



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 05:10 PM UTC

PDB ID : 3UDF / pdb_00003udf
Title : Crystal structure of Apo PBP1a from Acinetobacter baumannii
Authors : Han, S.
Deposited on : 2011-10-28
Resolution : 1.70 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

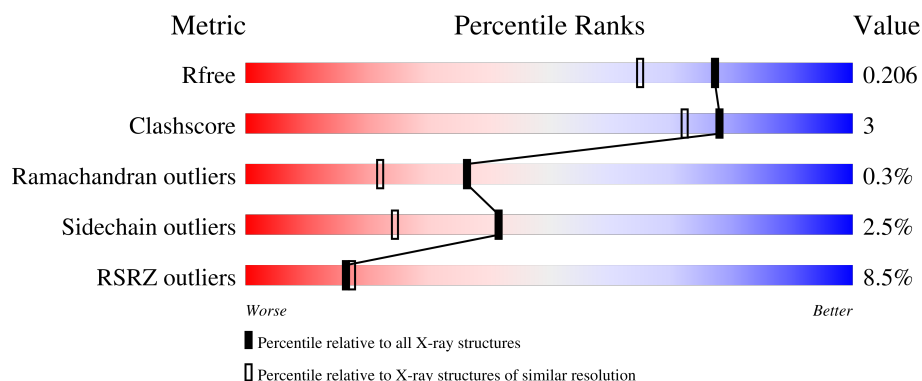
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.70 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	5551 (1.70-1.70)
Clashscore	190562	5924 (1.70-1.70)
Ramachandran outliers	187476	5846 (1.70-1.70)
Sidechain outliers	187428	5846 (1.70-1.70)
RSRZ outliers	180081	5554 (1.70-1.70)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	731	
1	B	731	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	MES	B	742	-	-	X	-

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 10395 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 Penicillin-binding protein 1a.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	596	Total	C	N	O	S	0	1	0
			4703	2999	829	859	16			
1	B	599	Total	C	N	O	S	0	0	0
			4720	3008	833	863	16			

There are 32 discrepancies between the modelled and reference sequences:

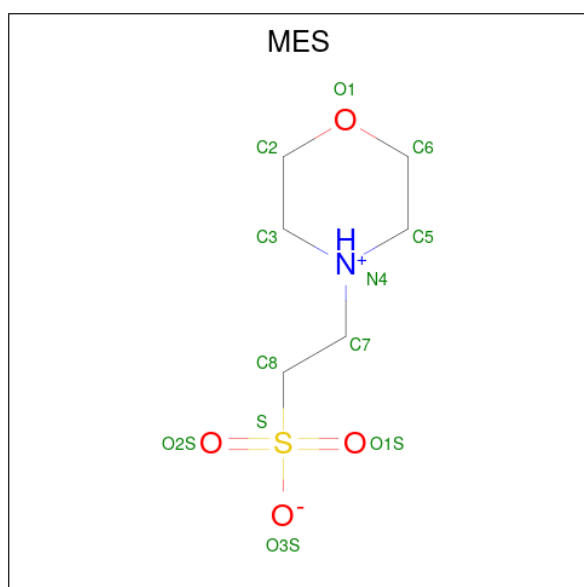
Chain	Residue	Modelled	Actual	Comment	Reference
A	9	MET	-	expression tag	UNP G1C794
A	10	HIS	-	expression tag	UNP G1C794
A	11	HIS	-	expression tag	UNP G1C794
A	12	HIS	-	expression tag	UNP G1C794
A	13	HIS	-	expression tag	UNP G1C794
A	14	HIS	-	expression tag	UNP G1C794
A	15	HIS	-	expression tag	UNP G1C794
A	16	GLU	-	expression tag	UNP G1C794
A	17	ASN	-	expression tag	UNP G1C794
A	18	LEU	-	expression tag	UNP G1C794
A	19	TYR	-	expression tag	UNP G1C794
A	20	PHE	-	expression tag	UNP G1C794
A	21	GLN	-	expression tag	UNP G1C794
A	22	SER	-	expression tag	UNP G1C794
A	23	HIS	-	expression tag	UNP G1C794
A	24	MET	-	expression tag	UNP G1C794
B	9	MET	-	expression tag	UNP G1C794
B	10	HIS	-	expression tag	UNP G1C794
B	11	HIS	-	expression tag	UNP G1C794
B	12	HIS	-	expression tag	UNP G1C794
B	13	HIS	-	expression tag	UNP G1C794
B	14	HIS	-	expression tag	UNP G1C794
B	15	HIS	-	expression tag	UNP G1C794
B	16	GLU	-	expression tag	UNP G1C794
B	17	ASN	-	expression tag	UNP G1C794

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Chain	Residue	Modelled	Actual	Comment	Reference
B	18	LEU	-	expression tag	UNP G1C794
B	19	TYR	-	expression tag	UNP G1C794
B	20	PHE	-	expression tag	UNP G1C794
B	21	GLN	-	expression tag	UNP G1C794
B	22	SER	-	expression tag	UNP G1C794
B	23	HIS	-	expression tag	UNP G1C794
B	24	MET	-	expression tag	UNP G1C794

- Molecule 2 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (CCD ID: MES) (formula: $C_6H_{13}NO_4S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
2	B	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
2	B	1	Total	C	N	O	S	0	0
			12	6	1	4	1		
2	B	1	Total	C	N	O	S	0	0
			12	6	1	4	1		

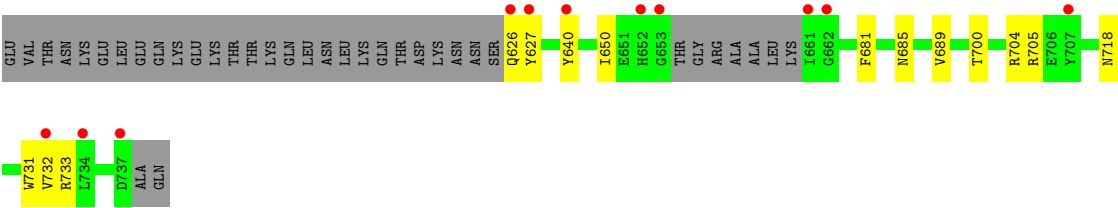
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	435	Total	O	0	0
			435	435		

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	489	Total 489	O 489	0	0



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	118.87Å 243.00Å 49.40Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	24.89 – 1.70 24.89 – 1.70	Depositor EDS
% Data completeness (in resolution range)	96.7 (24.89-1.70) 96.7 (24.89-1.70)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.89 (at 1.70Å)	Xtriage
Refinement program	BUSTER 2.9.6	Depositor
R, R_{free}	0.177 , 0.199 0.181 , 0.206	Depositor DCC
R_{free} test set	7659 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	23.7	Xtriage
Anisotropy	0.187	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 50.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	10395	wwPDB-VP
Average B, all atoms (Å ²)	34.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.03% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MES

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	0.78	1/4815 (0.0%)	1.05	7/6530 (0.1%)
1	B	0.84	0/4829	1.08	5/6548 (0.1%)
All	All	0.81	1/9644 (0.0%)	1.06	12/13078 (0.1%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	536	MET	SD-CE	-6.00	1.64	1.79

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	393	LYS	N-CA-C	-5.81	104.55	111.69
1	B	163	ILE	N-CA-C	5.74	115.93	110.42
1	A	419	GLN	N-CA-C	-5.53	105.32	112.68
1	B	157	ILE	N-CA-C	5.46	116.19	110.62
1	B	168	SER	N-CA-C	-5.45	102.68	110.59
1	A	163	ILE	N-CA-C	5.40	116.13	110.62
1	B	681	PHE	CA-CB-CG	-5.25	108.55	113.80
1	A	681	PHE	CA-CB-CG	-5.24	108.56	113.80
1	A	349	ALA	N-CA-C	5.15	121.76	110.80
1	A	382	ALA	CA-C-N	5.11	131.31	121.54
1	A	382	ALA	C-N-CA	5.11	131.31	121.54
1	B	685	ASN	N-CA-C	-5.01	101.84	109.65

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	4703	0	4689	23	0
1	B	4720	0	4702	36	0
2	A	12	0	12	1	0
2	B	36	0	36	10	0
3	A	435	0	0	1	0
3	B	489	0	0	0	0
All	All	10395	0	9439	52	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 3.

All (52) 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:B:482:ARG:HH11	2:B:742:MES:H31	1.29	0.97
1:B:356:ASN:HD21	1:B:704:ARG:H	1.14	0.94
1:B:298:ARG:H	1:B:390:GLN:HE22	1.17	0.89
1:A:298:ARG:H	1:A:390:GLN:HE22	1.18	0.86
1:B:393:LYS:HE2	2:B:740:MES:H82	1.58	0.86
1:B:481:ARG:HH21	2:B:742:MES:H61	1.47	0.79
1:B:556:GLN:HE22	1:B:557:ARG:HH11	1.34	0.74
1:B:356:ASN:ND2	1:B:704:ARG:H	1.88	0.69
1:A:137:LYS:NZ	1:B:256:HIS:HD2	1.92	0.68
1:A:648:ASP:OD1	1:A:652:HIS:HD2	1.79	0.64
1:A:261:ALA:HA	1:B:144:TYR:CE1	2.37	0.59
1:A:323:LYS:HE3	1:A:325:ASN:HD21	1.68	0.59
1:A:482:ARG:NE	2:A:740:MES:O1S	2.34	0.58
1:B:469:ASN:HD21	1:B:490:THR:H	1.52	0.57
1:B:481:ARG:NH2	2:B:742:MES:H61	2.19	0.56
1:B:731:TRP:CG	1:B:732:VAL:H	2.24	0.55
1:A:508:PHE:HB3	1:A:513:LEU:HD12	1.88	0.55
1:B:479:PRO:HG2	2:B:742:MES:H51	1.89	0.54
1:B:481:ARG:HE	2:B:742:MES:C6	2.21	0.54
1:B:66:ALA:HA	1:B:206:ILE:HG12	1.88	0.54
1:B:546:GLY:HA2	1:B:640:TYR:CE1	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:298:ARG:H	1:A:390:GLN:NE2	1.99	0.53
1:B:482:ARG:NH1	2:B:742:MES:H31	2.10	0.53
1:A:731:TRP:CG	1:A:732:VAL:H	2.26	0.52
1:A:71:PHE:O	1:B:553:HIS:HA	2.10	0.51
1:A:293:ARG:NH2	3:A:1074:HOH:O	2.29	0.51
1:B:179:MET:HE2	1:B:203:ARG:HD3	1.93	0.51
1:B:443:LEU:O	1:B:447:ARG:HG2	2.10	0.50
1:B:541:ALA:HA	1:B:689:VAL:HG21	1.93	0.50
1:B:310:PHE:CD1	2:B:741:MES:H82	2.47	0.49
1:A:137:LYS:HZ2	1:B:256:HIS:HD2	1.61	0.49
1:B:700:THR:HG21	2:B:740:MES:H61	1.96	0.47
1:B:350:ARG:HG2	1:B:361:ALA:HA	1.96	0.47
1:A:179:MET:HE2	1:A:203:ARG:HD3	1.97	0.46
1:B:298:ARG:H	1:B:390:GLN:NE2	1.99	0.46
1:B:700:THR:HG21	2:B:740:MES:H22	1.98	0.46
1:A:541:ALA:HA	1:A:689:VAL:HG21	1.97	0.45
1:A:229:ILE:HG22	1:A:231:LEU:HG	1.98	0.44
1:B:191:ASN:HB3	1:B:194:VAL:HG12	1.98	0.44
1:B:579:ILE:CD1	1:B:626:GLN:N	2.80	0.44
1:A:137:LYS:HZ1	1:B:256:HIS:HD2	1.63	0.44
1:A:399:ILE:HG12	1:A:534:ILE:HD13	1.98	0.44
1:B:52:TYR:OH	1:B:138:GLU:HG3	2.17	0.44
1:B:406:GLY:O	1:B:552:PRO:HA	2.18	0.43
1:A:295:HIS:HE1	1:A:706:GLU:OE2	2.01	0.43
1:A:461:THR:HG22	1:A:466:THR:OG1	2.19	0.42
1:A:406:GLY:O	1:A:552:PRO:HA	2.20	0.41
1:B:51:GLU:HB2	1:B:54:GLN:HG3	2.02	0.41
1:B:191:ASN:HA	1:B:192:PRO:HD3	1.98	0.41
1:A:396:GLY:O	1:A:414:GLY:HA2	2.21	0.41
1:A:256:HIS:HD2	1:B:137:LYS:NZ	2.19	0.40
1:A:255:LYS:HG3	1:B:185:LYS:HE3	2.03	0.40

There are no symmetry-related clashes.

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	A	589/731 (81%)	575 (98%)	12 (2%)	2 (0%)	36	22
1	B	591/731 (81%)	573 (97%)	16 (3%)	2 (0%)	36	22
All	All	1180/1462 (81%)	1148 (97%)	28 (2%)	4 (0%)	36	22

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	383	LYS
1	B	627	TYR
1	A	349	ALA
1	B	349	ALA

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	A	489/608 (80%)	480 (98%)	9 (2%)	51	36
1	B	490/608 (81%)	475 (97%)	15 (3%)	35	18
All	All	979/1216 (80%)	955 (98%)	24 (2%)	42	24

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	135	LEU
1	A	259	GLU
1	A	384	THR
1	A	421	LYS
1	A	446	GLU
1	A	447	ARG
1	A	481	ARG
1	A	514	GLN
1	A	635	LYS

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Mol	Chain	Res	Type
1	B	35	ASP
1	B	64	LEU
1	B	136	SER
1	B	139	ASP
1	B	147	LYS
1	B	170	ASN
1	B	189	LYS
1	B	218	GLN
1	B	240	ASN
1	B	435	THR
1	B	464	LYS
1	B	650	ILE
1	B	705	ARG
1	B	718	ASN
1	B	733	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	212	GLN
1	A	222	GLN
1	A	285	GLN
1	A	295	HIS
1	A	303	HIS
1	A	320	GLN
1	A	325	ASN
1	A	390	GLN
1	A	431	GLN
1	A	506	GLN
1	A	530	GLN
1	A	626	GLN
1	A	629	GLN
1	A	652	HIS
1	A	674	ASN
1	B	54	GLN
1	B	256	HIS
1	B	356	ASN
1	B	390	GLN
1	B	469	ASN
1	B	556	GLN
1	B	652	HIS
1	B	674	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

4 ligands are modelled in this entry.

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	MES	B	740	-	12,12,12	1.80	1 (8%)	15,16,16	2.23	4 (26%)
2	MES	A	740	-	12,12,12	1.80	1 (8%)	15,16,16	2.07	4 (26%)
2	MES	B	741	-	12,12,12	2.19	1 (8%)	15,16,16	2.38	6 (40%)
2	MES	B	742	-	12,12,12	2.23	1 (8%)	15,16,16	2.47	7 (46%)

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	MES	B	740	-	-	3/6/14/14	0/1/1/1
2	MES	A	740	-	-	1/6/14/14	0/1/1/1
2	MES	B	741	-	-	3/6/14/14	0/1/1/1
2	MES	B	742	-	-	6/6/14/14	0/1/1/1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	742	MES	C8-S	-7.36	1.67	1.77
2	B	741	MES	C8-S	-7.25	1.67	1.77
2	A	740	MES	C8-S	-5.95	1.69	1.77
2	B	740	MES	C8-S	-5.61	1.69	1.77

All (21) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	740	MES	C5-N4-C3	6.33	122.47	108.84
2	A	740	MES	C5-N4-C3	5.42	120.52	108.84
2	B	742	MES	C5-N4-C3	4.54	118.62	108.84
2	B	741	MES	C5-N4-C3	4.40	118.33	108.84
2	B	741	MES	C7-N4-C3	4.27	122.61	111.24
2	B	742	MES	C7-N4-C5	4.19	122.42	111.24
2	B	742	MES	C6-C5-N4	-3.65	104.57	110.12
2	B	740	MES	C7-N4-C5	3.42	120.36	111.24
2	A	740	MES	C7-N4-C5	3.36	120.20	111.24
2	B	741	MES	C6-C5-N4	-3.35	105.02	110.12
2	B	742	MES	C2-C3-N4	-3.27	105.14	110.12
2	B	741	MES	O2S-S-C8	3.15	111.48	106.73
2	A	740	MES	C7-N4-C3	3.00	119.24	111.24
2	B	741	MES	C7-N4-C5	2.93	119.06	111.24
2	B	742	MES	C7-N4-C3	2.87	118.88	111.24
2	B	741	MES	C2-C3-N4	-2.75	105.94	110.12
2	B	742	MES	O3S-S-C8	2.52	110.93	106.00
2	B	740	MES	O1S-S-C8	2.51	110.53	106.73
2	A	740	MES	O2S-S-C8	2.35	110.28	106.73
2	B	740	MES	C7-N4-C3	2.20	117.10	111.24
2	B	742	MES	O2S-S-C8	2.12	109.93	106.73

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	740	MES	C8-C7-N4-C3
2	B	741	MES	C8-C7-N4-C3
2	B	742	MES	N4-C7-C8-S
2	B	742	MES	C7-C8-S-O1S
2	B	742	MES	C7-C8-S-O3S
2	B	740	MES	C8-C7-N4-C3
2	B	742	MES	C8-C7-N4-C3

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Mol	Chain	Res	Type	Atoms
2	B	741	MES	C7-C8-S-O1S
2	B	742	MES	C7-C8-S-O2S
2	B	741	MES	C7-C8-S-O3S
2	B	740	MES	C7-C8-S-O1S
2	B	742	MES	C8-C7-N4-C5
2	B	740	MES	C7-C8-S-O3S

There are no ring outliers.

4 monomers are involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	740	MES	3	0
2	A	740	MES	1	0
2	B	741	MES	1	0
2	B	742	MES	6	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2		OWAB(Å ²)	Q<0.9
1	A	596/731 (81%)	0.35	44 (7%)	20 22	16, 31, 60, 95	1 (0%)
1	B	599/731 (81%)	0.23	58 (9%)	13 14	12, 27, 66, 100	0
All	All	1195/1462 (81%)	0.29	102 (8%)	16 17	12, 29, 62, 100	1 (0%)

All (102) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	627	TYR	6.2
1	B	581	ALA	5.6
1	B	626	GLN	5.3
1	B	737	ASP	5.1
1	B	653	GLY	4.9
1	B	382	ALA	4.7
1	A	511	PHE	4.7
1	A	654	THR	4.7
1	B	707	TYR	4.6
1	B	205	TRP	4.5
1	A	382	ALA	4.4
1	B	135	LEU	4.3
1	A	579	ILE	4.3
1	A	512	GLY	4.2
1	B	200	LEU	4.1
1	A	513	LEU	4.0
1	A	735	GLU	3.8
1	A	514	GLN	3.8
1	A	578	CYS	3.8
1	B	732	VAL	3.7
1	A	380	ASN	3.5
1	B	652	HIS	3.5
1	B	462	ILE	3.4
1	B	229	ILE	3.2

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Mol	Chain	Res	Type	RSRZ
1	B	194	VAL	3.2
1	A	447	ARG	3.1
1	A	384	THR	3.1
1	A	193	VAL	3.0
1	B	187	PRO	3.0
1	A	261	ALA	3.0
1	B	562	TYR	3.0
1	B	224	ALA	2.9
1	B	192	PRO	2.9
1	B	190	TYR	2.9
1	B	221	TYR	2.9
1	B	186	ALA	2.9
1	B	199	ALA	2.9
1	A	68	ASP	2.9
1	A	260	GLN	2.8
1	A	383	LYS	2.7
1	B	225	VAL	2.7
1	B	211	LEU	2.7
1	B	189	LYS	2.7
1	A	135	LEU	2.7
1	B	381	GLU	2.6
1	B	661	ILE	2.6
1	A	259	GLU	2.6
1	B	213	LEU	2.6
1	B	69	SER	2.5
1	A	562	TYR	2.5
1	A	186	ALA	2.5
1	B	219	ALA	2.5
1	B	68	ASP	2.5
1	B	640	TYR	2.5
1	A	358	VAL	2.5
1	B	465	TRP	2.5
1	A	516	ASP	2.5
1	A	529	PRO	2.5
1	B	208	GLY	2.5
1	B	464	LYS	2.4
1	A	350	ARG	2.4
1	B	579	ILE	2.4
1	B	218	GLN	2.4
1	B	209	ARG	2.4
1	A	421	LYS	2.4
1	B	463	GLY	2.4

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Mol	Chain	Res	Type	RSRZ
1	A	134	ASN	2.4
1	B	578	CYS	2.4
1	B	214	GLY	2.3
1	A	515	GLU	2.3
1	A	361	ALA	2.3
1	A	510	ASP	2.3
1	A	528	THR	2.3
1	A	418	TYR	2.3
1	B	188	SER	2.3
1	B	185	LYS	2.3
1	B	175	ALA	2.3
1	B	193	VAL	2.3
1	A	626	GLN	2.3
1	B	734	LEU	2.3
1	B	134	ASN	2.3
1	A	461	THR	2.2
1	B	580	ASN	2.2
1	A	357	SER	2.2
1	A	362	PRO	2.2
1	B	198	ARG	2.2
1	A	385	ALA	2.2
1	B	662	GLY	2.2
1	B	195	ASN	2.2
1	B	59	PHE	2.2
1	B	191	ASN	2.2
1	B	215	TYR	2.2
1	A	344	SER	2.2
1	A	265	GLY	2.1
1	A	387	SER	2.1
1	A	664	SER	2.1
1	B	217	SER	2.1
1	B	212	GLN	2.1
1	A	353	ARG	2.1
1	A	661	ILE	2.1
1	B	222	GLN	2.0
1	A	194	VAL	2.0

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 [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	MES	B	742	12/12	0.72	0.24	67,69,73,73	0
2	MES	B	741	12/12	0.80	0.17	45,61,72,73	0
2	MES	B	740	12/12	0.92	0.12	22,31,34,36	0
2	MES	A	740	12/12	0.93	0.13	33,43,50,53	0

6.5 Other polymers [i](#)

There are no such residues in this entry.