WORLDWIDE PDB

PROTEIN DATA BANK

Full wwPDB EM Validation Report (i)

Jul 28, 2025 – 04:13 pm BST

PDB ID	:	9QBF / pdb_00009qbf
EMDB ID	:	EMD-52997
Title	:	HER2/ErbB2 extracellular domain (ECD) in compact conformation in complex with trastuzumab (TZB) antibody
Authors	:	Gragera, M.; Buschiazzo, A.; Vacca, S.
Deposited on	:	2025-03-02
Resolution	:	3.80 Å(reported)
Based on initial model	:	5MY6

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 (i) 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 (i)) were used in the production of this report:

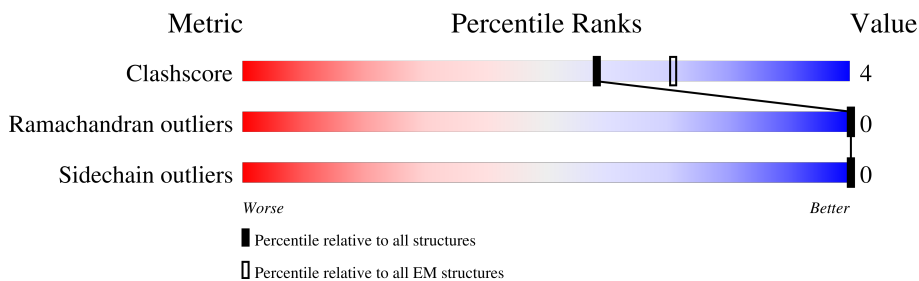|		
EMDB validation analysis	:	0.0.1.dev126
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (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 3.80 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
Clashscore		4
Ramachandran outliers		0
Sidechain outliers		0

Worse   *Better*

▮ Percentile relative to all structures

▯ Percentile relative to all EM structures

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 <=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	1311	31% 6% • 62%

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2 Entry composition ⓘ

There is only 1 type of molecule in this entry. The entry contains 7628 atoms, of which 3736 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 Receptor tyrosine-protein kinase erbB-2,Green fluorescent protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
1	A	504	7628	2421	3736	698	732	41	0	0

There are 81 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-33	MET	-	initiating methionine	UNP P04626
A	-32	LYS	-	expression tag	UNP P04626
A	-31	PHE	-	expression tag	UNP P04626
A	-30	LEU	-	expression tag	UNP P04626
A	-29	VAL	-	expression tag	UNP P04626
A	-28	ASN	-	expression tag	UNP P04626
A	-27	VAL	-	expression tag	UNP P04626
A	-26	ALA	-	expression tag	UNP P04626
A	-25	LEU	-	expression tag	UNP P04626
A	-24	VAL	-	expression tag	UNP P04626
A	-23	PHE	-	expression tag	UNP P04626
A	-22	MET	-	expression tag	UNP P04626
A	-21	VAL	-	expression tag	UNP P04626
A	-20	VAL	-	expression tag	UNP P04626
A	-19	TYR	-	expression tag	UNP P04626
A	-18	ILE	-	expression tag	UNP P04626
A	-17	SER	-	expression tag	UNP P04626
A	-16	TYR	-	expression tag	UNP P04626
A	-15	ILE	-	expression tag	UNP P04626
A	-14	TYR	-	expression tag	UNP P04626
A	-13	ALA	-	expression tag	UNP P04626
A	-12	ASP	-	expression tag	UNP P04626
A	-11	TYR	-	expression tag	UNP P04626
A	-10	LYS	-	expression tag	UNP P04626
A	-9	ASP	-	expression tag	UNP P04626
A	-8	ASP	-	expression tag	UNP P04626
A	-7	ASP	-	expression tag	UNP P04626

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-6	ASP	-	expression tag	UNP P04626
A	-5	LYS	-	expression tag	UNP P04626
A	-4	HIS	-	expression tag	UNP P04626
A	-3	HIS	-	expression tag	UNP P04626
A	-2	HIS	-	expression tag	UNP P04626
A	-1	HIS	-	expression tag	UNP P04626
A	0	HIS	-	expression tag	UNP P04626
A	1	HIS	-	expression tag	UNP P04626
A	2	HIS	-	expression tag	UNP P04626
A	3	HIS	-	expression tag	UNP P04626
A	4	HIS	-	expression tag	UNP P04626
A	5	HIS	-	expression tag	UNP P04626
A	6	LEU	-	expression tag	UNP P04626
A	7	GLU	-	expression tag	UNP P04626
A	8	VAL	-	expression tag	UNP P04626
A	9	LEU	-	expression tag	UNP P04626
A	10	PHE	-	expression tag	UNP P04626
A	11	GLN	-	expression tag	UNP P04626
A	12	GLY	-	expression tag	UNP P04626
A	13	PRO	-	expression tag	UNP P04626
A	14	TYR	-	expression tag	UNP P04626
A	15	PRO	-	expression tag	UNP P04626
A	16	TYR	-	expression tag	UNP P04626
A	17	ASP	-	expression tag	UNP P04626
A	18	VAL	-	expression tag	UNP P04626
A	19	PRO	-	expression tag	UNP P04626
A	20	ASP	-	expression tag	UNP P04626
A	21	TYR	-	expression tag	UNP P04626
A	22	ALA	-	expression tag	UNP P04626
A	789	SER	CYS	engineered mutation	UNP P04626
A	805	SER	CYS	engineered mutation	UNP P04626
A	965	SER	CYS	engineered mutation	UNP P04626
A	1030	LEU	-	linker	UNP P04626
A	1031	GLU	-	linker	UNP P04626
A	1032	VAL	-	linker	UNP P04626
A	1033	LEU	-	linker	UNP P04626
A	1034	PHE	-	linker	UNP P04626
A	1035	GLN	-	linker	UNP P04626
A	1036	GLY	-	linker	UNP P04626
A	1037	PRO	-	linker	UNP P04626
A	1038	GLY	-	linker	UNP P04626
A	1039	SER	-	linker	UNP P04626

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1069	ARG	SER	conflict	UNP P42212
A	1078	ASN	TYR	conflict	UNP P42212
A	1103	LEU	PHE	conflict	UNP P42212
A	1104	THR	SER	conflict	UNP P42212
A	1119	ARG	GLN	conflict	UNP P42212
A	1138	SER	PHE	conflict	UNP P42212
A	1144	THR	ASN	conflict	UNP P42212
A	1184	PHE	TYR	conflict	UNP P42212
A	1192	THR	MET	conflict	UNP P42212
A	1202	ALA	VAL	conflict	UNP P42212
A	1210	VAL	ILE	conflict	UNP P42212
A	1245	VAL	ALA	conflict	UNP P42212

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 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: Receptor tyrosine-protein kinase erbB-2,Green fluorescent protein

Chain A:

PHE TYR ARG SER LEU LEU GLU ASP ASP ASP MET GLY ASP LEU ASP VAL ASP ALA GLU GLU GLU TYR LEU VAL PRO GLN GLN GLY LEU GLU VAL LEU PHE GLN GLY PRO GLY SER MET SER LYS GLY GLU GLU LEU PHE THR GLY VAL VAL PRO ILE LEU VAL GLU LEU ASP GLY ASP VAL ASN GLY

HIS LYS PHE SER VAL ARG GLY GLU GLY GLU GLY ASP ALA THR ASN GLY LYS LEU THR LEU LYS PHE ILE CYS THR THR GLY LYS LEU PRO VAL PRO TRP PRO THR LEU VAL THR THR LEU THR TYR GLY VAL GLN CYS PHE SER ARG TYR PRO ASP HIS MET LYS ARG HIS ASP PHE PHE

LYS SER ALA MET PRO GLU GLY TYR VAL GLN GLU ARG THR ILE SER PHE LYS ASP ASP GLY THR TYR LYS THR ARG ALA GLU VAL LYS PHE GLU GLY ASP THR LEU VAL ASN ARG ILE GLU LEU LYS GLY ILE ASP PHE LYS GLU ASP GLY ASN ILE LEU GLY HIS LYS LEU GLU TYR ASN

PHE ASN SER HIS ASN VAL TYR ILE THR ALA ASP LYS GLN LYS ASN GLY ILE LYS ALA ASN PHE LYS ILE ARG HIS ASN VAL GLU ASP GLY SER VAL GLN LEU ALA ASP HIS TYR GLN GLN ASN THR PRO ILE GLY ASP GLY PRO VAL LEU LEU PRO ASP ASN HIS TYR LEU SER THR GLN

SER VAL LEU SER LYS ASP PRO ASN GLU GLY ARG ASP HIS MET VAL LEU LEU GLU PHE VAL THR ALA ALA GLY ILE THR HIS GLY MET ASP GLU LEU TYR LYS

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	91370	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)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	72.3	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2400	Depositor
Magnification	130000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	2.065	Depositor
Minimum map value	-0.658	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.045	Depositor
Recommended contour level	0.25	Depositor
Map size (Å)	260.40002, 260.40002, 260.40002	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.3020002, 1.3020002, 1.3020002	Depositor

5　Model quality ⓘ

5.1　Standard geometry ⓘ

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$ >5	RMSZ	#$|Z|$ >5
1	A	1.28	14/3977 (0.4%)	1.53	64/5404 (1.2%)

All (14) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	437	HIS	CA-C	-7.17	1.43	1.52
1	A	237	HIS	CB-CG	-7.10	1.40	1.50
1	A	465	LEU	CG-CD1	-6.48	1.31	1.52
1	A	373	SER	CA-CB	-6.45	1.43	1.53
1	A	289	TYR	CB-CG	-6.01	1.38	1.51
1	A	239	GLN	CG-CD	-5.71	1.37	1.52
1	A	85	LEU	CB-CG	5.65	1.64	1.53
1	A	89	ASN	CB-CG	-5.62	1.38	1.52
1	A	495	HIS	CB-CG	5.44	1.57	1.50
1	A	274	TYR	CB-CG	-5.40	1.39	1.51
1	A	38	SER	CA-CB	-5.26	1.45	1.53
1	A	249	HIS	CB-CG	-5.24	1.42	1.50
1	A	295	CYS	CB-SG	-5.17	1.64	1.81
1	A	517	ARG	NE-CZ	5.02	1.38	1.33

All (64) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	246	GLY	CA-C-N	9.53	129.28	119.56
1	A	246	GLY	C-N-CA	9.53	129.28	119.56
1	A	229	GLY	CA-C-N	8.55	128.57	119.76
1	A	229	GLY	C-N-CA	8.55	128.57	119.76
1	A	524	GLY	CA-C-N	8.49	128.22	119.56
1	A	524	GLY	C-N-CA	8.49	128.22	119.56
1	A	434	ARG	N-CA-C	-7.60	103.07	111.36
1	A	259	ASN	CA-CB-CG	7.49	120.09	112.60
1	A	442	SER	N-CA-C	-7.30	103.03	112.23
1	A	65	LEU	CA-C-N	7.28	127.26	119.76

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	65	LEU	C-N-CA	7.28	127.26	119.76
1	A	430	VAL	N-CA-C	7.25	118.26	108.11
1	A	55	VAL	N-CA-C	7.20	118.18	108.11
1	A	56	VAL	CB-CA-C	-7.08	101.94	111.15
1	A	313	LEU	N-CA-C	-7.02	105.24	113.88
1	A	42	HIS	N-CA-C	-6.86	103.88	111.36
1	A	393	GLN	CA-C-N	6.65	127.18	119.47
1	A	393	GLN	C-N-CA	6.65	127.18	119.47
1	A	267	HIS	N-CA-C	-6.52	99.39	109.24
1	A	196	SER	CA-C-N	6.50	126.63	119.87
1	A	196	SER	C-N-CA	6.50	126.63	119.87
1	A	258	PHE	CA-CB-CG	-6.41	107.39	113.80
1	A	514	LEU	CA-C-N	6.40	130.65	121.50
1	A	514	LEU	C-N-CA	6.40	130.65	121.50
1	A	390	ALA	CA-C-N	6.38	126.35	120.03
1	A	390	ALA	C-N-CA	6.38	126.35	120.03
1	A	304	LEU	N-CA-C	6.33	120.10	107.62
1	A	409	TYR	N-CA-C	6.31	119.82	109.85
1	A	534	PHE	CA-CB-CG	6.15	119.95	113.80
1	A	231	LEU	CA-C-N	6.13	126.58	119.47
1	A	231	LEU	C-N-CA	6.13	126.58	119.47
1	A	36	PRO	N-CA-C	-6.12	101.58	111.14
1	A	373	SER	N-CA-C	6.08	119.46	110.46
1	A	256	LEU	N-CA-C	-6.01	104.09	112.45
1	A	488	ASN	N-CA-CB	-5.99	105.12	111.29
1	A	147	GLU	N-CA-C	5.89	119.08	109.24
1	A	474	LEU	N-CA-C	5.88	119.22	109.46
1	A	413	SER	N-CA-C	-5.84	105.92	114.39
1	A	329	GLN	N-CA-C	-5.80	101.42	110.42
1	A	539	GLU	N-CA-C	5.80	118.22	109.23
1	A	520	CYS	N-CA-C	5.76	117.54	108.96
1	A	117	LEU	N-CA-C	5.75	117.81	108.26
1	A	308	VAL	N-CA-C	-5.66	106.79	112.17
1	A	269	PRO	N-CA-C	-5.60	102.13	111.26
1	A	290	THR	CB-CA-C	-5.59	102.33	111.50
1	A	257	HIS	CA-C-N	-5.58	113.69	122.73
1	A	257	HIS	C-N-CA	-5.58	113.69	122.73
1	A	440	ALA	CA-C-N	-5.56	114.79	122.30
1	A	440	ALA	C-N-CA	-5.56	114.79	122.30
1	A	42	HIS	CA-CB-CG	5.54	119.34	113.80
1	A	264	CYS	N-CA-C	5.46	118.53	109.46
1	A	469	HIS	N-CA-C	5.42	117.34	108.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	304	LEU	CA-C-N	5.41	129.56	121.72
1	A	304	LEU	C-N-CA	5.41	129.56	121.72
1	A	437	HIS	N-CA-CB	5.33	117.79	109.85
1	A	278	THR	N-CA-C	-5.29	107.84	114.56
1	A	315	CYS	CA-C-N	5.26	125.23	120.03
1	A	315	CYS	C-N-CA	5.26	125.23	120.03
1	A	488	ASN	CB-CA-C	5.24	117.15	110.76
1	A	258	PHE	N-CA-C	5.15	117.84	109.24
1	A	347	MET	N-CA-C	5.11	117.73	109.40
1	A	83	TYR	N-CA-C	5.06	117.21	110.53
1	A	495	HIS	CA-CB-CG	5.04	118.84	113.80
1	A	190	ARG	NE-CZ-NH2	-5.02	114.68	119.20

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	3892	3736	3741	34	0
All	All	3892	3736	3741	34	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 4.

All (34) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:157:ARG:HD2	1:A:187:ASN:ND2	2.16	0.60
1:A:30:ASP:OD1	1:A:32:LYS:NZ	2.39	0.55
1:A:29:THR:HA	1:A:439:GLY:HA3	1.87	0.55
1:A:249:HIS:ND1	1:A:249:HIS:N	2.57	0.51
1:A:268:CYS:O	1:A:269:PRO:C	2.53	0.51
1:A:56:VAL:HG23	1:A:77:ILE:HG21	1.95	0.47
1:A:236:CYS:O	1:A:237:HIS:C	2.57	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:60:LEU:O	1:A:84:VAL:HA	2.15	0.46
1:A:533:GLN:N	1:A:533:GLN:OE1	2.49	0.45
1:A:290:THR:O	1:A:290:THR:OG1	2.22	0.45
1:A:455:LEU:HD22	1:A:458:LEU:HB2	1.99	0.44
1:A:257:HIS:C	1:A:258:PHE:CG	2.95	0.44
1:A:258:PHE:CD1	1:A:290:THR:HB	2.53	0.43
1:A:29:THR:OG1	1:A:61:GLU:O	2.36	0.43
1:A:312:THR:OG1	1:A:313:LEU:N	2.52	0.43
1:A:406:ILE:HG22	1:A:408:GLY:H	1.83	0.43
1:A:291:PHE:CE1	1:A:300:PRO:HD2	2.54	0.43
1:A:409:TYR:CD1	1:A:437:HIS:HB2	2.53	0.42
1:A:488:ASN:HB2	1:A:489:PRO:HD2	2.02	0.42
1:A:157:ARG:N	1:A:185:ASP:OD2	2.53	0.42
1:A:417:ASP:OD1	1:A:417:ASP:N	2.45	0.42
1:A:260:HIS:ND1	1:A:263:ILE:O	2.53	0.42
1:A:117:LEU:HD13	1:A:156:GLN:CG	2.50	0.41
1:A:304:LEU:HD13	1:A:331:CYS:SG	2.60	0.41
1:A:291:PHE:N	1:A:294:SER:O	2.53	0.41
1:A:437:HIS:C	1:A:439:GLY:N	2.77	0.41
1:A:290:THR:H	1:A:310:SER:HA	1.86	0.41
1:A:260:HIS:HA	1:A:295:CYS:HB3	2.02	0.41
1:A:66:PRO:O	1:A:91:VAL:HG22	2.20	0.41
1:A:158:ASN:HD22	1:A:161:LEU:HD23	1.86	0.41
1:A:258:PHE:CD2	1:A:258:PHE:N	2.89	0.41
1:A:410:LEU:O	1:A:443:LEU:HA	2.21	0.40
1:A:117:LEU:HD13	1:A:156:GLN:CD	2.47	0.40
1:A:409:TYR:HB3	1:A:436:LEU:HA	2.03	0.40

There are no symmetry-related clashes.

5.3   Torsion angles   ⓘ

5.3.1   Protein backbone   ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	498/1311 (38%)	477 (96%)	21 (4%)	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
1	A	433/1143 (38%)	433 (100%)	0	100 100

There are no protein residues with a non-rotameric sidechain to report.

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	24	GLN
1	A	319	ASN
1	A	470	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

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　ⓘ

This section contains visualisations of the EMDB entry EMD-52997. 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　ⓘ
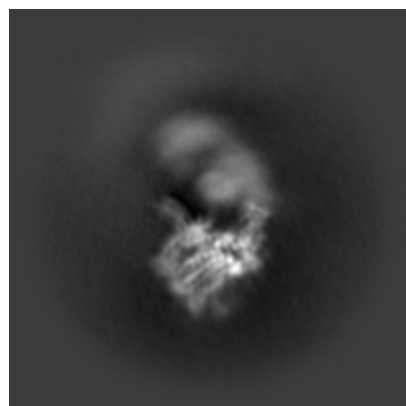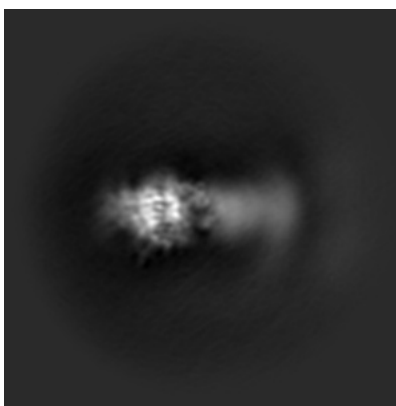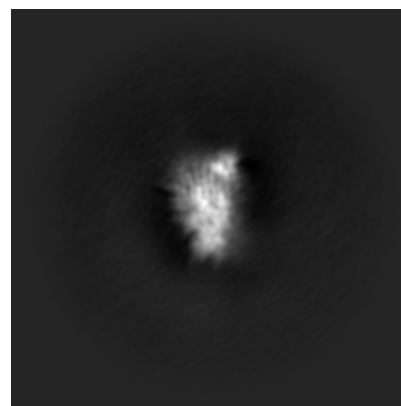
6.1.1　Primary map

X　　　　　　　　　　Y　　　　　　　　　　Z

6.1.2　Raw map

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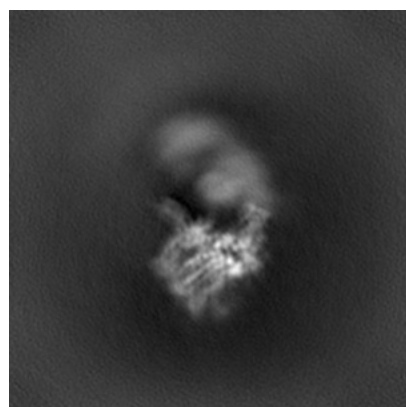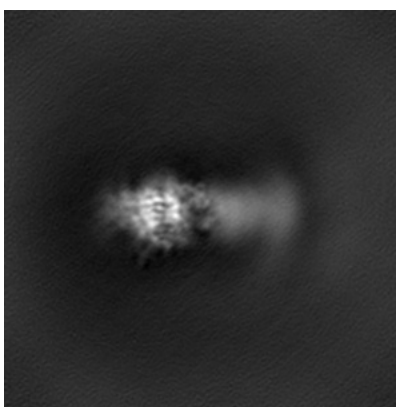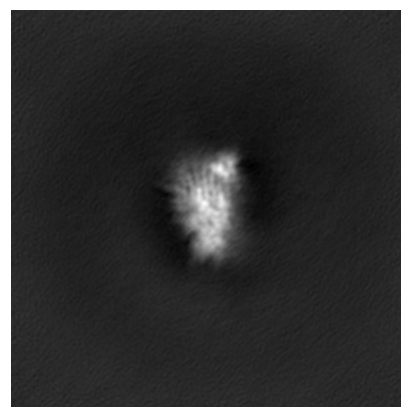
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

6.2.1 Primary map
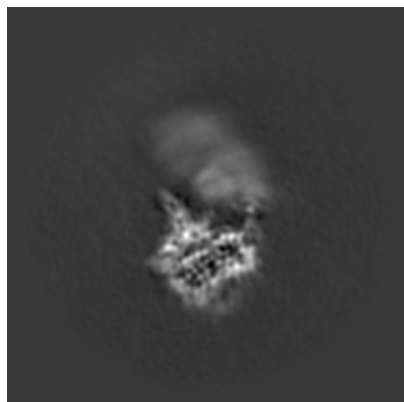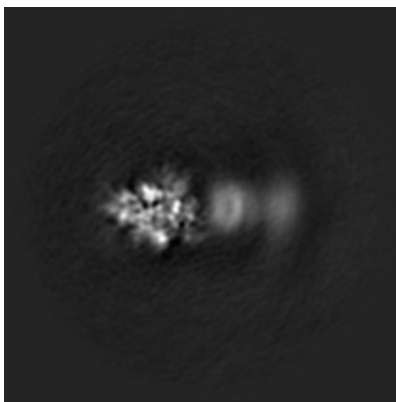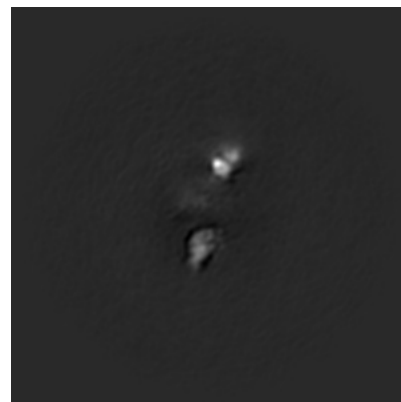
X Index: 100   Y Index: 100   Z Index: 100

6.2.2 Raw map
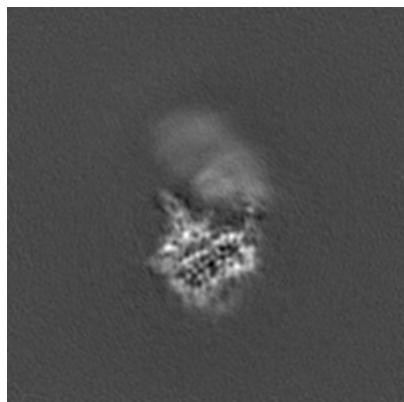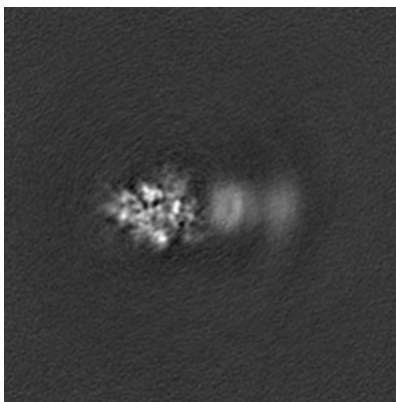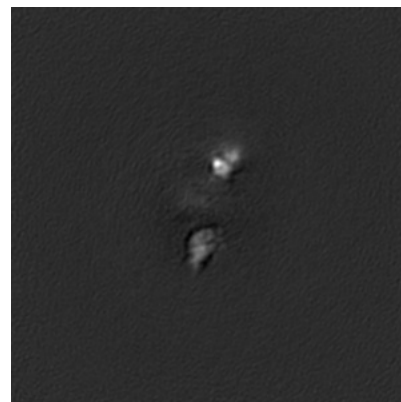
X Index: 100   Y Index: 100   Z Index: 100

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

6.3   Largest variance slices ⓘ
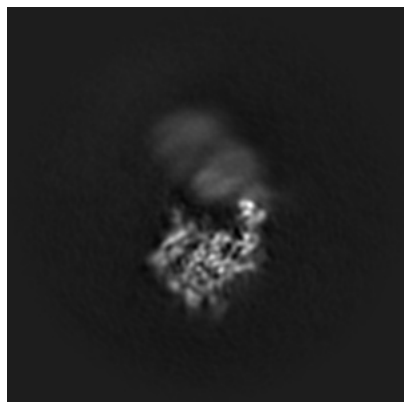
6.3.1   Primary map
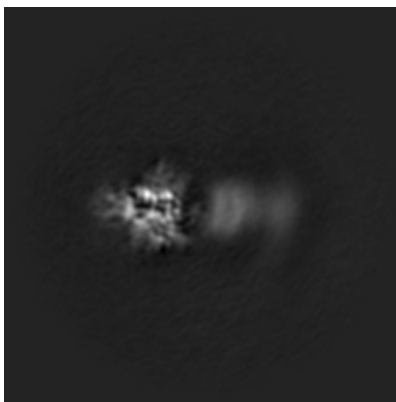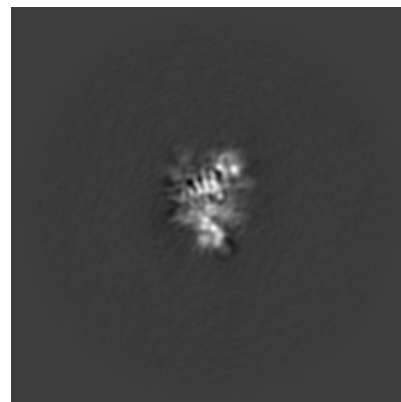
X Index: 104   Y Index: 103   Z Index: 85

6.3.2   Raw map
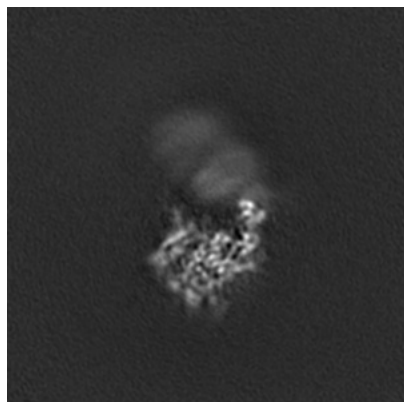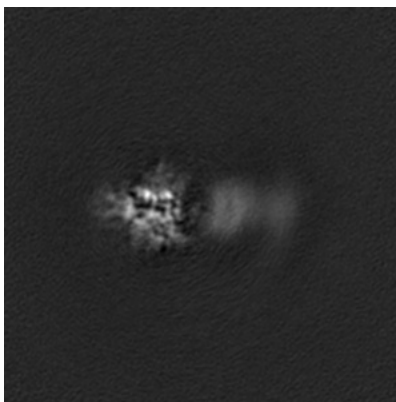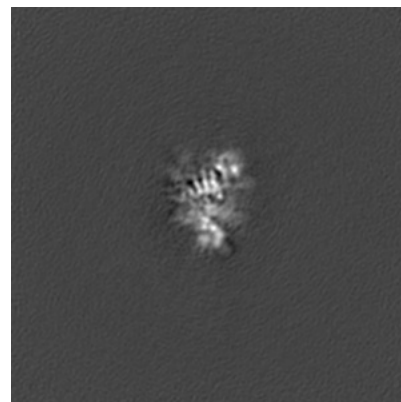
X Index: 104   Y Index: 103   Z Index: 85

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

6.4 Orthogonal standard-deviation projections (False-color) ⓘ

6.4.1 Primary map
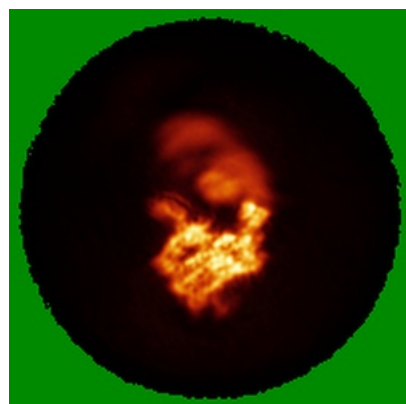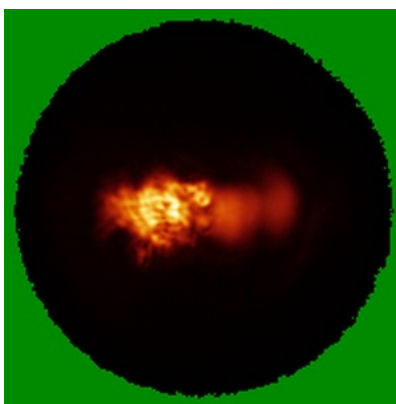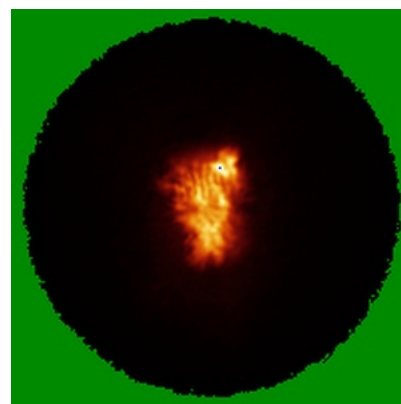
X   Y   Z

6.4.2 Raw map

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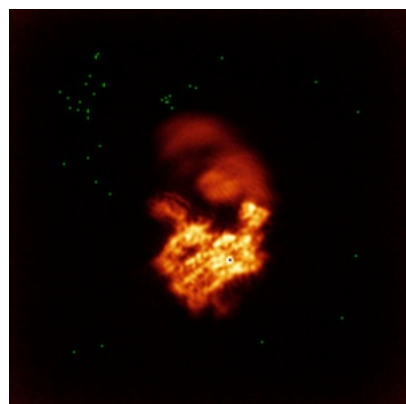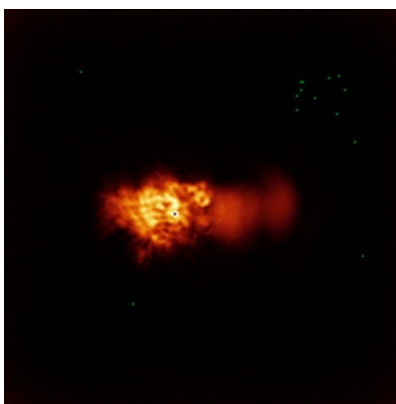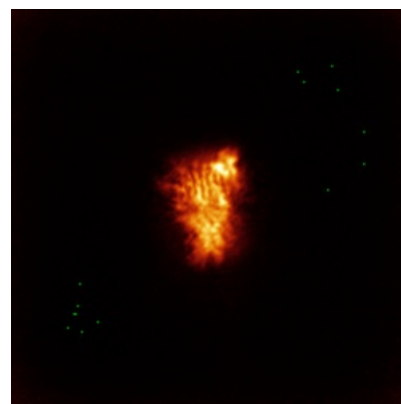
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

X   Y   Z
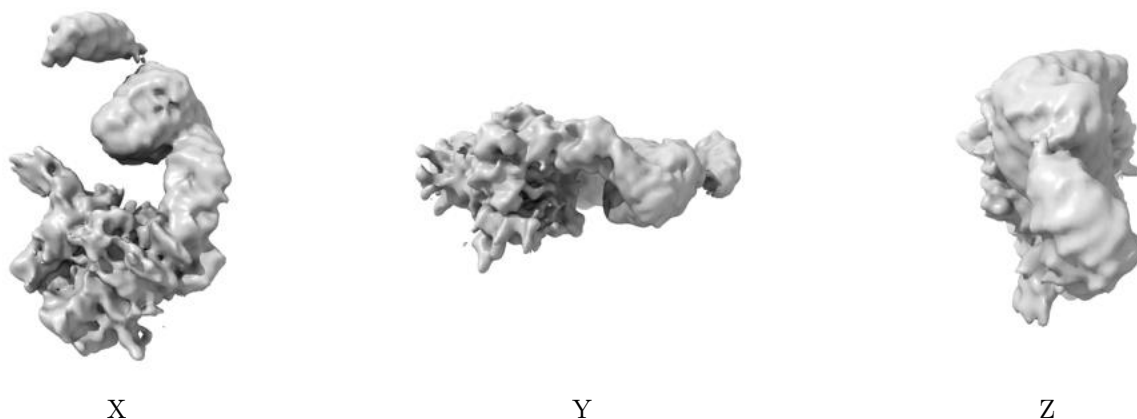
The images above show the 3D surface view of the map at the recommended contour level 0.25. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

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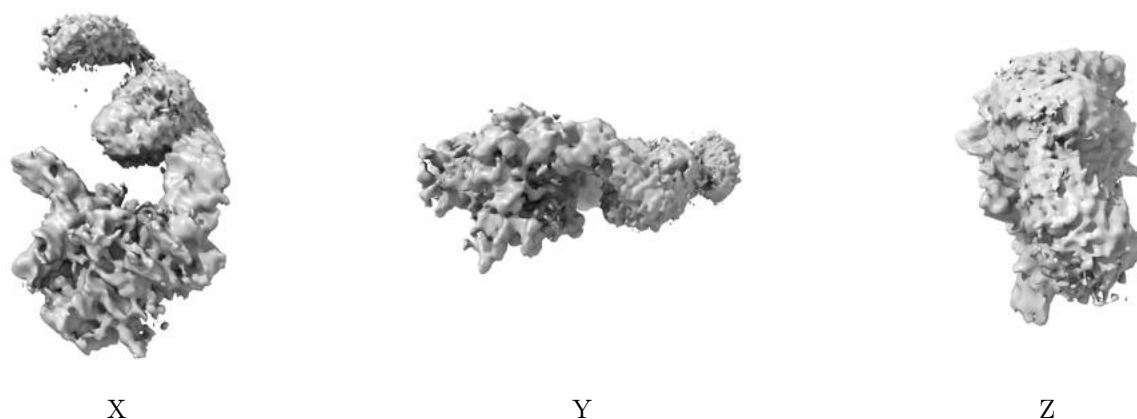
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

6.6　Mask visualisation ⓘ

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

A mask typically either:

- Encompasses the whole structure

- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

6.6.1　emd_52997_msk_1.map ⓘ

X　　　　　　　　　　Y　　　　　　　　　　Z
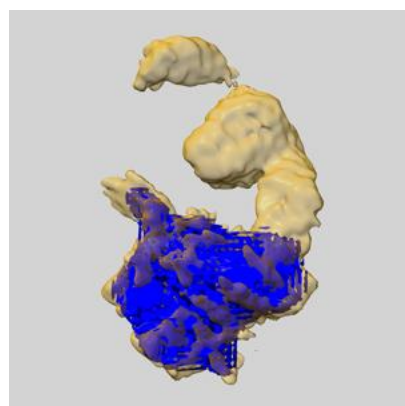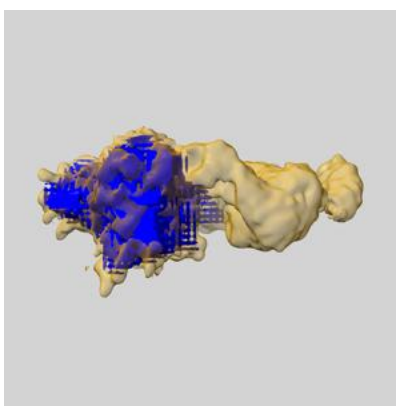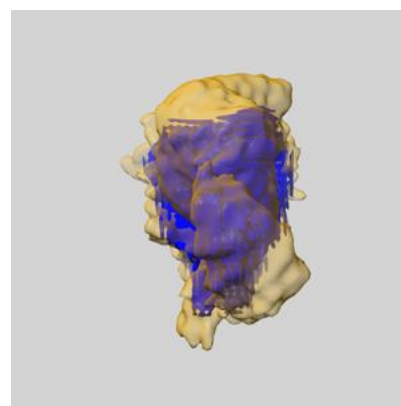
7 Map analysis ⓘ

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

7.1 Map-value distribution ⓘ

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 ⓘ
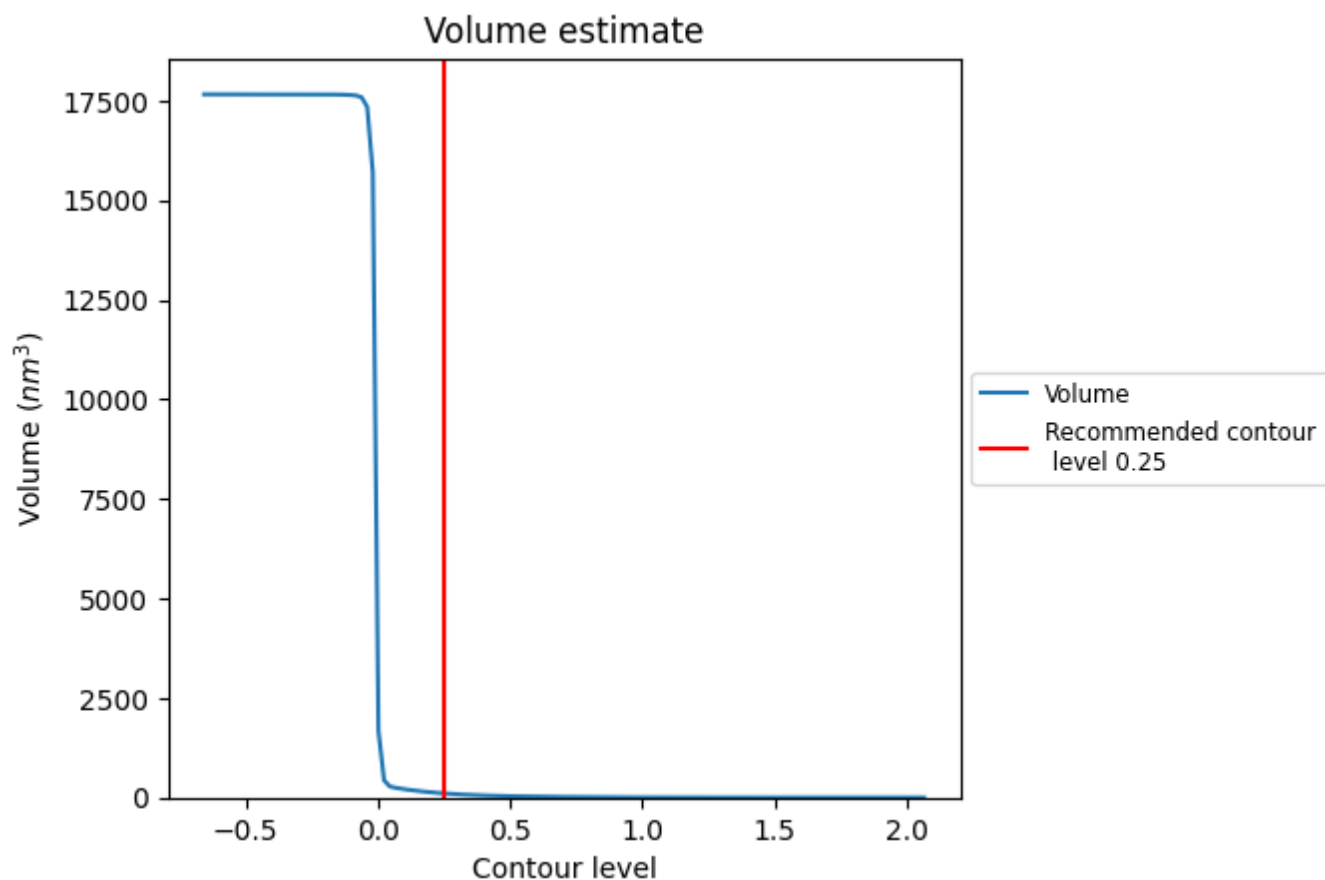
The volume at the recommended contour level is 104 nm^3; this corresponds to an approximate mass of 94 kDa.

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 ⓘ
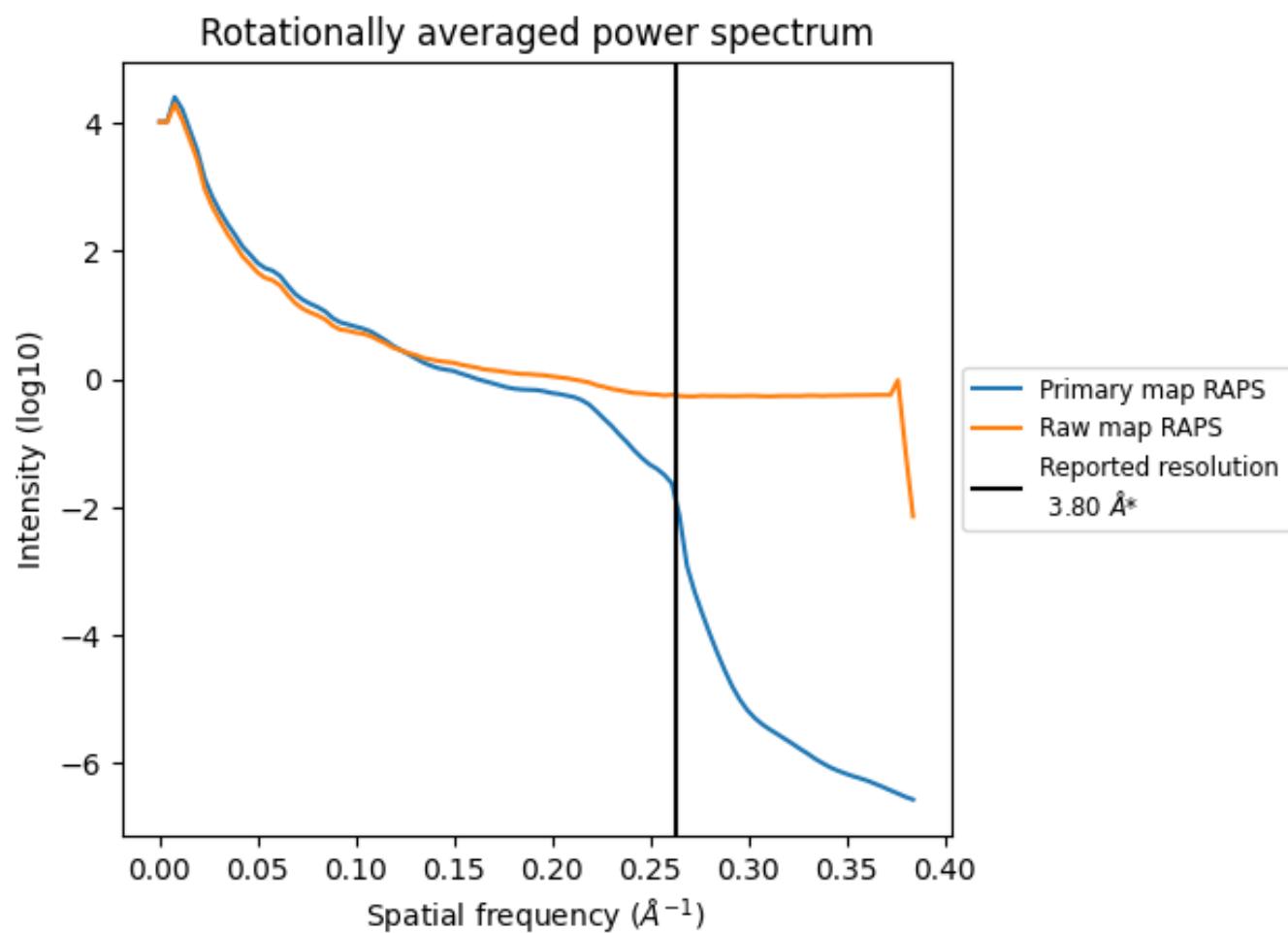
*Reported resolution corresponds to spatial frequency of 0.263 Å^{-1}

8 Fourier-Shell correlation ⓘ

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 ⓘ
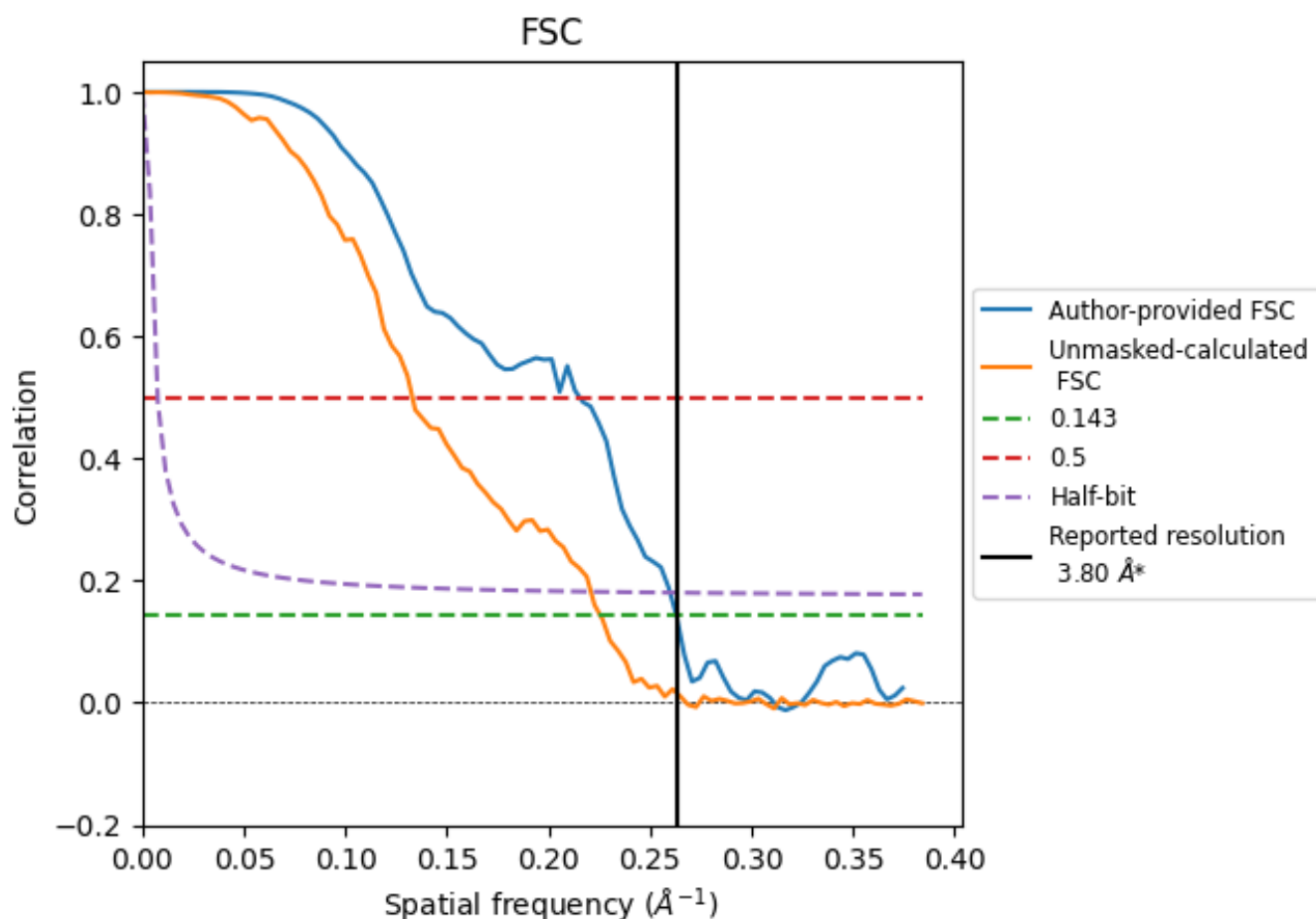
*Reported resolution corresponds to spatial frequency of 0.263 Å^{-1}

8.2 Resolution estimates ⓘ

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	3.80	4.64	3.85
Unmasked-calculated*	4.43	7.52	4.53

*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 4.43 differs from the reported value 3.8 by more than 10 %
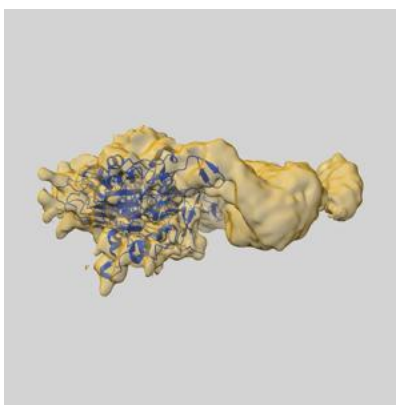
9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-52997 and PDB model 9QBF. Per-residue inclusion information can be found in section 3 on page 6.
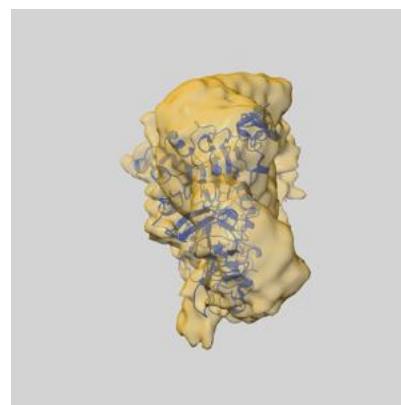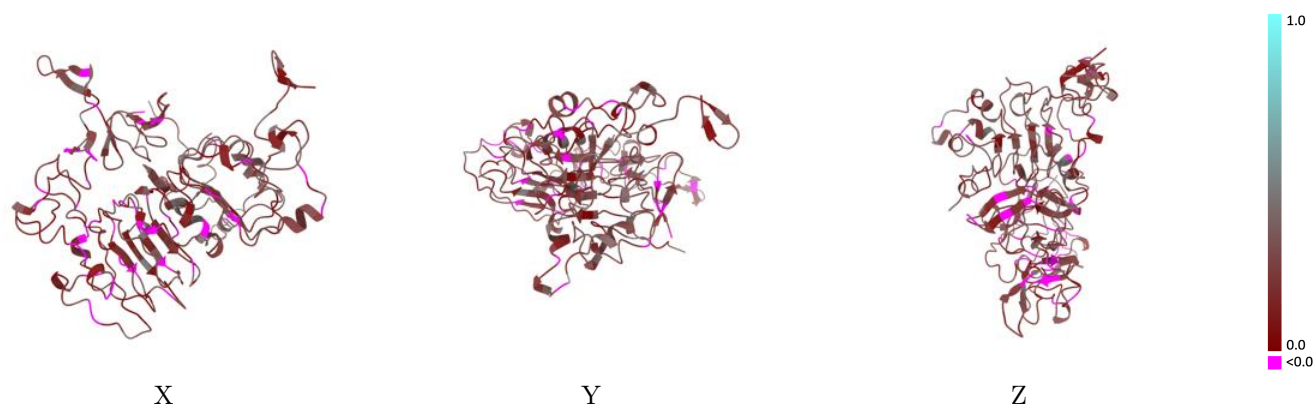
9.1 Map-model overlay ⓘ
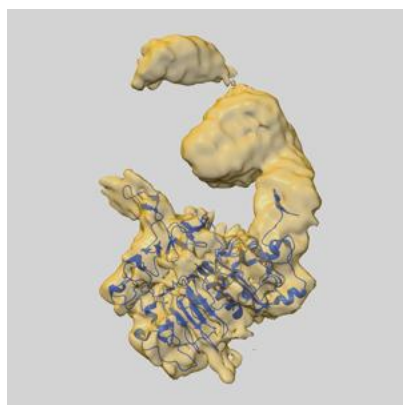
| X | Y | Z |

The images above show the 3D surface view of the map at the recommended contour level 0.25 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 ⓘ

The images above show the model with each residue coloured according 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 ⓘ
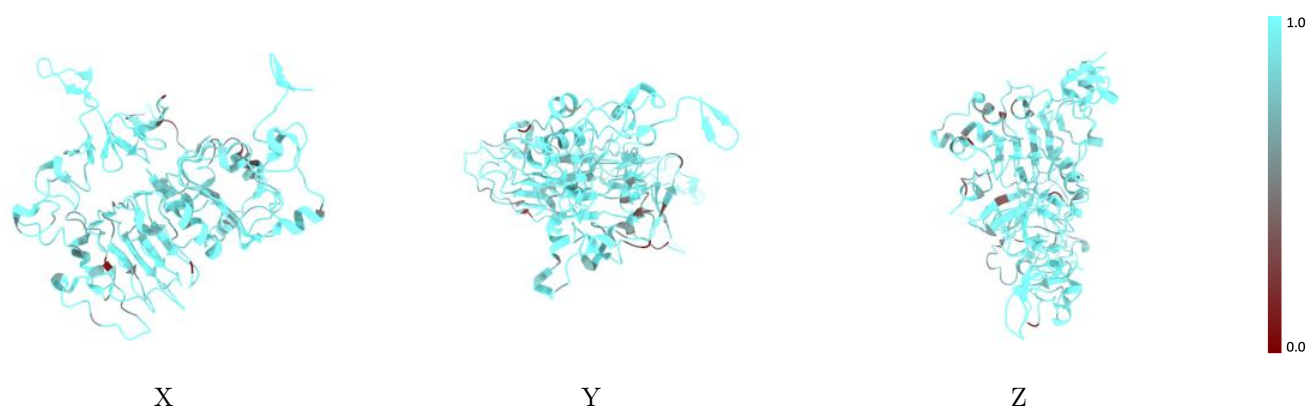
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.25).

9.4　Atom inclusion (i)
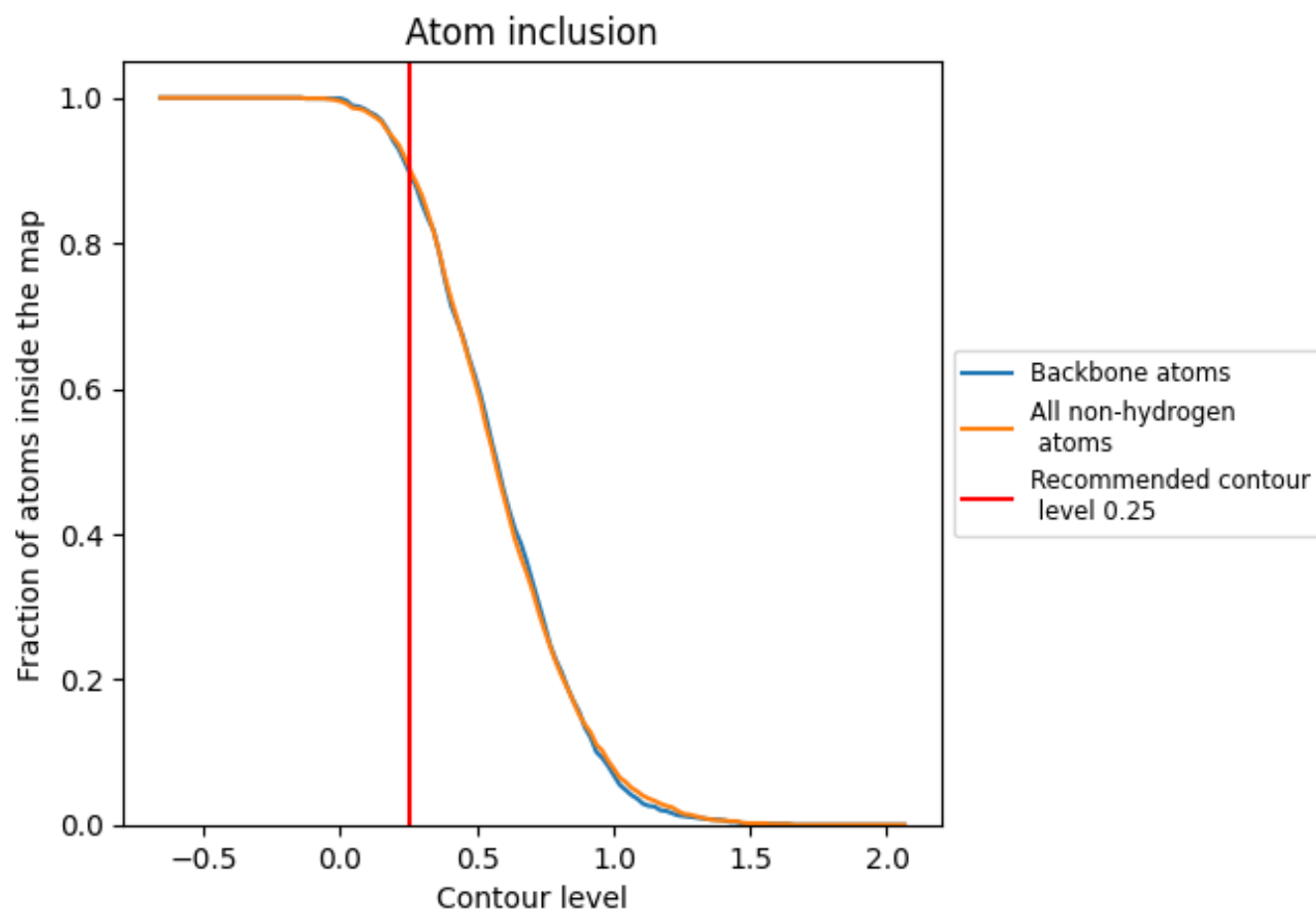
At the recommended contour level, 90% of all backbone atoms, 91% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9070	0.2060
A	0.9120	0.2060

1.0

0.0
<0.0