



wwPDB EM Validation Summary Report ⓘ

Mar 24, 2026 – 12:46 AM UTC

PDB ID : 8FNI / pdb_00008fni
EMDB ID : EMD-29314
Title : Cryo-EM structure of RNase-treated RESC-B in trypanosomal RNA editing
Authors : Liu, S.; Wang, H.; Li, X.; Zhang, F.; Lee, J.K.J.; Li, Z.; Yu, C.; Zhao, X.;
Hu, J.J.; Suematsu, T.; Alvarez-Cabrera, A.L.; Liu, Q.; Zhang, L.; Huang, L.;
Aphasizheva, I.; Aphasizhev, R.; Zhou, Z.H.
Deposited on : 2022-12-27
Resolution : 3.40 Å(reported)

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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:

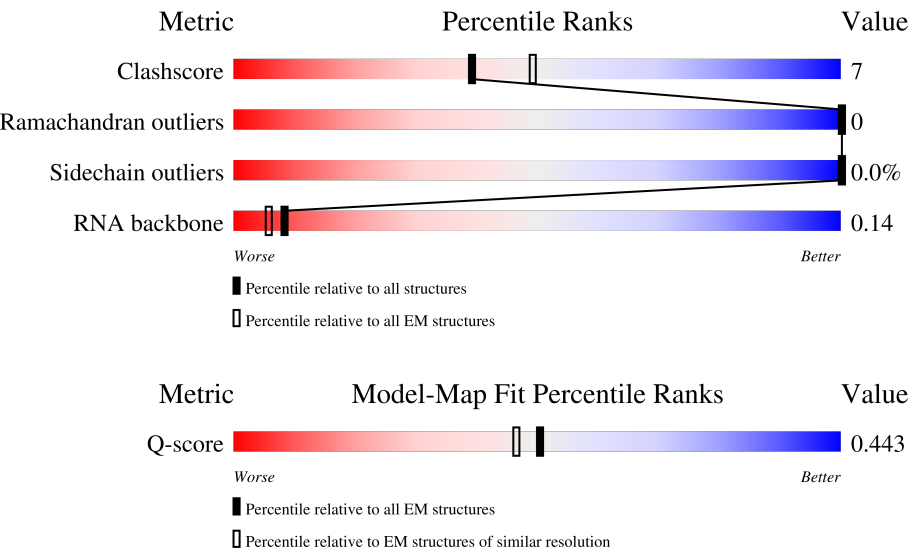
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & 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:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.40 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	14717 (2.90 - 3.90)

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	m	21	10% 38% 57% 5%
2	g	16	12% 19% 62% 19%
3	5	402	64% 10% 26%

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Mol	Chain	Length	Quality of chain
4	6	516	
5	7	174	
6	8	545	
7	9	872	
8	10	543	
9	11	934	
10	13	320	
11	14	366	

2 Entry composition

There are 11 unique types of molecules in this entry. The entry contains 28858 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 RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	m	21	Total	C	N	O	P	0	0
			453	204	87	141	21		

- Molecule 2 is a RNA chain called gRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	g	16	Total	C	N	O	P	0	0
			320	144	32	128	16		

- Molecule 3 is a protein called RNA-editing substrate-binding complex protein 5 (RESC5).

Mol	Chain	Residues	Atoms					AltConf	Trace
3	5	296	Total	C	N	O	S	0	0
			2318	1464	409	428	17		

There are 92 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
5	311	GLY	-	expression tag	UNP Q389F5
5	312	SER	-	expression tag	UNP Q389F5
5	313	GLY	-	expression tag	UNP Q389F5
5	314	SER	-	expression tag	UNP Q389F5
5	315	GLY	-	expression tag	UNP Q389F5
5	316	SER	-	expression tag	UNP Q389F5
5	317	ALA	-	expression tag	UNP Q389F5
5	318	SER	-	expression tag	UNP Q389F5
5	319	SER	-	expression tag	UNP Q389F5
5	320	GLY	-	expression tag	UNP Q389F5
5	321	ALA	-	expression tag	UNP Q389F5
5	322	SER	-	expression tag	UNP Q389F5
5	323	ALA	-	expression tag	UNP Q389F5
5	324	ALA	-	expression tag	UNP Q389F5
5	325	GLY	-	expression tag	UNP Q389F5

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Chain	Residue	Modelled	Actual	Comment	Reference
5	326	SER	-	expression tag	UNP Q389F5
5	327	SER	-	expression tag	UNP Q389F5
5	328	GLY	-	expression tag	UNP Q389F5
5	329	ALA	-	expression tag	UNP Q389F5
5	330	SER	-	expression tag	UNP Q389F5
5	331	ALA	-	expression tag	UNP Q389F5
5	332	SER	-	expression tag	UNP Q389F5
5	333	SER	-	expression tag	UNP Q389F5
5	334	GLY	-	expression tag	UNP Q389F5
5	335	ALA	-	expression tag	UNP Q389F5
5	336	SER	-	expression tag	UNP Q389F5
5	337	ALA	-	expression tag	UNP Q389F5
5	338	ALA	-	expression tag	UNP Q389F5
5	339	GLY	-	expression tag	UNP Q389F5
5	340	SER	-	expression tag	UNP Q389F5
5	341	SER	-	expression tag	UNP Q389F5
5	342	GLY	-	expression tag	UNP Q389F5
5	343	ALA	-	expression tag	UNP Q389F5
5	344	SER	-	expression tag	UNP Q389F5
5	345	ALA	-	expression tag	UNP Q389F5
5	346	GLY	-	expression tag	UNP Q389F5
5	347	HIS	-	expression tag	UNP Q389F5
5	348	HIS	-	expression tag	UNP Q389F5
5	349	HIS	-	expression tag	UNP Q389F5
5	350	HIS	-	expression tag	UNP Q389F5
5	351	HIS	-	expression tag	UNP Q389F5
5	352	HIS	-	expression tag	UNP Q389F5
5	353	HIS	-	expression tag	UNP Q389F5
5	354	HIS	-	expression tag	UNP Q389F5
5	355	HIS	-	expression tag	UNP Q389F5
5	356	HIS	-	expression tag	UNP Q389F5
5	357	SER	-	expression tag	UNP Q389F5
5	358	GLY	-	expression tag	UNP Q389F5
5	359	SER	-	expression tag	UNP Q389F5
5	360	GLU	-	expression tag	UNP Q389F5
5	361	ASP	-	expression tag	UNP Q389F5
5	362	GLN	-	expression tag	UNP Q389F5
5	363	VAL	-	expression tag	UNP Q389F5
5	364	ASP	-	expression tag	UNP Q389F5
5	365	PRO	-	expression tag	UNP Q389F5
5	366	ARG	-	expression tag	UNP Q389F5
5	367	LEU	-	expression tag	UNP Q389F5

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Chain	Residue	Modelled	Actual	Comment	Reference
5	368	ILE	-	expression tag	UNP Q389F5
5	369	ASP	-	expression tag	UNP Q389F5
5	370	GLY	-	expression tag	UNP Q389F5
5	371	LYS	-	expression tag	UNP Q389F5
5	372	ALA	-	expression tag	UNP Q389F5
5	373	SER	-	expression tag	UNP Q389F5
5	374	ALA	-	expression tag	UNP Q389F5
5	375	TRP	-	expression tag	UNP Q389F5
5	376	SER	-	expression tag	UNP Q389F5
5	377	HIS	-	expression tag	UNP Q389F5
5	378	PRO	-	expression tag	UNP Q389F5
5	379	GLN	-	expression tag	UNP Q389F5
5	380	PHE	-	expression tag	UNP Q389F5
5	381	GLU	-	expression tag	UNP Q389F5
5	382	LYS	-	expression tag	UNP Q389F5
5	383	GLY	-	expression tag	UNP Q389F5
5	384	GLY	-	expression tag	UNP Q389F5
5	385	GLY	-	expression tag	UNP Q389F5
5	386	SER	-	expression tag	UNP Q389F5
5	387	GLY	-	expression tag	UNP Q389F5
5	388	GLY	-	expression tag	UNP Q389F5
5	389	GLY	-	expression tag	UNP Q389F5
5	390	SER	-	expression tag	UNP Q389F5
5	391	GLY	-	expression tag	UNP Q389F5
5	392	GLY	-	expression tag	UNP Q389F5
5	393	SER	-	expression tag	UNP Q389F5
5	394	ALA	-	expression tag	UNP Q389F5
5	395	TRP	-	expression tag	UNP Q389F5
5	396	SER	-	expression tag	UNP Q389F5
5	397	HIS	-	expression tag	UNP Q389F5
5	398	PRO	-	expression tag	UNP Q389F5
5	399	GLN	-	expression tag	UNP Q389F5
5	400	PHE	-	expression tag	UNP Q389F5
5	401	GLU	-	expression tag	UNP Q389F5
5	402	LYS	-	expression tag	UNP Q389F5

- Molecule 4 is a protein called RNA-editing substrate-binding complex protein 6 (RESC6).

Mol	Chain	Residues	Atoms					AltConf	Trace
4	6	453	Total	C	N	O	S	0	0
			3591	2288	636	650	17		

- Molecule 5 is a protein called RNA-editing substrate-binding complex protein 7 (RESC7).

Mol	Chain	Residues	Atoms					AltConf	Trace
5	7	64	Total	C	N	O	S	0	0
			518	330	93	94	1		

- Molecule 6 is a protein called RNA-editing substrate-binding complex protein 8 (RESC8).

Mol	Chain	Residues	Atoms					AltConf	Trace
6	8	513	Total	C	N	O	S	0	0
			4056	2569	692	756	39		

- Molecule 7 is a protein called RNA-editing substrate-binding complex protein 9 (RESC9).

Mol	Chain	Residues	Atoms					AltConf	Trace
7	9	858	Total	C	N	O	S	0	0
			6662	4193	1172	1253	44		

- Molecule 8 is a protein called RNA-editing substrate-binding complex protein 10 (RESC10).

Mol	Chain	Residues	Atoms					AltConf	Trace
8	10	416	Total	C	N	O	S	0	0
			3290	2060	583	620	27		

- Molecule 9 is a protein called RNA-editing substrate-binding complex protein 11 (RESC11).

Mol	Chain	Residues	Atoms					AltConf	Trace
9	11	614	Total	C	N	O	S	0	0
			4918	3144	878	869	27		

- Molecule 10 is a protein called RNA-editing substrate-binding complex protein 13 (RESC13).

Mol	Chain	Residues	Atoms				AltConf	Trace
10	13	30	Total	C	N	O	0	0
			227	133	56	38		

- Molecule 11 is a protein called RNA-editing substrate-binding complex protein 14 (RESC14).

Mol	Chain	Residues	Atoms					AltConf	Trace
11	14	315	Total	C	N	O	S	0	0
			2505	1607	428	455	15		

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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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.

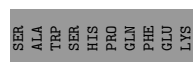
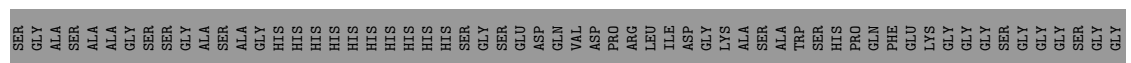
• Molecule 1: mRNA



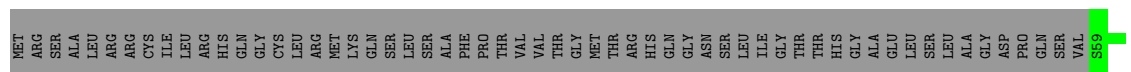
• Molecule 2: gRNA



• Molecule 3: RNA-editing substrate-binding complex protein 5 (RESC5)



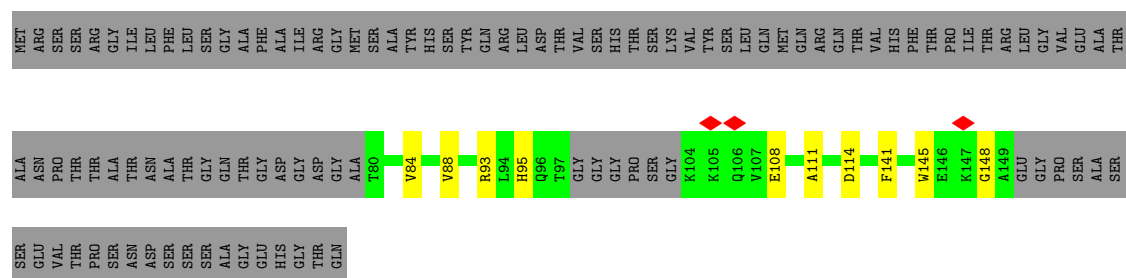
• Molecule 4: RNA-editing substrate-binding complex protein 6 (RESC6)





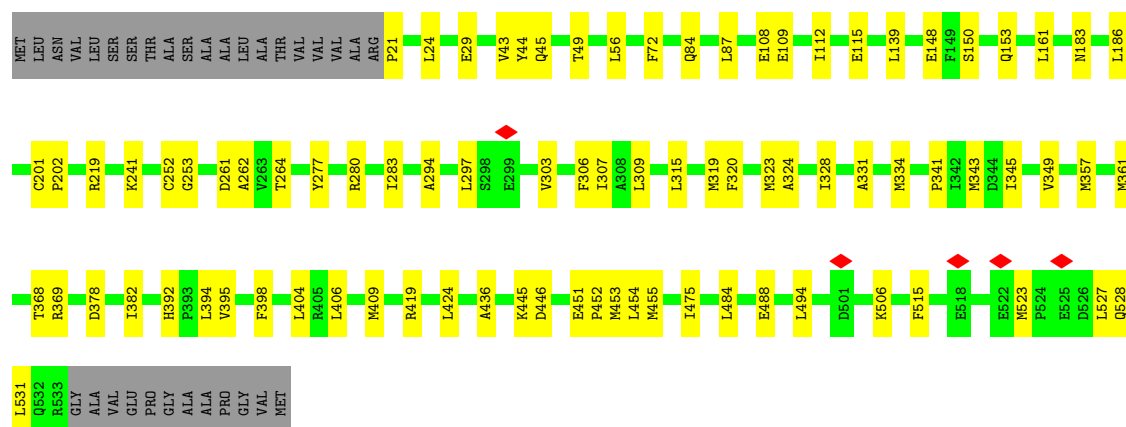
• Molecule 5: RNA-editing substrate-binding complex protein 7 (RESC7)

Chain 7: 31% 6% 63%



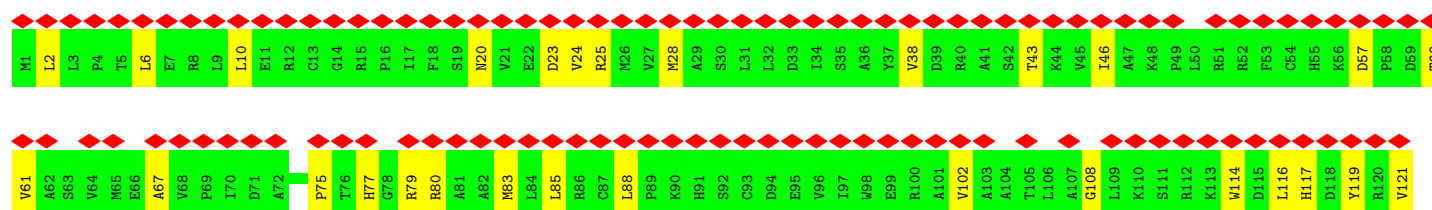
• Molecule 6: RNA-editing substrate-binding complex protein 8 (RESC8)

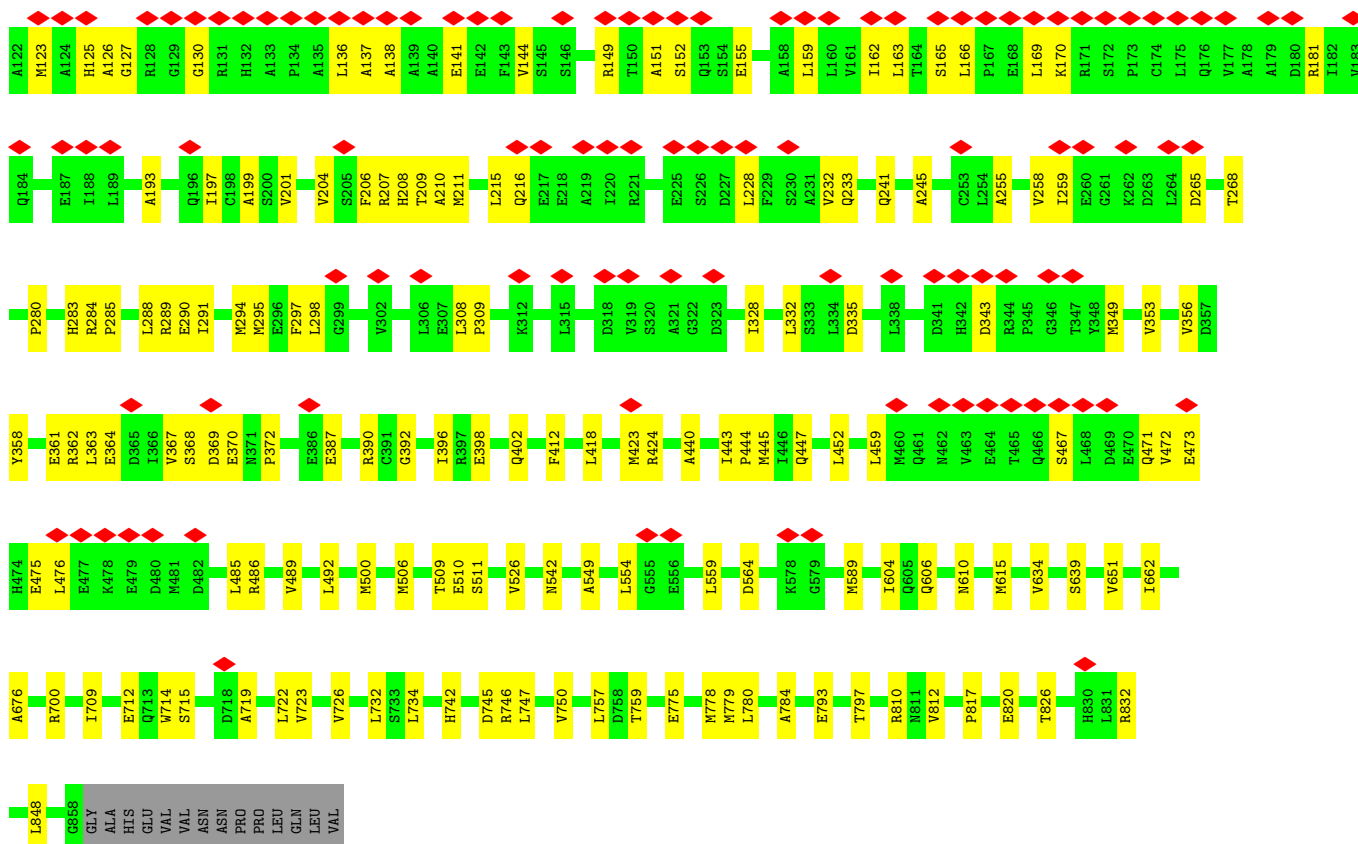
Chain 8: 79% 16% 6%



• Molecule 7: RNA-editing substrate-binding complex protein 9 (RESC9)

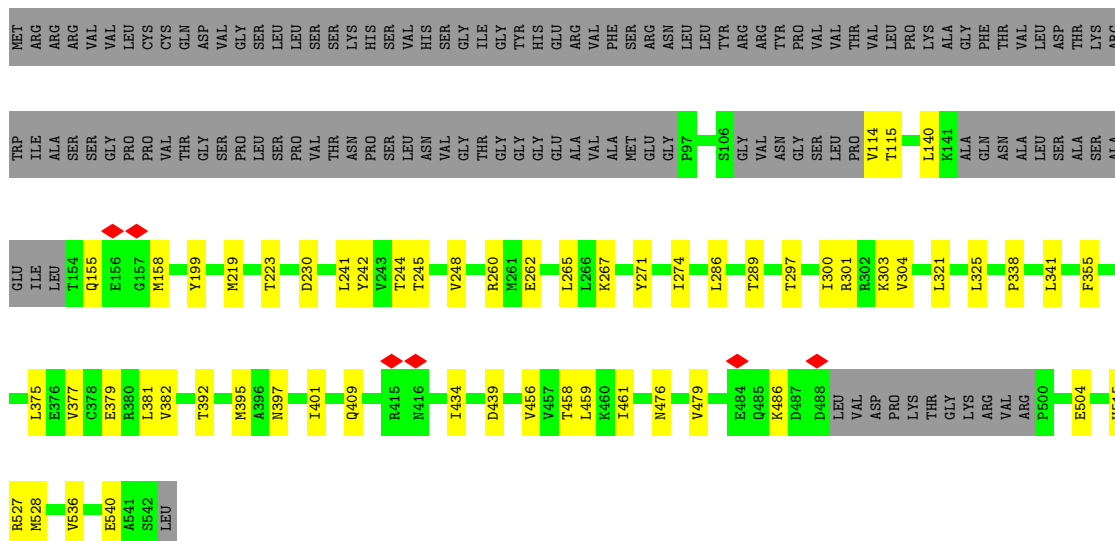
Chain 9: 25% 77% 21%





• Molecule 8: RNA-editing substrate-binding complex protein 10 (RESC10)

Chain 10: 66% 11% 23%

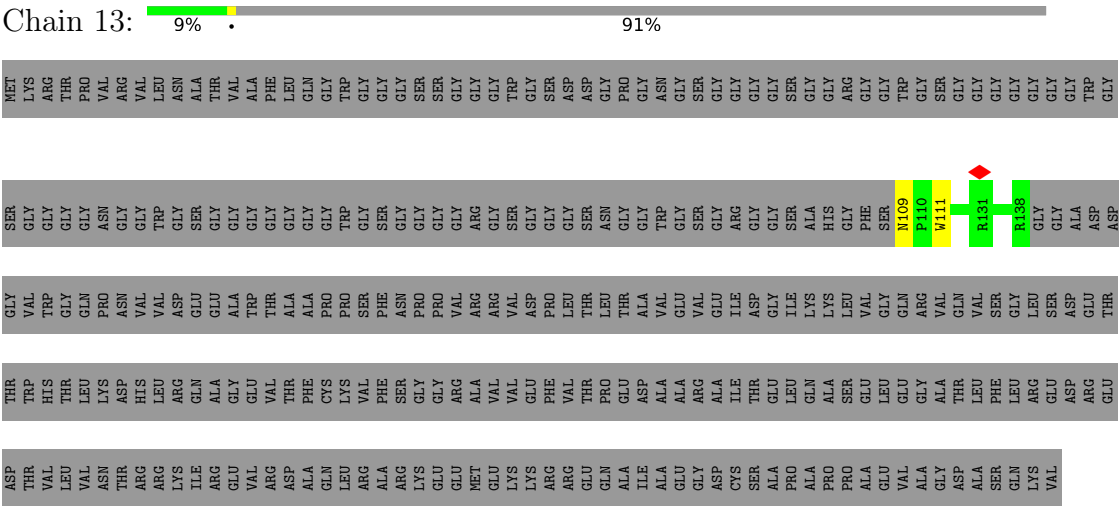


• Molecule 9: RNA-editing substrate-binding complex protein 11 (RESC11)

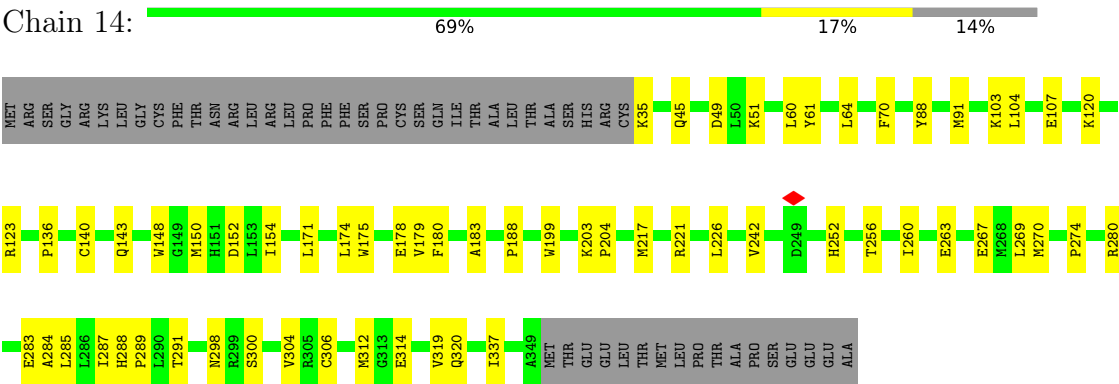
Chain 11: 51% 15% 34%

Q893	R894	T895	P896	L897	R898	R899	V900	R901	A902	S903	P904	V905	V906	W907	R908	F909	V910	E911	E912	K913	A914	K915	K916	L917	G918	M919	D920	D921	V922	L923	R924	V925	V926	E927	N928	K929	L930	A931	T932	A933	V934																		
A833	Q834	A835	F836	S837	N838	A839	L840	K841	P842	A843	V844	E845	R846	H847	L848	S849	R850	S851	I852	I853	A854	K855	L856	D857	G858	G859	G860	E861	E862	V863	I864	T865	E866	G867	N868	S869	I870	V871	L872	R873	P874	P875	R876	E877	L878	L879	L880	T881	R882	E883	D884	L885	G886	K887	F888	C889	L891	L892	
D773	E774	Y775	Y776	S777	Q778	L779	D780	I781	R782	V783	R784	E785	T786	L787	H788	R789	I790	L791	I792	V793	V794	D795	Y796	Y797	T798	Y799	G800	Q801	Y802	R803	P804	T805	P806	G807	V808	L809	Q810	V811	D812	F813	K814	Q815	A816	L817	T818	E819	V820	S821	A822	F823	D824	V825	L826	E827	A828	D829	D830	L831	F832
Y653	R714	L715	M716	E717	F718	F719	A720	E721	R722	M723	Y724	L725	L726	M727	K728	L729	H730	I731	V732	S733	L734	T735	H736	V737	D738	V739	F740	T741	D742	L743	C744	R745	Q746	Q747	Q748	H749	F750	D751	V752	S753	G754	H755	I756	E757	V758	L759	C760	A761	E762	R763	R764	R765	V766	N767	E769	E770	G771	D772	
P683	S684	T686	R687	L688	V689	R690	A691	M692	F695	D699	L600	D601	L602	D608	A611	D612	S613	L614	T617	N618	V619	V620	P621	A622	D623	V624	L625	Q626	M627	V628	R629	L630	V631	A632	P633	P634	D635	V636	P639	R640	M641	V643	K644	L645	I646	S647	L648	E650	A651	V652									
GLU	GLY	ALA	SER	ASP	VAL	PHE	ILE	GLY	ASP	LEU	D523	P524	H525	L526	L527	Q528	N529	L530	R531	A532	R533	E534	R535	F536	E541	L542	K543	M546	F547	T548	K549	L550	L551	L552	R556	F557	G558	H561	L565	T569	L572	P575	T576	L577	R578	A579	F580	P581	P582										
D447	K451	A452	K455	R456	L457	R458	L459	A460	Q461	L462	Q463	S464	SER	SER	ASN	ILE	THR	ALA	ALA	THR	THR	SER	F384	A385	R386	A387	K388	T389	V390	K394	F395	L396	A397	L398	L399	R402	R409	K410	K411	L412	Q413	S414	L415	P416	M423	L424	Y425	K426	M427	G428	M432	N433	T434	P435	R436	D440	C441	I442	I446
ASP	TYR	GLU	GLN	GLY	VAL	ALA	VAL	THR	VAL	HIS	D321	L322	I323	I324	L325	R326	A327	A328	E329	E330	M331	S332	P333	E334	T335	V336	R338	C339	I340	I341	V342	M343	G344	M345	S346	A347	G348	R349	R350	K351	R352	D353	Q355	F356	F357	M360	G361												
LEU	ALA	ALA	GLU	ASN	VAL	VAL	THR	HIS	ASP	LEU	L193	E194	E195	L196	V197	E198	A199	V200	T201	L202	Y203	L204	R205	A206	T207	K208	N209	P210	R211	L212	V213	S214	A215	D216	E217	E218	H219	T220	F221	F222	P223	V224	L225	N226	E227	R228	L229	E231	F232	H233	V234	S235	Q236	L237	D239	V240			
ASP	LEU	GLU	GLN	VAL	ASN	VAL	THR	LYS	HIS	ASP	ASP	GLY	LYS	GLN	ALA	LEU	GLN	GLY	VAL	ILE	PRO	PRO	SER	MET	ARG	VAL	GLY	LEU	ALA	ASN	THR	PRO	ASP	GLY	ASP	GLY	LEU	GLY	ILE	ARG	PRO	VAL	ALA	GLY	PRO	ASP	GLY	GLU	GLU	GLY	VAL	MET	THR	VAL	GLY	ALA	THR	ASN	SER

• Molecule 10: RNA-editing substrate-binding complex protein 13 (RESC13)



• Molecule 11: RNA-editing substrate-binding complex protein 14 (RESC14)



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	266942	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.111	Depositor
Minimum map value	-0.063	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.02	Depositor
Map size (Å)	271.872, 271.872, 271.872	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.062, 1.062, 1.062	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	m	0.10	0/509	0.29	0/791
2	g	0.12	0/351	0.34	0/540
3	5	0.08	0/2375	0.24	0/3218
4	6	0.10	0/3655	0.26	0/4936
5	7	0.10	0/526	0.27	0/708
6	8	0.10	0/4129	0.25	0/5589
7	9	0.11	0/6774	0.29	0/9167
8	10	0.10	0/3341	0.26	0/4516
9	11	0.10	0/5010	0.26	0/6780
10	13	0.12	0/232	0.29	0/309
11	14	0.11	0/2579	0.30	0/3522
All	All	0.10	0/29481	0.27	0/40076

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 [i](#)

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	m	453	0	226	4	0
2	g	320	0	161	6	0
3	5	2318	0	2257	25	0
4	6	3591	0	3628	49	0
5	7	518	0	524	7	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	8	4056	0	4094	55	0
7	9	6662	0	6745	116	0
8	10	3290	0	3320	35	0
9	11	4918	0	5091	94	0
10	13	227	0	208	3	0
11	14	2505	0	2442	39	0
All	All	28858	0	28696	414	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 7.

The worst 5 of 414 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)
9:11:710:ASP:O	9:11:713:THR:HG22	1.40	1.20
9:11:710:ASP:O	9:11:713:THR:CG2	2.31	0.74
9:11:911:GLU:HB2	9:11:926:VAL:HG11	1.70	0.74
7:9:43:THR:HG23	7:9:83:MET:HE2	1.70	0.73
6:8:309:LEU:HD13	6:8:319:MET:CE	2.18	0.73

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	
3	5	294/402 (73%)	286 (97%)	8 (3%)	0	100	100
4	6	451/516 (87%)	439 (97%)	12 (3%)	0	100	100
5	7	60/174 (34%)	57 (95%)	3 (5%)	0	100	100
6	8	511/545 (94%)	496 (97%)	15 (3%)	0	100	100
7	9	856/872 (98%)	838 (98%)	18 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	10	408/543 (75%)	399 (98%)	9 (2%)	0	100	100
9	11	606/934 (65%)	598 (99%)	8 (1%)	0	100	100
10	13	28/320 (9%)	27 (96%)	1 (4%)	0	100	100
11	14	313/366 (86%)	305 (97%)	8 (3%)	0	100	100
All	All	3527/4672 (76%)	3445 (98%)	82 (2%)	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 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	
3	5	251/322 (78%)	251 (100%)	0	100	100
4	6	376/428 (88%)	376 (100%)	0	100	100
5	7	53/138 (38%)	53 (100%)	0	100	100
6	8	449/470 (96%)	449 (100%)	0	100	100
7	9	725/737 (98%)	725 (100%)	0	100	100
8	10	365/470 (78%)	365 (100%)	0	100	100
9	11	542/796 (68%)	541 (100%)	1 (0%)	87	85
10	13	17/212 (8%)	17 (100%)	0	100	100
11	14	272/317 (86%)	272 (100%)	0	100	100
All	All	3050/3890 (78%)	3049 (100%)	1 (0%)	100	100

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
9	11	360	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 27 such sidechains are listed below:

Mol	Chain	Res	Type
7	9	233	GLN
7	9	514	GLN
8	10	526	GLN
7	9	461	GLN
7	9	613	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	m	20/21 (95%)	12 (60%)	0
2	g	15/16 (93%)	6 (40%)	0
All	All	35/37 (94%)	18 (51%)	0

5 of 18 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	m	104	A
1	m	108	U
1	m	111	A
1	m	112	A
1	m	113	U

There are no RNA pucker outliers to report.

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 ⓘ

There are no ligands in this entry.

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.

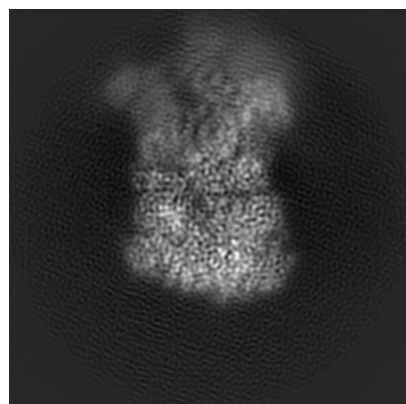
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-29314. These allow visual inspection of the internal detail of the map and identification of artifacts.

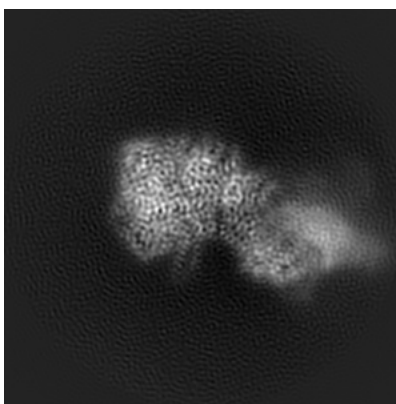
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

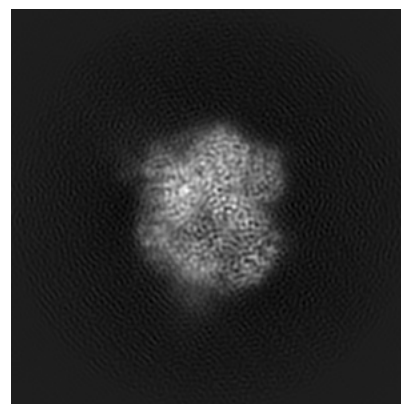
6.1.1 Primary map



X

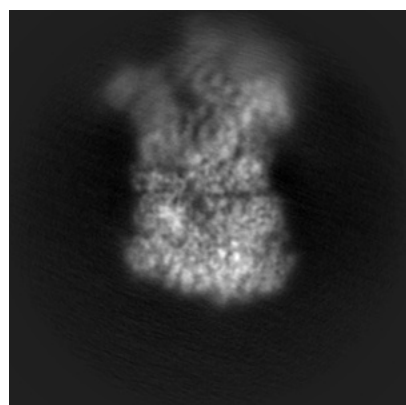


Y

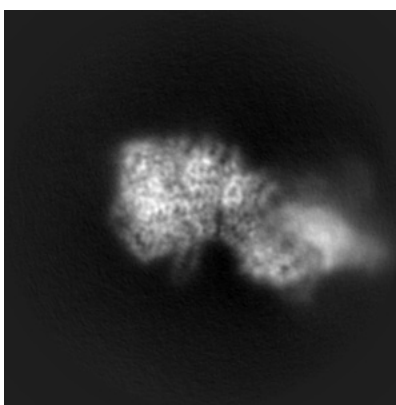


Z

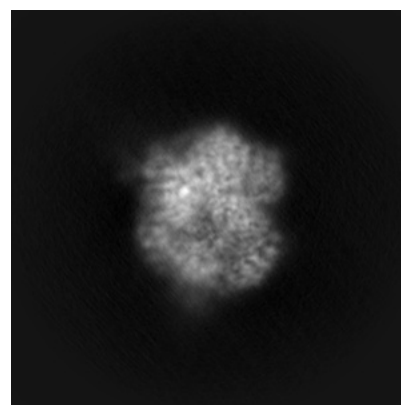
6.1.2 Raw map



X



Y

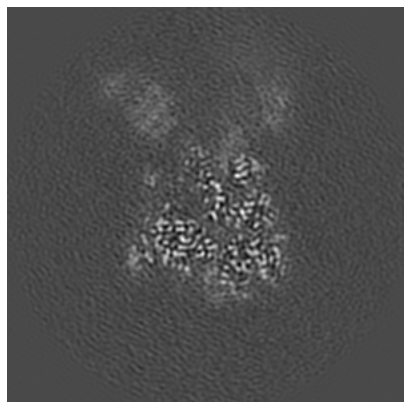


Z

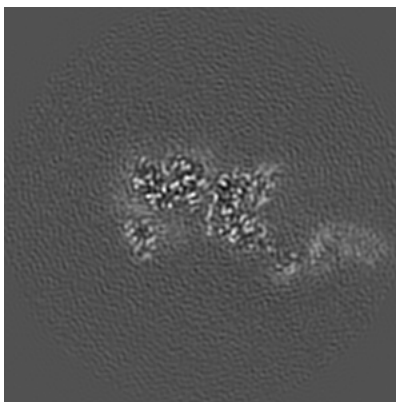
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

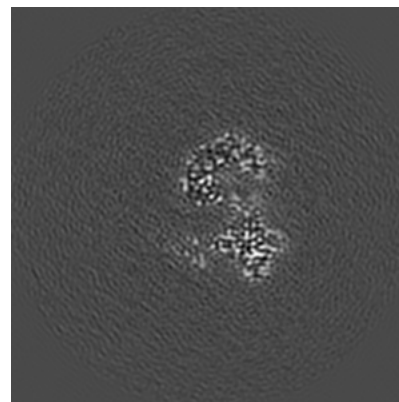
6.2.1 Primary map



X Index: 128

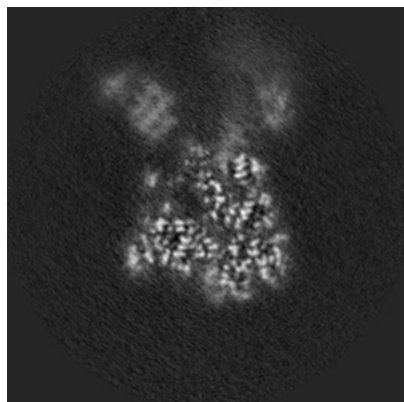


Y Index: 128

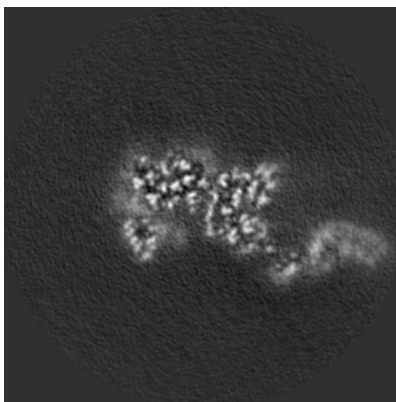


Z Index: 128

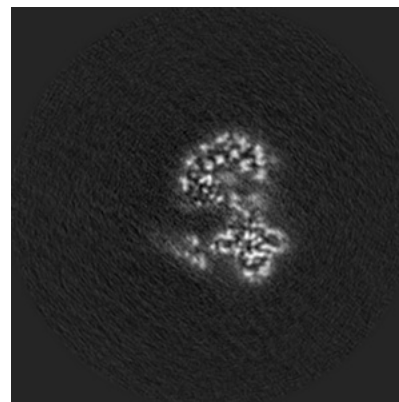
6.2.2 Raw map



X Index: 128



Y Index: 128

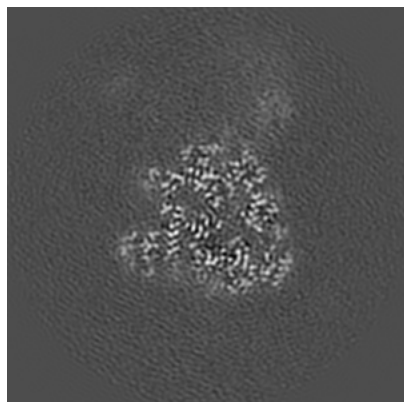


Z Index: 128

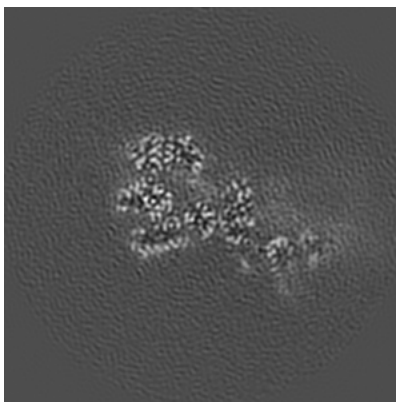
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

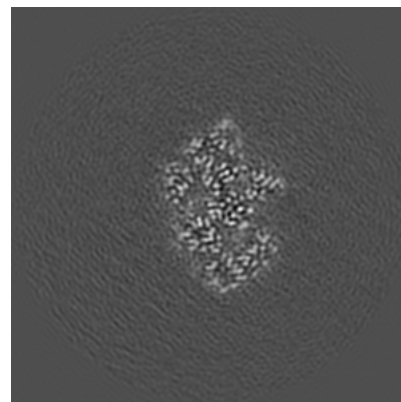
6.3.1 Primary map



X Index: 134

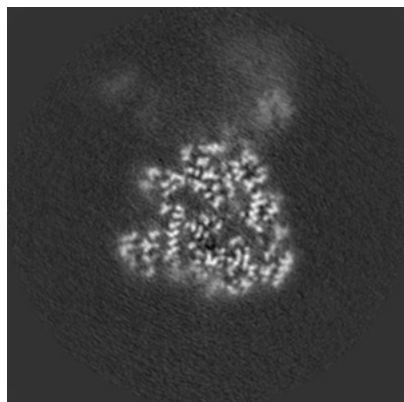


Y Index: 145

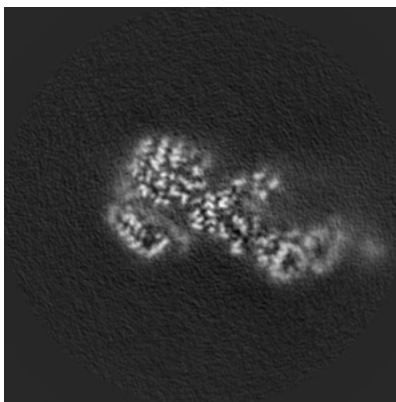


Z Index: 97

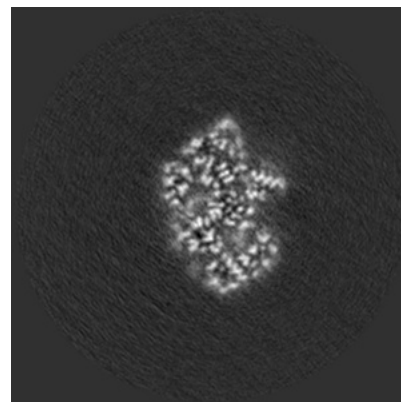
6.3.2 Raw map



X Index: 134



Y Index: 135

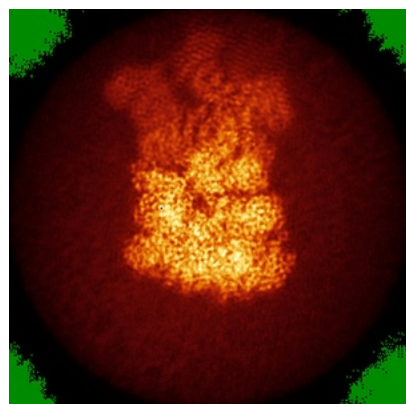


Z Index: 97

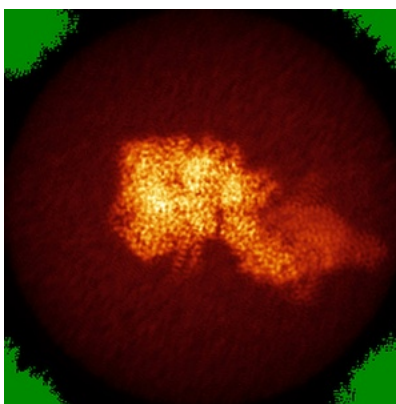
The images above show the largest variance slices of the map in three orthogonal directions.

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

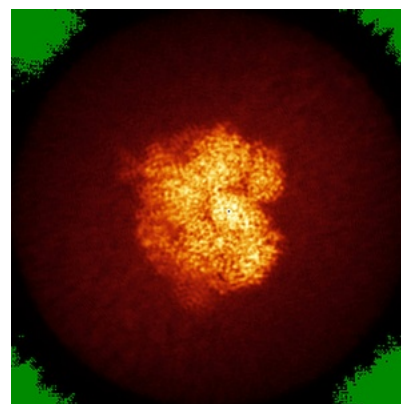
6.4.1 Primary map



X

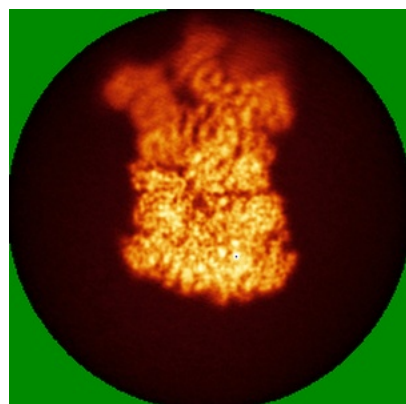


Y

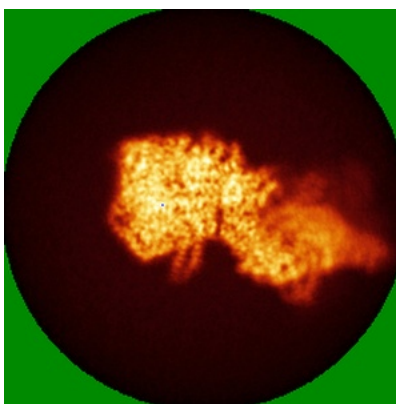


Z

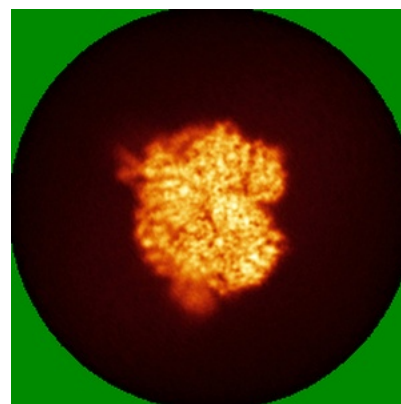
6.4.2 Raw map



X



Y

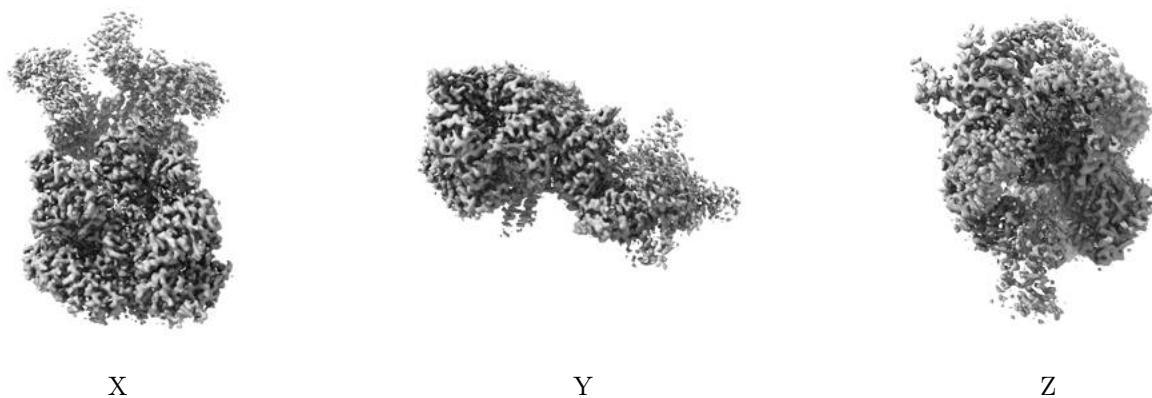


Z

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.

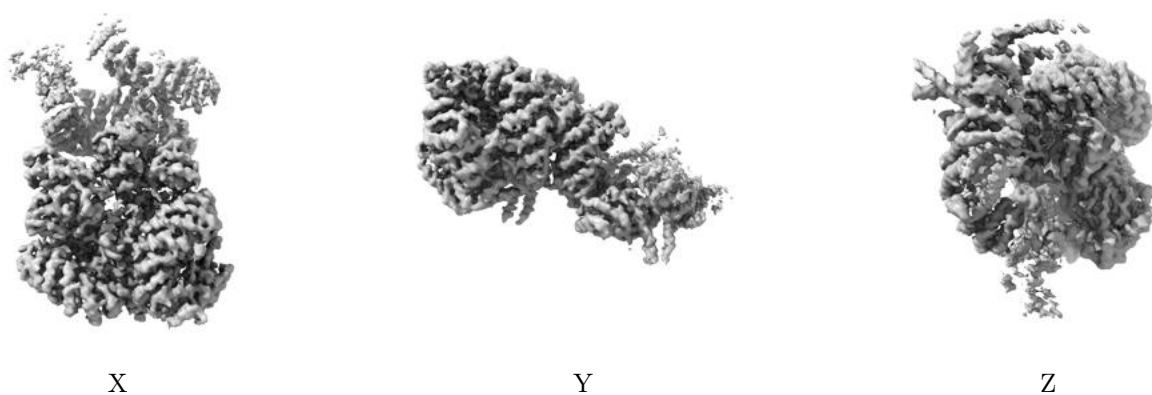
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.02. 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.

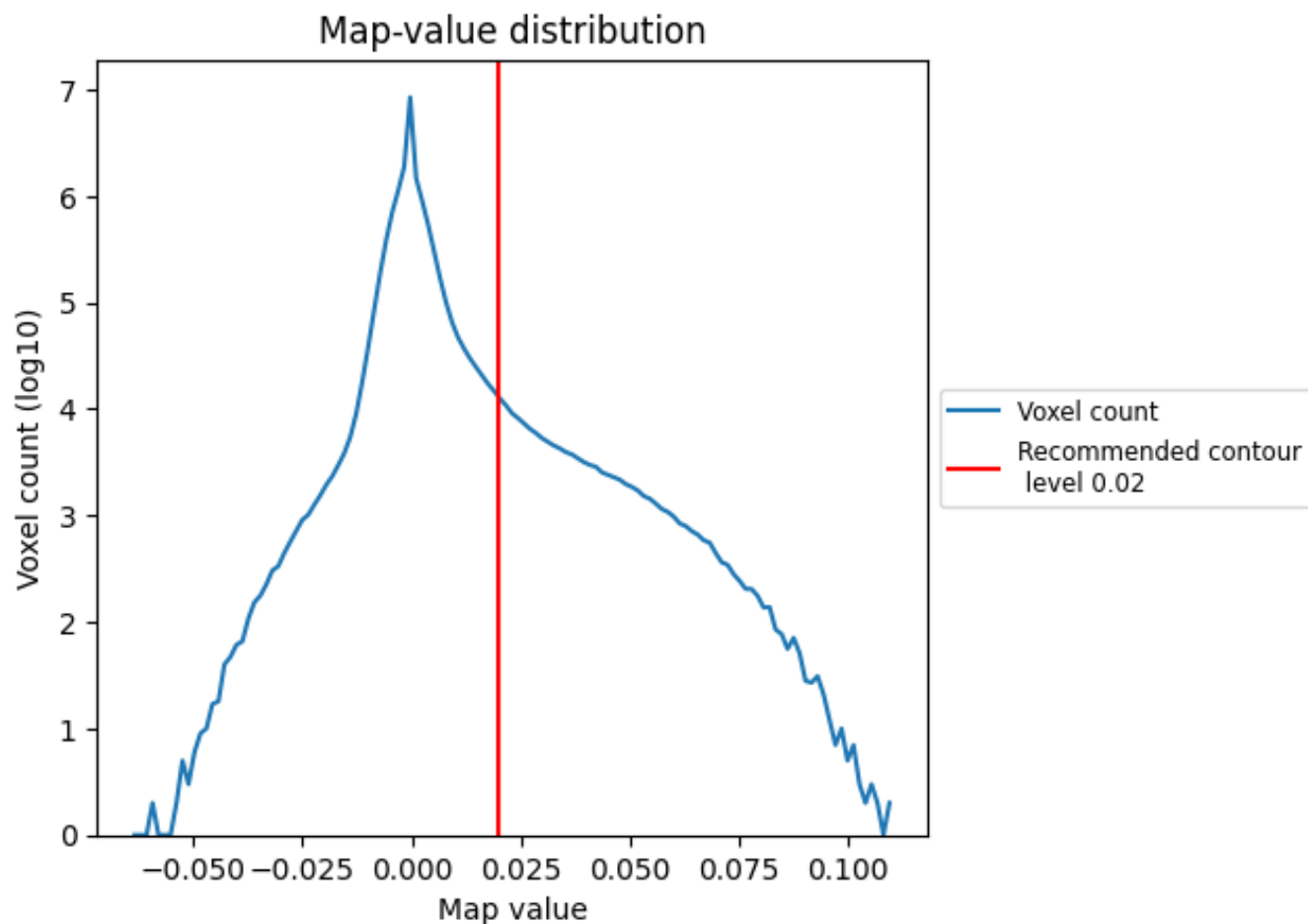
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

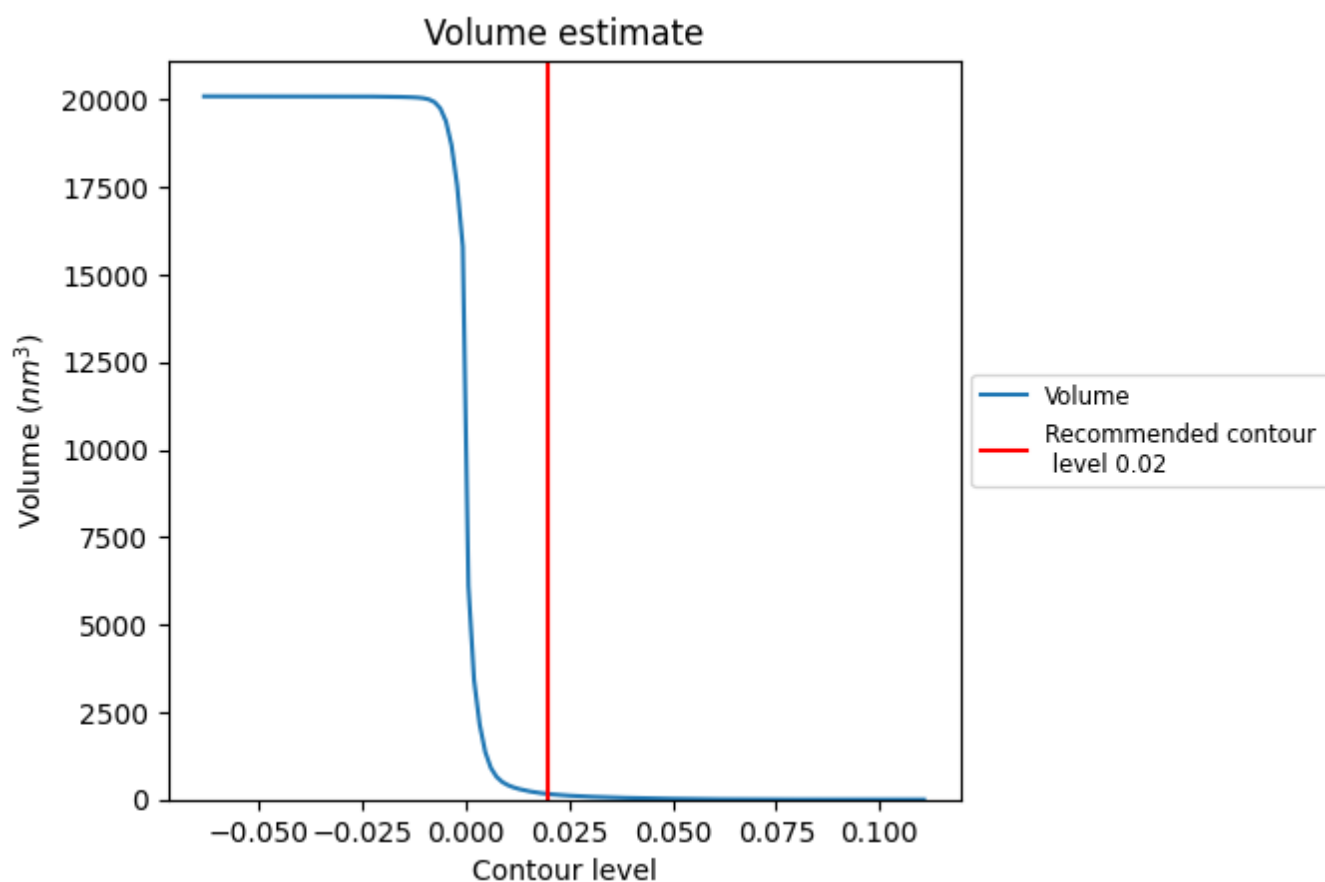
This section contains the results of statistical analysis of the map.

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.

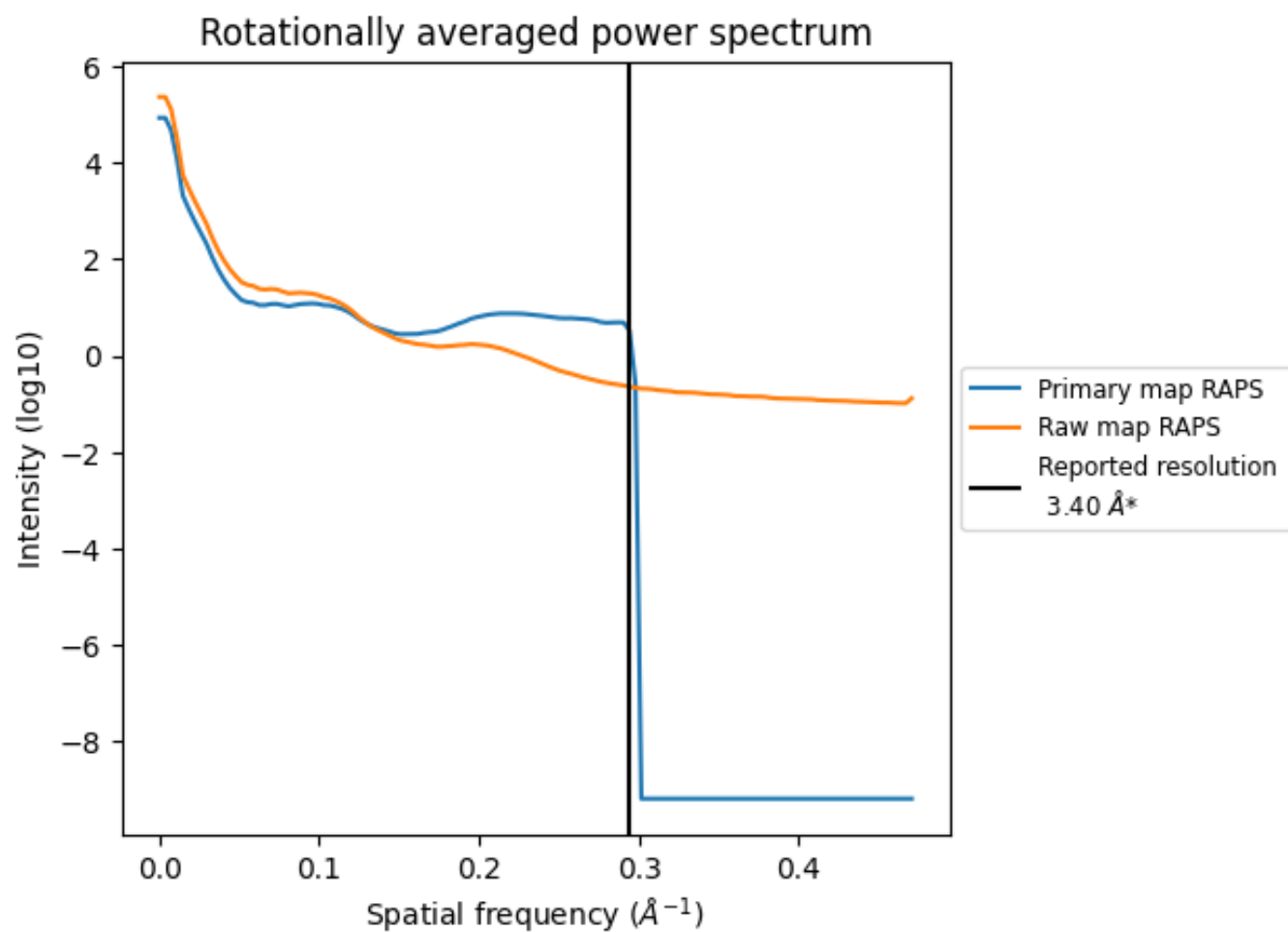
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 158 nm^3 ; this corresponds to an approximate mass of 143 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 ⓘ

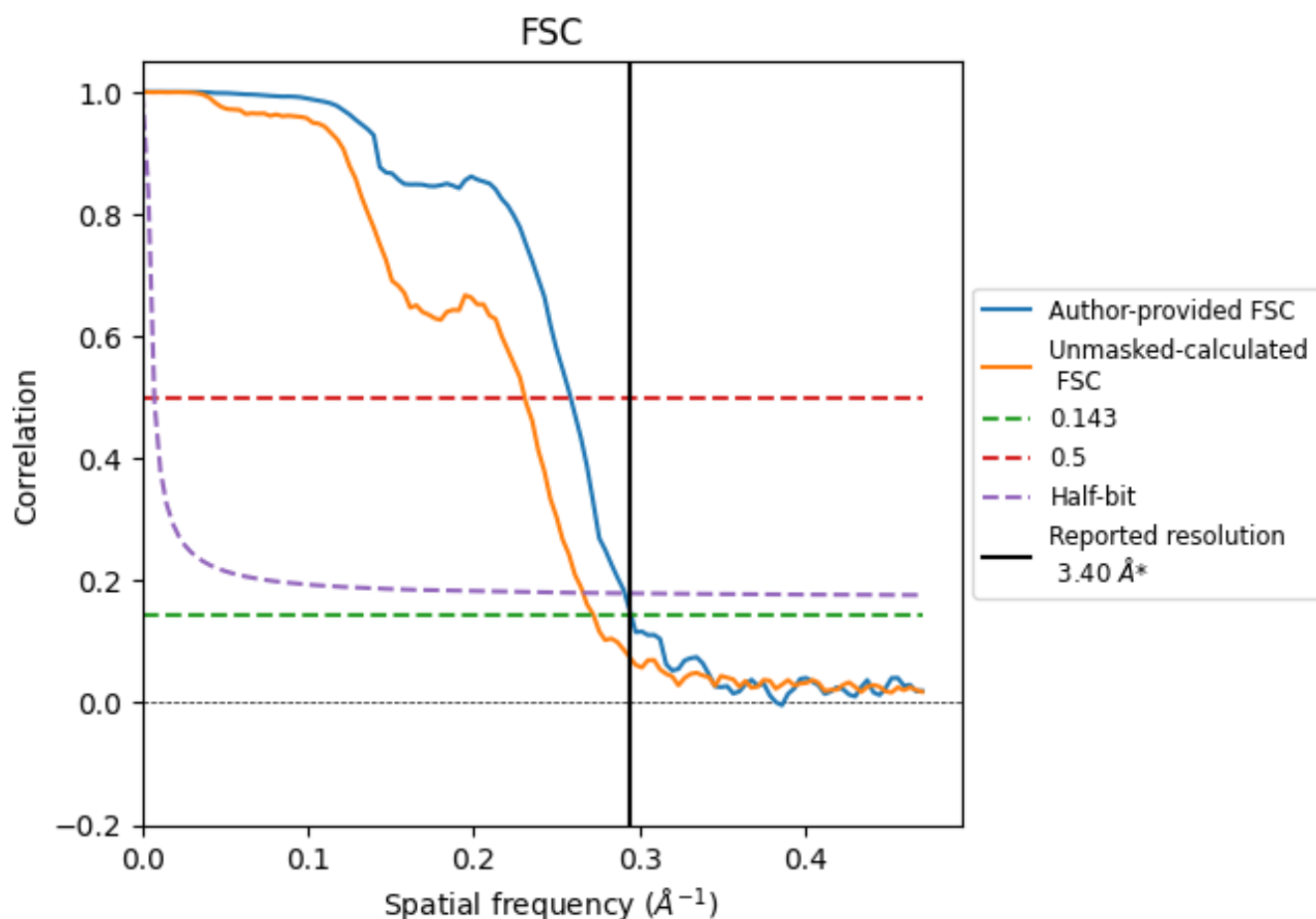


*Reported resolution corresponds to spatial frequency of 0.294 Å⁻¹

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 0.294 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

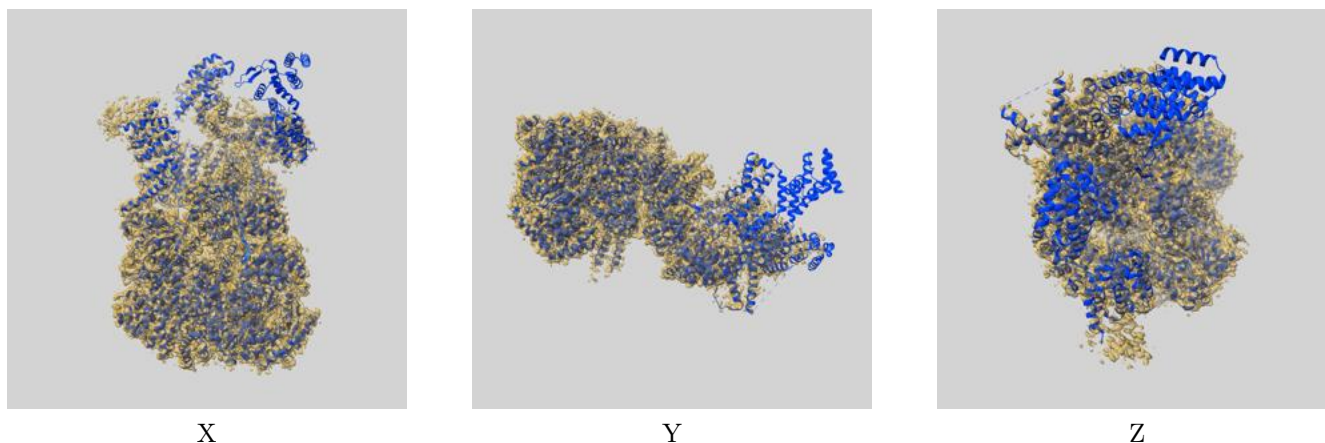
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.40	-	-
Author-provided FSC curve	3.39	3.87	3.43
Unmasked-calculated*	3.67	4.33	3.76

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

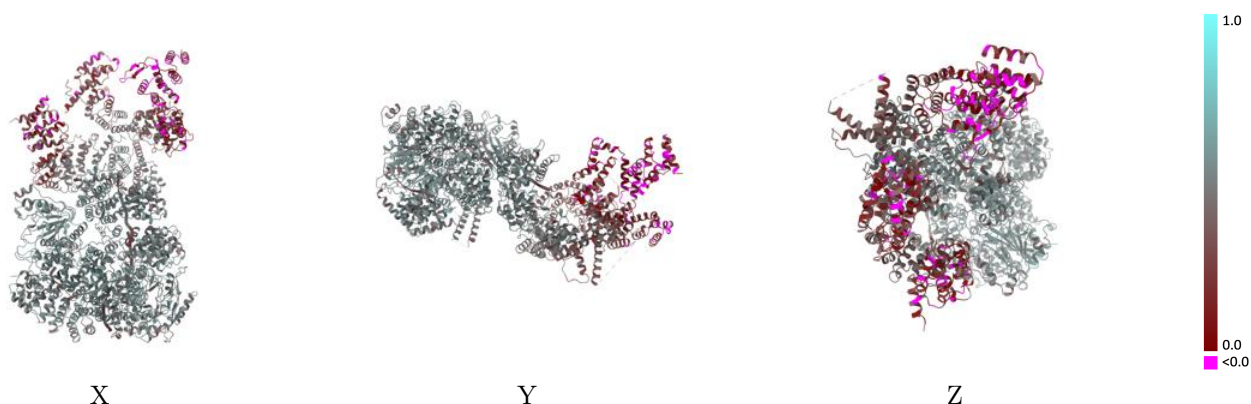
This section contains information regarding the fit between EMDB map EMD-29314 and PDB model 8FNI. Per-residue inclusion information can be found in [section 3](#) on [page 8](#).

9.1 Map-model overlay [i](#)



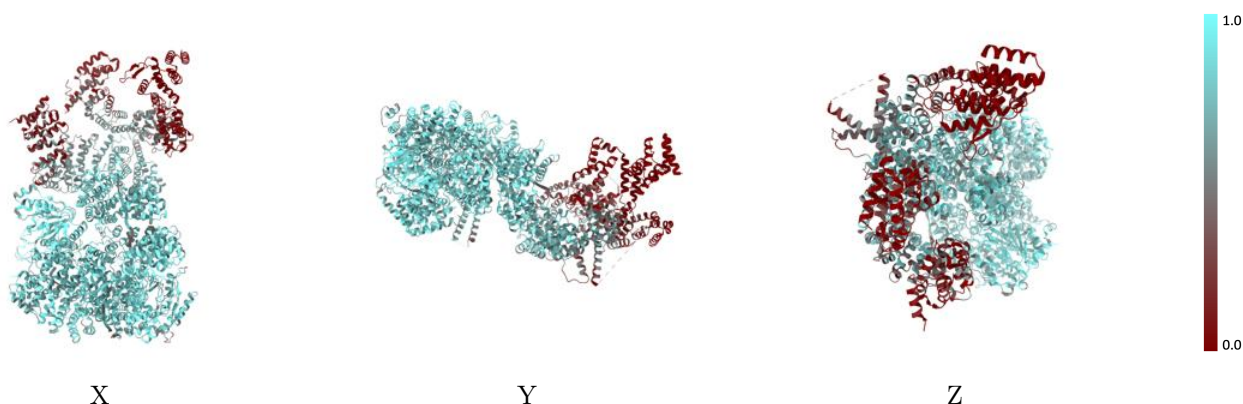
The images above show the 3D surface view of the map at the recommended contour level 0.02 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



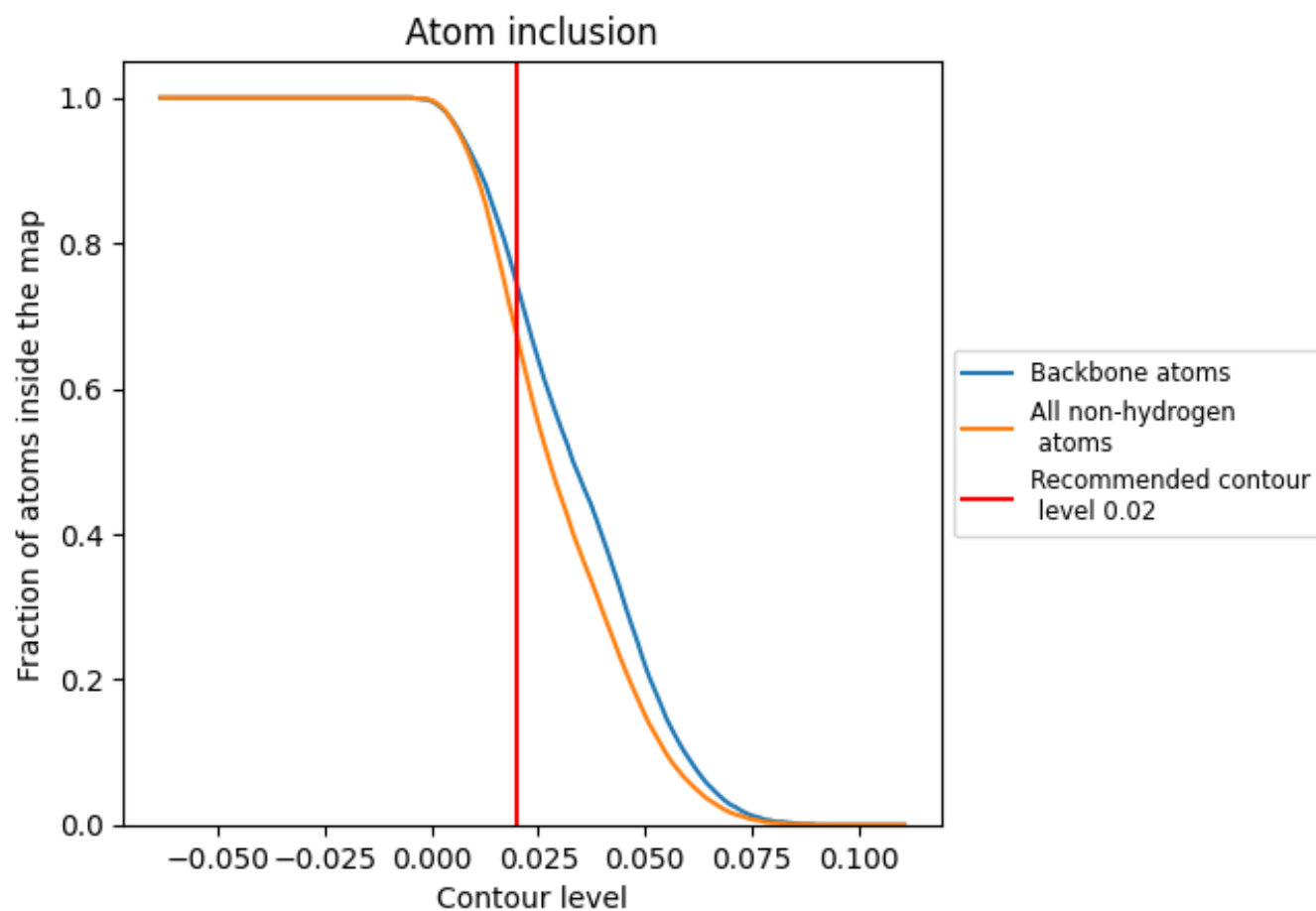
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.02).

9.4 Atom inclusion [i](#)



At the recommended contour level, 74% of all backbone atoms, 67% 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 (0.02) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6730	 0.4430
10	 0.8280	 0.5200
11	 0.2190	 0.2150
13	 0.8060	 0.5190
14	 0.8600	 0.5410
5	 0.8400	 0.5350
6	 0.8320	 0.5250
7	 0.7850	 0.4860
8	 0.8380	 0.5240
9	 0.6010	 0.4080
g	 0.6160	 0.3790
m	 0.7240	 0.4440

