |
| 2:B:18:ARG:NH2 | 2:B:67:SER:OG | 2.25 | 0.69 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:E:116:LYS:O | 2:E:213:ARG:NH1 | 2.25 | 0.69 |
| 1:A:39:ASN:HA | 2:B:142:LYS:HG3 | 1.73 | 0.69 |
| 2:C:188:ARG:HD2 | 2:C:191:GLU:OE2 | 1.92 | 0.69 |
| 2:E:176:GLU:OE2 | 7:E:405:HOH:O | 2.10 | 0.69 |
| 2:B:182:LEU:HD13 | 2:B:185:TRP:CZ3 | 2.27 | 0.69 |
| 1:A:53:ASN:OD1 | 1:A:54:ALA:N | 2.24 | 0.69 |
| 1:A:464:SER:HB2 | 1:A:477:ILE:HD13 | 1.74 | 0.69 |
| 2:B:18:ARG:HD2 | 2:B:155:ILE:HD12 | 1.74 | 0.69 |
| 1:D:549:ARG:NH2 | 7:D:769:HOH:O | 2.26 | 0.69 |
| 2:F:11:TRP:CD1 | 2:F:12:PRO:HD3 | 2.28 | 0.69 |
| 2:F:139:LEU:HG | 2:F:145:PHE:CZ | 2.27 | 0.69 |
| 1:A:22:ARG:NH1 | 7:A:779:HOH:O | 2.25 | 0.69 |
| 1:A:407:VAL:HG22 | 1:A:541:SER:HB2 | 1.75 | 0.69 |
| 2:C:101:PHE:O | 7:C:419:HOH:O | 2.09 | 0.69 |
| 1:A:109:LYS:HE2 | 1:A:111:ILE:HD11 | 1.73 | 0.69 |
| 1:D:332:SER:OG | 1:D:333:SER:N | 2.26 | 0.69 |
| 2:E:180:PRO:HD2 | 2:E:181:LYS:HG3 | 1.74 | 0.69 |
| 1:A:483:GLY:O | 7:A:736:HOH:O | 2.11 | 0.69 |
| 2:C:144:TYR:HB3 | 2:C:154:ASP:OD2 | 1.93 | 0.69 |
| 1:D:38:LYS:HB3 | 2:E:140:GLY:HA3 | 1.74 | 0.69 |
| 1:D:107:ARG:NH2 | 1:D:552:LYS:HB3 | 2.08 | 0.69 |
| 1:D:514:THR:O | 7:D:724:HOH:O | 2.11 | 0.69 |
| 2:E:119:GLU:OE2 | 7:E:406:HOH:O | 2.11 | 0.69 |
| 1:A:99:LEU:HB3 | 1:A:557:LYS:HB2 | 1.75 | 0.68 |
| 1:A:224:ALA:HB1 | 1:A:316:LEU:HD22 | 1.75 | 0.68 |
| 3:A:601:JAA:O02 | 7:A:737:HOH:O | 2.11 | 0.68 |
| 1:D:54:ALA:O | 7:D:721:HOH:O | 2.10 | 0.68 |
| 1:D:487:GLU:HG2 | 1:D:570:TYR:CZ | 2.29 | 0.68 |
| 1:D:495:ASN:HB3 | 1:D:499:ARG:NH1 | 2.07 | 0.68 |
| 2:E:159:THR:HA | 2:E:199:LEU:HD21 | 1.74 | 0.68 |
| 2:F:30:PHE:O | 7:F:413:HOH:O | 2.10 | 0.68 |
| 1:A:38:LYS:HZ2 | 1:A:395:TYR:HE1 | 1.40 | 0.68 |
| 2:F:64:VAL:N | 7:F:426:HOH:O | 2.27 | 0.68 |
| 1:A:184:SER:HB2 | 1:A:217:GLN:NE2 | 2.09 | 0.68 |
| 1:A:202:LEU:HD21 | 1:A:529:ARG:HH22 | 1.57 | 0.68 |
| 2:B:142:LYS:NZ | 2:B:145:PHE:O | 2.19 | 0.68 |
| 1:D:77:ILE:CG1 | 1:D:110:PHE:HB3 | 2.24 | 0.68 |
| 1:D:461:ASP:OD1 | 7:D:723:HOH:O | 2.11 | 0.68 |
| 2:E:40:LYS:HZ1 | 2:E:52:LYS:HB2 | 1.55 | 0.68 |
| 2:E:66:GLU:OE2 | 7:E:408:HOH:O | 2.12 | 0.68 |
| 1:A:552:LYS:HG3 | 1:A:553:PRO:HD2 | 1.75 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:560:GLN:OE1 | 7:A:735:HOH:O | 2.10 | 0.68 |
| 1:D:147:PHE:CE1 | 1:D:202:LEU:HD13 | 2.28 | 0.68 |
| 1:D:245:ILE:O | 7:D:705:HOH:O | 2.10 | 0.68 |
| 2:F:119:GLU:OE2 | 7:F:416:HOH:O | 2.12 | 0.68 |
| 1:A:560:GLN:HB3 | 7:A:784:HOH:O | 1.94 | 0.68 |
| 2:C:59:HIS:O | 7:C:421:HOH:O | 2.12 | 0.68 |
| 1:D:81:VAL:HG11 | 1:D:110:PHE:CE2 | 2.29 | 0.68 |
| 1:D:81:VAL:O | 7:D:709:HOH:O | 2.11 | 0.68 |
| 1:A:30:GLN:HA | 1:A:33:LYS:HG2 | 1.75 | 0.68 |
| 1:A:168:ASN:O | 1:A:172:ASN:HB2 | 1.94 | 0.68 |
| 1:D:104:SER:HB2 | 1:D:109:LYS:HB2 | 1.75 | 0.68 |
| 1:A:171:ARG:O | 7:A:738:HOH:O | 2.12 | 0.68 |
| 2:B:113:VAL:O | 7:B:408:HOH:O | 2.11 | 0.68 |
| 1:D:22:ARG:HH11 | 1:D:414:ASN:CG | 1.96 | 0.68 |
| 1:D:125:PHE:HE2 | 1:D:328:HIS:CE1 | 2.12 | 0.68 |
| 1:D:125:PHE:HE2 | 1:D:328:HIS:HE1 | 1.41 | 0.68 |
| 1:D:199:HIS:N | 1:D:524:ALA:HB1 | 2.08 | 0.68 |
| 2:C:104:LYS:NZ | 7:C:413:HOH:O | 2.02 | 0.67 |
| 1:D:56:ASP:OD2 | 7:D:722:HOH:O | 2.11 | 0.67 |
| 2:F:106:PHE:O | 7:F:417:HOH:O | 2.12 | 0.67 |
| 1:A:231:PHE:O | 1:A:235:GLU:HB3 | 1.93 | 0.67 |
| 1:A:399:TYR:O | 7:A:740:HOH:O | 2.12 | 0.67 |
| 1:A:445:VAL:HG21 | 1:A:462:PHE:CG | 2.29 | 0.67 |
| 1:D:143:LYS:HG2 | 1:D:216:VAL:HG22 | 1.76 | 0.67 |
| 1:D:183:THR:O | 7:D:729:HOH:O | 2.12 | 0.67 |
| 1:A:339:ALA:HB2 | 1:A:355:ILE:HD11 | 1.77 | 0.67 |
| 1:D:66:PRO:O | 7:D:728:HOH:O | 2.12 | 0.67 |
| 1:A:435:LYS:HE3 | 1:A:438:GLU:HB3 | 1.76 | 0.67 |
| 1:A:440:ASP:O | 7:A:705:HOH:O | 2.12 | 0.67 |
| 1:A:445:VAL:HG13 | 1:A:479:TRP:HE1 | 1.59 | 0.67 |
| 1:A:96:ALA:HA | 1:A:162:VAL:HA | 1.77 | 0.67 |
| 1:D:210:ILE:HA | 1:D:213:ARG:HG3 | 1.76 | 0.67 |
| 2:F:26:LYS:O | 7:F:415:HOH:O | 2.11 | 0.67 |
| 2:F:81:LYS:N | 7:F:423:HOH:O | 2.22 | 0.67 |
| 1:A:86:SER:HB2 | 2:B:188:ARG:HE | 1.60 | 0.67 |
| 2:B:82:ASN:OD1 | 7:B:409:HOH:O | 2.12 | 0.67 |
| 2:C:11:TRP:CD1 | 2:C:12:PRO:HD3 | 2.30 | 0.67 |
| 1:D:336:TRP:HB2 | 1:D:358:LEU:HD13 | 1.77 | 0.67 |
| 1:D:519:GLU:OE2 | 1:D:569:SER:OG | 2.06 | 0.67 |
| 1:D:542:ALA:O | 7:D:725:HOH:O | 2.11 | 0.67 |
| 1:A:300:TYR:HA | 7:A:741:HOH:O | 1.93 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:340:ASN:HB2 | 1:A:352:PHE:CD2 | 2.30 | 0.67 |
| 1:A:423:CYS:HB3 | 1:A:542:ALA:HB3 | 1.75 | 0.67 |
| 2:C:68:LEU:HA | 2:C:71:VAL:HG12 | 1.76 | 0.67 |
| 1:D:490:LEU:HD22 | 1:D:522:VAL:HG21 | 1.77 | 0.67 |
| 2:B:154:ASP:OD1 | 2:B:155:ILE:N | 2.27 | 0.67 |
| 2:E:31:GLU:OE2 | 7:E:407:HOH:O | 2.12 | 0.67 |
| 2:F:136:GLU:OE2 | 2:F:180:PRO:CD | 2.43 | 0.67 |
| 2:C:22:ALA:HA | 2:C:155:ILE:HD13 | 1.76 | 0.66 |
| 2:C:57:LEU:O | 7:C:420:HOH:O | 2.11 | 0.66 |
| 1:D:87:PRO:HD2 | 2:E:188:ARG:HB2 | 1.77 | 0.66 |
| 1:D:154:TYR:HD2 | 1:D:559:LEU:HD13 | 1.60 | 0.66 |
| 2:F:211:GLU:HG3 | 7:F:456:HOH:O | 1.93 | 0.66 |
| 2:B:51:HIS:CD2 | 2:B:53:LYS:HE2 | 2.30 | 0.66 |
| 2:F:98:TRP:CD1 | 2:F:153:VAL:HG11 | 2.30 | 0.66 |
| 1:A:109:LYS:NZ | 1:A:401:TYR:CZ | 2.64 | 0.66 |
| 1:A:353:ALA:HB2 | 1:A:413:TYR:HD2 | 1.59 | 0.66 |
| 1:A:474:HIS:HA | 1:A:510:ARG:HH12 | 1.59 | 0.66 |
| 2:C:187:LYS:HG2 | 1:D:451:ARG:HD3 | 1.76 | 0.66 |
| 2:F:114:TRP:CD1 | 2:F:167:TYR:HE1 | 2.13 | 0.66 |
| 2:F:165:GLN:HG2 | 2:F:206:VAL:HG21 | 1.77 | 0.66 |
| 1:D:353:ALA:HB2 | 1:D:413:TYR:CD2 | 2.30 | 0.66 |
| 1:A:92:HIS:CE1 | 2:B:185:TRP:HZ2 | 2.13 | 0.66 |
| 1:A:103:THR:HB | 1:A:106:GLY:CA | 2.24 | 0.66 |
| 1:A:329:ASP:OD1 | 1:A:330:TYR:N | 2.28 | 0.66 |
| 2:C:23:LEU:HD22 | 2:C:28:VAL:HG11 | 1.78 | 0.66 |
| 1:A:128:ALA:HA | 1:A:131:PHE:CE2 | 2.30 | 0.66 |
| 2:C:84:PHE:CD1 | 2:C:152:TYR:HB2 | 2.30 | 0.66 |
| 2:C:151:GLY:O | 7:C:424:HOH:O | 2.13 | 0.66 |
| 1:D:386:GLU:OE1 | 1:D:387:GLU:N | 2.28 | 0.66 |
| 2:E:169:LYS:HZ2 | 2:E:206:VAL:HG21 | 1.60 | 0.66 |
| 2:F:7:LEU:HD21 | 2:F:23:LEU:HD12 | 1.78 | 0.66 |
| 2:F:24:ARG:HB3 | 2:F:194:SER:HA | 1.78 | 0.66 |
| 2:F:163:TRP:HB3 | 2:F:167:TYR:CZ | 2.31 | 0.66 |
| 1:A:324:PRO:O | 7:A:741:HOH:O | 2.12 | 0.66 |
| 1:A:424:ARG:HD2 | 1:A:425:ARG:NH1 | 2.11 | 0.66 |
| 2:C:187:LYS:HD3 | 1:D:492:ASP:HB3 | 1.78 | 0.66 |
| 1:D:105:GLN:HA | 1:D:430:SER:HB3 | 1.76 | 0.66 |
| 1:D:147:PHE:CD2 | 1:D:529:ARG:NH1 | 2.63 | 0.65 |
| 1:D:205:HIS:O | 7:D:727:HOH:O | 2.12 | 0.65 |
| 2:E:57:LEU:HB3 | 2:E:73:TYR:OH | 1.97 | 0.65 |
| 1:A:402:ARG:NH2 | 7:A:798:HOH:O | 2.30 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:75:ASP:HB2 | 2:C:84:PHE:CE2 | 2.30 | 0.65 |
| 1:D:195:SER:OG | 1:D:197:ASP:OD1 | 2.14 | 0.65 |
| 2:F:26:LYS:HG2 | 2:F:81:LYS:HZ3 | 1.61 | 0.65 |
| 1:A:458:GLU:OE2 | 7:A:744:HOH:O | 2.13 | 0.65 |
| 1:D:168:ASN:O | 1:D:172:ASN:HB3 | 1.96 | 0.65 |
| 1:D:313:VAL:HG23 | 1:D:325:LEU:HD12 | 1.79 | 0.65 |
| 2:E:92:ARG:NH1 | 2:F:76:GLU:CD | 2.49 | 0.65 |
| 2:F:23:LEU:HD22 | 2:F:28:VAL:HG11 | 1.78 | 0.65 |
| 1:D:241:ILE:O | 1:D:245:ILE:HG12 | 1.97 | 0.65 |
| 2:E:159:THR:HG22 | 2:E:199:LEU:HD11 | 1.78 | 0.65 |
| 5:F:301:GSH:N1 | 7:F:430:HOH:O | 2.30 | 0.65 |
| 1:A:421:PHE:CD1 | 1:A:541:SER:HA | 2.32 | 0.65 |
| 2:C:40:LYS:HB3 | 2:C:44:LEU:HD23 | 1.78 | 0.65 |
| 2:C:166:ALA:HB3 | 7:C:484:HOH:O | 1.95 | 0.65 |
| 1:D:23:ASN:OD1 | 1:D:26:GLN:HB3 | 1.96 | 0.65 |
| 2:F:153:VAL:O | 2:F:157:LEU:HD23 | 1.96 | 0.65 |
| 1:A:41:SER:HA | 2:B:148:ASP:HA | 1.78 | 0.65 |
| 1:A:94:VAL:HG21 | 1:A:112:PRO:HA | 1.79 | 0.65 |
| 2:B:132:VAL:O | 2:B:136:GLU:HG2 | 1.97 | 0.65 |
| 1:D:314:PRO:HB3 | 1:D:317:ARG:HH12 | 1.61 | 0.65 |
| 2:F:122:GLU:HG3 | 7:F:470:HOH:O | 1.96 | 0.65 |
| 1:A:432:ASN:O | 7:A:746:HOH:O | 2.14 | 0.65 |
| 1:A:455:GLU:OE1 | 7:A:739:HOH:O | 2.12 | 0.65 |
| 1:D:77:ILE:HG13 | 1:D:110:PHE:HB3 | 1.77 | 0.65 |
| 1:D:533:GLU:O | 7:D:731:HOH:O | 2.14 | 0.65 |
| 2:E:4:LEU:HD13 | 2:E:31:GLU:HB2 | 1.79 | 0.65 |
| 1:A:286:ASN:HA | 1:A:287:TRP:CE3 | 2.32 | 0.65 |
| 2:C:98:TRP:HE3 | 2:C:101:PHE:HB2 | 1.62 | 0.65 |
| 2:C:214:LYS:NZ | 7:C:411:HOH:O | 1.99 | 0.65 |
| 1:A:126:ARG:NH1 | 7:A:795:HOH:O | 2.29 | 0.64 |
| 1:A:445:VAL:HG13 | 1:A:479:TRP:NE1 | 2.12 | 0.64 |
| 1:A:484:GLU:O | 7:A:742:HOH:O | 2.13 | 0.64 |
| 1:D:359:GLY:O | 7:D:734:HOH:O | 2.15 | 0.64 |
| 1:A:547:MET:O | 7:A:743:HOH:O | 2.13 | 0.64 |
| 1:D:152:LYS:HG2 | 1:D:565:ASN:H | 1.61 | 0.64 |
| 1:D:312:TYR:N | 7:D:773:HOH:O | 2.27 | 0.64 |
| 2:E:8:LEU:HD21 | 7:E:403:HOH:O | 1.97 | 0.64 |
| 1:D:445:VAL:HG21 | 1:D:462:PHE:CG | 2.32 | 0.64 |
| 1:D:480:GLU:OE2 | 1:D:526:GLY:N | 2.30 | 0.64 |
| 2:B:96:ARG:NH1 | 2:C:73:TYR:HE1 | 1.91 | 0.64 |
| 2:E:107:THR:HA | 2:E:110:GLN:HG2 | 1.78 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:169:VAL:O | 1:A:175:PHE:HB2 | 1.97 | 0.64 |
| 1:A:290:LEU:HD12 | 1:A:293:ALA:HB3 | 1.78 | 0.64 |
| 1:D:273:LEU:HA | 1:D:276:THR:HG23 | 1.79 | 0.64 |
| 1:D:328:HIS:NE2 | 3:D:601:JAA:O03 | 2.29 | 0.64 |
| 1:D:382:VAL:O | 7:D:736:HOH:O | 2.15 | 0.64 |
| 2:F:132:VAL:HG22 | 2:F:179:SER:HB2 | 1.80 | 0.64 |
| 1:A:464:SER:OG | 1:A:550:CYS:SG | 2.32 | 0.64 |
| 1:D:151:SER:OG | 1:D:565:ASN:ND2 | 2.29 | 0.64 |
| 1:D:367:SER:HB2 | 1:D:386:GLU:OE2 | 1.98 | 0.64 |
| 1:A:97:ILE:HB | 1:A:162:VAL:HB | 1.80 | 0.64 |
| 1:D:200:GLN:HA | 1:D:203:TYR:CE2 | 2.33 | 0.64 |
| 1:D:463:SER:OG | 7:D:726:HOH:O | 2.12 | 0.64 |
| 1:D:477:ILE:HD12 | 1:D:497:LEU:HD13 | 1.79 | 0.64 |
| 1:D:98:SER:HB3 | 1:D:557:LYS:HE3 | 1.79 | 0.64 |
| 1:D:139:ASP:O | 7:D:733:HOH:O | 2.15 | 0.64 |
| 1:D:180:LYS:O | 7:D:737:HOH:O | 2.15 | 0.64 |
| 1:A:143:LYS:CD | 1:A:212:PHE:HB2 | 2.26 | 0.64 |
| 1:A:151:SER:HB3 | 1:A:565:ASN:HD21 | 1.62 | 0.64 |
| 1:D:162:VAL:O | 1:D:560:GLN:HB2 | 1.98 | 0.64 |
| 1:A:332:SER:HB2 | 1:A:538:LEU:HA | 1.79 | 0.64 |
| 1:A:424:ARG:HD2 | 1:A:425:ARG:HH11 | 1.61 | 0.64 |
| 2:C:139:LEU:O | 2:C:141:ASP:N | 2.30 | 0.64 |
| 1:A:22:ARG:HG2 | 1:A:414:ASN:HB3 | 1.81 | 0.63 |
| 2:C:45:LEU:HD12 | 7:C:444:HOH:O | 1.98 | 0.63 |
| 1:A:432:ASN:O | 1:A:433:ILE:HG23 | 1.99 | 0.63 |
| 2:B:90:TYR:O | 2:B:93:ALA:HB3 | 1.99 | 0.63 |
| 1:D:386:GLU:O | 7:D:738:HOH:O | 2.15 | 0.63 |
| 1:A:313:VAL:HG22 | 1:A:314:PRO:HD3 | 1.81 | 0.63 |
| 2:F:176:GLU:OE1 | 2:F:176:GLU:N | 2.29 | 0.63 |
| 1:A:91:GLY:O | 7:A:748:HOH:O | 2.15 | 0.63 |
| 1:A:143:LYS:HZ2 | 1:A:187:CYS:CB | 2.11 | 0.63 |
| 2:C:98:TRP:CZ2 | 2:C:157:LEU:HD22 | 2.34 | 0.63 |
| 1:D:270:ASN:HB3 | 1:D:273:LEU:HD11 | 1.79 | 0.63 |
| 1:D:288:TYR:HA | 1:D:318:HIS:CD2 | 2.33 | 0.63 |
| 1:A:105:GLN:HB2 | 1:A:430:SER:HB2 | 1.81 | 0.63 |
| 1:A:217:GLN:O | 1:A:299:LYS:N | 2.29 | 0.63 |
| 1:A:361:PHE:CE1 | 1:A:392:ILE:HG22 | 2.34 | 0.62 |
| 1:D:46:GLN:NE2 | 7:D:749:HOH:O | 2.29 | 0.62 |
| 1:D:448:ALA:HB2 | 1:D:496:CYS:HB3 | 1.81 | 0.62 |
| 2:E:24:ARG:NE | 7:E:419:HOH:O | 2.30 | 0.62 |
| 2:E:121:GLN:NE2 | 2:E:170:PHE:O | 2.32 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:F:10:TYR:HH | 2:F:208:TYR:HH | 1.47 | 0.62 |
| 1:A:92:HIS:NE2 | 2:B:136:GLU:O | 2.31 | 0.62 |
| 2:E:90:TYR:O | 2:E:94:GLN:HG2 | 1.99 | 0.62 |
| 2:F:33:ARG:NH1 | 2:F:41:SER:OG | 2.31 | 0.62 |
| 1:A:113:PHE:HD1 | 1:A:117:LEU:HD13 | 1.64 | 0.62 |
| 1:D:132:ARG:HA | 1:D:343:PRO:HG3 | 1.82 | 0.62 |
| 1:A:236:GLN:NE2 | 7:A:797:HOH:O | 2.29 | 0.62 |
| 2:C:98:TRP:CE3 | 2:C:101:PHE:HB2 | 2.34 | 0.62 |
| 1:A:240:GLU:HB3 | 7:A:757:HOH:O | 1.98 | 0.62 |
| 2:C:102:VAL:HG23 | 7:C:406:HOH:O | 2.00 | 0.62 |
| 2:E:23:LEU:HD22 | 2:E:28:VAL:HB | 1.81 | 0.62 |
| 1:A:76:TYR:O | 1:A:88:ILE:HD12 | 1.99 | 0.62 |
| 1:A:79:ARG:NH1 | 2:B:188:ARG:HH22 | 1.98 | 0.62 |
| 2:B:110:GLN:HB2 | 2:B:167:TYR:CE2 | 2.34 | 0.62 |
| 2:C:114:TRP:CD1 | 2:C:167:TYR:HE1 | 2.18 | 0.62 |
| 2:E:48:ASN:ND2 | 7:E:409:HOH:O | 2.32 | 0.62 |
| 2:F:19:ALA:N | 7:F:429:HOH:O | 2.32 | 0.62 |
| 1:D:208:SER:HA | 1:D:211:LEU:HG | 1.82 | 0.62 |
| 2:B:195:VAL:HG13 | 2:B:199:LEU:HD13 | 1.82 | 0.62 |
| 1:A:93:PRO:HG2 | 2:B:181:LYS:HA | 1.81 | 0.61 |
| 2:B:114:TRP:O | 7:B:412:HOH:O | 2.16 | 0.61 |
| 2:B:121:GLN:NE2 | 2:B:170:PHE:O | 2.34 | 0.61 |
| 1:D:166:THR:OG1 | 1:D:561:ILE:HD11 | 2.00 | 0.61 |
| 2:B:125:LYS:NZ | 7:B:403:HOH:O | 2.05 | 0.61 |
| 1:D:126:ARG:HD3 | 1:D:182:ILE:HD13 | 1.81 | 0.61 |
| 1:D:475:TYR:CZ | 1:D:506:TYR:HE1 | 2.18 | 0.61 |
| 2:E:93:ALA:CB | 2:F:73:TYR:HE1 | 2.12 | 0.61 |
| 2:C:53:LYS:HG2 | 5:C:301:GSH:HA31 | 1.81 | 0.61 |
| 2:C:64:VAL:N | 7:C:420:HOH:O | 2.11 | 0.61 |
| 1:D:22:ARG:NH1 | 1:D:414:ASN:OD1 | 2.33 | 0.61 |
| 1:D:25:HIS:O | 1:D:29:LYS:HG2 | 2.00 | 0.61 |
| 1:D:507:VAL:HG12 | 1:D:510:ARG:NH2 | 2.16 | 0.61 |
| 2:E:8:LEU:HD13 | 2:E:44:LEU:HB2 | 1.81 | 0.61 |
| 1:A:461:ASP:HB3 | 1:A:528:PHE:CD2 | 2.34 | 0.61 |
| 2:B:9:ASP:OD1 | 2:B:10:TYR:N | 2.29 | 0.61 |
| 2:E:53:LYS:O | 7:E:409:HOH:O | 2.16 | 0.61 |
| 2:F:111:PHE:O | 7:F:419:HOH:O | 2.16 | 0.61 |
| 1:A:244:ASP:HB2 | 1:A:250:LEU:HA | 1.83 | 0.61 |
| 2:B:24:ARG:HH22 | 2:B:197:LYS:HB2 | 1.64 | 0.61 |
| 2:B:139:LEU:CD2 | 2:B:142:LYS:H | 2.14 | 0.61 |
| 1:D:364:LEU:HD12 | 1:D:402:ARG:HH22 | 1.66 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:114:TRP:HA | 2:C:170:PHE:HD2 | 1.66 | 0.61 |
| 2:E:51:HIS:HB3 | 2:E:53:LYS:HG3 | 1.82 | 0.61 |
| 1:A:149:PHE:CB | 1:A:530:LYS:HZ3 | 2.14 | 0.61 |
| 1:A:224:ALA:HB3 | 1:A:312:TYR:CE1 | 2.36 | 0.61 |
| 1:A:286:ASN:HA | 1:A:287:TRP:HE3 | 1.64 | 0.61 |
| 1:D:94:VAL:HG11 | 1:D:112:PRO:HB3 | 1.83 | 0.61 |
| 1:D:150:SER:HB3 | 1:D:170:TYR:CD2 | 2.35 | 0.61 |
| 2:C:32:TYR:H | 2:C:32:TYR:HD2 | 1.49 | 0.61 |
| 1:D:337:ILE:HD13 | 1:D:539:GLY:CA | 2.30 | 0.61 |
| 1:D:420:LYS:NZ | 7:D:774:HOH:O | 2.27 | 0.61 |
| 1:A:109:LYS:NZ | 1:A:401:TYR:OH | 2.28 | 0.60 |
| 1:A:242:VAL:HG21 | 1:A:278:ARG:HD3 | 1.82 | 0.60 |
| 1:A:309:MET:HB3 | 1:A:312:TYR:CE2 | 2.36 | 0.60 |
| 1:A:547:MET:SD | 1:A:549:ARG:NH2 | 2.71 | 0.60 |
| 2:B:139:LEU:HD21 | 2:B:142:LYS:O | 2.00 | 0.60 |
| 1:D:20:MET:HE2 | 1:D:356:PRO:HG2 | 1.83 | 0.60 |
| 1:D:233:THR:HA | 1:D:236:GLN:HE21 | 1.66 | 0.60 |
| 1:D:413:TYR:CD2 | 1:D:418:GLN:HG2 | 2.35 | 0.60 |
| 2:B:73:TYR:OH | 7:B:411:HOH:O | 2.16 | 0.60 |
| 1:D:76:TYR:O | 1:D:79:ARG:HB2 | 2.01 | 0.60 |
| 1:D:110:PHE:CE1 | 1:D:556:ALA:HB2 | 2.36 | 0.60 |
| 1:D:122:LEU:HD23 | 7:D:828:HOH:O | 2.01 | 0.60 |
| 1:D:362:GLU:HG3 | 1:D:400:ARG:NH2 | 2.15 | 0.60 |
| 1:A:232:ARG:O | 1:A:235:GLU:HG2 | 2.01 | 0.60 |
| 1:A:295:PHE:HD1 | 1:A:298:ALA:HB2 | 1.65 | 0.60 |
| 2:B:59:HIS:CE1 | 2:B:60:ASN:HD22 | 2.19 | 0.60 |
| 2:C:122:GLU:HA | 2:C:125:LYS:HE2 | 1.83 | 0.60 |
| 1:D:150:SER:CB | 1:D:167:THR:HA | 2.32 | 0.60 |
| 1:D:153:GLN:HA | 1:D:560:GLN:HG2 | 1.83 | 0.60 |
| 1:D:462:PHE:O | 1:D:549:ARG:NH1 | 2.35 | 0.60 |
| 2:F:183:ILE:HD12 | 2:F:186:ALA:HB3 | 1.83 | 0.60 |
| 1:A:92:HIS:ND1 | 2:B:181:LYS:HB3 | 2.16 | 0.60 |
| 1:A:246:LYS:HZ3 | 1:A:278:ARG:HH22 | 1.49 | 0.60 |
| 2:C:201:ASP:HB2 | 2:C:204:LYS:HG3 | 1.84 | 0.60 |
| 1:D:339:ALA:O | 7:D:740:HOH:O | 2.16 | 0.60 |
| 1:D:559:LEU:HA | 1:D:562:LEU:HB2 | 1.83 | 0.60 |
| 1:A:353:ALA:HB2 | 1:A:413:TYR:CD2 | 2.37 | 0.60 |
| 2:B:139:LEU:HG | 2:B:142:LYS:HB2 | 1.84 | 0.60 |
| 2:C:202:SER:OG | 1:D:454:GLU:OE2 | 2.17 | 0.60 |
| 1:A:465:TYR:HB3 | 1:A:476:ALA:HB3 | 1.83 | 0.60 |
| 1:D:535:PHE:HB3 | 1:D:544:GLN:O | 2.02 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:F:176:GLU:O | 2:F:177:SER:HB2 | 2.00 | 0.60 |
| 2:C:73:TYR:HA | 2:C:76:GLU:OE2 | 2.02 | 0.60 |
| 1:D:495:ASN:O | 1:D:499:ARG:NH1 | 2.35 | 0.60 |
| 2:F:8:LEU:HB2 | 2:F:56:VAL:HB | 1.84 | 0.60 |
| 2:F:64:VAL:HB | 2:F:73:TYR:CD2 | 2.37 | 0.60 |
| 2:F:144:TYR:HB3 | 2:F:154:ASP:OD2 | 2.01 | 0.60 |
| 1:A:363:PHE:O | 7:A:750:HOH:O | 2.17 | 0.60 |
| 1:D:467:ASP:OD1 | 1:D:474:HIS:N | 2.32 | 0.60 |
| 2:E:41:SER:OG | 7:E:403:HOH:O | 2.06 | 0.60 |
| 1:A:524:ALA:O | 7:A:749:HOH:O | 2.17 | 0.60 |
| 2:B:120:GLU:O | 7:B:414:HOH:O | 2.17 | 0.60 |
| 1:D:425:ARG:NH2 | 7:D:791:HOH:O | 2.33 | 0.60 |
| 1:A:41:SER:H | 2:B:142:LYS:HG2 | 1.65 | 0.60 |
| 1:A:223:PHE:HD2 | 1:A:225:HIS:CD2 | 2.19 | 0.60 |
| 1:D:122:LEU:O | 1:D:126:ARG:HG2 | 2.02 | 0.60 |
| 1:D:152:LYS:HA | 1:D:564:GLU:HB2 | 1.84 | 0.60 |
| 1:D:454:GLU:HG2 | 7:D:798:HOH:O | 2.01 | 0.60 |
| 2:E:92:ARG:CZ | 2:E:96:ARG:HH12 | 2.13 | 0.60 |
| 1:A:28:GLN:OE1 | 1:A:379:LEU:HD22 | 2.02 | 0.59 |
| 1:A:437:THR:O | 1:A:440:ASP:N | 2.35 | 0.59 |
| 2:C:64:VAL:HB | 2:C:73:TYR:CE2 | 2.37 | 0.59 |
| 1:D:148:ILE:O | 1:D:205:HIS:HE1 | 1.84 | 0.59 |
| 1:D:506:TYR:HB3 | 1:D:510:ARG:HH21 | 1.67 | 0.59 |
| 1:D:513:LYS:NZ | 1:D:575:PHE:HB3 | 2.16 | 0.59 |
| 2:E:58:VAL:HG22 | 2:E:63:PRO:HB3 | 1.82 | 0.59 |
| 2:F:67:SER:OG | 5:F:301:GSH:O12 | 2.13 | 0.59 |
| 2:F:70:VAL:O | 2:F:73:TYR:HB2 | 2.02 | 0.59 |
| 1:A:42:ALA:HB1 | 1:A:44:TYR:CE1 | 2.38 | 0.59 |
| 1:A:149:PHE:HB2 | 1:A:530:LYS:HZ3 | 1.66 | 0.59 |
| 2:B:66:GLU:N | 7:B:420:HOH:O | 2.21 | 0.59 |
| 1:D:223:PHE:CZ | 1:D:533:GLU:HA | 2.36 | 0.59 |
| 1:A:113:PHE:CD1 | 1:A:117:LEU:HD13 | 2.37 | 0.59 |
| 2:B:150:PHE:HB2 | 2:B:192:LYS:HZ2 | 1.67 | 0.59 |
| 2:C:163:TRP:HB3 | 2:C:167:TYR:CZ | 2.36 | 0.59 |
| 2:C:183:ILE:HG12 | 1:D:492:ASP:CG | 2.22 | 0.59 |
| 2:E:92:ARG:NH1 | 2:E:96:ARG:HH12 | 1.99 | 0.59 |
| 2:F:82:ASN:O | 7:F:420:HOH:O | 2.17 | 0.59 |
| 2:F:195:VAL:HG23 | 2:F:199:LEU:HD13 | 1.84 | 0.59 |
| 1:A:260:ARG:NE | 7:A:796:HOH:O | 2.29 | 0.59 |
| 1:A:287:TRP:CD1 | 1:A:290:LEU:HD13 | 2.37 | 0.59 |
| 1:D:473:GLY:O | 1:D:516:GLY:N | 2.32 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:E:50:ILE:HD12 | 2:F:101:PHE:CZ | 2.37 | 0.59 |
| 2:F:114:TRP:HA | 2:F:170:PHE:HD2 | 1.66 | 0.59 |
| 1:A:93:PRO:HG3 | 2:B:184:ALA:CB | 2.27 | 0.59 |
| 1:A:154:TYR:OH | 1:A:156:SER:OG | 2.19 | 0.59 |
| 1:A:248:GLY:HA2 | 1:A:267:LEU:HD22 | 1.83 | 0.59 |
| 2:B:96:ARG:NH1 | 2:C:73:TYR:CD1 | 2.69 | 0.59 |
| 1:D:61:PHE:O | 1:D:65:VAL:HG12 | 2.02 | 0.59 |
| 1:A:407:VAL:HG11 | 1:A:419:LEU:HD13 | 1.84 | 0.59 |
| 1:D:219:VAL:HB | 1:D:295:PHE:CZ | 2.37 | 0.59 |
| 2:E:8:LEU:O | 2:E:55:PRO:HA | 2.02 | 0.59 |
| 1:A:473:GLY:O | 1:A:516:GLY:N | 2.34 | 0.59 |
| 2:C:180:PRO:HG2 | 1:D:574:ALA:HA | 1.85 | 0.59 |
| 2:B:107:THR:HA | 2:B:110:GLN:HG2 | 1.85 | 0.59 |
| 1:D:409:VAL:N | 7:D:738:HOH:O | 2.31 | 0.59 |
| 2:E:136:GLU:OE2 | 2:E:181:LYS:HD3 | 2.02 | 0.59 |
| 1:A:24:ALA:O | 7:A:752:HOH:O | 2.17 | 0.59 |
| 1:A:184:SER:HB2 | 1:A:217:GLN:HE21 | 1.68 | 0.59 |
| 1:A:40:GLN:HG2 | 2:B:142:LYS:HD2 | 1.85 | 0.58 |
| 1:A:79:ARG:NH2 | 2:B:188:ARG:NH1 | 2.51 | 0.58 |
| 1:A:314:PRO:HB3 | 1:A:317:ARG:HH12 | 1.66 | 0.58 |
| 1:D:73:LEU:HD22 | 1:D:89:LEU:HD13 | 1.84 | 0.58 |
| 1:D:209:GLY:N | 7:D:727:HOH:O | 2.36 | 0.58 |
| 2:F:164:PHE:CD2 | 2:F:183:ILE:HD13 | 2.34 | 0.58 |
| 2:C:26:LYS:HE2 | 2:C:75:ASP:HA | 1.85 | 0.58 |
| 1:A:99:LEU:HB2 | 1:A:557:LYS:H | 1.68 | 0.58 |
| 1:A:291:ILE:HB | 1:A:320:ALA:HA | 1.84 | 0.58 |
| 1:A:401:TYR:CE2 | 1:A:403:LEU:HD13 | 2.37 | 0.58 |
| 1:A:434:ASP:OD2 | 7:A:751:HOH:O | 2.17 | 0.58 |
| 2:B:165:GLN:HB3 | 7:B:486:HOH:O | 2.02 | 0.58 |
| 2:E:62:LYS:HD3 | 2:F:90:TYR:CD2 | 2.39 | 0.58 |
| 2:F:165:GLN:OE1 | 2:F:202:SER:HB2 | 2.02 | 0.58 |
| 1:A:48:CYS:HB3 | 1:A:65:VAL:HG22 | 1.85 | 0.58 |
| 1:D:521:ARG:NH2 | 1:D:563:CYS:SG | 2.77 | 0.58 |
| 2:F:188:ARG:HD2 | 2:F:191:GLU:OE2 | 2.03 | 0.58 |
| 1:D:417:PRO:O | 7:D:742:HOH:O | 2.17 | 0.58 |
| 2:E:116:LYS:O | 7:E:410:HOH:O | 2.17 | 0.58 |
| 2:F:142:LYS:HB3 | 7:F:424:HOH:O | 2.03 | 0.58 |
| 1:A:90:THR:HG23 | 1:A:397:GLY:CA | 2.33 | 0.58 |
| 1:A:107:ARG:HH21 | 1:A:433:ILE:HG12 | 1.68 | 0.58 |
| 1:A:424:ARG:HG3 | 1:A:425:ARG:H | 1.68 | 0.58 |
| 2:B:152:TYR:O | 2:B:155:ILE:HG13 | 2.04 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:98:TRP:CZ2 | 2:C:135:LEU:HD21 | 2.38 | 0.58 |
| 1:D:62:LYS:HE2 | 1:D:376:PRO:HG2 | 1.85 | 0.58 |
| 1:D:80:MET:SD | 1:D:87:PRO:HA | 2.44 | 0.58 |
| 2:F:9:ASP:HB3 | 7:F:482:HOH:O | 2.04 | 0.58 |
| 2:F:33:ARG:HH12 | 2:F:41:SER:CB | 2.16 | 0.58 |
| 1:A:48:CYS:SG | 1:A:65:VAL:HG13 | 2.44 | 0.58 |
| 1:A:79:ARG:HH22 | 2:B:188:ARG:HH12 | 1.51 | 0.58 |
| 1:A:152:LYS:CG | 1:A:561:ILE:HA | 2.33 | 0.58 |
| 1:D:88:ILE:HD12 | 1:D:89:LEU:HB2 | 1.85 | 0.58 |
| 1:D:153:GLN:H | 1:D:564:GLU:HB2 | 1.68 | 0.58 |
| 1:D:480:GLU:OE2 | 1:D:527:THR:N | 2.36 | 0.58 |
| 1:A:36:LEU:HD22 | 1:A:61:PHE:HZ | 1.68 | 0.58 |
| 1:A:149:PHE:HB2 | 1:A:530:LYS:NZ | 2.19 | 0.58 |
| 2:E:8:LEU:HD12 | 2:E:56:VAL:HB | 1.85 | 0.58 |
| 1:D:143:LYS:N | 7:D:765:HOH:O | 2.29 | 0.58 |
| 1:D:231:PHE:HB3 | 1:D:290:LEU:HD13 | 1.85 | 0.58 |
| 2:F:84:PHE:CD1 | 2:F:152:TYR:HB2 | 2.38 | 0.58 |
| 2:B:125:LYS:HB3 | 2:B:173:PHE:HE2 | 1.68 | 0.57 |
| 2:C:51:HIS:ND1 | 7:C:423:HOH:O | 2.33 | 0.57 |
| 2:C:140:GLY:N | 2:C:181:LYS:HZ3 | 2.02 | 0.57 |
| 1:D:38:LYS:O | 2:E:142:LYS:HG3 | 2.02 | 0.57 |
| 1:A:445:VAL:HG22 | 7:A:762:HOH:O | 2.04 | 0.57 |
| 1:A:450:LYS:HA | 1:A:453:SER:HB3 | 1.86 | 0.57 |
| 2:B:125:LYS:O | 2:B:129:ILE:HG12 | 2.04 | 0.57 |
| 1:D:44:TYR:CB | 1:D:89:LEU:HG | 2.34 | 0.57 |
| 1:D:363:PHE:HB3 | 1:D:388:TYR:HB3 | 1.85 | 0.57 |
| 2:F:135:LEU:HD13 | 2:F:182:LEU:HD11 | 1.86 | 0.57 |
| 1:A:274:ALA:HB1 | 1:A:278:ARG:CZ | 2.34 | 0.57 |
| 1:A:287:TRP:HD1 | 1:A:290:LEU:HD13 | 1.68 | 0.57 |
| 1:D:11:ASN:O | 1:D:14:ILE:HG13 | 2.04 | 0.57 |
| 1:D:99:LEU:HD12 | 1:D:100:SER:N | 2.19 | 0.57 |
| 1:D:107:ARG:HH22 | 1:D:552:LYS:HB3 | 1.69 | 0.57 |
| 1:D:407:VAL:HG22 | 1:D:541:SER:HB2 | 1.85 | 0.57 |
| 2:E:195:VAL:HG13 | 2:E:199:LEU:HD13 | 1.85 | 0.57 |
| 2:F:98:TRP:CZ2 | 2:F:157:LEU:HD22 | 2.39 | 0.57 |
| 1:A:23:ASN:OD1 | 1:A:26:GLN:HG2 | 2.04 | 0.57 |
| 1:A:348:GLU:OE1 | 7:A:753:HOH:O | 2.18 | 0.57 |
| 2:C:26:LYS:HG2 | 2:C:81:LYS:HZ3 | 1.69 | 0.57 |
| 1:D:394:ASN:OD1 | 1:D:398:LEU:HD11 | 2.04 | 0.57 |
| 1:A:559:LEU:O | 1:A:562:LEU:HG | 2.04 | 0.57 |
| 1:D:330:TYR:OH | 1:D:541:SER:N | 2.36 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:528:PHE:HA | 1:D:531:ILE:HG12 | 1.87 | 0.57 |
| 1:A:32:LEU:HB2 | 1:A:360:TYR:CD1 | 2.39 | 0.57 |
| 1:D:154:TYR:HB3 | 1:D:560:GLN:HA | 1.86 | 0.57 |
| 1:D:342:THR:OG1 | 1:D:413:TYR:OH | 2.12 | 0.57 |
| 1:D:377:VAL:O | 7:D:745:HOH:O | 2.18 | 0.57 |
| 2:F:64:VAL:HB | 2:F:73:TYR:CE2 | 2.39 | 0.57 |
| 1:A:122:LEU:HD21 | 1:A:178:GLY:HA3 | 1.86 | 0.57 |
| 1:A:338:ALA:HA | 1:A:354:VAL:HA | 1.85 | 0.57 |
| 1:A:441:LEU:HG | 1:A:462:PHE:CE2 | 2.39 | 0.57 |
| 2:C:70:VAL:O | 2:C:73:TYR:HB2 | 2.04 | 0.57 |
| 1:D:168:ASN:ND2 | 7:D:732:HOH:O | 2.15 | 0.57 |
| 1:D:207:LEU:O | 1:D:210:ILE:HG22 | 2.05 | 0.57 |
| 1:A:435:LYS:HA | 1:A:436:ASN:HB2 | 1.87 | 0.57 |
| 2:C:184:ALA:HB1 | 1:D:499:ARG:NE | 2.19 | 0.57 |
| 1:D:108:PRO:HB2 | 1:D:554:SER:OG | 2.05 | 0.57 |
| 1:D:389:GLU:OE1 | 7:D:744:HOH:O | 2.17 | 0.57 |
| 1:A:26:GLN:HA | 1:A:29:LYS:HG2 | 1.86 | 0.57 |
| 1:A:32:LEU:HD21 | 1:A:61:PHE:HD2 | 1.70 | 0.57 |
| 1:A:237:VAL:HG11 | 7:A:1029:HOH:O | 2.05 | 0.57 |
| 2:C:17:MET:SD | 2:C:199:LEU:HG | 2.44 | 0.57 |
| 1:D:8:PHE:CD1 | 1:D:182:ILE:HG22 | 2.39 | 0.57 |
| 1:D:382:VAL:HG13 | 1:D:388:TYR:CE2 | 2.40 | 0.57 |
| 2:E:113:VAL:O | 7:E:410:HOH:O | 2.17 | 0.57 |
| 1:A:231:PHE:HA | 1:A:234:PHE:HB3 | 1.86 | 0.56 |
| 2:B:152:TYR:OH | 7:B:413:HOH:O | 2.16 | 0.56 |
| 2:B:162:SER:HB3 | 2:B:199:LEU:HD23 | 1.86 | 0.56 |
| 1:D:284:LEU:HD13 | 1:D:287:TRP:H | 1.69 | 0.56 |
| 1:A:37:LEU:HD11 | 2:B:90:TYR:HE2 | 1.69 | 0.56 |
| 1:D:405:ASP:OD1 | 1:D:405:ASP:N | 2.36 | 0.56 |
| 2:F:98:TRP:CZ2 | 2:F:135:LEU:HD21 | 2.40 | 0.56 |
| 1:A:132:ARG:O | 1:A:136:PHE:N | 2.38 | 0.56 |
| 1:A:206:LEU:HD12 | 1:A:207:LEU:N | 2.20 | 0.56 |
| 2:C:123:ALA:HB2 | 7:C:476:HOH:O | 2.05 | 0.56 |
| 1:D:196:PRO:HA | 1:D:565:ASN:OD1 | 2.06 | 0.56 |
| 2:F:29:GLU:N | 7:F:433:HOH:O | 2.38 | 0.56 |
| 1:A:207:LEU:HD13 | 1:A:245:ILE:HD11 | 1.87 | 0.56 |
| 1:A:506:TYR:HA | 1:A:509:SER:HB2 | 1.87 | 0.56 |
| 1:D:451:ARG:NH1 | 1:D:454:GLU:OE1 | 2.38 | 0.56 |
| 2:F:68:LEU:HA | 2:F:71:VAL:HG12 | 1.88 | 0.56 |
| 1:A:174:ASN:ND2 | 7:A:818:HOH:O | 2.39 | 0.56 |
| 2:B:150:PHE:HB2 | 2:B:192:LYS:NZ | 2.20 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:99:LEU:HD22 | 1:D:555:ASN:HB3 | 1.88 | 0.56 |
| 2:E:85:PHE:CE1 | 2:E:152:TYR:HB2 | 2.40 | 0.56 |
| 1:A:233:THR:O | 1:A:236:GLN:N | 2.39 | 0.56 |
| 1:D:330:TYR:HE1 | 1:D:536:LEU:O | 1.89 | 0.56 |
| 1:A:120:ASN:O | 1:A:124:LEU:HG | 2.06 | 0.56 |
| 1:A:228:VAL:O | 1:A:232:ARG:N | 2.38 | 0.56 |
| 2:C:10:TYR:HH | 2:C:208:TYR:HH | 1.53 | 0.56 |
| 1:D:221:ALA:HB3 | 1:D:227:LEU:HG | 1.87 | 0.56 |
| 1:D:360:TYR:C | 1:D:361:PHE:HD1 | 2.10 | 0.56 |
| 1:A:101:SER:HB3 | 1:A:535:PHE:CD2 | 2.41 | 0.56 |
| 1:A:165:ALA:HB3 | 4:A:602:VAL:HA | 1.87 | 0.56 |
| 1:A:523:VAL:HG22 | 1:A:524:ALA:H | 1.71 | 0.56 |
| 1:D:242:VAL:O | 1:D:246:LYS:HB2 | 2.05 | 0.56 |
| 1:D:451:ARG:NH1 | 1:D:454:GLU:CD | 2.59 | 0.56 |
| 2:E:144:TYR:HB3 | 2:E:154:ASP:OD2 | 2.06 | 0.56 |
| 2:F:183:ILE:O | 2:F:186:ALA:N | 2.37 | 0.56 |
| 1:A:86:SER:HB2 | 2:B:188:ARG:NE | 2.21 | 0.56 |
| 1:D:110:PHE:CD2 | 1:D:554:SER:HA | 2.41 | 0.56 |
| 1:D:146:GLN:NE2 | 7:D:760:HOH:O | 2.22 | 0.56 |
| 1:D:166:THR:HG22 | 4:D:602:VAL:HB | 1.87 | 0.56 |
| 1:D:233:THR:O | 1:D:237:VAL:HG22 | 2.06 | 0.56 |
| 2:E:50:ILE:HG13 | 2:E:51:HIS:N | 2.18 | 0.56 |
| 1:A:171:ARG:HB2 | 7:A:709:HOH:O | 2.05 | 0.56 |
| 1:A:363:PHE:HB3 | 1:A:388:TYR:HB3 | 1.87 | 0.56 |
| 2:B:37:PHE:CE1 | 5:B:301:GSH:HA32 | 2.41 | 0.56 |
| 1:A:523:VAL:HG11 | 1:A:527:THR:HG21 | 1.88 | 0.55 |
| 1:D:96:ALA:HA | 1:D:161:PRO:O | 2.05 | 0.55 |
| 1:D:363:PHE:HD2 | 1:D:382:VAL:HG21 | 1.70 | 0.55 |
| 2:F:64:VAL:HG23 | 2:F:70:VAL:HG22 | 1.88 | 0.55 |
| 2:F:185:TRP:NE1 | 2:F:189:CYS:SG | 2.79 | 0.55 |
| 1:D:47:ASN:OD1 | 7:D:749:HOH:O | 2.18 | 0.55 |
| 1:D:113:PHE:CD1 | 1:D:117:LEU:HD12 | 2.40 | 0.55 |
| 1:D:169:VAL:HG23 | 7:D:770:HOH:O | 2.06 | 0.55 |
| 1:D:188:SER:OG | 1:D:205:HIS:CD2 | 2.59 | 0.55 |
| 1:D:434:ASP:HB2 | 1:D:550:CYS:HB3 | 1.88 | 0.55 |
| 1:D:495:ASN:CB | 1:D:499:ARG:NH1 | 2.68 | 0.55 |
| 2:F:17:MET:SD | 2:F:199:LEU:HG | 2.46 | 0.55 |
| 1:A:79:ARG:HH12 | 2:B:188:ARG:HH12 | 1.53 | 0.55 |
| 1:A:92:HIS:CE1 | 2:B:139:LEU:HD22 | 2.42 | 0.55 |
| 1:A:97:ILE:HD13 | 1:A:112:PRO:HA | 1.87 | 0.55 |
| 1:A:493:CYS:HB3 | 7:A:940:HOH:O | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:135:LEU:HD13 | 2:C:182:LEU:HD11 | 1.87 | 0.55 |
| 1:D:101:SER:HB3 | 1:D:535:PHE:CD2 | 2.41 | 0.55 |
| 1:D:110:PHE:O | 7:D:746:HOH:O | 2.18 | 0.55 |
| 1:D:332:SER:HB2 | 1:D:538:LEU:HA | 1.88 | 0.55 |
| 1:D:541:SER:O | 1:D:543:GLY:N | 2.39 | 0.55 |
| 2:E:173:PHE:HE1 | 2:E:175:ILE:HG13 | 1.72 | 0.55 |
| 2:E:193:GLU:OE1 | 2:E:196:SER:OG | 2.23 | 0.55 |
| 1:A:143:LYS:NZ | 1:A:208:SER:O | 2.39 | 0.55 |
| 1:A:152:LYS:HZ1 | 1:A:530:LYS:HZ3 | 1.39 | 0.55 |
| 1:D:149:PHE:HB2 | 1:D:530:LYS:HE2 | 1.89 | 0.55 |
| 1:D:223:PHE:HD2 | 1:D:225:HIS:CE1 | 2.25 | 0.55 |
| 2:E:20:ARG:HB3 | 2:E:24:ARG:HH12 | 1.69 | 0.55 |
| 2:F:123:ALA:HB2 | 7:F:411:HOH:O | 2.05 | 0.55 |
| 1:A:150:SER:OG | 1:A:150:SER:O | 2.22 | 0.55 |
| 1:A:437:THR:OG1 | 1:A:440:ASP:HB2 | 2.07 | 0.55 |
| 1:D:39:ASN:ND2 | 1:D:399:TYR:OH | 2.39 | 0.55 |
| 1:D:68:VAL:HG12 | 1:D:72:GLU:HB2 | 1.88 | 0.55 |
| 1:D:328:HIS:CG | 1:D:329:ASP:N | 2.74 | 0.55 |
| 2:F:170:PHE:C | 2:F:172:ASN:H | 2.08 | 0.55 |
| 1:A:121:THR:HG22 | 1:A:336:TRP:CZ2 | 2.41 | 0.55 |
| 2:C:54:ILE:HB | 2:C:55:PRO:HA | 1.88 | 0.55 |
| 1:D:164:THR:HA | 1:D:557:LYS:HG3 | 1.87 | 0.55 |
| 1:D:228:VAL:HG13 | 1:D:319:TYR:HE2 | 1.72 | 0.55 |
| 1:D:551:VAL:HB | 1:D:555:ASN:HB2 | 1.87 | 0.55 |
| 2:F:73:TYR:HA | 2:F:76:GLU:OE2 | 2.07 | 0.55 |
| 1:A:238:TRP:CA | 1:A:241:ILE:HB | 2.36 | 0.55 |
| 1:A:340:ASN:ND2 | 1:A:343:PRO:HA | 2.20 | 0.55 |
| 2:C:165:GLN:HA | 2:C:168:GLU:OE1 | 2.07 | 0.55 |
| 1:D:150:SER:O | 1:D:150:SER:OG | 2.20 | 0.55 |
| 2:E:11:TRP:CG | 2:E:12:PRO:HD3 | 2.41 | 0.55 |
| 2:F:125:LYS:HA | 2:F:128:PHE:CE2 | 2.42 | 0.55 |
| 1:A:28:GLN:HG3 | 1:A:356:PRO:O | 2.07 | 0.55 |
| 1:A:169:VAL:HG13 | 1:A:170:TYR:CD1 | 2.42 | 0.55 |
| 1:A:503:ASP:OD2 | 1:A:505:GLY:N | 2.38 | 0.55 |
| 2:B:139:LEU:O | 2:B:141:ASP:N | 2.40 | 0.55 |
| 2:C:96:ARG:N | 7:C:440:HOH:O | 2.40 | 0.55 |
| 1:D:75:PRO:O | 1:D:79:ARG:HG3 | 2.07 | 0.55 |
| 1:D:437:THR:O | 1:D:440:ASP:N | 2.40 | 0.55 |
| 1:D:495:ASN:O | 1:D:498:ASP:HB2 | 2.06 | 0.55 |
| 1:D:524:ALA:HB2 | 1:D:567:VAL:CG1 | 2.36 | 0.55 |
| 2:E:93:ALA:CB | 2:F:73:TYR:CE1 | 2.90 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:F:200:PRO:HG3 | 7:F:494:HOH:O | 2.06 | 0.55 |
| 2:C:87:SER:HB3 | 7:C:502:HOH:O | 2.06 | 0.55 |
| 1:D:43:ILE:O | 1:D:46:GLN:HG2 | 2.07 | 0.55 |
| 1:A:201:ALA:O | 1:A:205:HIS:N | 2.40 | 0.55 |
| 1:A:228:VAL:O | 1:A:232:ARG:HG3 | 2.06 | 0.55 |
| 2:B:76:GLU:OE2 | 2:C:92:ARG:NH2 | 2.40 | 0.55 |
| 2:E:205:ILE:HG12 | 7:E:404:HOH:O | 2.06 | 0.55 |
| 1:A:78:LYS:NZ | 7:A:720:HOH:O | 2.06 | 0.54 |
| 1:A:315:LYS:O | 1:A:318:HIS:HB3 | 2.07 | 0.54 |
| 2:B:93:ALA:HB1 | 2:C:73:TYR:CZ | 2.43 | 0.54 |
| 2:C:185:TRP:NE1 | 2:C:189:CYS:SG | 2.80 | 0.54 |
| 2:E:201:ASP:OD2 | 2:E:204:LYS:HE3 | 2.07 | 0.54 |
| 1:A:15:ASP:OD1 | 1:A:16:GLU:N | 2.40 | 0.54 |
| 1:A:92:HIS:HD2 | 2:B:140:GLY:O | 1.89 | 0.54 |
| 1:A:151:SER:HB2 | 1:A:194:PHE:HA | 1.88 | 0.54 |
| 1:A:212:PHE:HB3 | 1:A:215:GLN:NE2 | 2.23 | 0.54 |
| 2:C:8:LEU:HD22 | 2:C:33:ARG:NH2 | 2.22 | 0.54 |
| 2:C:209:ALA:HB2 | 7:C:434:HOH:O | 2.06 | 0.54 |
| 1:D:107:ARG:CZ | 1:D:433:ILE:HG13 | 2.38 | 0.54 |
| 1:D:363:PHE:HE1 | 1:D:390:VAL:HG23 | 1.71 | 0.54 |
| 1:D:513:LYS:HZ2 | 1:D:575:PHE:HB3 | 1.71 | 0.54 |
| 2:E:70:VAL:HA | 2:E:73:TYR:HE2 | 1.71 | 0.54 |
| 2:F:86:PRO:HD3 | 2:F:146:GLY:O | 2.08 | 0.54 |
| 1:A:77:ILE:CG2 | 1:A:110:PHE:HB3 | 2.37 | 0.54 |
| 1:A:314:PRO:HA | 1:A:317:ARG:NH1 | 2.22 | 0.54 |
| 2:C:44:LEU:HB3 | 7:C:415:HOH:O | 2.07 | 0.54 |
| 2:C:102:VAL:O | 2:C:107:THR:HG23 | 2.07 | 0.54 |
| 2:C:168:GLU:OE2 | 1:D:488:ASP:OD2 | 2.26 | 0.54 |
| 1:D:337:ILE:CD1 | 1:D:361:PHE:HE2 | 2.20 | 0.54 |
| 2:E:14:MET:HA | 2:E:17:MET:HE3 | 1.88 | 0.54 |
| 1:A:84:ASP:C | 1:A:86:SER:H | 2.11 | 0.54 |
| 1:D:202:LEU:HD23 | 1:D:525:LYS:HD2 | 1.89 | 0.54 |
| 2:F:121:GLN:O | 2:F:125:LYS:HG3 | 2.08 | 0.54 |
| 1:A:340:ASN:HB2 | 1:A:352:PHE:CE2 | 2.42 | 0.54 |
| 2:C:50:ILE:HD12 | 7:C:489:HOH:O | 2.07 | 0.54 |
| 2:C:164:PHE:O | 2:C:168:GLU:HG3 | 2.08 | 0.54 |
| 1:A:118:MET:O | 1:A:121:THR:OG1 | 2.24 | 0.54 |
| 1:A:424:ARG:C | 1:A:543:GLY:HA2 | 2.27 | 0.54 |
| 1:D:42:ALA:HB3 | 1:D:45:LEU:HD13 | 1.89 | 0.54 |
| 1:D:425:ARG:NH1 | 1:D:546:LYS:HE3 | 2.23 | 0.54 |
| 1:A:92:HIS:CE1 | 2:B:185:TRP:CZ2 | 2.96 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:193:ILE:HA | 1:A:205:HIS:CE1 | 2.43 | 0.54 |
| 1:A:32:LEU:HD22 | 1:A:360:TYR:CE2 | 2.43 | 0.54 |
| 1:A:334:GLU:OE1 | 1:A:403:LEU:HD21 | 2.07 | 0.54 |
| 1:A:369:THR:OG1 | 1:A:370:GLY:N | 2.40 | 0.54 |
| 1:D:10:MET:HA | 7:D:710:HOH:O | 2.08 | 0.54 |
| 1:D:22:ARG:NH1 | 1:D:414:ASN:CG | 2.62 | 0.54 |
| 1:D:77:ILE:HG12 | 1:D:110:PHE:C | 2.29 | 0.54 |
| 1:D:99:LEU:H | 1:D:557:LYS:HB2 | 1.73 | 0.54 |
| 1:D:353:ALA:HB2 | 1:D:413:TYR:HD2 | 1.72 | 0.54 |
| 1:D:382:VAL:HG13 | 1:D:388:TYR:CD2 | 2.43 | 0.54 |
| 2:E:92:ARG:NH2 | 7:E:424:HOH:O | 2.40 | 0.54 |
| 2:E:107:THR:HG22 | 2:E:160:PHE:CZ | 2.43 | 0.54 |
| 1:A:203:TYR:HD2 | 1:A:254:ILE:HD11 | 1.73 | 0.54 |
| 2:B:108:ASP:O | 2:B:112:LYS:HG2 | 2.08 | 0.54 |
| 2:C:24:ARG:HB3 | 2:C:194:SER:HA | 1.90 | 0.54 |
| 2:C:187:LYS:HZ3 | 1:D:496:CYS:HB2 | 1.73 | 0.54 |
| 1:D:452:LEU:HD23 | 1:D:481:ILE:HG21 | 1.89 | 0.54 |
| 1:D:551:VAL:HG21 | 1:D:559:LEU:HD23 | 1.90 | 0.54 |
| 2:E:17:MET:SD | 2:E:200:PRO:HD2 | 2.48 | 0.54 |
| 1:A:83:GLY:H | 1:A:158:GLY:HA3 | 1.72 | 0.53 |
| 1:A:128:ALA:HA | 1:A:131:PHE:CD2 | 2.43 | 0.53 |
| 1:A:152:LYS:CE | 1:A:530:LYS:NZ | 2.65 | 0.53 |
| 1:A:339:ALA:N | 1:A:353:ALA:O | 2.29 | 0.53 |
| 1:A:526:GLY:HA2 | 1:A:529:ARG:HB3 | 1.88 | 0.53 |
| 1:A:562:LEU:HB3 | 7:A:713:HOH:O | 2.08 | 0.53 |
| 1:D:76:TYR:HB3 | 1:D:88:ILE:HD13 | 1.90 | 0.53 |
| 1:D:195:SER:HB3 | 1:D:201:ALA:HB2 | 1.90 | 0.53 |
| 1:D:246:LYS:CE | 1:D:271:PRO:HA | 2.37 | 0.53 |
| 2:E:193:GLU:HA | 2:E:196:SER:OG | 2.09 | 0.53 |
| 1:A:94:VAL:HB | 1:A:113:PHE:O | 2.07 | 0.53 |
| 1:A:154:TYR:CE2 | 1:A:559:LEU:HB3 | 2.42 | 0.53 |
| 1:A:216:VAL:HG21 | 7:A:778:HOH:O | 2.07 | 0.53 |
| 1:A:223:PHE:CZ | 1:A:533:GLU:HA | 2.44 | 0.53 |
| 2:C:98:TRP:CD1 | 2:C:153:VAL:HG11 | 2.44 | 0.53 |
| 1:A:233:THR:HG23 | 1:A:525:LYS:NZ | 2.22 | 0.53 |
| 1:A:310:GLU:HG3 | 1:A:311:PRO:HD3 | 1.90 | 0.53 |
| 1:A:435:LYS:HE3 | 1:A:438:GLU:CB | 2.38 | 0.53 |
| 2:C:40:LYS:HD2 | 2:C:52:LYS:HB3 | 1.91 | 0.53 |
| 1:D:79:ARG:NH1 | 7:D:800:HOH:O | 2.40 | 0.53 |
| 1:D:445:VAL:HG21 | 1:D:462:PHE:CD1 | 2.43 | 0.53 |
| 2:F:57:LEU:O | 2:F:64:VAL:HG22 | 2.08 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:36:LEU:HD22 | 1:A:61:PHE:CZ | 2.44 | 0.53 |
| 1:A:144:ALA:HA | 7:A:745:HOH:O | 2.08 | 0.53 |
| 1:A:287:TRP:HB3 | 7:A:1021:HOH:O | 2.08 | 0.53 |
| 1:A:291:ILE:HG21 | 1:A:301:VAL:HG22 | 1.91 | 0.53 |
| 1:D:85:THR:HB | 2:E:184:ALA:HB1 | 1.90 | 0.53 |
| 1:D:302:TYR:HD1 | 1:D:326:VAL:HG13 | 1.72 | 0.53 |
| 1:D:475:TYR:HB2 | 1:D:518:LEU:HG | 1.90 | 0.53 |
| 2:E:66:GLU:CD | 2:F:97:PHE:HD1 | 2.11 | 0.53 |
| 2:F:51:HIS:O | 7:F:421:HOH:O | 2.17 | 0.53 |
| 1:A:11:ASN:O | 1:A:14:ILE:HG13 | 2.08 | 0.53 |
| 1:A:334:GLU:O | 1:A:394:ASN:ND2 | 2.40 | 0.53 |
| 2:B:134:ILE:HG22 | 2:B:138:GLU:OE2 | 2.08 | 0.53 |
| 2:C:108:ASP:O | 2:C:112:LYS:HG2 | 2.08 | 0.53 |
| 2:C:125:LYS:HA | 2:C:128:PHE:CE2 | 2.44 | 0.53 |
| 1:D:126:ARG:HD2 | 1:D:182:ILE:HG21 | 1.91 | 0.53 |
| 1:D:199:HIS:HA | 1:D:525:LYS:HB2 | 1.91 | 0.53 |
| 2:C:102:VAL:HG21 | 2:C:157:LEU:HB3 | 1.91 | 0.53 |
| 1:D:295:PHE:HD1 | 1:D:298:ALA:HB2 | 1.74 | 0.53 |
| 2:F:108:ASP:O | 2:F:112:LYS:HG2 | 2.07 | 0.53 |
| 1:A:510:ARG:CZ | 1:A:515:ILE:HD12 | 2.38 | 0.53 |
| 2:B:24:ARG:HG3 | 2:B:30:PHE:HE1 | 1.74 | 0.53 |
| 2:C:187:LYS:NZ | 2:C:187:LYS:HB2 | 2.23 | 0.53 |
| 1:D:244:ASP:OD1 | 1:D:251:SER:HB2 | 2.09 | 0.53 |
| 1:D:381:GLN:O | 7:D:750:HOH:O | 2.19 | 0.53 |
| 1:D:495:ASN:CB | 1:D:499:ARG:HH12 | 2.20 | 0.53 |
| 1:D:559:LEU:O | 1:D:562:LEU:HB3 | 2.09 | 0.53 |
| 2:E:53:LYS:HG2 | 5:E:301:GSH:HA31 | 1.90 | 0.53 |
| 2:F:26:LYS:HG2 | 2:F:81:LYS:HZ1 | 1.71 | 0.53 |
| 1:A:218:TYR:HA | 1:A:298:ALA:HB1 | 1.91 | 0.53 |
| 2:B:168:GLU:OE1 | 7:B:415:HOH:O | 2.18 | 0.53 |
| 2:C:188:ARG:HH12 | 1:D:500:ALA:CA | 2.02 | 0.53 |
| 1:D:139:ASP:OD2 | 1:D:142:GLY:N | 2.42 | 0.53 |
| 1:D:400:ARG:HB2 | 7:D:728:HOH:O | 2.09 | 0.53 |
| 1:D:522:VAL:O | 1:D:567:VAL:HG22 | 2.09 | 0.53 |
| 2:E:26:LYS:HG3 | 2:E:82:ASN:HD21 | 1.72 | 0.53 |
| 2:B:201:ASP:HB2 | 2:B:204:LYS:HG3 | 1.91 | 0.53 |
| 1:D:534:HIS:CD2 | 1:D:557:LYS:HD3 | 2.44 | 0.53 |
| 1:A:538:LEU:HD22 | 1:A:544:GLN:HE21 | 1.74 | 0.53 |
| 1:D:206:LEU:O | 1:D:210:ILE:HB | 2.09 | 0.53 |
| 1:D:251:SER:O | 1:D:254:ILE:HG12 | 2.07 | 0.53 |
| 1:D:465:TYR:HB3 | 1:D:476:ALA:HB3 | 1.89 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:507:VAL:O | 1:D:511:LYS:HB2 | 2.09 | 0.53 |
| 2:B:165:GLN:O | 2:B:168:GLU:HG2 | 2.09 | 0.52 |
| 2:C:158:ILE:HG12 | 7:C:432:HOH:O | 2.08 | 0.52 |
| 1:D:10:MET:HB2 | 7:D:881:HOH:O | 2.08 | 0.52 |
| 1:D:112:PRO:HD2 | 1:D:397:GLY:HA3 | 1.90 | 0.52 |
| 1:D:152:LYS:CE | 1:D:565:ASN:HB2 | 2.37 | 0.52 |
| 1:D:330:TYR:HB2 | 1:D:352:PHE:CD2 | 2.43 | 0.52 |
| 2:E:162:SER:HB3 | 2:E:199:LEU:HD23 | 1.91 | 0.52 |
| 1:A:137:PRO:O | 7:A:756:HOH:O | 2.18 | 0.52 |
| 1:A:202:LEU:HD21 | 1:A:529:ARG:NH2 | 2.23 | 0.52 |
| 1:A:305:MET:CE | 1:A:325:LEU:HG | 2.38 | 0.52 |
| 1:A:461:ASP:HB3 | 1:A:528:PHE:HD2 | 1.74 | 0.52 |
| 2:B:18:ARG:CD | 2:B:156:SER:HA | 2.38 | 0.52 |
| 2:B:24:ARG:NH2 | 2:B:197:LYS:HB2 | 2.23 | 0.52 |
| 1:D:154:TYR:CD2 | 1:D:559:LEU:HD13 | 2.44 | 0.52 |
| 1:D:387:GLU:O | 7:D:747:HOH:O | 2.18 | 0.52 |
| 1:D:412:PHE:N | 7:D:707:HOH:O | 2.41 | 0.52 |
| 1:D:432:ASN:O | 7:D:751:HOH:O | 2.19 | 0.52 |
| 2:E:135:LEU:HD23 | 2:E:157:LEU:HD21 | 1.91 | 0.52 |
| 2:F:70:VAL:HA | 2:F:73:TYR:CD2 | 2.44 | 0.52 |
| 1:A:236:GLN:NE2 | 7:A:729:HOH:O | 2.08 | 0.52 |
| 1:D:425:ARG:HG2 | 1:D:545:PHE:CE1 | 2.45 | 0.52 |
| 1:A:26:GLN:HG3 | 1:A:27:VAL:N | 2.25 | 0.52 |
| 1:A:164:THR:OG1 | 1:A:166:THR:OG1 | 2.16 | 0.52 |
| 1:A:290:LEU:N | 1:A:319:TYR:O | 2.42 | 0.52 |
| 2:C:5:PRO:HG3 | 2:C:59:HIS:CE1 | 2.43 | 0.52 |
| 1:D:235:GLU:HG2 | 1:D:287:TRP:CG | 2.44 | 0.52 |
| 1:A:90:THR:HG23 | 1:A:397:GLY:HA2 | 1.91 | 0.52 |
| 1:A:551:VAL:CG1 | 1:A:555:ASN:HB3 | 2.36 | 0.52 |
| 2:E:62:LYS:NZ | 7:E:426:HOH:O | 2.41 | 0.52 |
| 2:E:97:PHE:CE1 | 2:F:65:CYS:HB2 | 2.45 | 0.52 |
| 7:C:407:HOH:O | 1:D:451:ARG:NH2 | 2.42 | 0.52 |
| 1:D:412:PHE:HB3 | 1:D:414:ASN:O | 2.10 | 0.52 |
| 1:D:437:THR:OG1 | 1:D:440:ASP:HB2 | 2.09 | 0.52 |
| 1:A:151:SER:HA | 1:A:194:PHE:HA | 1.91 | 0.52 |
| 1:A:292:PRO:HA | 7:A:725:HOH:O | 2.10 | 0.52 |
| 1:A:478:PHE:CZ | 1:A:523:VAL:HB | 2.44 | 0.52 |
| 1:D:151:SER:HA | 1:D:194:PHE:HA | 1.92 | 0.52 |
| 2:F:121:GLN:HB3 | 7:F:457:HOH:O | 2.10 | 0.52 |
| 2:C:20:ARG:HB3 | 2:C:198:SER:HB3 | 1.92 | 0.52 |
| 2:C:142:LYS:HB3 | 7:C:430:HOH:O | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:E:40:LYS:HD3 | 2:E:52:LYS:HE3 | 1.91 | 0.52 |
| 2:F:139:LEU:O | 2:F:141:ASP:N | 2.38 | 0.52 |
| 2:F:170:PHE:C | 2:F:172:ASN:N | 2.63 | 0.52 |
| 1:A:96:ALA:HB1 | 1:A:163:GLY:H | 1.75 | 0.52 |
| 2:F:131:ALA:O | 2:F:135:LEU:HB2 | 2.09 | 0.52 |
| 1:A:204:CYS:HA | 1:A:207:LEU:HD23 | 1.91 | 0.52 |
| 1:D:337:ILE:HD11 | 1:D:361:PHE:HE2 | 1.75 | 0.52 |
| 1:D:364:LEU:HD12 | 1:D:402:ARG:NH2 | 2.25 | 0.52 |
| 2:E:150:PHE:CZ | 2:E:158:ILE:HD12 | 2.45 | 0.52 |
| 1:A:365:PRO:HA | 1:A:388:TYR:CD1 | 2.44 | 0.51 |
| 1:A:391:VAL:HG12 | 1:A:402:ARG:HA | 1.93 | 0.51 |
| 2:B:161:SER:HB2 | 2:B:186:ALA:HB1 | 1.92 | 0.51 |
| 1:D:33:LYS:O | 1:D:37:LEU:HB2 | 2.10 | 0.51 |
| 1:D:403:LEU:HD22 | 7:D:803:HOH:O | 2.09 | 0.51 |
| 1:D:535:PHE:O | 1:D:538:LEU:HB3 | 2.09 | 0.51 |
| 1:A:32:LEU:HB2 | 1:A:360:TYR:CG | 2.45 | 0.51 |
| 1:A:187:CYS:HB2 | 1:A:208:SER:HB3 | 1.92 | 0.51 |
| 1:A:215:GLN:NE2 | 7:A:824:HOH:O | 2.43 | 0.51 |
| 1:A:224:ALA:HB3 | 1:A:312:TYR:HE1 | 1.74 | 0.51 |
| 2:B:129:ILE:HD12 | 2:B:175:ILE:HD11 | 1.92 | 0.51 |
| 2:C:112:LYS:HG3 | 7:C:450:HOH:O | 2.11 | 0.51 |
| 1:D:202:LEU:O | 1:D:205:HIS:N | 2.43 | 0.51 |
| 2:E:7:LEU:HD11 | 2:E:32:TYR:CD1 | 2.45 | 0.51 |
| 2:B:62:LYS:HZ1 | 2:C:94:GLN:HG3 | 1.74 | 0.51 |
| 2:B:125:LYS:HE2 | 2:B:171:GLY:HA2 | 1.93 | 0.51 |
| 1:D:87:PRO:HD2 | 2:E:188:ARG:CB | 2.40 | 0.51 |
| 1:A:300:TYR:CE1 | 1:A:302:TYR:HB2 | 2.46 | 0.51 |
| 1:A:574:ALA:O | 1:A:575:PHE:HB2 | 2.10 | 0.51 |
| 2:B:132:VAL:HG13 | 2:B:182:LEU:HD23 | 1.92 | 0.51 |
| 2:C:104:LYS:N | 7:C:419:HOH:O | 2.43 | 0.51 |
| 2:C:169:LYS:HD3 | 2:C:206:VAL:HG13 | 1.93 | 0.51 |
| 1:D:126:ARG:CD | 1:D:182:ILE:HG21 | 2.40 | 0.51 |
| 1:D:351:THR:HG22 | 1:D:420:LYS:HB3 | 1.92 | 0.51 |
| 2:E:193:GLU:HB2 | 7:E:516:HOH:O | 2.11 | 0.51 |
| 1:A:87:PRO:HB2 | 2:B:143:PRO:CA | 2.37 | 0.51 |
| 1:A:405:ASP:HB3 | 1:A:541:SER:HB3 | 1.93 | 0.51 |
| 1:A:534:HIS:HA | 4:A:602:VAL:N | 2.26 | 0.51 |
| 2:B:17:MET:HA | 2:B:20:ARG:HD2 | 1.93 | 0.51 |
| 1:D:97:ILE:HG12 | 1:D:162:VAL:HG22 | 1.93 | 0.51 |
| 1:D:310:GLU:O | 1:D:313:VAL:HG12 | 2.10 | 0.51 |
| 1:D:566:VAL:HG23 | 1:D:568:SER:C | 2.31 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:F:73:TYR:HD1 | 2:F:76:GLU:OE2 | 1.94 | 0.51 |
| 1:A:151:SER:OG | 1:A:195:SER:O | 2.29 | 0.51 |
| 1:D:143:LYS:HZ3 | 1:D:187:CYS:HA | 1.74 | 0.51 |
| 1:D:223:PHE:CZ | 1:D:536:LEU:HB2 | 2.46 | 0.51 |
| 1:D:281:CYS:O | 1:D:284:LEU:HG | 2.10 | 0.51 |
| 1:D:361:PHE:CZ | 1:D:392:ILE:HG23 | 2.46 | 0.51 |
| 1:D:480:GLU:HB3 | 7:D:703:HOH:O | 2.10 | 0.51 |
| 2:E:76:GLU:OE2 | 2:F:92:ARG:NH2 | 2.44 | 0.51 |
| 2:F:165:GLN:HG2 | 2:F:206:VAL:CG2 | 2.41 | 0.51 |
| 1:A:219:VAL:HB | 1:A:295:PHE:CE1 | 2.45 | 0.51 |
| 1:A:410:ILE:HD11 | 1:A:418:GLN:OE1 | 2.10 | 0.51 |
| 2:C:12:PRO:O | 2:C:163:TRP:CZ2 | 2.64 | 0.51 |
| 2:C:194:SER:N | 7:C:442:HOH:O | 2.43 | 0.51 |
| 1:D:198:VAL:HG13 | 1:D:565:ASN:HD21 | 1.74 | 0.51 |
| 1:D:475:TYR:CE1 | 1:D:506:TYR:HE1 | 2.28 | 0.51 |
| 1:D:552:LYS:HE3 | 1:D:554:SER:OG | 2.10 | 0.51 |
| 1:A:46:GLN:HB2 | 2:B:148:ASP:HB2 | 1.93 | 0.51 |
| 1:A:113:PHE:HE1 | 1:A:117:LEU:HD22 | 1.75 | 0.51 |
| 1:A:337:ILE:HG22 | 1:A:338:ALA:HB2 | 1.92 | 0.51 |
| 1:A:423:CYS:SG | 1:A:543:GLY:N | 2.84 | 0.51 |
| 2:C:164:PHE:CD2 | 2:C:183:ILE:HD12 | 2.40 | 0.51 |
| 1:D:437:THR:HG21 | 1:D:439:ARG:HH21 | 1.75 | 0.51 |
| 2:E:68:LEU:HA | 2:E:71:VAL:HG22 | 1.92 | 0.51 |
| 1:A:37:LEU:HD11 | 2:B:90:TYR:CE2 | 2.45 | 0.51 |
| 1:A:131:PHE:HD1 | 1:A:343:PRO:HG3 | 1.75 | 0.51 |
| 1:A:503:ASP:CG | 1:A:505:GLY:H | 2.13 | 0.51 |
| 2:C:141:ASP:N | 2:C:141:ASP:OD1 | 2.44 | 0.51 |
| 2:C:153:VAL:O | 2:C:157:LEU:HD23 | 2.11 | 0.51 |
| 2:E:141:ASP:OD2 | 2:E:181:LYS:NZ | 2.36 | 0.51 |
| 2:E:144:TYR:CZ | 2:E:188:ARG:NH1 | 2.79 | 0.51 |
| 2:F:115:GLY:HA3 | 7:F:419:HOH:O | 2.10 | 0.51 |
| 2:F:117:LYS:HE3 | 2:F:213:ARG:HH11 | 1.74 | 0.51 |
| 1:A:45:LEU:HA | 1:A:48:CYS:HB2 | 1.92 | 0.51 |
| 1:A:156:SER:HB2 | 1:A:160:VAL:O | 2.11 | 0.51 |
| 1:A:495:ASN:ND2 | 7:A:703:HOH:O | 2.44 | 0.51 |
| 2:C:125:LYS:HD2 | 2:C:173:PHE:CE1 | 2.46 | 0.51 |
| 1:A:154:TYR:HD2 | 1:A:560:GLN:HA | 1.76 | 0.50 |
| 1:A:167:THR:HG21 | 1:A:560:GLN:HG3 | 1.92 | 0.50 |
| 2:B:161:SER:HA | 2:B:164:PHE:CD2 | 2.46 | 0.50 |
| 2:C:195:VAL:HG23 | 2:C:199:LEU:HD13 | 1.93 | 0.50 |
| 1:D:99:LEU:HB2 | 1:D:556:ALA:H | 1.76 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:118:MET:HG3 | 7:D:828:HOH:O | 2.10 | 0.50 |
| 1:D:332:SER:CB | 1:D:538:LEU:HA | 2.41 | 0.50 |
| 2:F:32:TYR:H | 2:F:32:TYR:HD2 | 1.57 | 0.50 |
| 1:A:56:ASP:O | 1:A:60:ALA:N | 2.35 | 0.50 |
| 2:B:205:ILE:HG12 | 7:B:402:HOH:O | 2.10 | 0.50 |
| 1:D:20:MET:SD | 7:D:713:HOH:O | 2.60 | 0.50 |
| 1:A:213:ARG:HA | 1:A:216:VAL:CG2 | 2.41 | 0.50 |
| 1:A:535:PHE:HB3 | 1:A:544:GLN:O | 2.11 | 0.50 |
| 1:D:46:GLN:HG3 | 1:D:47:ASN:N | 2.25 | 0.50 |
| 2:E:171:GLY:HA3 | 2:E:173:PHE:CE2 | 2.47 | 0.50 |
| 2:C:125:LYS:HA | 2:C:128:PHE:CD2 | 2.46 | 0.50 |
| 1:D:197:ASP:HA | 1:D:567:VAL:HG12 | 1.94 | 0.50 |
| 1:D:223:PHE:HE2 | 1:D:532:GLN:HB2 | 1.77 | 0.50 |
| 2:B:183:ILE:O | 2:B:186:ALA:HB3 | 2.12 | 0.50 |
| 1:D:76:TYR:O | 1:D:88:ILE:HG21 | 2.12 | 0.50 |
| 1:D:329:ASP:HB3 | 1:D:338:ALA:O | 2.11 | 0.50 |
| 1:D:337:ILE:O | 1:D:354:VAL:HA | 2.11 | 0.50 |
| 1:D:337:ILE:HG22 | 1:D:338:ALA:HB2 | 1.94 | 0.50 |
| 1:D:529:ARG:NH2 | 1:D:533:GLU:OE1 | 2.45 | 0.50 |
| 1:A:195:SER:HB3 | 1:A:201:ALA:HB2 | 1.92 | 0.50 |
| 2:B:37:PHE:O | 7:B:416:HOH:O | 2.19 | 0.50 |
| 1:D:32:LEU:O | 1:D:36:LEU:HD12 | 2.11 | 0.50 |
| 1:D:33:LYS:NZ | 1:D:58:GLU:HB2 | 2.27 | 0.50 |
| 1:D:529:ARG:HH21 | 1:D:530:LYS:HD3 | 1.76 | 0.50 |
| 1:A:91:GLY:HA3 | 2:B:142:LYS:N | 2.26 | 0.50 |
| 1:A:279:THR:HA | 1:A:282:MET:SD | 2.52 | 0.50 |
| 1:A:43:ILE:HD11 | 1:A:88:ILE:HG23 | 1.93 | 0.50 |
| 1:A:153:GLN:H | 1:A:564:GLU:HB2 | 1.77 | 0.50 |
| 1:A:237:VAL:O | 7:A:757:HOH:O | 2.19 | 0.50 |
| 1:A:305:MET:HA | 7:A:715:HOH:O | 2.12 | 0.50 |
| 1:A:521:ARG:HB3 | 1:A:566:VAL:HG22 | 1.94 | 0.50 |
| 2:C:60:ASN:HB3 | 7:C:421:HOH:O | 2.12 | 0.50 |
| 1:D:17:PHE:HA | 1:D:20:MET:HB3 | 1.93 | 0.50 |
| 1:D:476:ALA:HA | 1:D:519:GLU:O | 2.12 | 0.50 |
| 2:F:114:TRP:HA | 2:F:170:PHE:CD2 | 2.47 | 0.50 |
| 1:A:291:ILE:HD12 | 1:A:320:ALA:HB2 | 1.93 | 0.50 |
| 1:D:270:ASN:HB3 | 1:D:273:LEU:CD1 | 2.42 | 0.50 |
| 1:D:467:ASP:CG | 1:D:474:HIS:H | 2.15 | 0.50 |
| 2:E:110:GLN:HG3 | 2:E:111:PHE:N | 2.25 | 0.50 |
| 2:F:40:LYS:HD2 | 2:F:52:LYS:HB3 | 1.93 | 0.50 |
| 1:A:87:PRO:HD2 | 2:B:188:ARG:HB2 | 1.93 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:440:ASP:OD1 | 1:A:501:PHE:HA | 2.12 | 0.49 |
| 2:B:153:VAL:O | 2:B:156:SER:OG | 2.21 | 0.49 |
| 2:C:5:PRO:HB3 | 2:C:57:LEU:HD11 | 1.93 | 0.49 |
| 1:D:330:TYR:HE2 | 1:D:540:SER:H | 1.56 | 0.49 |
| 2:F:170:PHE:CD2 | 2:F:213:ARG:HD2 | 2.46 | 0.49 |
| 1:A:33:LYS:HA | 1:A:36:LEU:CD2 | 2.42 | 0.49 |
| 1:A:103:THR:OG1 | 1:A:429:LEU:HD11 | 2.12 | 0.49 |
| 1:A:197:ASP:HA | 1:A:567:VAL:HG12 | 1.94 | 0.49 |
| 1:A:421:PHE:CE1 | 1:A:541:SER:HA | 2.47 | 0.49 |
| 1:A:428:ILE:O | 7:A:759:HOH:O | 2.20 | 0.49 |
| 2:B:94:GLN:O | 2:B:98:TRP:HD1 | 1.95 | 0.49 |
| 2:B:110:GLN:NE2 | 7:B:444:HOH:O | 2.45 | 0.49 |
| 1:D:410:ILE:HG13 | 1:D:418:GLN:HB2 | 1.94 | 0.49 |
| 2:F:33:ARG:HG3 | 7:F:518:HOH:O | 2.12 | 0.49 |
| 2:F:145:PHE:HA | 7:F:424:HOH:O | 2.11 | 0.49 |
| 1:A:224:ALA:CB | 1:A:316:LEU:HD22 | 2.43 | 0.49 |
| 1:A:295:PHE:CD1 | 1:A:298:ALA:HB2 | 2.45 | 0.49 |
| 2:B:9:ASP:OD1 | 2:B:16:GLY:HA3 | 2.12 | 0.49 |
| 2:B:15:PHE:HA | 2:B:18:ARG:HG3 | 1.94 | 0.49 |
| 2:C:98:TRP:CD1 | 2:C:153:VAL:HG21 | 2.47 | 0.49 |
| 2:F:71:VAL:O | 2:F:74:VAL:HB | 2.13 | 0.49 |
| 2:F:172:ASN:O | 2:F:173:PHE:HD1 | 1.94 | 0.49 |
| 1:A:104:SER:C | 1:A:106:GLY:N | 2.65 | 0.49 |
| 1:A:302:TYR:OH | 7:A:719:HOH:O | 2.06 | 0.49 |
| 1:A:311:PRO:O | 1:A:314:PRO:HD2 | 2.13 | 0.49 |
| 2:C:57:LEU:O | 2:C:64:VAL:HG22 | 2.13 | 0.49 |
| 1:D:151:SER:HB2 | 1:D:195:SER:O | 2.13 | 0.49 |
| 2:E:132:VAL:HG13 | 2:E:182:LEU:HD23 | 1.93 | 0.49 |
| 2:F:110:GLN:HG2 | 2:F:167:TYR:CE2 | 2.47 | 0.49 |
| 1:A:104:SER:HB3 | 1:A:107:ARG:O | 2.12 | 0.49 |
| 1:A:149:PHE:CB | 1:A:530:LYS:NZ | 2.75 | 0.49 |
| 1:A:163:GLY:HA2 | 1:A:560:GLN:HB2 | 1.93 | 0.49 |
| 1:A:219:VAL:HB | 1:A:295:PHE:CZ | 2.47 | 0.49 |
| 1:A:316:LEU:O | 1:A:320:ALA:N | 2.41 | 0.49 |
| 1:A:387:GLU:HG2 | 1:A:408:LYS:HB2 | 1.95 | 0.49 |
| 2:B:124:GLY:HA2 | 2:B:127:GLU:CD | 2.33 | 0.49 |
| 2:E:102:VAL:O | 2:E:106:PHE:HB3 | 2.12 | 0.49 |
| 2:E:129:ILE:HD11 | 2:E:173:PHE:CD1 | 2.47 | 0.49 |
| 2:F:140:GLY:N | 2:F:181:LYS:NZ | 2.60 | 0.49 |
| 1:A:103:THR:CB | 1:A:106:GLY:HA2 | 2.40 | 0.49 |
| 1:A:549:ARG:HG3 | 7:A:865:HOH:O | 2.11 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:113:VAL:HG23 | 7:B:436:HOH:O | 2.12 | 0.49 |
| 2:C:129:ILE:HA | 2:C:132:VAL:HG12 | 1.94 | 0.49 |
| 2:C:197:LYS:HE2 | 7:C:481:HOH:O | 2.13 | 0.49 |
| 1:D:110:PHE:CE2 | 1:D:554:SER:HA | 2.48 | 0.49 |
| 1:D:145:LEU:HD23 | 1:D:295:PHE:CZ | 2.47 | 0.49 |
| 1:D:342:THR:O | 1:D:345:LEU:HG | 2.13 | 0.49 |
| 1:D:435:LYS:HD3 | 1:D:438:GLU:N | 2.28 | 0.49 |
| 2:F:92:ARG:HE | 2:F:96:ARG:HH22 | 1.59 | 0.49 |
| 2:F:98:TRP:HD1 | 2:F:153:VAL:HG11 | 1.77 | 0.49 |
| 1:A:200:GLN:HA | 7:A:963:HOH:O | 2.11 | 0.49 |
| 2:C:32:TYR:HA | 7:C:412:HOH:O | 2.12 | 0.49 |
| 2:C:130:GLU:OE2 | 7:C:425:HOH:O | 2.20 | 0.49 |
| 1:D:498:ASP:OD1 | 1:D:518:LEU:HD13 | 2.12 | 0.49 |
| 2:E:15:PHE:HB3 | 2:E:67:SER:HB3 | 1.95 | 0.49 |
| 1:A:8:PHE:CD1 | 1:A:182:ILE:HG22 | 2.47 | 0.49 |
| 1:A:38:LYS:NZ | 1:A:395:TYR:CZ | 2.78 | 0.49 |
| 1:A:308:SER:HB3 | 1:A:424:ARG:HA | 1.94 | 0.49 |
| 1:A:551:VAL:HG11 | 1:A:559:LEU:CD1 | 2.38 | 0.49 |
| 2:C:24:ARG:HG3 | 2:C:30:PHE:CE1 | 2.47 | 0.49 |
| 1:D:223:PHE:CG | 1:D:533:GLU:HG2 | 2.48 | 0.49 |
| 1:D:475:TYR:HE1 | 1:D:515:ILE:HG21 | 1.76 | 0.49 |
| 1:D:543:GLY:O | 1:D:544:GLN:HG3 | 2.13 | 0.49 |
| 2:E:139:LEU:O | 2:E:141:ASP:N | 2.45 | 0.49 |
| 1:A:524:ALA:HB2 | 1:A:567:VAL:HG11 | 1.95 | 0.49 |
| 2:C:44:LEU:HB2 | 7:C:460:HOH:O | 2.13 | 0.49 |
| 2:C:84:PHE:HB2 | 2:C:152:TYR:N | 2.28 | 0.49 |
| 1:D:94:VAL:HG21 | 1:D:97:ILE:HG22 | 1.95 | 0.49 |
| 1:D:386:GLU:HB3 | 7:D:771:HOH:O | 2.13 | 0.49 |
| 1:D:452:LEU:HD11 | 1:D:490:LEU:HD23 | 1.95 | 0.49 |
| 2:F:125:LYS:O | 2:F:129:ILE:HG23 | 2.13 | 0.49 |
| 2:C:174:SER:OG | 7:D:701:HOH:O | 2.15 | 0.49 |
| 1:D:398:LEU:HD12 | 1:D:398:LEU:O | 2.13 | 0.49 |
| 2:F:37:PHE:HZ | 2:F:54:ILE:HG12 | 1.77 | 0.49 |
| 2:F:145:PHE:CD2 | 2:F:157:LEU:HD21 | 2.47 | 0.49 |
| 1:A:41:SER:HB2 | 2:B:142:LYS:HG2 | 1.94 | 0.48 |
| 1:A:238:TRP:CE3 | 1:A:277:ILE:HD11 | 2.48 | 0.48 |
| 1:A:387:GLU:O | 1:A:388:TYR:HD1 | 1.96 | 0.48 |
| 1:A:468:VAL:HG23 | 7:A:856:HOH:O | 2.13 | 0.48 |
| 2:B:125:LYS:HB3 | 2:B:173:PHE:CE2 | 2.48 | 0.48 |
| 1:D:223:PHE:HZ | 1:D:536:LEU:HB2 | 1.78 | 0.48 |
| 1:D:476:ALA:HB1 | 1:D:478:PHE:CZ | 2.48 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:F:33:ARG:HH12 | 2:F:41:SER:HB2 | 1.77 | 0.48 |
| 2:F:201:ASP:HB2 | 2:F:204:LYS:HE2 | 1.94 | 0.48 |
| 1:A:104:SER:O | 1:A:107:ARG:HG2 | 2.13 | 0.48 |
| 1:A:225:HIS:HA | 1:A:228:VAL:CG2 | 2.36 | 0.48 |
| 1:A:309:MET:CE | 1:A:536:LEU:HD12 | 2.43 | 0.48 |
| 2:C:32:TYR:CD1 | 2:C:34:GLU:OE2 | 2.66 | 0.48 |
| 1:D:509:SER:HA | 1:D:512:CYS:SG | 2.53 | 0.48 |
| 2:E:24:ARG:CZ | 2:E:30:PHE:HZ | 2.25 | 0.48 |
| 2:E:98:TRP:HB3 | 2:E:153:VAL:HG21 | 1.94 | 0.48 |
| 2:F:14:MET:HG3 | 2:F:163:TRP:CH2 | 2.48 | 0.48 |
| 1:A:238:TRP:HA | 1:A:241:ILE:CB | 2.38 | 0.48 |
| 1:A:284:LEU:HB2 | 7:A:812:HOH:O | 2.12 | 0.48 |
| 1:A:311:PRO:C | 1:A:314:PRO:HD2 | 2.34 | 0.48 |
| 1:A:402:ARG:HD3 | 7:A:913:HOH:O | 2.12 | 0.48 |
| 1:A:452:LEU:HD11 | 1:A:490:LEU:HD23 | 1.96 | 0.48 |
| 2:C:44:LEU:HD22 | 7:C:517:HOH:O | 2.14 | 0.48 |
| 2:C:96:ARG:NH1 | 7:C:404:HOH:O | 1.84 | 0.48 |
| 1:D:311:PRO:O | 1:D:314:PRO:HD2 | 2.13 | 0.48 |
| 1:D:496:CYS:HA | 1:D:499:ARG:HH22 | 1.77 | 0.48 |
| 2:E:71:VAL:HG23 | 2:E:152:TYR:HE1 | 1.78 | 0.48 |
| 2:F:153:VAL:HA | 7:F:402:HOH:O | 2.13 | 0.48 |
| 1:A:317:ARG:O | 1:A:321:GLY:N | 2.45 | 0.48 |
| 2:C:150:PHE:CD1 | 2:C:192:LYS:HG3 | 2.48 | 0.48 |
| 1:D:41:SER:HB3 | 2:E:144:TYR:HB2 | 1.94 | 0.48 |
| 1:D:73:LEU:HD12 | 7:D:808:HOH:O | 2.13 | 0.48 |
| 1:D:407:VAL:HG13 | 1:D:421:PHE:CE1 | 2.48 | 0.48 |
| 2:B:151:GLY:H | 2:B:154:ASP:CG | 2.17 | 0.48 |
| 2:C:187:LYS:CE | 1:D:496:CYS:HB2 | 2.42 | 0.48 |
| 2:E:129:ILE:HD11 | 2:E:173:PHE:CE1 | 2.49 | 0.48 |
| 2:F:151:GLY:N | 2:F:154:ASP:OD2 | 2.47 | 0.48 |
| 1:A:50:LEU:HD13 | 1:A:61:PHE:CE1 | 2.49 | 0.48 |
| 1:A:120:ASN:ND2 | 7:A:828:HOH:O | 2.45 | 0.48 |
| 1:A:202:LEU:O | 1:A:205:HIS:N | 2.46 | 0.48 |
| 1:A:405:ASP:HB2 | 1:A:540:SER:HB3 | 1.94 | 0.48 |
| 2:B:15:PHE:HB3 | 2:B:67:SER:HB3 | 1.94 | 0.48 |
| 2:C:33:ARG:NH2 | 2:C:43:LEU:HD11 | 2.27 | 0.48 |
| 1:D:192:VAL:HG21 | 1:D:204:CYS:HB3 | 1.95 | 0.48 |
| 1:D:242:VAL:HA | 1:D:245:ILE:HD11 | 1.95 | 0.48 |
| 2:F:125:LYS:HA | 2:F:128:PHE:CD2 | 2.48 | 0.48 |
| 2:F:139:LEU:HB3 | 2:F:181:LYS:HE2 | 1.96 | 0.48 |
| 1:A:70:ASP:HB2 | 1:A:104:SER:HB2 | 1.95 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:198:VAL:CG2 | 1:A:524:ALA:HB3 | 2.43 | 0.48 |
| 1:A:295:PHE:C | 1:A:297:ASN:H | 2.17 | 0.48 |
| 1:A:336:TRP:HB2 | 1:A:358:LEU:HD13 | 1.95 | 0.48 |
| 1:A:460:ILE:HG13 | 7:A:708:HOH:O | 2.13 | 0.48 |
| 1:A:464:SER:OG | 1:A:465:TYR:N | 2.45 | 0.48 |
| 1:A:522:VAL:O | 1:A:567:VAL:HG22 | 2.13 | 0.48 |
| 2:C:68:LEU:HB2 | 2:C:152:TYR:OH | 2.14 | 0.48 |
| 1:D:219:VAL:HB | 1:D:295:PHE:HZ | 1.78 | 0.48 |
| 1:D:236:GLN:NE2 | 7:D:809:HOH:O | 2.47 | 0.48 |
| 1:D:334:GLU:O | 1:D:398:LEU:HD21 | 2.14 | 0.48 |
| 1:D:410:ILE:HG21 | 1:D:420:LYS:HB3 | 1.96 | 0.48 |
| 1:D:492:ASP:O | 1:D:495:ASN:HB2 | 2.13 | 0.48 |
| 1:A:85:THR:O | 1:A:93:PRO:HB3 | 2.13 | 0.48 |
| 1:A:97:ILE:CB | 1:A:162:VAL:HB | 2.43 | 0.48 |
| 1:A:284:LEU:HD12 | 1:A:284:LEU:O | 2.14 | 0.48 |
| 1:A:302:TYR:OH | 7:A:754:HOH:O | 2.18 | 0.48 |
| 2:B:182:LEU:HD13 | 2:B:185:TRP:CE3 | 2.49 | 0.48 |
| 2:B:182:LEU:HA | 2:B:185:TRP:CD2 | 2.49 | 0.48 |
| 2:C:10:TYR:CD2 | 2:C:12:PRO:HD2 | 2.49 | 0.48 |
| 2:C:37:PHE:HD1 | 2:C:40:LYS:HG2 | 1.78 | 0.48 |
| 1:D:53:ASN:O | 1:D:57:PRO:HB3 | 2.13 | 0.48 |
| 2:F:199:LEU:HA | 2:F:200:PRO:HD2 | 1.72 | 0.48 |
| 1:A:82:ASP:OD2 | 7:A:760:HOH:O | 2.20 | 0.48 |
| 1:A:433:ILE:CD1 | 1:A:552:LYS:NZ | 2.77 | 0.48 |
| 1:A:452:LEU:CD2 | 1:A:481:ILE:HG12 | 2.39 | 0.48 |
| 2:C:98:TRP:HZ2 | 2:C:157:LEU:HD22 | 1.78 | 0.48 |
| 2:C:131:ALA:O | 2:C:135:LEU:HB2 | 2.14 | 0.48 |
| 1:D:198:VAL:CG2 | 1:D:524:ALA:HB3 | 2.43 | 0.48 |
| 2:E:68:LEU:O | 2:E:72:GLN:HG3 | 2.14 | 0.48 |
| 1:A:231:PHE:CZ | 1:A:291:ILE:HG12 | 2.49 | 0.48 |
| 1:A:356:PRO:HG3 | 7:A:917:HOH:O | 2.14 | 0.48 |
| 1:A:474:HIS:HB2 | 1:A:517:ALA:O | 2.13 | 0.48 |
| 2:C:17:MET:HE3 | 2:C:163:TRP:CH2 | 2.49 | 0.48 |
| 2:E:75:ASP:HA | 7:E:455:HOH:O | 2.14 | 0.48 |
| 1:A:27:VAL:CG1 | 1:A:356:PRO:HB3 | 2.43 | 0.47 |
| 1:A:217:GLN:N | 7:A:745:HOH:O | 2.47 | 0.47 |
| 2:C:98:TRP:HH2 | 2:C:135:LEU:HD11 | 1.79 | 0.47 |
| 1:D:405:ASP:OD2 | 1:D:540:SER:HB3 | 2.13 | 0.47 |
| 1:D:459:VAL:HG22 | 1:D:481:ILE:HG22 | 1.95 | 0.47 |
| 1:A:25:HIS:ND1 | 1:A:380:THR:HG21 | 2.29 | 0.47 |
| 1:A:26:GLN:O | 1:A:30:GLN:HB2 | 2.13 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:41:SER:O | 2:B:143:PRO:HG2 | 2.13 | 0.47 |
| 1:A:111:ILE:HG23 | 1:A:396:ALA:O | 2.14 | 0.47 |
| 1:A:268:THR:HA | 7:A:861:HOH:O | 2.14 | 0.47 |
| 2:B:102:VAL:O | 2:B:107:THR:OG1 | 2.28 | 0.47 |
| 1:D:374:GLU:OE1 | 7:D:753:HOH:O | 2.20 | 0.47 |
| 1:D:495:ASN:HB3 | 1:D:499:ARG:HH11 | 1.77 | 0.47 |
| 2:E:181:LYS:HG3 | 2:E:181:LYS:H | 1.43 | 0.47 |
| 2:F:179:SER:HA | 2:F:180:PRO:HD3 | 1.62 | 0.47 |
| 1:A:92:HIS:CE1 | 2:B:136:GLU:HA | 2.50 | 0.47 |
| 2:B:24:ARG:NH1 | 2:B:197:LYS:HE3 | 2.23 | 0.47 |
| 2:C:185:TRP:O | 2:C:188:ARG:HB3 | 2.15 | 0.47 |
| 1:D:126:ARG:NH2 | 1:D:178:GLY:O | 2.47 | 0.47 |
| 1:D:313:VAL:HG13 | 1:D:314:PRO:HD3 | 1.96 | 0.47 |
| 1:D:450:LYS:HA | 1:D:453:SER:HB3 | 1.96 | 0.47 |
| 1:D:494:CYS:SG | 1:D:495:ASN:N | 2.88 | 0.47 |
| 1:A:225:HIS:NE2 | 1:A:532:GLN:OE1 | 2.46 | 0.47 |
| 2:B:99:ALA:O | 2:B:103:ASP:HB2 | 2.14 | 0.47 |
| 2:B:116:LYS:HD3 | 2:B:120:GLU:HG2 | 1.97 | 0.47 |
| 2:C:187:LYS:HE3 | 1:D:493:CYS:HA | 1.96 | 0.47 |
| 1:D:97:ILE:HG13 | 1:D:556:ALA:CB | 2.44 | 0.47 |
| 1:D:157:THR:OG1 | 1:D:469:SER:HB3 | 2.14 | 0.47 |
| 2:F:201:ASP:HB2 | 2:F:204:LYS:HG3 | 1.95 | 0.47 |
| 1:A:154:TYR:CE1 | 1:A:156:SER:HA | 2.50 | 0.47 |
| 1:A:305:MET:HE1 | 1:A:325:LEU:HG | 1.96 | 0.47 |
| 2:C:12:PRO:O | 2:C:163:TRP:HZ2 | 1.97 | 0.47 |
| 2:C:57:LEU:HB3 | 2:C:64:VAL:HG22 | 1.96 | 0.47 |
| 2:C:153:VAL:HG23 | 2:C:156:SER:HB2 | 1.95 | 0.47 |
| 2:C:181:LYS:HA | 2:C:184:ALA:HB3 | 1.97 | 0.47 |
| 1:D:363:PHE:CD2 | 1:D:382:VAL:HG21 | 2.48 | 0.47 |
| 1:D:450:LYS:HE2 | 1:D:450:LYS:HB3 | 1.65 | 0.47 |
| 1:A:91:GLY:O | 1:A:92:HIS:C | 2.53 | 0.47 |
| 1:A:309:MET:SD | 1:A:545:PHE:CZ | 3.08 | 0.47 |
| 1:A:437:THR:HG21 | 1:A:439:ARG:HH21 | 1.79 | 0.47 |
| 2:C:17:MET:HE3 | 2:C:163:TRP:HH2 | 1.80 | 0.47 |
| 2:C:33:ARG:CZ | 2:C:43:LEU:HD21 | 2.44 | 0.47 |
| 2:C:159:THR:HA | 2:C:199:LEU:HD21 | 1.96 | 0.47 |
| 2:F:129:ILE:HA | 2:F:132:VAL:HG12 | 1.97 | 0.47 |
| 2:F:159:THR:HA | 2:F:199:LEU:HD21 | 1.96 | 0.47 |
| 1:A:90:THR:N | 7:A:789:HOH:O | 2.28 | 0.47 |
| 1:A:95:PRO:HD3 | 2:B:181:LYS:HZ2 | 1.79 | 0.47 |
| 1:A:99:LEU:H | 1:A:557:LYS:HG2 | 1.79 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:143:LYS:O | 1:D:216:VAL:HA | 2.15 | 0.47 |
| 1:D:172:ASN:HD21 | 1:D:174:ASN:CG | 2.17 | 0.47 |
| 1:D:207:LEU:O | 1:D:211:LEU:HG | 2.14 | 0.47 |
| 2:F:80:GLU:N | 7:F:423:HOH:O | 2.48 | 0.47 |
| 2:F:114:TRP:HD1 | 2:F:167:TYR:CE1 | 2.33 | 0.47 |
| 2:F:141:ASP:HA | 7:F:464:HOH:O | 2.15 | 0.47 |
| 1:A:225:HIS:HB3 | 1:A:312:TYR:CD2 | 2.50 | 0.47 |
| 1:A:311:PRO:HB2 | 7:A:1024:HOH:O | 2.14 | 0.47 |
| 5:B:301:GSH:OE1 | 7:B:418:HOH:O | 2.21 | 0.47 |
| 2:C:16:GLY:HA2 | 2:C:55:PRO:HB3 | 1.96 | 0.47 |
| 2:C:24:ARG:HG3 | 2:C:30:PHE:CZ | 2.49 | 0.47 |
| 2:C:138:GLU:HG3 | 2:C:145:PHE:HE1 | 1.80 | 0.47 |
| 1:D:78:LYS:HE2 | 1:D:554:SER:HB3 | 1.97 | 0.47 |
| 1:D:147:PHE:HD2 | 1:D:529:ARG:NH1 | 2.10 | 0.47 |
| 2:E:145:PHE:HB2 | 2:E:154:ASP:CG | 2.36 | 0.47 |
| 2:F:8:LEU:HD13 | 2:F:44:LEU:HB2 | 1.97 | 0.47 |
| 2:F:130:GLU:O | 2:F:134:ILE:HG22 | 2.15 | 0.47 |
| 2:F:145:PHE:HB3 | 2:F:153:VAL:CG1 | 2.44 | 0.47 |
| 2:F:176:GLU:N | 2:F:176:GLU:CD | 2.68 | 0.47 |
| 1:A:92:HIS:HB2 | 2:B:141:ASP:OD1 | 2.15 | 0.47 |
| 1:A:199:HIS:O | 7:A:761:HOH:O | 2.20 | 0.47 |
| 2:C:23:LEU:CD2 | 2:C:28:VAL:HG11 | 2.43 | 0.47 |
| 2:E:17:MET:SD | 2:E:199:LEU:HG | 2.55 | 0.47 |
| 2:F:57:LEU:HB3 | 2:F:64:VAL:HG22 | 1.97 | 0.47 |
| 2:F:90:TYR:OH | 7:F:412:HOH:O | 2.09 | 0.47 |
| 1:A:294:LEU:HB3 | 1:A:295:PHE:CD2 | 2.50 | 0.47 |
| 1:A:481:ILE:HG22 | 1:A:483:GLY:H | 1.80 | 0.47 |
| 2:C:97:PHE:CE2 | 2:C:101:PHE:CZ | 3.03 | 0.47 |
| 2:C:197:LYS:HB3 | 2:C:197:LYS:HE3 | 1.77 | 0.47 |
| 1:D:431:ILE:HD13 | 1:D:431:ILE:HA | 1.68 | 0.47 |
| 1:D:448:ALA:CB | 1:D:496:CYS:HB3 | 2.45 | 0.47 |
| 1:D:526:GLY:O | 1:D:530:LYS:HG2 | 2.15 | 0.47 |
| 1:D:547:MET:HG3 | 7:D:726:HOH:O | 2.15 | 0.47 |
| 2:E:20:ARG:NH1 | 7:E:429:HOH:O | 2.44 | 0.47 |
| 2:E:163:TRP:HB3 | 2:E:167:TYR:CZ | 2.49 | 0.47 |
| 2:F:11:TRP:CG | 2:F:12:PRO:HD3 | 2.49 | 0.47 |
| 1:A:221:ALA:HB3 | 1:A:227:LEU:HG | 1.96 | 0.46 |
| 2:B:65:CYS:O | 2:B:66:GLU:HB2 | 2.14 | 0.46 |
| 2:B:202:SER:HB3 | 7:B:517:HOH:O | 2.15 | 0.46 |
| 2:C:5:PRO:HG2 | 2:C:28:VAL:CG2 | 2.45 | 0.46 |
| 1:D:75:PRO:HG2 | 1:D:76:TYR:HD1 | 1.80 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:108:PRO:HA | 7:D:842:HOH:O | 2.15 | 0.46 |
| 2:F:26:LYS:HE2 | 2:F:75:ASP:HA | 1.96 | 0.46 |
| 1:A:223:PHE:HE1 | 1:A:304:ILE:HD12 | 1.81 | 0.46 |
| 1:A:441:LEU:HG | 1:A:462:PHE:HE2 | 1.80 | 0.46 |
| 1:D:316:LEU:HD23 | 1:D:320:ALA:HB2 | 1.98 | 0.46 |
| 1:D:537:GLY:N | 7:D:767:HOH:O | 2.37 | 0.46 |
| 2:F:33:ARG:HH22 | 2:F:41:SER:HB2 | 1.81 | 0.46 |
| 2:F:174:SER:O | 2:F:174:SER:OG | 2.25 | 0.46 |
| 1:A:246:LYS:HZ1 | 1:A:278:ARG:HH22 | 1.63 | 0.46 |
| 2:C:21:VAL:HG12 | 2:C:155:ILE:HG12 | 1.97 | 0.46 |
| 2:C:170:PHE:CD2 | 2:C:213:ARG:HD2 | 2.50 | 0.46 |
| 1:D:29:LYS:O | 1:D:33:LYS:HG2 | 2.15 | 0.46 |
| 1:D:82:ASP:HA | 7:D:709:HOH:O | 2.16 | 0.46 |
| 1:D:129:PHE:HZ | 1:D:218:TYR:HH | 1.63 | 0.46 |
| 1:D:274:ALA:O | 1:D:277:ILE:HG13 | 2.15 | 0.46 |
| 1:A:97:ILE:H | 1:A:162:VAL:HA | 1.79 | 0.46 |
| 1:D:152:LYS:HD3 | 1:D:561:ILE:CG2 | 2.39 | 0.46 |
| 1:D:219:VAL:HG21 | 1:D:231:PHE:HZ | 1.80 | 0.46 |
| 1:D:238:TRP:O | 1:D:242:VAL:HG12 | 2.16 | 0.46 |
| 1:A:242:VAL:HG11 | 1:A:278:ARG:HH21 | 1.80 | 0.46 |
| 2:C:177:SER:HB3 | 7:C:498:HOH:O | 2.16 | 0.46 |
| 1:D:8:PHE:CG | 1:D:182:ILE:HG22 | 2.50 | 0.46 |
| 1:D:489:VAL:O | 1:D:492:ASP:HB2 | 2.15 | 0.46 |
| 1:D:521:ARG:HG3 | 1:D:569:SER:HB2 | 1.97 | 0.46 |
| 2:F:16:GLY:HA2 | 2:F:55:PRO:HB3 | 1.95 | 0.46 |
| 1:A:70:ASP:HB3 | 1:A:109:LYS:HD2 | 1.98 | 0.46 |
| 1:A:79:ARG:NH1 | 2:B:188:ARG:HH12 | 2.13 | 0.46 |
| 1:A:110:PHE:CE1 | 1:A:556:ALA:HB2 | 2.51 | 0.46 |
| 1:A:145:LEU:HB2 | 7:A:778:HOH:O | 2.15 | 0.46 |
| 1:A:262:ALA:O | 1:A:265:LYS:HG2 | 2.16 | 0.46 |
| 1:A:390:VAL:CG2 | 1:A:540:SER:HA | 2.45 | 0.46 |
| 1:A:405:ASP:HB3 | 1:A:541:SER:CB | 2.46 | 0.46 |
| 1:A:476:ALA:HA | 1:A:519:GLU:O | 2.16 | 0.46 |
| 2:B:164:PHE:HZ | 2:B:182:LEU:HD11 | 1.81 | 0.46 |
| 1:D:284:LEU:HD13 | 1:D:287:TRP:N | 2.30 | 0.46 |
| 1:D:313:VAL:CG1 | 1:D:314:PRO:HD3 | 2.45 | 0.46 |
| 1:D:390:VAL:HG11 | 1:D:540:SER:CB | 2.45 | 0.46 |
| 2:E:22:ALA:HB1 | 2:E:74:VAL:HG11 | 1.96 | 0.46 |
| 2:E:26:LYS:HG3 | 2:E:82:ASN:ND2 | 2.30 | 0.46 |
| 1:A:222:VAL:HG11 | 1:A:533:GLU:O | 2.16 | 0.46 |
| 1:A:497:LEU:HD11 | 7:A:940:HOH:O | 2.15 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:74:GLU:O | 1:D:78:LYS:HB2 | 2.16 | 0.46 |
| 1:D:97:ILE:CG1 | 1:D:162:VAL:HG13 | 2.45 | 0.46 |
| 1:D:480:GLU:HB2 | 1:D:528:PHE:CD1 | 2.50 | 0.46 |
| 2:E:154:ASP:O | 2:E:158:ILE:HG13 | 2.16 | 0.46 |
| 2:F:135:LEU:HD13 | 2:F:182:LEU:CD1 | 2.46 | 0.46 |
| 1:A:34:GLU:C | 1:A:38:LYS:HE3 | 2.35 | 0.46 |
| 1:A:87:PRO:CB | 2:B:143:PRO:HA | 2.40 | 0.46 |
| 1:A:208:SER:O | 1:A:211:LEU:HB2 | 2.16 | 0.46 |
| 1:A:240:GLU:OE2 | 1:A:253:ARG:NE | 2.43 | 0.46 |
| 2:B:169:LYS:HD3 | 2:B:206:VAL:HG13 | 1.96 | 0.46 |
| 2:C:51:HIS:CD2 | 7:C:489:HOH:O | 2.68 | 0.46 |
| 2:C:57:LEU:HB3 | 2:C:64:VAL:CG2 | 2.46 | 0.46 |
| 2:C:187:LYS:HE3 | 1:D:492:ASP:C | 2.36 | 0.46 |
| 2:E:149:SER:HB3 | 2:E:150:PHE:H | 1.60 | 0.46 |
| 2:F:100:ASP:HA | 7:F:431:HOH:O | 2.16 | 0.46 |
| 1:A:143:LYS:HG3 | 1:A:144:ALA:N | 2.28 | 0.46 |
| 1:A:143:LYS:O | 1:A:216:VAL:HA | 2.16 | 0.46 |
| 1:A:166:THR:HG23 | 4:A:602:VAL:OXT | 2.15 | 0.46 |
| 1:A:210:ILE:HG12 | 1:A:294:LEU:HD11 | 1.98 | 0.46 |
| 1:A:305:MET:CE | 1:A:347:PRO:HG3 | 2.43 | 0.46 |
| 1:A:326:VAL:HA | 7:A:844:HOH:O | 2.16 | 0.46 |
| 1:D:496:CYS:HA | 1:D:499:ARG:CZ | 2.46 | 0.46 |
| 2:E:18:ARG:NE | 2:E:156:SER:O | 2.41 | 0.46 |
| 2:F:201:ASP:OD2 | 2:F:204:LYS:HE2 | 2.16 | 0.46 |
| 1:A:17:PHE:HA | 1:A:20:MET:HB3 | 1.97 | 0.46 |
| 1:A:210:ILE:HG12 | 1:A:294:LEU:HD21 | 1.98 | 0.46 |
| 1:A:309:MET:SD | 1:A:312:TYR:HE2 | 2.39 | 0.46 |
| 1:D:68:VAL:HG11 | 1:D:73:LEU:HD23 | 1.97 | 0.46 |
| 1:D:135:ASP:HB2 | 7:D:827:HOH:O | 2.16 | 0.46 |
| 1:D:439:ARG:O | 1:D:443:LEU:HB2 | 2.16 | 0.46 |
| 2:E:10:TYR:HA | 2:E:34:GLU:OE2 | 2.16 | 0.46 |
| 2:F:185:TRP:O | 2:F:188:ARG:HB3 | 2.16 | 0.46 |
| 2:F:195:VAL:HG22 | 7:F:436:HOH:O | 2.15 | 0.46 |
| 1:A:77:ILE:HG23 | 1:A:80:MET:SD | 2.55 | 0.45 |
| 1:A:154:TYR:H | 1:A:560:GLN:HA | 1.81 | 0.45 |
| 2:C:97:PHE:CE2 | 2:C:101:PHE:HZ | 2.34 | 0.45 |
| 1:D:97:ILE:H | 1:D:162:VAL:HA | 1.80 | 0.45 |
| 1:D:451:ARG:HH11 | 1:D:454:GLU:CD | 2.18 | 0.45 |
| 2:E:128:PHE:HE2 | 2:E:175:ILE:HG12 | 1.81 | 0.45 |
| 2:F:5:PRO:HB3 | 2:F:59:HIS:NE2 | 2.30 | 0.45 |
| 2:F:126:LYS:O | 2:F:129:ILE:HG13 | 2.15 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:98:SER:HA | 7:A:732:HOH:O | 2.16 | 0.45 |
| 2:B:6:ILE:O | 2:B:57:LEU:HA | 2.17 | 0.45 |
| 2:B:26:LYS:HZ3 | 2:B:82:ASN:H | 1.56 | 0.45 |
| 1:D:410:ILE:HG13 | 1:D:411:GLY:N | 2.30 | 0.45 |
| 2:E:9:ASP:OD1 | 2:E:16:GLY:HA3 | 2.16 | 0.45 |
| 2:E:16:GLY:O | 2:E:20:ARG:HG3 | 2.15 | 0.45 |
| 1:A:101:SER:HB3 | 1:A:535:PHE:CG | 2.52 | 0.45 |
| 1:A:203:TYR:HE1 | 1:A:241:ILE:HG13 | 1.81 | 0.45 |
| 1:A:281:CYS:HB3 | 1:A:287:TRP:HE1 | 1.80 | 0.45 |
| 1:D:231:PHE:CD1 | 1:D:290:LEU:HD22 | 2.50 | 0.45 |
| 1:D:315:LYS:HD2 | 1:D:315:LYS:HA | 1.80 | 0.45 |
| 1:D:506:TYR:C | 1:D:510:ARG:HE | 2.19 | 0.45 |
| 2:E:23:LEU:HD23 | 2:E:23:LEU:HA | 1.80 | 0.45 |
| 2:E:37:PHE:HA | 2:E:40:LYS:HG2 | 1.97 | 0.45 |
| 2:F:11:TRP:O | 7:F:404:HOH:O | 2.21 | 0.45 |
| 2:F:32:TYR:CD1 | 2:F:34:GLU:OE2 | 2.69 | 0.45 |
| 1:A:128:ALA:HB1 | 7:A:754:HOH:O | 2.16 | 0.45 |
| 1:A:151:SER:CB | 1:A:194:PHE:HA | 2.47 | 0.45 |
| 1:A:330:TYR:HE2 | 1:A:352:PHE:CD1 | 2.34 | 0.45 |
| 2:B:26:LYS:HZ1 | 2:B:82:ASN:H | 1.57 | 0.45 |
| 1:D:370:GLY:HA2 | 1:D:371:GLU:HA | 1.77 | 0.45 |
| 1:D:435:LYS:HB3 | 1:D:436:ASN:C | 2.36 | 0.45 |
| 2:F:23:LEU:CD2 | 2:F:28:VAL:HG11 | 2.43 | 0.45 |
| 1:A:121:THR:HG22 | 1:A:336:TRP:HZ2 | 1.80 | 0.45 |
| 1:A:152:LYS:H | 1:A:152:LYS:HG2 | 1.58 | 0.45 |
| 1:A:505:GLY:C | 1:A:507:VAL:H | 2.19 | 0.45 |
| 2:C:8:LEU:HD13 | 2:C:44:LEU:HB2 | 1.98 | 0.45 |
| 2:C:150:PHE:CE1 | 2:C:192:LYS:HG3 | 2.52 | 0.45 |
| 2:E:24:ARG:HD2 | 2:E:198:SER:OG | 2.16 | 0.45 |
| 2:E:205:ILE:HG22 | 7:E:441:HOH:O | 2.15 | 0.45 |
| 2:F:117:LYS:HA | 2:F:121:GLN:HB2 | 1.98 | 0.45 |
| 1:A:79:ARG:NH2 | 2:B:188:ARG:HH12 | 2.12 | 0.45 |
| 1:A:86:SER:HA | 1:A:87:PRO:HD2 | 1.54 | 0.45 |
| 1:A:87:PRO:HB3 | 1:A:91:GLY:O | 2.17 | 0.45 |
| 1:A:91:GLY:HA3 | 2:B:141:ASP:C | 2.36 | 0.45 |
| 1:A:97:ILE:HG23 | 1:A:111:ILE:H | 1.82 | 0.45 |
| 1:A:276:THR:CG2 | 1:A:277:ILE:N | 2.79 | 0.45 |
| 2:C:180:PRO:HB2 | 1:D:574:ALA:HB2 | 1.98 | 0.45 |
| 1:D:295:PHE:HA | 1:D:296:PRO:HD2 | 1.86 | 0.45 |
| 2:E:107:THR:HG22 | 2:E:160:PHE:CE2 | 2.52 | 0.45 |
| 2:F:5:PRO:HB3 | 2:F:57:LEU:HD11 | 1.99 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:76:TYR:CD2 | 1:A:89:LEU:HD21 | 2.52 | 0.45 |
| 1:A:309:MET:CB | 1:A:312:TYR:CE2 | 3.00 | 0.45 |
| 2:B:17:MET:HA | 2:B:20:ARG:CG | 2.47 | 0.45 |
| 2:C:144:TYR:HB3 | 2:C:154:ASP:CG | 2.37 | 0.45 |
| 2:C:188:ARG:HA | 2:C:188:ARG:HD3 | 1.84 | 0.45 |
| 1:D:34:GLU:O | 1:D:38:LYS:HG2 | 2.17 | 0.45 |
| 1:D:331:GLY:HA3 | 1:D:336:TRP:HA | 1.97 | 0.45 |
| 1:D:451:ARG:CZ | 1:D:489:VAL:HG12 | 2.46 | 0.45 |
| 2:F:102:VAL:O | 2:F:107:THR:HG23 | 2.16 | 0.45 |
| 1:A:39:ASN:OD1 | 1:A:399:TYR:OH | 2.35 | 0.45 |
| 1:A:222:VAL:HG23 | 7:A:819:HOH:O | 2.16 | 0.45 |
| 1:A:363:PHE:HD1 | 1:A:390:VAL:HA | 1.82 | 0.45 |
| 1:A:498:ASP:OD2 | 7:A:763:HOH:O | 2.21 | 0.45 |
| 1:D:69:THR:OG1 | 1:D:71:VAL:HG12 | 2.16 | 0.45 |
| 1:D:273:LEU:H | 1:D:273:LEU:HG | 1.42 | 0.45 |
| 1:D:332:SER:HB3 | 1:D:538:LEU:HD12 | 1.98 | 0.45 |
| 2:E:92:ARG:HG3 | 2:E:96:ARG:HH12 | 1.82 | 0.45 |
| 2:F:12:PRO:O | 2:F:163:TRP:CZ2 | 2.70 | 0.45 |
| 2:F:26:LYS:HD2 | 2:F:74:VAL:CG1 | 2.47 | 0.45 |
| 1:A:108:PRO:CB | 1:A:555:ASN:HB2 | 2.43 | 0.45 |
| 1:A:143:LYS:CE | 1:A:187:CYS:HB3 | 2.47 | 0.45 |
| 1:A:206:LEU:HD11 | 1:A:241:ILE:HD11 | 1.98 | 0.45 |
| 1:A:358:LEU:HA | 7:A:828:HOH:O | 2.16 | 0.45 |
| 1:A:525:LYS:HD3 | 7:A:833:HOH:O | 2.15 | 0.45 |
| 2:B:122:GLU:OE2 | 2:B:125:LYS:NZ | 2.42 | 0.45 |
| 2:B:165:GLN:HA | 2:B:168:GLU:OE2 | 2.17 | 0.45 |
| 2:C:24:ARG:NH1 | 2:C:30:PHE:HZ | 2.15 | 0.45 |
| 1:D:26:GLN:O | 1:D:30:GLN:HB2 | 2.17 | 0.45 |
| 1:D:288:TYR:HA | 1:D:318:HIS:HD2 | 1.79 | 0.45 |
| 1:D:430:SER:OG | 1:D:431:ILE:N | 2.49 | 0.45 |
| 1:D:534:HIS:NE2 | 1:D:557:LYS:HD3 | 2.32 | 0.45 |
| 2:E:48:ASN:OD1 | 2:E:50:ILE:HD11 | 2.16 | 0.45 |
| 1:A:188:SER:HB3 | 1:A:192:VAL:HG13 | 1.98 | 0.45 |
| 1:A:241:ILE:HA | 1:A:244:ASP:OD1 | 2.16 | 0.45 |
| 1:A:310:GLU:HG3 | 1:A:311:PRO:CD | 2.47 | 0.45 |
| 2:B:48:ASN:HD22 | 2:B:53:LYS:H | 1.65 | 0.45 |
| 2:C:163:TRP:HD1 | 7:C:484:HOH:O | 2.00 | 0.45 |
| 2:C:184:ALA:CB | 1:D:499:ARG:NH1 | 2.75 | 0.45 |
| 1:D:55:THR:C | 1:D:57:PRO:HD3 | 2.36 | 0.45 |
| 2:E:108:ASP:O | 2:E:112:LYS:HG2 | 2.17 | 0.45 |
| 1:A:58:GLU:OE2 | 1:A:360:TYR:OH | 2.34 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:384:ILE:HA | 1:A:409:VAL:HG12 | 1.98 | 0.44 |
| 2:C:8:LEU:CD2 | 2:C:33:ARG:NH2 | 2.80 | 0.44 |
| 1:D:150:SER:OG | 1:D:170:TYR:HB2 | 2.17 | 0.44 |
| 1:D:288:TYR:CE1 | 1:D:318:HIS:HA | 2.52 | 0.44 |
| 2:F:145:PHE:HB3 | 2:F:153:VAL:HG13 | 1.98 | 0.44 |
| 1:A:25:HIS:CD2 | 1:A:25:HIS:H | 2.33 | 0.44 |
| 1:A:224:ALA:HA | 1:A:227:LEU:CD1 | 2.43 | 0.44 |
| 2:C:11:TRP:CG | 2:C:12:PRO:HD3 | 2.52 | 0.44 |
| 2:C:153:VAL:HG21 | 7:C:406:HOH:O | 2.17 | 0.44 |
| 1:D:133:ASN:OD1 | 1:D:138:ILE:HG12 | 2.16 | 0.44 |
| 1:D:150:SER:HB2 | 1:D:167:THR:CA | 2.40 | 0.44 |
| 1:D:188:SER:HB3 | 1:D:192:VAL:CG1 | 2.47 | 0.44 |
| 1:D:206:LEU:HD13 | 1:D:234:PHE:HD1 | 1.82 | 0.44 |
| 2:F:125:LYS:HB2 | 7:F:470:HOH:O | 2.16 | 0.44 |
| 2:F:173:PHE:HB3 | 2:F:174:SER:H | 1.47 | 0.44 |
| 1:A:176:LYS:O | 1:A:180:LYS:HB2 | 2.18 | 0.44 |
| 2:B:17:MET:HG3 | 2:B:20:ARG:NH1 | 2.33 | 0.44 |
| 2:C:128:PHE:O | 2:C:132:VAL:HG12 | 2.17 | 0.44 |
| 1:D:219:VAL:HB | 1:D:295:PHE:CE1 | 2.52 | 0.44 |
| 1:D:338:ALA:HA | 1:D:354:VAL:HA | 1.99 | 0.44 |
| 1:D:485:THR:OG1 | 1:D:486:ASN:N | 2.50 | 0.44 |
| 1:A:147:PHE:HE1 | 1:A:206:LEU:HB3 | 1.83 | 0.44 |
| 1:A:217:GLN:CG | 1:A:218:TYR:CD2 | 3.00 | 0.44 |
| 1:A:232:ARG:HA | 1:A:235:GLU:CG | 2.48 | 0.44 |
| 1:A:351:THR:N | 7:A:787:HOH:O | 2.50 | 0.44 |
| 1:A:413:TYR:N | 1:A:416:THR:O | 2.47 | 0.44 |
| 1:A:498:ASP:OD1 | 1:A:518:LEU:HD12 | 2.17 | 0.44 |
| 2:B:23:LEU:HD22 | 2:B:28:VAL:HG11 | 1.99 | 0.44 |
| 2:C:48:ASN:ND2 | 7:C:423:HOH:O | 2.12 | 0.44 |
| 2:C:68:LEU:HD23 | 2:C:103:ASP:OD2 | 2.17 | 0.44 |
| 2:C:187:LYS:HE3 | 1:D:492:ASP:O | 2.18 | 0.44 |
| 2:C:204:LYS:HE2 | 1:D:456:LYS:HZ3 | 1.81 | 0.44 |
| 1:D:31:THR:O | 1:D:35:ILE:HG13 | 2.18 | 0.44 |
| 1:D:92:HIS:ND1 | 2:E:181:LYS:O | 2.51 | 0.44 |
| 1:D:329:ASP:N | 1:D:329:ASP:OD1 | 2.50 | 0.44 |
| 1:D:449:ALA:HB1 | 1:D:459:VAL:HG23 | 1.98 | 0.44 |
| 1:D:549:ARG:HD3 | 1:D:549:ARG:HA | 1.75 | 0.44 |
| 2:E:40:LYS:HZ3 | 2:E:52:LYS:HB2 | 1.76 | 0.44 |
| 2:E:92:ARG:CZ | 2:E:96:ARG:NH1 | 2.80 | 0.44 |
| 2:E:121:GLN:HG3 | 7:E:410:HOH:O | 2.17 | 0.44 |
| 2:F:10:TYR:CD2 | 2:F:12:PRO:HD2 | 2.52 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:F:141:ASP:N | 2:F:141:ASP:OD1 | 2.50 | 0.44 |
| 1:A:55:THR:C | 1:A:57:PRO:HD3 | 2.37 | 0.44 |
| 1:A:97:ILE:O | 1:A:556:ALA:HB1 | 2.18 | 0.44 |
| 1:A:97:ILE:CG2 | 1:A:111:ILE:H | 2.29 | 0.44 |
| 1:A:552:LYS:HA | 1:A:552:LYS:HD2 | 1.53 | 0.44 |
| 2:B:7:LEU:HD23 | 2:B:32:TYR:HD1 | 1.82 | 0.44 |
| 1:D:38:LYS:HA | 1:D:38:LYS:HD2 | 1.84 | 0.44 |
| 1:D:95:PRO:HD3 | 2:E:181:LYS:HE3 | 1.99 | 0.44 |
| 1:D:99:LEU:HD13 | 1:D:555:ASN:OD1 | 2.18 | 0.44 |
| 1:D:122:LEU:HD12 | 1:D:123:GLN:N | 2.33 | 0.44 |
| 1:D:143:LYS:NZ | 1:D:187:CYS:HA | 2.33 | 0.44 |
| 1:D:328:HIS:CG | 1:D:329:ASP:H | 2.36 | 0.44 |
| 2:E:98:TRP:CZ2 | 2:E:135:LEU:HA | 2.52 | 0.44 |
| 2:E:175:ILE:HB | 2:E:183:ILE:HD11 | 1.99 | 0.44 |
| 1:A:92:HIS:HB3 | 2:B:181:LYS:HZ1 | 1.83 | 0.44 |
| 1:A:479:TRP:O | 1:A:523:VAL:HG12 | 2.17 | 0.44 |
| 2:B:62:LYS:NZ | 2:C:94:GLN:HG3 | 2.32 | 0.44 |
| 1:D:97:ILE:HG12 | 1:D:162:VAL:HG13 | 1.99 | 0.44 |
| 1:D:194:PHE:O | 7:D:757:HOH:O | 2.21 | 0.44 |
| 2:E:92:ARG:NH1 | 2:E:96:ARG:NH1 | 2.66 | 0.44 |
| 2:E:128:PHE:HD1 | 7:E:411:HOH:O | 2.00 | 0.44 |
| 1:A:70:ASP:OD2 | 1:A:104:SER:HA | 2.18 | 0.44 |
| 1:A:233:THR:CG2 | 1:A:525:LYS:NZ | 2.81 | 0.44 |
| 1:A:527:THR:HB | 7:A:749:HOH:O | 2.16 | 0.44 |
| 2:B:101:PHE:HA | 7:B:474:HOH:O | 2.17 | 0.44 |
| 2:B:186:ALA:O | 2:B:190:MET:HG2 | 2.17 | 0.44 |
| 2:C:188:ARG:NH1 | 1:D:499:ARG:C | 2.61 | 0.44 |
| 1:D:84:ASP:C | 1:D:86:SER:H | 2.21 | 0.44 |
| 1:D:434:ASP:O | 1:D:435:LYS:HG3 | 2.18 | 0.44 |
| 2:F:10:TYR:HB3 | 2:F:13:SER:HB2 | 1.99 | 0.44 |
| 1:A:13:VAL:HG11 | 7:A:771:HOH:O | 2.17 | 0.44 |
| 1:A:38:LYS:NZ | 1:A:395:TYR:CE1 | 2.78 | 0.44 |
| 1:A:111:ILE:HA | 1:A:112:PRO:HD3 | 1.78 | 0.44 |
| 1:A:112:PRO:HD2 | 1:A:396:ALA:O | 2.17 | 0.44 |
| 1:A:305:MET:SD | 1:A:325:LEU:HG | 2.58 | 0.44 |
| 1:A:434:ASP:HB2 | 1:A:550:CYS:HB3 | 2.00 | 0.44 |
| 2:B:139:LEU:HD23 | 2:B:142:LYS:H | 1.81 | 0.44 |
| 2:B:151:GLY:O | 2:B:155:ILE:HG23 | 2.18 | 0.44 |
| 2:C:9:ASP:HB2 | 2:C:20:ARG:NH2 | 2.33 | 0.44 |
| 1:D:23:ASN:O | 1:D:27:VAL:HG23 | 2.18 | 0.44 |
| 1:D:81:VAL:HA | 1:D:160:VAL:HG11 | 1.98 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:125:PHE:CE1 | 1:D:129:PHE:HE1 | 2.36 | 0.44 |
| 1:D:130:ALA:O | 7:D:754:HOH:O | 2.20 | 0.44 |
| 1:D:203:TYR:OH | 1:D:254:ILE:HG23 | 2.17 | 0.44 |
| 1:D:270:ASN:HA | 1:D:271:PRO:HD2 | 1.75 | 0.44 |
| 1:D:359:GLY:HA3 | 1:D:361:PHE:HE1 | 1.83 | 0.44 |
| 1:D:455:GLU:OE1 | 1:D:485:THR:HB | 2.17 | 0.44 |
| 2:E:88:ASP:HB2 | 2:E:90:TYR:CE1 | 2.53 | 0.44 |
| 2:E:95:ALA:O | 2:E:99:ALA:N | 2.47 | 0.44 |
| 2:E:148:ASP:N | 2:E:148:ASP:OD1 | 2.51 | 0.44 |
| 1:A:23:ASN:O | 1:A:27:VAL:HG12 | 2.17 | 0.44 |
| 1:A:92:HIS:CG | 2:B:181:LYS:HE3 | 2.53 | 0.44 |
| 1:A:189:PRO:O | 1:A:192:VAL:HG12 | 2.18 | 0.44 |
| 1:A:190:ASP:HA | 1:A:193:ILE:HD12 | 2.00 | 0.44 |
| 1:A:212:PHE:O | 1:A:216:VAL:HG23 | 2.17 | 0.44 |
| 1:A:281:CYS:O | 1:A:287:TRP:CZ2 | 2.71 | 0.44 |
| 1:A:409:VAL:HG13 | 7:A:794:HOH:O | 2.17 | 0.44 |
| 2:B:26:LYS:NZ | 2:B:82:ASN:N | 2.49 | 0.44 |
| 2:C:142:LYS:HG2 | 2:C:144:TYR:H | 1.83 | 0.44 |
| 1:D:10:MET:HE3 | 1:D:133:ASN:HD22 | 1.83 | 0.44 |
| 1:D:80:MET:HE3 | 1:D:94:VAL:HG22 | 2.00 | 0.44 |
| 1:D:108:PRO:HB3 | 1:D:555:ASN:N | 2.32 | 0.44 |
| 1:D:142:GLY:O | 1:D:185:PRO:HD2 | 2.18 | 0.44 |
| 1:D:496:CYS:N | 1:D:499:ARG:HH12 | 2.16 | 0.44 |
| 2:F:26:LYS:HD2 | 2:F:74:VAL:HG13 | 2.00 | 0.44 |
| 2:F:54:ILE:HB | 2:F:55:PRO:HA | 2.00 | 0.44 |
| 2:F:188:ARG:HD3 | 2:F:188:ARG:HA | 1.56 | 0.44 |
| 1:A:99:LEU:HD22 | 1:A:555:ASN:OD1 | 2.18 | 0.43 |
| 1:A:114:THR:OG1 | 2:B:141:ASP:OD2 | 2.31 | 0.43 |
| 1:A:138:ILE:HA | 1:A:138:ILE:HD13 | 1.76 | 0.43 |
| 1:A:202:LEU:HA | 1:A:205:HIS:HB2 | 2.00 | 0.43 |
| 1:A:222:VAL:HG22 | 3:A:601:JAA:C07 | 2.48 | 0.43 |
| 1:A:231:PHE:HB2 | 1:A:319:TYR:CE2 | 2.53 | 0.43 |
| 1:A:309:MET:SD | 1:A:312:TYR:CE2 | 3.11 | 0.43 |
| 2:B:51:HIS:HD2 | 2:B:53:LYS:HE2 | 1.76 | 0.43 |
| 1:D:7:THR:HG21 | 7:D:990:HOH:O | 2.18 | 0.43 |
| 1:D:534:HIS:CE1 | 1:D:557:LYS:HD3 | 2.53 | 0.43 |
| 1:A:109:LYS:HE3 | 1:A:109:LYS:HB2 | 1.67 | 0.43 |
| 1:A:229:HIS:O | 1:A:233:THR:N | 2.47 | 0.43 |
| 1:A:572:SER:HA | 7:A:703:HOH:O | 2.18 | 0.43 |
| 2:C:71:VAL:O | 2:C:74:VAL:HB | 2.18 | 0.43 |
| 2:C:195:VAL:HG11 | 7:C:432:HOH:O | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:164:THR:HG22 | 1:D:166:THR:H | 1.83 | 0.43 |
| 1:D:446:GLU:HG2 | 7:D:1050:HOH:O | 2.19 | 0.43 |
| 2:E:68:LEU:HD13 | 2:E:99:ALA:HB1 | 2.00 | 0.43 |
| 2:E:82:ASN:OD1 | 2:E:82:ASN:N | 2.51 | 0.43 |
| 2:E:106:PHE:O | 7:E:411:HOH:O | 2.21 | 0.43 |
| 2:F:12:PRO:O | 2:F:163:TRP:HZ2 | 2.02 | 0.43 |
| 1:A:99:LEU:HB3 | 1:A:557:LYS:CB | 2.47 | 0.43 |
| 1:A:143:LYS:HE2 | 1:A:216:VAL:CG2 | 2.49 | 0.43 |
| 1:A:309:MET:C | 1:A:311:PRO:HD2 | 2.38 | 0.43 |
| 2:B:11:TRP:HZ2 | 2:B:208:TYR:CE1 | 2.36 | 0.43 |
| 2:C:99:ALA:HA | 7:C:406:HOH:O | 2.18 | 0.43 |
| 1:D:27:VAL:HG11 | 1:D:356:PRO:HG2 | 2.00 | 0.43 |
| 1:D:132:ARG:O | 1:D:136:PHE:N | 2.38 | 0.43 |
| 1:D:363:PHE:CE1 | 1:D:390:VAL:HG23 | 2.52 | 0.43 |
| 1:D:387:GLU:HG3 | 1:D:408:LYS:HB2 | 2.01 | 0.43 |
| 1:D:408:LYS:HG3 | 1:D:409:VAL:N | 2.32 | 0.43 |
| 2:E:15:PHE:HB3 | 2:E:67:SER:CB | 2.48 | 0.43 |
| 2:E:135:LEU:HD22 | 2:E:182:LEU:HD21 | 1.99 | 0.43 |
| 1:A:41:SER:OG | 2:B:142:LYS:HE3 | 2.18 | 0.43 |
| 1:A:102:GLY:N | 1:A:546:LYS:O | 2.48 | 0.43 |
| 1:A:219:VAL:HG13 | 1:A:301:VAL:HG13 | 2.00 | 0.43 |
| 1:A:288:TYR:CZ | 1:A:321:GLY:HA2 | 2.53 | 0.43 |
| 1:A:475:TYR:HB2 | 1:A:518:LEU:HD23 | 2.00 | 0.43 |
| 1:A:494:CYS:SG | 1:A:495:ASN:N | 2.91 | 0.43 |
| 2:B:121:GLN:O | 2:B:125:LYS:HG3 | 2.19 | 0.43 |
| 1:D:67:LEU:HB3 | 7:D:856:HOH:O | 2.18 | 0.43 |
| 1:D:91:GLY:HA3 | 2:E:142:LYS:HA | 1.99 | 0.43 |
| 2:E:37:PHE:HE1 | 2:E:40:LYS:HZ2 | 1.67 | 0.43 |
| 2:E:126:LYS:O | 2:E:130:GLU:HG3 | 2.18 | 0.43 |
| 2:E:201:ASP:HB3 | 2:E:203:GLU:HG2 | 2.00 | 0.43 |
| 2:F:98:TRP:CD1 | 2:F:153:VAL:HG21 | 2.53 | 0.43 |
| 2:F:181:LYS:O | 2:F:185:TRP:N | 2.40 | 0.43 |
| 1:A:195:SER:OG | 1:A:259:VAL:HG21 | 2.17 | 0.43 |
| 1:A:370:GLY:HA2 | 1:A:371:GLU:HA | 1.62 | 0.43 |
| 1:A:423:CYS:HA | 7:A:747:HOH:O | 2.18 | 0.43 |
| 1:A:434:ASP:O | 1:A:435:LYS:HG3 | 2.18 | 0.43 |
| 1:A:537:GLY:HA3 | 3:A:601:JAA:O02 | 2.19 | 0.43 |
| 2:B:65:CYS:SG | 2:C:97:PHE:CZ | 3.06 | 0.43 |
| 1:D:110:PHE:CD1 | 1:D:556:ALA:HB2 | 2.53 | 0.43 |
| 1:D:198:VAL:HG22 | 1:D:565:ASN:ND2 | 2.24 | 0.43 |
| 1:D:435:LYS:HA | 1:D:436:ASN:HB2 | 1.99 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:E:88:ASP:HA | 2:E:89:PRO:HD3 | 1.86 | 0.43 |
| 2:F:10:TYR:CG | 2:F:12:PRO:HD2 | 2.53 | 0.43 |
| 1:A:151:SER:CA | 1:A:194:PHE:HA | 2.49 | 0.43 |
| 1:A:250:LEU:HD21 | 1:A:260:ARG:HG2 | 2.00 | 0.43 |
| 1:A:274:ALA:O | 1:A:278:ARG:NE | 2.52 | 0.43 |
| 1:A:478:PHE:HZ | 1:A:562:LEU:HA | 1.79 | 0.43 |
| 2:B:93:ALA:HB1 | 2:C:73:TYR:CE1 | 2.54 | 0.43 |
| 2:B:112:LYS:HB2 | 7:B:414:HOH:O | 2.18 | 0.43 |
| 1:D:92:HIS:H | 2:E:141:ASP:C | 2.22 | 0.43 |
| 1:D:413:TYR:O | 1:D:416:THR:HG22 | 2.18 | 0.43 |
| 2:E:169:LYS:NZ | 2:E:206:VAL:HG11 | 2.33 | 0.43 |
| 2:E:206:VAL:HA | 7:E:441:HOH:O | 2.18 | 0.43 |
| 1:A:337:ILE:HG13 | 7:A:764:HOH:O | 2.18 | 0.43 |
| 1:A:475:TYR:HB2 | 1:A:518:LEU:CD2 | 2.48 | 0.43 |
| 1:A:527:THR:HG22 | 1:A:528:PHE:CD1 | 2.53 | 0.43 |
| 2:C:149:SER:HB3 | 2:C:150:PHE:H | 1.71 | 0.43 |
| 1:D:77:ILE:HG12 | 1:D:110:PHE:O | 2.19 | 0.43 |
| 1:D:444:SER:HA | 1:D:500:ALA:CB | 2.48 | 0.43 |
| 1:D:521:ARG:HG3 | 1:D:521:ARG:HH11 | 1.83 | 0.43 |
| 2:E:16:GLY:O | 2:E:20:ARG:NE | 2.50 | 0.43 |
| 2:E:85:PHE:N | 2:E:85:PHE:CD1 | 2.87 | 0.43 |
| 2:F:194:SER:O | 2:F:198:SER:OG | 2.20 | 0.43 |
| 1:A:91:GLY:HA3 | 2:B:142:LYS:C | 2.39 | 0.43 |
| 1:A:116:GLU:OE2 | 1:A:395:TYR:CE1 | 2.72 | 0.43 |
| 2:C:54:ILE:N | 7:C:428:HOH:O | 2.50 | 0.43 |
| 2:C:62:LYS:HA | 2:C:63:PRO:HD2 | 1.87 | 0.43 |
| 2:C:190:MET:HB3 | 1:D:450:LYS:HG3 | 2.00 | 0.43 |
| 1:D:39:ASN:HA | 2:E:142:LYS:CG | 2.49 | 0.43 |
| 1:D:87:PRO:CB | 2:E:143:PRO:HA | 2.45 | 0.43 |
| 2:E:109:ALA:HB3 | 7:E:411:HOH:O | 2.18 | 0.43 |
| 2:E:164:PHE:CD2 | 2:E:183:ILE:HG12 | 2.53 | 0.43 |
| 2:F:4:LEU:HA | 2:F:5:PRO:HD3 | 1.69 | 0.43 |
| 2:F:8:LEU:HD22 | 2:F:33:ARG:NH2 | 2.26 | 0.43 |
| 2:F:98:TRP:CE3 | 2:F:98:TRP:O | 2.72 | 0.43 |
| 1:A:25:HIS:HD2 | 7:A:889:HOH:O | 2.02 | 0.43 |
| 1:A:96:ALA:HB3 | 1:A:113:PHE:CD2 | 2.53 | 0.43 |
| 1:A:135:ASP:HB2 | 7:A:929:HOH:O | 2.17 | 0.43 |
| 1:A:222:VAL:HG13 | 3:A:601:JAA:C06 | 2.48 | 0.43 |
| 1:A:429:LEU:HD12 | 1:A:429:LEU:HA | 1.79 | 0.43 |
| 1:A:555:ASN:O | 1:A:559:LEU:HD22 | 2.19 | 0.43 |
| 1:D:36:LEU:HD13 | 1:D:61:PHE:CE2 | 2.54 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:96:ALA:O | 1:D:113:PHE:HB3 | 2.19 | 0.43 |
| 1:D:316:LEU:O | 1:D:320:ALA:N | 2.50 | 0.43 |
| 1:D:424:ARG:O | 1:D:543:GLY:HA2 | 2.18 | 0.43 |
| 2:E:24:ARG:NH1 | 2:E:198:SER:OG | 2.51 | 0.43 |
| 2:E:48:ASN:HB3 | 2:E:52:LYS:HA | 2.01 | 0.43 |
| 2:E:62:LYS:HA | 2:E:63:PRO:HD2 | 1.79 | 0.43 |
| 1:A:56:ASP:HB2 | 1:A:59:GLU:HB2 | 2.01 | 0.43 |
| 1:A:213:ARG:HG3 | 1:A:214:ASP:N | 2.34 | 0.43 |
| 1:D:124:LEU:HB3 | 3:D:601:JAA:C15 | 2.49 | 0.43 |
| 1:D:362:GLU:HG3 | 1:D:400:ARG:HH22 | 1.82 | 0.43 |
| 1:D:575:PHE:O | 7:D:756:HOH:O | 2.21 | 0.43 |
| 2:E:26:LYS:HE2 | 2:E:26:LYS:HB2 | 1.91 | 0.43 |
| 2:E:161:SER:HA | 2:E:164:PHE:CG | 2.54 | 0.43 |
| 2:F:33:ARG:HH22 | 2:F:41:SER:CB | 2.31 | 0.43 |
| 1:A:33:LYS:HA | 1:A:36:LEU:HD23 | 2.00 | 0.42 |
| 1:A:66:PRO:HD3 | 7:A:723:HOH:O | 2.19 | 0.42 |
| 1:A:70:ASP:OD1 | 1:A:71:VAL:N | 2.52 | 0.42 |
| 1:A:97:ILE:HA | 1:A:111:ILE:O | 2.19 | 0.42 |
| 1:A:291:ILE:HD11 | 1:A:316:LEU:HD11 | 2.01 | 0.42 |
| 1:A:303:GLY:O | 1:A:327:SER:HA | 2.19 | 0.42 |
| 2:C:104:LYS:NZ | 7:C:439:HOH:O | 2.39 | 0.42 |
| 2:C:114:TRP:HA | 2:C:170:PHE:CD2 | 2.49 | 0.42 |
| 1:D:402:ARG:NH2 | 7:D:759:HOH:O | 2.21 | 0.42 |
| 1:D:407:VAL:HG21 | 7:D:920:HOH:O | 2.19 | 0.42 |
| 1:A:238:TRP:CZ2 | 1:A:281:CYS:HB2 | 2.54 | 0.42 |
| 1:A:274:ALA:CB | 1:A:278:ARG:CZ | 2.96 | 0.42 |
| 1:A:355:ILE:HA | 1:A:356:PRO:HD3 | 1.49 | 0.42 |
| 1:A:389:GLU:OE2 | 1:A:402:ARG:HG2 | 2.19 | 0.42 |
| 2:B:18:ARG:HG2 | 2:B:159:THR:HG21 | 2.00 | 0.42 |
| 2:B:86:PRO:HD3 | 2:B:146:GLY:O | 2.20 | 0.42 |
| 2:C:4:LEU:HA | 2:C:5:PRO:HD3 | 1.65 | 0.42 |
| 1:D:32:LEU:O | 1:D:35:ILE:HB | 2.20 | 0.42 |
| 1:D:32:LEU:HD13 | 1:D:360:TYR:CD2 | 2.54 | 0.42 |
| 1:D:163:GLY:HA2 | 1:D:560:GLN:HB2 | 2.02 | 0.42 |
| 1:D:224:ALA:HA | 1:D:316:LEU:HD12 | 2.00 | 0.42 |
| 1:D:229:HIS:O | 1:D:233:THR:HG23 | 2.20 | 0.42 |
| 1:D:365:PRO:HD2 | 1:D:374:GLU:HG2 | 2.01 | 0.42 |
| 2:F:145:PHE:CE2 | 2:F:157:LEU:HD21 | 2.53 | 0.42 |
| 2:F:169:LYS:HD3 | 2:F:206:VAL:HG13 | 2.01 | 0.42 |
| 1:A:86:SER:HB2 | 2:B:188:ARG:HB2 | 2.02 | 0.42 |
| 1:A:145:LEU:HD13 | 1:A:209:GLY:CA | 2.43 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:154:TYR:CZ | 1:A:559:LEU:HD23 | 2.54 | 0.42 |
| 2:B:15:PHE:O | 2:B:18:ARG:HB2 | 2.19 | 0.42 |
| 2:B:194:SER:O | 2:B:198:SER:HB2 | 2.19 | 0.42 |
| 2:C:17:MET:HE2 | 2:C:200:PRO:HD2 | 2.01 | 0.42 |
| 1:D:28:GLN:HA | 7:D:734:HOH:O | 2.19 | 0.42 |
| 1:D:168:ASN:HB2 | 7:D:770:HOH:O | 2.19 | 0.42 |
| 1:D:452:LEU:HD13 | 1:D:493:CYS:SG | 2.59 | 0.42 |
| 2:F:187:LYS:O | 2:F:187:LYS:HG2 | 2.18 | 0.42 |
| 1:A:248:GLY:O | 1:A:267:LEU:HB3 | 2.20 | 0.42 |
| 2:B:27:GLY:HA2 | 7:B:503:HOH:O | 2.19 | 0.42 |
| 1:D:196:PRO:O | 1:D:565:ASN:HA | 2.19 | 0.42 |
| 1:D:494:CYS:HB2 | 1:D:520:LEU:HB3 | 2.01 | 0.42 |
| 2:F:26:LYS:CG | 2:F:81:LYS:HZ3 | 2.30 | 0.42 |
| 1:A:167:THR:HG21 | 1:A:560:GLN:CG | 2.50 | 0.42 |
| 1:A:244:ASP:HB2 | 1:A:251:SER:H | 1.85 | 0.42 |
| 1:A:504:ALA:O | 1:A:507:VAL:HB | 2.19 | 0.42 |
| 1:A:524:ALA:HB2 | 1:A:567:VAL:CG1 | 2.50 | 0.42 |
| 1:A:532:GLN:NE2 | 7:A:777:HOH:O | 2.25 | 0.42 |
| 2:B:51:HIS:HB2 | 2:B:53:LYS:HG2 | 2.01 | 0.42 |
| 1:D:44:TYR:OH | 1:D:68:VAL:HG22 | 2.18 | 0.42 |
| 1:D:111:ILE:HA | 1:D:112:PRO:HD3 | 1.90 | 0.42 |
| 1:D:184:SER:HB3 | 7:D:733:HOH:O | 2.18 | 0.42 |
| 1:D:253:ARG:NH2 | 7:D:819:HOH:O | 2.52 | 0.42 |
| 1:D:501:PHE:CE2 | 1:D:518:LEU:HD21 | 2.54 | 0.42 |
| 2:E:6:ILE:HG23 | 2:E:31:GLU:HB3 | 2.02 | 0.42 |
| 2:E:150:PHE:CD2 | 2:E:192:LYS:HD2 | 2.54 | 0.42 |
| 1:A:32:LEU:HD22 | 1:A:360:TYR:CD2 | 2.54 | 0.42 |
| 1:A:95:PRO:HD3 | 2:B:181:LYS:NZ | 2.34 | 0.42 |
| 1:A:198:VAL:HG22 | 1:A:524:ALA:HB3 | 2.00 | 0.42 |
| 1:A:213:ARG:HA | 1:A:216:VAL:HG23 | 2.01 | 0.42 |
| 2:B:139:LEU:HD21 | 2:B:142:LYS:H | 1.84 | 0.42 |
| 2:B:197:LYS:HE3 | 2:B:197:LYS:HB2 | 1.73 | 0.42 |
| 1:D:305:MET:HB3 | 1:D:347:PRO:HB3 | 2.02 | 0.42 |
| 2:F:57:LEU:HB3 | 2:F:64:VAL:CG2 | 2.50 | 0.42 |
| 2:F:216:ASN:HA | 7:F:459:HOH:O | 2.19 | 0.42 |
| 1:A:27:VAL:HG11 | 1:A:356:PRO:HB3 | 2.01 | 0.42 |
| 1:A:92:HIS:HE1 | 2:B:136:GLU:HA | 1.84 | 0.42 |
| 1:A:143:LYS:HZ1 | 1:A:212:PHE:H | 1.67 | 0.42 |
| 1:A:152:LYS:HD3 | 1:A:565:ASN:ND2 | 2.34 | 0.42 |
| 1:A:351:THR:HG21 | 1:A:410:ILE:CG1 | 2.46 | 0.42 |
| 2:B:65:CYS:O | 2:B:69:ASN:HB3 | 2.19 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:B:149:SER:HB2 | 2:B:150:PHE:H | 1.67 | 0.42 |
| 1:D:41:SER:HA | 2:E:147:GLY:O | 2.20 | 0.42 |
| 1:D:97:ILE:HG13 | 1:D:556:ALA:HB1 | 2.01 | 0.42 |
| 1:D:98:SER:C | 1:D:556:ALA:HB3 | 2.40 | 0.42 |
| 1:D:534:HIS:CD2 | 1:D:535:PHE:CD1 | 3.08 | 0.42 |
| 1:D:534:HIS:HD2 | 1:D:535:PHE:CD1 | 2.38 | 0.42 |
| 2:F:26:LYS:HE3 | 2:F:78:TRP:O | 2.19 | 0.42 |
| 2:F:140:GLY:N | 2:F:181:LYS:HZ1 | 2.18 | 0.42 |
| 1:A:222:VAL:HG12 | 1:A:223:PHE:CD1 | 2.55 | 0.42 |
| 1:A:238:TRP:CZ3 | 1:A:277:ILE:HG12 | 2.55 | 0.42 |
| 1:A:509:SER:HB3 | 1:A:515:ILE:HG12 | 2.02 | 0.42 |
| 1:D:384:ILE:H | 1:D:384:ILE:HG13 | 1.60 | 0.42 |
| 1:D:551:VAL:HG23 | 1:D:555:ASN:H | 1.84 | 0.42 |
| 2:E:102:VAL:HA | 2:E:106:PHE:HB2 | 2.01 | 0.42 |
| 2:F:102:VAL:O | 2:F:106:PHE:HB3 | 2.20 | 0.42 |
| 1:A:79:ARG:HH11 | 1:A:88:ILE:CD1 | 2.32 | 0.42 |
| 1:A:98:SER:C | 1:A:556:ALA:HB3 | 2.40 | 0.42 |
| 1:A:117:LEU:O | 1:A:121:THR:HG23 | 2.19 | 0.42 |
| 1:A:237:VAL:HB | 7:A:757:HOH:O | 2.20 | 0.42 |
| 1:A:246:LYS:NZ | 1:A:278:ARG:NH2 | 2.63 | 0.42 |
| 1:A:390:VAL:HG21 | 1:A:540:SER:HA | 2.02 | 0.42 |
| 1:A:566:VAL:HG13 | 1:A:568:SER:C | 2.41 | 0.42 |
| 2:B:8:LEU:HD21 | 2:B:43:LEU:HD13 | 2.01 | 0.42 |
| 2:B:21:VAL:O | 2:B:25:GLU:HB2 | 2.19 | 0.42 |
| 2:B:50:ILE:HG13 | 2:C:134:ILE:CD1 | 2.47 | 0.42 |
| 2:C:126:LYS:O | 2:C:129:ILE:HG13 | 2.20 | 0.42 |
| 1:D:101:SER:N | 1:D:535:PHE:CZ | 2.87 | 0.42 |
| 1:D:124:LEU:HD21 | 1:D:329:ASP:HB2 | 2.02 | 0.42 |
| 1:D:233:THR:HG22 | 7:D:748:HOH:O | 2.19 | 0.42 |
| 1:D:408:LYS:O | 1:D:419:LEU:HA | 2.20 | 0.42 |
| 1:D:477:ILE:O | 1:D:520:LEU:HD12 | 2.20 | 0.42 |
| 2:E:7:LEU:CD1 | 2:E:9:ASP:HB2 | 2.49 | 0.42 |
| 5:F:301:GSH:N1 | 7:F:425:HOH:O | 2.25 | 0.42 |
| 1:A:94:VAL:HG11 | 1:A:112:PRO:HB3 | 2.01 | 0.42 |
| 1:A:98:SER:OG | 1:A:111:ILE:HB | 2.20 | 0.42 |
| 1:A:198:VAL:O | 1:A:202:LEU:HD12 | 2.20 | 0.42 |
| 1:A:217:GLN:HG3 | 1:A:218:TYR:HD2 | 1.84 | 0.42 |
| 1:A:242:VAL:HG11 | 1:A:278:ARG:NH2 | 2.34 | 0.42 |
| 1:A:305:MET:HG3 | 7:A:715:HOH:O | 2.20 | 0.42 |
| 1:A:310:GLU:N | 1:A:311:PRO:HD2 | 2.34 | 0.42 |
| 1:A:491:GLN:NE2 | 1:A:570:TYR:CD2 | 2.88 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:10:MET:HE1 | 1:D:133:ASN:HB3 | 2.00 | 0.42 |
| 1:D:108:PRO:HB3 | 1:D:555:ASN:CB | 2.50 | 0.42 |
| 1:D:277:ILE:HD12 | 1:D:278:ARG:N | 2.35 | 0.42 |
| 1:D:364:LEU:HB2 | 1:D:402:ARG:HH22 | 1.84 | 0.42 |
| 1:D:523:VAL:HG23 | 7:D:785:HOH:O | 2.20 | 0.42 |
| 2:E:33:ARG:NH2 | 2:E:43:LEU:HD13 | 2.35 | 0.42 |
| 2:F:21:VAL:HG12 | 2:F:155:ILE:HG12 | 2.01 | 0.42 |
| 1:A:284:LEU:HD12 | 1:A:284:LEU:C | 2.41 | 0.41 |
| 1:A:392:ILE:HG13 | 1:A:401:TYR:HB3 | 2.02 | 0.41 |
| 1:A:532:GLN:O | 1:A:535:PHE:N | 2.49 | 0.41 |
| 2:B:110:GLN:O | 2:B:113:VAL:HB | 2.20 | 0.41 |
| 2:C:8:LEU:HG | 2:C:56:VAL:HB | 2.02 | 0.41 |
| 2:C:26:LYS:HE3 | 2:C:78:TRP:O | 2.19 | 0.41 |
| 1:D:95:PRO:O | 1:D:161:PRO:HB2 | 2.20 | 0.41 |
| 1:D:118:MET:HG2 | 1:D:172:ASN:ND2 | 2.35 | 0.41 |
| 1:D:254:ILE:HD13 | 1:D:254:ILE:N | 2.35 | 0.41 |
| 1:D:403:LEU:HD23 | 1:D:403:LEU:HA | 1.51 | 0.41 |
| 1:D:465:TYR:HD1 | 1:D:551:VAL:HG13 | 1.84 | 0.41 |
| 1:D:485:THR:OG1 | 7:D:755:HOH:O | 2.21 | 0.41 |
| 1:A:31:THR:OG1 | 1:A:357:ASN:HA | 2.20 | 0.41 |
| 1:A:224:ALA:HB3 | 1:A:312:TYR:CD1 | 2.54 | 0.41 |
| 1:A:510:ARG:HB3 | 1:A:575:PHE:CE2 | 2.55 | 0.41 |
| 2:B:4:LEU:HA | 2:B:5:PRO:HD3 | 1.83 | 0.41 |
| 2:B:34:GLU:HA | 7:B:465:HOH:O | 2.20 | 0.41 |
| 2:B:193:GLU:HB3 | 2:B:197:LYS:HE2 | 2.01 | 0.41 |
| 2:C:36:ASP:O | 2:C:39:ASN:N | 2.47 | 0.41 |
| 2:C:72:GLN:OE1 | 7:C:426:HOH:O | 2.22 | 0.41 |
| 2:C:81:LYS:HG3 | 2:C:82:ASN:H | 1.85 | 0.41 |
| 1:D:156:SER:OG | 7:D:709:HOH:O | 2.04 | 0.41 |
| 1:D:169:VAL:O | 1:D:175:PHE:HB2 | 2.20 | 0.41 |
| 1:A:105:GLN:N | 7:A:829:HOH:O | 2.46 | 0.41 |
| 1:A:107:ARG:NH2 | 7:A:746:HOH:O | 2.53 | 0.41 |
| 1:A:188:SER:HB3 | 1:A:192:VAL:CG1 | 2.51 | 0.41 |
| 1:A:238:TRP:HA | 1:A:241:ILE:CG1 | 2.50 | 0.41 |
| 1:A:314:PRO:CB | 1:A:317:ARG:HH12 | 2.33 | 0.41 |
| 1:A:471:ASP:HA | 1:A:472:PRO:HA | 1.80 | 0.41 |
| 2:B:126:LYS:O | 2:B:130:GLU:HG2 | 2.21 | 0.41 |
| 2:C:8:LEU:N | 2:C:8:LEU:HD23 | 2.35 | 0.41 |
| 2:C:184:ALA:CB | 1:D:499:ARG:CZ | 2.85 | 0.41 |
| 1:D:90:THR:OG1 | 1:D:397:GLY:HA2 | 2.20 | 0.41 |
| 1:D:250:LEU:HB2 | 1:D:254:ILE:HG13 | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:446:GLU:HG3 | 7:D:824:HOH:O | 2.20 | 0.41 |
| 1:D:453:SER:HB2 | 7:D:786:HOH:O | 2.20 | 0.41 |
| 2:F:110:GLN:O | 2:F:113:VAL:HG12 | 2.20 | 0.41 |
| 1:A:80:MET:HE1 | 1:A:94:VAL:HG22 | 2.02 | 0.41 |
| 1:A:145:LEU:HD21 | 1:A:147:PHE:CZ | 2.55 | 0.41 |
| 1:A:196:PRO:HG2 | 1:A:256:VAL:HG11 | 2.01 | 0.41 |
| 1:A:282:MET:HG3 | 1:A:283:SER:N | 2.36 | 0.41 |
| 1:A:310:GLU:O | 1:A:314:PRO:HD3 | 2.21 | 0.41 |
| 1:A:384:ILE:HA | 1:A:409:VAL:CG1 | 2.49 | 0.41 |
| 2:C:110:GLN:O | 2:C:113:VAL:HG12 | 2.20 | 0.41 |
| 1:D:425:ARG:HH12 | 1:D:546:LYS:HE3 | 1.84 | 0.41 |
| 2:B:8:LEU:HD22 | 2:B:35:GLU:OE2 | 2.19 | 0.41 |
| 2:B:53:LYS:HD3 | 5:B:301:GSH:HB13 | 2.02 | 0.41 |
| 2:C:9:ASP:HB2 | 2:C:20:ARG:HH21 | 1.85 | 0.41 |
| 1:D:94:VAL:HG21 | 1:D:97:ILE:CG2 | 2.51 | 0.41 |
| 1:D:192:VAL:HA | 1:D:195:SER:HB2 | 2.01 | 0.41 |
| 1:D:445:VAL:HG13 | 1:D:479:TRP:NE1 | 2.34 | 0.41 |
| 1:D:480:GLU:HB2 | 1:D:528:PHE:HD1 | 1.85 | 0.41 |
| 1:D:521:ARG:HG3 | 1:D:521:ARG:NH1 | 2.35 | 0.41 |
| 2:E:86:PRO:HD2 | 2:E:92:ARG:HA | 2.02 | 0.41 |
| 1:A:35:ILE:O | 1:A:39:ASN:HB2 | 2.20 | 0.41 |
| 1:A:154:TYR:HE2 | 1:A:162:VAL:HG22 | 1.85 | 0.41 |
| 1:A:225:HIS:HB3 | 1:A:312:TYR:CZ | 2.53 | 0.41 |
| 2:B:70:VAL:O | 2:B:74:VAL:HG23 | 2.20 | 0.41 |
| 2:C:57:LEU:O | 2:C:64:VAL:HG13 | 2.21 | 0.41 |
| 1:D:99:LEU:CB | 1:D:556:ALA:H | 2.34 | 0.41 |
| 1:D:345:LEU:HD13 | 1:D:350:ALA:HA | 2.02 | 0.41 |
| 1:D:471:ASP:HA | 1:D:472:PRO:HA | 1.88 | 0.41 |
| 1:A:203:TYR:CD2 | 1:A:254:ILE:HD11 | 2.53 | 0.41 |
| 1:A:357:ASN:ND2 | 7:A:843:HOH:O | 2.54 | 0.41 |
| 1:A:452:LEU:O | 1:A:457:ILE:HB | 2.21 | 0.41 |
| 1:A:527:THR:HG23 | 1:A:561:ILE:CG2 | 2.44 | 0.41 |
| 2:C:187:LYS:HZ3 | 2:C:187:LYS:HB2 | 1.84 | 0.41 |
| 1:D:19:GLU:O | 1:D:23:ASN:HB2 | 2.21 | 0.41 |
| 1:D:68:VAL:HG11 | 1:D:73:LEU:CD2 | 2.51 | 0.41 |
| 1:D:247:ASP:HA | 7:D:992:HOH:O | 2.19 | 0.41 |
| 1:D:323:LEU:HA | 1:D:324:PRO:HD3 | 1.95 | 0.41 |
| 1:D:425:ARG:HB2 | 1:D:427:LEU:HB2 | 2.03 | 0.41 |
| 1:A:87:PRO:HD3 | 1:A:93:PRO:HD3 | 2.03 | 0.41 |
| 1:A:117:LEU:O | 1:A:120:ASN:HB2 | 2.21 | 0.41 |
| 2:B:96:ARG:NH1 | 2:C:76:GLU:OE2 | 2.54 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:64:VAL:HG12 | 7:C:447:HOH:O | 2.21 | 0.41 |
| 1:D:91:GLY:HA3 | 2:E:142:LYS:CA | 2.51 | 0.41 |
| 1:D:262:ALA:HB3 | 7:D:783:HOH:O | 2.20 | 0.41 |
| 1:D:295:PHE:CD2 | 1:D:295:PHE:N | 2.88 | 0.41 |
| 1:D:440:ASP:OD1 | 1:D:501:PHE:HA | 2.20 | 0.41 |
| 2:F:115:GLY:O | 2:F:116:LYS:HD2 | 2.21 | 0.41 |
| 1:A:46:GLN:OE1 | 2:B:149:SER:HB3 | 2.20 | 0.41 |
| 1:A:57:PRO:HG3 | 7:A:809:HOH:O | 2.21 | 0.41 |
| 1:A:77:ILE:HG22 | 1:A:110:PHE:HB3 | 2.02 | 0.41 |
| 1:A:92:HIS:NE2 | 2:B:139:LEU:HB3 | 2.35 | 0.41 |
| 1:A:223:PHE:HB3 | 1:A:312:TYR:OH | 2.21 | 0.41 |
| 1:A:447:SER:O | 1:A:450:LYS:HG2 | 2.21 | 0.41 |
| 1:A:507:VAL:HG13 | 1:A:511:LYS:HD2 | 2.03 | 0.41 |
| 2:B:5:PRO:HB3 | 2:B:57:LEU:HD21 | 2.01 | 0.41 |
| 2:C:7:LEU:HD21 | 2:C:23:LEU:CD1 | 2.48 | 0.41 |
| 2:C:26:LYS:HD2 | 2:C:74:VAL:CG1 | 2.47 | 0.41 |
| 2:C:64:VAL:HB | 2:C:73:TYR:HD2 | 1.82 | 0.41 |
| 2:C:142:LYS:HA | 2:C:143:PRO:HD3 | 1.97 | 0.41 |
| 2:C:151:GLY:N | 2:C:154:ASP:OD2 | 2.54 | 0.41 |
| 1:D:29:LYS:HB2 | 1:D:33:LYS:HE2 | 2.03 | 0.41 |
| 1:D:79:ARG:HD2 | 7:D:1040:HOH:O | 2.21 | 0.41 |
| 1:D:82:ASP:O | 7:D:761:HOH:O | 2.22 | 0.41 |
| 1:D:187:CYS:HB2 | 1:D:208:SER:C | 2.41 | 0.41 |
| 1:D:222:VAL:O | 1:D:304:ILE:N | 2.35 | 0.41 |
| 1:D:222:VAL:HG11 | 4:D:602:VAL:N | 2.36 | 0.41 |
| 1:D:563:CYS:O | 1:D:566:VAL:HG12 | 2.20 | 0.41 |
| 2:E:54:ILE:H | 2:E:54:ILE:HG13 | 1.72 | 0.41 |
| 1:A:113:PHE:CE1 | 1:A:117:LEU:HD22 | 2.56 | 0.41 |
| 1:A:117:LEU:HD11 | 1:A:333:SER:CA | 2.42 | 0.41 |
| 1:A:288:TYR:HA | 1:A:318:HIS:O | 2.21 | 0.41 |
| 1:A:465:TYR:HD1 | 1:A:551:VAL:CG1 | 2.34 | 0.41 |
| 1:D:92:HIS:HB2 | 2:E:141:ASP:CB | 2.51 | 0.41 |
| 1:D:109:LYS:HE3 | 1:D:111:ILE:HG13 | 2.02 | 0.41 |
| 1:D:133:ASN:OD1 | 1:D:138:ILE:N | 2.50 | 0.41 |
| 2:E:199:LEU:HA | 2:E:200:PRO:HD2 | 1.97 | 0.41 |
| 2:F:9:ASP:HB2 | 2:F:20:ARG:NH2 | 2.36 | 0.41 |
| 2:F:182:LEU:O | 2:F:185:TRP:HE3 | 2.04 | 0.41 |
| 1:A:114:THR:HG22 | 1:A:115:ASP:H | 1.86 | 0.40 |
| 1:A:143:LYS:CE | 1:A:212:PHE:HB2 | 2.50 | 0.40 |
| 1:A:309:MET:HE3 | 1:A:536:LEU:HD12 | 2.03 | 0.40 |
| 2:B:211:GLU:OE1 | 7:B:421:HOH:O | 2.22 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:143:PRO:HB2 | 2:C:144:TYR:CD2 | 2.56 | 0.40 |
| 1:D:77:ILE:O | 1:D:81:VAL:HG12 | 2.21 | 0.40 |
| 1:D:108:PRO:HG2 | 1:D:552:LYS:N | 2.30 | 0.40 |
| 1:D:152:LYS:HG3 | 1:D:565:ASN:CG | 2.41 | 0.40 |
| 1:D:330:TYR:HB2 | 1:D:352:PHE:HD2 | 1.85 | 0.40 |
| 1:D:363:PHE:HB2 | 1:D:388:TYR:HD2 | 1.87 | 0.40 |
| 1:D:449:ALA:O | 1:D:452:LEU:HB2 | 2.21 | 0.40 |
| 2:F:117:LYS:HE3 | 2:F:213:ARG:HH12 | 1.84 | 0.40 |
| 2:F:169:LYS:HE3 | 2:F:169:LYS:HB2 | 1.68 | 0.40 |
| 1:A:117:LEU:HA | 1:A:120:ASN:ND2 | 2.37 | 0.40 |
| 1:A:337:ILE:O | 1:A:354:VAL:HA | 2.22 | 0.40 |
| 1:A:444:SER:OG | 7:A:705:HOH:O | 1.96 | 0.40 |
| 2:B:62:LYS:NZ | 2:C:94:GLN:CG | 2.84 | 0.40 |
| 2:C:17:MET:CE | 2:C:200:PRO:HD2 | 2.52 | 0.40 |
| 2:C:20:ARG:CB | 2:C:198:SER:HB3 | 2.51 | 0.40 |
| 1:D:125:PHE:CE2 | 1:D:328:HIS:CE1 | 3.02 | 0.40 |
| 1:D:302:TYR:CD1 | 1:D:326:VAL:HG13 | 2.53 | 0.40 |
| 2:E:99:ALA:O | 2:E:103:ASP:HB2 | 2.21 | 0.40 |
| 1:A:33:LYS:O | 1:A:37:LEU:HB2 | 2.21 | 0.40 |
| 1:A:77:ILE:CG2 | 1:A:97:ILE:HD12 | 2.51 | 0.40 |
| 1:A:108:PRO:HB3 | 1:A:555:ASN:CB | 2.43 | 0.40 |
| 1:A:256:VAL:O | 1:A:260:ARG:HB2 | 2.21 | 0.40 |
| 1:A:273:LEU:O | 1:A:276:THR:HG22 | 2.20 | 0.40 |
| 2:C:153:VAL:HG22 | 2:C:157:LEU:HD23 | 2.03 | 0.40 |
| 2:C:211:GLU:O | 2:C:214:LYS:HG2 | 2.21 | 0.40 |
| 1:D:36:LEU:HD22 | 1:D:61:PHE:CE1 | 2.57 | 0.40 |
| 1:D:65:VAL:HA | 1:D:66:PRO:HD3 | 1.92 | 0.40 |
| 1:D:68:VAL:CG1 | 1:D:72:GLU:HB2 | 2.49 | 0.40 |
| 1:D:101:SER:HB3 | 1:D:535:PHE:CE2 | 2.56 | 0.40 |
| 1:D:147:PHE:CE1 | 1:D:149:PHE:HE2 | 2.40 | 0.40 |
| 1:D:329:ASP:CB | 1:D:339:ALA:HA | 2.44 | 0.40 |
| 2:F:110:GLN:HG3 | 7:F:417:HOH:O | 2.22 | 0.40 |
| 1:A:78:LYS:HE2 | 1:A:553:PRO:HG2 | 2.04 | 0.40 |
| 1:A:90:THR:O | 2:B:143:PRO:HD3 | 2.21 | 0.40 |
| 1:A:201:ALA:O | 1:A:205:HIS:ND1 | 2.50 | 0.40 |
| 1:A:290:LEU:O | 1:A:293:ALA:N | 2.54 | 0.40 |
| 1:A:428:ILE:HD13 | 7:A:1133:HOH:O | 2.21 | 0.40 |
| 2:B:24:ARG:HE | 2:B:198:SER:HG | 1.62 | 0.40 |
| 2:B:133:LYS:HA | 2:B:136:GLU:OE2 | 2.22 | 0.40 |
| 1:D:272:GLU:O | 1:D:275:GLU:HB3 | 2.21 | 0.40 |
| 1:D:365:PRO:HG3 | 1:D:388:TYR:CZ | 2.56 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:390:VAL:HG11 | 1:D:540:SER:OG | 2.22 | 0.40 |
| 2:E:117:LYS:HB2 | 2:E:117:LYS:HE3 | 1.94 | 0.40 |
| 2:F:10:TYR:O | 2:F:20:ARG:NH2 | 2.42 | 0.40 |
| 1:A:96:ALA:HB3 | 1:A:113:PHE:HB3 | 2.04 | 0.40 |
| 1:A:566:VAL:O | 1:A:566:VAL:HG12 | 2.20 | 0.40 |
| 2:B:65:CYS:HB2 | 7:B:420:HOH:O | 2.21 | 0.40 |
| 1:D:198:VAL:HG22 | 1:D:524:ALA:HB3 | 2.04 | 0.40 |
| 1:D:354:VAL:HG11 | 1:D:379:LEU:HD21 | 2.02 | 0.40 |
| 1:D:506:TYR:O | 1:D:510:ARG:HB3 | 2.21 | 0.40 |
| 2:E:93:ALA:HB2 | 2:E:96:ARG:NH1 | 2.36 | 0.40 |
| 2:F:23:LEU:HB3 | 2:F:28:VAL:CG1 | 2.51 | 0.40 |

All (22) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------------|--------------------------|-------------------|
| 1:A:211:LEU:O | 1:A:509:SER:OG[1_655] | 1.76 | 0.44 |
| 1:A:270:ASN:O | 1:A:511:LYS:NZ[1_655] | 1.80 | 0.40 |
| 1:A:238:TRP:N | 2:F:177:SER:OG[1_554] | 1.91 | 0.29 |
| 7:B:427:HOH:O | 7:C:482:HOH:O[1_455] | 1.98 | 0.22 |
| 7:D:1210:HOH:O | 7:E:581:HOH:O[1_655] | 2.00 | 0.20 |
| 7:A:1075:HOH:O | 7:B:533:HOH:O[1_545] | 2.07 | 0.13 |
| 1:A:270:ASN:ND2 | 1:A:510:ARG:O[1_655] | 2.10 | 0.10 |
| 1:D:270:ASN:ND2 | 1:D:510:ARG:O[1_655] | 2.10 | 0.10 |
| 7:D:1071:HOH:O | 7:D:1097:HOH:O[1_665] | 2.11 | 0.09 |
| 7:B:476:HOH:O | 7:C:503:HOH:O[1_455] | 2.12 | 0.08 |
| 1:D:280:LYS:NZ | 1:D:503:ASP:OD1[1_655] | 2.12 | 0.08 |
| 1:A:22:ARG:NH2 | 2:B:173:PHE:O[1_545] | 2.13 | 0.07 |
| 1:A:276:THR:OG1 | 1:A:501:PHE:O[1_655] | 2.13 | 0.07 |
| 7:A:1066:HOH:O | 7:F:489:HOH:O[1_554] | 2.13 | 0.07 |
| 7:A:1159:HOH:O | 7:A:1172:HOH:O[1_565] | 2.13 | 0.07 |
| 7:B:502:HOH:O | 7:C:527:HOH:O[1_455] | 2.13 | 0.07 |
| 7:A:1161:HOH:O | 7:A:1200:HOH:O[1_565] | 2.15 | 0.05 |
| 7:D:953:HOH:O | 7:D:1024:HOH:O[1_655] | 2.15 | 0.05 |
| 2:C:140:GLY:O | 1:D:246:LYS:NZ[1_455] | 2.17 | 0.03 |
| 7:D:1019:HOH:O | 7:D:1095:HOH:O[1_565] | 2.17 | 0.03 |
| 2:C:141:ASP:OD2 | 1:D:278:ARG:NH2[1_455] | 2.18 | 0.02 |
| 1:D:270:ASN:O | 1:D:511:LYS:NZ[1_655] | 2.18 | 0.02 |

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 | 567/575 (99%) | 513 (90%) | 41 (7%) | 13 (2%) | 6 1 |
| 1 | D | 567/575 (99%) | 504 (89%) | 53 (9%) | 10 (2%) | 8 1 |
| 2 | B | 212/223 (95%) | 197 (93%) | 12 (6%) | 3 (1%) | 11 2 |
| 2 | C | 212/223 (95%) | 193 (91%) | 15 (7%) | 4 (2%) | 8 1 |
| 2 | E | 212/223 (95%) | 192 (91%) | 18 (8%) | 2 (1%) | 17 4 |
| 2 | F | 212/223 (95%) | 191 (90%) | 14 (7%) | 7 (3%) | 4 0 |
| All | All | 1982/2042 (97%) | 1790 (90%) | 153 (8%) | 39 (2%) | 7 1 |

All (39) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 433 | ILE |
| 1 | A | 540 | SER |
| 1 | D | 433 | ILE |
| 1 | D | 540 | SER |
| 1 | D | 542 | ALA |
| 2 | F | 177 | SER |
| 2 | F | 180 | PRO |
| 1 | A | 166 | THR |
| 1 | A | 437 | THR |
| 1 | A | 566 | VAL |
| 2 | C | 140 | GLY |
| 1 | D | 53 | ASN |
| 1 | D | 437 | THR |
| 1 | D | 566 | VAL |
| 2 | F | 140 | GLY |
| 2 | F | 174 | SER |
| 1 | A | 54 | ALA |
| 1 | A | 92 | HIS |
| 1 | A | 368 | GLU |
| 2 | B | 26 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | B | 140 | GLY |
| 1 | D | 368 | GLU |
| 1 | D | 574 | ALA |
| 2 | F | 66 | GLU |
| 1 | A | 105 | GLN |
| 1 | A | 329 | ASP |
| 2 | B | 79 | PRO |
| 1 | D | 369 | THR |
| 2 | F | 172 | ASN |
| 1 | A | 85 | THR |
| 2 | C | 66 | GLU |
| 2 | C | 180 | PRO |
| 1 | D | 553 | PRO |
| 1 | A | 509 | SER |
| 2 | F | 27 | GLY |
| 1 | A | 296 | PRO |
| 2 | E | 27 | GLY |
| 2 | E | 79 | PRO |
| 2 | C | 12 | PRO |

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 | 499/505 (99%) | 461 (92%) | 38 (8%) | 13 2 |
| 1 | D | 499/505 (99%) | 458 (92%) | 41 (8%) | 11 2 |
| 2 | B | 187/195 (96%) | 180 (96%) | 7 (4%) | 34 14 |
| 2 | C | 187/195 (96%) | 172 (92%) | 15 (8%) | 12 2 |
| 2 | E | 187/195 (96%) | 183 (98%) | 4 (2%) | 53 35 |
| 2 | F | 187/195 (96%) | 170 (91%) | 17 (9%) | 9 1 |
| All | All | 1746/1790 (98%) | 1624 (93%) | 122 (7%) | 15 3 |

All (122) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 25 | HIS |
| 1 | A | 26 | GLN |
| 1 | A | 37 | LEU |
| 1 | A | 55 | THR |
| 1 | A | 90 | THR |
| 1 | A | 103 | THR |
| 1 | A | 110 | PHE |
| 1 | A | 125 | PHE |
| 1 | A | 134 | ARG |
| 1 | A | 152 | LYS |
| 1 | A | 154 | TYR |
| 1 | A | 156 | SER |
| 1 | A | 184 | SER |
| 1 | A | 202 | LEU |
| 1 | A | 276 | THR |
| 1 | A | 277 | ILE |
| 1 | A | 281 | CYS |
| 1 | A | 295 | PHE |
| 1 | A | 305 | MET |
| 1 | A | 313 | VAL |
| 1 | A | 357 | ASN |
| 1 | A | 390 | VAL |
| 1 | A | 403 | LEU |
| 1 | A | 410 | ILE |
| 1 | A | 433 | ILE |
| 1 | A | 455 | GLU |
| 1 | A | 463 | SER |
| 1 | A | 464 | SER |
| 1 | A | 478 | PHE |
| 1 | A | 479 | TRP |
| 1 | A | 494 | CYS |
| 1 | A | 509 | SER |
| 1 | A | 515 | ILE |
| 1 | A | 518 | LEU |
| 1 | A | 536 | LEU |
| 1 | A | 545 | PHE |
| 1 | A | 546 | LYS |
| 1 | A | 552 | LYS |
| 2 | B | 39 | ASN |
| 2 | B | 43 | LEU |
| 2 | B | 65 | CYS |
| 2 | B | 103 | ASP |
| 2 | B | 149 | SER |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 2 | B | 182 | LEU |
| 2 | B | 188 | ARG |
| 2 | C | 32 | TYR |
| 2 | C | 45 | LEU |
| 2 | C | 50 | ILE |
| 2 | C | 64 | VAL |
| 2 | C | 72 | GLN |
| 2 | C | 74 | VAL |
| 2 | C | 133 | LYS |
| 2 | C | 134 | ILE |
| 2 | C | 135 | LEU |
| 2 | C | 139 | LEU |
| 2 | C | 157 | LEU |
| 2 | C | 176 | GLU |
| 2 | C | 183 | ILE |
| 2 | C | 185 | TRP |
| 2 | C | 204 | LYS |
| 1 | D | 25 | HIS |
| 1 | D | 46 | GLN |
| 1 | D | 66 | PRO |
| 1 | D | 68 | VAL |
| 1 | D | 77 | ILE |
| 1 | D | 78 | LYS |
| 1 | D | 81 | VAL |
| 1 | D | 82 | ASP |
| 1 | D | 85 | THR |
| 1 | D | 88 | ILE |
| 1 | D | 89 | LEU |
| 1 | D | 90 | THR |
| 1 | D | 92 | HIS |
| 1 | D | 99 | LEU |
| 1 | D | 110 | PHE |
| 1 | D | 125 | PHE |
| 1 | D | 150 | SER |
| 1 | D | 152 | LYS |
| 1 | D | 172 | ASN |
| 1 | D | 187 | CYS |
| 1 | D | 202 | LEU |
| 1 | D | 210 | ILE |
| 1 | D | 242 | VAL |
| 1 | D | 250 | LEU |
| 1 | D | 254 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | D | 273 | LEU |
| 1 | D | 326 | VAL |
| 1 | D | 329 | ASP |
| 1 | D | 405 | ASP |
| 1 | D | 408 | LYS |
| 1 | D | 410 | ILE |
| 1 | D | 416 | THR |
| 1 | D | 424 | ARG |
| 1 | D | 468 | VAL |
| 1 | D | 477 | ILE |
| 1 | D | 494 | CYS |
| 1 | D | 507 | VAL |
| 1 | D | 512 | CYS |
| 1 | D | 546 | LYS |
| 1 | D | 551 | VAL |
| 1 | D | 566 | VAL |
| 2 | E | 4 | LEU |
| 2 | E | 87 | SER |
| 2 | E | 88 | ASP |
| 2 | E | 139 | LEU |
| 2 | F | 32 | TYR |
| 2 | F | 43 | LEU |
| 2 | F | 64 | VAL |
| 2 | F | 65 | CYS |
| 2 | F | 72 | GLN |
| 2 | F | 80 | GLU |
| 2 | F | 84 | PHE |
| 2 | F | 134 | ILE |
| 2 | F | 135 | LEU |
| 2 | F | 139 | LEU |
| 2 | F | 148 | ASP |
| 2 | F | 157 | LEU |
| 2 | F | 172 | ASN |
| 2 | F | 178 | GLU |
| 2 | F | 182 | LEU |
| 2 | F | 202 | SER |
| 2 | F | 216 | ASN |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 26 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 146 | GLN |
| 1 | A | 217 | GLN |
| 1 | A | 394 | ASN |
| 1 | A | 491 | GLN |
| 1 | A | 565 | ASN |
| 2 | B | 60 | ASN |
| 2 | C | 72 | GLN |
| 1 | D | 39 | ASN |
| 1 | D | 123 | GLN |
| 1 | D | 172 | ASN |
| 1 | D | 205 | HIS |
| 1 | D | 236 | GLN |
| 1 | D | 318 | HIS |
| 1 | D | 565 | ASN |
| 2 | F | 110 | GLN |

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 9 ligands modelled in this entry, 1 is monoatomic - leaving 8 for Mogul analysis.

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

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 5 | GSH | F | 301 | - | 18,19,19 | 1.48 | 3 (16%) | 23,24,24 | 2.49 | 5 (21%) |
| 3 | JAA | A | 601 | - | 15,15,15 | 5.13 | 7 (46%) | 15,19,19 | 2.76 | 7 (46%) |
| 5 | GSH | E | 301 | - | 18,19,19 | 1.58 | 4 (22%) | 23,24,24 | 2.44 | 5 (21%) |
| 5 | GSH | B | 301 | - | 18,19,19 | 1.58 | 3 (16%) | 23,24,24 | 1.92 | 5 (21%) |
| 3 | JAA | D | 601 | 6 | 15,15,15 | 5.13 | 6 (40%) | 15,19,19 | 3.08 | 9 (60%) |
| 5 | GSH | C | 301 | - | 18,19,19 | 1.47 | 3 (16%) | 23,24,24 | 2.98 | 9 (39%) |
| 4 | VAL | D | 602 | - | 5,7,7 | 1.13 | 1 (20%) | 7,9,9 | 1.05 | 1 (14%) |
| 4 | VAL | A | 602 | - | 5,7,7 | 1.01 | 1 (20%) | 7,9,9 | 1.56 | 1 (14%) |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|-------------|---------|
| 5 | GSH | F | 301 | - | - | 2/24/24/24 | - |
| 3 | JAA | A | 601 | - | - | 2/9/22/22 | 0/1/1/1 |
| 5 | GSH | E | 301 | - | - | 11/24/24/24 | - |
| 5 | GSH | B | 301 | - | - | 6/24/24/24 | - |
| 3 | JAA | D | 601 | 6 | - | 4/9/22/22 | 0/1/1/1 |
| 5 | GSH | C | 301 | - | - | 7/24/24/24 | - |
| 4 | VAL | D | 602 | - | - | 1/8/8/8 | - |
| 4 | VAL | A | 602 | - | - | 5/8/8/8 | - |

All (28) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|--------|-------------|----------|
| 3 | A | 601 | JAA | C05-C08 | -12.68 | 1.31 | 1.52 |
| 3 | D | 601 | JAA | C05-C08 | -12.43 | 1.31 | 1.52 |
| 3 | A | 601 | JAA | C06-C04 | -11.43 | 1.23 | 1.53 |
| 3 | D | 601 | JAA | C06-C04 | -11.29 | 1.24 | 1.53 |
| 3 | D | 601 | JAA | C07-C08 | 6.15 | 1.61 | 1.51 |
| 3 | A | 601 | JAA | C07-C08 | 5.76 | 1.60 | 1.51 |
| 3 | D | 601 | JAA | C10-C04 | -4.90 | 1.45 | 1.53 |
| 3 | D | 601 | JAA | C05-C04 | 4.76 | 1.66 | 1.54 |
| 3 | A | 601 | JAA | C10-C04 | -4.67 | 1.45 | 1.53 |
| 3 | A | 601 | JAA | C05-C04 | 4.65 | 1.66 | 1.54 |
| 3 | D | 601 | JAA | C09-C05 | -4.34 | 1.48 | 1.54 |
| 3 | A | 601 | JAA | C09-C05 | -3.89 | 1.48 | 1.54 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 5 | B | 301 | GSH | C2-N3 | 3.36 | 1.41 | 1.33 |
| 5 | F | 301 | GSH | CA2-N2 | -3.34 | 1.38 | 1.45 |
| 5 | E | 301 | GSH | C2-N3 | 3.27 | 1.40 | 1.33 |
| 5 | C | 301 | GSH | CA2-N2 | -3.17 | 1.39 | 1.45 |
| 5 | E | 301 | GSH | CA2-N2 | -3.03 | 1.39 | 1.45 |
| 5 | B | 301 | GSH | CD1-N2 | 2.84 | 1.40 | 1.34 |
| 5 | F | 301 | GSH | C2-N3 | 2.81 | 1.39 | 1.33 |
| 5 | C | 301 | GSH | C2-N3 | 2.72 | 1.39 | 1.33 |
| 5 | B | 301 | GSH | CA2-N2 | -2.60 | 1.40 | 1.45 |
| 5 | C | 301 | GSH | CD1-N2 | 2.35 | 1.39 | 1.34 |
| 5 | E | 301 | GSH | CD1-N2 | 2.30 | 1.38 | 1.34 |
| 4 | D | 602 | VAL | OXT-C | -2.29 | 1.23 | 1.30 |
| 5 | F | 301 | GSH | CD1-N2 | 2.09 | 1.38 | 1.34 |
| 4 | A | 602 | VAL | OXT-C | -2.04 | 1.23 | 1.30 |
| 3 | A | 601 | JAA | O03-C12 | -2.01 | 1.24 | 1.30 |
| 5 | E | 301 | GSH | O12-C1 | -2.00 | 1.24 | 1.30 |

All (42) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 5 | C | 301 | GSH | CA2-CB2-SG2 | -9.99 | 102.97 | 114.19 |
| 5 | F | 301 | GSH | CA2-CB2-SG2 | -9.27 | 103.78 | 114.19 |
| 5 | E | 301 | GSH | CA2-CB2-SG2 | -6.67 | 106.70 | 114.19 |
| 3 | D | 601 | JAA | C07-C06-C04 | -6.28 | 97.85 | 104.41 |
| 5 | B | 301 | GSH | CA2-CB2-SG2 | -6.15 | 107.28 | 114.19 |
| 5 | E | 301 | GSH | CB2-CA2-N2 | -6.02 | 102.70 | 111.28 |
| 3 | D | 601 | JAA | C09-C11-C13 | -5.69 | 105.26 | 126.40 |
| 3 | A | 601 | JAA | O01-C08-C05 | 5.02 | 132.05 | 125.58 |
| 3 | A | 601 | JAA | C09-C11-C13 | -4.67 | 109.04 | 126.40 |
| 5 | F | 301 | GSH | CB2-CA2-N2 | -4.65 | 104.65 | 111.28 |
| 5 | C | 301 | GSH | CB2-CA2-N2 | -4.59 | 104.74 | 111.28 |
| 3 | A | 601 | JAA | C07-C08-C05 | -4.16 | 102.01 | 109.05 |
| 5 | C | 301 | GSH | CG1-CD1-N2 | -4.06 | 108.79 | 115.83 |
| 3 | A | 601 | JAA | C06-C04-C10 | -3.85 | 106.24 | 113.41 |
| 3 | A | 601 | JAA | O03-C12-C10 | 3.79 | 126.20 | 114.07 |
| 5 | C | 301 | GSH | CB1-CG1-CD1 | 3.62 | 121.12 | 113.04 |
| 5 | E | 301 | GSH | CB1-CG1-CD1 | 3.55 | 120.97 | 113.04 |
| 3 | D | 601 | JAA | O01-C08-C05 | 3.55 | 130.15 | 125.58 |
| 5 | E | 301 | GSH | CG1-CD1-N2 | -3.48 | 109.79 | 115.83 |
| 4 | A | 602 | VAL | OXT-C-O | -3.46 | 116.23 | 124.09 |
| 3 | D | 601 | JAA | O03-C12-C10 | 3.39 | 124.95 | 114.07 |
| 5 | C | 301 | GSH | CG1-CB1-CA1 | -3.39 | 105.94 | 113.84 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 5 | C | 301 | GSH | C2-CA2-N2 | -3.16 | 102.57 | 111.16 |
| 3 | D | 601 | JAA | C06-C07-C08 | -3.09 | 102.32 | 105.42 |
| 3 | D | 601 | JAA | C07-C08-C05 | -3.08 | 103.84 | 109.05 |
| 3 | D | 601 | JAA | C06-C04-C10 | -3.07 | 107.69 | 113.41 |
| 3 | A | 601 | JAA | O02-C12-C10 | -2.88 | 113.56 | 122.80 |
| 3 | D | 601 | JAA | C04-C10-C12 | -2.81 | 107.43 | 113.37 |
| 5 | F | 301 | GSH | C3-CA3-N3 | -2.80 | 104.42 | 113.06 |
| 5 | C | 301 | GSH | OE1-CD1-CG1 | 2.75 | 127.05 | 122.02 |
| 5 | B | 301 | GSH | C2-CA2-N2 | -2.69 | 103.83 | 111.16 |
| 5 | F | 301 | GSH | CG1-CD1-N2 | -2.59 | 111.34 | 115.83 |
| 3 | D | 601 | JAA | O02-C12-C10 | -2.54 | 114.65 | 122.80 |
| 5 | E | 301 | GSH | OE1-CD1-CG1 | 2.50 | 126.58 | 122.02 |
| 5 | B | 301 | GSH | CB2-CA2-N2 | -2.41 | 107.84 | 111.28 |
| 4 | D | 602 | VAL | OXT-C-O | -2.34 | 118.78 | 124.09 |
| 5 | C | 301 | GSH | O32-C3-CA3 | 2.27 | 120.63 | 112.74 |
| 5 | B | 301 | GSH | CB1-CG1-CD1 | 2.25 | 118.06 | 113.04 |
| 5 | C | 301 | GSH | CA3-N3-C2 | -2.19 | 115.95 | 121.37 |
| 5 | B | 301 | GSH | CG1-CD1-N2 | -2.07 | 112.25 | 115.83 |
| 3 | A | 601 | JAA | C07-C06-C04 | -2.06 | 102.26 | 104.41 |
| 5 | F | 301 | GSH | C2-CA2-N2 | -2.03 | 105.62 | 111.16 |

There are no chirality outliers.

All (38) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-----------------|
| 3 | D | 601 | JAA | C04-C05-C09-C11 |
| 3 | D | 601 | JAA | C09-C11-C13-C14 |
| 3 | D | 601 | JAA | C11-C13-C14-C15 |
| 4 | A | 602 | VAL | OXT-C-CA-N |
| 4 | A | 602 | VAL | N-CA-CB-CG1 |
| 4 | A | 602 | VAL | N-CA-CB-CG2 |
| 4 | A | 602 | VAL | C-CA-CB-CG1 |
| 4 | A | 602 | VAL | C-CA-CB-CG2 |
| 5 | B | 301 | GSH | N1-CA1-CB1-CG1 |
| 5 | B | 301 | GSH | C1-CA1-CB1-CG1 |
| 5 | B | 301 | GSH | C2-CA2-CB2-SG2 |
| 5 | C | 301 | GSH | O11-C1-CA1-N1 |
| 5 | C | 301 | GSH | N2-CA2-CB2-SG2 |
| 5 | C | 301 | GSH | C2-CA2-CB2-SG2 |
| 5 | E | 301 | GSH | N2-CA2-CB2-SG2 |
| 5 | E | 301 | GSH | C2-CA2-CB2-SG2 |
| 5 | F | 301 | GSH | N2-CA2-CB2-SG2 |

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| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-----------------|
| 5 | F | 301 | GSH | C2-CA2-CB2-SG2 |
| 3 | A | 601 | JAA | C09-C11-C13-C14 |
| 5 | C | 301 | GSH | CA1-CB1-CG1-CD1 |
| 5 | C | 301 | GSH | O12-C1-CA1-N1 |
| 5 | E | 301 | GSH | CA1-CB1-CG1-CD1 |
| 5 | C | 301 | GSH | O31-C3-CA3-N3 |
| 5 | E | 301 | GSH | O31-C3-CA3-N3 |
| 5 | E | 301 | GSH | O32-C3-CA3-N3 |
| 5 | C | 301 | GSH | O32-C3-CA3-N3 |
| 5 | E | 301 | GSH | C1-CA1-CB1-CG1 |
| 3 | A | 601 | JAA | C05-C09-C11-C13 |
| 3 | D | 601 | JAA | C08-C05-C09-C11 |
| 5 | B | 301 | GSH | O32-C3-CA3-N3 |
| 5 | B | 301 | GSH | N2-CA2-CB2-SG2 |
| 5 | B | 301 | GSH | O31-C3-CA3-N3 |
| 5 | E | 301 | GSH | OE1-CD1-CG1-CB1 |
| 5 | E | 301 | GSH | C3-CA3-N3-C2 |
| 4 | D | 602 | VAL | C-CA-CB-CG2 |
| 5 | E | 301 | GSH | O2-C2-CA2-N2 |
| 5 | E | 301 | GSH | N2-CD1-CG1-CB1 |
| 5 | E | 301 | GSH | N3-C2-CA2-N2 |

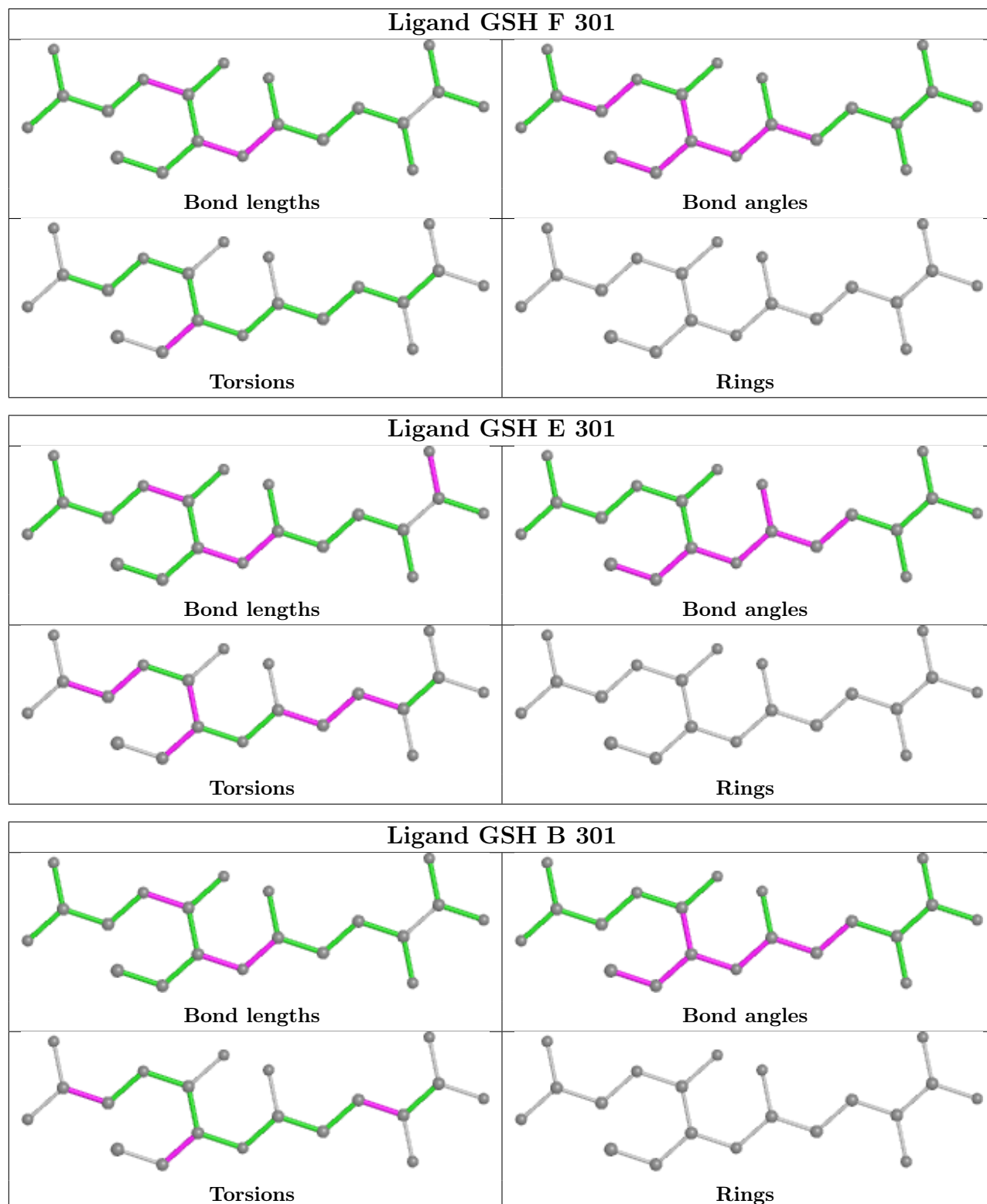
There are no ring outliers.

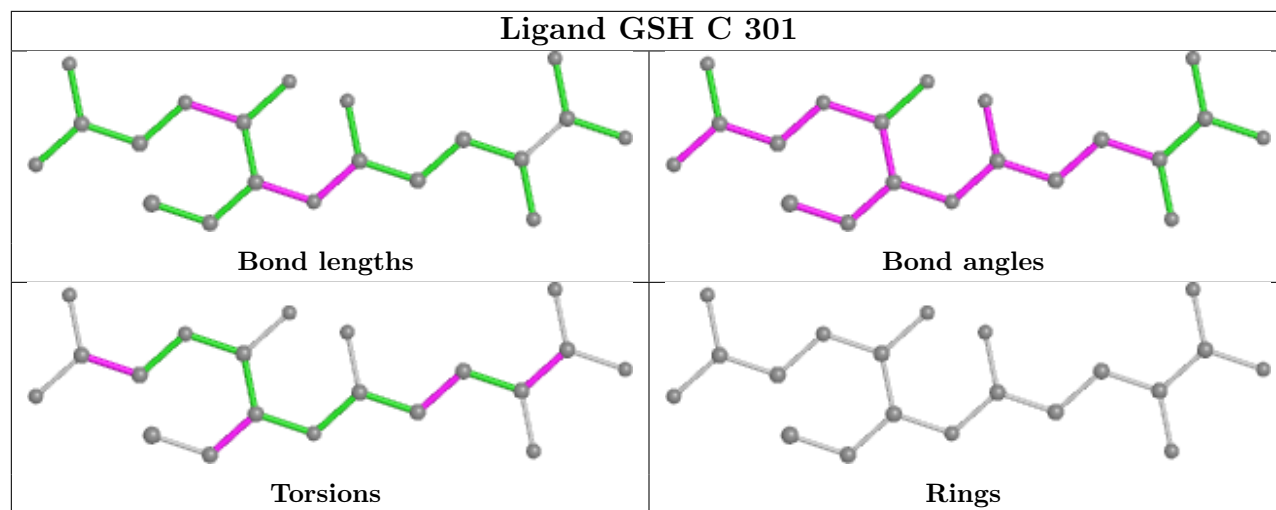
8 monomers are involved in 21 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 5 | F | 301 | GSH | 3 | 0 |
| 3 | A | 601 | JAA | 4 | 0 |
| 5 | E | 301 | GSH | 1 | 0 |
| 5 | B | 301 | GSH | 4 | 0 |
| 3 | D | 601 | JAA | 2 | 0 |
| 5 | C | 301 | GSH | 1 | 0 |
| 4 | D | 602 | VAL | 2 | 0 |
| 4 | A | 602 | VAL | 4 | 0 |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring

in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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 | 569/575 (98%) | 2.35 | 298 (52%) 0 0 | 5, 17, 25, 32 | 0 |
| 1 | D | 569/575 (98%) | 1.84 | 235 (41%) 0 0 | 4, 12, 19, 26 | 0 |
| 2 | B | 214/223 (95%) | 1.51 | 59 (27%) 0 0 | 6, 13, 21, 28 | 0 |
| 2 | C | 214/223 (95%) | 1.24 | 49 (22%) 0 0 | 3, 7, 11, 18 | 0 |
| 2 | E | 214/223 (95%) | 1.65 | 73 (34%) 0 0 | 7, 12, 20, 26 | 0 |
| 2 | F | 214/223 (95%) | 1.46 | 50 (23%) 0 0 | 4, 9, 14, 22 | 0 |
| All | All | 1994/2042 (97%) | 1.82 | 764 (38%) 0 0 | 3, 12, 22, 32 | 0 |

All (764) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | A | 27 | VAL | 9.8 |
| 2 | E | 97 | PHE | 9.0 |
| 1 | A | 515 | ILE | 9.0 |
| 2 | F | 174 | SER | 8.7 |
| 1 | A | 429 | LEU | 8.5 |
| 1 | A | 36 | LEU | 8.2 |
| 1 | D | 161 | PRO | 8.0 |
| 1 | A | 294 | LEU | 7.9 |
| 1 | A | 17 | PHE | 7.4 |
| 1 | A | 432 | ASN | 7.4 |
| 2 | C | 90 | TYR | 7.3 |
| 1 | A | 210 | ILE | 7.2 |
| 1 | A | 346 | SER | 7.2 |
| 2 | E | 95 | ALA | 7.1 |
| 2 | B | 123 | ALA | 6.6 |
| 1 | A | 13 | VAL | 6.6 |
| 1 | A | 287 | TRP | 6.6 |
| 2 | F | 176 | GLU | 6.6 |
| 1 | A | 202 | LEU | 6.4 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | A | 523 | VAL | 6.3 |
| 1 | A | 284 | LEU | 6.3 |
| 2 | F | 172 | ASN | 6.2 |
| 1 | A | 305 | MET | 6.2 |
| 1 | A | 506 | TYR | 6.1 |
| 1 | D | 361 | PHE | 6.1 |
| 1 | A | 309 | MET | 6.0 |
| 1 | D | 173 | PRO | 5.8 |
| 1 | A | 423 | CYS | 5.8 |
| 1 | A | 125 | PHE | 5.7 |
| 1 | A | 459 | VAL | 5.7 |
| 1 | D | 566 | VAL | 5.7 |
| 1 | A | 354 | VAL | 5.7 |
| 1 | A | 457 | ILE | 5.7 |
| 1 | A | 233 | THR | 5.5 |
| 1 | A | 377 | VAL | 5.5 |
| 1 | A | 531 | ILE | 5.5 |
| 1 | A | 274 | ALA | 5.4 |
| 1 | A | 500 | ALA | 5.4 |
| 2 | B | 132 | VAL | 5.3 |
| 1 | A | 237 | VAL | 5.2 |
| 1 | D | 517 | ALA | 5.2 |
| 1 | A | 295 | PHE | 5.2 |
| 1 | A | 35 | ILE | 5.2 |
| 1 | A | 468 | VAL | 5.2 |
| 1 | A | 556 | ALA | 5.1 |
| 2 | B | 140 | GLY | 5.1 |
| 1 | D | 203 | TYR | 5.1 |
| 1 | A | 60 | ALA | 5.1 |
| 1 | D | 114 | THR | 5.0 |
| 1 | A | 301 | VAL | 5.0 |
| 1 | A | 48 | CYS | 5.0 |
| 1 | A | 145 | LEU | 5.0 |
| 2 | E | 70 | VAL | 5.0 |
| 1 | A | 279 | THR | 4.9 |
| 1 | A | 65 | VAL | 4.9 |
| 1 | D | 507 | VAL | 4.9 |
| 1 | A | 66 | PRO | 4.9 |
| 1 | D | 506 | TYR | 4.9 |
| 2 | B | 139 | LEU | 4.9 |
| 1 | A | 238 | TRP | 4.9 |
| 1 | A | 169 | VAL | 4.9 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | A | 257 | PRO | 4.8 |
| 1 | A | 37 | LEU | 4.8 |
| 1 | D | 155 | ILE | 4.8 |
| 1 | D | 398 | LEU | 4.8 |
| 1 | A | 406 | VAL | 4.8 |
| 1 | A | 104 | SER | 4.8 |
| 1 | A | 475 | TYR | 4.8 |
| 1 | A | 234 | PHE | 4.8 |
| 1 | D | 475 | TYR | 4.8 |
| 1 | A | 538 | LEU | 4.7 |
| 2 | F | 180 | PRO | 4.7 |
| 1 | D | 466 | ILE | 4.6 |
| 1 | A | 220 | PHE | 4.6 |
| 1 | A | 392 | ILE | 4.6 |
| 1 | D | 271 | PRO | 4.6 |
| 1 | A | 8 | PHE | 4.6 |
| 1 | A | 497 | LEU | 4.5 |
| 1 | D | 523 | VAL | 4.5 |
| 1 | A | 507 | VAL | 4.5 |
| 1 | D | 77 | ILE | 4.5 |
| 1 | A | 563 | CYS | 4.5 |
| 1 | D | 262 | ALA | 4.5 |
| 1 | D | 162 | VAL | 4.5 |
| 1 | D | 202 | LEU | 4.5 |
| 1 | D | 111 | ILE | 4.5 |
| 1 | A | 154 | TYR | 4.5 |
| 2 | C | 10 | TYR | 4.5 |
| 2 | B | 153 | VAL | 4.4 |
| 1 | A | 170 | TYR | 4.4 |
| 2 | B | 135 | LEU | 4.4 |
| 1 | A | 110 | PHE | 4.4 |
| 1 | D | 46 | GLN | 4.4 |
| 1 | A | 113 | PHE | 4.3 |
| 1 | D | 160 | VAL | 4.3 |
| 1 | A | 433 | ILE | 4.3 |
| 1 | A | 460 | ILE | 4.3 |
| 1 | D | 515 | ILE | 4.3 |
| 1 | D | 89 | LEU | 4.3 |
| 1 | D | 409 | VAL | 4.3 |
| 1 | A | 469 | SER | 4.2 |
| 1 | A | 546 | LYS | 4.2 |
| 1 | D | 288 | TYR | 4.2 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 2 | F | 165 | GLN | 4.2 |
| 1 | A | 67 | LEU | 4.2 |
| 1 | A | 241 | ILE | 4.2 |
| 2 | F | 173 | PHE | 4.2 |
| 1 | A | 129 | PHE | 4.2 |
| 1 | A | 545 | PHE | 4.2 |
| 2 | B | 183 | ILE | 4.2 |
| 1 | D | 457 | ILE | 4.1 |
| 2 | E | 61 | GLY | 4.1 |
| 2 | E | 173 | PHE | 4.1 |
| 2 | B | 64 | VAL | 4.1 |
| 2 | B | 70 | VAL | 4.1 |
| 1 | A | 326 | VAL | 4.0 |
| 1 | A | 131 | PHE | 4.0 |
| 1 | D | 76 | TYR | 4.0 |
| 1 | D | 313 | VAL | 4.0 |
| 1 | A | 477 | ILE | 4.0 |
| 1 | D | 428 | ILE | 4.0 |
| 1 | D | 397 | GLY | 4.0 |
| 1 | A | 136 | PHE | 4.0 |
| 1 | A | 149 | PHE | 4.0 |
| 1 | A | 211 | LEU | 3.9 |
| 2 | F | 73 | TYR | 3.9 |
| 2 | E | 49 | PRO | 3.9 |
| 1 | A | 428 | ILE | 3.9 |
| 1 | D | 481 | ILE | 3.9 |
| 2 | B | 175 | ILE | 3.9 |
| 2 | F | 114 | TRP | 3.9 |
| 1 | A | 535 | PHE | 3.9 |
| 1 | D | 42 | ALA | 3.9 |
| 1 | A | 345 | LEU | 3.9 |
| 2 | E | 71 | VAL | 3.9 |
| 1 | A | 312 | TYR | 3.9 |
| 1 | D | 65 | VAL | 3.9 |
| 1 | D | 113 | PHE | 3.9 |
| 1 | A | 324 | PRO | 3.9 |
| 1 | A | 38 | LYS | 3.8 |
| 2 | F | 179 | SER | 3.8 |
| 1 | D | 266 | LEU | 3.8 |
| 2 | B | 185 | TRP | 3.8 |
| 1 | A | 230 | ALA | 3.8 |
| 1 | A | 431 | ILE | 3.8 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | A | 466 | ILE | 3.8 |
| 1 | D | 71 | VAL | 3.8 |
| 2 | C | 153 | VAL | 3.8 |
| 2 | E | 57 | LEU | 3.8 |
| 1 | A | 558 | VAL | 3.8 |
| 1 | D | 204 | CYS | 3.8 |
| 1 | A | 311 | PRO | 3.8 |
| 2 | C | 193 | GLU | 3.8 |
| 1 | A | 14 | ILE | 3.8 |
| 2 | E | 158 | ILE | 3.8 |
| 2 | F | 175 | ILE | 3.8 |
| 2 | E | 74 | VAL | 3.8 |
| 1 | A | 175 | PHE | 3.7 |
| 1 | A | 19 | GLU | 3.7 |
| 1 | D | 219 | VAL | 3.7 |
| 1 | A | 353 | ALA | 3.7 |
| 1 | A | 166 | THR | 3.7 |
| 1 | A | 526 | GLY | 3.7 |
| 1 | D | 304 | ILE | 3.7 |
| 1 | D | 32 | LEU | 3.7 |
| 1 | A | 42 | ALA | 3.7 |
| 2 | E | 206 | VAL | 3.7 |
| 1 | D | 380 | THR | 3.7 |
| 1 | D | 462 | PHE | 3.7 |
| 1 | D | 274 | ALA | 3.7 |
| 1 | A | 443 | LEU | 3.7 |
| 2 | F | 68 | LEU | 3.7 |
| 1 | A | 407 | VAL | 3.7 |
| 1 | D | 85 | THR | 3.7 |
| 1 | A | 327 | SER | 3.7 |
| 2 | F | 90 | TYR | 3.7 |
| 1 | A | 352 | PHE | 3.7 |
| 1 | D | 149 | PHE | 3.7 |
| 2 | F | 177 | SER | 3.6 |
| 1 | A | 116 | GLU | 3.6 |
| 2 | F | 144 | TYR | 3.6 |
| 1 | D | 531 | ILE | 3.6 |
| 2 | B | 78 | TRP | 3.6 |
| 1 | A | 388 | TYR | 3.6 |
| 1 | A | 43 | ILE | 3.6 |
| 1 | A | 325 | LEU | 3.6 |
| 1 | A | 379 | LEU | 3.6 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | D | 528 | PHE | 3.6 |
| 1 | A | 313 | VAL | 3.6 |
| 1 | A | 330 | TYR | 3.6 |
| 1 | A | 33 | LYS | 3.6 |
| 1 | A | 122 | LEU | 3.6 |
| 1 | A | 198 | VAL | 3.6 |
| 1 | D | 167 | THR | 3.6 |
| 1 | D | 287 | TRP | 3.6 |
| 1 | D | 154 | TYR | 3.6 |
| 1 | A | 290 | LEU | 3.6 |
| 1 | A | 403 | LEU | 3.6 |
| 2 | F | 99 | ALA | 3.5 |
| 1 | A | 282 | MET | 3.5 |
| 1 | A | 454 | GLU | 3.5 |
| 1 | A | 524 | ALA | 3.5 |
| 2 | F | 64 | VAL | 3.5 |
| 2 | F | 183 | ILE | 3.5 |
| 1 | A | 281 | CYS | 3.5 |
| 2 | B | 202 | SER | 3.5 |
| 1 | A | 393 | THR | 3.5 |
| 1 | D | 179 | MET | 3.5 |
| 1 | D | 250 | LEU | 3.5 |
| 2 | E | 139 | LEU | 3.5 |
| 1 | A | 147 | PHE | 3.5 |
| 1 | D | 476 | ALA | 3.5 |
| 1 | D | 285 | SER | 3.5 |
| 2 | F | 98 | TRP | 3.5 |
| 1 | D | 571 | PHE | 3.5 |
| 1 | D | 7 | THR | 3.5 |
| 2 | E | 109 | ALA | 3.5 |
| 1 | A | 323 | LEU | 3.4 |
| 1 | A | 473 | GLY | 3.4 |
| 1 | A | 57 | PRO | 3.4 |
| 1 | D | 550 | CYS | 3.4 |
| 1 | A | 28 | GLN | 3.4 |
| 1 | A | 217 | GLN | 3.4 |
| 1 | D | 429 | LEU | 3.4 |
| 1 | D | 242 | VAL | 3.4 |
| 1 | D | 522 | VAL | 3.4 |
| 2 | E | 175 | ILE | 3.4 |
| 2 | B | 60 | ASN | 3.4 |
| 2 | E | 98 | TRP | 3.4 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | A | 536 | LEU | 3.4 |
| 1 | D | 206 | LEU | 3.4 |
| 2 | C | 28 | VAL | 3.4 |
| 1 | D | 182 | ILE | 3.4 |
| 1 | D | 384 | ILE | 3.4 |
| 1 | D | 561 | ILE | 3.4 |
| 1 | A | 339 | ALA | 3.3 |
| 1 | D | 316 | LEU | 3.3 |
| 1 | D | 419 | LEU | 3.3 |
| 1 | A | 203 | TYR | 3.3 |
| 2 | E | 21 | VAL | 3.3 |
| 1 | D | 147 | PHE | 3.3 |
| 1 | A | 419 | LEU | 3.3 |
| 2 | E | 134 | ILE | 3.3 |
| 1 | D | 192 | VAL | 3.3 |
| 1 | D | 479 | TRP | 3.3 |
| 2 | F | 132 | VAL | 3.3 |
| 1 | A | 161 | PRO | 3.3 |
| 1 | A | 71 | VAL | 3.3 |
| 1 | D | 520 | LEU | 3.3 |
| 1 | A | 548 | PRO | 3.3 |
| 2 | E | 63 | PRO | 3.3 |
| 1 | A | 218 | TYR | 3.3 |
| 1 | A | 54 | ALA | 3.3 |
| 1 | A | 355 | ILE | 3.3 |
| 1 | A | 103 | THR | 3.2 |
| 1 | D | 43 | ILE | 3.2 |
| 1 | D | 208 | SER | 3.2 |
| 2 | F | 216 | ASN | 3.2 |
| 1 | A | 214 | ASP | 3.2 |
| 1 | A | 231 | PHE | 3.2 |
| 1 | D | 110 | PHE | 3.2 |
| 1 | D | 516 | GLY | 3.2 |
| 2 | F | 157 | LEU | 3.2 |
| 2 | B | 32 | TYR | 3.2 |
| 2 | E | 90 | TYR | 3.2 |
| 2 | F | 208 | TYR | 3.2 |
| 1 | A | 271 | PRO | 3.2 |
| 1 | D | 314 | PRO | 3.2 |
| 1 | D | 187 | CYS | 3.2 |
| 1 | A | 316 | LEU | 3.2 |
| 1 | A | 341 | VAL | 3.2 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | A | 412 | PHE | 3.2 |
| 1 | D | 412 | PHE | 3.2 |
| 1 | D | 421 | PHE | 3.2 |
| 1 | A | 109 | LYS | 3.2 |
| 1 | D | 512 | CYS | 3.2 |
| 1 | D | 222 | VAL | 3.2 |
| 2 | E | 44 | LEU | 3.2 |
| 2 | C | 170 | PHE | 3.2 |
| 2 | E | 91 | GLY | 3.2 |
| 1 | D | 399 | TYR | 3.2 |
| 2 | E | 10 | TYR | 3.2 |
| 1 | A | 464 | SER | 3.2 |
| 1 | A | 81 | VAL | 3.1 |
| 1 | D | 558 | VAL | 3.1 |
| 2 | E | 30 | PHE | 3.1 |
| 2 | B | 134 | ILE | 3.1 |
| 1 | A | 93 | PRO | 3.1 |
| 1 | D | 289 | GLY | 3.1 |
| 2 | E | 124 | GLY | 3.1 |
| 1 | A | 445 | VAL | 3.1 |
| 1 | D | 122 | LEU | 3.1 |
| 2 | F | 153 | VAL | 3.1 |
| 2 | E | 22 | ALA | 3.1 |
| 2 | E | 210 | ALA | 3.1 |
| 1 | A | 465 | TYR | 3.1 |
| 2 | E | 73 | TYR | 3.1 |
| 1 | A | 337 | ILE | 3.1 |
| 2 | B | 158 | ILE | 3.1 |
| 1 | A | 127 | THR | 3.1 |
| 2 | B | 206 | VAL | 3.1 |
| 2 | F | 135 | LEU | 3.1 |
| 1 | D | 335 | GLY | 3.1 |
| 1 | A | 561 | ILE | 3.1 |
| 1 | A | 321 | GLY | 3.1 |
| 1 | A | 518 | LEU | 3.1 |
| 2 | F | 102 | VAL | 3.1 |
| 2 | E | 54 | ILE | 3.0 |
| 1 | A | 508 | SER | 3.0 |
| 1 | A | 390 | VAL | 3.0 |
| 2 | F | 217 | LEU | 3.0 |
| 1 | A | 269 | PRO | 3.0 |
| 1 | A | 273 | LEU | 3.0 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | D | 311 | PRO | 3.0 |
| 1 | D | 277 | ILE | 3.0 |
| 1 | D | 431 | ILE | 3.0 |
| 1 | D | 573 | THR | 3.0 |
| 2 | B | 180 | PRO | 3.0 |
| 2 | F | 171 | GLY | 3.0 |
| 1 | A | 358 | LEU | 3.0 |
| 1 | A | 560 | GLN | 3.0 |
| 1 | D | 337 | ILE | 3.0 |
| 1 | D | 360 | TYR | 3.0 |
| 1 | D | 494 | CYS | 3.0 |
| 1 | D | 570 | TYR | 3.0 |
| 2 | C | 32 | TYR | 3.0 |
| 1 | A | 501 | PHE | 3.0 |
| 1 | A | 181 | SER | 3.0 |
| 1 | A | 472 | PRO | 3.0 |
| 1 | D | 124 | LEU | 3.0 |
| 1 | D | 495 | ASN | 2.9 |
| 2 | B | 207 | ALA | 2.9 |
| 1 | A | 289 | GLY | 2.9 |
| 1 | D | 121 | THR | 2.9 |
| 1 | A | 148 | ILE | 2.9 |
| 1 | A | 277 | ILE | 2.9 |
| 1 | D | 433 | ILE | 2.9 |
| 1 | A | 83 | GLY | 2.9 |
| 1 | A | 98 | SER | 2.9 |
| 2 | E | 50 | ILE | 2.9 |
| 1 | A | 302 | TYR | 2.9 |
| 1 | D | 220 | PHE | 2.9 |
| 1 | D | 363 | PHE | 2.9 |
| 1 | D | 45 | LEU | 2.9 |
| 1 | D | 403 | LEU | 2.9 |
| 2 | C | 49 | PRO | 2.9 |
| 2 | E | 6 | ILE | 2.9 |
| 1 | A | 505 | GLY | 2.9 |
| 1 | D | 413 | TYR | 2.9 |
| 1 | D | 465 | TYR | 2.9 |
| 2 | F | 10 | TYR | 2.9 |
| 2 | E | 28 | VAL | 2.9 |
| 1 | A | 106 | GLY | 2.9 |
| 1 | A | 422 | ILE | 2.9 |
| 2 | C | 83 | PRO | 2.9 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | A | 128 | ALA | 2.9 |
| 1 | A | 361 | PHE | 2.8 |
| 1 | D | 125 | PHE | 2.8 |
| 1 | A | 512 | CYS | 2.8 |
| 1 | D | 259 | VAL | 2.8 |
| 1 | D | 489 | VAL | 2.8 |
| 1 | D | 496 | CYS | 2.8 |
| 1 | D | 538 | LEU | 2.8 |
| 1 | A | 322 | ASP | 2.8 |
| 2 | E | 12 | PRO | 2.8 |
| 2 | E | 14 | MET | 2.8 |
| 2 | C | 183 | ILE | 2.8 |
| 1 | D | 47 | ASN | 2.8 |
| 1 | A | 223 | PHE | 2.8 |
| 1 | A | 421 | PHE | 2.8 |
| 1 | D | 390 | VAL | 2.8 |
| 1 | D | 535 | PHE | 2.8 |
| 1 | D | 575 | PHE | 2.8 |
| 1 | A | 124 | LEU | 2.8 |
| 2 | B | 102 | VAL | 2.8 |
| 1 | D | 112 | PRO | 2.8 |
| 1 | A | 96 | ALA | 2.8 |
| 1 | D | 165 | ALA | 2.8 |
| 1 | A | 91 | GLY | 2.8 |
| 1 | A | 410 | ILE | 2.8 |
| 1 | D | 148 | ILE | 2.8 |
| 1 | D | 510 | ARG | 2.8 |
| 2 | E | 32 | TYR | 2.8 |
| 1 | A | 259 | VAL | 2.8 |
| 1 | D | 366 | VAL | 2.8 |
| 2 | B | 164 | PHE | 2.8 |
| 2 | E | 43 | LEU | 2.8 |
| 2 | F | 97 | PHE | 2.8 |
| 1 | D | 178 | GLY | 2.8 |
| 1 | D | 477 | ILE | 2.8 |
| 2 | B | 129 | ILE | 2.8 |
| 1 | A | 553 | PRO | 2.8 |
| 1 | D | 169 | VAL | 2.8 |
| 1 | D | 567 | VAL | 2.8 |
| 1 | A | 276 | THR | 2.8 |
| 2 | E | 160 | PHE | 2.8 |
| 1 | A | 476 | ALA | 2.8 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 2 | B | 93 | ALA | 2.8 |
| 2 | B | 186 | ALA | 2.8 |
| 2 | E | 205 | ILE | 2.7 |
| 1 | D | 541 | SER | 2.7 |
| 2 | B | 167 | TYR | 2.7 |
| 1 | D | 69 | THR | 2.7 |
| 1 | D | 268 | THR | 2.7 |
| 1 | D | 207 | LEU | 2.7 |
| 1 | D | 562 | LEU | 2.7 |
| 2 | B | 56 | VAL | 2.7 |
| 2 | E | 7 | LEU | 2.7 |
| 1 | D | 60 | ALA | 2.7 |
| 1 | D | 568 | SER | 2.7 |
| 2 | B | 174 | SER | 2.7 |
| 1 | A | 68 | VAL | 2.7 |
| 1 | D | 198 | VAL | 2.7 |
| 1 | D | 216 | VAL | 2.7 |
| 2 | C | 44 | LEU | 2.7 |
| 2 | E | 64 | VAL | 2.7 |
| 2 | E | 93 | ALA | 2.7 |
| 1 | D | 427 | LEU | 2.7 |
| 1 | D | 417 | PRO | 2.7 |
| 1 | A | 61 | PHE | 2.7 |
| 1 | A | 21 | THR | 2.7 |
| 1 | A | 90 | THR | 2.7 |
| 1 | A | 502 | ILE | 2.7 |
| 2 | E | 166 | ALA | 2.7 |
| 1 | D | 336 | TRP | 2.7 |
| 1 | A | 222 | VAL | 2.7 |
| 2 | B | 182 | LEU | 2.7 |
| 2 | E | 47 | SER | 2.7 |
| 1 | A | 328 | HIS | 2.7 |
| 2 | E | 150 | PHE | 2.7 |
| 1 | A | 31 | THR | 2.7 |
| 1 | A | 550 | CYS | 2.7 |
| 2 | F | 72 | GLN | 2.7 |
| 1 | A | 99 | LEU | 2.7 |
| 1 | D | 445 | VAL | 2.7 |
| 2 | C | 68 | LEU | 2.7 |
| 2 | C | 185 | TRP | 2.7 |
| 1 | D | 8 | PHE | 2.7 |
| 1 | D | 545 | PHE | 2.7 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 2 | B | 173 | PHE | 2.7 |
| 1 | D | 205 | HIS | 2.6 |
| 1 | D | 504 | ALA | 2.6 |
| 1 | D | 392 | ILE | 2.6 |
| 1 | A | 562 | LEU | 2.6 |
| 1 | D | 103 | THR | 2.6 |
| 1 | A | 194 | PHE | 2.6 |
| 1 | A | 212 | PHE | 2.6 |
| 1 | A | 478 | PHE | 2.6 |
| 1 | A | 97 | ILE | 2.6 |
| 1 | A | 261 | THR | 2.6 |
| 1 | D | 249 | VAL | 2.6 |
| 2 | C | 70 | VAL | 2.6 |
| 1 | A | 300 | TYR | 2.6 |
| 1 | D | 37 | LEU | 2.6 |
| 1 | A | 516 | GLY | 2.6 |
| 2 | B | 98 | TRP | 2.6 |
| 2 | C | 98 | TRP | 2.6 |
| 1 | A | 528 | PHE | 2.6 |
| 1 | D | 55 | THR | 2.6 |
| 1 | D | 255 | THR | 2.6 |
| 1 | D | 470 | THR | 2.6 |
| 1 | D | 492 | ASP | 2.6 |
| 1 | A | 372 | GLY | 2.6 |
| 1 | D | 359 | GLY | 2.6 |
| 2 | E | 155 | ILE | 2.6 |
| 1 | A | 398 | LEU | 2.6 |
| 1 | D | 218 | TYR | 2.6 |
| 1 | D | 464 | SER | 2.6 |
| 1 | D | 17 | PHE | 2.6 |
| 1 | D | 501 | PHE | 2.6 |
| 2 | B | 101 | PHE | 2.6 |
| 1 | A | 144 | ALA | 2.6 |
| 1 | A | 350 | ALA | 2.6 |
| 1 | D | 67 | LEU | 2.6 |
| 1 | D | 518 | LEU | 2.6 |
| 1 | A | 44 | TYR | 2.6 |
| 1 | A | 413 | TYR | 2.6 |
| 1 | D | 170 | TYR | 2.6 |
| 1 | A | 453 | SER | 2.6 |
| 1 | A | 462 | PHE | 2.5 |
| 2 | F | 164 | PHE | 2.5 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | D | 96 | ALA | 2.5 |
| 1 | D | 221 | ALA | 2.5 |
| 1 | A | 195 | SER | 2.5 |
| 1 | A | 481 | ILE | 2.5 |
| 1 | D | 88 | ILE | 2.5 |
| 2 | B | 137 | SER | 2.5 |
| 1 | A | 206 | LEU | 2.5 |
| 1 | D | 137 | PRO | 2.5 |
| 2 | E | 45 | LEU | 2.5 |
| 1 | D | 44 | TYR | 2.5 |
| 1 | D | 163 | GLY | 2.5 |
| 1 | D | 300 | TYR | 2.5 |
| 2 | C | 73 | TYR | 2.5 |
| 1 | A | 342 | THR | 2.5 |
| 1 | A | 573 | THR | 2.5 |
| 1 | D | 48 | CYS | 2.5 |
| 1 | A | 92 | HIS | 2.5 |
| 1 | A | 534 | HIS | 2.5 |
| 2 | F | 15 | PHE | 2.5 |
| 2 | F | 145 | PHE | 2.5 |
| 1 | A | 108 | PRO | 2.5 |
| 2 | E | 55 | PRO | 2.5 |
| 1 | A | 32 | LEU | 2.5 |
| 1 | A | 236 | GLN | 2.5 |
| 1 | A | 395 | TYR | 2.5 |
| 1 | A | 570 | TYR | 2.5 |
| 1 | A | 204 | CYS | 2.5 |
| 1 | A | 10 | MET | 2.5 |
| 1 | A | 142 | GLY | 2.5 |
| 1 | D | 500 | ALA | 2.5 |
| 2 | F | 106 | PHE | 2.5 |
| 2 | F | 111 | PHE | 2.5 |
| 1 | A | 499 | ARG | 2.5 |
| 1 | A | 111 | ILE | 2.5 |
| 2 | C | 11 | TRP | 2.5 |
| 2 | B | 113 | VAL | 2.5 |
| 2 | E | 113 | VAL | 2.5 |
| 2 | C | 139 | LEU | 2.5 |
| 2 | B | 177 | SER | 2.5 |
| 2 | E | 151 | GLY | 2.5 |
| 1 | A | 376 | PRO | 2.5 |
| 1 | D | 175 | PHE | 2.5 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 2 | C | 30 | PHE | 2.5 |
| 1 | A | 94 | VAL | 2.5 |
| 2 | C | 207 | ALA | 2.4 |
| 1 | D | 482 | SER | 2.4 |
| 1 | D | 321 | GLY | 2.4 |
| 1 | A | 120 | ASN | 2.4 |
| 1 | A | 304 | ILE | 2.4 |
| 2 | B | 160 | PHE | 2.4 |
| 1 | D | 73 | LEU | 2.4 |
| 1 | D | 559 | LEU | 2.4 |
| 1 | A | 504 | ALA | 2.4 |
| 2 | E | 209 | ALA | 2.4 |
| 2 | B | 163 | TRP | 2.4 |
| 1 | A | 63 | SER | 2.4 |
| 1 | A | 288 | TYR | 2.4 |
| 1 | D | 127 | THR | 2.4 |
| 1 | A | 359 | GLY | 2.4 |
| 2 | E | 65 | CYS | 2.4 |
| 2 | C | 102 | VAL | 2.4 |
| 1 | A | 73 | LEU | 2.4 |
| 1 | A | 245 | ILE | 2.4 |
| 1 | A | 427 | LEU | 2.4 |
| 1 | A | 449 | ALA | 2.4 |
| 1 | D | 502 | ILE | 2.4 |
| 2 | C | 128 | PHE | 2.4 |
| 2 | E | 149 | SER | 2.4 |
| 1 | D | 485 | THR | 2.4 |
| 1 | A | 209 | GLY | 2.4 |
| 2 | C | 212 | TYR | 2.4 |
| 2 | E | 27 | GLY | 2.4 |
| 1 | A | 232 | ARG | 2.4 |
| 1 | A | 452 | LEU | 2.4 |
| 1 | D | 36 | LEU | 2.4 |
| 1 | D | 351 | THR | 2.4 |
| 2 | F | 129 | ILE | 2.4 |
| 1 | A | 189 | PRO | 2.4 |
| 1 | A | 292 | PRO | 2.4 |
| 2 | F | 86 | PRO | 2.4 |
| 1 | A | 76 | TYR | 2.4 |
| 1 | A | 544 | GLN | 2.4 |
| 1 | D | 312 | TYR | 2.4 |
| 1 | D | 80 | MET | 2.4 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 2 | E | 78 | TRP | 2.4 |
| 1 | A | 440 | ASP | 2.4 |
| 2 | B | 209 | ALA | 2.4 |
| 1 | D | 90 | THR | 2.4 |
| 1 | D | 527 | THR | 2.4 |
| 1 | A | 229 | HIS | 2.4 |
| 1 | D | 521 | ARG | 2.3 |
| 1 | A | 207 | LEU | 2.3 |
| 1 | D | 99 | LEU | 2.3 |
| 2 | C | 5 | PRO | 2.3 |
| 1 | D | 129 | PHE | 2.3 |
| 1 | A | 308 | SER | 2.3 |
| 1 | A | 357 | ASN | 2.3 |
| 1 | A | 360 | TYR | 2.3 |
| 2 | B | 90 | TYR | 2.3 |
| 2 | E | 144 | TYR | 2.3 |
| 2 | C | 163 | TRP | 2.3 |
| 1 | A | 380 | THR | 2.3 |
| 1 | A | 426 | ASN | 2.3 |
| 1 | D | 27 | VAL | 2.3 |
| 1 | A | 227 | LEU | 2.3 |
| 1 | D | 254 | ILE | 2.3 |
| 2 | B | 37 | PHE | 2.3 |
| 1 | A | 298 | ALA | 2.3 |
| 1 | D | 330 | TYR | 2.3 |
| 2 | B | 166 | ALA | 2.3 |
| 2 | B | 172 | ASN | 2.3 |
| 2 | B | 215 | ASN | 2.3 |
| 1 | D | 459 | VAL | 2.3 |
| 1 | A | 266 | LEU | 2.3 |
| 1 | A | 335 | GLY | 2.3 |
| 1 | D | 50 | LEU | 2.3 |
| 2 | B | 120 | GLU | 2.3 |
| 1 | A | 329 | ASP | 2.3 |
| 1 | D | 223 | PHE | 2.3 |
| 1 | D | 295 | PHE | 2.3 |
| 2 | B | 84 | PHE | 2.3 |
| 1 | A | 7 | THR | 2.3 |
| 1 | A | 167 | THR | 2.3 |
| 1 | A | 485 | THR | 2.3 |
| 1 | A | 264 | SER | 2.3 |
| 1 | D | 184 | SER | 2.3 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | A | 215 | GLN | 2.3 |
| 1 | D | 309 | MET | 2.3 |
| 2 | F | 70 | VAL | 2.3 |
| 1 | D | 486 | ASN | 2.3 |
| 1 | D | 97 | ILE | 2.3 |
| 1 | A | 75 | PRO | 2.3 |
| 1 | D | 347 | PRO | 2.3 |
| 2 | E | 170 | PHE | 2.3 |
| 1 | A | 11 | ASN | 2.3 |
| 1 | A | 278 | ARG | 2.2 |
| 1 | D | 94 | VAL | 2.2 |
| 1 | D | 296 | PRO | 2.2 |
| 1 | D | 548 | PRO | 2.2 |
| 2 | C | 64 | VAL | 2.2 |
| 2 | C | 162 | SER | 2.2 |
| 1 | A | 293 | ALA | 2.2 |
| 1 | A | 559 | LEU | 2.2 |
| 1 | D | 183 | THR | 2.2 |
| 1 | D | 379 | LEU | 2.2 |
| 2 | C | 166 | ALA | 2.2 |
| 2 | E | 85 | PHE | 2.2 |
| 1 | D | 324 | PRO | 2.2 |
| 1 | A | 351 | THR | 2.2 |
| 1 | A | 409 | VAL | 2.2 |
| 1 | D | 116 | GLU | 2.2 |
| 2 | B | 136 | GLU | 2.2 |
| 2 | F | 195 | VAL | 2.2 |
| 1 | A | 133 | ASN | 2.2 |
| 1 | A | 163 | GLY | 2.2 |
| 1 | D | 532 | GLN | 2.2 |
| 1 | A | 479 | TRP | 2.2 |
| 2 | E | 13 | SER | 2.2 |
| 1 | A | 363 | PHE | 2.2 |
| 1 | D | 57 | PRO | 2.2 |
| 1 | D | 87 | PRO | 2.2 |
| 1 | D | 231 | PHE | 2.2 |
| 2 | C | 12 | PRO | 2.2 |
| 2 | E | 101 | PHE | 2.2 |
| 2 | E | 164 | PHE | 2.2 |
| 1 | A | 114 | THR | 2.2 |
| 1 | D | 306 | THR | 2.2 |
| 1 | D | 201 | ALA | 2.2 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | D | 574 | ALA | 2.2 |
| 2 | C | 95 | ALA | 2.2 |
| 2 | E | 58 | VAL | 2.2 |
| 1 | A | 117 | LEU | 2.2 |
| 2 | C | 179 | SER | 2.2 |
| 1 | A | 138 | ILE | 2.2 |
| 1 | D | 245 | ILE | 2.2 |
| 1 | D | 291 | ILE | 2.2 |
| 2 | B | 86 | PRO | 2.2 |
| 2 | E | 72 | GLN | 2.2 |
| 2 | E | 163 | TRP | 2.2 |
| 1 | A | 394 | ASN | 2.2 |
| 2 | F | 215 | ASN | 2.2 |
| 1 | D | 24 | ALA | 2.2 |
| 2 | C | 84 | PHE | 2.2 |
| 2 | C | 152 | TYR | 2.2 |
| 2 | E | 84 | PHE | 2.2 |
| 2 | E | 106 | PHE | 2.2 |
| 1 | D | 557 | LYS | 2.2 |
| 1 | A | 20 | MET | 2.2 |
| 1 | D | 101 | SER | 2.2 |
| 1 | A | 213 | ARG | 2.2 |
| 2 | B | 74 | VAL | 2.2 |
| 1 | D | 196 | PRO | 2.2 |
| 2 | C | 135 | LEU | 2.2 |
| 2 | E | 182 | LEU | 2.2 |
| 1 | D | 378 | GLY | 2.2 |
| 1 | A | 492 | ASP | 2.2 |
| 2 | E | 11 | TRP | 2.2 |
| 2 | F | 185 | TRP | 2.2 |
| 2 | C | 33 | ARG | 2.1 |
| 1 | D | 212 | PHE | 2.1 |
| 2 | C | 85 | PHE | 2.1 |
| 1 | D | 66 | PRO | 2.1 |
| 1 | D | 423 | CYS | 2.1 |
| 1 | A | 256 | VAL | 2.1 |
| 2 | E | 153 | VAL | 2.1 |
| 1 | A | 12 | ARG | 2.1 |
| 2 | C | 50 | ILE | 2.1 |
| 1 | A | 201 | ALA | 2.1 |
| 2 | B | 19 | ALA | 2.1 |
| 2 | C | 209 | ALA | 2.1 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 2 | F | 207 | ALA | 2.1 |
| 1 | D | 270 | ASN | 2.1 |
| 1 | A | 417 | PRO | 2.1 |
| 1 | D | 140 | ASP | 2.1 |
| 2 | C | 78 | TRP | 2.1 |
| 1 | A | 575 | PHE | 2.1 |
| 1 | A | 192 | VAL | 2.1 |
| 1 | D | 267 | LEU | 2.1 |
| 2 | B | 43 | LEU | 2.1 |
| 2 | C | 43 | LEU | 2.1 |
| 2 | F | 184 | ALA | 2.1 |
| 2 | B | 16 | GLY | 2.1 |
| 1 | A | 29 | LYS | 2.1 |
| 2 | B | 133 | LYS | 2.1 |
| 2 | B | 152 | TYR | 2.1 |
| 2 | C | 167 | TYR | 2.1 |
| 2 | E | 53 | LYS | 2.1 |
| 2 | B | 30 | PHE | 2.1 |
| 2 | B | 114 | TRP | 2.1 |
| 2 | C | 101 | PHE | 2.1 |
| 2 | C | 106 | PHE | 2.1 |
| 1 | A | 47 | ASN | 2.1 |
| 1 | A | 255 | THR | 2.1 |
| 1 | A | 228 | VAL | 2.1 |
| 1 | D | 339 | ALA | 2.1 |
| 2 | C | 23 | LEU | 2.1 |
| 1 | D | 166 | THR | 2.1 |
| 2 | E | 152 | TYR | 2.1 |
| 2 | F | 32 | TYR | 2.1 |
| 2 | B | 145 | PHE | 2.1 |
| 2 | F | 85 | PHE | 2.1 |
| 2 | F | 101 | PHE | 2.1 |
| 1 | D | 54 | ALA | 2.1 |
| 1 | D | 326 | VAL | 2.1 |
| 2 | F | 11 | TRP | 2.1 |
| 1 | A | 509 | SER | 2.1 |
| 1 | D | 14 | ILE | 2.1 |
| 1 | D | 157 | THR | 2.0 |
| 1 | D | 261 | THR | 2.0 |
| 1 | A | 130 | ALA | 2.0 |
| 1 | D | 118 | MET | 2.0 |
| 1 | A | 216 | VAL | 2.0 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | A | 382 | VAL | 2.0 |
| 1 | D | 478 | PHE | 2.0 |
| 2 | E | 145 | PHE | 2.0 |
| 1 | A | 291 | ILE | 2.0 |
| 1 | A | 494 | CYS | 2.0 |
| 1 | D | 281 | CYS | 2.0 |
| 1 | D | 422 | ILE | 2.0 |
| 1 | D | 247 | ASP | 2.0 |
| 2 | E | 140 | GLY | 2.0 |
| 2 | F | 79 | PRO | 2.0 |
| 2 | F | 83 | PRO | 2.0 |
| 2 | C | 48 | ASN | 2.0 |
| 2 | C | 190 | MET | 2.0 |
| 2 | C | 184 | ALA | 2.0 |
| 1 | A | 123 | GLN | 2.0 |
| 1 | D | 367 | SER | 2.0 |
| 2 | E | 212 | TYR | 2.0 |
| 1 | A | 242 | VAL | 2.0 |
| 1 | A | 566 | VAL | 2.0 |
| 1 | D | 382 | VAL | 2.0 |
| 1 | D | 273 | LEU | 2.0 |
| 2 | B | 15 | PHE | 2.0 |
| 2 | B | 157 | LEU | 2.0 |
| 2 | C | 4 | LEU | 2.0 |
| 2 | E | 111 | PHE | 2.0 |
| 2 | F | 182 | LEU | 2.0 |
| 1 | A | 164 | THR | 2.0 |
| 1 | A | 183 | THR | 2.0 |
| 1 | A | 226 | GLY | 2.0 |
| 2 | B | 12 | PRO | 2.0 |
| 2 | C | 124 | GLY | 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](#)

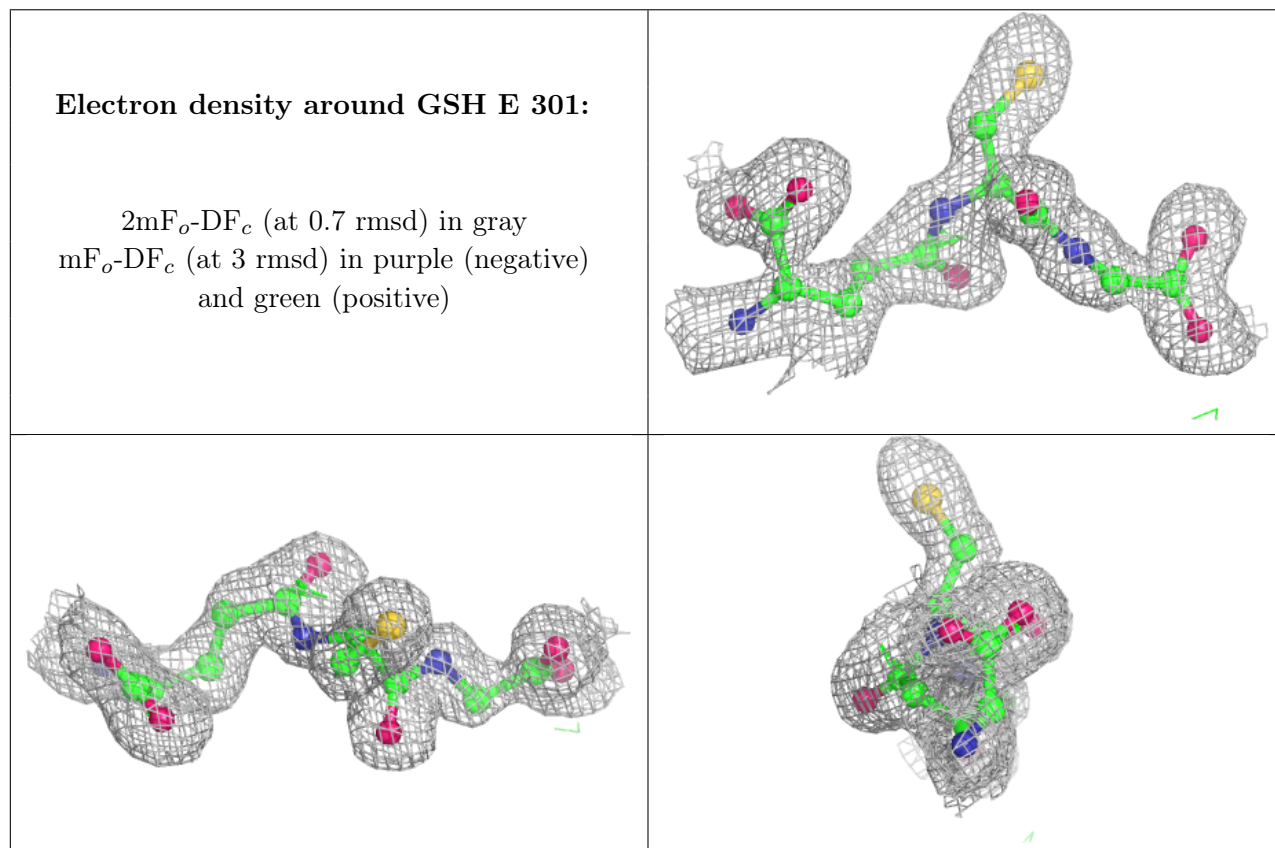
There are no monosaccharides in this entry.

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.

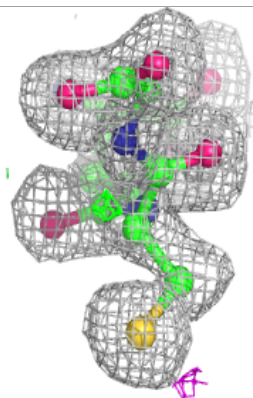
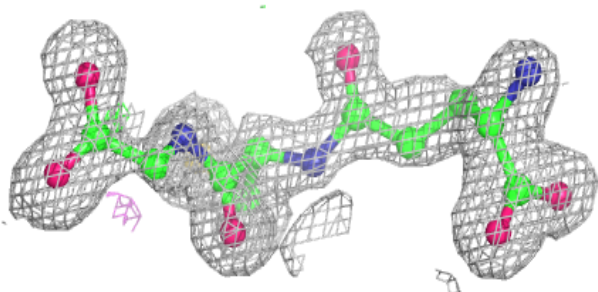
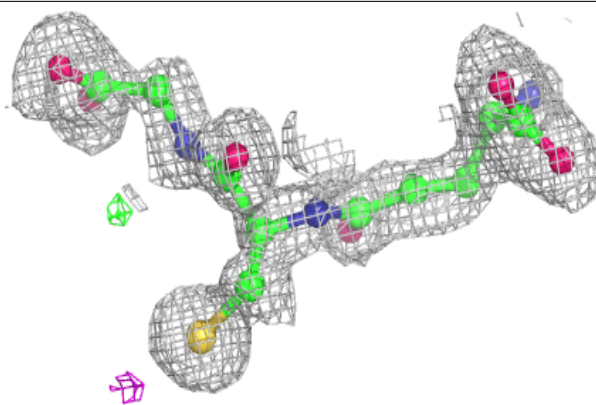
| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å ²) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|----------------------------|-------|
| 4 | VAL | A | 602 | 8/8 | 0.71 | 0.22 | 15,20,22,28 | 0 |
| 4 | VAL | D | 602 | 8/8 | 0.75 | 0.21 | 12,17,23,28 | 0 |
| 3 | JAA | D | 601 | 15/15 | 0.81 | 0.18 | 7,13,19,20 | 0 |
| 3 | JAA | A | 601 | 15/15 | 0.84 | 0.20 | 12,15,20,24 | 0 |
| 5 | GSH | E | 301 | 20/20 | 0.88 | 0.14 | 5,13,20,35 | 0 |
| 5 | GSH | C | 301 | 20/20 | 0.89 | 0.16 | 4,11,20,27 | 0 |
| 5 | GSH | F | 301 | 20/20 | 0.89 | 0.14 | 6,10,14,19 | 0 |
| 5 | GSH | B | 301 | 20/20 | 0.93 | 0.18 | 5,21,23,28 | 0 |
| 6 | MG | D | 603 | 1/1 | 0.94 | 0.21 | 19,19,19,19 | 0 |

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

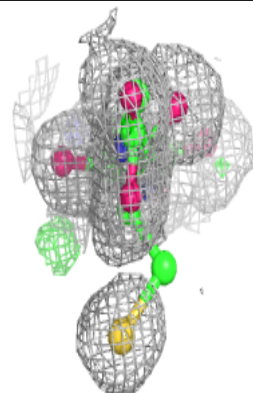
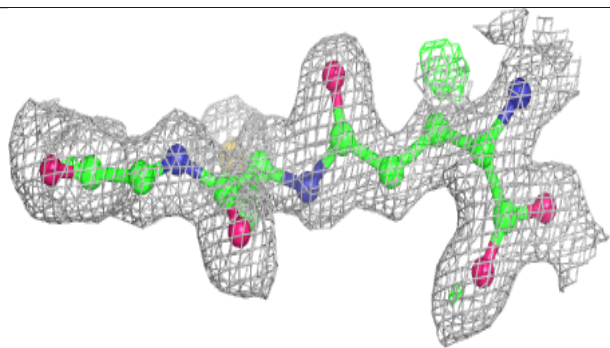
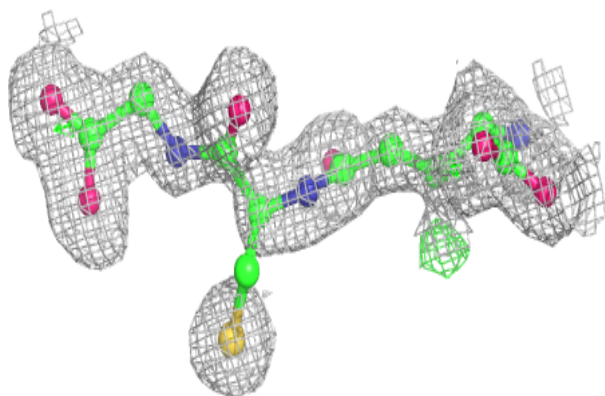


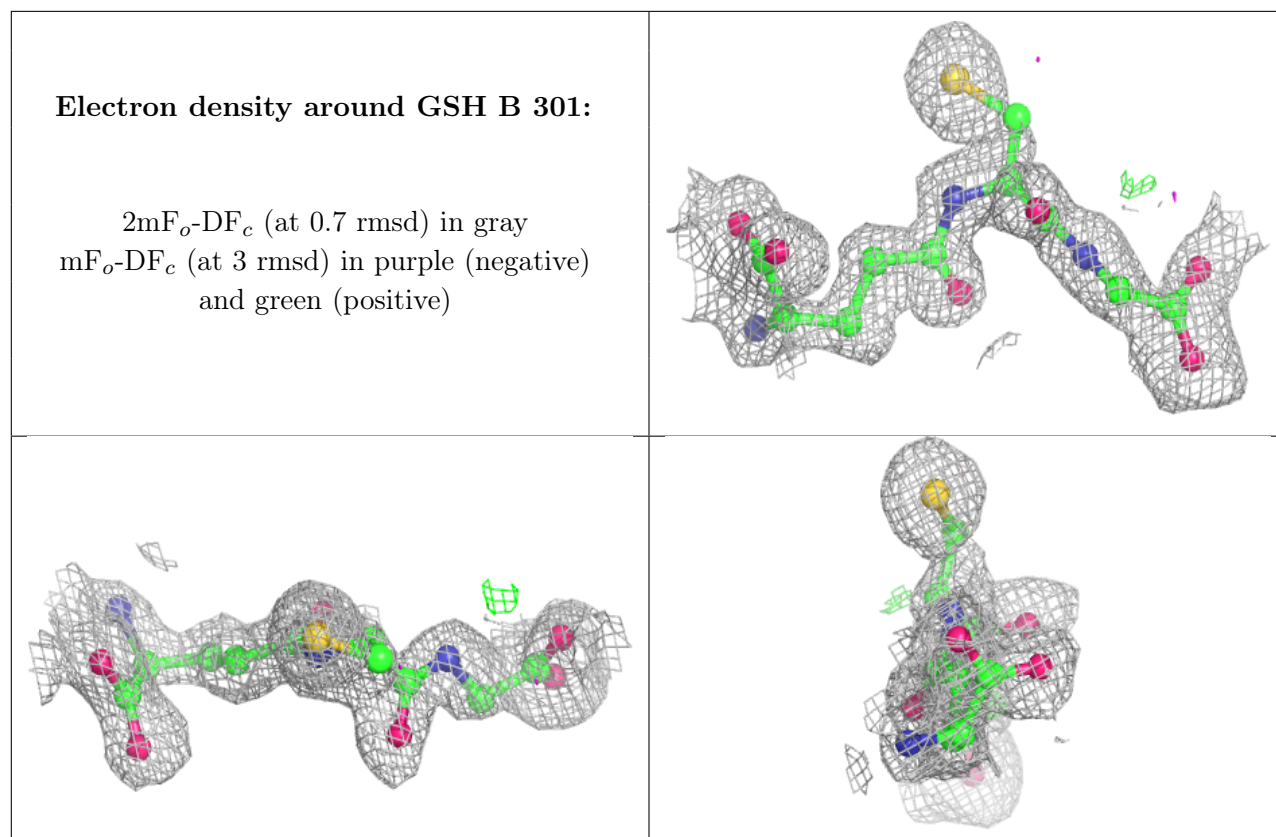
Electron density around GSH C 301:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around GSH F 301:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





6.5 Other polymers [i](#)

There are no such residues in this entry.