



# wwPDB EM Validation Summary Report ⓘ

Oct 7, 2024 – 01:21 PM EDT

PDB ID : 9COD  
EMDB ID : EMD-45776  
Title : C15 symmetrized DEV collar  
Authors : Iglesias, S.M.; Hou, C.F.D.; Li, F.; Cingolani, G.  
Deposited on : 2024-07-16  
Resolution : 4.70 Å(reported)

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

EMDB validation analysis : 0.0.1.dev113  
MolProbity : 4.02b-467  
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) : 2.39

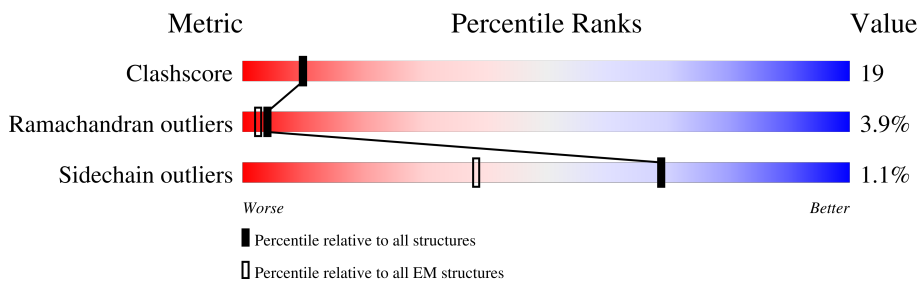
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 4.70 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.









Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	1090	6% • 90%
1	B	1090	6% • 90%
1	C	1090	6% • 90%
1	D	1090	6% • 90%
1	E	1090	6% • 90%
1	F	1090	6% • 90%
1	G	1090	6% • 90%
1	H	1090	6% • 90%

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Mol	Chain	Length	Quality of chain
1	I	1090	 6% • 90%
1	J	1090	 6% • 90%
1	K	1090	 6% • 90%
1	L	1090	 6% • 90%
1	M	1090	 6% • 90%
1	N	1090	 6% • 90%
1	O	1090	 6% • 90%

## 2 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 12405 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 SGNH hydrolase-type esterase domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	105	827	520	126	175	6	0	0
1	B	105	827	520	126	175	6	0	0
1	C	105	827	520	126	175	6	0	0
1	D	105	827	520	126	175	6	0	0
1	E	105	827	520	126	175	6	0	0
1	F	105	827	520	126	175	6	0	0
1	G	105	827	520	126	175	6	0	0
1	H	105	827	520	126	175	6	0	0
1	I	105	827	520	126	175	6	0	0
1	J	105	827	520	126	175	6	0	0
1	K	105	827	520	126	175	6	0	0
1	L	105	827	520	126	175	6	0	0
1	M	105	827	520	126	175	6	0	0
1	N	105	827	520	126	175	6	0	0
1	O	105	827	520	126	175	6	0	0

### 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: SGNH hydrolase-type esterase domain-containing protein

















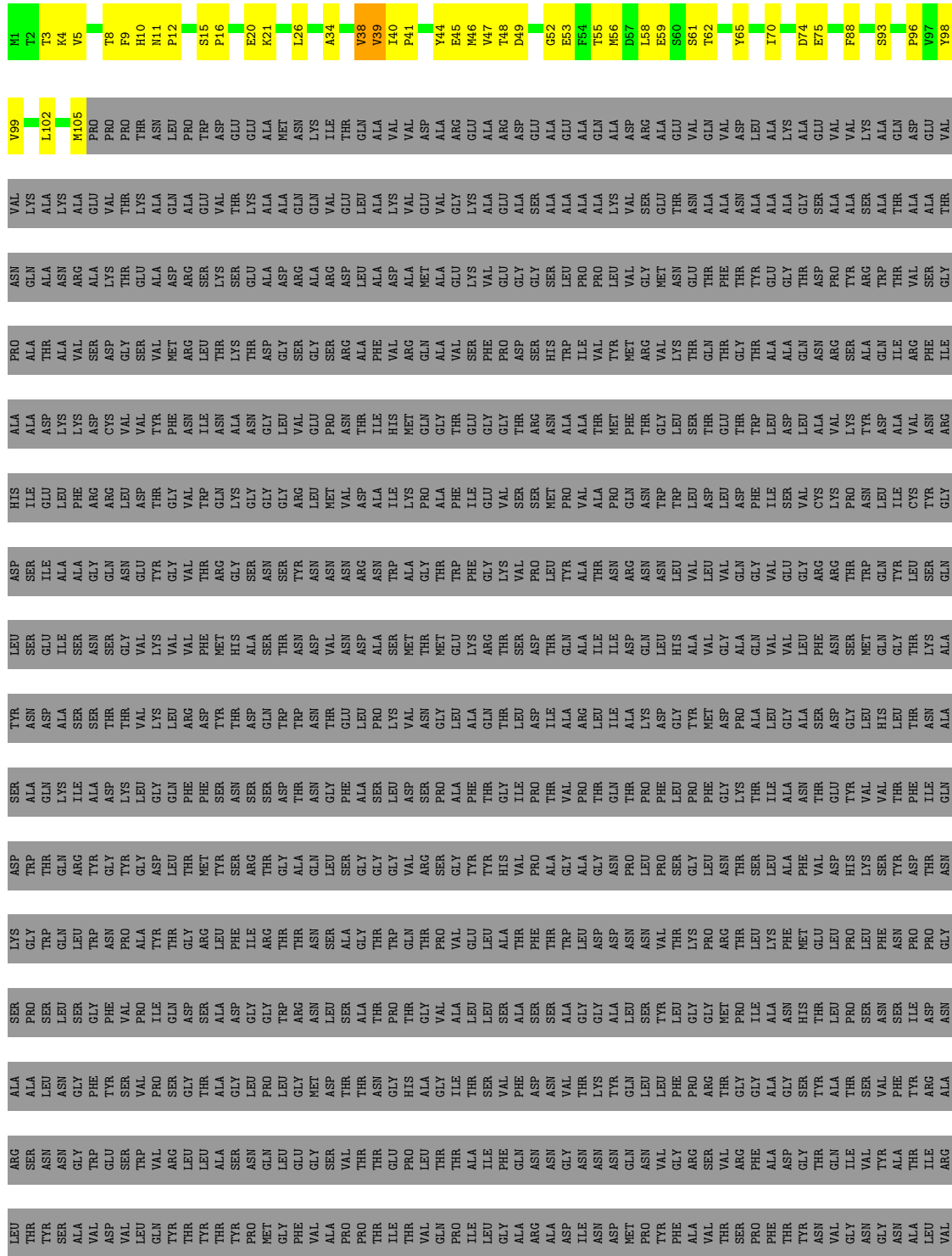




ALA  
GLY  
THR  
THR  
ALA  
ALA  
HIS  
SER  
PHE  
ALA  
ALA  
SER  
THR  
THR  
SER  
PHE  
ILE  
ASN

● Molecule 1: SGNH hydrolase-type esterase domain-containing protein

Chain J: 6% 90%









Chain M: 6% . 90%

R1	R4	V5	T8	F9	H10	N11	P12	S15	P16	E20	K21	L26	A34	V38	V39	I40	P41	Y44	E45	M46	V47	T48	D49	G52	E53	F54	T55	M56	E59	S60	S61	T62	Y65	D74	E75	T87	P96	V97	V98	V99	L102	M105	PRO							
PRO	PRO	THR	THR	GLU	ASN	LEU	PRO	ASP	THR	ASP	GLU	LEU	VAL	VAL	ARG	ARG	GLU	ARG	ASP	GLU	ALA	ALA	GLN	ALA	ASP	ASP	ASP	ALA	GLU	GLN	ASP	VAL	GLY	ALA	GLU	GLU	VAL	VAL	VAL	GLN	ASP	GLU	VAL	VAL	VAL	GLU	ALA	ALA		
VAL	THR	LYS	ALA	ALA	TYR	GLN	ASP	ARG	GLU	VAL	THR	ALA	ALA	VAL	ALA	GLY	LYS	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	VAL	VAL	VAL	VAL	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA		
LYS	THR	GLU	ASP	ALA	ARG	THR	LYS	SER	THR	LYS	GLU	ALA	ALA	ASP	ALA	ALA	ASP	ALA	ALA	ALA	ALA	ALA	PRO	PRO	GLY	VAL	VAL	VAL	THR	PHE	ALA	THR	THR	TYR	TYR	GLY	ALA	GLY	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR		
ASP	GLY	SER	VAL	ASP	MET	LEU	THR	LYS	THR	LYS	THR	ASP	GLY	GLY	THR	THR	PHE	PRO	ASP	SER	HIS	TRP	ALA	VAL	VAL	TYR	MET	GLY	THR	THR	THR	GLY	ALA	ALA	GLN	GLN	THR	ILE	VAL	ARG	VAL	ARG	ARG	ASP	ASP	ASP	ASP			
CYS	VAL	VAL	THR	PHE	ASN	ILE	ASN	ALA	ASN	PRO	THR	THR	ILE	HIS	MET	GLN	THR	THR	THR	THR	ASN	ALA	ALA	THR	THR	THR	PHE	THR	GLY	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR		
ARG	LEU	ASP	GLY	VAL	THR	THR	GLN	THR	ASP	GLY	LEU	VAL	THR	THR	THR	THR	PHE	VAL	VAL	THR	THR	THR	VAL	VAL	VAL	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
GLN	ASN	GLU	TYR	GLY	VAL	THR	THR	ARG	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
SER	GLY	VAL	VAL	VAL	VAL	VAL	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
THR	THR	VAL	THR	LEU	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
ASP	LYS	LEU	GLY	PHE	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
GLY	TYR	ASP	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
ASN	PRO	ALA	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
PHE	VAL	PRO	ILE	GLN	ASP	ALA	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
TYR	SER	VAL	PRO	ARG	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
GLU	SER	TRP	VAL	VAL	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
ASP	VAL	LEU	GLN	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
GLY	TYR	THR	ALA	HIS	SER	PHE	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	

• Molecule 1: SGNH hydrolase-type esterase domain-containing protein

Chain N: 6% . 90%



M1	K4	V5	T8	F9	H10	M11	P12	S15	P16	E20	K21	L26	V38	V39	I40	P41	Y44	E45	M46	V47	T48	D49	G52	E53	F54	M56	E59	S60	S61	T62	Y65	I70	D74	E75	T87	F88	P96	V97	Y98	V99	L102	M105												
PRO	PRO	PRO	THR	THR	ASN	LEU	GLY	LEU	PRO	TRP	ASP	GLY	ALA	MET	ASN	LYS	LEU	VAL	VAL	VAL	VAL	VAL	GLN	ALA	VAL	ALA	GLN	ALA	GLY	VAL	GLN	GLY	ALA	GLY	VAL	GLY	ALA	VAL	VAL	VAL	LYS	ALA	ALA	ALA	ALA	ALA	ALA							
GLY	VAL	THR	THR	LYS	ALA	ALA	GLN	GLY	GLY	GLY	VAL	THR	GLY	VAL	GLY	GLY	GLY	VAL	VAL	GLY	GLY	GLY	GLY	GLY	GLY	ALA	THR	THR	THR	ALA	VAL	ALA	THR	THR	THR	GLY	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR					
ALA	LYS	THR	THR	ALA	ASP	ARG	SER	ARG	SER	VAL	THR	THR	ALA	ALA	ALA	ALA	ALA	VAL	VAL	GLY	GLY	GLY	GLY	GLY	VAL	PRO	PRO	PRO	PRO	ALA	ALA	ALA	GLY	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR			
SER	ASP	GLY	GLY	SER	MET	VAL	THR	LEU	LEU	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR		
ASP	CYS	VAL	VAL	TYR	PHE	VAL	ASN	ILE	ILE	ASP	ASP	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR		
ARG	ARG	LEU	ASP	THR	GLY	VAL	THR	TRP	TRP	GLN	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
GLY	GLN	ASN	GLY	TYR	VAL	VAL	THR	THR	THR	ARG	GLY	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
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SER	THR	THR	VAL	VAL	LYS	VAL	PHE	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
ALA	ASP	LYS	LEU	GLY	GLN	PHE	PHE	THR	THR	SER	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
TYR	GLY	TYR	TYR	ASP	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	
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GLY	PHE	VAL	VAL	ILE	GLN	ASP	THR	THR	THR	ASN	VAL	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
PHE	TYR	SER	VAL	PRO	SER	LEU	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
TRP	GLY	SER	VAL	ARG	LEU	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
VAL	ASP	VAL	VAL	GLN	TYR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
ALA	GLY	TYR	THR	ALA	HIS	SER	PHE	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	3200	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)	800	Depositor
Maximum defocus (nm)	1600	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.035	Depositor
Minimum map value	-0.017	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.0018	Depositor
Map size ( $\text{\AA}$ )	573.44, 573.44, 573.44	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.12, 1.12, 1.12	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	0.26	0/847	0.63	1/1156 (0.1%)
1	B	0.26	0/847	0.63	1/1156 (0.1%)
1	C	0.26	0/847	0.63	1/1156 (0.1%)
1	D	0.26	0/847	0.63	1/1156 (0.1%)
1	E	0.26	0/847	0.63	1/1156 (0.1%)
1	F	0.26	0/847	0.63	1/1156 (0.1%)
1	G	0.26	0/847	0.63	1/1156 (0.1%)
1	H	0.26	0/847	0.63	1/1156 (0.1%)
1	I	0.26	0/847	0.63	1/1156 (0.1%)
1	J	0.26	0/847	0.63	1/1156 (0.1%)
1	K	0.26	0/847	0.63	1/1156 (0.1%)
1	L	0.26	0/847	0.63	1/1156 (0.1%)
1	M	0.26	0/847	0.63	1/1156 (0.1%)
1	N	0.26	0/847	0.63	1/1156 (0.1%)
1	O	0.26	0/847	0.63	1/1156 (0.1%)
All	All	0.26	0/12705	0.63	15/17340 (0.1%)

There are no bond length outliers.

The worst 5 of 15 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	46	MET	CA-CB-CG	5.72	123.02	113.30
1	N	46	MET	CA-CB-CG	5.72	123.02	113.30
1	O	46	MET	CA-CB-CG	5.72	123.02	113.30
1	J	46	MET	CA-CB-CG	5.71	123.01	113.30
1	L	46	MET	CA-CB-CG	5.71	123.01	113.30

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	827	0	763	36	0
1	B	827	0	763	40	0
1	C	827	0	763	37	0
1	D	827	0	763	33	0
1	E	827	0	763	34	0
1	F	827	0	763	34	0
1	G	827	0	763	34	0
1	H	827	0	763	34	0
1	I	827	0	763	35	0
1	J	827	0	763	37	0
1	K	827	0	763	43	0
1	L	827	0	763	35	0
1	M	827	0	763	33	0
1	N	827	0	763	40	0
1	O	827	0	763	35	0
All	All	12405	0	11445	456	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 19.

The worst 5 of 456 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:38:VAL:HG13	1:A:39:VAL:H	1.34	0.93
1:F:38:VAL:HG13	1:F:39:VAL:H	1.34	0.93
1:D:38:VAL:HG13	1:D:39:VAL:H	1.34	0.93
1:K:38:VAL:HG13	1:K:39:VAL:H	1.34	0.92
1:J:38:VAL:HG13	1:J:39:VAL:H	1.34	0.92

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	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	B	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	C	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	D	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	E	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	F	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	G	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	H	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	I	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	J	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	K	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	L	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	M	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	N	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
1	O	103/1090 (9%)	74 (72%)	25 (24%)	4 (4%)	2	19
All	All	1545/16350 (9%)	1110 (72%)	375 (24%)	60 (4%)	4	19

5 of 60 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	38	VAL
1	A	47	VAL
1	B	38	VAL
1	B	47	VAL
1	C	38	VAL

### 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	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	B	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	C	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	D	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	E	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	F	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	G	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	H	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	I	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	J	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	K	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	L	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	M	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	N	94/882 (11%)	93 (99%)	1 (1%)	70	80
1	O	94/882 (11%)	93 (99%)	1 (1%)	70	80
All	All	1410/13230 (11%)	1395 (99%)	15 (1%)	69	80

5 of 15 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	21	LYS
1	N	21	LYS
1	I	21	LYS
1	O	21	LYS
1	L	21	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 20 such sidechains are listed below:



Mol	Chain	Res	Type
1	L	10	HIS
1	N	11	ASN
1	O	11	ASN
1	O	10	HIS
1	G	11	ASN

### 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 oligosaccharides 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.

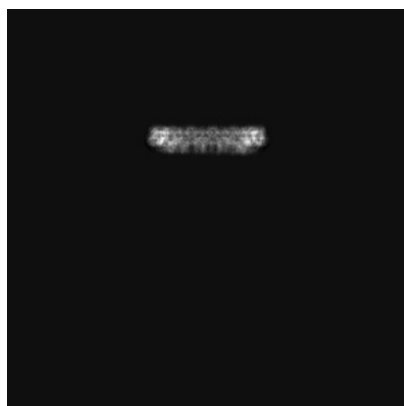
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-45776. These allow visual inspection of the internal detail of the map and identification of artifacts.

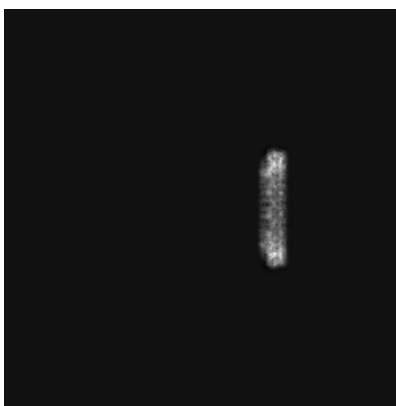
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

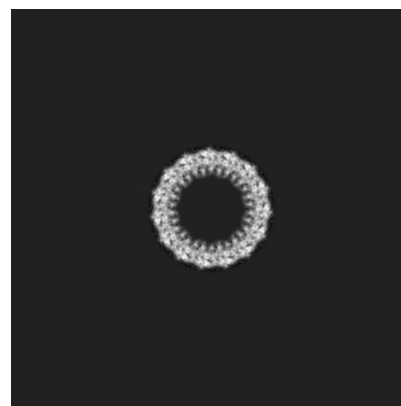
#### 6.1.1 Primary map



X

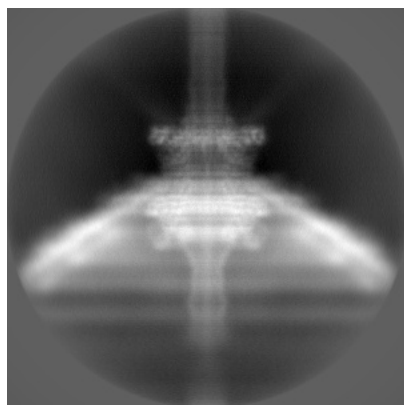


Y

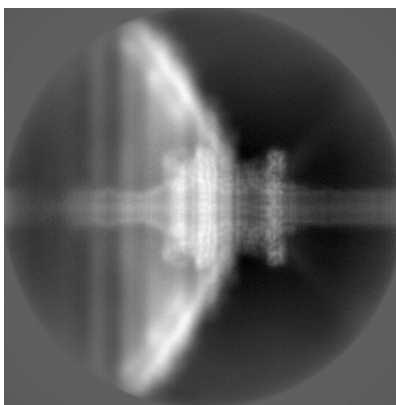


Z

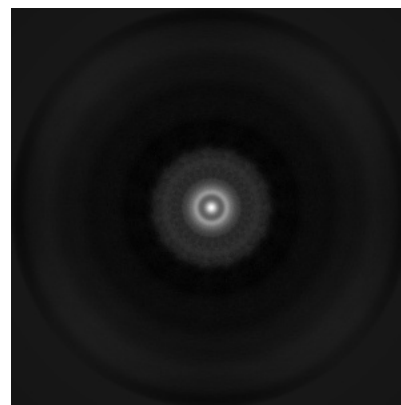
#### 6.1.2 Raw map



X



Y



Z

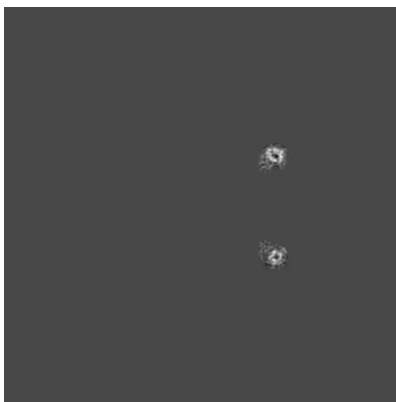
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

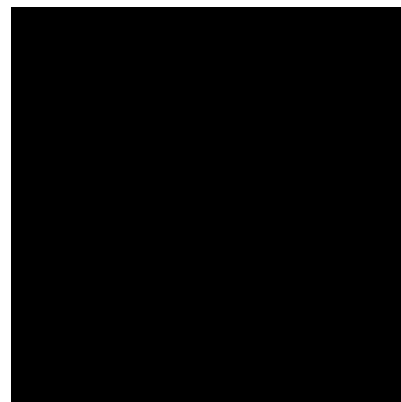
### 6.2.1 Primary map



X Index: 256

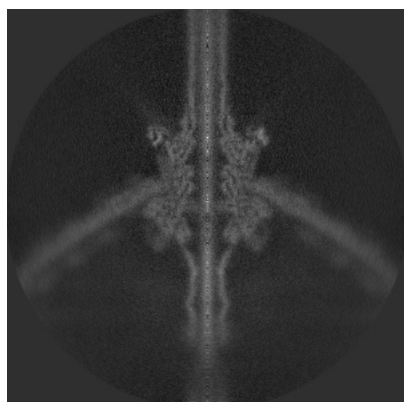


Y Index: 256

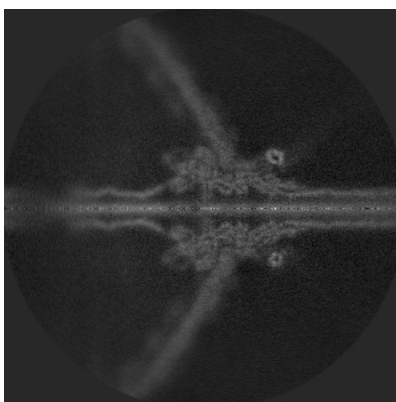


Z Index: 256

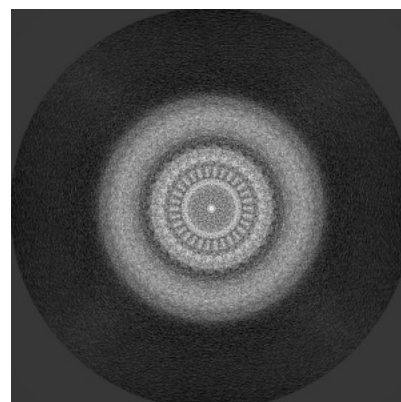
### 6.2.2 Raw map



X Index: 256



Y Index: 256

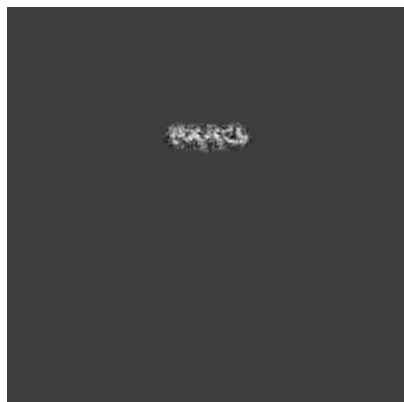


Z Index: 256

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

## 6.3 Largest variance slices [i](#)

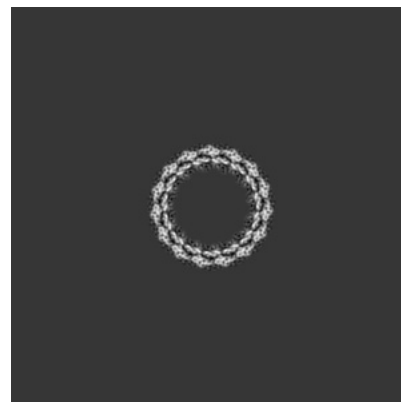
### 6.3.1 Primary map



X Index: 198

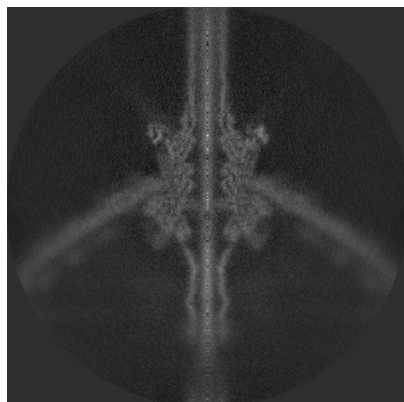


Y Index: 197

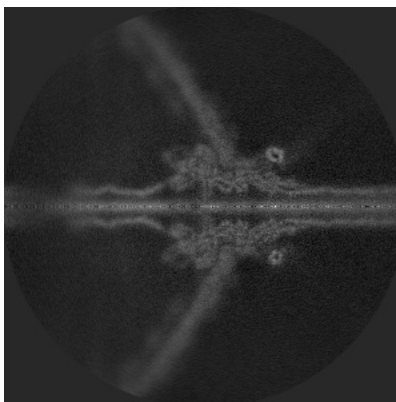


Z Index: 346

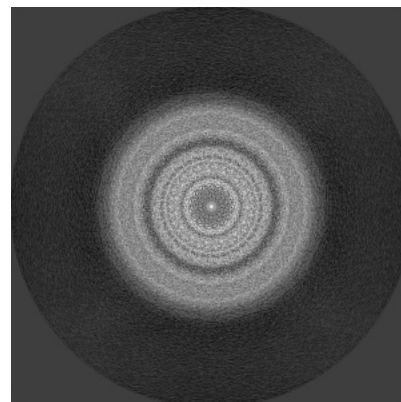
### 6.3.2 Raw map



X Index: 256



Y Index: 256

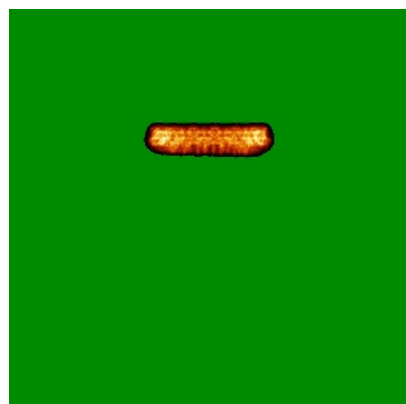


Z Index: 262

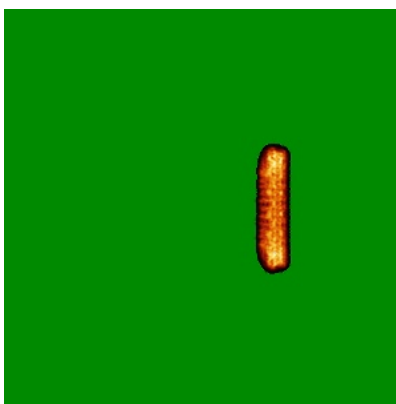
The images above show the largest variance slices of the map in three orthogonal directions.

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

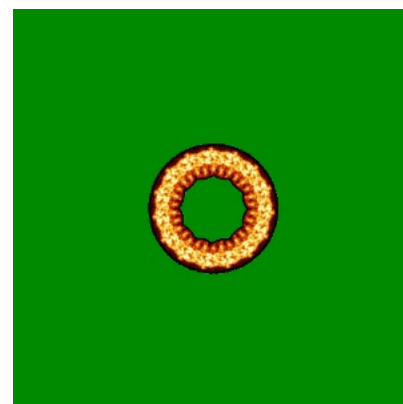
### 6.4.1 Primary map



X

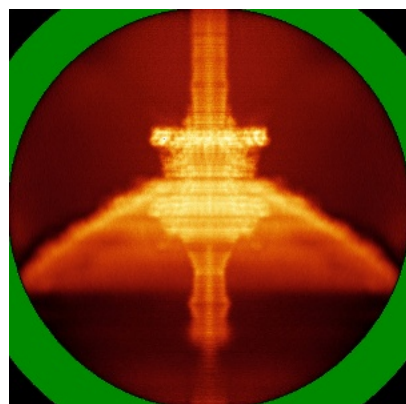


Y

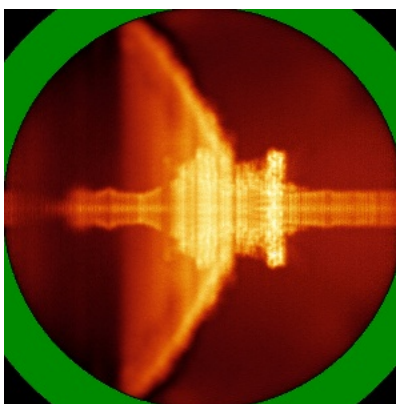


Z

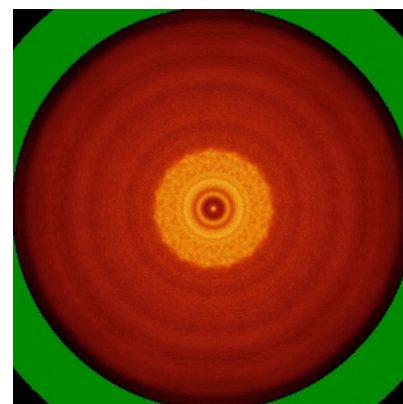
### 6.4.2 Raw map



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.

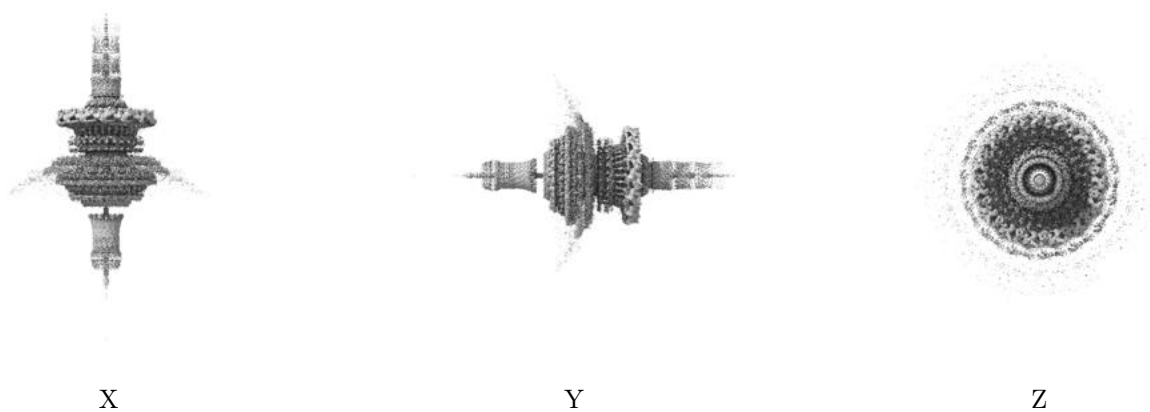
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0018. 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.

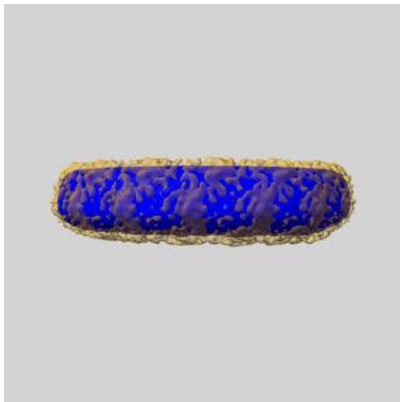
## 6.6 Mask visualisation [i](#)

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

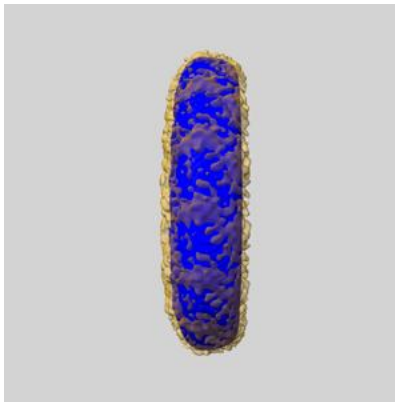
A mask typically either:

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

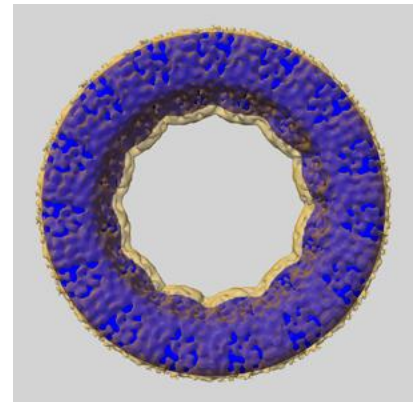
### 6.6.1 emd\_45776\_msk\_1.map [i](#)



X



Y

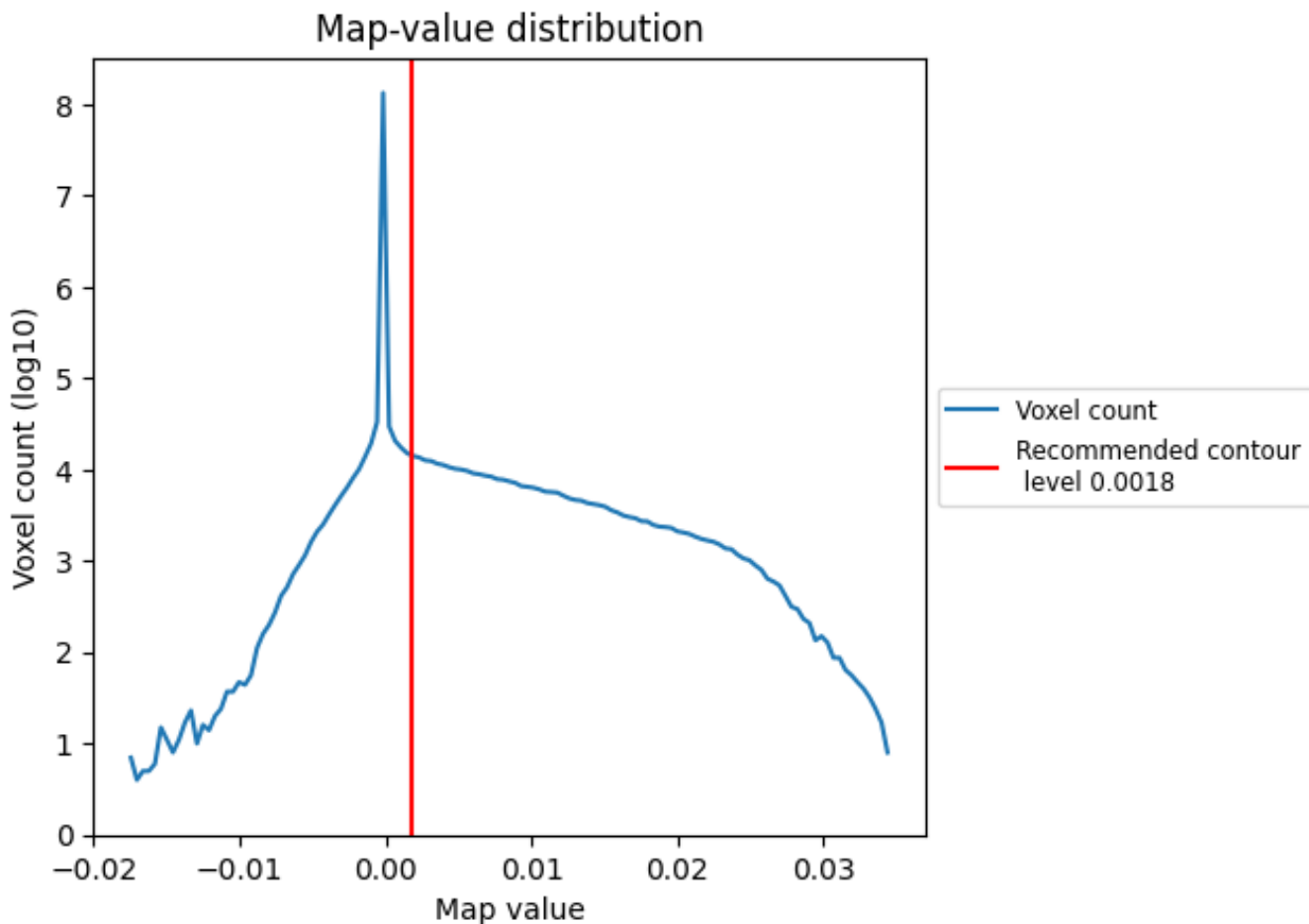


Z

## 7 Map analysis [i](#)

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

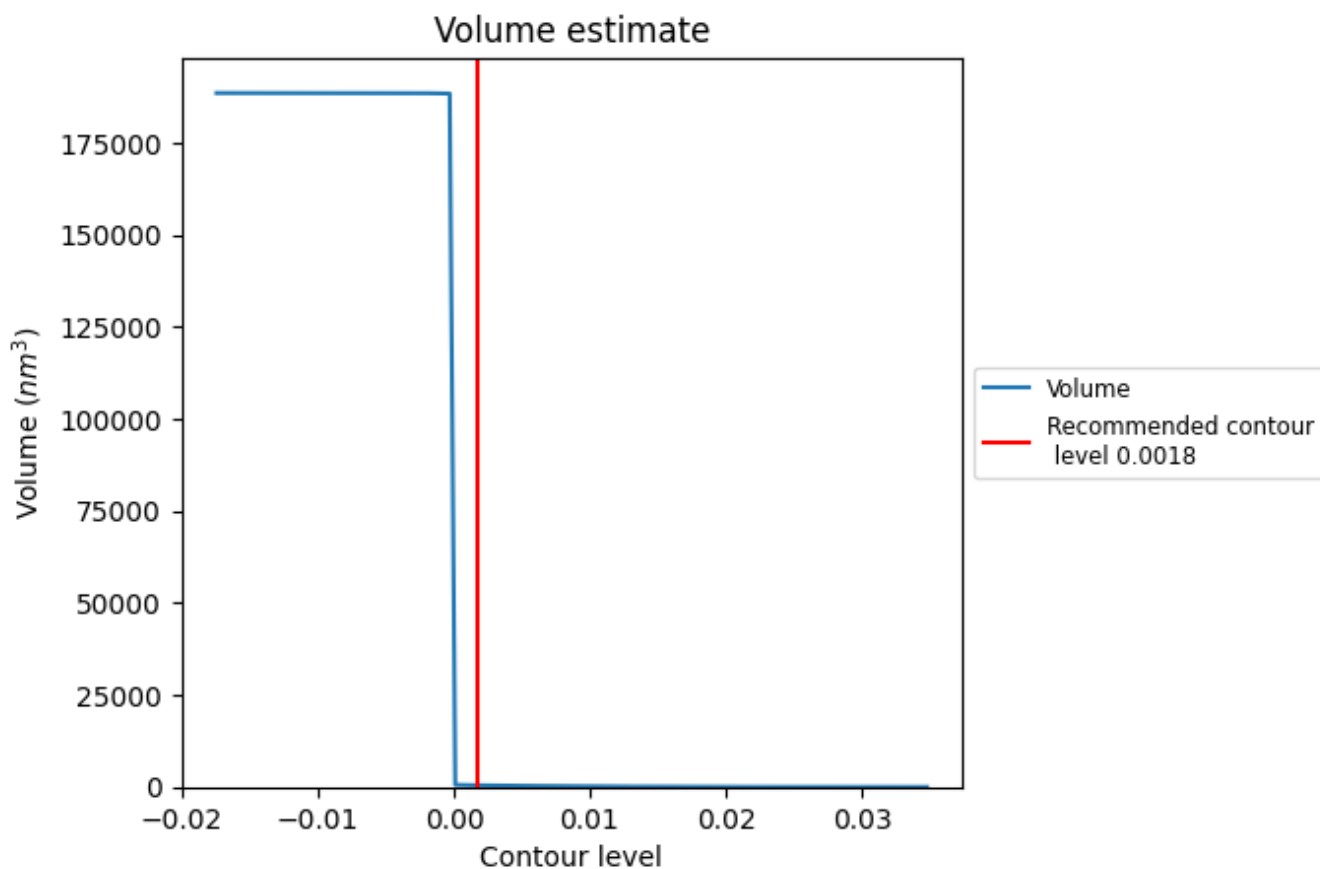
### 7.1 Map-value distribution [i](#)



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.



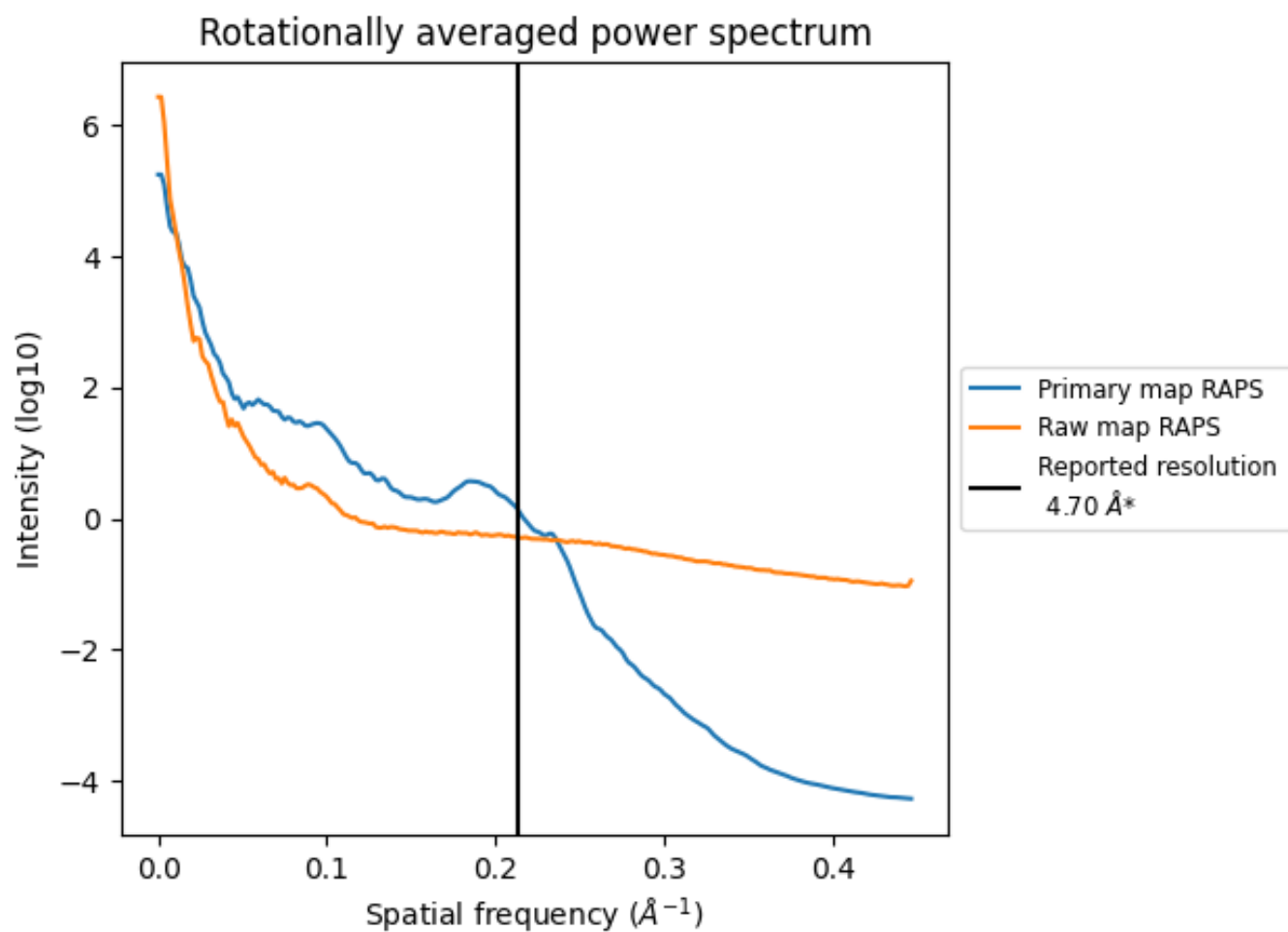
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 451 nm<sup>3</sup>; this corresponds to an approximate mass of 407 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](#)

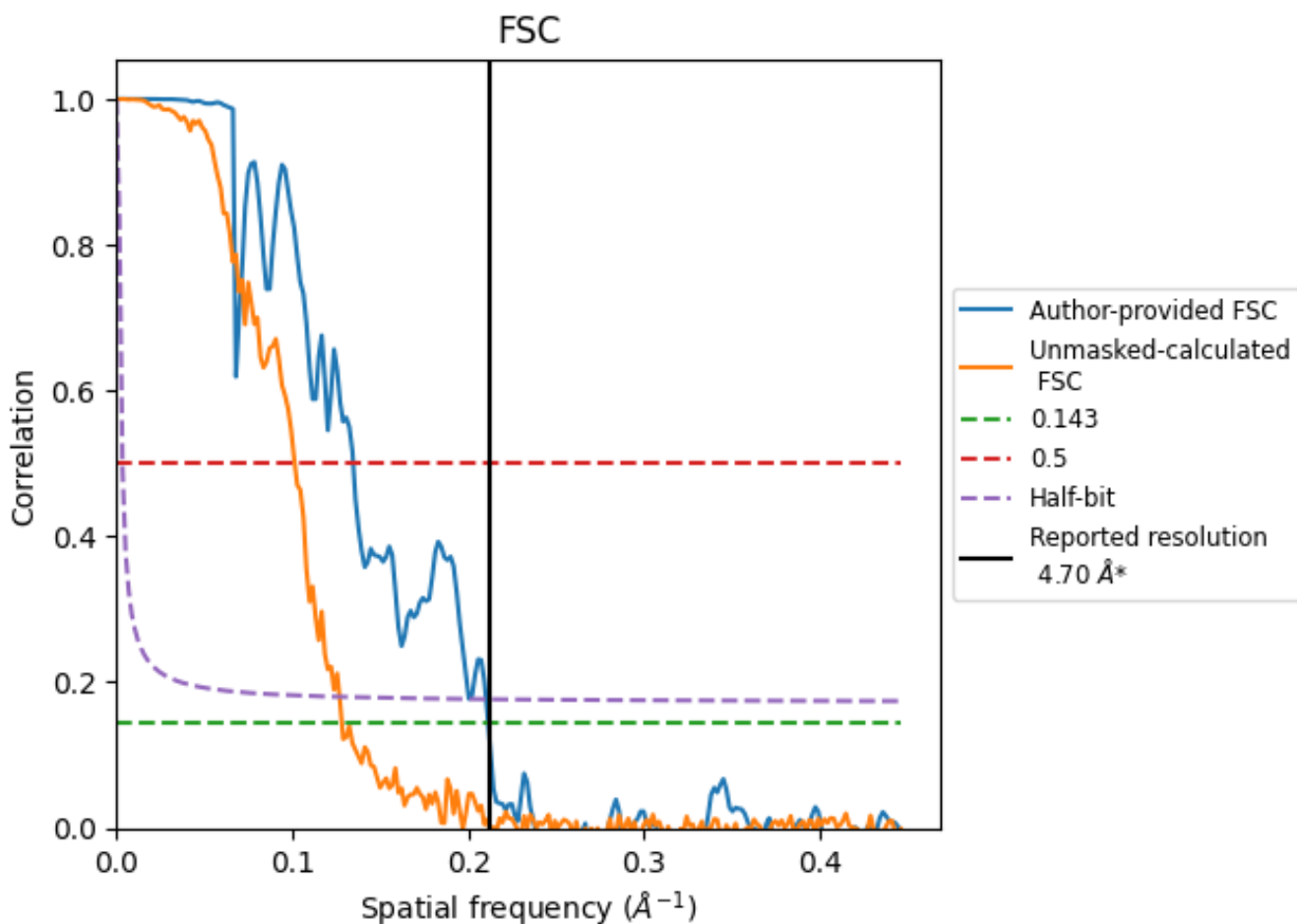


\*Reported resolution corresponds to spatial frequency of 0.213 Å<sup>-1</sup>

## 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 0.213 Å<sup>-1</sup>

## 8.2 Resolution estimates

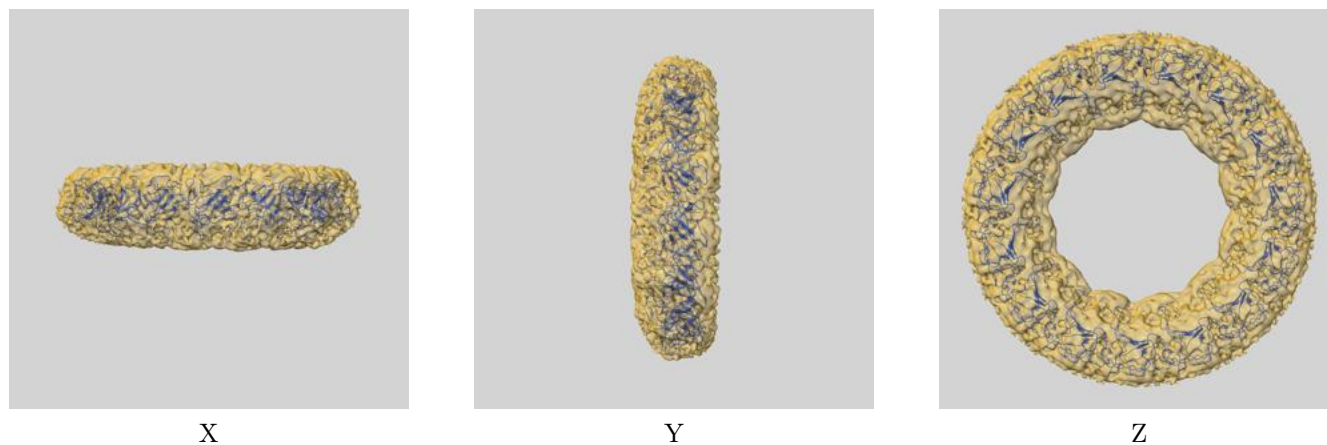
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.70	-	-
Author-provided FSC curve	4.73	7.42	4.76
Unmasked-calculated*	7.79	9.85	7.88

\*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 7.79 differs from the reported value 4.7 by more than 10 %

## 9 Map-model fit [i](#)

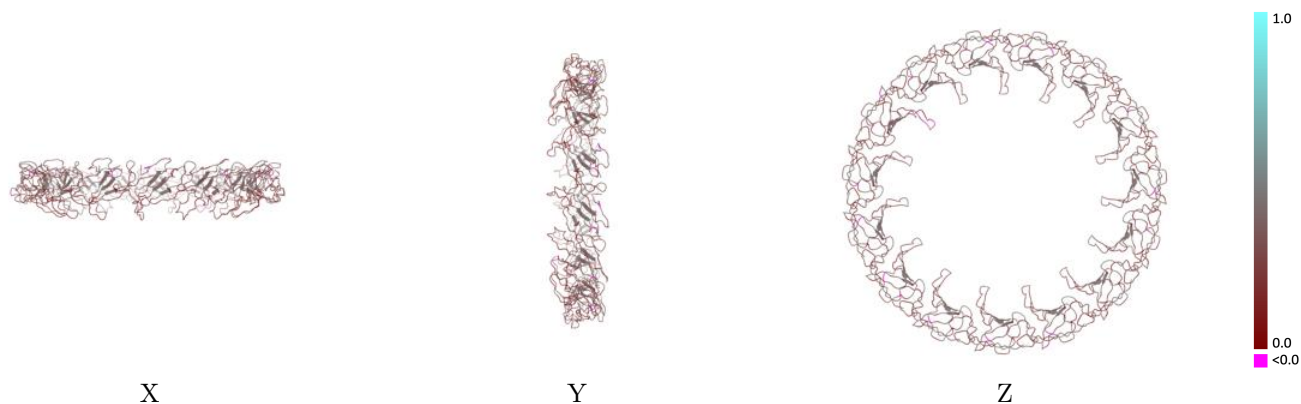
This section contains information regarding the fit between EMDB map EMD-45776 and PDB model 9COD. Per-residue inclusion information can be found in section [3](#) on page [5](#).

### 9.1 Map-model overlay [i](#)



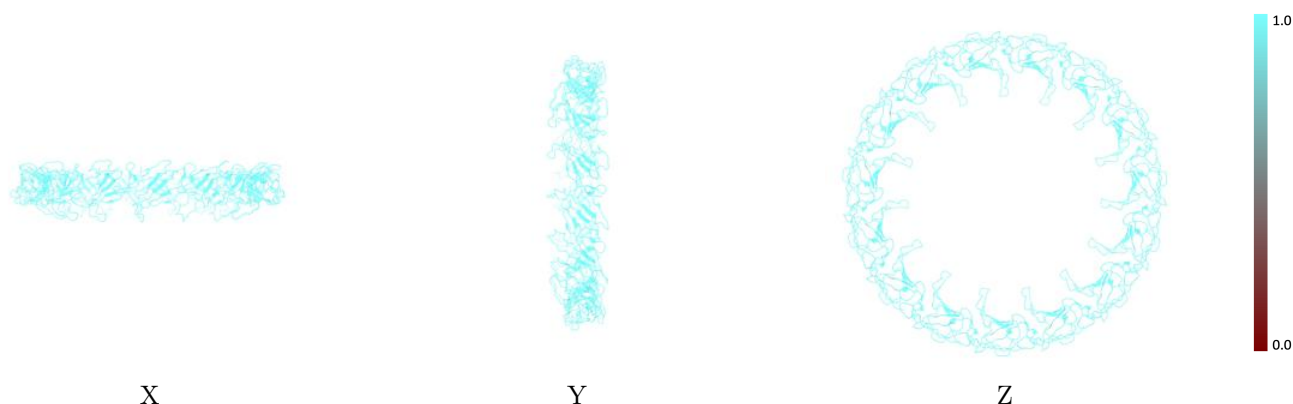
The images above show the 3D surface view of the map at the recommended contour level 0.0018 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



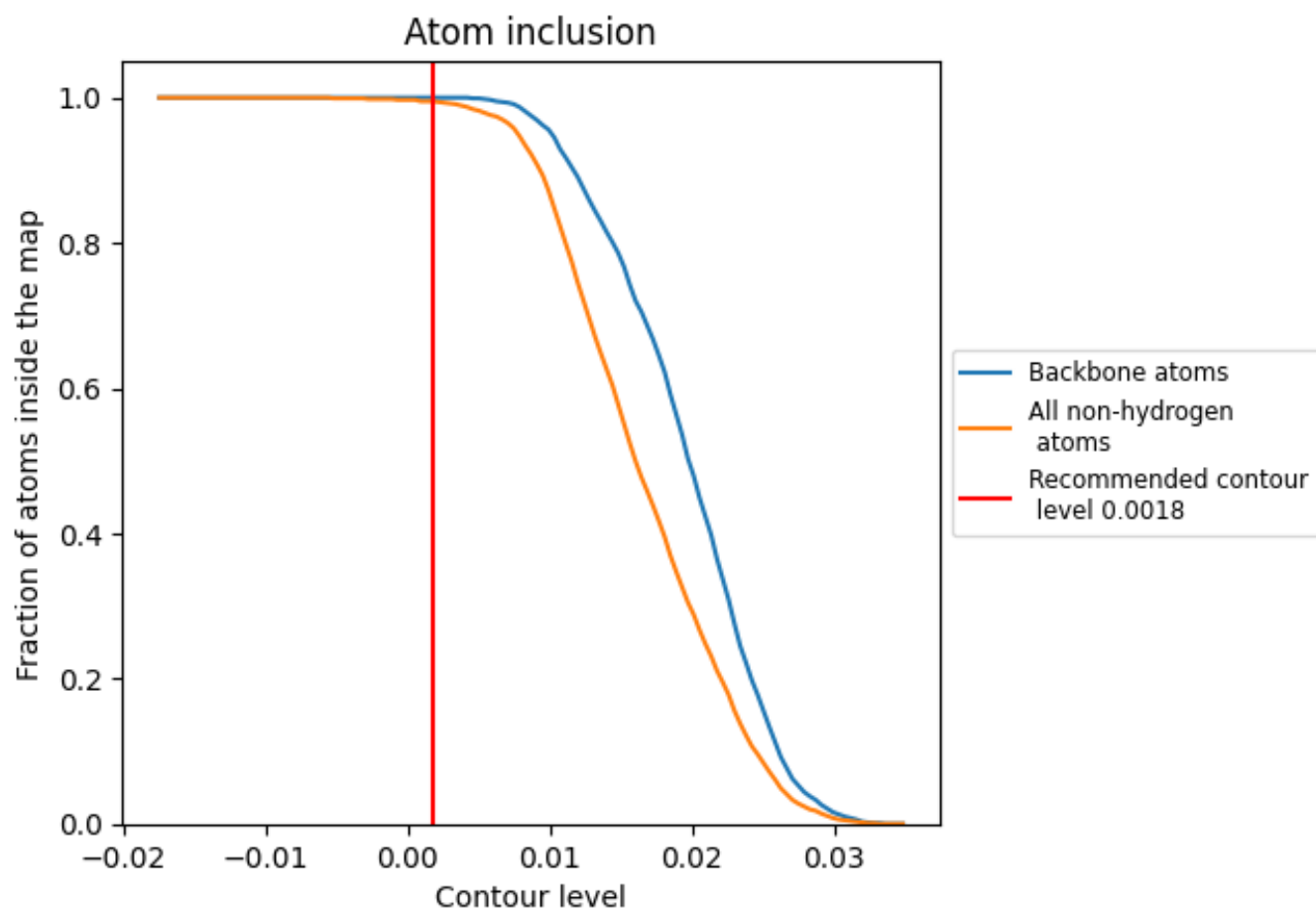
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0018).

































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 100% of all backbone atoms, 100% 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 (0.0018) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9950	 0.2950
A	 0.9950	 0.2960
B	 0.9950	 0.2960
C	 0.9950	 0.2980
D	 0.9950	 0.2940
E	 0.9950	 0.2960
F	 0.9950	 0.2960
G	 0.9950	 0.3000
H	 0.9950	 0.2970
I	 0.9950	 0.2960
J	 0.9950	 0.2970
K	 0.9940	 0.2950
L	 0.9950	 0.2960
M	 0.9950	 0.2940
N	 0.9940	 0.2710
O	 0.9950	 0.2990

