



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 7, 2018 – 07:14 PM EST

PDB ID : 6FBA
Title : Crystal Structure of truncated aspartate transcarbamoylase from Plasmodium falciparum with bound inhibitor 2,3-naphthalenediol
Authors : Lunev, S.; Bosch, S.S.; Batista, F.A.; Wang, C.; Wrenger, C.; Groves, M.R.
Deposited on : 2017-12-18
Resolution : 2.00 Å(reported)

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

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

A user guide is available at

<http://wwpdb.org/validation/2016/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7.2 (RC1), CSD as538be (2017)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20030736
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : rb-20030736

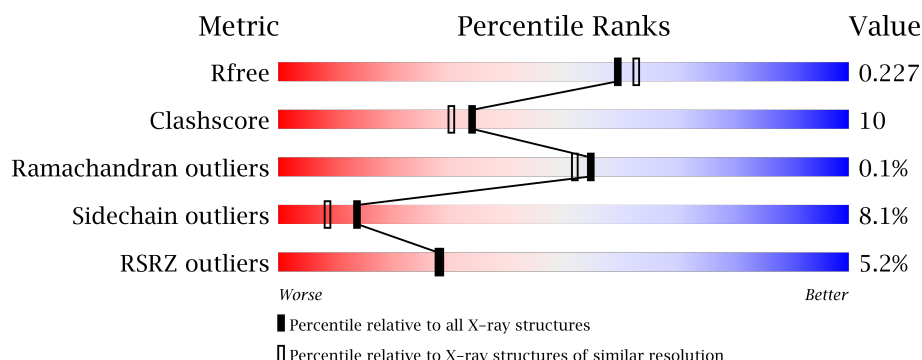
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.00 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}	100719	6609 (2.00-2.00)
Clashscore	112137	7775 (2.00-2.00)
Ramachandran outliers	110173	7679 (2.00-2.00)
Sidechain outliers	110143	7678 (2.00-2.00)
RSRZ outliers	101464	6696 (2.00-2.00)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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	349	<div> <div>8%</div> <div>69%</div> <div>18%</div> <div>• • 8%</div> </div>
1	B	349	<div> <div>5%</div> <div>69%</div> <div>17%</div> <div>5% 9%</div> </div>
2	C	349	<div> <div>%</div> <div>74%</div> <div>17%</div> <div>• • 6%</div> </div>

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
4	D48	A	402	-	-	-	X
5	DMS	C	402	-	-	-	X
6	MLI	A	405	-	-	X	X
6	MLI	C	404	-	-	-	X
7	GOL	A	406	-	-	-	X
9	PEG	B	404	-	-	X	X
9	PEG	C	403	-	-	-	X

2 Entry composition [i](#)

There are 10 unique types of molecules in this entry. The entry contains 8085 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 Aspartate transcarbamoylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	321	Total	C	N	O	S	0	0	0
			2601	1660	430	503	8			
1	B	317	Total	C	N	O	S	0	1	0
			2577	1646	426	497	8			

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	376	SER	-	expression tag	UNP O15804
A	377	ALA	-	expression tag	UNP O15804
A	378	TRP	-	expression tag	UNP O15804
A	379	SER	-	expression tag	UNP O15804
A	380	HIS	-	expression tag	UNP O15804
A	381	PRO	-	expression tag	UNP O15804
A	382	GLN	-	expression tag	UNP O15804
A	383	PHE	-	expression tag	UNP O15804
A	384	GLU	-	expression tag	UNP O15804
A	385	LYS	-	expression tag	UNP O15804
B	376	SER	-	expression tag	UNP O15804
B	377	ALA	-	expression tag	UNP O15804
B	378	TRP	-	expression tag	UNP O15804
B	379	SER	-	expression tag	UNP O15804
B	380	HIS	-	expression tag	UNP O15804
B	381	PRO	-	expression tag	UNP O15804
B	382	GLN	-	expression tag	UNP O15804
B	383	PHE	-	expression tag	UNP O15804
B	384	GLU	-	expression tag	UNP O15804
B	385	LYS	-	expression tag	UNP O15804

- Molecule 2 is a protein called Aspartate transcarbamoylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	328	Total	C	N	O	S	0	0	0
			2659	1695	437	519	8			

There are 10 discrepancies between the modelled and reference sequences:

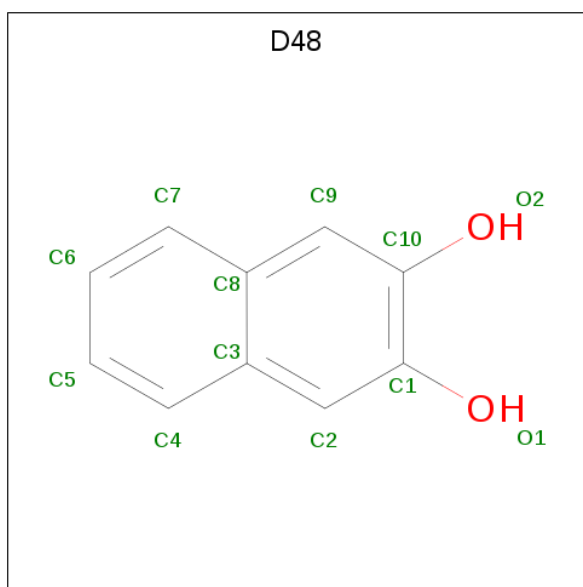
Chain	Residue	Modelled	Actual	Comment	Reference
C	376	SER	-	expression tag	UNP O15804
C	377	ALA	-	expression tag	UNP O15804
C	378	TRP	-	expression tag	UNP O15804
C	379	SER	-	expression tag	UNP O15804
C	380	HIS	-	expression tag	UNP O15804
C	381	PRO	-	expression tag	UNP O15804
C	382	GLN	-	expression tag	UNP O15804
C	383	PHE	-	expression tag	UNP O15804
C	384	GLU	-	expression tag	UNP O15804
C	385	LYS	-	expression tag	UNP O15804

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



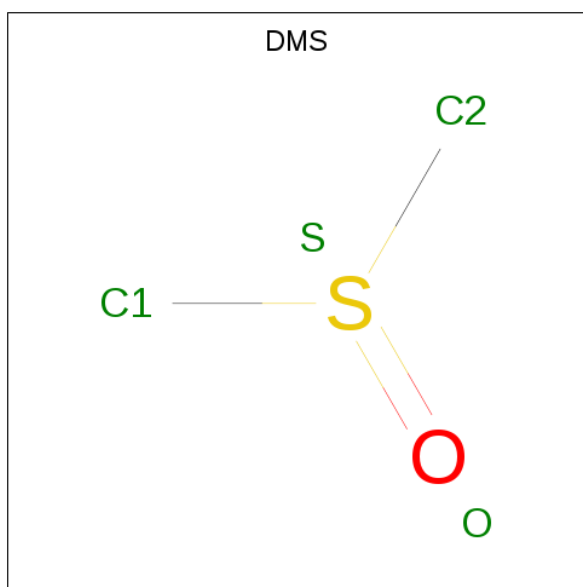
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		

- Molecule 4 is naphthalene-2,3-diol (three-letter code: D48) (formula: C₁₀H₈O₂).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			12	10	2		
4	B	1	Total	C	O	0	0
			12	10	2		
4	C	1	Total	C	O	0	0
			12	10	2		

- Molecule 5 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula: C_2H_6OS).



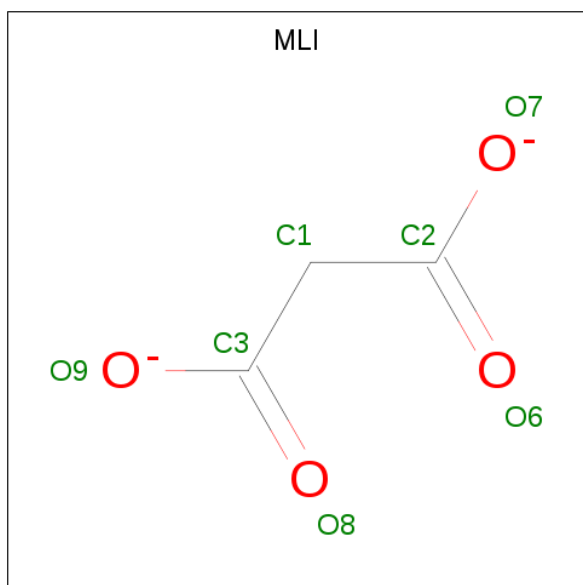
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	A	1	Total	C	O	S	0	0
			4	2	1	1		

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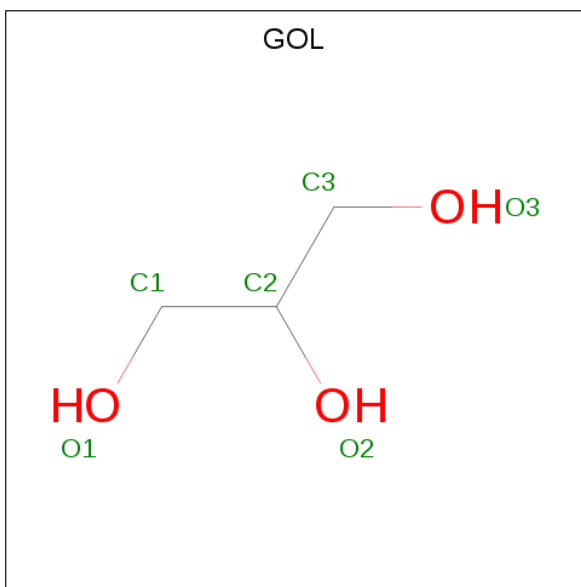
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	B	1	Total	C	O	S	0	0
			4	2	1	1		
5	C	1	Total	C	O	S	0	0
			4	2	1	1		

- Molecule 6 is MALONATE ION (three-letter code: MLI) (formula: $C_3H_2O_4$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	A	1	Total	C	O	0	0
			7	3	4		
6	A	1	Total	C	O	0	0
			7	3	4		
6	C	1	Total	C	O	0	0
			7	3	4		

- Molecule 7 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

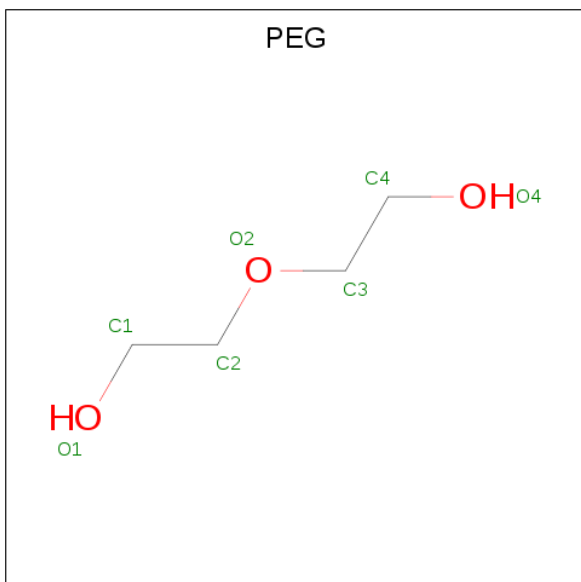


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total	C	O	0	0
			6	3	3		
7	C	1	Total	C	O	0	0
			6	3	3		

- Molecule 8 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	1	Total	Na	0	0
			1	1		

- Molecule 9 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: C₄H₁₀O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	B	1	Total	C	O	0	0
			7	4	3		
9	C	1	Total	C	O	0	0
			7	4	3		

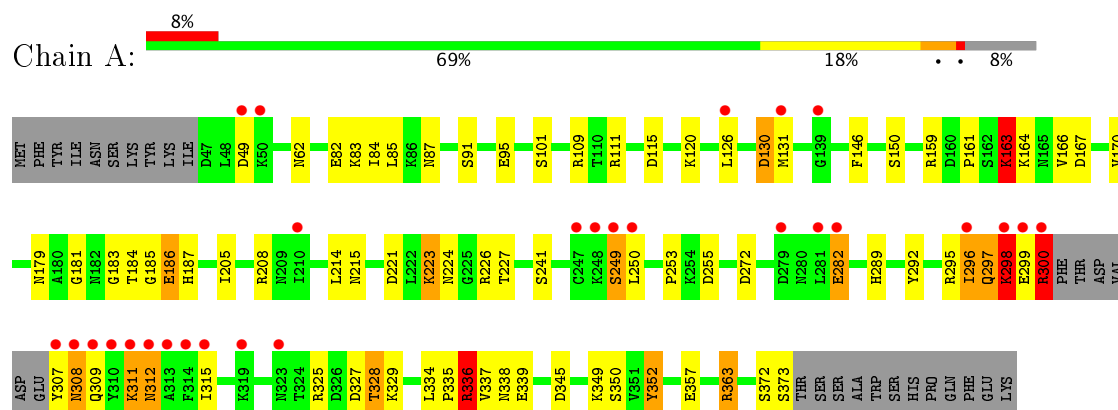
- Molecule 10 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	A	33	Total	O	0	0
			33	33		
10	B	50	Total	O	0	0
			50	50		
10	C	59	Total	O	0	0
			59	59		

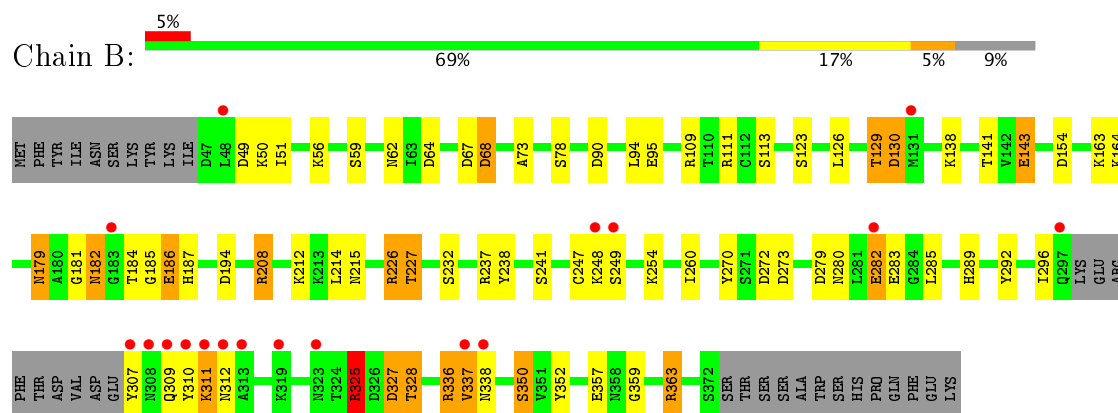
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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.

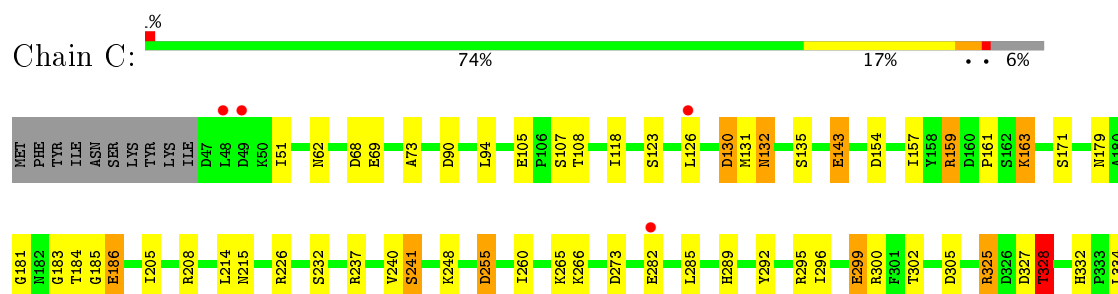
• Molecule 1: Aspartate transcarbamoylase



• Molecule 1: Aspartate transcarbamoylase



• Molecule 2: Aspartate transcarbamoylase



P335	R336	E339	V342	S350	V351	Y352	E357	R363	S372	S373	T374	SER	SER	ALA	TRP	SER	HIS	PRO	GLN	PHE	GLU	LYS
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4 Data and refinement statistics

Property	Value	Source
Space group	P 32	Depositor
Cell constants a, b, c, α , β , γ	86.76Å 86.76Å 138.15Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	75.13 – 2.00 43.38 – 2.00	Depositor EDS
% Data completeness (in resolution range)	99.7 (75.13-2.00) 99.7 (43.38-2.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.56 (at 2.00Å)	Xtriage
Refinement program	REFMAC 5.8.0189	Depositor
R, R_{free}	0.184 , 0.225 0.189 , 0.227	Depositor DCC
R_{free} test set	3991 reflections (5.37%)	DCC
Wilson B-factor (Å ²)	35.2	Xtriage
Anisotropy	0.221	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 40.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	0.027 for -h,-k,l 0.049 for h,-h-k,-l 0.038 for -k,-h,-l	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	8085	wwPDB-VP
Average B, all atoms (Å ²)	44.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.75% of the height of the origin peak. No significant pseudotranslation is detected.*

¹ Intensities estimated from amplitudes.

² Theoretical 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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, CSO, DMS, NA, MLI, D48, SO4, PEG

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	1.19	4/2647 (0.2%)	1.24	20/3573 (0.6%)
1	B	1.28	14/2623 (0.5%)	1.29	26/3542 (0.7%)
2	C	1.34	11/2699 (0.4%)	1.31	23/3645 (0.6%)
All	All	1.27	29/7969 (0.4%)	1.28	69/10760 (0.6%)

The worst 5 of 29 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	186	GLU	CD-OE1	10.76	1.37	1.25
1	B	357	GLU	CD-OE1	-9.53	1.15	1.25
2	C	186	GLU	CD-OE1	9.16	1.35	1.25
1	A	363	ARG	CZ-NH2	8.76	1.44	1.33
2	C	363	ARG	CZ-NH2	8.62	1.44	1.33

The worst 5 of 69 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	363	ARG	NE-CZ-NH1	-17.64	111.48	120.30
1	B	363	ARG	NE-CZ-NH1	-16.71	111.95	120.30
1	A	363	ARG	NE-CZ-NH1	-13.33	113.63	120.30
2	C	363	ARG	NE-CZ-NH2	13.04	126.82	120.30
1	A	336	ARG	NE-CZ-NH1	-12.89	113.85	120.30

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	2601	0	2613	63	0
1	B	2577	0	2588	53	0
2	C	2659	0	2660	35	0
3	A	5	0	0	0	0
3	B	5	0	0	0	0
4	A	12	0	0	1	0
4	B	12	0	0	0	0
4	C	12	0	0	0	0
5	A	4	0	6	0	0
5	B	4	0	6	0	0
5	C	4	0	6	0	0
6	A	14	0	4	4	0
6	C	7	0	2	0	0
7	A	6	0	8	0	0
7	C	6	0	8	1	0
8	A	1	0	0	0	0
9	B	7	0	10	6	0
9	C	7	0	10	2	0
10	A	33	0	0	9	0
10	B	50	0	0	2	0
10	C	59	0	0	1	0
All	All	8085	0	7921	152	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 10.

The worst 5 of 152 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)
2:C:62:ASN:HD22	2:C:186:GLU:HG3	1.05	1.13
1:A:163:LYS:HB2	1:A:184:THR:HG23	1.33	1.04
1:A:163:LYS:CB	1:A:184:THR:HG23	1.91	1.00
1:B:307:TYR:CE2	1:B:311:LYS:HD2	1.98	0.97
1:A:62:ASN:HD22	1:A:186:GLU:HG3	1.39	0.88

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	317/349 (91%)	301 (95%)	16 (5%)	0	100	100
1	B	314/349 (90%)	307 (98%)	6 (2%)	1 (0%)	44	40
2	C	325/349 (93%)	316 (97%)	9 (3%)	0	100	100
All	All	956/1047 (91%)	924 (97%)	31 (3%)	1 (0%)	55	52

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	337	VAL

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	301/328 (92%)	276 (92%)	25 (8%)	13	8
1	B	298/328 (91%)	270 (91%)	28 (9%)	10	6
2	C	307/327 (94%)	286 (93%)	21 (7%)	18	13
All	All	906/983 (92%)	832 (92%)	74 (8%)	14	8

5 of 74 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	163	LYS
1	B	248	LYS
2	C	299	GLU
1	B	164	LYS
1	B	214	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 26 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	165	ASN
1	B	243	ASN
2	C	289	HIS
1	B	179	ASN
1	B	182	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is 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	CSO	C	247	2	4,6,7	1.31	0	1,6,8	2.58	1 (100%)

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	CSO	C	247	2	-	0/1/5/7	0/0/0/0

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	247	CSO	O-C-CA	-2.58	117.89	125.02

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 16 ligands modelled in this entry, 1 is monoatomic - leaving 15 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	SO4	A	401	-	4,4,4	0.64	0	6,6,6	0.34	0
4	D48	A	402	-	13,13,13	0.57	0	18,18,18	0.73	0
5	DMS	A	403	-	3,3,3	0.51	0	3,3,3	0.63	0
6	MLI	A	404	-	0,6,6	0.00	-	0,7,7	0.00	-
6	MLI	A	405	-	0,6,6	0.00	-	0,7,7	0.00	-
7	GOL	A	406	-	5,5,5	0.69	0	5,5,5	0.75	0
3	SO4	B	401	-	4,4,4	0.52	0	6,6,6	0.78	0
4	D48	B	402	-	13,13,13	0.59	0	18,18,18	0.41	0
5	DMS	B	403	-	3,3,3	0.58	0	3,3,3	0.40	0
9	PEG	B	404	-	6,6,6	0.83	0	5,5,5	2.06	1 (20%)
4	D48	C	401	-	13,13,13	0.56	0	18,18,18	0.60	0
5	DMS	C	402	-	3,3,3	0.55	0	3,3,3	1.12	0
9	PEG	C	403	-	6,6,6	0.92	0	5,5,5	1.27	1 (20%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	MLI	C	404	-	0,6,6	0.00	-	0,7,7	0.00	-
7	GOL	C	405	-	5,5,5	0.51	0	5,5,5	0.73	0

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
3	SO4	A	401	-	-	0/0/0/0	0/0/0/0
4	D48	A	402	-	-	0/0/0/0	0/2/2/2
5	DMS	A	403	-	-	0/0/0/0	0/0/0/0
6	MLI	A	404	-	-	0/0/4/4	0/0/0/0
6	MLI	A	405	-	-	0/0/4/4	0/0/0/0
7	GOL	A	406	-	-	0/4/4/4	0/0/0/0
3	SO4	B	401	-	-	0/0/0/0	0/0/0/0
4	D48	B	402	-	-	0/0/0/0	0/2/2/2
5	DMS	B	403	-	-	0/0/0/0	0/0/0/0
9	PEG	B	404	-	-	0/4/4/4	0/0/0/0
4	D48	C	401	-	-	0/0/0/0	0/2/2/2
5	DMS	C	402	-	-	0/0/0/0	0/0/0/0
9	PEG	C	403	-	-	0/4/4/4	0/0/0/0
6	MLI	C	404	-	-	0/0/4/4	0/0/0/0
7	GOL	C	405	-	-	0/4/4/4	0/0/0/0

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	C	403	PEG	O2-C3-C4	2.52	121.78	110.15
9	B	404	PEG	O2-C2-C1	3.42	125.92	110.15

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

6 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	402	D48	1	0
6	A	404	MLI	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	405	MLI	3	0
9	B	404	PEG	6	0
9	C	403	PEG	2	0
7	C	405	GOL	1	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	321/349 (91%)	0.27	28 (8%) 11 11	27, 47, 81, 120	0
1	B	317/349 (90%)	-0.01	18 (5%) 24 25	26, 40, 75, 111	0
2	C	327/349 (93%)	-0.28	4 (1%) 79 78	25, 37, 60, 78	0
All	All	965/1047 (92%)	-0.01	50 (5%) 28 28	25, 41, 74, 120	0

The worst 5 of 50 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	310	TYR	7.9
1	A	307	TYR	7.1
1	A	310	TYR	6.3
1	A	309	GLN	6.0
1	B	308	ASN	6.0

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

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors(Å ²)	Q<0.9
2	CSO	C	247	7/8	0.96	0.07	-	39,42,43,46	0

6.3 Carbohydrates ⓘ

There are no carbohydrates 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors(Å ²)	Q<0.9
6	MLI	C	404	7/7	0.80	0.51	14.82	29,35,42,44	7
6	MLI	A	405	7/7	0.74	0.45	12.90	27,36,40,51	7
9	PEG	C	403	7/7	0.76	0.23	11.52	51,59,66,67	0
5	DMS	C	402	4/4	0.77	0.19	6.96	66,79,82,85	0
9	PEG	B	404	7/7	0.91	0.25	5.74	34,40,46,49	0
7	GOL	A	406	6/6	0.83	0.21	2.26	51,61,66,69	0
4	D48	A	402	12/12	0.90	0.16	2.10	39,44,48,49	12
5	DMS	B	403	4/4	0.97	0.10	0.81	63,63,70,75	0
5	DMS	A	403	4/4	0.99	0.10	0.32	65,69,71,72	0
6	MLI	A	404	7/7	0.92	0.13	-0.27	47,59,65,69	0
4	D48	B	402	12/12	0.95	0.10	-0.61	42,44,48,50	0
4	D48	C	401	12/12	0.97	0.09	-1.12	36,39,42,44	0
3	SO4	A	401	5/5	0.99	0.08	-1.22	36,36,41,42	0
8	NA	A	407	1/1	0.96	0.14	-2.34	39,39,39,39	0
3	SO4	B	401	5/5	1.00	0.10	-2.36	30,31,43,46	0
7	GOL	C	405	6/6	0.78	0.19	-	62,65,72,80	0

6.5 Other polymers [i](#)

There are no such residues in this entry.