



Full wwPDB EM Validation Report ⓘ

Aug 25, 2025 – 02:13 PM EDT

PDB ID : 9D2Z / pdb_00009d2z
EMDB ID : EMD-46505
Title : Cryo-EM structure of mycocerosic acid synthase with single KS-ACP crosslink using C16 alpha-bromoamide. Complex B
Authors : Heberlig, G.W.; Jiang, Z.; Burkart, M.D.
Deposited on : 2024-08-09
Resolution : 3.22 Å(reported)
Based on initial model : .

This is a Full wwPDB EM 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/EMValidationReportHelp>
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:

EMDB validation analysis : 0.0.1.dev126
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.45.1

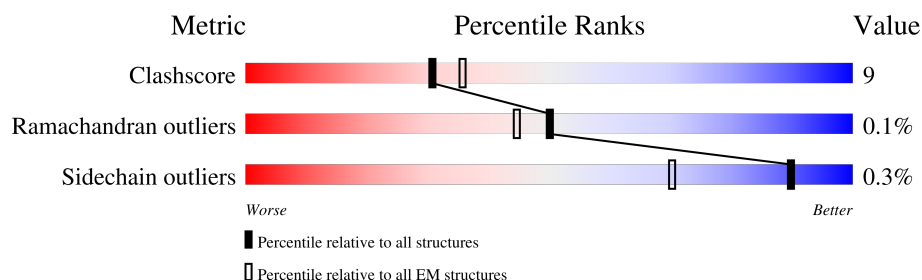
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.22 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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	2124	
1	B	2124	
1	C	2124	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 13791 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Mycocerosic acid synthase.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	878	Total	C	N	O	S	0	0
			6466	4031	1144	1261	30		
1	B	881	Total	C	N	O	S	0	0
			6491	4045	1147	1268	31		
1	C	96	Total	C	N	O	S	0	0
			757	472	137	145	3		

There are 39 discrepancies between the modelled and reference sequences:

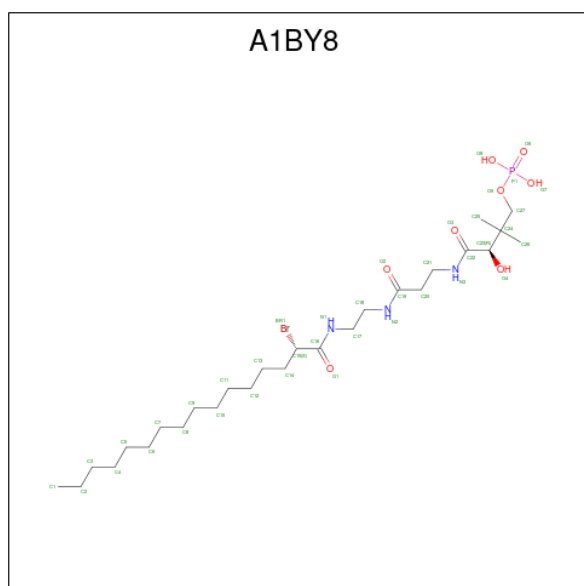
Chain	Residue	Modelled	Actual	Comment	Reference
A	2112	LYS	-	expression tag	UNP A0A0E8V6Y3
A	2113	LEU	-	expression tag	UNP A0A0E8V6Y3
A	2114	ALA	-	expression tag	UNP A0A0E8V6Y3
A	2115	ALA	-	expression tag	UNP A0A0E8V6Y3
A	2116	ALA	-	expression tag	UNP A0A0E8V6Y3
A	2117	LEU	-	expression tag	UNP A0A0E8V6Y3
A	2118	GLU	-	expression tag	UNP A0A0E8V6Y3
A	2119	HIS	-	expression tag	UNP A0A0E8V6Y3
A	2120	HIS	-	expression tag	UNP A0A0E8V6Y3
A	2121	HIS	-	expression tag	UNP A0A0E8V6Y3
A	2122	HIS	-	expression tag	UNP A0A0E8V6Y3
A	2123	HIS	-	expression tag	UNP A0A0E8V6Y3
A	2124	HIS	-	expression tag	UNP A0A0E8V6Y3
B	2112	LYS	-	expression tag	UNP A0A0E8V6Y3
B	2113	LEU	-	expression tag	UNP A0A0E8V6Y3
B	2114	ALA	-	expression tag	UNP A0A0E8V6Y3
B	2115	ALA	-	expression tag	UNP A0A0E8V6Y3
B	2116	ALA	-	expression tag	UNP A0A0E8V6Y3
B	2117	LEU	-	expression tag	UNP A0A0E8V6Y3
B	2118	GLU	-	expression tag	UNP A0A0E8V6Y3
B	2119	HIS	-	expression tag	UNP A0A0E8V6Y3
B	2120	HIS	-	expression tag	UNP A0A0E8V6Y3
B	2121	HIS	-	expression tag	UNP A0A0E8V6Y3
B	2122	HIS	-	expression tag	UNP A0A0E8V6Y3

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Chain	Residue	Modelled	Actual	Comment	Reference
B	2123	HIS	-	expression tag	UNP A0A0E8V6Y3
B	2124	HIS	-	expression tag	UNP A0A0E8V6Y3
C	2112	LYS	-	expression tag	UNP A0A0E8V6Y3
C	2113	LEU	-	expression tag	UNP A0A0E8V6Y3
C	2114	ALA	-	expression tag	UNP A0A0E8V6Y3
C	2115	ALA	-	expression tag	UNP A0A0E8V6Y3
C	2116	ALA	-	expression tag	UNP A0A0E8V6Y3
C	2117	LEU	-	expression tag	UNP A0A0E8V6Y3
C	2118	GLU	-	expression tag	UNP A0A0E8V6Y3
C	2119	HIS	-	expression tag	UNP A0A0E8V6Y3
C	2120	HIS	-	expression tag	UNP A0A0E8V6Y3
C	2121	HIS	-	expression tag	UNP A0A0E8V6Y3
C	2122	HIS	-	expression tag	UNP A0A0E8V6Y3
C	2123	HIS	-	expression tag	UNP A0A0E8V6Y3
C	2124	HIS	-	expression tag	UNP A0A0E8V6Y3

- Molecule 2 is C16 alpha-bromoamide (CCD ID: A1BY8) (formula: $C_{27}H_{53}BrN_3O_8P$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
2	A	1	Total	C	N	O	P	0
			39	27	3	8	1	
2	C	1	Total	C	N	O	P	0
			38	27	3	7	1	

Q594	P595	A596	A599	V600	L604	T607	M608	E609	Q610	T611	V614	A618	S623	M624	A630	L636	S637	L638	E639	D640	R643	V644	I645	C646	R647	R648	S649	K650	L651	M652	T653	R654	I655	A656	G657	A658	G659	A660	M661	L666	P667	A668	K669	Q670	V671	N672	S673	E674	L675		
M676	A677	R678	G679	I680	D681	D682	V683	V687	Q692	G698	D701	T702	V703	R704	D705	L706	R709	W710	E711	Q712	R713	D714	V715	W716	A717	R718	A721	V722	D723	V724	A725	P733	I734	L735	D736	D737	L738	A739	A740	A741	L742	A743	D744	I745	A746	P747	M748	T749	Y754	Y755	S756
	F760	D761	E764	C768	D769	D770	A771	Y772	W773	D775	N776	L777	R778	T779	T780	W781	V787	M791	E792	D793	G794	Y795	L801	S802	P803	H804	H836	G837	L838	R839	E844	L845	H846	R847	V864	D865	F877	D881	GLY	GLN	GLU	GLU	ARG	ALA	ALA	GLN	GLY	ALA	CYS		
THR	ILE	THR	VAL	HIS	PRO	ALA	LEU	LEU	GLY	THR	ARG	HIS	VAL	ARG	LEU	THR	GLN	PRO	GLY	ASP	VAL	ILE	ASP	VAL	TRP	LEU	GLN	GLY	ASN	THR	ILE	ASP	VAL	GLN	HIS	PRO	GLY	THR	THR	CYS	GLU	MET	THR	ALA	ALA	ALA	ALA	ALA	ALA		
GLU	VAL	PHE	GLY	GLU	ALA	GLU	ALA	GLU	VAL	ARG	ASP	ILE	THR	PHE	GLU	THR	MET	GLU	LEU	PRO	GLU	LEU	ASP	VAL	GLN	THR	VAL	VAL	ASN	THR	ILE	ASP	VAL	GLY	THR	ARG	LEU	THR	ASP	GLY	GLU	ALA	THR	THR	ALA	ALA	ALA	ALA	ALA		
ALA	GLU	ASP	CYS	PRO	PRO	PRO	GLY	TYR	TYR	ASP	ILE	THR	ALA	ALA	GLN	ALA	GLN	HIS	PRO	PRO	HIS	ASP	VAL	ASN	GLY	THR	ALA	GLY	THR	THR	GLY	THR	THR	THR	THR	THR	THR	THR	ALA	GLU	GLY	GLY	ALA	ALA	ALA	ALA	ALA	LEU			
ALA	GLU	VAL	ALA	LEU	PRO	SER	ILE	ARG	ARG	PHE	GLN	GLY	THR	ALA	GLY	ALA	TYR	ARG	ILE	HIS	PRO	ALA	LEU	ASP	LEU	VAL	GLN	GLY	THR	ALA	GLY	VAL	GLY	THR	THR	THR	THR	ARG	ALA	GLU	GLY	TYR	GLY	PRO	PRO	THR	THR	ASN			
ALA	ARG	TYR	CYS	THR	ARG	THR	THR	ALA	ALA	PHE	ASN	ASP	GLY	GLY	GLY	ALA	THR	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	ARG	ALA	ALA	THR	VAL	VAL	THR	THR	THR	LEU					
THR	LEU	GLY	TRP	GLN	GLN	ARG	GLU	GLY	ASP	GLY	THR	TRP	LEU	ALA	VAL	VAL	THR	SER	ASN	ASN	ASP	VAL	LEU	LEU	LEU	VAL	THR	THR	THR	THR	THR	THR	THR	THR	GLY	GLY	GLY	GLY	ALA	ALA	SER	VAL	LEU	SER	GLU	THR	VAL				
GLN	ASP	THR	PRO	ASN	ASP	GLN	LEU	LYS	LEU	GLY	THR	GLY	GLY	GLY	ARG	GLY	ARG	GLY	THR	TRP	GLY	GLY	ASP	GLY	THR	VAL	VAL	THR	LEU	LEU	ALA	GLY	GLY	THR	VAL	GLN	ILE	THR	THR	ILE	THR	THR	THR	ALA	PHE						
GLU	GLY	GLU	PRO	ARG	LEU	PHE	VAL	VAL	THR	GLN	VAL	LYS	GLN	VAL	PRO	ARG	GLY	HIS	ASP	SER	GLY	GLY	ARG	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	THR	ILE	ASP	VAL	VAL	VAL	ASP	ASP	GLU	GLY	HIS	THR	VAL					
GLU	ARG	VAL	ALA	GLN	LEU	SER	VAL	SER	GLY	ASP	THR	TRP	ALA	ASP	GLY	ALA	ASN	GLY	ARG	VAL	VAL	ARG	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	THR	VAL	GLN	VAL	VAL	VAL	ARG	ARG	GLU	GLY	PRO	GLY	GLY	LEU				
GLN	THR	LEU	PHE	VAL	ALA	SER	ASP	VAL	PRO	GLY	VAL	GLY	GLY	GLY	VAL	ALA	THR	ARG	ILE	SER	THR	ILE	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	VAL		
GLY	GLU	GLY	THR	HIS	GLN	VAL	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	CYS	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	ASN			
ASP	LEU	ALA	LYS	ALA	GLY	GLY	ASP	VAL	ILE	HIS	THR	VAL	GLY	GLY	VAL	VAL	GLN	GLY	ILE	THR	THR	ALA	ALA	ALA	THR	GLY	GLY	GLY	GLY	ASN	PRO	THR	VAL	MET	ALA	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	ARG			
SER	VAL	GLU	ALA	GLN	ILE	ARG	ASP	VAL	ASP	THR	THR	ASP	GLY	GLY	VAL	LEU	ASN	ALA	GLN	THR	GLY	LEU	LEU	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	PRO			
PHE	ARG	GLY	THR	PHE	THR	TYR	THR	ASP	ASP	ALA	PRO	ASP	ARG	VAL	PRO	GLN	THR	ALA	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	SER	
ASN	ALA	GLU	HIS	LYS	LEU	VAL	VAL	VAL	ASP	ARG	ARG	ARG	ARG	SER	VAL	ALA	VAL	VAL	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	ARG	
ILE	VAL	LEU	THR	ARG	SER	PRO	ASN	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	PRO	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL		

[illegible]

- Molecule 1: Mycocerosic acid synthase

Chain C: 95%

[illegible]



T2054	E2055	Y2056	T2064	E2065	W2066	R2067	T2068	T2072	T2079	E2080	R2081	Y2082	T2083	W2087	E2098	E2103	Q2104	A2105	A2106	ALA	PRO	ALA	ALA	ALA	SER	LYS	LEU	ALA	ALA	ALA	ALA	LEU	GLU	HIS	HIS	HIS	HIS	HIS

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	34615	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	55	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	130000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.263	Depositor
Minimum map value	-0.745	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.028	Depositor
Recommended contour level	0.115	Depositor
Map size (Å)	320.04, 320.04, 320.04	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.889, 0.889, 0.889	Depositor

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: A1BY8

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	0.14	0/6601	0.34	1/9017 (0.0%)
1	B	0.17	0/6626	0.39	1/9050 (0.0%)
1	C	0.24	0/766	0.62	1/1035 (0.1%)
All	All	0.16	0/13993	0.38	3/19102 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	C	0	1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	176	ALA	CB-CA-C	-5.52	110.22	116.63
1	C	2034	LEU	N-CA-C	-5.38	104.86	111.75
1	B	176	ALA	CB-CA-C	-5.07	110.75	116.63

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	2045	ARG	Sidechain

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	6466	0	6334	92	0
1	B	6491	0	6356	120	0
1	C	757	0	769	29	0
2	A	39	0	0	1	0
2	C	38	0	0	0	0
All	All	13791	0	13459	236	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 9.

All (236) 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:C:2033:ARG:HA	1:C:2036:VAL:HG12	1.47	0.95
1:B:710:TRP:HB3	1:B:715:VAL:HB	1.55	0.89
1:B:649:SER:O	1:B:653:THR:OG1	1.94	0.86
1:C:2036:VAL:HA	1:C:2047:ILE:HD11	1.61	0.83
1:B:706:LEU:HG	1:B:710:TRP:HZ3	1.48	0.76
1:B:648:ARG:HH22	1:B:773:TRP:CG	2.10	0.69
1:B:640:ASP:HA	1:B:643:ARG:HE	1.59	0.67
1:C:2083:ILE:H	1:C:2083:ILE:HD12	1.60	0.66
1:B:2:GLU:OE1	1:B:4:ARG:NH2	2.28	0.66
1:B:706:LEU:HG	1:B:710:TRP:CZ3	2.29	0.66
1:B:331:TYR:HH	1:B:423:HIS:HE2	1.45	0.65
1:B:645:ILE:HA	1:B:648:ARG:HD2	1.78	0.64
1:B:591:ASP:OD1	1:B:592:LYS:NZ	2.30	0.64
1:B:129:HIS:NE2	1:B:350:THR:OG1	2.24	0.64
1:B:564:LYS:HZ1	1:B:638:LEU:HB2	1.62	0.62
1:B:711:GLU:OE2	1:B:718:ARG:NH1	2.32	0.62
1:A:343:LYS:HE3	1:A:353:ALA:HB1	1.82	0.61
1:A:342:ALA:HB2	1:A:360:LYS:HD3	1.83	0.61
1:B:647:ARG:HH11	1:B:742:LEU:HA	1.67	0.59
1:A:796:ARG:NH2	1:C:2050:ASP:OD2	2.36	0.59
1:B:648:ARG:HH22	1:B:773:TRP:HB3	1.67	0.59
1:C:2052:SER:HB2	1:C:2087:ASN:OD1	2.03	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:461:ARG:NH2	1:A:520:ALA:O	2.36	0.59
1:A:770:GLY:O	1:A:774:VAL:HG23	2.03	0.58
1:C:2016:ARG:HH21	1:C:2017:MET:HE3	1.69	0.58
1:A:85:GLU:OE1	1:A:85:GLU:N	2.37	0.58
1:A:25:ASP:OD1	1:A:26:LYS:N	2.37	0.58
1:A:185:HIS:HD1	1:A:269:THR:HG1	1.46	0.58
1:B:604:LEU:HB3	1:B:801:LEU:HD23	1.84	0.58
1:C:2026:GLU:N	1:C:2026:GLU:OE1	2.37	0.58
1:B:569:ILE:HG13	1:B:573:SER:HB3	1.87	0.57
1:A:189:ARG:NE	1:B:193:ASP:OD2	2.38	0.57
1:A:661:MET:SD	1:A:725:ALA:HA	2.44	0.57
1:A:648:ARG:CZ	1:A:777:LEU:HD21	2.34	0.57
1:A:692:GLN:NE2	1:A:817:SER:OG	2.37	0.57
1:A:735:LEU:HD21	1:A:778:ARG:HB2	1.85	0.57
1:A:207:LEU:H	1:A:242:GLU:HG2	1.68	0.56
1:A:499:ALA:HB3	1:A:843:THR:HG23	1.87	0.56
1:B:95:GLN:OE1	1:B:159:ARG:NH2	2.34	0.56
1:C:2053:PHE:HA	1:C:2056:TYR:HD2	1.70	0.56
1:C:2025:ASP:OD1	1:C:2025:ASP:N	2.32	0.56
1:A:361:ALA:HB1	1:A:410:VAL:HG21	1.87	0.56
1:B:587:VAL:HG13	1:B:593:VAL:HG22	1.88	0.56
1:B:436:PRO:HB2	1:B:439:SER:HB2	1.88	0.55
1:B:636:LEU:HA	1:B:748:MET:HE1	1.88	0.55
1:B:308:VAL:HG22	1:B:338:ALA:HB3	1.89	0.55
1:B:49:ASP:OD1	1:B:65:ARG:NH2	2.32	0.55
1:B:544:TRP:H	1:B:547:MET:HE3	1.71	0.55
1:A:171:MET:HE3	1:B:186:LEU:HD11	1.89	0.55
1:A:211:HIS:HA	1:A:214:VAL:HG12	1.88	0.55
1:B:33:ARG:NH2	1:B:35:ASP:OD2	2.38	0.55
1:C:2036:VAL:HG23	1:C:2047:ILE:HG13	1.89	0.55
1:A:157:SER:OG	1:A:170:ALA:O	2.26	0.54
1:B:591:ASP:HA	1:B:649:SER:HB2	1.88	0.54
1:A:173:PHE:HA	1:B:173:PHE:HA	1.89	0.54
1:B:185:HIS:HA	1:B:269:THR:HG21	1.89	0.54
1:A:348:HIS:NE2	2:A:2201:A1BY8:O1	2.41	0.54
1:A:702:THR:O	1:A:706:LEU:HD12	2.08	0.53
1:B:578:THR:O	1:B:582:THR:OG1	2.20	0.53
1:A:350:THR:OG1	1:A:351:ALA:N	2.40	0.53
1:A:800:GLU:OE2	1:A:802:SER:OG	2.26	0.53
1:B:773:TRP:O	1:B:777:LEU:HD12	2.08	0.53
1:A:800:GLU:HG2	1:A:802:SER:H	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:2033:ARG:O	1:C:2034:LEU:C	2.50	0.53
1:C:2016:ARG:NH2	1:C:2017:MET:HA	2.24	0.52
1:B:209:GLU:OE2	1:B:212:ALA:N	2.41	0.52
1:C:2098:ASP:OD1	1:C:2098:ASP:N	2.43	0.52
1:A:92:ASP:HB3	1:A:95:GLN:HG3	1.92	0.52
1:C:2033:ARG:C	1:C:2035:LEU:N	2.66	0.52
1:B:640:ASP:O	1:B:643:ARG:HG2	2.09	0.52
1:B:836:HIS:HB3	1:B:839:ARG:HH11	1.75	0.52
1:A:604:LEU:HD11	1:A:828:MET:HE2	1.91	0.52
1:B:610:GLN:OE1	1:B:610:GLN:N	2.43	0.52
1:A:664:VAL:O	1:A:694:THR:N	2.37	0.51
1:A:706:LEU:O	1:A:710:TRP:N	2.43	0.51
1:A:531:ARG:NH1	1:A:793:ASP:O	2.43	0.51
1:B:755:TYR:OH	1:B:793:ASP:OD2	2.23	0.51
1:B:661:MET:HE2	1:B:725:ALA:HA	1.92	0.51
1:A:735:LEU:HD23	1:A:774:VAL:HG12	1.92	0.51
1:B:864:VAL:HG12	1:B:865:ASP:H	1.76	0.51
1:B:648:ARG:HB3	1:B:652:MET:HE2	1.92	0.51
1:A:273:GLN:HG3	1:A:275:GLY:H	1.76	0.51
1:A:735:LEU:HD12	1:A:735:LEU:H	1.76	0.51
1:B:648:ARG:O	1:B:652:MET:HG2	2.10	0.51
1:A:36:ASP:OD2	1:A:227:ARG:NH1	2.40	0.51
1:B:405:HIS:HD2	1:B:406:THR:HG23	1.76	0.50
1:B:648:ARG:HH22	1:B:773:TRP:CB	2.23	0.50
1:B:706:LEU:O	1:B:709:ARG:HB3	2.11	0.50
1:A:686:SER:N	1:A:695:VAL:O	2.38	0.50
1:B:558:PHE:O	1:B:562:ILE:HG12	2.11	0.50
1:A:796:ARG:HG3	1:A:796:ARG:HH11	1.76	0.50
1:B:744:ASP:OD1	1:B:744:ASP:N	2.45	0.50
1:A:609:GLU:HB2	1:A:615:ARG:NH2	2.26	0.50
1:A:650:LYS:O	1:A:653:THR:OG1	2.21	0.50
1:A:755:TYR:OH	1:A:793:ASP:OD2	2.23	0.50
1:B:564:LYS:HD2	1:B:564:LYS:O	2.12	0.49
1:B:564:LYS:HD2	1:B:564:LYS:C	2.37	0.49
1:B:13:MET:HE1	1:B:362:ILE:HG21	1.94	0.49
1:C:2039:ALA:HB2	1:C:2066:MET:HE1	1.94	0.49
1:C:2052:SER:OG	1:C:2055:GLU:OE1	2.26	0.49
1:A:95:GLN:NE2	1:A:152:ASN:O	2.46	0.49
1:A:794:GLY:O	1:A:796:ARG:NH1	2.46	0.49
1:A:825:LEU:HD13	1:A:844:GLU:HB3	1.95	0.49
1:A:71:ASP:N	1:A:71:ASP:OD1	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:95:GLN:OE1	1:A:159:ARG:NH2	2.40	0.48
1:B:604:LEU:HD13	1:B:838:LEU:HD21	1.95	0.48
1:A:209:GLU:HG3	1:A:211:HIS:H	1.78	0.48
1:C:2017:MET:SD	1:C:2017:MET:N	2.86	0.48
1:C:2031:LEU:C	1:C:2033:ARG:N	2.68	0.48
1:B:534:VAL:HG22	1:B:618:ALA:HB3	1.94	0.48
1:A:800:GLU:OE2	1:A:805:PRO:HA	2.14	0.48
1:B:640:ASP:O	1:B:644:VAL:HG23	2.14	0.48
1:A:661:MET:HB2	1:A:720:VAL:HB	1.96	0.47
1:B:607:THR:O	1:B:611:THR:OG1	2.18	0.47
1:B:768:CYS:HA	1:B:772:TYR:CD2	2.49	0.47
1:A:103:TRP:CE2	1:A:113:PRO:HG2	2.49	0.47
1:A:547:MET:HG2	1:A:548:GLY:N	2.30	0.47
1:B:349:SER:O	1:B:353:ALA:N	2.47	0.47
1:A:121:THR:HG23	1:A:198:LEU:HB3	1.96	0.47
1:A:417:MET:HE2	1:A:417:MET:HB3	1.84	0.47
1:B:600:VAL:O	1:B:604:LEU:HD23	2.15	0.46
1:B:709:ARG:HH12	1:B:713:ARG:HD3	1.80	0.46
1:C:2068:THR:O	1:C:2072:THR:HG23	2.15	0.46
1:A:271:THR:HG23	1:B:169:PRO:HG3	1.97	0.46
1:B:683:VAL:HA	1:B:698:GLY:HA3	1.97	0.46
1:B:761:ASP:HB3	1:B:764:GLU:HG3	1.97	0.46
1:B:301:VAL:HG11	1:B:409:ARG:HD3	1.97	0.46
1:C:2033:ARG:HA	1:C:2036:VAL:CG1	2.31	0.46
1:A:147:VAL:HG13	1:A:151:LEU:HD12	1.98	0.46
1:B:844:GLU:OE1	1:B:847:ARG:NH1	2.42	0.46
1:A:523:ASP:OD1	1:A:523:ASP:N	2.46	0.46
1:A:630:ALA:HB1	1:A:636:LEU:HG	1.98	0.46
1:A:647:ARG:HH12	1:A:744:ASP:CG	2.23	0.46
1:B:497:ARG:HD3	1:B:846:HIS:NE2	2.31	0.46
1:A:636:LEU:HD11	1:A:773:TRP:HZ2	1.81	0.46
1:A:638:LEU:HD12	1:A:638:LEU:H	1.81	0.46
1:B:103:TRP:CE2	1:B:113:PRO:HG2	2.50	0.46
1:B:787:VAL:O	1:B:791:MET:HG3	2.16	0.46
1:C:2031:LEU:C	1:C:2033:ARG:H	2.24	0.46
1:A:648:ARG:HG3	1:A:652:MET:HE1	1.98	0.45
1:A:802:SER:OG	1:A:804:HIS:O	2.34	0.45
1:B:113:PRO:HD2	1:B:492:ALA:HB2	1.98	0.45
1:B:504:ASN:OD1	1:B:507:GLU:HG3	2.16	0.45
1:C:2019:LEU:HD11	1:C:2027:TRP:HA	1.98	0.45
1:C:2020:LEU:HD11	1:C:2104:GLN:HG2	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:2024:GLN:HA	1:C:2027:TRP:CD1	2.51	0.45
1:A:772:TYR:O	1:A:776:ASN:N	2.42	0.45
1:A:206:VAL:HG12	1:A:208:LEU:HG	1.99	0.45
1:B:71:ASP:OD1	1:B:71:ASP:N	2.49	0.45
1:B:596:ALA:O	1:B:600:VAL:HG12	2.16	0.45
1:B:692:GLN:N	1:B:692:GLN:OE1	2.49	0.45
1:C:2064:LEU:HD13	1:C:2067:ARG:HE	1.82	0.45
1:B:92:ASP:HB3	1:B:95:GLN:HG3	1.97	0.45
1:B:197:ASP:OD1	1:B:251:ARG:NH2	2.44	0.45
1:B:128:THR:HG22	1:B:129:HIS:H	1.82	0.45
1:B:630:ALA:HA	1:B:754:TYR:HE2	1.81	0.45
1:B:710:TRP:HD1	1:B:715:VAL:HG11	1.82	0.45
1:A:605:ALA:O	1:A:609:GLU:HG3	2.17	0.45
1:B:365:LEU:HD22	1:B:428:GLU:HB3	2.00	0.44
1:B:718:ARG:NH1	1:B:718:ARG:HA	2.32	0.44
1:A:648:ARG:NH1	1:A:777:LEU:HD11	2.33	0.44
1:B:405:HIS:CD2	1:B:406:THR:HG23	2.52	0.44
1:B:648:ARG:NH2	1:B:773:TRP:CG	2.81	0.44
1:A:66:TRP:CE3	1:A:226:GLY:HA3	2.52	0.44
1:C:2047:ILE:HG22	1:C:2056:TYR:CE1	2.52	0.44
1:B:647:ARG:HH12	1:B:744:ASP:CG	2.24	0.44
1:B:399:TRP:CG	1:B:408:LYS:HD3	2.53	0.44
1:C:2033:ARG:CA	1:C:2036:VAL:HG12	2.34	0.44
1:B:551:LEU:HG	1:B:558:PHE:CE2	2.52	0.44
1:B:687:VAL:HG22	1:B:781:VAL:HB	2.00	0.44
1:B:624:MET:H	1:B:624:MET:HG2	1.63	0.44
1:C:2079:THR:OG1	1:C:2081:LYS:NZ	2.45	0.44
1:A:660:ALA:HB3	1:A:700:SER:HA	2.00	0.44
1:B:273:GLN:HG3	1:B:275:GLY:H	1.83	0.44
1:B:208:LEU:HD13	1:B:877:PHE:CZ	2.53	0.44
1:A:185:HIS:ND1	1:A:269:THR:OG1	2.37	0.43
1:B:623:SER:OG	1:B:624:MET:N	2.51	0.43
1:B:519:ASP:OD1	1:B:519:ASP:O	2.36	0.43
1:A:589:GLY:O	1:A:593:VAL:N	2.41	0.43
1:B:581:ILE:HG13	1:B:582:THR:HG23	2.00	0.43
1:A:87:GLU:O	1:A:91:ILE:HG13	2.17	0.43
1:A:558:PHE:O	1:A:562:ILE:HG12	2.17	0.43
1:A:710:TRP:CD1	1:A:715:VAL:HG11	2.53	0.43
1:A:735:LEU:HB3	1:A:774:VAL:CG1	2.48	0.43
1:B:87:GLU:O	1:B:91:ILE:HG13	2.19	0.43
1:B:716:MET:HE2	1:B:716:MET:HA	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:775:ASP:O	1:B:779:ASN:N	2.37	0.43
1:C:2087:ASN:OD1	1:C:2087:ASN:O	2.37	0.43
1:A:346:MET:HE2	1:A:346:MET:HB3	1.78	0.43
1:A:497:ARG:HD3	1:A:846:HIS:NE2	2.34	0.43
1:A:782:GLN:HB3	1:A:785:ALA:HB3	2.01	0.43
1:B:238:PHE:HB3	1:B:314:THR:HG22	1.99	0.43
1:B:608:MET:HB3	1:B:614:VAL:HB	2.00	0.42
1:B:648:ARG:NH2	1:B:773:TRP:CD2	2.85	0.42
1:A:99:LEU:HD22	1:A:159:ARG:HD2	2.00	0.42
1:B:644:VAL:CG1	1:B:648:ARG:HE	2.32	0.42
1:A:544:TRP:H	1:A:547:MET:HE3	1.84	0.42
1:B:844:GLU:OE1	1:B:844:GLU:HA	2.19	0.42
1:B:644:VAL:HG12	1:B:648:ARG:HE	1.83	0.42
1:B:145:PRO:O	1:B:148:VAL:HG12	2.20	0.42
1:B:413:SER:OG	1:B:423:HIS:ND1	2.44	0.42
1:B:564:LYS:O	1:B:567:PRO:HD2	2.20	0.42
1:B:718:ARG:HA	1:B:718:ARG:CZ	2.50	0.42
1:A:575:PHE:CZ	1:A:592:LYS:HE3	2.55	0.42
1:A:633:ALA:HA	1:A:752:VAL:HB	2.02	0.42
1:B:674:GLU:HG2	1:B:710:TRP:CZ2	2.54	0.42
1:B:676:MET:HE3	1:B:676:MET:HA	2.01	0.42
1:A:635:ALA:C	1:A:636:LEU:HD23	2.45	0.41
1:A:622:HIS:HB2	1:A:783:PHE:CD1	2.54	0.41
1:B:569:ILE:HG21	1:B:577:VAL:HG13	2.01	0.41
1:B:644:VAL:HG13	1:B:648:ARG:HH21	1.84	0.41
1:A:320:ASP:HB2	1:A:321:PRO:HD3	2.02	0.41
1:B:268:GLY:HA3	1:B:299:ALA:HB2	2.01	0.41
1:B:531:ARG:HD2	1:B:795:TYR:CZ	2.55	0.41
1:B:358:LEU:O	1:B:362:ILE:HD12	2.20	0.41
1:B:37:LEU:HD12	1:B:346:MET:HE2	2.02	0.41
1:B:594:GLN:HG2	1:B:645:ILE:HD11	2.02	0.41
1:B:701:ASP:OD1	1:B:702:THR:N	2.52	0.41
1:A:45:ARG:HH21	1:A:242:GLU:CD	2.28	0.41
1:A:209:GLU:OE2	1:A:211:HIS:HB2	2.20	0.41
1:B:542:SER:O	1:B:803:PRO:HB2	2.20	0.41
1:A:805:PRO:HG3	1:A:829:ARG:NH1	2.36	0.41
1:B:542:SER:HB2	1:B:804:HIS:H	1.86	0.41
1:A:457:SER:OG	1:A:461:ARG:NH1	2.51	0.41
1:A:564:LYS:HD2	1:A:564:LYS:C	2.45	0.41
1:B:544:TRP:H	1:B:547:MET:CE	2.34	0.41
1:B:636:LEU:HD12	1:B:637:SER:H	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:311:ALA:HB2	1:A:339:LEU:HD11	2.03	0.41
1:B:609:GLU:HB3	1:B:610:GLN:OE1	2.21	0.41
1:A:199:ALA:HB3	1:A:249:LEU:HB2	2.02	0.40
1:A:606:ALA:HA	1:A:609:GLU:OE1	2.22	0.40
1:B:69:PHE:CE2	1:B:207:LEU:HD23	2.57	0.40
1:B:178:SER:HB3	1:B:416:GLY:N	2.36	0.40
1:A:765:GLN:HA	1:A:766:PRO:HD3	1.92	0.40
1:A:772:TYR:CD1	1:A:772:TYR:C	2.98	0.40
1:B:13:MET:HG3	1:B:24:PRO:HG2	2.03	0.40

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 PDB entries followed by that with respect to all EM entries.

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	876/2124 (41%)	861 (98%)	15 (2%)	0	100	100
1	B	879/2124 (41%)	857 (98%)	22 (2%)	0	100	100
1	C	94/2124 (4%)	90 (96%)	3 (3%)	1 (1%)	12	43
All	All	1849/6372 (29%)	1808 (98%)	40 (2%)	1 (0%)	50	79

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	2032	ARG

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 PDB entries followed by that with respect to all EM entries.

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	671/1634 (41%)	671 (100%)	0	100	100
1	B	674/1634 (41%)	672 (100%)	2 (0%)	91	95
1	C	80/1634 (5%)	78 (98%)	2 (2%)	42	69
All	All	1425/4902 (29%)	1421 (100%)	4 (0%)	90	95

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	279	THR
1	B	569	ILE
1	C	2025	ASP
1	C	2033	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (17) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	129	HIS
1	A	162	HIS
1	A	312	HIS
1	A	345	ASN
1	A	493	HIS
1	A	692	GLN
1	A	727	HIS
1	A	809	HIS
1	A	813	GLN
1	B	167	HIS
1	B	367	HIS
1	B	405	HIS
1	B	474	HIS
1	B	585	GLN
1	B	601	GLN
1	B	670	GLN
1	B	809	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

2 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	A1BY8	A	2201	1	36,38,39	0.27	0	44,47,49	0.65	1 (2%)
2	A1BY8	C	2201	1	32,37,39	0.32	0	37,44,49	0.87	1 (2%)

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	A1BY8	A	2201	1	-	7/45/45/48	-
2	A1BY8	C	2201	1	-	6/42/44/48	-

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	2201	A1BY8	C21-C20-C19	-2.56	108.14	112.39
2	C	2201	A1BY8	C15-C16-N1	2.55	120.99	116.34

There are no chirality outliers.

All (13) torsion outliers are listed below:

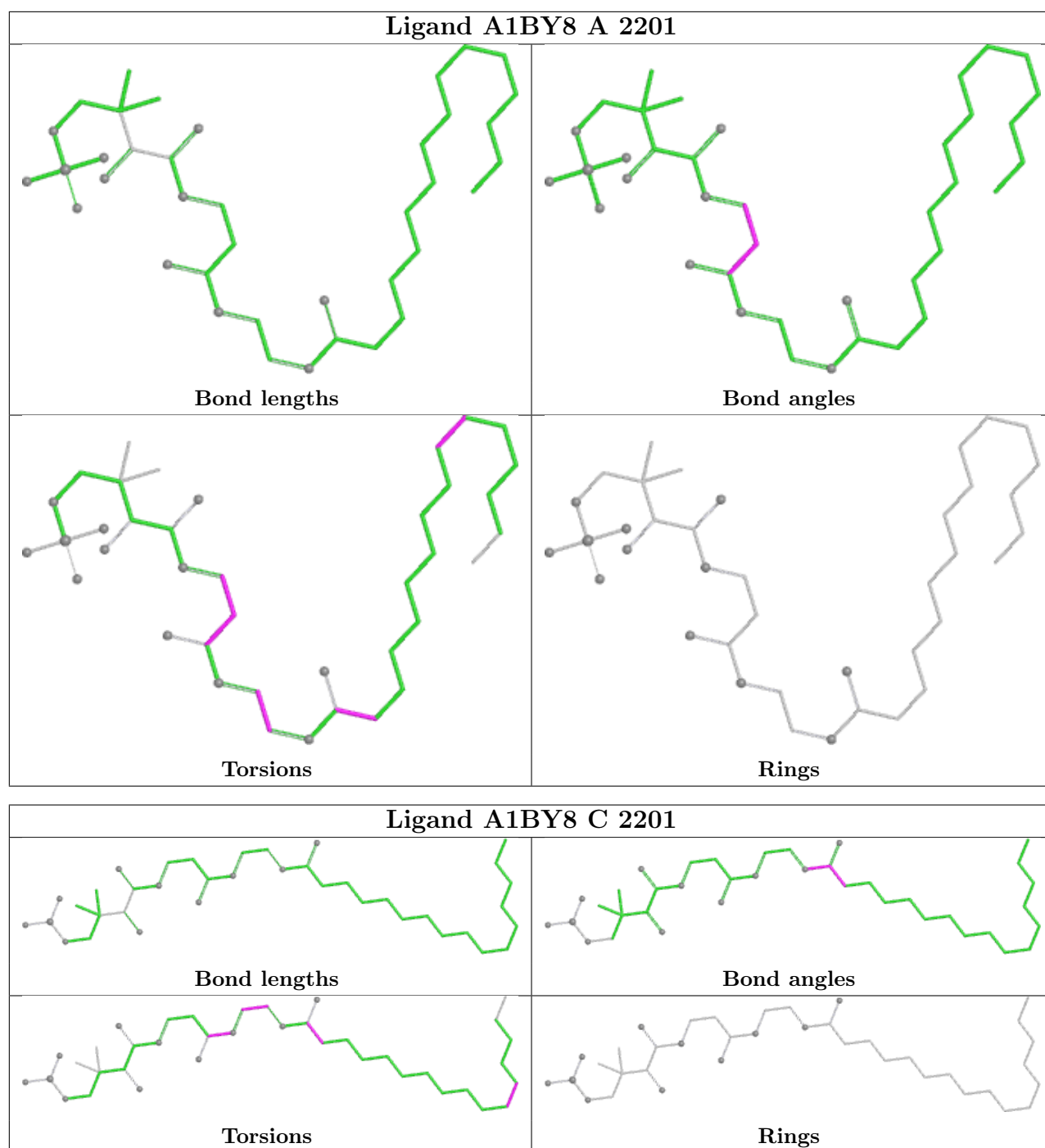
Mol	Chain	Res	Type	Atoms
2	A	2201	A1BY8	C19-C20-C21-N3
2	C	2201	A1BY8	C20-C19-N2-C18
2	C	2201	A1BY8	O2-C19-N2-C18
2	A	2201	A1BY8	C14-C15-C16-N1
2	A	2201	A1BY8	C14-C15-C16-O1
2	C	2201	A1BY8	C14-C15-C16-O1
2	C	2201	A1BY8	C14-C15-C16-N1
2	C	2201	A1BY8	C4-C5-C6-C7
2	A	2201	A1BY8	O2-C19-C20-C21
2	A	2201	A1BY8	N1-C17-C18-N2
2	A	2201	A1BY8	N2-C19-C20-C21
2	C	2201	A1BY8	N1-C17-C18-N2
2	A	2201	A1BY8	C5-C6-C7-C8

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	2201	A1BY8	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



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.

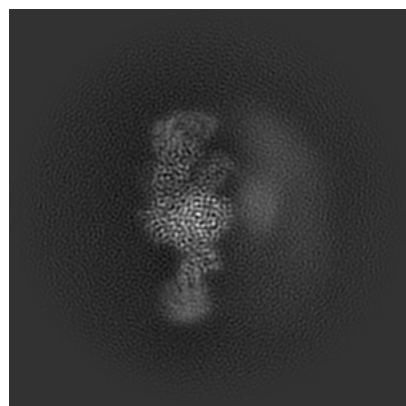
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-46505. These allow visual inspection of the internal detail of the map and identification of artifacts.

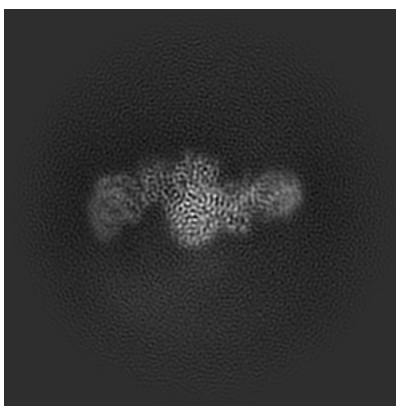
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

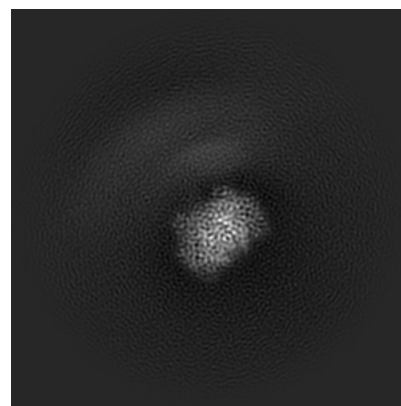
6.1.1 Primary map



X

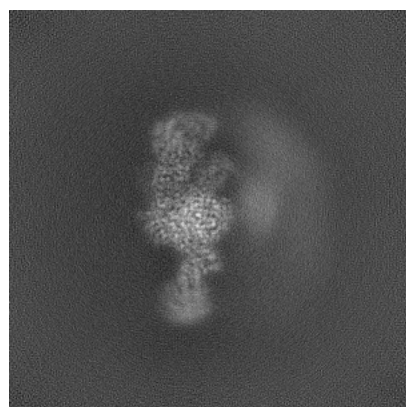


Y

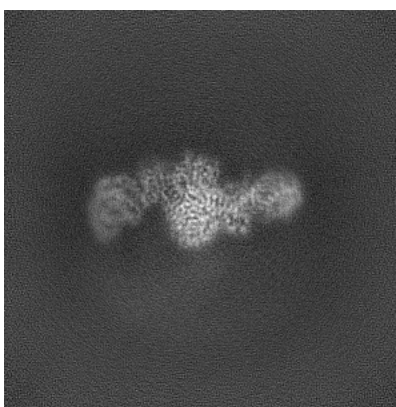


Z

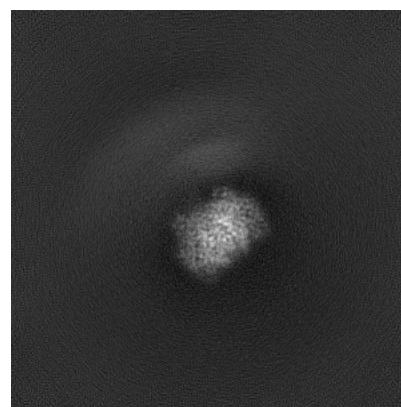
6.1.2 Raw map



X



Y

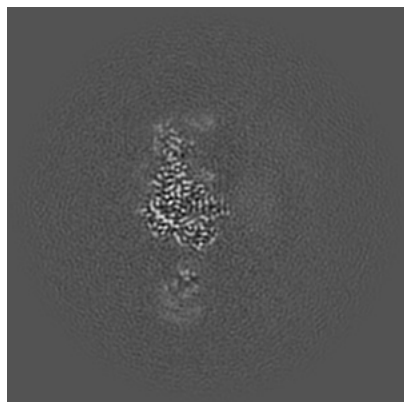


Z

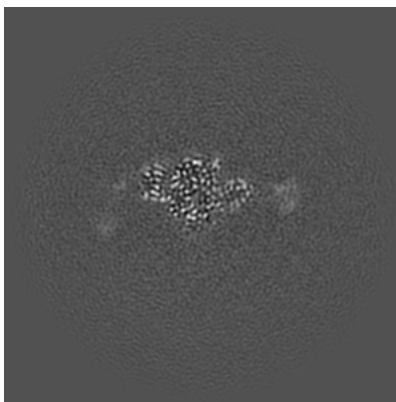
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

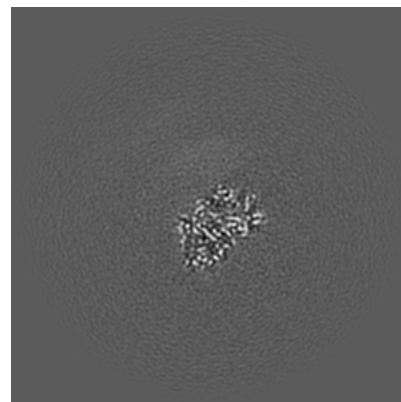
6.2.1 Primary map



X Index: 180

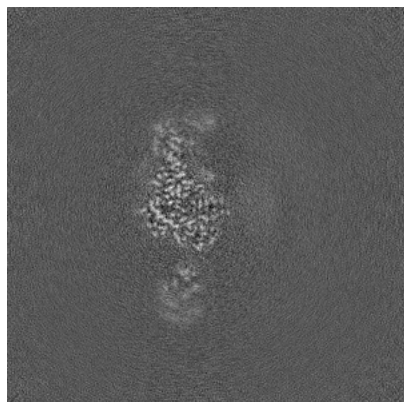


Y Index: 180

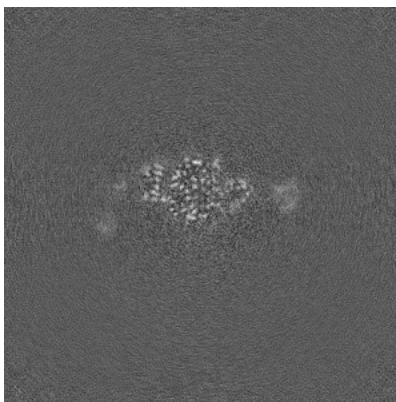


Z Index: 180

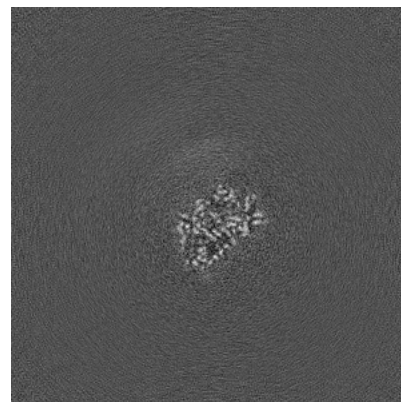
6.2.2 Raw map



X Index: 180



Y Index: 180

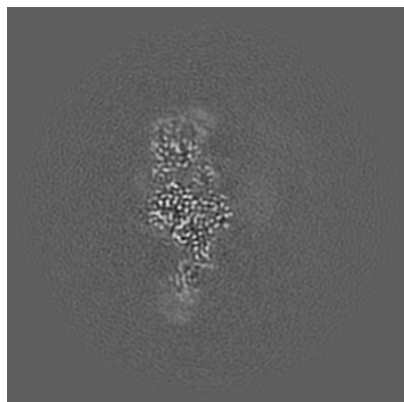


Z Index: 180

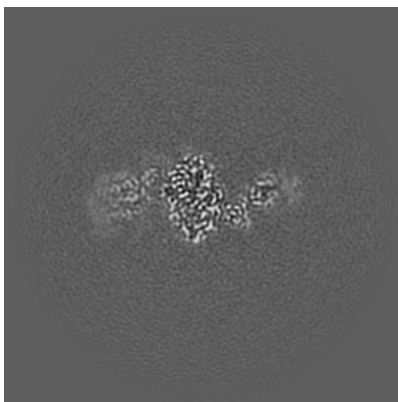
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

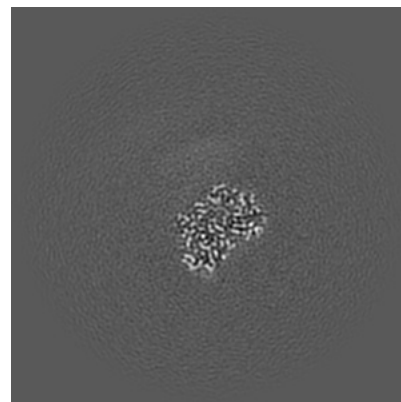
6.3.1 Primary map



X Index: 186

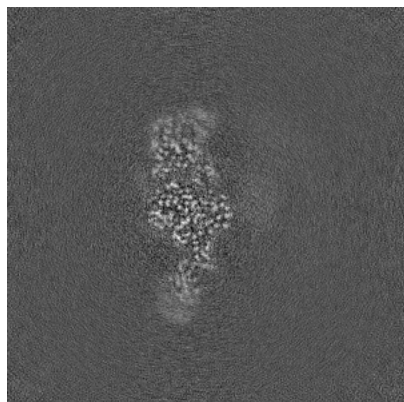


Y Index: 159

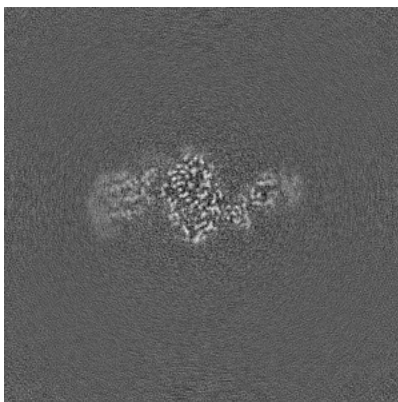


Z Index: 177

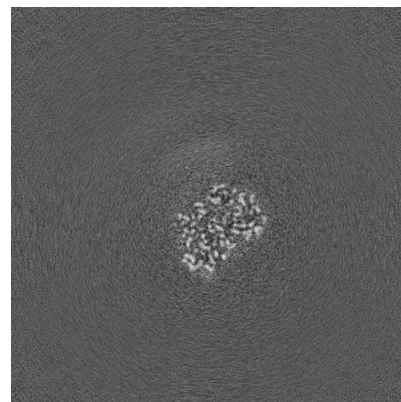
6.3.2 Raw map



X Index: 186



Y Index: 159

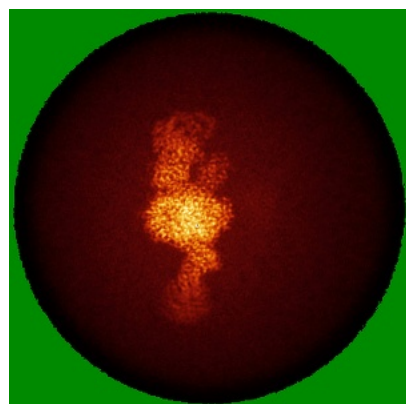


Z Index: 177

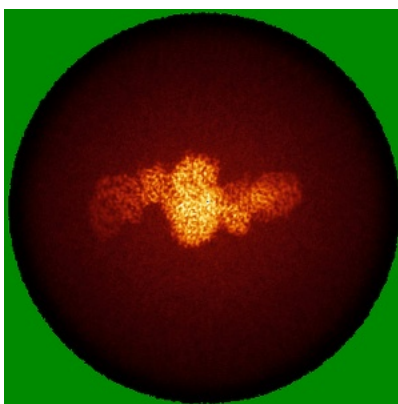
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

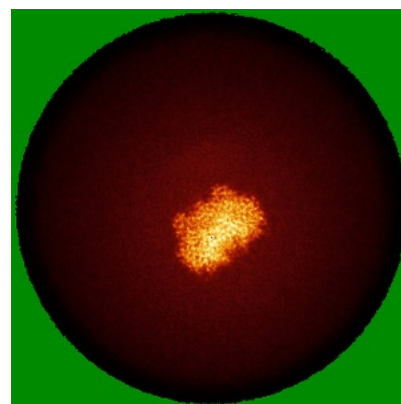
6.4.1 Primary map



X

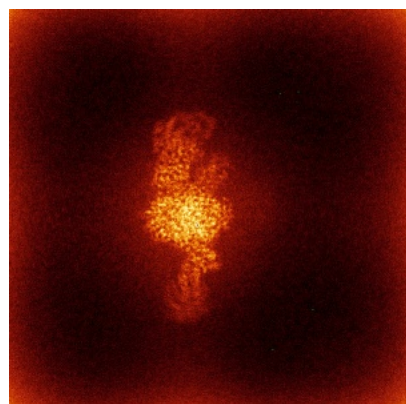


Y

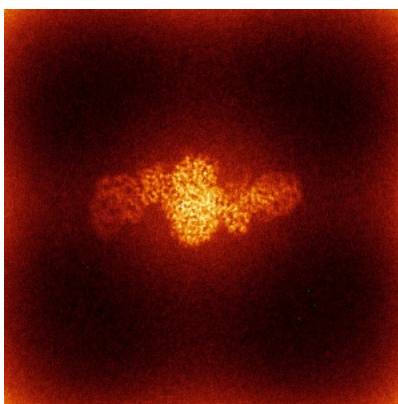


Z

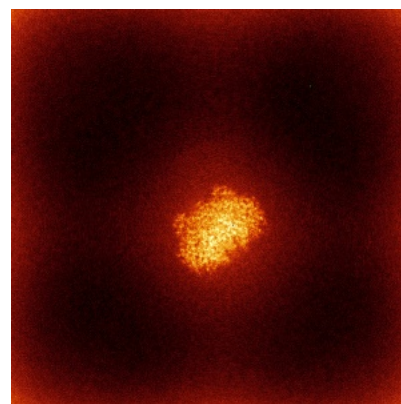
6.4.2 Raw map



X



Y

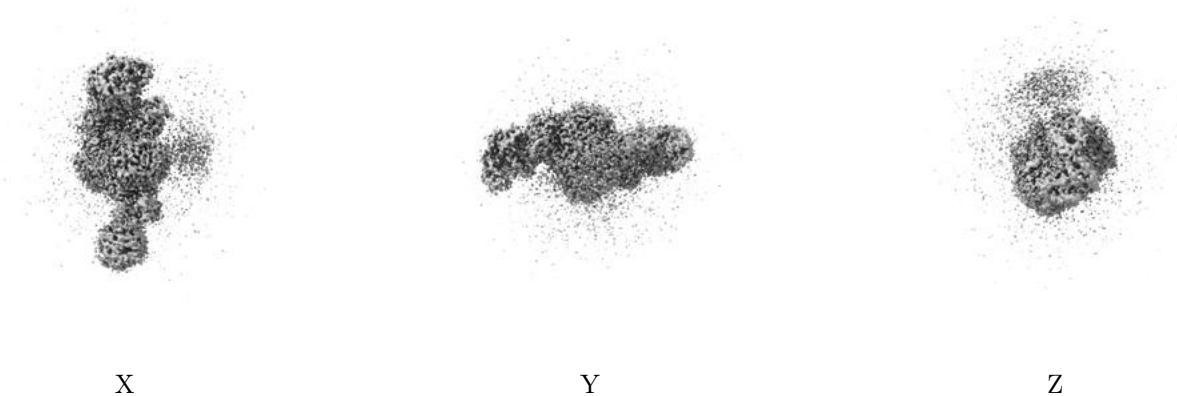


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

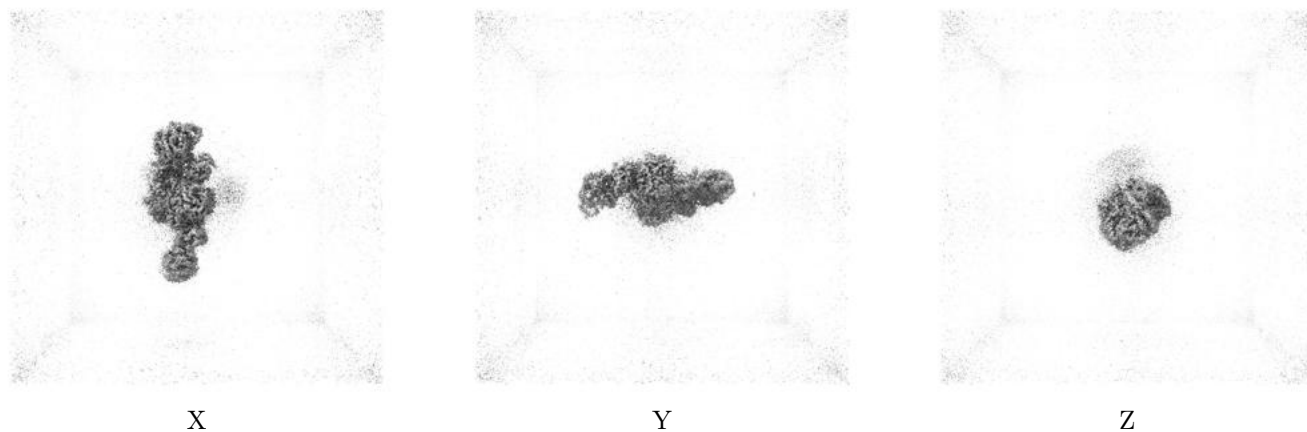
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.115. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

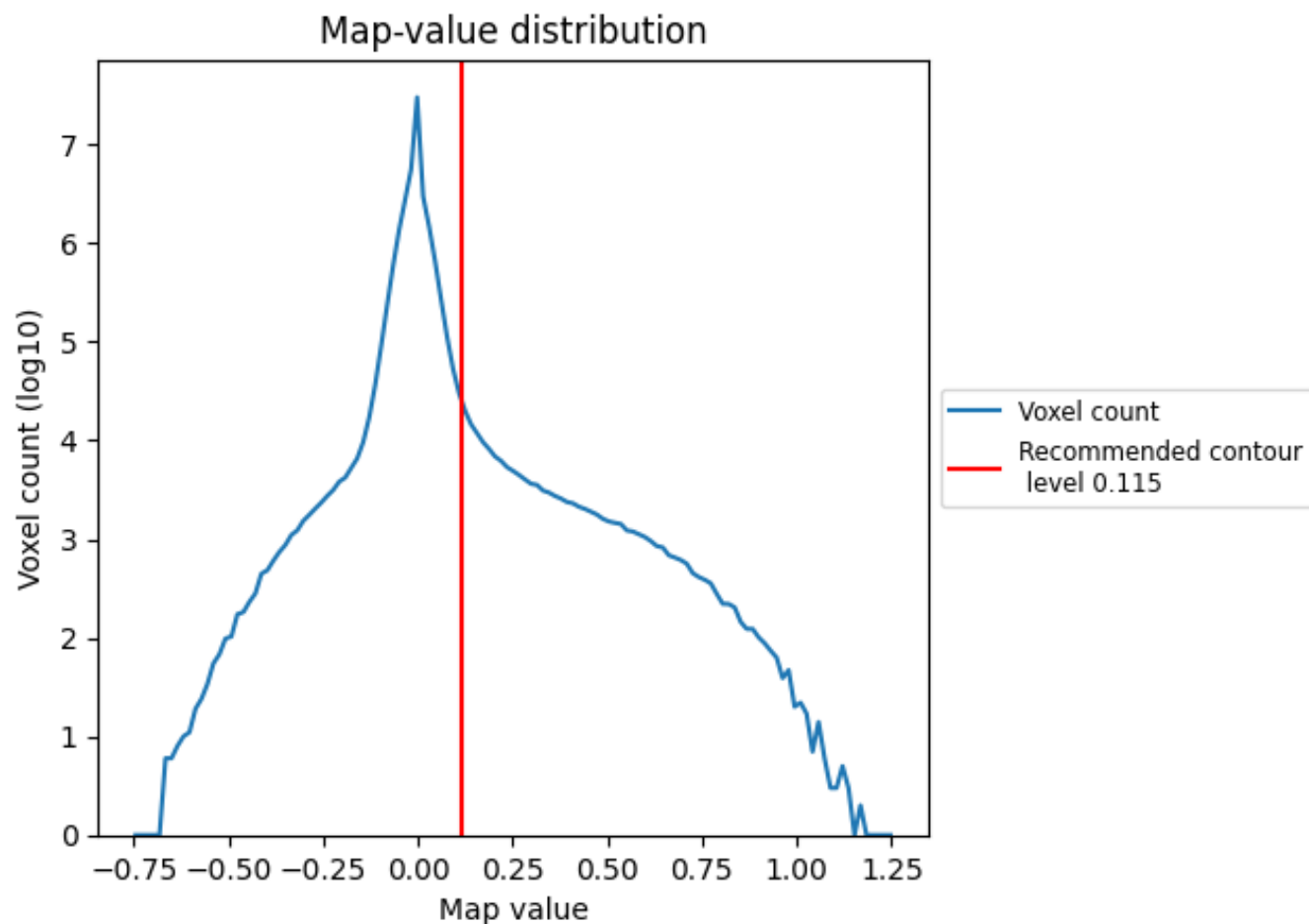
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

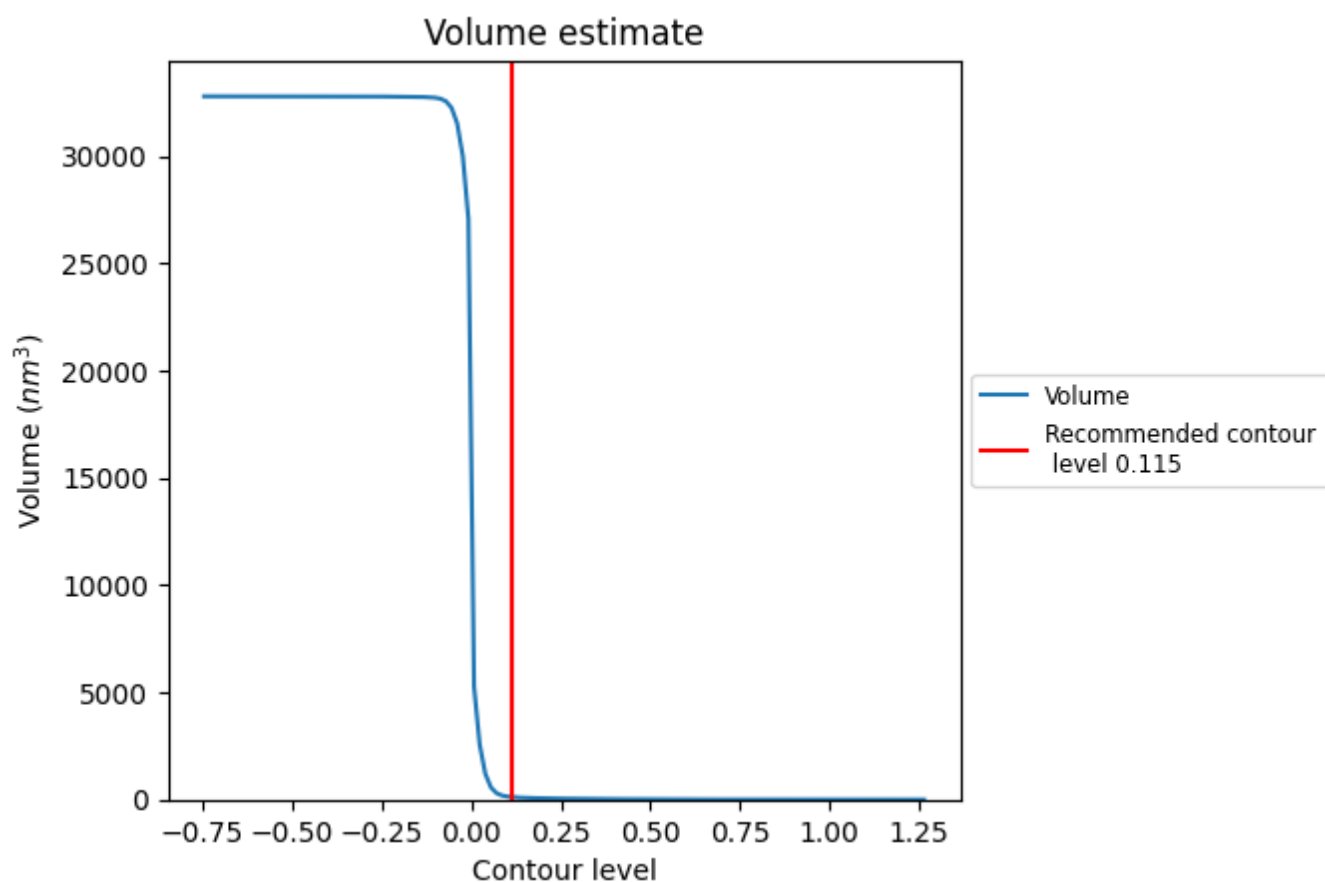
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

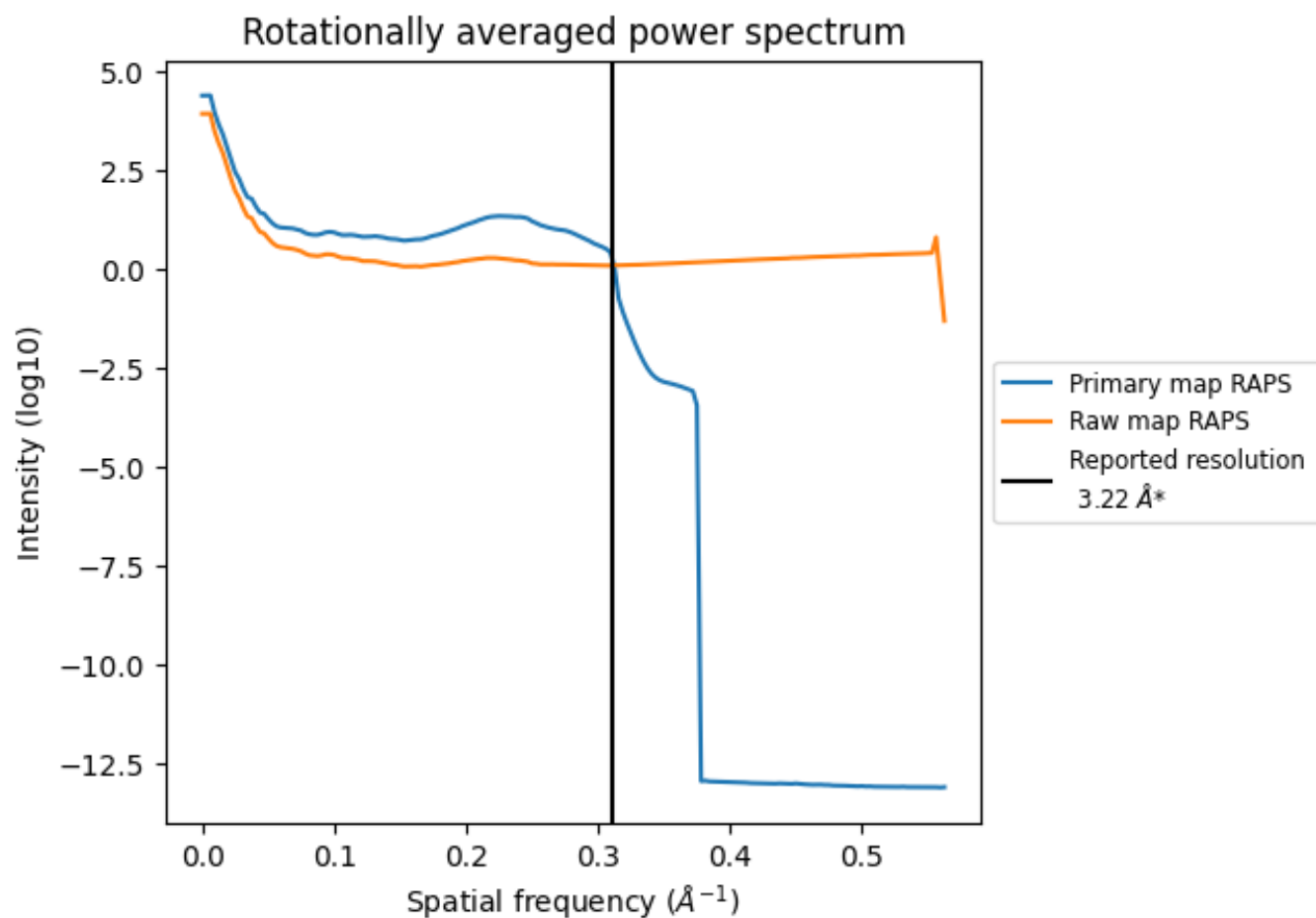
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 116 nm³; this corresponds to an approximate mass of 104 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

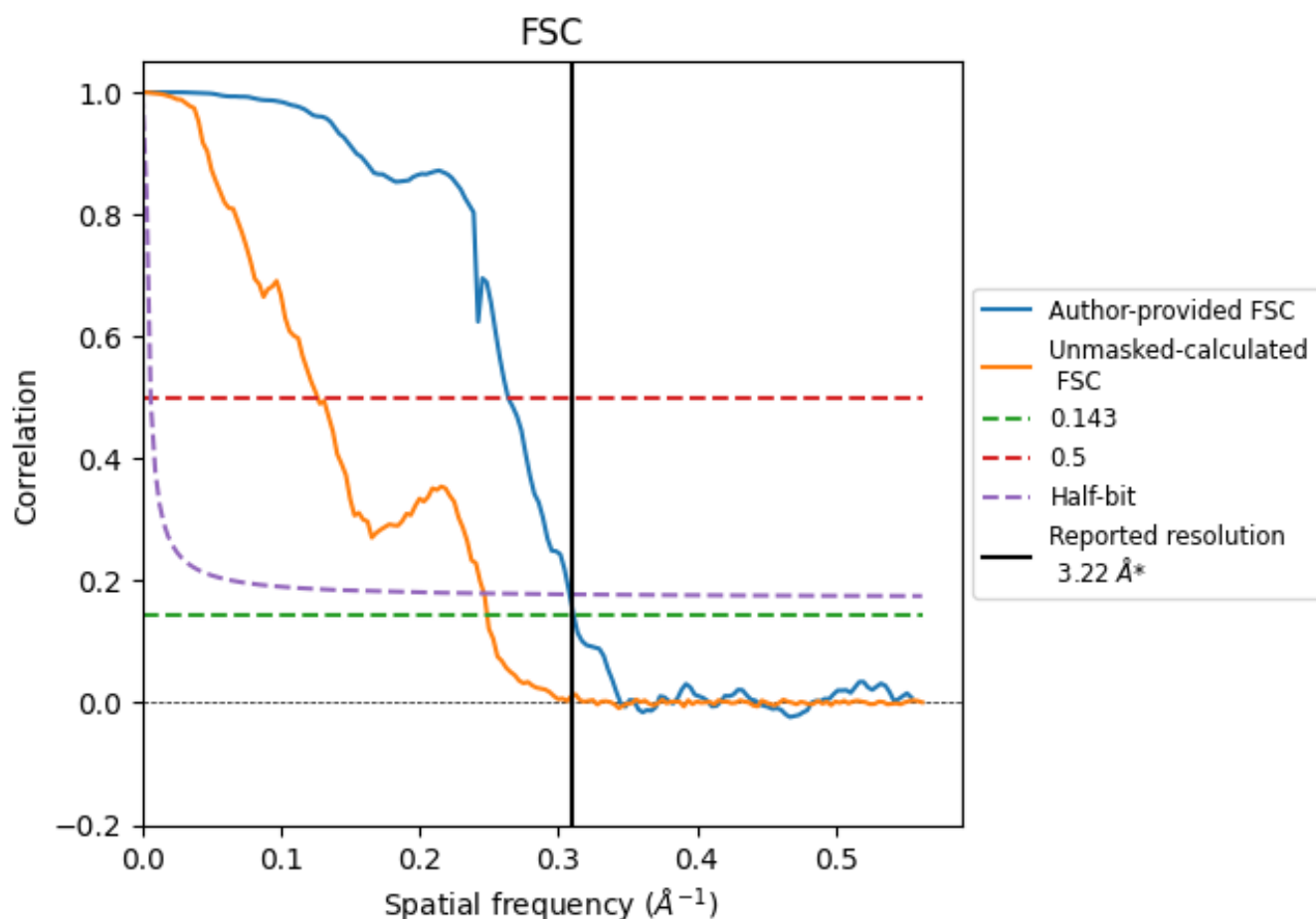


*Reported resolution corresponds to spatial frequency of 0.311 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of $0.311 \text{ \AA}^{-1}$

8.2 Resolution estimates [i](#)

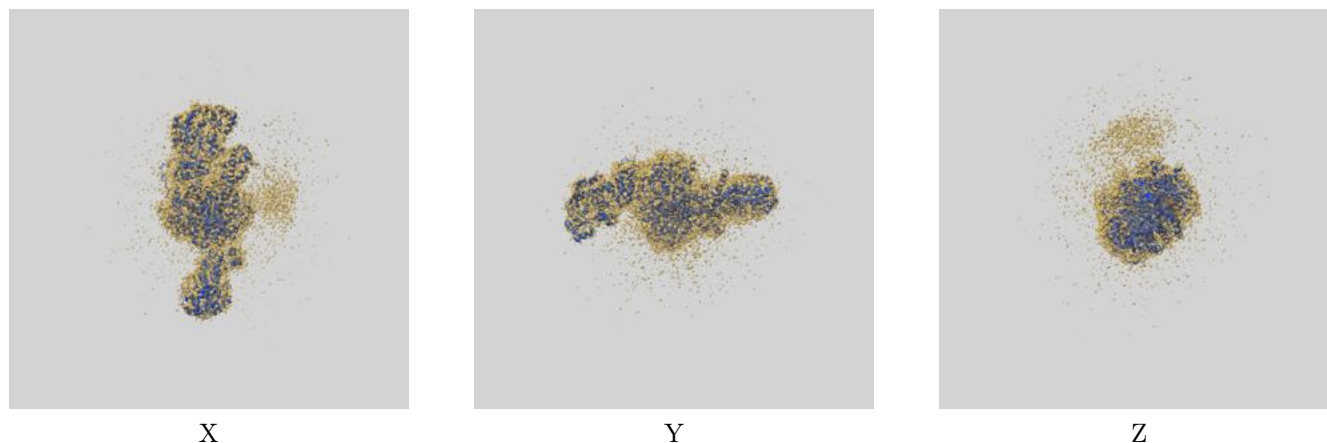
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.22	-	-
Author-provided FSC curve	3.22	3.79	3.24
Unmasked-calculated*	4.02	7.91	4.06

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.02 differs from the reported value 3.22 by more than 10 %

9 Map-model fit [i](#)

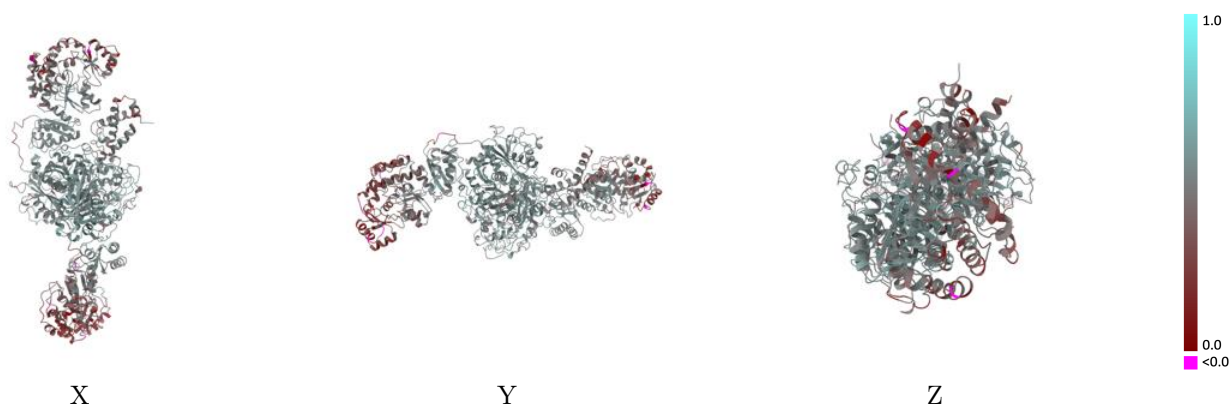
This section contains information regarding the fit between EMDB map EMD-46505 and PDB model 9D2Z. Per-residue inclusion information can be found in [section 3](#) on [page 5](#).

9.1 Map-model overlay [i](#)



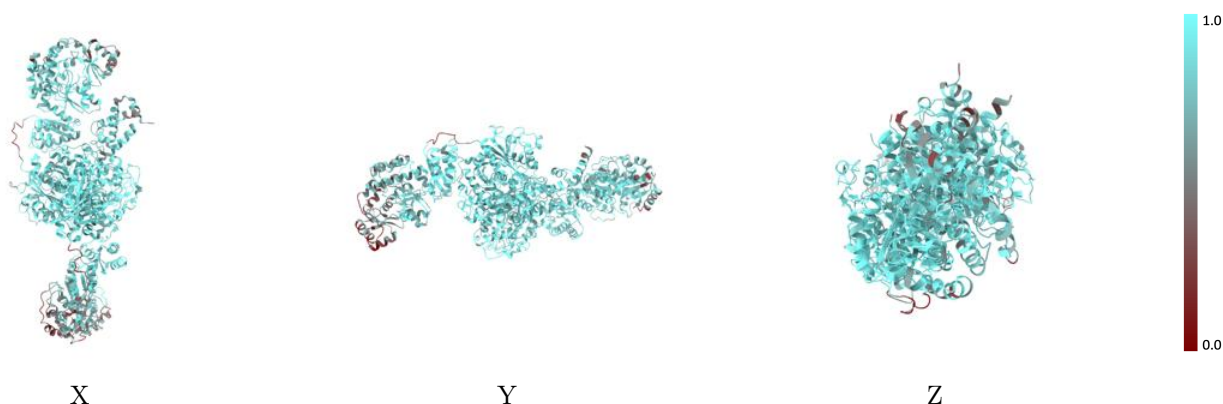
The images above show the 3D surface view of the map at the recommended contour level 0.115 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



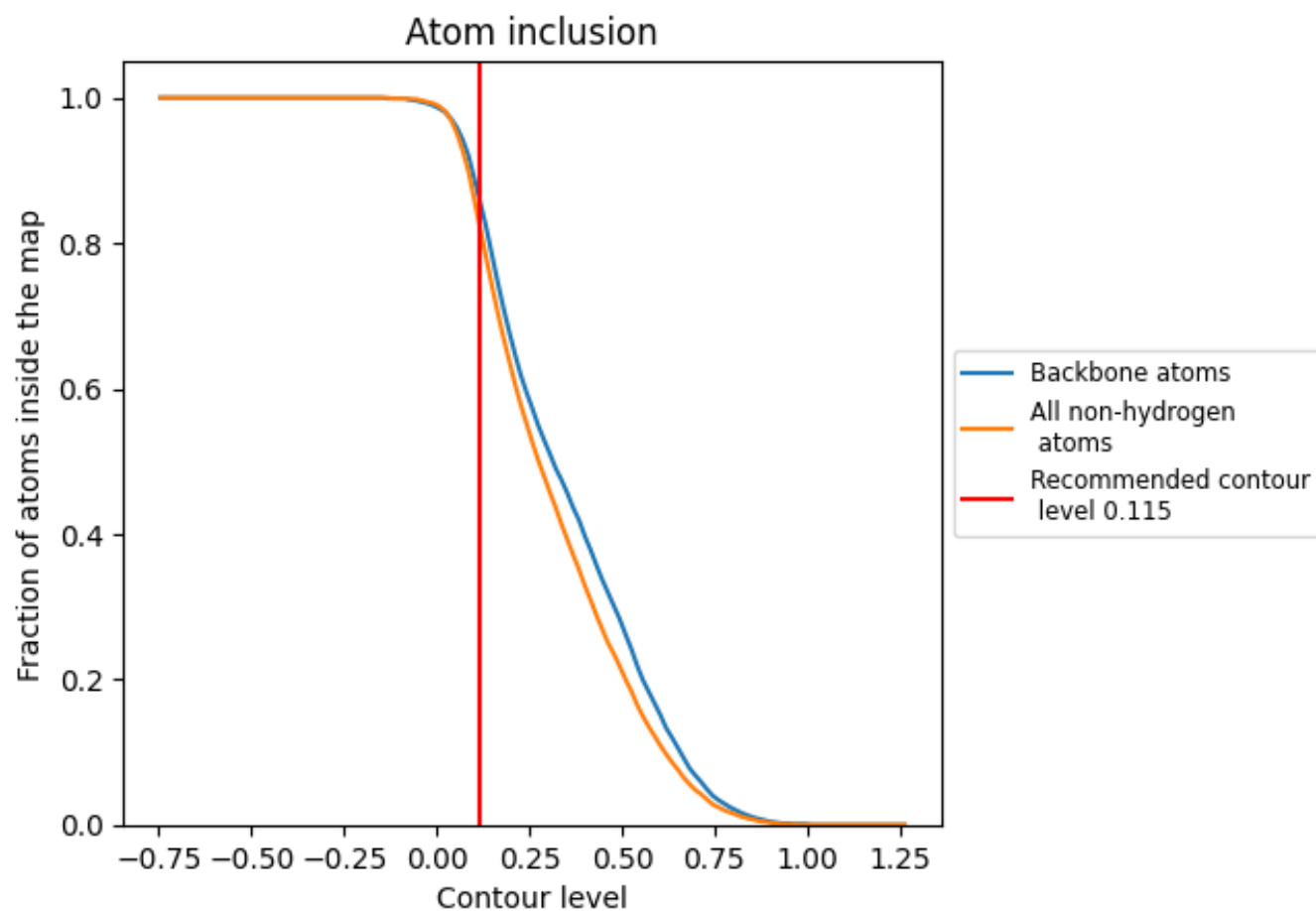
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.115).

9.4 Atom inclusion [i](#)



At the recommended contour level, 86% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.115) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8270	0.4730
A	0.8660	0.4940
B	0.7920	0.4550
C	0.7940	0.4500

