# WORLDWIDE wwPDB PROTEIN DATA BANK

# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 24, 2024 – 08:17 AM EDT

|  |  |  |
|---|---|---|
| PDB ID | : | 3EC7 |
| Title | : | Crystal Structure of Putative Dehydrogenase from Salmonella typhimurium LT2 |
| Authors | : | Kim, Y.; Evdokimova, E.; Kudritska, M.; Savchenko, A.; Edwards, A.; Joachimiak, A.; Midwest Center for Structural Genomics (MCSG) |
| Deposited on | : | 2008-08-29 |
| Resolution | : | 2.15 Å(reported) |

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

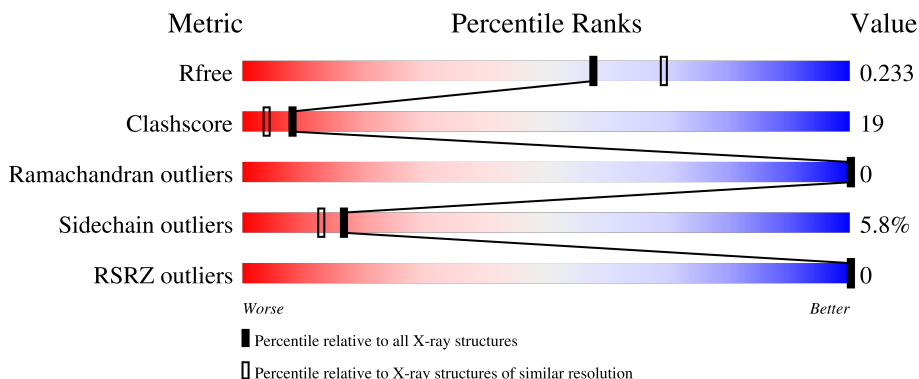|  |  |  |
|---|---|---|
| MolProbity | : | 4.02b-467 |
| Mogul | : | 2022.3.0, CSD as543be (2022) |
| Xtriage (Phenix) | : | 1.20.1 |
| EDS | : | 3.0 |
| buster-report | : | 1.1.7 (2018) |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| CCP4 | : | 9.0.003 (Gargrove) |
| Density-Fitness | : | 1.0.11 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.39 |

# 1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.15 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 | Percentile Ranks | Value |
|--------|-----------------|-------|
| Rfree | | 0.233 |
| Clashscore | | 19 |
| Ramachandran outliers | | 0 |
| Sidechain outliers | | 5.8% |
| RSRZ outliers | | 0 |

*Worse* *Better*

■ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|--------|--------------------------|----------------------------------------------------|
| $R_{free}$ | 164625 | 1881 (2.16-2.16) |
| Clashscore | 180529 | 2047 (2.16-2.16) |
| Ramachandran outliers | 177936 | 2027 (2.16-2.16) |
| Sidechain outliers | 177891 | 2026 (2.16-2.16) |
| RSRZ outliers | 164620 | 1882 (2.16-2.16) |

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 <=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 | 357 | 68% / 24% / • / 6% |
| 1 | B | 357 | 67% / 24% / • / 6% |
| 1 | C | 357 | 70% / 21% / • / 6% |
| 1 | D | 357 | 70% / 22% / • / 6% |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | E | 357 | 71%     21%   6% |
| 1 | F | 357 | 66%     26%   6% |
| 1 | G | 357 | 72%     20%   6% |
| 1 | H | 357 | 74%     18%   6% |

# 2 Entry composition ⓘ

There are 7 unique types of molecules in this entry. The entry contains 23658 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Putative Dehydrogenase.

| Mol | Chain | Residues | Atoms | | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|-----|---------|---------|-------|
| 1 | A | 336 | Total | C | N | O | S | Se | 0 | 4 | 0 |
| | | | 2648 | 1676 | 445 | 513 | 6 | 8 | | | |
| 1 | B | 335 | Total | C | N | O | S | Se | 0 | 2 | 0 |
| | | | 2628 | 1665 | 443 | 506 | 6 | 8 | | | |
| 1 | C | 335 | Total | C | N | O | S | Se | 0 | 1 | 0 |
| | | | 2620 | 1661 | 442 | 504 | 6 | 7 | | | |
| 1 | D | 336 | Total | C | N | O | S | Se | 0 | 4 | 0 |
| | | | 2650 | 1680 | 446 | 510 | 6 | 8 | | | |
| 1 | E | 336 | Total | C | N | O | S | Se | 0 | 3 | 0 |
| | | | 2643 | 1674 | 446 | 510 | 6 | 7 | | | |
| 1 | F | 335 | Total | C | N | O | S | Se | 0 | 3 | 0 |
| | | | 2645 | 1676 | 446 | 508 | 6 | 9 | | | |
| 1 | G | 335 | Total | C | N | O | S | Se | 0 | 1 | 0 |
| | | | 2619 | 1660 | 441 | 504 | 6 | 8 | | | |
| 1 | H | 336 | Total | C | N | O | S | Se | 0 | 2 | 0 |
| | | | 2634 | 1668 | 443 | 510 | 6 | 7 | | | |

There are 168 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| A | -20 | MSE | - | expression tag | UNP Q8ZK57 |
| A | -19 | GLY | - | expression tag | UNP Q8ZK57 |
| A | -18 | SER | - | expression tag | UNP Q8ZK57 |
| A | -17 | SER | - | expression tag | UNP Q8ZK57 |
| A | -16 | HIS | - | expression tag | UNP Q8ZK57 |
| A | -15 | HIS | - | expression tag | UNP Q8ZK57 |
| A | -14 | HIS | - | expression tag | UNP Q8ZK57 |
| A | -13 | HIS | - | expression tag | UNP Q8ZK57 |
| A | -12 | HIS | - | expression tag | UNP Q8ZK57 |
| A | -11 | HIS | - | expression tag | UNP Q8ZK57 |
| A | -10 | SER | - | expression tag | UNP Q8ZK57 |
| A | -9 | SER | - | expression tag | UNP Q8ZK57 |
| A | -8 | GLY | - | expression tag | UNP Q8ZK57 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| A | -7 | ARG | - | expression tag | UNP Q8ZK57 |
| A | -6 | GLU | - | expression tag | UNP Q8ZK57 |
| A | -5 | ASN | - | expression tag | UNP Q8ZK57 |
| A | -4 | LEU | - | expression tag | UNP Q8ZK57 |
| A | -3 | TYR | - | expression tag | UNP Q8ZK57 |
| A | -2 | PHE | - | expression tag | UNP Q8ZK57 |
| A | -1 | GLN | - | expression tag | UNP Q8ZK57 |
| A | 0 | GLY | - | expression tag | UNP Q8ZK57 |
| B | -20 | MSE | - | expression tag | UNP Q8ZK57 |
| B | -19 | GLY | - | expression tag | UNP Q8ZK57 |
| B | -18 | SER | - | expression tag | UNP Q8ZK57 |
| B | -17 | SER | - | expression tag | UNP Q8ZK57 |
| B | -16 | HIS | - | expression tag | UNP Q8ZK57 |
| B | -15 | HIS | - | expression tag | UNP Q8ZK57 |
| B | -14 | HIS | - | expression tag | UNP Q8ZK57 |
| B | -13 | HIS | - | expression tag | UNP Q8ZK57 |
| B | -12 | HIS | - | expression tag | UNP Q8ZK57 |
| B | -11 | HIS | - | expression tag | UNP Q8ZK57 |
| B | -10 | SER | - | expression tag | UNP Q8ZK57 |
| B | -9 | SER | - | expression tag | UNP Q8ZK57 |
| B | -8 | GLY | - | expression tag | UNP Q8ZK57 |
| B | -7 | ARG | - | expression tag | UNP Q8ZK57 |
| B | -6 | GLU | - | expression tag | UNP Q8ZK57 |
| B | -5 | ASN | - | expression tag | UNP Q8ZK57 |
| B | -4 | LEU | - | expression tag | UNP Q8ZK57 |
| B | -3 | TYR | - | expression tag | UNP Q8ZK57 |
| B | -2 | PHE | - | expression tag | UNP Q8ZK57 |
| B | -1 | GLN | - | expression tag | UNP Q8ZK57 |
| B | 0 | GLY | - | expression tag | UNP Q8ZK57 |
| C | -20 | MSE | - | expression tag | UNP Q8ZK57 |
| C | -19 | GLY | - | expression tag | UNP Q8ZK57 |
| C | -18 | SER | - | expression tag | UNP Q8ZK57 |
| C | -17 | SER | - | expression tag | UNP Q8ZK57 |
| C | -16 | HIS | - | expression tag | UNP Q8ZK57 |
| C | -15 | HIS | - | expression tag | UNP Q8ZK57 |
| C | -14 | HIS | - | expression tag | UNP Q8ZK57 |
| C | -13 | HIS | - | expression tag | UNP Q8ZK57 |
| C | -12 | HIS | - | expression tag | UNP Q8ZK57 |
| C | -11 | HIS | - | expression tag | UNP Q8ZK57 |
| C | -10 | SER | - | expression tag | UNP Q8ZK57 |
| C | -9 | SER | - | expression tag | UNP Q8ZK57 |
| C | -8 | GLY | - | expression tag | UNP Q8ZK57 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| C | -7 | ARG | - | expression tag | UNP Q8ZK57 |
| C | -6 | GLU | - | expression tag | UNP Q8ZK57 |
| C | -5 | ASN | - | expression tag | UNP Q8ZK57 |
| C | -4 | LEU | - | expression tag | UNP Q8ZK57 |
| C | -3 | TYR | - | expression tag | UNP Q8ZK57 |
| C | -2 | PHE | - | expression tag | UNP Q8ZK57 |
| C | -1 | GLN | - | expression tag | UNP Q8ZK57 |
| C | 0 | GLY | - | expression tag | UNP Q8ZK57 |
| D | -20 | MSE | - | expression tag | UNP Q8ZK57 |
| D | -19 | GLY | - | expression tag | UNP Q8ZK57 |
| D | -18 | SER | - | expression tag | UNP Q8ZK57 |
| D | -17 | SER | - | expression tag | UNP Q8ZK57 |
| D | -16 | HIS | - | expression tag | UNP Q8ZK57 |
| D | -15 | HIS | - | expression tag | UNP Q8ZK57 |
| D | -14 | HIS | - | expression tag | UNP Q8ZK57 |
| D | -13 | HIS | - | expression tag | UNP Q8ZK57 |
| D | -12 | HIS | - | expression tag | UNP Q8ZK57 |
| D | -11 | HIS | - | expression tag | UNP Q8ZK57 |
| D | -10 | SER | - | expression tag | UNP Q8ZK57 |
| D | -9 | SER | - | expression tag | UNP Q8ZK57 |
| D | -8 | GLY | - | expression tag | UNP Q8ZK57 |
| D | -7 | ARG | - | expression tag | UNP Q8ZK57 |
| D | -6 | GLU | - | expression tag | UNP Q8ZK57 |
| D | -5 | ASN | - | expression tag | UNP Q8ZK57 |
| D | -4 | LEU | - | expression tag | UNP Q8ZK57 |
| D | -3 | TYR | - | expression tag | UNP Q8ZK57 |
| D | -2 | PHE | - | expression tag | UNP Q8ZK57 |
| D | -1 | GLN | - | expression tag | UNP Q8ZK57 |
| D | 0 | GLY | - | expression tag | UNP Q8ZK57 |
| E | -20 | MSE | - | expression tag | UNP Q8ZK57 |
| E | -19 | GLY | - | expression tag | UNP Q8ZK57 |
| E | -18 | SER | - | expression tag | UNP Q8ZK57 |
| E | -17 | SER | - | expression tag | UNP Q8ZK57 |
| E | -16 | HIS | - | expression tag | UNP Q8ZK57 |
| E | -15 | HIS | - | expression tag | UNP Q8ZK57 |
| E | -14 | HIS | - | expression tag | UNP Q8ZK57 |
| E | -13 | HIS | - | expression tag | UNP Q8ZK57 |
| E | -12 | HIS | - | expression tag | UNP Q8ZK57 |
| E | -11 | HIS | - | expression tag | UNP Q8ZK57 |
| E | -10 | SER | - | expression tag | UNP Q8ZK57 |
| E | -9 | SER | - | expression tag | UNP Q8ZK57 |
| E | -8 | GLY | - | expression tag | UNP Q8ZK57 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| E | -7 | ARG | - | expression tag | UNP Q8ZK57 |
| E | -6 | GLU | - | expression tag | UNP Q8ZK57 |
| E | -5 | ASN | - | expression tag | UNP Q8ZK57 |
| E | -4 | LEU | - | expression tag | UNP Q8ZK57 |
| E | -3 | TYR | - | expression tag | UNP Q8ZK57 |
| E | -2 | PHE | - | expression tag | UNP Q8ZK57 |
| E | -1 | GLN | - | expression tag | UNP Q8ZK57 |
| E | 0 | GLY | - | expression tag | UNP Q8ZK57 |
| F | -20 | MSE | - | expression tag | UNP Q8ZK57 |
| F | -19 | GLY | - | expression tag | UNP Q8ZK57 |
| F | -18 | SER | - | expression tag | UNP Q8ZK57 |
| F | -17 | SER | - | expression tag | UNP Q8ZK57 |
| F | -16 | HIS | - | expression tag | UNP Q8ZK57 |
| F | -15 | HIS | - | expression tag | UNP Q8ZK57 |
| F | -14 | HIS | - | expression tag | UNP Q8ZK57 |
| F | -13 | HIS | - | expression tag | UNP Q8ZK57 |
| F | -12 | HIS | - | expression tag | UNP Q8ZK57 |
| F | -11 | HIS | - | expression tag | UNP Q8ZK57 |
| F | -10 | SER | - | expression tag | UNP Q8ZK57 |
| F | -9 | SER | - | expression tag | UNP Q8ZK57 |
| F | -8 | GLY | - | expression tag | UNP Q8ZK57 |
| F | -7 | ARG | - | expression tag | UNP Q8ZK57 |
| F | -6 | GLU | - | expression tag | UNP Q8ZK57 |
| F | -5 | ASN | - | expression tag | UNP Q8ZK57 |
| F | -4 | LEU | - | expression tag | UNP Q8ZK57 |
| F | -3 | TYR | - | expression tag | UNP Q8ZK57 |
| F | -2 | PHE | - | expression tag | UNP Q8ZK57 |
| F | -1 | GLN | - | expression tag | UNP Q8ZK57 |
| F | 0 | GLY | - | expression tag | UNP Q8ZK57 |
| G | -20 | MSE | - | expression tag | UNP Q8ZK57 |
| G | -19 | GLY | - | expression tag | UNP Q8ZK57 |
| G | -18 | SER | - | expression tag | UNP Q8ZK57 |
| G | -17 | SER | - | expression tag | UNP Q8ZK57 |
| G | -16 | HIS | - | expression tag | UNP Q8ZK57 |
| G | -15 | HIS | - | expression tag | UNP Q8ZK57 |
| G | -14 | HIS | - | expression tag | UNP Q8ZK57 |
| G | -13 | HIS | - | expression tag | UNP Q8ZK57 |
| G | -12 | HIS | - | expression tag | UNP Q8ZK57 |
| G | -11 | HIS | - | expression tag | UNP Q8ZK57 |
| G | -10 | SER | - | expression tag | UNP Q8ZK57 |
| G | -9 | SER | - | expression tag | UNP Q8ZK57 |
| G | -8 | GLY | - | expression tag | UNP Q8ZK57 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| G | -7 | ARG | - | expression tag | UNP Q8ZK57 |
| G | -6 | GLU | - | expression tag | UNP Q8ZK57 |
| G | -5 | ASN | - | expression tag | UNP Q8ZK57 |
| G | -4 | LEU | - | expression tag | UNP Q8ZK57 |
| G | -3 | TYR | - | expression tag | UNP Q8ZK57 |
| G | -2 | PHE | - | expression tag | UNP Q8ZK57 |
| G | -1 | GLN | - | expression tag | UNP Q8ZK57 |
| G | 0 | GLY | - | expression tag | UNP Q8ZK57 |
| H | -20 | MSE | - | expression tag | UNP Q8ZK57 |
| H | -19 | GLY | - | expression tag | UNP Q8ZK57 |
| H | -18 | SER | - | expression tag | UNP Q8ZK57 |
| H | -17 | SER | - | expression tag | UNP Q8ZK57 |
| H | -16 | HIS | - | expression tag | UNP Q8ZK57 |
| H | -15 | HIS | - | expression tag | UNP Q8ZK57 |
| H | -14 | HIS | - | expression tag | UNP Q8ZK57 |
| H | -13 | HIS | - | expression tag | UNP Q8ZK57 |
| H | -12 | HIS | - | expression tag | UNP Q8ZK57 |
| H | -11 | HIS | - | expression tag | UNP Q8ZK57 |
| H | -10 | SER | - | expression tag | UNP Q8ZK57 |
| H | -9 | SER | - | expression tag | UNP Q8ZK57 |
| H | -8 | GLY | - | expression tag | UNP Q8ZK57 |
| H | -7 | ARG | - | expression tag | UNP Q8ZK57 |
| H | -6 | GLU | - | expression tag | UNP Q8ZK57 |
| H | -5 | ASN | - | expression tag | UNP Q8ZK57 |
| H | -4 | LEU | - | expression tag | UNP Q8ZK57 |
| H | -3 | TYR | - | expression tag | UNP Q8ZK57 |
| H | -2 | PHE | - | expression tag | UNP Q8ZK57 |
| H | -1 | GLN | - | expression tag | UNP Q8ZK57 |
| H | 0 | GLY | - | expression tag | UNP Q8ZK57 |

- Molecule 2 is NICOTINAMIDE-ADENINE-DINUCLEOTIDE (three-letter code: NAD) (formula: $C_{21}H_{27}N_7O_{14}P_2$).

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|---|---|
| 2 | A | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 44 | 21 | 7 | 14 | 2 | | |
| 2 | B | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 44 | 21 | 7 | 14 | 2 | | |
| 2 | C | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 44 | 21 | 7 | 14 | 2 | | |
| 2 | D | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 44 | 21 | 7 | 14 | 2 | | |
| 2 | E | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 44 | 21 | 7 | 14 | 2 | | |
| 2 | F | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 44 | 21 | 7 | 14 | 2 | | |
| 2 | G | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 44 | 21 | 7 | 14 | 2 | | |
| 2 | H | 1 | Total | C | N | O | P | 0 | 0 |
| | | | 44 | 21 | 7 | 14 | 2 | | |

- Molecule 3 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (three-letter code: EPE) (formula: $C_8H_{18}N_2O_4S$).
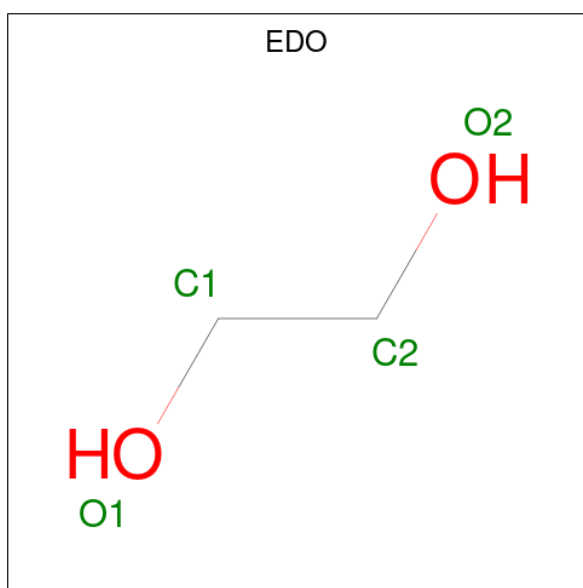
**EPE**



| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|---|---|
| 3 | A | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 15 | 8 | 2 | 4 | 1 | | |
| 3 | B | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 15 | 8 | 2 | 4 | 1 | | |
| 3 | C | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 15 | 8 | 2 | 4 | 1 | | |
| 3 | D | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 15 | 8 | 2 | 4 | 1 | | |
| 3 | E | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 15 | 8 | 2 | 4 | 1 | | |
| 3 | F | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 15 | 8 | 2 | 4 | 1 | | |
| 3 | G | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 15 | 8 | 2 | 4 | 1 | | |
| 3 | H | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 15 | 8 | 2 | 4 | 1 | | |

- Molecule 4 is ACETIC ACID (three-letter code: ACY) (formula: $C_2H_4O_2$).

ACY

OXT

OH

C

CH3

O

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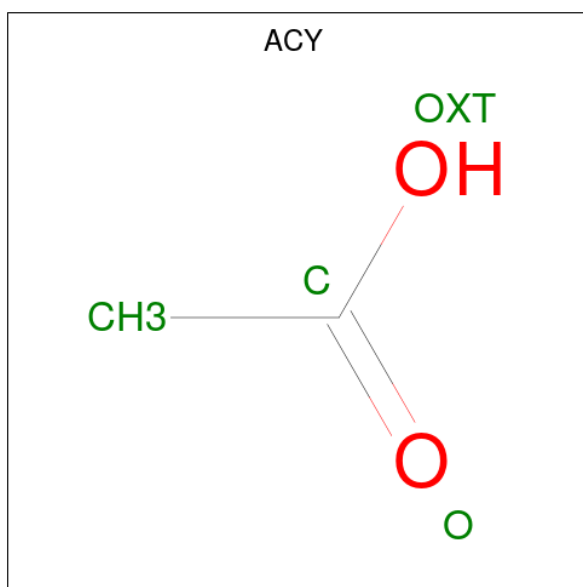
| Mol | Chain | Residues | Atoms | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---------|---------|
| 4 | A | 1 | Total 4 | C 2 | O 2 | 0 | 0 |
| 4 | A | 1 | Total 4 | C 2 | O 2 | 0 | 0 |

• Molecule 5 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).

EDO

O2

OH

C1

C2

HO

O1

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

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| Mol | Chain | Residues | Atoms | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|
| 5 | E | 1 | Total<br>4 | C<br>2 | O<br>2 | 0 | 0 |
| 5 | G | 1 | Total<br>4 | C<br>2 | O<br>2 | 0 | 0 |
| 5 | H | 1 | Total<br>4 | C<br>2 | O<br>2 | 0 | 0 |

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

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|
| 6 | D | 1 | Total<br>1 | K<br>1 | 0 | 0 |
| 6 | H | 1 | Total<br>1 | K<br>1 | 0 | 0 |

- Molecule 7 is water.

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|
| 7 | A | 321 | Total<br>321 | O<br>321 | 0 | 0 |
| 7 | B | 264 | Total<br>264 | O<br>264 | 0 | 0 |
| 7 | C | 226 | Total<br>226 | O<br>226 | 0 | 0 |
| 7 | D | 260 | Total<br>260 | O<br>260 | 0 | 0 |
| 7 | E | 282 | Total<br>282 | O<br>282 | 0 | 0 |
| 7 | F | 231 | Total<br>231 | O<br>231 | 0 | 0 |
| 7 | G | 219 | Total<br>219 | O<br>219 | 0 | 0 |
| 7 | H | 266 | Total<br>266 | O<br>266 | 0 | 0 |

# 3 Residue-property plots ⓘ

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.
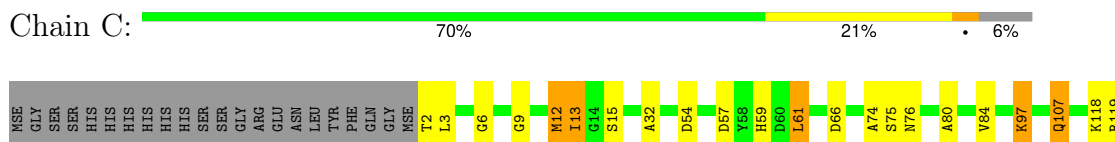
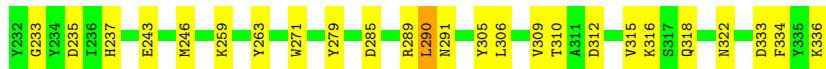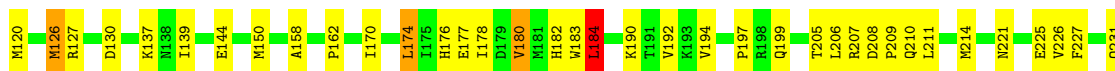• Molecule 1: Putative Dehydrogenase



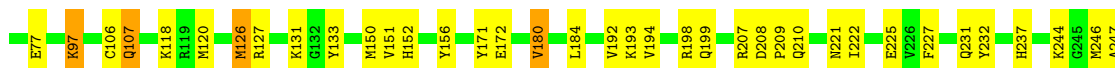• Molecule 1: Putative Dehydrogenase
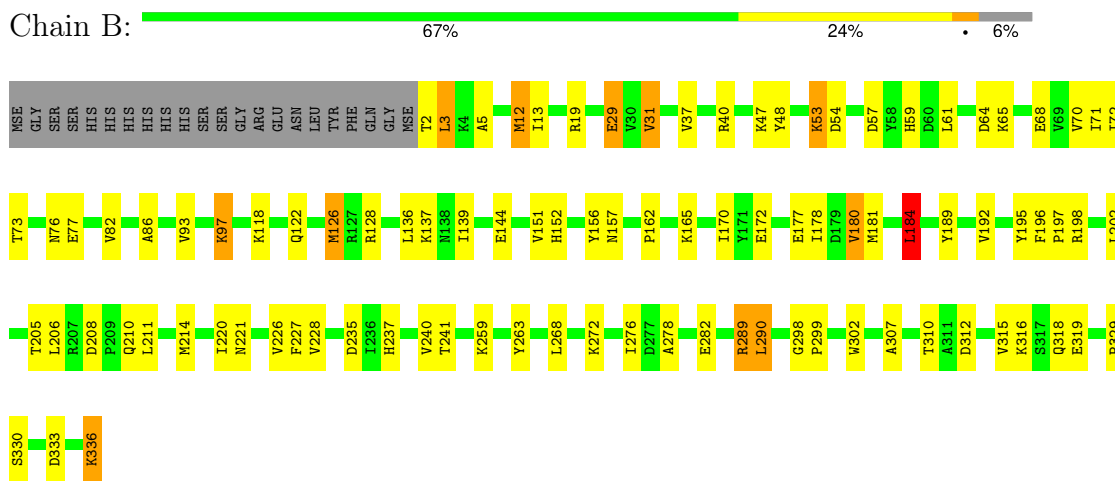


• Molecule 1: Putative Dehydrogenase

• Molecule 1: Putative Dehydrogenase

Chain D:



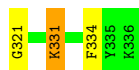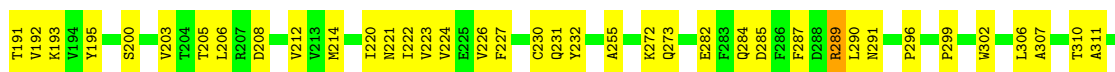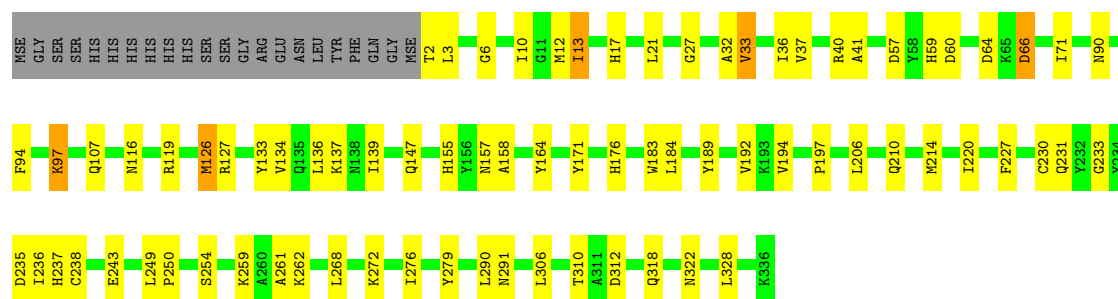• Molecule 1: Putative Dehydrogenase

Chain E:



• Molecule 1: Putative Dehydrogenase

Chain F:



• Molecule 1: Putative Dehydrogenase

Chain G:

72% 20% · 6%

MSE GLY SER SER HIS HIS HIS HIS HIS SER SER GLY ARG GLU ASN LEU TYR PHE GLN GLY MSE T2 L3 G6 I10 G11 M12 I13 H17 L21 G27 A32 V33 I36 V37 R40 A41 D57 Y58 H59 D60 D64 K65 D66 I71 N90

F94 K97 Q107 N116 R119 M126 R127 Y133 V134 Q135 L136 K137 N138 I139 Q147 H155 Y156 N157 A158 Y164 Y171 H176 W183 L184 Y189 V192 K193 V194 P197 L206 Q210 M214 I220 F227 C230 Q231 Y232 G233 Y234

D235 I236 H237 C238 E243 L249 P250 S254 K259 A260 A261 K262 L268 K272 I276 Y279 L290 N291 L306 T310 A311 D312 Q318 N322 L328 K336

• Molecule 1: Putative Dehydrogenase

Chain H:

74% 18% · 6%

MSE GLY SER SER HIS HIS HIS HIS HIS SER SER GLY ARG GLU ASN LEU TYR PHE GLN GLY M1 T2 L3 I10 G11 M12 I13 D16 H17 V33 I36 A41 K47 D66 N76 C95 E96 K97 K118 R119 M120 I123 M126 R127 R128 Y129

K137 N138 E144 M150 V151 H152 G153 Y156 P167 Q168 A169 I170 Y171 L174 I175 H176 E177 V180 M181 H182 W183 L184 K193 F196 P197 R198 Q199 V203 R207 D208 P209 Q210 L211 M214 V223 V224 E225 V226 F227 V228 N229 C238 M246 V257

E282 D285 R289 L290 L294 P295 G304 A307 C314 V315 K316 S317 Q318 E327 D333 K336

# 4 Data and refinement statistics ⓘ

| Property | Value | Source |
|---|---|---|
| Space group | P 1 | Depositor |
| Cell constants<br>a, b, c, $\alpha$, $\beta$, $\gamma$ | 81.00Å    98.98Å    105.79Å<br>88.05°    81.78°    89.92° | Depositor |
| Resolution (Å) | 47.00  –  2.15<br>47.00  –  2.15 | Depositor<br>EDS |
| % Data completeness<br>(in resolution range) | 98.1 (47.00-2.15)<br>98.0 (47.00-2.15) | Depositor<br>EDS |
| $R_{merge}$ | 0.13 | Depositor |
| $R_{sym}$ | (Not available) | Depositor |
| $< I/\sigma(I) >$ [1] | 2.45 (at 2.14Å) | Xtriage |
| Refinement program | REFMAC 5.5.0053 & phenix.refine | Depositor |
| R, $R_{free}$ | 0.176  ,   0.231<br>0.182  ,   0.233 | Depositor<br>DCC |
| $R_{free}$ test set | 8663 reflections (5.00%) | wwPDB-VP |
| Wilson B-factor (Å$^2$) | 25.0 | Xtriage |
| Anisotropy | 0.813 | Xtriage |
| Bulk solvent $k_{sol}$(e/Å$^3$), $B_{sol}$(Å$^2$) | 0.34 , 28.3 | EDS |
| L-test for twinning[2] | $< \|L\| > = 0.48, < L^2 > = 0.31$ | Xtriage |
| Estimated twinning fraction | 0.105 for -h,k,-l | Xtriage |
| $F_o$,$F_c$ correlation | 0.96 | EDS |
| Total number of atoms | 23658 | wwPDB-VP |
| Average B, all atoms (Å$^2$) | 24.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.72% of the height of the origin peak. No significant pseudotranslation is detected.*

---

[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< \|L\| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

# 5  Model quality  ⓘ

## 5.1  Standard geometry  ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: K, NAD, EDO, ACY, EPE

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 | 0.85 | 1/2692 (0.0%) | 0.81 | 0/3647 |
| 1 | B | 0.79 | 0/2672 | 0.76 | 2/3620 (0.1%) |
| 1 | C | 0.74 | 0/2664 | 0.76 | 2/3609 (0.1%) |
| 1 | D | 0.78 | 0/2694 | 0.78 | 2/3649 (0.1%) |
| 1 | E | 0.81 | 0/2687 | 0.76 | 0/3640 |
| 1 | F | 0.75 | 0/2689 | 0.74 | 1/3642 (0.0%) |
| 1 | G | 0.72 | 1/2663 (0.0%) | 0.73 | 0/3608 |
| 1 | H | 0.78 | 0/2678 | 0.76 | 1/3629 (0.0%) |
| All | All | 0.78 | 2/21439 (0.0%) | 0.76 | 8/29044 (0.0%) |

All (2) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|---|-------------|----------|
| 1 | A | 156 | TYR | CD1-CE1 | 7.29 | 1.50 | 1.39 |
| 1 | G | 261 | ALA | CA-CB | 5.54 | 1.64 | 1.52 |

All (8) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|-----|-------|-----|------|-------|---|----------------|-------------|
| 1 | H | 208 | ASP | CB-CG-OD1 | 7.63 | 125.17 | 118.30 |
| 1 | C | 208 | ASP | CB-CG-OD1 | 6.47 | 124.12 | 118.30 |
| 1 | D | 208 | ASP | CB-CG-OD1 | 6.46 | 124.11 | 118.30 |
| 1 | D | 184 | LEU | CB-CG-CD1 | 6.07 | 121.32 | 111.00 |
| 1 | B | 208 | ASP | CB-CG-OD1 | 5.95 | 123.66 | 118.30 |
| 1 | F | 208 | ASP | CB-CG-OD1 | 5.92 | 123.63 | 118.30 |
| 1 | B | 184 | LEU | CB-CG-CD1 | 5.82 | 120.90 | 111.00 |
| 1 | C | 184 | LEU | CB-CG-CD1 | 5.06 | 119.60 | 111.00 |

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts ⓘ

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 1 | A | 2648 | 0 | 2605 | 118 | 0 |
| 1 | B | 2628 | 0 | 2593 | 113 | 0 |
| 1 | C | 2620 | 0 | 2590 | 109 | 0 |
| 1 | D | 2650 | 0 | 2618 | 114 | 0 |
| 1 | E | 2643 | 0 | 2607 | 94 | 0 |
| 1 | F | 2645 | 0 | 2615 | 116 | 0 |
| 1 | G | 2619 | 0 | 2586 | 93 | 0 |
| 1 | H | 2634 | 0 | 2593 | 71 | 0 |
| 2 | A | 44 | 0 | 26 | 1 | 0 |
| 2 | B | 44 | 0 | 26 | 1 | 0 |
| 2 | C | 44 | 0 | 26 | 4 | 0 |
| 2 | D | 44 | 0 | 26 | 2 | 0 |
| 2 | E | 44 | 0 | 26 | 0 | 0 |
| 2 | F | 44 | 0 | 26 | 2 | 0 |
| 2 | G | 44 | 0 | 26 | 0 | 0 |
| 2 | H | 44 | 0 | 26 | 1 | 0 |
| 3 | A | 15 | 0 | 18 | 1 | 0 |
| 3 | B | 15 | 0 | 17 | 2 | 0 |
| 3 | C | 15 | 0 | 17 | 2 | 0 |
| 3 | D | 15 | 0 | 17 | 0 | 0 |
| 3 | E | 15 | 0 | 17 | 1 | 0 |
| 3 | F | 15 | 0 | 18 | 0 | 0 |
| 3 | G | 15 | 0 | 18 | 4 | 0 |
| 3 | H | 15 | 0 | 18 | 0 | 0 |
| 4 | A | 8 | 0 | 6 | 1 | 0 |
| 5 | D | 4 | 0 | 6 | 3 | 0 |
| 5 | E | 8 | 0 | 12 | 3 | 0 |
| 5 | G | 4 | 0 | 6 | 3 | 0 |
| 5 | H | 4 | 0 | 6 | 0 | 0 |
| 6 | D | 1 | 0 | 0 | 0 | 0 |
| 6 | H | 1 | 0 | 0 | 0 | 0 |
| 7 | A | 321 | 0 | 0 | 65 | 0 |
| 7 | B | 264 | 0 | 0 | 54 | 0 |
| 7 | C | 226 | 0 | 0 | 56 | 1 |
| 7 | D | 260 | 0 | 0 | 63 | 0 |
| 7 | E | 282 | 0 | 0 | 58 | 1 |
| 7 | F | 231 | 0 | 0 | 69 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 7 | G | 219 | 0 | 0 | 64 | 0 |
| 7 | H | 266 | 0 | 0 | 41 | 0 |
| All | All | 23658 | 0 | 21191 | 813 | 1 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 19.

All (813) 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:151:VAL:HG11 | 1:D:181:MSE:CE | 1.40 | 1.47 |
| 1:C:246:MSE:HG2 | 7:C:585:HOH:O | 1.23 | 1.32 |
| 1:H:210:GLN:HA | 7:H:665:HOH:O | 1.16 | 1.31 |
| 1:C:176:HIS:HB2 | 7:C:617:HOH:O | 1.28 | 1.30 |
| 1:B:210:GLN:HA | 7:B:645:HOH:O | 1.32 | 1.30 |
| 2:A:400:NAD:H4B | 7:A:694:HOH:O | 1.29 | 1.27 |
| 1:D:176:HIS:HA | 7:D:625:HOH:O | 1.23 | 1.27 |
| 1:F:176:HIS:HB2 | 7:F:434:HOH:O | 1.31 | 1.27 |
| 1:B:226:VAL:HB | 7:B:660:HOH:O | 1.35 | 1.26 |
| 1:F:158:ALA:HA | 7:F:588:HOH:O | 1.32 | 1.26 |
| 1:C:150:MSE:CE | 1:D:197:PRO:HG2 | 1.64 | 1.25 |
| 1:F:203:VAL:HG23 | 7:F:620:HOH:O | 1.37 | 1.25 |
| 1:A:193:LYS:HD2 | 7:A:673:HOH:O | 1.34 | 1.25 |
| 1:H:127:ARG:HB3 | 7:H:639:HOH:O | 1.31 | 1.25 |
| 1:B:195:TYR:HB2 | 7:B:621:HOH:O | 1.14 | 1.24 |
| 1:H:214:MSE:HE1 | 7:H:627:HOH:O | 1.14 | 1.23 |
| 1:A:7:ILE:HG22 | 7:A:723:HOH:O | 1.36 | 1.23 |
| 1:A:299:PRO:HA | 7:A:719:HOH:O | 1.30 | 1.23 |
| 1:D:214:MSE:HE1 | 7:D:614:HOH:O | 1.12 | 1.22 |
| 1:E:246:MSE:HB2 | 7:F:580:HOH:O | 1.32 | 1.22 |
| 1:H:176:HIS:HA | 7:H:634:HOH:O | 1.33 | 1.21 |
| 1:B:184:LEU:HA | 7:B:624:HOH:O | 1.41 | 1.20 |
| 1:B:137:LYS:HD3 | 7:B:624:HOH:O | 1.38 | 1.20 |
| 1:C:170:ILE:HB | 7:C:612:HOH:O | 1.42 | 1.20 |
| 1:D:210:GLN:HA | 7:D:626:HOH:O | 1.40 | 1.19 |
| 1:H:238:CYS:HA | 7:H:669:HOH:O | 1.40 | 1.19 |
| 1:C:150:MSE:SE | 7:D:654:HOH:O | 2.08 | 1.19 |
| 1:A:241:THR:HB | 7:A:692:HOH:O | 1.39 | 1.18 |
| 1:C:259[B]:LYS:HE3 | 7:C:600:HOH:O | 1.37 | 1.18 |
| 1:A:150:MSE:HB2 | 7:A:692:HOH:O | 1.42 | 1.18 |
| 1:D:151:VAL:CG1 | 1:D:181:MSE:HE2 | 1.72 | 1.18 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:150:MSE:CE | 1:B:197:PRO:HG2 | 1.73 | 1.18 |
| 5:G:402:EDO:H21 | 7:G:779:HOH:O | 1.42 | 1.16 |
| 1:A:111[A]:GLU:HG3 | 7:A:686:HOH:O | 1.45 | 1.16 |
| 1:F:193:LYS:HG3 | 7:F:585:HOH:O | 1.46 | 1.16 |
| 1:C:226:VAL:HB | 7:C:623:HOH:O | 1.45 | 1.14 |
| 1:F:222:ILE:HG22 | 7:F:584:HOH:O | 1.44 | 1.14 |
| 1:E:317:SER:HB2 | 7:E:797:HOH:O | 1.45 | 1.14 |
| 1:C:150:MSE:HE3 | 1:D:197:PRO:HG2 | 1.17 | 1.14 |
| 1:G:139:ILE:HD12 | 7:G:782:HOH:O | 1.48 | 1.13 |
| 1:B:139:ILE:HD12 | 7:B:648:HOH:O | 1.47 | 1.13 |
| 1:F:147:GLN:HG3 | 7:F:616:HOH:O | 1.49 | 1.13 |
| 1:H:193:LYS:HD2 | 7:H:650:HOH:O | 1.44 | 1.13 |
| 1:C:158:ALA:HA | 7:C:603:HOH:O | 1.47 | 1.12 |
| 1:D:123:ILE:HG13 | 7:D:637:HOH:O | 1.45 | 1.12 |
| 1:F:184:LEU:HA | 7:F:613:HOH:O | 1.49 | 1.11 |
| 1:D:168:GLN:HG2 | 7:D:458:HOH:O | 1.48 | 1.11 |
| 1:D:241:THR:HB | 7:D:623:HOH:O | 1.49 | 1.11 |
| 1:D:150:MSE:HB2 | 7:D:623:HOH:O | 1.51 | 1.10 |
| 1:C:127:ARG:HD2 | 7:C:615:HOH:O | 1.52 | 1.09 |
| 1:G:13:ILE:HG13 | 7:G:790:HOH:O | 1.50 | 1.09 |
| 1:F:224:VAL:HG23 | 7:F:584:HOH:O | 1.50 | 1.09 |
| 1:C:210:GLN:HB2 | 7:C:623:HOH:O | 1.52 | 1.08 |
| 1:A:150:MSE:HE3 | 1:B:197:PRO:HG2 | 1.30 | 1.08 |
| 1:D:151:VAL:HB | 7:D:643:HOH:O | 1.51 | 1.08 |
| 7:C:596:HOH:O | 1:D:200:SER:HA | 1.55 | 1.06 |
| 1:D:151:VAL:CG1 | 1:D:181:MSE:CE | 2.27 | 1.06 |
| 1:H:304:GLY:HA3 | 7:H:654:HOH:O | 1.55 | 1.06 |
| 1:B:240:VAL:HG12 | 7:B:635:HOH:O | 1.54 | 1.06 |
| 1:H:225:GLU:HB2 | 7:H:658:HOH:O | 1.56 | 1.06 |
| 1:E:156:TYR:HE1 | 7:E:771:HOH:O | 1.38 | 1.04 |
| 1:A:150:MSE:SE | 7:B:548:HOH:O | 2.23 | 1.04 |
| 1:C:74:ALA:HB2 | 7:C:618:HOH:O | 1.57 | 1.04 |
| 1:D:311:ALA:HA | 7:D:628:HOH:O | 1.56 | 1.04 |
| 1:E:267:ILE:HG21 | 7:E:758:HOH:O | 1.56 | 1.03 |
| 1:D:24:THR:HB | 7:D:655:HOH:O | 1.58 | 1.03 |
| 1:B:31:VAL:O | 1:B:53:LYS:HE3 | 1.57 | 1.03 |
| 1:C:192:VAL:HG12 | 1:C:214:MSE:HE3 | 1.38 | 1.03 |
| 1:B:180:VAL:HG22 | 7:B:620:HOH:O | 1.56 | 1.02 |
| 1:H:156:TYR:HE1 | 7:H:658:HOH:O | 1.40 | 1.02 |
| 1:B:172:GLU:HB3 | 7:B:640:HOH:O | 1.58 | 1.02 |
| 1:D:167:PRO:HB3 | 7:D:622:HOH:O | 1.59 | 1.02 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:210:GLN:HB2 | 7:B:660:HOH:O | 1.57 | 1.01 |
| 3:G:401:EPE:H91 | 7:G:807:HOH:O | 1.59 | 1.01 |
| 1:A:311:ALA:HA | 7:A:676:HOH:O | 1.58 | 1.01 |
| 1:G:249:LEU:HD22 | 7:G:791:HOH:O | 1.60 | 1.00 |
| 1:A:178:ILE:HD12 | 7:A:680:HOH:O | 1.62 | 1.00 |
| 1:E:225:GLU:HB2 | 7:E:771:HOH:O | 1.63 | 0.98 |
| 1:D:178[B]:ILE:HD11 | 1:D:307:ALA:HA | 1.01 | 0.98 |
| 1:B:37:VAL:HB | 1:B:40:ARG:HG3 | 1.44 | 0.98 |
| 1:D:267:ILE:HG13 | 7:D:663:HOH:O | 1.63 | 0.98 |
| 1:D:178[B]:ILE:HD11 | 1:D:307:ALA:CA | 1.93 | 0.98 |
| 1:H:156:TYR:CE1 | 7:H:658:HOH:O | 2.16 | 0.98 |
| 1:C:184:LEU:HA | 7:C:627:HOH:O | 1.63 | 0.97 |
| 1:A:207:ARG:HG2 | 1:A:207:ARG:HH21 | 1.27 | 0.97 |
| 1:H:168:GLN:HG2 | 7:H:478:HOH:O | 1.65 | 0.97 |
| 1:A:107:GLN:HB2 | 7:A:705:HOH:O | 1.64 | 0.97 |
| 1:B:211:LEU:HB3 | 7:B:621:HOH:O | 1.64 | 0.97 |
| 1:D:328:LEU:HD12 | 1:D:328:LEU:N | 1.80 | 0.96 |
| 7:E:634:HOH:O | 1:F:152:HIS:CD2 | 2.17 | 0.96 |
| 1:G:158:ALA:HA | 7:G:811:HOH:O | 1.65 | 0.96 |
| 1:D:222:ILE:HG12 | 7:D:643:HOH:O | 1.65 | 0.96 |
| 1:F:70:VAL:HG12 | 7:F:590:HOH:O | 1.64 | 0.96 |
| 1:H:180:VAL:HG21 | 7:H:639:HOH:O | 1.65 | 0.96 |
| 1:G:194:VAL:HG12 | 7:G:815:HOH:O | 1.65 | 0.95 |
| 1:E:4:LYS:HE2 | 7:E:751:HOH:O | 1.67 | 0.95 |
| 1:E:24:THR:HB | 7:E:755:HOH:O | 1.65 | 0.95 |
| 1:H:197:PRO:HD2 | 7:H:665:HOH:O | 1.66 | 0.95 |
| 1:D:178[B]:ILE:CD1 | 1:D:307:ALA:HA | 1.95 | 0.95 |
| 1:C:150:MSE:HE2 | 1:D:197:PRO:HG2 | 1.50 | 0.94 |
| 1:H:229:ASN:HB2 | 7:H:649:HOH:O | 1.66 | 0.94 |
| 1:G:210:GLN:HE22 | 1:G:318:GLN:HE21 | 1.15 | 0.94 |
| 1:C:192:VAL:CG1 | 1:C:214:MSE:HE3 | 1.97 | 0.94 |
| 1:D:328:LEU:HD11 | 7:D:491:HOH:O | 1.68 | 0.94 |
| 1:D:314:CYS:SG | 7:D:628:HOH:O | 2.25 | 0.93 |
| 1:A:267:ILE:HG13 | 7:A:702:HOH:O | 1.68 | 0.93 |
| 1:F:149:LEU:HD23 | 7:F:616:HOH:O | 1.68 | 0.93 |
| 1:D:222:ILE:HA | 7:D:643:HOH:O | 1.68 | 0.93 |
| 1:D:13:ILE:HG12 | 7:D:607:HOH:O | 1.68 | 0.92 |
| 1:G:164:TYR:CD2 | 7:G:807:HOH:O | 2.22 | 0.92 |
| 1:E:107:GLN:HG3 | 7:E:761:HOH:O | 1.69 | 0.92 |
| 1:F:33:VAL:CG2 | 1:F:41:ALA:HB1 | 1.98 | 0.92 |
| 1:E:131:LYS:HA | 7:E:759:HOH:O | 1.68 | 0.92 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:192:VAL:HG11 | 7:A:709:HOH:O | 1.71 | 0.91 |
| 1:D:151:VAL:HG11 | 1:D:181:MSE:HE2 | 0.93 | 0.91 |
| 1:E:156:TYR:CE1 | 7:E:771:HOH:O | 2.15 | 0.91 |
| 1:F:72:ILE:HG12 | 7:F:590:HOH:O | 1.70 | 0.91 |
| 1:E:246:MSE:HG2 | 7:E:784:HOH:O | 1.68 | 0.91 |
| 1:A:67:VAL:HG21 | 7:A:684:HOH:O | 1.67 | 0.91 |
| 1:A:304:GLY:HA3 | 7:A:690:HOH:O | 1.69 | 0.91 |
| 1:F:184:LEU:HD12 | 7:F:613:HOH:O | 1.70 | 0.90 |
| 1:G:147:GLN:HB3 | 7:G:802:HOH:O | 1.72 | 0.90 |
| 1:D:37:VAL:HB | 1:D:40:ARG:HG3 | 1.52 | 0.90 |
| 1:G:243:GLU:CG | 7:G:802:HOH:O | 2.19 | 0.89 |
| 1:F:212:VAL:HG23 | 7:F:627:HOH:O | 1.73 | 0.89 |
| 1:G:12[B]:MSE:HE3 | 1:G:272:LYS:HZ2 | 1.36 | 0.89 |
| 1:D:178[B]:ILE:HD13 | 1:D:310:THR:HB | 1.54 | 0.89 |
| 1:F:122:GLN:CG | 7:F:609:HOH:O | 2.19 | 0.89 |
| 1:A:128:ARG:NH1 | 7:A:719:HOH:O | 2.05 | 0.89 |
| 1:A:61:LEU:HG | 7:A:684:HOH:O | 1.72 | 0.88 |
| 1:G:134:VAL:HA | 7:G:798:HOH:O | 1.73 | 0.88 |
| 1:D:222:ILE:CG1 | 7:D:643:HOH:O | 2.17 | 0.87 |
| 1:A:150:MSE:HE2 | 1:B:197:PRO:HG2 | 1.54 | 0.87 |
| 1:F:311:ALA:HB1 | 7:F:614:HOH:O | 1.72 | 0.87 |
| 1:G:192:VAL:HG12 | 1:G:214:MSE:HE3 | 1.56 | 0.87 |
| 1:B:210:GLN:HE22 | 1:B:318:GLN:HE21 | 1.19 | 0.87 |
| 1:E:267:ILE:CG2 | 7:E:758:HOH:O | 2.18 | 0.86 |
| 7:E:749:HOH:O | 1:F:150:MSE:HE1 | 1.74 | 0.86 |
| 1:G:158:ALA:HA | 7:G:816:HOH:O | 1.75 | 0.86 |
| 1:D:229:ASN:HB2 | 7:D:634:HOH:O | 1.74 | 0.86 |
| 1:F:98:PRO:HG2 | 7:F:587:HOH:O | 1.75 | 0.85 |
| 1:D:33:VAL:HG13 | 1:D:41:ALA:HB1 | 1.56 | 0.85 |
| 1:B:152:HIS:CD2 | 7:B:526:HOH:O | 2.29 | 0.85 |
| 1:G:279:TYR:CZ | 7:G:780:HOH:O | 2.28 | 0.85 |
| 1:B:136:LEU:HA | 7:B:648:HOH:O | 1.76 | 0.85 |
| 1:G:12[B]:MSE:HE3 | 1:G:272:LYS:NZ | 1.92 | 0.85 |
| 1:C:210:GLN:HE22 | 1:C:318:GLN:HE21 | 1.25 | 0.84 |
| 1:F:220:ILE:HG22 | 7:F:598:HOH:O | 1.76 | 0.84 |
| 1:B:178:ILE:HG21 | 7:B:634:HOH:O | 1.78 | 0.84 |
| 1:B:72:ILE:HG21 | 7:B:636:HOH:O | 1.78 | 0.84 |
| 1:G:243:GLU:HG3 | 7:G:802:HOH:O | 1.78 | 0.84 |
| 1:G:243:GLU:CD | 7:G:802:HOH:O | 2.16 | 0.83 |
| 1:C:74:ALA:CB | 7:C:618:HOH:O | 2.21 | 0.83 |
| 1:B:214:MSE:HE1 | 1:B:310:THR:HG21 | 1.61 | 0.83 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:F:287:PHE:HB2 | 7:F:629:HOH:O | 1.79 | 0.82 |
| 1:E:8:VAL:HG23 | 7:E:770:HOH:O | 1.77 | 0.82 |
| 3:C:401:EPE:H91 | 7:C:449:HOH:O | 1.78 | 0.82 |
| 1:A:214:MSE:HE1 | 1:A:310:THR:CG2 | 2.10 | 0.82 |
| 1:F:331[A]:LYS:HE3 | 1:F:331[A]:LYS:H | 1.44 | 0.82 |
| 1:E:25:VAL:HG23 | 7:E:755:HOH:O | 1.78 | 0.81 |
| 1:E:61:LEU:HD22 | 7:E:770:HOH:O | 1.79 | 0.81 |
| 1:A:196:PHE:HD1 | 7:A:706:HOH:O | 1.61 | 0.81 |
| 1:F:137:LYS:HD3 | 7:F:613:HOH:O | 1.79 | 0.81 |
| 1:G:136:LEU:HA | 7:G:782:HOH:O | 1.79 | 0.81 |
| 1:F:107:GLN:HG3 | 7:F:581:HOH:O | 1.80 | 0.81 |
| 1:G:250:PRO:HG2 | 5:G:402:EDO:H11 | 1.63 | 0.81 |
| 1:A:314:CYS:SG | 7:A:676:HOH:O | 2.37 | 0.81 |
| 1:B:70:VAL:HG11 | 7:B:619:HOH:O | 1.79 | 0.81 |
| 1:A:192:VAL:CG1 | 1:A:214:MSE:HE3 | 2.11 | 0.80 |
| 1:C:306:LEU:HB3 | 7:C:587:HOH:O | 1.79 | 0.80 |
| 1:E:231:GLN:HB3 | 7:E:624:HOH:O | 1.81 | 0.80 |
| 1:B:220:ILE:HG22 | 7:B:617:HOH:O | 1.81 | 0.80 |
| 1:E:244:LYS:HE2 | 7:E:600:HOH:O | 1.82 | 0.80 |
| 1:F:170:ILE:HG22 | 7:F:614:HOH:O | 1.81 | 0.80 |
| 1:E:193[B]:LYS:HE2 | 1:E:194:VAL:N | 1.97 | 0.80 |
| 1:F:212:VAL:CG2 | 7:F:627:HOH:O | 2.29 | 0.79 |
| 1:H:211:LEU:HD22 | 7:H:635:HOH:O | 1.82 | 0.79 |
| 7:F:582:HOH:O | 1:G:254:SER:HA | 1.81 | 0.79 |
| 1:F:25:VAL:HG22 | 7:F:632:HOH:O | 1.82 | 0.79 |
| 7:A:697:HOH:O | 1:B:202:LEU:HG | 1.83 | 0.79 |
| 1:B:40:ARG:HB3 | 7:B:626:HOH:O | 1.82 | 0.79 |
| 1:F:192:VAL:HG12 | 1:F:214:MSE:HE3 | 1.63 | 0.79 |
| 1:B:170:ILE:C | 7:B:627:HOH:O | 2.20 | 0.78 |
| 1:F:151:VAL:HG12 | 7:F:586:HOH:O | 1.83 | 0.78 |
| 1:G:127:ARG:HD2 | 7:G:812:HOH:O | 1.82 | 0.78 |
| 1:G:279:TYR:CE1 | 7:G:780:HOH:O | 2.34 | 0.78 |
| 1:H:246:MSE:HG2 | 7:H:432:HOH:O | 1.81 | 0.78 |
| 1:E:198:ARG:HD3 | 7:F:616:HOH:O | 1.84 | 0.78 |
| 1:F:122:GLN:HG2 | 7:F:609:HOH:O | 1.81 | 0.78 |
| 1:G:33:VAL:HG13 | 1:G:41:ALA:HB1 | 1.65 | 0.78 |
| 1:D:304:GLY:HA3 | 7:D:608:HOH:O | 1.84 | 0.78 |
| 1:G:10:ILE:HD11 | 1:G:33:VAL:HG22 | 1.66 | 0.77 |
| 7:G:710:HOH:O | 1:H:150:MSE:SE | 2.51 | 0.77 |
| 1:A:99:LEU:CD2 | 7:A:690:HOH:O | 2.33 | 0.77 |
| 1:C:150:MSE:CE | 1:D:197:PRO:CG | 2.55 | 0.77 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:E:401:EPE:H92 | 7:E:648:HOH:O | 1.85 | 0.77 |
| 3:G:401:EPE:C7 | 7:G:808:HOH:O | 2.32 | 0.77 |
| 1:B:197:PRO:HD3 | 7:B:645:HOH:O | 1.85 | 0.77 |
| 1:D:128:ARG:HB2 | 7:D:662:HOH:O | 1.82 | 0.77 |
| 1:H:167:PRO:HA | 7:H:647:HOH:O | 1.85 | 0.76 |
| 2:C:400:NAD:H3D | 7:C:614:HOH:O | 1.85 | 0.76 |
| 7:A:679:HOH:O | 1:B:198:ARG:HD2 | 1.84 | 0.76 |
| 1:C:9:GLY:HA3 | 7:C:618:HOH:O | 1.86 | 0.76 |
| 1:F:192:VAL:CG1 | 1:F:214:MSE:HE3 | 2.16 | 0.76 |
| 1:A:192:VAL:CG1 | 1:A:214:MSE:CE | 2.64 | 0.76 |
| 1:B:72:ILE:HD13 | 7:B:636:HOH:O | 1.85 | 0.76 |
| 1:C:144:GLU:OE1 | 7:C:554:HOH:O | 2.04 | 0.76 |
| 1:C:150:MSE:HE2 | 1:D:197:PRO:CG | 2.15 | 0.76 |
| 1:D:99:LEU:CD2 | 7:D:608:HOH:O | 2.34 | 0.76 |
| 3:G:401:EPE:H72 | 7:G:808:HOH:O | 1.85 | 0.76 |
| 1:B:189:TYR:CD1 | 1:B:214:MSE:HE2 | 2.20 | 0.75 |
| 1:A:192:VAL:HG11 | 1:A:214:MSE:HE3 | 1.69 | 0.75 |
| 1:A:305:TYR:HE2 | 7:A:705:HOH:O | 1.69 | 0.75 |
| 1:B:178:ILE:HD13 | 7:B:634:HOH:O | 1.86 | 0.74 |
| 1:A:99:LEU:HD23 | 7:A:690:HOH:O | 1.87 | 0.74 |
| 1:C:259[B]:LYS:CE | 7:C:600:HOH:O | 2.11 | 0.74 |
| 1:F:299:PRO:HD2 | 7:F:609:HOH:O | 1.87 | 0.74 |
| 1:G:126:MSE:SE | 7:G:780:HOH:O | 2.54 | 0.74 |
| 1:A:11:GLY:N | 7:A:694:HOH:O | 2.20 | 0.74 |
| 1:D:151:VAL:HG11 | 1:D:181:MSE:HE3 | 1.65 | 0.74 |
| 1:D:196:PHE:HA | 7:D:626:HOH:O | 1.87 | 0.74 |
| 1:A:150:MSE:CE | 1:B:197:PRO:CG | 2.63 | 0.73 |
| 1:E:30:VAL:CG1 | 7:E:781:HOH:O | 2.34 | 0.73 |
| 1:B:220:ILE:CG2 | 7:B:617:HOH:O | 2.36 | 0.73 |
| 1:F:220:ILE:CG2 | 7:F:598:HOH:O | 2.33 | 0.73 |
| 1:A:147:GLN:NE2 | 7:A:685:HOH:O | 2.22 | 0.73 |
| 1:F:122:GLN:HG3 | 7:F:609:HOH:O | 1.86 | 0.73 |
| 1:A:192:VAL:HG12 | 1:A:214:MSE:CE | 2.19 | 0.73 |
| 1:E:150:MSE:HE1 | 7:F:591:HOH:O | 1.88 | 0.73 |
| 1:D:222:ILE:CA | 7:D:643:HOH:O | 2.29 | 0.73 |
| 1:A:12[B]:MSE:HE3 | 1:A:272:LYS:NZ | 2.03 | 0.73 |
| 1:E:33:VAL:HG13 | 7:E:781:HOH:O | 1.89 | 0.73 |
| 1:A:207:ARG:NH2 | 7:A:419:HOH:O | 2.21 | 0.72 |
| 1:A:199:GLN:HE22 | 1:A:207:ARG:HA | 1.54 | 0.72 |
| 1:C:194:VAL:HG13 | 7:C:601:HOH:O | 1.88 | 0.72 |
| 1:H:123:ILE:HG13 | 7:H:654:HOH:O | 1.90 | 0.72 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:H:315:VAL:HG22 | 7:H:647:HOH:O | 1.87 | 0.72 |
| 1:B:210:GLN:NE2 | 1:B:318:GLN:HE21 | 1.86 | 0.72 |
| 1:B:259:LYS:HE3 | 1:E:327[A]:GLU:OE2 | 1.90 | 0.72 |
| 1:B:165:LYS:HE3 | 7:B:478:HOH:O | 1.90 | 0.71 |
| 1:E:264:SER:HB2 | 7:E:768:HOH:O | 1.89 | 0.71 |
| 1:G:97:LYS:HE2 | 1:G:176:HIS:CE1 | 2.25 | 0.71 |
| 1:G:231:GLN:N | 7:G:816:HOH:O | 2.23 | 0.71 |
| 1:E:246:MSE:HE3 | 7:F:580:HOH:O | 1.89 | 0.71 |
| 1:G:189:TYR:CD1 | 1:G:214:MSE:HE2 | 2.26 | 0.71 |
| 1:H:210:GLN:HE22 | 1:H:318:GLN:HE21 | 1.36 | 0.71 |
| 1:B:29:GLU:HB3 | 7:B:643:HOH:O | 1.89 | 0.71 |
| 1:F:192:VAL:HG11 | 7:F:601:HOH:O | 1.91 | 0.71 |
| 1:G:37:VAL:HB | 1:G:40:ARG:HG3 | 1.73 | 0.71 |
| 1:C:174:LEU:HD23 | 1:C:174:LEU:O | 1.90 | 0.70 |
| 1:D:150:MSE:CB | 7:D:623:HOH:O | 2.22 | 0.70 |
| 1:B:192:VAL:HG12 | 1:B:214:MSE:HE3 | 1.72 | 0.70 |
| 1:A:207:ARG:HH21 | 1:A:207:ARG:CG | 2.00 | 0.70 |
| 1:D:227:PHE:CE1 | 7:D:634:HOH:O | 2.44 | 0.70 |
| 1:F:195:TYR:CD2 | 7:F:585:HOH:O | 2.45 | 0.70 |
| 1:G:158:ALA:CB | 7:G:811:HOH:O | 2.38 | 0.70 |
| 1:F:311:ALA:CB | 7:F:614:HOH:O | 2.35 | 0.70 |
| 1:A:210:GLN:HG2 | 7:A:706:HOH:O | 1.91 | 0.69 |
| 1:B:126:MSE:CE | 7:B:638:HOH:O | 2.41 | 0.69 |
| 1:B:211:LEU:HD12 | 7:B:621:HOH:O | 1.90 | 0.69 |
| 1:C:150:MSE:HE2 | 1:D:211:LEU:HB2 | 1.73 | 0.69 |
| 1:G:194:VAL:CG1 | 7:G:815:HOH:O | 2.32 | 0.69 |
| 1:G:237:HIS:HD2 | 7:G:695:HOH:O | 1.74 | 0.69 |
| 1:A:209:PRO:O | 7:A:706:HOH:O | 2.10 | 0.68 |
| 1:A:150:MSE:HE2 | 1:B:197:PRO:CG | 2.23 | 0.68 |
| 1:E:152:HIS:CD2 | 7:E:634:HOH:O | 2.45 | 0.68 |
| 1:F:310:THR:O | 7:F:601:HOH:O | 2.10 | 0.68 |
| 1:A:193:LYS:O | 7:A:681:HOH:O | 2.12 | 0.68 |
| 1:G:59:HIS:HB2 | 7:G:667:HOH:O | 1.93 | 0.68 |
| 1:H:171:TYR:CZ | 1:H:315:VAL:HG21 | 2.28 | 0.68 |
| 1:B:31:VAL:O | 1:B:53:LYS:CE | 2.38 | 0.68 |
| 1:A:10:ILE:HG13 | 1:A:33:VAL:HG13 | 1.76 | 0.68 |
| 1:H:203:VAL:HG21 | 7:H:649:HOH:O | 1.93 | 0.67 |
| 1:D:197:PRO:HD2 | 7:D:626:HOH:O | 1.93 | 0.67 |
| 1:D:273:GLN:HG3 | 7:D:513:HOH:O | 1.94 | 0.67 |
| 1:A:285:ASP:O | 1:A:289:ARG:HG3 | 1.93 | 0.67 |
| 1:E:317:SER:CB | 7:E:797:HOH:O | 2.21 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:170:ILE:HG12 | 7:B:528:HOH:O | 1.93 | 0.67 |
| 1:B:144:GLU:HG2 | 1:C:259[A]:LYS:HE2 | 1.75 | 0.67 |
| 1:E:30:VAL:HG12 | 7:E:781:HOH:O | 1.95 | 0.67 |
| 1:E:192:VAL:HG23 | 7:E:797:HOH:O | 1.93 | 0.67 |
| 1:C:180:VAL:CG2 | 7:C:610:HOH:O | 2.43 | 0.66 |
| 1:E:289:ARG:HD3 | 7:E:571:HOH:O | 1.93 | 0.66 |
| 1:H:153:GLY:HA2 | 7:H:669:HOH:O | 1.95 | 0.66 |
| 1:E:106:CYS:HB3 | 7:E:752:HOH:O | 1.95 | 0.66 |
| 1:H:152:HIS:O | 7:H:669:HOH:O | 2.14 | 0.66 |
| 1:A:193:LYS:HG3 | 7:A:681:HOH:O | 1.94 | 0.66 |
| 1:F:230:CYS:SG | 7:F:588:HOH:O | 2.52 | 0.66 |
| 1:H:209:PRO:O | 7:H:662:HOH:O | 2.14 | 0.66 |
| 1:B:214:MSE:HE1 | 1:B:310:THR:CG2 | 2.24 | 0.66 |
| 1:E:265:THR:O | 7:E:768:HOH:O | 2.14 | 0.66 |
| 1:G:107:GLN:HB3 | 7:G:646:HOH:O | 1.95 | 0.66 |
| 1:B:210:GLN:HE22 | 1:B:318:GLN:NE2 | 1.90 | 0.66 |
| 1:E:222:ILE:CG1 | 7:E:795:HOH:O | 2.43 | 0.66 |
| 1:A:150:MSE:HE2 | 1:B:211:LEU:HB2 | 1.77 | 0.66 |
| 1:A:247:ALA:O | 7:A:470:HOH:O | 2.13 | 0.66 |
| 1:B:59:HIS:HE1 | 7:B:618:HOH:O | 1.78 | 0.66 |
| 1:C:197:PRO:HG2 | 7:C:598:HOH:O | 1.96 | 0.66 |
| 1:G:183:TRP:CH2 | 7:G:798:HOH:O | 2.47 | 0.66 |
| 1:E:305:TYR:HB2 | 7:E:752:HOH:O | 1.96 | 0.66 |
| 1:F:189:TYR:CD1 | 1:F:214:MSE:HE2 | 2.31 | 0.66 |
| 1:A:192:VAL:HG11 | 1:A:214:MSE:CE | 2.26 | 0.66 |
| 1:A:193:LYS:CD | 7:A:673:HOH:O | 2.11 | 0.65 |
| 1:D:328:LEU:HD12 | 1:D:328:LEU:H | 1.58 | 0.65 |
| 1:E:180:VAL:CG1 | 7:E:769:HOH:O | 2.43 | 0.65 |
| 1:E:257:VAL:HG23 | 5:E:402:EDO:H11 | 1.76 | 0.65 |
| 1:B:86:ALA:HB2 | 7:B:619:HOH:O | 1.96 | 0.65 |
| 1:C:75:SER:HA | 7:C:614:HOH:O | 1.95 | 0.65 |
| 1:E:222:ILE:HG13 | 7:E:795:HOH:O | 1.96 | 0.65 |
| 1:F:144:GLU:CG | 1:G:259:LYS:HE2 | 2.27 | 0.65 |
| 1:G:230:CYS:SG | 7:G:816:HOH:O | 2.54 | 0.65 |
| 1:F:184:LEU:CD1 | 7:F:613:HOH:O | 2.33 | 0.65 |
| 1:D:304:GLY:HA3 | 7:D:637:HOH:O | 1.96 | 0.65 |
| 1:A:305:TYR:CE2 | 7:A:705:HOH:O | 2.48 | 0.65 |
| 1:B:184:LEU:CD1 | 7:B:624:HOH:O | 2.44 | 0.65 |
| 1:G:192:VAL:CG1 | 1:G:214:MSE:HE3 | 2.27 | 0.65 |
| 1:A:205:THR:HB | 7:A:715:HOH:O | 1.94 | 0.65 |
| 1:B:196:PHE:HA | 7:B:645:HOH:O | 1.97 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:C:192:VAL:HG12 | 1:C:214:MSE:CE | 2.21 | 0.65 |
| 1:E:289:ARG:HH11 | 1:E:297:ALA:HB3 | 1.62 | 0.65 |
| 1:A:162:PRO:O | 7:A:715:HOH:O | 2.14 | 0.65 |
| 1:C:107:GLN:NE2 | 1:C:305:TYR:CE2 | 2.65 | 0.65 |
| 1:C:174:LEU:HD22 | 1:C:178:ILE:HG13 | 1.78 | 0.65 |
| 1:E:8:VAL:CG2 | 7:E:770:HOH:O | 2.42 | 0.65 |
| 1:F:224:VAL:HG13 | 7:F:607:HOH:O | 1.96 | 0.65 |
| 1:A:192:VAL:HG12 | 1:A:214:MSE:HE2 | 1.79 | 0.65 |
| 1:F:119:ARG:HG3 | 1:F:334:PHE:CE2 | 2.32 | 0.65 |
| 1:C:9:GLY:CA | 7:C:618:HOH:O | 2.45 | 0.64 |
| 1:E:289:ARG:NH1 | 1:E:297:ALA:HB3 | 2.12 | 0.64 |
| 1:F:151:VAL:HG23 | 7:F:598:HOH:O | 1.97 | 0.64 |
| 1:C:243:GLU:OE2 | 7:C:596:HOH:O | 2.15 | 0.64 |
| 1:B:307:ALA:O | 7:B:634:HOH:O | 2.15 | 0.64 |
| 1:D:119:ARG:HG2 | 7:D:633:HOH:O | 1.97 | 0.64 |
| 1:F:12[C]:MSE:HE3 | 1:F:272:LYS:NZ | 2.12 | 0.64 |
| 1:F:181:MSE:HE1 | 7:F:586:HOH:O | 1.96 | 0.64 |
| 1:D:265:THR:HA | 5:D:402:EDO:H21 | 1.79 | 0.64 |
| 1:A:174:LEU:HB3 | 7:A:680:HOH:O | 1.98 | 0.64 |
| 1:D:227:PHE:HE1 | 7:D:634:HOH:O | 1.78 | 0.64 |
| 1:C:184:LEU:CD1 | 7:C:627:HOH:O | 2.46 | 0.64 |
| 1:A:12[B]:MSE:HE3 | 1:A:272:LYS:HZ2 | 1.63 | 0.64 |
| 1:A:243:GLU:OE1 | 7:A:697:HOH:O | 2.15 | 0.64 |
| 1:H:47:LYS:HD3 | 7:H:663:HOH:O | 1.97 | 0.64 |
| 1:C:285:ASP:OD1 | 1:C:289:ARG:NH1 | 2.32 | 0.63 |
| 1:D:77[B]:GLU:CD | 1:D:77[B]:GLU:H | 2.01 | 0.63 |
| 1:E:199:GLN:HE22 | 1:E:207:ARG:HA | 1.63 | 0.63 |
| 1:F:33:VAL:HG22 | 1:F:41:ALA:HB1 | 1.79 | 0.63 |
| 1:F:214:MSE:HE1 | 1:F:310:THR:HG21 | 1.80 | 0.63 |
| 7:C:593:HOH:O | 1:D:150:MSE:HE1 | 1.97 | 0.63 |
| 1:B:235:ASP:OD2 | 1:B:237:HIS:HE1 | 1.82 | 0.63 |
| 1:F:12[B]:MSE:SE | 1:F:272:LYS:HZ3 | 2.32 | 0.63 |
| 1:C:184:LEU:HD13 | 7:C:627:HOH:O | 1.99 | 0.63 |
| 1:B:12[A]:MSE:CE | 7:B:616:HOH:O | 2.47 | 0.63 |
| 1:B:82:VAL:HG12 | 7:B:619:HOH:O | 1.97 | 0.62 |
| 1:D:197:PRO:CD | 7:D:626:HOH:O | 2.47 | 0.62 |
| 1:A:150:MSE:HE3 | 1:B:197:PRO:CG | 2.19 | 0.62 |
| 1:C:76:ASN:N | 7:C:614:HOH:O | 2.32 | 0.62 |
| 1:F:3:LEU:HD11 | 1:F:290:LEU:HB3 | 1.82 | 0.62 |
| 1:F:331[A]:LYS:H | 1:F:331[A]:LYS:CE | 2.10 | 0.62 |
| 1:E:118:LYS:HG2 | 7:E:779:HOH:O | 2.00 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:F:135[B]:GLN:CD | 7:F:582:HOH:O | 2.36 | 0.62 |
| 1:H:76:ASN:ND2 | 2:H:400:NAD:O3D | 2.32 | 0.62 |
| 1:E:244:LYS:CE | 7:E:600:HOH:O | 2.43 | 0.62 |
| 1:B:12[A]:MSE:HE3 | 1:B:272:LYS:NZ | 2.15 | 0.62 |
| 1:C:158:ALA:CB | 7:C:603:HOH:O | 2.47 | 0.62 |
| 1:F:144:GLU:HG3 | 1:G:259:LYS:HE2 | 1.81 | 0.62 |
| 1:C:246:MSE:CG | 7:C:585:HOH:O | 2.02 | 0.61 |
| 1:D:171:TYR:CE2 | 7:D:622:HOH:O | 2.51 | 0.61 |
| 1:D:237:HIS:HD2 | 7:D:615:HOH:O | 1.82 | 0.61 |
| 1:H:199:GLN:HE22 | 1:H:207:ARG:HA | 1.64 | 0.61 |
| 1:E:57:ASP:OD1 | 1:E:59:HIS:HD2 | 1.82 | 0.61 |
| 1:E:232:TYR:HE1 | 7:E:758:HOH:O | 1.83 | 0.61 |
| 1:A:304:GLY:CA | 7:A:690:HOH:O | 2.38 | 0.60 |
| 1:B:151:VAL:HG23 | 7:B:617:HOH:O | 2.00 | 0.60 |
| 1:H:210:GLN:NE2 | 1:H:318:GLN:HE21 | 2.00 | 0.60 |
| 1:G:133:TYR:O | 7:G:798:HOH:O | 2.15 | 0.60 |
| 1:F:12[C]:MSE:CE | 7:F:589:HOH:O | 2.50 | 0.60 |
| 1:H:33:VAL:HG13 | 1:H:41:ALA:HB1 | 1.83 | 0.60 |
| 1:A:57:ASP:OD2 | 1:A:59:HIS:HD2 | 1.85 | 0.60 |
| 1:B:195:TYR:O | 7:B:645:HOH:O | 2.16 | 0.60 |
| 1:C:97:LYS:NZ | 1:C:176:HIS:NE2 | 2.43 | 0.60 |
| 1:F:289:ARG:HD3 | 7:F:474:HOH:O | 2.00 | 0.60 |
| 1:C:210:GLN:NE2 | 1:C:318:GLN:HE21 | 1.98 | 0.60 |
| 1:A:210:GLN:HE22 | 1:A:318:GLN:HE21 | 1.50 | 0.59 |
| 1:A:57:ASP:OD2 | 1:A:59:HIS:CD2 | 2.54 | 0.59 |
| 1:B:197:PRO:CD | 7:B:645:HOH:O | 2.45 | 0.59 |
| 1:A:312:ASP:OD2 | 4:A:402:ACY:H3 | 2.02 | 0.59 |
| 1:C:243:GLU:HG2 | 7:C:596:HOH:O | 2.02 | 0.59 |
| 1:E:58:TYR:O | 1:E:62:ILE:HG12 | 2.02 | 0.59 |
| 1:F:284:GLN:HA | 7:F:629:HOH:O | 2.01 | 0.59 |
| 1:A:207:ARG:HG2 | 1:A:207:ARG:NH2 | 2.02 | 0.59 |
| 1:F:12[B]:MSE:SE | 1:F:272:LYS:NZ | 2.86 | 0.59 |
| 1:H:10:ILE:HD11 | 1:H:33:VAL:HG22 | 1.83 | 0.59 |
| 1:C:3:LEU:HG | 1:C:291:ASN:ND2 | 2.17 | 0.59 |
| 1:C:199:GLN:HE22 | 1:C:207:ARG:HA | 1.67 | 0.59 |
| 7:C:596:HOH:O | 1:D:201:SER:N | 2.28 | 0.59 |
| 1:D:151:VAL:CG1 | 1:D:181:MSE:HE1 | 2.23 | 0.59 |
| 1:F:151:VAL:CG1 | 7:F:586:HOH:O | 2.45 | 0.59 |
| 1:E:66:ASP:HA | 7:E:644:HOH:O | 2.01 | 0.59 |
| 1:E:237:HIS:HD2 | 7:E:654:HOH:O | 1.86 | 0.59 |
| 1:A:33:VAL:HG12 | 1:A:41:ALA:HB1 | 1.84 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:99:LEU:HD22 | 7:D:608:HOH:O | 1.97 | 0.58 |
| 1:C:61:LEU:C | 1:C:61:LEU:HD13 | 2.24 | 0.58 |
| 1:D:8:VAL:HG23 | 7:D:641:HOH:O | 2.03 | 0.58 |
| 1:E:71:ILE:HD12 | 1:E:71:ILE:N | 2.18 | 0.58 |
| 1:F:192:VAL:HG21 | 7:F:601:HOH:O | 2.03 | 0.58 |
| 1:A:4:LYS:HG2 | 1:A:31:VAL:HG11 | 1.85 | 0.58 |
| 1:A:148:PRO:HD2 | 7:A:685:HOH:O | 2.03 | 0.58 |
| 1:B:289:ARG:HG3 | 1:B:289:ARG:HH11 | 1.67 | 0.58 |
| 1:F:231:GLN:N | 7:F:588:HOH:O | 2.35 | 0.58 |
| 1:D:290:LEU:HD11 | 1:D:296:PRO:HD3 | 1.84 | 0.58 |
| 1:E:225:GLU:O | 7:E:771:HOH:O | 2.17 | 0.58 |
| 1:A:310:THR:HG23 | 7:A:709:HOH:O | 2.04 | 0.58 |
| 1:B:184:LEU:HD12 | 7:B:624:HOH:O | 2.03 | 0.58 |
| 1:E:127:ARG:HD2 | 7:E:769:HOH:O | 2.02 | 0.58 |
| 1:G:36:ILE:HD11 | 7:G:773:HOH:O | 2.04 | 0.57 |
| 1:B:31:VAL:HG13 | 7:B:643:HOH:O | 2.05 | 0.57 |
| 1:B:316:LYS:NZ | 7:B:582:HOH:O | 2.38 | 0.57 |
| 1:E:210:GLN:HE22 | 1:E:318:GLN:HE21 | 1.50 | 0.57 |
| 1:H:210:GLN:HE22 | 1:H:318:GLN:NE2 | 2.02 | 0.57 |
| 1:C:150:MSE:HE3 | 1:D:197:PRO:CG | 2.12 | 0.57 |
| 1:H:304:GLY:CA | 7:H:654:HOH:O | 2.30 | 0.57 |
| 1:H:3:LEU:HD11 | 1:H:290:LEU:HB3 | 1.85 | 0.57 |
| 1:D:304:GLY:CA | 7:D:637:HOH:O | 2.52 | 0.57 |
| 1:G:33:VAL:CG1 | 1:G:41:ALA:HB1 | 2.33 | 0.57 |
| 1:A:314:CYS:HB2 | 7:A:676:HOH:O | 2.05 | 0.57 |
| 1:B:57:ASP:OD2 | 1:B:59:HIS:HD2 | 1.87 | 0.57 |
| 1:C:333:ASP:HA | 1:C:336:LYS:HG3 | 1.87 | 0.57 |
| 1:G:158:ALA:CA | 7:G:811:HOH:O | 2.34 | 0.57 |
| 1:B:5:ALA:HB1 | 1:B:71:ILE:HD13 | 1.86 | 0.57 |
| 1:C:3:LEU:HG | 1:C:291:ASN:HD21 | 1.69 | 0.57 |
| 1:G:137:LYS:CB | 7:G:798:HOH:O | 2.52 | 0.57 |
| 1:D:314:CYS:HB2 | 7:D:628:HOH:O | 2.05 | 0.57 |
| 1:D:304:GLY:CA | 7:D:608:HOH:O | 2.47 | 0.56 |
| 1:H:317:SER:OG | 7:H:650:HOH:O | 2.18 | 0.56 |
| 1:C:150:MSE:HE1 | 1:D:210:GLN:O | 2.05 | 0.56 |
| 1:G:176:HIS:HB3 | 7:G:812:HOH:O | 2.06 | 0.56 |
| 1:B:192:VAL:CG1 | 1:B:214:MSE:HE3 | 2.35 | 0.56 |
| 1:E:244:LYS:NZ | 7:E:600:HOH:O | 2.37 | 0.56 |
| 1:E:247:ALA:O | 7:E:784:HOH:O | 2.17 | 0.56 |
| 7:A:679:HOH:O | 1:B:198:ARG:HB2 | 2.05 | 0.56 |
| 1:D:99:LEU:HD23 | 7:D:608:HOH:O | 1.98 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:3:LEU:HD21 | 1:B:290:LEU:HB3 | 1.87 | 0.56 |
| 1:H:175:ILE:HD11 | 1:H:307:ALA:HB1 | 1.87 | 0.56 |
| 1:C:150:MSE:HE3 | 1:D:209:PRO:HG2 | 1.88 | 0.56 |
| 1:A:127:ARG:NH1 | 7:A:711:HOH:O | 2.38 | 0.56 |
| 1:D:328:LEU:N | 1:D:328:LEU:CD1 | 2.60 | 0.56 |
| 1:H:227:PHE:HE1 | 7:H:649:HOH:O | 1.88 | 0.56 |
| 1:A:192:VAL:CG1 | 1:A:214:MSE:HE2 | 2.35 | 0.56 |
| 1:E:225:GLU:CB | 7:E:771:HOH:O | 2.35 | 0.56 |
| 1:G:157:ASN:O | 7:G:816:HOH:O | 2.18 | 0.55 |
| 1:G:220:ILE:HG22 | 7:G:785:HOH:O | 2.04 | 0.55 |
| 1:F:289:ARG:CD | 7:F:474:HOH:O | 2.55 | 0.55 |
| 1:H:285:ASP:OD1 | 1:H:289:ARG:NH1 | 2.38 | 0.55 |
| 1:C:3:LEU:HD11 | 1:C:290:LEU:HB3 | 1.88 | 0.55 |
| 1:C:192:VAL:HG11 | 1:C:214:MSE:HE3 | 1.87 | 0.55 |
| 1:E:65:LYS:HD3 | 1:E:65:LYS:O | 2.06 | 0.55 |
| 1:G:230:CYS:N | 7:G:816:HOH:O | 2.39 | 0.55 |
| 1:E:193[B]:LYS:CE | 1:E:317:SER:OG | 2.55 | 0.55 |
| 1:F:200:SER:OG | 7:F:620:HOH:O | 2.18 | 0.55 |
| 1:H:196:PHE:HA | 7:H:665:HOH:O | 2.07 | 0.55 |
| 1:C:144:GLU:HG3 | 1:E:327[B]:GLU:OE1 | 2.05 | 0.55 |
| 1:C:209:PRO:HB2 | 7:C:598:HOH:O | 2.06 | 0.55 |
| 1:B:278:ALA:O | 1:B:282:GLU:HG2 | 2.06 | 0.55 |
| 1:E:5:ALA:HB1 | 1:E:71:ILE:CD1 | 2.37 | 0.55 |
| 1:C:12:MSE:HG3 | 1:C:13:ILE:N | 2.22 | 0.55 |
| 1:C:214:MSE:HE1 | 1:C:310:THR:CG2 | 2.37 | 0.55 |
| 1:C:180:VAL:HG21 | 7:C:610:HOH:O | 2.07 | 0.54 |
| 1:H:13:ILE:HG13 | 7:H:631:HOH:O | 2.06 | 0.54 |
| 1:A:128:ARG:CZ | 7:A:719:HOH:O | 2.49 | 0.54 |
| 1:B:72:ILE:HD12 | 1:B:93:VAL:HG13 | 1.90 | 0.54 |
| 1:D:62:ILE:O | 1:D:91:LYS:NZ | 2.38 | 0.54 |
| 1:A:196:PHE:CD1 | 7:A:706:HOH:O | 2.46 | 0.54 |
| 1:D:31:VAL:HG21 | 1:D:66:ASP:HB3 | 1.89 | 0.54 |
| 1:F:3:LEU:HG | 1:F:291:ASN:HD21 | 1.72 | 0.54 |
| 1:F:195:TYR:HD2 | 7:F:585:HOH:O | 1.86 | 0.54 |
| 1:C:209:PRO:C | 7:C:598:HOH:O | 2.46 | 0.54 |
| 1:F:3:LEU:HG | 1:F:291:ASN:ND2 | 2.23 | 0.54 |
| 1:C:316:LYS:HE3 | 7:C:591:HOH:O | 2.07 | 0.54 |
| 1:G:10:ILE:CD1 | 1:G:33:VAL:HG22 | 2.35 | 0.54 |
| 7:A:697:HOH:O | 1:B:202:LEU:CD2 | 2.55 | 0.53 |
| 1:D:21:LEU:HD13 | 1:D:71:ILE:HD13 | 1.90 | 0.53 |
| 1:C:231:GLN:C | 7:C:603:HOH:O | 2.46 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:174:LEU:O | 1:D:178[B]:ILE:HG23 | 2.08 | 0.53 |
| 1:G:147:GLN:N | 7:G:802:HOH:O | 2.40 | 0.53 |
| 3:G:401:EPE:H71 | 7:G:808:HOH:O | 2.01 | 0.53 |
| 1:A:5:ALA:HB1 | 1:A:71:ILE:HD13 | 1.91 | 0.53 |
| 1:A:246:MSE:HG2 | 7:A:470:HOH:O | 2.08 | 0.53 |
| 1:F:87:LEU:O | 1:F:116:ASN:ND2 | 2.40 | 0.53 |
| 1:G:220:ILE:CG2 | 7:G:785:HOH:O | 2.56 | 0.53 |
| 1:A:160:THR:H | 1:A:229:ASN:HD21 | 1.57 | 0.53 |
| 1:B:76:ASN:ND2 | 2:B:400:NAD:O3D | 2.42 | 0.53 |
| 1:F:4:LYS:HG2 | 1:F:31:VAL:HG11 | 1.90 | 0.53 |
| 1:A:220:ILE:HD11 | 7:A:685:HOH:O | 2.08 | 0.52 |
| 1:H:333:ASP:HA | 1:H:336:LYS:HD2 | 1.90 | 0.52 |
| 1:C:210:GLN:HB3 | 7:C:601:HOH:O | 2.09 | 0.52 |
| 1:A:119:ARG:HG2 | 7:A:689:HOH:O | 2.10 | 0.52 |
| 1:D:304:GLY:N | 7:D:637:HOH:O | 2.41 | 0.52 |
| 1:H:13:ILE:HD11 | 1:H:17:HIS:CE1 | 2.44 | 0.52 |
| 1:D:235:ASP:OD2 | 1:D:237:HIS:HE1 | 1.92 | 0.52 |
| 1:D:301:SER:O | 7:D:608:HOH:O | 2.19 | 0.52 |
| 1:F:214:MSE:HE1 | 1:F:310:THR:CG2 | 2.39 | 0.52 |
| 1:H:118:LYS:O | 1:H:120:MSE:HG3 | 2.10 | 0.52 |
| 1:E:180:VAL:HG11 | 7:E:769:HOH:O | 2.08 | 0.52 |
| 1:A:107:GLN:NE2 | 7:A:705:HOH:O | 2.43 | 0.52 |
| 1:D:314:CYS:CB | 7:D:628:HOH:O | 2.51 | 0.52 |
| 1:D:315:VAL:HG21 | 7:D:622:HOH:O | 2.09 | 0.52 |
| 1:A:289:ARG:NE | 7:A:445:HOH:O | 2.28 | 0.52 |
| 1:F:126:MSE:H | 1:F:126:MSE:SE | 2.43 | 0.52 |
| 1:B:157:ASN:HB3 | 1:B:228:VAL:HA | 1.91 | 0.52 |
| 1:F:12[C]:MSE:SE | 1:F:12[C]:MSE:C | 2.98 | 0.52 |
| 1:H:13:ILE:HD12 | 1:H:13:ILE:O | 2.09 | 0.52 |
| 1:G:126:MSE:HG3 | 7:G:780:HOH:O | 2.10 | 0.51 |
| 1:G:231:GLN:C | 7:G:811:HOH:O | 2.47 | 0.51 |
| 1:A:10:ILE:HG13 | 1:A:33:VAL:CG1 | 2.41 | 0.51 |
| 1:G:147:GLN:CB | 7:G:802:HOH:O | 2.45 | 0.51 |
| 1:A:33:VAL:CG1 | 1:A:41:ALA:HB1 | 2.40 | 0.51 |
| 1:B:61:LEU:C | 1:B:61:LEU:HD23 | 2.31 | 0.51 |
| 1:G:137:LYS:HB2 | 7:G:798:HOH:O | 2.09 | 0.51 |
| 1:G:210:GLN:NE2 | 1:G:318:GLN:HE21 | 1.96 | 0.51 |
| 1:D:294:LEU:HB3 | 1:D:295:PRO:HD2 | 1.93 | 0.51 |
| 1:G:3:LEU:HG | 1:G:291:ASN:ND2 | 2.26 | 0.51 |
| 1:B:57:ASP:OD2 | 1:B:59:HIS:CD2 | 2.63 | 0.51 |
| 1:C:174:LEU:HD23 | 1:C:177:GLU:HB2 | 1.93 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:315:VAL:HG11 | 7:D:622:HOH:O | 2.09 | 0.51 |
| 1:G:147:GLN:CA | 7:G:802:HOH:O | 2.58 | 0.51 |
| 1:H:225:GLU:CB | 7:H:658:HOH:O | 2.29 | 0.51 |
| 1:C:97:LYS:HZ3 | 1:C:176:HIS:CE1 | 2.27 | 0.51 |
| 1:D:311:ALA:CA | 7:D:628:HOH:O | 2.34 | 0.51 |
| 1:G:155:HIS:NE2 | 7:G:808:HOH:O | 2.33 | 0.51 |
| 1:A:214:MSE:HE1 | 1:A:310:THR:HG22 | 1.90 | 0.50 |
| 1:C:233:GLY:N | 7:C:603:HOH:O | 2.41 | 0.50 |
| 1:G:137:LYS:HB3 | 7:G:798:HOH:O | 2.09 | 0.50 |
| 1:H:199:GLN:HE22 | 1:H:208:ASP:H | 1.60 | 0.50 |
| 1:B:172:GLU:OE1 | 3:B:401:EPE:H31 | 2.11 | 0.50 |
| 1:H:127:ARG:NH1 | 7:H:670:HOH:O | 2.44 | 0.50 |
| 1:A:12[B]:MSE:HE3 | 1:A:272:LYS:HZ3 | 1.73 | 0.50 |
| 1:C:158:ALA:CA | 7:C:603:HOH:O | 2.24 | 0.50 |
| 1:A:18:LEU:HD11 | 1:A:50:ILE:HD13 | 1.94 | 0.50 |
| 1:A:314:CYS:CB | 7:A:676:HOH:O | 2.60 | 0.50 |
| 1:D:76:ASN:ND2 | 2:D:400:NAD:O3D | 2.44 | 0.50 |
| 1:H:153:GLY:CA | 7:H:669:HOH:O | 2.56 | 0.50 |
| 7:A:697:HOH:O | 1:B:202:LEU:CG | 2.51 | 0.50 |
| 1:C:107:GLN:NE2 | 1:C:305:TYR:HE2 | 2.09 | 0.50 |
| 1:D:241:THR:CB | 7:D:623:HOH:O | 2.27 | 0.50 |
| 1:G:183:TRP:HH2 | 7:G:798:HOH:O | 1.90 | 0.50 |
| 1:D:10:ILE:HD11 | 1:D:33:VAL:HG22 | 1.93 | 0.50 |
| 1:E:118:LYS:O | 1:E:120:MSE:HG3 | 2.12 | 0.50 |
| 1:F:224:VAL:CG1 | 7:F:607:HOH:O | 2.57 | 0.50 |
| 5:G:402:EDO:C2 | 7:G:779:HOH:O | 2.22 | 0.49 |
| 1:B:19:ARG:HD3 | 7:B:625:HOH:O | 2.12 | 0.49 |
| 1:B:241:THR:C | 7:B:635:HOH:O | 2.49 | 0.49 |
| 1:C:119:ARG:HD2 | 1:C:334:PHE:O | 2.12 | 0.49 |
| 1:F:285:ASP:OD1 | 1:F:289:ARG:NH1 | 2.45 | 0.49 |
| 1:F:331[A]:LYS:HE3 | 1:F:331[A]:LYS:N | 2.21 | 0.49 |
| 1:D:257:VAL:HB | 5:D:402:EDO:H11 | 1.93 | 0.49 |
| 1:D:315:VAL:CG1 | 7:D:622:HOH:O | 2.60 | 0.49 |
| 1:E:257:VAL:HB | 5:E:402:EDO:H22 | 1.95 | 0.49 |
| 1:D:33:VAL:CG1 | 1:D:41:ALA:HB1 | 2.34 | 0.49 |
| 1:F:232:TYR:HE2 | 7:F:580:HOH:O | 1.93 | 0.49 |
| 1:A:199:GLN:NE2 | 1:A:207:ARG:HA | 2.25 | 0.49 |
| 1:B:126:MSE:SE | 1:B:126:MSE:H | 2.46 | 0.49 |
| 2:C:400:NAD:C3D | 7:C:614:HOH:O | 2.52 | 0.49 |
| 1:D:11:GLY:HA3 | 2:D:400:NAD:O5B | 2.12 | 0.49 |
| 1:D:315:VAL:CG2 | 7:D:622:HOH:O | 2.61 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:211:LEU:CD1 | 7:B:621:HOH:O | 2.55 | 0.49 |
| 1:E:131:LYS:HE2 | 7:E:765:HOH:O | 2.12 | 0.49 |
| 1:F:155:HIS:CE1 | 7:F:434:HOH:O | 2.65 | 0.49 |
| 1:E:151:VAL:HB | 7:E:795:HOH:O | 2.13 | 0.49 |
| 1:F:93:VAL:HB | 1:F:121:VAL:HG22 | 1.95 | 0.49 |
| 1:A:152:HIS:CD2 | 7:B:526:HOH:O | 2.66 | 0.49 |
| 1:A:254:SER:HB3 | 1:A:265:THR:HB | 1.94 | 0.49 |
| 1:D:178[B]:ILE:HD13 | 1:D:310:THR:CB | 2.36 | 0.49 |
| 1:G:127:ARG:CD | 7:G:812:HOH:O | 2.52 | 0.49 |
| 1:G:322:ASN:OD1 | 7:G:762:HOH:O | 2.20 | 0.49 |
| 1:G:97:LYS:NZ | 1:G:176:HIS:NE2 | 2.56 | 0.48 |
| 1:H:16:ASP:HB3 | 7:H:637:HOH:O | 2.13 | 0.48 |
| 1:H:327[B]:GLU:O | 1:H:327[B]:GLU:HG3 | 2.12 | 0.48 |
| 1:B:184:LEU:CA | 7:B:624:HOH:O | 2.21 | 0.48 |
| 1:B:144:GLU:OE2 | 1:C:259[A]:LYS:HE2 | 2.13 | 0.48 |
| 1:B:289:ARG:HH11 | 1:B:289:ARG:CG | 2.26 | 0.48 |
| 1:C:150:MSE:HE1 | 1:D:210:GLN:C | 2.33 | 0.48 |
| 1:E:97:LYS:C | 1:E:97:LYS:HD2 | 2.33 | 0.48 |
| 1:E:333:ASP:HA | 1:E:336:LYS:HD2 | 1.94 | 0.48 |
| 1:F:190:LYS:HG3 | 1:F:191:THR:HG23 | 1.95 | 0.48 |
| 1:G:71:ILE:HG13 | 1:G:94:PHE:HB3 | 1.95 | 0.48 |
| 1:D:21:LEU:CD1 | 1:D:71:ILE:HD13 | 2.43 | 0.48 |
| 1:B:237:HIS:HD2 | 7:B:510:HOH:O | 1.95 | 0.48 |
| 1:F:33:VAL:HG11 | 1:F:45:LEU:HD21 | 1.95 | 0.48 |
| 1:C:174:LEU:O | 1:C:174:LEU:CD2 | 2.60 | 0.48 |
| 1:D:37:VAL:HB | 1:D:40:ARG:CG | 2.34 | 0.48 |
| 1:F:181:MSE:CE | 7:F:586:HOH:O | 2.57 | 0.48 |
| 1:F:200:SER:CB | 7:F:620:HOH:O | 2.61 | 0.48 |
| 1:G:90:ASN:OD1 | 1:G:116:ASN:OD1 | 2.32 | 0.48 |
| 1:A:12[B]:MSE:SE | 1:A:12[B]:MSE:C | 3.02 | 0.48 |
| 1:A:190:LYS:HG3 | 1:A:191:THR:HG23 | 1.95 | 0.48 |
| 1:E:57:ASP:OD1 | 1:E:59:HIS:CD2 | 2.66 | 0.48 |
| 1:G:306:LEU:HD23 | 1:G:328:LEU:HD22 | 1.95 | 0.48 |
| 1:G:233:GLY:N | 7:G:811:HOH:O | 2.46 | 0.48 |
| 1:B:214:MSE:CE | 1:B:310:THR:CG2 | 2.92 | 0.48 |
| 1:C:246:MSE:SE | 7:C:585:HOH:O | 2.78 | 0.48 |
| 1:F:12[C]:MSE:HE3 | 1:F:272:LYS:HZ3 | 1.77 | 0.48 |
| 1:B:12[A]:MSE:HE3 | 1:B:272:LYS:HZ2 | 1.79 | 0.47 |
| 1:B:128:ARG:HD2 | 1:B:299:PRO:HG3 | 1.95 | 0.47 |
| 1:E:289:ARG:NH1 | 7:E:715:HOH:O | 2.23 | 0.47 |
| 1:A:10:ILE:CG1 | 1:A:33:VAL:HG13 | 2.43 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:45:LEU:HD22 | 1:A:50:ILE:HG12 | 1.95 | 0.47 |
| 1:B:47:LYS:HD3 | 1:B:48:TYR:CZ | 2.50 | 0.47 |
| 1:F:36:ILE:HG12 | 2:F:400:NAD:C4A | 2.44 | 0.47 |
| 1:A:99:LEU:HD22 | 7:A:690:HOH:O | 2.07 | 0.47 |
| 1:B:333:ASP:HA | 1:B:336:LYS:HG3 | 1.95 | 0.47 |
| 1:C:190:LYS:HE3 | 7:C:583:HOH:O | 2.15 | 0.47 |
| 1:G:57:ASP:HB2 | 1:G:60:ASP:OD2 | 2.15 | 0.47 |
| 1:E:199:GLN:HE22 | 1:E:208:ASP:H | 1.61 | 0.47 |
| 1:E:246:MSE:CG | 7:E:784:HOH:O | 2.45 | 0.47 |
| 1:F:302:TRP:O | 1:F:306:LEU:HG | 2.14 | 0.47 |
| 1:H:170:ILE:HG12 | 7:H:647:HOH:O | 2.14 | 0.47 |
| 1:C:74:ALA:CA | 7:C:618:HOH:O | 2.60 | 0.47 |
| 1:F:177:GLU:HA | 1:F:180:VAL:HG12 | 1.96 | 0.47 |
| 1:H:197:PRO:CD | 7:H:665:HOH:O | 2.42 | 0.47 |
| 7:A:702:HOH:O | 1:C:263:TYR:N | 2.48 | 0.47 |
| 1:C:210:GLN:N | 7:C:598:HOH:O | 2.48 | 0.47 |
| 1:E:127:ARG:NH1 | 7:E:769:HOH:O | 2.46 | 0.47 |
| 1:G:127:ARG:HD3 | 1:G:133:TYR:CE2 | 2.50 | 0.47 |
| 1:D:171:TYR:CZ | 1:D:315:VAL:HG21 | 2.50 | 0.47 |
| 1:D:310:THR:O | 7:D:628:HOH:O | 2.21 | 0.47 |
| 1:E:193[B]:LYS:HE3 | 1:E:322:ASN:O | 2.14 | 0.47 |
| 1:F:147:GLN:CG | 7:F:616:HOH:O | 2.31 | 0.47 |
| 1:F:135[B]:GLN:NE2 | 7:F:582:HOH:O | 2.46 | 0.46 |
| 1:H:171:TYR:CE2 | 1:H:315:VAL:HG21 | 2.50 | 0.46 |
| 1:C:118:LYS:O | 1:C:120:MSE:HG3 | 2.15 | 0.46 |
| 1:G:214:MSE:HE1 | 1:G:310:THR:HG21 | 1.98 | 0.46 |
| 1:B:126:MSE:HE2 | 7:B:638:HOH:O | 2.13 | 0.46 |
| 1:G:214:MSE:HE2 | 1:G:214:MSE:HB3 | 1.85 | 0.46 |
| 1:H:10:ILE:CD1 | 1:H:33:VAL:HG22 | 2.44 | 0.46 |
| 1:C:126:MSE:H | 1:C:126:MSE:SE | 2.48 | 0.46 |
| 5:D:402:EDO:H12 | 7:D:647:HOH:O | 2.15 | 0.46 |
| 1:H:223:VAL:HG13 | 7:H:635:HOH:O | 2.16 | 0.46 |
| 1:F:82:VAL:CG2 | 7:F:595:HOH:O | 2.64 | 0.46 |
| 1:C:80:ALA:O | 1:C:84:VAL:HG23 | 2.16 | 0.46 |
| 1:C:315:VAL:CG2 | 7:C:612:HOH:O | 2.64 | 0.46 |
| 1:A:302:TRP:O | 1:A:306:LEU:HG | 2.16 | 0.46 |
| 1:C:322:ASN:OD1 | 7:C:519:HOH:O | 2.21 | 0.46 |
| 1:E:5:ALA:HB1 | 1:E:71:ILE:HD13 | 1.96 | 0.46 |
| 1:A:128:ARG:HB2 | 7:A:569:HOH:O | 2.16 | 0.46 |
| 1:G:6:GLY:HA2 | 1:G:32:ALA:O | 2.16 | 0.46 |
| 1:B:156:TYR:HA | 1:B:227:PHE:O | 2.16 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:10:ILE:CD1 | 1:D:33:VAL:HG22 | 2.46 | 0.45 |
| 1:H:129:TYR:CD1 | 1:H:282:GLU:HB3 | 2.51 | 0.45 |
| 1:A:174:LEU:HD22 | 1:A:177:GLU:HB2 | 1.99 | 0.45 |
| 1:A:299:PRO:CA | 7:A:719:HOH:O | 2.15 | 0.45 |
| 1:E:306:LEU:HD23 | 1:E:328:LEU:HD22 | 1.98 | 0.45 |
| 1:H:294:LEU:HB3 | 1:H:295:PRO:HD2 | 1.99 | 0.45 |
| 1:C:214:MSE:HE1 | 1:C:310:THR:HG21 | 1.98 | 0.45 |
| 1:E:127:ARG:HD3 | 1:E:133:TYR:CE2 | 2.52 | 0.45 |
| 1:A:17:HIS:HA | 1:A:20:ARG:HG3 | 1.99 | 0.45 |
| 1:C:12:MSE:O | 1:C:12:MSE:HE2 | 2.16 | 0.45 |
| 1:C:197:PRO:CD | 7:C:598:HOH:O | 2.65 | 0.45 |
| 1:E:209:PRO:HD3 | 1:F:149:LEU:HD13 | 1.99 | 0.45 |
| 1:E:225:GLU:C | 7:E:771:HOH:O | 2.54 | 0.45 |
| 1:F:212:VAL:HG22 | 7:F:627:HOH:O | 2.09 | 0.45 |
| 1:B:302:TRP:HH2 | 1:B:329:PRO:HG2 | 1.80 | 0.45 |
| 1:G:126:MSE:HE3 | 7:G:780:HOH:O | 2.15 | 0.45 |
| 1:H:138:ASN:ND2 | 7:H:571:HOH:O | 2.49 | 0.45 |
| 1:A:265:THR:O | 7:A:702:HOH:O | 2.21 | 0.44 |
| 1:B:97:LYS:O | 1:B:97:LYS:HD3 | 2.17 | 0.44 |
| 1:D:175:ILE:HD11 | 1:D:307:ALA:HB1 | 1.98 | 0.44 |
| 1:G:155:HIS:CD2 | 7:G:808:HOH:O | 2.70 | 0.44 |
| 1:G:197:PRO:HG2 | 7:G:710:HOH:O | 2.17 | 0.44 |
| 1:C:137:LYS:NZ | 7:C:599:HOH:O | 2.50 | 0.44 |
| 1:C:209:PRO:CB | 7:C:598:HOH:O | 2.65 | 0.44 |
| 1:G:59:HIS:CD2 | 7:G:667:HOH:O | 2.70 | 0.44 |
| 1:H:137:LYS:HE2 | 1:H:183:TRP:O | 2.17 | 0.44 |
| 1:B:172:GLU:N | 7:B:627:HOH:O | 2.49 | 0.44 |
| 1:C:305:TYR:O | 1:C:309:VAL:HG23 | 2.17 | 0.44 |
| 1:F:162:PRO:HA | 1:F:205:THR:HG21 | 1.99 | 0.44 |
| 1:H:3:LEU:CD1 | 1:H:290:LEU:HB3 | 2.48 | 0.44 |
| 1:E:171:TYR:CE2 | 1:E:315:VAL:HG21 | 2.53 | 0.44 |
| 1:E:265:THR:HA | 5:E:402:EDO:H12 | 2.00 | 0.44 |
| 7:B:642:HOH:O | 1:C:139:ILE:HD11 | 2.18 | 0.44 |
| 1:F:62:ILE:O | 1:F:91:LYS:HE3 | 2.18 | 0.44 |
| 1:B:37:VAL:O | 1:B:40:ARG:HB2 | 2.18 | 0.44 |
| 1:D:6:GLY:HA3 | 1:D:61:LEU:HD21 | 1.99 | 0.44 |
| 1:D:165[B]:LYS:HD2 | 7:D:610:HOH:O | 2.16 | 0.44 |
| 1:F:12[C]:MSE:HE2 | 1:F:16:ASP:OD2 | 2.18 | 0.44 |
| 1:H:246:MSE:SE | 7:H:432:HOH:O | 2.86 | 0.44 |
| 1:C:57:ASP:OD2 | 1:C:59:HIS:HB2 | 2.18 | 0.44 |
| 1:D:165[B]:LYS:HE2 | 1:D:165[B]:LYS:HB3 | 1.63 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:174:LEU:HD12 | 1:D:177:GLU:HB2 | 2.00 | 0.44 |
| 1:G:158:ALA:HB3 | 7:G:770:HOH:O | 2.18 | 0.44 |
| 1:G:235:ASP:OD2 | 1:G:237:HIS:HE1 | 2.01 | 0.44 |
| 1:H:127:ARG:CB | 7:H:639:HOH:O | 2.14 | 0.44 |
| 1:H:180:VAL:CG1 | 7:H:670:HOH:O | 2.66 | 0.44 |
| 1:B:189:TYR:CG | 1:B:214:MSE:HE2 | 2.54 | 0.43 |
| 1:E:32:ALA:HA | 1:E:53:LYS:O | 2.17 | 0.43 |
| 1:E:61:LEU:C | 1:E:61:LEU:HD23 | 2.38 | 0.43 |
| 7:E:634:HOH:O | 1:F:152:HIS:HD2 | 1.73 | 0.43 |
| 1:F:184:LEU:CA | 7:F:613:HOH:O | 2.30 | 0.43 |
| 1:A:241:THR:CB | 7:A:692:HOH:O | 2.25 | 0.43 |
| 1:C:289:ARG:HD3 | 7:C:592:HOH:O | 2.18 | 0.43 |
| 1:F:76:ASN:ND2 | 2:F:400:NAD:O3D | 2.51 | 0.43 |
| 1:F:34:CYS:HA | 1:F:55:TYR:O | 2.19 | 0.43 |
| 1:F:44:ALA:O | 1:F:48:TYR:HD2 | 2.02 | 0.43 |
| 1:A:65:LYS:HD2 | 1:A:65:LYS:N | 2.33 | 0.43 |
| 1:C:6:GLY:HA3 | 1:C:61:LEU:HD21 | 2.00 | 0.43 |
| 1:C:137:LYS:HD2 | 1:C:183:TRP:CZ2 | 2.53 | 0.43 |
| 1:A:180:VAL:CG1 | 7:A:711:HOH:O | 2.67 | 0.43 |
| 1:D:61:LEU:C | 1:D:61:LEU:HD23 | 2.39 | 0.43 |
| 1:D:165[B]:LYS:NZ | 7:D:611:HOH:O | 2.47 | 0.43 |
| 1:E:222:ILE:HG12 | 7:E:795:HOH:O | 2.12 | 0.43 |
| 1:F:192:VAL:HG11 | 1:F:214:MSE:HE3 | 2.00 | 0.43 |
| 1:G:64:ASP:OD1 | 1:G:66:ASP:HB2 | 2.19 | 0.43 |
| 1:D:222:ILE:CB | 7:D:643:HOH:O | 2.55 | 0.43 |
| 1:C:162:PRO:HA | 1:C:205:THR:HG21 | 2.01 | 0.43 |
| 1:E:151:VAL:HG23 | 7:E:795:HOH:O | 2.18 | 0.43 |
| 1:A:13:ILE:HD11 | 1:A:17:HIS:CE1 | 2.54 | 0.42 |
| 1:C:180:VAL:HB | 7:C:615:HOH:O | 2.19 | 0.42 |
| 1:D:237:HIS:CD2 | 7:D:615:HOH:O | 2.65 | 0.42 |
| 1:F:193:LYS:C | 7:F:585:HOH:O | 2.56 | 0.42 |
| 1:A:128:ARG:HD3 | 1:A:183:TRP:CD1 | 2.55 | 0.42 |
| 1:E:246:MSE:O | 1:H:257:VAL:HA | 2.19 | 0.42 |
| 1:G:17:HIS:O | 1:G:21:LEU:HG | 2.18 | 0.42 |
| 1:A:95:CYS:O | 1:A:123:ILE:HA | 2.19 | 0.42 |
| 1:B:122:GLN:CD | 1:B:298:GLY:HA3 | 2.40 | 0.42 |
| 1:B:235:ASP:CG | 1:B:237:HIS:HE1 | 2.21 | 0.42 |
| 1:F:255:ALA:CB | 7:G:782:HOH:O | 2.67 | 0.42 |
| 1:G:3:LEU:HG | 1:G:291:ASN:HD21 | 1.85 | 0.42 |
| 1:G:214:MSE:HE1 | 1:G:310:THR:CG2 | 2.50 | 0.42 |
| 1:H:174:LEU:HD12 | 1:H:177:GLU:HB2 | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:H:304:GLY:N | 7:H:654:HOH:O | 2.49 | 0.42 |
| 1:A:127:ARG:HD3 | 1:A:133:TYR:CE2 | 2.54 | 0.42 |
| 1:D:118:LYS:O | 1:D:120:MSE:HG3 | 2.18 | 0.42 |
| 1:D:127:ARG:HG3 | 7:D:437:HOH:O | 2.18 | 0.42 |
| 1:E:259:LYS:O | 1:E:260:ALA:C | 2.55 | 0.42 |
| 1:E:77:GLU:CD | 7:E:783:HOH:O | 2.56 | 0.42 |
| 1:F:290:LEU:HD11 | 1:F:296:PRO:HD3 | 2.00 | 0.42 |
| 1:D:259:LYS:O | 1:D:260:ALA:C | 2.58 | 0.42 |
| 1:G:134:VAL:CA | 7:G:798:HOH:O | 2.50 | 0.42 |
| 1:B:77:GLU:H | 1:B:77:GLU:CD | 2.23 | 0.42 |
| 1:B:289:ARG:CG | 1:B:289:ARG:NH1 | 2.82 | 0.42 |
| 1:E:17:HIS:ND1 | 1:E:20:ARG:NH1 | 2.68 | 0.42 |
| 1:F:33:VAL:HG21 | 1:F:41:ALA:HB1 | 1.93 | 0.42 |
| 1:A:8:VAL:C | 7:A:723:HOH:O | 2.58 | 0.42 |
| 1:C:279:TYR:OH | 2:C:400:NAD:N7N | 2.53 | 0.42 |
| 1:E:6:GLY:HA3 | 1:E:61:LEU:HD21 | 2.02 | 0.42 |
| 1:A:174:LEU:HD13 | 1:A:178:ILE:HD11 | 2.02 | 0.42 |
| 1:A:199:GLN:HE22 | 1:A:208:ASP:H | 1.67 | 0.42 |
| 1:C:197:PRO:HD2 | 7:C:598:HOH:O | 2.19 | 0.42 |
| 1:E:3:LEU:HD11 | 1:E:290:LEU:HB3 | 2.02 | 0.42 |
| 7:E:768:HOH:O | 1:G:262:LYS:HB3 | 2.20 | 0.42 |
| 1:C:211:LEU:HD23 | 1:C:225:GLU:HG2 | 2.02 | 0.42 |
| 1:H:95:CYS:O | 1:H:123:ILE:HA | 2.19 | 0.42 |
| 1:C:221:ASN:HA | 7:C:586:HOH:O | 2.19 | 0.41 |
| 1:G:2:THR:HG22 | 1:G:27:GLY:HA2 | 2.02 | 0.41 |
| 1:A:32:ALA:CB | 7:A:684:HOH:O | 2.67 | 0.41 |
| 1:C:210:GLN:HE22 | 1:C:318:GLN:NE2 | 2.05 | 0.41 |
| 1:H:144:GLU:O | 1:H:144:GLU:HG3 | 2.20 | 0.41 |
| 1:A:175:ILE:HD11 | 1:A:307:ALA:HB1 | 2.02 | 0.41 |
| 1:B:315:VAL:O | 1:B:319:GLU:HG3 | 2.19 | 0.41 |
| 1:F:107:GLN:O | 1:F:111:GLU:HG3 | 2.20 | 0.41 |
| 1:F:193:LYS:NZ | 1:F:321:GLY:O | 2.53 | 0.41 |
| 1:C:32:ALA:HB3 | 1:C:61:LEU:HD22 | 2.03 | 0.41 |
| 1:E:267:ILE:HG23 | 7:E:758:HOH:O | 2.07 | 0.41 |
| 1:A:178:ILE:CD1 | 7:A:680:HOH:O | 2.40 | 0.41 |
| 1:B:177:GLU:O | 1:B:181:MSE:HG2 | 2.20 | 0.41 |
| 1:C:197:PRO:CG | 7:C:598:HOH:O | 2.62 | 0.41 |
| 1:C:235:ASP:OD2 | 1:C:237:HIS:HE1 | 2.03 | 0.41 |
| 1:F:175:ILE:HD11 | 1:F:307:ALA:HB1 | 2.03 | 0.41 |
| 1:G:238:CYS:HB2 | 7:G:791:HOH:O | 2.21 | 0.41 |
| 1:H:126:MSE:H | 1:H:126:MSE:SE | 2.52 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:H:170:ILE:HG21 | 1:H:314:CYS:HB2 | 2.02 | 0.41 |
| 1:A:35:ASP:OD1 | 1:A:36:ILE:N | 2.53 | 0.41 |
| 1:A:160:THR:HG22 | 3:A:401:EPE:H91 | 2.01 | 0.41 |
| 1:B:172:GLU:OE2 | 3:B:401:EPE:H51 | 2.21 | 0.41 |
| 1:C:126:MSE:CE | 2:C:400:NAD:H72N | 2.34 | 0.41 |
| 1:E:126:MSE:SE | 1:E:126:MSE:H | 2.53 | 0.41 |
| 7:E:634:HOH:O | 1:F:223:VAL:HG11 | 2.20 | 0.41 |
| 1:A:290:LEU:HD12 | 1:A:290:LEU:HA | 1.91 | 0.41 |
| 1:B:184:LEU:HD13 | 7:B:620:HOH:O | 2.20 | 0.41 |
| 1:F:129:TYR:CD1 | 1:F:282:GLU:HB3 | 2.55 | 0.41 |
| 1:F:200:SER:HB3 | 7:F:620:HOH:O | 2.19 | 0.41 |
| 1:G:236:ILE:HG22 | 7:G:791:HOH:O | 2.21 | 0.41 |
| 1:A:192:VAL:CG1 | 7:A:709:HOH:O | 2.47 | 0.41 |
| 1:A:220:ILE:HG13 | 7:A:679:HOH:O | 2.20 | 0.41 |
| 1:B:144:GLU:CG | 1:C:259[A]:LYS:HE2 | 2.45 | 0.41 |
| 1:E:21:LEU:HD23 | 1:E:21:LEU:HA | 1.87 | 0.41 |
| 1:F:189:TYR:CG | 1:F:214:MSE:HE2 | 2.55 | 0.41 |
| 1:B:263:TYR:N | 7:D:663:HOH:O | 2.54 | 0.41 |
| 1:F:171:TYR:HA | 7:F:614:HOH:O | 2.20 | 0.41 |
| 1:G:97:LYS:HE2 | 1:G:176:HIS:NE2 | 2.36 | 0.41 |
| 1:C:243:GLU:CG | 7:C:596:HOH:O | 2.66 | 0.41 |
| 1:C:271:TRP:CD2 | 3:C:401:EPE:H52 | 2.56 | 0.41 |
| 1:D:178[B]:ILE:HA | 7:D:614:HOH:O | 2.20 | 0.41 |
| 1:F:144:GLU:HG2 | 1:G:259:LYS:HE2 | 2.03 | 0.41 |
| 1:F:289:ARG:NE | 7:F:474:HOH:O | 2.53 | 0.41 |
| 1:C:61:LEU:C | 1:C:61:LEU:CD1 | 2.88 | 0.40 |
| 1:D:61:LEU:HD22 | 7:D:641:HOH:O | 2.20 | 0.40 |
| 1:A:259:LYS:O | 1:A:260:ALA:C | 2.60 | 0.40 |
| 1:B:162:PRO:HA | 1:B:205:THR:HG21 | 2.02 | 0.40 |
| 1:D:61:LEU:CD2 | 7:D:641:HOH:O | 2.70 | 0.40 |
| 1:F:273:GLN:HG3 | 7:F:577:HOH:O | 2.20 | 0.40 |
| 1:B:2:THR:O | 1:B:2:THR:HG23 | 2.22 | 0.40 |
| 1:B:40:ARG:CD | 7:B:626:HOH:O | 2.69 | 0.40 |
| 1:D:138:ASN:ND2 | 7:D:516:HOH:O | 2.55 | 0.40 |
| 1:E:171:TYR:CZ | 1:E:315:VAL:HG21 | 2.56 | 0.40 |
| 1:F:226:VAL:C | 7:F:591:HOH:O | 2.60 | 0.40 |
| 1:G:59:HIS:CB | 7:G:667:HOH:O | 2.62 | 0.40 |
| 1:A:32:ALA:HA | 1:A:53:LYS:O | 2.22 | 0.40 |
| 1:B:184:LEU:HD13 | 7:B:624:HOH:O | 2.18 | 0.40 |
| 1:D:328:LEU:CD1 | 7:D:491:HOH:O | 2.42 | 0.40 |
| 1:F:25:VAL:CG1 | 7:F:629:HOH:O | 2.69 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:G:3:LEU:CD1 | 1:G:290:LEU:HB3 | 2.52 | 0.40 |
| 1:G:171:TYR:HE1 | 7:G:814:HOH:O | 2.04 | 0.40 |

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 7:C:607:HOH:O | 7:E:703:HOH:O[1_455] | 2.18 | 0.02 |

## 5.3 Torsion angles (i)

### 5.3.1 Protein backbone (i)

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 1 | A | 338/357 (95%) | 328 (97%) | 10 (3%) | 0 | 100 | 100 |
| 1 | B | 335/357 (94%) | 322 (96%) | 13 (4%) | 0 | 100 | 100 |
| 1 | C | 334/357 (94%) | 322 (96%) | 12 (4%) | 0 | 100 | 100 |
| 1 | D | 338/357 (95%) | 326 (96%) | 12 (4%) | 0 | 100 | 100 |
| 1 | E | 337/357 (94%) | 325 (96%) | 12 (4%) | 0 | 100 | 100 |
| 1 | F | 337/357 (94%) | 321 (95%) | 16 (5%) | 0 | 100 | 100 |
| 1 | G | 334/357 (94%) | 319 (96%) | 15 (4%) | 0 | 100 | 100 |
| 1 | H | 336/357 (94%) | 324 (96%) | 12 (4%) | 0 | 100 | 100 |
| All | All | 2689/2856 (94%) | 2587 (96%) | 102 (4%) | 0 | 100 | 100 |

There are no Ramachandran outliers to report.

### 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 | 284/290 (98%) | 271 (95%) | 13 (5%) | 23 | 20 |
| 1 | B | 282/290 (97%) | 256 (91%) | 26 (9%) | 7 | 4 |
| 1 | C | 281/290 (97%) | 262 (93%) | 19 (7%) | 13 | 8 |
| 1 | D | 284/290 (98%) | 266 (94%) | 18 (6%) | 15 | 10 |
| 1 | E | 283/290 (98%) | 270 (95%) | 13 (5%) | 23 | 20 |
| 1 | F | 284/290 (98%) | 267 (94%) | 17 (6%) | 16 | 12 |
| 1 | G | 281/290 (97%) | 269 (96%) | 12 (4%) | 25 | 23 |
| 1 | H | 282/290 (97%) | 269 (95%) | 13 (5%) | 23 | 20 |
| All | All | 2261/2320 (98%) | 2130 (94%) | 131 (6%) | 17 | 13 |

All (131) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 4 | LYS |
| 1 | A | 50 | ILE |
| 1 | A | 97 | LYS |
| 1 | A | 119 | ARG |
| 1 | A | 126 | MSE |
| 1 | A | 174 | LEU |
| 1 | A | 180 | VAL |
| 1 | A | 182 | HIS |
| 1 | A | 184 | LEU |
| 1 | A | 207 | ARG |
| 1 | A | 227 | PHE |
| 1 | A | 268 | LEU |
| 1 | A | 290 | LEU |
| 1 | B | 3 | LEU |
| 1 | B | 12[A] | MSE |
| 1 | B | 12[B] | MSE |
| 1 | B | 13 | ILE |
| 1 | B | 29 | GLU |
| 1 | B | 31 | VAL |
| 1 | B | 53 | LYS |
| 1 | B | 54 | ASP |
| 1 | B | 64 | ASP |
| 1 | B | 65 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | B | 68 | GLU |
| 1 | B | 73 | THR |
| 1 | B | 97 | LYS |
| 1 | B | 118 | LYS |
| 1 | B | 126 | MSE |
| 1 | B | 180 | VAL |
| 1 | B | 184 | LEU |
| 1 | B | 206 | LEU |
| 1 | B | 221 | ASN |
| 1 | B | 268 | LEU |
| 1 | B | 276 | ILE |
| 1 | B | 289 | ARG |
| 1 | B | 290 | LEU |
| 1 | B | 312 | ASP |
| 1 | B | 330 | SER |
| 1 | B | 336 | LYS |
| 1 | C | 2 | THR |
| 1 | C | 12 | MSE |
| 1 | C | 13 | ILE |
| 1 | C | 15 | SER |
| 1 | C | 54 | ASP |
| 1 | C | 61 | LEU |
| 1 | C | 66 | ASP |
| 1 | C | 97 | LYS |
| 1 | C | 107 | GLN |
| 1 | C | 126 | MSE |
| 1 | C | 130 | ASP |
| 1 | C | 174 | LEU |
| 1 | C | 180 | VAL |
| 1 | C | 182 | HIS |
| 1 | C | 184 | LEU |
| 1 | C | 206 | LEU |
| 1 | C | 227 | PHE |
| 1 | C | 290 | LEU |
| 1 | C | 312 | ASP |
| 1 | D | 2 | THR |
| 1 | D | 4 | LYS |
| 1 | D | 33 | VAL |
| 1 | D | 36 | ILE |
| 1 | D | 51 | GLU |
| 1 | D | 53 | LYS |
| 1 | D | 97 | LYS |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | D | 119 | ARG |
| 1 | D | 126 | MSE |
| 1 | D | 180 | VAL |
| 1 | D | 184 | LEU |
| 1 | D | 206 | LEU |
| 1 | D | 227 | PHE |
| 1 | D | 268 | LEU |
| 1 | D | 276 | ILE |
| 1 | D | 290 | LEU |
| 1 | D | 312 | ASP |
| 1 | D | 328 | LEU |
| 1 | E | 12 | MSE |
| 1 | E | 65 | LYS |
| 1 | E | 73 | THR |
| 1 | E | 97 | LYS |
| 1 | E | 107 | GLN |
| 1 | E | 126 | MSE |
| 1 | E | 172 | GLU |
| 1 | E | 180 | VAL |
| 1 | E | 184 | LEU |
| 1 | E | 221 | ASN |
| 1 | E | 227 | PHE |
| 1 | E | 276 | ILE |
| 1 | E | 290 | LEU |
| 1 | F | 2 | THR |
| 1 | F | 4 | LYS |
| 1 | F | 15 | SER |
| 1 | F | 33 | VAL |
| 1 | F | 66 | ASP |
| 1 | F | 69 | VAL |
| 1 | F | 97 | LYS |
| 1 | F | 116 | ASN |
| 1 | F | 126 | MSE |
| 1 | F | 182 | HIS |
| 1 | F | 184 | LEU |
| 1 | F | 206 | LEU |
| 1 | F | 221 | ASN |
| 1 | F | 227 | PHE |
| 1 | F | 289 | ARG |
| 1 | F | 331[A] | LYS |
| 1 | F | 331[B] | LYS |
| 1 | G | 13 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | G | 33 | VAL |
| 1 | G | 66 | ASP |
| 1 | G | 97 | LYS |
| 1 | G | 119 | ARG |
| 1 | G | 126 | MSE |
| 1 | G | 184 | LEU |
| 1 | G | 206 | LEU |
| 1 | G | 227 | PHE |
| 1 | G | 268 | LEU |
| 1 | G | 276 | ILE |
| 1 | G | 312 | ASP |
| 1 | H | 12 | MSE |
| 1 | H | 13 | ILE |
| 1 | H | 33 | VAL |
| 1 | H | 36 | ILE |
| 1 | H | 66 | ASP |
| 1 | H | 97 | LYS |
| 1 | H | 126 | MSE |
| 1 | H | 144 | GLU |
| 1 | H | 180 | VAL |
| 1 | H | 182 | HIS |
| 1 | H | 184 | LEU |
| 1 | H | 227 | PHE |
| 1 | H | 290 | LEU |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (65) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 59 | HIS |
| 1 | A | 76 | ASN |
| 1 | A | 88 | ASN |
| 1 | A | 138 | ASN |
| 1 | A | 199 | GLN |
| 1 | A | 210 | GLN |
| 1 | A | 229 | ASN |
| 1 | A | 231 | GLN |
| 1 | B | 23 | ASN |
| 1 | B | 59 | HIS |
| 1 | B | 76 | ASN |
| 1 | B | 88 | ASN |
| 1 | B | 114 | GLN |
| 1 | B | 138 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | B | 210 | GLN |
| 1 | B | 221 | ASN |
| 1 | B | 231 | GLN |
| 1 | B | 237 | HIS |
| 1 | C | 76 | ASN |
| 1 | C | 88 | ASN |
| 1 | C | 107 | GLN |
| 1 | C | 114 | GLN |
| 1 | C | 138 | ASN |
| 1 | C | 199 | GLN |
| 1 | C | 210 | GLN |
| 1 | C | 221 | ASN |
| 1 | C | 231 | GLN |
| 1 | C | 237 | HIS |
| 1 | C | 291 | ASN |
| 1 | C | 322 | ASN |
| 1 | D | 76 | ASN |
| 1 | D | 88 | ASN |
| 1 | D | 138 | ASN |
| 1 | D | 231 | GLN |
| 1 | D | 237 | HIS |
| 1 | E | 59 | HIS |
| 1 | E | 76 | ASN |
| 1 | E | 88 | ASN |
| 1 | E | 107 | GLN |
| 1 | E | 138 | ASN |
| 1 | E | 199 | GLN |
| 1 | E | 210 | GLN |
| 1 | E | 221 | ASN |
| 1 | E | 237 | HIS |
| 1 | F | 76 | ASN |
| 1 | F | 88 | ASN |
| 1 | F | 147 | GLN |
| 1 | F | 221 | ASN |
| 1 | F | 231 | GLN |
| 1 | F | 291 | ASN |
| 1 | G | 42 | GLN |
| 1 | G | 59 | HIS |
| 1 | G | 76 | ASN |
| 1 | G | 88 | ASN |
| 1 | G | 138 | ASN |
| 1 | G | 210 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | G | 237 | HIS |
| 1 | G | 291 | ASN |
| 1 | G | 322 | ASN |
| 1 | H | 76 | ASN |
| 1 | H | 88 | ASN |
| 1 | H | 138 | ASN |
| 1 | H | 199 | GLN |
| 1 | H | 210 | GLN |
| 1 | H | 221 | ASN |

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

## 5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry ⓘ

Of 25 ligands modelled in this entry, 2 are monoatomic - leaving 23 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 | #$|Z| > 2$ |
| 2 | NAD | C | 400 | - | 42,48,48 | 1.79 | 4 (9%) | 50,73,73 | 1.48 | 4 (8%) |
| 5 | EDO | E | 403 | - | 3,3,3 | 0.23 | 0 | 2,2,2 | 1.01 | 0 |
| 2 | NAD | G | 400 | - | 42,48,48 | 1.81 | 5 (11%) | 50,73,73 | 1.53 | 5 (10%) |
| 4 | ACY | A | 402 | - | 3,3,3 | 0.84 | 0 | 3,3,3 | 0.91 | 0 |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------|------|----------|--------|------|----------|
| | | | | | Counts | RMSZ | #\|Z\| > 2 | Counts | RMSZ | #\|Z\| > 2 |
| 2 | NAD | D | 400 | - | 42,48,48 | 1.89 | 4 (9%) | 50,73,73 | 1.49 | 5 (10%) |
| 5 | EDO | G | 402 | - | 3,3,3 | 0.47 | 0 | 2,2,2 | 0.40 | 0 |
| 3 | EPE | H | 401 | - | 15,15,15 | 1.13 | 1 (6%) | 19,20,20 | 1.93 | 6 (31%) |
| 3 | EPE | E | 401 | - | 15,15,15 | 1.10 | 1 (6%) | 19,20,20 | 3.18 | 11 (57%) |
| 3 | EPE | B | 401 | - | 15,15,15 | 1.20 | 1 (6%) | 19,20,20 | 1.93 | 6 (31%) |
| 2 | NAD | H | 400 | - | 42,48,48 | 1.90 | 5 (11%) | 50,73,73 | 1.47 | 5 (10%) |
| 3 | EPE | C | 401 | - | 15,15,15 | 1.12 | 1 (6%) | 19,20,20 | 2.31 | 6 (31%) |
| 3 | EPE | G | 401 | - | 15,15,15 | 1.08 | 1 (6%) | 19,20,20 | 2.08 | 8 (42%) |
| 5 | EDO | H | 402 | - | 3,3,3 | 0.42 | 0 | 2,2,2 | 0.89 | 0 |
| 2 | NAD | E | 400 | - | 42,48,48 | 1.96 | 5 (11%) | 50,73,73 | 1.62 | 5 (10%) |
| 3 | EPE | A | 401 | - | 15,15,15 | 0.95 | 1 (6%) | 19,20,20 | 1.93 | 5 (26%) |
| 2 | NAD | A | 400 | - | 42,48,48 | 1.80 | 5 (11%) | 50,73,73 | 1.74 | 8 (16%) |
| 5 | EDO | E | 402 | - | 3,3,3 | 0.50 | 0 | 2,2,2 | 0.79 | 0 |
| 3 | EPE | F | 401 | - | 15,15,15 | 1.15 | 1 (6%) | 19,20,20 | 1.71 | 4 (21%) |
| 4 | ACY | A | 403 | - | 3,3,3 | 0.86 | 0 | 3,3,3 | 0.86 | 0 |
| 3 | EPE | D | 401 | - | 15,15,15 | 1.02 | 1 (6%) | 19,20,20 | 1.93 | 7 (36%) |
| 2 | NAD | B | 400 | - | 42,48,48 | 1.95 | 6 (14%) | 50,73,73 | 1.54 | 6 (12%) |
| 5 | EDO | D | 402 | - | 3,3,3 | 0.26 | 0 | 2,2,2 | 0.81 | 0 |
| 2 | NAD | F | 400 | - | 42,48,48 | 2.02 | 6 (14%) | 50,73,73 | 1.41 | 3 (6%) |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|----------|-------|
| 2 | NAD | C | 400 | - | - | 3/26/62/62 | 0/5/5/5 |
| 5 | EDO | E | 403 | - | - | 1/1/1/1 | - |
| 2 | NAD | G | 400 | - | - | 3/26/62/62 | 0/5/5/5 |
| 2 | NAD | D | 400 | - | - | 7/26/62/62 | 0/5/5/5 |
| 5 | EDO | G | 402 | - | - | 1/1/1/1 | - |
| 3 | EPE | H | 401 | - | - | 0/9/19/19 | 0/1/1/1 |
| 3 | EPE | E | 401 | - | - | 6/9/19/19 | 0/1/1/1 |
| 3 | EPE | B | 401 | - | - | 5/9/19/19 | 0/1/1/1 |
| 2 | NAD | H | 400 | - | - | 6/26/62/62 | 0/5/5/5 |
| 3 | EPE | C | 401 | - | - | 6/9/19/19 | 0/1/1/1 |
| 3 | EPE | G | 401 | - | - | 5/9/19/19 | 0/1/1/1 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|----------|-------|
| 5 | EDO | H | 402 | - | - | 1/1/1/1 | - |
| 2 | NAD | E | 400 | - | - | 3/26/62/62 | 0/5/5/5 |
| 3 | EPE | A | 401 | - | - | 0/9/19/19 | 0/1/1/1 |
| 5 | EDO | E | 402 | - | - | 0/1/1/1 | - |
| 2 | NAD | A | 400 | - | - | 4/26/62/62 | 0/5/5/5 |
| 3 | EPE | F | 401 | - | - | 6/9/19/19 | 0/1/1/1 |
| 3 | EPE | D | 401 | - | - | 2/9/19/19 | 0/1/1/1 |
| 2 | NAD | B | 400 | - | - | 6/26/62/62 | 0/5/5/5 |
| 5 | EDO | D | 402 | - | - | 1/1/1/1 | - |
| 2 | NAD | F | 400 | - | - | 7/26/62/62 | 0/5/5/5 |

All (48) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|---|-------------|----------|
| 2 | E | 400 | NAD | O7N-C7N | 9.45 | 1.41 | 1.24 |
| 2 | B | 400 | NAD | O7N-C7N | 9.39 | 1.41 | 1.24 |
| 2 | D | 400 | NAD | O7N-C7N | 9.14 | 1.41 | 1.24 |
| 2 | F | 400 | NAD | O7N-C7N | 9.03 | 1.40 | 1.24 |
| 2 | H | 400 | NAD | O7N-C7N | 9.02 | 1.40 | 1.24 |
| 2 | G | 400 | NAD | O7N-C7N | 8.66 | 1.40 | 1.24 |
| 2 | C | 400 | NAD | O7N-C7N | 8.45 | 1.39 | 1.24 |
| 2 | A | 400 | NAD | O7N-C7N | 8.27 | 1.39 | 1.24 |
| 2 | D | 400 | NAD | C2A-N3A | 4.74 | 1.39 | 1.32 |
| 2 | H | 400 | NAD | C2A-N3A | 4.45 | 1.39 | 1.32 |
| 2 | C | 400 | NAD | C2A-N3A | 4.29 | 1.38 | 1.32 |
| 3 | B | 401 | EPE | C10-S | 4.28 | 1.83 | 1.77 |
| 2 | A | 400 | NAD | C2A-N3A | 4.27 | 1.38 | 1.32 |
| 2 | B | 400 | NAD | C2A-N3A | 4.26 | 1.38 | 1.32 |
| 2 | G | 400 | NAD | C2A-N3A | 4.25 | 1.38 | 1.32 |
| 2 | F | 400 | NAD | C2A-N3A | 4.06 | 1.38 | 1.32 |
| 2 | F | 400 | NAD | PA-O3 | 3.94 | 1.63 | 1.59 |
| 2 | E | 400 | NAD | C2A-N3A | 3.94 | 1.38 | 1.32 |
| 3 | F | 401 | EPE | C10-S | 3.89 | 1.83 | 1.77 |
| 3 | C | 401 | EPE | C10-S | 3.83 | 1.83 | 1.77 |
| 3 | G | 401 | EPE | C10-S | 3.80 | 1.82 | 1.77 |
| 3 | H | 401 | EPE | C10-S | 3.78 | 1.82 | 1.77 |
| 3 | D | 401 | EPE | C10-S | 3.45 | 1.82 | 1.77 |
| 2 | F | 400 | NAD | PN-O3 | 3.23 | 1.63 | 1.59 |
| 2 | H | 400 | NAD | C2A-N1A | 3.11 | 1.39 | 1.33 |
| 2 | F | 400 | NAD | C2N-N1N | 3.10 | 1.38 | 1.35 |
| 3 | E | 401 | EPE | C10-S | 3.07 | 1.81 | 1.77 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|---|-------------|----------|
| 2 | E | 400 | NAD | C2A-N1A | 3.06 | 1.39 | 1.33 |
| 2 | D | 400 | NAD | C2A-N1A | 3.06 | 1.39 | 1.33 |
| 2 | A | 400 | NAD | O4D-C1D | 3.03 | 1.44 | 1.40 |
| 3 | A | 401 | EPE | C10-S | 2.97 | 1.81 | 1.77 |
| 2 | H | 400 | NAD | PN-O3 | 2.93 | 1.62 | 1.59 |
| 2 | D | 400 | NAD | PA-O3 | 2.83 | 1.62 | 1.59 |
| 2 | F | 400 | NAD | C2A-N1A | 2.77 | 1.38 | 1.33 |
| 2 | B | 400 | NAD | C2N-N1N | 2.76 | 1.38 | 1.35 |
| 2 | E | 400 | NAD | C2N-N1N | 2.74 | 1.38 | 1.35 |
| 2 | B | 400 | NAD | C2A-N1A | 2.67 | 1.38 | 1.33 |
| 2 | A | 400 | NAD | PA-O3 | 2.65 | 1.62 | 1.59 |
| 2 | B | 400 | NAD | O4B-C1B | 2.63 | 1.44 | 1.40 |
| 2 | C | 400 | NAD | C2A-N1A | 2.53 | 1.38 | 1.33 |
| 2 | B | 400 | NAD | PA-O3 | 2.46 | 1.62 | 1.59 |
| 2 | G | 400 | NAD | C2A-N1A | 2.44 | 1.38 | 1.33 |
| 2 | H | 400 | NAD | PA-O3 | 2.44 | 1.62 | 1.59 |
| 2 | A | 400 | NAD | C2A-N1A | 2.32 | 1.38 | 1.33 |
| 2 | G | 400 | NAD | C2N-N1N | 2.21 | 1.37 | 1.35 |
| 2 | G | 400 | NAD | PN-O3 | 2.12 | 1.61 | 1.59 |
| 2 | C | 400 | NAD | PA-O3 | 2.09 | 1.61 | 1.59 |
| 2 | E | 400 | NAD | O4D-C1D | 2.03 | 1.43 | 1.40 |

All (94) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|-----|-------|-----|------|-------|---|----------------|-------------|
| 2 | A | 400 | NAD | N3A-C2A-N1A | -7.51 | 118.48 | 128.67 |
| 2 | E | 400 | NAD | N3A-C2A-N1A | -7.37 | 118.67 | 128.67 |
| 3 | E | 401 | EPE | O3S-S-C10 | 7.12 | 119.94 | 106.00 |
| 2 | B | 400 | NAD | N3A-C2A-N1A | -7.11 | 119.02 | 128.67 |
| 3 | E | 401 | EPE | C6-N1-C2 | 7.00 | 123.91 | 108.84 |
| 2 | G | 400 | NAD | N3A-C2A-N1A | -6.95 | 119.23 | 128.67 |
| 2 | F | 400 | NAD | N3A-C2A-N1A | -6.77 | 119.49 | 128.67 |
| 2 | H | 400 | NAD | N3A-C2A-N1A | -6.74 | 119.52 | 128.67 |
| 2 | C | 400 | NAD | N3A-C2A-N1A | -6.56 | 119.76 | 128.67 |
| 2 | D | 400 | NAD | N3A-C2A-N1A | -6.43 | 119.95 | 128.67 |
| 3 | E | 401 | EPE | O1S-S-C10 | -5.78 | 97.99 | 106.73 |
| 3 | C | 401 | EPE | C5-N4-C3 | 5.70 | 121.13 | 108.84 |
| 3 | B | 401 | EPE | C5-N4-C3 | 5.40 | 120.48 | 108.84 |
| 3 | H | 401 | EPE | C5-N4-C3 | 4.71 | 118.99 | 108.84 |
| 3 | G | 401 | EPE | C5-N4-C3 | 4.58 | 118.71 | 108.84 |
| 3 | D | 401 | EPE | C5-N4-C3 | 4.55 | 118.64 | 108.84 |
| 2 | A | 400 | NAD | O4B-C1B-N9A | 4.41 | 114.59 | 108.75 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------|---|-------------|----------|
| 3 | A | 401 | EPE | O1S-S-C10 | 4.41 | 113.39 | 106.73 |
| 3 | C | 401 | EPE | O2S-S-C10 | 4.37 | 113.34 | 106.73 |
| 3 | A | 401 | EPE | C5-N4-C3 | 4.07 | 117.61 | 108.84 |
| 3 | C | 401 | EPE | C6-C5-N4 | 4.04 | 118.79 | 110.65 |
| 2 | C | 400 | NAD | O3-PA-O1A | -3.74 | 99.44 | 110.70 |
| 3 | D | 401 | EPE | O3S-S-C10 | 3.48 | 112.82 | 106.00 |
| 3 | E | 401 | EPE | C5-N4-C3 | 3.39 | 116.15 | 108.84 |
| 2 | G | 400 | NAD | C4D-O4D-C1D | 3.39 | 113.03 | 109.92 |
| 3 | C | 401 | EPE | C6-N1-C2 | 3.34 | 116.04 | 108.84 |
| 3 | F | 401 | EPE | C5-N4-C3 | 3.17 | 115.68 | 108.84 |
| 2 | E | 400 | NAD | C1B-N9A-C4A | -3.17 | 121.08 | 126.64 |
| 2 | D | 400 | NAD | O4B-C1B-N9A | 3.17 | 112.94 | 108.75 |
| 3 | H | 401 | EPE | O1S-S-C10 | 3.12 | 111.45 | 106.73 |
| 3 | G | 401 | EPE | C9-N1-C2 | -3.10 | 102.97 | 111.24 |
| 3 | F | 401 | EPE | C7-N4-C5 | 3.09 | 119.47 | 111.24 |
| 3 | F | 401 | EPE | C6-N1-C2 | 2.98 | 115.26 | 108.84 |
| 3 | B | 401 | EPE | C7-N4-C5 | 2.93 | 119.05 | 111.24 |
| 2 | A | 400 | NAD | C3N-C7N-N7N | 2.93 | 121.35 | 117.74 |
| 2 | A | 400 | NAD | O3D-C3D-C4D | -2.85 | 102.90 | 111.08 |
| 2 | B | 400 | NAD | O3-PA-O1A | -2.80 | 102.29 | 110.70 |
| 2 | B | 400 | NAD | O4B-C1B-N9A | 2.74 | 112.38 | 108.75 |
| 2 | A | 400 | NAD | C1B-N9A-C4A | -2.72 | 121.86 | 126.64 |
| 2 | H | 400 | NAD | O3-PN-O1N | -2.70 | 102.58 | 110.70 |
| 2 | H | 400 | NAD | O2N-PN-O1N | 2.67 | 124.86 | 112.44 |
| 3 | A | 401 | EPE | C9-N1-C6 | -2.66 | 104.15 | 111.24 |
| 3 | H | 401 | EPE | C7-N4-C3 | 2.64 | 118.27 | 111.24 |
| 3 | F | 401 | EPE | O3S-S-C10 | 2.64 | 111.17 | 106.00 |
| 2 | B | 400 | NAD | O3-PN-O1N | -2.62 | 102.81 | 110.70 |
| 3 | H | 401 | EPE | C7-N4-C5 | 2.60 | 118.17 | 111.24 |
| 3 | D | 401 | EPE | C9-N1-C6 | -2.60 | 104.32 | 111.24 |
| 3 | G | 401 | EPE | C6-N1-C2 | 2.59 | 114.42 | 108.84 |
| 3 | E | 401 | EPE | C3-C2-N1 | 2.56 | 115.81 | 110.65 |
| 3 | G | 401 | EPE | C6-C5-N4 | 2.55 | 115.80 | 110.65 |
| 2 | B | 400 | NAD | O2N-PN-O1N | 2.54 | 124.28 | 112.44 |
| 3 | A | 401 | EPE | C7-N4-C3 | 2.53 | 117.97 | 111.24 |
| 3 | B | 401 | EPE | C6-N1-C2 | 2.51 | 114.25 | 108.84 |
| 3 | G | 401 | EPE | C7-N4-C3 | 2.51 | 117.92 | 111.24 |
| 2 | G | 400 | NAD | O3-PA-O1A | -2.51 | 103.16 | 110.70 |
| 3 | G | 401 | EPE | O3S-S-C10 | 2.50 | 110.89 | 106.00 |
| 2 | G | 400 | NAD | O3D-C3D-C4D | -2.48 | 103.96 | 111.08 |
| 2 | G | 400 | NAD | O2A-PA-O3 | 2.47 | 113.95 | 107.27 |
| 3 | E | 401 | EPE | C2-C3-N4 | 2.46 | 115.61 | 110.65 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|-----|-------|-----|------|-------|---|----------------|-------------|
| 2 | F | 400 | NAD | O2N-PN-O1N | 2.42 | 123.70 | 112.44 |
| 2 | D | 400 | NAD | O3-PA-O1A | -2.41 | 103.44 | 110.70 |
| 3 | B | 401 | EPE | O2S-S-C10 | 2.41 | 110.37 | 106.73 |
| 2 | E | 400 | NAD | C4B-O4B-C1B | -2.40 | 107.73 | 109.92 |
| 2 | E | 400 | NAD | O4B-C1B-N9A | 2.38 | 111.91 | 108.75 |
| 2 | H | 400 | NAD | C4A-C5A-N7A | -2.37 | 106.83 | 109.34 |
| 3 | E | 401 | EPE | O3S-S-O2S | -2.36 | 105.49 | 111.40 |
| 3 | D | 401 | EPE | C2-C3-N4 | 2.35 | 115.39 | 110.65 |
| 3 | E | 401 | EPE | C10-C9-N1 | -2.32 | 103.57 | 112.36 |
| 2 | H | 400 | NAD | O2N-PN-O3 | 2.29 | 113.46 | 107.27 |
| 2 | F | 400 | NAD | O2A-PA-O3 | 2.29 | 113.46 | 107.27 |
| 3 | E | 401 | EPE | C6-C5-N4 | 2.25 | 115.19 | 110.65 |
| 2 | C | 400 | NAD | O2N-PN-O1N | 2.25 | 122.92 | 112.44 |
| 3 | A | 401 | EPE | O2S-S-C10 | -2.24 | 103.34 | 106.73 |
| 3 | D | 401 | EPE | O1S-S-C10 | -2.22 | 103.37 | 106.73 |
| 3 | B | 401 | EPE | C6-C5-N4 | 2.21 | 115.11 | 110.65 |
| 3 | C | 401 | EPE | C7-N4-C5 | 2.21 | 117.12 | 111.24 |
| 3 | G | 401 | EPE | O1S-S-C10 | 2.20 | 110.05 | 106.73 |
| 3 | H | 401 | EPE | O2S-S-C10 | -2.16 | 103.46 | 106.73 |
| 2 | E | 400 | NAD | O2N-PN-O1N | 2.15 | 122.45 | 112.44 |
| 2 | C | 400 | NAD | O4B-C1B-N9A | 2.15 | 111.59 | 108.75 |
| 3 | E | 401 | EPE | C9-N1-C2 | 2.14 | 116.95 | 111.24 |
| 3 | H | 401 | EPE | C9-N1-C6 | -2.14 | 105.55 | 111.24 |
| 2 | A | 400 | NAD | O5B-C5B-C4B | -2.13 | 101.73 | 108.99 |
| 2 | B | 400 | NAD | O2N-PN-O3 | 2.12 | 113.02 | 107.27 |
| 3 | B | 401 | EPE | C7-N4-C3 | 2.12 | 116.90 | 111.24 |
| 2 | D | 400 | NAD | O2N-PN-O1N | 2.11 | 122.27 | 112.44 |
| 3 | C | 401 | EPE | C9-N1-C2 | -2.09 | 105.68 | 111.24 |
| 2 | D | 400 | NAD | O3B-C3B-C4B | -2.08 | 105.10 | 111.08 |
| 2 | A | 400 | NAD | C4B-O4B-C1B | -2.08 | 108.02 | 109.92 |
| 3 | G | 401 | EPE | C7-N4-C5 | 2.08 | 116.77 | 111.24 |
| 3 | E | 401 | EPE | C7-N4-C3 | 2.06 | 116.73 | 111.24 |
| 2 | A | 400 | NAD | O4B-C4B-C3B | 2.06 | 109.24 | 105.15 |
| 3 | D | 401 | EPE | C6-N1-C2 | 2.01 | 113.18 | 108.84 |
| 3 | D | 401 | EPE | C7-N4-C3 | 2.00 | 116.58 | 111.24 |

There are no chirality outliers.

All (73) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-------|
| 2 | A | 400 | NAD | O4D-C1D-N1N-C2N |
| 2 | A | 400 | NAD | O4D-C1D-N1N-C6N |

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| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-------|
| 2 | B | 400 | NAD | O4D-C1D-N1N-C6N |
| 2 | C | 400 | NAD | O4D-C1D-N1N-C6N |
| 2 | D | 400 | NAD | O4D-C1D-N1N-C2N |
| 2 | D | 400 | NAD | O4D-C1D-N1N-C6N |
| 2 | D | 400 | NAD | C2D-C1D-N1N-C2N |
| 2 | D | 400 | NAD | C2D-C1D-N1N-C6N |
| 2 | E | 400 | NAD | O4D-C1D-N1N-C6N |
| 2 | F | 400 | NAD | C5B-O5B-PA-O1A |
| 2 | F | 400 | NAD | O4D-C1D-N1N-C6N |
| 2 | G | 400 | NAD | O4D-C1D-N1N-C6N |
| 2 | H | 400 | NAD | O4D-C1D-N1N-C2N |
| 2 | H | 400 | NAD | O4D-C1D-N1N-C6N |
| 2 | H | 400 | NAD | C2D-C1D-N1N-C2N |
| 3 | B | 401 | EPE | C10-C9-N1-C6 |
| 3 | C | 401 | EPE | C10-C9-N1-C6 |
| 3 | C | 401 | EPE | S-C10-C9-N1 |
| 3 | C | 401 | EPE | C9-C10-S-O2S |
| 3 | E | 401 | EPE | C9-C10-S-O1S |
| 3 | E | 401 | EPE | C9-C10-S-O2S |
| 3 | E | 401 | EPE | C9-C10-S-O3S |
| 3 | G | 401 | EPE | C8-C7-N4-C3 |
| 3 | B | 401 | EPE | N4-C7-C8-O8 |
| 3 | B | 401 | EPE | C9-C10-S-O3S |
| 3 | C | 401 | EPE | C9-C10-S-O3S |
| 3 | F | 401 | EPE | N4-C7-C8-O8 |
| 2 | F | 400 | NAD | O4B-C4B-C5B-O5B |
| 2 | F | 400 | NAD | C3B-C4B-C5B-O5B |
| 5 | E | 403 | EDO | O1-C1-C2-O2 |
| 5 | G | 402 | EDO | O1-C1-C2-O2 |
| 5 | D | 402 | EDO | O1-C1-C2-O2 |
| 3 | C | 401 | EPE | C8-C7-N4-C3 |
| 3 | F | 401 | EPE | C8-C7-N4-C5 |
| 3 | E | 401 | EPE | C10-C9-N1-C6 |
| 3 | F | 401 | EPE | C10-C9-N1-C6 |
| 3 | G | 401 | EPE | C10-C9-N1-C2 |
| 3 | G | 401 | EPE | C10-C9-N1-C6 |
| 3 | E | 401 | EPE | N4-C7-C8-O8 |
| 3 | B | 401 | EPE | C9-C10-S-O1S |
| 3 | B | 401 | EPE | C9-C10-S-O2S |
| 3 | C | 401 | EPE | C9-C10-S-O1S |
| 3 | G | 401 | EPE | C9-C10-S-O1S |
| 2 | F | 400 | NAD | C5B-O5B-PA-O2A |

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| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-------|
| 3 | F | 401 | EPE | C10-C9-N1-C2 |
| 2 | B | 400 | NAD | O4B-C4B-C5B-O5B |
| 3 | D | 401 | EPE | C9-C10-S-O3S |
| 3 | G | 401 | EPE | C9-C10-S-O3S |
| 3 | E | 401 | EPE | C8-C7-N4-C3 |
| 2 | A | 400 | NAD | C2D-C1D-N1N-C2N |
| 2 | H | 400 | NAD | C2D-C1D-N1N-C6N |
| 2 | C | 400 | NAD | O4B-C4B-C5B-O5B |
| 2 | E | 400 | NAD | O4B-C4B-C5B-O5B |
| 2 | D | 400 | NAD | O4B-C4B-C5B-O5B |
| 2 | G | 400 | NAD | O4B-C4B-C5B-O5B |
| 2 | B | 400 | NAD | O4D-C1D-N1N-C2N |
| 2 | C | 400 | NAD | O4D-C1D-N1N-C2N |
| 2 | E | 400 | NAD | O4D-C1D-N1N-C2N |
| 2 | F | 400 | NAD | O4D-C1D-N1N-C2N |
| 2 | G | 400 | NAD | O4D-C1D-N1N-C2N |
| 2 | H | 400 | NAD | O4B-C4B-C5B-O5B |
| 3 | F | 401 | EPE | C9-C10-S-O2S |
| 5 | H | 402 | EDO | O1-C1-C2-O2 |
| 3 | F | 401 | EPE | C8-C7-N4-C3 |
| 2 | A | 400 | NAD | O4B-C4B-C5B-O5B |
| 2 | D | 400 | NAD | PA-O3-PN-O1N |
| 2 | H | 400 | NAD | PA-O3-PN-O1N |
| 2 | D | 400 | NAD | C3B-C4B-C5B-O5B |
| 3 | D | 401 | EPE | N4-C7-C8-O8 |
| 2 | B | 400 | NAD | C3B-C4B-C5B-O5B |
| 2 | B | 400 | NAD | PA-O3-PN-O1N |
| 2 | B | 400 | NAD | PA-O3-PN-O2N |
| 2 | F | 400 | NAD | PA-O3-PN-O1N |

There are no ring outliers.

15 monomers are involved in 31 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 2 | C | 400 | NAD | 4 | 0 |
| 4 | A | 402 | ACY | 1 | 0 |
| 2 | D | 400 | NAD | 2 | 0 |
| 5 | G | 402 | EDO | 3 | 0 |
| 3 | E | 401 | EPE | 1 | 0 |
| 3 | B | 401 | EPE | 2 | 0 |
| 2 | H | 400 | NAD | 1 | 0 |
| 3 | C | 401 | EPE | 2 | 0 |

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| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 3 | G | 401 | EPE | 4 | 0 |
| 3 | A | 401 | EPE | 1 | 0 |
| 2 | A | 400 | NAD | 1 | 0 |
| 5 | E | 402 | EDO | 3 | 0 |
| 2 | B | 400 | NAD | 1 | 0 |
| 5 | D | 402 | EDO | 3 | 0 |
| 2 | F | 400 | NAD | 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 then 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.



**Ligand NAD C 400**

Bond lengths

Bond angles

Torsions

Rings

## Ligand NAD G 400



Bond lengths



Bond angles



Torsions



Rings

## Ligand NAD D 400



Bond lengths

Bond angles

Torsions

Rings

## Ligand NAD H 400


Bond lengths


Bond angles


Torsions


Rings

## Ligand NAD E 400



Bond lengths



Bond angles



Torsions



Rings

## Ligand NAD A 400


Bond lengths


Bond angles


Torsions


Rings

## Ligand NAD B 400



Bond lengths



Bond angles



Torsions



Rings

**Ligand NAD F 400**



Bond lengths

Bond angles

Torsions

Rings

## 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

# 6   Fit of model and data ⓘ

## 6.1   Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, $95^{th}$ 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 | 328/357 (91%) | -1.55 | 0 | 100 | 100 | 6, 19, 30, 37 | 3 (0%) |
| 1 | B | 328/357 (91%) | -1.47 | 0 | 100 | 100 | 9, 21, 34, 40 | 1 (0%) |
| 1 | C | 328/357 (91%) | -1.46 | 0 | 100 | 100 | 5, 23, 36, 43 | 1 (0%) |
| 1 | D | 328/357 (91%) | -1.50 | 0 | 100 | 100 | 8, 21, 34, 42 | 3 (0%) |
| 1 | E | 328/357 (91%) | -1.53 | 0 | 100 | 100 | 7, 20, 31, 37 | 3 (0%) |
| 1 | F | 328/357 (91%) | -1.43 | 0 | 100 | 100 | 8, 24, 37, 47 | 2 (0%) |
| 1 | G | 328/357 (91%) | -1.49 | 0 | 100 | 100 | 11, 23, 37, 47 | 0 |
| 1 | H | 328/357 (91%) | -1.50 | 0 | 100 | 100 | 9, 20, 33, 43 | 2 (0%) |
| All | All | 2624/2856 (91%) | -1.49 | 0 | 100 | 100 | 5, 21, 35, 47 | 15 (0%) |

There are no RSRZ outliers to report.

## 6.2   Non-standard residues in protein, DNA, RNA chains ⓘ

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

## 6.3   Carbohydrates ⓘ

There are no monosaccharides in this entry.

## 6.4   Ligands ⓘ

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, $95^{th}$ percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors($Å^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 4 | ACY | A | 403 | 4/4 | 0.98 | 0.07 | 36,36,36,36 | 0 |
| 5 | EDO | E | 403 | 4/4 | 0.98 | 0.06 | 50,52,53,53 | 0 |
| 2 | NAD | C | 400 | 44/44 | 0.99 | 0.03 | 37,46,54,54 | 0 |
| 2 | NAD | D | 400 | 44/44 | 0.99 | 0.03 | 30,39,46,48 | 0 |
| 2 | NAD | E | 400 | 44/44 | 0.99 | 0.03 | 24,37,44,45 | 0 |
| 2 | NAD | F | 400 | 44/44 | 0.99 | 0.03 | 30,43,53,56 | 0 |
| 2 | NAD | G | 400 | 44/44 | 0.99 | 0.03 | 35,44,51,54 | 0 |
| 2 | NAD | H | 400 | 44/44 | 0.99 | 0.03 | 32,38,44,46 | 0 |
| 3 | EPE | A | 401 | 15/15 | 0.99 | 0.04 | 32,35,38,41 | 0 |
| 3 | EPE | B | 401 | 15/15 | 0.99 | 0.04 | 37,40,52,53 | 0 |
| 3 | EPE | C | 401 | 15/15 | 0.99 | 0.04 | 43,45,48,49 | 0 |
| 3 | EPE | D | 401 | 15/15 | 0.99 | 0.04 | 33,36,41,44 | 0 |
| 3 | EPE | E | 401 | 15/15 | 0.99 | 0.03 | 26,30,37,38 | 0 |
| 3 | EPE | F | 401 | 15/15 | 0.99 | 0.04 | 38,41,47,50 | 0 |
| 3 | EPE | G | 401 | 15/15 | 0.99 | 0.04 | 40,42,50,51 | 0 |
| 3 | EPE | H | 401 | 15/15 | 0.99 | 0.04 | 37,39,45,48 | 0 |
| 4 | ACY | A | 402 | 4/4 | 0.99 | 0.05 | 53,53,53,53 | 0 |
| 2 | NAD | A | 400 | 44/44 | 0.99 | 0.03 | 25,31,34,38 | 0 |
| 5 | EDO | D | 402 | 4/4 | 0.99 | 0.06 | 29,29,33,36 | 0 |
| 5 | EDO | E | 402 | 4/4 | 0.99 | 0.07 | 21,23,29,32 | 0 |
| 2 | NAD | B | 400 | 44/44 | 0.99 | 0.04 | 33,44,53,55 | 0 |
| 5 | EDO | G | 402 | 4/4 | 0.99 | 0.04 | 39,41,41,44 | 0 |
| 5 | EDO | H | 402 | 4/4 | 0.99 | 0.04 | 20,24,25,34 | 0 |
| 6 | K | D | 403 | 1/1 | 0.99 | 0.07 | 73,73,73,73 | 0 |
| 6 | K | H | 403 | 1/1 | 0.99 | 0.06 | 65,65,65,65 | 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.
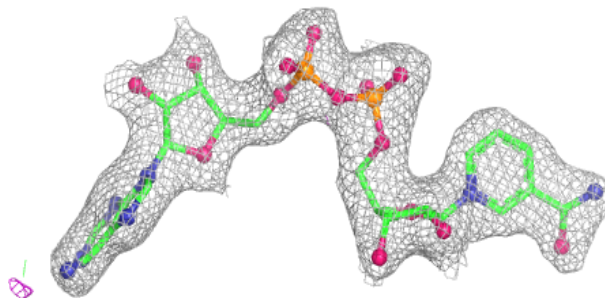
**Electron density around NAD C 400:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
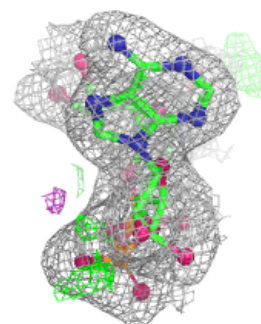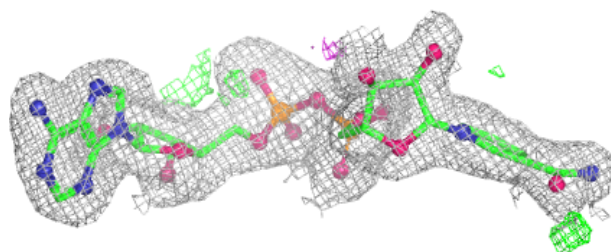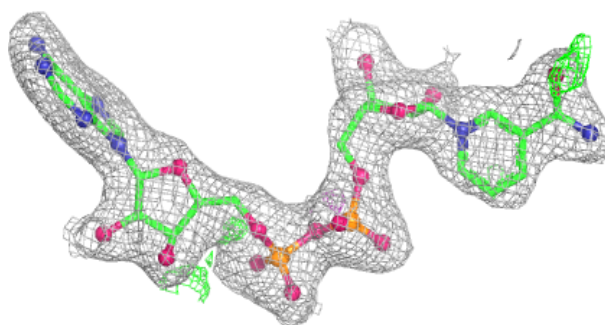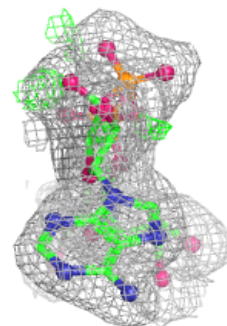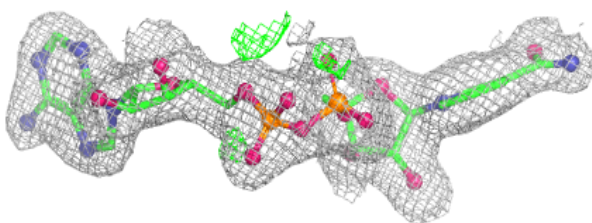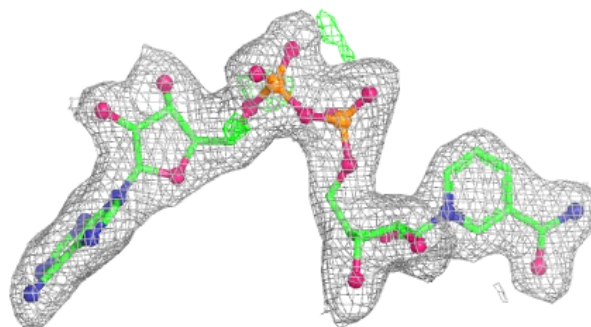$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
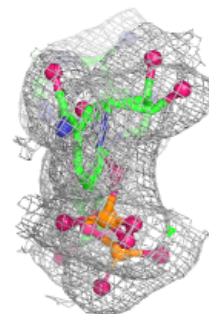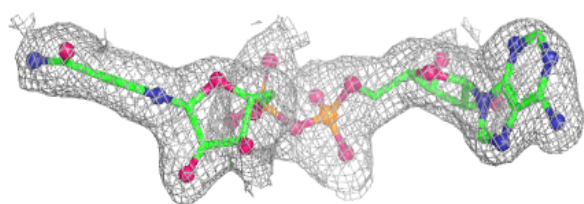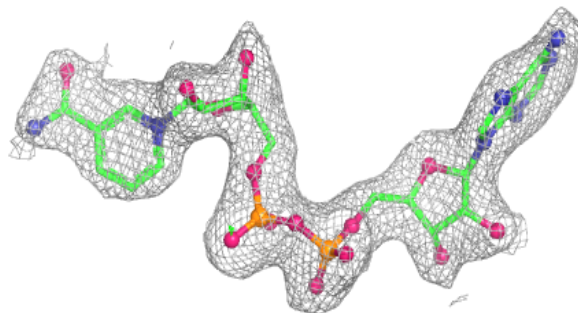
**Electron density around NAD D 400:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative)
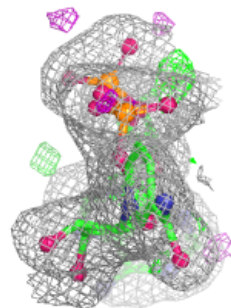and green (positive)
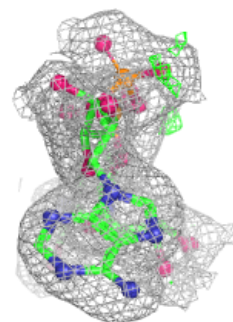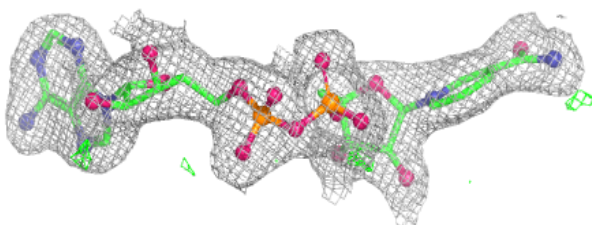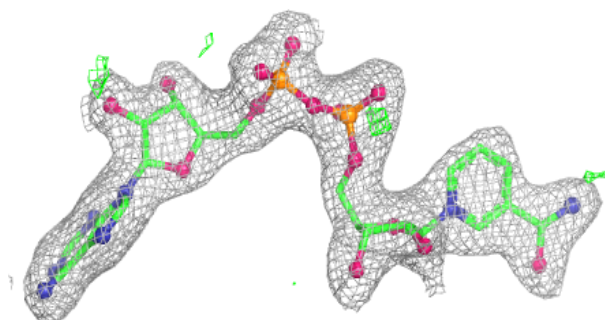
**Electron density around NAD E 400:**

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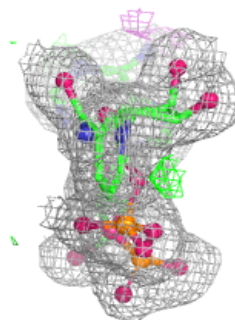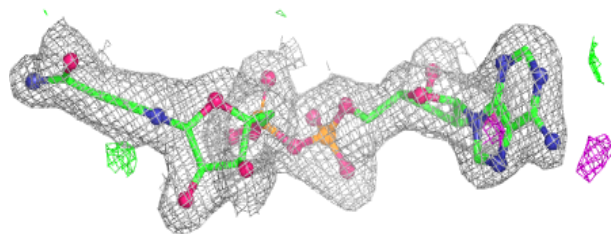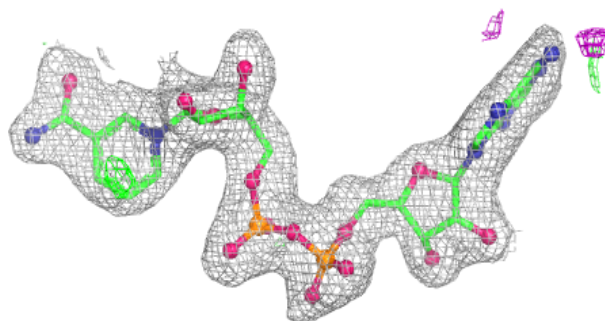


**Electron density around NAD F 400:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
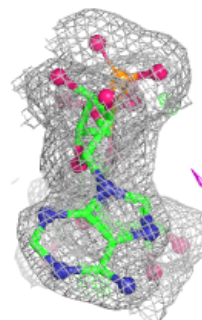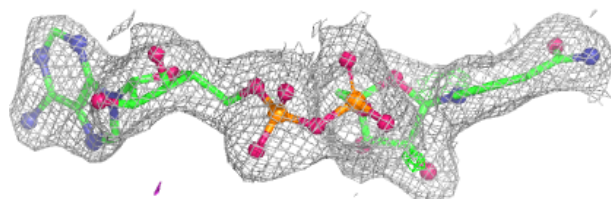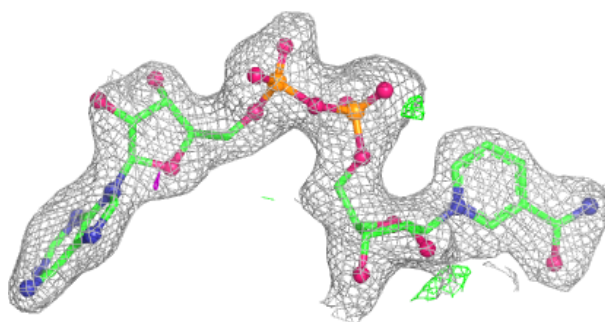
**Electron density around NAD G 400:**

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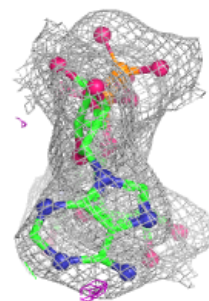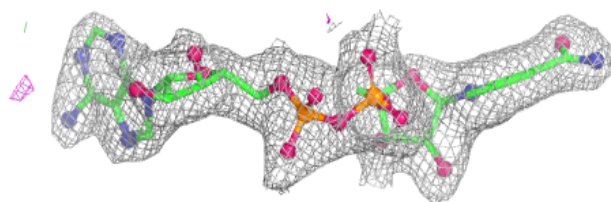


**Electron density around NAD H 400:**

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

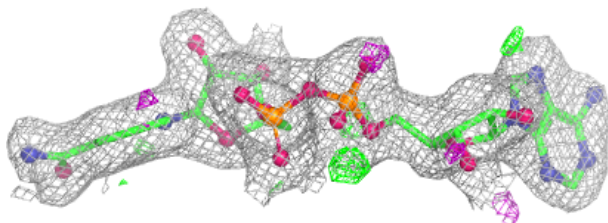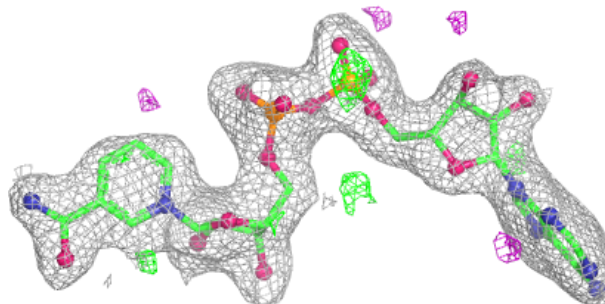**Electron density around NAD A 400:**

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



**Electron density around NAD B 400:**

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

## 6.5 Other polymers ⓘ

There are no such residues in this entry.