Full wwPDB X-ray Structure Validation Report (i)

Mar 20, 2023 – 03:15 pm GMT

PDB ID	:	8AYD
Title	:	Anammox-specific FabZ from the annamox bacterium Kuenenia stuttgartiensis
Authors	:	Dietl, A.; Barends, T.
Deposited on	:	2022-09-02
Resolution	:	2.80 Å(reported)

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

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

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.
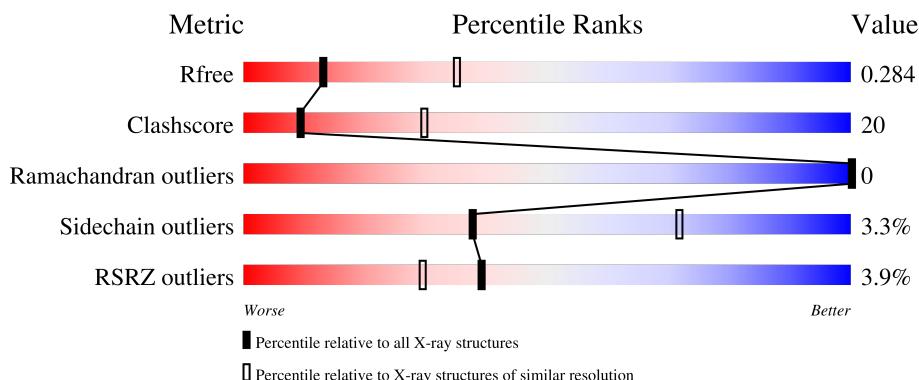
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION
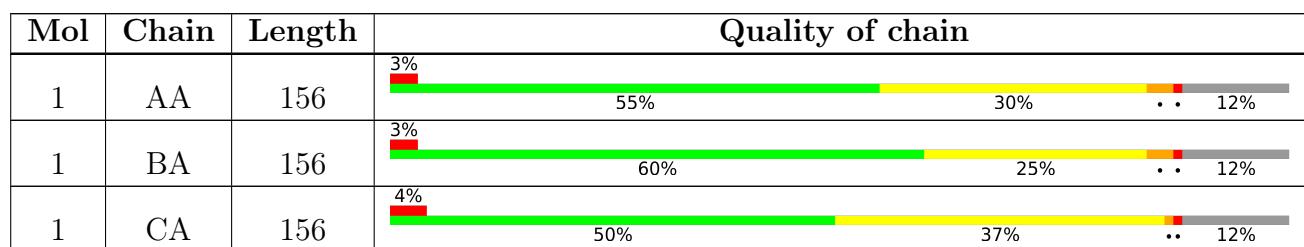
The reported resolution of this entry is 2.80 Å.

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		0.284
Clashscore		20
Ramachandran outliers		0
Sidechain outliers		3.3%
RSRZ outliers		3.9%

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}	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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	AA	156	3% / 55% / 30% / · · / 12%
1	BA	156	3% / 60% / 25% / · · / 12%
1	CA	156	4% / 50% / 37% / ·· / 12%

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 3245 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 3-hydroxyacyl-[acyl-carrier-protein] dehydratase FabZ.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	AA	138	Total	C	N	O	S	0	0	0
			1078	709	177	189	3			
1	BA	138	Total	C	N	O	S	0	0	0
			1077	709	177	188	3			
1	CA	138	Total	C	N	O	S	0	0	0
			1078	707	182	186	3			

There are 27 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AA	1	VAL	-	expression tag	UNP Q1Q2X5
AA	149	LEU	-	expression tag	UNP Q1Q2X5
AA	150	GLU	-	expression tag	UNP Q1Q2X5
AA	151	HIS	-	expression tag	UNP Q1Q2X5
AA	152	HIS	-	expression tag	UNP Q1Q2X5
AA	153	HIS	-	expression tag	UNP Q1Q2X5
AA	154	HIS	-	expression tag	UNP Q1Q2X5
AA	155	HIS	-	expression tag	UNP Q1Q2X5
AA	156	HIS	-	expression tag	UNP Q1Q2X5
BA	1	VAL	-	expression tag	UNP Q1Q2X5
BA	149	LEU	-	expression tag	UNP Q1Q2X5
BA	150	GLU	-	expression tag	UNP Q1Q2X5
BA	151	HIS	-	expression tag	UNP Q1Q2X5
BA	152	HIS	-	expression tag	UNP Q1Q2X5
BA	153	HIS	-	expression tag	UNP Q1Q2X5
BA	154	HIS	-	expression tag	UNP Q1Q2X5
BA	155	HIS	-	expression tag	UNP Q1Q2X5
BA	156	HIS	-	expression tag	UNP Q1Q2X5
CA	1	VAL	-	expression tag	UNP Q1Q2X5
CA	149	LEU	-	expression tag	UNP Q1Q2X5
CA	150	GLU	-	expression tag	UNP Q1Q2X5
CA	151	HIS	-	expression tag	UNP Q1Q2X5
CA	152	HIS	-	expression tag	UNP Q1Q2X5

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Chain	Residue	Modelled	Actual	Comment	Reference
CA	153	HIS	-	expression tag	UNP Q1Q2X5
CA	154	HIS	-	expression tag	UNP Q1Q2X5
CA	155	HIS	-	expression tag	UNP Q1Q2X5
CA	156	HIS	-	expression tag	UNP Q1Q2X5
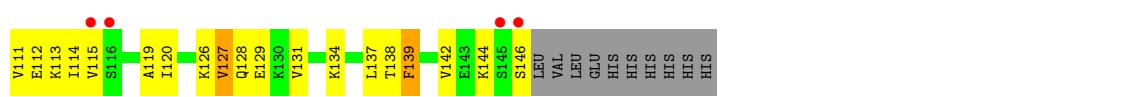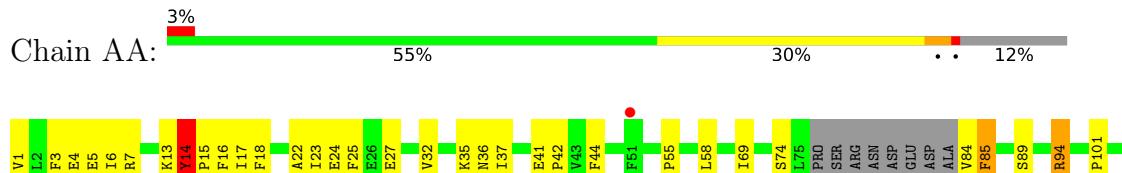
- Molecule 2 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	AA	6	Total 6	O 6	0	0
2	BA	1	Total 1	O 1	0	0
2	CA	5	Total 5	O 5	0	0
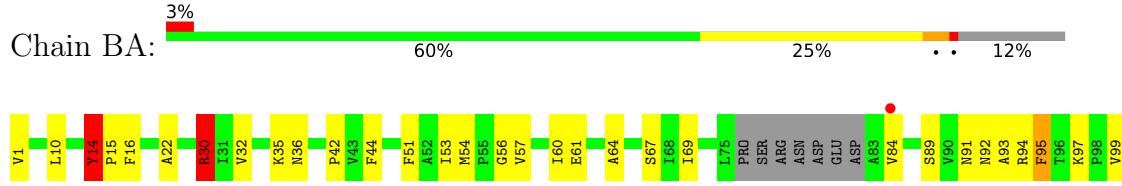
3 Residue-property plots ⓘ

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.
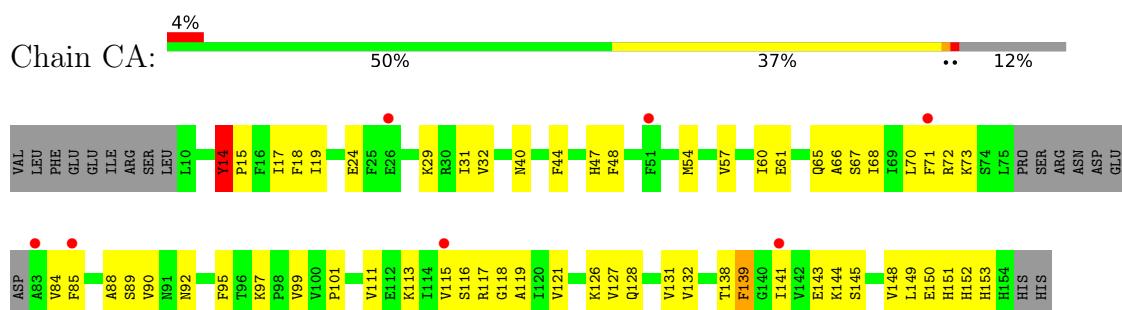
• Molecule 1: 3-hydroxyacyl-[acyl-carrier-protein] dehydratase FabZ

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4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 43 2 2	Depositor
Cell constants a, b, c, α, β, γ	75.35Å　75.35Å　179.78Å 90.00°　90.00°　90.00°	Depositor
Resolution (Å)	46.90　–　2.80 46.90　–　2.80	Depositor EDS
% Data completeness (in resolution range)	100.0 (46.90-2.80) 100.0 (46.90-2.80)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.91 (at 2.81Å)	Xtriage
Refinement program	PHENIX 1.17.1_3660	Depositor
R, R_{free}	0.252　,　0.284 0.252　,　0.284	Depositor DCC
R_{free} test set	690 reflections (5.14%)	wwPDB-VP
Wilson B-factor (Å^2)	75.8	Xtriage
Anisotropy	0.310	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 71.0	EDS
L-test for twinning[2]	$< |L| > = 0.44$, $< L^2 > = 0.27$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	3245	wwPDB-VP
Average B, all atoms (Å^2)	89.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.06% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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 ⓘ

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	AA	0.30	0/1096	0.57	1/1481 (0.1%)
1	BA	0.31	0/1095	0.76	3/1480 (0.2%)
1	CA	0.32	0/1099	0.63	2/1487 (0.1%)
All	All	0.31	0/3290	0.66	6/4448 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	AA	0	1
1	BA	0	3
All	All	0	4

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	BA	30	ARG	NE-CZ-NH1	-13.78	113.41	120.30
1	BA	30	ARG	NE-CZ-NH2	10.10	125.35	120.30
1	CA	14	TYR	CA-CB-CG	5.58	124.00	113.40
1	AA	14	TYR	CA-CB-CG	5.43	123.71	113.40
1	BA	14	TYR	CA-CB-CG	5.31	123.48	113.40
1	CA	14	TYR	CB-CG-CD1	5.05	124.03	121.00

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	AA	127	VAL	Peptide
1	BA	114	ILE	Peptide

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Mol	Chain	Res	Type	Group
1	BA	127	VAL	Peptide
1	BA	141	ILE	Peptide

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	AA	1078	0	1148	49	0
1	BA	1077	0	1148	45	0
1	CA	1078	0	1134	49	1
2	AA	6	0	0	1	0
2	BA	1	0	0	1	0
2	CA	5	0	0	1	0
All	All	3245	0	3430	131	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 20.

All (131) 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:AA:1:VAL:N	2:AA:201:HOH:O	1.97	0.93
1:CA:24:GLU:HB2	1:CA:32:VAL:HG12	1.70	0.73
1:AA:36:ASN:HB3	1:BA:36:ASN:HB3	1.71	0.72
1:BA:54:MET:HB3	1:BA:99:VAL:HG23	1.70	0.72
1:AA:89:SER:HB3	1:AA:138:THR:HB	1.71	0.71
1:BA:97:LYS:O	2:BA:201:HOH:O	2.09	0.70
1:CA:148:VAL:O	1:CA:152:HIS:ND1	2.23	0.70
1:AA:42:PRO:HA	1:BA:14:TYR:CE2	2.26	0.70
1:AA:42:PRO:HA	1:BA:14:TYR:HE2	1.56	0.69
1:BA:67:SER:HB3	1:BA:109:VAL:HG11	1.72	0.69
1:AA:1:VAL:HB	1:AA:22:ALA:HB3	1.74	0.69
1:AA:14:TYR:CE2	1:BA:42:PRO:HA	2.29	0.68
1:BA:127:VAL:HG12	1:BA:128:GLN:H	1.60	0.67
1:CA:31:ILE:HG13	1:CA:70:LEU:HD12	1.77	0.66
1:CA:113:LYS:HE3	1:CA:115:VAL:HB	1.78	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:CA:111:VAL:HA	1:CA:121:VAL:HG12	1.77	0.64
1:AA:14:TYR:HE2	1:BA:42:PRO:HA	1.61	0.64
1:AA:27:GLU:O	1:AA:74:SER:OG	2.14	0.64
1:AA:4:GLU:HG3	1:AA:7:ARG:HD3	1.79	0.64
1:BA:1:VAL:HB	1:BA:22:ALA:HB3	1.79	0.63
1:AA:24:GLU:HB2	1:AA:32:VAL:HG22	1.81	0.62
1:CA:73:LYS:NZ	2:CA:201:HOH:O	2.31	0.61
1:CA:127:VAL:HG12	1:CA:128:GLN:H	1.65	0.61
1:AA:127:VAL:HG12	1:AA:128:GLN:H	1.67	0.59
1:CA:14:TYR:HD1	1:CA:15:PRO:N	2.01	0.58
1:BA:10:LEU:HG	1:BA:69:ILE:HD11	1.84	0.58
1:BA:95:PHE:N	1:BA:95:PHE:HD1	2.04	0.56
1:AA:126:LYS:HG2	1:AA:131:VAL:HA	1.87	0.56
1:AA:6:ILE:HD12	1:AA:69:ILE:HD13	1.87	0.56
1:CA:71:PHE:HB2	1:CA:85:PHE:HE2	1.70	0.56
1:AA:35:LYS:NZ	1:AA:41:GLU:OE2	2.35	0.56
1:AA:14:TYR:HD1	1:AA:15:PRO:N	2.05	0.56
1:AA:113:LYS:HG2	1:AA:115:VAL:H	1.71	0.55
1:BA:120:ILE:HG12	1:BA:138:THR:HG22	1.88	0.55
1:BA:95:PHE:N	1:BA:95:PHE:CD1	2.75	0.55
1:AA:44:PHE:CE2	1:AA:101:PRO:HG3	2.42	0.54
1:CA:115:VAL:HG13	1:CA:116:SER:H	1.72	0.54
1:BA:14:TYR:HD1	1:BA:15:PRO:N	2.06	0.54
1:CA:139:PHE:HD1	1:CA:139:PHE:N	2.05	0.54
1:BA:94:ARG:NH1	1:BA:95:PHE:O	2.41	0.53
1:AA:84:VAL:HB	1:AA:142:VAL:O	2.09	0.53
1:CA:139:PHE:N	1:CA:139:PHE:CD1	2.76	0.53
1:AA:4:GLU:OE1	1:BA:51:PHE:HD1	1.92	0.53
1:CA:29:LYS:HA	1:CA:111:VAL:HB	1.90	0.53
1:CA:65:GLN:HA	1:CA:68:ILE:HG22	1.91	0.52
1:CA:118:GLY:N	1:CA:141:ILE:HG12	2.24	0.52
1:AA:14:TYR:HD1	1:AA:14:TYR:C	2.13	0.52
1:AA:144:LYS:NZ	1:AA:146:SER:HB2	2.25	0.51
1:CA:117:ARG:N	1:CA:117:ARG:CD	2.73	0.51
1:CA:150:GLU:HA	1:CA:153:HIS:HD2	1.76	0.51
1:BA:114:ILE:HG12	1:BA:115:VAL:H	1.76	0.50
1:AA:84:VAL:C	1:AA:85:PHE:HD1	2.15	0.50
1:BA:14:TYR:HD1	1:BA:14:TYR:C	2.14	0.50
1:BA:91:ASN:ND2	1:CA:92:ASN:H	2.09	0.50
1:BA:14:TYR:HA	1:BA:16:PHE:H	1.76	0.50
1:BA:44:PHE:CE2	1:BA:101:PRO:HG3	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:127:VAL:O	1:AA:129:GLU:N	2.45	0.49
1:BA:89:SER:HB3	1:BA:138:THR:OG1	2.12	0.49
1:AA:14:TYR:C	1:AA:14:TYR:CD1	2.86	0.49
1:BA:115:VAL:HG12	1:BA:117:ARG:H	1.78	0.49
1:CA:119:ALA:O	1:CA:138:THR:HA	2.12	0.49
1:AA:94:ARG:HH21	1:AA:134:LYS:NZ	2.10	0.49
1:BA:64:ALA:HA	1:BA:139:PHE:HZ	1.78	0.49
1:CA:67:SER:HB3	1:CA:71:PHE:CE2	2.48	0.48
1:CA:44:PHE:CE2	1:CA:101:PRO:HG3	2.48	0.48
1:BA:14:TYR:C	1:BA:14:TYR:CD1	2.87	0.47
1:CA:14:TYR:CD1	1:CA:15:PRO:HA	2.50	0.47
1:BA:30:ARG:HD3	1:BA:32:VAL:HG23	1.97	0.47
1:CA:14:TYR:HD1	1:CA:14:TYR:C	2.17	0.47
1:CA:117:ARG:N	1:CA:117:ARG:HD2	2.28	0.47
1:CA:148:VAL:HA	1:CA:151:HIS:HB3	1.96	0.47
1:CA:14:TYR:CD1	1:CA:15:PRO:CA	2.98	0.47
1:AA:25:PHE:CE2	1:AA:27:GLU:HA	2.50	0.47
1:BA:60:ILE:HD11	1:BA:95:PHE:HZ	1.80	0.47
1:BA:93:ALA:HB3	1:CA:90:VAL:HB	1.97	0.47
1:AA:55:PRO:HD2	1:AA:58:LEU:HD12	1.97	0.47
1:AA:112:GLU:HB2	1:AA:120:ILE:O	2.15	0.46
1:BA:139:PHE:N	1:BA:139:PHE:HD1	2.14	0.46
1:CA:14:TYR:CD1	1:CA:14:TYR:C	2.89	0.46
1:CA:31:ILE:HG22	1:CA:32:VAL:N	2.30	0.46
1:BA:139:PHE:N	1:BA:139:PHE:CD1	2.82	0.46
1:CA:71:PHE:HZ	1:CA:121:VAL:HG11	1.81	0.46
1:CA:60:ILE:HD11	1:CA:95:PHE:HZ	1.80	0.46
1:BA:137:LEU:HB3	1:BA:139:PHE:HE1	1.81	0.45
1:AA:139:PHE:N	1:AA:139:PHE:CD1	2.84	0.45
1:BA:57:VAL:HG21	1:CA:61:GLU:HG2	1.99	0.45
1:BA:94:ARG:NH1	1:CA:88:ALA:O	2.49	0.44
1:AA:35:LYS:NZ	1:AA:36:ASN:O	2.47	0.44
1:AA:14:TYR:CD1	1:AA:15:PRO:CA	3.01	0.44
1:AA:138:THR:C	1:AA:139:PHE:HD1	2.21	0.44
1:AA:139:PHE:N	1:AA:139:PHE:HD1	2.16	0.44
1:AA:119:ALA:O	1:AA:138:THR:HA	2.17	0.44
1:CA:84:VAL:HG22	1:CA:143:GLU:HA	2.00	0.44
1:CA:126:LYS:HG2	1:CA:131:VAL:HG22	1.99	0.44
1:AA:18:PHE:CZ	1:AA:58:LEU:HD22	2.53	0.44
1:BA:14:TYR:CD1	1:BA:15:PRO:CA	3.01	0.44
1:CA:54:MET:HB3	1:CA:99:VAL:HB	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:AA:137:LEU:HB3	1:AA:139:PHE:HE1	1.83	0.43
1:CA:143:GLU:HB3	1:CA:144:LYS:HG2	1.99	0.43
1:CA:145:SER:O	1:CA:149:LEU:HG	2.17	0.43
1:BA:84:VAL:HG22	1:BA:142:VAL:HG21	2.01	0.43
1:CA:97:LYS:HB2	1:CA:132:VAL:HG12	1.99	0.43
1:AA:37:ILE:HG22	1:AA:101:PRO:HA	2.00	0.43
1:AA:85:PHE:HD1	1:AA:85:PHE:N	2.17	0.43
1:BA:93:ALA:O	1:CA:89:SER:HA	2.18	0.43
1:CA:47:HIS:HA	1:CA:48:PHE:HA	1.85	0.43
1:AA:111:VAL:HG11	1:AA:114:ILE:HD11	2.00	0.42
1:CA:67:SER:HB3	1:CA:71:PHE:HE2	1.83	0.42
1:BA:61:GLU:HB2	1:CA:57:VAL:HG21	2.01	0.42
1:CA:19:ILE:HD11	1:CA:66:ALA:N	2.34	0.42
1:AA:127:VAL:HG12	1:AA:128:GLN:N	2.33	0.42
1:BA:14:TYR:HA	1:BA:16:PHE:N	2.35	0.42
1:BA:138:THR:C	1:BA:139:PHE:HD1	2.23	0.42
1:AA:13:LYS:HA	1:AA:17:ILE:HD11	2.02	0.42
1:BA:51:PHE:CE2	1:BA:53:ILE:HD11	2.55	0.42
1:BA:84:VAL:HG23	1:BA:142:VAL:HG11	2.01	0.42
1:BA:56:GLY:O	1:BA:95:PHE:HE2	2.02	0.42
1:CA:31:ILE:HD11	1:CA:70:LEU:HB2	2.02	0.42
1:AA:85:PHE:N	1:AA:85:PHE:CD1	2.87	0.42
1:CA:117:ARG:C	1:CA:141:ILE:HG12	2.41	0.42
1:AA:23:ILE:HG22	1:AA:24:GLU:HG3	2.01	0.41
1:CA:89:SER:HB3	1:CA:138:THR:HB	2.02	0.41
1:AA:14:TYR:CD1	1:AA:15:PRO:N	2.87	0.41
1:AA:3:PHE:O	1:AA:6:ILE:HB	2.21	0.41
1:AA:14:TYR:CD1	1:AA:15:PRO:HA	2.56	0.41
1:AA:14:TYR:HA	1:AA:16:PHE:H	1.86	0.41
1:AA:1:VAL:HG13	1:AA:5:GLU:OE1	2.20	0.40
1:BA:14:TYR:CD1	1:BA:15:PRO:N	2.88	0.40
1:BA:35:LYS:HB3	1:BA:105:LEU:HB2	2.04	0.40
1:CA:18:PHE:O	1:CA:19:ILE:HG13	2.20	0.40
1:CA:31:ILE:HG21	1:CA:31:ILE:HD13	1.85	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)
1:CA:17:ILE:O	1:CA:40:ASN:ND2[5_555]	2.13	0.07

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	AA	134/156 (86%)	126 (94%)	8 (6%)	0	100	100
1	BA	134/156 (86%)	123 (92%)	11 (8%)	0	100	100
1	CA	134/156 (86%)	125 (93%)	9 (7%)	0	100	100
All	All	402/468 (86%)	374 (93%)	28 (7%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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	AA	121/138 (88%)	117 (97%)	4 (3%)	38	72
1	BA	120/138 (87%)	115 (96%)	5 (4%)	30	63
1	CA	120/138 (87%)	117 (98%)	3 (2%)	47	80
All	All	361/414 (87%)	349 (97%)	12 (3%)	38	72

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	AA	14	TYR
1	AA	85	PHE
1	AA	94	ARG
1	AA	139	PHE
1	BA	14	TYR

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Mol	Chain	Res	Type
1	BA	30	ARG
1	BA	92	ASN
1	BA	95	PHE
1	BA	139	PHE
1	CA	14	TYR
1	CA	72	ARG
1	CA	139	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	AA	104	GLN
1	BA	92	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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å²)	Q<0.9
1	AA	138/156 (88%)	0.03	5 (3%)	42	32	51, 76, 123, 156	0
1	BA	138/156 (88%)	-0.02	4 (2%)	51	41	53, 78, 121, 148	0
1	CA	138/156 (88%)	0.32	7 (5%)	28	19	66, 99, 136, 166	0
All	All	414/468 (88%)	0.11	16 (3%)	39	29	51, 86, 132, 166	0

All (16) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	CA	83	ALA	6.0
1	AA	115	VAL	5.6
1	AA	146	SER	4.3
1	AA	116	SER	4.1
1	BA	117	ARG	3.5
1	CA	71	PHE	3.3
1	CA	85	PHE	3.3
1	AA	145	SER	3.1
1	BA	84	VAL	3.0
1	CA	115	VAL	2.8
1	CA	51	PHE	2.8
1	AA	51	PHE	2.4
1	BA	142	VAL	2.3
1	BA	143	GLU	2.3
1	CA	26	GLU	2.2
1	CA	141	ILE	2.1

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 ⓘ

There are no ligands in this entry.

6.5 Other polymers ⓘ

There are no such residues in this entry.