



Full wwPDB EM Validation Report ⓘ

Jul 15, 2024 – 07:48 am BST

PDB ID : 8OSJ
EMDB ID : EMD-17155
Title : Cryo-EM structure of CLOCK-BMAL1 bound to a nucleosomal E-box at position SHL-6.2 (DNA conformation 1)
Authors : Michael, A.K.; Stoos, L.; Kempf, G.; Cavadini, S.; Thoma, N.H.
Deposited on : 2023-04-19
Resolution : 6.20 Å(reported)

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.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

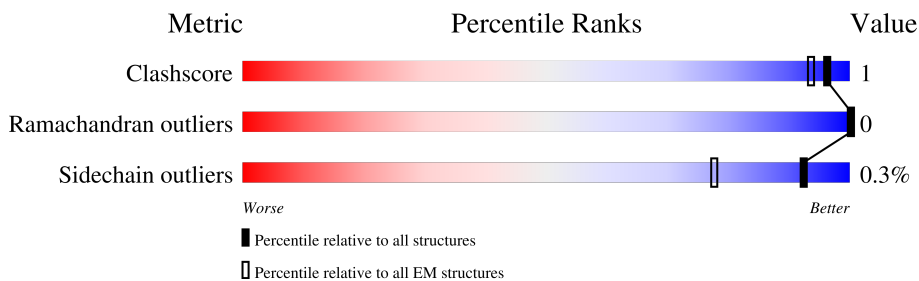
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 6.20 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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	139	
1	E	139	
2	B	106	
2	F	106	
3	C	133	
3	G	133	
4	D	128	
4	H	128	

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Mol	Chain	Length	Quality of chain
5	I	153	 81% 16%
6	J	153	 81% 16%
7	M	375	 17% 83%
8	N	384	 14% 86%

2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 11493 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 Histone H3.1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	89	728	460	136	128	4	0	0
1	E	89	728	460	136	128	4	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	GLY	-	expression tag	UNP P68431
A	-2	SER	-	expression tag	UNP P68431
A	-1	HIS	-	expression tag	UNP P68431
E	-3	GLY	-	expression tag	UNP P68431
E	-2	SER	-	expression tag	UNP P68431
E	-1	HIS	-	expression tag	UNP P68431

- Molecule 2 is a protein called Histone H4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	79	633	399	124	109	1	0	0
2	F	79	633	399	124	109	1	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-3	GLY	-	expression tag	UNP P62805
B	-2	SER	-	expression tag	UNP P62805
B	-1	HIS	-	expression tag	UNP P62805
F	-3	GLY	-	expression tag	UNP P62805
F	-2	SER	-	expression tag	UNP P62805
F	-1	HIS	-	expression tag	UNP P62805

- Molecule 3 is a protein called Histone H2A type 1-B/E.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	C	100	Total	C	N	O	0	0
			769	486	148	135		
3	G	100	Total	C	N	O	0	0
			769	486	148	135		

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-3	GLY	-	expression tag	UNP P04908
C	-2	SER	-	expression tag	UNP P04908
C	-1	HIS	-	expression tag	UNP P04908
G	-3	GLY	-	expression tag	UNP P04908
G	-2	SER	-	expression tag	UNP P04908
G	-1	HIS	-	expression tag	UNP P04908

- Molecule 4 is a protein called Histone H2B type 1-J.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	90	Total	C	N	O	S	0	0
			699	441	123	133	2		
4	H	90	Total	C	N	O	S	0	0
			699	441	123	133	2		

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	-3	GLY	-	expression tag	UNP P06899
D	-2	SER	-	expression tag	UNP P06899
D	-1	HIS	-	expression tag	UNP P06899
H	-3	GLY	-	expression tag	UNP P06899
H	-2	SER	-	expression tag	UNP P06899
H	-1	HIS	-	expression tag	UNP P06899

- Molecule 5 is a DNA chain called DNA (124-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	I	128	Total	C	N	O	P	0	0
			2611	1238	475	770	128		

- Molecule 6 is a DNA chain called DNA (124-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
6	J	128	2637	1246	497	766	128	0	0

- Molecule 7 is a protein called Circadian locomoter output cycles protein kaput.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
7	M	63	315	189	63	63	0	0

There are 5 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	21	GLY	-	expression tag	UNP O08785
M	22	ALA	-	expression tag	UNP O08785
M	23	MET	-	expression tag	UNP O08785
M	24	ASN	-	expression tag	UNP O08785
M	25	PRO	-	expression tag	UNP O08785

- Molecule 8 is a protein called Basic helix-loop-helix ARNT-like protein 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
8	N	54	272	164	54	54	0	0

There are 5 discrepancies between the modelled and reference sequences:

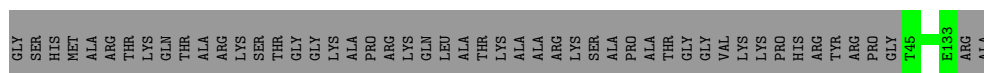
Chain	Residue	Modelled	Actual	Comment	Reference
N	64	GLY	-	expression tag	UNP Q9WTL8
N	65	ALA	-	expression tag	UNP Q9WTL8
N	66	MET	-	expression tag	UNP Q9WTL8
N	67	ASN	-	expression tag	UNP Q9WTL8
N	68	PRO	-	expression tag	UNP Q9WTL8

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.

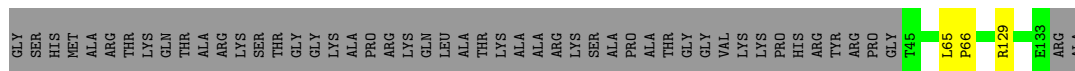
- Molecule 1: Histone H3.1

Chain A:  64% 36%



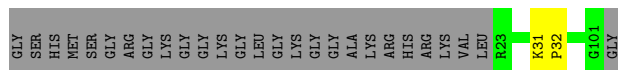
- Molecule 1: Histone H3.1

Chain E:  62% 36%



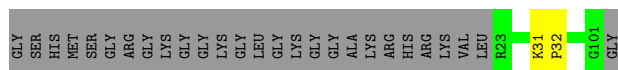
- Molecule 2: Histone H4

Chain B:  73% 25%



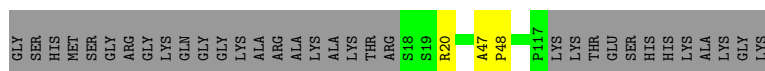
- Molecule 2: Histone H4

Chain F:  73% 25%



- Molecule 3: Histone H2A type 1-B/E

Chain C:  73% 25%



- Molecule 3: Histone H2A type 1-B/E

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

ALA
GLU VAL
VAL ARG
ALA ARG
GLU ARG
ARG ARG
ARG ARG
LEU LEU
GLY LEU
ILE ILE
GLU GLU
SER SER
LEU LEU

● Molecule 8: Basic helix-loop-helix ARNT-like protein 1

Chain N: 14% 86%

GLY
ALA MET
ASN PRO
GLU TYR
ALA TYR
HIS HIS
GLN LEU
GLY LEU
H76
M129

LYS
ILE LEU
PHE ASP
VAL SER
THR THR
PRO PRO
GLY GLY
VAL VAL
PHE PHE
LYS LYS
ILE ILE
LEU LEU
ASN ASN
TYR TYR
LYS LYS
GLN GLN
ASN ASN
THR THR
ASP ASP
LEU LEU
PHE PHE
ASP ASP
LEU LEU

VAL
LYS THR
THR THR
ILE ILE
PRO PRO
GLY GLY
PHO PHO
ARG ARG
ASP ASP
GLU LEU
CYS CYS
SER SER
SER SER
GLY GLY
ALA ALA
ARG ARG
ASN ASN
SER SER
PHE PHE
CYS CYS
ARG ARG
PRO PRO
SER SER
VAL VAL
LYS LYS
ASN ASN
THR THR
CYS CYS
SER SER
PHE PHE
ALA ALA
GLU GLU
LYS LYS

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

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

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

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	152914	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	200	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.013	Depositor
Minimum map value	-0.005	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.00126	Depositor
Map size (\AA)	242.08, 242.08, 242.08	wwPDB
Map dimensions	356, 356, 356	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.68, 0.68, 0.68	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	A	0.73	0/736	0.48	0/987
1	E	0.72	0/736	0.48	0/987
2	B	0.65	0/640	0.55	0/857
2	F	0.65	0/640	0.55	0/857
3	C	0.67	0/779	0.50	0/1054
3	G	0.66	0/779	0.50	0/1054
4	D	0.66	0/710	0.53	0/957
4	H	0.66	0/710	0.51	0/957
5	I	0.33	0/2925	1.00	0/4509
6	J	0.35	0/2961	1.00	0/4571
7	M	0.25	0/315	0.35	0/439
8	N	0.23	0/272	0.33	0/380
All	All	0.52	0/12203	0.80	0/17609

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	A	728	0	766	0	0
1	E	728	0	766	1	0
2	B	633	0	673	1	0
2	F	633	0	673	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	C	769	0	815	1	0
3	G	769	0	815	1	0
4	D	699	0	714	0	0
4	H	699	0	714	0	0
5	I	2611	0	1436	3	0
6	J	2637	0	1434	5	0
7	M	315	0	144	0	0
8	N	272	0	127	0	0
All	All	11493	0	9077	11	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 1.

All (11) 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)
6:J:117:DA:H2''	6:J:118:DT:C5'	2.38	0.53
3:G:47:ALA:N	3:G:48:PRO:CD	2.75	0.48
5:I:120:DA:H2''	5:I:121:DG:C8	2.51	0.46
1:E:65:LEU:N	1:E:66:PRO:HD2	2.29	0.46
3:C:47:ALA:N	3:C:48:PRO:CD	2.82	0.42
2:F:31:LYS:N	2:F:32:PRO:CD	2.83	0.41
6:J:117:DA:H2''	6:J:118:DT:H5''	2.02	0.41
5:I:131:DA:C2	6:J:18:DG:C2	3.08	0.41
2:B:31:LYS:N	2:B:32:PRO:CD	2.84	0.41
5:I:90:DA:C2	6:J:59:DA:C2	3.08	0.41
6:J:117:DA:H2''	6:J:118:DT:H5'	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	87/139 (63%)	87 (100%)	0	0	100	100
1	E	87/139 (63%)	87 (100%)	0	0	100	100
2	B	77/106 (73%)	77 (100%)	0	0	100	100
2	F	77/106 (73%)	77 (100%)	0	0	100	100
3	C	98/133 (74%)	98 (100%)	0	0	100	100
3	G	98/133 (74%)	96 (98%)	2 (2%)	0	100	100
4	D	88/128 (69%)	88 (100%)	0	0	100	100
4	H	88/128 (69%)	88 (100%)	0	0	100	100
7	M	61/375 (16%)	61 (100%)	0	0	100	100
8	N	52/384 (14%)	52 (100%)	0	0	100	100
All	All	813/1771 (46%)	811 (100%)	2 (0%)	0	100	100

There are no Ramachandran outliers to report.

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	78/113 (69%)	78 (100%)	0	100	100
1	E	78/113 (69%)	77 (99%)	1 (1%)	69	82
2	B	65/81 (80%)	65 (100%)	0	100	100
2	F	65/81 (80%)	65 (100%)	0	100	100
3	C	79/102 (78%)	78 (99%)	1 (1%)	69	82
3	G	79/102 (78%)	79 (100%)	0	100	100
4	D	76/106 (72%)	76 (100%)	0	100	100
4	H	76/106 (72%)	76 (100%)	0	100	100
7	M	1/345 (0%)	1 (100%)	0	100	100
8	N	1/342 (0%)	1 (100%)	0	100	100
All	All	598/1491 (40%)	596 (100%)	2 (0%)	92	95

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	C	20	ARG
1	E	129	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

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.

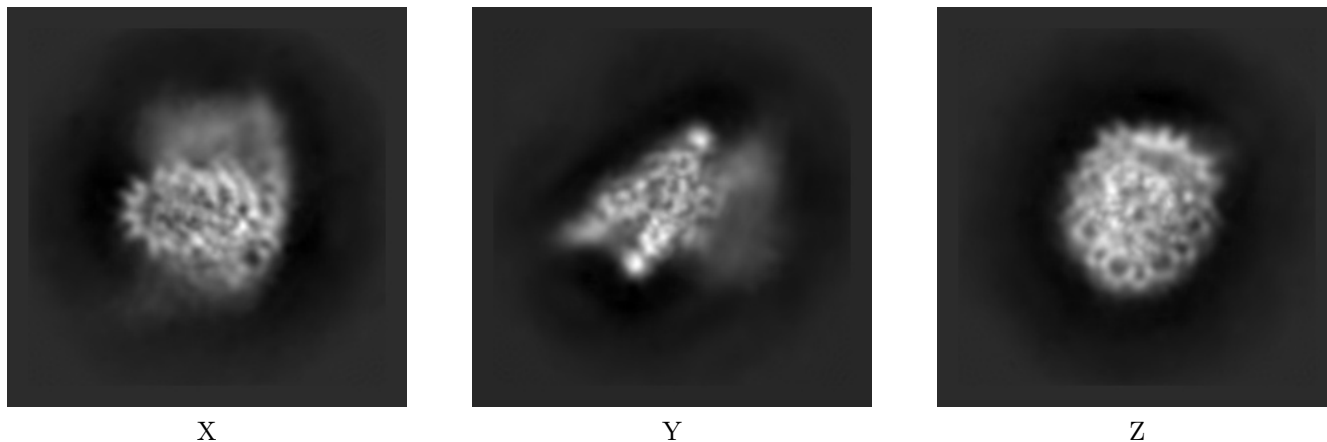
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-17155. These allow visual inspection of the internal detail of the map and identification of artifacts.

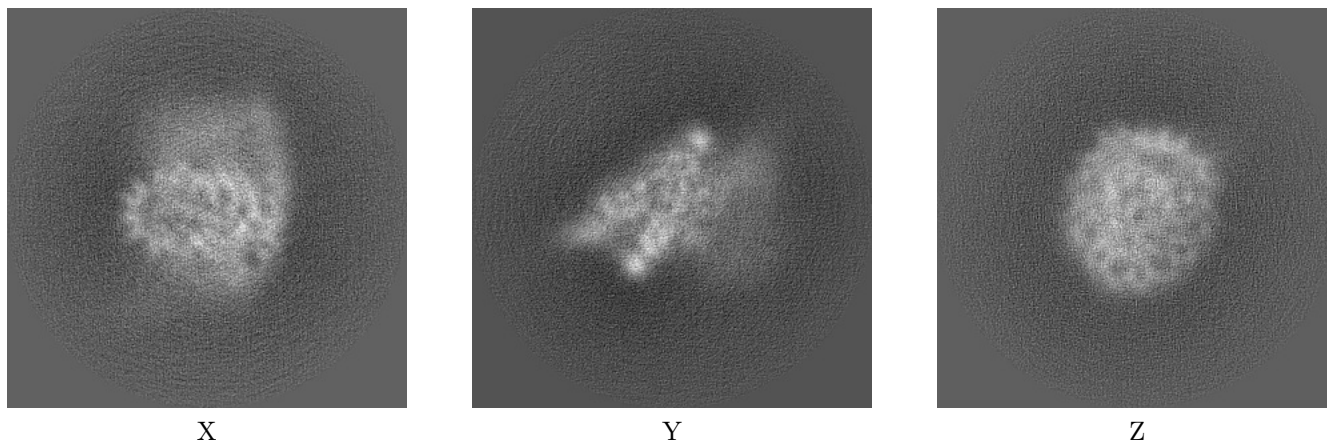
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

6.1.1 Primary map



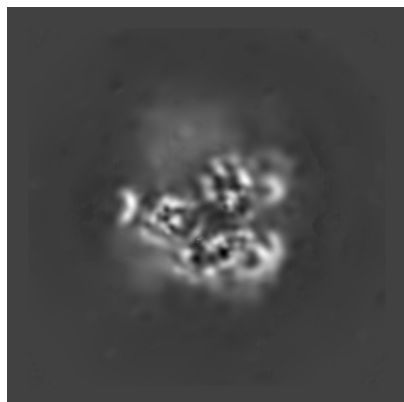
6.1.2 Raw map



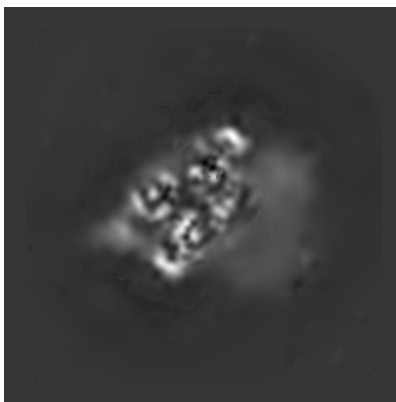
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

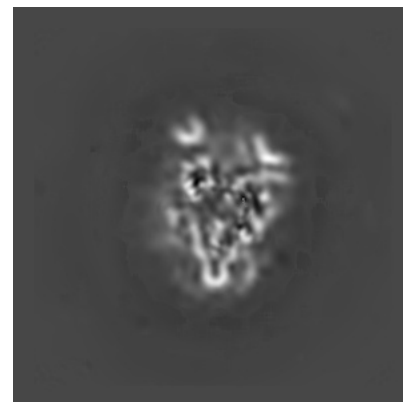
6.2.1 Primary map



X Index: 178

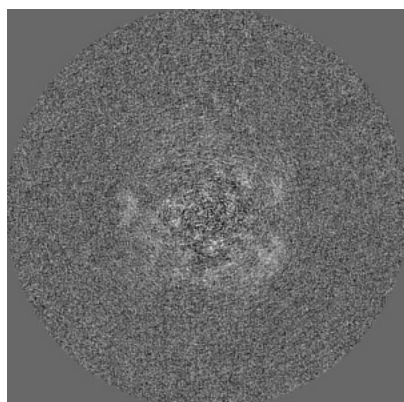


Y Index: 178

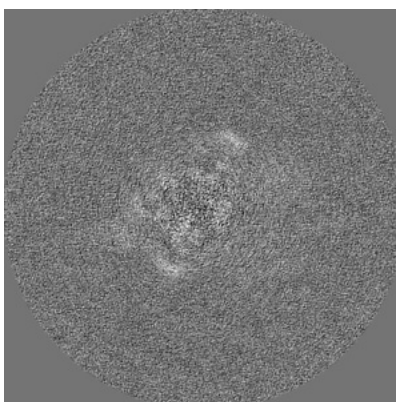


Z Index: 178

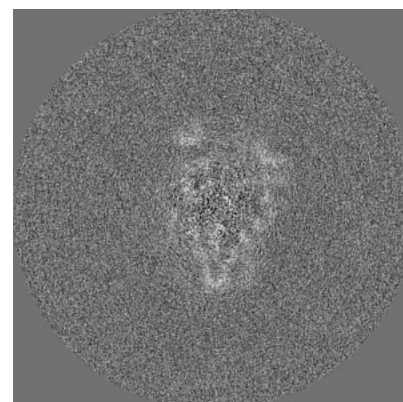
6.2.2 Raw map



X Index: 178



Y Index: 178

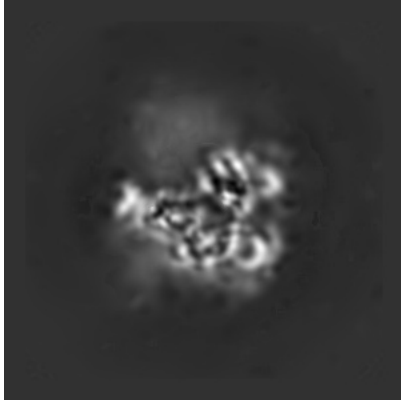


Z Index: 178

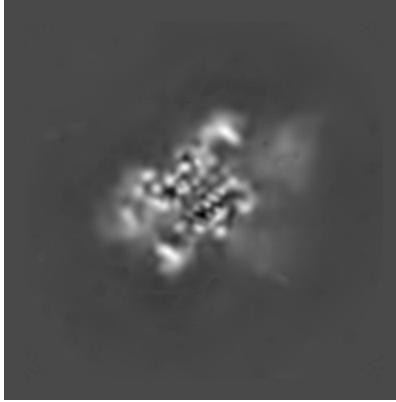
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

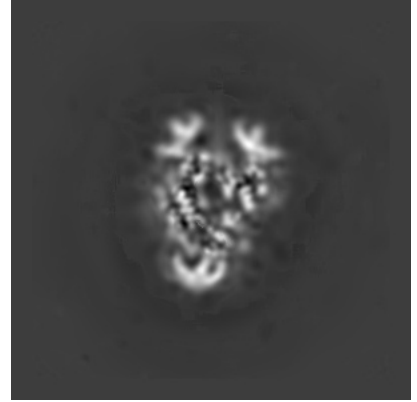
6.3.1 Primary map



X Index: 174

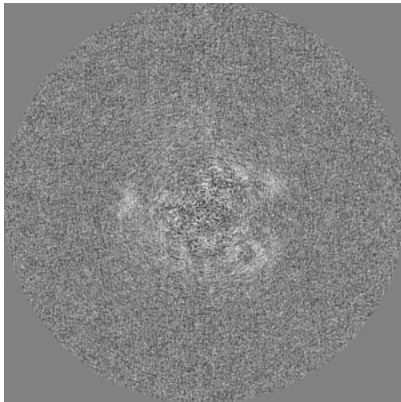


Y Index: 203

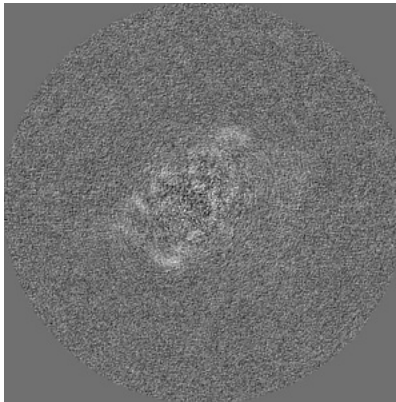


Z Index: 170

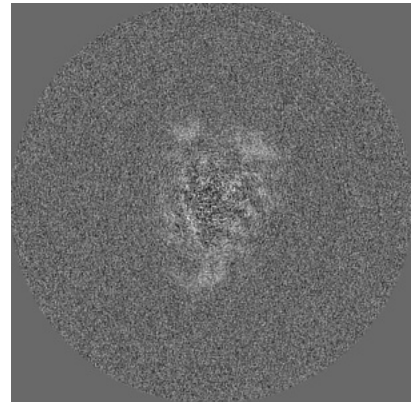
6.3.2 Raw map



X Index: 176



Y Index: 182

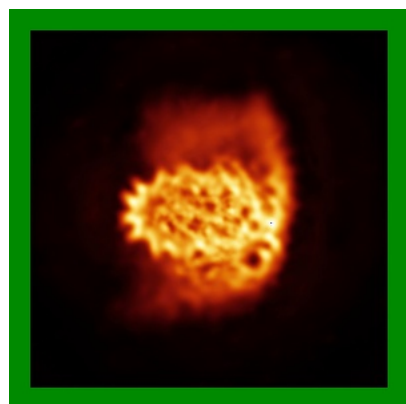


Z Index: 174

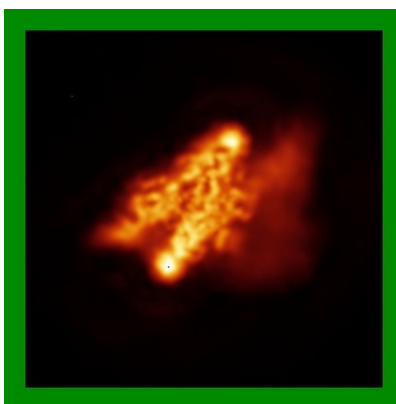
The images above show the largest variance slices of the map in three orthogonal directions.

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

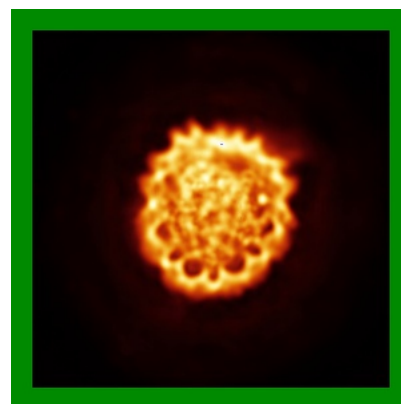
6.4.1 Primary map



X

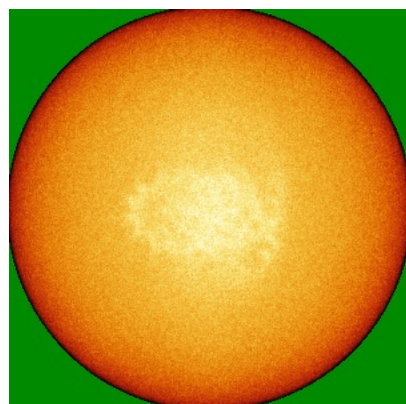


Y

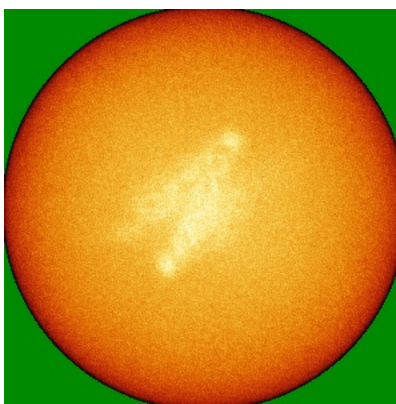


Z

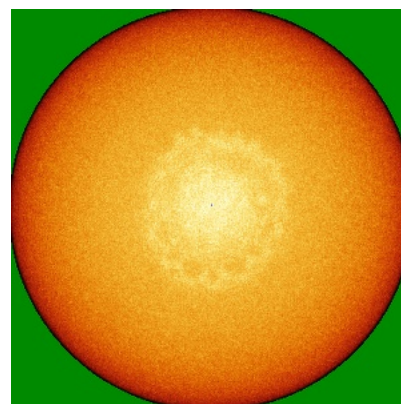
6.4.2 Raw map



X



Y

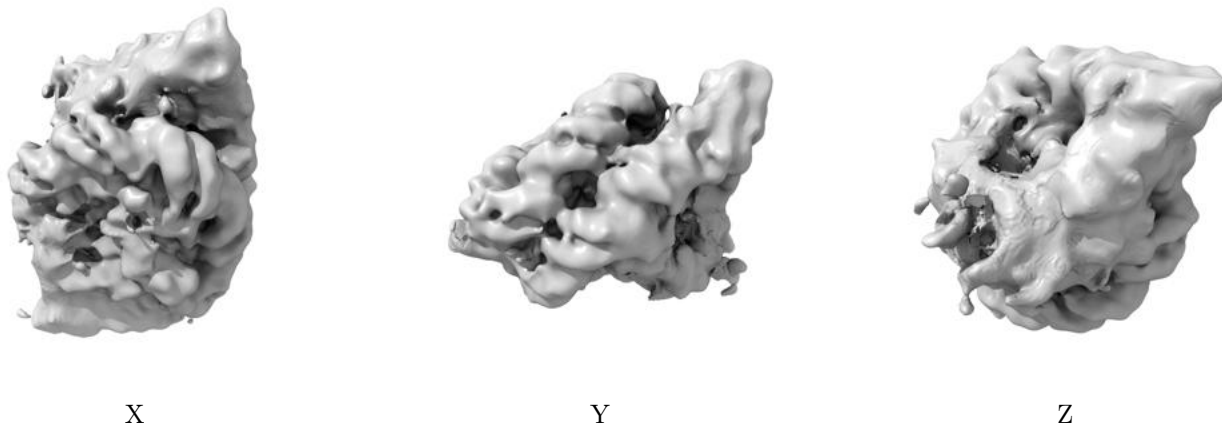


Z

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.

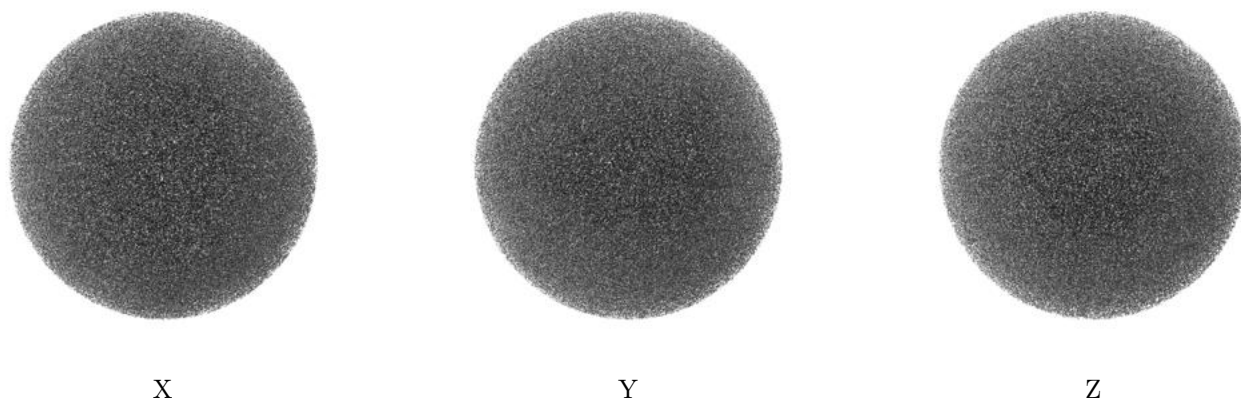
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.00126. 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.

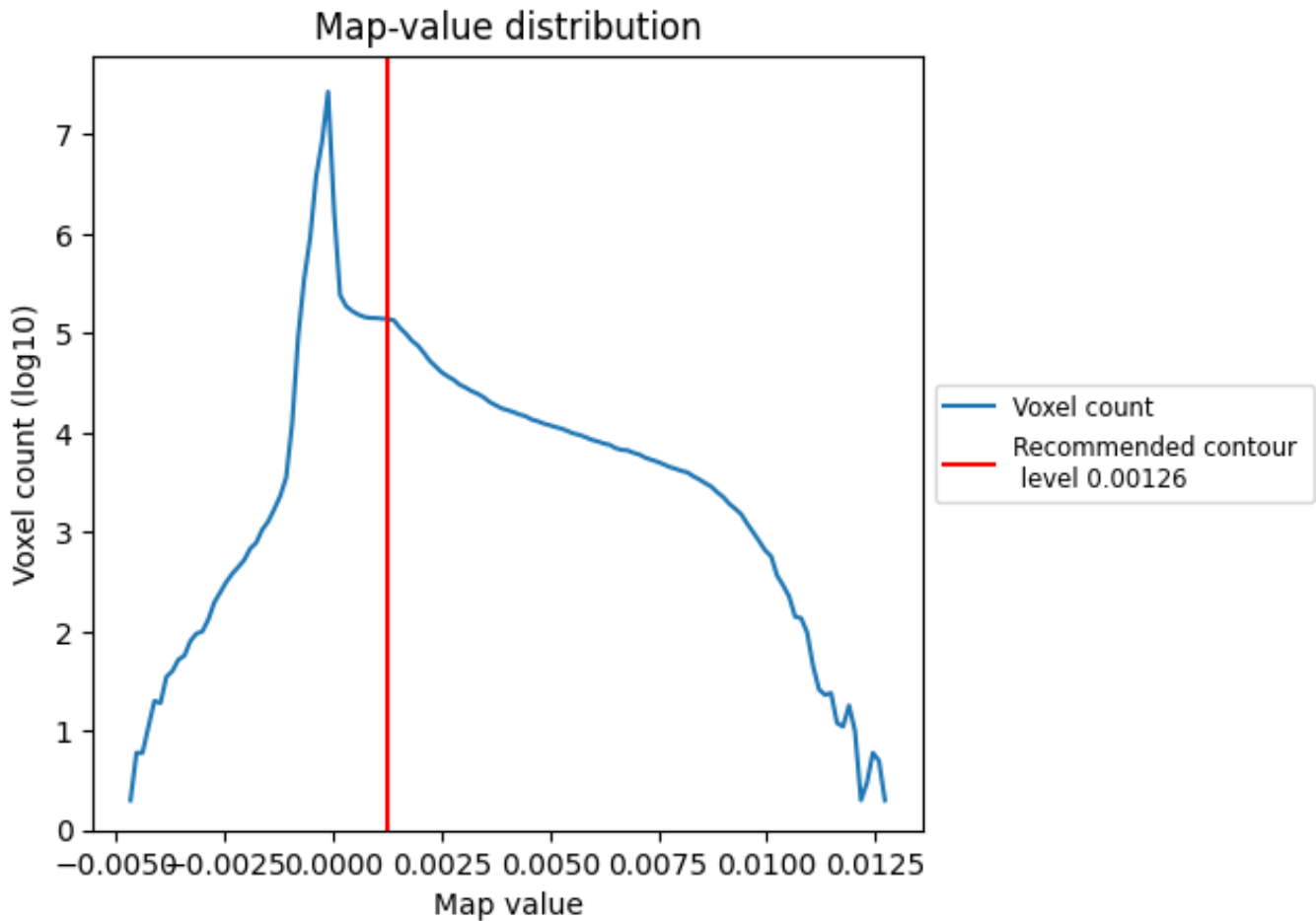
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

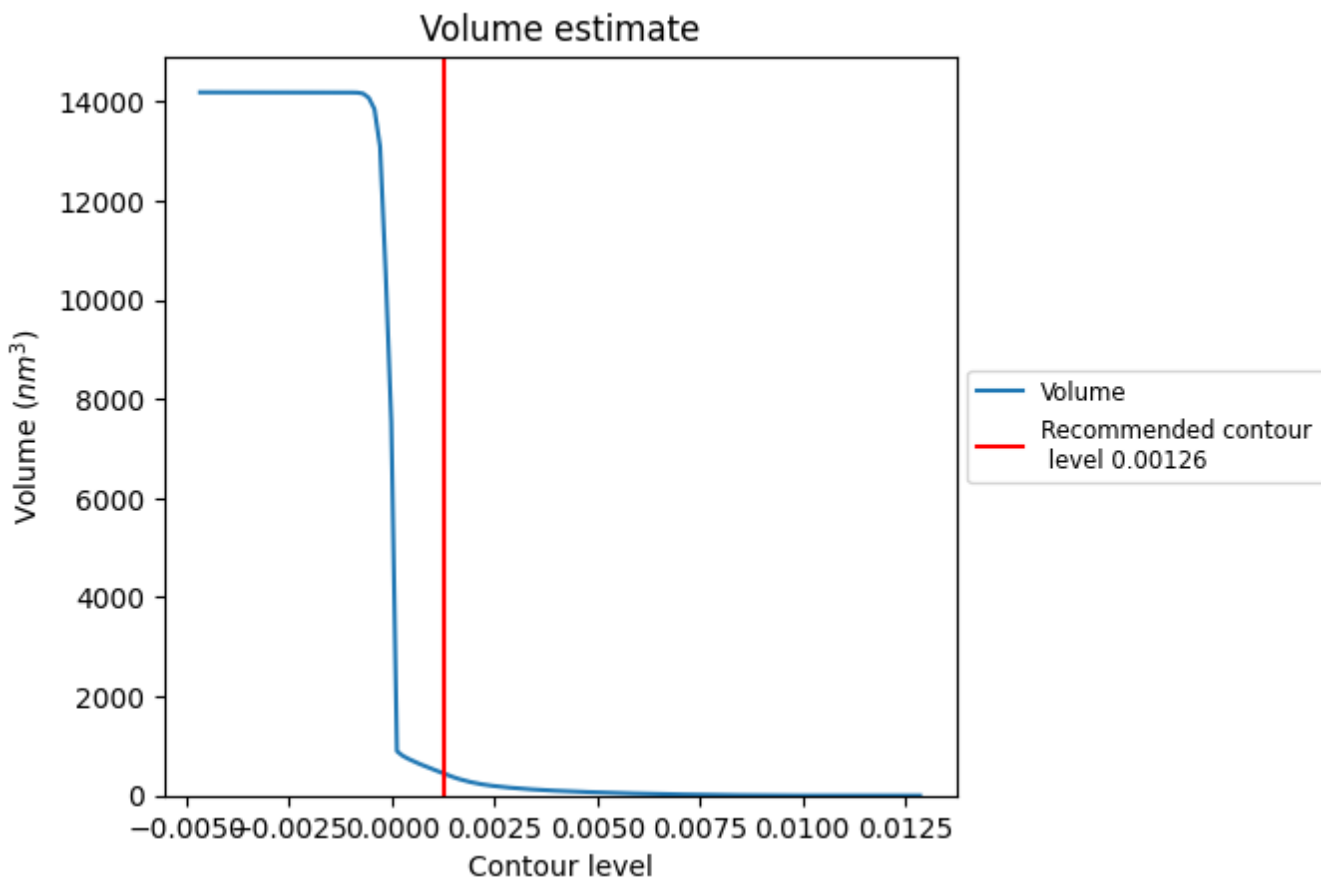
This section contains the results of statistical analysis of the map.

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.

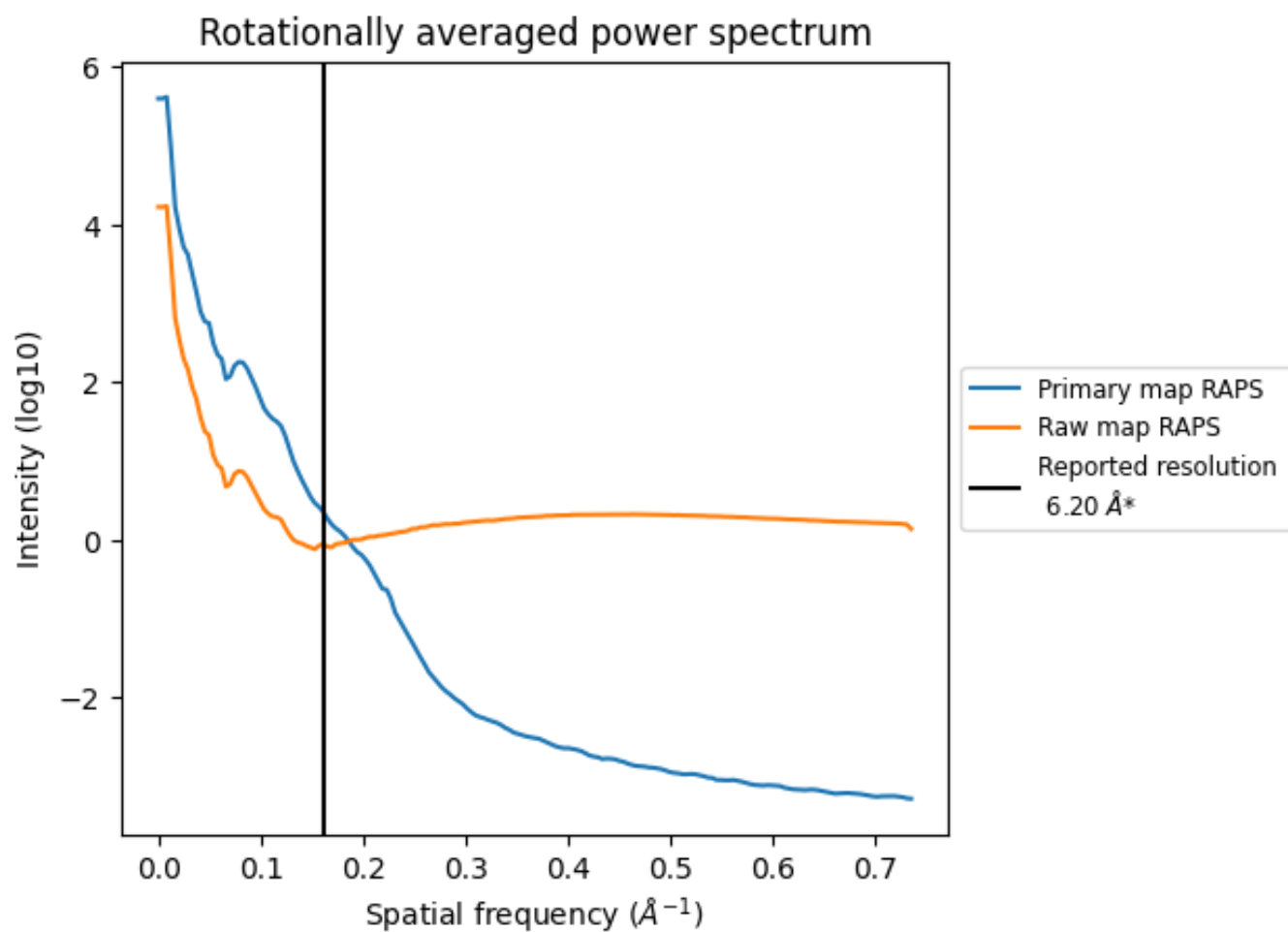
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 446 nm³; this corresponds to an approximate mass of 403 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 [i](#)

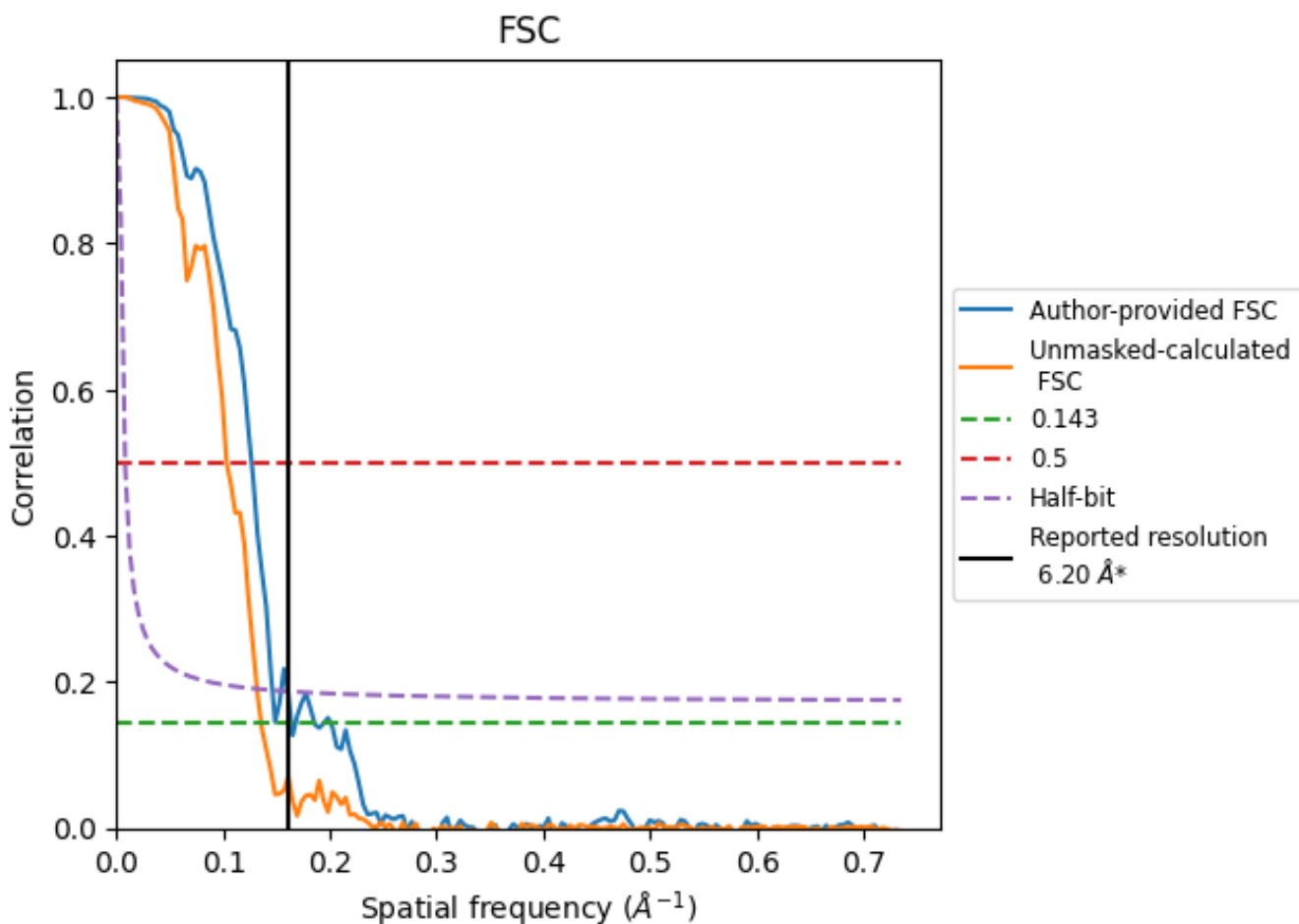


*Reported resolution corresponds to spatial frequency of 0.161 Å⁻¹

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 0.161 Å⁻¹

8.2 Resolution estimates [i](#)

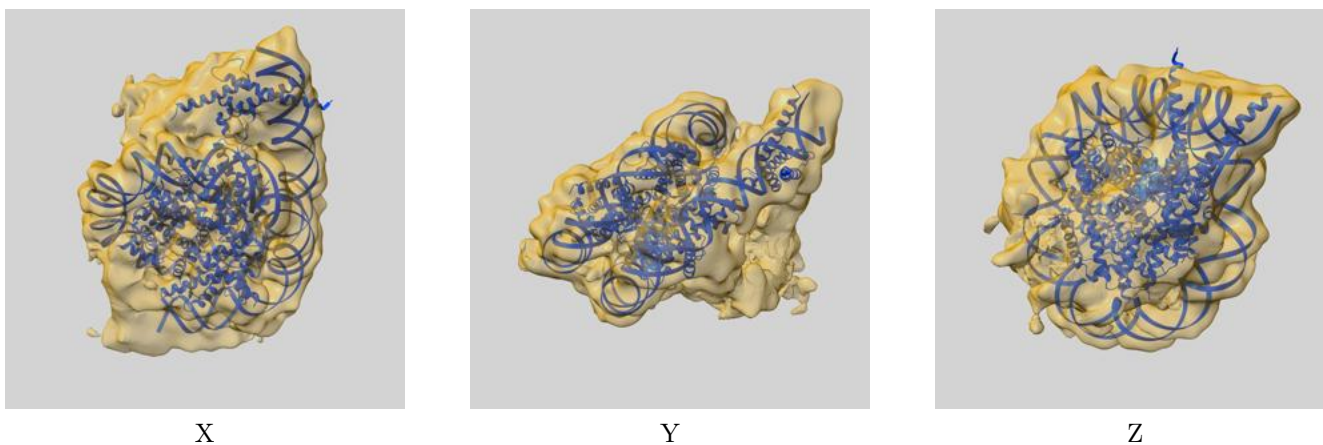
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	6.20	-	-
Author-provided FSC curve	6.10	7.89	6.84
Unmasked-calculated*	7.37	9.69	7.59

*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 7.37 differs from the reported value 6.2 by more than 10 %

9 Map-model fit [i](#)

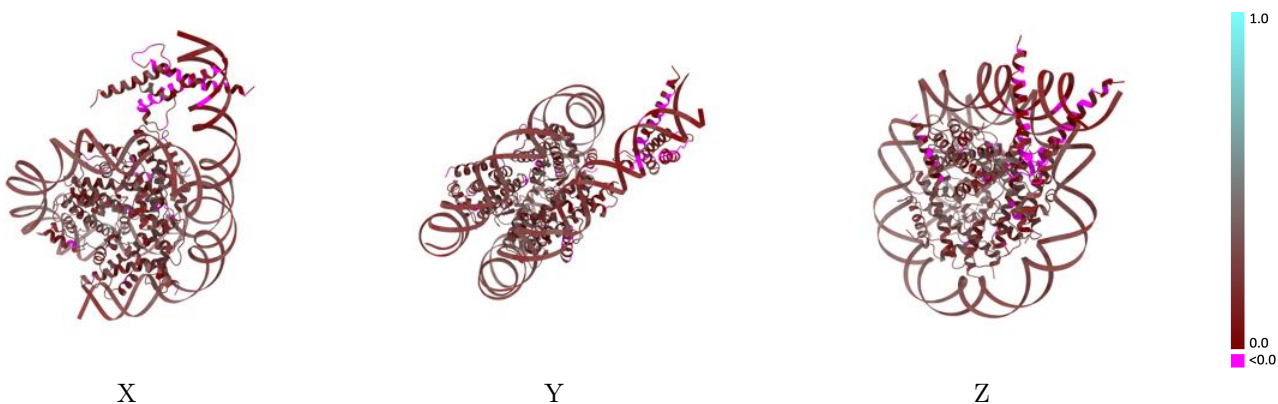
This section contains information regarding the fit between EMDB map EMD-17155 and PDB model 8OSJ. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay [i](#)



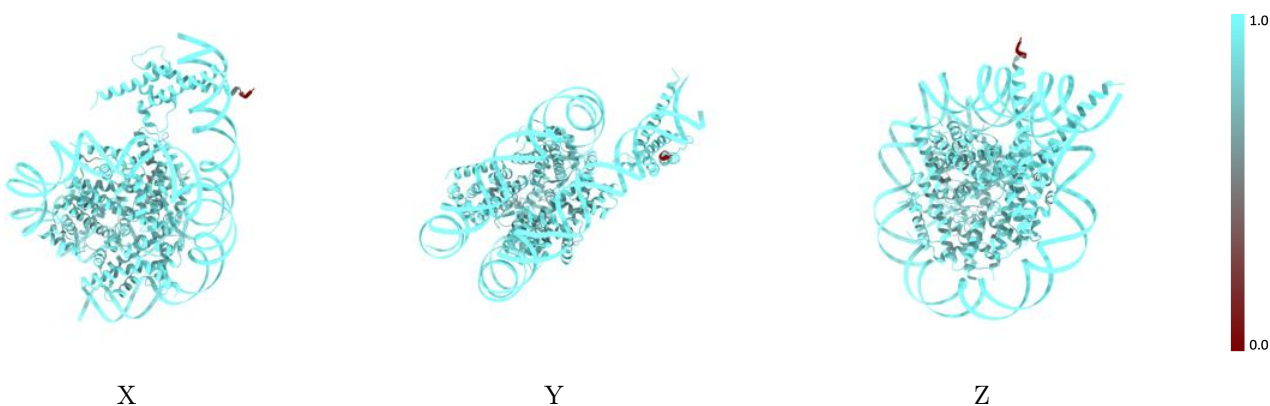
The images above show the 3D surface view of the map at the recommended contour level 0.00126 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



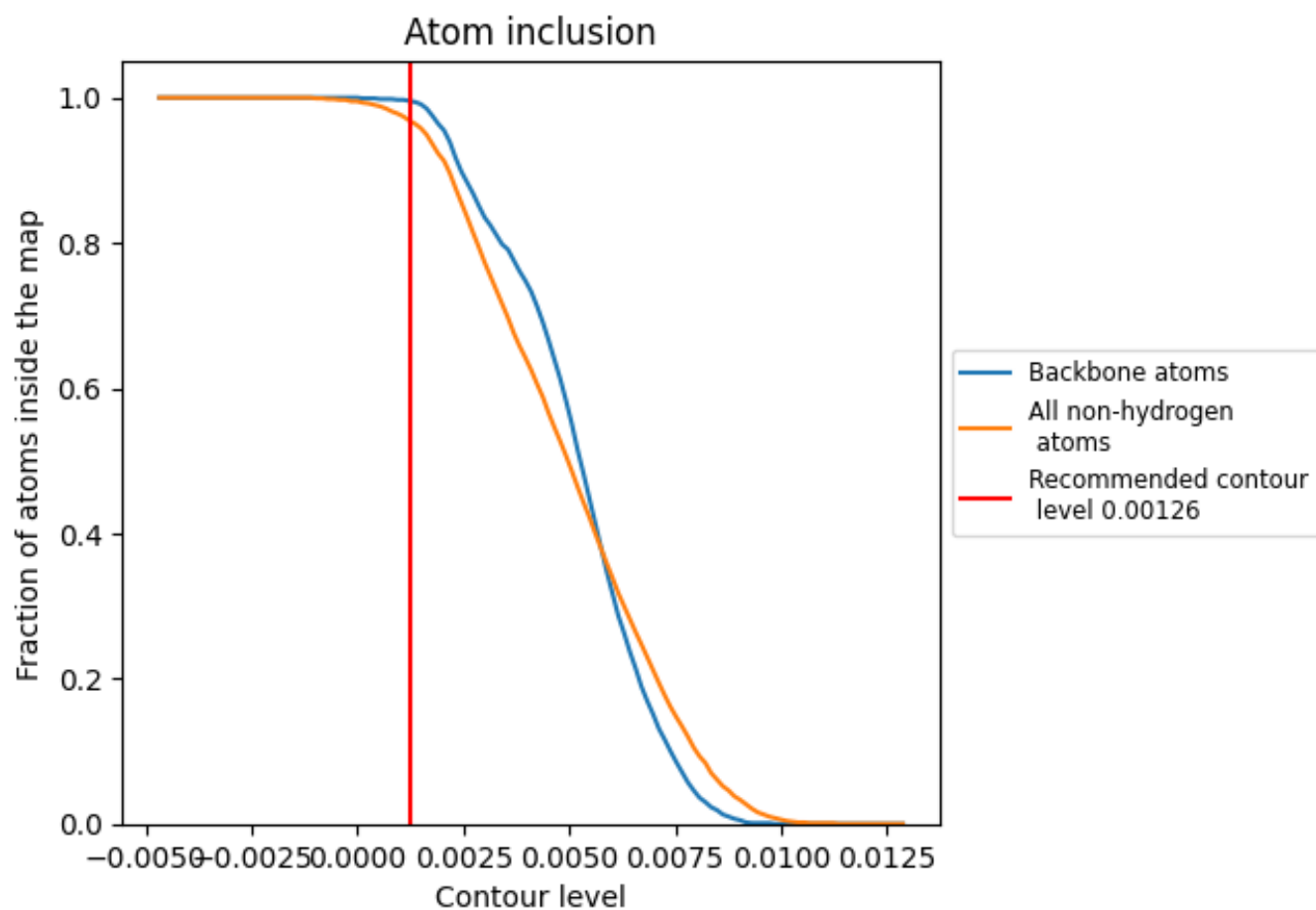
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.00126).



























9.4 Atom inclusion [i](#)



At the recommended contour level, 100% of all backbone atoms, 97% 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 (0.00126) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9670	 0.2190
A	 0.9400	 0.2220
B	 0.9460	 0.2470
C	 0.9170	 0.2000
D	 0.9280	 0.2130
E	 0.9450	 0.2080
F	 0.9290	 0.2360
G	 0.9420	 0.2100
H	 0.9560	 0.2060
I	 1.0000	 0.2410
J	 0.9950	 0.2400
M	 0.9430	 0.0620
N	 0.9930	 0.0390

