# Full wwPDB NMR Structure Validation Report (i)

Mar 5, 2026 – 04:18 PM UTC

| | | |
|---|---|---|
| PDB ID | : | 2HQ3 / pdb_00002hq3 |
| Title | : | Solution NMR structure of the apo-NosL protein from Achromobacter cycloclastes |
| Authors | : | Taubner, L.M.; McGuirl, M.A.; Dooley, D.M.; Copie, V. |
| Deposited on | : | 2006-07-18 |

This is a Full wwPDB NMR Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/NMRValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

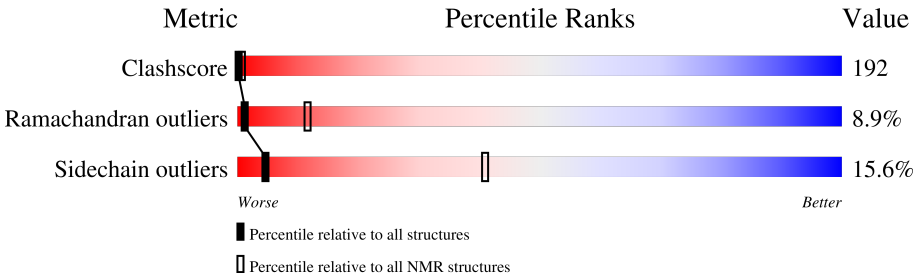
| | | |
|---|---|---|
| MolProbity | : | 4-5-2 with Phenix2.0 |
| Percentile statistics | : | 20250101.v01 (using entries in the PDB archive January 1st 2025) |
| wwPDB-RCI | : | v_1n_11_5_13_A (Berjanski et al., 2005) |
| PANAV | : | Wang et al. (2010) |
| wwPDB-ShiftChecker | : | v1.2 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.49 |

# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
*SOLUTION NMR*

The overall completeness of chemical shifts assignment was not calculated.

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




| Metric | Whole archive (#Entries) | NMR archive (#Entries) |
|---|---|---|
| Clashscore | 229148 | 14424 |
| Ramachandran outliers | 224038 | 12848 |
| Sidechain outliers | 223484 | 12823 |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and 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%

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | A | 175 | 18% 19% 26% 9% 28% |

## 2 Ensemble composition and analysis (i)

This entry contains 1 models. Identification of well-defined residues and clustering analysis are not possible.

# 3 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 1818 atoms, of which 891 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called NosL protein.

| Mol | Chain | Residues | Atoms | | | | | | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | H | N | O | S | |
| 1 | A | 126 | 1818 | 587 | 891 | 155 | 182 | 3 | 0 |

There are 2 discrepancies between the modelled and reference sequences:

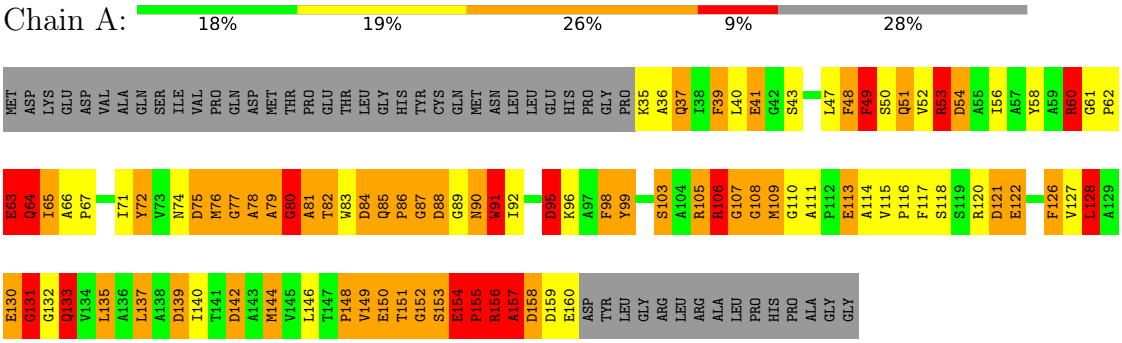
| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| A | 1 | MET | - | cloning artifact | UNP O68481 |
| A | 2 | ASP | - | cloning artifact | UNP O68481 |

# 4 Residue-property plots (i)

These plots are provided for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic is the same as shown in the summary in section 1 of this report. The second graphic shows the sequence where residues are colour-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. Stretches of 2 or more consecutive residues without any outliers are shown as green connectors. Residues which are classified as ill-defined in the NMR ensemble, are shown in cyan with an underline colour-coded according to the previous scheme. Residues which were present in the experimental sample, but not modelled in the final structure are shown in grey.

- Molecule 1: NosL protein

Chain A:



# 5 Refinement protocol and experimental data overview

The models were refined using the following method: *Ambiguous Restraints for Iterative Assignments (ARIA 1.2), torsion angle dynamics, simulated annealing.*.

Of the ? calculated structures, 1 were deposited, based on the following criterion: *minimized average structure*.

The following table shows the software used for structure solution, optimisation and refinement.

| Software name | Classification | Version |
|---|---|---|
| ARIA | structure solution | 1.2 |
| CNS | refinement | 1.1 |

No chemical shift data was provided.

# 6 Model quality (i)

## 6.1 Standard geometry (i)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the (average) 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 | 17.94 | 370/948 ( 39.0%) | 12.76 | 306/1293 ( 23.7%) |
| All | All | 17.94 | 370/948 ( 39.0%) | 12.76 | 306/1293 ( 23.7%) |

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

| Mol | Chain | Chirality | Planarity |
|---|---|---|---|
| 1 | A | 3 | 0 |
| All | All | 3 | 0 |

All bond outliers are listed below. They are sorted according to the Z-score.

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 91 | TRP | NE1-CE2 | -107.26 | 0.19 | 1.37 |
| 1 | A | 83 | TRP | NE1-CE2 | -85.80 | 0.43 | 1.37 |
| 1 | A | 106 | ARG | CZ-NH2 | -83.92 | 0.24 | 1.33 |
| 1 | A | 106 | ARG | CD-NE | -82.37 | 0.30 | 1.46 |
| 1 | A | 63 | GLU | C-O | -75.52 | 0.28 | 1.24 |
| 1 | A | 91 | TRP | CD2-CE3 | -69.34 | 0.29 | 1.40 |
| 1 | A | 60 | ARG | CZ-NH2 | -66.33 | 0.47 | 1.33 |
| 1 | A | 159 | ASP | C-O | -62.72 | 0.45 | 1.24 |
| 1 | A | 60 | ARG | CD-NE | -62.22 | 0.59 | 1.46 |
| 1 | A | 77 | GLY | C-N | -60.72 | 0.44 | 1.33 |
| 1 | A | 83 | TRP | CD2-CE3 | -60.51 | 0.43 | 1.40 |
| 1 | A | 109 | MET | SD-CE | -57.34 | 0.36 | 1.79 |
| 1 | A | 91 | TRP | CZ2-CH2 | -56.20 | 0.30 | 1.37 |
| 1 | A | 88 | ASP | CG-OD2 | -54.64 | 0.21 | 1.25 |
| 1 | A | 113 | GLU | CD-OE1 | -54.58 | 0.21 | 1.25 |
| 1 | A | 105 | ARG | C-O | -54.41 | 0.62 | 1.24 |
| 1 | A | 158 | ASP | CG-OD1 | -54.27 | 0.22 | 1.25 |
| 1 | A | 160 | GLU | CD-OE1 | -53.62 | 0.23 | 1.25 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 64 | GLN | CA-CB | -53.04 | 0.67 | 1.53 |
| 1 | A | 154 | GLU | CD-OE2 | -52.94 | 0.24 | 1.25 |
| 1 | A | 78 | ALA | C-N | -52.16 | 0.63 | 1.33 |
| 1 | A | 88 | ASP | CB-CG | -51.31 | 0.23 | 1.52 |
| 1 | A | 60 | ARG | CZ-NH1 | -50.11 | 0.62 | 1.32 |
| 1 | A | 83 | TRP | CZ2-CH2 | -49.54 | 0.43 | 1.37 |
| 1 | A | 106 | ARG | CZ-NH1 | -49.24 | 0.63 | 1.32 |
| 1 | A | 88 | ASP | C-O | -48.99 | 0.63 | 1.23 |
| 1 | A | 106 | ARG | C-O | -47.50 | 0.64 | 1.24 |
| 1 | A | 150 | GLU | CD-OE1 | -47.07 | 0.35 | 1.25 |
| 1 | A | 88 | ASP | CG-OD1 | -46.84 | 0.36 | 1.25 |
| 1 | A | 87 | GLY | C-O | -46.39 | 0.76 | 1.24 |
| 1 | A | 76 | MET | SD-CE | -46.33 | 0.63 | 1.79 |
| 1 | A | 160 | GLU | CD-OE2 | -46.10 | 0.37 | 1.25 |
| 1 | A | 63 | GLU | CD-OE1 | -46.02 | 0.38 | 1.25 |
| 1 | A | 153 | SER | CB-OG | -45.94 | 0.50 | 1.42 |
| 1 | A | 106 | ARG | NE-CZ | -45.87 | 0.82 | 1.33 |
| 1 | A | 64 | GLN | CD-OE1 | -45.70 | 0.36 | 1.23 |
| 1 | A | 105 | ARG | CZ-NH2 | -44.98 | 0.74 | 1.33 |
| 1 | A | 105 | ARG | CD-NE | -44.35 | 0.84 | 1.46 |
| 1 | A | 76 | MET | CG-SD | -44.27 | 0.70 | 1.80 |
| 1 | A | 76 | MET | C-N | -43.96 | 0.69 | 1.33 |
| 1 | A | 85 | GLN | CD-NE2 | -43.87 | 0.41 | 1.33 |
| 1 | A | 156 | ARG | NE-CZ | -43.27 | 0.85 | 1.33 |
| 1 | A | 64 | GLN | CD-NE2 | -42.93 | 0.43 | 1.33 |
| 1 | A | 78 | ALA | N-CA | -42.83 | 0.93 | 1.46 |
| 1 | A | 48 | PHE | CG-CD2 | -42.54 | 0.49 | 1.38 |
| 1 | A | 79 | ALA | CA-CB | -42.31 | 1.03 | 1.54 |
| 1 | A | 160 | GLU | CA-C | -41.86 | 0.65 | 1.52 |
| 1 | A | 64 | GLN | C-O | -41.78 | 0.70 | 1.24 |
| 1 | A | 91 | TRP | CG-CD2 | -41.10 | 0.69 | 1.43 |
| 1 | A | 76 | MET | C-O | -40.61 | 0.72 | 1.24 |
| 1 | A | 58 | TYR | CG-CD1 | -40.60 | 0.54 | 1.39 |
| 1 | A | 95 | ASP | CG-OD1 | -40.56 | 0.48 | 1.25 |
| 1 | A | 117 | PHE | CG-CD1 | -40.12 | 0.54 | 1.38 |
| 1 | A | 160 | GLU | C-O | -40.07 | 0.43 | 1.23 |
| 1 | A | 49 | PHE | CG-CD2 | -39.26 | 0.56 | 1.38 |
| 1 | A | 159 | ASP | CG-OD1 | -39.24 | 0.50 | 1.25 |
| 1 | A | 78 | ALA | CA-CB | -39.17 | 1.00 | 1.53 |
| 1 | A | 88 | ASP | CA-CB | -38.97 | 0.93 | 1.53 |
| 1 | A | 150 | GLU | C-O | -38.93 | 0.74 | 1.24 |
| 1 | A | 78 | ALA | C-O | -38.80 | 0.76 | 1.24 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 90 | ASN | CG-ND2 | -38.72 | 0.52 | 1.33 |
| 1 | A | 64 | GLN | CG-CD | -38.66 | 0.55 | 1.52 |
| 1 | A | 154 | GLU | CD-OE1 | -38.54 | 0.52 | 1.25 |
| 1 | A | 95 | ASP | CG-OD2 | -38.44 | 0.52 | 1.25 |
| 1 | A | 156 | ARG | CZ-NH1 | -38.19 | 0.79 | 1.32 |
| 1 | A | 130 | GLU | CD-OE2 | -38.19 | 0.52 | 1.25 |
| 1 | A | 74 | ASN | CG-OD1 | -37.97 | 0.51 | 1.23 |
| 1 | A | 84 | ASP | CG-OD1 | -37.63 | 0.53 | 1.25 |
| 1 | A | 109 | MET | CG-SD | -37.53 | 0.86 | 1.80 |
| 1 | A | 157 | ALA | C-O | -37.45 | 0.76 | 1.24 |
| 1 | A | 41 | GLU | CD-OE1 | -37.14 | 0.54 | 1.25 |
| 1 | A | 142 | ASP | CG-OD2 | -36.82 | 0.55 | 1.25 |
| 1 | A | 139 | ASP | CG-OD2 | -36.58 | 0.55 | 1.25 |
| 1 | A | 58 | TYR | CE2-CZ | -36.05 | 0.51 | 1.38 |
| 1 | A | 63 | GLU | CD-OE2 | -36.05 | 0.56 | 1.25 |
| 1 | A | 158 | ASP | CG-OD2 | -35.94 | 0.57 | 1.25 |
| 1 | A | 84 | ASP | CG-OD2 | -35.78 | 0.57 | 1.25 |
| 1 | A | 64 | GLN | C-N | -35.67 | 0.85 | 1.33 |
| 1 | A | 113 | GLU | CD-OE2 | -35.17 | 0.58 | 1.25 |
| 1 | A | 139 | ASP | CG-OD1 | -34.83 | 0.59 | 1.25 |
| 1 | A | 121 | ASP | CG-OD2 | -34.71 | 0.59 | 1.25 |
| 1 | A | 157 | ALA | C-N | -34.61 | 0.84 | 1.33 |
| 1 | A | 58 | TYR | CG-CD2 | -34.43 | 0.67 | 1.39 |
| 1 | A | 130 | GLU | CD-OE1 | -34.41 | 0.59 | 1.25 |
| 1 | A | 158 | ASP | C-O | -34.38 | 0.79 | 1.23 |
| 1 | A | 126 | PHE | CG-CD2 | -34.08 | 0.67 | 1.38 |
| 1 | A | 48 | PHE | CG-CD1 | -34.08 | 0.67 | 1.38 |
| 1 | A | 72 | TYR | CG-CD2 | -33.85 | 0.68 | 1.39 |
| 1 | A | 159 | ASP | CG-OD2 | -33.75 | 0.61 | 1.25 |
| 1 | A | 121 | ASP | CG-OD1 | -33.34 | 0.62 | 1.25 |
| 1 | A | 88 | ASP | CA-C | -33.22 | 1.09 | 1.52 |
| 1 | A | 77 | GLY | CA-C | -33.13 | 1.05 | 1.51 |
| 1 | A | 160 | GLU | CG-CD | -33.12 | 0.69 | 1.52 |
| 1 | A | 150 | GLU | CD-OE2 | -33.04 | 0.62 | 1.25 |
| 1 | A | 64 | GLN | CB-CG | -32.81 | 0.54 | 1.52 |
| 1 | A | 37 | GLN | CD-NE2 | -32.15 | 0.65 | 1.33 |
| 1 | A | 103 | SER | CB-OG | -32.13 | 0.77 | 1.42 |
| 1 | A | 90 | ASN | CG-OD1 | -32.13 | 0.62 | 1.23 |
| 1 | A | 159 | ASP | C-N | -32.08 | 0.88 | 1.33 |
| 1 | A | 99 | TYR | CG-CD2 | -32.07 | 0.72 | 1.39 |
| 1 | A | 41 | GLU | CD-OE2 | -32.06 | 0.64 | 1.25 |
| 1 | A | 37 | GLN | CD-OE1 | -31.88 | 0.62 | 1.23 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 144 | MET | SD-CE | -31.85 | 0.99 | 1.79 |
| 1 | A | 133 | GLN | CD-OE1 | -31.64 | 0.63 | 1.23 |
| 1 | A | 142 | ASP | CG-OD1 | -31.50 | 0.65 | 1.25 |
| 1 | A | 83 | TRP | CG-CD2 | -31.32 | 0.87 | 1.43 |
| 1 | A | 107 | GLY | C-O | -31.32 | 0.81 | 1.23 |
| 1 | A | 54 | ASP | CG-OD1 | -31.30 | 0.65 | 1.25 |
| 1 | A | 49 | PHE | CG-CD1 | -31.08 | 0.73 | 1.38 |
| 1 | A | 63 | GLU | C-N | -31.04 | 0.88 | 1.33 |
| 1 | A | 160 | GLU | CB-CG | -30.87 | 0.59 | 1.52 |
| 1 | A | 85 | GLN | CD-OE1 | -30.77 | 0.65 | 1.23 |
| 1 | A | 58 | TYR | CE1-CZ | -30.63 | 0.64 | 1.38 |
| 1 | A | 72 | TYR | CE1-CZ | -30.31 | 0.65 | 1.38 |
| 1 | A | 105 | ARG | CZ-NH1 | -30.30 | 0.90 | 1.32 |
| 1 | A | 75 | ASP | CG-OD1 | -30.13 | 0.68 | 1.25 |
| 1 | A | 48 | PHE | CE1-CZ | -30.13 | 0.48 | 1.38 |
| 1 | A | 72 | TYR | CG-CD1 | -30.12 | 0.76 | 1.39 |
| 1 | A | 150 | GLU | C-N | -29.91 | 0.91 | 1.33 |
| 1 | A | 154 | GLU | CG-CD | -29.49 | 0.78 | 1.52 |
| 1 | A | 109 | MET | CB-CG | -29.47 | 0.64 | 1.52 |
| 1 | A | 160 | GLU | CA-CB | -29.19 | 0.95 | 1.53 |
| 1 | A | 39 | PHE | CG-CD2 | -29.17 | 0.77 | 1.38 |
| 1 | A | 107 | GLY | C-N | -29.09 | 0.91 | 1.33 |
| 1 | A | 133 | GLN | CD-NE2 | -29.09 | 0.72 | 1.33 |
| 1 | A | 98 | PHE | CG-CD1 | -28.99 | 0.78 | 1.38 |
| 1 | A | 99 | TYR | CE1-CZ | -28.57 | 0.69 | 1.38 |
| 1 | A | 75 | ASP | CG-OD2 | -28.56 | 0.71 | 1.25 |
| 1 | A | 99 | TYR | CG-CD1 | -28.52 | 0.79 | 1.39 |
| 1 | A | 89 | GLY | N-CA | -28.38 | 1.04 | 1.45 |
| 1 | A | 87 | GLY | C-N | -28.37 | 0.94 | 1.33 |
| 1 | A | 117 | PHE | CE2-CZ | -28.36 | 0.53 | 1.38 |
| 1 | A | 49 | PHE | CE1-CZ | -27.82 | 0.55 | 1.38 |
| 1 | A | 98 | PHE | CG-CD2 | -27.71 | 0.80 | 1.38 |
| 1 | A | 155 | PRO | C-O | -27.57 | 0.88 | 1.24 |
| 1 | A | 126 | PHE | CG-CD1 | -27.33 | 0.81 | 1.38 |
| 1 | A | 79 | ALA | C-N | -27.30 | 0.93 | 1.33 |
| 1 | A | 105 | ARG | C-N | -27.14 | 0.95 | 1.33 |
| 1 | A | 106 | ARG | C-N | -27.11 | 0.94 | 1.33 |
| 1 | A | 72 | TYR | CE2-CZ | -27.04 | 0.73 | 1.38 |
| 1 | A | 159 | ASP | CA-C | -26.96 | 1.16 | 1.52 |
| 1 | A | 35 | LYS | CD-CE | -26.71 | 0.72 | 1.52 |
| 1 | A | 155 | PRO | C-N | -26.50 | 0.99 | 1.33 |
| 1 | A | 39 | PHE | CG-CD1 | -26.48 | 0.83 | 1.38 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 51 | GLN | CD-OE1 | -26.34 | 0.73 | 1.23 |
| 1 | A | 91 | TRP | CG-CD1 | -26.15 | 0.71 | 1.36 |
| 1 | A | 122 | GLU | CD-OE1 | -25.65 | 0.76 | 1.25 |
| 1 | A | 117 | PHE | CG-CD2 | -25.65 | 0.84 | 1.38 |
| 1 | A | 83 | TRP | CG-CD1 | -25.64 | 0.72 | 1.36 |
| 1 | A | 99 | TYR | CE2-CZ | -25.47 | 0.77 | 1.38 |
| 1 | A | 60 | ARG | NE-CZ | -25.14 | 1.05 | 1.33 |
| 1 | A | 51 | GLN | CD-NE2 | -24.94 | 0.80 | 1.33 |
| 1 | A | 54 | ASP | CG-OD2 | -24.52 | 0.78 | 1.25 |
| 1 | A | 74 | ASN | CG-ND2 | -24.37 | 0.82 | 1.33 |
| 1 | A | 91 | TRP | CE2-CZ2 | -24.37 | 0.88 | 1.39 |
| 1 | A | 128 | LEU | CG-CD2 | -24.36 | 0.72 | 1.52 |
| 1 | A | 80 | GLY | N-CA | -24.29 | 1.10 | 1.45 |
| 1 | A | 126 | PHE | CE1-CZ | -24.23 | 0.66 | 1.38 |
| 1 | A | 156 | ARG | CZ-NH2 | -24.20 | 1.01 | 1.33 |
| 1 | A | 48 | PHE | CE2-CZ | -24.15 | 0.66 | 1.38 |
| 1 | A | 122 | GLU | CD-OE2 | -23.72 | 0.80 | 1.25 |
| 1 | A | 156 | ARG | CD-NE | -23.58 | 1.13 | 1.46 |
| 1 | A | 77 | GLY | C-O | -23.45 | 0.92 | 1.23 |
| 1 | A | 106 | ARG | CG-CD | -22.91 | 0.83 | 1.52 |
| 1 | A | 159 | ASP | CA-CB | -22.90 | 1.14 | 1.53 |
| 1 | A | 90 | ASN | CB-CG | -22.55 | 0.95 | 1.52 |
| 1 | A | 81 | ALA | CA-CB | -22.52 | 1.17 | 1.53 |
| 1 | A | 85 | GLN | CA-CB | -22.51 | 1.17 | 1.53 |
| 1 | A | 153 | SER | N-CA | -22.13 | 1.20 | 1.45 |
| 1 | A | 49 | PHE | CE2-CZ | -22.13 | 0.72 | 1.38 |
| 1 | A | 63 | GLU | CA-C | -21.80 | 1.23 | 1.52 |
| 1 | A | 113 | GLU | CG-CD | -21.73 | 0.97 | 1.52 |
| 1 | A | 151 | THR | C-O | -21.65 | 0.96 | 1.24 |
| 1 | A | 158 | ASP | CB-CG | -21.57 | 0.98 | 1.52 |
| 1 | A | 158 | ASP | C-N | -21.28 | 1.03 | 1.33 |
| 1 | A | 149 | VAL | C-O | -21.12 | 0.96 | 1.23 |
| 1 | A | 76 | MET | CB-CG | -20.90 | 0.89 | 1.52 |
| 1 | A | 62 | PRO | C-O | -20.85 | 0.96 | 1.24 |
| 1 | A | 79 | ALA | CA-C | -20.80 | 1.16 | 1.53 |
| 1 | A | 39 | PHE | CE1-CZ | -20.68 | 0.76 | 1.38 |
| 1 | A | 80 | GLY | C-N | -20.62 | 1.05 | 1.33 |
| 1 | A | 98 | PHE | CE2-CZ | -20.60 | 0.76 | 1.38 |
| 1 | A | 148 | PRO | C-N | -20.52 | 1.15 | 1.33 |
| 1 | A | 88 | ASP | C-N | -20.52 | 1.03 | 1.33 |
| 1 | A | 82 | THR | CA-C | -20.27 | 1.25 | 1.53 |
| 1 | A | 64 | GLN | N-CA | -20.19 | 1.20 | 1.46 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 83 | TRP | N-CA | -20.15 | 1.21 | 1.46 |
| 1 | A | 98 | PHE | CE1-CZ | -19.73 | 0.79 | 1.38 |
| 1 | A | 153 | SER | CA-CB | -19.64 | 1.22 | 1.53 |
| 1 | A | 35 | LYS | CE-NZ | -19.56 | 0.90 | 1.49 |
| 1 | A | 126 | PHE | CE2-CZ | -19.50 | 0.80 | 1.38 |
| 1 | A | 80 | GLY | CA-C | -19.43 | 1.24 | 1.51 |
| 1 | A | 86 | PRO | N-CD | -19.04 | 1.21 | 1.47 |
| 1 | A | 63 | GLU | CG-CD | -18.89 | 1.04 | 1.52 |
| 1 | A | 39 | PHE | CE2-CZ | -18.83 | 0.82 | 1.38 |
| 1 | A | 152 | GLY | CA-C | -18.54 | 1.25 | 1.51 |
| 1 | A | 64 | GLN | CA-C | -18.51 | 1.27 | 1.52 |
| 1 | A | 107 | GLY | CA-C | -18.47 | 1.25 | 1.51 |
| 1 | A | 91 | TRP | CD2-CE2 | -18.46 | 1.09 | 1.41 |
| 1 | A | 80 | GLY | C-O | -18.42 | 0.99 | 1.23 |
| 1 | A | 117 | PHE | CE1-CZ | -18.23 | 0.83 | 1.38 |
| 1 | A | 50 | SER | CB-OG | -17.93 | 1.06 | 1.42 |
| 1 | A | 85 | GLN | C-O | -17.88 | 1.01 | 1.24 |
| 1 | A | 159 | ASP | CB-CG | -17.84 | 1.07 | 1.52 |
| 1 | A | 83 | TRP | CE2-CZ2 | -17.83 | 1.02 | 1.39 |
| 1 | A | 160 | GLU | N-CA | -17.53 | 1.12 | 1.46 |
| 1 | A | 85 | GLN | CG-CD | -17.35 | 1.08 | 1.52 |
| 1 | A | 108 | GLY | N-CA | -17.14 | 1.20 | 1.45 |
| 1 | A | 82 | THR | CA-CB | -17.12 | 1.27 | 1.53 |
| 1 | A | 65 | ILE | N-CA | -17.06 | 1.25 | 1.46 |
| 1 | A | 83 | TRP | CD2-CE2 | -16.85 | 1.12 | 1.41 |
| 1 | A | 91 | TRP | CE3-CZ3 | -16.84 | 0.88 | 1.38 |
| 1 | A | 86 | PRO | CA-CB | -16.73 | 1.26 | 1.53 |
| 1 | A | 83 | TRP | C-O | -16.69 | 1.03 | 1.24 |
| 1 | A | 81 | ALA | N-CA | -16.37 | 1.21 | 1.46 |
| 1 | A | 128 | LEU | CG-CD1 | -16.34 | 0.98 | 1.52 |
| 1 | A | 158 | ASP | CA-C | -16.18 | 1.33 | 1.53 |
| 1 | A | 84 | ASP | CA-CB | -16.02 | 1.27 | 1.53 |
| 1 | A | 109 | MET | C-N | -15.52 | 1.10 | 1.33 |
| 1 | A | 151 | THR | CB-OG1 | -15.09 | 1.19 | 1.43 |
| 1 | A | 108 | GLY | C-O | -15.04 | 1.03 | 1.23 |
| 1 | A | 131 | GLY | C-O | -14.94 | 1.03 | 1.23 |
| 1 | A | 76 | MET | CA-C | -14.87 | 1.32 | 1.52 |
| 1 | A | 91 | TRP | CD1-NE1 | -14.77 | 1.06 | 1.37 |
| 1 | A | 152 | GLY | C-N | -14.72 | 1.12 | 1.33 |
| 1 | A | 86 | PRO | C-O | -14.69 | 1.06 | 1.24 |
| 1 | A | 83 | TRP | C-N | -14.62 | 1.12 | 1.33 |
| 1 | A | 120 | ARG | NE-CZ | -14.59 | 1.17 | 1.33 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 62 | PRO | C-N | -14.41 | 1.13 | 1.33 |
| 1 | A | 105 | ARG | NE-CZ | -14.34 | 1.17 | 1.33 |
| 1 | A | 74 | ASN | CB-CG | -14.17 | 1.16 | 1.52 |
| 1 | A | 149 | VAL | CA-C | -14.13 | 1.38 | 1.52 |
| 1 | A | 65 | ILE | CA-CB | -14.01 | 1.35 | 1.54 |
| 1 | A | 109 | MET | CA-CB | -13.75 | 1.29 | 1.53 |
| 1 | A | 120 | ARG | CZ-NH1 | -13.72 | 1.13 | 1.32 |
| 1 | A | 150 | GLU | CG-CD | -13.67 | 1.17 | 1.52 |
| 1 | A | 63 | GLU | CB-CG | -13.65 | 1.11 | 1.52 |
| 1 | A | 151 | THR | CA-C | -13.62 | 1.34 | 1.52 |
| 1 | A | 149 | VAL | C-N | -13.37 | 1.15 | 1.33 |
| 1 | A | 48 | PHE | CB-CG | -13.26 | 1.20 | 1.50 |
| 1 | A | 159 | ASP | N-CA | -13.26 | 1.29 | 1.46 |
| 1 | A | 82 | THR | N-CA | -13.07 | 1.29 | 1.45 |
| 1 | A | 113 | GLU | CB-CG | -13.07 | 1.13 | 1.52 |
| 1 | A | 81 | ALA | CA-C | -12.73 | 1.36 | 1.53 |
| 1 | A | 91 | TRP | CZ3-CH2 | -12.72 | 1.08 | 1.40 |
| 1 | A | 77 | GLY | N-CA | -12.69 | 1.26 | 1.45 |
| 1 | A | 152 | GLY | N-CA | -12.67 | 1.27 | 1.45 |
| 1 | A | 152 | GLY | C-O | -12.51 | 1.07 | 1.23 |
| 1 | A | 81 | ALA | C-N | -12.45 | 1.15 | 1.33 |
| 1 | A | 155 | PRO | N-CD | -12.36 | 1.30 | 1.47 |
| 1 | A | 63 | GLU | CA-CB | -12.35 | 1.32 | 1.53 |
| 1 | A | 83 | TRP | CE3-CZ3 | -12.30 | 1.01 | 1.38 |
| 1 | A | 76 | MET | CA-CB | -12.19 | 1.32 | 1.53 |
| 1 | A | 149 | VAL | N-CA | -12.04 | 1.34 | 1.46 |
| 1 | A | 149 | VAL | CA-CB | -11.90 | 1.40 | 1.54 |
| 1 | A | 151 | THR | CA-CB | -11.85 | 1.33 | 1.53 |
| 1 | A | 95 | ASP | CB-CG | -11.79 | 1.22 | 1.52 |
| 1 | A | 83 | TRP | CZ3-CH2 | -11.74 | 1.11 | 1.40 |
| 1 | A | 110 | GLY | N-CA | -11.74 | 1.28 | 1.45 |
| 1 | A | 108 | GLY | C-N | -11.72 | 1.16 | 1.33 |
| 1 | A | 65 | ILE | CB-CG1 | -11.69 | 1.30 | 1.53 |
| 1 | A | 154 | GLU | C-O | -11.68 | 1.08 | 1.24 |
| 1 | A | 128 | LEU | CB-CG | -11.64 | 1.30 | 1.53 |
| 1 | A | 85 | GLN | CA-C | -11.53 | 1.38 | 1.52 |
| 1 | A | 109 | MET | CA-C | -11.51 | 1.36 | 1.52 |
| 1 | A | 157 | ALA | CA-C | -11.35 | 1.37 | 1.52 |
| 1 | A | 85 | GLN | C-N | -11.27 | 1.20 | 1.34 |
| 1 | A | 84 | ASP | C-N | -11.25 | 1.10 | 1.33 |
| 1 | A | 58 | TYR | CB-CG | -11.22 | 1.26 | 1.51 |
| 1 | A | 158 | ASP | N-CA | -11.15 | 1.30 | 1.46 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 65 | ILE | C-O | -11.06 | 1.10 | 1.24 |
| 1 | A | 86 | PRO | N-CA | -11.00 | 1.32 | 1.47 |
| 1 | A | 151 | THR | C-N | -10.98 | 1.17 | 1.33 |
| 1 | A | 65 | ILE | CG1-CD1 | -10.83 | 1.09 | 1.51 |
| 1 | A | 148 | PRO | C-O | -10.79 | 1.09 | 1.24 |
| 1 | A | 79 | ALA | N-CA | -10.70 | 1.32 | 1.46 |
| 1 | A | 153 | SER | C-N | -10.69 | 1.16 | 1.33 |
| 1 | A | 58 | TYR | CZ-OH | -10.55 | 1.15 | 1.38 |
| 1 | A | 153 | SER | C-O | -10.55 | 1.11 | 1.23 |
| 1 | A | 83 | TRP | CD1-NE1 | -10.45 | 1.16 | 1.37 |
| 1 | A | 156 | ARG | N-CA | -10.45 | 1.33 | 1.46 |
| 1 | A | 115 | VAL | CB-CG2 | -10.40 | 1.18 | 1.52 |
| 1 | A | 130 | GLU | C-O | -10.32 | 1.10 | 1.24 |
| 1 | A | 158 | ASP | CA-CB | -10.19 | 1.38 | 1.53 |
| 1 | A | 153 | SER | CA-C | -10.15 | 1.40 | 1.52 |
| 1 | A | 156 | ARG | C-O | -10.08 | 1.09 | 1.23 |
| 1 | A | 83 | TRP | CA-C | -10.06 | 1.39 | 1.52 |
| 1 | A | 156 | ARG | CG-CD | -10.00 | 1.22 | 1.52 |
| 1 | A | 120 | ARG | CZ-NH2 | -9.92 | 1.20 | 1.33 |
| 1 | A | 115 | VAL | CB-CG1 | -9.79 | 1.20 | 1.52 |
| 1 | A | 156 | ARG | C-N | -9.78 | 1.20 | 1.33 |
| 1 | A | 53 | ARG | CZ-NH1 | -9.70 | 1.19 | 1.32 |
| 1 | A | 156 | ARG | CA-C | -9.56 | 1.43 | 1.52 |
| 1 | A | 78 | ALA | CA-C | -9.51 | 1.41 | 1.52 |
| 1 | A | 84 | ASP | N-CA | -9.48 | 1.33 | 1.46 |
| 1 | A | 155 | PRO | CA-CB | -9.40 | 1.40 | 1.53 |
| 1 | A | 48 | PHE | CD2-CE2 | -9.39 | 1.10 | 1.38 |
| 1 | A | 48 | PHE | CD1-CE1 | -9.35 | 1.10 | 1.38 |
| 1 | A | 137 | LEU | CG-CD2 | -9.31 | 1.21 | 1.52 |
| 1 | A | 151 | THR | CB-CG2 | -9.15 | 1.22 | 1.52 |
| 1 | A | 154 | GLU | CA-CB | -8.86 | 1.37 | 1.53 |
| 1 | A | 91 | TRP | CB-CG | -8.78 | 1.23 | 1.50 |
| 1 | A | 82 | THR | C-O | -8.75 | 1.12 | 1.23 |
| 1 | A | 85 | GLN | CB-CG | -8.74 | 1.26 | 1.52 |
| 1 | A | 82 | THR | C-N | -8.73 | 1.22 | 1.34 |
| 1 | A | 120 | ARG | CD-NE | -8.71 | 1.34 | 1.46 |
| 1 | A | 155 | PRO | CA-C | -8.61 | 1.40 | 1.52 |
| 1 | A | 133 | GLN | CG-CD | -8.49 | 1.30 | 1.52 |
| 1 | A | 43 | SER | CB-OG | -8.46 | 1.25 | 1.42 |
| 1 | A | 154 | GLU | N-CA | -8.45 | 1.33 | 1.45 |
| 1 | A | 47 | LEU | CG-CD1 | -8.40 | 1.24 | 1.52 |
| 1 | A | 82 | THR | CB-CG2 | -8.40 | 1.24 | 1.52 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 156 | ARG | CB-CG | -8.34 | 1.27 | 1.52 |
| 1 | A | 47 | LEU | CG-CD2 | -8.32 | 1.25 | 1.52 |
| 1 | A | 86 | PRO | C-N | -8.27 | 1.17 | 1.33 |
| 1 | A | 111 | ALA | CA-CB | -8.27 | 1.42 | 1.53 |
| 1 | A | 117 | PHE | CB-CG | -8.26 | 1.31 | 1.50 |
| 1 | A | 88 | ASP | N-CA | -8.14 | 1.35 | 1.46 |
| 1 | A | 84 | ASP | C-O | -8.00 | 1.13 | 1.24 |
| 1 | A | 85 | GLN | N-CA | -7.97 | 1.34 | 1.46 |
| 1 | A | 150 | GLU | CA-CB | -7.95 | 1.40 | 1.53 |
| 1 | A | 139 | ASP | CB-CG | -7.94 | 1.32 | 1.52 |
| 1 | A | 106 | ARG | CA-CB | -7.85 | 1.40 | 1.53 |
| 1 | A | 130 | GLU | C-N | -7.85 | 1.22 | 1.33 |
| 1 | A | 150 | GLU | N-CA | -7.68 | 1.36 | 1.46 |
| 1 | A | 79 | ALA | C-O | -7.56 | 1.10 | 1.23 |
| 1 | A | 157 | ALA | N-CA | -7.53 | 1.36 | 1.46 |
| 1 | A | 87 | GLY | N-CA | -7.50 | 1.35 | 1.44 |
| 1 | A | 58 | TYR | CD1-CE1 | -7.47 | 1.16 | 1.38 |
| 1 | A | 58 | TYR | CD2-CE2 | -7.44 | 1.16 | 1.38 |
| 1 | A | 87 | GLY | CA-C | -7.39 | 1.39 | 1.51 |
| 1 | A | 150 | GLU | CA-C | -7.23 | 1.43 | 1.52 |
| 1 | A | 110 | GLY | C-O | -7.13 | 1.14 | 1.23 |
| 1 | A | 154 | GLU | CA-C | -7.04 | 1.45 | 1.53 |
| 1 | A | 106 | ARG | CA-C | -7.00 | 1.43 | 1.52 |
| 1 | A | 109 | MET | C-O | -6.93 | 1.14 | 1.23 |
| 1 | A | 65 | ILE | C-N | -6.80 | 1.24 | 1.33 |
| 1 | A | 83 | TRP | CB-CG | -6.73 | 1.29 | 1.50 |
| 1 | A | 131 | GLY | C-N | -6.69 | 1.23 | 1.33 |
| 1 | A | 86 | PRO | CG-CD | -6.68 | 1.28 | 1.50 |
| 1 | A | 90 | ASN | C-O | -6.49 | 1.16 | 1.23 |
| 1 | A | 137 | LEU | CB-CG | -6.46 | 1.40 | 1.53 |
| 1 | A | 84 | ASP | CB-CG | -6.45 | 1.35 | 1.52 |
| 1 | A | 157 | ALA | CA-CB | -6.34 | 1.42 | 1.53 |
| 1 | A | 108 | GLY | CA-C | -6.29 | 1.43 | 1.51 |
| 1 | A | 151 | THR | N-CA | -6.29 | 1.38 | 1.46 |
| 1 | A | 146 | LEU | CG-CD2 | -6.28 | 1.31 | 1.52 |
| 1 | A | 86 | PRO | CB-CG | -6.19 | 1.18 | 1.49 |
| 1 | A | 65 | ILE | CB-CG2 | -6.14 | 1.32 | 1.52 |
| 1 | A | 109 | MET | N-CA | -6.05 | 1.38 | 1.46 |
| 1 | A | 148 | PRO | CA-C | -5.97 | 1.44 | 1.52 |
| 1 | A | 75 | ASP | C-N | -5.92 | 1.25 | 1.33 |
| 1 | A | 53 | ARG | NE-CZ | -5.90 | 1.26 | 1.33 |
| 1 | A | 49 | PHE | CB-CG | -5.90 | 1.37 | 1.50 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 117 | PHE | CD1-CE1 | -5.75 | 1.21 | 1.38 |
| 1 | A | 117 | PHE | CD2-CE2 | -5.69 | 1.21 | 1.38 |
| 1 | A | 84 | ASP | CA-C | -5.67 | 1.45 | 1.52 |
| 1 | A | 106 | ARG | CB-CG | -5.67 | 1.35 | 1.52 |
| 1 | A | 111 | ALA | N-CA | -5.66 | 1.39 | 1.46 |
| 1 | A | 110 | GLY | CA-C | -5.58 | 1.44 | 1.51 |
| 1 | A | 148 | PRO | N-CA | -5.56 | 1.40 | 1.47 |
| 1 | A | 86 | PRO | CA-C | -5.54 | 1.43 | 1.52 |
| 1 | A | 89 | GLY | C-O | -5.52 | 1.16 | 1.23 |
| 1 | A | 105 | ARG | CA-C | -5.49 | 1.46 | 1.52 |
| 1 | A | 148 | PRO | CA-CB | -5.34 | 1.46 | 1.53 |
| 1 | A | 96 | LYS | CE-NZ | -5.33 | 1.33 | 1.49 |
| 1 | A | 155 | PRO | N-CA | -5.26 | 1.40 | 1.47 |
| 1 | A | 39 | PHE | CB-CG | -5.23 | 1.38 | 1.50 |
| 1 | A | 149 | VAL | CB-CG2 | -5.13 | 1.35 | 1.52 |
| 1 | A | 146 | LEU | CB-CG | -5.09 | 1.43 | 1.53 |

All angle outliers are listed below. They are sorted according to the Z-score.

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 91 | TRP | CG-CD2-CE3 | -78.67 | 55.23 | 133.90 |
| 1 | A | 37 | GLN | OE1-CD-NE2 | -73.01 | 49.59 | 122.60 |
| 1 | A | 58 | TYR | CD1-CG-CD2 | -72.59 | 9.22 | 118.10 |
| 1 | A | 49 | PHE | CD1-CG-CD2 | -72.55 | 9.77 | 118.60 |
| 1 | A | 60 | ARG | NH1-CZ-NH2 | -66.45 | 32.92 | 119.30 |
| 1 | A | 72 | TYR | CD1-CG-CD2 | -65.87 | 19.30 | 118.10 |
| 1 | A | 49 | PHE | CE1-CZ-CE2 | -61.10 | 10.02 | 120.00 |
| 1 | A | 48 | PHE | CD1-CG-CD2 | -60.45 | 27.93 | 118.60 |
| 1 | A | 106 | ARG | NH1-CZ-NH2 | -57.42 | 44.66 | 119.30 |
| 1 | A | 58 | TYR | CE1-CZ-CE2 | -55.39 | 9.53 | 120.30 |
| 1 | A | 91 | TRP | CH2-CZ2-CE2 | -54.66 | 46.45 | 117.50 |
| 1 | A | 91 | TRP | CD2-CE3-CZ3 | -53.17 | 49.47 | 118.60 |
| 1 | A | 48 | PHE | CE1-CZ-CE2 | -50.86 | 28.44 | 120.00 |
| 1 | A | 91 | TRP | CD1-CG-CD2 | -50.57 | 25.39 | 106.30 |
| 1 | A | 72 | TYR | CE1-CZ-CE2 | -50.05 | 20.19 | 120.30 |
| 1 | A | 85 | GLN | OE1-CD-NE2 | -49.75 | 72.85 | 122.60 |
| 1 | A | 126 | PHE | CD1-CG-CD2 | -49.13 | 44.90 | 118.60 |
| 1 | A | 106 | ARG | NE-CZ-NH1 | 46.95 | 168.45 | 121.50 |
| 1 | A | 91 | TRP | CE2-CD2-CG | 46.52 | 163.03 | 107.20 |
| 1 | A | 130 | GLU | OE1-CD-OE2 | -46.45 | 11.42 | 122.90 |
| 1 | A | 133 | GLN | OE1-CD-NE2 | -46.40 | 76.20 | 122.60 |
| 1 | A | 91 | TRP | CD2-CE2-CZ2 | 46.40 | 168.80 | 122.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 51 | GLN | OE1-CD-NE2 | -46.23 | 76.38 | 122.60 |
| 1 | A | 60 | ARG | NE-CZ-NH2 | 46.12 | 160.71 | 119.20 |
| 1 | A | 99 | TYR | CD1-CG-CD2 | -45.98 | 49.14 | 118.10 |
| 1 | A | 60 | ARG | NE-CZ-NH1 | 44.87 | 166.37 | 121.50 |
| 1 | A | 98 | PHE | CD1-CG-CD2 | -43.23 | 53.76 | 118.60 |
| 1 | A | 78 | ALA | O-C-N | -42.78 | 74.45 | 123.22 |
| 1 | A | 41 | GLU | OE1-CD-OE2 | -42.45 | 21.03 | 122.90 |
| 1 | A | 121 | ASP | OD1-CG-OD2 | -42.42 | 21.10 | 122.90 |
| 1 | A | 142 | ASP | OD1-CG-OD2 | -42.39 | 21.16 | 122.90 |
| 1 | A | 91 | TRP | CG-CD1-NE1 | 42.39 | 165.31 | 110.20 |
| 1 | A | 158 | ASP | OD1-CG-OD2 | -42.22 | 21.56 | 122.90 |
| 1 | A | 117 | PHE | CD1-CG-CD2 | -42.07 | 55.49 | 118.60 |
| 1 | A | 63 | GLU | O-C-N | -41.58 | 67.28 | 122.59 |
| 1 | A | 126 | PHE | CE1-CZ-CE2 | -41.22 | 45.81 | 120.00 |
| 1 | A | 95 | ASP | OD1-CG-OD2 | -39.74 | 27.52 | 122.90 |
| 1 | A | 84 | ASP | OD1-CG-OD2 | -39.49 | 28.13 | 122.90 |
| 1 | A | 113 | GLU | OE1-CD-OE2 | -38.30 | 30.97 | 122.90 |
| 1 | A | 83 | TRP | CG-CD2-CE3 | -36.58 | 97.32 | 133.90 |
| 1 | A | 91 | TRP | CE3-CZ3-CH2 | 36.49 | 168.53 | 121.10 |
| 1 | A | 58 | TYR | CB-CG-CD2 | 36.44 | 175.46 | 120.80 |
| 1 | A | 150 | GLU | OE1-CD-OE2 | -36.43 | 35.46 | 122.90 |
| 1 | A | 58 | TYR | CG-CD2-CE2 | 36.39 | 175.78 | 121.20 |
| 1 | A | 58 | TYR | CB-CG-CD1 | 36.33 | 175.29 | 120.80 |
| 1 | A | 98 | PHE | CE1-CZ-CE2 | -36.20 | 54.84 | 120.00 |
| 1 | A | 58 | TYR | CG-CD1-CE1 | 35.83 | 174.95 | 121.20 |
| 1 | A | 83 | TRP | CD2-CE2-CZ2 | 35.75 | 158.15 | 122.40 |
| 1 | A | 83 | TRP | CE2-CD2-CG | 35.22 | 149.46 | 107.20 |
| 1 | A | 117 | PHE | CE1-CZ-CE2 | -35.21 | 56.62 | 120.00 |
| 1 | A | 83 | TRP | CD1-CG-CD2 | -35.17 | 50.02 | 106.30 |
| 1 | A | 99 | TYR | CE1-CZ-CE2 | -34.63 | 51.05 | 120.30 |
| 1 | A | 72 | TYR | CB-CG-CD1 | 33.34 | 170.82 | 120.80 |
| 1 | A | 72 | TYR | CG-CD1-CE1 | 33.14 | 170.91 | 121.20 |
| 1 | A | 74 | ASN | OD1-CG-ND2 | -32.98 | 89.62 | 122.60 |
| 1 | A | 72 | TYR | CB-CG-CD2 | 32.71 | 169.86 | 120.80 |
| 1 | A | 72 | TYR | CG-CD2-CE2 | 32.43 | 169.85 | 121.20 |
| 1 | A | 49 | PHE | CG-CD1-CE1 | 32.42 | 175.82 | 120.70 |
| 1 | A | 49 | PHE | CB-CG-CD1 | 32.33 | 175.65 | 120.70 |
| 1 | A | 49 | PHE | CB-CG-CD2 | 31.69 | 174.58 | 120.70 |
| 1 | A | 49 | PHE | CG-CD2-CE2 | 31.61 | 174.44 | 120.70 |
| 1 | A | 39 | PHE | CD1-CG-CD2 | -31.37 | 71.54 | 118.60 |
| 1 | A | 139 | ASP | OD1-CG-OD2 | -31.35 | 47.65 | 122.90 |
| 1 | A | 58 | TYR | CD1-CE1-CZ | 31.24 | 175.84 | 119.60 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 49 | PHE | CZ-CE2-CD2 | 30.92 | 175.66 | 120.00 |
| 1 | A | 106 | ARG | NE-CZ-NH2 | 30.73 | 146.86 | 119.20 |
| 1 | A | 58 | TYR | CZ-CE2-CD2 | 30.60 | 174.69 | 119.60 |
| 1 | A | 49 | PHE | CD1-CE1-CZ | 30.16 | 174.29 | 120.00 |
| 1 | A | 76 | MET | O-C-N | -29.39 | 83.50 | 122.59 |
| 1 | A | 105 | ARG | O-C-N | -29.30 | 84.44 | 123.12 |
| 1 | A | 83 | TRP | CG-CD1-NE1 | 28.62 | 147.41 | 110.20 |
| 1 | A | 77 | GLY | CA-C-N | -28.34 | 85.07 | 122.77 |
| 1 | A | 77 | GLY | C-N-CA | -28.34 | 85.07 | 122.77 |
| 1 | A | 88 | ASP | CB-CG-OD2 | -28.30 | 53.31 | 118.40 |
| 1 | A | 48 | PHE | CB-CG-CD1 | 28.23 | 168.69 | 120.70 |
| 1 | A | 72 | TYR | CZ-CE2-CD2 | 28.21 | 170.38 | 119.60 |
| 1 | A | 160 | GLU | OE1-CD-OE2 | -28.21 | 55.20 | 122.90 |
| 1 | A | 91 | TRP | CB-CG-CD2 | 28.21 | 166.29 | 126.80 |
| 1 | A | 83 | TRP | CE3-CZ3-CH2 | 28.08 | 157.60 | 121.10 |
| 1 | A | 78 | ALA | CA-C-O | 28.07 | 150.40 | 120.36 |
| 1 | A | 48 | PHE | CG-CD1-CE1 | 28.04 | 168.37 | 120.70 |
| 1 | A | 60 | ARG | CD-NE-CZ | 27.92 | 163.48 | 124.40 |
| 1 | A | 72 | TYR | CD1-CE1-CZ | 27.65 | 169.36 | 119.60 |
| 1 | A | 91 | TRP | CB-CG-CD1 | 27.61 | 168.32 | 126.90 |
| 1 | A | 63 | GLU | OE1-CD-OE2 | -27.61 | 56.63 | 122.90 |
| 1 | A | 64 | GLN | N-CA-C | 27.30 | 146.62 | 112.23 |
| 1 | A | 35 | LYS | CG-CD-CE | 26.92 | 173.22 | 111.30 |
| 1 | A | 106 | ARG | O-C-N | -26.91 | 86.79 | 122.59 |
| 1 | A | 48 | PHE | CZ-CE2-CD2 | 26.73 | 168.12 | 120.00 |
| 1 | A | 90 | ASN | OD1-CG-ND2 | -26.69 | 95.91 | 122.60 |
| 1 | A | 63 | GLU | CA-C-N | 26.61 | 165.92 | 120.68 |
| 1 | A | 63 | GLU | C-N-CA | 26.61 | 165.92 | 120.68 |
| 1 | A | 109 | MET | CG-SD-CE | 26.35 | 158.88 | 100.90 |
| 1 | A | 39 | PHE | CE1-CZ-CE2 | -26.24 | 72.76 | 120.00 |
| 1 | A | 48 | PHE | CG-CD2-CE2 | 25.27 | 163.67 | 120.70 |
| 1 | A | 37 | GLN | CG-CD-NE2 | 25.20 | 154.21 | 116.40 |
| 1 | A | 48 | PHE | CB-CG-CD2 | 25.11 | 163.38 | 120.70 |
| 1 | A | 128 | LEU | CD1-CG-CD2 | -24.88 | 56.08 | 110.80 |
| 1 | A | 83 | TRP | CH2-CZ2-CE2 | -24.86 | 85.19 | 117.50 |
| 1 | A | 130 | GLU | CG-CD-OE1 | 24.42 | 174.56 | 118.40 |
| 1 | A | 75 | ASP | OD1-CG-OD2 | -24.33 | 64.52 | 122.90 |
| 1 | A | 130 | GLU | CG-CD-OE2 | 24.18 | 174.01 | 118.40 |
| 1 | A | 48 | PHE | CD1-CE1-CZ | 24.15 | 163.47 | 120.00 |
| 1 | A | 99 | TYR | CB-CG-CD1 | 23.98 | 156.77 | 120.80 |
| 1 | A | 158 | ASP | CB-CG-OD2 | 23.78 | 173.10 | 118.40 |
| 1 | A | 99 | TYR | CG-CD1-CE1 | 23.66 | 156.69 | 121.20 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 83 | TRP | CD2-CE3-CZ3 | -23.07 | 88.61 | 118.60 |
| 1 | A | 126 | PHE | CG-CD1-CE1 | 23.02 | 159.83 | 120.70 |
| 1 | A | 126 | PHE | CB-CG-CD1 | 22.96 | 159.73 | 120.70 |
| 1 | A | 91 | TRP | CE2-CD2-CE3 | 22.95 | 141.75 | 118.80 |
| 1 | A | 113 | GLU | CG-CD-OE2 | 22.90 | 171.07 | 118.40 |
| 1 | A | 153 | SER | CA-CB-OG | 22.65 | 156.39 | 111.10 |
| 1 | A | 41 | GLU | CG-CD-OE2 | 22.63 | 170.44 | 118.40 |
| 1 | A | 117 | PHE | CB-CG-CD2 | 22.55 | 159.03 | 120.70 |
| 1 | A | 121 | ASP | CB-CG-OD1 | 22.50 | 170.15 | 118.40 |
| 1 | A | 117 | PHE | CG-CD2-CE2 | 22.49 | 158.93 | 120.70 |
| 1 | A | 142 | ASP | CB-CG-OD1 | 22.43 | 169.99 | 118.40 |
| 1 | A | 105 | ARG | NH1-CZ-NH2 | -22.35 | 90.25 | 119.30 |
| 1 | A | 99 | TYR | CB-CG-CD2 | 22.17 | 154.06 | 120.80 |
| 1 | A | 99 | TYR | CG-CD2-CE2 | 22.05 | 154.28 | 121.20 |
| 1 | A | 142 | ASP | CB-CG-OD2 | 21.91 | 168.79 | 118.40 |
| 1 | A | 126 | PHE | CZ-CE2-CD2 | 21.91 | 159.44 | 120.00 |
| 1 | A | 121 | ASP | CB-CG-OD2 | 21.89 | 168.74 | 118.40 |
| 1 | A | 150 | GLU | O-C-N | -21.80 | 93.59 | 122.59 |
| 1 | A | 41 | GLU | CG-CD-OE1 | 21.79 | 168.51 | 118.40 |
| 1 | A | 157 | ALA | O-C-N | -21.48 | 94.03 | 122.59 |
| 1 | A | 117 | PHE | CD1-CE1-CZ | 21.43 | 158.57 | 120.00 |
| 1 | A | 159 | ASP | O-C-N | -21.31 | 94.25 | 122.59 |
| 1 | A | 83 | TRP | CB-CG-CD2 | 21.28 | 156.60 | 126.80 |
| 1 | A | 106 | ARG | CD-NE-CZ | 21.20 | 154.08 | 124.40 |
| 1 | A | 150 | GLU | CG-CD-OE2 | 21.18 | 167.12 | 118.40 |
| 1 | A | 95 | ASP | CB-CG-OD2 | 20.95 | 166.58 | 118.40 |
| 1 | A | 84 | ASP | CB-CG-OD1 | 20.86 | 166.38 | 118.40 |
| 1 | A | 35 | LYS | CD-CE-NZ | 20.83 | 178.55 | 111.90 |
| 1 | A | 95 | ASP | CB-CG-OD1 | 20.62 | 165.83 | 118.40 |
| 1 | A | 84 | ASP | CB-CG-OD2 | 20.45 | 165.45 | 118.40 |
| 1 | A | 158 | ASP | CB-CG-OD1 | 20.41 | 165.33 | 118.40 |
| 1 | A | 126 | PHE | CB-CG-CD2 | 20.39 | 155.37 | 120.70 |
| 1 | A | 126 | PHE | CG-CD2-CE2 | 20.34 | 155.28 | 120.70 |
| 1 | A | 77 | GLY | CA-C-O | 20.30 | 155.90 | 120.57 |
| 1 | A | 54 | ASP | OD1-CG-OD2 | -20.29 | 74.21 | 122.90 |
| 1 | A | 154 | GLU | CB-CG-CD | 20.13 | 146.82 | 112.60 |
| 1 | A | 99 | TYR | CZ-CE2-CD2 | 20.12 | 155.82 | 119.60 |
| 1 | A | 83 | TRP | NE1-CE2-CD2 | -20.03 | 81.36 | 107.40 |
| 1 | A | 91 | TRP | NE1-CE2-CZ2 | -19.84 | 100.34 | 130.10 |
| 1 | A | 154 | GLU | OE1-CD-OE2 | -19.69 | 75.64 | 122.90 |
| 1 | A | 98 | PHE | CB-CG-CD2 | 19.39 | 153.67 | 120.70 |
| 1 | A | 74 | ASN | CB-CG-ND2 | 19.37 | 145.45 | 116.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 98 | PHE | CG-CD2-CE2 | 19.34 | 153.57 | 120.70 |
| 1 | A | 126 | PHE | CD1-CE1-CZ | 19.30 | 154.74 | 120.00 |
| 1 | A | 98 | PHE | CG-CD1-CE1 | 18.87 | 152.77 | 120.70 |
| 1 | A | 98 | PHE | CB-CG-CD1 | 18.75 | 152.57 | 120.70 |
| 1 | A | 58 | TYR | CE1-CZ-OH | 18.65 | 175.85 | 119.90 |
| 1 | A | 64 | GLN | O-C-N | -18.60 | 97.40 | 122.33 |
| 1 | A | 99 | TYR | CD1-CE1-CZ | 18.57 | 153.03 | 119.60 |
| 1 | A | 105 | ARG | NE-CZ-NH1 | 18.47 | 139.97 | 121.50 |
| 1 | A | 98 | PHE | CD1-CE1-CZ | 18.30 | 152.94 | 120.00 |
| 1 | A | 58 | TYR | OH-CZ-CE2 | 18.24 | 174.62 | 119.90 |
| 1 | A | 91 | TRP | CZ3-CH2-CZ2 | 18.08 | 145.00 | 121.50 |
| 1 | A | 160 | GLU | CA-C-O | 17.97 | 151.34 | 120.80 |
| 1 | A | 160 | GLU | N-CA-CB | 17.92 | 140.97 | 110.50 |
| 1 | A | 98 | PHE | CZ-CE2-CD2 | 17.84 | 152.11 | 120.00 |
| 1 | A | 159 | ASP | CA-C-N | 17.81 | 153.76 | 121.70 |
| 1 | A | 159 | ASP | C-N-CA | 17.81 | 153.76 | 121.70 |
| 1 | A | 37 | GLN | CG-CD-OE1 | 17.70 | 156.20 | 120.80 |
| 1 | A | 83 | TRP | CB-CG-CD1 | 17.65 | 153.38 | 126.90 |
| 1 | A | 122 | GLU | OE1-CD-OE2 | -17.44 | 81.04 | 122.90 |
| 1 | A | 154 | GLU | CG-CD-OE1 | 17.42 | 158.47 | 118.40 |
| 1 | A | 160 | GLU | CG-CD-OE2 | 17.36 | 158.33 | 118.40 |
| 1 | A | 85 | GLN | CG-CD-OE1 | 17.36 | 155.52 | 120.80 |
| 1 | A | 156 | ARG | NE-CZ-NH1 | -17.20 | 104.30 | 121.50 |
| 1 | A | 113 | GLU | CG-CD-OE1 | 17.20 | 157.95 | 118.40 |
| 1 | A | 159 | ASP | OD1-CG-OD2 | -17.10 | 81.85 | 122.90 |
| 1 | A | 133 | GLN | CG-CD-NE2 | 17.06 | 141.99 | 116.40 |
| 1 | A | 150 | GLU | CG-CD-OE1 | 16.96 | 157.42 | 118.40 |
| 1 | A | 63 | GLU | CG-CD-OE2 | 16.88 | 157.23 | 118.40 |
| 1 | A | 160 | GLU | CA-CB-CG | -16.87 | 80.36 | 114.10 |
| 1 | A | 72 | TYR | OH-CZ-CE2 | 16.84 | 170.43 | 119.90 |
| 1 | A | 139 | ASP | CB-CG-OD1 | 16.68 | 156.76 | 118.40 |
| 1 | A | 51 | GLN | CG-CD-NE2 | 16.62 | 141.32 | 116.40 |
| 1 | A | 72 | TYR | CE1-CZ-OH | 16.49 | 169.38 | 119.90 |
| 1 | A | 48 | PHE | CA-CB-CG | 16.31 | 130.11 | 113.80 |
| 1 | A | 78 | ALA | N-CA-CB | -16.26 | 83.91 | 110.42 |
| 1 | A | 88 | ASP | CA-C-O | -16.15 | 102.64 | 121.05 |
| 1 | A | 139 | ASP | CB-CG-OD2 | 16.14 | 155.52 | 118.40 |
| 1 | A | 76 | MET | CA-C-O | 15.39 | 142.53 | 120.51 |
| 1 | A | 109 | MET | CA-CB-CG | 15.22 | 144.55 | 114.10 |
| 1 | A | 88 | ASP | N-CA-C | 15.15 | 134.14 | 110.20 |
| 1 | A | 39 | PHE | CG-CD1-CE1 | 14.71 | 145.71 | 120.70 |
| 1 | A | 117 | PHE | CG-CD1-CE1 | 14.66 | 145.63 | 120.70 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 39 | PHE | CB-CG-CD1 | 14.60 | 145.52 | 120.70 |
| 1 | A | 88 | ASP | CB-CG-OD1 | 14.59 | 151.96 | 118.40 |
| 1 | A | 117 | PHE | CB-CG-CD1 | 14.57 | 145.47 | 120.70 |
| 1 | A | 113 | GLU | CB-CG-CD | 14.43 | 137.12 | 112.60 |
| 1 | A | 76 | MET | CA-CB-CG | 14.39 | 142.89 | 114.10 |
| 1 | A | 105 | ARG | CA-C-N | 13.99 | 148.27 | 121.54 |
| 1 | A | 105 | ARG | C-N-CA | 13.99 | 148.27 | 121.54 |
| 1 | A | 39 | PHE | CZ-CE2-CD2 | 13.93 | 145.07 | 120.00 |
| 1 | A | 87 | GLY | O-C-N | -13.89 | 98.01 | 123.16 |
| 1 | A | 117 | PHE | CZ-CE2-CD2 | 13.76 | 144.76 | 120.00 |
| 1 | A | 77 | GLY | N-CA-C | 13.70 | 145.66 | 113.18 |
| 1 | A | 90 | ASN | CA-CB-CG | 13.64 | 126.25 | 112.60 |
| 1 | A | 106 | ARG | CG-CD-NE | 13.56 | 141.84 | 112.00 |
| 1 | A | 78 | ALA | CB-CA-C | 13.46 | 132.00 | 110.19 |
| 1 | A | 88 | ASP | OD1-CG-OD2 | 13.26 | 154.73 | 122.90 |
| 1 | A | 105 | ARG | CG-CD-NE | 13.21 | 141.05 | 112.00 |
| 1 | A | 79 | ALA | CA-C-O | 13.17 | 132.17 | 119.00 |
| 1 | A | 39 | PHE | CB-CG-CD2 | 13.08 | 142.94 | 120.70 |
| 1 | A | 39 | PHE | CG-CD2-CE2 | 13.01 | 142.82 | 120.70 |
| 1 | A | 128 | LEU | CB-CG-CD1 | 12.97 | 149.62 | 110.70 |
| 1 | A | 75 | ASP | CB-CG-OD2 | 12.94 | 148.16 | 118.40 |
| 1 | A | 95 | ASP | CA-CB-CG | 12.79 | 125.39 | 112.60 |
| 1 | A | 106 | ARG | CA-C-N | 12.79 | 146.47 | 121.41 |
| 1 | A | 106 | ARG | C-N-CA | 12.79 | 146.47 | 121.41 |
| 1 | A | 91 | TRP | NE1-CE2-CD2 | -12.72 | 90.86 | 107.40 |
| 1 | A | 88 | ASP | CB-CA-C | -12.72 | 88.04 | 109.53 |
| 1 | A | 75 | ASP | CB-CG-OD1 | 12.56 | 147.28 | 118.40 |
| 1 | A | 54 | ASP | CB-CG-OD2 | 12.55 | 147.27 | 118.40 |
| 1 | A | 156 | ARG | NE-CZ-NH2 | 12.35 | 130.31 | 119.20 |
| 1 | A | 155 | PRO | O-C-N | -12.28 | 106.06 | 122.64 |
| 1 | A | 39 | PHE | CD1-CE1-CZ | 12.28 | 142.09 | 120.00 |
| 1 | A | 160 | GLU | CG-CD-OE1 | 12.20 | 146.47 | 118.40 |
| 1 | A | 63 | GLU | CG-CD-OE1 | 12.06 | 146.13 | 118.40 |
| 1 | A | 99 | TYR | OH-CZ-CE2 | 11.99 | 155.86 | 119.90 |
| 1 | A | 105 | ARG | NE-CZ-NH2 | 11.74 | 129.76 | 119.20 |
| 1 | A | 87 | GLY | CA-C-N | 11.58 | 137.98 | 121.42 |
| 1 | A | 87 | GLY | C-N-CA | 11.58 | 137.98 | 121.42 |
| 1 | A | 78 | ALA | N-CA-C | 11.54 | 127.55 | 108.73 |
| 1 | A | 158 | ASP | O-C-N | -11.40 | 108.90 | 122.58 |
| 1 | A | 107 | GLY | O-C-N | -11.26 | 108.07 | 122.70 |
| 1 | A | 64 | GLN | OE1-CD-NE2 | -11.22 | 111.38 | 122.60 |
| 1 | A | 159 | ASP | CB-CG-OD2 | 11.07 | 143.87 | 118.40 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 99 | TYR | CE1-CZ-OH | 11.06 | 153.09 | 119.90 |
| 1 | A | 64 | GLN | CB-CG-CD | 11.02 | 131.33 | 112.60 |
| 1 | A | 64 | GLN | CB-CA-C | -10.88 | 88.19 | 110.38 |
| 1 | A | 65 | ILE | CB-CG1-CD1 | 10.81 | 136.49 | 113.80 |
| 1 | A | 51 | GLN | CG-CD-OE1 | 10.75 | 142.30 | 120.80 |
| 1 | A | 158 | ASP | CA-CB-CG | 10.66 | 123.26 | 112.60 |
| 1 | A | 128 | LEU | CB-CG-CD2 | 10.62 | 142.56 | 110.70 |
| 1 | A | 90 | ASN | CB-CG-OD1 | 10.52 | 141.83 | 120.80 |
| 1 | A | 133 | GLN | CG-CD-OE1 | 10.50 | 141.80 | 120.80 |
| 1 | A | 89 | GLY | N-CA-C | 10.48 | 138.02 | 113.18 |
| 1 | A | 152 | GLY | N-CA-C | 10.16 | 137.27 | 113.18 |
| 1 | A | 85 | GLN | CG-CD-NE2 | 10.15 | 131.63 | 116.40 |
| 1 | A | 157 | ALA | CA-C-N | 10.11 | 136.39 | 122.34 |
| 1 | A | 157 | ALA | C-N-CA | 10.11 | 136.39 | 122.34 |
| 1 | A | 88 | ASP | CA-C-N | 9.94 | 140.88 | 121.41 |
| 1 | A | 88 | ASP | C-N-CA | 9.94 | 140.88 | 121.41 |
| 1 | A | 150 | GLU | CA-C-N | 9.85 | 140.36 | 121.54 |
| 1 | A | 150 | GLU | C-N-CA | 9.85 | 140.36 | 121.54 |
| 1 | A | 122 | GLU | CG-CD-OE2 | 9.75 | 140.83 | 118.40 |
| 1 | A | 157 | ALA | CA-C-O | 9.73 | 134.42 | 120.51 |
| 1 | A | 109 | MET | CB-CG-SD | 9.69 | 141.77 | 112.70 |
| 1 | A | 160 | GLU | CB-CA-C | -9.18 | 92.67 | 110.10 |
| 1 | A | 79 | ALA | N-CA-CB | -8.97 | 103.94 | 114.17 |
| 1 | A | 158 | ASP | CA-C-N | 8.87 | 138.48 | 121.54 |
| 1 | A | 158 | ASP | C-N-CA | 8.87 | 138.48 | 121.54 |
| 1 | A | 54 | ASP | CB-CG-OD1 | 8.74 | 138.49 | 118.40 |
| 1 | A | 64 | GLN | CA-C-N | 8.72 | 137.67 | 121.97 |
| 1 | A | 64 | GLN | C-N-CA | 8.72 | 137.67 | 121.97 |
| 1 | A | 105 | ARG | CA-C-O | 8.69 | 129.72 | 120.33 |
| 1 | A | 122 | GLU | CG-CD-OE1 | 8.58 | 138.13 | 118.40 |
| 1 | A | 79 | ALA | CA-C-N | -8.30 | 105.14 | 121.41 |
| 1 | A | 79 | ALA | C-N-CA | -8.30 | 105.14 | 121.41 |
| 1 | A | 62 | PRO | O-C-N | -8.28 | 111.46 | 122.64 |
| 1 | A | 76 | MET | CG-SD-CE | -8.27 | 82.71 | 100.90 |
| 1 | A | 64 | GLN | CA-CB-CG | 8.19 | 130.48 | 114.10 |
| 1 | A | 105 | ARG | CD-NE-CZ | 8.01 | 135.62 | 124.40 |
| 1 | A | 74 | ASN | CA-CB-CG | 7.93 | 120.53 | 112.60 |
| 1 | A | 103 | SER | CA-CB-OG | 7.91 | 126.91 | 111.10 |
| 1 | A | 85 | GLN | CA-C-N | 7.81 | 127.53 | 119.64 |
| 1 | A | 85 | GLN | C-N-CA | 7.81 | 127.53 | 119.64 |
| 1 | A | 63 | GLU | CB-CG-CD | 7.78 | 125.83 | 112.60 |
| 1 | A | 150 | GLU | CA-C-O | 7.61 | 131.39 | 120.51 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 64 | GLN | CA-C-O | 7.49 | 128.63 | 119.79 |
| 1 | A | 91 | TRP | CD1-NE1-CE2 | -7.49 | 95.42 | 108.90 |
| 1 | A | 84 | ASP | CA-C-O | 7.48 | 128.61 | 119.79 |
| 1 | A | 60 | ARG | CG-CD-NE | 7.27 | 127.99 | 112.00 |
| 1 | A | 79 | ALA | O-C-N | 7.22 | 128.42 | 121.56 |
| 1 | A | 88 | ASP | N-CA-CB | 7.12 | 120.81 | 110.06 |
| 1 | A | 159 | ASP | CB-CG-OD1 | 6.89 | 134.25 | 118.40 |
| 1 | A | 85 | GLN | N-CA-C | 6.85 | 124.95 | 109.81 |
| 1 | A | 64 | GLN | CG-CD-NE2 | 6.72 | 126.48 | 116.40 |
| 1 | A | 76 | MET | CA-C-N | 6.52 | 134.20 | 121.41 |
| 1 | A | 76 | MET | C-N-CA | 6.52 | 134.20 | 121.41 |
| 1 | A | 83 | TRP | NE1-CE2-CZ2 | -6.41 | 120.49 | 130.10 |
| 1 | A | 63 | GLU | CA-C-O | 6.34 | 129.57 | 120.51 |
| 1 | A | 106 | ARG | CA-C-O | 6.23 | 129.42 | 120.51 |
| 1 | A | 117 | PHE | CA-CB-CG | 6.20 | 120.00 | 113.80 |
| 1 | A | 109 | MET | CA-C-O | 6.14 | 126.54 | 119.35 |
| 1 | A | 87 | GLY | CA-C-O | 6.13 | 127.31 | 121.30 |
| 1 | A | 154 | GLU | CA-C-N | 5.77 | 127.05 | 119.84 |
| 1 | A | 154 | GLU | C-N-CA | 5.77 | 127.05 | 119.84 |
| 1 | A | 63 | GLU | N-CA-CB | 5.76 | 120.22 | 110.49 |
| 1 | A | 156 | ARG | CD-NE-CZ | 5.65 | 132.31 | 124.40 |
| 1 | A | 91 | TRP | CA-CB-CG | 5.63 | 124.30 | 113.60 |
| 1 | A | 80 | GLY | N-CA-C | 5.62 | 126.51 | 113.18 |
| 1 | A | 115 | VAL | CA-CB-CG1 | 5.61 | 119.94 | 110.40 |
| 1 | A | 83 | TRP | CE2-CD2-CE3 | -5.58 | 113.22 | 118.80 |
| 1 | A | 82 | THR | O-C-N | 5.52 | 129.04 | 122.20 |
| 1 | A | 149 | VAL | CB-CA-C | -5.22 | 105.53 | 110.70 |
| 1 | A | 78 | ALA | CA-C-N | 5.19 | 135.64 | 126.45 |
| 1 | A | 78 | ALA | C-N-CA | 5.19 | 135.64 | 126.45 |
| 1 | A | 79 | ALA | N-CA-C | 5.18 | 121.41 | 113.28 |
| 1 | A | 159 | ASP | N-CA-C | 5.10 | 121.66 | 110.80 |
| 1 | A | 159 | ASP | CA-CB-CG | -5.08 | 107.52 | 112.60 |

All chiral outliers are listed below.

| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 1 | A | 64 | GLN | CA |
| 1 | A | 78 | ALA | CA |
| 1 | A | 160 | GLU | CA |

There are no planarity outliers.

## 6.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in each 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 averaged over the ensemble.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes |
|---|---|---|---|---|---|
| 1 | A | 927 | 891 | 863 | 343 |
| All | All | 927 | 891 | 863 | 343 |

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 192.

All clashes are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) |
|---|---|---|---|
| 1:A:49:PHE:CG | 1:A:49:PHE:CE2 | 1.63 | 1.82 |
| 1:A:49:PHE:CZ | 1:A:49:PHE:CD1 | 1.63 | 1.80 |
| 1:A:39:PHE:CZ | 1:A:39:PHE:CD1 | 1.57 | 1.93 |
| 1:A:156:ARG:CZ | 1:A:156:ARG:CD | 1.56 | 1.81 |
| 1:A:109:MET:CG | 1:A:109:MET:CA | 1.52 | 1.85 |
| 1:A:126:PHE:CZ | 1:A:126:PHE:CD1 | 1.52 | 1.95 |
| 1:A:39:PHE:CG | 1:A:39:PHE:CE2 | 1.52 | 1.94 |
| 1:A:99:TYR:CZ | 1:A:99:TYR:CD1 | 1.52 | 1.97 |
| 1:A:126:PHE:CG | 1:A:126:PHE:CE2 | 1.51 | 1.96 |
| 1:A:78:ALA:C | 1:A:79:ALA:CA | 1.51 | 1.83 |
| 1:A:105:ARG:CD | 1:A:105:ARG:CZ | 1.50 | 1.86 |
| 1:A:49:PHE:CD2 | 1:A:49:PHE:CB | 1.50 | 1.92 |
| 1:A:76:MET:C | 1:A:77:GLY:CA | 1.49 | 1.81 |
| 1:A:99:TYR:CG | 1:A:99:TYR:CE2 | 1.46 | 2.00 |
| 1:A:39:PHE:CZ | 1:A:39:PHE:CD2 | 1.46 | 2.00 |
| 1:A:128:LEU:CD2 | 1:A:128:LEU:CB | 1.45 | 1.92 |
| 1:A:39:PHE:CG | 1:A:39:PHE:CE1 | 1.45 | 2.01 |
| 1:A:99:TYR:CZ | 1:A:99:TYR:CD2 | 1.44 | 2.05 |
| 1:A:72:TYR:CG | 1:A:72:TYR:CE2 | 1.44 | 2.04 |
| 1:A:72:TYR:CZ | 1:A:72:TYR:CD1 | 1.44 | 2.01 |
| 1:A:99:TYR:CG | 1:A:99:TYR:CE1 | 1.41 | 2.08 |
| 1:A:95:ASP:OD1 | 1:A:95:ASP:CB | 1.40 | 1.69 |
| 1:A:98:PHE:CZ | 1:A:98:PHE:CD2 | 1.40 | 2.08 |
| 1:A:39:PHE:CD2 | 1:A:39:PHE:CB | 1.40 | 2.05 |
| 1:A:85:GLN:OE1 | 1:A:85:GLN:CG | 1.40 | 1.69 |
| 1:A:60:ARG:NH1 | 1:A:60:ARG:NE | 1.39 | 1.66 |
| 1:A:153:SER:OG | 1:A:153:SER:CA | 1.39 | 1.69 |
| 1:A:156:ARG:NH1 | 1:A:156:ARG:NH2 | 1.39 | 1.61 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) |
|---|---|---|---|
| 1:A:98:PHE:CG | 1:A:98:PHE:CE1 | 1.37 | 2.10 |
| 1:A:126:PHE:CG | 1:A:126:PHE:CE1 | 1.37 | 2.12 |
| 1:A:98:PHE:CZ | 1:A:98:PHE:CD1 | 1.36 | 2.11 |
| 1:A:126:PHE:CZ | 1:A:126:PHE:CD2 | 1.36 | 2.10 |
| 1:A:72:TYR:CG | 1:A:72:TYR:CE1 | 1.36 | 2.12 |
| 1:A:76:MET:CA | 1:A:77:GLY:N | 1.36 | 1.87 |
| 1:A:156:ARG:NH2 | 1:A:156:ARG:NE | 1.35 | 1.69 |
| 1:A:64:GLN:C | 1:A:65:ILE:CA | 1.35 | 1.96 |
| 1:A:126:PHE:CD2 | 1:A:126:PHE:CB | 1.35 | 2.08 |
| 1:A:95:ASP:CB | 1:A:95:ASP:OD2 | 1.35 | 1.73 |
| 1:A:98:PHE:CG | 1:A:98:PHE:CE2 | 1.35 | 2.12 |
| 1:A:78:ALA:CA | 1:A:79:ALA:N | 1.34 | 1.90 |
| 1:A:157:ALA:C | 1:A:158:ASP:CA | 1.33 | 1.99 |
| 1:A:72:TYR:CZ | 1:A:72:TYR:CD2 | 1.33 | 2.09 |
| 1:A:99:TYR:CD2 | 1:A:99:TYR:CB | 1.32 | 2.12 |
| 1:A:39:PHE:CD1 | 1:A:39:PHE:CB | 1.31 | 2.12 |
| 1:A:133:GLN:NE2 | 1:A:133:GLN:CG | 1.30 | 1.92 |
| 1:A:64:GLN:O | 1:A:64:GLN:CA | 1.30 | 1.79 |
| 1:A:49:PHE:CZ | 1:A:49:PHE:CD2 | 1.28 | 1.98 |
| 1:A:150:GLU:OE2 | 1:A:150:GLU:CG | 1.28 | 1.79 |
| 1:A:76:MET:CA | 1:A:76:MET:CG | 1.27 | 2.11 |
| 1:A:64:GLN:CA | 1:A:65:ILE:N | 1.27 | 1.95 |
| 1:A:49:PHE:CG | 1:A:49:PHE:CE1 | 1.26 | 1.99 |
| 1:A:72:TYR:CD2 | 1:A:72:TYR:CB | 1.24 | 2.17 |
| 1:A:139:ASP:OD2 | 1:A:139:ASP:CB | 1.24 | 1.84 |
| 1:A:64:GLN:O | 1:A:64:GLN:CB | 1.22 | 1.87 |
| 1:A:98:PHE:CD1 | 1:A:98:PHE:CB | 1.22 | 2.21 |
| 1:A:76:MET:HE1 | 1:A:87:GLY:O | 1.21 | 1.35 |
| 1:A:157:ALA:CA | 1:A:158:ASP:N | 1.21 | 2.03 |
| 1:A:139:ASP:CB | 1:A:139:ASP:OD1 | 1.20 | 1.87 |
| 1:A:84:ASP:OD1 | 1:A:84:ASP:CB | 1.20 | 1.88 |
| 1:A:133:GLN:CG | 1:A:133:GLN:OE1 | 1.19 | 1.84 |
| 1:A:37:GLN:NE2 | 1:A:37:GLN:CG | 1.19 | 2.04 |
| 1:A:84:ASP:CB | 1:A:84:ASP:OD2 | 1.19 | 1.91 |
| 1:A:78:ALA:C | 1:A:79:ALA:CB | 1.18 | 2.15 |
| 1:A:64:GLN:CB | 1:A:65:ILE:N | 1.18 | 2.07 |
| 1:A:154:GLU:CD | 1:A:154:GLU:CB | 1.18 | 2.14 |
| 1:A:98:PHE:CD2 | 1:A:98:PHE:CB | 1.18 | 2.25 |
| 1:A:103:SER:OG | 1:A:103:SER:HB3 | 1.16 | 1.39 |
| 1:A:130:GLU:OE2 | 1:A:130:GLU:CG | 1.15 | 1.93 |
| 1:A:99:TYR:CE1 | 1:A:99:TYR:OH | 1.14 | 1.96 |
| 1:A:99:TYR:CD1 | 1:A:99:TYR:CB | 1.13 | 2.20 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) |
|---|---|---|---|
| 1:A:72:TYR:CE1 | 1:A:72:TYR:OH | 1.12 | 2.01 |
| 1:A:157:ALA:CA | 1:A:157:ALA:O | 1.12 | 1.98 |
| 1:A:105:ARG:NE | 1:A:105:ARG:CG | 1.09 | 2.15 |
| 1:A:54:ASP:OD1 | 1:A:54:ASP:CB | 1.09 | 1.99 |
| 1:A:144:MET:SD | 1:A:144:MET:CE | 1.09 | 0.99 |
| 1:A:144:MET:CE | 1:A:144:MET:CG | 1.08 | 2.30 |
| 1:A:78:ALA:HA | 1:A:79:ALA:N | 1.08 | 1.59 |
| 1:A:103:SER:OG | 1:A:103:SER:CB | 1.07 | 0.77 |
| 1:A:130:GLU:CG | 1:A:130:GLU:OE1 | 1.07 | 2.00 |
| 1:A:41:GLU:OE1 | 1:A:41:GLU:CG | 1.07 | 2.01 |
| 1:A:51:GLN:NE2 | 1:A:51:GLN:CG | 1.07 | 2.18 |
| 1:A:37:GLN:CG | 1:A:37:GLN:OE1 | 1.06 | 2.02 |
| 1:A:76:MET:CA | 1:A:76:MET:O | 1.06 | 1.95 |
| 1:A:142:ASP:OD2 | 1:A:142:ASP:CB | 1.05 | 2.03 |
| 1:A:128:LEU:CD2 | 1:A:128:LEU:HG | 1.04 | 1.63 |
| 1:A:76:MET:CG | 1:A:76:MET:HE1 | 1.03 | 1.82 |
| 1:A:103:SER:OG | 1:A:103:SER:CA | 1.02 | 2.07 |
| 1:A:103:SER:OG | 1:A:103:SER:HB2 | 1.02 | 1.39 |
| 1:A:128:LEU:CD2 | 1:A:128:LEU:HD12 | 1.02 | 1.74 |
| 1:A:121:ASP:OD2 | 1:A:121:ASP:CB | 1.01 | 2.08 |
| 1:A:64:GLN:HB2 | 1:A:65:ILE:N | 1.01 | 1.51 |
| 1:A:75:ASP:OD1 | 1:A:75:ASP:CB | 1.00 | 2.09 |
| 1:A:105:ARG:NE | 1:A:105:ARG:HD2 | 1.00 | 1.40 |
| 1:A:41:GLU:CG | 1:A:41:GLU:OE2 | 0.99 | 2.11 |
| 1:A:105:ARG:CD | 1:A:105:ARG:NE | 0.99 | 0.84 |
| 1:A:121:ASP:CB | 1:A:121:ASP:OD1 | 0.98 | 2.11 |
| 1:A:105:ARG:NE | 1:A:105:ARG:HD3 | 0.98 | 1.40 |
| 1:A:144:MET:SD | 1:A:144:MET:HE2 | 0.97 | 1.61 |
| 1:A:75:ASP:CB | 1:A:75:ASP:OD2 | 0.97 | 2.12 |
| 1:A:144:MET:SD | 1:A:144:MET:HE3 | 0.97 | 1.60 |
| 1:A:51:GLN:CG | 1:A:51:GLN:OE1 | 0.97 | 2.11 |
| 1:A:84:ASP:C | 1:A:85:GLN:HG3 | 0.95 | 1.79 |
| 1:A:142:ASP:CB | 1:A:142:ASP:OD1 | 0.95 | 2.14 |
| 1:A:122:GLU:OE1 | 1:A:122:GLU:CG | 0.95 | 2.13 |
| 1:A:76:MET:CE | 1:A:87:GLY:O | 0.95 | 2.14 |
| 1:A:64:GLN:O | 1:A:64:GLN:HB3 | 0.95 | 1.58 |
| 1:A:99:TYR:CE2 | 1:A:99:TYR:OH | 0.94 | 2.05 |
| 1:A:144:MET:SD | 1:A:144:MET:HE1 | 0.93 | 1.60 |
| 1:A:122:GLU:OE1 | 1:A:122:GLU:CD | 0.93 | 0.76 |
| 1:A:128:LEU:HD12 | 1:A:128:LEU:HD21 | 0.92 | 1.33 |
| 1:A:122:GLU:CG | 1:A:122:GLU:OE2 | 0.92 | 2.18 |
| 1:A:77:GLY:O | 1:A:79:ALA:N | 0.91 | 2.03 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) |
|---|---|---|---|
| 1:A:153:SER:OG | 1:A:153:SER:HB2 | 0.91 | 1.14 |
| 1:A:78:ALA:C | 1:A:80:GLY:N | 0.91 | 2.29 |
| 1:A:76:MET:CG | 1:A:76:MET:HB2 | 0.90 | 1.44 |
| 1:A:153:SER:OG | 1:A:153:SER:HB3 | 0.90 | 1.14 |
| 1:A:142:ASP:OD1 | 1:A:142:ASP:CG | 0.90 | 0.65 |
| 1:A:150:GLU:O | 1:A:152:GLY:N | 0.90 | 1.86 |
| 1:A:126:PHE:CD1 | 1:A:126:PHE:CB | 0.90 | 2.23 |
| 1:A:144:MET:HE2 | 1:A:155:PRO:CB | 0.89 | 1.97 |
| 1:A:76:MET:CG | 1:A:76:MET:CB | 0.89 | 0.89 |
| 1:A:72:TYR:CD1 | 1:A:72:TYR:CB | 0.88 | 2.25 |
| 1:A:106:ARG:CZ | 1:A:113:GLU:O | 0.88 | 2.22 |
| 1:A:76:MET:CG | 1:A:76:MET:HB3 | 0.87 | 1.44 |
| 1:A:76:MET:CG | 1:A:76:MET:CE | 0.87 | 0.88 |
| 1:A:41:GLU:OE2 | 1:A:41:GLU:CD | 0.86 | 0.64 |
| 1:A:98:PHE:CE2 | 1:A:98:PHE:HZ | 0.86 | 1.65 |
| 1:A:37:GLN:OE1 | 1:A:37:GLN:CD | 0.86 | 0.63 |
| 1:A:39:PHE:CE1 | 1:A:39:PHE:HZ | 0.86 | 1.61 |
| 1:A:85:GLN:OE1 | 1:A:85:GLN:CD | 0.86 | 0.65 |
| 1:A:122:GLU:CD | 1:A:122:GLU:OE2 | 0.85 | 0.80 |
| 1:A:121:ASP:OD1 | 1:A:121:ASP:CG | 0.84 | 0.62 |
| 1:A:128:LEU:CG | 1:A:128:LEU:HD23 | 0.84 | 1.39 |
| 1:A:154:GLU:CD | 1:A:154:GLU:HG3 | 0.84 | 1.34 |
| 1:A:54:ASP:CB | 1:A:54:ASP:OD2 | 0.84 | 2.15 |
| 1:A:54:ASP:OD2 | 1:A:54:ASP:CG | 0.83 | 0.78 |
| 1:A:154:GLU:CD | 1:A:154:GLU:HG2 | 0.83 | 1.34 |
| 1:A:128:LEU:CD2 | 1:A:128:LEU:CD1 | 0.83 | 0.83 |
| 1:A:75:ASP:OD2 | 1:A:75:ASP:CG | 0.82 | 0.71 |
| 1:A:154:GLU:CD | 1:A:154:GLU:CG | 0.82 | 0.78 |
| 1:A:121:ASP:OD2 | 1:A:121:ASP:CG | 0.82 | 0.59 |
| 1:A:39:PHE:CZ | 1:A:39:PHE:CE2 | 0.81 | 0.82 |
| 1:A:39:PHE:CE2 | 1:A:39:PHE:HZ | 0.80 | 1.66 |
| 1:A:139:ASP:OD1 | 1:A:139:ASP:CG | 0.80 | 0.59 |
| 1:A:85:GLN:OE1 | 1:A:85:GLN:NE2 | 0.80 | 0.65 |
| 1:A:39:PHE:CD1 | 1:A:39:PHE:CG | 0.80 | 0.83 |
| 1:A:76:MET:CG | 1:A:76:MET:SD | 0.80 | 0.70 |
| 1:A:85:GLN:OE1 | 1:A:85:GLN:CB | 0.80 | 2.28 |
| 1:A:51:GLN:CD | 1:A:51:GLN:HE21 | 0.79 | 1.44 |
| 1:A:128:LEU:CD2 | 1:A:128:LEU:HD13 | 0.78 | 1.34 |
| 1:A:157:ALA:C | 1:A:158:ASP:C | 0.78 | 2.51 |
| 1:A:51:GLN:CD | 1:A:51:GLN:HE22 | 0.78 | 1.44 |
| 1:A:75:ASP:OD1 | 1:A:75:ASP:CG | 0.78 | 0.68 |
| 1:A:128:LEU:HD21 | 1:A:128:LEU:CD1 | 0.78 | 0.71 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) |
|---|---|---|---|
| 1:A:98:PHE:CD2 | 1:A:98:PHE:CG | 0.77 | 0.80 |
| 1:A:76:MET:C | 1:A:77:GLY:HA2 | 0.77 | 2.03 |
| 1:A:130:GLU:OE1 | 1:A:130:GLU:CD | 0.77 | 0.60 |
| 1:A:54:ASP:OD1 | 1:A:54:ASP:CG | 0.77 | 0.65 |
| 1:A:98:PHE:CZ | 1:A:98:PHE:CE1 | 0.76 | 0.79 |
| 1:A:126:PHE:CE1 | 1:A:126:PHE:HZ | 0.76 | 1.55 |
| 1:A:139:ASP:OD2 | 1:A:139:ASP:CG | 0.76 | 0.55 |
| 1:A:150:GLU:OE2 | 1:A:150:GLU:CD | 0.76 | 0.62 |
| 1:A:142:ASP:OD2 | 1:A:142:ASP:CG | 0.76 | 0.55 |
| 1:A:107:GLY:O | 1:A:109:MET:N | 0.76 | 2.12 |
| 1:A:98:PHE:CE1 | 1:A:98:PHE:HZ | 0.76 | 1.67 |
| 1:A:126:PHE:CD1 | 1:A:126:PHE:CG | 0.75 | 0.81 |
| 1:A:84:ASP:OD2 | 1:A:84:ASP:CG | 0.75 | 0.57 |
| 1:A:51:GLN:OE1 | 1:A:51:GLN:CD | 0.75 | 0.73 |
| 1:A:98:PHE:CG | 1:A:98:PHE:CD1 | 0.75 | 0.78 |
| 1:A:39:PHE:CG | 1:A:39:PHE:CD2 | 0.74 | 0.77 |
| 1:A:41:GLU:OE1 | 1:A:41:GLU:CD | 0.74 | 0.54 |
| 1:A:78:ALA:C | 1:A:79:ALA:HB3 | 0.74 | 2.05 |
| 1:A:39:PHE:CZ | 1:A:39:PHE:CE1 | 0.74 | 0.76 |
| 1:A:153:SER:OG | 1:A:153:SER:CB | 0.74 | 0.50 |
| 1:A:98:PHE:CZ | 1:A:98:PHE:CE2 | 0.73 | 0.76 |
| 1:A:99:TYR:CD1 | 1:A:99:TYR:CG | 0.73 | 0.79 |
| 1:A:51:GLN:NE2 | 1:A:51:GLN:CD | 0.73 | 0.80 |
| 1:A:76:MET:SD | 1:A:76:MET:HG3 | 0.73 | 1.38 |
| 1:A:157:ALA:C | 1:A:158:ASP:N | 0.73 | 0.84 |
| 1:A:78:ALA:CA | 1:A:78:ALA:O | 0.73 | 2.10 |
| 1:A:64:GLN:C | 1:A:65:ILE:N | 0.72 | 0.85 |
| 1:A:128:LEU:CD1 | 1:A:128:LEU:HD22 | 0.72 | 1.28 |
| 1:A:106:ARG:NH2 | 1:A:113:GLU:O | 0.72 | 2.14 |
| 1:A:128:LEU:CG | 1:A:128:LEU:HD22 | 0.72 | 1.39 |
| 1:A:133:GLN:CD | 1:A:133:GLN:HE21 | 0.72 | 1.37 |
| 1:A:109:MET:CG | 1:A:109:MET:HB2 | 0.72 | 1.25 |
| 1:A:37:GLN:NE2 | 1:A:37:GLN:CD | 0.71 | 0.65 |
| 1:A:128:LEU:HD13 | 1:A:128:LEU:HD22 | 0.71 | 0.93 |
| 1:A:82:THR:O | 1:A:85:GLN:HG2 | 0.71 | 1.85 |
| 1:A:95:ASP:HA | 1:A:137:LEU:HD13 | 0.71 | 1.62 |
| 1:A:109:MET:CG | 1:A:109:MET:HB3 | 0.71 | 1.25 |
| 1:A:126:PHE:CZ | 1:A:126:PHE:CE2 | 0.71 | 0.80 |
| 1:A:156:ARG:CZ | 1:A:156:ARG:HH11 | 0.71 | 1.43 |
| 1:A:49:PHE:CE1 | 1:A:49:PHE:HZ | 0.71 | 1.48 |
| 1:A:156:ARG:CZ | 1:A:156:ARG:HE | 0.71 | 1.43 |
| 1:A:128:LEU:CD2 | 1:A:128:LEU:CG | 0.71 | 0.72 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) |
|---|---|---|---|
| 1:A:157:ALA:C | 1:A:157:ALA:O | 0.70 | 0.76 |
| 1:A:84:ASP:OD1 | 1:A:84:ASP:CG | 0.70 | 0.53 |
| 1:A:99:TYR:CZ | 1:A:99:TYR:CE2 | 0.70 | 0.77 |
| 1:A:156:ARG:CZ | 1:A:156:ARG:HH12 | 0.69 | 1.43 |
| 1:A:105:ARG:CD | 1:A:105:ARG:HE | 0.69 | 1.41 |
| 1:A:60:ARG:NH1 | 1:A:60:ARG:CZ | 0.69 | 0.62 |
| 1:A:106:ARG:NH1 | 1:A:113:GLU:O | 0.68 | 2.23 |
| 1:A:133:GLN:CD | 1:A:133:GLN:HE22 | 0.68 | 1.37 |
| 1:A:135:LEU:HD13 | 1:A:140:ILE:HD13 | 0.68 | 1.64 |
| 1:A:82:THR:HG1 | 1:A:85:GLN:N | 0.68 | 1.87 |
| 1:A:130:GLU:O | 1:A:131:GLY:O | 0.68 | 2.11 |
| 1:A:130:GLU:OE2 | 1:A:130:GLU:CD | 0.68 | 0.52 |
| 1:A:95:ASP:OD2 | 1:A:95:ASP:CG | 0.67 | 0.52 |
| 1:A:156:ARG:CZ | 1:A:156:ARG:NE | 0.67 | 0.85 |
| 1:A:109:MET:CB | 1:A:109:MET:HG3 | 0.67 | 1.26 |
| 1:A:76:MET:CG | 1:A:76:MET:HE3 | 0.67 | 1.20 |
| 1:A:78:ALA:C | 1:A:79:ALA:N | 0.66 | 0.63 |
| 1:A:37:GLN:NE2 | 1:A:37:GLN:OE1 | 0.66 | 0.54 |
| 1:A:76:MET:CE | 1:A:76:MET:HG2 | 0.66 | 1.04 |
| 1:A:109:MET:CB | 1:A:109:MET:HG2 | 0.66 | 1.26 |
| 1:A:109:MET:HG2 | 1:A:109:MET:SD | 0.66 | 1.42 |
| 1:A:39:PHE:CG | 1:A:39:PHE:HD1 | 0.65 | 1.42 |
| 1:A:126:PHE:CZ | 1:A:126:PHE:CE1 | 0.65 | 0.66 |
| 1:A:39:PHE:CZ | 1:A:39:PHE:HE2 | 0.65 | 1.41 |
| 1:A:156:ARG:CZ | 1:A:156:ARG:HD2 | 0.65 | 2.12 |
| 1:A:109:MET:HG3 | 1:A:109:MET:SD | 0.65 | 1.42 |
| 1:A:85:GLN:HB3 | 1:A:86:PRO:HD2 | 0.65 | 1.66 |
| 1:A:37:GLN:CD | 1:A:37:GLN:HE21 | 0.65 | 1.31 |
| 1:A:76:MET:O | 1:A:76:MET:CB | 0.65 | 2.45 |
| 1:A:99:TYR:CG | 1:A:99:TYR:CD2 | 0.64 | 0.72 |
| 1:A:37:GLN:CD | 1:A:37:GLN:HE22 | 0.64 | 1.31 |
| 1:A:76:MET:HG3 | 1:A:76:MET:HE3 | 0.64 | 1.10 |
| 1:A:92:ILE:HG21 | 1:A:118:SER:HB2 | 0.64 | 1.69 |
| 1:A:156:ARG:CZ | 1:A:156:ARG:NH1 | 0.64 | 0.79 |
| 1:A:77:GLY:HA2 | 1:A:86:PRO:HG3 | 0.63 | 1.71 |
| 1:A:105:ARG:HD3 | 1:A:130:GLU:OE1 | 0.63 | 1.94 |
| 1:A:99:TYR:CZ | 1:A:99:TYR:CE1 | 0.62 | 0.69 |
| 1:A:105:ARG:CZ | 1:A:105:ARG:HD3 | 0.62 | 1.88 |
| 1:A:72:TYR:CG | 1:A:72:TYR:CD1 | 0.62 | 0.76 |
| 1:A:72:TYR:CE2 | 1:A:72:TYR:OH | 0.62 | 2.09 |
| 1:A:130:GLU:HG3 | 1:A:131:GLY:H | 0.62 | 1.52 |
| 1:A:39:PHE:CG | 1:A:39:PHE:HD2 | 0.62 | 1.38 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) |
|---|---|---|---|
| 1:A:95:ASP:OD1 | 1:A:95:ASP:CG | 0.62 | 0.48 |
| 1:A:153:SER:OG | 1:A:153:SER:N | 0.62 | 2.27 |
| 1:A:76:MET:CB | 1:A:76:MET:HG3 | 0.62 | 1.53 |
| 1:A:39:PHE:CZ | 1:A:39:PHE:HE1 | 0.61 | 1.38 |
| 1:A:133:GLN:NE2 | 1:A:133:GLN:CD | 0.61 | 0.72 |
| 1:A:103:SER:CB | 1:A:103:SER:HG | 0.61 | 1.32 |
| 1:A:144:MET:HE2 | 1:A:155:PRO:HB2 | 0.60 | 1.73 |
| 1:A:78:ALA:C | 1:A:78:ALA:O | 0.60 | 0.76 |
| 1:A:130:GLU:O | 1:A:131:GLY:C | 0.60 | 2.43 |
| 1:A:76:MET:C | 1:A:77:GLY:N | 0.60 | 0.69 |
| 1:A:109:MET:CG | 1:A:109:MET:CB | 0.59 | 0.64 |
| 1:A:126:PHE:CG | 1:A:126:PHE:CD2 | 0.59 | 0.67 |
| 1:A:72:TYR:CZ | 1:A:72:TYR:CE1 | 0.59 | 0.65 |
| 1:A:106:ARG:CZ | 1:A:106:ARG:HH11 | 0.59 | 1.30 |
| 1:A:98:PHE:CG | 1:A:98:PHE:HD2 | 0.59 | 1.36 |
| 1:A:72:TYR:CE2 | 1:A:72:TYR:CZ | 0.59 | 0.73 |
| 1:A:109:MET:CG | 1:A:109:MET:N | 0.59 | 2.58 |
| 1:A:98:PHE:CZ | 1:A:98:PHE:HE1 | 0.59 | 1.35 |
| 1:A:158:ASP:O | 1:A:158:ASP:CG | 0.59 | 2.43 |
| 1:A:99:TYR:CG | 1:A:99:TYR:HD1 | 0.58 | 1.34 |
| 1:A:144:MET:HE2 | 1:A:155:PRO:HB3 | 0.58 | 1.72 |
| 1:A:60:ARG:NH1 | 1:A:60:ARG:HH21 | 0.58 | 1.15 |
| 1:A:126:PHE:CG | 1:A:126:PHE:HD1 | 0.58 | 1.34 |
| 1:A:98:PHE:CZ | 1:A:98:PHE:HE2 | 0.58 | 1.34 |
| 1:A:98:PHE:CG | 1:A:98:PHE:HD1 | 0.58 | 1.34 |
| 1:A:85:GLN:HB3 | 1:A:86:PRO:CD | 0.58 | 2.25 |
| 1:A:80:GLY:O | 1:A:81:ALA:C | 0.58 | 2.33 |
| 1:A:76:MET:C | 1:A:76:MET:O | 0.57 | 0.72 |
| 1:A:76:MET:CG | 1:A:76:MET:HE2 | 0.57 | 1.20 |
| 1:A:126:PHE:CZ | 1:A:126:PHE:HE2 | 0.57 | 1.33 |
| 1:A:133:GLN:OE1 | 1:A:133:GLN:CD | 0.57 | 0.63 |
| 1:A:149:VAL:O | 1:A:149:VAL:HG12 | 0.57 | 1.99 |
| 1:A:128:LEU:CD2 | 1:A:128:LEU:HD11 | 0.57 | 1.10 |
| 1:A:99:TYR:CZ | 1:A:99:TYR:HE2 | 0.57 | 1.32 |
| 1:A:77:GLY:HA2 | 1:A:86:PRO:CG | 0.57 | 2.30 |
| 1:A:157:ALA:N | 1:A:158:ASP:N | 0.56 | 2.52 |
| 1:A:133:GLN:NE2 | 1:A:144:MET:SD | 0.56 | 2.78 |
| 1:A:133:GLN:NE2 | 1:A:133:GLN:CB | 0.55 | 2.67 |
| 1:A:60:ARG:HH22 | 1:A:60:ARG:HH11 | 0.55 | 0.62 |
| 1:A:60:ARG:HH21 | 1:A:60:ARG:HH12 | 0.55 | 0.79 |
| 1:A:99:TYR:CG | 1:A:99:TYR:HD2 | 0.54 | 1.29 |
| 1:A:60:ARG:CZ | 1:A:60:ARG:HH11 | 0.54 | 1.29 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) |
|---|---|---|---|
| 1:A:91:TRP:CE2 | 1:A:91:TRP:HZ3 | 0.54 | 1.39 |
| 1:A:49:PHE:CZ | 1:A:49:PHE:CE1 | 0.53 | 0.55 |
| 1:A:76:MET:HG2 | 1:A:76:MET:HE2 | 0.53 | 0.65 |
| 1:A:105:ARG:HD3 | 1:A:105:ARG:NH1 | 0.53 | 2.12 |
| 1:A:128:LEU:CD2 | 1:A:128:LEU:HB3 | 0.53 | 2.20 |
| 1:A:99:TYR:CZ | 1:A:99:TYR:HE1 | 0.53 | 1.28 |
| 1:A:139:ASP:OD2 | 1:A:156:ARG:NH2 | 0.53 | 2.41 |
| 1:A:72:TYR:CG | 1:A:72:TYR:CD2 | 0.53 | 0.68 |
| 1:A:60:ARG:HE | 1:A:60:ARG:CB | 0.52 | 1.83 |
| 1:A:92:ILE:HD13 | 1:A:118:SER:HB2 | 0.52 | 1.80 |
| 1:A:80:GLY:O | 1:A:81:ALA:HB3 | 0.52 | 2.04 |
| 1:A:41:GLU:HB3 | 1:A:67:PRO:HG2 | 0.51 | 1.80 |
| 1:A:76:MET:SD | 1:A:87:GLY:O | 0.51 | 2.52 |
| 1:A:105:ARG:HD3 | 1:A:130:GLU:OE2 | 0.51 | 2.06 |
| 1:A:95:ASP:CA | 1:A:137:LEU:HD13 | 0.51 | 2.35 |
| 1:A:109:MET:CA | 1:A:109:MET:HG2 | 0.51 | 1.94 |
| 1:A:109:MET:SD | 1:A:109:MET:HE3 | 0.51 | 1.14 |
| 1:A:109:MET:SD | 1:A:109:MET:HE2 | 0.51 | 1.14 |
| 1:A:53:ARG:HD3 | 1:A:54:ASP:N | 0.50 | 2.22 |
| 1:A:82:THR:C | 1:A:84:ASP:N | 0.50 | 2.58 |
| 1:A:109:MET:SD | 1:A:109:MET:HE1 | 0.50 | 1.14 |
| 1:A:49:PHE:CG | 1:A:49:PHE:CD1 | 0.50 | 0.73 |
| 1:A:126:PHE:CZ | 1:A:126:PHE:HE1 | 0.50 | 1.25 |
| 1:A:49:PHE:CE2 | 1:A:49:PHE:CZ | 0.50 | 0.72 |
| 1:A:126:PHE:CG | 1:A:126:PHE:HD2 | 0.50 | 1.26 |
| 1:A:76:MET:C | 1:A:77:GLY:HA3 | 0.49 | 2.11 |
| 1:A:72:TYR:CG | 1:A:72:TYR:HD1 | 0.48 | 1.24 |
| 1:A:157:ALA:O | 1:A:157:ALA:CB | 0.48 | 2.56 |
| 1:A:91:TRP:CG | 1:A:91:TRP:HD1 | 0.48 | 1.24 |
| 1:A:106:ARG:HE | 1:A:113:GLU:H | 0.48 | 1.50 |
| 1:A:133:GLN:CD | 1:A:144:MET:SD | 0.48 | 2.97 |
| 1:A:40:LEU:HD23 | 1:A:66:ALA:HB3 | 0.47 | 1.84 |
| 1:A:95:ASP:HA | 1:A:137:LEU:CD1 | 0.47 | 2.38 |
| 1:A:127:VAL:HA | 1:A:131:GLY:HA3 | 0.47 | 1.85 |
| 1:A:36:ALA:HB2 | 1:A:52:VAL:HA | 0.47 | 1.87 |
| 1:A:56:ILE:CD1 | 1:A:114:ALA:HB3 | 0.47 | 2.39 |
| 1:A:64:GLN:C | 1:A:64:GLN:O | 0.47 | 0.70 |
| 1:A:72:TYR:CZ | 1:A:72:TYR:HE2 | 0.47 | 1.23 |
| 1:A:84:ASP:O | 1:A:85:GLN:CB | 0.47 | 2.47 |
| 1:A:139:ASP:OD2 | 1:A:139:ASP:OD1 | 0.46 | 0.46 |
| 1:A:157:ALA:C | 1:A:158:ASP:CB | 0.46 | 2.77 |
| 1:A:137:LEU:C | 1:A:137:LEU:HD23 | 0.46 | 2.35 |

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| Atom-1 | Atom-2 | Clash(Å) | Distance(Å) |
|---|---|---|---|
| 1:A:49:PHE:CG | 1:A:49:PHE:HD1 | 0.45 | 1.20 |
| 1:A:75:ASP:N | 1:A:90:ASN:O | 0.45 | 2.49 |
| 1:A:76:MET:HE1 | 1:A:88:ASP:HA | 0.45 | 1.88 |
| 1:A:56:ILE:HD12 | 1:A:114:ALA:HB3 | 0.44 | 1.88 |
| 1:A:72:TYR:CG | 1:A:72:TYR:HD2 | 0.44 | 1.20 |
| 1:A:49:PHE:CZ | 1:A:49:PHE:HE2 | 0.44 | 1.20 |
| 1:A:137:LEU:HD23 | 1:A:137:LEU:O | 0.44 | 2.12 |
| 1:A:106:ARG:HG3 | 1:A:113:GLU:H | 0.44 | 1.73 |
| 1:A:72:TYR:CZ | 1:A:72:TYR:HE1 | 0.43 | 1.18 |
| 1:A:84:ASP:O | 1:A:85:GLN:HG3 | 0.42 | 2.06 |
| 1:A:156:ARG:HG3 | 1:A:157:ALA:N | 0.42 | 2.29 |
| 1:A:158:ASP:O | 1:A:158:ASP:CB | 0.42 | 2.34 |
| 1:A:156:ARG:NH1 | 1:A:156:ARG:HH22 | 0.42 | 1.90 |
| 1:A:149:VAL:O | 1:A:150:GLU:HB2 | 0.42 | 2.14 |
| 1:A:144:MET:HE2 | 1:A:155:PRO:CG | 0.41 | 2.42 |
| 1:A:65:ILE:HG23 | 1:A:66:ALA:N | 0.41 | 2.26 |
| 1:A:78:ALA:C | 1:A:79:ALA:HB2 | 0.41 | 2.26 |
| 1:A:114:ALA:O | 1:A:116:PRO:HD3 | 0.41 | 2.16 |
| 1:A:153:SER:CB | 1:A:153:SER:HG | 0.41 | 1.11 |
| 1:A:36:ALA:CB | 1:A:52:VAL:HA | 0.40 | 2.46 |
| 1:A:84:ASP:O | 1:A:85:GLN:HB2 | 0.40 | 2.13 |

## 6.3 Torsion angles (i)

### 6.3.1 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 PDB entries followed by that with respect to all NMR entries. 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 | 124/175 (71%) | 101 (81%) | 12 (10%) | 11 (9%) | 1 11 |
| All | All | 124/175 (71%) | 101 (81%) | 12 (10%) | 11 (9%) | 1 11 |

All 11 Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 61 | GLY |
| 1 | A | 63 | GLU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 80 | GLY |
| 1 | A | 106 | ARG |
| 1 | A | 108 | GLY |
| 1 | A | 131 | GLY |
| 1 | A | 132 | GLY |
| 1 | A | 148 | PRO |
| 1 | A | 151 | THR |
| 1 | A | 155 | PRO |
| 1 | A | 157 | ALA |

### 6.3.2 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 PDB entries followed by that with respect to all NMR entries. 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 | 90/131 (69%) | 76 (84%) | 14 (16%) | 4 41 |
| All | All | 90/131 (69%) | 76 (84%) | 14 (16%) | 4 41 |

All 14 residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 48 | PHE |
| 1 | A | 49 | PHE |
| 1 | A | 53 | ARG |
| 1 | A | 60 | ARG |
| 1 | A | 63 | GLU |
| 1 | A | 64 | GLN |
| 1 | A | 71 | ILE |
| 1 | A | 91 | TRP |
| 1 | A | 95 | ASP |
| 1 | A | 128 | LEU |
| 1 | A | 133 | GLN |
| 1 | A | 135 | LEU |
| 1 | A | 154 | GLU |
| 1 | A | 156 | ARG |

### 6.3.3 RNA

There are no RNA molecules in this entry.

## 6.4 Non-standard residues in protein, DNA, RNA chains

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

## 6.5 Carbohydrates

There are no oligosaccharides in this entry.

## 6.6 Ligand geometry

There are no ligands in this entry.

## 6.7 Other polymers

There are no such molecules in this entry.

## 6.8 Polymer linkage issues

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|---|---|---|
| 1 | A | 31 |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|---|---|---|---|---|---|---|
| 1 | A | 85:GLN | C | 86:PRO | N | 1.20 |
| 1 | A | 156:ARG | C | 157:ALA | N | 1.20 |
| 1 | A | 86:PRO | C | 87:GLY | N | 1.17 |
| 1 | A | 151:THR | C | 152:GLY | N | 1.17 |
| 1 | A | 108:GLY | C | 109:MET | N | 1.16 |
| 1 | A | 153:SER | C | 154:GLU | N | 1.16 |
| 1 | A | 81:ALA | C | 82:THR | N | 1.15 |
| 1 | A | 148:PRO | C | 149:VAL | N | 1.15 |
| 1 | A | 149:VAL | C | 150:GLU | N | 1.15 |
| 1 | A | 62:PRO | C | 63:GLU | N | 1.13 |
| 1 | A | 83:TRP | C | 84:ASP | N | 1.12 |

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| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|---|---|---|---|---|---|---|
| 1 | A | 152:GLY | C | 153:SER | N | 1.12 |
| 1 | A | 84:ASP | C | 85:GLN | N | 1.10 |
| 1 | A | 109:MET | C | 110:GLY | N | 1.10 |
| 1 | A | 80:GLY | C | 81:ALA | N | 1.05 |
| 1 | A | 88:ASP | C | 89:GLY | N | 1.03 |
| 1 | A | 158:ASP | C | 159:ASP | N | 1.03 |
| 1 | A | 155:PRO | C | 156:ARG | N | 0.99 |
| 1 | A | 105:ARG | C | 106:ARG | N | 0.95 |
| 1 | A | 87:GLY | C | 88:ASP | N | 0.94 |
| 1 | A | 79:ALA | C | 80:GLY | N | 0.93 |
| 1 | A | 106:ARG | C | 107:GLY | N | 0.93 |
| 1 | A | 107:GLY | C | 108:GLY | N | 0.91 |
| 1 | A | 150:GLU | C | 151:THR | N | 0.91 |
| 1 | A | 63:GLU | C | 64:GLN | N | 0.88 |
| 1 | A | 159:ASP | C | 160:GLU | N | 0.88 |
| 1 | A | 64:GLN | C | 65:ILE | N | 0.85 |
| 1 | A | 157:ALA | C | 158:ASP | N | 0.84 |
| 1 | A | 76:MET | C | 77:GLY | N | 0.69 |
| 1 | A | 78:ALA | C | 79:ALA | N | 0.63 |
| 1 | A | 77:GLY | C | 78:ALA | N | 0.44 |

# 7 Chemical shift validation (i)

No chemical shift data were provided