



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 18, 2026 – 07:30 AM UTC

PDB ID : 1Z6B / pdb_00001z6b
Title : Crystal structure of Plasmodium falciparum FabZ at 2.1 Å
Authors : Kostrewa, D.; Winkler, F.K.; Folkers, G.; Scapozza, L.; Perozzo, R.
Deposited on : 2005-03-22
Resolution : 2.09 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:

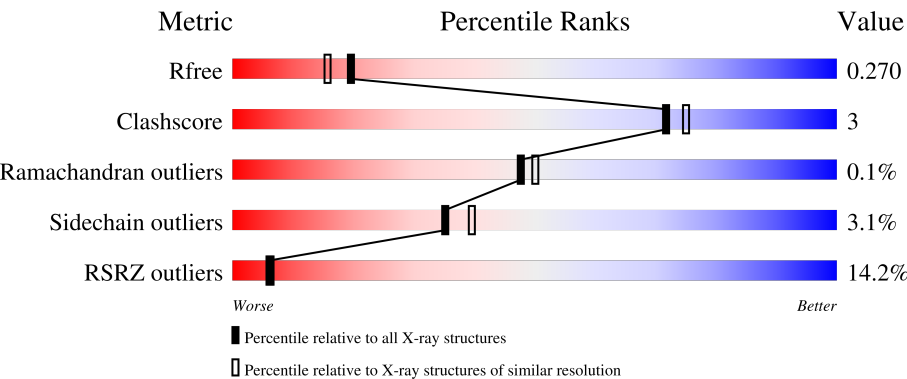
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry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

1 Overall quality at a glance i

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

The reported resolution of this entry is 2.09 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	6658 (2.10-2.10)
Clashscore	190562	7164 (2.10-2.10)
Ramachandran outliers	187476	7099 (2.10-2.10)
Sidechain outliers	187428	7100 (2.10-2.10)
RSRZ outliers	180081	6662 (2.10-2.10)

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	154	18% 81%10%8%
1	B	154	12% 79%6%14%
1	C	154	12% 81%9%10%
1	D	154	11% 73%12%14%
1	E	154	15% 79%10%11%

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Mol	Chain	Length	Quality of chain
1	F	154	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	CAC	B	401	-	X	-	-
3	CAC	C	404	-	X	-	-
3	CAC	D	403	-	X	-	-
3	CAC	E	406	-	X	-	-

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 6728 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 fatty acid synthesis protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	142	Total	C	N	O	S	0	0	0
			1101	719	180	197	5			
1	B	132	Total	C	N	O	S	0	0	0
			1024	671	168	180	5			
1	C	138	Total	C	N	O	S	0	0	0
			1072	704	175	188	5			
1	D	132	Total	C	N	O	S	0	0	0
			1030	676	168	181	5			
1	E	137	Total	C	N	O	S	0	0	0
			1067	700	175	187	5			
1	F	142	Total	C	N	O	S	0	0	0
			1107	725	180	197	5			

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	77	GLY	-	cloning artifact	UNP Q965D7
A	78	SER	-	cloning artifact	UNP Q965D7
A	79	HIS	-	cloning artifact	UNP Q965D7
A	80	MET	-	cloning artifact	UNP Q965D7
B	77	GLY	-	cloning artifact	UNP Q965D7
B	78	SER	-	cloning artifact	UNP Q965D7
B	79	HIS	-	cloning artifact	UNP Q965D7
B	80	MET	-	cloning artifact	UNP Q965D7
C	77	GLY	-	cloning artifact	UNP Q965D7
C	78	SER	-	cloning artifact	UNP Q965D7
C	79	HIS	-	cloning artifact	UNP Q965D7
C	80	MET	-	cloning artifact	UNP Q965D7
D	77	GLY	-	cloning artifact	UNP Q965D7
D	78	SER	-	cloning artifact	UNP Q965D7
D	79	HIS	-	cloning artifact	UNP Q965D7
D	80	MET	-	cloning artifact	UNP Q965D7
E	77	GLY	-	cloning artifact	UNP Q965D7

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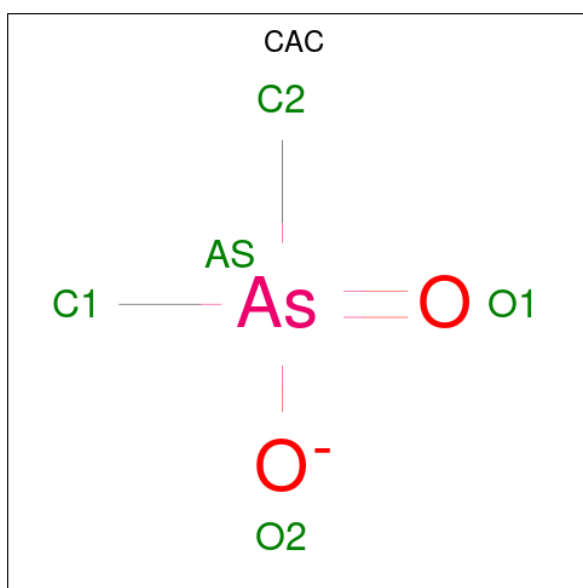
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Chain	Residue	Modelled	Actual	Comment	Reference
E	78	SER	-	cloning artifact	UNP Q965D7
E	79	HIS	-	cloning artifact	UNP Q965D7
E	80	MET	-	cloning artifact	UNP Q965D7
F	77	GLY	-	cloning artifact	UNP Q965D7
F	78	SER	-	cloning artifact	UNP Q965D7
F	79	HIS	-	cloning artifact	UNP Q965D7
F	80	MET	-	cloning artifact	UNP Q965D7

- Molecule 2 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

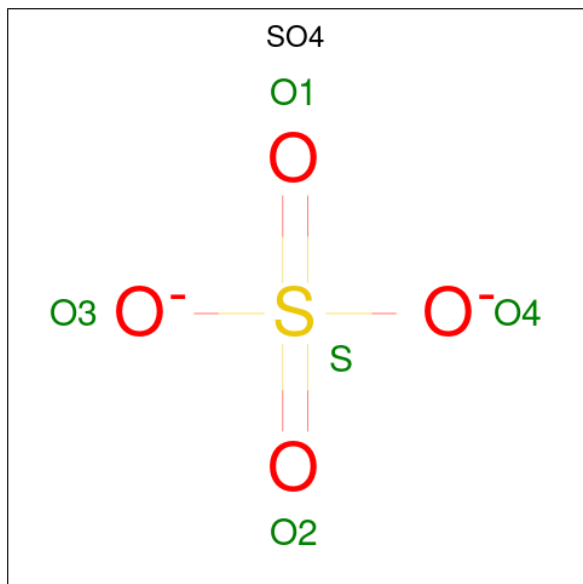
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total Cl 1 1	0	0
2	B	1	Total Cl 1 1	0	0
2	C	1	Total Cl 1 1	0	0
2	D	1	Total Cl 1 1	0	0
2	E	1	Total Cl 1 1	0	0
2	F	1	Total Cl 1 1	0	0

- Molecule 3 is CACODYLATE ION (CCD ID: CAC) (formula: C₂H₆AsO₂).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	As	C	O	0	0
			5	1	2	2		
3	B	1	Total	As	C	O	0	0
			5	1	2	2		
3	C	1	Total	As	C	O	0	0
			5	1	2	2		
3	D	1	Total	As	C	O	0	0
			5	1	2	2		
3	E	1	Total	As	C	O	0	0
			5	1	2	2		
3	F	1	Total	As	C	O	0	0
			5	1	2	2		

- Molecule 4 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



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

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	F	1	Total	O	S	0	0
			5	4	1		

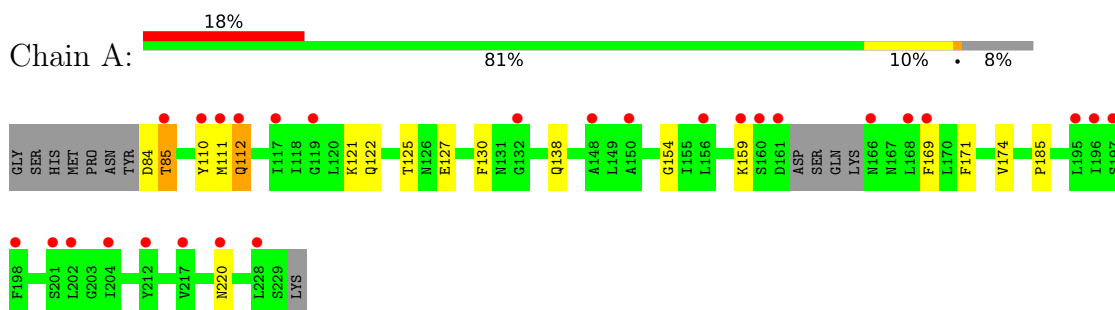
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	39	Total	O	0	0
			39	39		
5	B	44	Total	O	0	0
			44	44		
5	C	36	Total	O	0	0
			36	36		
5	D	51	Total	O	0	0
			51	51		
5	E	40	Total	O	0	0
			40	40		
5	F	46	Total	O	0	0
			46	46		

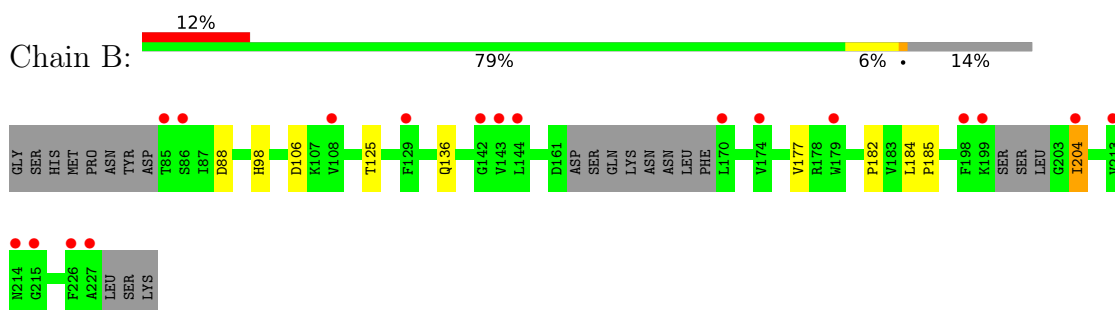
3 Residue-property plots [i](#)

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

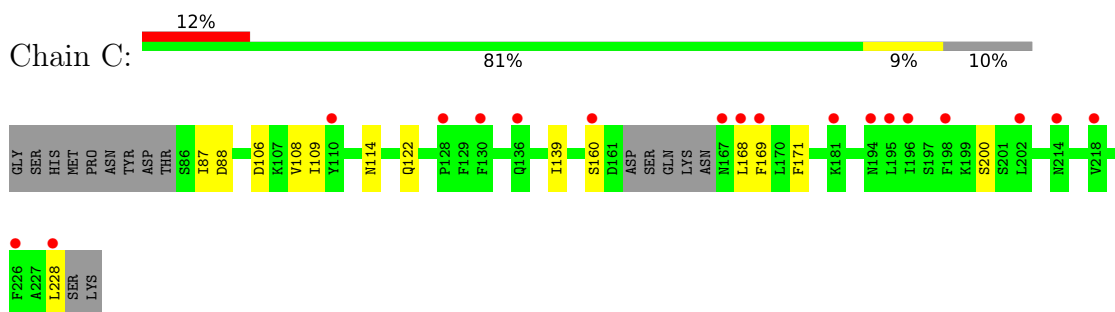
- Molecule 1: fatty acid synthesis protein



- Molecule 1: fatty acid synthesis protein



- Molecule 1: fatty acid synthesis protein

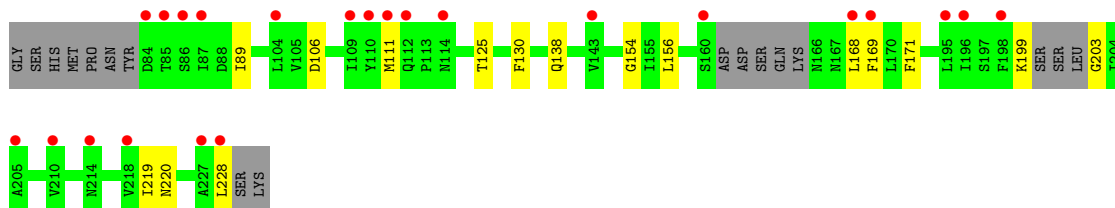
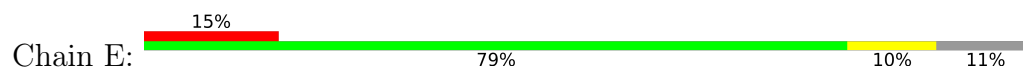


- Molecule 1: fatty acid synthesis protein

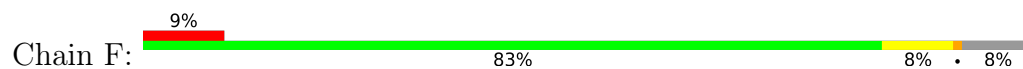




- Molecule 1: fatty acid synthesis protein



- Molecule 1: fatty acid synthesis protein



4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	90.60Å 127.49Å 173.67Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	87.71 – 2.09 86.84 – 2.09	Depositor EDS
% Data completeness (in resolution range)	99.6 (87.71-2.09) 99.6 (86.84-2.09)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.10	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.62 (at 2.08Å)	Xtriage
Refinement program	REFMAC 5.2	Depositor
R, R_{free}	0.174 , 0.222 0.238 , 0.270	Depositor DCC
R_{free} test set	2984 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	51.1	Xtriage
Anisotropy	0.255	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 55.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	6728	wwPDB-VP
Average B, all atoms (Å ²)	65.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.70% 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: CL, SO4, CAC

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	0.83	1/1122 (0.1%)	0.85	0/1517
1	B	0.79	0/1043	0.84	1/1408 (0.1%)
1	C	0.78	0/1093	0.86	0/1477
1	D	0.77	0/1050	0.89	0/1419
1	E	0.73	0/1087	0.86	0/1468
1	F	0.77	1/1129 (0.1%)	0.87	0/1527
All	All	0.78	2/6524 (0.0%)	0.86	1/8816 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	112	GLN	C-O	7.73	1.32	1.24
1	F	114	ASN	CG-OD1	5.18	1.33	1.23

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	204	ILE	N-CA-C	5.11	115.48	108.12

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	1101	0	1151	11	0
1	B	1024	0	1077	6	0
1	C	1072	0	1129	6	0
1	D	1030	0	1076	11	0
1	E	1067	0	1120	9	0
1	F	1107	0	1155	9	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
2	E	1	0	0	0	0
2	F	1	0	0	0	0
3	A	5	0	0	0	0
3	B	5	0	0	1	0
3	C	5	0	0	0	0
3	D	5	0	0	0	0
3	E	5	0	0	0	0
3	F	5	0	0	0	0
4	A	5	0	0	0	0
4	B	10	0	0	0	0
4	C	5	0	0	0	0
4	D	5	0	0	0	0
4	E	5	0	0	0	0
4	F	5	0	0	0	0
5	A	39	0	0	0	0
5	B	44	0	0	0	0
5	C	36	0	0	0	0
5	D	51	0	0	0	0
5	E	40	0	0	0	0
5	F	46	0	0	1	0
All	All	6728	0	6708	43	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 (43) 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:A:85:THR:HG23	1:A:110:TYR:HA	1.64	0.80
1:E:169:PHE:HB3	1:E:228:LEU:HD23	1.66	0.77
1:F:169:PHE:CB	1:F:228:LEU:HD23	2.20	0.72
1:F:169:PHE:HB3	1:F:228:LEU:HD23	1.73	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:169:PHE:CB	1:E:228:LEU:HD23	2.23	0.68
1:A:111:MET:HE1	1:A:159:LYS:HE3	1.79	0.64
1:F:87:ILE:HB	1:F:108:VAL:HB	1.82	0.62
1:A:85:THR:CG2	1:A:110:TYR:HA	2.34	0.57
1:A:84:ASP:O	1:A:85:THR:HG22	2.05	0.57
1:B:98:HIS:HE2	3:B:401:CAC:AS	2.52	0.53
1:C:106:ASP:OD1	1:F:125:THR:HG22	2.12	0.50
1:B:125:THR:HG22	1:E:106:ASP:OD1	2.11	0.50
1:F:169:PHE:HB2	1:F:228:LEU:HD23	1.94	0.49
1:F:85:THR:HG22	1:F:87:ILE:HG13	1.93	0.49
1:D:109:ILE:HD11	1:D:120:LEU:HD23	1.94	0.49
1:B:106:ASP:OD1	1:E:125:THR:HG22	2.15	0.47
1:C:169:PHE:HB3	1:C:228:LEU:HD23	1.97	0.47
1:C:87:ILE:HB	1:C:108:VAL:HB	1.95	0.47
1:C:122:GLN:HB3	1:F:122:GLN:HB3	1.97	0.47
1:E:154:GLY:HA3	1:E:169:PHE:CZ	2.51	0.46
1:D:88:ASP:C	1:D:88:ASP:OD1	2.58	0.46
1:A:185:PRO:HG2	1:D:89:ILE:HG21	1.99	0.45
1:B:185:PRO:HG2	1:E:89:ILE:HG21	1.99	0.44
1:A:130:PHE:CD1	1:A:138:GLN:HB3	2.53	0.44
1:D:170:LEU:N	1:D:227:ALA:O	2.33	0.44
1:A:122:GLN:HB3	1:D:122:GLN:HB3	1.99	0.43
1:C:88:ASP:OD1	1:C:88:ASP:C	2.61	0.43
1:C:114:ASN:ND2	1:C:160:SER:HB3	2.32	0.43
1:D:137:LYS:HD3	1:D:139:ILE:HD11	2.01	0.43
1:D:104:LEU:HD12	1:D:147:GLU:HG3	2.00	0.43
1:F:220:ASN:ND2	5:F:548:HOH:O	2.51	0.43
1:D:104:LEU:HD12	1:D:147:GLU:CG	2.49	0.42
1:A:121:LYS:NZ	1:A:127:GLU:OE1	2.45	0.42
1:A:125:THR:HG22	1:D:106:ASP:OD1	2.19	0.42
1:A:154:GLY:HA3	1:A:169:PHE:CZ	2.55	0.41
1:D:154:GLY:HA3	1:D:169:PHE:CZ	2.56	0.41
1:E:130:PHE:CD1	1:E:138:GLN:HB3	2.55	0.41
1:E:111:MET:HE3	1:E:156:LEU:HD12	2.03	0.41
1:B:182:PRO:HB2	1:B:184:LEU:HD21	2.03	0.41
1:D:197:SER:O	1:D:205:ALA:HB1	2.20	0.41
1:F:110:TYR:HB3	1:F:118:ILE:HB	2.02	0.41
1:A:174:VAL:HG12	1:B:177:VAL:HB	2.02	0.40
1:E:199:LYS:O	1:E:203:GLY:N	2.54	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	138/154 (90%)	131 (95%)	6 (4%)	1 (1%)	18	15
1	B	126/154 (82%)	123 (98%)	3 (2%)	0	100	100
1	C	134/154 (87%)	129 (96%)	5 (4%)	0	100	100
1	D	126/154 (82%)	120 (95%)	6 (5%)	0	100	100
1	E	131/154 (85%)	128 (98%)	3 (2%)	0	100	100
1	F	138/154 (90%)	133 (96%)	5 (4%)	0	100	100
All	All	793/924 (86%)	764 (96%)	28 (4%)	1 (0%)	48	50

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	85	THR

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	124/135 (92%)	121 (98%)	3 (2%)	43	49
1	B	114/135 (84%)	111 (97%)	3 (3%)	40	46
1	C	120/135 (89%)	115 (96%)	5 (4%)	26	28
1	D	115/135 (85%)	112 (97%)	3 (3%)	40	46
1	E	119/135 (88%)	115 (97%)	4 (3%)	32	35
1	F	124/135 (92%)	120 (97%)	4 (3%)	34	38

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
All	All	716/810 (88%)	694 (97%)	22 (3%)	35	39

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	112	GLN
1	A	171	PHE
1	A	220	ASN
1	B	88	ASP
1	B	136	GLN
1	B	204	ILE
1	C	109	ILE
1	C	139	ILE
1	C	168	LEU
1	C	171	PHE
1	C	200	SER
1	D	86	SER
1	D	181	LYS
1	D	220	ASN
1	E	168	LEU
1	E	171	PHE
1	E	219	ILE
1	E	220	ASN
1	F	168	LEU
1	F	171	PHE
1	F	214	ASN
1	F	220	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	126	ASN
1	A	214	ASN
1	B	112	GLN
1	B	220	ASN
1	C	114	ASN
1	C	220	ASN
1	D	214	ASN
1	F	136	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 19 ligands modelled in this entry, 6 are monoatomic - leaving 13 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
3	CAC	C	404	-	2,4,4	2.46	2 (100%)	4,6,6	2.18	3 (75%)
3	CAC	B	401	-	2,4,4	2.49	2 (100%)	4,6,6	3.58	2 (50%)
4	SO4	F	506	-	4,4,4	0.27	0	6,6,6	0.20	0
4	SO4	A	501	-	4,4,4	0.26	0	6,6,6	0.49	0
4	SO4	B	502	-	4,4,4	0.25	0	6,6,6	0.28	0
4	SO4	D	504	-	4,4,4	0.30	0	6,6,6	0.30	0
4	SO4	E	505	-	4,4,4	0.23	0	6,6,6	0.25	0
4	SO4	C	503	-	4,4,4	0.31	0	6,6,6	0.31	0
3	CAC	D	403	-	2,4,4	2.47	2 (100%)	4,6,6	2.99	3 (75%)
4	SO4	B	507	-	4,4,4	0.26	0	6,6,6	0.32	0
3	CAC	F	405	-	2,4,4	2.51	2 (100%)	4,6,6	1.36	0
3	CAC	E	406	-	2,4,4	2.52	2 (100%)	4,6,6	2.11	2 (50%)
3	CAC	A	402	-	2,4,4	2.46	2 (100%)	4,6,6	1.80	1 (25%)

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	403	CAC	AS-C2	2.69	1.96	1.90
3	F	405	CAC	AS-C2	2.69	1.96	1.90
3	B	401	CAC	AS-C1	2.68	1.96	1.90
3	E	406	CAC	AS-C2	2.66	1.96	1.90
3	C	404	CAC	AS-C2	2.58	1.96	1.90
3	A	402	CAC	AS-C2	2.55	1.96	1.90
3	E	406	CAC	AS-C1	2.38	1.96	1.90
3	A	402	CAC	AS-C1	2.36	1.95	1.90
3	C	404	CAC	AS-C1	2.33	1.95	1.90
3	F	405	CAC	AS-C1	2.32	1.95	1.90
3	B	401	CAC	AS-C2	2.30	1.95	1.90
3	D	403	CAC	AS-C1	2.22	1.95	1.90

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	401	CAC	O1-AS-C2	-5.75	104.35	111.50
3	D	403	CAC	O1-AS-C1	-4.72	105.63	111.50
3	B	401	CAC	O1-AS-C1	-3.73	106.87	111.50
3	E	406	CAC	O1-AS-C2	-2.57	108.30	111.50
3	C	404	CAC	O1-AS-C2	-2.43	108.48	111.50
3	C	404	CAC	O1-AS-C1	-2.42	108.49	111.50
3	D	403	CAC	O2-AS-C1	2.41	111.68	105.84
3	E	406	CAC	O2-AS-C2	2.39	111.62	105.84
3	D	403	CAC	O2-AS-C2	2.31	111.45	105.84
3	A	402	CAC	O1-AS-C2	-2.17	108.80	111.50
3	C	404	CAC	O2-AS-C2	2.03	110.76	105.84

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	401	CAC	1	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data

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	142/154 (92%)	1.34	27 (19%) 3 3	57, 62, 77, 91	0
1	B	132/154 (85%)	1.14	18 (13%) 7 7	57, 63, 79, 93	0
1	C	138/154 (89%)	1.19	18 (13%) 7 7	56, 62, 78, 93	0
1	D	132/154 (85%)	1.26	17 (12%) 7 8	56, 63, 78, 102	0
1	E	137/154 (88%)	1.25	23 (16%) 4 4	57, 63, 82, 98	0
1	F	142/154 (92%)	1.11	14 (9%) 13 13	56, 62, 84, 97	0
All	All	823/924 (89%)	1.22	117 (14%) 6 6	56, 63, 81, 102	0

All (117) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	169	PHE	4.5
1	C	169	PHE	4.3
1	D	227	ALA	4.1
1	F	83	TYR	4.1
1	C	196	ILE	4.0
1	F	202	LEU	4.0
1	F	227	ALA	3.9
1	C	160	SER	3.9
1	F	85	THR	3.9
1	D	115	LYS	3.7
1	A	228	LEU	3.7
1	D	168	LEU	3.6
1	E	168	LEU	3.6
1	B	198	PHE	3.6
1	D	198	PHE	3.6
1	D	195	LEU	3.6
1	A	85	THR	3.5
1	E	228	LEU	3.5
1	A	110	TYR	3.5

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Mol	Chain	Res	Type	RSRZ
1	B	227	ALA	3.4
1	D	169	PHE	3.4
1	F	228	LEU	3.3
1	C	202	LEU	3.3
1	B	204	ILE	3.2
1	C	110	TYR	3.2
1	C	195	LEU	3.2
1	A	202	LEU	3.1
1	B	214	ASN	3.1
1	E	227	ALA	3.1
1	E	205	ALA	3.0
1	F	168	LEU	3.0
1	E	169	PHE	3.0
1	B	170	LEU	3.0
1	A	148	ALA	2.9
1	A	112	GLN	2.9
1	E	110	TYR	2.9
1	D	197	SER	2.9
1	A	166	ASN	2.9
1	A	212	TYR	2.8
1	C	181	LYS	2.8
1	C	136	GLN	2.7
1	D	209	GLY	2.7
1	D	104	LEU	2.7
1	D	170	LEU	2.7
1	D	196	ILE	2.7
1	A	198	PHE	2.6
1	F	201	SER	2.6
1	B	143	VAL	2.6
1	A	159	LYS	2.6
1	D	148	ALA	2.6
1	A	161	ASP	2.6
1	A	156	LEU	2.6
1	A	168	LEU	2.6
1	B	108	VAL	2.5
1	E	86	SER	2.5
1	E	198	PHE	2.5
1	D	128	PRO	2.5
1	A	196	ILE	2.5
1	C	194	ASN	2.5
1	B	85	THR	2.5
1	C	198	PHE	2.5

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Mol	Chain	Res	Type	RSRZ
1	A	119	GLY	2.4
1	C	214	ASN	2.4
1	E	87	ILE	2.4
1	C	226	PHE	2.4
1	F	169	PHE	2.4
1	A	111	MET	2.4
1	A	160	SER	2.4
1	A	220	ASN	2.4
1	B	226	PHE	2.4
1	E	85	THR	2.4
1	F	190	THR	2.4
1	C	167	ASN	2.3
1	F	100	TYR	2.3
1	E	111	MET	2.3
1	A	201	SER	2.3
1	E	143	VAL	2.3
1	A	150	ALA	2.3
1	C	228	LEU	2.3
1	D	110	TYR	2.3
1	E	112	GLN	2.3
1	E	196	ILE	2.3
1	F	114	ASN	2.3
1	E	84	ASP	2.3
1	F	112	GLN	2.2
1	D	226	PHE	2.2
1	B	215	GLY	2.2
1	C	130	PHE	2.2
1	E	109	ILE	2.2
1	B	174	VAL	2.2
1	D	211	GLY	2.2
1	C	168	LEU	2.2
1	B	86	SER	2.2
1	C	128	PRO	2.1
1	E	210	VAL	2.1
1	A	132	GLY	2.1
1	E	214	ASN	2.1
1	B	179	TRP	2.1
1	A	217	VAL	2.1
1	E	218	VAL	2.1
1	B	144	LEU	2.1
1	B	129	PHE	2.1
1	A	195	LEU	2.1

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Mol	Chain	Res	Type	RSRZ
1	E	104	LEU	2.1
1	F	161	ASP	2.1
1	A	117	ILE	2.1
1	A	204	ILE	2.1
1	F	109	ILE	2.1
1	B	213	VAL	2.1
1	E	195	LEU	2.0
1	E	114	ASN	2.0
1	B	142	GLY	2.0
1	C	218	VAL	2.0
1	D	123	VAL	2.0
1	A	197	SER	2.0
1	E	160	SER	2.0
1	B	199	LYS	2.0

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

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

6.3 Carbohydrates [i](#)

There are no 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(Å ²)	Q<0.9
4	SO4	F	506	5/5	0.68	0.12	120,122,126,128	0
4	SO4	D	504	5/5	0.70	0.10	105,110,112,115	0
4	SO4	C	503	5/5	0.72	0.09	113,116,118,121	0
4	SO4	A	501	5/5	0.76	0.10	111,113,119,120	0
4	SO4	B	507	5/5	0.79	0.08	92,103,110,113	0
4	SO4	E	505	5/5	0.83	0.08	102,113,113,117	0
4	SO4	B	502	5/5	0.87	0.09	109,110,114,116	0
3	CAC	B	401	5/5	0.89	0.17	140,148,149,151	0
3	CAC	A	402	5/5	0.90	0.19	161,163,165,165	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	CAC	C	404	5/5	0.91	0.20	149,155,158,158	0
3	CAC	E	406	5/5	0.93	0.17	151,154,156,158	0
3	CAC	D	403	5/5	0.93	0.16	133,139,144,147	0
3	CAC	F	405	5/5	0.94	0.14	110,117,129,131	0
2	CL	C	303	1/1	0.96	0.10	63,63,63,63	0
2	CL	A	301	1/1	0.97	0.10	65,65,65,65	0
2	CL	D	304	1/1	0.97	0.12	57,57,57,57	0
2	CL	E	305	1/1	0.97	0.11	57,57,57,57	0
2	CL	B	302	1/1	0.97	0.07	58,58,58,58	0
2	CL	F	306	1/1	0.98	0.09	61,61,61,61	0

6.5 Other polymers [i](#)

There are no such residues in this entry.