



Full wwPDB EM Validation Report ⓘ

Jul 30, 2023 – 07:06 am BST

PDB ID : 7ZJ2
EMDB ID : EMD-14739
Title : Amyloid fibril (in vitro) from full-length hnRNPA1 protein
Authors : Sharma, K.; Banerjee, S.; Schmidt, M.; Faendrich, M.
Deposited on : 2022-04-08
Resolution : 3.32 Å (reported)
Based on initial model : 7BX7

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.dev50
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.34

1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.32 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	320	14% 86%
1	B	320	14% 86%
1	C	320	14% 86%
1	D	320	14% 86%
1	E	320	14% 86%
1	F	320	14% 86%
1	G	320	14% 86%
1	H	320	14% 86%

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Mol	Chain	Length	Quality of chain
1	I	320	 14% 86%
1	J	320	 14% 86%
1	K	320	 14% 86%
1	L	320	 14% 86%

2 Entry composition i

There is only 1 type of molecule in this entry. The entry contains 3792 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 Isoform A1-A of Heterogeneous nuclear ribonucleoprotein A1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	45	316	191	58	66	1	0	0
1	B	45	316	191	58	66	1	0	0
1	C	45	316	191	58	66	1	0	0
1	D	45	316	191	58	66	1	0	0
1	E	45	316	191	58	66	1	0	0
1	F	45	316	191	58	66	1	0	0
1	G	45	316	191	58	66	1	0	0
1	H	45	316	191	58	66	1	0	0
1	I	45	316	191	58	66	1	0	0
1	J	45	316	191	58	66	1	0	0
1	K	45	316	191	58	66	1	0	0
1	L	45	316	191	58	66	1	0	0

MET	THR	LEU	GLY
SER	TYR	SER	ASP
LYS	ALA	LYS	GLY
GLN	THR	GLN	TYR
GLU	VAL	GLU	ASN
SER	GLU	PHE	GLU
PRO	GLU	GLN	PHE
LYS	VAL	SER	GLY
GLU	ASP	ALA	GLY
PRO	VAL	ALA	ASN
GLU	ALA	SER	G251
GLN	ALA	SER	Y295
LEU	ASN	SER	PHE
ARG	ALA	ARG	ALA
LYS	PRO	GLY	LYS
LEU	PRO	ILE	LEU
PHE	HIS	ARG	ILE
ILE	THR	MET	THR
LYS	ILE	GLY	LYS
GLY	VAL	ASP	GLY
GLY	VAL	ASN	GLN
LEU	ASP	GLY	ASN
LEU	ASP	GLY	GLY
GLU	ARG	SER	PHE
GLU	VAL	GLY	GLY
ALA	VAL	GLY	TYR
SER	VAL	GLY	GLY
ALA	VAL	GLY	ARG
SER	VAL	GLY	GLY
ASN	ARG	ASN	ASN
HIS	GLU	PHE	ASP
ASP	ASP	ASP	ASP
GLU	SER	GLY	GLY
GLN	GLN	PHE	HIS
GLN	ARG	GLY	ARG
TRP	ASP	GLY	TRP
GLY	PRO	GLY	GLY
THR	GLY	VAL	THR
LEU	ALA	GLY	ASP
LEU	HIS	ASN	LYS
THR	THR	ASN	THR
ASP	LEU	PHE	ILE
ASP	LEU	PHE	THR
VAL	THR	GLY	CYS
VAL	VAL	ILE	VAL
VAL	GLN	GLN	VAL
MET	LYS	LYS	MET
ARG	ILE	ARG	ILE
ASP	THR	GLY	THR
PRO	VAL	GLY	PRO
ASN	GLY	GLY	ASN
THR	GLY	SER	THR
LYS	ILE	ARG	LYS
ARG	GLY	GLY	ARG
GLU	GLU	GLY	GLY
THR	THR	GLY	THR
GLU	GLU	TYR	GLU
GLY	GLU	GLY	GLY
LYS	HIS	GLY	LYS
PHE	GLY	GLY	PHE
VAL	HIS	SER	VAL

- Molecule 1: Isoform A1-A of Heterogeneous nuclear ribonucleoprotein A1

Chain G:  14%  86%

MET	THR	LEU	GLY
SER	TYR	SER	ASP
LYS	ALA	LYS	GLY
GLN	THR	GLN	TYR
GLU	VAL	GLU	ASN
SER	GLU	PHE	GLU
PRO	GLU	GLN	PHE
LYS	VAL	SER	GLY
GLU	ASP	ALA	GLY
PRO	VAL	ALA	ASN
GLU	ALA	SER	G251
GLN	ALA	SER	Y295
LEU	ASN	SER	PHE
ARG	ALA	ARG	ALA
LYS	ARG	GLY	LYS
LEU	PRO	ILE	LEU
PHE	HIS	ARG	ILE
ILE	THR	MET	THR
LYS	ILE	GLY	LYS
GLY	VAL	ASP	GLY
GLY	VAL	ASN	GLN
LEU	ASP	GLY	ASN
LEU	ASP	GLY	GLY
GLU	ARG	SER	PHE
GLU	VAL	GLY	GLY
ALA	VAL	GLY	TYR
SER	VAL	GLY	GLY
ALA	VAL	GLY	ARG
SER	VAL	GLY	GLY
ASN	ARG	ASN	ASN
HIS	GLU	PHE	ASP
ASP	ASP	ASP	ASP
GLU	SER	GLY	GLY
GLN	GLN	PHE	HIS
GLN	ARG	GLY	ARG
TRP	ASP	GLY	TRP
GLY	PRO	GLY	GLY
THR	GLY	VAL	THR
LEU	ALA	GLY	ASP
LEU	HIS	ASN	LYS
THR	THR	ASN	THR
ASP	LEU	PHE	ILE
ASP	LEU	PHE	THR
VAL	THR	GLY	CYS
VAL	VAL	ILE	VAL
VAL	GLN	GLN	VAL
MET	LYS	LYS	MET
ARG	ILE	ARG	ILE
ASP	THR	GLY	THR
PRO	VAL	GLY	PRO
ASN	GLY	GLY	ASN
THR	GLY	SER	THR
LYS	ILE	ARG	LYS
ARG	GLY	GLY	ARG
GLU	GLU	GLY	GLY
THR	THR	GLY	THR
GLU	GLU	TYR	GLU
GLY	GLU	GLY	GLY
LYS	HIS	GLY	LYS
PHE	GLY	GLY	PHE
VAL	HIS	SER	VAL

- Molecule 1: Isoform A1-A of Heterogeneous nuclear ribonucleoprotein A1

Chain H:  14%  86%

MET	THR	LEU	GLY
SER	TYR	SER	ASP
LYS	ALA	LYS	GLY
GLN	THR	GLN	TYR
GLU	VAL	GLU	ASN
SER	GLU	PHE	GLU
PRO	GLU	GLN	PHE
LYS	VAL	SER	GLY
GLU	ASP	ALA	GLY
PRO	VAL	ALA	ASN
GLU	ALA	SER	G251
GLN	ALA	SER	Y295
LEU	ASN	SER	PHE
ARG	ALA	ARG	ALA
LYS	ARG	GLY	LYS
LEU	PRO	ILE	LEU
PHE	HIS	ARG	ILE
ILE	THR	MET	THR
LYS	ILE	GLY	LYS
GLY	VAL	ASP	GLY
GLY	VAL	ASN	GLN
LEU	ASP	GLY	ASN
LEU	ASP	GLY	GLY
GLU	ARG	SER	PHE
GLU	VAL	GLY	GLY
ALA	VAL	GLY	TYR
SER	VAL	GLY	GLY
ALA	VAL	GLY	ARG
SER	VAL	GLY	GLY
ASN	ARG	ASN	ASN
HIS	GLU	PHE	ASP
ASP	ASP	ASP	ASP
GLU	SER	GLY	GLY
GLN	GLN	PHE	HIS
GLN	ARG	GLY	ARG
TRP	ASP	GLY	TRP
GLY	PRO	GLY	GLY
THR	GLY	VAL	THR
LEU	ALA	GLY	ASP
LEU	HIS	ASN	LYS
THR	THR	ASN	THR
ASP	LEU	PHE	ILE
ASP	LEU	PHE	THR
VAL	THR	GLY	CYS
VAL	VAL	ILE	VAL
VAL	GLN	GLN	VAL
MET	LYS	LYS	MET
ARG	ILE	ARG	ILE
ASP	THR	GLY	THR
PRO	VAL	GLY	PRO
ASN	GLY	GLY	ASN
THR	GLY	SER	THR
LYS	ILE	ARG	LYS
ARG	GLY	GLY	ARG
GLU	GLU	GLY	GLY
THR	THR	GLY	THR
GLU	GLU	TYR	GLU
GLY	GLU	GLY	GLY
LYS	HIS	GLY	LYS
PHE	GLY	GLY	PHE
VAL	HIS	SER	VAL

- Molecule 1: Isoform A1-A of Heterogeneous nuclear ribonucleoprotein A1

Chain I:  14%  86%

MET	THR	LEU	GLY
SER	TYR	SER	ASP
LYS	ALA	LYS	GLY
SER	THR	GLN	TYR
GLU	VAL	PHE	ASN
SER	GLU	GLU	ASN
PRO	GLU	ALA	PHE
LYS	VAL	SER	GLY
GLU	ASP	TYR	PHE
ALA	VAL	ALA	ASN
PRO	ALA	SER	G251
GLU	ALA	SER	Y295
GLN	MET	SER	PHE
LEU	ASN	SER	ALA
ARG	ALA	ARG	LYS
LYS	PRO	GLY	PRO
LEU	ILE	ARG	ILE
PHE	HIS	SER	MET
THR	ILE	THR	GLY
GLY	VAL	SER	ASP
GLY	ASP	GLY	ASN
LEU	ASP	GLY	GLY
LEU	GLU	GLY	TYR
GLU	VAL	PHE	GLY
ALA	VAL	ALA	GLY
SER	VAL	PHE	LYS
LEU	VAL	VAL	ARG
LEU	VAL	THR	THR
THR	ARG	SER	ASP
SER	ARG	THR	GLY
HIS	GLU	HIS	ASN
PHE	ASP	PHE	ASP
GLU	SER	GLY	GLY
GLN	GLN	PHE	ASN
TRP	ARG	GLY	ARG
GLY	TRP	ARG	ARG
THR	PRO	SER	PHE
THR	GLY	VAL	
LEU	ALA	GLY	
LYS	HIS	ASN	
THR	THR	THR	
ASP	LEU	PHE	
ILE	LEU	ILE	
THR	THR	THR	
CYS	ASP	GLY	
VAL	VAL	GLY	
VAL	VAL	ARG	
MET	VAL	GLY	
ARG	TYR	GLY	
ILE	ILE	ARG	
THR	THR	GLY	
PRO	PHE	GLY	
ASN	THR	GLY	
THR	THR	SER	
LYS	ILE	ARG	
ARG	LYS	GLY	
GLU	GLU	GLY	
THR	THR	GLY	
GLY	THR	TYR	
PHE	GLU	VAL	
GLY	GLU	ARG	
LYS	HIS	GLY	
PHE	GLY	LYS	
VAL	HIS	VAL	

• Molecule 1: Isoform A1-A of Heterogeneous nuclear ribonucleoprotein A1

Chain J:  14%  86%

MET	THR	LEU	GLY
SER	TYR	ARG	ASP
LYS	ALA	LYS	GLY
SER	THR	TYR	TYR
GLU	VAL	PHE	ASN
SER	GLU	GLU	GLY
PRO	GLU	GLN	PHE
LYS	VAL	TYR	GLY
GLU	VAL	SER	ASN
ALA	VAL	ALA	G251
PRO	ALA	SER	Y295
GLU	ALA	SER	PHE
GLN	MET	SER	ALA
LEU	ASN	SER	LYS
ARG	ALA	ARG	PRO
LYS	ARG	GLY	ILE
LEU	PRO	ARG	THR
PHE	HIS	SER	GLY
THR	ILE	THR	THR
GLY	VAL	ASP	ARG
LEU	ASP	GLY	ASN
LEU	GLU	GLY	GLY
GLU	VAL	PHE	TYR
ALA	VAL	ALA	GLY
SER	VAL	PHE	SER
LEU	VAL	VAL	SER
LEU	VAL	THR	TYR
THR	ARG	THR	GLY
HIS	GLU	HIS	ASN
PHE	ASP	PHE	ASP
GLU	SER	GLY	GLY
GLN	GLN	PHE	ASN
TRP	ARG	GLY	ARG
GLY	TRP	ARG	ARG
THR	PRO	SER	PHE
THR	GLY	VAL	
LEU	ALA	GLY	
LYS	HIS	ASN	
THR	THR	THR	
ASP	LEU	PHE	
ILE	LEU	ILE	
THR	THR	THR	
CYS	ASP	GLY	
VAL	VAL	GLY	
VAL	VAL	ARG	
MET	VAL	GLY	
ARG	TYR	GLY	
ILE	ILE	ARG	
THR	THR	GLY	
PRO	PHE	GLY	
ASN	THR	GLY	
THR	THR	SER	
LYS	ILE	ARG	
ARG	LYS	GLY	
GLU	GLU	GLY	
THR	THR	GLY	
GLY	THR	TYR	
PHE	GLU	VAL	
GLY	GLU	ARG	
LYS	HIS	GLY	
PHE	GLY	LYS	
VAL	HIS	VAL	

• Molecule 1: Isoform A1-A of Heterogeneous nuclear ribonucleoprotein A1

Chain K:  14%  86%

MET	THR	LEU	GLY
SER	TYR	ARG	ASP
LYS	ALA	LYS	GLY
SER	THR	TYR	TYR
GLU	VAL	PHE	ASN
SER	GLU	GLU	GLY
PRO	GLU	GLN	PHE
LYS	VAL	TYR	GLY
GLU	VAL	SER	ASN
ALA	VAL	ALA	G251
PRO	ALA	SER	Y295
GLU	ALA	SER	PHE
GLN	MET	SER	ALA
LEU	ASN	SER	LYS
ARG	ALA	ARG	PRO
LYS	ARG	GLY	ILE
LEU	PRO	ARG	THR
PHE	HIS	SER	GLY
THR	ILE	THR	THR
GLY	VAL	ASP	ARG
LEU	ASP	GLY	ASN
LEU	GLU	GLY	GLY
GLU	VAL	PHE	TYR
ALA	VAL	ALA	GLY
SER	VAL	PHE	SER
LEU	VAL	VAL	SER
LEU	VAL	THR	TYR
THR	ARG	THR	GLY
HIS	GLU	HIS	ASN
PHE	ASP	PHE	ASP
GLU	SER	GLY	GLY
GLN	GLN	PHE	ASN
TRP	ARG	GLY	ARG
GLY	TRP	ARG	ARG
THR	PRO	SER	PHE
THR	GLY	VAL	
LEU	ALA	GLY	
LYS	HIS	ASN	
THR	THR	THR	
ASP	LEU	PHE	
ILE	LEU	ILE	
THR	THR	THR	
CYS	ASP	GLY	
VAL	VAL	GLY	
VAL	VAL	ARG	
MET	VAL	GLY	
ARG	TYR	GLY	
ILE	ILE	ARG	
THR	THR	GLY	
PRO	PHE	GLY	
ASN	THR	GLY	
THR	THR	SER	
LYS	ILE	ARG	
ARG	LYS	GLY	
GLU	GLU	GLY	
THR	THR	GLY	
GLY	THR	TYR	
PHE	GLU	VAL	
GLY	GLU	ARG	
LYS	HIS	GLY	
PHE	GLY	LYS	
VAL	HIS	VAL	

• Molecule 1: Isoform A1-A of Heterogeneous nuclear ribonucleoprotein A1

Chain L:  14%  86%

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

GLY	GLY
ASP	ASP
GLY	GLY
TYR	TYR
ASN	ASN
GLY	GLY
PHE	PHE
GLY	GLY
ASN	ASN
ASP	ASP
4251	4255
+	+
PHE	PHE
ALA	ALA
LYS	LYS
PRO	PRO
ARG	ARG
ASN	ASN
GLN	GLN
GLY	GLY
TYR	TYR
GLY	GLY
GLY	GLY
SER	SER
SER	SER
SER	SER
SER	SER
TYR	TYR
GLY	GLY
GLY	GLY
ARG	ARG
PHE	PHE

4 Experimental information

Property	Value	Source
EM reconstruction method	HELICAL	Depositor
Imposed symmetry	HELICAL, twist=179.05°, rise=2.37 Å, axial sym=C1	Depositor
Number of segments used	54408	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 ($e^-/\text{Å}^2$)	42.64	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	13.954	Depositor
Minimum map value	-6.935	Depositor
Average map value	0.032	Depositor
Map value standard deviation	0.409	Depositor
Recommended contour level	3.3	Depositor
Map size (Å)	266.24, 266.24, 266.24	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.04, 1.04, 1.04	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	0.70	0/325	0.96	0/432
1	B	0.70	0/325	0.96	0/432
1	C	0.70	0/325	0.96	0/432
1	D	0.70	0/325	0.96	0/432
1	E	0.70	0/325	0.96	0/432
1	F	0.70	0/325	0.96	0/432
1	G	0.70	0/325	0.96	0/432
1	H	0.70	0/325	0.96	0/432
1	I	0.70	0/325	0.96	0/432
1	J	0.70	0/325	0.96	0/432
1	K	0.69	0/325	0.96	0/432
1	L	0.70	0/325	0.96	0/432
All	All	0.70	0/3900	0.96	0/5184

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	316	0	260	0	0
1	B	316	0	260	0	0
1	C	316	0	260	0	0
1	D	316	0	260	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	316	0	260	0	0
1	F	316	0	260	0	0
1	G	316	0	260	0	0
1	H	316	0	260	0	0
1	I	316	0	260	0	0
1	J	316	0	260	0	0
1	K	316	0	260	0	0
1	L	316	0	260	0	0
All	All	3792	0	3120	0	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 0.

There are no clashes within the asymmetric unit.

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	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
1	B	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
1	C	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
1	D	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
1	E	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
1	F	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
1	G	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
1	H	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
1	I	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
1	J	43/320 (13%)	42 (98%)	1 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	K	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
1	L	43/320 (13%)	42 (98%)	1 (2%)	0	100	100
All	All	516/3840 (13%)	504 (98%)	12 (2%)	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	29/244 (12%)	29 (100%)	0	100	100
1	B	29/244 (12%)	29 (100%)	0	100	100
1	C	29/244 (12%)	29 (100%)	0	100	100
1	D	29/244 (12%)	29 (100%)	0	100	100
1	E	29/244 (12%)	29 (100%)	0	100	100
1	F	29/244 (12%)	29 (100%)	0	100	100
1	G	29/244 (12%)	29 (100%)	0	100	100
1	H	29/244 (12%)	29 (100%)	0	100	100
1	I	29/244 (12%)	29 (100%)	0	100	100
1	J	29/244 (12%)	29 (100%)	0	100	100
1	K	29/244 (12%)	29 (100%)	0	100	100
1	L	29/244 (12%)	29 (100%)	0	100	100
All	All	348/2928 (12%)	348 (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. 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.

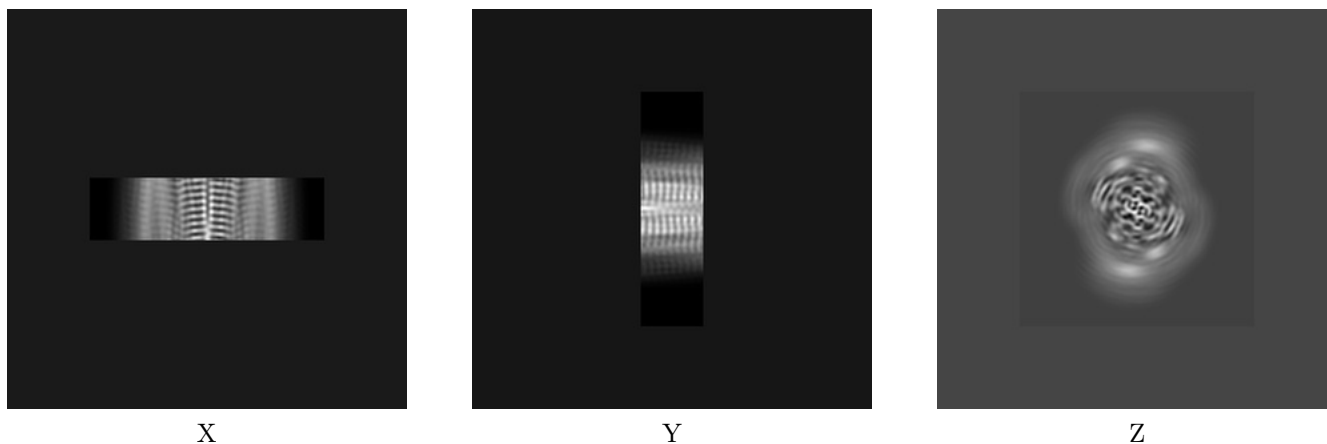
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-14739. These allow visual inspection of the internal detail of the map and identification of artifacts.

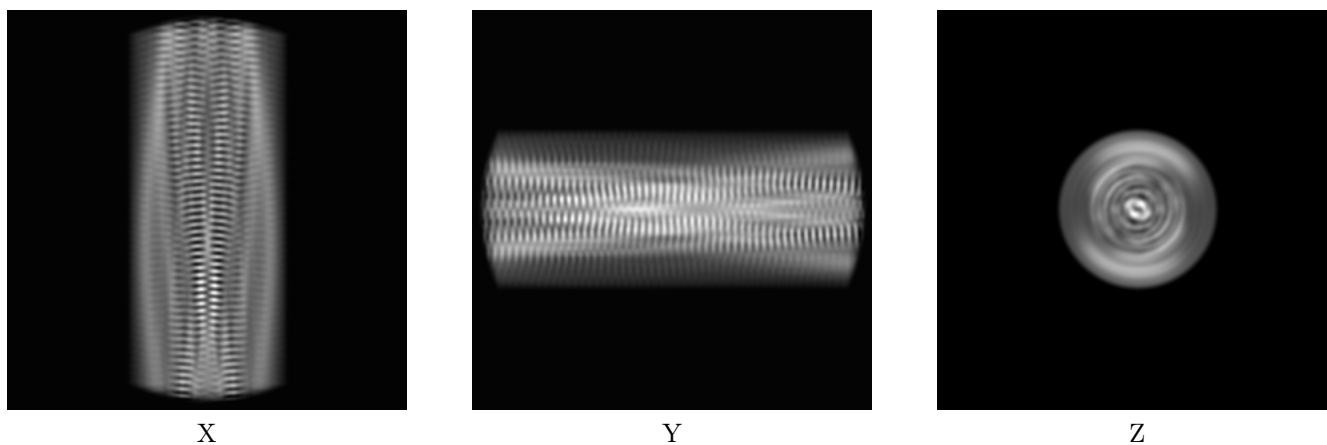
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

6.1.1 Primary map



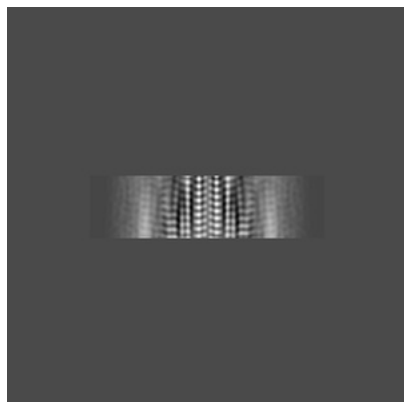
6.1.2 Raw map



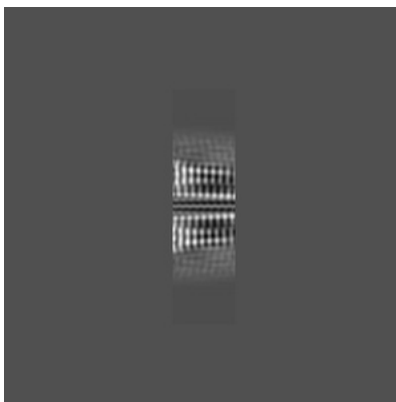
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

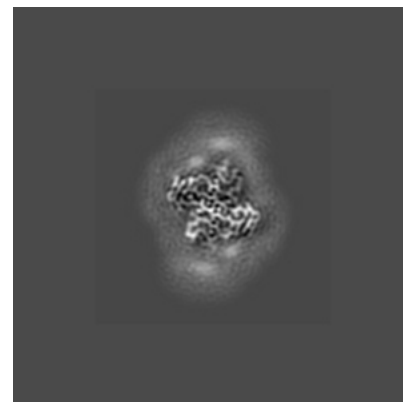
6.2.1 Primary map



X Index: 128

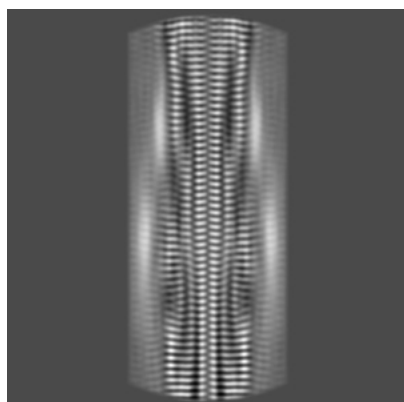


Y Index: 128

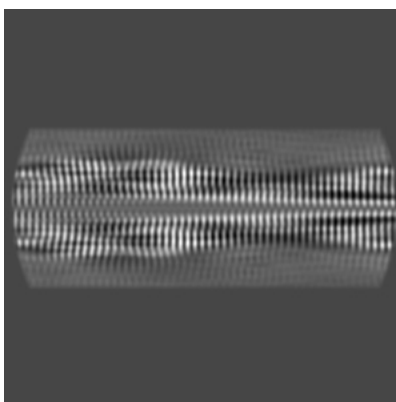


Z Index: 128

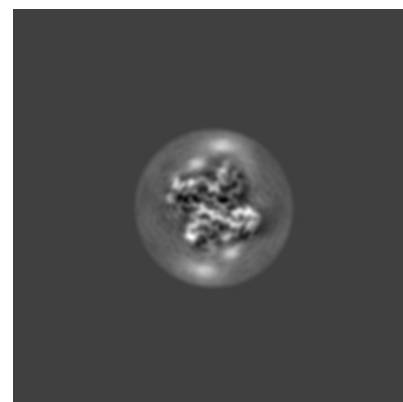
6.2.2 Raw map



X Index: 128



Y Index: 128

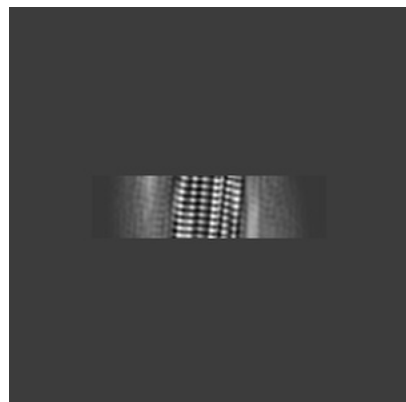


Z Index: 128

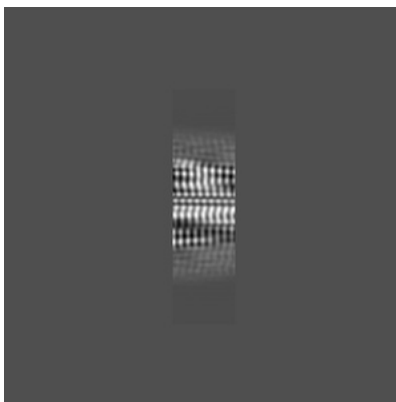
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

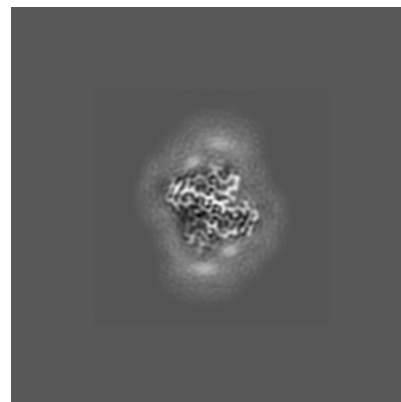
6.3.1 Primary map



X Index: 114

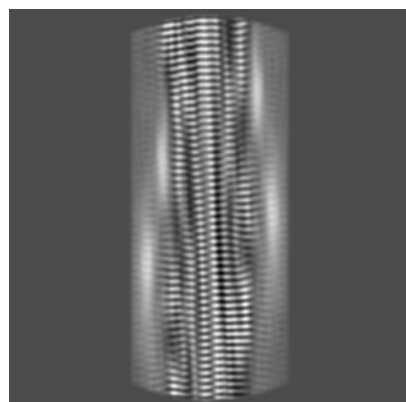


Y Index: 126

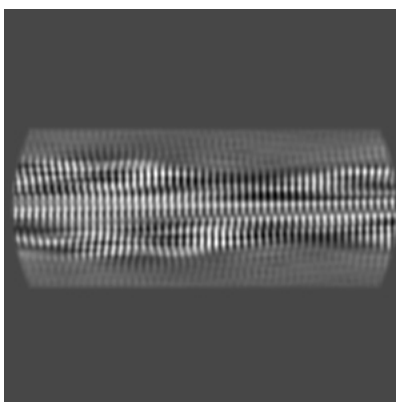


Z Index: 125

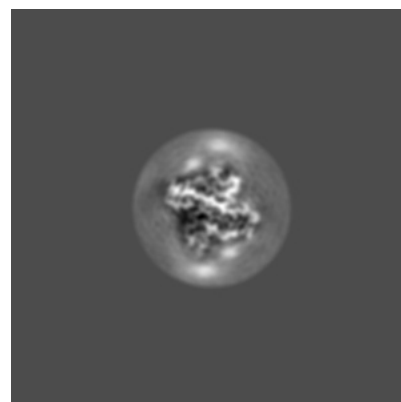
6.3.2 Raw map



X Index: 133



Y Index: 131

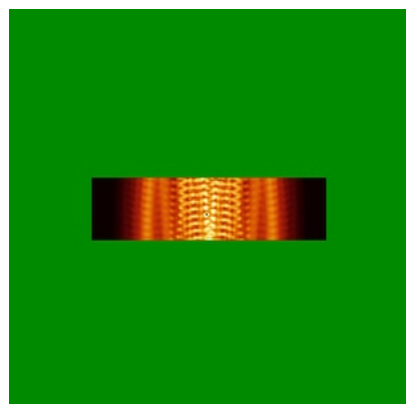


Z Index: 125

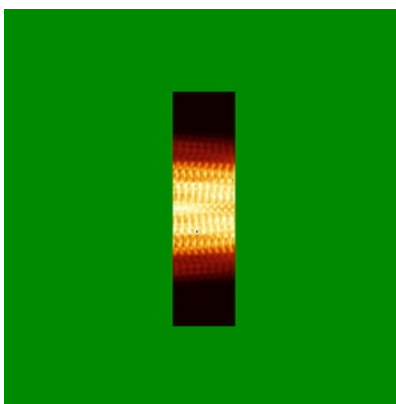
The images above show the largest variance slices of the map in three orthogonal directions.

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

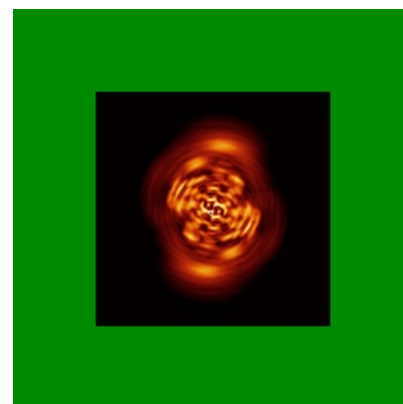
6.4.1 Primary map



X

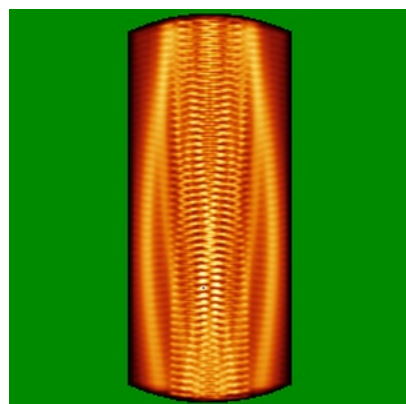


Y

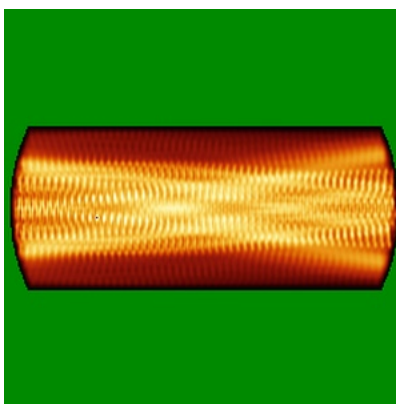


Z

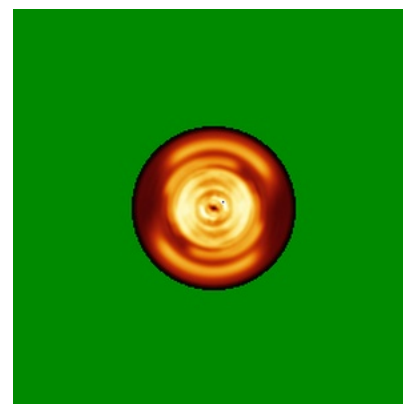
6.4.2 Raw map



X



Y

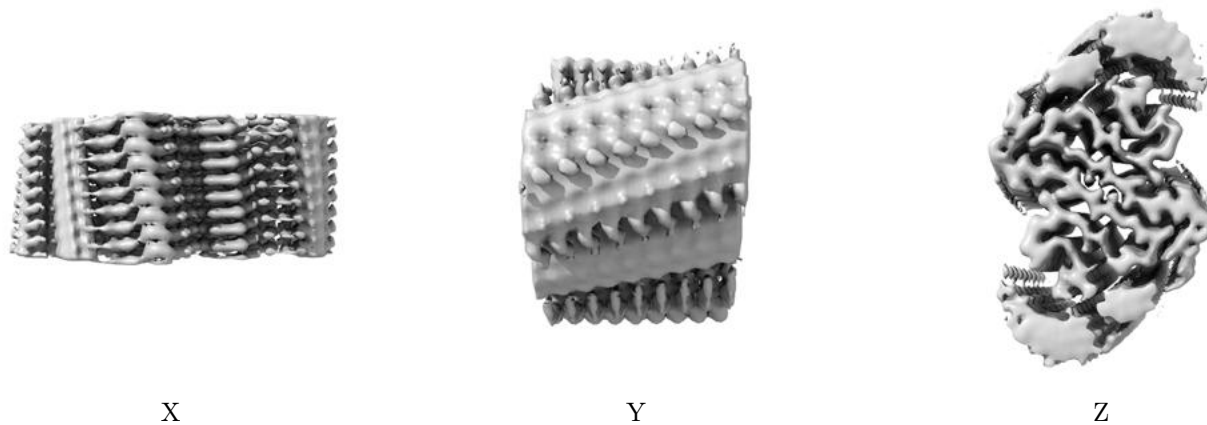


Z

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.

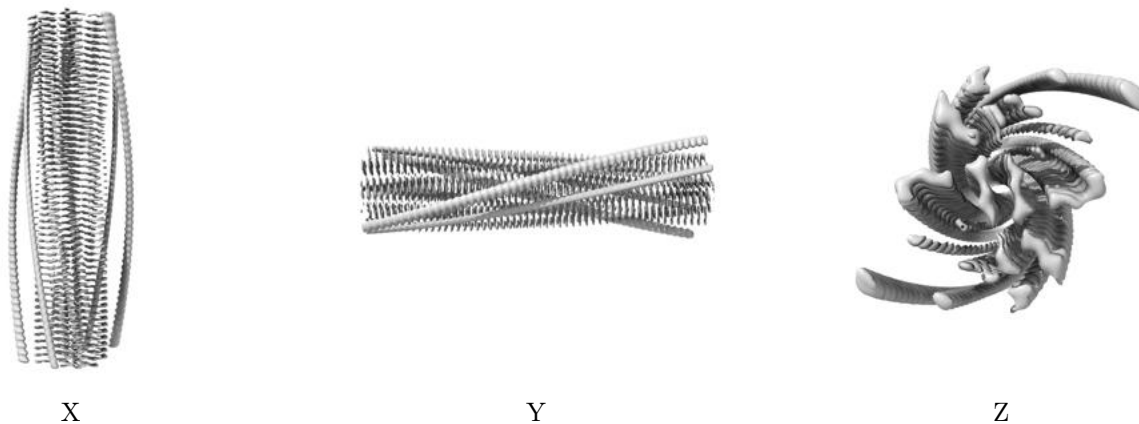
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 3.3. 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.

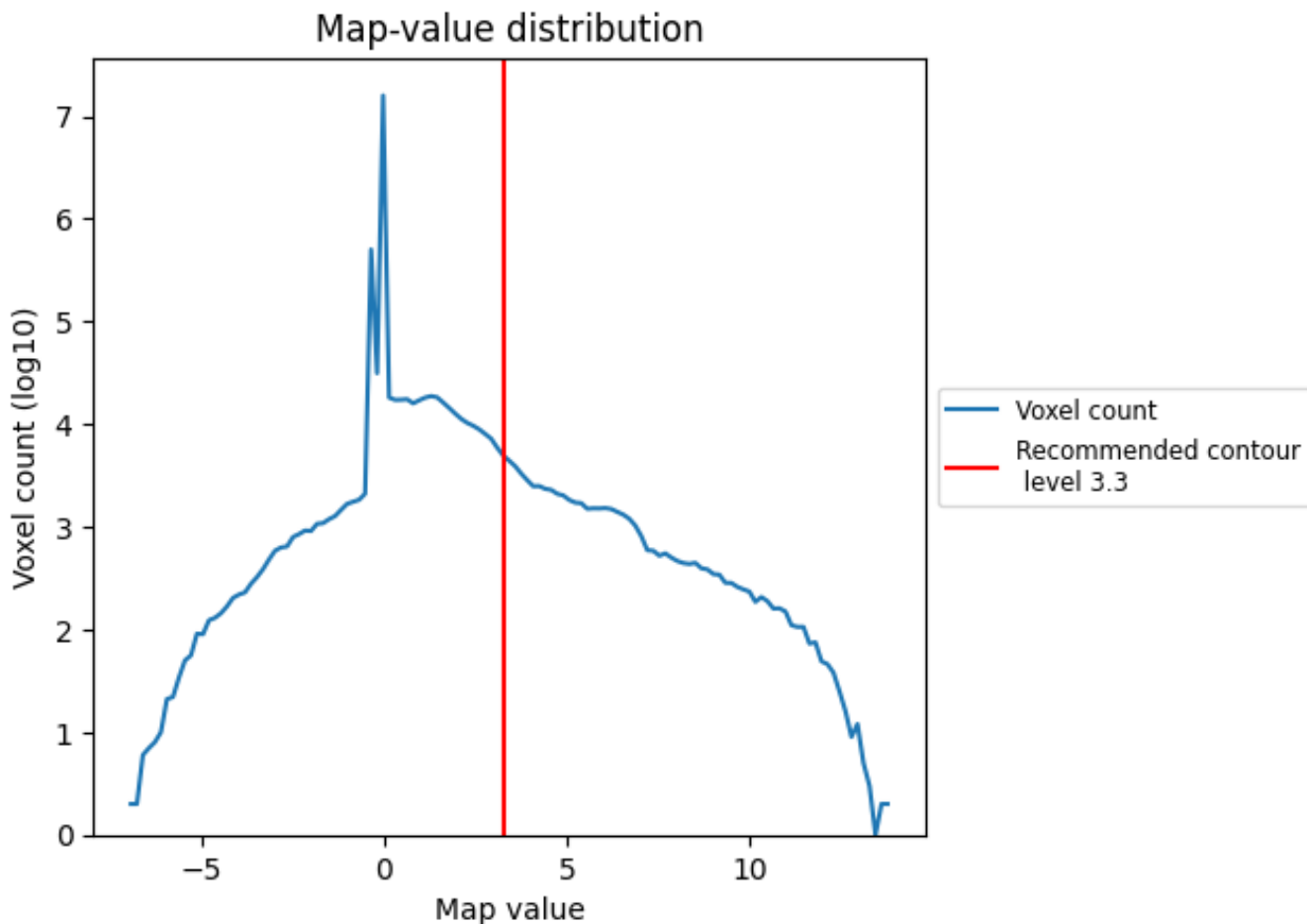
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

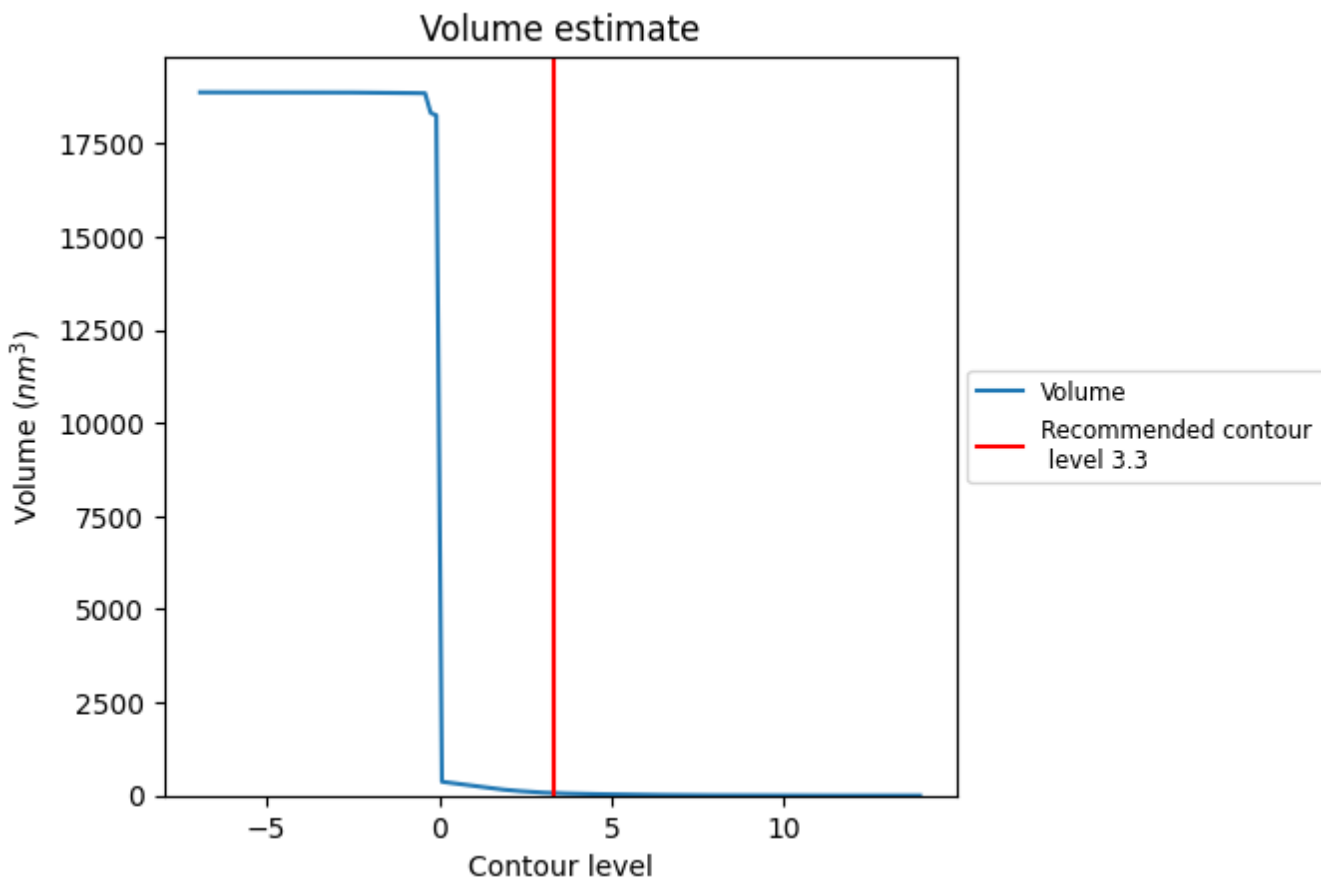
This section contains the results of statistical analysis of the map.

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.

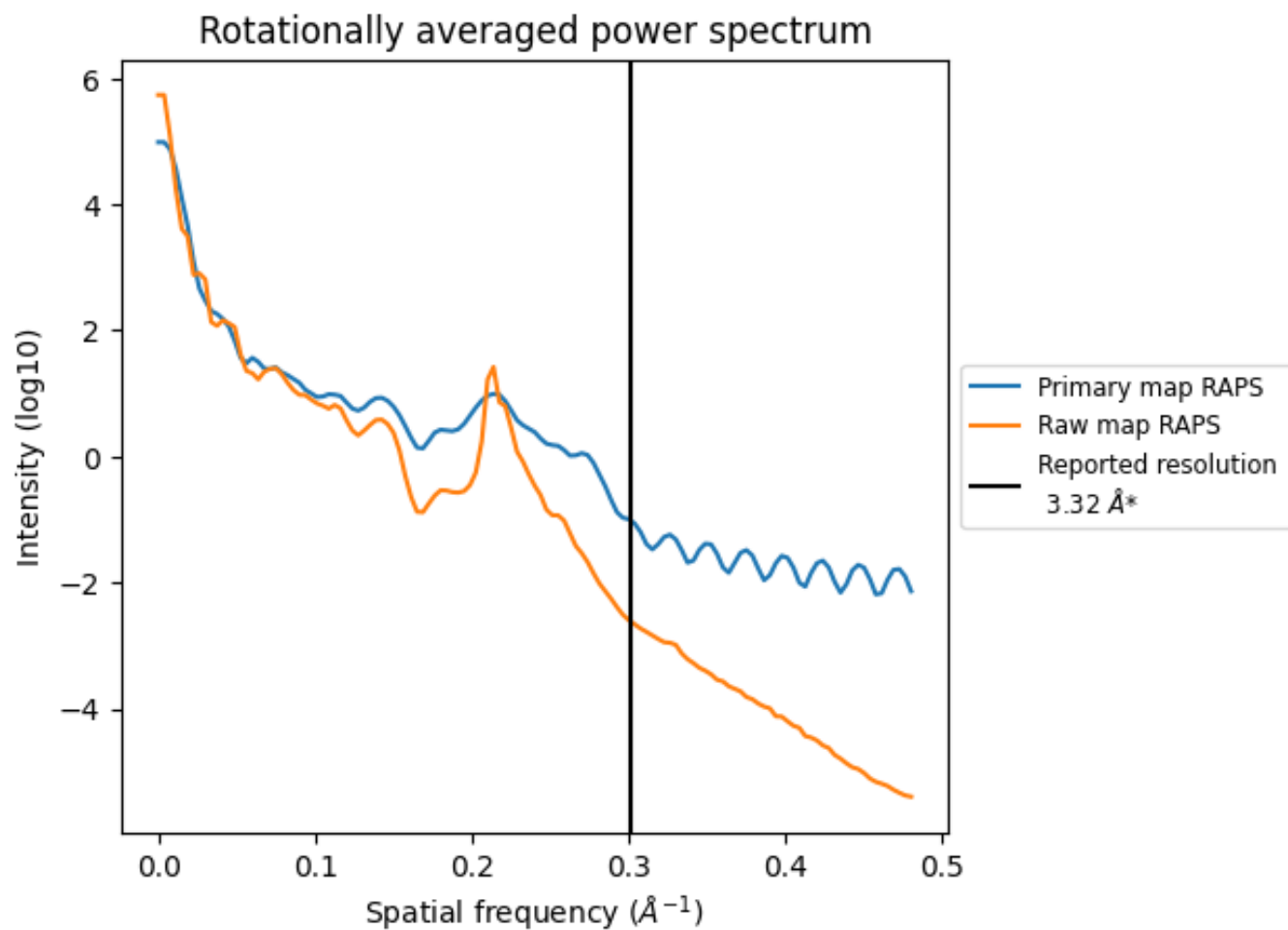
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 67 nm³; this corresponds to an approximate mass of 61 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](#)

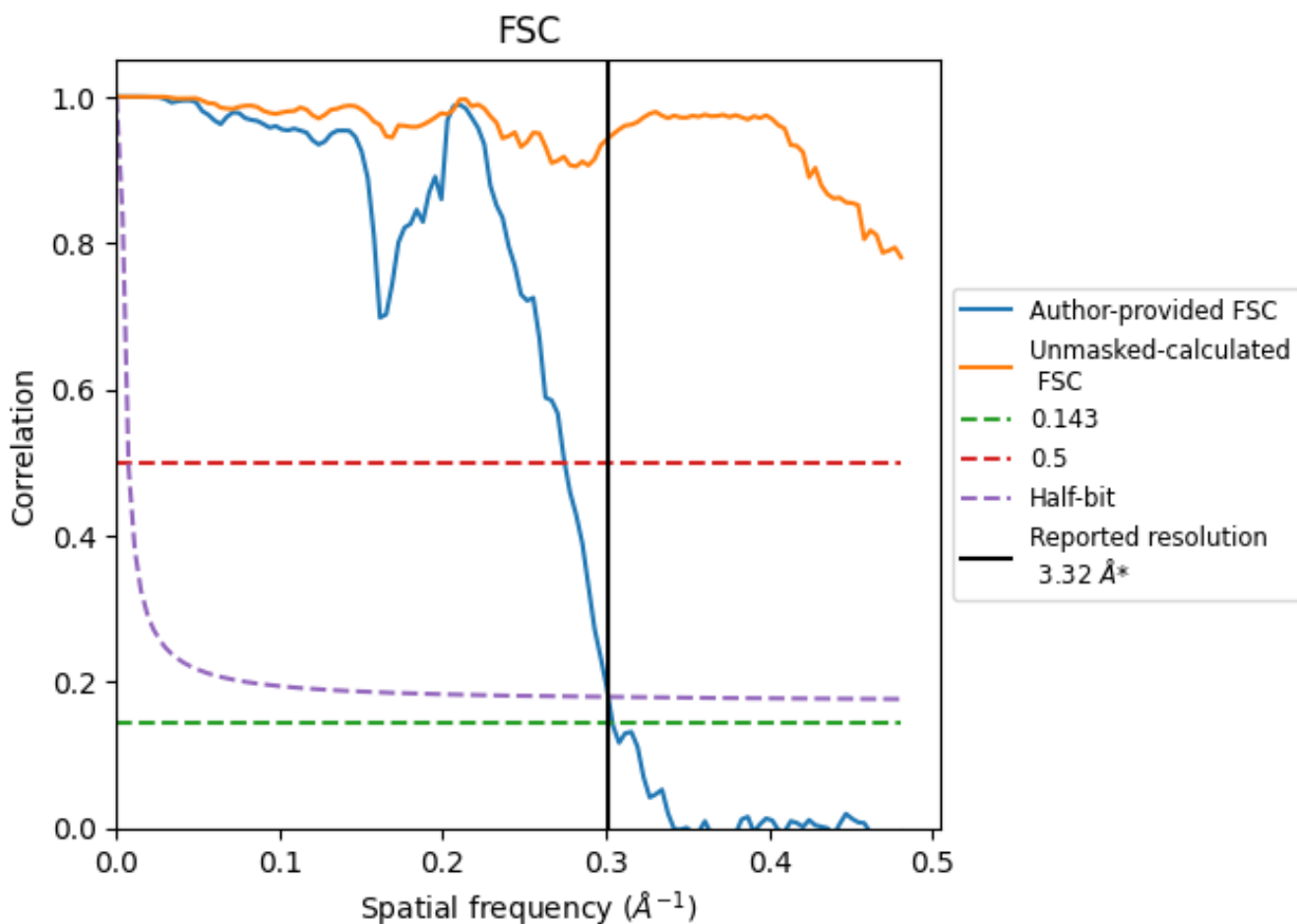


*Reported resolution corresponds to spatial frequency of 0.301 Å⁻¹

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 0.301\AA^{-1}

8.2 Resolution estimates [i](#)

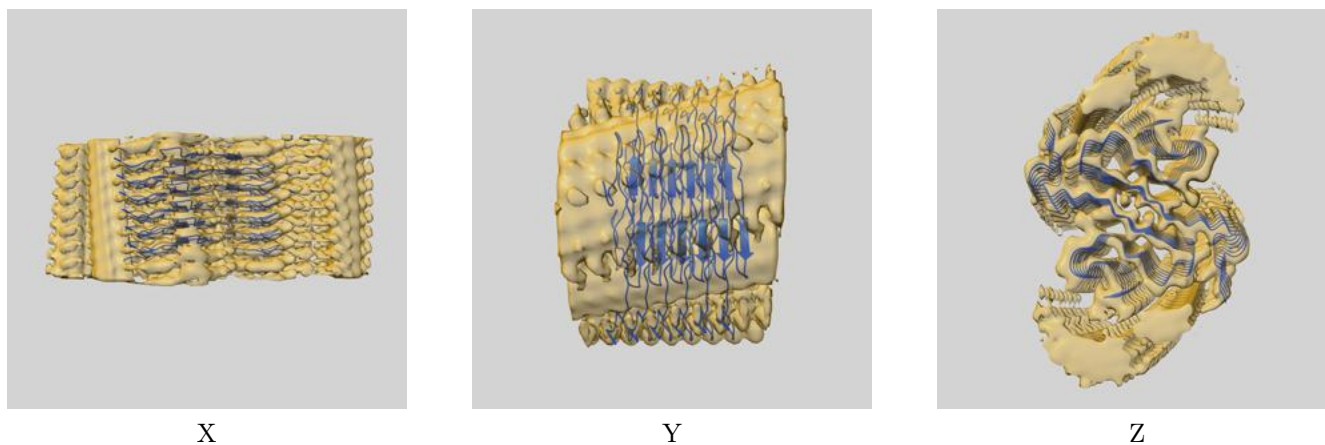
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.32	-	-
Author-provided FSC curve	3.29	3.64	3.32
Unmasked-calculated*	-	-	-

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

9 Map-model fit [i](#)

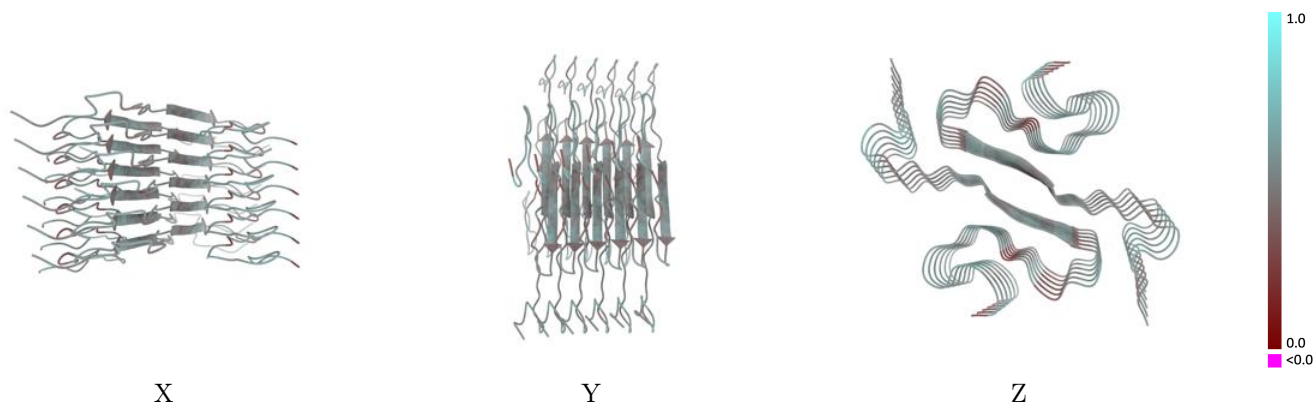
This section contains information regarding the fit between EMDB map EMD-14739 and PDB model 7ZJ2. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



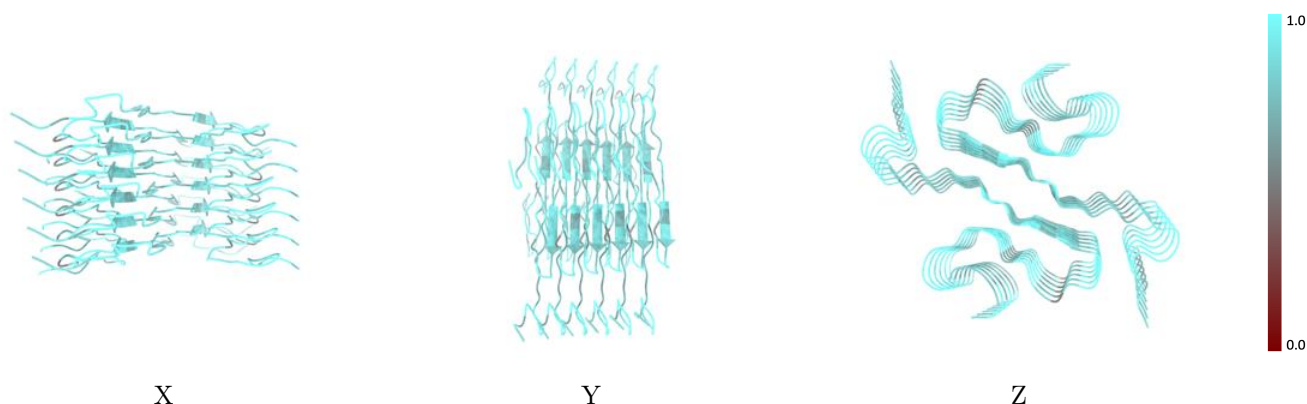
The images above show the 3D surface view of the map at the recommended contour level 3.3 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



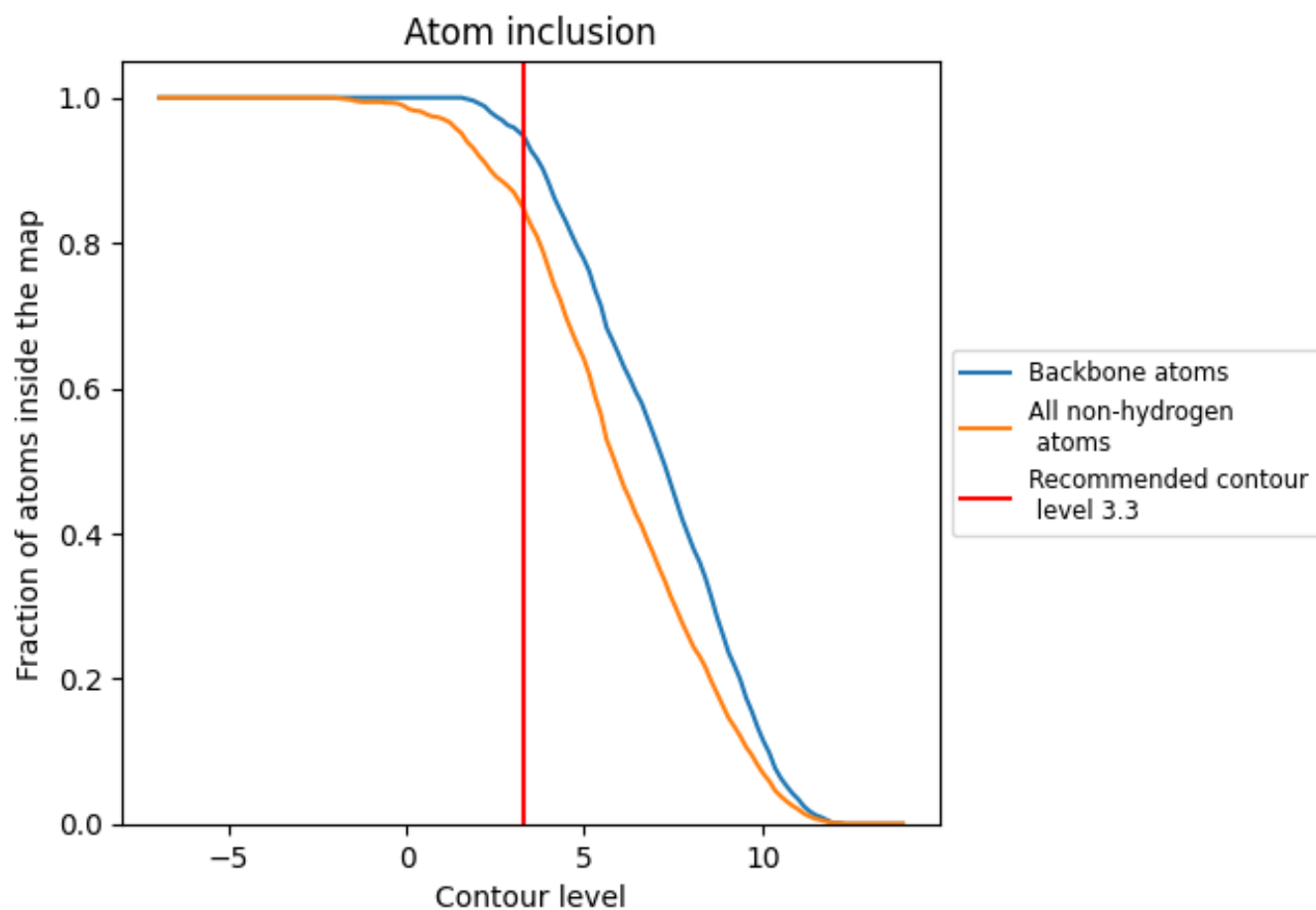
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (3.3).



























9.4 Atom inclusion [i](#)



At the recommended contour level, 95% of all backbone atoms, 85% 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 (3.3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8470	 0.4910
A	 0.8420	 0.4920
B	 0.8550	 0.4900
C	 0.8550	 0.4920
D	 0.8450	 0.4860
E	 0.8480	 0.4930
F	 0.8480	 0.4910
G	 0.8520	 0.4930
H	 0.8390	 0.4880
I	 0.8450	 0.4960
J	 0.8480	 0.4890
K	 0.8420	 0.4920
L	 0.8420	 0.4890

