wwPDB X-ray Structure Validation Summary Report (i)

Nov 19, 2023 – 11:02 PM JST

PDB ID	:	7C3E
Title	:	Crystal structure of R97A/R150A/R203A mutant of AofleA from Arthrobotrys oligospora
Authors	:	Liu, M.; Cheng, X.; Wang, J.; Zhang, M.; Wang, M.
Deposited on	:	2020-05-12
Resolution	:	2.18 Å(reported)

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

|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36
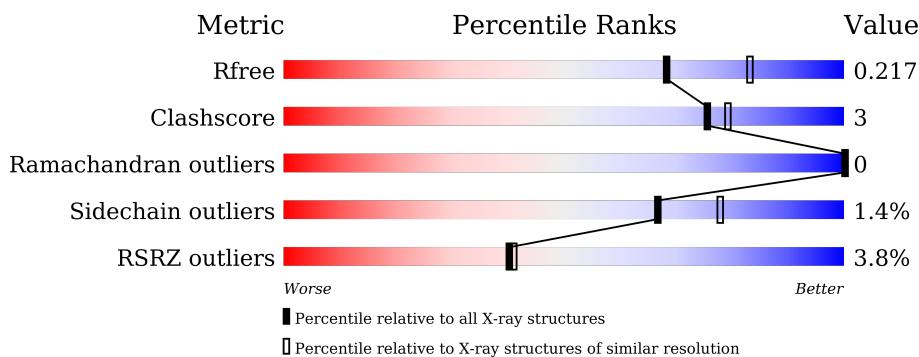
1   Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION
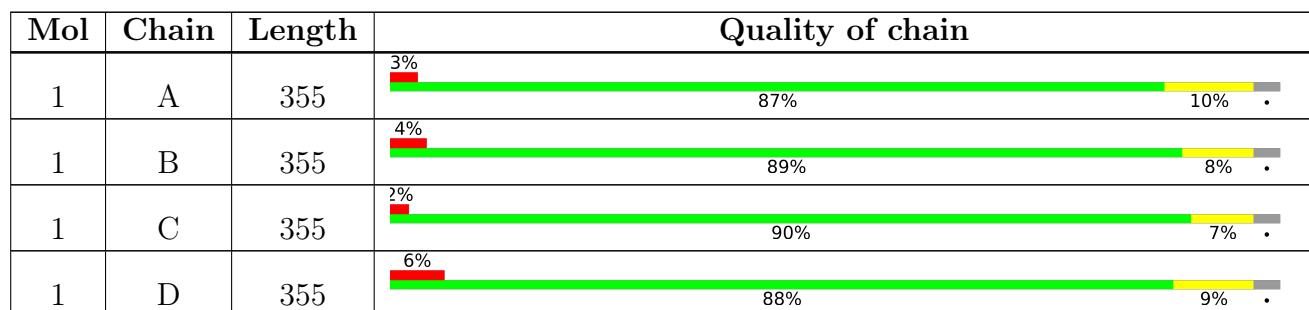
The reported resolution of this entry is 2.18 Å.

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		0.217
Clashscore		3
Ramachandran outliers		0
Sidechain outliers		1.4%
RSRZ outliers		3.8%

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	6864 (2.20-2.16)
Clashscore	141614	7689 (2.20-2.16)
Ramachandran outliers	138981	7564 (2.20-2.16)
Sidechain outliers	138945	7564 (2.20-2.16)
RSRZ outliers	127900	6738 (2.20-2.16)

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	A	355	3% 87% 10% ·
1	B	355	4% 89% 8% ·
1	C	355	2% 90% 7% ·
1	D	355	6% 88% 9% ·

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 12559 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 AofleA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	345	Total	C	N	O	S	0	3	0
			2706	1757	441	507	1			
1	B	344	Total	C	N	O	S	0	3	0
			2706	1757	442	506	1			
1	C	345	Total	C	N	O	S	0	4	0
			2716	1764	445	506	1			
1	D	344	Total	C	N	O	S	0	3	0
			2700	1754	440	505	1			

There are 64 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	MET	-	initiating methionine	UNP G1XA82
A	1	ALA	-	expression tag	UNP G1XA82
A	97	ALA	ARG	engineered mutation	UNP G1XA82
A	150	ALA	ARG	engineered mutation	UNP G1XA82
A	203	ALA	ARG	engineered mutation	UNP G1XA82
A	344	ALA	-	expression tag	UNP G1XA82
A	345	ALA	-	expression tag	UNP G1XA82
A	346	ALA	-	expression tag	UNP G1XA82
A	347	LEU	-	expression tag	UNP G1XA82
A	348	GLU	-	expression tag	UNP G1XA82
A	349	HIS	-	expression tag	UNP G1XA82
A	350	HIS	-	expression tag	UNP G1XA82
A	351	HIS	-	expression tag	UNP G1XA82
A	352	HIS	-	expression tag	UNP G1XA82
A	353	HIS	-	expression tag	UNP G1XA82
A	354	HIS	-	expression tag	UNP G1XA82
B	0	MET	-	initiating methionine	UNP G1XA82
B	1	ALA	-	expression tag	UNP G1XA82
B	97	ALA	ARG	engineered mutation	UNP G1XA82
B	150	ALA	ARG	engineered mutation	UNP G1XA82
B	203	ALA	ARG	engineered mutation	UNP G1XA82

W O R L D W I D E
wwPDB
PROTEIN DATA BANK

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Chain	Residue	Modelled	Actual	Comment	Reference
B	344	ALA	-	expression tag	UNP G1XA82
B	345	ALA	-	expression tag	UNP G1XA82
B	346	ALA	-	expression tag	UNP G1XA82
B	347	LEU	-	expression tag	UNP G1XA82
B	348	GLU	-	expression tag	UNP G1XA82
B	349	HIS	-	expression tag	UNP G1XA82
B	350	HIS	-	expression tag	UNP G1XA82
B	351	HIS	-	expression tag	UNP G1XA82
B	352	HIS	-	expression tag	UNP G1XA82
B	353	HIS	-	expression tag	UNP G1XA82
B	354	HIS	-	expression tag	UNP G1XA82
C	0	MET	-	initiating methionine	UNP G1XA82
C	1	ALA	-	expression tag	UNP G1XA82
C	97	ALA	ARG	engineered mutation	UNP G1XA82
C	150	ALA	ARG	engineered mutation	UNP G1XA82
C	203	ALA	ARG	engineered mutation	UNP G1XA82
C	344	ALA	-	expression tag	UNP G1XA82
C	345	ALA	-	expression tag	UNP G1XA82
C	346	ALA	-	expression tag	UNP G1XA82
C	347	LEU	-	expression tag	UNP G1XA82
C	348	GLU	-	expression tag	UNP G1XA82
C	349	HIS	-	expression tag	UNP G1XA82
C	350	HIS	-	expression tag	UNP G1XA82
C	351	HIS	-	expression tag	UNP G1XA82
C	352	HIS	-	expression tag	UNP G1XA82
C	353	HIS	-	expression tag	UNP G1XA82
C	354	HIS	-	expression tag	UNP G1XA82
D	0	MET	-	initiating methionine	UNP G1XA82
D	1	ALA	-	expression tag	UNP G1XA82
D	97	ALA	ARG	engineered mutation	UNP G1XA82
D	150	ALA	ARG	engineered mutation	UNP G1XA82
D	203	ALA	ARG	engineered mutation	UNP G1XA82
D	344	ALA	-	expression tag	UNP G1XA82
D	345	ALA	-	expression tag	UNP G1XA82
D	346	ALA	-	expression tag	UNP G1XA82
D	347	LEU	-	expression tag	UNP G1XA82
D	348	GLU	-	expression tag	UNP G1XA82
D	349	HIS	-	expression tag	UNP G1XA82
D	350	HIS	-	expression tag	UNP G1XA82
D	351	HIS	-	expression tag	UNP G1XA82
D	352	HIS	-	expression tag	UNP G1XA82
D	353	HIS	-	expression tag	UNP G1XA82

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Chain	Residue	Modelled	Actual	Comment	Reference
D	354	HIS	-	expression tag	UNP G1XA82

- Molecule 2 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).
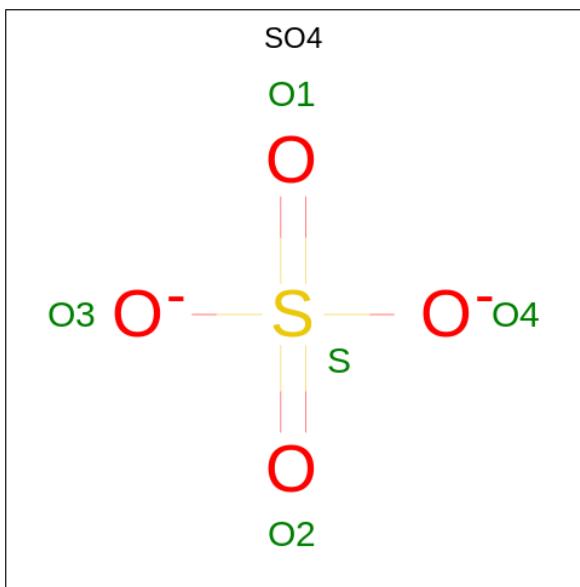
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total 6	C 3	O 3	0	0
2	A	1	Total 6	C 3	O 3	0	0
2	A	1	Total 6	C 3	O 3	0	0
2	A	1	Total 6	C 3	O 3	0	0
2	A	1	Total 6	C 3	O 3	0	0
2	A	1	Total 6	C 3	O 3	0	0
2	A	1	Total 6	C 3	O 3	0	0
2	B	1	Total 6	C 3	O 3	0	0
2	B	1	Total 6	C 3	O 3	0	0
2	B	1	Total 6	C 3	O 3	0	0
2	B	1	Total 6	C 3	O 3	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	B	1	Total 6	C 3	O 3	0	0
2	C	1	Total 6	C 3	O 3	0	0
2	C	1	Total 6	C 3	O 3	0	0
2	C	1	Total 6	C 3	O 3	0	0
2	C	1	Total 6	C 3	O 3	0	0
2	C	1	Total 12	C 6	O 6	0	1
2	C	1	Total 6	C 3	O 3	0	0
2	C	1	Total 12	C 6	O 6	0	1
2	D	1	Total 6	C 3	O 3	0	0
2	D	1	Total 6	C 3	O 3	0	0
2	D	1	Total 6	C 3	O 3	0	0
2	D	1	Total 6	C 3	O 3	0	0
2	D	1	Total 6	C 3	O 3	0	0

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O_4S).

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

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	D	1	Total 5	O 4	S 1	0	0
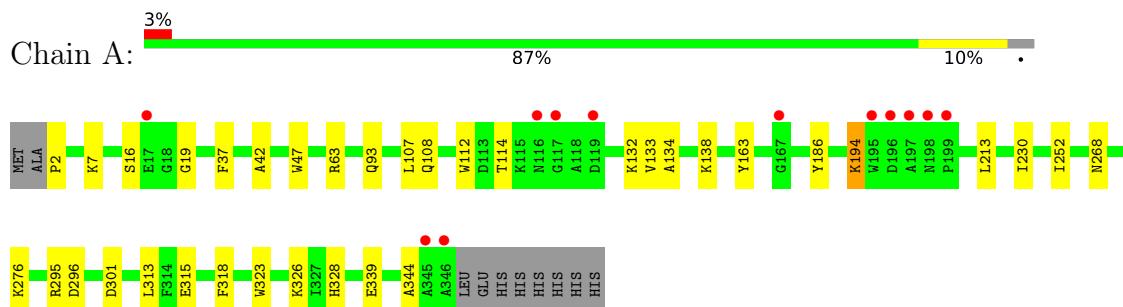
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	370	Total 370	O 370	0	0
4	B	391	Total 391	O 391	0	0
4	C	389	Total 389	O 389	0	0
4	D	350	Total 350	O 350	0	0
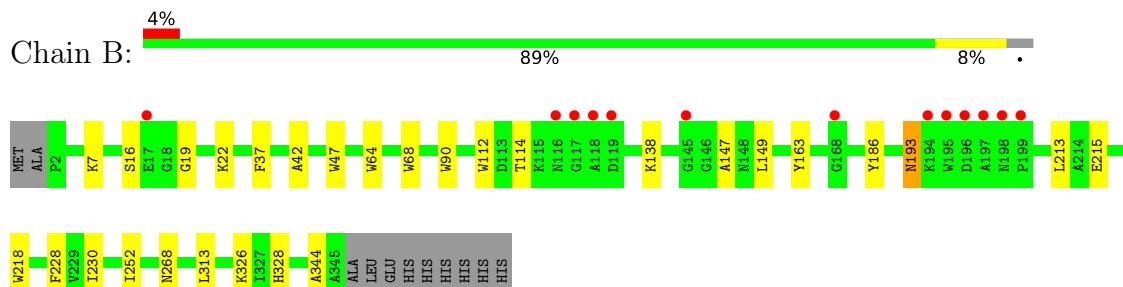
3 Residue-property plots ⓘ

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.
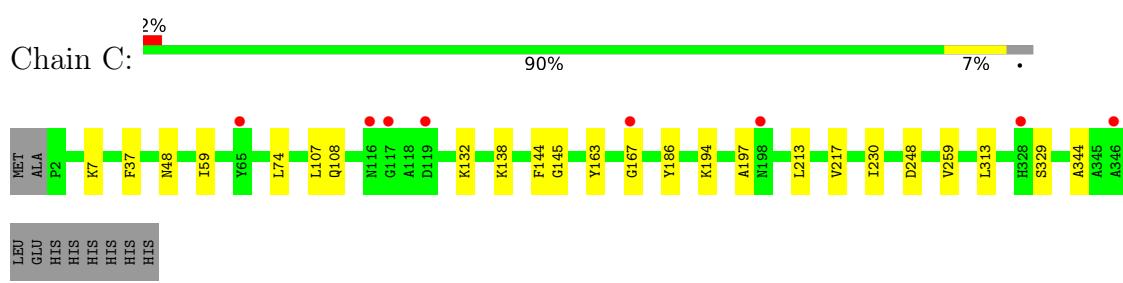
- Molecule 1: AofleA

Chain A:

- Molecule 1: AofleA

Chain B:

- Molecule 1: AofleA

Chain C:

- Molecule 1: AofleA

Chain D:
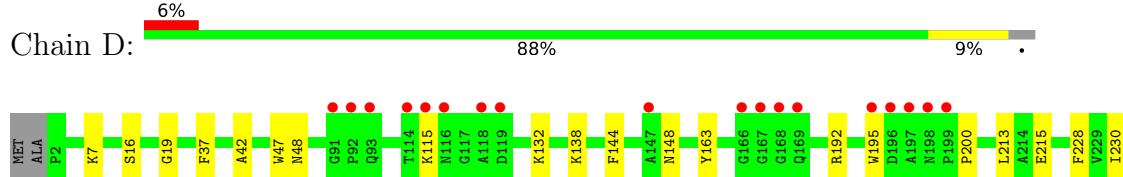
4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	81.96Å 102.48Å 106.02Å 90.00° 91.43° 90.00°	Depositor
Resolution (Å)	36.84 – 2.18 36.84 – 2.18	Depositor EDS
% Data completeness (in resolution range)	90.3 (36.84-2.18) 90.3 (36.84-2.18)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.76 (at 2.18Å)	Xtriage
Refinement program	PHENIX 1.14_3260	Depositor
R, R_{free}	0.167 , 0.217 0.167 , 0.217	Depositor DCC
R_{free} test set	4154 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å^2)	21.3	Xtriage
Anisotropy	0.213	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 49.8	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.005 for -h,l,k 0.016 for -h,-l,-k 0.033 for h,-k,-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	12559	wwPDB-VP
Average B, all atoms (Å^2)	24.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.56% 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 ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, GOL

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	0.28	0/2799	0.50	0/3825
1	B	0.28	0/2796	0.50	0/3819
1	C	0.28	0/2812	0.50	0/3840
1	D	0.29	0/2793	0.50	0/3818
All	All	0.28	0/11200	0.50	0/15302

There are no bond length outliers.

There are no bond angle outliers.

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	2706	0	2630	21	0
1	B	2706	0	2630	17	0
1	C	2716	0	2649	13	0
1	D	2700	0	2625	16	0
2	A	42	0	56	4	0
2	B	30	0	40	2	0
2	C	54	0	72	4	0
2	D	30	0	40	1	0
3	A	25	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	20	0	0	0	0
3	C	10	0	0	0	0
3	D	20	0	0	0	0
4	A	370	0	0	2	0
4	B	391	0	0	1	0
4	C	389	0	0	3	0
4	D	350	0	0	0	0
All	All	12559	0	10742	68	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.

The worst 5 of 68 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:7:LYS:HE3	1:B:344:ALA:HB2	1.70	0.74
1:C:7:LYS:HE2	1:C:344:ALA:HB2	1.78	0.66
1:A:93:GLN:NE2	4:A:503:HOH:O	2.30	0.63
1:A:63:ARG:HH21	2:A:407:GOL:H31	1.64	0.63
1:D:195:TRP:HZ2	1:D:245:PRO:HG3	1.64	0.63

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	346/355 (98%)	336 (97%)	10 (3%)	0	100	100
1	B	345/355 (97%)	334 (97%)	11 (3%)	0	100	100
1	C	347/355 (98%)	339 (98%)	8 (2%)	0	100	100
1	D	345/355 (97%)	331 (96%)	14 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	1383/1420 (97%)	1340 (97%)	43 (3%)	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	A	281/287 (98%)	277 (99%)	4 (1%)	67	78
1	B	281/287 (98%)	279 (99%)	2 (1%)	84	91
1	C	282/287 (98%)	278 (99%)	4 (1%)	67	78
1	D	281/287 (98%)	275 (98%)	6 (2%)	53	64
All	All	1125/1148 (98%)	1109 (99%)	16 (1%)	67	78

5 of 16 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	192	ARG
1	D	163	TYR
1	C	248	ASP
1	D	138	LYS
1	C	194	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	14	HIS
1	B	328	HIS
1	C	14	HIS

5.3.3 RNA ⓘ

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

41 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	GOL	B	404	-	5,5,5	0.95	0	5,5,5	0.82	0
2	GOL	D	405	-	5,5,5	0.94	0	5,5,5	1.00	0
3	SO4	B	407	-	4,4,4	0.15	0	6,6,6	0.13	0
3	SO4	B	409	-	4,4,4	0.15	0	6,6,6	0.11	0
2	GOL	C	407[A]	-	5,5,5	0.93	0	5,5,5	0.94	0
2	GOL	B	405	-	5,5,5	0.85	0	5,5,5	0.90	0
2	GOL	D	404	-	5,5,5	0.97	0	5,5,5	0.83	0
2	GOL	C	403	-	5,5,5	0.84	0	5,5,5	1.04	0
2	GOL	C	405[B]	-	5,5,5	0.93	0	5,5,5	1.01	0
3	SO4	A	408	-	4,4,4	0.17	0	6,6,6	0.11	0
3	SO4	D	409	-	4,4,4	0.15	0	6,6,6	0.08	0
2	GOL	A	403	-	5,5,5	0.93	0	5,5,5	1.16	0
2	GOL	A	401	-	5,5,5	0.90	0	5,5,5	1.08	0
2	GOL	C	407[B]	-	5,5,5	1.01	0	5,5,5	0.96	0
3	SO4	B	408	-	4,4,4	0.13	0	6,6,6	0.09	0
3	SO4	C	408	-	4,4,4	0.11	0	6,6,6	0.15	0
3	SO4	A	412	-	4,4,4	0.15	0	6,6,6	0.06	0
2	GOL	B	402	-	5,5,5	0.95	0	5,5,5	1.01	0
3	SO4	A	411	-	4,4,4	0.13	0	6,6,6	0.06	0
2	GOL	B	403	-	5,5,5	0.84	0	5,5,5	1.04	0
3	SO4	D	408	-	4,4,4	0.15	0	6,6,6	0.07	0
2	GOL	A	406	-	5,5,5	0.94	0	5,5,5	0.86	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	GOL	D	402	-	5,5,5	0.87	0	5,5,5	1.09	0
2	GOL	A	402	-	5,5,5	0.88	0	5,5,5	0.94	0
2	GOL	A	404	-	5,5,5	0.89	0	5,5,5	0.93	0
2	GOL	B	401	-	5,5,5	0.82	0	5,5,5	1.01	0
3	SO4	B	406	-	4,4,4	0.19	0	6,6,6	0.07	0
2	GOL	C	401	-	5,5,5	0.96	0	5,5,5	1.00	0
3	SO4	A	409	-	4,4,4	0.15	0	6,6,6	0.13	0
2	GOL	C	402	-	5,5,5	0.90	0	5,5,5	1.03	0
2	GOL	D	403	-	5,5,5	0.93	0	5,5,5	1.07	0
3	SO4	A	410	-	4,4,4	0.14	0	6,6,6	0.08	0
2	GOL	D	401	-	5,5,5	1.03	0	5,5,5	0.99	0
2	GOL	C	406	-	5,5,5	0.91	0	5,5,5	1.08	0
3	SO4	D	407	-	4,4,4	0.16	0	6,6,6	0.10	0
2	GOL	C	404	-	5,5,5	0.88	0	5,5,5	1.12	0
3	SO4	D	406	-	4,4,4	0.15	0	6,6,6	0.09	0
2	GOL	A	407	-	5,5,5	0.91	0	5,5,5	0.96	0
2	GOL	A	405	-	5,5,5	0.98	0	5,5,5	0.88	0
3	SO4	C	409	-	4,4,4	0.12	0	6,6,6	0.10	0
2	GOL	C	405[A]	-	5,5,5	0.98	0	5,5,5	0.96	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
2	GOL	B	404	-	-	2/4/4/4	-
2	GOL	D	405	-	-	4/4/4/4	-
2	GOL	C	407[A]	-	-	0/4/4/4	-
2	GOL	B	405	-	-	2/4/4/4	-
2	GOL	D	404	-	-	2/4/4/4	-
2	GOL	C	403	-	-	2/4/4/4	-
2	GOL	C	405[B]	-	-	1/4/4/4	-
2	GOL	A	403	-	-	4/4/4/4	-
2	GOL	A	401	-	-	0/4/4/4	-
2	GOL	C	407[B]	-	-	3/4/4/4	-
2	GOL	B	402	-	-	0/4/4/4	-
2	GOL	B	403	-	-	2/4/4/4	-
2	GOL	A	406	-	-	0/4/4/4	-
2	GOL	D	402	-	-	0/4/4/4	-
2	GOL	A	402	-	-	0/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	GOL	A	404	-	-	0/4/4/4	-
2	GOL	B	401	-	-	2/4/4/4	-
2	GOL	C	401	-	-	3/4/4/4	-
2	GOL	C	402	-	-	4/4/4/4	-
2	GOL	D	403	-	-	0/4/4/4	-
2	GOL	D	401	-	-	2/4/4/4	-
2	GOL	C	406	-	-	3/4/4/4	-
2	GOL	C	404	-	-	0/4/4/4	-
2	GOL	A	407	-	-	1/4/4/4	-
2	GOL	A	405	-	-	0/4/4/4	-
2	GOL	C	405[A]	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 39 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	403	GOL	O1-C1-C2-C3
2	B	401	GOL	O1-C1-C2-C3
2	B	403	GOL	C1-C2-C3-O3
2	B	403	GOL	O2-C2-C3-O3
2	B	405	GOL	C1-C2-C3-O3

There are no ring outliers.

9 monomers are involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	407[A]	GOL	1	0
2	B	405	GOL	2	0
2	A	401	GOL	1	0
2	A	406	GOL	2	0
2	C	401	GOL	1	0
2	D	401	GOL	1	0
2	C	404	GOL	1	0
2	A	407	GOL	1	0
2	C	405[A]	GOL	1	0

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(Å^2)	Q<0.9
1	A	345/355 (97%)	-0.17	12 (3%)	44	44	11, 19, 46, 76	0
1	B	344/355 (96%)	-0.12	13 (3%)	40	41	10, 18, 44, 84	0
1	C	345/355 (97%)	-0.23	8 (2%)	60	61	11, 20, 44, 76	0
1	D	344/355 (96%)	-0.03	20 (5%)	23	24	12, 20, 58, 99	0
All	All	1378/1420 (97%)	-0.14	53 (3%)	40	41	10, 19, 48, 99	0

The worst 5 of 53 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	195	TRP	11.5
1	B	196	ASP	9.1
1	D	196	ASP	8.9
1	B	195	TRP	7.6
1	A	197	ALA	6.4

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 ⓘ

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
2	GOL	A	406	6/6	0.86	0.25	42,47,49,52	0
3	SO4	A	412	5/5	0.88	0.25	47,53,72,77	0
2	GOL	C	407[B]	6/6	0.90	0.17	27,31,33,33	6
2	GOL	C	407[A]	6/6	0.90	0.17	24,29,32,33	6
3	SO4	C	409	5/5	0.90	0.21	47,49,77,78	0
2	GOL	B	402	6/6	0.92	0.11	24,25,27,40	0
3	SO4	A	411	5/5	0.92	0.23	54,56,75,80	0
2	GOL	B	405	6/6	0.92	0.11	31,36,38,40	0
2	GOL	A	407	6/6	0.92	0.15	38,43,50,55	0
2	GOL	A	405	6/6	0.93	0.17	21,37,39,56	0
2	GOL	C	401	6/6	0.93	0.12	22,23,30,34	0
3	SO4	B	409	5/5	0.93	0.17	48,49,70,75	0
2	GOL	D	401	6/6	0.93	0.10	17,26,27,28	0
3	SO4	D	409	5/5	0.93	0.14	42,54,57,67	0
2	GOL	A	402	6/6	0.94	0.10	24,33,35,35	0
2	GOL	D	402	6/6	0.94	0.11	22,28,34,40	0
2	GOL	D	405	6/6	0.94	0.11	32,34,36,42	0
2	GOL	A	404	6/6	0.94	0.10	18,23,27,27	0
2	GOL	C	403	6/6	0.95	0.09	19,26,29,34	0
2	GOL	D	403	6/6	0.95	0.08	23,29,32,42	0
2	GOL	C	405[A]	6/6	0.95	0.25	14,16,17,22	6
2	GOL	C	405[B]	6/6	0.95	0.25	15,18,20,22	6
2	GOL	C	406	6/6	0.95	0.20	20,32,36,41	0
2	GOL	A	403	6/6	0.95	0.10	19,21,27,30	0
2	GOL	B	404	6/6	0.95	0.09	15,17,19,21	0
2	GOL	C	402	6/6	0.95	0.17	32,33,43,45	0
2	GOL	B	401	6/6	0.96	0.09	20,22,25,26	0
3	SO4	B	408	5/5	0.96	0.12	33,48,55,70	0
2	GOL	D	404	6/6	0.96	0.09	20,25,25,33	0
2	GOL	C	404	6/6	0.96	0.09	24,28,33,34	0
2	GOL	A	401	6/6	0.96	0.17	24,29,33,35	0
2	GOL	B	403	6/6	0.97	0.08	19,25,26,27	0
3	SO4	D	408	5/5	0.98	0.28	51,57,62,71	0
3	SO4	A	410	5/5	0.98	0.14	43,49,53,54	0
3	SO4	C	408	5/5	0.99	0.08	20,22,28,38	0
3	SO4	B	407	5/5	0.99	0.08	21,22,23,24	0
3	SO4	D	407	5/5	0.99	0.07	19,23,25,27	0
3	SO4	A	409	5/5	0.99	0.10	22,25,25,32	0
3	SO4	A	408	5/5	0.99	0.09	19,20,28,29	0
3	SO4	D	406	5/5	1.00	0.06	17,20,29,31	0
3	SO4	B	406	5/5	1.00	0.06	16,22,25,26	0

6.5 Other polymers ⓘ

There are no such residues in this entry.