



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 3, 2023 – 06:56 PM EDT

PDB ID : 3S29
Title : The crystal structure of sucrose synthase-1 from Arabidopsis thaliana and its functional implications.
Authors : Zheng, Y.I.; Garavito, R.M.
Deposited on : 2011-05-16
Resolution : 2.85 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)
Xtrriage (Phenix) : 1.13
EDS : 2.35
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) : 2.35

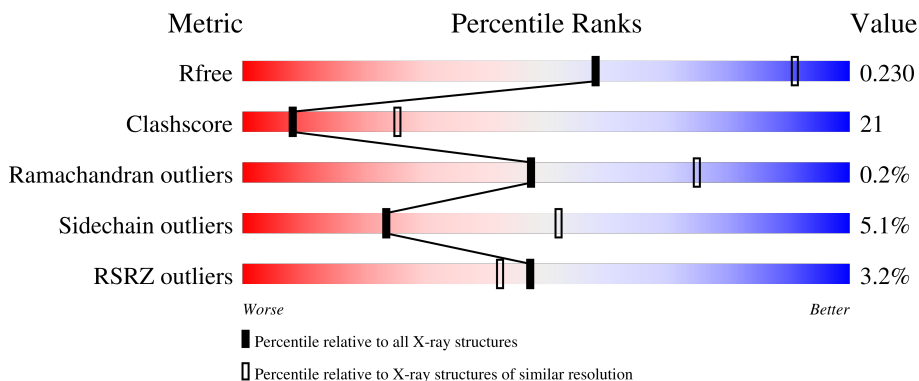
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.85 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 | 3168 (2.90-2.82) |
| Clashscore | 141614 | 3438 (2.90-2.82) |
| Ramachandran outliers | 138981 | 3348 (2.90-2.82) |
| Sidechain outliers | 138945 | 3351 (2.90-2.82) |
| RSRZ outliers | 127900 | 3103 (2.90-2.82) |

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 | 816 | 3% 65% 28% . . |
| 1 | B | 816 | 4% 62% 33% . . |
| 1 | C | 816 | 3% 63% 31% . . |
| 1 | D | 816 | 2% 67% 26% . . |
| 1 | E | 816 | 4% 66% 28% . . |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | F | 816 | |
| 1 | G | 816 | |
| 1 | H | 816 | |

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 |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 3 | FRU | A | 902 | - | - | X | - |
| 3 | FRU | B | 902 | - | - | X | - |
| 3 | FRU | E | 902 | - | - | X | - |
| 4 | SO4 | B | 913 | - | - | X | - |
| 4 | SO4 | E | 913 | - | - | X | - |

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 51504 atoms, of which 24 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 Sucrose synthase 1.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|---------------|-----------|-----------|-----------|---------|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 1 | A | 781 | Total 6280 | C 4033 | N 1066 | O 1159 | S 22 | 0 | 0 | 0 |
| 1 | B | 791 | Total 6321 | C 4056 | N 1073 | O 1170 | S 22 | 0 | 0 | 0 |
| 1 | C | 781 | Total 6294 | C 4047 | N 1065 | O 1160 | S 22 | 0 | 0 | 0 |
| 1 | D | 781 | Total 6275 | C 4032 | N 1062 | O 1159 | S 22 | 0 | 0 | 0 |
| 1 | E | 781 | Total 6275 | C 4031 | N 1063 | O 1159 | S 22 | 0 | 0 | 0 |
| 1 | F | 781 | Total 6299 | C 4047 | N 1070 | O 1160 | S 22 | 0 | 0 | 0 |
| 1 | G | 781 | Total 6301 | C 4047 | N 1070 | O 1162 | S 22 | 0 | 0 | 0 |
| 1 | H | 797 | Total 6398 | C 4101 | N 1091 | O 1184 | S 22 | 0 | 0 | 0 |

There are 64 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| A | 809 | VAL | - | expression tag | UNP P49040 |
| A | 810 | GLU | - | expression tag | UNP P49040 |
| A | 811 | HIS | - | expression tag | UNP P49040 |
| A | 812 | HIS | - | expression tag | UNP P49040 |
| A | 813 | HIS | - | expression tag | UNP P49040 |
| A | 814 | HIS | - | expression tag | UNP P49040 |
| A | 815 | HIS | - | expression tag | UNP P49040 |
| A | 816 | HIS | - | expression tag | UNP P49040 |
| B | 809 | VAL | - | expression tag | UNP P49040 |
| B | 810 | GLU | - | expression tag | UNP P49040 |
| B | 811 | HIS | - | expression tag | UNP P49040 |
| B | 812 | HIS | - | expression tag | UNP P49040 |
| B | 813 | HIS | - | expression tag | UNP P49040 |

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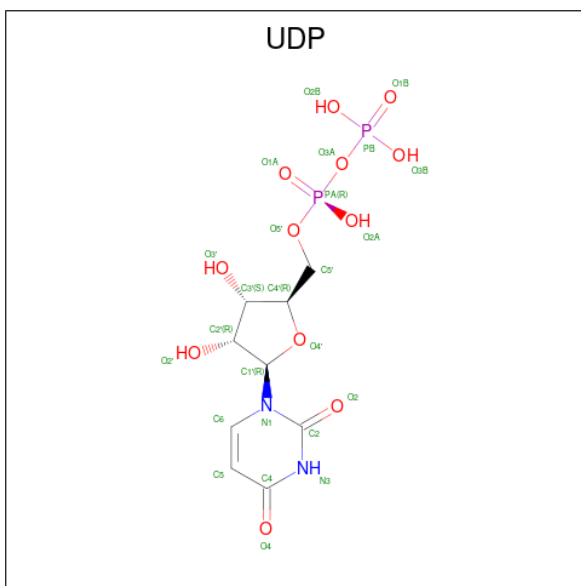
| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| B | 814 | HIS | - | expression tag | UNP P49040 |
| B | 815 | HIS | - | expression tag | UNP P49040 |
| B | 816 | HIS | - | expression tag | UNP P49040 |
| C | 809 | VAL | - | expression tag | UNP P49040 |
| C | 810 | GLU | - | expression tag | UNP P49040 |
| C | 811 | HIS | - | expression tag | UNP P49040 |
| C | 812 | HIS | - | expression tag | UNP P49040 |
| C | 813 | HIS | - | expression tag | UNP P49040 |
| C | 814 | HIS | - | expression tag | UNP P49040 |
| C | 815 | HIS | - | expression tag | UNP P49040 |
| C | 816 | HIS | - | expression tag | UNP P49040 |
| D | 809 | VAL | - | expression tag | UNP P49040 |
| D | 810 | GLU | - | expression tag | UNP P49040 |
| D | 811 | HIS | - | expression tag | UNP P49040 |
| D | 812 | HIS | - | expression tag | UNP P49040 |
| D | 813 | HIS | - | expression tag | UNP P49040 |
| D | 814 | HIS | - | expression tag | UNP P49040 |
| D | 815 | HIS | - | expression tag | UNP P49040 |
| D | 816 | HIS | - | expression tag | UNP P49040 |
| E | 809 | VAL | - | expression tag | UNP P49040 |
| E | 810 | GLU | - | expression tag | UNP P49040 |
| E | 811 | HIS | - | expression tag | UNP P49040 |
| E | 812 | HIS | - | expression tag | UNP P49040 |
| E | 813 | HIS | - | expression tag | UNP P49040 |
| E | 814 | HIS | - | expression tag | UNP P49040 |
| E | 815 | HIS | - | expression tag | UNP P49040 |
| E | 816 | HIS | - | expression tag | UNP P49040 |
| F | 809 | VAL | - | expression tag | UNP P49040 |
| F | 810 | GLU | - | expression tag | UNP P49040 |
| F | 811 | HIS | - | expression tag | UNP P49040 |
| F | 812 | HIS | - | expression tag | UNP P49040 |
| F | 813 | HIS | - | expression tag | UNP P49040 |
| F | 814 | HIS | - | expression tag | UNP P49040 |
| F | 815 | HIS | - | expression tag | UNP P49040 |
| F | 816 | HIS | - | expression tag | UNP P49040 |
| G | 809 | VAL | - | expression tag | UNP P49040 |
| G | 810 | GLU | - | expression tag | UNP P49040 |
| G | 811 | HIS | - | expression tag | UNP P49040 |
| G | 812 | HIS | - | expression tag | UNP P49040 |
| G | 813 | HIS | - | expression tag | UNP P49040 |
| G | 814 | HIS | - | expression tag | UNP P49040 |
| G | 815 | HIS | - | expression tag | UNP P49040 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| G | 816 | HIS | - | expression tag | UNP P49040 |
| H | 809 | VAL | - | expression tag | UNP P49040 |
| H | 810 | GLU | - | expression tag | UNP P49040 |
| H | 811 | HIS | - | expression tag | UNP P49040 |
| H | 812 | HIS | - | expression tag | UNP P49040 |
| H | 813 | HIS | - | expression tag | UNP P49040 |
| H | 814 | HIS | - | expression tag | UNP P49040 |
| H | 815 | HIS | - | expression tag | UNP P49040 |
| H | 816 | HIS | - | expression tag | UNP P49040 |

- Molecule 2 is URIDINE-5'-DIPHOSPHATE (three-letter code: UDP) (formula: C₉H₁₄N₂O₁₂P₂).



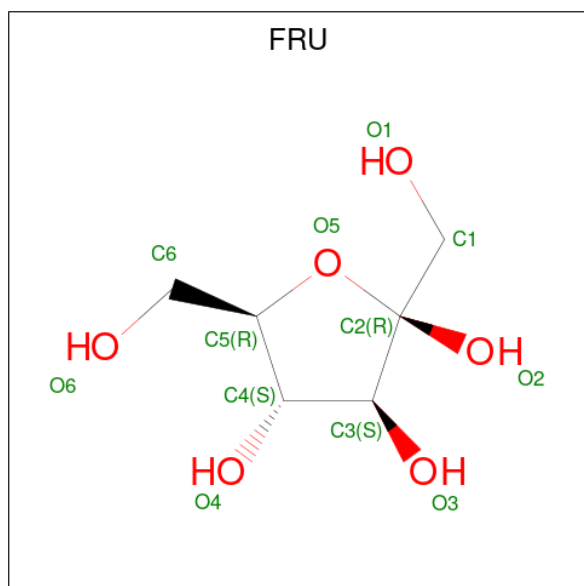
| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|----|---|---------|---------|
| 2 | A | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 25 | 9 | 2 | 12 | 2 | | |
| 2 | B | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 25 | 9 | 2 | 12 | 2 | | |
| 2 | C | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 25 | 9 | 2 | 12 | 2 | | |
| 2 | D | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 25 | 9 | 2 | 12 | 2 | | |
| 2 | E | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 25 | 9 | 2 | 12 | 2 | | |
| 2 | F | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 25 | 9 | 2 | 12 | 2 | | |
| 2 | G | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 25 | 9 | 2 | 12 | 2 | | |

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| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|----|---|---------|---------|
| | | | Total | C | N | O | P | | |
| 2 | H | 1 | 25 | 9 | 2 | 12 | 2 | 0 | 0 |

- Molecule 3 is beta-D-fructofuranose (three-letter code: FRU) (formula: C₆H₁₂O₆).



| Mol | Chain | Residues | Atoms | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---------|---------|
| | | | Total | C | O | | |
| 3 | A | 1 | 12 | 6 | 6 | 0 | 0 |
| 3 | B | 1 | 12 | 6 | 6 | 0 | 0 |
| 3 | C | 1 | 12 | 6 | 6 | 0 | 0 |
| 3 | D | 1 | 12 | 6 | 6 | 0 | 0 |
| 3 | E | 1 | 12 | 6 | 6 | 0 | 0 |
| 3 | F | 1 | 12 | 6 | 6 | 0 | 0 |
| 3 | G | 1 | 12 | 6 | 6 | 0 | 0 |
| 3 | H | 1 | 12 | 6 | 6 | 0 | 0 |

- Molecule 4 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



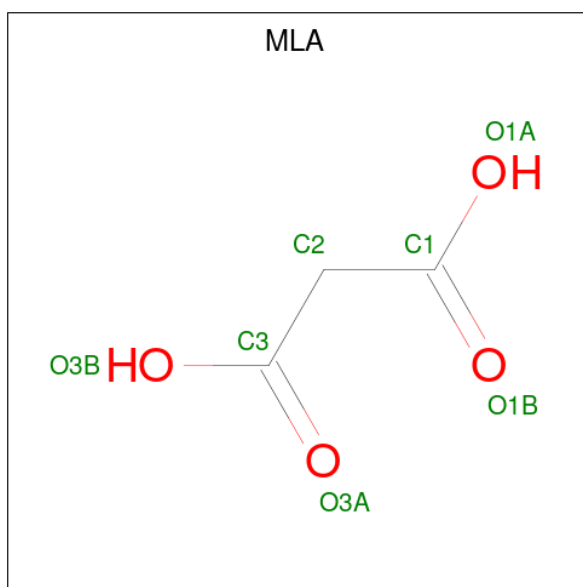
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|--------------------|---------|---------|
| 4 | A | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | A | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | A | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | A | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | A | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | B | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | B | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | B | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | C | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | C | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | C | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | D | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | D | 1 | Total O S 5 4 1 | 0 | 0 |
| 4 | D | 1 | Total O S 5 4 1 | 0 | 0 |

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| Mol | Chain | Residues | Atoms | | | ZeroOcc | AltConf |
|-----|-------|----------|------------|--------|--------|---------|---------|
| 4 | D | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | E | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | E | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | E | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | E | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | F | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | F | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | F | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | F | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | G | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | G | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | G | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | G | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | H | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | H | 1 | Total 5 | O 4 | S 1 | 0 | 0 |
| 4 | H | 1 | Total 5 | O 4 | S 1 | 0 | 0 |

- Molecule 5 is MALONIC ACID (three-letter code: MLA) (formula: C₃H₄O₄).



| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---|---------|---------|
| | | | Total | C | H | O | | |
| 5 | A | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | B | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | C | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | D | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | D | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | E | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | F | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | F | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | G | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | G | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | H | 1 | 9 | 3 | 2 | 4 | 0 | 0 |
| 5 | H | 1 | 9 | 3 | 2 | 4 | 0 | 0 |

- Molecule 6 is POTASSIUM ION (three-letter code: K) (formula: K).

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|----------------|---------|---------|
| 6 | A | 1 | Total K 1 1 | 0 | 0 |
| 6 | B | 1 | Total K 1 1 | 0 | 0 |
| 6 | C | 1 | Total K 1 1 | 0 | 0 |
| 6 | D | 1 | Total K 1 1 | 0 | 0 |
| 6 | E | 1 | Total K 1 1 | 0 | 0 |
| 6 | F | 1 | Total K 1 1 | 0 | 0 |
| 6 | G | 1 | Total K 1 1 | 0 | 0 |
| 6 | H | 1 | Total K 1 1 | 0 | 0 |

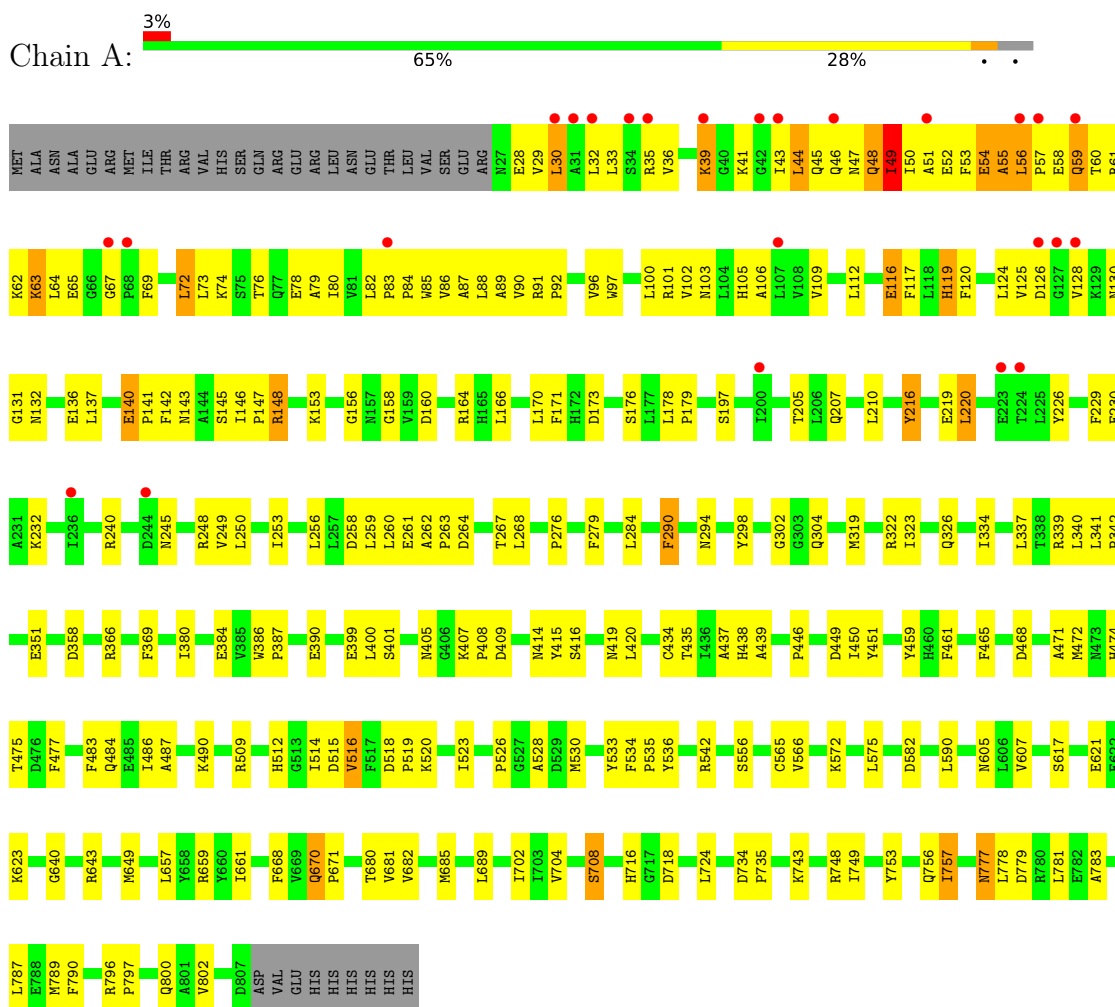
- Molecule 7 is water.

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|------------------|---------|---------|
| 7 | A | 76 | Total O 76 76 | 0 | 0 |
| 7 | B | 62 | Total O 62 62 | 0 | 0 |
| 7 | C | 38 | Total O 38 38 | 0 | 0 |
| 7 | D | 64 | Total O 64 64 | 0 | 0 |
| 7 | E | 58 | Total O 58 58 | 0 | 0 |
| 7 | F | 80 | Total O 80 80 | 0 | 0 |
| 7 | G | 71 | Total O 71 71 | 0 | 0 |
| 7 | H | 50 | Total O 50 50 | 0 | 0 |

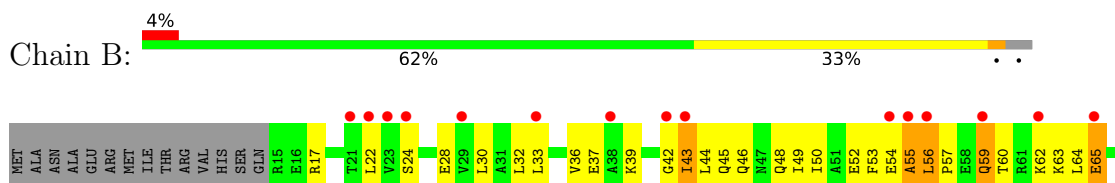
3 Residue-property plots [i](#)

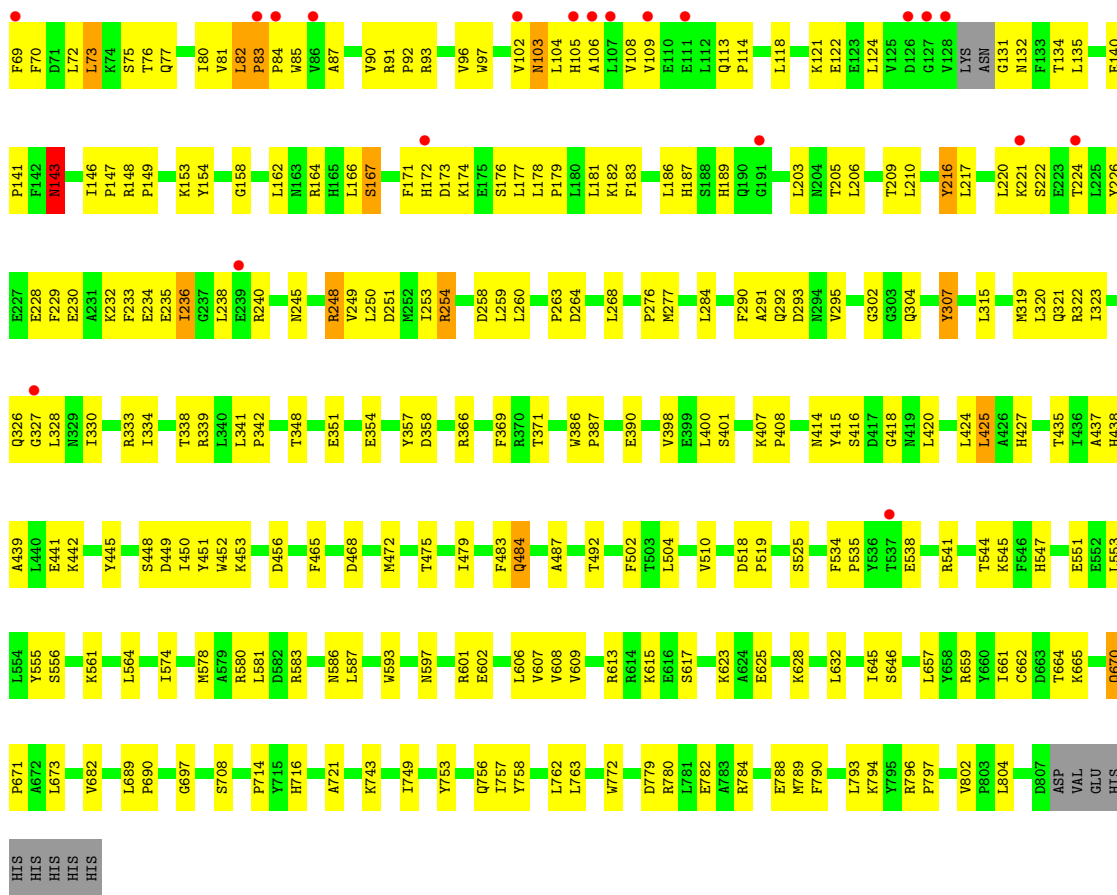
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density.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

- Molecule 1: Sucrose synthase 1

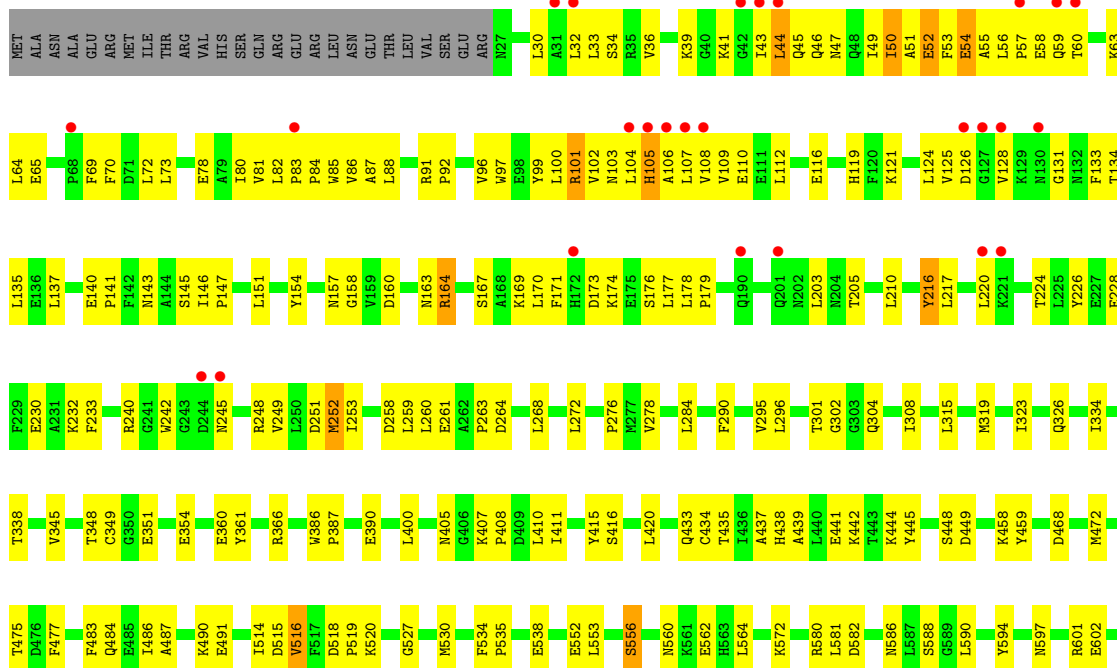


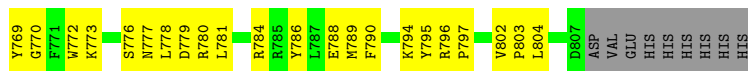
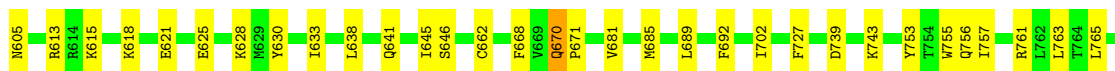
- Molecule 1: Sucrose synthase 1



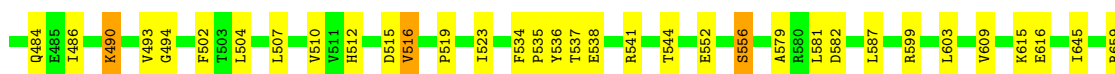
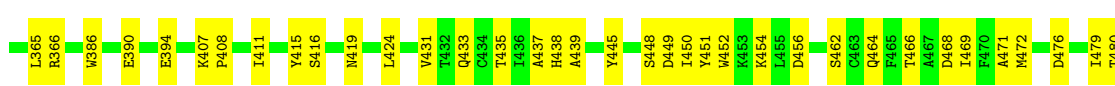
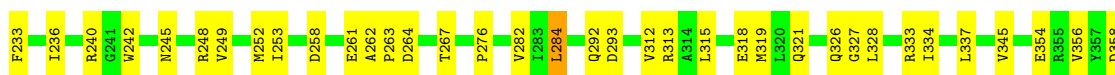
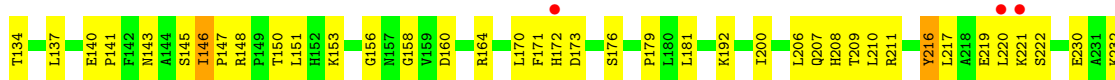


● Molecule 1: Sucrose synthase 1

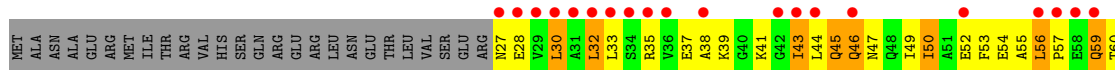


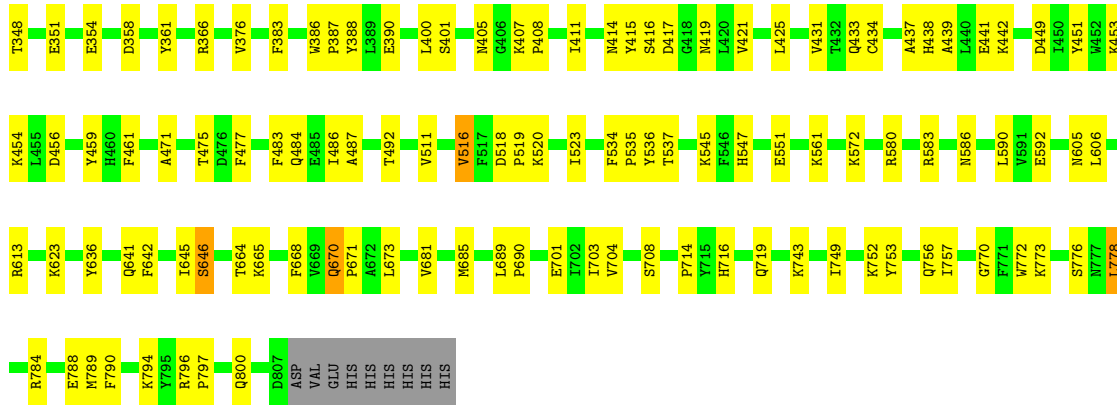


• Molecule 1: Sucrose synthase 1

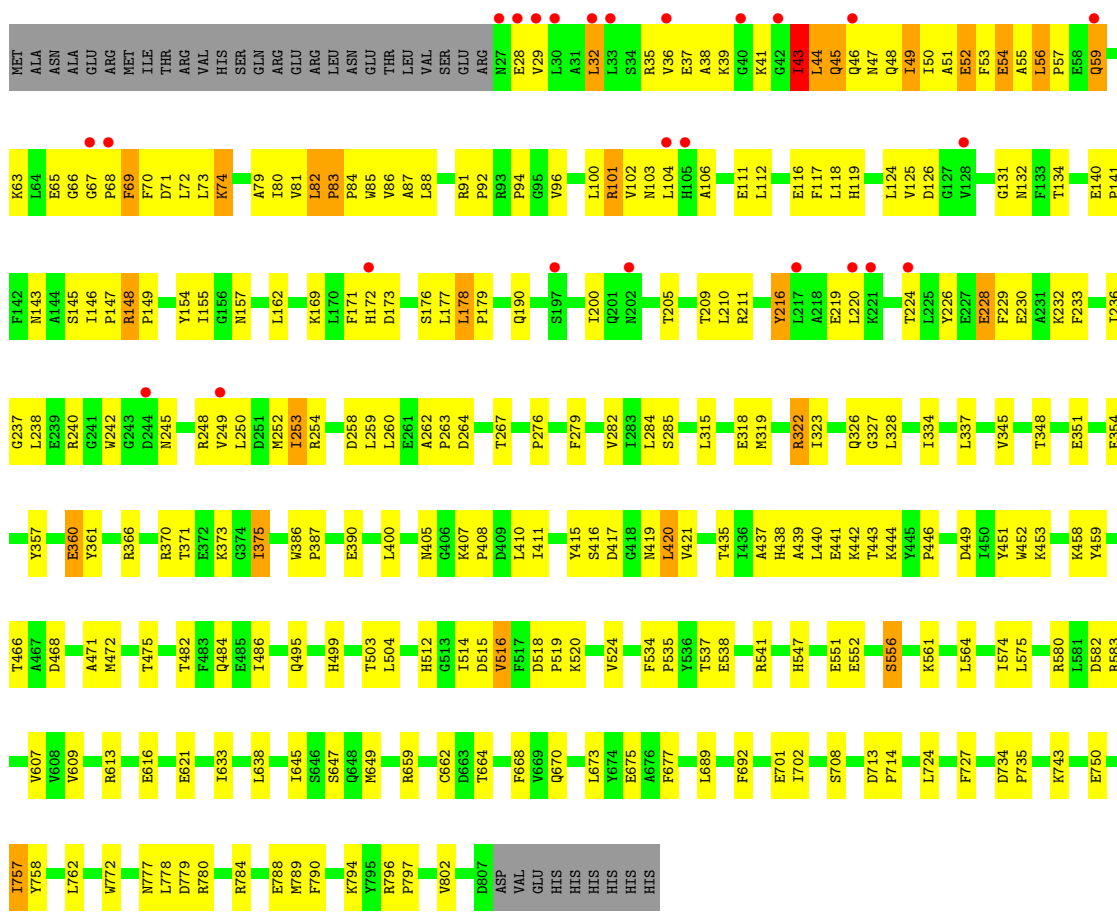


• Molecule 1: Sucrose synthase 1

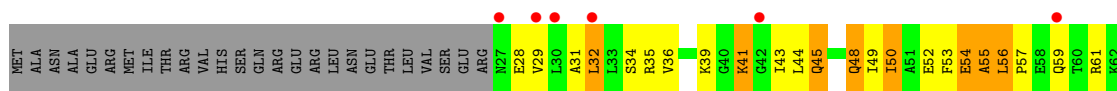


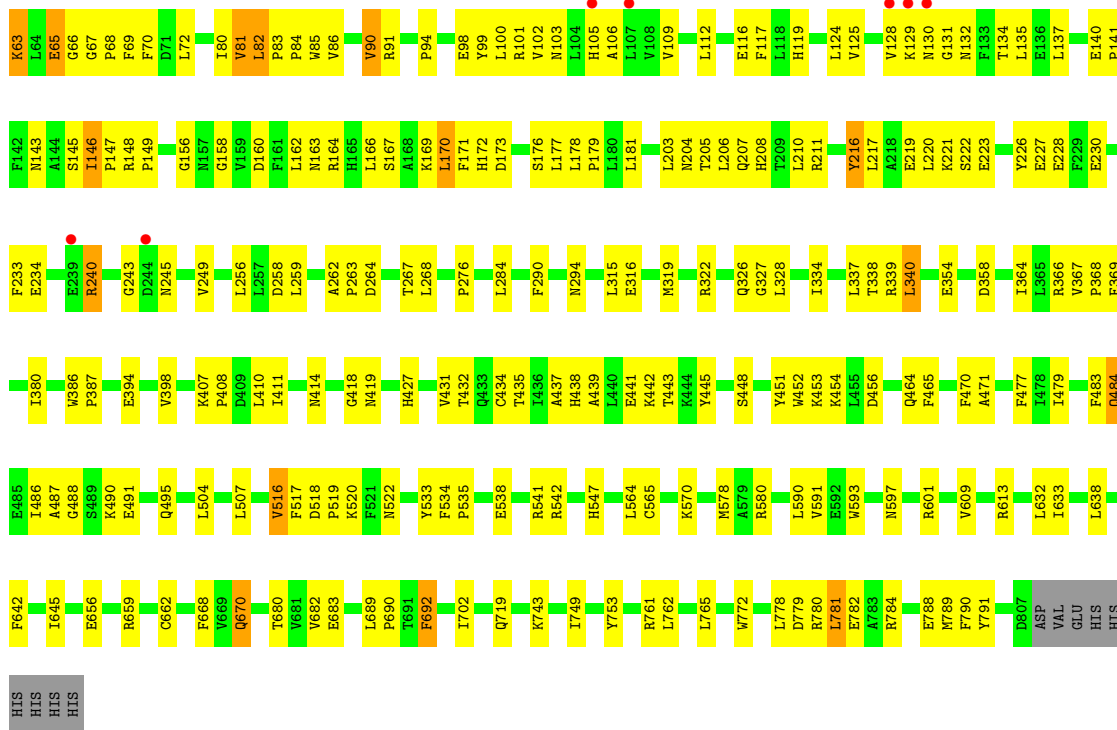


● Molecule 1: Sucrose synthase 1

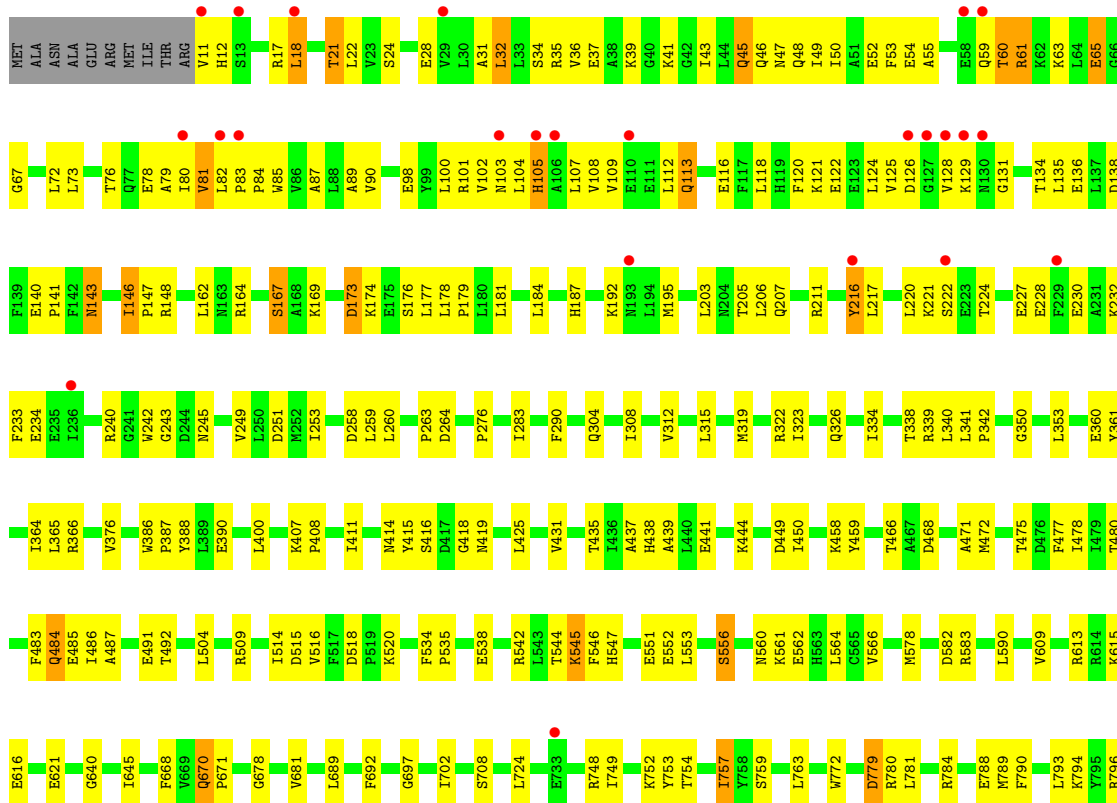


● Molecule 1: Sucrose synthase 1





● Molecule 1: Sucrose synthase 1



| | | | | | | | | | | | | | | |
|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| P797 | V802 | P803 | L804 | P807 | ASP | VAL | GLU | HIS | HIS | HIS | HIS | HIS | HIS | HIS |
|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

4 Data and refinement statistics

| Property | Value | Source |
|---|---|------------------|
| Space group | C 1 2 1 | Depositor |
| Cell constants a, b, c, α , β , γ | 277.16Å 261.50Å 161.10Å 90.00° 109.27° 90.00° | Depositor |
| Resolution (Å) | 24.96 – 2.85 48.88 – 2.85 | Depositor EDS |
| % Data completeness (in resolution range) | 99.3 (24.96-2.85) 99.3 (48.88-2.85) | Depositor EDS |
| R_{merge} | (Not available) | Depositor |
| R_{sym} | 0.14 | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 1.89 (at 2.86Å) | Xtrriage |
| Refinement program | PHENIX 1.7_650 | Depositor |
| R, R_{free} | 0.185 , 0.234 0.181 , 0.230 | Depositor DCC |
| R_{free} test set | 11907 reflections (4.77%) | wwPDB-VP |
| Wilson B-factor (Å ²) | 44.6 | Xtrriage |
| Anisotropy | 0.179 | Xtrriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | 0.34 , 48.2 | EDS |
| L-test for twinning ² | $\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$ | Xtrriage |
| Estimated twinning fraction | No twinning to report. | Xtrriage |
| F_o, F_c correlation | 0.94 | EDS |
| Total number of atoms | 51504 | wwPDB-VP |
| Average B, all atoms (Å ²) | 46.0 | 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 24.47 % 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 3.8124e-03. 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: FRU, MLA, SO4, K, UDP

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 | 0.36 | 0/6427 | 0.54 | 0/8703 |
| 1 | B | 0.35 | 0/6467 | 0.54 | 0/8761 |
| 1 | C | 0.33 | 0/6441 | 0.52 | 0/8723 |
| 1 | D | 0.35 | 0/6422 | 0.55 | 0/8700 |
| 1 | E | 0.34 | 0/6421 | 0.54 | 0/8697 |
| 1 | F | 0.35 | 0/6446 | 0.54 | 0/8728 |
| 1 | G | 0.35 | 0/6448 | 0.53 | 0/8731 |
| 1 | H | 0.34 | 0/6546 | 0.54 | 0/8867 |
| All | All | 0.35 | 0/51618 | 0.54 | 0/69910 |

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 | B | 0 | 1 |
| 1 | F | 0 | 1 |
| All | All | 0 | 2 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|---------|
| 1 | B | 143 | ASN | Peptide |
| 1 | F | 83 | PRO | Peptide |

5.2 Too-close contacts

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | A | 6280 | 0 | 6200 | 278 | 0 |
| 1 | B | 6321 | 0 | 6203 | 312 | 0 |
| 1 | C | 6294 | 0 | 6244 | 272 | 0 |
| 1 | D | 6275 | 0 | 6197 | 257 | 0 |
| 1 | E | 6275 | 0 | 6205 | 272 | 0 |
| 1 | F | 6299 | 0 | 6247 | 283 | 0 |
| 1 | G | 6301 | 0 | 6247 | 280 | 0 |
| 1 | H | 6398 | 0 | 6301 | 285 | 0 |
| 2 | A | 25 | 0 | 11 | 1 | 0 |
| 2 | B | 25 | 0 | 11 | 2 | 0 |
| 2 | C | 25 | 0 | 11 | 0 | 0 |
| 2 | D | 25 | 0 | 11 | 0 | 0 |
| 2 | E | 25 | 0 | 11 | 1 | 0 |
| 2 | F | 25 | 0 | 11 | 1 | 0 |
| 2 | G | 25 | 0 | 11 | 1 | 0 |
| 2 | H | 25 | 0 | 11 | 0 | 0 |
| 3 | A | 12 | 0 | 12 | 7 | 0 |
| 3 | B | 12 | 0 | 12 | 6 | 0 |
| 3 | C | 12 | 0 | 12 | 4 | 0 |
| 3 | D | 12 | 0 | 12 | 0 | 0 |
| 3 | E | 12 | 0 | 12 | 11 | 0 |
| 3 | F | 12 | 0 | 12 | 0 | 0 |
| 3 | G | 12 | 0 | 12 | 0 | 0 |
| 3 | H | 12 | 0 | 12 | 1 | 0 |
| 4 | A | 25 | 0 | 0 | 2 | 0 |
| 4 | B | 15 | 0 | 0 | 3 | 0 |
| 4 | C | 15 | 0 | 0 | 0 | 0 |
| 4 | D | 20 | 0 | 0 | 1 | 0 |
| 4 | E | 20 | 0 | 0 | 4 | 0 |
| 4 | F | 20 | 0 | 0 | 0 | 0 |
| 4 | G | 20 | 0 | 0 | 1 | 0 |
| 4 | H | 15 | 0 | 0 | 0 | 0 |
| 5 | A | 7 | 2 | 2 | 0 | 0 |
| 5 | B | 7 | 2 | 2 | 0 | 0 |
| 5 | C | 7 | 2 | 2 | 0 | 0 |
| 5 | D | 14 | 4 | 4 | 2 | 0 |
| 5 | E | 7 | 2 | 2 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 5 | F | 14 | 4 | 4 | 2 | 0 |
| 5 | G | 14 | 4 | 4 | 0 | 0 |
| 5 | H | 14 | 4 | 4 | 1 | 0 |
| 6 | A | 1 | 0 | 0 | 0 | 0 |
| 6 | B | 1 | 0 | 0 | 1 | 0 |
| 6 | C | 1 | 0 | 0 | 0 | 0 |
| 6 | D | 1 | 0 | 0 | 0 | 0 |
| 6 | E | 1 | 0 | 0 | 0 | 0 |
| 6 | F | 1 | 0 | 0 | 0 | 0 |
| 6 | G | 1 | 0 | 0 | 0 | 0 |
| 6 | H | 1 | 0 | 0 | 0 | 0 |
| 7 | A | 76 | 0 | 0 | 3 | 0 |
| 7 | B | 62 | 0 | 0 | 4 | 0 |
| 7 | C | 38 | 0 | 0 | 1 | 0 |
| 7 | D | 64 | 0 | 0 | 2 | 0 |
| 7 | E | 58 | 0 | 0 | 4 | 0 |
| 7 | F | 80 | 0 | 0 | 0 | 0 |
| 7 | G | 71 | 0 | 0 | 3 | 0 |
| 7 | H | 50 | 0 | 0 | 2 | 0 |
| All | All | 51480 | 24 | 50052 | 2131 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 21.

All (2131) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:D:145:SER:HB3 | 1:D:779:ASP:OD2 | 1.16 | 1.31 |
| 1:G:66:GLY:C | 1:G:68:PRO:HD3 | 1.57 | 1.23 |
| 1:G:119:HIS:CE1 | 1:G:129:LYS:HD2 | 1.73 | 1.21 |
| 1:H:46:GLN:HB2 | 1:H:79:ALA:HB3 | 1.20 | 1.18 |
| 1:B:83:PRO:HB2 | 1:B:84:PRO:HD2 | 1.26 | 1.15 |
| 1:G:82:LEU:CD1 | 1:G:83:PRO:HD3 | 1.77 | 1.14 |
| 1:D:145:SER:CB | 1:D:779:ASP:OD2 | 1.96 | 1.13 |
| 1:E:789:MET:HE2 | 1:H:789:MET:HE2 | 1.14 | 1.11 |
| 1:F:789:MET:HE2 | 1:G:789:MET:HE2 | 1.14 | 1.09 |
| 1:F:789:MET:HB3 | 1:G:789:MET:CE | 1.82 | 1.09 |
| 1:G:82:LEU:HD12 | 1:G:83:PRO:HD3 | 1.09 | 1.09 |
| 1:E:789:MET:HB3 | 1:H:789:MET:CE | 1.81 | 1.09 |
| 1:H:76:THR:HG22 | 1:H:90:VAL:HG22 | 1.30 | 1.07 |
| 1:B:113:GLN:CG | 1:B:114:PRO:HD2 | 1.85 | 1.06 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:83:PRO:HG2 | 1:G:85:TRP:HB2 | 1.30 | 1.06 |
| 1:G:143:ASN:HA | 1:G:780:ARG:HH12 | 1.20 | 1.05 |
| 1:F:82:LEU:HD12 | 1:F:83:PRO:HD3 | 1.08 | 1.05 |
| 1:F:789:MET:HE2 | 1:G:789:MET:CE | 1.86 | 1.05 |
| 1:A:83:PRO:HG2 | 1:A:84:PRO:HD3 | 1.37 | 1.04 |
| 1:G:83:PRO:CG | 1:G:85:TRP:HB2 | 1.87 | 1.04 |
| 1:E:53:PHE:O | 1:E:57:PRO:HG2 | 1.59 | 1.03 |
| 1:C:39:LYS:HB2 | 1:C:104:LEU:HD13 | 1.40 | 1.02 |
| 1:A:146:ILE:HG13 | 1:A:147:PRO:HD2 | 1.37 | 1.02 |
| 1:A:262:ALA:HB1 | 1:B:164:ARG:HD3 | 1.42 | 1.02 |
| 1:A:319:MET:CE | 1:A:334:ILE:HD11 | 1.90 | 1.01 |
| 1:G:45:GLN:HE21 | 1:G:45:GLN:HA | 1.21 | 1.01 |
| 1:F:53:PHE:C | 1:F:57:PRO:HG2 | 1.80 | 1.01 |
| 1:G:119:HIS:HE1 | 1:G:129:LYS:HD2 | 1.07 | 1.01 |
| 1:B:113:GLN:HG3 | 1:B:114:PRO:HD2 | 1.04 | 1.00 |
| 1:G:83:PRO:HB2 | 1:G:84:PRO:HD2 | 1.43 | 1.00 |
| 1:B:789:MET:CE | 1:C:789:MET:HB3 | 1.91 | 1.00 |
| 1:G:81:VAL:HB | 1:G:86:VAL:HG23 | 1.42 | 1.00 |
| 1:H:32:LEU:HD22 | 1:H:35:ARG:NH1 | 1.76 | 1.00 |
| 1:H:216:TYR:HE1 | 1:H:220:LEU:HD11 | 1.26 | 0.99 |
| 1:B:82:LEU:CB | 1:B:83:PRO:HD2 | 1.91 | 0.99 |
| 1:C:83:PRO:HG2 | 1:C:84:PRO:HD3 | 1.44 | 0.99 |
| 1:G:49:ILE:H | 1:G:49:ILE:HD12 | 1.25 | 0.99 |
| 1:F:82:LEU:HD12 | 1:F:83:PRO:CD | 1.92 | 0.99 |
| 1:B:39:LYS:CB | 1:B:104:LEU:HD22 | 1.92 | 0.99 |
| 1:G:82:LEU:HD12 | 1:G:83:PRO:CD | 1.92 | 0.99 |
| 1:D:217:LEU:HD11 | 1:D:233:PHE:HZ | 1.24 | 0.98 |
| 1:B:56:LEU:HB3 | 1:B:57:PRO:HD3 | 1.46 | 0.98 |
| 1:E:789:MET:HE2 | 1:H:789:MET:CE | 1.92 | 0.98 |
| 1:F:82:LEU:CD1 | 1:F:83:PRO:HD3 | 1.95 | 0.97 |
| 1:E:30:LEU:HD22 | 1:E:62:LYS:HD3 | 1.46 | 0.97 |
| 1:G:56:LEU:HB3 | 1:G:57:PRO:HD3 | 1.46 | 0.97 |
| 1:A:54:GLU:HG3 | 1:A:55:ALA:N | 1.80 | 0.97 |
| 1:F:143:ASN:HA | 1:F:780:ARG:HH12 | 1.24 | 0.97 |
| 1:B:54:GLU:HG3 | 1:B:55:ALA:H | 1.27 | 0.97 |
| 1:B:113:GLN:HG3 | 1:B:114:PRO:CD | 1.94 | 0.96 |
| 1:B:121:LYS:HD3 | 1:B:450:ILE:HD11 | 1.45 | 0.96 |
| 1:B:793:LEU:HD11 | 1:C:135:LEU:HD22 | 1.47 | 0.96 |
| 1:E:83:PRO:HG2 | 1:E:84:PRO:HD3 | 1.46 | 0.96 |
| 1:E:789:MET:HB3 | 1:H:789:MET:HE2 | 1.46 | 0.95 |
| 1:D:319:MET:CE | 1:D:334:ILE:HD11 | 1.95 | 0.95 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:789:MET:HE3 | 1:C:789:MET:HB3 | 1.47 | 0.95 |
| 1:B:319:MET:HE3 | 1:B:334:ILE:HD11 | 1.47 | 0.95 |
| 1:E:46:GLN:HB3 | 1:E:50:ILE:HD12 | 1.49 | 0.95 |
| 1:G:143:ASN:HA | 1:G:780:ARG:NH1 | 1.80 | 0.95 |
| 1:F:81:VAL:HG13 | 1:F:86:VAL:HG23 | 1.49 | 0.95 |
| 1:E:55:ALA:O | 1:E:59:GLN:HB2 | 1.66 | 0.94 |
| 1:D:113:GLN:HG3 | 1:D:114:PRO:HD2 | 1.50 | 0.94 |
| 1:B:319:MET:CE | 1:B:334:ILE:HD11 | 1.98 | 0.93 |
| 1:D:171:PHE:HD1 | 1:D:263:PRO:HD2 | 1.30 | 0.93 |
| 1:F:146:ILE:HG13 | 1:F:147:PRO:HD2 | 1.48 | 0.93 |
| 1:B:55:ALA:O | 1:B:59:GLN:HB2 | 1.67 | 0.93 |
| 1:H:82:LEU:HD21 | 1:H:85:TRP:HB2 | 1.51 | 0.92 |
| 1:F:66:GLY:C | 1:F:68:PRO:HD2 | 1.89 | 0.92 |
| 1:G:83:PRO:HG2 | 1:G:85:TRP:CB | 1.99 | 0.92 |
| 1:A:789:MET:CE | 1:D:789:MET:HB3 | 1.98 | 0.92 |
| 1:D:52:GLU:O | 1:D:57:PRO:HD2 | 1.70 | 0.92 |
| 1:E:319:MET:CE | 1:E:334:ILE:HD11 | 2.00 | 0.92 |
| 1:B:53:PHE:HA | 1:B:57:PRO:HG2 | 1.52 | 0.91 |
| 1:D:173:ASP:HB3 | 1:D:176:SER:HB3 | 1.53 | 0.91 |
| 1:E:216:TYR:CE1 | 1:E:220:LEU:HD11 | 2.06 | 0.91 |
| 1:G:32:LEU:O | 1:G:36:VAL:HG23 | 1.67 | 0.91 |
| 1:H:146:ILE:HG13 | 1:H:147:PRO:HD2 | 1.53 | 0.91 |
| 1:E:304:GLN:CB | 3:E:902:FRU:H12 | 1.99 | 0.91 |
| 1:G:486:ILE:HG22 | 1:G:516:VAL:HG22 | 1.51 | 0.91 |
| 1:F:319:MET:CE | 1:F:334:ILE:HD11 | 2.01 | 0.91 |
| 1:H:39:LYS:HG3 | 1:H:104:LEU:CB | 2.00 | 0.91 |
| 1:B:17:ARG:O | 1:B:72:LEU:HD21 | 1.72 | 0.90 |
| 1:H:46:GLN:CB | 1:H:79:ALA:HB3 | 1.99 | 0.90 |
| 1:G:45:GLN:HA | 1:G:45:GLN:NE2 | 1.86 | 0.90 |
| 1:A:302:GLY:CA | 3:A:902:FRU:O1 | 2.20 | 0.90 |
| 1:F:46:GLN:HB3 | 1:F:50:ILE:HG22 | 1.51 | 0.90 |
| 1:G:66:GLY:C | 1:G:68:PRO:CD | 2.39 | 0.89 |
| 1:A:789:MET:HE3 | 1:D:789:MET:HG2 | 1.54 | 0.89 |
| 1:H:216:TYR:CE1 | 1:H:220:LEU:HD11 | 2.06 | 0.89 |
| 1:G:63:LYS:O | 1:G:65:GLU:HG2 | 1.72 | 0.89 |
| 1:E:304:GLN:H | 3:E:902:FRU:H12 | 1.37 | 0.88 |
| 1:A:56:LEU:HB3 | 1:A:57:PRO:HD3 | 1.54 | 0.88 |
| 1:C:143:ASN:HA | 1:C:780:ARG:HH12 | 1.37 | 0.88 |
| 1:A:32:LEU:O | 1:A:36:VAL:HG23 | 1.73 | 0.88 |
| 1:H:319:MET:HE3 | 1:H:334:ILE:HD11 | 1.55 | 0.88 |
| 1:A:777:ASN:HD22 | 1:A:778:LEU:N | 1.69 | 0.88 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:789:MET:HB3 | 1:G:789:MET:HE1 | 1.53 | 0.88 |
| 1:H:31:ALA:HB1 | 1:H:35:ARG:NH2 | 1.88 | 0.88 |
| 1:A:789:MET:HB3 | 1:D:789:MET:CE | 2.03 | 0.87 |
| 1:G:216:TYR:CE1 | 1:G:220:LEU:HD11 | 2.09 | 0.87 |
| 1:A:45:GLN:HA | 1:A:45:GLN:HE21 | 1.40 | 0.87 |
| 1:F:789:MET:CE | 1:G:789:MET:HB3 | 2.04 | 0.87 |
| 1:D:45:GLN:HE22 | 1:D:80:ILE:HG13 | 1.39 | 0.87 |
| 1:D:82:LEU:HD13 | 1:D:84:PRO:HD2 | 1.57 | 0.87 |
| 1:F:789:MET:CE | 1:G:789:MET:HE2 | 2.03 | 0.87 |
| 1:E:60:THR:HG23 | 1:E:62:LYS:HG3 | 1.53 | 0.86 |
| 1:H:319:MET:CE | 1:H:334:ILE:HD11 | 2.05 | 0.86 |
| 1:A:103:ASN:CB | 1:A:106:ALA:HB3 | 2.06 | 0.86 |
| 1:C:319:MET:HE3 | 1:C:334:ILE:HD11 | 1.55 | 0.86 |
| 1:D:319:MET:HE3 | 1:D:334:ILE:HD11 | 1.57 | 0.86 |
| 1:F:315:LEU:HD11 | 1:F:762:LEU:HD23 | 1.57 | 0.85 |
| 1:C:224:THR:CG2 | 1:C:228:GLU:HG3 | 2.06 | 0.85 |
| 1:D:83:PRO:HB2 | 1:D:84:PRO:HD3 | 1.58 | 0.85 |
| 1:A:319:MET:HE3 | 1:A:334:ILE:HD11 | 1.57 | 0.85 |
| 1:A:777:ASN:ND2 | 1:A:777:ASN:C | 2.30 | 0.85 |
| 1:C:50:ILE:CD1 | 1:C:54:GLU:HG2 | 2.06 | 0.85 |
| 1:E:778:LEU:HD12 | 1:E:778:LEU:H | 1.42 | 0.85 |
| 1:B:304:GLN:HB3 | 3:B:902:FRU:H12 | 1.58 | 0.85 |
| 1:A:789:MET:HE3 | 1:D:789:MET:CG | 2.07 | 0.84 |
| 1:A:83:PRO:CG | 1:A:84:PRO:HD3 | 2.07 | 0.84 |
| 1:A:302:GLY:HA3 | 3:A:902:FRU:O1 | 1.77 | 0.84 |
| 1:B:46:GLN:HB2 | 1:B:50:ILE:HB | 1.55 | 0.84 |
| 1:D:39:LYS:HB2 | 1:D:104:LEU:HD13 | 1.59 | 0.84 |
| 1:B:83:PRO:HB2 | 1:B:84:PRO:CD | 2.06 | 0.84 |
| 1:D:552:GLU:O | 1:D:556:SER:HB3 | 1.77 | 0.84 |
| 1:E:124:LEU:HD12 | 1:E:124:LEU:O | 1.77 | 0.84 |
| 1:D:173:ASP:HB3 | 1:D:176:SER:CB | 2.08 | 0.84 |
| 1:H:82:LEU:HG | 1:H:84:PRO:HD2 | 1.57 | 0.84 |
| 1:F:59:GLN:HA | 1:F:59:GLN:HE21 | 1.42 | 0.84 |
| 1:H:668:PHE:HB2 | 1:H:689:LEU:HD23 | 1.59 | 0.84 |
| 1:H:143:ASN:HB3 | 1:H:780:ARG:HH12 | 1.43 | 0.84 |
| 1:A:216:TYR:CE1 | 1:A:220:LEU:HD11 | 2.13 | 0.83 |
| 1:E:45:GLN:HB3 | 1:E:80:ILE:HA | 1.60 | 0.83 |
| 1:F:143:ASN:HA | 1:F:780:ARG:NH1 | 1.93 | 0.83 |
| 1:F:43:ILE:HG23 | 1:F:44:LEU:N | 1.92 | 0.83 |
| 1:D:54:GLU:HG3 | 1:D:55:ALA:N | 1.93 | 0.83 |
| 1:E:789:MET:HG3 | 1:H:135:LEU:HD21 | 1.59 | 0.83 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:32:LEU:HD22 | 1:G:35:ARG:NH1 | 1.94 | 0.83 |
| 1:H:84:PRO:HG2 | 1:H:85:TRP:HD1 | 1.41 | 0.83 |
| 1:E:143:ASN:HB3 | 1:E:148:ARG:HH22 | 1.41 | 0.83 |
| 1:H:216:TYR:CE2 | 1:H:232:LYS:HG2 | 2.13 | 0.83 |
| 1:H:24:SER:O | 1:H:28:GLU:HB2 | 1.79 | 0.83 |
| 1:A:45:GLN:HA | 1:A:45:GLN:NE2 | 1.92 | 0.82 |
| 1:C:32:LEU:O | 1:C:36:VAL:HG23 | 1.77 | 0.82 |
| 1:F:81:VAL:CG1 | 1:F:86:VAL:HG23 | 2.09 | 0.82 |
| 1:H:55:ALA:O | 1:H:59:GLN:HB2 | 1.79 | 0.82 |
| 1:H:82:LEU:CD2 | 1:H:85:TRP:HB2 | 2.09 | 0.82 |
| 1:B:217:LEU:HD11 | 1:B:233:PHE:HZ | 1.43 | 0.82 |
| 1:E:486:ILE:HG22 | 1:E:516:VAL:HG22 | 1.61 | 0.82 |
| 1:B:143:ASN:HB3 | 1:B:780:ARG:HH12 | 1.44 | 0.82 |
| 1:G:84:PRO:HB2 | 1:G:103:ASN:HD21 | 1.44 | 0.82 |
| 1:H:143:ASN:HB3 | 1:H:780:ARG:NH1 | 1.94 | 0.82 |
| 1:B:54:GLU:O | 1:B:57:PRO:HD2 | 1.79 | 0.81 |
| 1:E:85:TRP:HB3 | 1:E:103:ASN:HA | 1.60 | 0.81 |
| 1:E:217:LEU:HD11 | 1:E:233:PHE:HZ | 1.44 | 0.81 |
| 1:A:46:GLN:HB3 | 1:A:79:ALA:HB3 | 1.60 | 0.81 |
| 1:G:83:PRO:HB2 | 1:G:84:PRO:CD | 2.11 | 0.81 |
| 1:G:366:ARG:HD3 | 7:G:827:HOH:O | 1.81 | 0.81 |
| 1:D:217:LEU:HD11 | 1:D:233:PHE:CZ | 2.13 | 0.81 |
| 1:H:17:ARG:HE | 1:H:72:LEU:HD23 | 1.45 | 0.81 |
| 1:E:319:MET:HE3 | 1:E:334:ILE:HD11 | 1.61 | 0.81 |
| 1:C:83:PRO:CG | 1:C:84:PRO:HD3 | 2.11 | 0.81 |
| 1:B:315:LEU:HG | 1:B:319:MET:CE | 2.10 | 0.81 |
| 1:H:72:LEU:O | 1:H:76:THR:HG23 | 1.81 | 0.81 |
| 1:F:264:ASP:OD1 | 1:F:267:THR:HB | 1.81 | 0.80 |
| 1:G:83:PRO:CB | 1:G:84:PRO:HD2 | 2.12 | 0.80 |
| 1:B:37:GLU:HB3 | 1:B:55:ALA:HB2 | 1.63 | 0.80 |
| 1:F:146:ILE:CG1 | 1:F:147:PRO:HD2 | 2.10 | 0.80 |
| 1:C:32:LEU:O | 1:C:32:LEU:HD13 | 1.81 | 0.80 |
| 1:D:45:GLN:HE21 | 1:D:45:GLN:HA | 1.46 | 0.80 |
| 1:A:789:MET:HG2 | 1:D:789:MET:HE3 | 1.62 | 0.80 |
| 1:H:164:ARG:HH11 | 1:H:164:ARG:HG3 | 1.47 | 0.80 |
| 1:A:146:ILE:CG1 | 1:A:147:PRO:HD2 | 2.11 | 0.80 |
| 1:E:304:GLN:HB3 | 3:E:902:FRU:H12 | 1.62 | 0.80 |
| 1:H:509:ARG:HH12 | 5:H:922:MLA:HC22 | 1.45 | 0.80 |
| 1:G:338:THR:HG23 | 1:G:366:ARG:HG2 | 1.62 | 0.80 |
| 1:H:249:VAL:O | 1:H:253:ILE:HG12 | 1.82 | 0.80 |
| 1:C:131:GLY:HA3 | 1:C:134:THR:HG23 | 1.64 | 0.79 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:319:MET:CE | 1:C:334:ILE:HD11 | 2.12 | 0.79 |
| 1:B:174:LYS:HD2 | 1:B:203:LEU:HD12 | 1.63 | 0.79 |
| 1:A:49:ILE:HG22 | 1:A:50:ILE:N | 1.95 | 0.79 |
| 1:B:39:LYS:CB | 1:B:104:LEU:HD13 | 2.13 | 0.79 |
| 1:F:143:ASN:HB3 | 1:F:148:ARG:NH2 | 1.97 | 0.79 |
| 1:D:60:THR:O | 1:D:63:LYS:HD3 | 1.83 | 0.79 |
| 1:B:24:SER:O | 1:B:28:GLU:CB | 2.31 | 0.79 |
| 1:F:319:MET:HE1 | 1:F:334:ILE:HD11 | 1.63 | 0.79 |
| 1:A:789:MET:HE1 | 1:D:789:MET:HB3 | 1.65 | 0.78 |
| 1:D:171:PHE:CD1 | 1:D:263:PRO:HD2 | 2.16 | 0.78 |
| 1:G:45:GLN:HE21 | 1:G:45:GLN:CA | 1.88 | 0.78 |
| 1:A:60:THR:HG23 | 1:A:62:LYS:H | 1.47 | 0.78 |
| 1:E:72:LEU:HD22 | 1:E:90:VAL:HG11 | 1.65 | 0.78 |
| 1:H:34:SER:OG | 1:H:55:ALA:HB1 | 1.83 | 0.78 |
| 1:B:124:LEU:HD23 | 1:B:124:LEU:O | 1.84 | 0.78 |
| 1:H:37:GLU:HG2 | 1:H:54:GLU:OE2 | 1.84 | 0.78 |
| 1:H:46:GLN:HB2 | 1:H:79:ALA:CB | 2.08 | 0.78 |
| 1:H:315:LEU:HG | 1:H:319:MET:CE | 2.14 | 0.78 |
| 1:C:304:GLN:HB3 | 3:C:902:FRU:H12 | 1.65 | 0.78 |
| 1:A:789:MET:HE3 | 1:D:789:MET:CE | 2.14 | 0.77 |
| 1:D:113:GLN:HA | 1:D:113:GLN:HE21 | 1.47 | 0.77 |
| 1:D:292:GLN:OE1 | 1:D:356:VAL:HA | 1.83 | 0.77 |
| 1:H:32:LEU:O | 1:H:36:VAL:HG23 | 1.84 | 0.77 |
| 1:H:80:ILE:HG22 | 1:H:120:PHE:HE2 | 1.47 | 0.77 |
| 1:C:796:ARG:HB2 | 1:C:797:PRO:HD3 | 1.66 | 0.77 |
| 1:A:54:GLU:HG3 | 1:A:55:ALA:H | 1.45 | 0.77 |
| 1:B:187:HIS:O | 6:B:931:K:K | 1.94 | 0.77 |
| 1:D:45:GLN:NE2 | 1:D:80:ILE:HG13 | 1.98 | 0.77 |
| 1:B:315:LEU:HG | 1:B:319:MET:HE1 | 1.66 | 0.77 |
| 1:E:83:PRO:CG | 1:E:84:PRO:HD3 | 2.14 | 0.77 |
| 1:A:43:ILE:O | 1:A:44:LEU:HG | 1.84 | 0.77 |
| 1:D:319:MET:HE1 | 1:D:334:ILE:HD11 | 1.65 | 0.77 |
| 1:G:48:GLN:HA | 1:G:48:GLN:HE21 | 1.49 | 0.77 |
| 1:B:216:TYR:CE1 | 1:B:220:LEU:HD11 | 2.20 | 0.77 |
| 1:F:51:ALA:O | 1:F:52:GLU:HB3 | 1.82 | 0.77 |
| 1:G:49:ILE:H | 1:G:49:ILE:CD1 | 1.98 | 0.77 |
| 1:G:216:TYR:CD1 | 1:G:220:LEU:HD11 | 2.20 | 0.77 |
| 1:F:210:LEU:HD22 | 1:F:253:ILE:HG23 | 1.66 | 0.76 |
| 1:A:789:MET:HE3 | 1:D:789:MET:HE3 | 1.67 | 0.76 |
| 1:F:145:SER:HB3 | 1:F:779:ASP:CG | 2.06 | 0.76 |
| 1:C:72:LEU:C | 1:C:72:LEU:HD13 | 2.06 | 0.76 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:55:ALA:O | 1:D:59:GLN:HB2 | 1.84 | 0.76 |
| 1:A:351:GLU:O | 1:A:366:ARG:HD2 | 1.86 | 0.76 |
| 1:B:230:GLU:O | 1:B:234:GLU:HG3 | 1.86 | 0.76 |
| 1:F:85:TRP:CE3 | 1:F:101:ARG:HG2 | 2.20 | 0.76 |
| 1:G:83:PRO:HG2 | 1:G:85:TRP:CA | 2.16 | 0.76 |
| 1:A:45:GLN:HE21 | 1:A:45:GLN:CA | 1.98 | 0.76 |
| 1:B:789:MET:HE2 | 1:C:789:MET:HE2 | 1.67 | 0.76 |
| 1:A:302:GLY:HA3 | 3:A:902:FRU:HO1 | 1.50 | 0.76 |
| 1:D:103:ASN:CB | 1:D:106:ALA:HB3 | 2.16 | 0.76 |
| 1:E:30:LEU:CD2 | 1:E:62:LYS:HD3 | 2.15 | 0.76 |
| 1:F:82:LEU:N | 1:F:83:PRO:HD3 | 2.01 | 0.76 |
| 1:A:124:LEU:O | 1:A:124:LEU:HD23 | 1.86 | 0.75 |
| 1:D:216:TYR:HE1 | 1:D:220:LEU:HD21 | 1.51 | 0.75 |
| 1:E:30:LEU:CD1 | 1:E:62:LYS:HB3 | 2.16 | 0.75 |
| 1:E:72:LEU:O | 1:E:72:LEU:HD13 | 1.86 | 0.75 |
| 1:G:504:LEU:HD13 | 1:G:507:LEU:HD23 | 1.68 | 0.75 |
| 1:A:43:ILE:HD11 | 1:A:83:PRO:HD3 | 1.67 | 0.75 |
| 1:D:216:TYR:CE2 | 1:D:232:LYS:HG2 | 2.21 | 0.75 |
| 1:A:69:PHE:CE1 | 1:A:73:LEU:HD11 | 2.21 | 0.75 |
| 1:A:777:ASN:HD22 | 1:A:777:ASN:C | 1.87 | 0.75 |
| 1:G:339:ARG:HH12 | 1:G:380:ILE:HG13 | 1.49 | 0.75 |
| 1:H:472:MET:HG2 | 1:H:514:ILE:HD13 | 1.65 | 0.75 |
| 1:G:319:MET:CE | 1:G:334:ILE:HD11 | 2.16 | 0.75 |
| 1:C:107:LEU:O | 1:C:108:VAL:HG12 | 1.85 | 0.75 |
| 1:F:81:VAL:HG12 | 1:F:86:VAL:HA | 1.68 | 0.75 |
| 1:H:181:LEU:HD13 | 1:H:206:LEU:HD22 | 1.68 | 0.75 |
| 1:E:304:GLN:N | 3:E:902:FRU:H12 | 2.02 | 0.74 |
| 1:F:66:GLY:C | 1:F:68:PRO:CD | 2.55 | 0.74 |
| 1:B:217:LEU:HD11 | 1:B:233:PHE:CZ | 2.23 | 0.74 |
| 1:E:414:ASN:ND2 | 1:E:438:HIS:NE2 | 2.34 | 0.74 |
| 1:E:433:GLN:HG2 | 1:E:475:THR:OG1 | 1.88 | 0.74 |
| 1:F:327:GLY:O | 1:F:328:LEU:HD23 | 1.88 | 0.74 |
| 1:H:173:ASP:HB3 | 1:H:176:SER:CB | 2.17 | 0.74 |
| 1:A:789:MET:CG | 1:D:789:MET:HE3 | 2.18 | 0.74 |
| 1:E:43:ILE:HG23 | 1:E:44:LEU:N | 2.02 | 0.74 |
| 1:H:668:PHE:HB2 | 1:H:689:LEU:CD2 | 2.17 | 0.74 |
| 1:A:216:TYR:HE1 | 1:A:220:LEU:HD11 | 1.50 | 0.74 |
| 1:F:82:LEU:N | 1:F:83:PRO:CD | 2.50 | 0.74 |
| 1:C:146:ILE:HG13 | 1:C:147:PRO:HD2 | 1.69 | 0.73 |
| 1:H:177:LEU:HD22 | 1:H:260:LEU:HD23 | 1.70 | 0.73 |
| 1:H:315:LEU:HG | 1:H:319:MET:HE2 | 1.70 | 0.73 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:69:PHE:HE1 | 1:A:73:LEU:HD11 | 1.54 | 0.73 |
| 1:A:789:MET:CE | 1:D:789:MET:CE | 2.66 | 0.73 |
| 1:E:30:LEU:HD13 | 1:E:62:LYS:HB3 | 1.71 | 0.73 |
| 1:G:784:ARG:O | 1:G:788:GLU:HG3 | 1.89 | 0.73 |
| 1:C:46:GLN:HB3 | 1:C:50:ILE:HG13 | 1.69 | 0.73 |
| 1:F:43:ILE:HG23 | 1:F:44:LEU:H | 1.54 | 0.72 |
| 1:G:160:ASP:O | 1:G:164:ARG:HG3 | 1.89 | 0.72 |
| 1:G:48:GLN:HE21 | 1:G:48:GLN:CA | 2.02 | 0.72 |
| 1:G:67:GLY:N | 1:G:68:PRO:CD | 2.52 | 0.72 |
| 1:A:210:LEU:HD22 | 1:A:253:ILE:HG23 | 1.71 | 0.72 |
| 1:E:173:ASP:OD2 | 1:E:176:SER:HB2 | 1.88 | 0.72 |
| 1:F:54:GLU:C | 1:F:57:PRO:HD2 | 2.10 | 0.72 |
| 1:H:17:ARG:HH21 | 1:H:72:LEU:CB | 2.02 | 0.72 |
| 1:G:31:ALA:HB1 | 1:G:35:ARG:HH21 | 1.53 | 0.72 |
| 1:G:32:LEU:HD22 | 1:G:35:ARG:HH12 | 1.53 | 0.72 |
| 1:A:46:GLN:HB2 | 1:A:79:ALA:O | 1.89 | 0.72 |
| 1:F:69:PHE:C | 1:F:69:PHE:CD1 | 2.62 | 0.72 |
| 1:G:53:PHE:O | 1:G:57:PRO:HD2 | 1.90 | 0.72 |
| 1:G:146:ILE:HG13 | 1:G:147:PRO:HD2 | 1.70 | 0.72 |
| 1:H:72:LEU:O | 1:H:72:LEU:HD13 | 1.88 | 0.72 |
| 1:G:48:GLN:HA | 1:G:48:GLN:NE2 | 2.03 | 0.72 |
| 1:H:18:LEU:HD12 | 1:H:109:VAL:HG12 | 1.72 | 0.72 |
| 1:B:121:LYS:HD3 | 1:B:450:ILE:CD1 | 2.18 | 0.72 |
| 1:E:789:MET:HE1 | 1:H:789:MET:HB3 | 1.70 | 0.72 |
| 1:G:49:ILE:HD12 | 1:G:49:ILE:N | 2.03 | 0.72 |
| 1:G:66:GLY:O | 1:G:68:PRO:HD3 | 1.88 | 0.72 |
| 1:H:217:LEU:HD11 | 1:H:233:PHE:HZ | 1.54 | 0.71 |
| 1:B:544:THR:HA | 1:B:547:HIS:CD2 | 2.25 | 0.71 |
| 1:B:793:LEU:HD11 | 1:C:135:LEU:CD2 | 2.20 | 0.71 |
| 1:C:315:LEU:HG | 1:C:319:MET:HE2 | 1.71 | 0.71 |
| 1:H:17:ARG:HH21 | 1:H:72:LEU:HD23 | 1.54 | 0.71 |
| 1:E:583:ARG:HG2 | 1:E:583:ARG:HH11 | 1.54 | 0.71 |
| 1:B:39:LYS:CB | 1:B:104:LEU:CD2 | 2.67 | 0.71 |
| 1:A:390:GLU:OE1 | 1:A:796:ARG:HD2 | 1.90 | 0.71 |
| 1:F:83:PRO:HG2 | 1:F:85:TRP:H | 1.56 | 0.71 |
| 1:F:131:GLY:O | 1:F:134:THR:HG23 | 1.91 | 0.71 |
| 1:B:245:ASN:O | 1:B:249:VAL:HG23 | 1.89 | 0.71 |
| 1:C:60:THR:O | 1:C:63:LYS:HD3 | 1.91 | 0.71 |
| 1:H:80:ILE:HG22 | 1:H:120:PHE:CE2 | 2.24 | 0.71 |
| 1:D:56:LEU:HG | 1:D:70:PHE:HE1 | 1.55 | 0.71 |
| 1:A:35:ARG:NH2 | 1:A:102:VAL:CB | 2.53 | 0.71 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:789:MET:CE | 1:C:789:MET:HE2 | 2.21 | 0.71 |
| 1:G:90:VAL:HG23 | 1:G:98:GLU:O | 1.91 | 0.71 |
| 1:C:102:VAL:HG12 | 1:C:109:VAL:HG22 | 1.72 | 0.70 |
| 1:F:789:MET:CE | 1:G:789:MET:CE | 2.63 | 0.70 |
| 1:B:182:LYS:HE2 | 1:B:186:LEU:HD11 | 1.71 | 0.70 |
| 1:E:158:GLY:HA3 | 1:E:519:PRO:O | 1.91 | 0.70 |
| 1:F:319:MET:HE3 | 1:F:334:ILE:HD11 | 1.70 | 0.70 |
| 1:G:131:GLY:O | 1:G:134:THR:HG23 | 1.90 | 0.70 |
| 1:H:52:GLU:OE1 | 1:H:53:PHE:HA | 1.89 | 0.70 |
| 1:H:31:ALA:HB1 | 1:H:35:ARG:HH22 | 1.53 | 0.70 |
| 1:F:52:GLU:O | 1:F:57:PRO:HG3 | 1.90 | 0.70 |
| 1:G:778:LEU:H | 1:G:778:LEU:HD12 | 1.56 | 0.70 |
| 1:C:615:LYS:NZ | 1:C:618:LYS:HE2 | 2.07 | 0.70 |
| 1:D:83:PRO:CB | 1:D:84:PRO:HD3 | 2.21 | 0.70 |
| 1:E:46:GLN:HB3 | 1:E:50:ILE:HB | 1.72 | 0.70 |
| 1:E:319:MET:HE1 | 1:E:334:ILE:HD11 | 1.72 | 0.70 |
| 1:E:789:MET:CE | 1:H:789:MET:HE2 | 2.07 | 0.70 |
| 1:F:580:ARG:HD3 | 2:F:901:UDP:O3B | 1.90 | 0.70 |
| 1:B:789:MET:HB3 | 1:C:789:MET:CE | 2.20 | 0.70 |
| 1:G:217:LEU:HD11 | 1:G:233:PHE:HZ | 1.56 | 0.70 |
| 1:A:53:PHE:O | 1:A:57:PRO:HD2 | 1.91 | 0.70 |
| 1:A:486:ILE:HG22 | 1:A:516:VAL:HG22 | 1.73 | 0.70 |
| 1:C:82:LEU:HB3 | 1:C:83:PRO:HD2 | 1.74 | 0.70 |
| 1:C:86:VAL:HG12 | 1:C:102:VAL:CG2 | 2.22 | 0.70 |
| 1:F:38:ALA:O | 1:F:41:LYS:HB2 | 1.91 | 0.70 |
| 1:G:68:PRO:HG2 | 1:G:70:PHE:HB3 | 1.73 | 0.70 |
| 1:G:83:PRO:HG3 | 1:G:85:TRP:HB2 | 1.74 | 0.70 |
| 1:B:82:LEU:CB | 1:B:83:PRO:CD | 2.68 | 0.70 |
| 1:E:216:TYR:CD1 | 1:E:220:LEU:HD11 | 2.27 | 0.70 |
| 1:A:49:ILE:HG22 | 1:A:50:ILE:H | 1.56 | 0.69 |
| 1:C:249:VAL:O | 1:C:253:ILE:HG13 | 1.92 | 0.69 |
| 1:A:590:LEU:HB2 | 1:A:671:PRO:HG3 | 1.73 | 0.69 |
| 1:C:34:SER:HA | 1:C:59:GLN:HE22 | 1.56 | 0.69 |
| 1:C:63:LYS:O | 1:C:65:GLU:HG2 | 1.93 | 0.69 |
| 1:C:319:MET:O | 1:C:323:ILE:HG13 | 1.92 | 0.69 |
| 1:C:778:LEU:H | 1:C:778:LEU:HD12 | 1.57 | 0.69 |
| 1:G:83:PRO:HD2 | 1:G:85:TRP:O | 1.92 | 0.69 |
| 1:H:17:ARG:HH21 | 1:H:72:LEU:CD2 | 2.04 | 0.69 |
| 1:A:79:ALA:HB2 | 1:A:88:LEU:HD23 | 1.72 | 0.69 |
| 1:B:216:TYR:CD1 | 1:B:220:LEU:HD11 | 2.28 | 0.69 |
| 1:F:233:PHE:CD1 | 1:F:238:LEU:HD12 | 2.26 | 0.69 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:46:GLN:CB | 1:E:50:ILE:HB | 2.22 | 0.69 |
| 1:E:789:MET:HB3 | 1:H:789:MET:HE1 | 1.73 | 0.69 |
| 1:A:681:VAL:O | 1:A:685:MET:HG3 | 1.92 | 0.69 |
| 1:F:49:ILE:O | 1:F:53:PHE:CB | 2.41 | 0.69 |
| 1:G:216:TYR:C | 1:G:216:TYR:HD1 | 1.96 | 0.69 |
| 1:H:84:PRO:HG2 | 1:H:85:TRP:CD1 | 2.26 | 0.69 |
| 1:A:46:GLN:CB | 1:A:79:ALA:HB3 | 2.22 | 0.69 |
| 1:D:56:LEU:HB3 | 1:D:57:PRO:HD3 | 1.75 | 0.69 |
| 1:E:143:ASN:CB | 1:E:148:ARG:HH12 | 2.05 | 0.69 |
| 1:F:276:PRO:HG3 | 1:F:326:GLN:HG3 | 1.74 | 0.69 |
| 1:F:39:LYS:HG2 | 1:F:104:LEU:HD13 | 1.74 | 0.69 |
| 1:F:789:MET:HE1 | 1:G:789:MET:HB3 | 1.75 | 0.69 |
| 1:F:83:PRO:CB | 1:F:84:PRO:HD2 | 2.22 | 0.69 |
| 1:F:86:VAL:HG12 | 1:F:102:VAL:O | 1.93 | 0.69 |
| 1:B:59:GLN:HG2 | 1:B:63:LYS:HB3 | 1.73 | 0.68 |
| 1:B:366:ARG:HD3 | 7:B:836:HOH:O | 1.92 | 0.68 |
| 1:F:177:LEU:HD22 | 1:F:260:LEU:HD23 | 1.75 | 0.68 |
| 1:G:84:PRO:HB2 | 1:G:103:ASN:ND2 | 2.07 | 0.68 |
| 1:B:553:LEU:HG | 1:B:645:ILE:HD13 | 1.74 | 0.68 |
| 1:E:216:TYR:HE1 | 1:E:220:LEU:HD11 | 1.57 | 0.68 |
| 1:H:17:ARG:NH2 | 1:H:72:LEU:HB2 | 2.08 | 0.68 |
| 1:F:53:PHE:CA | 1:F:57:PRO:HG2 | 2.23 | 0.68 |
| 1:A:264:ASP:OD1 | 1:A:267:THR:HB | 1.93 | 0.68 |
| 1:G:217:LEU:HA | 1:G:220:LEU:HD13 | 1.74 | 0.68 |
| 1:E:60:THR:CG2 | 1:E:62:LYS:HG3 | 2.24 | 0.68 |
| 1:F:673:LEU:HD23 | 1:F:714:PRO:HB2 | 1.75 | 0.68 |
| 1:G:72:LEU:HD22 | 1:G:90:VAL:HG11 | 1.74 | 0.68 |
| 1:G:262:ALA:HB1 | 1:H:164:ARG:HD3 | 1.76 | 0.68 |
| 1:A:319:MET:HE1 | 1:A:334:ILE:HD11 | 1.76 | 0.68 |
| 1:D:220:LEU:N | 1:D:220:LEU:HD12 | 2.09 | 0.68 |
| 1:F:83:PRO:HB2 | 1:F:84:PRO:HD2 | 1.76 | 0.68 |
| 1:G:137:LEU:HD11 | 1:G:790:PHE:CZ | 2.29 | 0.68 |
| 1:A:171:PHE:HD1 | 1:A:263:PRO:HD2 | 1.59 | 0.68 |
| 1:B:538:GLU:OE1 | 1:B:541:ARG:HD3 | 1.94 | 0.68 |
| 1:F:82:LEU:H | 1:F:83:PRO:HD3 | 1.57 | 0.68 |
| 1:G:220:LEU:H | 1:G:220:LEU:HD12 | 1.59 | 0.68 |
| 1:A:262:ALA:HB1 | 1:B:164:ARG:CD | 2.19 | 0.67 |
| 1:E:210:LEU:HD22 | 1:E:253:ILE:HG23 | 1.76 | 0.67 |
| 1:H:217:LEU:HD11 | 1:H:233:PHE:CZ | 2.28 | 0.67 |
| 1:A:49:ILE:CG2 | 1:A:50:ILE:N | 2.58 | 0.67 |
| 1:B:547:HIS:O | 1:B:551:GLU:HG2 | 1.93 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:794:LYS:HE2 | 1:C:794:LYS:HA | 1.75 | 0.67 |
| 1:D:143:ASN:HB3 | 1:D:148:ARG:NH2 | 2.09 | 0.67 |
| 1:E:105:HIS:O | 1:E:106:ALA:HB3 | 1.93 | 0.67 |
| 1:E:125:VAL:HG13 | 1:E:126:ASP:OD2 | 1.94 | 0.67 |
| 1:F:552:GLU:O | 1:F:556:SER:HB3 | 1.94 | 0.67 |
| 1:B:43:ILE:O | 1:B:43:ILE:HG23 | 1.93 | 0.67 |
| 1:B:56:LEU:CB | 1:B:57:PRO:HD3 | 2.24 | 0.67 |
| 1:E:46:GLN:HB3 | 1:E:50:ILE:CD1 | 2.23 | 0.67 |
| 1:F:83:PRO:HG2 | 1:F:85:TRP:HB2 | 1.76 | 0.67 |
| 1:C:43:ILE:C | 1:C:44:LEU:HD12 | 2.14 | 0.67 |
| 1:E:411:ILE:HG13 | 1:E:431:VAL:HG11 | 1.76 | 0.67 |
| 1:H:441:GLU:OE1 | 1:H:441:GLU:HA | 1.94 | 0.67 |
| 1:D:210:LEU:HD22 | 1:D:253:ILE:HG23 | 1.76 | 0.67 |
| 1:G:66:GLY:CA | 1:G:68:PRO:HD3 | 2.23 | 0.67 |
| 1:B:140:GLU:N | 1:B:141:PRO:HD2 | 2.10 | 0.67 |
| 1:C:65:GLU:HA | 1:C:65:GLU:OE2 | 1.93 | 0.67 |
| 1:D:33:LEU:O | 1:D:37:GLU:HG2 | 1.93 | 0.67 |
| 1:G:83:PRO:HG2 | 1:G:85:TRP:N | 2.10 | 0.67 |
| 1:G:219:GLU:OE1 | 1:G:219:GLU:HA | 1.94 | 0.67 |
| 1:A:72:LEU:O | 1:A:72:LEU:HD13 | 1.95 | 0.67 |
| 1:B:103:ASN:OD1 | 1:B:106:ALA:HB3 | 1.94 | 0.67 |
| 1:B:302:GLY:CA | 3:B:902:FRU:O1 | 2.43 | 0.67 |
| 1:D:249:VAL:O | 1:D:253:ILE:HG13 | 1.94 | 0.67 |
| 1:D:327:GLY:O | 1:D:328:LEU:HD23 | 1.95 | 0.67 |
| 1:E:789:MET:CE | 1:H:789:MET:HB3 | 2.23 | 0.67 |
| 1:F:71:ASP:O | 1:F:74:LYS:HB3 | 1.94 | 0.67 |
| 1:G:262:ALA:HB1 | 1:H:164:ARG:CD | 2.25 | 0.67 |
| 1:C:43:ILE:O | 1:C:44:LEU:HG | 1.94 | 0.67 |
| 1:F:83:PRO:CG | 1:F:85:TRP:HB2 | 2.24 | 0.67 |
| 1:H:162:LEU:HD11 | 1:H:772:TRP:CD2 | 2.30 | 0.67 |
| 1:F:83:PRO:HG2 | 1:F:85:TRP:CA | 2.25 | 0.67 |
| 1:F:633:ILE:HA | 1:F:638:LEU:HD12 | 1.77 | 0.67 |
| 1:B:92:PRO:HG2 | 1:B:96:VAL:HG23 | 1.77 | 0.67 |
| 1:B:400:LEU:C | 1:B:400:LEU:HD12 | 2.16 | 0.67 |
| 1:E:27:ASN:OD1 | 1:E:30:LEU:HB2 | 1.95 | 0.67 |
| 1:D:407:LYS:HB2 | 1:D:408:PRO:CD | 2.25 | 0.66 |
| 1:E:304:GLN:HB3 | 3:E:902:FRU:C1 | 2.24 | 0.66 |
| 1:E:174:LYS:HD2 | 1:E:203:LEU:HD12 | 1.76 | 0.66 |
| 1:E:210:LEU:CD2 | 1:E:253:ILE:HG23 | 2.25 | 0.66 |
| 1:G:72:LEU:CD2 | 1:G:90:VAL:HG11 | 2.26 | 0.66 |
| 1:B:217:LEU:HA | 1:B:220:LEU:HD12 | 1.78 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:105:HIS:O | 1:C:106:ALA:HB3 | 1.94 | 0.66 |
| 1:C:224:THR:HG23 | 1:C:228:GLU:HG3 | 1.76 | 0.66 |
| 1:A:789:MET:CE | 1:D:789:MET:CB | 2.72 | 0.66 |
| 1:B:36:VAL:HG12 | 1:B:37:GLU:N | 2.10 | 0.66 |
| 1:D:216:TYR:CD2 | 1:D:232:LYS:HG2 | 2.31 | 0.66 |
| 1:D:719:GLN:HG3 | 4:D:913:SO4:O4 | 1.96 | 0.66 |
| 1:F:407:LYS:HB2 | 1:F:408:PRO:CD | 2.25 | 0.66 |
| 1:H:83:PRO:HG2 | 1:H:84:PRO:HD3 | 1.78 | 0.66 |
| 1:B:56:LEU:HD21 | 1:B:65:GLU:OE2 | 1.94 | 0.66 |
| 1:B:544:THR:HA | 1:B:547:HIS:HD2 | 1.60 | 0.66 |
| 1:C:534:PHE:HB2 | 1:C:535:PRO:CD | 2.26 | 0.66 |
| 1:E:790:PHE:N | 1:H:789:MET:HE1 | 2.11 | 0.66 |
| 1:F:315:LEU:CD1 | 1:F:762:LEU:HD23 | 2.24 | 0.66 |
| 1:G:54:GLU:OE2 | 1:G:55:ALA:HA | 1.94 | 0.66 |
| 1:C:30:LEU:O | 1:C:33:LEU:HG | 1.95 | 0.66 |
| 1:C:137:LEU:HD11 | 1:C:790:PHE:CE1 | 2.30 | 0.66 |
| 1:F:140:GLU:N | 1:F:141:PRO:HD2 | 2.10 | 0.66 |
| 1:B:784:ARG:O | 1:B:788:GLU:HG3 | 1.96 | 0.66 |
| 1:D:146:ILE:HG13 | 1:D:147:PRO:HD2 | 1.77 | 0.66 |
| 1:C:49:ILE:O | 1:C:53:PHE:CB | 2.44 | 0.66 |
| 1:C:51:ALA:O | 1:C:52:GLU:HB3 | 1.96 | 0.66 |
| 1:F:233:PHE:CE1 | 1:F:238:LEU:HD12 | 2.31 | 0.66 |
| 1:H:17:ARG:HG2 | 1:H:98:GLU:OE1 | 1.96 | 0.65 |
| 1:H:17:ARG:NE | 1:H:72:LEU:HD23 | 2.10 | 0.65 |
| 1:A:59:GLN:CG | 1:A:60:THR:H | 2.09 | 0.65 |
| 1:B:30:LEU:HD11 | 1:E:405:ASN:HD21 | 1.61 | 0.65 |
| 1:B:56:LEU:HD11 | 1:B:65:GLU:OE2 | 1.95 | 0.65 |
| 1:F:118:LEU:HD22 | 1:F:503:THR:HG22 | 1.77 | 0.65 |
| 1:G:319:MET:HE3 | 1:G:334:ILE:HD11 | 1.78 | 0.65 |
| 1:H:82:LEU:HD22 | 1:H:120:PHE:CZ | 2.32 | 0.65 |
| 1:B:217:LEU:CD1 | 1:B:233:PHE:HZ | 2.10 | 0.65 |
| 1:C:46:GLN:HB3 | 1:C:50:ILE:CG1 | 2.25 | 0.65 |
| 1:F:52:GLU:O | 1:F:57:PRO:HD3 | 1.96 | 0.65 |
| 1:G:538:GLU:OE1 | 1:G:541:ARG:HD3 | 1.96 | 0.65 |
| 1:A:47:ASN:O | 1:A:48:GLN:HB3 | 1.95 | 0.65 |
| 1:B:75:SER:O | 1:B:90:VAL:HG13 | 1.95 | 0.65 |
| 1:C:108:VAL:HG13 | 1:C:108:VAL:O | 1.96 | 0.65 |
| 1:F:518:ASP:OD1 | 1:F:520:LYS:HG2 | 1.97 | 0.65 |
| 1:B:319:MET:HE1 | 1:B:334:ILE:HD11 | 1.77 | 0.65 |
| 1:C:259:LEU:O | 1:C:263:PRO:HG3 | 1.97 | 0.65 |
| 1:G:483:PHE:CE1 | 1:G:487:ALA:HB3 | 2.31 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:54:GLU:HG3 | 1:B:55:ALA:N | 2.07 | 0.65 |
| 1:B:181:LEU:HD13 | 1:B:206:LEU:HD22 | 1.79 | 0.65 |
| 1:C:39:LYS:HB2 | 1:C:104:LEU:CD1 | 2.20 | 0.65 |
| 1:F:37:GLU:HG2 | 1:F:54:GLU:OE2 | 1.96 | 0.65 |
| 1:G:156:GLY:O | 1:G:522:ASN:HA | 1.96 | 0.65 |
| 1:G:441:GLU:OE1 | 1:G:441:GLU:HA | 1.97 | 0.65 |
| 1:H:121:LYS:HE2 | 1:H:450:ILE:CD1 | 2.27 | 0.65 |
| 1:E:143:ASN:HB3 | 1:E:148:ARG:NH2 | 2.11 | 0.65 |
| 1:E:778:LEU:HD12 | 1:E:778:LEU:N | 2.09 | 0.65 |
| 1:B:37:GLU:CB | 1:B:55:ALA:HB2 | 2.27 | 0.65 |
| 1:C:739:ASP:O | 1:C:743:LYS:HD3 | 1.96 | 0.65 |
| 1:E:156:GLY:HA3 | 1:E:523:ILE:HG13 | 1.79 | 0.65 |
| 1:F:83:PRO:HG2 | 1:F:85:TRP:N | 2.12 | 0.65 |
| 1:C:170:LEU:HD22 | 1:C:177:LEU:HD23 | 1.77 | 0.64 |
| 1:D:82:LEU:HD12 | 1:D:82:LEU:C | 2.17 | 0.64 |
| 1:E:60:THR:O | 1:E:63:LYS:HG3 | 1.98 | 0.64 |
| 1:F:54:GLU:HG3 | 1:F:55:ALA:H | 1.62 | 0.64 |
| 1:C:668:PHE:HB2 | 1:C:689:LEU:CD2 | 2.28 | 0.64 |
| 1:G:207:GLN:HG2 | 1:H:12:HIS:CE1 | 2.32 | 0.64 |
| 1:E:173:ASP:HB3 | 1:E:176:SER:HB3 | 1.80 | 0.64 |
| 1:E:226:TYR:CE2 | 1:E:240:ARG:HG2 | 2.32 | 0.64 |
| 1:G:216:TYR:HE1 | 1:G:220:LEU:HD11 | 1.63 | 0.64 |
| 1:B:73:LEU:O | 1:B:76:THR:HG22 | 1.98 | 0.64 |
| 1:B:250:LEU:O | 1:B:254:ARG:HG3 | 1.98 | 0.64 |
| 1:D:216:TYR:CE1 | 1:D:220:LEU:HD11 | 2.32 | 0.64 |
| 1:F:83:PRO:HB2 | 1:F:84:PRO:CD | 2.28 | 0.64 |
| 1:H:31:ALA:CB | 1:H:35:ARG:HH22 | 2.10 | 0.64 |
| 1:A:79:ALA:CB | 1:A:88:LEU:HD23 | 2.28 | 0.64 |
| 1:D:41:LYS:HE3 | 1:D:54:GLU:HG2 | 1.78 | 0.64 |
| 1:D:137:LEU:HD11 | 1:D:790:PHE:CZ | 2.33 | 0.64 |
| 1:G:216:TYR:CD1 | 1:G:216:TYR:C | 2.70 | 0.64 |
| 1:A:158:GLY:HA3 | 1:A:519:PRO:O | 1.97 | 0.64 |
| 1:G:483:PHE:CZ | 1:G:487:ALA:HB3 | 2.33 | 0.64 |
| 1:G:778:LEU:HD12 | 1:G:778:LEU:N | 2.13 | 0.64 |
| 1:B:146:ILE:HG13 | 1:B:147:PRO:HD2 | 1.80 | 0.64 |
| 1:C:224:THR:HG22 | 1:C:228:GLU:HG3 | 1.78 | 0.64 |
| 1:E:45:GLN:HG2 | 1:E:80:ILE:CD1 | 2.28 | 0.64 |
| 1:G:34:SER:N | 1:G:59:GLN:HE22 | 1.95 | 0.64 |
| 1:G:319:MET:HE1 | 1:G:334:ILE:HD11 | 1.80 | 0.64 |
| 1:G:407:LYS:HB2 | 1:G:408:PRO:CD | 2.27 | 0.64 |
| 1:G:597:ASN:O | 1:G:601:ARG:HG3 | 1.98 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:34:SER:OG | 1:H:55:ALA:CB | 2.45 | 0.64 |
| 1:H:230:GLU:O | 1:H:234:GLU:HG3 | 1.97 | 0.64 |
| 1:A:82:LEU:O | 1:A:85:TRP:O | 2.15 | 0.64 |
| 1:C:80:ILE:CD1 | 1:C:121:LYS:CG | 2.76 | 0.64 |
| 1:F:52:GLU:O | 1:F:57:PRO:CG | 2.46 | 0.64 |
| 1:G:204:ASN:OD1 | 1:H:11:VAL:HG12 | 1.98 | 0.63 |
| 1:C:92:PRO:HD2 | 1:C:96:VAL:O | 1.99 | 0.63 |
| 1:C:615:LYS:HZ1 | 1:C:618:LYS:HE2 | 1.62 | 0.63 |
| 1:E:135:LEU:HD22 | 1:H:793:LEU:HD11 | 1.80 | 0.63 |
| 1:F:67:GLY:N | 1:F:68:PRO:CD | 2.60 | 0.63 |
| 1:H:259:LEU:O | 1:H:263:PRO:HG3 | 1.98 | 0.63 |
| 1:A:28:GLU:O | 1:A:32:LEU:HG | 1.98 | 0.63 |
| 1:C:34:SER:CA | 1:C:59:GLN:HE22 | 2.11 | 0.63 |
| 1:E:778:LEU:H | 1:E:778:LEU:CD1 | 2.09 | 0.63 |
| 1:G:533:TYR:CZ | 1:G:683:GLU:HG2 | 2.33 | 0.63 |
| 1:G:778:LEU:H | 1:G:778:LEU:CD1 | 2.11 | 0.63 |
| 1:C:41:LYS:O | 1:C:44:LEU:HD11 | 1.98 | 0.63 |
| 1:F:125:VAL:HG12 | 1:F:126:ASP:OD1 | 1.98 | 0.63 |
| 1:G:56:LEU:HB3 | 1:G:57:PRO:CD | 2.26 | 0.63 |
| 1:F:778:LEU:N | 1:F:778:LEU:HD12 | 2.14 | 0.63 |
| 1:E:72:LEU:HD13 | 1:E:72:LEU:C | 2.19 | 0.63 |
| 1:H:103:ASN:HB3 | 1:H:105:HIS:O | 1.99 | 0.63 |
| 1:D:125:VAL:HG13 | 1:D:126:ASP:N | 2.14 | 0.63 |
| 1:D:131:GLY:O | 1:D:134:THR:HG23 | 1.99 | 0.63 |
| 1:A:400:LEU:C | 1:A:400:LEU:HD12 | 2.19 | 0.63 |
| 1:C:407:LYS:HB2 | 1:C:408:PRO:CD | 2.29 | 0.63 |
| 1:E:304:GLN:H | 3:E:902:FRU:C1 | 2.11 | 0.63 |
| 1:H:17:ARG:HH21 | 1:H:72:LEU:HB2 | 1.61 | 0.63 |
| 1:B:441:GLU:HA | 1:B:441:GLU:OE1 | 1.98 | 0.63 |
| 1:H:486:ILE:HG22 | 1:H:516:VAL:HG22 | 1.81 | 0.63 |
| 1:F:43:ILE:CG2 | 1:F:44:LEU:N | 2.62 | 0.62 |
| 1:G:54:GLU:HG3 | 1:G:55:ALA:N | 2.14 | 0.62 |
| 1:C:86:VAL:HG12 | 1:C:102:VAL:HG22 | 1.80 | 0.62 |
| 1:D:220:LEU:HD12 | 1:D:220:LEU:H | 1.63 | 0.62 |
| 1:H:466:THR:HG23 | 1:H:790:PHE:CZ | 2.34 | 0.62 |
| 1:A:101:ARG:HB2 | 1:A:112:LEU:HD11 | 1.81 | 0.62 |
| 1:A:789:MET:HE2 | 1:D:789:MET:HE2 | 1.80 | 0.62 |
| 1:B:56:LEU:HB3 | 1:B:57:PRO:CD | 2.26 | 0.62 |
| 1:C:216:TYR:HD2 | 1:C:232:LYS:HE2 | 1.64 | 0.62 |
| 1:F:282:VAL:HG13 | 1:F:337:LEU:HD23 | 1.80 | 0.62 |
| 1:G:443:THR:HG21 | 1:G:495:GLN:HA | 1.82 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:143:ASN:CB | 1:H:780:ARG:HH12 | 2.13 | 0.62 |
| 1:B:54:GLU:O | 1:B:56:LEU:N | 2.33 | 0.62 |
| 1:B:315:LEU:HG | 1:B:319:MET:HE2 | 1.81 | 0.62 |
| 1:H:164:ARG:HH11 | 1:H:164:ARG:CG | 2.13 | 0.62 |
| 1:D:216:TYR:HD2 | 1:D:232:LYS:HE2 | 1.63 | 0.62 |
| 1:E:354:GLU:OE1 | 1:E:366:ARG:NH2 | 2.32 | 0.62 |
| 1:E:583:ARG:HG2 | 1:E:583:ARG:NH1 | 2.15 | 0.62 |
| 1:F:209:THR:CG2 | 1:F:236:ILE:HG13 | 2.30 | 0.62 |
| 1:G:689:LEU:HD12 | 1:G:690:PRO:HD2 | 1.81 | 0.62 |
| 1:H:31:ALA:CB | 1:H:35:ARG:NH2 | 2.61 | 0.62 |
| 1:H:32:LEU:HD22 | 1:H:35:ARG:HH11 | 1.62 | 0.62 |
| 1:H:140:GLU:N | 1:H:141:PRO:HD2 | 2.14 | 0.62 |
| 1:H:796:ARG:HB2 | 1:H:797:PRO:HD3 | 1.82 | 0.62 |
| 1:C:39:LYS:HG3 | 1:C:104:LEU:HD12 | 1.80 | 0.62 |
| 1:D:56:LEU:HG | 1:D:70:PHE:CE1 | 2.34 | 0.62 |
| 1:C:80:ILE:CD1 | 1:C:121:LYS:HG2 | 2.30 | 0.62 |
| 1:A:72:LEU:HD13 | 1:A:72:LEU:C | 2.20 | 0.62 |
| 1:C:137:LEU:HD11 | 1:C:790:PHE:CZ | 2.35 | 0.62 |
| 1:F:216:TYR:HE1 | 1:F:220:LEU:HD11 | 1.65 | 0.62 |
| 1:F:357:TYR:CD2 | 5:F:922:MLA:HC22 | 2.34 | 0.62 |
| 1:G:31:ALA:CB | 1:G:35:ARG:NH2 | 2.63 | 0.62 |
| 1:H:17:ARG:NH2 | 1:H:72:LEU:HD23 | 2.15 | 0.62 |
| 1:A:789:MET:CB | 1:D:789:MET:CE | 2.78 | 0.61 |
| 1:C:171:PHE:CD1 | 1:C:263:PRO:HD2 | 2.35 | 0.61 |
| 1:D:34:SER:O | 1:D:37:GLU:HB2 | 1.99 | 0.61 |
| 1:G:43:ILE:HA | 1:G:81:VAL:O | 2.00 | 0.61 |
| 1:B:609:VAL:HG22 | 1:B:645:ILE:HB | 1.83 | 0.61 |
| 1:E:249:VAL:O | 1:E:253:ILE:HG13 | 2.00 | 0.61 |
| 1:G:207:GLN:HG2 | 1:H:12:HIS:HE1 | 1.63 | 0.61 |
| 1:B:302:GLY:N | 3:B:902:FRU:O1 | 2.33 | 0.61 |
| 1:E:217:LEU:HD11 | 1:E:233:PHE:CZ | 2.31 | 0.61 |
| 1:F:200:ILE:HD11 | 1:F:237:GLY:HA3 | 1.82 | 0.61 |
| 1:A:142:PHE:HB3 | 1:A:783:ALA:HB2 | 1.82 | 0.61 |
| 1:C:102:VAL:CG1 | 1:C:109:VAL:HG22 | 2.28 | 0.61 |
| 1:E:30:LEU:HD12 | 1:E:65:GLU:OE2 | 2.00 | 0.61 |
| 1:A:29:VAL:O | 1:A:33:LEU:HG | 2.00 | 0.61 |
| 1:B:659:ARG:O | 1:B:662:CYS:HB2 | 2.00 | 0.61 |
| 1:C:143:ASN:HA | 1:C:780:ARG:NH1 | 2.11 | 0.61 |
| 1:C:278:VAL:HG21 | 1:C:763:LEU:CD2 | 2.31 | 0.61 |
| 1:D:248:ARG:HH11 | 1:D:248:ARG:HB3 | 1.65 | 0.61 |
| 1:D:407:LYS:HB2 | 1:D:408:PRO:HD2 | 1.82 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:56:LEU:CB | 1:G:57:PRO:HD3 | 2.25 | 0.61 |
| 1:H:174:LYS:HD3 | 1:H:203:LEU:HD12 | 1.82 | 0.61 |
| 1:A:302:GLY:N | 3:A:902:FRU:O1 | 2.34 | 0.61 |
| 1:B:103:ASN:HD22 | 1:B:103:ASN:N | 1.99 | 0.61 |
| 1:E:45:GLN:HG2 | 1:E:80:ILE:HD12 | 1.82 | 0.61 |
| 1:G:419:ASN:HB3 | 1:G:471:ALA:CB | 2.30 | 0.61 |
| 1:A:220:LEU:N | 1:A:220:LEU:HD12 | 2.16 | 0.61 |
| 1:C:86:VAL:CG1 | 1:C:102:VAL:HG22 | 2.30 | 0.61 |
| 1:D:86:VAL:HG12 | 1:D:102:VAL:HG12 | 1.83 | 0.61 |
| 1:H:17:ARG:HE | 1:H:72:LEU:CD2 | 2.14 | 0.61 |
| 1:H:407:LYS:HB2 | 1:H:408:PRO:CD | 2.30 | 0.61 |
| 1:D:102:VAL:HG23 | 1:D:109:VAL:HG23 | 1.82 | 0.61 |
| 1:E:140:GLU:N | 1:E:141:PRO:HD2 | 2.16 | 0.61 |
| 1:G:35:ARG:HD3 | 1:G:102:VAL:HG11 | 1.83 | 0.61 |
| 1:G:221:LYS:HD2 | 1:G:222:SER:H | 1.65 | 0.61 |
| 1:H:103:ASN:ND2 | 1:H:108:VAL:HB | 2.15 | 0.61 |
| 1:F:789:MET:HE2 | 1:G:789:MET:HB3 | 1.82 | 0.61 |
| 1:F:789:MET:CB | 1:G:789:MET:CE | 2.68 | 0.61 |
| 1:G:220:LEU:HD12 | 1:G:220:LEU:N | 2.16 | 0.61 |
| 1:H:552:GLU:O | 1:H:556:SER:HB3 | 2.01 | 0.61 |
| 1:B:30:LEU:HD23 | 1:B:63:LYS:O | 2.01 | 0.61 |
| 1:B:37:GLU:HG2 | 1:B:54:GLU:OE2 | 2.01 | 0.61 |
| 1:D:102:VAL:HG23 | 1:D:109:VAL:CG2 | 2.30 | 0.61 |
| 1:E:414:ASN:HD22 | 1:E:438:HIS:CD2 | 2.18 | 0.61 |
| 1:H:173:ASP:HB3 | 1:H:176:SER:HB3 | 1.81 | 0.61 |
| 1:B:63:LYS:HG3 | 1:B:64:LEU:H | 1.65 | 0.60 |
| 1:B:790:PHE:N | 1:C:789:MET:HE1 | 2.16 | 0.60 |
| 1:D:48:GLN:HA | 1:D:51:ALA:HB3 | 1.82 | 0.60 |
| 1:G:91:ARG:NH2 | 1:G:94:PRO:HA | 2.16 | 0.60 |
| 1:H:82:LEU:HD23 | 1:H:85:TRP:O | 2.00 | 0.60 |
| 1:B:93:ARG:HB2 | 1:B:96:VAL:CG2 | 2.31 | 0.60 |
| 1:D:116:GLU:O | 1:D:119:HIS:HB2 | 2.00 | 0.60 |
| 1:A:91:ARG:HD2 | 1:A:97:TRP:CZ2 | 2.37 | 0.60 |
| 1:E:534:PHE:HB2 | 1:E:535:PRO:CD | 2.31 | 0.60 |
| 1:E:796:ARG:HB2 | 1:E:797:PRO:HD3 | 1.83 | 0.60 |
| 1:G:533:TYR:CE1 | 1:G:683:GLU:HG2 | 2.36 | 0.60 |
| 1:H:338:THR:HG23 | 1:H:366:ARG:HG2 | 1.84 | 0.60 |
| 1:F:79:ALA:CB | 1:F:88:LEU:HD23 | 2.30 | 0.60 |
| 1:H:146:ILE:HG12 | 1:H:147:PRO:O | 2.00 | 0.60 |
| 1:A:790:PHE:N | 1:D:789:MET:HE1 | 2.16 | 0.60 |
| 1:B:54:GLU:CG | 1:B:55:ALA:H | 2.02 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:83:PRO:CB | 1:C:84:PRO:HD3 | 2.31 | 0.60 |
| 1:E:116:GLU:O | 1:E:119:HIS:HB2 | 2.01 | 0.60 |
| 1:A:178:LEU:HB2 | 1:A:179:PRO:HD3 | 1.82 | 0.60 |
| 1:A:518:ASP:OD1 | 1:A:520:LYS:HG2 | 2.01 | 0.60 |
| 1:B:42:GLY:HA2 | 1:B:81:VAL:HG11 | 1.83 | 0.60 |
| 1:G:31:ALA:CB | 1:G:35:ARG:HH21 | 2.14 | 0.60 |
| 1:H:245:ASN:O | 1:H:249:VAL:HG23 | 2.02 | 0.60 |
| 1:A:407:LYS:HB2 | 1:A:408:PRO:CD | 2.32 | 0.60 |
| 1:D:130:ASN:HB3 | 1:D:134:THR:OG1 | 2.02 | 0.60 |
| 1:A:216:TYR:CD1 | 1:A:216:TYR:C | 2.75 | 0.60 |
| 1:A:216:TYR:C | 1:A:216:TYR:HD1 | 2.05 | 0.60 |
| 1:B:143:ASN:HB3 | 1:B:780:ARG:NH1 | 2.13 | 0.60 |
| 1:E:81:VAL:HG13 | 1:E:86:VAL:HG23 | 1.82 | 0.60 |
| 1:F:224:THR:CG2 | 1:F:228:GLU:HG3 | 2.32 | 0.60 |
| 1:A:298:TYR:HE1 | 1:A:649:MET:HE1 | 1.67 | 0.60 |
| 1:A:302:GLY:CA | 3:A:902:FRU:HO1 | 2.11 | 0.60 |
| 1:D:784:ARG:O | 1:D:788:GLU:HG3 | 2.02 | 0.60 |
| 1:B:420:LEU:C | 1:B:420:LEU:HD13 | 2.22 | 0.59 |
| 1:G:451:TYR:HB3 | 1:G:454:LYS:HE2 | 1.84 | 0.59 |
| 1:C:633:ILE:HA | 1:C:638:LEU:HD12 | 1.84 | 0.59 |
| 1:H:315:LEU:HG | 1:H:319:MET:HE1 | 1.84 | 0.59 |
| 1:A:35:ARG:NH2 | 1:A:86:VAL:HG12 | 2.17 | 0.59 |
| 1:A:35:ARG:CZ | 1:A:86:VAL:HG12 | 2.32 | 0.59 |
| 1:F:486:ILE:HG22 | 1:F:516:VAL:HG22 | 1.82 | 0.59 |
| 1:F:209:THR:HG21 | 1:F:236:ILE:O | 2.02 | 0.59 |
| 1:H:45:GLN:NE2 | 1:H:80:ILE:HG13 | 2.18 | 0.59 |
| 1:E:752:LYS:HB3 | 1:E:753:TYR:CE2 | 2.37 | 0.59 |
| 1:G:143:ASN:CA | 1:G:780:ARG:HH12 | 2.04 | 0.59 |
| 1:D:217:LEU:CD1 | 1:D:233:PHE:HZ | 2.07 | 0.59 |
| 1:E:160:ASP:O | 1:E:164:ARG:HG3 | 2.02 | 0.59 |
| 1:F:72:LEU:C | 1:F:72:LEU:HD13 | 2.23 | 0.59 |
| 1:F:173:ASP:HB3 | 1:F:176:SER:HB3 | 1.85 | 0.59 |
| 1:H:754:THR:HA | 7:H:864:HOH:O | 2.01 | 0.59 |
| 1:A:796:ARG:O | 1:A:800:GLN:HG3 | 2.03 | 0.59 |
| 1:D:315:LEU:HG | 1:D:319:MET:CE | 2.33 | 0.59 |
| 1:G:56:LEU:HD13 | 1:G:63:LYS:HG2 | 1.84 | 0.59 |
| 1:B:30:LEU:HD11 | 1:E:405:ASN:ND2 | 2.17 | 0.59 |
| 1:D:86:VAL:CG1 | 1:D:102:VAL:HG12 | 2.32 | 0.59 |
| 1:D:534:PHE:HB2 | 1:D:535:PRO:CD | 2.33 | 0.59 |
| 1:G:169:LYS:HG2 | 1:G:176:SER:OG | 2.02 | 0.59 |
| 1:G:410:LEU:HD12 | 1:G:411:ILE:N | 2.17 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:542:ARG:HD2 | 1:A:659:ARG:HD2 | 1.85 | 0.59 |
| 1:B:55:ALA:HB1 | 1:B:59:GLN:HE22 | 1.68 | 0.59 |
| 1:C:125:VAL:HG12 | 1:C:126:ASP:OD1 | 2.03 | 0.59 |
| 1:E:72:LEU:CD2 | 1:E:90:VAL:HG11 | 2.33 | 0.59 |
| 1:F:534:PHE:HB2 | 1:F:535:PRO:CD | 2.32 | 0.59 |
| 1:A:220:LEU:N | 1:A:220:LEU:CD1 | 2.66 | 0.58 |
| 1:B:55:ALA:HB1 | 1:B:59:GLN:NE2 | 2.17 | 0.58 |
| 1:C:147:PRO:HB2 | 1:D:172:HIS:ND1 | 2.18 | 0.58 |
| 1:E:112:LEU:N | 1:E:112:LEU:HD23 | 2.16 | 0.58 |
| 1:B:561:LYS:HD3 | 1:B:613:ARG:O | 2.02 | 0.58 |
| 1:C:83:PRO:HG2 | 1:C:84:PRO:CD | 2.26 | 0.58 |
| 1:D:113:GLN:HG3 | 1:D:114:PRO:CD | 2.30 | 0.58 |
| 1:F:65:GLU:OE2 | 1:F:68:PRO:HG2 | 2.03 | 0.58 |
| 1:G:259:LEU:O | 1:G:263:PRO:HG3 | 2.02 | 0.58 |
| 1:G:534:PHE:HB2 | 1:G:535:PRO:CD | 2.33 | 0.58 |
| 1:D:486:ILE:HG22 | 1:D:516:VAL:HG22 | 1.85 | 0.58 |
| 1:D:730:LYS:HE3 | 5:D:921:MLA:O3A | 2.03 | 0.58 |
| 1:E:111:GLU:C | 1:E:112:LEU:HD23 | 2.24 | 0.58 |
| 1:F:54:GLU:HG3 | 1:F:55:ALA:N | 2.17 | 0.58 |
| 1:F:79:ALA:HB2 | 1:F:88:LEU:HD23 | 1.85 | 0.58 |
| 1:C:80:ILE:HD11 | 1:C:121:LYS:CG | 2.33 | 0.58 |
| 1:C:210:LEU:HD22 | 1:C:253:ILE:HG23 | 1.86 | 0.58 |
| 1:C:216:TYR:CE2 | 1:C:232:LYS:HG2 | 2.38 | 0.58 |
| 1:C:702:ILE:HA | 1:C:753:TYR:OH | 2.03 | 0.58 |
| 1:E:37:GLU:HG2 | 1:E:54:GLU:OE2 | 2.02 | 0.58 |
| 1:E:304:GLN:CB | 3:E:902:FRU:C1 | 2.78 | 0.58 |
| 1:E:315:LEU:HG | 1:E:319:MET:HE2 | 1.85 | 0.58 |
| 1:B:484:GLN:OE1 | 1:B:697:GLY:HA2 | 2.03 | 0.58 |
| 1:F:56:LEU:N | 1:F:57:PRO:CD | 2.66 | 0.58 |
| 1:G:82:LEU:N | 1:G:83:PRO:CD | 2.67 | 0.58 |
| 1:B:248:ARG:HB3 | 1:B:248:ARG:HH11 | 1.69 | 0.58 |
| 1:C:140:GLU:N | 1:C:141:PRO:HD2 | 2.17 | 0.58 |
| 1:C:534:PHE:HB2 | 1:C:535:PRO:HD2 | 1.86 | 0.58 |
| 1:F:145:SER:HB3 | 1:F:779:ASP:OD2 | 2.03 | 0.58 |
| 1:C:50:ILE:HD11 | 1:C:54:GLU:HG2 | 1.86 | 0.58 |
| 1:C:437:ALA:O | 1:C:438:HIS:HB2 | 2.04 | 0.58 |
| 1:D:37:GLU:HB3 | 1:D:54:GLU:OE2 | 2.04 | 0.58 |
| 1:H:340:LEU:HD11 | 1:H:350:GLY:O | 2.04 | 0.58 |
| 1:A:143:ASN:HB3 | 1:A:148:ARG:NH2 | 2.19 | 0.58 |
| 1:A:171:PHE:CD1 | 1:A:263:PRO:HD2 | 2.38 | 0.58 |
| 1:C:216:TYR:O | 1:C:220:LEU:HD13 | 2.02 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:43:ILE:O | 1:D:44:LEU:HB2 | 2.03 | 0.58 |
| 1:E:45:GLN:CB | 1:E:80:ILE:HD13 | 2.34 | 0.58 |
| 1:E:233:PHE:HB3 | 1:E:238:LEU:HB2 | 1.85 | 0.58 |
| 1:A:48:GLN:O | 1:A:49:ILE:C | 2.41 | 0.58 |
| 1:A:176:SER:O | 1:A:179:PRO:HD2 | 2.04 | 0.58 |
| 1:A:514:ILE:HG13 | 1:A:515:ASP:N | 2.19 | 0.58 |
| 1:E:164:ARG:HD2 | 1:F:262:ALA:HB1 | 1.85 | 0.58 |
| 1:F:219:GLU:OE1 | 1:F:219:GLU:HA | 2.03 | 0.58 |
| 1:G:564:LEU:HD22 | 1:G:613:ARG:CZ | 2.34 | 0.58 |
| 1:A:216:TYR:CD1 | 1:A:220:LEU:HD11 | 2.39 | 0.58 |
| 1:B:146:ILE:HG12 | 1:B:147:PRO:O | 2.04 | 0.58 |
| 1:C:107:LEU:O | 1:C:108:VAL:CG1 | 2.52 | 0.58 |
| 1:D:82:LEU:CD1 | 1:D:84:PRO:HD2 | 2.30 | 0.58 |
| 1:A:63:LYS:C | 1:A:65:GLU:H | 2.05 | 0.57 |
| 1:A:85:TRP:CG | 1:A:101:ARG:HD2 | 2.39 | 0.57 |
| 1:F:387:PRO:HD3 | 1:F:802:VAL:HB | 1.85 | 0.57 |
| 1:F:582:ASP:HB2 | 1:F:621:GLU:OE1 | 2.03 | 0.57 |
| 1:F:789:MET:CE | 1:G:789:MET:CB | 2.80 | 0.57 |
| 1:H:85:TRP:CE3 | 1:H:101:ARG:NE | 2.71 | 0.57 |
| 1:D:83:PRO:O | 1:D:104:LEU:HD12 | 2.04 | 0.57 |
| 1:E:561:LYS:HD3 | 1:E:613:ARG:O | 2.02 | 0.57 |
| 1:F:116:GLU:O | 1:F:119:HIS:HB2 | 2.04 | 0.57 |
| 1:B:54:GLU:OE1 | 1:B:54:GLU:HA | 2.04 | 0.57 |
| 1:B:333:ARG:HG2 | 1:B:333:ARG:HH11 | 1.69 | 0.57 |
| 1:C:65:GLU:O | 1:C:70:PHE:HB2 | 2.04 | 0.57 |
| 1:F:45:GLN:HB3 | 1:F:80:ILE:HA | 1.86 | 0.57 |
| 1:G:83:PRO:HG2 | 1:G:85:TRP:H | 1.68 | 0.57 |
| 1:G:542:ARG:HD2 | 1:G:659:ARG:HD2 | 1.85 | 0.57 |
| 1:B:789:MET:HG2 | 1:C:789:MET:HE3 | 1.85 | 0.57 |
| 1:G:217:LEU:HD11 | 1:G:233:PHE:CZ | 2.38 | 0.57 |
| 1:H:407:LYS:HB2 | 1:H:408:PRO:HD2 | 1.84 | 0.57 |
| 1:A:789:MET:CE | 1:D:789:MET:HE3 | 2.31 | 0.57 |
| 1:A:789:MET:CE | 1:D:789:MET:HE2 | 2.33 | 0.57 |
| 1:B:210:LEU:HD22 | 1:B:253:ILE:HG23 | 1.85 | 0.57 |
| 1:D:56:LEU:HB3 | 1:D:57:PRO:CD | 2.33 | 0.57 |
| 1:D:220:LEU:H | 1:D:220:LEU:CD1 | 2.18 | 0.57 |
| 1:H:748:ARG:HH12 | 1:H:752:LYS:HE3 | 1.70 | 0.57 |
| 1:C:80:ILE:CD1 | 1:C:121:LYS:HG3 | 2.34 | 0.57 |
| 1:E:216:TYR:CD2 | 1:E:232:LYS:HG2 | 2.39 | 0.57 |
| 1:F:32:LEU:O | 1:F:36:VAL:HG23 | 2.04 | 0.57 |
| 1:A:407:LYS:HB2 | 1:A:408:PRO:HD2 | 1.87 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:628:LYS:O | 1:B:632:LEU:HG | 2.04 | 0.57 |
| 1:C:790:PHE:O | 1:C:794:LYS:HB3 | 2.04 | 0.57 |
| 1:G:172:HIS:ND1 | 1:H:147:PRO:HB2 | 2.19 | 0.57 |
| 1:G:504:LEU:CD1 | 1:G:507:LEU:HD23 | 2.34 | 0.57 |
| 1:H:173:ASP:CB | 1:H:176:SER:HB3 | 2.34 | 0.57 |
| 1:D:173:ASP:HB3 | 1:D:176:SER:HB2 | 1.86 | 0.57 |
| 1:E:52:GLU:OE1 | 1:E:57:PRO:HD3 | 2.04 | 0.57 |
| 1:F:101:ARG:HB2 | 1:F:112:LEU:HD21 | 1.87 | 0.57 |
| 1:G:386:TRP:N | 1:G:387:PRO:HD2 | 2.19 | 0.57 |
| 1:A:49:ILE:O | 1:A:53:PHE:CB | 2.53 | 0.57 |
| 1:B:103:ASN:HD22 | 1:B:103:ASN:H | 1.51 | 0.57 |
| 1:F:789:MET:HE1 | 1:G:790:PHE:N | 2.18 | 0.57 |
| 1:B:284:LEU:N | 1:B:284:LEU:HD22 | 2.19 | 0.57 |
| 1:C:54:GLU:HG3 | 1:C:55:ALA:N | 2.20 | 0.57 |
| 1:D:216:TYR:CD1 | 1:D:220:LEU:HD11 | 2.40 | 0.57 |
| 1:E:171:PHE:CD1 | 1:E:263:PRO:HD2 | 2.40 | 0.57 |
| 1:H:319:MET:HE1 | 1:H:334:ILE:HD11 | 1.85 | 0.57 |
| 1:A:46:GLN:OE1 | 1:A:46:GLN:HA | 2.05 | 0.56 |
| 1:C:434:CYS:HB2 | 1:C:477:PHE:CZ | 2.40 | 0.56 |
| 1:B:56:LEU:CD2 | 1:B:65:GLU:OE2 | 2.52 | 0.56 |
| 1:B:118:LEU:O | 1:B:122:GLU:HG3 | 2.04 | 0.56 |
| 1:B:232:LYS:O | 1:B:236:ILE:HG23 | 2.05 | 0.56 |
| 1:B:407:LYS:HB2 | 1:B:408:PRO:CD | 2.35 | 0.56 |
| 1:C:87:ALA:O | 1:C:88:LEU:HD23 | 2.05 | 0.56 |
| 1:G:339:ARG:NH1 | 1:G:380:ILE:HG13 | 2.19 | 0.56 |
| 1:B:30:LEU:N | 1:B:30:LEU:HD12 | 2.19 | 0.56 |
| 1:B:153:LYS:HD3 | 1:B:154:TYR:CE2 | 2.39 | 0.56 |
| 1:B:162:LEU:HD11 | 1:B:772:TRP:CD2 | 2.40 | 0.56 |
| 1:C:151:LEU:HG | 1:D:261:GLU:OE1 | 2.06 | 0.56 |
| 1:C:278:VAL:HG21 | 1:C:763:LEU:HD23 | 1.87 | 0.56 |
| 1:C:442:LYS:HD2 | 1:C:449:ASP:HB3 | 1.87 | 0.56 |
| 1:D:43:ILE:O | 1:D:44:LEU:HD23 | 2.06 | 0.56 |
| 1:D:69:PHE:CD1 | 1:D:69:PHE:O | 2.59 | 0.56 |
| 1:E:178:LEU:N | 1:E:179:PRO:CD | 2.68 | 0.56 |
| 1:F:46:GLN:CB | 1:F:50:ILE:HG22 | 2.29 | 0.56 |
| 1:F:48:GLN:O | 1:F:51:ALA:O | 2.22 | 0.56 |
| 1:F:66:GLY:O | 1:F:68:PRO:HD2 | 2.05 | 0.56 |
| 1:F:248:ARG:HB3 | 1:F:248:ARG:HH11 | 1.70 | 0.56 |
| 1:F:354:GLU:OE1 | 1:F:366:ARG:NH2 | 2.38 | 0.56 |
| 1:F:390:GLU:OE1 | 1:F:796:ARG:HD2 | 2.04 | 0.56 |
| 1:G:124:LEU:HD23 | 1:G:124:LEU:O | 2.05 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:82:LEU:HD21 | 1:H:85:TRP:CB | 2.31 | 0.56 |
| 1:H:224:THR:HG23 | 1:H:228:GLU:HG3 | 1.86 | 0.56 |
| 1:H:484:GLN:OE1 | 1:H:697:GLY:HA2 | 2.06 | 0.56 |
| 1:A:62:LYS:C | 1:A:64:LEU:H | 2.09 | 0.56 |
| 1:B:56:LEU:CD1 | 1:B:65:GLU:OE2 | 2.53 | 0.56 |
| 1:B:166:LEU:HB3 | 1:B:268:LEU:CD2 | 2.35 | 0.56 |
| 1:B:789:MET:HB3 | 1:C:789:MET:HE1 | 1.86 | 0.56 |
| 1:E:441:GLU:HA | 1:E:441:GLU:OE1 | 2.06 | 0.56 |
| 1:D:462:SER:HB2 | 1:D:507:LEU:HD21 | 1.87 | 0.56 |
| 1:F:85:TRP:CZ3 | 1:F:101:ARG:HG2 | 2.40 | 0.56 |
| 1:G:340:LEU:HB2 | 1:G:366:ARG:HB3 | 1.87 | 0.56 |
| 1:D:54:GLU:CG | 1:D:55:ALA:N | 2.68 | 0.56 |
| 1:D:83:PRO:HB2 | 1:D:84:PRO:CD | 2.34 | 0.56 |
| 1:D:419:ASN:HB3 | 1:D:471:ALA:CB | 2.36 | 0.56 |
| 1:E:125:VAL:CG1 | 1:E:126:ASP:N | 2.69 | 0.56 |
| 1:B:354:GLU:OE1 | 1:B:366:ARG:NH2 | 2.37 | 0.56 |
| 1:E:79:ALA:HB2 | 1:E:88:LEU:CD2 | 2.35 | 0.56 |
| 1:F:83:PRO:HG2 | 1:F:85:TRP:CB | 2.35 | 0.56 |
| 1:G:102:VAL:HG22 | 1:G:109:VAL:HG22 | 1.87 | 0.56 |
| 1:B:583:ARG:HG2 | 1:B:583:ARG:HH11 | 1.71 | 0.56 |
| 1:E:230:GLU:O | 1:E:234:GLU:HG3 | 2.05 | 0.56 |
| 1:G:82:LEU:CB | 1:G:83:PRO:HD3 | 2.34 | 0.56 |
| 1:G:170:LEU:HD13 | 1:G:177:LEU:HD23 | 1.87 | 0.56 |
| 1:A:145:SER:HB3 | 1:A:779:ASP:OD2 | 2.06 | 0.56 |
| 1:C:80:ILE:HD11 | 1:C:121:LYS:HG2 | 1.88 | 0.56 |
| 1:F:371:THR:OG1 | 1:F:373:LYS:HE3 | 2.06 | 0.56 |
| 1:G:220:LEU:H | 1:G:220:LEU:CD1 | 2.19 | 0.56 |
| 1:C:302:GLY:CA | 3:C:902:FRU:O1 | 2.54 | 0.56 |
| 1:E:586:ASN:HB3 | 1:E:671:PRO:O | 2.06 | 0.56 |
| 1:F:83:PRO:CG | 1:F:85:TRP:H | 2.19 | 0.56 |
| 1:F:609:VAL:HG22 | 1:F:645:ILE:HB | 1.88 | 0.56 |
| 1:H:52:GLU:CD | 1:H:53:PHE:N | 2.59 | 0.56 |
| 1:H:224:THR:CG2 | 1:H:228:GLU:HG3 | 2.36 | 0.56 |
| 1:B:48:GLN:HG2 | 1:B:76:THR:O | 2.05 | 0.55 |
| 1:C:216:TYR:CD2 | 1:C:232:LYS:HG2 | 2.41 | 0.55 |
| 1:D:53:PHE:O | 1:D:57:PRO:HG2 | 2.06 | 0.55 |
| 1:E:716:HIS:HB3 | 4:E:913:SO4:O2 | 2.06 | 0.55 |
| 1:F:284:LEU:HD13 | 1:F:337:LEU:HB2 | 1.86 | 0.55 |
| 1:F:420:LEU:C | 1:F:420:LEU:HD13 | 2.27 | 0.55 |
| 1:G:81:VAL:O | 1:G:81:VAL:HG22 | 2.06 | 0.55 |
| 1:C:210:LEU:CD2 | 1:C:253:ILE:HG23 | 2.36 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:54:GLU:CG | 1:F:55:ALA:N | 2.68 | 0.55 |
| 1:D:221:LYS:HD2 | 1:D:222:SER:H | 1.71 | 0.55 |
| 1:G:54:GLU:CG | 1:G:55:ALA:N | 2.69 | 0.55 |
| 1:H:216:TYR:HE2 | 1:H:232:LYS:HG2 | 1.67 | 0.55 |
| 1:A:216:TYR:HD1 | 1:A:216:TYR:O | 1.89 | 0.55 |
| 1:C:56:LEU:HB3 | 1:C:57:PRO:HD3 | 1.88 | 0.55 |
| 1:D:140:GLU:N | 1:D:141:PRO:HD2 | 2.21 | 0.55 |
| 1:E:45:GLN:HB3 | 1:E:80:ILE:HD13 | 1.89 | 0.55 |
| 1:E:243:GLY:HA2 | 1:E:326:GLN:HA | 1.87 | 0.55 |
| 1:G:216:TYR:HD1 | 1:G:216:TYR:O | 1.89 | 0.55 |
| 1:B:407:LYS:HB2 | 1:B:408:PRO:HD2 | 1.88 | 0.55 |
| 1:D:411:ILE:CD1 | 1:D:431:VAL:HB | 2.37 | 0.55 |
| 1:G:171:PHE:HD1 | 1:G:263:PRO:HD2 | 1.71 | 0.55 |
| 1:H:135:LEU:HD12 | 1:H:136:GLU:N | 2.20 | 0.55 |
| 1:H:138:ASP:OD1 | 1:H:141:PRO:HD2 | 2.06 | 0.55 |
| 1:C:491:GLU:H | 1:C:491:GLU:CD | 2.10 | 0.55 |
| 1:F:348:THR:O | 1:F:351:GLU:HG2 | 2.05 | 0.55 |
| 1:H:173:ASP:CB | 1:H:176:SER:CB | 2.85 | 0.55 |
| 1:C:151:LEU:HD12 | 1:D:261:GLU:HG2 | 1.89 | 0.55 |
| 1:F:83:PRO:HG2 | 1:F:85:TRP:O | 2.07 | 0.55 |
| 1:H:304:GLN:HB3 | 3:H:902:FRU:O1 | 2.06 | 0.55 |
| 1:H:583:ARG:HG2 | 1:H:583:ARG:HH11 | 1.72 | 0.55 |
| 1:B:39:LYS:CB | 1:B:104:LEU:CD1 | 2.82 | 0.55 |
| 1:D:207:GLN:OE1 | 1:D:211:ARG:NH2 | 2.40 | 0.55 |
| 1:G:442:LYS:HB2 | 7:G:860:HOH:O | 2.07 | 0.55 |
| 1:H:80:ILE:HG12 | 1:H:121:LYS:HG2 | 1.89 | 0.55 |
| 1:A:298:TYR:HE1 | 1:A:649:MET:CE | 2.19 | 0.55 |
| 1:E:147:PRO:HB2 | 1:F:172:HIS:ND1 | 2.22 | 0.55 |
| 1:H:121:LYS:HE2 | 1:H:450:ILE:HD11 | 1.88 | 0.55 |
| 1:B:59:GLN:HG3 | 1:B:60:THR:H | 1.72 | 0.54 |
| 1:B:793:LEU:CD1 | 1:C:135:LEU:HD22 | 2.30 | 0.54 |
| 1:C:41:LYS:O | 1:C:44:LEU:CD1 | 2.55 | 0.54 |
| 1:D:181:LEU:HD13 | 1:D:206:LEU:HD22 | 1.88 | 0.54 |
| 1:E:30:LEU:HD11 | 1:E:62:LYS:HB3 | 1.88 | 0.54 |
| 1:E:143:ASN:HB3 | 1:E:148:ARG:HH12 | 1.72 | 0.54 |
| 1:G:65:GLU:HB3 | 1:G:68:PRO:HG3 | 1.88 | 0.54 |
| 1:H:564:LEU:HD22 | 1:H:613:ARG:CZ | 2.37 | 0.54 |
| 1:C:216:TYR:CD2 | 1:C:232:LYS:HE2 | 2.43 | 0.54 |
| 1:D:44:LEU:CD1 | 1:D:45:GLN:H | 2.20 | 0.54 |
| 1:F:276:PRO:HG3 | 1:F:326:GLN:CG | 2.37 | 0.54 |
| 1:D:102:VAL:HG23 | 1:D:108:VAL:O | 2.07 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:315:LEU:HG | 1:D:319:MET:HE1 | 1.89 | 0.54 |
| 1:A:43:ILE:HG23 | 1:A:82:LEU:HD23 | 1.89 | 0.54 |
| 1:B:76:THR:O | 1:B:76:THR:HG23 | 2.06 | 0.54 |
| 1:C:295:VAL:HB | 1:C:301:THR:HG21 | 1.89 | 0.54 |
| 1:A:259:LEU:HD21 | 1:A:267:THR:HG22 | 1.89 | 0.54 |
| 1:A:704:VAL:HA | 4:A:912:SO4:O3 | 2.08 | 0.54 |
| 1:B:322:ARG:HD3 | 1:B:763:LEU:HD13 | 1.90 | 0.54 |
| 1:C:69:PHE:HE1 | 1:C:73:LEU:HD11 | 1.72 | 0.54 |
| 1:E:196:LEU:HD11 | 1:E:206:LEU:HD13 | 1.90 | 0.54 |
| 1:G:172:HIS:CE1 | 1:H:147:PRO:HB2 | 2.42 | 0.54 |
| 1:H:609:VAL:HG22 | 1:H:645:ILE:HB | 1.89 | 0.54 |
| 1:D:86:VAL:HG12 | 1:D:102:VAL:CG1 | 2.37 | 0.54 |
| 1:D:216:TYR:CE1 | 1:D:220:LEU:HD21 | 2.38 | 0.54 |
| 1:H:386:TRP:HH2 | 1:H:416:SER:HB3 | 1.72 | 0.54 |
| 1:A:420:LEU:HD13 | 1:A:420:LEU:C | 2.28 | 0.54 |
| 1:D:145:SER:HB3 | 1:D:779:ASP:CG | 2.15 | 0.54 |
| 1:D:160:ASP:O | 1:D:164:ARG:HG3 | 2.08 | 0.54 |
| 1:F:52:GLU:O | 1:F:57:PRO:CD | 2.56 | 0.54 |
| 1:F:162:LEU:HD11 | 1:F:772:TRP:CE2 | 2.43 | 0.54 |
| 1:F:659:ARG:O | 1:F:662:CYS:HB2 | 2.07 | 0.54 |
| 1:C:164:ARG:HD2 | 1:D:262:ALA:HB1 | 1.89 | 0.54 |
| 1:C:400:LEU:C | 1:C:400:LEU:HD12 | 2.28 | 0.54 |
| 1:D:112:LEU:HD22 | 1:D:116:GLU:HB3 | 1.90 | 0.54 |
| 1:E:44:LEU:HD22 | 1:E:124:LEU:HD11 | 1.88 | 0.54 |
| 1:H:480:THR:HB | 1:H:485:GLU:CD | 2.27 | 0.54 |
| 1:B:80:ILE:CG2 | 1:B:87:ALA:HB3 | 2.37 | 0.54 |
| 1:B:232:LYS:O | 1:B:235:GLU:HB2 | 2.07 | 0.54 |
| 1:D:433:GLN:O | 1:D:476:ASP:HB2 | 2.06 | 0.54 |
| 1:F:276:PRO:HG3 | 1:F:326:GLN:CB | 2.38 | 0.54 |
| 1:B:789:MET:CE | 1:C:789:MET:CE | 2.85 | 0.54 |
| 1:C:304:GLN:CB | 3:C:902:FRU:H12 | 2.36 | 0.53 |
| 1:E:784:ARG:O | 1:E:788:GLU:HG3 | 2.08 | 0.53 |
| 1:B:80:ILE:HG22 | 1:B:87:ALA:O | 2.08 | 0.53 |
| 1:B:83:PRO:O | 1:B:85:TRP:N | 2.42 | 0.53 |
| 1:E:143:ASN:HB2 | 1:E:148:ARG:HH12 | 1.74 | 0.53 |
| 1:G:124:LEU:HD23 | 1:G:124:LEU:C | 2.29 | 0.53 |
| 1:H:84:PRO:HB2 | 1:H:85:TRP:CD1 | 2.43 | 0.53 |
| 1:A:48:GLN:H | 1:A:51:ALA:HB3 | 1.73 | 0.53 |
| 1:D:52:GLU:CD | 1:D:53:PHE:N | 2.62 | 0.53 |
| 1:E:290:PHE:O | 1:E:366:ARG:NH1 | 2.39 | 0.53 |
| 1:E:545:LYS:HG2 | 4:E:914:SO4:O4 | 2.08 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:386:TRP:CH2 | 1:G:464:GLN:HG3 | 2.43 | 0.53 |
| 1:A:140:GLU:HB3 | 1:A:141:PRO:HD3 | 1.90 | 0.53 |
| 1:B:437:ALA:O | 1:B:438:HIS:HB2 | 2.09 | 0.53 |
| 1:F:81:VAL:CG1 | 1:F:86:VAL:CG2 | 2.84 | 0.53 |
| 1:G:173:ASP:HB3 | 1:G:176:SER:CB | 2.38 | 0.53 |
| 1:G:181:LEU:HD13 | 1:G:206:LEU:HD22 | 1.90 | 0.53 |
| 1:B:386:TRP:N | 1:B:387:PRO:HD2 | 2.24 | 0.53 |
| 1:E:43:ILE:HG23 | 1:E:44:LEU:H | 1.74 | 0.53 |
| 1:E:216:TYR:CE2 | 1:E:232:LYS:HG2 | 2.43 | 0.53 |
| 1:E:233:PHE:O | 1:E:236:ILE:HG12 | 2.09 | 0.53 |
| 1:E:645:ILE:HG22 | 1:E:646:SER:O | 2.08 | 0.53 |
| 1:A:61:ARG:C | 1:A:63:LYS:N | 2.62 | 0.53 |
| 1:A:156:GLY:HA3 | 1:A:523:ILE:HG13 | 1.91 | 0.53 |
| 1:A:796:ARG:HB2 | 1:A:797:PRO:HD3 | 1.90 | 0.53 |
| 1:B:53:PHE:HA | 1:B:57:PRO:CG | 2.33 | 0.53 |
| 1:C:54:GLU:O | 1:C:58:GLU:CB | 2.56 | 0.53 |
| 1:C:69:PHE:CE1 | 1:C:73:LEU:HD11 | 2.43 | 0.53 |
| 1:D:91:ARG:NH2 | 1:D:94:PRO:HA | 2.24 | 0.53 |
| 1:D:582:ASP:C | 1:D:582:ASP:OD1 | 2.46 | 0.53 |
| 1:G:264:ASP:OD1 | 1:G:267:THR:HB | 2.09 | 0.53 |
| 1:G:564:LEU:HD22 | 1:G:613:ARG:NH2 | 2.24 | 0.53 |
| 1:H:441:GLU:OE1 | 1:H:444:LYS:HD3 | 2.09 | 0.53 |
| 1:B:93:ARG:HB2 | 1:B:96:VAL:HG21 | 1.90 | 0.53 |
| 1:B:173:ASP:HB2 | 1:B:176:SER:HB3 | 1.90 | 0.53 |
| 1:B:226:TYR:HB3 | 1:B:240:ARG:HH21 | 1.73 | 0.53 |
| 1:C:32:LEU:HD21 | 1:C:105:HIS:HA | 1.90 | 0.53 |
| 1:D:538:GLU:OE1 | 1:D:541:ARG:HD3 | 2.09 | 0.53 |
| 1:E:304:GLN:HB2 | 3:E:902:FRU:H12 | 1.90 | 0.53 |
| 1:F:81:VAL:HG12 | 1:F:86:VAL:CA | 2.36 | 0.53 |
| 1:F:437:ALA:C | 1:F:439:ALA:H | 2.12 | 0.53 |
| 1:H:615:LYS:HE2 | 1:H:616:GLU:O | 2.08 | 0.53 |
| 1:H:670:GLN:HG3 | 1:H:670:GLN:O | 2.08 | 0.53 |
| 1:A:33:LEU:O | 1:A:36:VAL:HB | 2.09 | 0.53 |
| 1:A:399:GLU:HG2 | 7:A:860:HOH:O | 2.07 | 0.53 |
| 1:B:44:LEU:O | 1:B:81:VAL:N | 2.42 | 0.53 |
| 1:C:131:GLY:CA | 1:C:134:THR:HG23 | 2.35 | 0.53 |
| 1:E:105:HIS:O | 1:E:106:ALA:CB | 2.57 | 0.53 |
| 1:F:357:TYR:CE2 | 5:F:922:MLA:HC22 | 2.44 | 0.53 |
| 1:G:580:ARG:HD3 | 2:G:901:UDP:O3B | 2.09 | 0.53 |
| 1:G:609:VAL:HG22 | 1:G:645:ILE:HB | 1.90 | 0.53 |
| 1:H:590:LEU:HB2 | 1:H:671:PRO:HG3 | 1.91 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:45:GLN:HE22 | 1:A:80:ILE:HD13 | 1.72 | 0.53 |
| 1:C:410:LEU:HD12 | 1:C:411:ILE:H | 1.73 | 0.53 |
| 1:C:441:GLU:OE1 | 1:C:441:GLU:HA | 2.08 | 0.53 |
| 1:D:103:ASN:CB | 1:D:108:VAL:CG1 | 2.87 | 0.53 |
| 1:G:119:HIS:CE1 | 1:G:129:LYS:CD | 2.68 | 0.53 |
| 1:G:518:ASP:OD1 | 1:G:520:LYS:HG2 | 2.09 | 0.53 |
| 1:H:534:PHE:HB2 | 1:H:535:PRO:CD | 2.39 | 0.53 |
| 1:B:442:LYS:HD2 | 1:B:449:ASP:HB3 | 1.91 | 0.53 |
| 1:E:100:LEU:HD12 | 1:E:100:LEU:O | 2.09 | 0.53 |
| 1:E:230:GLU:OE1 | 1:E:240:ARG:NH1 | 2.42 | 0.53 |
| 1:E:772:TRP:CH2 | 1:E:776:SER:HB3 | 2.44 | 0.53 |
| 1:F:216:TYR:CD1 | 1:F:216:TYR:C | 2.82 | 0.53 |
| 1:F:778:LEU:N | 1:F:778:LEU:CD1 | 2.72 | 0.53 |
| 1:G:226:TYR:CE2 | 1:G:240:ARG:HG2 | 2.43 | 0.53 |
| 1:B:63:LYS:CG | 1:B:64:LEU:H | 2.23 | 0.52 |
| 1:B:216:TYR:CD2 | 1:B:232:LYS:HG2 | 2.43 | 0.52 |
| 1:E:315:LEU:HG | 1:E:319:MET:CE | 2.38 | 0.52 |
| 1:G:173:ASP:HB3 | 1:G:176:SER:HB3 | 1.91 | 0.52 |
| 1:G:477:PHE:HA | 1:G:520:LYS:HB2 | 1.92 | 0.52 |
| 1:A:146:ILE:CG1 | 1:A:147:PRO:CD | 2.86 | 0.52 |
| 1:B:226:TYR:CE2 | 1:B:240:ARG:HG2 | 2.45 | 0.52 |
| 1:D:82:LEU:C | 1:D:82:LEU:CD1 | 2.77 | 0.52 |
| 1:F:54:GLU:O | 1:F:57:PRO:HD2 | 2.10 | 0.52 |
| 1:H:72:LEU:CD2 | 1:H:90:VAL:HG11 | 2.39 | 0.52 |
| 1:H:107:LEU:O | 1:H:108:VAL:HG23 | 2.08 | 0.52 |
| 1:H:131:GLY:O | 1:H:134:THR:HG23 | 2.09 | 0.52 |
| 1:A:304:GLN:HB3 | 3:A:902:FRU:H12 | 1.90 | 0.52 |
| 1:C:233:PHE:HE1 | 1:C:249:VAL:HG11 | 1.75 | 0.52 |
| 1:D:32:LEU:HD21 | 1:D:106:ALA:H | 1.73 | 0.52 |
| 1:F:420:LEU:C | 1:F:420:LEU:CD1 | 2.78 | 0.52 |
| 1:F:784:ARG:O | 1:F:788:GLU:HG3 | 2.10 | 0.52 |
| 1:G:128:VAL:HG22 | 1:G:129:LYS:N | 2.24 | 0.52 |
| 1:G:171:PHE:CD1 | 1:G:263:PRO:HD2 | 2.45 | 0.52 |
| 1:H:435:THR:HG23 | 1:H:475:THR:HB | 1.91 | 0.52 |
| 1:H:779:ASP:OD2 | 1:H:779:ASP:N | 2.41 | 0.52 |
| 1:A:386:TRP:N | 1:A:387:PRO:HD2 | 2.25 | 0.52 |
| 1:G:230:GLU:O | 1:G:234:GLU:HG3 | 2.09 | 0.52 |
| 1:H:39:LYS:HD3 | 1:H:39:LYS:C | 2.30 | 0.52 |
| 1:H:187:HIS:NE2 | 1:H:276:PRO:O | 2.41 | 0.52 |
| 1:A:298:TYR:CE1 | 1:A:649:MET:CE | 2.92 | 0.52 |
| 1:D:45:GLN:HA | 1:D:45:GLN:NE2 | 2.19 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:209:THR:HG23 | 1:D:236:ILE:HD12 | 1.92 | 0.52 |
| 1:D:479:ILE:HD11 | 1:D:762:LEU:HD13 | 1.91 | 0.52 |
| 1:D:616:GLU:HA | 1:D:616:GLU:OE1 | 2.09 | 0.52 |
| 1:E:79:ALA:CB | 1:E:88:LEU:CD2 | 2.87 | 0.52 |
| 1:E:81:VAL:HG13 | 1:E:86:VAL:CG2 | 2.40 | 0.52 |
| 1:H:49:ILE:O | 1:H:53:PHE:CB | 2.58 | 0.52 |
| 1:B:30:LEU:O | 1:B:33:LEU:HB2 | 2.08 | 0.52 |
| 1:B:102:VAL:CB | 1:B:109:VAL:CB | 2.88 | 0.52 |
| 1:C:581:LEU:HD11 | 1:C:625:GLU:HG3 | 1.92 | 0.52 |
| 1:F:216:TYR:CD2 | 1:F:232:LYS:HG2 | 2.44 | 0.52 |
| 1:F:233:PHE:HD1 | 1:F:238:LEU:CB | 2.22 | 0.52 |
| 1:F:417:ASP:O | 1:F:421:VAL:HG23 | 2.09 | 0.52 |
| 1:H:242:TRP:CB | 1:H:249:VAL:HG13 | 2.40 | 0.52 |
| 1:A:35:ARG:NH2 | 1:A:102:VAL:H | 2.07 | 0.52 |
| 1:A:140:GLU:N | 1:A:141:PRO:HD2 | 2.25 | 0.52 |
| 1:B:54:GLU:CG | 1:B:55:ALA:N | 2.68 | 0.52 |
| 1:C:354:GLU:OE1 | 1:C:366:ARG:NH2 | 2.43 | 0.52 |
| 1:D:333:ARG:HG2 | 1:D:333:ARG:HH11 | 1.75 | 0.52 |
| 1:E:35:ARG:CZ | 1:E:35:ARG:HB2 | 2.39 | 0.52 |
| 1:E:73:LEU:HD13 | 1:E:73:LEU:O | 2.09 | 0.52 |
| 1:G:479:ILE:CD1 | 1:G:762:LEU:HD13 | 2.39 | 0.52 |
| 1:A:48:GLN:H | 1:A:51:ALA:CB | 2.23 | 0.52 |
| 1:A:572:LYS:CE | 1:A:605:ASN:OD1 | 2.57 | 0.52 |
| 1:B:586:ASN:HB3 | 1:B:671:PRO:O | 2.09 | 0.52 |
| 1:C:47:ASN:O | 1:C:51:ALA:N | 2.39 | 0.52 |
| 1:C:72:LEU:C | 1:C:72:LEU:CD1 | 2.76 | 0.52 |
| 1:E:220:LEU:HD12 | 1:E:220:LEU:N | 2.24 | 0.52 |
| 1:H:564:LEU:HD22 | 1:H:613:ARG:NH2 | 2.24 | 0.52 |
| 1:H:566:VAL:O | 1:H:640:GLY:HA2 | 2.09 | 0.52 |
| 1:A:79:ALA:HB2 | 1:A:88:LEU:CD2 | 2.40 | 0.52 |
| 1:C:50:ILE:C | 1:C:50:ILE:HD12 | 2.30 | 0.52 |
| 1:D:796:ARG:HB2 | 1:D:797:PRO:HD3 | 1.92 | 0.52 |
| 1:F:103:ASN:HB3 | 1:F:106:ALA:O | 2.10 | 0.52 |
| 1:F:224:THR:HG22 | 1:F:228:GLU:HG3 | 1.92 | 0.52 |
| 1:F:796:ARG:HB2 | 1:F:797:PRO:HD3 | 1.92 | 0.52 |
| 1:H:560:ASN:OD1 | 1:H:562:GLU:HB2 | 2.09 | 0.52 |
| 1:A:35:ARG:HH21 | 1:A:102:VAL:CB | 2.21 | 0.52 |
| 1:B:209:THR:HG23 | 1:B:236:ILE:HG13 | 1.92 | 0.52 |
| 1:C:50:ILE:HD12 | 1:C:54:GLU:HG2 | 1.90 | 0.52 |
| 1:D:125:VAL:HG13 | 1:D:126:ASP:H | 1.75 | 0.52 |
| 1:F:524:VAL:HG12 | 1:F:758:TYR:CD2 | 2.45 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:103:ASN:HB3 | 1:G:106:ALA:O | 2.09 | 0.52 |
| 1:A:434:CYS:HB2 | 1:A:477:PHE:CZ | 2.44 | 0.51 |
| 1:A:437:ALA:O | 1:A:438:HIS:HB2 | 2.11 | 0.51 |
| 1:A:472:MET:HG2 | 1:A:514:ILE:HD13 | 1.91 | 0.51 |
| 1:B:55:ALA:O | 1:B:59:GLN:CB | 2.52 | 0.51 |
| 1:C:226:TYR:O | 1:C:230:GLU:HB2 | 2.10 | 0.51 |
| 1:C:535:PRO:HD2 | 1:C:538:GLU:OE2 | 2.09 | 0.51 |
| 1:D:72:LEU:C | 1:D:72:LEU:HD13 | 2.30 | 0.51 |
| 1:D:411:ILE:HG13 | 1:D:431:VAL:HG11 | 1.92 | 0.51 |
| 1:F:284:LEU:HD22 | 1:F:284:LEU:N | 2.25 | 0.51 |
| 1:H:125:VAL:HG12 | 1:H:126:ASP:N | 2.24 | 0.51 |
| 1:H:553:LEU:HG | 1:H:645:ILE:HD13 | 1.91 | 0.51 |
| 1:C:86:VAL:HG12 | 1:C:102:VAL:HG23 | 1.92 | 0.51 |
| 1:F:143:ASN:HB3 | 1:F:148:ARG:HH22 | 1.73 | 0.51 |
| 1:H:164:ARG:CG | 1:H:164:ARG:NH1 | 2.71 | 0.51 |
| 1:H:216:TYR:CE1 | 1:H:220:LEU:CD1 | 2.89 | 0.51 |
| 1:A:54:GLU:CG | 1:A:55:ALA:N | 2.63 | 0.51 |
| 1:D:82:LEU:HD12 | 1:D:85:TRP:H | 1.74 | 0.51 |
| 1:E:796:ARG:O | 1:E:800:GLN:HG3 | 2.11 | 0.51 |
| 1:G:243:GLY:HA2 | 1:G:326:GLN:HA | 1.92 | 0.51 |
| 1:H:72:LEU:HD13 | 1:H:72:LEU:C | 2.31 | 0.51 |
| 1:A:36:VAL:O | 1:A:39:LYS:HG3 | 2.09 | 0.51 |
| 1:A:147:PRO:HB2 | 1:B:172:HIS:ND1 | 2.25 | 0.51 |
| 1:C:770:GLY:O | 1:C:773:LYS:HB2 | 2.10 | 0.51 |
| 1:D:216:TYR:HD1 | 1:D:216:TYR:C | 2.13 | 0.51 |
| 1:D:534:PHE:HB2 | 1:D:535:PRO:HD2 | 1.92 | 0.51 |
| 1:A:670:GLN:HG3 | 1:A:670:GLN:O | 2.09 | 0.51 |
| 1:B:224:THR:CG2 | 1:B:228:GLU:HG3 | 2.40 | 0.51 |
| 1:C:105:HIS:O | 1:C:106:ALA:CB | 2.58 | 0.51 |
| 1:E:606:LEU:HD23 | 1:E:642:PHE:CD1 | 2.45 | 0.51 |
| 1:F:32:LEU:O | 1:F:32:LEU:HD13 | 2.10 | 0.51 |
| 1:F:437:ALA:O | 1:F:438:HIS:HB2 | 2.09 | 0.51 |
| 1:B:92:PRO:HG2 | 1:B:96:VAL:CG2 | 2.40 | 0.51 |
| 1:B:92:PRO:HD2 | 1:B:96:VAL:O | 2.10 | 0.51 |
| 1:B:581:LEU:CD1 | 1:B:625:GLU:HG2 | 2.40 | 0.51 |
| 1:C:54:GLU:OE2 | 1:C:55:ALA:HA | 2.10 | 0.51 |
| 1:E:411:ILE:HG13 | 1:E:431:VAL:CG1 | 2.39 | 0.51 |
| 1:F:534:PHE:HB2 | 1:F:535:PRO:HD2 | 1.92 | 0.51 |
| 1:A:105:HIS:O | 1:A:106:ALA:HB2 | 2.10 | 0.51 |
| 1:B:789:MET:HE3 | 1:C:789:MET:CE | 2.41 | 0.51 |
| 1:C:390:GLU:OE1 | 1:C:796:ARG:HD2 | 2.10 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:82:LEU:HB2 | 1:D:83:PRO:HD3 | 1.92 | 0.51 |
| 1:F:46:GLN:HB3 | 1:F:50:ILE:CG2 | 2.32 | 0.51 |
| 1:F:216:TYR:C | 1:F:216:TYR:HD1 | 2.14 | 0.51 |
| 1:G:692:PHE:N | 1:G:692:PHE:CD1 | 2.79 | 0.51 |
| 1:H:146:ILE:HG13 | 1:H:147:PRO:CD | 2.35 | 0.51 |
| 1:H:468:ASP:O | 1:H:472:MET:HB2 | 2.11 | 0.51 |
| 1:C:173:ASP:OD2 | 1:C:176:SER:HB2 | 2.11 | 0.51 |
| 1:D:82:LEU:HB2 | 1:D:83:PRO:CD | 2.40 | 0.51 |
| 1:F:65:GLU:HB3 | 1:F:70:PHE:HB2 | 1.93 | 0.51 |
| 1:F:226:TYR:CE2 | 1:F:240:ARG:HG2 | 2.45 | 0.51 |
| 1:G:419:ASN:HB3 | 1:G:471:ALA:HB1 | 1.91 | 0.51 |
| 1:H:322:ARG:HD2 | 1:H:763:LEU:HD13 | 1.93 | 0.51 |
| 1:A:59:GLN:HG3 | 1:A:60:THR:H | 1.74 | 0.51 |
| 1:A:682:VAL:HG13 | 1:A:749:ILE:HD12 | 1.93 | 0.51 |
| 1:E:173:ASP:HB3 | 1:E:176:SER:CB | 2.40 | 0.51 |
| 1:F:778:LEU:CD1 | 1:F:778:LEU:H | 2.23 | 0.51 |
| 1:B:445:TYR:O | 1:B:448:SER:HB3 | 2.11 | 0.51 |
| 1:C:43:ILE:O | 1:C:44:LEU:CG | 2.59 | 0.51 |
| 1:C:514:ILE:HG13 | 1:C:515:ASP:N | 2.26 | 0.51 |
| 1:D:80:ILE:HD12 | 1:D:80:ILE:N | 2.26 | 0.51 |
| 1:D:354:GLU:OE1 | 1:D:366:ARG:NH2 | 2.44 | 0.51 |
| 1:E:176:SER:O | 1:E:179:PRO:HD2 | 2.11 | 0.51 |
| 1:F:155:ILE:HD13 | 1:F:516:VAL:HG13 | 1.93 | 0.51 |
| 1:G:542:ARG:CD | 1:G:659:ARG:HD2 | 2.41 | 0.51 |
| 1:H:319:MET:O | 1:H:323:ILE:HG13 | 2.11 | 0.51 |
| 1:C:50:ILE:HD12 | 1:C:50:ILE:O | 2.10 | 0.50 |
| 1:E:135:LEU:HD11 | 1:H:789:MET:HG3 | 1.93 | 0.50 |
| 1:F:83:PRO:HD2 | 1:F:85:TRP:O | 2.11 | 0.50 |
| 1:F:233:PHE:CD1 | 1:F:238:LEU:CD1 | 2.95 | 0.50 |
| 1:G:31:ALA:HB3 | 1:G:35:ARG:NH2 | 2.26 | 0.50 |
| 1:G:82:LEU:CG | 1:G:83:PRO:HD3 | 2.38 | 0.50 |
| 1:H:72:LEU:HD22 | 1:H:90:VAL:HG11 | 1.92 | 0.50 |
| 1:D:82:LEU:HG | 1:D:120:PHE:CE1 | 2.47 | 0.50 |
| 1:G:437:ALA:C | 1:G:439:ALA:H | 2.13 | 0.50 |
| 1:G:682:VAL:HG13 | 1:G:749:ILE:HD12 | 1.92 | 0.50 |
| 1:A:52:GLU:C | 1:A:52:GLU:CD | 2.70 | 0.50 |
| 1:A:279:PHE:HB2 | 1:A:409:ASP:OD2 | 2.11 | 0.50 |
| 1:C:772:TRP:CZ2 | 1:C:776:SER:HB3 | 2.46 | 0.50 |
| 1:D:419:ASN:OD1 | 1:D:435:THR:HB | 2.12 | 0.50 |
| 1:D:779:ASP:O | 1:D:779:ASP:OD1 | 2.30 | 0.50 |
| 1:E:304:GLN:CA | 3:E:902:FRU:H12 | 2.40 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:437:ALA:O | 1:E:438:HIS:HB2 | 2.11 | 0.50 |
| 1:F:458:LYS:HD3 | 1:F:459:TYR:CE2 | 2.46 | 0.50 |
| 1:G:52:GLU:CD | 1:G:53:PHE:N | 2.65 | 0.50 |
| 1:G:670:GLN:HG3 | 1:G:670:GLN:O | 2.11 | 0.50 |
| 1:H:46:GLN:O | 1:H:78:GLU:HA | 2.11 | 0.50 |
| 1:A:339:ARG:HD2 | 1:A:369:PHE:CE2 | 2.46 | 0.50 |
| 1:A:789:MET:HB3 | 1:D:789:MET:HE2 | 1.89 | 0.50 |
| 1:D:49:ILE:O | 1:D:53:PHE:CB | 2.59 | 0.50 |
| 1:F:575:LEU:HD21 | 1:F:724:LEU:HD13 | 1.92 | 0.50 |
| 1:B:91:ARG:HD2 | 1:B:97:TRP:CZ2 | 2.46 | 0.50 |
| 1:C:86:VAL:CG1 | 1:C:102:VAL:CG2 | 2.88 | 0.50 |
| 1:C:582:ASP:HB2 | 1:C:621:GLU:OE1 | 2.12 | 0.50 |
| 1:D:35:ARG:O | 1:D:104:LEU:HD22 | 2.12 | 0.50 |
| 1:G:80:ILE:HD12 | 1:G:80:ILE:N | 2.26 | 0.50 |
| 1:G:284:LEU:HD13 | 1:G:337:LEU:HB2 | 1.93 | 0.50 |
| 1:A:160:ASP:O | 1:A:164:ARG:HG3 | 2.12 | 0.50 |
| 1:B:80:ILE:HG23 | 1:B:87:ALA:HB3 | 1.94 | 0.50 |
| 1:C:772:TRP:CE2 | 1:C:776:SER:HB3 | 2.46 | 0.50 |
| 1:D:230:GLU:OE1 | 1:D:240:ARG:NH1 | 2.45 | 0.50 |
| 1:H:146:ILE:CG1 | 1:H:147:PRO:HD2 | 2.33 | 0.50 |
| 1:H:173:ASP:HB3 | 1:H:176:SER:H | 1.76 | 0.50 |
| 1:A:566:VAL:O | 1:A:640:GLY:HA2 | 2.12 | 0.50 |
| 1:B:284:LEU:N | 1:B:284:LEU:CD2 | 2.75 | 0.50 |
| 1:B:789:MET:HB3 | 1:C:789:MET:HE2 | 1.93 | 0.50 |
| 1:D:419:ASN:HB3 | 1:D:471:ALA:HB1 | 1.92 | 0.50 |
| 1:F:415:TYR:CG | 1:F:416:SER:N | 2.80 | 0.50 |
| 1:H:411:ILE:HG13 | 1:H:431:VAL:HG11 | 1.92 | 0.50 |
| 1:A:789:MET:CB | 1:D:789:MET:HE3 | 2.41 | 0.50 |
| 1:B:216:TYR:HE1 | 1:B:220:LEU:HD11 | 1.74 | 0.50 |
| 1:B:587:LEU:HD13 | 1:B:608:VAL:HG13 | 1.94 | 0.50 |
| 1:B:587:LEU:HD13 | 1:B:608:VAL:CG1 | 2.42 | 0.50 |
| 1:C:553:LEU:HG | 1:C:645:ILE:HD13 | 1.94 | 0.50 |
| 1:D:55:ALA:O | 1:D:59:GLN:CB | 2.56 | 0.50 |
| 1:D:437:ALA:C | 1:D:439:ALA:H | 2.14 | 0.50 |
| 1:E:789:MET:CB | 1:H:789:MET:CE | 2.73 | 0.50 |
| 1:G:35:ARG:HD3 | 1:G:102:VAL:CG1 | 2.41 | 0.50 |
| 1:H:173:ASP:HB3 | 1:H:176:SER:HB2 | 1.93 | 0.50 |
| 1:H:386:TRP:N | 1:H:387:PRO:HD2 | 2.27 | 0.50 |
| 1:D:41:LYS:HE3 | 1:D:54:GLU:CG | 2.42 | 0.50 |
| 1:B:72:LEU:O | 1:B:76:THR:HB | 2.11 | 0.49 |
| 1:B:578:MET:HG3 | 1:B:609:VAL:CG1 | 2.41 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:178:LEU:HB2 | 1:C:179:PRO:HD3 | 1.92 | 0.49 |
| 1:D:449:ASP:O | 1:D:504:LEU:HD23 | 2.12 | 0.49 |
| 1:E:259:LEU:O | 1:E:263:PRO:HG3 | 2.12 | 0.49 |
| 1:F:230:GLU:OE1 | 1:F:240:ARG:NH1 | 2.46 | 0.49 |
| 1:F:442:LYS:HD2 | 1:F:449:ASP:HB3 | 1.93 | 0.49 |
| 1:C:668:PHE:HB2 | 1:C:689:LEU:HD21 | 1.94 | 0.49 |
| 1:D:103:ASN:CB | 1:D:106:ALA:CB | 2.89 | 0.49 |
| 1:D:333:ARG:HG2 | 1:D:333:ARG:NH1 | 2.27 | 0.49 |
| 1:D:452:TRP:HB3 | 1:D:504:LEU:HD22 | 1.95 | 0.49 |
| 1:E:154:TYR:OH | 1:F:262:ALA:HB3 | 2.11 | 0.49 |
| 1:E:407:LYS:HB2 | 1:E:408:PRO:HD2 | 1.93 | 0.49 |
| 1:H:34:SER:HG | 1:H:55:ALA:HB1 | 1.78 | 0.49 |
| 1:A:35:ARG:HH12 | 1:A:86:VAL:H | 1.60 | 0.49 |
| 1:D:216:TYR:CD1 | 1:D:216:TYR:C | 2.85 | 0.49 |
| 1:D:437:ALA:O | 1:D:438:HIS:HB2 | 2.13 | 0.49 |
| 1:E:91:ARG:HD2 | 1:E:97:TRP:CZ2 | 2.48 | 0.49 |
| 1:E:177:LEU:C | 1:E:179:PRO:HD2 | 2.32 | 0.49 |
| 1:F:169:LYS:HG2 | 1:F:176:SER:OG | 2.12 | 0.49 |
| 1:G:81:VAL:CB | 1:G:86:VAL:HG23 | 2.27 | 0.49 |
| 1:A:83:PRO:CB | 1:A:84:PRO:HD3 | 2.42 | 0.49 |
| 1:A:617:SER:O | 1:A:623:LYS:HD2 | 2.12 | 0.49 |
| 1:F:83:PRO:CB | 1:F:85:TRP:H | 2.24 | 0.49 |
| 1:F:668:PHE:HB2 | 1:F:689:LEU:HD23 | 1.95 | 0.49 |
| 1:H:32:LEU:HD22 | 1:H:35:ARG:HH12 | 1.71 | 0.49 |
| 1:B:52:GLU:O | 1:B:57:PRO:CD | 2.60 | 0.49 |
| 1:C:590:LEU:HB2 | 1:C:671:PRO:HG3 | 1.94 | 0.49 |
| 1:D:219:GLU:OE1 | 1:D:219:GLU:HA | 2.12 | 0.49 |
| 1:D:242:TRP:O | 1:D:252:MET:HG3 | 2.12 | 0.49 |
| 1:E:61:ARG:C | 1:E:63:LYS:H | 2.15 | 0.49 |
| 1:E:136:GLU:HG2 | 1:E:511:VAL:HG23 | 1.94 | 0.49 |
| 1:F:472:MET:HG2 | 1:F:514:ILE:HD13 | 1.94 | 0.49 |
| 1:A:56:LEU:HB3 | 1:A:57:PRO:CD | 2.36 | 0.49 |
| 1:A:137:LEU:HD11 | 1:A:790:PHE:CE1 | 2.47 | 0.49 |
| 1:B:52:GLU:O | 1:B:57:PRO:HD3 | 2.13 | 0.49 |
| 1:C:43:ILE:O | 1:C:43:ILE:HG22 | 2.11 | 0.49 |
| 1:D:756:GLN:HG3 | 1:D:757:ILE:HG13 | 1.93 | 0.49 |
| 1:H:46:GLN:CG | 1:H:79:ALA:HB3 | 2.41 | 0.49 |
| 1:H:207:GLN:HE21 | 1:H:211:ARG:NH2 | 2.11 | 0.49 |
| 1:A:166:LEU:HB3 | 1:A:268:LEU:HD21 | 1.93 | 0.49 |
| 1:A:249:VAL:O | 1:A:253:ILE:HG13 | 2.12 | 0.49 |
| 1:B:46:GLN:HB2 | 1:B:50:ILE:CB | 2.34 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:670:GLN:HG3 | 1:B:670:GLN:O | 2.12 | 0.49 |
| 1:G:338:THR:CG2 | 1:G:366:ARG:HG2 | 2.38 | 0.49 |
| 1:G:410:LEU:HD12 | 1:G:411:ILE:H | 1.75 | 0.49 |
| 1:G:534:PHE:HB2 | 1:G:535:PRO:HD2 | 1.95 | 0.49 |
| 1:G:633:ILE:HA | 1:G:638:LEU:HD12 | 1.94 | 0.49 |
| 1:B:36:VAL:CG1 | 1:B:37:GLU:N | 2.75 | 0.49 |
| 1:B:259:LEU:O | 1:B:263:PRO:HG3 | 2.13 | 0.49 |
| 1:D:220:LEU:N | 1:D:220:LEU:CD1 | 2.75 | 0.49 |
| 1:G:427:HIS:HE1 | 1:G:788:GLU:OE1 | 1.95 | 0.49 |
| 1:H:480:THR:HB | 1:H:485:GLU:OE1 | 2.12 | 0.49 |
| 1:A:61:ARG:C | 1:A:63:LYS:H | 2.16 | 0.49 |
| 1:B:189:HIS:ND1 | 1:B:330:ILE:HD13 | 2.27 | 0.49 |
| 1:C:32:LEU:CD2 | 1:C:105:HIS:HA | 2.42 | 0.49 |
| 1:C:681:VAL:O | 1:C:685:MET:HG3 | 2.13 | 0.49 |
| 1:D:210:LEU:CD2 | 1:D:253:ILE:HG23 | 2.41 | 0.49 |
| 1:D:312:VAL:HG23 | 1:D:313:ARG:N | 2.28 | 0.49 |
| 1:E:451:TYR:HB3 | 1:E:454:LYS:HE2 | 1.95 | 0.49 |
| 1:G:140:GLU:N | 1:G:141:PRO:HD2 | 2.28 | 0.49 |
| 1:A:435:THR:HG23 | 1:A:475:THR:HB | 1.94 | 0.48 |
| 1:B:83:PRO:CB | 1:B:84:PRO:CD | 2.86 | 0.48 |
| 1:D:468:ASP:O | 1:D:472:MET:HB2 | 2.12 | 0.48 |
| 1:E:79:ALA:CB | 1:E:88:LEU:HD23 | 2.43 | 0.48 |
| 1:G:178:LEU:HD23 | 1:G:203:LEU:HG | 1.95 | 0.48 |
| 1:H:376:VAL:HG21 | 1:H:388:TYR:CE2 | 2.48 | 0.48 |
| 1:A:230:GLU:OE1 | 1:A:240:ARG:NH1 | 2.46 | 0.48 |
| 1:A:449:ASP:OD1 | 1:A:450:ILE:N | 2.46 | 0.48 |
| 1:B:83:PRO:O | 1:B:84:PRO:C | 2.52 | 0.48 |
| 1:B:437:ALA:C | 1:B:439:ALA:H | 2.17 | 0.48 |
| 1:E:147:PRO:CB | 1:F:172:HIS:ND1 | 2.75 | 0.48 |
| 1:C:101:ARG:HB3 | 1:C:112:LEU:HD22 | 1.93 | 0.48 |
| 1:D:284:LEU:N | 1:D:284:LEU:CD2 | 2.76 | 0.48 |
| 1:F:86:VAL:HB | 1:F:104:LEU:HD21 | 1.94 | 0.48 |
| 1:G:484:GLN:NE2 | 1:G:488:GLY:HA2 | 2.28 | 0.48 |
| 1:H:48:GLN:HG2 | 1:H:76:THR:O | 2.13 | 0.48 |
| 1:G:82:LEU:CD1 | 1:G:83:PRO:CD | 2.68 | 0.48 |
| 1:H:415:TYR:CG | 1:H:416:SER:N | 2.81 | 0.48 |
| 1:A:143:ASN:HB3 | 1:A:148:ARG:HH22 | 1.77 | 0.48 |
| 1:A:789:MET:HE3 | 1:D:789:MET:CB | 2.41 | 0.48 |
| 1:B:43:ILE:O | 1:B:43:ILE:HD13 | 2.13 | 0.48 |
| 1:C:72:LEU:HD13 | 1:C:72:LEU:O | 2.12 | 0.48 |
| 1:C:242:TRP:HA | 1:C:252:MET:CE | 2.43 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:319:MET:HE1 | 1:C:334:ILE:HD11 | 1.95 | 0.48 |
| 1:C:420:LEU:C | 1:C:420:LEU:HD13 | 2.34 | 0.48 |
| 1:E:53:PHE:HA | 1:E:57:PRO:CG | 2.44 | 0.48 |
| 1:E:434:CYS:HB2 | 1:E:477:PHE:CZ | 2.48 | 0.48 |
| 1:F:80:ILE:H | 1:F:80:ILE:HD12 | 1.79 | 0.48 |
| 1:F:176:SER:O | 1:F:179:PRO:HD2 | 2.13 | 0.48 |
| 1:H:18:LEU:HD12 | 1:H:109:VAL:CG1 | 2.39 | 0.48 |
| 1:A:65:GLU:C | 1:A:67:GLY:H | 2.16 | 0.48 |
| 1:A:446:PRO:HA | 7:A:869:HOH:O | 2.14 | 0.48 |
| 1:B:140:GLU:N | 1:B:141:PRO:CD | 2.75 | 0.48 |
| 1:E:63:LYS:C | 1:E:65:GLU:H | 2.17 | 0.48 |
| 1:E:590:LEU:HB2 | 1:E:671:PRO:HG3 | 1.96 | 0.48 |
| 1:G:54:GLU:HG3 | 1:G:55:ALA:H | 1.77 | 0.48 |
| 1:G:172:HIS:ND1 | 1:H:147:PRO:CB | 2.76 | 0.48 |
| 1:C:407:LYS:HB2 | 1:C:408:PRO:HD2 | 1.95 | 0.48 |
| 1:D:72:LEU:HD13 | 1:D:72:LEU:O | 2.14 | 0.48 |
| 1:E:580:ARG:HD3 | 2:E:901:UDP:O3B | 2.14 | 0.48 |
| 1:F:547:HIS:O | 1:F:551:GLU:HG2 | 2.14 | 0.48 |
| 1:G:48:GLN:HE21 | 1:G:48:GLN:C | 2.17 | 0.48 |
| 1:H:216:TYR:CD2 | 1:H:232:LYS:HG2 | 2.48 | 0.48 |
| 1:A:47:ASN:HB2 | 1:A:50:ILE:HB | 1.95 | 0.48 |
| 1:A:65:GLU:HA | 1:A:65:GLU:OE2 | 2.13 | 0.48 |
| 1:A:264:ASP:OD1 | 1:A:267:THR:CB | 2.61 | 0.48 |
| 1:B:135:LEU:HD21 | 1:C:789:MET:HG3 | 1.95 | 0.48 |
| 1:C:178:LEU:N | 1:C:179:PRO:CD | 2.76 | 0.48 |
| 1:C:458:LYS:HD3 | 1:C:459:TYR:CE2 | 2.48 | 0.48 |
| 1:D:43:ILE:O | 1:D:44:LEU:CB | 2.61 | 0.48 |
| 1:E:704:VAL:H | 1:E:708:SER:HB2 | 1.79 | 0.48 |
| 1:A:35:ARG:NH2 | 1:A:102:VAL:CA | 2.76 | 0.48 |
| 1:A:572:LYS:HE2 | 1:A:605:ASN:OD1 | 2.13 | 0.48 |
| 1:B:452:TRP:CG | 1:B:453:LYS:N | 2.81 | 0.48 |
| 1:C:261:GLU:HG2 | 1:D:151:LEU:HD12 | 1.96 | 0.48 |
| 1:C:386:TRP:N | 1:C:387:PRO:HD2 | 2.29 | 0.48 |
| 1:D:158:GLY:HA3 | 1:D:519:PRO:O | 2.13 | 0.48 |
| 1:E:182:LYS:HE2 | 1:E:186:LEU:CD1 | 2.44 | 0.48 |
| 1:E:518:ASP:OD1 | 1:E:520:LYS:HG2 | 2.14 | 0.48 |
| 1:F:444:LYS:O | 1:F:446:PRO:HD3 | 2.14 | 0.48 |
| 1:H:438:HIS:O | 1:H:439:ALA:HB2 | 2.14 | 0.48 |
| 1:A:415:TYR:CG | 1:A:416:SER:N | 2.81 | 0.48 |
| 1:A:536:TYR:HA | 1:A:659:ARG:HG2 | 1.95 | 0.48 |
| 1:A:575:LEU:HD21 | 1:A:724:LEU:HD13 | 1.96 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:48:GLN:O | 1:B:52:GLU:HB3 | 2.14 | 0.48 |
| 1:B:93:ARG:O | 1:B:96:VAL:HG22 | 2.14 | 0.48 |
| 1:B:103:ASN:N | 1:B:103:ASN:ND2 | 2.62 | 0.48 |
| 1:B:206:LEU:HD11 | 1:B:210:LEU:HD11 | 1.95 | 0.48 |
| 1:D:80:ILE:HD13 | 1:D:117:PHE:CZ | 2.49 | 0.48 |
| 1:D:91:ARG:HD2 | 1:D:97:TRP:CZ2 | 2.49 | 0.48 |
| 1:D:670:GLN:HG3 | 1:D:670:GLN:O | 2.13 | 0.48 |
| 1:E:181:LEU:HD13 | 1:E:206:LEU:HD22 | 1.95 | 0.48 |
| 1:F:80:ILE:HD12 | 1:F:80:ILE:N | 2.29 | 0.48 |
| 1:G:207:GLN:OE1 | 1:G:211:ARG:NH2 | 2.47 | 0.48 |
| 1:H:17:ARG:CZ | 1:H:72:LEU:HD23 | 2.43 | 0.48 |
| 1:H:514:ILE:HG13 | 1:H:515:ASP:N | 2.29 | 0.48 |
| 1:A:41:LYS:HE3 | 1:A:54:GLU:OE1 | 2.14 | 0.47 |
| 1:A:419:ASN:OD1 | 1:A:435:THR:HB | 2.14 | 0.47 |
| 1:B:30:LEU:HD22 | 7:B:861:HOH:O | 2.13 | 0.47 |
| 1:B:319:MET:O | 1:B:323:ILE:HG13 | 2.13 | 0.47 |
| 1:C:410:LEU:HD12 | 1:C:411:ILE:N | 2.29 | 0.47 |
| 1:E:415:TYR:CG | 1:E:416:SER:N | 2.82 | 0.47 |
| 1:F:190:GLN:NE2 | 1:F:405:ASN:HB3 | 2.29 | 0.47 |
| 1:G:72:LEU:HD13 | 1:G:72:LEU:C | 2.34 | 0.47 |
| 1:H:43:ILE:O | 1:H:43:ILE:CG2 | 2.61 | 0.47 |
| 1:H:87:ALA:HA | 1:H:100:LEU:O | 2.14 | 0.47 |
| 1:B:233:PHE:HD1 | 1:B:238:LEU:HB2 | 1.79 | 0.47 |
| 1:B:580:ARG:NH1 | 2:B:901:UDP:O2B | 2.48 | 0.47 |
| 1:C:101:ARG:HG2 | 1:C:110:GLU:HB3 | 1.95 | 0.47 |
| 1:F:233:PHE:CE1 | 1:F:238:LEU:CD1 | 2.97 | 0.47 |
| 1:G:262:ALA:HB1 | 1:H:164:ARG:HD2 | 1.95 | 0.47 |
| 1:H:390:GLU:OE1 | 1:H:796:ARG:HD2 | 2.14 | 0.47 |
| 1:B:82:LEU:C | 1:B:83:PRO:O | 2.52 | 0.47 |
| 1:D:411:ILE:HD12 | 1:D:431:VAL:HB | 1.95 | 0.47 |
| 1:F:39:LYS:O | 1:F:39:LYS:HD3 | 2.14 | 0.47 |
| 1:F:407:LYS:HB2 | 1:F:408:PRO:HD2 | 1.95 | 0.47 |
| 1:A:276:PRO:HG3 | 1:A:326:GLN:CB | 2.45 | 0.47 |
| 1:B:673:LEU:HD23 | 1:B:714:PRO:HB2 | 1.96 | 0.47 |
| 1:C:52:GLU:C | 1:C:52:GLU:CD | 2.73 | 0.47 |
| 1:D:170:LEU:HD23 | 1:D:176:SER:OG | 2.15 | 0.47 |
| 1:E:302:GLY:CA | 3:E:902:FRU:O1 | 2.63 | 0.47 |
| 1:E:437:ALA:C | 1:E:439:ALA:H | 2.16 | 0.47 |
| 1:E:789:MET:HG3 | 1:H:135:LEU:CD2 | 2.39 | 0.47 |
| 1:F:56:LEU:N | 1:F:57:PRO:HD3 | 2.30 | 0.47 |
| 1:F:435:THR:HG23 | 1:F:475:THR:HB | 1.95 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:60:THR:OG1 | 1:H:61:ARG:N | 2.47 | 0.47 |
| 1:H:82:LEU:HD22 | 1:H:120:PHE:HZ | 1.78 | 0.47 |
| 1:H:178:LEU:HB2 | 1:H:179:PRO:HD3 | 1.96 | 0.47 |
| 1:A:140:GLU:HB3 | 1:A:141:PRO:CD | 2.44 | 0.47 |
| 1:B:756:GLN:HG3 | 1:B:757:ILE:H | 1.80 | 0.47 |
| 1:C:43:ILE:HG23 | 1:C:124:LEU:CD1 | 2.44 | 0.47 |
| 1:E:35:ARG:HG2 | 1:E:104:LEU:O | 2.13 | 0.47 |
| 1:G:431:VAL:HG12 | 1:G:432:THR:N | 2.28 | 0.47 |
| 1:H:47:ASN:O | 1:H:50:ILE:N | 2.41 | 0.47 |
| 1:B:657:LEU:O | 1:B:661:ILE:HG12 | 2.14 | 0.47 |
| 1:C:154:TYR:OH | 1:D:262:ALA:HB3 | 2.14 | 0.47 |
| 1:H:61:ARG:C | 1:H:63:LYS:H | 2.17 | 0.47 |
| 1:A:339:ARG:HD2 | 1:A:369:PHE:CD2 | 2.50 | 0.47 |
| 1:B:69:PHE:CE1 | 1:B:73:LEU:HD23 | 2.49 | 0.47 |
| 1:B:166:LEU:HD13 | 1:B:268:LEU:HD21 | 1.96 | 0.47 |
| 1:B:276:PRO:HG3 | 1:B:326:GLN:HG3 | 1.97 | 0.47 |
| 1:B:290:PHE:HB3 | 1:B:338:THR:HG21 | 1.97 | 0.47 |
| 1:B:479:ILE:HD11 | 1:B:762:LEU:HD13 | 1.96 | 0.47 |
| 1:C:80:ILE:HD13 | 1:C:121:LYS:HG2 | 1.96 | 0.47 |
| 1:C:290:PHE:O | 1:C:366:ARG:NH1 | 2.46 | 0.47 |
| 1:C:572:LYS:CE | 1:C:605:ASN:OD1 | 2.62 | 0.47 |
| 1:C:588:SER:OG | 1:C:628:LYS:HD2 | 2.14 | 0.47 |
| 1:D:245:ASN:O | 1:D:249:VAL:HG23 | 2.15 | 0.47 |
| 1:D:424:LEU:CD2 | 5:D:922:MLA:HC22 | 2.45 | 0.47 |
| 1:E:125:VAL:HG13 | 1:E:126:ASP:N | 2.29 | 0.47 |
| 1:E:137:LEU:HD11 | 1:E:790:PHE:CZ | 2.50 | 0.47 |
| 1:E:140:GLU:HB3 | 1:E:141:PRO:HD3 | 1.96 | 0.47 |
| 1:E:483:PHE:HB3 | 1:E:701:GLU:OE2 | 2.15 | 0.47 |
| 1:E:536:TYR:CE1 | 1:E:537:THR:HG23 | 2.49 | 0.47 |
| 1:F:44:LEU:HD11 | 1:F:451:TYR:OH | 2.15 | 0.47 |
| 1:F:47:ASN:H | 1:F:50:ILE:HB | 1.80 | 0.47 |
| 1:F:410:LEU:HD12 | 1:F:411:ILE:H | 1.79 | 0.47 |
| 1:G:63:LYS:O | 1:G:65:GLU:CG | 2.54 | 0.47 |
| 1:G:158:GLY:HA3 | 1:G:519:PRO:O | 2.14 | 0.47 |
| 1:G:437:ALA:O | 1:G:438:HIS:HB2 | 2.13 | 0.47 |
| 1:H:702:ILE:HA | 1:H:753:TYR:OH | 2.15 | 0.47 |
| 1:B:371:THR:HG21 | 1:B:804:LEU:HD13 | 1.97 | 0.47 |
| 1:B:574:ILE:HG23 | 1:B:607:VAL:HG23 | 1.97 | 0.47 |
| 1:B:790:PHE:O | 1:B:794:LYS:HB3 | 2.15 | 0.47 |
| 1:C:668:PHE:HB2 | 1:C:689:LEU:HD23 | 1.96 | 0.47 |
| 1:E:668:PHE:HB2 | 1:E:689:LEU:CD2 | 2.45 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:659:ARG:O | 1:G:662:CYS:HB2 | 2.15 | 0.47 |
| 1:H:322:ARG:HD2 | 1:H:763:LEU:CD1 | 2.44 | 0.47 |
| 1:C:163:ASN:O | 1:C:167:SER:HB2 | 2.15 | 0.47 |
| 1:E:188:SER:HA | 1:E:194:LEU:HD12 | 1.96 | 0.47 |
| 1:E:284:LEU:O | 1:E:414:ASN:HB2 | 2.14 | 0.47 |
| 1:E:407:LYS:HB2 | 1:E:408:PRO:CD | 2.44 | 0.47 |
| 1:E:670:GLN:HG3 | 1:E:670:GLN:O | 2.15 | 0.47 |
| 1:G:284:LEU:HD22 | 1:G:284:LEU:N | 2.30 | 0.47 |
| 1:B:387:PRO:HD3 | 1:B:802:VAL:HB | 1.97 | 0.47 |
| 1:C:778:LEU:H | 1:C:778:LEU:CD1 | 2.25 | 0.47 |
| 1:D:512:HIS:NE2 | 1:D:515:ASP:HB2 | 2.30 | 0.47 |
| 1:E:38:ALA:O | 1:E:41:LYS:HB2 | 2.14 | 0.47 |
| 1:F:468:ASP:O | 1:F:472:MET:HB2 | 2.15 | 0.47 |
| 1:G:219:GLU:OE1 | 1:G:219:GLU:CA | 2.63 | 0.47 |
| 1:G:761:ARG:O | 1:G:765:LEU:HG | 2.15 | 0.47 |
| 1:B:617:SER:O | 1:B:623:LYS:HD3 | 2.15 | 0.46 |
| 1:C:34:SER:N | 1:C:59:GLN:HE22 | 2.13 | 0.46 |
| 1:D:99:TYR:O | 1:D:100:LEU:HD23 | 2.15 | 0.46 |
| 1:E:85:TRP:HB2 | 1:E:102:VAL:O | 2.15 | 0.46 |
| 1:F:52:GLU:O | 1:F:52:GLU:HG2 | 2.15 | 0.46 |
| 1:F:441:GLU:OE1 | 1:F:441:GLU:HA | 2.15 | 0.46 |
| 1:F:675:GLU:HA | 1:F:675:GLU:OE2 | 2.15 | 0.46 |
| 1:G:407:LYS:HB2 | 1:G:408:PRO:HD2 | 1.96 | 0.46 |
| 1:H:366:ARG:HD3 | 7:H:854:HOH:O | 2.16 | 0.46 |
| 1:A:216:TYR:CD2 | 1:A:232:LYS:HG2 | 2.51 | 0.46 |
| 1:A:319:MET:CE | 1:A:334:ILE:CD1 | 2.80 | 0.46 |
| 1:B:84:PRO:O | 1:B:103:ASN:HB2 | 2.15 | 0.46 |
| 1:B:291:ALA:HB3 | 1:B:295:VAL:HG11 | 1.97 | 0.46 |
| 1:C:69:PHE:O | 1:C:69:PHE:CD1 | 2.69 | 0.46 |
| 1:D:54:GLU:HG3 | 1:D:55:ALA:H | 1.73 | 0.46 |
| 1:E:60:THR:HG21 | 1:E:62:LYS:HE3 | 1.97 | 0.46 |
| 1:E:196:LEU:CD1 | 1:E:206:LEU:HD13 | 2.45 | 0.46 |
| 1:F:56:LEU:O | 1:F:59:GLN:CB | 2.63 | 0.46 |
| 1:F:173:ASP:HB3 | 1:F:176:SER:CB | 2.44 | 0.46 |
| 1:H:17:ARG:NH2 | 1:H:72:LEU:CB | 2.70 | 0.46 |
| 1:H:85:TRP:CE3 | 1:H:101:ARG:HG2 | 2.51 | 0.46 |
| 1:A:262:ALA:CB | 1:B:164:ARG:HD3 | 2.30 | 0.46 |
| 1:A:607:VAL:HG22 | 1:A:643:ARG:HB3 | 1.96 | 0.46 |
| 1:D:43:ILE:O | 1:D:44:LEU:CD2 | 2.63 | 0.46 |
| 1:D:609:VAL:HG22 | 1:D:645:ILE:HB | 1.97 | 0.46 |
| 1:F:43:ILE:HG13 | 1:F:82:LEU:HA | 1.98 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:46:GLN:O | 1:A:78:GLU:HA | 2.16 | 0.46 |
| 1:A:125:VAL:HG12 | 1:A:126:ASP:OD1 | 2.15 | 0.46 |
| 1:A:702:ILE:HA | 1:A:753:TYR:OH | 2.16 | 0.46 |
| 1:A:756:GLN:HG3 | 1:A:757:ILE:H | 1.78 | 0.46 |
| 1:B:103:ASN:H | 1:B:103:ASN:ND2 | 2.13 | 0.46 |
| 1:B:333:ARG:HG2 | 1:B:333:ARG:NH1 | 2.28 | 0.46 |
| 1:C:594:TYR:OH | 1:C:641:GLN:HB3 | 2.15 | 0.46 |
| 1:G:719:GLN:HG3 | 4:G:913:SO4:O3 | 2.15 | 0.46 |
| 1:H:353:LEU:HD13 | 1:H:365:LEU:HD13 | 1.97 | 0.46 |
| 1:B:468:ASP:O | 1:B:472:MET:HB2 | 2.16 | 0.46 |
| 1:D:44:LEU:HD13 | 1:D:45:GLN:H | 1.79 | 0.46 |
| 1:D:80:ILE:HD13 | 1:D:117:PHE:CE2 | 2.51 | 0.46 |
| 1:D:284:LEU:N | 1:D:284:LEU:HD22 | 2.30 | 0.46 |
| 1:F:28:GLU:HG3 | 1:F:29:VAL:N | 2.30 | 0.46 |
| 1:F:35:ARG:CG | 1:F:104:LEU:HA | 2.46 | 0.46 |
| 1:G:414:ASN:O | 1:G:418:GLY:HA3 | 2.16 | 0.46 |
| 1:G:445:TYR:O | 1:G:448:SER:HB3 | 2.16 | 0.46 |
| 1:A:490:LYS:HB2 | 1:A:490:LYS:HE3 | 1.68 | 0.46 |
| 1:C:174:LYS:HD2 | 1:C:203:LEU:HD12 | 1.96 | 0.46 |
| 1:E:753:TYR:CD2 | 1:E:753:TYR:N | 2.83 | 0.46 |
| 1:G:137:LEU:HD11 | 1:G:790:PHE:CE1 | 2.50 | 0.46 |
| 1:H:437:ALA:C | 1:H:439:ALA:H | 2.18 | 0.46 |
| 1:A:35:ARG:HH22 | 1:A:102:VAL:H | 1.62 | 0.46 |
| 1:G:82:LEU:N | 1:G:83:PRO:HD3 | 2.30 | 0.46 |
| 1:G:778:LEU:N | 1:G:778:LEU:CD1 | 2.76 | 0.46 |
| 1:H:242:TRP:HB2 | 1:H:249:VAL:HG13 | 1.97 | 0.46 |
| 1:H:538:GLU:O | 1:H:542:ARG:HG2 | 2.16 | 0.46 |
| 1:B:131:GLY:O | 1:B:134:THR:HG23 | 2.16 | 0.46 |
| 1:C:177:LEU:HD22 | 1:C:260:LEU:HD23 | 1.97 | 0.46 |
| 1:D:82:LEU:HG | 1:D:120:PHE:HE1 | 1.80 | 0.46 |
| 1:D:415:TYR:CG | 1:D:416:SER:N | 2.84 | 0.46 |
| 1:E:85:TRP:CB | 1:E:103:ASN:HA | 2.37 | 0.46 |
| 1:F:53:PHE:CA | 1:F:57:PRO:CG | 2.92 | 0.46 |
| 1:F:162:LEU:HD11 | 1:F:772:TRP:CD2 | 2.51 | 0.46 |
| 1:G:178:LEU:N | 1:G:179:PRO:CD | 2.78 | 0.46 |
| 1:G:178:LEU:CD2 | 1:G:203:LEU:HG | 2.46 | 0.46 |
| 1:H:80:ILE:CG2 | 1:H:120:PHE:CE2 | 2.95 | 0.46 |
| 1:A:284:LEU:HD13 | 1:A:337:LEU:HB2 | 1.98 | 0.46 |
| 1:A:298:TYR:CE1 | 1:A:649:MET:HE1 | 2.49 | 0.46 |
| 1:C:169:LYS:HG2 | 1:C:176:SER:OG | 2.15 | 0.46 |
| 1:D:128:VAL:HG12 | 1:D:129:LYS:O | 2.16 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:757:ILE:HG13 | 1:D:757:ILE:H | 1.27 | 0.46 |
| 1:F:279:PHE:HD1 | 1:F:323:ILE:HD11 | 1.80 | 0.46 |
| 1:G:210:LEU:HD11 | 1:G:256:LEU:HD23 | 1.97 | 0.46 |
| 1:H:48:GLN:O | 1:H:52:GLU:HB3 | 2.16 | 0.46 |
| 1:A:262:ALA:HB3 | 1:B:154:TYR:OH | 2.14 | 0.46 |
| 1:A:789:MET:HE1 | 1:D:790:PHE:N | 2.31 | 0.46 |
| 1:B:178:LEU:N | 1:B:179:PRO:CD | 2.78 | 0.46 |
| 1:B:689:LEU:HD12 | 1:B:690:PRO:HD2 | 1.97 | 0.46 |
| 1:C:338:THR:HG23 | 1:C:366:ARG:HG2 | 1.98 | 0.46 |
| 1:C:415:TYR:CG | 1:C:416:SER:N | 2.83 | 0.46 |
| 1:C:486:ILE:HG22 | 1:C:516:VAL:HG22 | 1.97 | 0.46 |
| 1:E:33:LEU:HD23 | 1:E:33:LEU:HA | 1.85 | 0.46 |
| 1:E:153:LYS:HG3 | 1:E:154:TYR:CD2 | 2.51 | 0.46 |
| 1:E:770:GLY:O | 1:E:773:LYS:HB2 | 2.16 | 0.46 |
| 1:F:82:LEU:HD12 | 1:F:83:PRO:CG | 2.46 | 0.46 |
| 1:H:52:GLU:OE1 | 1:H:53:PHE:CA | 2.60 | 0.46 |
| 1:A:178:LEU:N | 1:A:179:PRO:CD | 2.79 | 0.45 |
| 1:B:322:ARG:CD | 1:B:763:LEU:HD13 | 2.46 | 0.45 |
| 1:B:452:TRP:CD2 | 1:B:453:LYS:N | 2.83 | 0.45 |
| 1:B:583:ARG:HG2 | 1:B:583:ARG:NH1 | 2.30 | 0.45 |
| 1:B:593:TRP:HB3 | 1:B:721:ALA:HB2 | 1.97 | 0.45 |
| 1:D:49:ILE:HG22 | 1:D:50:ILE:N | 2.30 | 0.45 |
| 1:D:56:LEU:HD13 | 1:D:56:LEU:C | 2.36 | 0.45 |
| 1:D:490:LYS:HE3 | 1:D:490:LYS:HB2 | 1.84 | 0.45 |
| 1:E:789:MET:HE1 | 1:H:790:PHE:N | 2.31 | 0.45 |
| 1:F:80:ILE:HD11 | 1:F:117:PHE:CZ | 2.51 | 0.45 |
| 1:G:434:CYS:HB2 | 1:G:477:PHE:CZ | 2.51 | 0.45 |
| 1:A:582:ASP:HB2 | 1:A:621:GLU:OE1 | 2.16 | 0.45 |
| 1:B:77:GLN:HG3 | 1:B:97:TRP:CH2 | 2.51 | 0.45 |
| 1:B:322:ARG:O | 1:B:326:GLN:HG2 | 2.16 | 0.45 |
| 1:B:580:ARG:HD3 | 2:B:901:UDP:O1B | 2.14 | 0.45 |
| 1:B:716:HIS:HB3 | 4:B:913:SO4:O3 | 2.15 | 0.45 |
| 1:C:131:GLY:HA3 | 1:C:134:THR:CG2 | 2.40 | 0.45 |
| 1:D:659:ARG:O | 1:D:662:CYS:HB2 | 2.17 | 0.45 |
| 1:E:85:TRP:CD1 | 1:E:85:TRP:N | 2.82 | 0.45 |
| 1:F:53:PHE:HA | 1:F:57:PRO:CG | 2.47 | 0.45 |
| 1:F:79:ALA:HB2 | 1:F:88:LEU:CD2 | 2.45 | 0.45 |
| 1:F:319:MET:HE1 | 1:F:334:ILE:CD1 | 2.40 | 0.45 |
| 1:H:113:GLN:O | 1:H:116:GLU:HG2 | 2.16 | 0.45 |
| 1:H:227:GLU:HG3 | 1:H:228:GLU:N | 2.31 | 0.45 |
| 1:H:678:GLY:O | 1:H:681:VAL:HB | 2.17 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:54:GLU:O | 1:A:58:GLU:CB | 2.65 | 0.45 |
| 1:E:33:LEU:HD12 | 1:E:62:LYS:HZ2 | 1.80 | 0.45 |
| 1:E:794:LYS:HA | 1:E:794:LYS:HE2 | 1.99 | 0.45 |
| 1:H:243:GLY:HA2 | 1:H:326:GLN:HA | 1.98 | 0.45 |
| 1:A:46:GLN:CB | 1:A:79:ALA:O | 2.63 | 0.45 |
| 1:A:668:PHE:HB2 | 1:A:689:LEU:CD2 | 2.47 | 0.45 |
| 1:B:716:HIS:HB3 | 4:B:913:SO4:O4 | 2.17 | 0.45 |
| 1:B:789:MET:CB | 1:C:789:MET:CE | 2.92 | 0.45 |
| 1:C:158:GLY:HA3 | 1:C:519:PRO:O | 2.16 | 0.45 |
| 1:C:304:GLN:O | 1:C:308:ILE:HG13 | 2.15 | 0.45 |
| 1:C:348:THR:O | 1:C:351:GLU:HG2 | 2.15 | 0.45 |
| 1:E:789:MET:CE | 1:H:789:MET:CB | 2.94 | 0.45 |
| 1:F:259:LEU:O | 1:F:263:PRO:HG3 | 2.16 | 0.45 |
| 1:H:547:HIS:O | 1:H:551:GLU:CG | 2.64 | 0.45 |
| 1:C:597:ASN:O | 1:C:601:ARG:HG3 | 2.16 | 0.45 |
| 1:C:765:LEU:HD22 | 1:C:769:TYR:HE2 | 1.81 | 0.45 |
| 1:D:615:LYS:HE3 | 1:D:615:LYS:HB2 | 1.81 | 0.45 |
| 1:E:796:ARG:N | 1:E:797:PRO:CD | 2.79 | 0.45 |
| 1:G:29:VAL:O | 1:G:29:VAL:HG12 | 2.15 | 0.45 |
| 1:G:564:LEU:HD12 | 1:G:564:LEU:HA | 1.74 | 0.45 |
| 1:H:80:ILE:HG21 | 1:H:120:PHE:CD2 | 2.52 | 0.45 |
| 1:H:338:THR:OG1 | 1:H:339:ARG:N | 2.50 | 0.45 |
| 1:H:414:ASN:O | 1:H:418:GLY:HA3 | 2.17 | 0.45 |
| 1:A:298:TYR:CE1 | 1:A:649:MET:HE2 | 2.51 | 0.45 |
| 1:E:756:GLN:HG3 | 1:E:757:ILE:H | 1.81 | 0.45 |
| 3:E:902:FRU:H11 | 7:E:852:HOH:O | 2.15 | 0.45 |
| 1:F:39:LYS:HD3 | 1:F:39:LYS:C | 2.37 | 0.45 |
| 1:H:790:PHE:O | 1:H:794:LYS:HB3 | 2.17 | 0.45 |
| 1:A:483:PHE:CE1 | 1:A:487:ALA:HB3 | 2.52 | 0.45 |
| 1:A:716:HIS:HA | 4:A:913:SO4:O4 | 2.16 | 0.45 |
| 1:B:36:VAL:O | 1:B:39:LYS:N | 2.49 | 0.45 |
| 1:B:390:GLU:OE1 | 1:B:796:ARG:HD2 | 2.17 | 0.45 |
| 1:B:442:LYS:HG3 | 1:B:465:PHE:CZ | 2.51 | 0.45 |
| 1:C:572:LYS:HE3 | 1:C:605:ASN:OD1 | 2.16 | 0.45 |
| 1:D:56:LEU:O | 1:D:59:GLN:HB3 | 2.16 | 0.45 |
| 1:F:790:PHE:O | 1:F:794:LYS:HB3 | 2.17 | 0.45 |
| 1:G:116:GLU:O | 1:G:119:HIS:HB2 | 2.16 | 0.45 |
| 1:H:84:PRO:CG | 1:H:85:TRP:CD1 | 2.98 | 0.45 |
| 1:C:63:LYS:O | 1:C:64:LEU:C | 2.55 | 0.45 |
| 1:D:81:VAL:HG22 | 1:D:86:VAL:HG23 | 1.98 | 0.45 |
| 1:D:276:PRO:HG3 | 1:D:326:GLN:HG3 | 1.99 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:581:LEU:HD12 | 1:D:587:LEU:HD12 | 1.98 | 0.45 |
| 1:F:69:PHE:C | 1:F:69:PHE:HD1 | 2.17 | 0.45 |
| 1:G:339:ARG:HD2 | 1:G:369:PHE:CE2 | 2.52 | 0.45 |
| 1:H:61:ARG:HA | 1:H:63:LYS:HG2 | 1.99 | 0.45 |
| 1:H:102:VAL:HA | 1:H:108:VAL:O | 2.17 | 0.45 |
| 1:A:536:TYR:O | 1:A:542:ARG:HD3 | 2.17 | 0.45 |
| 1:B:400:LEU:HD12 | 1:B:401:SER:N | 2.32 | 0.45 |
| 1:D:466:THR:HG23 | 1:D:790:PHE:CZ | 2.52 | 0.45 |
| 1:E:151:LEU:HD23 | 1:F:211:ARG:NH2 | 2.32 | 0.45 |
| 1:F:518:ASP:HA | 1:F:519:PRO:HD3 | 1.84 | 0.45 |
| 1:H:39:LYS:CG | 1:H:104:LEU:CB | 2.84 | 0.45 |
| 1:A:79:ALA:HA | 1:A:87:ALA:O | 2.16 | 0.45 |
| 1:A:116:GLU:O | 1:A:119:HIS:HB2 | 2.16 | 0.45 |
| 1:B:216:TYR:CE2 | 1:B:232:LYS:HG2 | 2.52 | 0.45 |
| 1:B:315:LEU:O | 1:B:319:MET:HE2 | 2.17 | 0.45 |
| 1:C:302:GLY:HA3 | 3:C:902:FRU:O1 | 2.17 | 0.45 |
| 1:D:264:ASP:OD1 | 1:D:267:THR:HB | 2.17 | 0.45 |
| 1:F:146:ILE:CG1 | 1:F:147:PRO:CD | 2.89 | 0.45 |
| 1:F:435:THR:HG23 | 1:F:475:THR:CB | 2.47 | 0.45 |
| 1:G:41:LYS:H | 1:G:41:LYS:HG2 | 1.55 | 0.45 |
| 1:G:41:LYS:O | 1:G:44:LEU:HD12 | 2.17 | 0.45 |
| 1:G:364:ILE:HG21 | 1:G:366:ARG:NH1 | 2.32 | 0.45 |
| 1:H:128:VAL:HG12 | 1:H:129:LYS:N | 2.32 | 0.45 |
| 1:H:483:PHE:CZ | 1:H:487:ALA:HB3 | 2.51 | 0.45 |
| 1:H:561:LYS:HD3 | 1:H:613:ARG:O | 2.16 | 0.45 |
| 1:A:74:LYS:HB2 | 1:A:74:LYS:HE3 | 1.73 | 0.44 |
| 1:A:102:VAL:HA | 1:A:109:VAL:HA | 1.98 | 0.44 |
| 1:B:427:HIS:HD2 | 1:C:133:PHE:HE1 | 1.64 | 0.44 |
| 1:B:483:PHE:CE1 | 1:B:487:ALA:HB3 | 2.52 | 0.44 |
| 1:B:580:ARG:NH1 | 3:B:902:FRU:H61 | 2.32 | 0.44 |
| 1:C:276:PRO:HG3 | 1:C:326:GLN:CB | 2.48 | 0.44 |
| 1:D:105:HIS:O | 1:D:106:ALA:HB2 | 2.17 | 0.44 |
| 1:E:216:TYR:CD1 | 1:E:220:LEU:CD1 | 2.98 | 0.44 |
| 1:E:400:LEU:C | 1:E:400:LEU:HD12 | 2.38 | 0.44 |
| 1:A:92:PRO:HD2 | 1:A:96:VAL:O | 2.17 | 0.44 |
| 1:B:450:ILE:HG22 | 1:B:451:TYR:N | 2.32 | 0.44 |
| 1:C:85:TRP:CE3 | 1:C:103:ASN:N | 2.85 | 0.44 |
| 1:C:259:LEU:HD21 | 1:C:268:LEU:HA | 1.98 | 0.44 |
| 1:D:756:GLN:HG3 | 1:D:757:ILE:N | 2.32 | 0.44 |
| 1:E:49:ILE:H | 1:E:49:ILE:HG12 | 1.60 | 0.44 |
| 1:E:61:ARG:C | 1:E:63:LYS:N | 2.70 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:173:ASP:OD2 | 1:F:176:SER:HB2 | 2.17 | 0.44 |
| 1:F:216:TYR:HD1 | 1:F:216:TYR:O | 1.99 | 0.44 |
| 1:G:327:GLY:O | 1:G:328:LEU:HD23 | 2.17 | 0.44 |
| 1:A:60:THR:O | 1:A:63:LYS:HG3 | 2.18 | 0.44 |
| 1:A:173:ASP:HB3 | 1:A:176:SER:HB3 | 2.00 | 0.44 |
| 1:A:290:PHE:CD1 | 1:A:290:PHE:C | 2.91 | 0.44 |
| 1:A:542:ARG:CD | 1:A:659:ARG:HD2 | 2.46 | 0.44 |
| 1:A:789:MET:CE | 1:D:789:MET:CG | 2.85 | 0.44 |
| 1:B:49:ILE:O | 1:B:53:PHE:CB | 2.66 | 0.44 |
| 1:B:174:LYS:HD2 | 1:B:203:LEU:CD1 | 2.41 | 0.44 |
| 1:C:50:ILE:HG13 | 1:C:51:ALA:N | 2.31 | 0.44 |
| 1:D:206:LEU:HD11 | 1:D:210:LEU:HD11 | 1.99 | 0.44 |
| 1:E:483:PHE:CE1 | 1:E:487:ALA:HB3 | 2.52 | 0.44 |
| 1:E:689:LEU:HD12 | 1:E:690:PRO:HD2 | 1.99 | 0.44 |
| 1:F:83:PRO:HG2 | 1:F:85:TRP:C | 2.37 | 0.44 |
| 1:F:91:ARG:NH2 | 1:F:94:PRO:HA | 2.31 | 0.44 |
| 1:F:647:SER:HB2 | 1:F:649:MET:HE3 | 1.98 | 0.44 |
| 1:A:173:ASP:O | 1:A:176:SER:HB3 | 2.17 | 0.44 |
| 1:A:514:ILE:HG13 | 1:A:515:ASP:H | 1.83 | 0.44 |
| 1:C:315:LEU:HD12 | 1:C:315:LEU:HA | 1.77 | 0.44 |
| 1:C:349:CYS:HA | 1:C:366:ARG:NH1 | 2.31 | 0.44 |
| 1:D:73:LEU:O | 1:D:76:THR:HB | 2.18 | 0.44 |
| 1:D:318:GLU:CD | 1:D:760:GLN:HG2 | 2.38 | 0.44 |
| 1:D:449:ASP:HA | 1:D:504:LEU:CD2 | 2.48 | 0.44 |
| 1:E:53:PHE:O | 1:E:57:PRO:CG | 2.47 | 0.44 |
| 1:E:217:LEU:CD1 | 1:E:233:PHE:HZ | 2.22 | 0.44 |
| 1:H:184:LEU:HD22 | 1:H:195:MET:HG3 | 1.99 | 0.44 |
| 1:A:85:TRP:CD2 | 1:A:101:ARG:HD2 | 2.52 | 0.44 |
| 1:A:534:PHE:HB2 | 1:A:535:PRO:CD | 2.47 | 0.44 |
| 1:B:93:ARG:H | 1:B:96:VAL:HG23 | 1.82 | 0.44 |
| 1:D:36:VAL:O | 1:D:36:VAL:HG12 | 2.17 | 0.44 |
| 1:D:84:PRO:HB2 | 1:D:85:TRP:CD1 | 2.53 | 0.44 |
| 1:E:102:VAL:O | 1:E:102:VAL:HG13 | 2.18 | 0.44 |
| 1:F:452:TRP:CD1 | 1:F:504:LEU:HB3 | 2.52 | 0.44 |
| 1:G:32:LEU:HD21 | 1:G:105:HIS:O | 2.17 | 0.44 |
| 1:G:66:GLY:CA | 1:G:68:PRO:CD | 2.94 | 0.44 |
| 1:G:316:GLU:HA | 1:G:319:MET:HE3 | 1.99 | 0.44 |
| 1:H:105:HIS:CD2 | 1:H:105:HIS:N | 2.85 | 0.44 |
| 1:B:782:GLU:HG3 | 1:C:141:PRO:HB2 | 1.99 | 0.44 |
| 1:C:233:PHE:CE1 | 1:C:249:VAL:HG11 | 2.52 | 0.44 |
| 1:E:442:LYS:HD2 | 1:E:449:ASP:HB3 | 2.00 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:538:GLU:OE1 | 1:F:541:ARG:HD3 | 2.18 | 0.44 |
| 1:H:76:THR:HA | 1:H:89:ALA:O | 2.17 | 0.44 |
| 1:A:512:HIS:CE1 | 1:A:515:ASP:HB2 | 2.53 | 0.44 |
| 1:D:192:LYS:HE3 | 1:D:192:LYS:HB3 | 1.74 | 0.44 |
| 1:D:536:TYR:CE1 | 1:D:537:THR:HG23 | 2.53 | 0.44 |
| 1:E:35:ARG:HD2 | 1:E:104:LEU:HA | 2.00 | 0.44 |
| 1:E:276:PRO:HG3 | 1:E:326:GLN:HG3 | 1.99 | 0.44 |
| 1:H:544:THR:HA | 1:H:547:HIS:CD2 | 2.53 | 0.44 |
| 1:A:60:THR:OG1 | 1:A:61:ARG:N | 2.50 | 0.44 |
| 1:A:226:TYR:HA | 1:A:229:PHE:CZ | 2.52 | 0.44 |
| 1:A:276:PRO:HG3 | 1:A:326:GLN:HG3 | 2.00 | 0.44 |
| 1:B:164:ARG:HH11 | 1:B:164:ARG:HG3 | 1.83 | 0.44 |
| 1:B:597:ASN:O | 1:B:601:ARG:HG3 | 2.18 | 0.44 |
| 1:C:445:TYR:O | 1:C:448:SER:HB3 | 2.18 | 0.44 |
| 1:D:140:GLU:HB3 | 1:D:141:PRO:HD3 | 1.99 | 0.44 |
| 1:E:200:ILE:HG21 | 1:E:206:LEU:HB2 | 1.99 | 0.44 |
| 1:G:354:GLU:OE1 | 1:G:366:ARG:NH2 | 2.43 | 0.44 |
| 1:H:83:PRO:HG2 | 1:H:84:PRO:CD | 2.45 | 0.44 |
| 1:H:400:LEU:C | 1:H:400:LEU:HD12 | 2.38 | 0.44 |
| 1:H:458:LYS:HD3 | 1:H:459:TYR:CE2 | 2.53 | 0.44 |
| 1:A:60:THR:HG23 | 1:A:62:LYS:CB | 2.48 | 0.44 |
| 1:B:55:ALA:O | 1:B:59:GLN:N | 2.51 | 0.44 |
| 1:C:34:SER:HA | 1:C:59:GLN:NE2 | 2.28 | 0.44 |
| 1:C:83:PRO:CG | 1:C:84:PRO:CD | 2.92 | 0.44 |
| 1:C:645:ILE:HG22 | 1:C:646:SER:O | 2.18 | 0.44 |
| 1:D:72:LEU:C | 1:D:72:LEU:CD1 | 2.86 | 0.44 |
| 1:D:82:LEU:HD12 | 1:D:82:LEU:O | 2.18 | 0.44 |
| 1:D:113:GLN:HA | 1:D:113:GLN:NE2 | 2.25 | 0.44 |
| 1:F:47:ASN:O | 1:F:51:ALA:HB3 | 2.18 | 0.44 |
| 1:F:154:TYR:HA | 1:F:157:ASN:HB2 | 2.00 | 0.44 |
| 1:G:442:LYS:HG3 | 1:G:465:PHE:CZ | 2.53 | 0.44 |
| 1:H:449:ASP:HA | 1:H:504:LEU:CD2 | 2.48 | 0.44 |
| 1:B:59:GLN:HB3 | 1:B:63:LYS:HD3 | 2.00 | 0.43 |
| 1:B:534:PHE:HB2 | 1:B:535:PRO:CD | 2.48 | 0.43 |
| 1:B:534:PHE:HB2 | 1:B:535:PRO:HD2 | 2.00 | 0.43 |
| 1:D:451:TYR:HB3 | 1:D:454:LYS:NZ | 2.33 | 0.43 |
| 1:E:72:LEU:HD22 | 1:E:90:VAL:CG1 | 2.42 | 0.43 |
| 1:F:54:GLU:N | 1:F:57:PRO:HG2 | 2.28 | 0.43 |
| 1:F:79:ALA:HA | 1:F:87:ALA:O | 2.17 | 0.43 |
| 1:F:264:ASP:OD1 | 1:F:267:THR:CB | 2.60 | 0.43 |
| 1:H:103:ASN:CB | 1:H:105:HIS:O | 2.65 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:475:THR:HG21 | 1:H:478:ILE:HG12 | 2.00 | 0.43 |
| 1:A:528:ALA:HB1 | 1:A:533:TYR:CD2 | 2.53 | 0.43 |
| 1:C:157:ASN:O | 1:C:160:ASP:HB2 | 2.18 | 0.43 |
| 1:C:437:ALA:C | 1:C:439:ALA:H | 2.19 | 0.43 |
| 1:C:802:VAL:HA | 1:C:803:PRO:HD3 | 1.91 | 0.43 |
| 1:D:30:LEU:O | 1:D:33:LEU:CB | 2.65 | 0.43 |
| 1:E:33:LEU:HB3 | 1:E:59:GLN:OE1 | 2.18 | 0.43 |
| 1:E:383:PHE:HA | 7:E:849:HOH:O | 2.18 | 0.43 |
| 1:E:400:LEU:HD12 | 1:E:401:SER:N | 2.33 | 0.43 |
| 1:F:44:LEU:HA | 1:F:124:LEU:HD21 | 2.00 | 0.43 |
| 1:G:570:LYS:O | 1:G:570:LYS:CG | 2.65 | 0.43 |
| 1:H:578:MET:HA | 1:H:609:VAL:O | 2.17 | 0.43 |
| 1:H:748:ARG:NH1 | 1:H:752:LYS:HE3 | 2.33 | 0.43 |
| 1:A:47:ASN:O | 1:A:48:GLN:CB | 2.58 | 0.43 |
| 1:A:62:LYS:C | 1:A:64:LEU:N | 2.70 | 0.43 |
| 1:A:294:ASN:HA | 1:A:649:MET:SD | 2.59 | 0.43 |
| 1:A:400:LEU:HD12 | 1:A:401:SER:N | 2.32 | 0.43 |
| 1:B:72:LEU:N | 1:B:72:LEU:CD1 | 2.82 | 0.43 |
| 1:C:784:ARG:O | 1:C:788:GLU:HG3 | 2.18 | 0.43 |
| 1:E:46:GLN:HB3 | 1:E:50:ILE:CB | 2.45 | 0.43 |
| 1:F:86:VAL:CG1 | 1:F:102:VAL:HB | 2.49 | 0.43 |
| 1:F:250:LEU:O | 1:F:254:ARG:HG3 | 2.18 | 0.43 |
| 1:F:452:TRP:CG | 1:F:453:LYS:N | 2.86 | 0.43 |
| 1:F:514:ILE:HD12 | 1:F:514:ILE:HA | 1.87 | 0.43 |
| 1:F:583:ARG:HG2 | 1:F:583:ARG:HH11 | 1.82 | 0.43 |
| 1:F:734:ASP:HA | 1:F:735:PRO:HD2 | 1.91 | 0.43 |
| 1:G:49:ILE:O | 1:G:53:PHE:CB | 2.66 | 0.43 |
| 1:G:223:GLU:H | 1:G:223:GLU:CD | 2.20 | 0.43 |
| 1:H:41:LYS:HD3 | 1:H:54:GLU:OE1 | 2.19 | 0.43 |
| 1:H:43:ILE:HA | 1:H:81:VAL:O | 2.18 | 0.43 |
| 1:A:85:TRP:CE3 | 1:A:101:ARG:HG2 | 2.53 | 0.43 |
| 1:A:319:MET:HE1 | 1:A:334:ILE:CD1 | 2.47 | 0.43 |
| 1:B:321:GLN:HE21 | 1:B:321:GLN:HB3 | 1.65 | 0.43 |
| 1:B:400:LEU:HD21 | 1:B:425:LEU:HD11 | 2.00 | 0.43 |
| 1:B:435:THR:HG23 | 1:B:475:THR:CB | 2.49 | 0.43 |
| 1:B:789:MET:HE1 | 1:C:786:TYR:O | 2.18 | 0.43 |
| 1:C:216:TYR:O | 1:C:216:TYR:HD1 | 2.02 | 0.43 |
| 1:E:47:ASN:HB2 | 1:E:49:ILE:HG12 | 2.00 | 0.43 |
| 1:F:249:VAL:O | 1:F:253:ILE:HG13 | 2.19 | 0.43 |
| 1:F:443:THR:HG21 | 1:F:495:GLN:HA | 1.99 | 0.43 |
| 1:F:789:MET:HG3 | 1:G:135:LEU:HD11 | 2.00 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:419:ASN:OD1 | 1:G:435:THR:HB | 2.18 | 0.43 |
| 1:H:545:LYS:HE3 | 1:H:546:PHE:CZ | 2.54 | 0.43 |
| 1:A:777:ASN:HD22 | 1:A:778:LEU:CA | 2.29 | 0.43 |
| 1:C:50:ILE:HD12 | 1:C:54:GLU:CG | 2.48 | 0.43 |
| 1:F:92:PRO:HD2 | 1:F:96:VAL:O | 2.19 | 0.43 |
| 1:F:327:GLY:C | 1:F:328:LEU:HD23 | 2.37 | 0.43 |
| 1:G:145:SER:HB3 | 1:G:779:ASP:OD2 | 2.19 | 0.43 |
| 1:H:17:ARG:CG | 1:H:98:GLU:OE1 | 2.65 | 0.43 |
| 1:H:178:LEU:N | 1:H:179:PRO:CD | 2.81 | 0.43 |
| 1:A:30:LEU:HD12 | 1:A:62:LYS:O | 2.19 | 0.43 |
| 1:A:59:GLN:CG | 1:A:60:THR:N | 2.80 | 0.43 |
| 1:B:30:LEU:CD2 | 7:B:861:HOH:O | 2.67 | 0.43 |
| 1:C:296:LEU:HG | 7:C:828:HOH:O | 2.17 | 0.43 |
| 1:C:761:ARG:HH11 | 1:C:761:ARG:HG3 | 1.84 | 0.43 |
| 1:D:579:ALA:HB2 | 7:D:827:HOH:O | 2.18 | 0.43 |
| 1:E:162:LEU:HD11 | 1:E:772:TRP:CE3 | 2.54 | 0.43 |
| 1:E:189:HIS:CE1 | 1:E:190:GLN:NE2 | 2.86 | 0.43 |
| 1:E:261:GLU:OE2 | 1:F:149:PRO:HA | 2.18 | 0.43 |
| 1:H:118:LEU:O | 1:H:122:GLU:HG3 | 2.19 | 0.43 |
| 1:H:290:PHE:O | 1:H:366:ARG:NH1 | 2.51 | 0.43 |
| 1:B:302:GLY:C | 3:B:902:FRU:O1 | 2.56 | 0.43 |
| 1:B:320:LEU:HA | 1:B:320:LEU:HD23 | 1.76 | 0.43 |
| 1:C:104:LEU:N | 1:C:104:LEU:HD23 | 2.33 | 0.43 |
| 1:C:468:ASP:O | 1:C:472:MET:HB2 | 2.19 | 0.43 |
| 1:C:615:LYS:HZ3 | 1:C:618:LYS:HE2 | 1.81 | 0.43 |
| 1:E:453:LYS:HB2 | 1:E:453:LYS:HE2 | 1.76 | 0.43 |
| 1:F:86:VAL:HG13 | 1:F:102:VAL:HB | 2.00 | 0.43 |
| 1:F:178:LEU:HB2 | 1:F:179:PRO:HD3 | 2.00 | 0.43 |
| 1:F:449:ASP:O | 1:F:504:LEU:HD22 | 2.18 | 0.43 |
| 1:G:50:ILE:C | 1:G:52:GLU:H | 2.21 | 0.43 |
| 1:G:80:ILE:HD13 | 1:G:117:PHE:CE2 | 2.53 | 0.43 |
| 1:A:166:LEU:HB3 | 1:A:268:LEU:CD2 | 2.49 | 0.43 |
| 1:A:284:LEU:O | 1:A:414:ASN:HB2 | 2.18 | 0.43 |
| 1:A:341:LEU:HA | 1:A:342:PRO:HD3 | 1.86 | 0.43 |
| 1:A:468:ASP:O | 1:A:472:MET:HB2 | 2.19 | 0.43 |
| 1:A:668:PHE:HB2 | 1:A:689:LEU:HD23 | 2.01 | 0.43 |
| 1:C:99:TYR:O | 1:C:100:LEU:HD23 | 2.19 | 0.43 |
| 1:D:121:LYS:HB3 | 1:D:450:ILE:HD12 | 2.00 | 0.43 |
| 1:E:33:LEU:CD1 | 1:E:62:LYS:NZ | 2.82 | 0.43 |
| 1:E:65:GLU:O | 1:E:66:GLY:C | 2.57 | 0.43 |
| 1:F:386:TRP:N | 1:F:387:PRO:HD2 | 2.32 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:400:LEU:C | 1:F:400:LEU:HD12 | 2.39 | 0.43 |
| 1:F:420:LEU:HD13 | 1:F:420:LEU:O | 2.17 | 0.43 |
| 1:G:52:GLU:CD | 1:G:52:GLU:C | 2.77 | 0.43 |
| 1:G:245:ASN:O | 1:G:249:VAL:HG23 | 2.19 | 0.43 |
| 1:G:340:LEU:HD22 | 1:G:368:PRO:HB3 | 2.00 | 0.43 |
| 1:G:340:LEU:O | 1:G:340:LEU:HD23 | 2.18 | 0.43 |
| 1:H:582:ASP:HB2 | 1:H:621:GLU:OE1 | 2.19 | 0.43 |
| 1:H:802:VAL:HA | 1:H:803:PRO:HD3 | 1.84 | 0.43 |
| 1:A:136:GLU:OE2 | 1:A:509:ARG:NH1 | 2.52 | 0.43 |
| 1:A:245:ASN:O | 1:A:249:VAL:HG23 | 2.18 | 0.43 |
| 1:A:261:GLU:OE2 | 1:B:149:PRO:HA | 2.18 | 0.43 |
| 1:A:459:TYR:HB3 | 1:A:461:PHE:CZ | 2.53 | 0.43 |
| 1:B:80:ILE:HG13 | 1:B:124:LEU:CD1 | 2.48 | 0.43 |
| 1:B:226:TYR:HB3 | 1:B:240:ARG:NH2 | 2.34 | 0.43 |
| 1:B:414:ASN:O | 1:B:418:GLY:HA3 | 2.18 | 0.43 |
| 1:B:415:TYR:CG | 1:B:416:SER:N | 2.86 | 0.43 |
| 1:B:435:THR:HG23 | 1:B:475:THR:HB | 2.01 | 0.43 |
| 1:C:217:LEU:HD11 | 1:C:233:PHE:HZ | 1.84 | 0.43 |
| 1:C:245:ASN:C | 1:C:245:ASN:OD1 | 2.57 | 0.43 |
| 1:D:125:VAL:CG1 | 1:D:126:ASP:N | 2.79 | 0.43 |
| 1:D:248:ARG:HB3 | 1:D:248:ARG:NH1 | 2.30 | 0.43 |
| 1:E:376:VAL:HG21 | 1:E:388:TYR:CE2 | 2.53 | 0.43 |
| 1:F:67:GLY:N | 1:F:68:PRO:HD3 | 2.32 | 0.43 |
| 1:F:407:LYS:HB2 | 1:F:408:PRO:HD3 | 1.99 | 0.43 |
| 1:F:757:ILE:H | 1:F:757:ILE:HG13 | 1.24 | 0.43 |
| 1:H:360:GLU:CG | 1:H:361:TYR:CE2 | 3.02 | 0.43 |
| 1:A:136:GLU:HG2 | 1:A:509:ARG:HD2 | 2.01 | 0.43 |
| 1:B:502:PHE:CZ | 1:B:510:VAL:HG21 | 2.53 | 0.43 |
| 1:B:789:MET:C | 1:C:789:MET:HE1 | 2.39 | 0.43 |
| 1:C:54:GLU:CG | 1:C:55:ALA:N | 2.82 | 0.43 |
| 1:E:117:PHE:O | 1:E:120:PHE:HB2 | 2.18 | 0.43 |
| 1:E:143:ASN:HB3 | 1:E:148:ARG:NH1 | 2.33 | 0.43 |
| 1:G:591:VAL:HG12 | 1:G:632:LEU:HD13 | 2.01 | 0.43 |
| 1:H:757:ILE:H | 1:H:757:ILE:HD12 | 1.84 | 0.43 |
| 1:A:65:GLU:C | 1:A:67:GLY:N | 2.71 | 0.42 |
| 1:A:419:ASN:HB3 | 1:A:471:ALA:CB | 2.49 | 0.42 |
| 1:B:153:LYS:CG | 1:B:154:TYR:CD2 | 3.03 | 0.42 |
| 1:B:293:ASP:HB2 | 7:B:845:HOH:O | 2.19 | 0.42 |
| 1:B:339:ARG:HD2 | 1:B:369:PHE:CZ | 2.53 | 0.42 |
| 1:C:284:LEU:HD22 | 1:C:284:LEU:N | 2.33 | 0.42 |
| 1:C:420:LEU:HD13 | 1:C:420:LEU:O | 2.18 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:60:THR:C | 1:D:62:LYS:H | 2.21 | 0.42 |
| 1:D:337:LEU:HD11 | 1:D:365:LEU:HD23 | 2.01 | 0.42 |
| 1:D:678:GLY:HA2 | 7:D:840:HOH:O | 2.19 | 0.42 |
| 1:E:81:VAL:CG1 | 1:E:86:VAL:HG23 | 2.47 | 0.42 |
| 1:E:703:ILE:CG2 | 1:E:704:VAL:N | 2.82 | 0.42 |
| 1:E:749:ILE:HD13 | 1:E:749:ILE:HA | 1.81 | 0.42 |
| 1:G:226:TYR:HB3 | 1:G:240:ARG:HH21 | 1.83 | 0.42 |
| 1:H:17:ARG:HH21 | 1:H:72:LEU:CA | 2.32 | 0.42 |
| 1:H:140:GLU:N | 1:H:141:PRO:CD | 2.82 | 0.42 |
| 1:B:166:LEU:HB3 | 1:B:268:LEU:HD21 | 2.01 | 0.42 |
| 1:B:581:LEU:HD11 | 1:B:625:GLU:HG2 | 2.01 | 0.42 |
| 1:B:789:MET:HE3 | 1:C:789:MET:HE3 | 2.01 | 0.42 |
| 1:C:781:LEU:HD12 | 1:C:781:LEU:HA | 1.86 | 0.42 |
| 1:E:146:ILE:HG13 | 1:E:147:PRO:HD2 | 2.02 | 0.42 |
| 1:E:316:GLU:OE1 | 1:E:361:TYR:N | 2.39 | 0.42 |
| 1:F:81:VAL:HG12 | 1:F:86:VAL:CB | 2.49 | 0.42 |
| 1:G:45:GLN:HE22 | 1:G:80:ILE:HG13 | 1.83 | 0.42 |
| 1:H:80:ILE:HG21 | 1:H:120:PHE:HD2 | 1.84 | 0.42 |
| 1:A:565:CYS:C | 1:A:566:VAL:HG23 | 2.39 | 0.42 |
| 1:B:158:GLY:HA3 | 1:B:519:PRO:O | 2.19 | 0.42 |
| 1:F:318:GLU:OE2 | 1:F:322:ARG:NH1 | 2.48 | 0.42 |
| 1:G:99:TYR:O | 1:G:100:LEU:HD23 | 2.19 | 0.42 |
| 1:A:438:HIS:O | 1:A:439:ALA:HB2 | 2.19 | 0.42 |
| 1:A:718:ASP:HA | 7:A:863:HOH:O | 2.20 | 0.42 |
| 1:B:327:GLY:O | 1:B:328:LEU:HD23 | 2.20 | 0.42 |
| 1:B:615:LYS:HE3 | 1:B:615:LYS:HB2 | 1.85 | 0.42 |
| 1:C:178:LEU:N | 1:C:179:PRO:HD2 | 2.34 | 0.42 |
| 1:C:552:GLU:O | 1:C:556:SER:HB3 | 2.19 | 0.42 |
| 1:D:386:TRP:CZ2 | 1:D:464:GLN:HB2 | 2.53 | 0.42 |
| 1:D:390:GLU:OE1 | 1:D:796:ARG:HD2 | 2.19 | 0.42 |
| 1:D:469:ILE:HD13 | 1:D:469:ILE:HA | 1.81 | 0.42 |
| 1:E:60:THR:OG1 | 1:E:61:ARG:N | 2.52 | 0.42 |
| 1:F:81:VAL:CG1 | 1:F:86:VAL:CB | 2.97 | 0.42 |
| 1:F:226:TYR:HA | 1:F:229:PHE:CZ | 2.54 | 0.42 |
| 1:G:146:ILE:HG13 | 1:G:147:PRO:CD | 2.43 | 0.42 |
| 1:H:477:PHE:HA | 1:H:520:LYS:HB2 | 2.00 | 0.42 |
| 1:H:724:LEU:HD23 | 1:H:724:LEU:HA | 1.90 | 0.42 |
| 1:B:22:LEU:HD23 | 1:B:22:LEU:HA | 1.90 | 0.42 |
| 1:B:63:LYS:HG3 | 1:B:64:LEU:N | 2.33 | 0.42 |
| 1:C:491:GLU:CD | 1:C:491:GLU:N | 2.72 | 0.42 |
| 1:C:692:PHE:HZ | 1:C:727:PHE:CG | 2.37 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:445:TYR:O | 1:D:448:SER:HB3 | 2.19 | 0.42 |
| 1:E:163:ASN:HD21 | 1:E:269:GLU:HG3 | 1.85 | 0.42 |
| 1:E:294:ASN:N | 7:E:844:HOH:O | 2.41 | 0.42 |
| 1:E:419:ASN:HB3 | 1:E:471:ALA:CB | 2.49 | 0.42 |
| 1:F:245:ASN:O | 1:F:249:VAL:HG23 | 2.19 | 0.42 |
| 1:F:789:MET:HE3 | 1:G:789:MET:HG2 | 2.02 | 0.42 |
| 1:G:547:HIS:HE1 | 1:G:656:GLU:OE2 | 2.03 | 0.42 |
| 1:H:466:THR:HG23 | 1:H:790:PHE:CE2 | 2.54 | 0.42 |
| 1:A:534:PHE:HB2 | 1:A:535:PRO:HD2 | 2.00 | 0.42 |
| 1:A:756:GLN:HG3 | 1:A:757:ILE:HG13 | 2.01 | 0.42 |
| 1:C:54:GLU:HG3 | 1:C:55:ALA:H | 1.84 | 0.42 |
| 1:C:78:GLU:OE2 | 1:C:121:LYS:CE | 2.68 | 0.42 |
| 1:D:315:LEU:HG | 1:D:319:MET:HE2 | 2.00 | 0.42 |
| 1:E:52:GLU:O | 1:E:57:PRO:HD2 | 2.19 | 0.42 |
| 1:E:81:VAL:HG12 | 1:E:86:VAL:HB | 2.01 | 0.42 |
| 1:E:417:ASP:O | 1:E:421:VAL:HG23 | 2.19 | 0.42 |
| 1:E:534:PHE:HB2 | 1:E:535:PRO:HD2 | 2.00 | 0.42 |
| 1:G:54:GLU:OE2 | 1:G:55:ALA:CA | 2.64 | 0.42 |
| 1:G:130:ASN:HB3 | 1:G:134:THR:HG21 | 2.01 | 0.42 |
| 1:G:148:ARG:HA | 1:G:148:ARG:HD3 | 1.82 | 0.42 |
| 1:G:149:PRO:O | 1:G:517:PHE:CD1 | 2.73 | 0.42 |
| 1:G:490:LYS:HE3 | 1:G:490:LYS:HB2 | 1.85 | 0.42 |
| 1:H:169:LYS:HG2 | 1:H:176:SER:OG | 2.20 | 0.42 |
| 1:H:353:LEU:HA | 1:H:364:ILE:O | 2.19 | 0.42 |
| 1:H:582:ASP:C | 1:H:582:ASP:OD1 | 2.58 | 0.42 |
| 1:A:56:LEU:CB | 1:A:57:PRO:HD3 | 2.37 | 0.42 |
| 1:C:78:GLU:OE2 | 1:C:121:LYS:HE2 | 2.19 | 0.42 |
| 1:C:86:VAL:O | 1:C:86:VAL:HG13 | 2.19 | 0.42 |
| 1:C:102:VAL:HG12 | 1:C:109:VAL:CG2 | 2.45 | 0.42 |
| 1:D:63:LYS:O | 1:D:64:LEU:C | 2.57 | 0.42 |
| 1:E:794:LYS:C | 1:E:797:PRO:HD2 | 2.40 | 0.42 |
| 1:F:564:LEU:HD12 | 1:F:564:LEU:HA | 1.86 | 0.42 |
| 1:H:315:LEU:HD12 | 1:H:315:LEU:HA | 1.78 | 0.42 |
| 1:H:518:ASP:OD1 | 1:H:520:LYS:HG2 | 2.19 | 0.42 |
| 1:A:52:GLU:OE1 | 1:A:57:PRO:CD | 2.68 | 0.42 |
| 1:C:116:GLU:O | 1:C:119:HIS:HB2 | 2.19 | 0.42 |
| 1:C:472:MET:HG2 | 1:C:514:ILE:HD13 | 2.01 | 0.42 |
| 1:C:670:GLN:O | 1:C:670:GLN:HG3 | 2.19 | 0.42 |
| 1:D:60:THR:C | 1:D:62:LYS:N | 2.73 | 0.42 |
| 1:E:60:THR:HG23 | 1:E:62:LYS:CG | 2.38 | 0.42 |
| 1:F:452:TRP:CD2 | 1:F:453:LYS:N | 2.88 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:80:ILE:HD13 | 1:G:117:PHE:CZ | 2.55 | 0.42 |
| 1:G:565:CYS:HB2 | 1:G:642:PHE:O | 2.20 | 0.42 |
| 1:H:87:ALA:HB2 | 1:H:120:PHE:CE2 | 2.54 | 0.42 |
| 1:H:415:TYR:O | 1:H:419:ASN:ND2 | 2.52 | 0.42 |
| 1:C:82:LEU:HB3 | 1:C:83:PRO:CD | 2.46 | 0.42 |
| 1:C:435:THR:HG23 | 1:C:475:THR:OG1 | 2.20 | 0.42 |
| 1:C:444:LYS:HB3 | 1:C:444:LYS:HE2 | 1.87 | 0.42 |
| 1:C:756:GLN:HG3 | 1:C:757:ILE:H | 1.85 | 0.42 |
| 1:E:28:GLU:O | 1:E:32:LEU:HB2 | 2.19 | 0.42 |
| 1:E:156:GLY:CA | 1:E:523:ILE:HG13 | 2.48 | 0.42 |
| 1:E:704:VAL:HA | 4:E:912:SO4:O3 | 2.20 | 0.42 |
| 1:F:248:ARG:HB3 | 1:F:248:ARG:NH1 | 2.32 | 0.42 |
| 1:F:440:LEU:HD13 | 1:F:499:HIS:CE1 | 2.55 | 0.42 |
| 1:G:338:THR:OG1 | 1:G:339:ARG:N | 2.53 | 0.42 |
| 1:H:85:TRP:HE3 | 1:H:101:ARG:HG2 | 1.85 | 0.42 |
| 1:H:276:PRO:HG3 | 1:H:326:GLN:HG3 | 2.01 | 0.42 |
| 1:A:43:ILE:HD11 | 1:A:83:PRO:CD | 2.44 | 0.42 |
| 1:A:147:PRO:CB | 1:B:172:HIS:ND1 | 2.83 | 0.42 |
| 1:A:226:TYR:HB3 | 1:A:240:ARG:NH2 | 2.34 | 0.42 |
| 1:B:319:MET:HE1 | 1:B:334:ILE:CD1 | 2.49 | 0.42 |
| 1:B:341:LEU:HA | 1:B:342:PRO:HD3 | 1.85 | 0.42 |
| 1:C:580:ARG:NH2 | 1:C:582:ASP:OD2 | 2.52 | 0.42 |
| 1:D:143:ASN:HB3 | 1:D:148:ARG:HH22 | 1.80 | 0.42 |
| 1:E:210:LEU:HD23 | 1:E:253:ILE:HG23 | 1.98 | 0.42 |
| 1:G:163:ASN:O | 1:G:167:SER:HB2 | 2.20 | 0.42 |
| 1:G:702:ILE:HA | 1:G:753:TYR:OH | 2.19 | 0.42 |
| 1:A:56:LEU:CD1 | 1:A:63:LYS:HG2 | 2.50 | 0.41 |
| 1:B:30:LEU:N | 1:B:30:LEU:CD1 | 2.83 | 0.41 |
| 1:B:60:THR:C | 1:B:62:LYS:H | 2.23 | 0.41 |
| 1:C:518:ASP:OD1 | 1:C:520:LYS:HG2 | 2.19 | 0.41 |
| 1:D:83:PRO:CB | 1:D:84:PRO:CD | 2.94 | 0.41 |
| 1:E:140:GLU:HB3 | 1:E:141:PRO:CD | 2.49 | 0.41 |
| 1:F:276:PRO:HG3 | 1:F:326:GLN:HB3 | 2.00 | 0.41 |
| 1:F:790:PHE:N | 1:G:789:MET:HE1 | 2.35 | 0.41 |
| 1:H:21:THR:O | 1:H:21:THR:HG23 | 2.19 | 0.41 |
| 1:A:680:THR:HG23 | 2:A:901:UDP:O1A | 2.20 | 0.41 |
| 1:B:609:VAL:HA | 1:B:645:ILE:O | 2.20 | 0.41 |
| 1:C:145:SER:HB3 | 1:C:779:ASP:OD2 | 2.19 | 0.41 |
| 1:C:490:LYS:HE3 | 1:C:490:LYS:HB2 | 1.82 | 0.41 |
| 1:C:527:GLY:O | 1:C:755:TRP:NE1 | 2.52 | 0.41 |
| 1:D:109:VAL:O | 1:D:109:VAL:HG12 | 2.20 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:394:GLU:HA | 1:D:394:GLU:OE1 | 2.19 | 0.41 |
| 1:D:599:ARG:O | 1:D:603:LEU:HD12 | 2.20 | 0.41 |
| 1:E:44:LEU:HB3 | 1:E:45:GLN:H | 1.45 | 0.41 |
| 1:E:366:ARG:HD3 | 7:E:856:HOH:O | 2.20 | 0.41 |
| 1:E:386:TRP:N | 1:E:387:PRO:HD2 | 2.35 | 0.41 |
| 1:E:681:VAL:O | 1:E:685:MET:HG3 | 2.20 | 0.41 |
| 1:E:789:MET:CE | 1:H:789:MET:CE | 2.79 | 0.41 |
| 1:F:171:PHE:HD1 | 1:F:263:PRO:HD2 | 1.86 | 0.41 |
| 1:F:482:THR:HB | 1:F:701:GLU:CD | 2.40 | 0.41 |
| 1:F:512:HIS:CE1 | 1:F:515:ASP:HB2 | 2.55 | 0.41 |
| 1:F:796:ARG:N | 1:F:797:PRO:CD | 2.83 | 0.41 |
| 1:G:162:LEU:HD11 | 1:G:772:TRP:CD2 | 2.55 | 0.41 |
| 1:H:167:SER:OG | 1:H:264:ASP:CA | 2.67 | 0.41 |
| 1:H:435:THR:HG23 | 1:H:475:THR:CB | 2.50 | 0.41 |
| 1:A:48:GLN:N | 1:A:51:ALA:HB3 | 2.35 | 0.41 |
| 1:A:130:ASN:O | 1:A:131:GLY:C | 2.58 | 0.41 |
| 1:A:526:PRO:O | 1:A:753:TYR:HB3 | 2.20 | 0.41 |
| 1:B:76:THR:O | 1:B:76:THR:CG2 | 2.68 | 0.41 |
| 1:B:171:PHE:CD1 | 1:B:263:PRO:HD2 | 2.55 | 0.41 |
| 1:D:462:SER:HB2 | 1:D:507:LEU:CD2 | 2.50 | 0.41 |
| 1:E:56:LEU:HD22 | 1:E:56:LEU:HA | 1.85 | 0.41 |
| 1:F:35:ARG:HG2 | 1:F:104:LEU:HA | 2.01 | 0.41 |
| 1:G:590:LEU:HA | 1:G:593:TRP:CD2 | 2.55 | 0.41 |
| 1:G:781:LEU:HA | 1:G:781:LEU:HD12 | 1.76 | 0.41 |
| 1:A:657:LEU:O | 1:A:661:ILE:HG12 | 2.20 | 0.41 |
| 1:B:167:SER:OG | 1:B:264:ASP:CA | 2.68 | 0.41 |
| 1:B:229:PHE:CD1 | 1:B:233:PHE:CE2 | 3.08 | 0.41 |
| 1:C:125:VAL:HG12 | 1:C:126:ASP:N | 2.34 | 0.41 |
| 1:C:564:LEU:HD12 | 1:C:564:LEU:HA | 1.81 | 0.41 |
| 1:C:564:LEU:HD22 | 1:C:613:ARG:NH2 | 2.36 | 0.41 |
| 1:C:586:ASN:HB3 | 1:C:671:PRO:O | 2.20 | 0.41 |
| 1:D:82:LEU:CD1 | 1:D:85:TRP:H | 2.33 | 0.41 |
| 1:D:140:GLU:N | 1:D:141:PRO:CD | 2.83 | 0.41 |
| 1:D:176:SER:O | 1:D:179:PRO:HD2 | 2.21 | 0.41 |
| 1:D:502:PHE:CZ | 1:D:510:VAL:HG21 | 2.56 | 0.41 |
| 1:E:572:LYS:HE3 | 1:E:605:ASN:OD1 | 2.20 | 0.41 |
| 1:F:224:THR:HG23 | 1:F:228:GLU:HG3 | 2.02 | 0.41 |
| 1:F:419:ASN:HB3 | 1:F:471:ALA:CB | 2.50 | 0.41 |
| 1:F:574:ILE:HG23 | 1:F:607:VAL:HG23 | 2.02 | 0.41 |
| 1:G:82:LEU:H | 1:G:83:PRO:HD3 | 1.85 | 0.41 |
| 1:H:31:ALA:HB1 | 1:H:35:ARG:HH21 | 1.78 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:380:ILE:HG22 | 1:A:384:GLU:HB2 | 2.02 | 0.41 |
| 1:A:474:HIS:HA | 1:A:787:LEU:CD1 | 2.50 | 0.41 |
| 1:A:708:SER:HB3 | 1:A:748:ARG:HB2 | 2.03 | 0.41 |
| 1:A:796:ARG:N | 1:A:797:PRO:CD | 2.83 | 0.41 |
| 1:B:177:LEU:HD22 | 1:B:260:LEU:HD23 | 2.01 | 0.41 |
| 1:C:483:PHE:CZ | 1:C:487:ALA:HB3 | 2.55 | 0.41 |
| 1:D:43:ILE:HG23 | 1:D:124:LEU:CD1 | 2.51 | 0.41 |
| 1:D:480:THR:HG21 | 1:D:486:ILE:HG12 | 2.02 | 0.41 |
| 1:E:59:GLN:HE21 | 1:E:59:GLN:HA | 1.85 | 0.41 |
| 1:F:360:GLU:HB2 | 1:F:361:TYR:CE2 | 2.55 | 0.41 |
| 1:F:466:THR:HG23 | 1:F:790:PHE:CZ | 2.55 | 0.41 |
| 1:H:17:ARG:NH2 | 1:H:72:LEU:CA | 2.83 | 0.41 |
| 1:H:283:ILE:HD12 | 1:H:312:VAL:HG12 | 2.03 | 0.41 |
| 1:A:35:ARG:NH2 | 1:A:102:VAL:N | 2.68 | 0.41 |
| 1:A:85:TRP:HB3 | 1:A:101:ARG:CG | 2.51 | 0.41 |
| 1:A:89:ALA:HB2 | 1:A:117:PHE:CZ | 2.56 | 0.41 |
| 1:B:424:LEU:HD22 | 1:C:133:PHE:CE1 | 2.55 | 0.41 |
| 1:B:555:TYR:OH | 1:B:574:ILE:HD11 | 2.20 | 0.41 |
| 1:B:606:LEU:HD12 | 1:B:606:LEU:HA | 1.93 | 0.41 |
| 1:B:716:HIS:HB3 | 4:B:913:SO4:S | 2.61 | 0.41 |
| 1:C:272:LEU:HD23 | 1:C:272:LEU:HA | 1.91 | 0.41 |
| 1:D:493:VAL:HG22 | 1:D:494:GLY:N | 2.35 | 0.41 |
| 1:E:284:LEU:HD21 | 1:E:425:LEU:HD12 | 2.03 | 0.41 |
| 1:F:692:PHE:HZ | 1:F:727:PHE:CG | 2.38 | 0.41 |
| 1:G:178:LEU:N | 1:G:179:PRO:HD2 | 2.35 | 0.41 |
| 1:G:479:ILE:HD11 | 1:G:762:LEU:HD13 | 2.01 | 0.41 |
| 1:H:221:LYS:HE2 | 1:H:221:LYS:HB3 | 1.88 | 0.41 |
| 1:H:425:LEU:HD23 | 1:H:425:LEU:HA | 1.81 | 0.41 |
| 1:A:72:LEU:HD21 | 1:A:90:VAL:HG21 | 2.01 | 0.41 |
| 1:B:56:LEU:CB | 1:B:57:PRO:CD | 2.92 | 0.41 |
| 1:B:91:ARG:NH2 | 1:B:487:ALA:O | 2.54 | 0.41 |
| 1:B:221:LYS:HE2 | 1:B:221:LYS:HB3 | 1.90 | 0.41 |
| 1:B:420:LEU:C | 1:B:420:LEU:CD1 | 2.88 | 0.41 |
| 1:E:43:ILE:O | 1:E:44:LEU:HB2 | 2.20 | 0.41 |
| 1:E:86:VAL:HG12 | 1:E:102:VAL:HG13 | 2.02 | 0.41 |
| 1:E:327:GLY:C | 1:E:328:LEU:HD23 | 2.40 | 0.41 |
| 1:E:547:HIS:O | 1:E:551:GLU:HG3 | 2.20 | 0.41 |
| 1:E:592:GLU:HG3 | 1:E:636:TYR:CE2 | 2.56 | 0.41 |
| 1:F:52:GLU:C | 1:F:57:PRO:HD3 | 2.40 | 0.41 |
| 1:F:56:LEU:O | 1:F:56:LEU:HD13 | 2.20 | 0.41 |
| 1:F:245:ASN:OD1 | 1:F:248:ARG:HG3 | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:43:ILE:HG12 | 1:G:82:LEU:HA | 2.03 | 0.41 |
| 1:G:294:ASN:HB3 | 7:G:879:HOH:O | 2.21 | 0.41 |
| 1:H:192:LYS:HB2 | 1:H:192:LYS:HE3 | 1.78 | 0.41 |
| 1:H:692:PHE:CD1 | 1:H:692:PHE:N | 2.88 | 0.41 |
| 1:H:804:LEU:HA | 1:H:804:LEU:HD23 | 1.83 | 0.41 |
| 1:B:216:TYR:CD1 | 1:B:216:TYR:C | 2.94 | 0.41 |
| 1:B:452:TRP:CD1 | 1:B:504:LEU:HB3 | 2.55 | 0.41 |
| 1:D:282:VAL:HG13 | 1:D:337:LEU:HD23 | 2.02 | 0.41 |
| 1:D:780:ARG:HA | 1:D:780:ARG:HD2 | 1.66 | 0.41 |
| 1:E:390:GLU:OE1 | 1:E:796:ARG:HD2 | 2.21 | 0.41 |
| 1:E:459:TYR:HB3 | 1:E:461:PHE:CE1 | 2.56 | 0.41 |
| 1:E:673:LEU:HD23 | 1:E:714:PRO:HB2 | 2.02 | 0.41 |
| 1:F:56:LEU:O | 1:F:59:GLN:HB3 | 2.19 | 0.41 |
| 1:F:63:LYS:O | 1:F:65:GLU:N | 2.53 | 0.41 |
| 1:G:227:GLU:HG3 | 1:G:228:GLU:N | 2.36 | 0.41 |
| 1:G:290:PHE:O | 1:G:366:ARG:NH1 | 2.54 | 0.41 |
| 1:H:43:ILE:O | 1:H:43:ILE:HG22 | 2.21 | 0.41 |
| 1:H:61:ARG:C | 1:H:63:LYS:N | 2.74 | 0.41 |
| 1:H:322:ARG:O | 1:H:326:GLN:HG2 | 2.21 | 0.41 |
| 1:H:781:LEU:HA | 1:H:781:LEU:HD12 | 1.79 | 0.41 |
| 1:H:794:LYS:HA | 1:H:794:LYS:HE2 | 2.03 | 0.41 |
| 1:A:43:ILE:CD1 | 1:A:83:PRO:HD3 | 2.44 | 0.41 |
| 1:A:72:LEU:C | 1:A:72:LEU:CD1 | 2.88 | 0.41 |
| 1:A:219:GLU:OE1 | 1:A:219:GLU:HA | 2.20 | 0.41 |
| 1:A:226:TYR:CD2 | 1:A:240:ARG:CZ | 3.04 | 0.41 |
| 1:B:91:ARG:HA | 1:B:92:PRO:HD2 | 1.96 | 0.41 |
| 1:B:302:GLY:CA | 3:B:902:FRU:HO1 | 2.31 | 0.41 |
| 1:B:307:TYR:CD1 | 1:B:307:TYR:C | 2.94 | 0.41 |
| 1:B:518:ASP:HA | 1:B:519:PRO:HD3 | 1.95 | 0.41 |
| 1:B:682:VAL:HG13 | 1:B:749:ILE:HD12 | 2.01 | 0.41 |
| 1:B:796:ARG:N | 1:B:797:PRO:CD | 2.83 | 0.41 |
| 1:C:85:TRP:CZ3 | 1:C:103:ASN:N | 2.89 | 0.41 |
| 1:C:107:LEU:C | 1:C:108:VAL:HG12 | 2.40 | 0.41 |
| 1:C:360:GLU:HB2 | 1:C:361:TYR:CD2 | 2.55 | 0.41 |
| 1:D:156:GLY:HA3 | 1:D:523:ILE:HG13 | 2.03 | 0.41 |
| 1:D:209:THR:HG23 | 1:D:236:ILE:CD1 | 2.50 | 0.41 |
| 1:E:73:LEU:HD22 | 1:E:73:LEU:HA | 1.86 | 0.41 |
| 1:E:438:HIS:O | 1:E:439:ALA:HB2 | 2.21 | 0.41 |
| 1:E:483:PHE:CZ | 1:E:487:ALA:HB3 | 2.56 | 0.41 |
| 1:F:65:GLU:OE2 | 1:F:68:PRO:HB2 | 2.20 | 0.41 |
| 1:F:370:ARG:CB | 1:F:375:ILE:HA | 2.51 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:410:LEU:HD12 | 1:F:411:ILE:N | 2.35 | 0.41 |
| 1:F:561:LYS:HD3 | 1:F:613:ARG:O | 2.21 | 0.41 |
| 1:F:668:PHE:HB2 | 1:F:689:LEU:CD2 | 2.51 | 0.41 |
| 1:F:713:ASP:C | 1:F:713:ASP:OD1 | 2.59 | 0.41 |
| 1:F:789:MET:HB3 | 1:G:789:MET:HE2 | 1.86 | 0.41 |
| 1:G:143:ASN:HB2 | 1:G:148:ARG:NH2 | 2.36 | 0.41 |
| 1:G:452:TRP:CG | 1:G:453:LYS:N | 2.88 | 0.41 |
| 1:G:668:PHE:CZ | 1:G:680:THR:HB | 2.56 | 0.41 |
| 1:H:230:GLU:OE1 | 1:H:240:ARG:NH1 | 2.54 | 0.41 |
| 1:H:308:ILE:O | 1:H:312:VAL:HG22 | 2.21 | 0.41 |
| 1:H:419:ASN:HB3 | 1:H:471:ALA:HB1 | 2.03 | 0.41 |
| 1:H:757:ILE:H | 1:H:757:ILE:CD1 | 2.32 | 0.41 |
| 1:H:784:ARG:O | 1:H:788:GLU:HG3 | 2.21 | 0.41 |
| 1:A:734:ASP:HA | 1:A:735:PRO:HD2 | 1.91 | 0.41 |
| 1:B:60:THR:C | 1:B:62:LYS:N | 2.74 | 0.41 |
| 1:B:93:ARG:HB2 | 1:B:96:VAL:HG22 | 2.01 | 0.41 |
| 1:B:348:THR:O | 1:B:351:GLU:HG2 | 2.21 | 0.41 |
| 1:B:525:SER:HB3 | 1:B:753:TYR:HD1 | 1.86 | 0.41 |
| 1:C:261:GLU:OE1 | 1:D:150:THR:N | 2.49 | 0.41 |
| 1:C:433:GLN:HG2 | 1:C:475:THR:OG1 | 2.20 | 0.41 |
| 1:C:630:TYR:O | 1:C:633:ILE:HB | 2.20 | 0.41 |
| 1:D:77:GLN:HG2 | 1:D:91:ARG:HB3 | 2.02 | 0.41 |
| 1:E:124:LEU:O | 1:E:124:LEU:CD1 | 2.57 | 0.41 |
| 1:E:664:THR:O | 1:E:665:LYS:HB2 | 2.21 | 0.41 |
| 1:G:228:GLU:OE1 | 1:G:228:GLU:HA | 2.21 | 0.41 |
| 1:G:276:PRO:HG3 | 1:G:326:GLN:HG3 | 2.02 | 0.41 |
| 1:H:65:GLU:C | 1:H:67:GLY:N | 2.74 | 0.41 |
| 1:H:341:LEU:HA | 1:H:342:PRO:HD3 | 1.90 | 0.41 |
| 1:H:615:LYS:HE3 | 1:H:615:LYS:HB2 | 1.92 | 0.41 |
| 1:A:435:THR:HG23 | 1:A:475:THR:CB | 2.52 | 0.40 |
| 1:B:174:LYS:CD | 1:B:203:LEU:HD12 | 2.44 | 0.40 |
| 1:B:452:TRP:CE3 | 1:B:453:LYS:HA | 2.55 | 0.40 |
| 1:B:756:GLN:HG3 | 1:B:757:ILE:N | 2.35 | 0.40 |
| 1:C:778:LEU:HD12 | 1:C:778:LEU:N | 2.30 | 0.40 |
| 1:E:216:TYR:CD1 | 1:E:216:TYR:C | 2.94 | 0.40 |
| 1:E:338:THR:HG23 | 1:E:366:ARG:HG2 | 2.03 | 0.40 |
| 1:E:623:LYS:HB3 | 1:E:623:LYS:HE2 | 1.94 | 0.40 |
| 1:F:242:TRP:O | 1:F:252:MET:HG3 | 2.21 | 0.40 |
| 1:F:677:PHE:CE2 | 1:F:702:ILE:HD11 | 2.57 | 0.40 |
| 1:G:173:ASP:HB3 | 1:G:176:SER:HB2 | 2.03 | 0.40 |
| 1:G:367:VAL:HG13 | 1:G:368:PRO:HD2 | 2.03 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:518:ASP:HA | 1:G:519:PRO:HD3 | 1.85 | 0.40 |
| 1:G:578:MET:HA | 1:G:609:VAL:O | 2.20 | 0.40 |
| 1:H:353:LEU:CD1 | 1:H:365:LEU:HD13 | 2.51 | 0.40 |
| 1:A:415:TYR:HA | 1:A:437:ALA:O | 2.21 | 0.40 |
| 1:A:450:ILE:HG23 | 1:A:451:TYR:CD2 | 2.55 | 0.40 |
| 1:A:461:PHE:HB3 | 1:A:465:PHE:CE2 | 2.56 | 0.40 |
| 1:A:565:CYS:HB3 | 1:A:566:VAL:H | 1.67 | 0.40 |
| 1:B:789:MET:HG2 | 1:C:789:MET:CE | 2.49 | 0.40 |
| 1:B:796:ARG:HB2 | 1:B:797:PRO:HD3 | 2.03 | 0.40 |
| 1:C:49:ILE:N | 1:C:49:ILE:HD13 | 2.35 | 0.40 |
| 1:C:91:ARG:HD2 | 1:C:97:TRP:CZ2 | 2.57 | 0.40 |
| 1:C:560:ASN:OD1 | 1:C:562:GLU:HB2 | 2.21 | 0.40 |
| 1:D:200:ILE:HG21 | 1:D:206:LEU:HB2 | 2.03 | 0.40 |
| 1:D:315:LEU:C | 1:D:319:MET:HE2 | 2.41 | 0.40 |
| 1:E:60:THR:O | 1:E:63:LYS:CD | 2.69 | 0.40 |
| 1:G:91:ARG:CZ | 1:G:94:PRO:HA | 2.50 | 0.40 |
| 1:G:166:LEU:HB3 | 1:G:268:LEU:HD21 | 2.03 | 0.40 |
| 1:G:386:TRP:CZ2 | 1:G:464:GLN:HG3 | 2.56 | 0.40 |
| 1:H:749:ILE:HD13 | 1:H:753:TYR:HD2 | 1.86 | 0.40 |
| 1:A:302:GLY:C | 3:A:902:FRU:O1 | 2.60 | 0.40 |
| 1:A:387:PRO:HD3 | 1:A:802:VAL:HB | 2.03 | 0.40 |
| 1:B:80:ILE:HG23 | 1:B:80:ILE:O | 2.22 | 0.40 |
| 1:B:113:GLN:CD | 1:B:114:PRO:HD2 | 2.39 | 0.40 |
| 1:B:183:PHE:O | 1:B:187:HIS:HB2 | 2.20 | 0.40 |
| 1:B:564:LEU:HD13 | 1:B:613:ARG:NH2 | 2.36 | 0.40 |
| 1:C:91:ARG:NH2 | 1:C:487:ALA:O | 2.54 | 0.40 |
| 1:D:61:ARG:C | 1:D:63:LYS:N | 2.74 | 0.40 |
| 1:D:102:VAL:HG23 | 1:D:109:VAL:HG22 | 2.02 | 0.40 |
| 1:D:665:LYS:HA | 1:D:665:LYS:HD3 | 1.80 | 0.40 |
| 1:E:348:THR:O | 1:E:351:GLU:HG2 | 2.22 | 0.40 |
| 1:E:719:GLN:NE2 | 4:E:913:SO4:O2 | 2.53 | 0.40 |
| 1:G:56:LEU:CB | 1:G:57:PRO:CD | 2.95 | 0.40 |
| 1:G:394:GLU:O | 1:G:398:VAL:HG23 | 2.20 | 0.40 |
| 1:G:470:PHE:CE1 | 1:G:791:TYR:HB2 | 2.55 | 0.40 |
| 1:G:491:GLU:H | 1:G:491:GLU:CD | 2.24 | 0.40 |
| 1:H:491:GLU:H | 1:H:491:GLU:CD | 2.25 | 0.40 |
| 1:H:566:VAL:O | 1:H:640:GLY:CA | 2.69 | 0.40 |
| 1:H:749:ILE:HD13 | 1:H:749:ILE:HA | 1.95 | 0.40 |
| 1:A:256:LEU:O | 1:A:260:LEU:HG | 2.21 | 0.40 |
| 1:A:284:LEU:HD13 | 1:A:284:LEU:HA | 1.96 | 0.40 |
| 1:B:52:GLU:OE1 | 1:B:57:PRO:CG | 2.69 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:233:PHE:HD1 | 1:B:238:LEU:CB | 2.35 | 0.40 |
| 1:B:398:VAL:O | 1:B:401:SER:HB3 | 2.22 | 0.40 |
| 1:B:664:THR:O | 1:B:665:LYS:HB2 | 2.21 | 0.40 |
| 1:C:276:PRO:HG3 | 1:C:326:GLN:HG3 | 2.02 | 0.40 |
| 1:C:338:THR:O | 1:C:366:ARG:HA | 2.22 | 0.40 |
| 1:C:662:CYS:SG | 1:C:689:LEU:HB2 | 2.61 | 0.40 |
| 1:E:30:LEU:O | 1:E:33:LEU:HB2 | 2.21 | 0.40 |
| 1:E:44:LEU:HD11 | 1:E:451:TYR:OH | 2.21 | 0.40 |
| 1:E:60:THR:O | 1:E:63:LYS:CG | 2.67 | 0.40 |
| 1:F:789:MET:CB | 1:G:789:MET:HE3 | 2.48 | 0.40 |
| 1:G:39:LYS:NZ | 1:G:105:HIS:CE1 | 2.90 | 0.40 |
| 1:G:69:PHE:O | 1:G:72:LEU:HB3 | 2.22 | 0.40 |
| 1:A:35:ARG:NH1 | 1:A:86:VAL:HG12 | 2.36 | 0.40 |
| 1:A:319:MET:O | 1:A:323:ILE:HG13 | 2.21 | 0.40 |
| 1:A:566:VAL:O | 1:A:640:GLY:CA | 2.69 | 0.40 |
| 1:B:292:GLN:OE1 | 1:B:357:TYR:N | 2.39 | 0.40 |
| 1:B:757:ILE:HD12 | 1:B:758:TYR:N | 2.37 | 0.40 |
| 1:C:46:GLN:HB3 | 1:C:50:ILE:HG12 | 2.03 | 0.40 |
| 1:C:173:ASP:HB3 | 1:C:176:SER:HB3 | 2.04 | 0.40 |
| 1:C:795:TYR:CD2 | 1:C:795:TYR:C | 2.95 | 0.40 |
| 1:E:39:LYS:HE3 | 1:E:105:HIS:NE2 | 2.37 | 0.40 |
| 1:E:140:GLU:N | 1:E:141:PRO:CD | 2.84 | 0.40 |
| 1:F:81:VAL:O | 1:F:81:VAL:HG23 | 2.21 | 0.40 |
| 1:F:83:PRO:HB2 | 1:F:85:TRP:H | 1.86 | 0.40 |
| 1:G:101:ARG:HD3 | 1:G:112:LEU:HD21 | 2.03 | 0.40 |
| 1:H:135:LEU:HD12 | 1:H:136:GLU:H | 1.83 | 0.40 |

There are no symmetry-related clashes.

5.3 Torsion angles [\(i\)](#)

5.3.1 Protein backbone [\(i\)](#)

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|----------|-------------|-----|
| 1 | A | 779/816 (96%) | 737 (95%) | 38 (5%) | 4 (0%) | 29 | 57 |
| 1 | B | 787/816 (96%) | 732 (93%) | 51 (6%) | 4 (0%) | 29 | 57 |
| 1 | C | 779/816 (96%) | 741 (95%) | 38 (5%) | 0 | 100 | 100 |
| 1 | D | 779/816 (96%) | 739 (95%) | 39 (5%) | 1 (0%) | 51 | 79 |
| 1 | E | 779/816 (96%) | 740 (95%) | 38 (5%) | 1 (0%) | 51 | 79 |
| 1 | F | 779/816 (96%) | 736 (94%) | 41 (5%) | 2 (0%) | 41 | 68 |
| 1 | G | 779/816 (96%) | 741 (95%) | 36 (5%) | 2 (0%) | 41 | 68 |
| 1 | H | 795/816 (97%) | 751 (94%) | 43 (5%) | 1 (0%) | 51 | 79 |
| All | All | 6256/6528 (96%) | 5917 (95%) | 324 (5%) | 15 (0%) | 47 | 75 |

All (15) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | B | 55 | ALA |
| 1 | B | 83 | PRO |
| 1 | A | 63 | LYS |
| 1 | D | 63 | LYS |
| 1 | A | 55 | ALA |
| 1 | G | 55 | ALA |
| 1 | G | 63 | LYS |
| 1 | H | 65 | GLU |
| 1 | A | 48 | GLN |
| 1 | F | 43 | ILE |
| 1 | A | 49 | ILE |
| 1 | E | 43 | ILE |
| 1 | B | 82 | LEU |
| 1 | B | 108 | VAL |
| 1 | F | 49 | ILE |

5.3.2 Protein sidechains [i](#)

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

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|---------------|-----------|----------|-------------|----|
| 1 | A | 668/718 (93%) | 626 (94%) | 42 (6%) | 18 | 42 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|-------------|----|
| 1 | B | 668/718 (93%) | 631 (94%) | 37 (6%) | 21 | 49 |
| 1 | C | 674/718 (94%) | 646 (96%) | 28 (4%) | 30 | 60 |
| 1 | D | 669/718 (93%) | 639 (96%) | 30 (4%) | 27 | 57 |
| 1 | E | 669/718 (93%) | 639 (96%) | 30 (4%) | 27 | 57 |
| 1 | F | 674/718 (94%) | 633 (94%) | 41 (6%) | 18 | 43 |
| 1 | G | 675/718 (94%) | 641 (95%) | 34 (5%) | 24 | 53 |
| 1 | H | 681/718 (95%) | 649 (95%) | 32 (5%) | 26 | 56 |
| All | All | 5378/5744 (94%) | 5104 (95%) | 274 (5%) | 24 | 52 |

All (274) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 30 | LEU |
| 1 | A | 39 | LYS |
| 1 | A | 44 | LEU |
| 1 | A | 49 | ILE |
| 1 | A | 54 | GLU |
| 1 | A | 56 | LEU |
| 1 | A | 59 | GLN |
| 1 | A | 72 | LEU |
| 1 | A | 76 | THR |
| 1 | A | 100 | LEU |
| 1 | A | 116 | GLU |
| 1 | A | 119 | HIS |
| 1 | A | 120 | PHE |
| 1 | A | 128 | VAL |
| 1 | A | 132 | ASN |
| 1 | A | 140 | GLU |
| 1 | A | 148 | ARG |
| 1 | A | 153 | LYS |
| 1 | A | 170 | LEU |
| 1 | A | 197 | SER |
| 1 | A | 205 | THR |
| 1 | A | 207 | GLN |
| 1 | A | 216 | TYR |
| 1 | A | 220 | LEU |
| 1 | A | 248 | ARG |
| 1 | A | 250 | LEU |
| 1 | A | 258 | ASP |
| 1 | A | 290 | PHE |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | A | 322 | ARG |
| 1 | A | 340 | LEU |
| 1 | A | 358 | ASP |
| 1 | A | 405 | ASN |
| 1 | A | 484 | GLN |
| 1 | A | 516 | VAL |
| 1 | A | 530 | MET |
| 1 | A | 556 | SER |
| 1 | A | 670 | GLN |
| 1 | A | 708 | SER |
| 1 | A | 743 | LYS |
| 1 | A | 757 | ILE |
| 1 | A | 777 | ASN |
| 1 | A | 781 | LEU |
| 1 | B | 32 | LEU |
| 1 | B | 43 | ILE |
| 1 | B | 45 | GLN |
| 1 | B | 56 | LEU |
| 1 | B | 59 | GLN |
| 1 | B | 65 | GLU |
| 1 | B | 70 | PHE |
| 1 | B | 73 | LEU |
| 1 | B | 103 | ASN |
| 1 | B | 105 | HIS |
| 1 | B | 132 | ASN |
| 1 | B | 143 | ASN |
| 1 | B | 148 | ARG |
| 1 | B | 167 | SER |
| 1 | B | 205 | THR |
| 1 | B | 216 | TYR |
| 1 | B | 222 | SER |
| 1 | B | 236 | ILE |
| 1 | B | 248 | ARG |
| 1 | B | 251 | ASP |
| 1 | B | 254 | ARG |
| 1 | B | 258 | ASP |
| 1 | B | 277 | MET |
| 1 | B | 307 | TYR |
| 1 | B | 358 | ASP |
| 1 | B | 425 | LEU |
| 1 | B | 456 | ASP |
| 1 | B | 484 | GLN |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | B | 492 | THR |
| 1 | B | 545 | LYS |
| 1 | B | 556 | SER |
| 1 | B | 602 | GLU |
| 1 | B | 646 | SER |
| 1 | B | 670 | GLN |
| 1 | B | 708 | SER |
| 1 | B | 743 | LYS |
| 1 | B | 779 | ASP |
| 1 | C | 44 | LEU |
| 1 | C | 45 | GLN |
| 1 | C | 50 | ILE |
| 1 | C | 52 | GLU |
| 1 | C | 54 | GLU |
| 1 | C | 81 | VAL |
| 1 | C | 101 | ARG |
| 1 | C | 105 | HIS |
| 1 | C | 128 | VAL |
| 1 | C | 164 | ARG |
| 1 | C | 205 | THR |
| 1 | C | 216 | TYR |
| 1 | C | 240 | ARG |
| 1 | C | 248 | ARG |
| 1 | C | 251 | ASP |
| 1 | C | 252 | MET |
| 1 | C | 258 | ASP |
| 1 | C | 264 | ASP |
| 1 | C | 345 | VAL |
| 1 | C | 405 | ASN |
| 1 | C | 484 | GLN |
| 1 | C | 516 | VAL |
| 1 | C | 530 | MET |
| 1 | C | 556 | SER |
| 1 | C | 602 | GLU |
| 1 | C | 670 | GLN |
| 1 | C | 777 | ASN |
| 1 | C | 804 | LEU |
| 1 | D | 27 | ASN |
| 1 | D | 44 | LEU |
| 1 | D | 45 | GLN |
| 1 | D | 50 | ILE |
| 1 | D | 52 | GLU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | D | 54 | GLU |
| 1 | D | 72 | LEU |
| 1 | D | 76 | THR |
| 1 | D | 82 | LEU |
| 1 | D | 113 | GLN |
| 1 | D | 120 | PHE |
| 1 | D | 146 | ILE |
| 1 | D | 153 | LYS |
| 1 | D | 208 | HIS |
| 1 | D | 216 | TYR |
| 1 | D | 258 | ASP |
| 1 | D | 284 | LEU |
| 1 | D | 293 | ASP |
| 1 | D | 321 | GLN |
| 1 | D | 345 | VAL |
| 1 | D | 358 | ASP |
| 1 | D | 456 | ASP |
| 1 | D | 484 | GLN |
| 1 | D | 490 | LYS |
| 1 | D | 516 | VAL |
| 1 | D | 544 | THR |
| 1 | D | 556 | SER |
| 1 | D | 708 | SER |
| 1 | D | 743 | LYS |
| 1 | D | 757 | ILE |
| 1 | E | 30 | LEU |
| 1 | E | 32 | LEU |
| 1 | E | 45 | GLN |
| 1 | E | 46 | GLN |
| 1 | E | 50 | ILE |
| 1 | E | 56 | LEU |
| 1 | E | 59 | GLN |
| 1 | E | 81 | VAL |
| 1 | E | 85 | TRP |
| 1 | E | 105 | HIS |
| 1 | E | 125 | VAL |
| 1 | E | 132 | ASN |
| 1 | E | 146 | ILE |
| 1 | E | 167 | SER |
| 1 | E | 178 | LEU |
| 1 | E | 205 | THR |
| 1 | E | 216 | TYR |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | E | 264 | ASP |
| 1 | E | 322 | ARG |
| 1 | E | 345 | VAL |
| 1 | E | 358 | ASP |
| 1 | E | 456 | ASP |
| 1 | E | 484 | GLN |
| 1 | E | 492 | THR |
| 1 | E | 516 | VAL |
| 1 | E | 641 | GLN |
| 1 | E | 646 | SER |
| 1 | E | 670 | GLN |
| 1 | E | 743 | LYS |
| 1 | E | 778 | LEU |
| 1 | F | 32 | LEU |
| 1 | F | 43 | ILE |
| 1 | F | 44 | LEU |
| 1 | F | 45 | GLN |
| 1 | F | 52 | GLU |
| 1 | F | 54 | GLU |
| 1 | F | 56 | LEU |
| 1 | F | 59 | GLN |
| 1 | F | 69 | PHE |
| 1 | F | 73 | LEU |
| 1 | F | 74 | LYS |
| 1 | F | 82 | LEU |
| 1 | F | 100 | LEU |
| 1 | F | 101 | ARG |
| 1 | F | 111 | GLU |
| 1 | F | 132 | ASN |
| 1 | F | 148 | ARG |
| 1 | F | 178 | LEU |
| 1 | F | 205 | THR |
| 1 | F | 216 | TYR |
| 1 | F | 228 | GLU |
| 1 | F | 253 | ILE |
| 1 | F | 258 | ASP |
| 1 | F | 285 | SER |
| 1 | F | 322 | ARG |
| 1 | F | 345 | VAL |
| 1 | F | 360 | GLU |
| 1 | F | 375 | ILE |
| 1 | F | 420 | LEU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | F | 484 | GLN |
| 1 | F | 516 | VAL |
| 1 | F | 537 | THR |
| 1 | F | 556 | SER |
| 1 | F | 616 | GLU |
| 1 | F | 664 | THR |
| 1 | F | 670 | GLN |
| 1 | F | 708 | SER |
| 1 | F | 743 | LYS |
| 1 | F | 750 | GLU |
| 1 | F | 757 | ILE |
| 1 | F | 777 | ASN |
| 1 | G | 28 | GLU |
| 1 | G | 32 | LEU |
| 1 | G | 41 | LYS |
| 1 | G | 45 | GLN |
| 1 | G | 48 | GLN |
| 1 | G | 50 | ILE |
| 1 | G | 54 | GLU |
| 1 | G | 56 | LEU |
| 1 | G | 61 | ARG |
| 1 | G | 65 | GLU |
| 1 | G | 81 | VAL |
| 1 | G | 82 | LEU |
| 1 | G | 90 | VAL |
| 1 | G | 125 | VAL |
| 1 | G | 132 | ASN |
| 1 | G | 146 | ILE |
| 1 | G | 170 | LEU |
| 1 | G | 205 | THR |
| 1 | G | 208 | HIS |
| 1 | G | 216 | TYR |
| 1 | G | 240 | ARG |
| 1 | G | 258 | ASP |
| 1 | G | 315 | LEU |
| 1 | G | 322 | ARG |
| 1 | G | 340 | LEU |
| 1 | G | 358 | ASP |
| 1 | G | 456 | ASP |
| 1 | G | 484 | GLN |
| 1 | G | 516 | VAL |
| 1 | G | 670 | GLN |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | G | 692 | PHE |
| 1 | G | 743 | LYS |
| 1 | G | 781 | LEU |
| 1 | G | 782 | GLU |
| 1 | H | 18 | LEU |
| 1 | H | 21 | THR |
| 1 | H | 22 | LEU |
| 1 | H | 32 | LEU |
| 1 | H | 45 | GLN |
| 1 | H | 60 | THR |
| 1 | H | 61 | ARG |
| 1 | H | 73 | LEU |
| 1 | H | 81 | VAL |
| 1 | H | 105 | HIS |
| 1 | H | 112 | LEU |
| 1 | H | 113 | GLN |
| 1 | H | 124 | LEU |
| 1 | H | 143 | ASN |
| 1 | H | 146 | ILE |
| 1 | H | 148 | ARG |
| 1 | H | 167 | SER |
| 1 | H | 173 | ASP |
| 1 | H | 205 | THR |
| 1 | H | 216 | TYR |
| 1 | H | 222 | SER |
| 1 | H | 251 | ASP |
| 1 | H | 258 | ASP |
| 1 | H | 484 | GLN |
| 1 | H | 492 | THR |
| 1 | H | 545 | LYS |
| 1 | H | 556 | SER |
| 1 | H | 670 | GLN |
| 1 | H | 708 | SER |
| 1 | H | 757 | ILE |
| 1 | H | 759 | SER |
| 1 | H | 779 | ASP |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (59) such sidechains are listed below:

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | A | 27 | ASN |
| 1 | A | 45 | GLN |

Continued on next page...

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | A | 59 | GLN |
| 1 | A | 189 | HIS |
| 1 | A | 294 | ASN |
| 1 | A | 414 | ASN |
| 1 | A | 777 | ASN |
| 1 | B | 46 | GLN |
| 1 | B | 47 | ASN |
| 1 | B | 59 | GLN |
| 1 | B | 132 | ASN |
| 1 | B | 208 | HIS |
| 1 | B | 321 | GLN |
| 1 | B | 547 | HIS |
| 1 | C | 46 | GLN |
| 1 | C | 48 | GLN |
| 1 | C | 59 | GLN |
| 1 | C | 119 | HIS |
| 1 | C | 189 | HIS |
| 1 | C | 311 | GLN |
| 1 | D | 27 | ASN |
| 1 | D | 45 | GLN |
| 1 | D | 46 | GLN |
| 1 | D | 48 | GLN |
| 1 | D | 59 | GLN |
| 1 | D | 113 | GLN |
| 1 | D | 189 | HIS |
| 1 | D | 304 | GLN |
| 1 | D | 414 | ASN |
| 1 | D | 427 | HIS |
| 1 | E | 47 | ASN |
| 1 | E | 189 | HIS |
| 1 | E | 190 | GLN |
| 1 | E | 405 | ASN |
| 1 | E | 414 | ASN |
| 1 | F | 59 | GLN |
| 1 | F | 119 | HIS |
| 1 | F | 190 | GLN |
| 1 | F | 311 | GLN |
| 1 | G | 45 | GLN |
| 1 | G | 48 | GLN |
| 1 | G | 59 | GLN |
| 1 | G | 103 | ASN |
| 1 | G | 105 | HIS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | G | 132 | ASN |
| 1 | G | 326 | GLN |
| 1 | G | 427 | HIS |
| 1 | G | 484 | GLN |
| 1 | G | 547 | HIS |
| 1 | H | 12 | HIS |
| 1 | H | 46 | GLN |
| 1 | H | 103 | ASN |
| 1 | H | 105 | HIS |
| 1 | H | 119 | HIS |
| 1 | H | 201 | GLN |
| 1 | H | 207 | GLN |
| 1 | H | 321 | GLN |
| 1 | H | 484 | GLN |
| 1 | H | 495 | 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 66 ligands modelled in this entry, 8 are monoatomic - leaving 58 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 |
| 3 | FRU | B | 902 | - | 11,12,12 | 0.68 | 0 | 10,18,18 | 1.22 | 1 (10%) |
| 2 | UDP | D | 901 | - | 24,26,26 | 1.04 | 1 (4%) | 37,40,40 | 1.67 | 5 (13%) |
| 3 | FRU | C | 902 | - | 11,12,12 | 0.66 | 0 | 10,18,18 | 1.15 | 0 |
| 4 | SO4 | C | 912 | - | 4,4,4 | 0.15 | 0 | 6,6,6 | 0.09 | 0 |
| 4 | SO4 | G | 911 | - | 4,4,4 | 0.19 | 0 | 6,6,6 | 0.18 | 0 |
| 4 | SO4 | E | 913 | - | 4,4,4 | 0.18 | 0 | 6,6,6 | 0.12 | 0 |
| 4 | SO4 | E | 911 | - | 4,4,4 | 0.23 | 0 | 6,6,6 | 0.31 | 0 |
| 4 | SO4 | E | 912 | - | 4,4,4 | 0.16 | 0 | 6,6,6 | 0.10 | 0 |
| 5 | MLA | G | 922 | - | 6,6,6 | 1.18 | 0 | 7,7,7 | 1.32 | 0 |
| 4 | SO4 | B | 913 | - | 4,4,4 | 0.23 | 0 | 6,6,6 | 0.16 | 0 |
| 4 | SO4 | E | 914 | - | 4,4,4 | 0.18 | 0 | 6,6,6 | 0.12 | 0 |
| 5 | MLA | H | 921 | - | 6,6,6 | 1.25 | 0 | 7,7,7 | 1.17 | 0 |
| 5 | MLA | D | 921 | - | 6,6,6 | 1.16 | 0 | 7,7,7 | 1.36 | 1 (14%) |
| 4 | SO4 | A | 911 | - | 4,4,4 | 0.18 | 0 | 6,6,6 | 0.28 | 0 |
| 2 | UDP | E | 901 | - | 24,26,26 | 1.01 | 1 (4%) | 37,40,40 | 1.57 | 7 (18%) |
| 4 | SO4 | D | 913 | - | 4,4,4 | 0.23 | 0 | 6,6,6 | 0.13 | 0 |
| 3 | FRU | E | 902 | - | 11,12,12 | 0.79 | 1 (9%) | 10,18,18 | 1.00 | 0 |
| 2 | UDP | G | 901 | - | 24,26,26 | 0.97 | 0 | 37,40,40 | 1.65 | 6 (16%) |
| 4 | SO4 | F | 911 | - | 4,4,4 | 0.23 | 0 | 6,6,6 | 0.22 | 0 |
| 3 | FRU | F | 902 | - | 11,12,12 | 0.59 | 0 | 10,18,18 | 1.08 | 0 |
| 3 | FRU | A | 902 | - | 11,12,12 | 0.65 | 0 | 10,18,18 | 1.18 | 0 |
| 4 | SO4 | H | 913 | - | 4,4,4 | 0.19 | 0 | 6,6,6 | 0.13 | 0 |
| 4 | SO4 | A | 912 | - | 4,4,4 | 0.19 | 0 | 6,6,6 | 0.09 | 0 |
| 4 | SO4 | G | 913 | - | 4,4,4 | 0.20 | 0 | 6,6,6 | 0.15 | 0 |
| 4 | SO4 | H | 911 | - | 4,4,4 | 0.25 | 0 | 6,6,6 | 0.19 | 0 |
| 4 | SO4 | B | 912 | - | 4,4,4 | 0.18 | 0 | 6,6,6 | 0.09 | 0 |
| 2 | UDP | H | 901 | - | 24,26,26 | 0.99 | 0 | 37,40,40 | 1.61 | 7 (18%) |
| 3 | FRU | D | 902 | - | 11,12,12 | 0.68 | 0 | 10,18,18 | 0.99 | 0 |
| 2 | UDP | C | 901 | - | 24,26,26 | 0.90 | 0 | 37,40,40 | 1.63 | 6 (16%) |
| 4 | SO4 | D | 912 | - | 4,4,4 | 0.18 | 0 | 6,6,6 | 0.12 | 0 |
| 5 | MLA | C | 921 | - | 6,6,6 | 1.14 | 0 | 7,7,7 | 1.49 | 1 (14%) |
| 4 | SO4 | H | 912 | - | 4,4,4 | 0.16 | 0 | 6,6,6 | 0.08 | 0 |
| 5 | MLA | G | 921 | - | 6,6,6 | 1.08 | 0 | 7,7,7 | 1.61 | 1 (14%) |
| 3 | FRU | H | 902 | - | 11,12,12 | 1.12 | 1 (9%) | 10,18,18 | 1.24 | 0 |
| 5 | MLA | H | 922 | - | 6,6,6 | 1.17 | 0 | 7,7,7 | 1.34 | 0 |
| 3 | FRU | G | 902 | - | 11,12,12 | 1.09 | 1 (9%) | 10,18,18 | 1.21 | 1 (10%) |
| 4 | SO4 | A | 913 | - | 4,4,4 | 0.22 | 0 | 6,6,6 | 0.22 | 0 |
| 5 | MLA | E | 921 | - | 6,6,6 | 1.30 | 0 | 7,7,7 | 0.99 | 0 |
| 4 | SO4 | G | 912 | - | 4,4,4 | 0.15 | 0 | 6,6,6 | 0.08 | 0 |
| 4 | SO4 | G | 914 | - | 4,4,4 | 0.18 | 0 | 6,6,6 | 0.13 | 0 |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 4 | SO4 | A | 914 | - | 4,4,4 | 0.16 | 0 | 6,6,6 | 0.11 | 0 |
| 4 | SO4 | F | 913 | - | 4,4,4 | 0.22 | 0 | 6,6,6 | 0.17 | 0 |
| 5 | MLA | F | 922 | - | 6,6,6 | 1.15 | 0 | 7,7,7 | 1.33 | 0 |
| 5 | MLA | B | 921 | - | 6,6,6 | 1.32 | 0 | 7,7,7 | 1.11 | 0 |
| 4 | SO4 | B | 911 | - | 4,4,4 | 0.26 | 0 | 6,6,6 | 0.25 | 0 |
| 4 | SO4 | D | 911 | - | 4,4,4 | 0.17 | 0 | 6,6,6 | 0.28 | 0 |
| 4 | SO4 | C | 911 | - | 4,4,4 | 0.18 | 0 | 6,6,6 | 0.21 | 0 |
| 4 | SO4 | F | 914 | - | 4,4,4 | 0.18 | 0 | 6,6,6 | 0.10 | 0 |
| 2 | UDP | F | 901 | - | 24,26,26 | 0.91 | 0 | 37,40,40 | 1.63 | 6 (16%) |
| 2 | UDP | A | 901 | - | 24,26,26 | 0.95 | 0 | 37,40,40 | 1.59 | 6 (16%) |
| 4 | SO4 | A | 915 | - | 4,4,4 | 0.15 | 0 | 6,6,6 | 0.07 | 0 |
| 5 | MLA | A | 921 | - | 6,6,6 | 1.16 | 0 | 7,7,7 | 1.32 | 1 (14%) |
| 5 | MLA | D | 922 | - | 6,6,6 | 1.15 | 0 | 7,7,7 | 1.37 | 0 |
| 4 | SO4 | C | 913 | - | 4,4,4 | 0.17 | 0 | 6,6,6 | 0.09 | 0 |
| 5 | MLA | F | 921 | - | 6,6,6 | 1.25 | 0 | 7,7,7 | 1.15 | 0 |
| 4 | SO4 | F | 912 | - | 4,4,4 | 0.17 | 0 | 6,6,6 | 0.14 | 0 |
| 4 | SO4 | D | 914 | - | 4,4,4 | 0.17 | 0 | 6,6,6 | 0.18 | 0 |
| 2 | UDP | B | 901 | - | 24,26,26 | 0.93 | 0 | 37,40,40 | 1.50 | 5 (13%) |

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. ^{1,2} means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|------------|---------|
| 3 | FRU | B | 902 | - | - | 1/5/24/24 | 0/1/1/1 |
| 2 | UDP | D | 901 | - | - | 7/16/32/32 | 0/2/2/2 |
| 3 | FRU | C | 902 | - | - | 1/5/24/24 | 0/1/1/1 |
| 5 | MLA | G | 922 | - | - | 0/4/4/4 | - |
| 5 | MLA | H | 921 | - | - | 0/4/4/4 | - |
| 5 | MLA | D | 921 | - | - | 2/4/4/4 | - |
| 2 | UDP | E | 901 | - | - | 5/16/32/32 | 0/2/2/2 |
| 3 | FRU | E | 902 | - | - | 3/5/24/24 | 0/1/1/1 |
| 2 | UDP | G | 901 | - | - | 7/16/32/32 | 0/2/2/2 |
| 3 | FRU | F | 902 | - | - | 5/5/24/24 | 0/1/1/1 |
| 3 | FRU | A | 902 | - | - | 3/5/24/24 | 0/1/1/1 |
| 2 | UDP | B | 901 | - | - | 6/16/32/32 | 0/2/2/2 |
| 2 | UDP | H | 901 | - | - | 5/16/32/32 | 0/2/2/2 |
| 5 | MLA | C | 921 | - | - | 0/4/4/4 | - |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|------------|---------|
| 3 | FRU | D | 902 | - | - | 5/5/24/24 | 0/1/1/1 |
| 2 | UDP | C | 901 | - | - | 5/16/32/32 | 0/2/2/2 |
| 5 | MLA | G | 921 | - | - | 2/4/4/4 | - |
| 5 | MLA | H | 922 | - | - | 0/4/4/4 | - |
| 3 | FRU | H | 902 | - | - | 5/5/24/24 | 0/1/1/1 |
| 3 | FRU | G | 902 | - | - | 5/5/24/24 | 0/1/1/1 |
| 5 | MLA | E | 921 | - | - | 0/4/4/4 | - |
| 5 | MLA | F | 922 | - | - | 0/4/4/4 | - |
| 2 | UDP | F | 901 | - | - | 7/16/32/32 | 0/2/2/2 |
| 2 | UDP | A | 901 | - | - | 3/16/32/32 | 0/2/2/2 |
| 5 | MLA | A | 921 | - | - | 0/4/4/4 | - |
| 5 | MLA | F | 921 | - | - | 0/4/4/4 | - |
| 5 | MLA | D | 922 | - | - | 2/4/4/4 | - |
| 5 | MLA | B | 921 | - | - | 2/4/4/4 | - |

All (5) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 3 | G | 902 | FRU | O5-C2 | -2.58 | 1.39 | 1.43 |
| 2 | E | 901 | UDP | C5-C4 | -2.40 | 1.38 | 1.43 |
| 3 | E | 902 | FRU | O2-C2 | 2.32 | 1.44 | 1.40 |
| 3 | H | 902 | FRU | O5-C2 | -2.10 | 1.40 | 1.43 |
| 2 | D | 901 | UDP | O4'-C4' | -2.01 | 1.40 | 1.45 |

All (54) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 2 | F | 901 | UDP | C4-N3-C2 | -5.64 | 119.14 | 126.58 |
| 2 | G | 901 | UDP | C4-N3-C2 | -5.57 | 119.23 | 126.58 |
| 2 | C | 901 | UDP | C4-N3-C2 | -5.46 | 119.38 | 126.58 |
| 2 | D | 901 | UDP | C4-N3-C2 | -5.46 | 119.38 | 126.58 |
| 2 | H | 901 | UDP | C4-N3-C2 | -5.29 | 119.60 | 126.58 |
| 2 | A | 901 | UDP | C4-N3-C2 | -5.28 | 119.61 | 126.58 |
| 2 | E | 901 | UDP | C4-N3-C2 | -4.93 | 120.08 | 126.58 |
| 2 | B | 901 | UDP | C4-N3-C2 | -4.54 | 120.60 | 126.58 |
| 2 | F | 901 | UDP | N3-C2-N1 | 4.48 | 120.83 | 114.89 |
| 2 | C | 901 | UDP | N3-C2-N1 | 4.29 | 120.58 | 114.89 |
| 2 | A | 901 | UDP | N3-C2-N1 | 4.23 | 120.50 | 114.89 |
| 2 | G | 901 | UDP | N3-C2-N1 | 4.14 | 120.38 | 114.89 |
| 2 | D | 901 | UDP | PA-O3A-PB | -4.01 | 119.06 | 132.83 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 2 | D | 901 | UDP | C5-C4-N3 | 3.98 | 120.79 | 114.84 |
| 2 | D | 901 | UDP | N3-C2-N1 | 3.94 | 120.12 | 114.89 |
| 2 | E | 901 | UDP | N3-C2-N1 | 3.68 | 119.78 | 114.89 |
| 2 | B | 901 | UDP | N3-C2-N1 | 3.67 | 119.76 | 114.89 |
| 2 | G | 901 | UDP | C5-C4-N3 | 3.55 | 120.15 | 114.84 |
| 2 | H | 901 | UDP | N3-C2-N1 | 3.44 | 119.46 | 114.89 |
| 2 | B | 901 | UDP | PA-O3A-PB | -3.32 | 121.43 | 132.83 |
| 2 | H | 901 | UDP | C5-C4-N3 | 3.24 | 119.69 | 114.84 |
| 2 | A | 901 | UDP | O2-C2-N1 | -3.23 | 118.49 | 122.79 |
| 2 | E | 901 | UDP | PA-O3A-PB | -3.20 | 121.84 | 132.83 |
| 2 | C | 901 | UDP | C5-C4-N3 | 3.20 | 119.62 | 114.84 |
| 2 | G | 901 | UDP | PA-O3A-PB | -3.18 | 121.93 | 132.83 |
| 2 | F | 901 | UDP | C5-C4-N3 | 3.16 | 119.57 | 114.84 |
| 2 | H | 901 | UDP | PA-O3A-PB | -3.13 | 122.09 | 132.83 |
| 2 | E | 901 | UDP | C5-C4-N3 | 3.10 | 119.48 | 114.84 |
| 2 | A | 901 | UDP | PA-O3A-PB | -3.04 | 122.39 | 132.83 |
| 2 | A | 901 | UDP | C5-C4-N3 | 3.01 | 119.35 | 114.84 |
| 2 | C | 901 | UDP | O4-C4-C5 | -2.89 | 120.08 | 125.16 |
| 2 | E | 901 | UDP | O4-C4-C5 | -2.84 | 120.17 | 125.16 |
| 2 | H | 901 | UDP | O4-C4-C5 | -2.80 | 120.23 | 125.16 |
| 2 | C | 901 | UDP | PA-O3A-PB | -2.75 | 123.39 | 132.83 |
| 2 | F | 901 | UDP | O2-C2-N1 | -2.66 | 119.25 | 122.79 |
| 2 | G | 901 | UDP | O2-C2-N1 | -2.66 | 119.25 | 122.79 |
| 2 | E | 901 | UDP | O2-C2-N1 | -2.62 | 119.31 | 122.79 |
| 2 | G | 901 | UDP | O4-C4-C5 | -2.61 | 120.56 | 125.16 |
| 2 | B | 901 | UDP | C5-C4-N3 | 2.59 | 118.72 | 114.84 |
| 2 | F | 901 | UDP | O4-C4-C5 | -2.55 | 120.67 | 125.16 |
| 2 | C | 901 | UDP | O2-C2-N1 | -2.51 | 119.44 | 122.79 |
| 2 | A | 901 | UDP | O4-C4-C5 | -2.46 | 120.84 | 125.16 |
| 2 | B | 901 | UDP | O4-C4-C5 | -2.42 | 120.91 | 125.16 |
| 2 | D | 901 | UDP | O4-C4-C5 | -2.42 | 120.91 | 125.16 |
| 3 | B | 902 | FRU | O4-C4-C3 | -2.38 | 105.02 | 112.15 |
| 2 | H | 901 | UDP | O2-C2-N1 | -2.30 | 119.73 | 122.79 |
| 2 | H | 901 | UDP | C5-C6-N1 | -2.29 | 117.98 | 121.81 |
| 2 | E | 901 | UDP | O2B-PB-O3A | 2.29 | 112.31 | 104.64 |
| 5 | C | 921 | MLA | O3B-C3-C2 | 2.20 | 121.57 | 114.54 |
| 2 | F | 901 | UDP | C5-C6-N1 | -2.18 | 118.16 | 121.81 |
| 5 | D | 921 | MLA | O3B-C3-C2 | 2.16 | 121.45 | 114.54 |
| 5 | G | 921 | MLA | O3B-C3-C2 | 2.14 | 121.37 | 114.54 |
| 3 | G | 902 | FRU | O4-C4-C5 | -2.06 | 105.09 | 111.05 |
| 5 | A | 921 | MLA | O1A-C1-C2 | 2.00 | 120.93 | 114.54 |

There are no chirality outliers.

All (81) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-----------------|
| 2 | B | 901 | UDP | PA-O3A-PB-O2B |
| 2 | B | 901 | UDP | PA-O3A-PB-O3B |
| 2 | C | 901 | UDP | PA-O3A-PB-O2B |
| 2 | C | 901 | UDP | PA-O3A-PB-O3B |
| 2 | D | 901 | UDP | C5'-O5'-PA-O1A |
| 2 | E | 901 | UDP | PA-O3A-PB-O2B |
| 2 | F | 901 | UDP | C5'-O5'-PA-O1A |
| 2 | F | 901 | UDP | C5'-O5'-PA-O3A |
| 2 | G | 901 | UDP | C5'-O5'-PA-O1A |
| 2 | G | 901 | UDP | PA-O3A-PB-O2B |
| 2 | H | 901 | UDP | PA-O3A-PB-O2B |
| 2 | H | 901 | UDP | PA-O3A-PB-O3B |
| 3 | E | 902 | FRU | O1-C1-C2-C3 |
| 3 | E | 902 | FRU | O1-C1-C2-O2 |
| 3 | G | 902 | FRU | O1-C1-C2-C3 |
| 3 | H | 902 | FRU | O1-C1-C2-C3 |
| 3 | G | 902 | FRU | C4-C5-C6-O6 |
| 3 | H | 902 | FRU | O5-C5-C6-O6 |
| 3 | G | 902 | FRU | O5-C5-C6-O6 |
| 3 | H | 902 | FRU | C4-C5-C6-O6 |
| 2 | A | 901 | UDP | O4'-C4'-C5'-O5' |
| 2 | C | 901 | UDP | O4'-C4'-C5'-O5' |
| 2 | E | 901 | UDP | C3'-C4'-C5'-O5' |
| 2 | E | 901 | UDP | O4'-C4'-C5'-O5' |
| 2 | H | 901 | UDP | O4'-C4'-C5'-O5' |
| 3 | F | 902 | FRU | C4-C5-C6-O6 |
| 2 | G | 901 | UDP | O4'-C4'-C5'-O5' |
| 3 | F | 902 | FRU | O5-C5-C6-O6 |
| 3 | E | 902 | FRU | O1-C1-C2-O5 |
| 3 | F | 902 | FRU | O1-C1-C2-O5 |
| 2 | A | 901 | UDP | C3'-C4'-C5'-O5' |
| 2 | H | 901 | UDP | C3'-C4'-C5'-O5' |
| 2 | C | 901 | UDP | C3'-C4'-C5'-O5' |
| 3 | F | 902 | FRU | O1-C1-C2-C3 |
| 3 | D | 902 | FRU | O5-C5-C6-O6 |
| 3 | F | 902 | FRU | O1-C1-C2-O2 |
| 2 | G | 901 | UDP | C3'-C4'-C5'-O5' |
| 5 | D | 922 | MLA | O1A-C1-C2-C3 |
| 2 | B | 901 | UDP | O4'-C4'-C5'-O5' |
| 3 | D | 902 | FRU | C4-C5-C6-O6 |
| 5 | D | 922 | MLA | O1B-C1-C2-C3 |
| 3 | C | 902 | FRU | O1-C1-C2-C3 |

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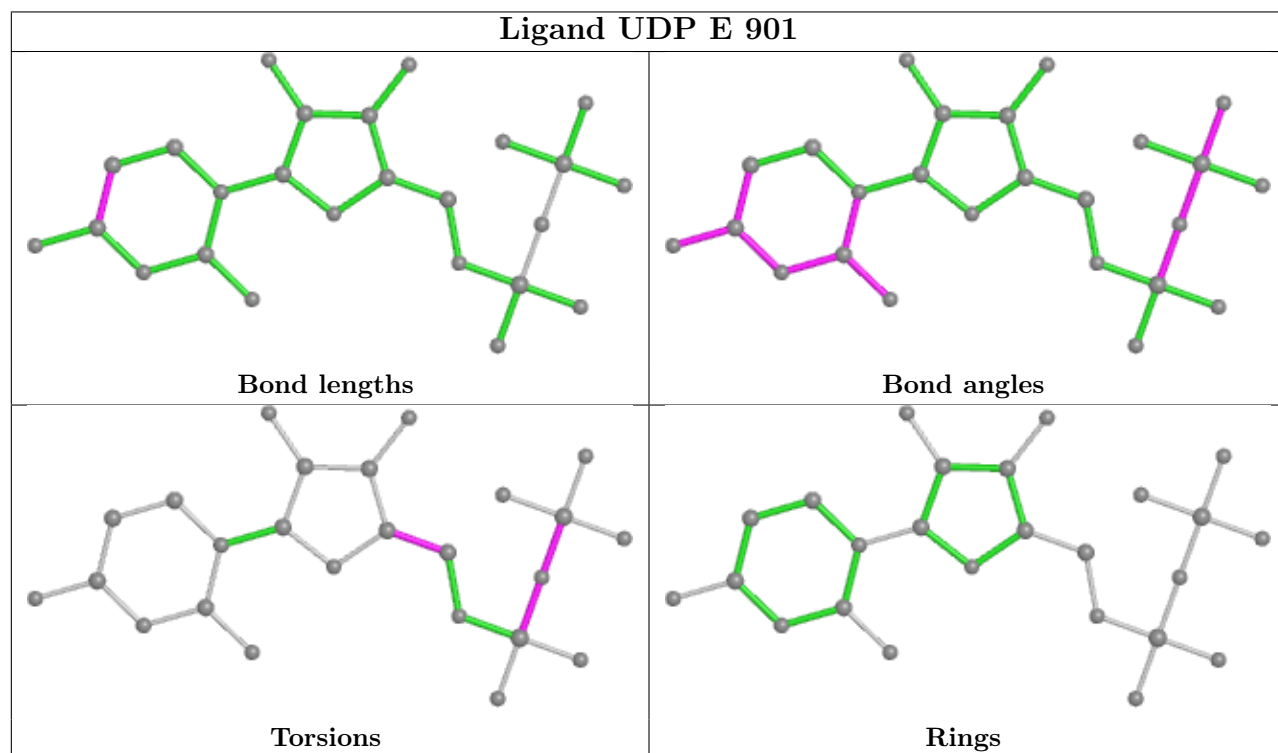
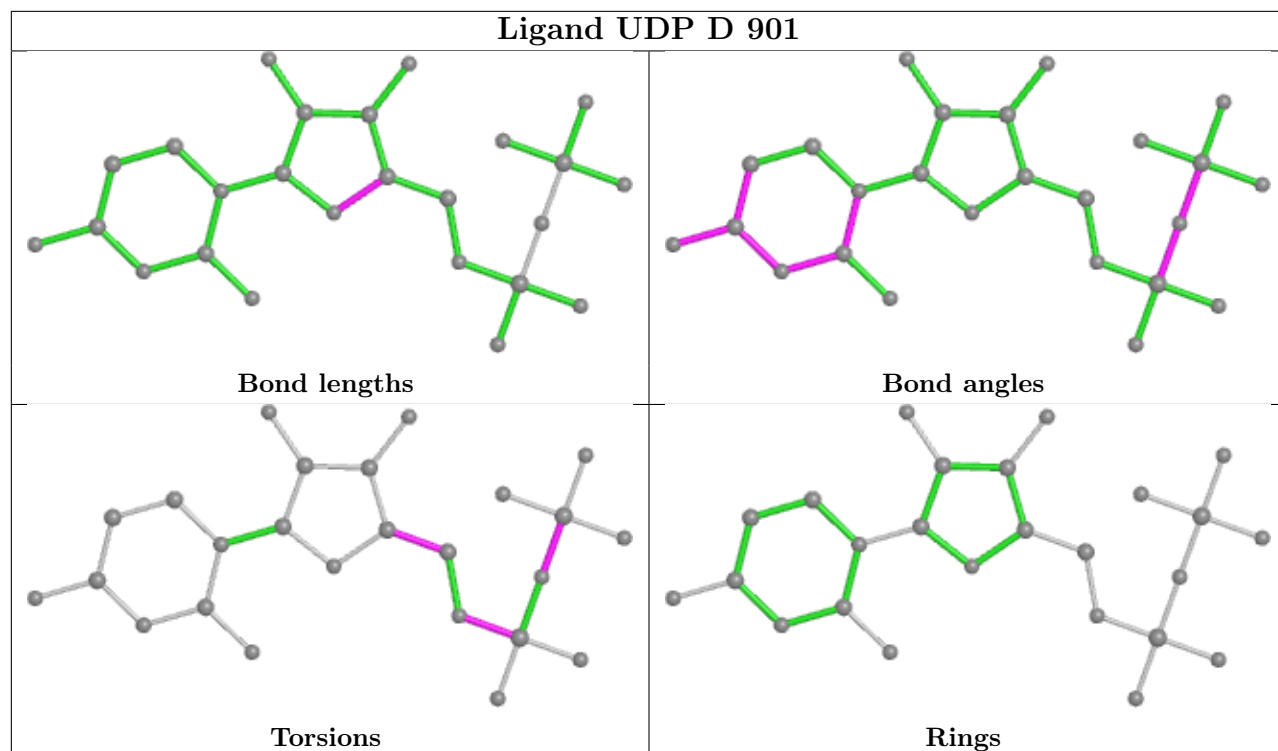
| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-----------------|
| 3 | H | 902 | FRU | O1-C1-C2-O5 |
| 2 | A | 901 | UDP | PB-O3A-PA-O5' |
| 2 | E | 901 | UDP | PB-O3A-PA-O5' |
| 2 | H | 901 | UDP | PB-O3A-PA-O5' |
| 2 | F | 901 | UDP | PA-O3A-PB-O2B |
| 2 | D | 901 | UDP | C5'-O5'-PA-O3A |
| 2 | G | 901 | UDP | C5'-O5'-PA-O3A |
| 5 | G | 921 | MLA | O1B-C1-C2-C3 |
| 5 | D | 921 | MLA | C1-C2-C3-O3A |
| 5 | D | 921 | MLA | C1-C2-C3-O3B |
| 3 | G | 902 | FRU | O1-C1-C2-O2 |
| 3 | H | 902 | FRU | O1-C1-C2-O2 |
| 3 | G | 902 | FRU | O1-C1-C2-O5 |
| 2 | D | 901 | UDP | O4'-C4'-C5'-O5' |
| 5 | G | 921 | MLA | O1A-C1-C2-C3 |
| 2 | B | 901 | UDP | C3'-C4'-C5'-O5' |
| 2 | D | 901 | UDP | PA-O3A-PB-O1B |
| 2 | E | 901 | UDP | PA-O3A-PB-O1B |
| 5 | B | 921 | MLA | O1B-C1-C2-C3 |
| 2 | F | 901 | UDP | PB-O3A-PA-O1A |
| 3 | A | 902 | FRU | O5-C5-C6-O6 |
| 3 | D | 902 | FRU | O1-C1-C2-O2 |
| 2 | G | 901 | UDP | PA-O3A-PB-O1B |
| 5 | B | 921 | MLA | O1A-C1-C2-C3 |
| 2 | D | 901 | UDP | PA-O3A-PB-O2B |
| 2 | D | 901 | UDP | PA-O3A-PB-O3B |
| 2 | F | 901 | UDP | PA-O3A-PB-O3B |
| 2 | G | 901 | UDP | PA-O3A-PB-O3B |
| 3 | A | 902 | FRU | C4-C5-C6-O6 |
| 3 | D | 902 | FRU | O1-C1-C2-O5 |
| 2 | D | 901 | UDP | C3'-C4'-C5'-O5' |
| 2 | F | 901 | UDP | O4'-C4'-C5'-O5' |
| 3 | A | 902 | FRU | O1-C1-C2-C3 |
| 3 | B | 902 | FRU | O1-C1-C2-C3 |
| 3 | D | 902 | FRU | O1-C1-C2-C3 |
| 2 | B | 901 | UDP | C5'-O5'-PA-O1A |
| 2 | C | 901 | UDP | C5'-O5'-PA-O1A |
| 2 | F | 901 | UDP | C5'-O5'-PA-O2A |
| 2 | B | 901 | UDP | PA-O3A-PB-O1B |

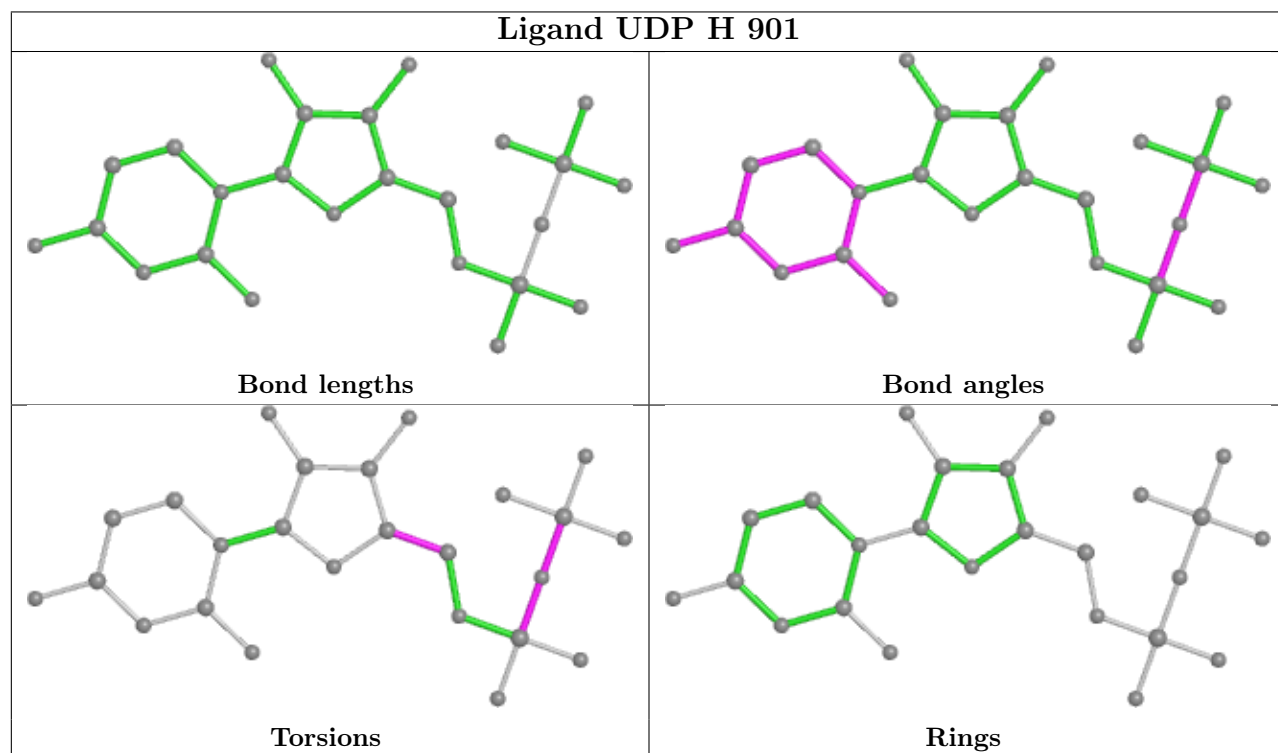
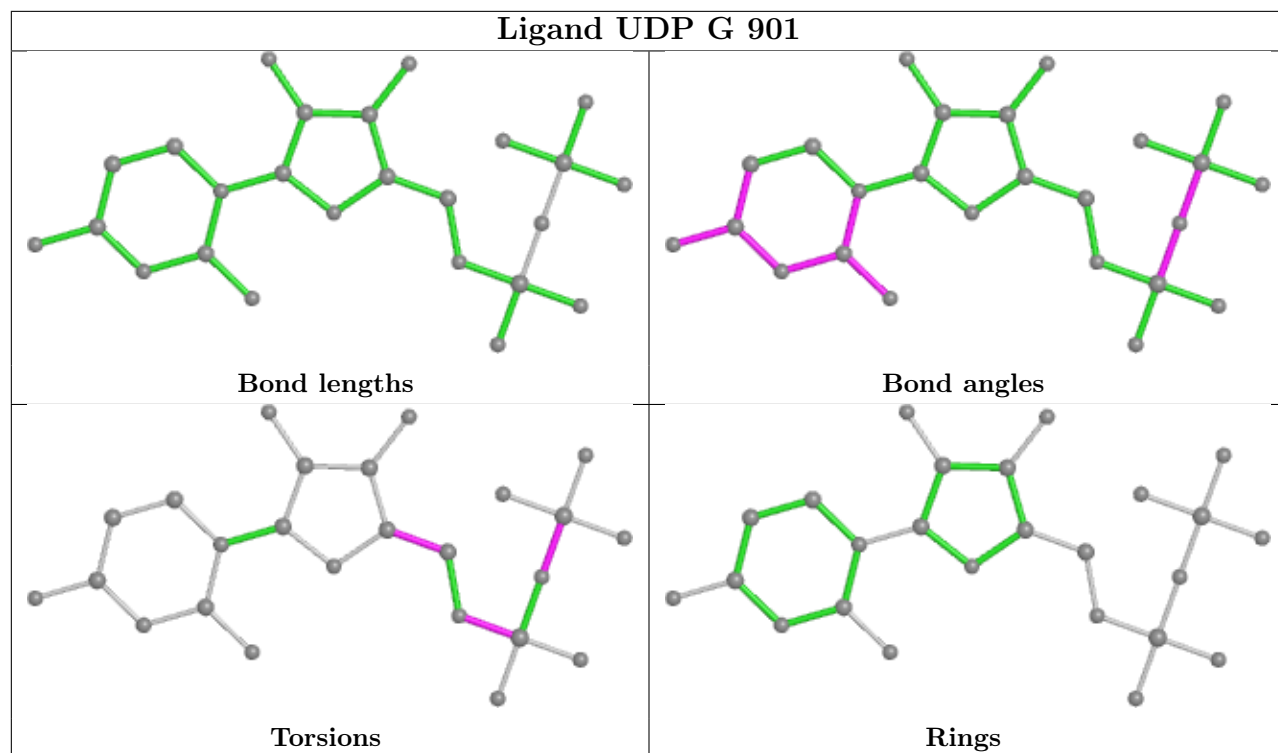
There are no ring outliers.

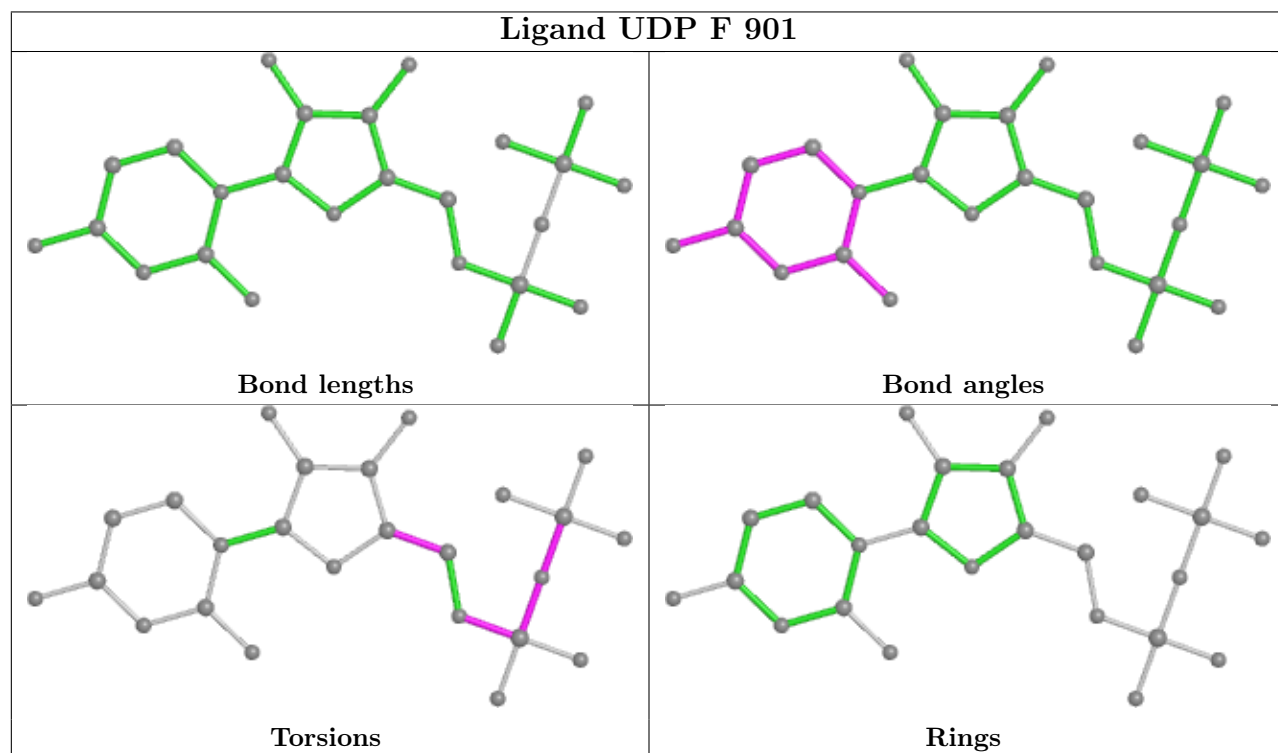
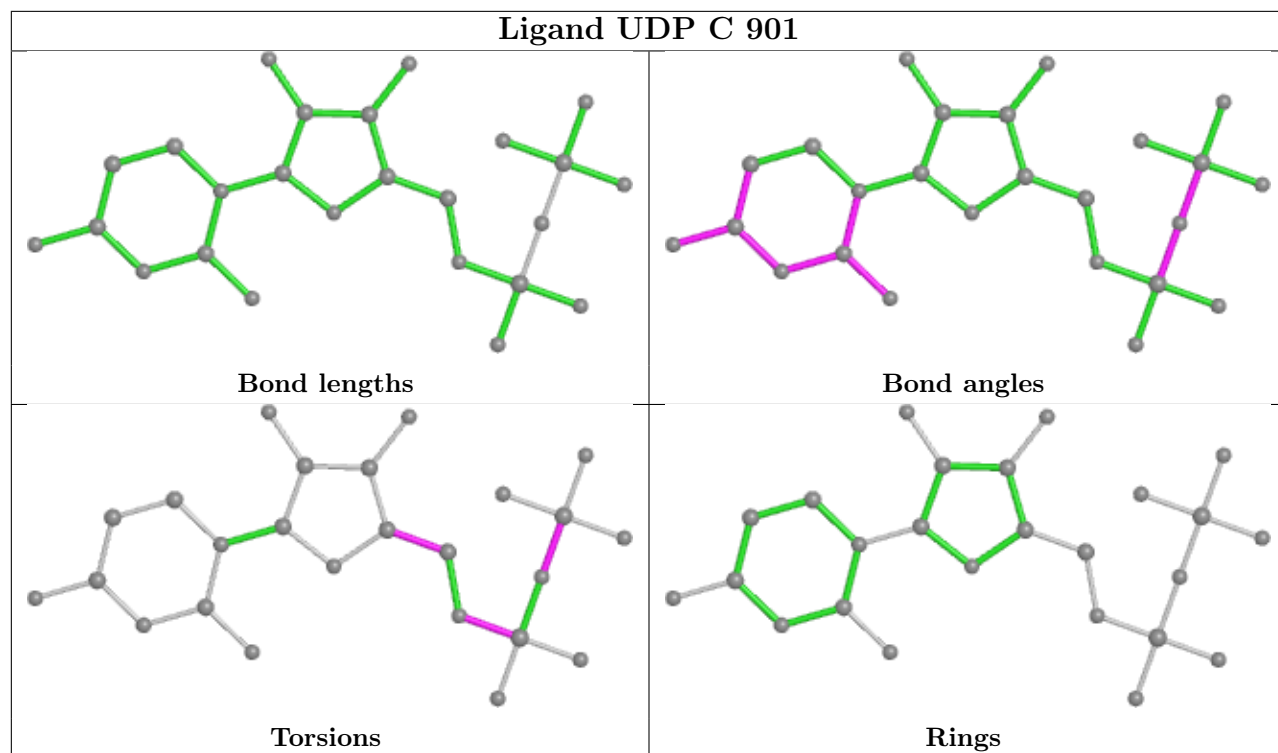
22 monomers are involved in 51 short contacts:

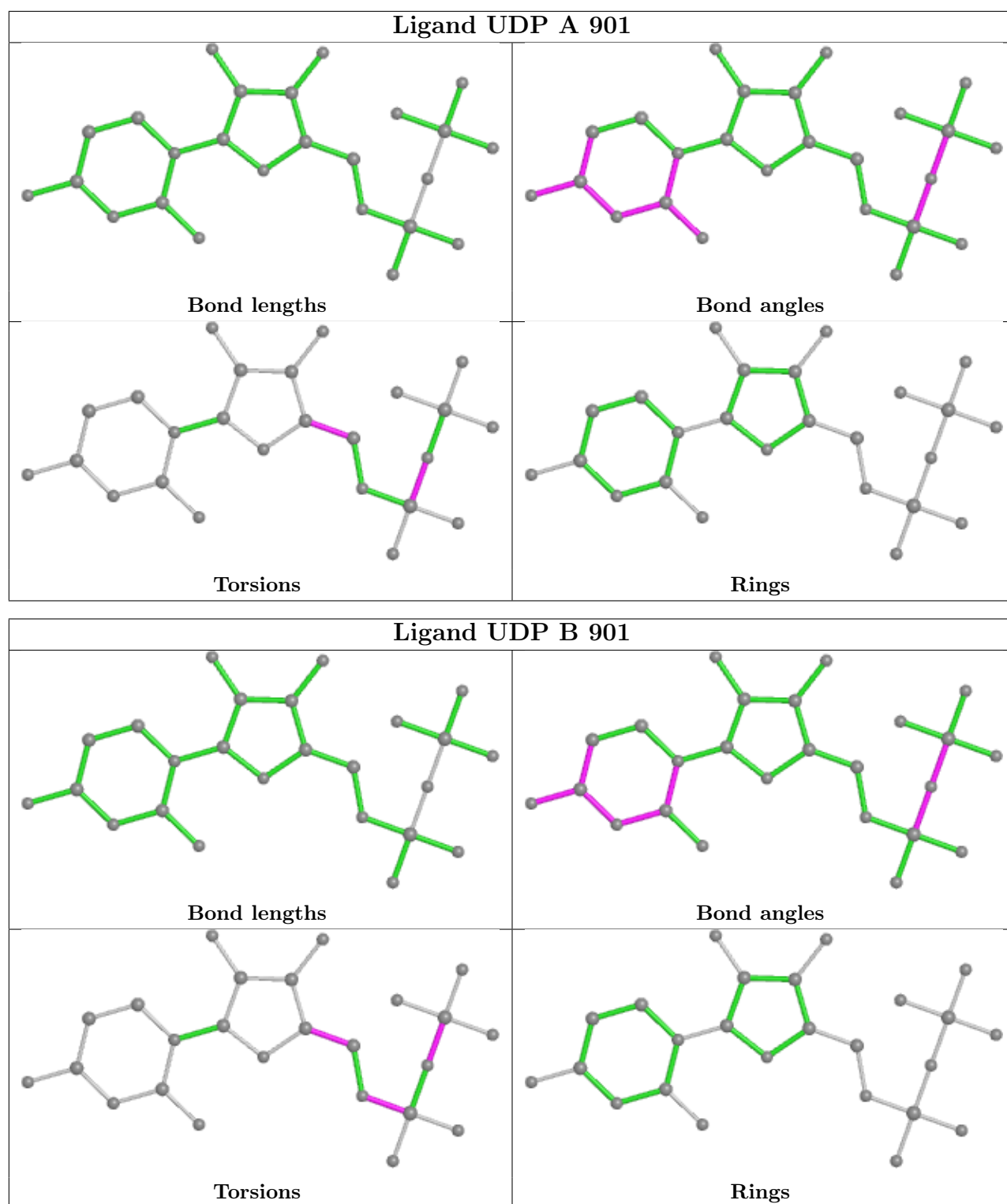
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 3 | B | 902 | FRU | 6 | 0 |
| 3 | C | 902 | FRU | 4 | 0 |
| 4 | E | 913 | SO4 | 2 | 0 |
| 4 | E | 912 | SO4 | 1 | 0 |
| 4 | B | 913 | SO4 | 3 | 0 |
| 4 | E | 914 | SO4 | 1 | 0 |
| 5 | D | 921 | MLA | 1 | 0 |
| 2 | E | 901 | UDP | 1 | 0 |
| 4 | D | 913 | SO4 | 1 | 0 |
| 3 | E | 902 | FRU | 11 | 0 |
| 2 | G | 901 | UDP | 1 | 0 |
| 3 | A | 902 | FRU | 7 | 0 |
| 4 | A | 912 | SO4 | 1 | 0 |
| 4 | G | 913 | SO4 | 1 | 0 |
| 3 | H | 902 | FRU | 1 | 0 |
| 5 | H | 922 | MLA | 1 | 0 |
| 4 | A | 913 | SO4 | 1 | 0 |
| 5 | F | 922 | MLA | 2 | 0 |
| 2 | F | 901 | UDP | 1 | 0 |
| 2 | A | 901 | UDP | 1 | 0 |
| 5 | D | 922 | MLA | 1 | 0 |
| 2 | B | 901 | UDP | 2 | 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

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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

| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å ²) | Q<0.9 |
|-----|-------|-----------------|--------|----------------|-----------------------|-------|
| 1 | A | 781/816 (95%) | -0.27 | 25 (3%) 47 42 | 21, 36, 99, 130 | 0 |
| 1 | B | 791/816 (96%) | -0.15 | 35 (4%) 34 29 | 24, 40, 108, 139 | 0 |
| 1 | C | 781/816 (95%) | -0.22 | 26 (3%) 46 41 | 27, 42, 89, 121 | 0 |
| 1 | D | 781/816 (95%) | -0.28 | 18 (2%) 60 57 | 23, 36, 89, 123 | 0 |
| 1 | E | 781/816 (95%) | -0.21 | 32 (4%) 37 31 | 22, 38, 109, 142 | 0 |
| 1 | F | 781/816 (95%) | -0.25 | 25 (3%) 47 42 | 21, 36, 85, 126 | 0 |
| 1 | G | 781/816 (95%) | -0.32 | 13 (1%) 70 68 | 22, 38, 83, 115 | 0 |
| 1 | H | 797/816 (97%) | -0.22 | 24 (3%) 50 45 | 24, 41, 94, 137 | 0 |
| All | All | 6274/6528 (96%) | -0.24 | 198 (3%) 47 42 | 21, 39, 94, 142 | 0 |

All (198) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | E | 106 | ALA | 6.1 |
| 1 | E | 31 | ALA | 5.6 |
| 1 | E | 32 | LEU | 5.5 |
| 1 | D | 57 | PRO | 4.9 |
| 1 | H | 128 | VAL | 4.9 |
| 1 | B | 105 | HIS | 4.8 |
| 1 | H | 105 | HIS | 4.7 |
| 1 | C | 106 | ALA | 4.7 |
| 1 | E | 59 | GLN | 4.7 |
| 1 | A | 42 | GLY | 4.5 |
| 1 | B | 106 | ALA | 4.5 |
| 1 | F | 105 | HIS | 4.3 |
| 1 | E | 56 | LEU | 4.3 |
| 1 | D | 128 | VAL | 4.2 |
| 1 | F | 33 | LEU | 4.2 |
| 1 | E | 35 | ARG | 4.2 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | B | 55 | ALA | 4.1 |
| 1 | H | 106 | ALA | 4.1 |
| 1 | E | 33 | LEU | 4.0 |
| 1 | C | 172 | HIS | 3.9 |
| 1 | A | 35 | ARG | 3.8 |
| 1 | B | 29 | VAL | 3.8 |
| 1 | C | 130 | ASN | 3.8 |
| 1 | B | 21 | THR | 3.8 |
| 1 | D | 32 | LEU | 3.8 |
| 1 | A | 128 | VAL | 3.7 |
| 1 | G | 59 | GLN | 3.7 |
| 1 | F | 59 | GLN | 3.7 |
| 1 | E | 68 | PRO | 3.7 |
| 1 | B | 128 | VAL | 3.7 |
| 1 | H | 129 | LYS | 3.6 |
| 1 | A | 68 | PRO | 3.6 |
| 1 | B | 43 | ILE | 3.6 |
| 1 | C | 59 | GLN | 3.6 |
| 1 | B | 83 | PRO | 3.6 |
| 1 | B | 84 | PRO | 3.6 |
| 1 | H | 127 | GLY | 3.5 |
| 1 | E | 83 | PRO | 3.5 |
| 1 | F | 172 | HIS | 3.5 |
| 1 | A | 59 | GLN | 3.5 |
| 1 | C | 57 | PRO | 3.4 |
| 1 | C | 128 | VAL | 3.4 |
| 1 | H | 216 | TYR | 3.4 |
| 1 | G | 128 | VAL | 3.4 |
| 1 | E | 27 | ASN | 3.4 |
| 1 | B | 109 | VAL | 3.3 |
| 1 | A | 51 | ALA | 3.3 |
| 1 | G | 29 | VAL | 3.3 |
| 1 | E | 28 | GLU | 3.3 |
| 1 | E | 44 | LEU | 3.3 |
| 1 | E | 30 | LEU | 3.3 |
| 1 | A | 57 | PRO | 3.3 |
| 1 | F | 68 | PRO | 3.2 |
| 1 | D | 46 | GLN | 3.2 |
| 1 | A | 30 | LEU | 3.2 |
| 1 | H | 83 | PRO | 3.2 |
| 1 | B | 69 | PHE | 3.2 |
| 1 | G | 130 | ASN | 3.2 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | D | 31 | ALA | 3.1 |
| 1 | D | 55 | ALA | 3.1 |
| 1 | H | 59 | GLN | 3.1 |
| 1 | H | 82 | LEU | 3.1 |
| 1 | C | 104 | LEU | 3.1 |
| 1 | E | 172 | HIS | 3.1 |
| 1 | D | 130 | ASN | 3.1 |
| 1 | A | 107 | LEU | 3.0 |
| 1 | B | 102 | VAL | 3.0 |
| 1 | C | 107 | LEU | 3.0 |
| 1 | C | 127 | GLY | 3.0 |
| 1 | E | 57 | PRO | 3.0 |
| 1 | G | 107 | LEU | 3.0 |
| 1 | A | 126 | ASP | 3.0 |
| 1 | D | 42 | GLY | 3.0 |
| 1 | C | 32 | LEU | 3.0 |
| 1 | F | 67 | GLY | 2.9 |
| 1 | H | 13 | SER | 2.9 |
| 1 | A | 31 | ALA | 2.9 |
| 1 | E | 29 | VAL | 2.9 |
| 1 | E | 36 | VAL | 2.9 |
| 1 | B | 56 | LEU | 2.9 |
| 1 | B | 127 | GLY | 2.9 |
| 1 | D | 105 | HIS | 2.9 |
| 1 | D | 29 | VAL | 2.9 |
| 1 | F | 217 | LEU | 2.8 |
| 1 | G | 105 | HIS | 2.8 |
| 1 | B | 42 | GLY | 2.8 |
| 1 | H | 130 | ASN | 2.8 |
| 1 | C | 60 | THR | 2.8 |
| 1 | B | 172 | HIS | 2.8 |
| 1 | A | 46 | GLN | 2.7 |
| 1 | E | 64 | LEU | 2.7 |
| 1 | F | 36 | VAL | 2.7 |
| 1 | E | 42 | GLY | 2.7 |
| 1 | A | 43 | ILE | 2.7 |
| 1 | D | 59 | GLN | 2.7 |
| 1 | C | 42 | GLY | 2.7 |
| 1 | D | 56 | LEU | 2.7 |
| 1 | F | 30 | LEU | 2.7 |
| 1 | C | 244 | ASP | 2.7 |
| 1 | E | 58 | GLU | 2.7 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | H | 110 | GLU | 2.7 |
| 1 | B | 38 | ALA | 2.7 |
| 1 | B | 107 | LEU | 2.6 |
| 1 | B | 86 | VAL | 2.6 |
| 1 | E | 244 | ASP | 2.6 |
| 1 | G | 27 | ASN | 2.6 |
| 1 | G | 32 | LEU | 2.6 |
| 1 | B | 65 | GLU | 2.6 |
| 1 | B | 191 | GLY | 2.6 |
| 1 | B | 111 | GLU | 2.6 |
| 1 | C | 105 | HIS | 2.6 |
| 1 | B | 23 | VAL | 2.5 |
| 1 | H | 126 | ASP | 2.5 |
| 1 | C | 126 | ASP | 2.5 |
| 1 | E | 245 | ASN | 2.5 |
| 1 | F | 128 | VAL | 2.5 |
| 1 | B | 62 | LYS | 2.5 |
| 1 | D | 58 | GLU | 2.5 |
| 1 | H | 236 | ILE | 2.5 |
| 1 | A | 244 | ASP | 2.5 |
| 1 | E | 127 | GLY | 2.5 |
| 1 | A | 200 | ILE | 2.5 |
| 1 | F | 104 | LEU | 2.5 |
| 1 | D | 60 | THR | 2.5 |
| 1 | F | 224 | THR | 2.5 |
| 1 | H | 103 | ASN | 2.5 |
| 1 | C | 83 | PRO | 2.4 |
| 1 | E | 67 | GLY | 2.4 |
| 1 | B | 327 | GLY | 2.4 |
| 1 | F | 40 | GLY | 2.4 |
| 1 | E | 43 | ILE | 2.4 |
| 1 | G | 129 | LYS | 2.4 |
| 1 | H | 11 | VAL | 2.4 |
| 1 | B | 126 | ASP | 2.4 |
| 1 | F | 244 | ASP | 2.4 |
| 1 | B | 54 | GLU | 2.4 |
| 1 | A | 223 | GLU | 2.4 |
| 1 | D | 220 | LEU | 2.4 |
| 1 | H | 29 | VAL | 2.4 |
| 1 | B | 59 | GLN | 2.3 |
| 1 | A | 56 | LEU | 2.3 |
| 1 | F | 42 | GLY | 2.3 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | C | 44 | LEU | 2.3 |
| 1 | C | 68 | PRO | 2.3 |
| 1 | H | 58 | GLU | 2.3 |
| 1 | A | 67 | GLY | 2.3 |
| 1 | H | 733 | GLU | 2.3 |
| 1 | D | 107 | LEU | 2.3 |
| 1 | G | 30 | LEU | 2.3 |
| 1 | H | 193 | ASN | 2.3 |
| 1 | C | 220 | LEU | 2.3 |
| 1 | E | 235 | GLU | 2.3 |
| 1 | F | 220 | LEU | 2.3 |
| 1 | E | 52 | GLU | 2.3 |
| 1 | A | 32 | LEU | 2.3 |
| 1 | E | 221 | LYS | 2.3 |
| 1 | B | 537 | THR | 2.2 |
| 1 | H | 229 | PHE | 2.2 |
| 1 | B | 224 | THR | 2.2 |
| 1 | C | 245 | ASN | 2.2 |
| 1 | E | 34 | SER | 2.2 |
| 1 | D | 172 | HIS | 2.2 |
| 1 | C | 190 | GLN | 2.2 |
| 1 | C | 221 | LYS | 2.2 |
| 1 | A | 224 | THR | 2.2 |
| 1 | B | 22 | LEU | 2.2 |
| 1 | C | 31 | ALA | 2.2 |
| 1 | B | 221 | LYS | 2.2 |
| 1 | A | 83 | PRO | 2.2 |
| 1 | B | 24 | SER | 2.2 |
| 1 | H | 222 | SER | 2.2 |
| 1 | C | 108 | VAL | 2.2 |
| 1 | D | 221 | LYS | 2.1 |
| 1 | H | 80 | ILE | 2.1 |
| 1 | G | 244 | ASP | 2.1 |
| 1 | G | 42 | GLY | 2.1 |
| 1 | E | 46 | GLN | 2.1 |
| 1 | F | 249 | VAL | 2.1 |
| 1 | C | 43 | ILE | 2.1 |
| 1 | F | 221 | LYS | 2.1 |
| 1 | A | 34 | SER | 2.1 |
| 1 | E | 105 | HIS | 2.1 |
| 1 | G | 239 | GLU | 2.1 |
| 1 | F | 46 | GLN | 2.1 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | A | 236 | ILE | 2.1 |
| 1 | F | 27 | ASN | 2.1 |
| 1 | A | 39 | LYS | 2.1 |
| 1 | H | 18 | LEU | 2.1 |
| 1 | A | 127 | GLY | 2.1 |
| 1 | F | 202 | ASN | 2.1 |
| 1 | F | 32 | LEU | 2.0 |
| 1 | B | 239 | GLU | 2.0 |
| 1 | F | 29 | VAL | 2.0 |
| 1 | B | 33 | LEU | 2.0 |
| 1 | F | 28 | GLU | 2.0 |
| 1 | F | 197 | SER | 2.0 |
| 1 | C | 201 | GLN | 2.0 |
| 1 | E | 38 | ALA | 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 |
|-----|------|-------|-----|-------|------|------|----------------------------|-------|
| 6 | K | E | 931 | 1/1 | 0.80 | 0.18 | 79,79,79,79 | 0 |
| 6 | K | B | 931 | 1/1 | 0.81 | 0.23 | 99,99,99,99 | 0 |
| 4 | SO4 | H | 913 | 5/5 | 0.84 | 0.34 | 70,78,93,114 | 0 |
| 5 | MLA | G | 922 | 7/7 | 0.85 | 0.15 | 69,86,100,100 | 0 |
| 5 | MLA | F | 922 | 7/7 | 0.87 | 0.26 | 49,58,70,70 | 0 |
| 5 | MLA | H | 922 | 7/7 | 0.88 | 0.23 | 70,79,84,85 | 0 |
| 4 | SO4 | G | 914 | 5/5 | 0.88 | 0.27 | 62,88,97,108 | 0 |
| 4 | SO4 | A | 915 | 5/5 | 0.88 | 0.24 | 120,122,135,138 | 0 |
| 4 | SO4 | D | 914 | 5/5 | 0.89 | 0.27 | 64,90,95,108 | 0 |

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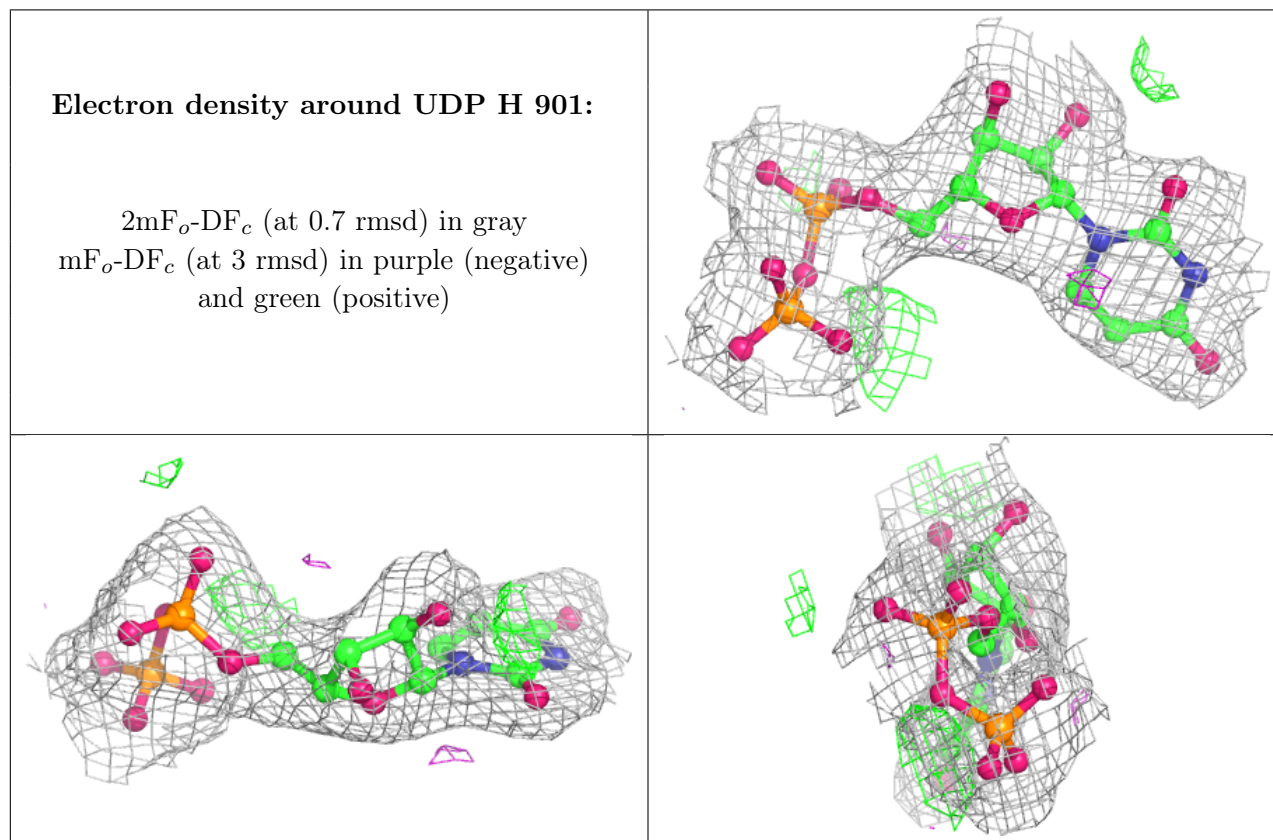
| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 4 | SO4 | A | 914 | 5/5 | 0.89 | 0.20 | 59,91,102,108 | 0 |
| 4 | SO4 | H | 912 | 5/5 | 0.89 | 0.32 | 66,89,99,112 | 0 |
| 6 | K | F | 931 | 1/1 | 0.89 | 0.26 | 89,89,89,89 | 0 |
| 4 | SO4 | B | 911 | 5/5 | 0.90 | 0.22 | 53,57,72,97 | 0 |
| 4 | SO4 | D | 912 | 5/5 | 0.90 | 0.24 | 57,71,94,108 | 0 |
| 4 | SO4 | D | 911 | 5/5 | 0.91 | 0.27 | 47,64,79,95 | 0 |
| 4 | SO4 | F | 911 | 5/5 | 0.92 | 0.34 | 51,51,80,90 | 0 |
| 4 | SO4 | A | 911 | 5/5 | 0.92 | 0.24 | 46,48,79,82 | 0 |
| 5 | MLA | C | 921 | 7/7 | 0.92 | 0.27 | 58,61,72,72 | 0 |
| 4 | SO4 | A | 912 | 5/5 | 0.93 | 0.23 | 62,72,79,100 | 0 |
| 4 | SO4 | B | 912 | 5/5 | 0.93 | 0.19 | 76,85,96,114 | 0 |
| 4 | SO4 | E | 912 | 5/5 | 0.93 | 0.21 | 65,77,86,100 | 0 |
| 4 | SO4 | E | 913 | 5/5 | 0.93 | 0.29 | 54,57,84,92 | 0 |
| 4 | SO4 | E | 914 | 5/5 | 0.93 | 0.27 | 65,88,93,106 | 0 |
| 4 | SO4 | B | 913 | 5/5 | 0.93 | 0.45 | 63,74,83,102 | 0 |
| 6 | K | C | 931 | 1/1 | 0.93 | 0.18 | 75,75,75,75 | 0 |
| 4 | SO4 | C | 912 | 5/5 | 0.93 | 0.23 | 73,82,95,107 | 0 |
| 4 | SO4 | A | 913 | 5/5 | 0.93 | 0.28 | 49,66,79,86 | 0 |
| 4 | SO4 | C | 913 | 5/5 | 0.94 | 0.31 | 64,68,88,94 | 0 |
| 4 | SO4 | F | 912 | 5/5 | 0.94 | 0.18 | 57,71,79,92 | 0 |
| 5 | MLA | G | 921 | 7/7 | 0.94 | 0.36 | 52,59,71,71 | 0 |
| 6 | K | D | 931 | 1/1 | 0.94 | 0.30 | 81,81,81,81 | 0 |
| 4 | SO4 | F | 914 | 5/5 | 0.94 | 0.22 | 59,81,101,102 | 0 |
| 5 | MLA | H | 921 | 7/7 | 0.94 | 0.28 | 47,56,67,67 | 0 |
| 6 | K | G | 931 | 1/1 | 0.94 | 0.25 | 76,76,76,76 | 0 |
| 6 | K | H | 931 | 1/1 | 0.94 | 0.26 | 74,74,74,74 | 0 |
| 4 | SO4 | C | 911 | 5/5 | 0.95 | 0.21 | 51,51,71,82 | 0 |
| 4 | SO4 | H | 911 | 5/5 | 0.95 | 0.23 | 47,48,81,82 | 0 |
| 3 | FRU | G | 902 | 12/12 | 0.95 | 0.18 | 24,33,34,39 | 0 |
| 4 | SO4 | F | 913 | 5/5 | 0.95 | 0.20 | 53,56,74,79 | 0 |
| 5 | MLA | B | 921 | 7/7 | 0.95 | 0.19 | 45,48,58,58 | 0 |
| 4 | SO4 | E | 911 | 5/5 | 0.95 | 0.17 | 44,44,71,79 | 0 |
| 6 | K | A | 931 | 1/1 | 0.96 | 0.16 | 72,72,72,72 | 0 |
| 5 | MLA | E | 921 | 7/7 | 0.96 | 0.25 | 36,45,50,54 | 0 |
| 5 | MLA | F | 921 | 7/7 | 0.96 | 0.29 | 32,38,40,45 | 0 |
| 4 | SO4 | D | 913 | 5/5 | 0.96 | 0.31 | 58,60,73,85 | 0 |
| 4 | SO4 | G | 911 | 5/5 | 0.96 | 0.18 | 41,44,65,67 | 0 |
| 3 | FRU | H | 902 | 12/12 | 0.96 | 0.18 | 23,29,34,36 | 0 |
| 3 | FRU | C | 902 | 12/12 | 0.96 | 0.17 | 31,38,43,46 | 0 |
| 5 | MLA | D | 922 | 7/7 | 0.96 | 0.19 | 45,49,54,55 | 0 |
| 4 | SO4 | G | 913 | 5/5 | 0.97 | 0.30 | 58,62,82,92 | 0 |
| 3 | FRU | B | 902 | 12/12 | 0.97 | 0.17 | 27,30,33,33 | 0 |

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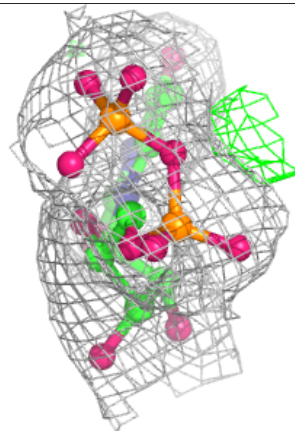
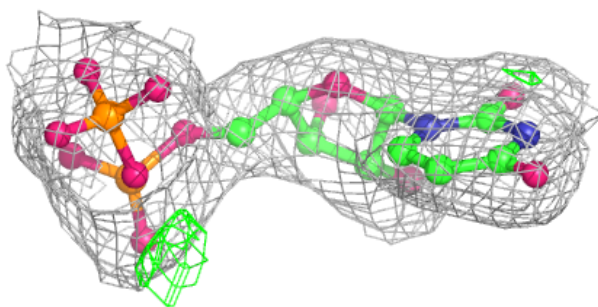
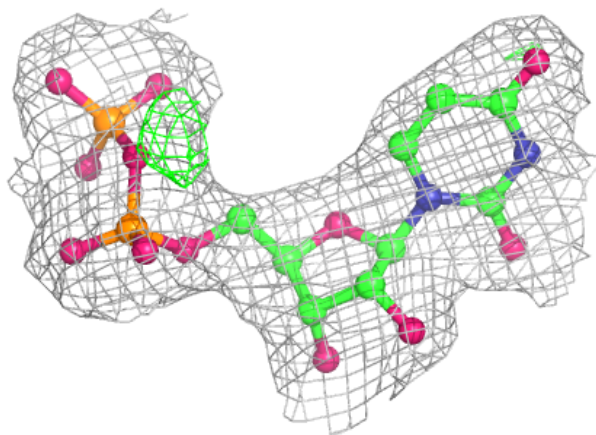
| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 3 | FRU | A | 902 | 12/12 | 0.97 | 0.21 | 28,29,32,34 | 0 |
| 5 | MLA | D | 921 | 7/7 | 0.97 | 0.24 | 37,44,46,48 | 0 |
| 4 | SO4 | G | 912 | 5/5 | 0.97 | 0.20 | 57,74,84,97 | 0 |
| 5 | MLA | A | 921 | 7/7 | 0.98 | 0.20 | 38,41,49,49 | 0 |
| 2 | UDP | H | 901 | 25/25 | 0.98 | 0.18 | 25,28,34,37 | 0 |
| 3 | FRU | D | 902 | 12/12 | 0.98 | 0.17 | 25,28,32,32 | 0 |
| 3 | FRU | E | 902 | 12/12 | 0.98 | 0.16 | 28,30,33,33 | 0 |
| 3 | FRU | F | 902 | 12/12 | 0.98 | 0.17 | 23,26,28,28 | 0 |
| 2 | UDP | D | 901 | 25/25 | 0.99 | 0.17 | 22,25,32,35 | 0 |
| 2 | UDP | E | 901 | 25/25 | 0.99 | 0.18 | 23,26,31,33 | 0 |
| 2 | UDP | F | 901 | 25/25 | 0.99 | 0.17 | 18,25,29,33 | 0 |
| 2 | UDP | G | 901 | 25/25 | 0.99 | 0.16 | 19,26,29,31 | 0 |
| 2 | UDP | A | 901 | 25/25 | 0.99 | 0.16 | 20,26,29,33 | 0 |
| 2 | UDP | B | 901 | 25/25 | 0.99 | 0.18 | 25,29,32,32 | 0 |
| 2 | UDP | C | 901 | 25/25 | 0.99 | 0.16 | 25,31,35,39 | 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.

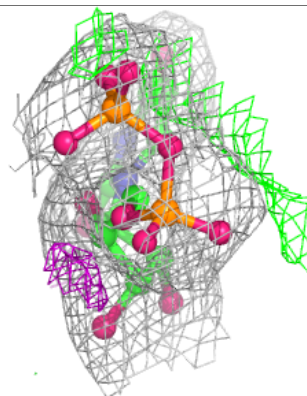
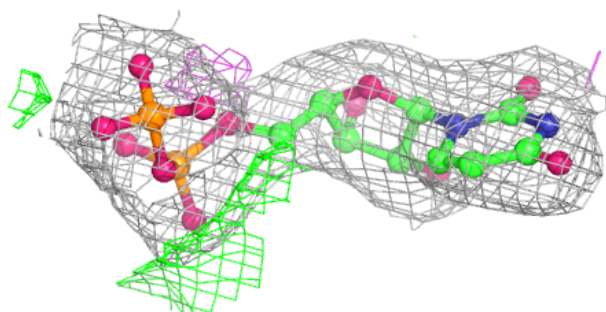
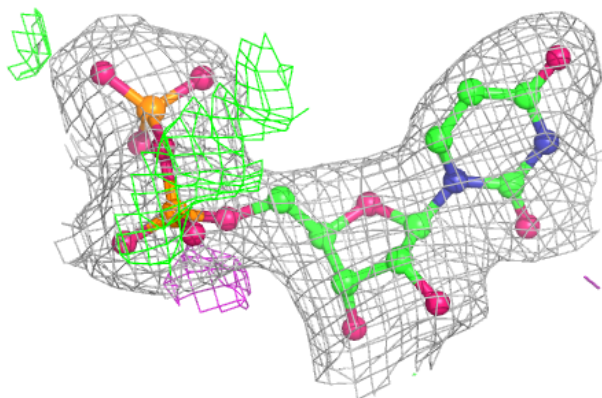


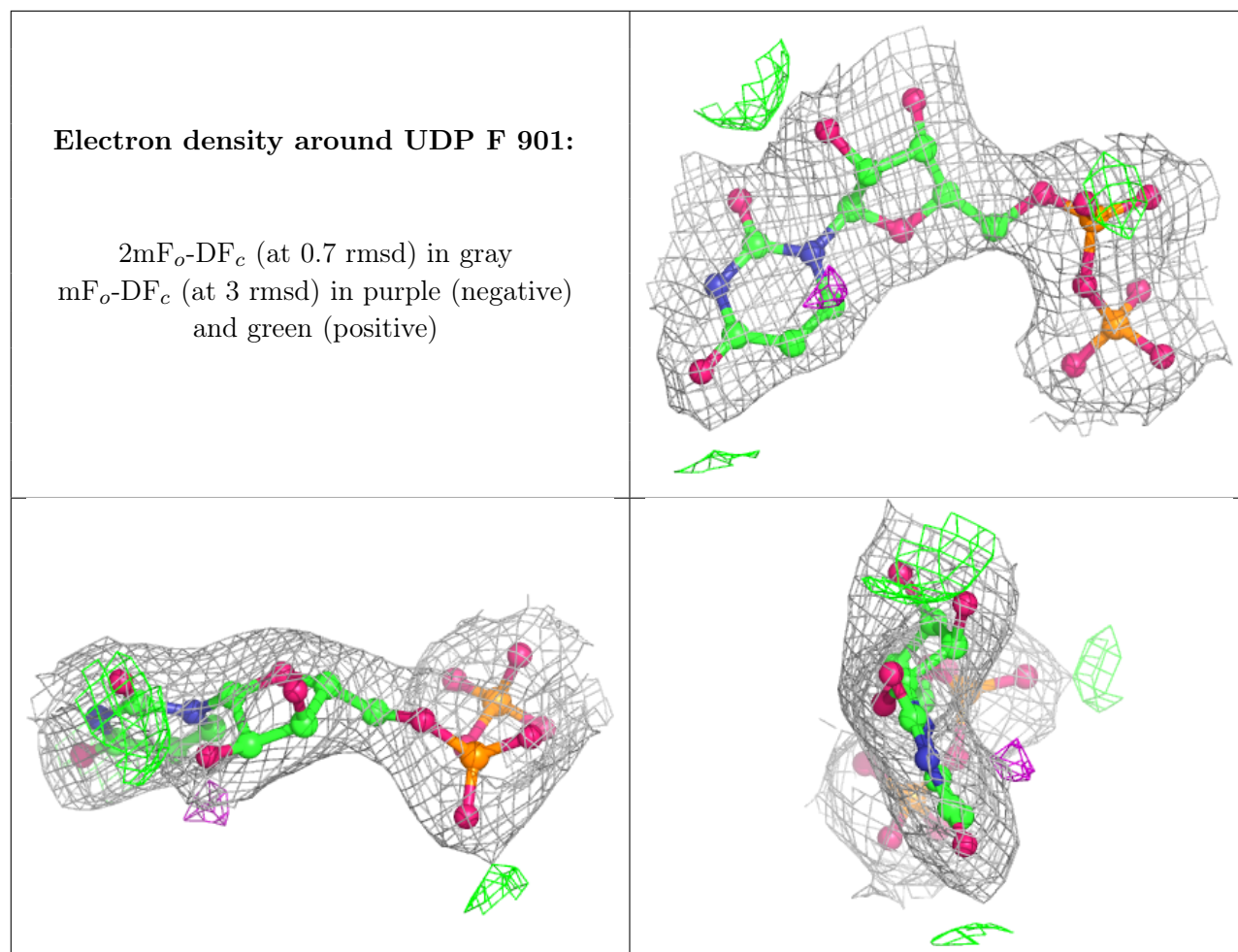
Electron density around UDP D 901:

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

**Electron density around UDP E 901:**

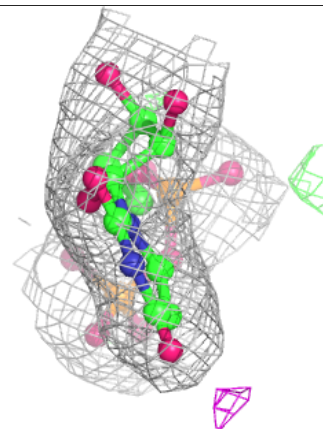
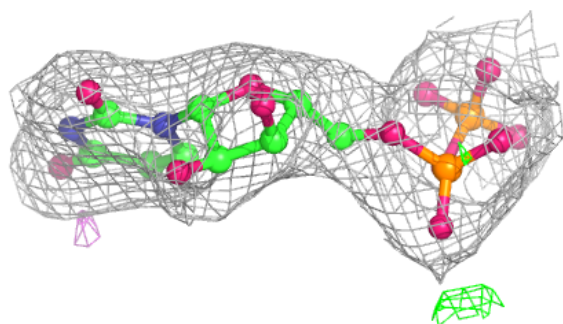
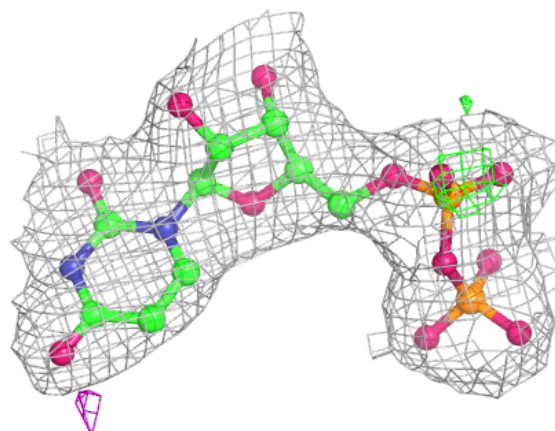
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





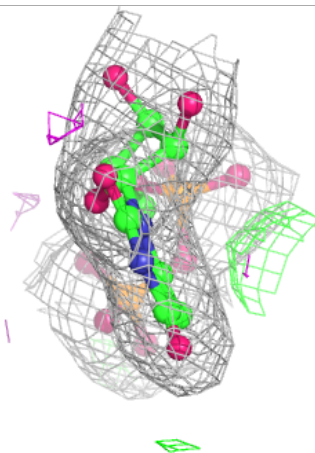
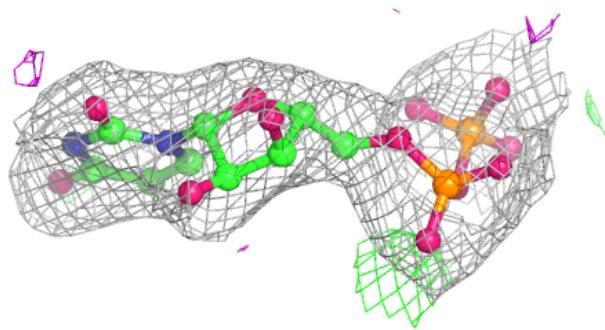
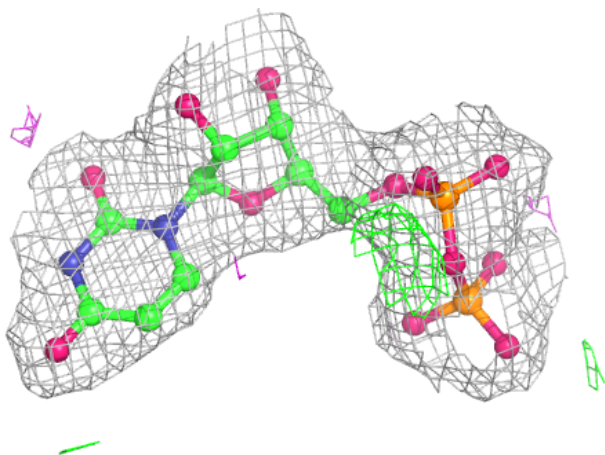
Electron density around UDP G 901:

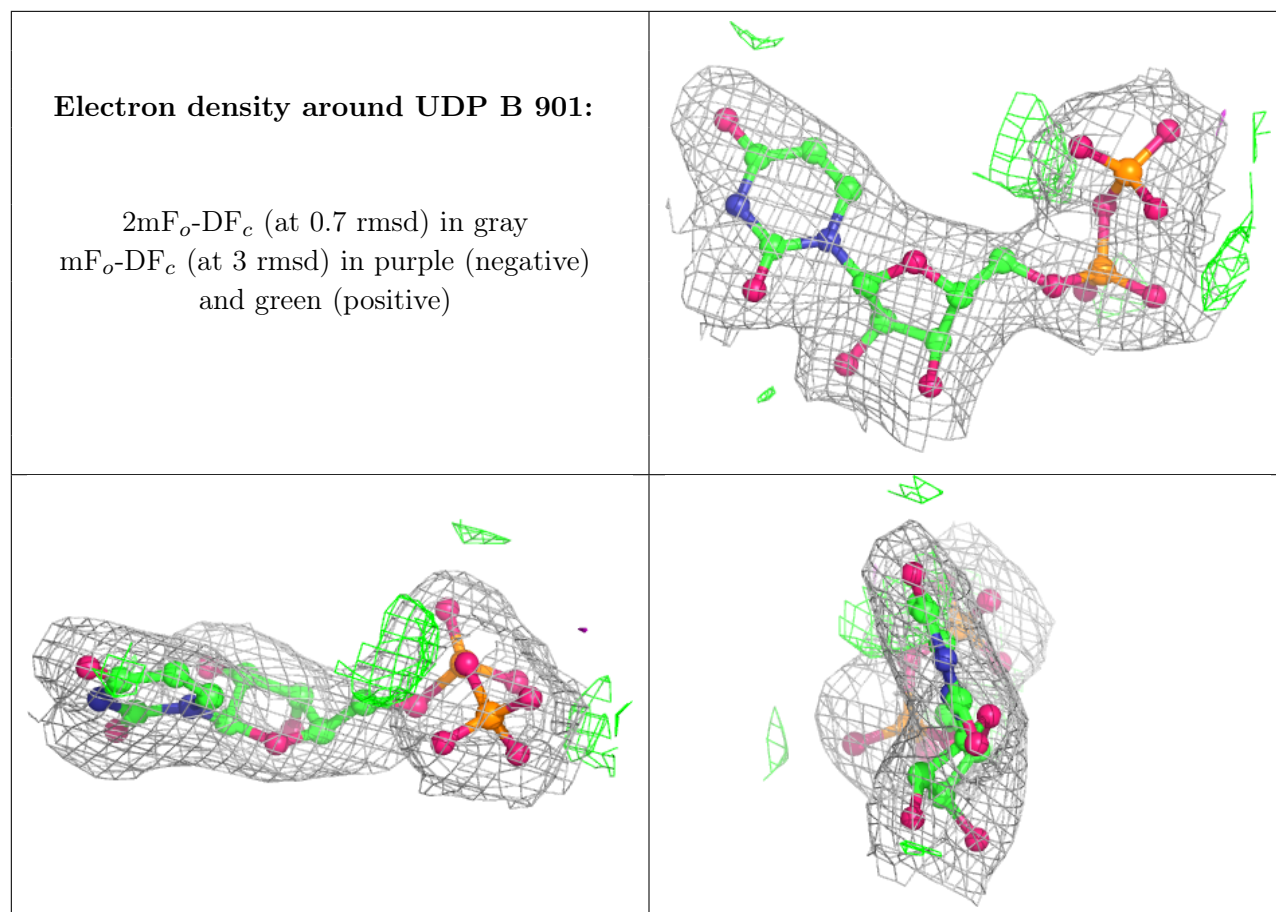
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

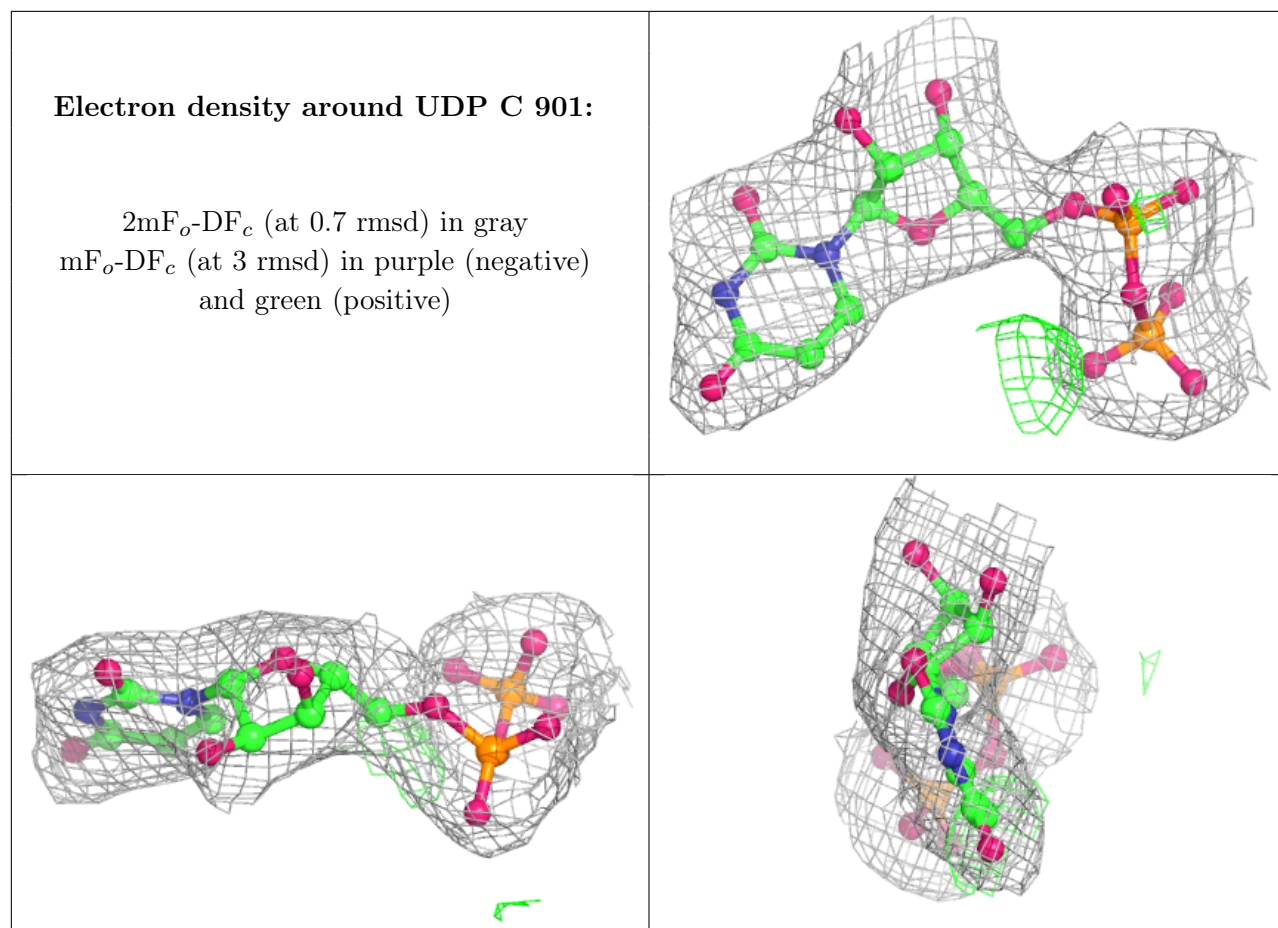


Electron density around UDP A 901:

$2mF_o-DF_c$ (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.