



Full wwPDB EM Validation Report ⓘ

Mar 10, 2026 – 03:30 AM UTC

PDB ID : 7OXR / pdb_00007oxr
EMDB ID : EMD-13104
Title : Cryo-EM structure of yeast Sei1 with locking helix deletion
Authors : Deme, J.C.; Lea, S.M.
Deposited on : 2021-06-22
Resolution : 3.30 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.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

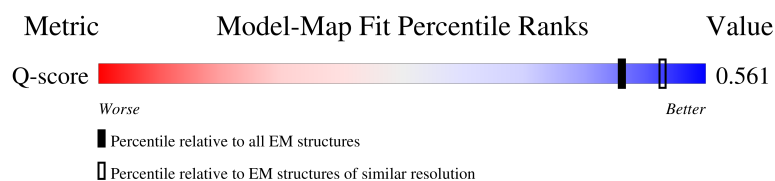
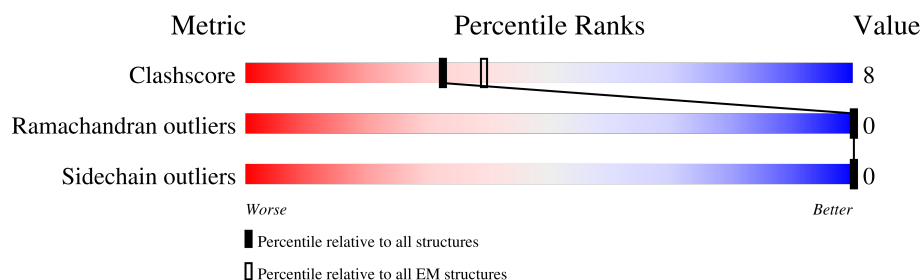
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.30 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	15087 (2.80 - 3.80)

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	315	
1	B	315	
1	C	315	
1	D	315	

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Mol	Chain	Length	Quality of chain
1	E	315	43%11%46%
1	F	315	43%11%46%
1	G	315	43%11%46%
1	H	315	44%10%46%
1	I	315	42%12%46%
1	J	315	42%12%46%

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 13670 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 BJ4_G0032880.mRNA.1.CDS.1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	170	Total	C	N	O	S	0	0
			1367	867	227	267	6		
1	B	170	Total	C	N	O	S	0	0
			1367	867	227	267	6		
1	C	170	Total	C	N	O	S	0	0
			1367	867	227	267	6		
1	D	170	Total	C	N	O	S	0	0
			1367	867	227	267	6		
1	E	170	Total	C	N	O	S	0	0
			1367	867	227	267	6		
1	F	170	Total	C	N	O	S	0	0
			1367	867	227	267	6		
1	G	170	Total	C	N	O	S	0	0
			1367	867	227	267	6		
1	H	170	Total	C	N	O	S	0	0
			1367	867	227	267	6		
1	I	170	Total	C	N	O	S	0	0
			1367	867	227	267	6		
1	J	170	Total	C	N	O	S	0	0
			1367	867	227	267	6		

There are 490 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	231	GLY	ASN	conflict	UNP A0A6A5PUS7
A	232	GLY	PHE	conflict	UNP A0A6A5PUS7
A	233	SER	GLU	conflict	UNP A0A6A5PUS7
A	234	GLY	GLN	conflict	UNP A0A6A5PUS7
A	?	-	LEU	deletion	UNP A0A6A5PUS7
A	?	-	ARG	deletion	UNP A0A6A5PUS7
A	?	-	ASN	deletion	UNP A0A6A5PUS7
A	?	-	LEU	deletion	UNP A0A6A5PUS7
A	?	-	MET	deletion	UNP A0A6A5PUS7
A	?	-	LEU	deletion	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	ARG	deletion	UNP A0A6A5PUS7
A	236	SER	LYS	conflict	UNP A0A6A5PUS7
A	279	GLY	-	expression tag	UNP A0A6A5PUS7
A	280	ARG	-	expression tag	UNP A0A6A5PUS7
A	281	ARG	-	expression tag	UNP A0A6A5PUS7
A	282	ILE	-	expression tag	UNP A0A6A5PUS7
A	283	PRO	-	expression tag	UNP A0A6A5PUS7
A	284	GLY	-	expression tag	UNP A0A6A5PUS7
A	285	LEU	-	expression tag	UNP A0A6A5PUS7
A	286	ILE	-	expression tag	UNP A0A6A5PUS7
A	287	ASN	-	expression tag	UNP A0A6A5PUS7
A	288	GLY	-	expression tag	UNP A0A6A5PUS7
A	289	GLY	-	expression tag	UNP A0A6A5PUS7
A	290	GLY	-	expression tag	UNP A0A6A5PUS7
A	291	GLY	-	expression tag	UNP A0A6A5PUS7
A	292	GLY	-	expression tag	UNP A0A6A5PUS7
A	293	GLY	-	expression tag	UNP A0A6A5PUS7
A	294	ASP	-	expression tag	UNP A0A6A5PUS7
A	295	TYR	-	expression tag	UNP A0A6A5PUS7
A	296	LYS	-	expression tag	UNP A0A6A5PUS7
A	297	ASP	-	expression tag	UNP A0A6A5PUS7
A	298	HIS	-	expression tag	UNP A0A6A5PUS7
A	299	ASP	-	expression tag	UNP A0A6A5PUS7
A	300	GLY	-	expression tag	UNP A0A6A5PUS7
A	301	ASP	-	expression tag	UNP A0A6A5PUS7
A	302	TYR	-	expression tag	UNP A0A6A5PUS7
A	303	LYS	-	expression tag	UNP A0A6A5PUS7
A	304	ASP	-	expression tag	UNP A0A6A5PUS7
A	305	HIS	-	expression tag	UNP A0A6A5PUS7
A	306	ASP	-	expression tag	UNP A0A6A5PUS7
A	307	ILE	-	expression tag	UNP A0A6A5PUS7
A	308	ASP	-	expression tag	UNP A0A6A5PUS7
A	309	TYR	-	expression tag	UNP A0A6A5PUS7
A	310	LYS	-	expression tag	UNP A0A6A5PUS7
A	311	ASP	-	expression tag	UNP A0A6A5PUS7
A	312	ASP	-	expression tag	UNP A0A6A5PUS7
A	313	ASP	-	expression tag	UNP A0A6A5PUS7
A	314	ASP	-	expression tag	UNP A0A6A5PUS7
A	315	LYS	-	expression tag	UNP A0A6A5PUS7
B	231	GLY	ASN	conflict	UNP A0A6A5PUS7
B	232	GLY	PHE	conflict	UNP A0A6A5PUS7
B	233	SER	GLU	conflict	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
B	234	GLY	GLN	conflict	UNP A0A6A5PUS7
B	?	-	LEU	deletion	UNP A0A6A5PUS7
B	?	-	ARG	deletion	UNP A0A6A5PUS7
B	?	-	ASN	deletion	UNP A0A6A5PUS7
B	?	-	LEU	deletion	UNP A0A6A5PUS7
B	?	-	MET	deletion	UNP A0A6A5PUS7
B	?	-	LEU	deletion	UNP A0A6A5PUS7
B	?	-	ARG	deletion	UNP A0A6A5PUS7
B	236	SER	LYS	conflict	UNP A0A6A5PUS7
B	279	GLY	-	expression tag	UNP A0A6A5PUS7
B	280	ARG	-	expression tag	UNP A0A6A5PUS7
B	281	ARG	-	expression tag	UNP A0A6A5PUS7
B	282	ILE	-	expression tag	UNP A0A6A5PUS7
B	283	PRO	-	expression tag	UNP A0A6A5PUS7
B	284	GLY	-	expression tag	UNP A0A6A5PUS7
B	285	LEU	-	expression tag	UNP A0A6A5PUS7
B	286	ILE	-	expression tag	UNP A0A6A5PUS7
B	287	ASN	-	expression tag	UNP A0A6A5PUS7
B	288	GLY	-	expression tag	UNP A0A6A5PUS7
B	289	GLY	-	expression tag	UNP A0A6A5PUS7
B	290	GLY	-	expression tag	UNP A0A6A5PUS7
B	291	GLY	-	expression tag	UNP A0A6A5PUS7
B	292	GLY	-	expression tag	UNP A0A6A5PUS7
B	293	GLY	-	expression tag	UNP A0A6A5PUS7
B	294	ASP	-	expression tag	UNP A0A6A5PUS7
B	295	TYR	-	expression tag	UNP A0A6A5PUS7
B	296	LYS	-	expression tag	UNP A0A6A5PUS7
B	297	ASP	-	expression tag	UNP A0A6A5PUS7
B	298	HIS	-	expression tag	UNP A0A6A5PUS7
B	299	ASP	-	expression tag	UNP A0A6A5PUS7
B	300	GLY	-	expression tag	UNP A0A6A5PUS7
B	301	ASP	-	expression tag	UNP A0A6A5PUS7
B	302	TYR	-	expression tag	UNP A0A6A5PUS7
B	303	LYS	-	expression tag	UNP A0A6A5PUS7
B	304	ASP	-	expression tag	UNP A0A6A5PUS7
B	305	HIS	-	expression tag	UNP A0A6A5PUS7
B	306	ASP	-	expression tag	UNP A0A6A5PUS7
B	307	ILE	-	expression tag	UNP A0A6A5PUS7
B	308	ASP	-	expression tag	UNP A0A6A5PUS7
B	309	TYR	-	expression tag	UNP A0A6A5PUS7
B	310	LYS	-	expression tag	UNP A0A6A5PUS7
B	311	ASP	-	expression tag	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
B	312	ASP	-	expression tag	UNP A0A6A5PUS7
B	313	ASP	-	expression tag	UNP A0A6A5PUS7
B	314	ASP	-	expression tag	UNP A0A6A5PUS7
B	315	LYS	-	expression tag	UNP A0A6A5PUS7
C	231	GLY	ASN	conflict	UNP A0A6A5PUS7
C	232	GLY	PHE	conflict	UNP A0A6A5PUS7
C	233	SER	GLU	conflict	UNP A0A6A5PUS7
C	234	GLY	GLN	conflict	UNP A0A6A5PUS7
C	?	-	LEU	deletion	UNP A0A6A5PUS7
C	?	-	ARG	deletion	UNP A0A6A5PUS7
C	?	-	ASN	deletion	UNP A0A6A5PUS7
C	?	-	LEU	deletion	UNP A0A6A5PUS7
C	?	-	MET	deletion	UNP A0A6A5PUS7
C	?	-	LEU	deletion	UNP A0A6A5PUS7
C	?	-	ARG	deletion	UNP A0A6A5PUS7
C	236	SER	LYS	conflict	UNP A0A6A5PUS7
C	279	GLY	-	expression tag	UNP A0A6A5PUS7
C	280	ARG	-	expression tag	UNP A0A6A5PUS7
C	281	ARG	-	expression tag	UNP A0A6A5PUS7
C	282	ILE	-	expression tag	UNP A0A6A5PUS7
C	283	PRO	-	expression tag	UNP A0A6A5PUS7
C	284	GLY	-	expression tag	UNP A0A6A5PUS7
C	285	LEU	-	expression tag	UNP A0A6A5PUS7
C	286	ILE	-	expression tag	UNP A0A6A5PUS7
C	287	ASN	-	expression tag	UNP A0A6A5PUS7
C	288	GLY	-	expression tag	UNP A0A6A5PUS7
C	289	GLY	-	expression tag	UNP A0A6A5PUS7
C	290	GLY	-	expression tag	UNP A0A6A5PUS7
C	291	GLY	-	expression tag	UNP A0A6A5PUS7
C	292	GLY	-	expression tag	UNP A0A6A5PUS7
C	293	GLY	-	expression tag	UNP A0A6A5PUS7
C	294	ASP	-	expression tag	UNP A0A6A5PUS7
C	295	TYR	-	expression tag	UNP A0A6A5PUS7
C	296	LYS	-	expression tag	UNP A0A6A5PUS7
C	297	ASP	-	expression tag	UNP A0A6A5PUS7
C	298	HIS	-	expression tag	UNP A0A6A5PUS7
C	299	ASP	-	expression tag	UNP A0A6A5PUS7
C	300	GLY	-	expression tag	UNP A0A6A5PUS7
C	301	ASP	-	expression tag	UNP A0A6A5PUS7
C	302	TYR	-	expression tag	UNP A0A6A5PUS7
C	303	LYS	-	expression tag	UNP A0A6A5PUS7
C	304	ASP	-	expression tag	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
C	305	HIS	-	expression tag	UNP A0A6A5PUS7
C	306	ASP	-	expression tag	UNP A0A6A5PUS7
C	307	ILE	-	expression tag	UNP A0A6A5PUS7
C	308	ASP	-	expression tag	UNP A0A6A5PUS7
C	309	TYR	-	expression tag	UNP A0A6A5PUS7
C	310	LYS	-	expression tag	UNP A0A6A5PUS7
C	311	ASP	-	expression tag	UNP A0A6A5PUS7
C	312	ASP	-	expression tag	UNP A0A6A5PUS7
C	313	ASP	-	expression tag	UNP A0A6A5PUS7
C	314	ASP	-	expression tag	UNP A0A6A5PUS7
C	315	LYS	-	expression tag	UNP A0A6A5PUS7
D	231	GLY	ASN	conflict	UNP A0A6A5PUS7
D	232	GLY	PHE	conflict	UNP A0A6A5PUS7
D	233	SER	GLU	conflict	UNP A0A6A5PUS7
D	234	GLY	GLN	conflict	UNP A0A6A5PUS7
D	?	-	LEU	deletion	UNP A0A6A5PUS7
D	?	-	ARG	deletion	UNP A0A6A5PUS7
D	?	-	ASN	deletion	UNP A0A6A5PUS7
D	?	-	LEU	deletion	UNP A0A6A5PUS7
D	?	-	MET	deletion	UNP A0A6A5PUS7
D	?	-	LEU	deletion	UNP A0A6A5PUS7
D	?	-	ARG	deletion	UNP A0A6A5PUS7
D	236	SER	LYS	conflict	UNP A0A6A5PUS7
D	279	GLY	-	expression tag	UNP A0A6A5PUS7
D	280	ARG	-	expression tag	UNP A0A6A5PUS7
D	281	ARG	-	expression tag	UNP A0A6A5PUS7
D	282	ILE	-	expression tag	UNP A0A6A5PUS7
D	283	PRO	-	expression tag	UNP A0A6A5PUS7
D	284	GLY	-	expression tag	UNP A0A6A5PUS7
D	285	LEU	-	expression tag	UNP A0A6A5PUS7
D	286	ILE	-	expression tag	UNP A0A6A5PUS7
D	287	ASN	-	expression tag	UNP A0A6A5PUS7
D	288	GLY	-	expression tag	UNP A0A6A5PUS7
D	289	GLY	-	expression tag	UNP A0A6A5PUS7
D	290	GLY	-	expression tag	UNP A0A6A5PUS7
D	291	GLY	-	expression tag	UNP A0A6A5PUS7
D	292	GLY	-	expression tag	UNP A0A6A5PUS7
D	293	GLY	-	expression tag	UNP A0A6A5PUS7
D	294	ASP	-	expression tag	UNP A0A6A5PUS7
D	295	TYR	-	expression tag	UNP A0A6A5PUS7
D	296	LYS	-	expression tag	UNP A0A6A5PUS7
D	297	ASP	-	expression tag	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
D	298	HIS	-	expression tag	UNP A0A6A5PUS7
D	299	ASP	-	expression tag	UNP A0A6A5PUS7
D	300	GLY	-	expression tag	UNP A0A6A5PUS7
D	301	ASP	-	expression tag	UNP A0A6A5PUS7
D	302	TYR	-	expression tag	UNP A0A6A5PUS7
D	303	LYS	-	expression tag	UNP A0A6A5PUS7
D	304	ASP	-	expression tag	UNP A0A6A5PUS7
D	305	HIS	-	expression tag	UNP A0A6A5PUS7
D	306	ASP	-	expression tag	UNP A0A6A5PUS7
D	307	ILE	-	expression tag	UNP A0A6A5PUS7
D	308	ASP	-	expression tag	UNP A0A6A5PUS7
D	309	TYR	-	expression tag	UNP A0A6A5PUS7
D	310	LYS	-	expression tag	UNP A0A6A5PUS7
D	311	ASP	-	expression tag	UNP A0A6A5PUS7
D	312	ASP	-	expression tag	UNP A0A6A5PUS7
D	313	ASP	-	expression tag	UNP A0A6A5PUS7
D	314	ASP	-	expression tag	UNP A0A6A5PUS7
D	315	LYS	-	expression tag	UNP A0A6A5PUS7
E	231	GLY	ASN	conflict	UNP A0A6A5PUS7
E	232	GLY	PHE	conflict	UNP A0A6A5PUS7
E	233	SER	GLU	conflict	UNP A0A6A5PUS7
E	234	GLY	GLN	conflict	UNP A0A6A5PUS7
E	?	-	LEU	deletion	UNP A0A6A5PUS7
E	?	-	ARG	deletion	UNP A0A6A5PUS7
E	?	-	ASN	deletion	UNP A0A6A5PUS7
E	?	-	LEU	deletion	UNP A0A6A5PUS7
E	?	-	MET	deletion	UNP A0A6A5PUS7
E	?	-	LEU	deletion	UNP A0A6A5PUS7
E	?	-	ARG	deletion	UNP A0A6A5PUS7
E	236	SER	LYS	conflict	UNP A0A6A5PUS7
E	279	GLY	-	expression tag	UNP A0A6A5PUS7
E	280	ARG	-	expression tag	UNP A0A6A5PUS7
E	281	ARG	-	expression tag	UNP A0A6A5PUS7
E	282	ILE	-	expression tag	UNP A0A6A5PUS7
E	283	PRO	-	expression tag	UNP A0A6A5PUS7
E	284	GLY	-	expression tag	UNP A0A6A5PUS7
E	285	LEU	-	expression tag	UNP A0A6A5PUS7
E	286	ILE	-	expression tag	UNP A0A6A5PUS7
E	287	ASN	-	expression tag	UNP A0A6A5PUS7
E	288	GLY	-	expression tag	UNP A0A6A5PUS7
E	289	GLY	-	expression tag	UNP A0A6A5PUS7
E	290	GLY	-	expression tag	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
E	291	GLY	-	expression tag	UNP A0A6A5PUS7
E	292	GLY	-	expression tag	UNP A0A6A5PUS7
E	293	GLY	-	expression tag	UNP A0A6A5PUS7
E	294	ASP	-	expression tag	UNP A0A6A5PUS7
E	295	TYR	-	expression tag	UNP A0A6A5PUS7
E	296	LYS	-	expression tag	UNP A0A6A5PUS7
E	297	ASP	-	expression tag	UNP A0A6A5PUS7
E	298	HIS	-	expression tag	UNP A0A6A5PUS7
E	299	ASP	-	expression tag	UNP A0A6A5PUS7
E	300	GLY	-	expression tag	UNP A0A6A5PUS7
E	301	ASP	-	expression tag	UNP A0A6A5PUS7
E	302	TYR	-	expression tag	UNP A0A6A5PUS7
E	303	LYS	-	expression tag	UNP A0A6A5PUS7
E	304	ASP	-	expression tag	UNP A0A6A5PUS7
E	305	HIS	-	expression tag	UNP A0A6A5PUS7
E	306	ASP	-	expression tag	UNP A0A6A5PUS7
E	307	ILE	-	expression tag	UNP A0A6A5PUS7
E	308	ASP	-	expression tag	UNP A0A6A5PUS7
E	309	TYR	-	expression tag	UNP A0A6A5PUS7
E	310	LYS	-	expression tag	UNP A0A6A5PUS7
E	311	ASP	-	expression tag	UNP A0A6A5PUS7
E	312	ASP	-	expression tag	UNP A0A6A5PUS7
E	313	ASP	-	expression tag	UNP A0A6A5PUS7
E	314	ASP	-	expression tag	UNP A0A6A5PUS7
E	315	LYS	-	expression tag	UNP A0A6A5PUS7
F	231	GLY	ASN	conflict	UNP A0A6A5PUS7
F	232	GLY	PHE	conflict	UNP A0A6A5PUS7
F	233	SER	GLU	conflict	UNP A0A6A5PUS7
F	234	GLY	GLN	conflict	UNP A0A6A5PUS7
F	?	-	LEU	deletion	UNP A0A6A5PUS7
F	?	-	ARG	deletion	UNP A0A6A5PUS7
F	?	-	ASN	deletion	UNP A0A6A5PUS7
F	?	-	LEU	deletion	UNP A0A6A5PUS7
F	?	-	MET	deletion	UNP A0A6A5PUS7
F	?	-	LEU	deletion	UNP A0A6A5PUS7
F	?	-	ARG	deletion	UNP A0A6A5PUS7
F	236	SER	LYS	conflict	UNP A0A6A5PUS7
F	279	GLY	-	expression tag	UNP A0A6A5PUS7
F	280	ARG	-	expression tag	UNP A0A6A5PUS7
F	281	ARG	-	expression tag	UNP A0A6A5PUS7
F	282	ILE	-	expression tag	UNP A0A6A5PUS7
F	283	PRO	-	expression tag	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
F	284	GLY	-	expression tag	UNP A0A6A5PUS7
F	285	LEU	-	expression tag	UNP A0A6A5PUS7
F	286	ILE	-	expression tag	UNP A0A6A5PUS7
F	287	ASN	-	expression tag	UNP A0A6A5PUS7
F	288	GLY	-	expression tag	UNP A0A6A5PUS7
F	289	GLY	-	expression tag	UNP A0A6A5PUS7
F	290	GLY	-	expression tag	UNP A0A6A5PUS7
F	291	GLY	-	expression tag	UNP A0A6A5PUS7
F	292	GLY	-	expression tag	UNP A0A6A5PUS7
F	293	GLY	-	expression tag	UNP A0A6A5PUS7
F	294	ASP	-	expression tag	UNP A0A6A5PUS7
F	295	TYR	-	expression tag	UNP A0A6A5PUS7
F	296	LYS	-	expression tag	UNP A0A6A5PUS7
F	297	ASP	-	expression tag	UNP A0A6A5PUS7
F	298	HIS	-	expression tag	UNP A0A6A5PUS7
F	299	ASP	-	expression tag	UNP A0A6A5PUS7
F	300	GLY	-	expression tag	UNP A0A6A5PUS7
F	301	ASP	-	expression tag	UNP A0A6A5PUS7
F	302	TYR	-	expression tag	UNP A0A6A5PUS7
F	303	LYS	-	expression tag	UNP A0A6A5PUS7
F	304	ASP	-	expression tag	UNP A0A6A5PUS7
F	305	HIS	-	expression tag	UNP A0A6A5PUS7
F	306	ASP	-	expression tag	UNP A0A6A5PUS7
F	307	ILE	-	expression tag	UNP A0A6A5PUS7
F	308	ASP	-	expression tag	UNP A0A6A5PUS7
F	309	TYR	-	expression tag	UNP A0A6A5PUS7
F	310	LYS	-	expression tag	UNP A0A6A5PUS7
F	311	ASP	-	expression tag	UNP A0A6A5PUS7
F	312	ASP	-	expression tag	UNP A0A6A5PUS7
F	313	ASP	-	expression tag	UNP A0A6A5PUS7
F	314	ASP	-	expression tag	UNP A0A6A5PUS7
F	315	LYS	-	expression tag	UNP A0A6A5PUS7
G	231	GLY	ASN	conflict	UNP A0A6A5PUS7
G	232	GLY	PHE	conflict	UNP A0A6A5PUS7
G	233	SER	GLU	conflict	UNP A0A6A5PUS7
G	234	GLY	GLN	conflict	UNP A0A6A5PUS7
G	?	-	LEU	deletion	UNP A0A6A5PUS7
G	?	-	ARG	deletion	UNP A0A6A5PUS7
G	?	-	ASN	deletion	UNP A0A6A5PUS7
G	?	-	LEU	deletion	UNP A0A6A5PUS7
G	?	-	MET	deletion	UNP A0A6A5PUS7
G	?	-	LEU	deletion	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
G	?	-	ARG	deletion	UNP A0A6A5PUS7
G	236	SER	LYS	conflict	UNP A0A6A5PUS7
G	279	GLY	-	expression tag	UNP A0A6A5PUS7
G	280	ARG	-	expression tag	UNP A0A6A5PUS7
G	281	ARG	-	expression tag	UNP A0A6A5PUS7
G	282	ILE	-	expression tag	UNP A0A6A5PUS7
G	283	PRO	-	expression tag	UNP A0A6A5PUS7
G	284	GLY	-	expression tag	UNP A0A6A5PUS7
G	285	LEU	-	expression tag	UNP A0A6A5PUS7
G	286	ILE	-	expression tag	UNP A0A6A5PUS7
G	287	ASN	-	expression tag	UNP A0A6A5PUS7
G	288	GLY	-	expression tag	UNP A0A6A5PUS7
G	289	GLY	-	expression tag	UNP A0A6A5PUS7
G	290	GLY	-	expression tag	UNP A0A6A5PUS7
G	291	GLY	-	expression tag	UNP A0A6A5PUS7
G	292	GLY	-	expression tag	UNP A0A6A5PUS7
G	293	GLY	-	expression tag	UNP A0A6A5PUS7
G	294	ASP	-	expression tag	UNP A0A6A5PUS7
G	295	TYR	-	expression tag	UNP A0A6A5PUS7
G	296	LYS	-	expression tag	UNP A0A6A5PUS7
G	297	ASP	-	expression tag	UNP A0A6A5PUS7
G	298	HIS	-	expression tag	UNP A0A6A5PUS7
G	299	ASP	-	expression tag	UNP A0A6A5PUS7
G	300	GLY	-	expression tag	UNP A0A6A5PUS7
G	301	ASP	-	expression tag	UNP A0A6A5PUS7
G	302	TYR	-	expression tag	UNP A0A6A5PUS7
G	303	LYS	-	expression tag	UNP A0A6A5PUS7
G	304	ASP	-	expression tag	UNP A0A6A5PUS7
G	305	HIS	-	expression tag	UNP A0A6A5PUS7
G	306	ASP	-	expression tag	UNP A0A6A5PUS7
G	307	ILE	-	expression tag	UNP A0A6A5PUS7
G	308	ASP	-	expression tag	UNP A0A6A5PUS7
G	309	TYR	-	expression tag	UNP A0A6A5PUS7
G	310	LYS	-	expression tag	UNP A0A6A5PUS7
G	311	ASP	-	expression tag	UNP A0A6A5PUS7
G	312	ASP	-	expression tag	UNP A0A6A5PUS7
G	313	ASP	-	expression tag	UNP A0A6A5PUS7
G	314	ASP	-	expression tag	UNP A0A6A5PUS7
G	315	LYS	-	expression tag	UNP A0A6A5PUS7
H	231	GLY	ASN	conflict	UNP A0A6A5PUS7
H	232	GLY	PHE	conflict	UNP A0A6A5PUS7
H	233	SER	GLU	conflict	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
H	234	GLY	GLN	conflict	UNP A0A6A5PUS7
H	?	-	LEU	deletion	UNP A0A6A5PUS7
H	?	-	ARG	deletion	UNP A0A6A5PUS7
H	?	-	ASN	deletion	UNP A0A6A5PUS7
H	?	-	LEU	deletion	UNP A0A6A5PUS7
H	?	-	MET	deletion	UNP A0A6A5PUS7
H	?	-	LEU	deletion	UNP A0A6A5PUS7
H	?	-	ARG	deletion	UNP A0A6A5PUS7
H	236	SER	LYS	conflict	UNP A0A6A5PUS7
H	279	GLY	-	expression tag	UNP A0A6A5PUS7
H	280	ARG	-	expression tag	UNP A0A6A5PUS7
H	281	ARG	-	expression tag	UNP A0A6A5PUS7
H	282	ILE	-	expression tag	UNP A0A6A5PUS7
H	283	PRO	-	expression tag	UNP A0A6A5PUS7
H	284	GLY	-	expression tag	UNP A0A6A5PUS7
H	285	LEU	-	expression tag	UNP A0A6A5PUS7
H	286	ILE	-	expression tag	UNP A0A6A5PUS7
H	287	ASN	-	expression tag	UNP A0A6A5PUS7
H	288	GLY	-	expression tag	UNP A0A6A5PUS7
H	289	GLY	-	expression tag	UNP A0A6A5PUS7
H	290	GLY	-	expression tag	UNP A0A6A5PUS7
H	291	GLY	-	expression tag	UNP A0A6A5PUS7
H	292	GLY	-	expression tag	UNP A0A6A5PUS7
H	293	GLY	-	expression tag	UNP A0A6A5PUS7
H	294	ASP	-	expression tag	UNP A0A6A5PUS7
H	295	TYR	-	expression tag	UNP A0A6A5PUS7
H	296	LYS	-	expression tag	UNP A0A6A5PUS7
H	297	ASP	-	expression tag	UNP A0A6A5PUS7
H	298	HIS	-	expression tag	UNP A0A6A5PUS7
H	299	ASP	-	expression tag	UNP A0A6A5PUS7
H	300	GLY	-	expression tag	UNP A0A6A5PUS7
H	301	ASP	-	expression tag	UNP A0A6A5PUS7
H	302	TYR	-	expression tag	UNP A0A6A5PUS7
H	303	LYS	-	expression tag	UNP A0A6A5PUS7
H	304	ASP	-	expression tag	UNP A0A6A5PUS7
H	305	HIS	-	expression tag	UNP A0A6A5PUS7
H	306	ASP	-	expression tag	UNP A0A6A5PUS7
H	307	ILE	-	expression tag	UNP A0A6A5PUS7
H	308	ASP	-	expression tag	UNP A0A6A5PUS7
H	309	TYR	-	expression tag	UNP A0A6A5PUS7
H	310	LYS	-	expression tag	UNP A0A6A5PUS7
H	311	ASP	-	expression tag	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
H	312	ASP	-	expression tag	UNP A0A6A5PUS7
H	313	ASP	-	expression tag	UNP A0A6A5PUS7
H	314	ASP	-	expression tag	UNP A0A6A5PUS7
H	315	LYS	-	expression tag	UNP A0A6A5PUS7
I	231	GLY	ASN	conflict	UNP A0A6A5PUS7
I	232	GLY	PHE	conflict	UNP A0A6A5PUS7
I	233	SER	GLU	conflict	UNP A0A6A5PUS7
I	234	GLY	GLN	conflict	UNP A0A6A5PUS7
I	?	-	LEU	deletion	UNP A0A6A5PUS7
I	?	-	ARG	deletion	UNP A0A6A5PUS7
I	?	-	ASN	deletion	UNP A0A6A5PUS7
I	?	-	LEU	deletion	UNP A0A6A5PUS7
I	?	-	MET	deletion	UNP A0A6A5PUS7
I	?	-	LEU	deletion	UNP A0A6A5PUS7
I	?	-	ARG	deletion	UNP A0A6A5PUS7
I	236	SER	LYS	conflict	UNP A0A6A5PUS7
I	279	GLY	-	expression tag	UNP A0A6A5PUS7
I	280	ARG	-	expression tag	UNP A0A6A5PUS7
I	281	ARG	-	expression tag	UNP A0A6A5PUS7
I	282	ILE	-	expression tag	UNP A0A6A5PUS7
I	283	PRO	-	expression tag	UNP A0A6A5PUS7
I	284	GLY	-	expression tag	UNP A0A6A5PUS7
I	285	LEU	-	expression tag	UNP A0A6A5PUS7
I	286	ILE	-	expression tag	UNP A0A6A5PUS7
I	287	ASN	-	expression tag	UNP A0A6A5PUS7
I	288	GLY	-	expression tag	UNP A0A6A5PUS7
I	289	GLY	-	expression tag	UNP A0A6A5PUS7
I	290	GLY	-	expression tag	UNP A0A6A5PUS7
I	291	GLY	-	expression tag	UNP A0A6A5PUS7
I	292	GLY	-	expression tag	UNP A0A6A5PUS7
I	293	GLY	-	expression tag	UNP A0A6A5PUS7
I	294	ASP	-	expression tag	UNP A0A6A5PUS7
I	295	TYR	-	expression tag	UNP A0A6A5PUS7
I	296	LYS	-	expression tag	UNP A0A6A5PUS7
I	297	ASP	-	expression tag	UNP A0A6A5PUS7
I	298	HIS	-	expression tag	UNP A0A6A5PUS7
I	299	ASP	-	expression tag	UNP A0A6A5PUS7
I	300	GLY	-	expression tag	UNP A0A6A5PUS7
I	301	ASP	-	expression tag	UNP A0A6A5PUS7
I	302	TYR	-	expression tag	UNP A0A6A5PUS7
I	303	LYS	-	expression tag	UNP A0A6A5PUS7
I	304	ASP	-	expression tag	UNP A0A6A5PUS7

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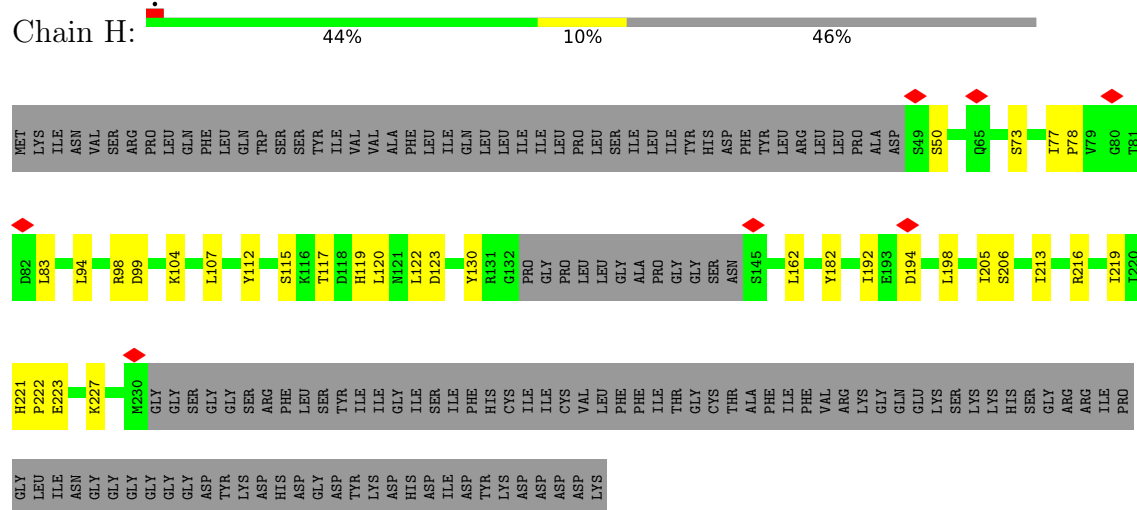
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Chain	Residue	Modelled	Actual	Comment	Reference
I	305	HIS	-	expression tag	UNP A0A6A5PUS7
I	306	ASP	-	expression tag	UNP A0A6A5PUS7
I	307	ILE	-	expression tag	UNP A0A6A5PUS7
I	308	ASP	-	expression tag	UNP A0A6A5PUS7
I	309	TYR	-	expression tag	UNP A0A6A5PUS7
I	310	LYS	-	expression tag	UNP A0A6A5PUS7
I	311	ASP	-	expression tag	UNP A0A6A5PUS7
I	312	ASP	-	expression tag	UNP A0A6A5PUS7
I	313	ASP	-	expression tag	UNP A0A6A5PUS7
I	314	ASP	-	expression tag	UNP A0A6A5PUS7
I	315	LYS	-	expression tag	UNP A0A6A5PUS7
J	231	GLY	ASN	conflict	UNP A0A6A5PUS7
J	232	GLY	PHE	conflict	UNP A0A6A5PUS7
J	233	SER	GLU	conflict	UNP A0A6A5PUS7
J	234	GLY	GLN	conflict	UNP A0A6A5PUS7
J	?	-	LEU	deletion	UNP A0A6A5PUS7
J	?	-	ARG	deletion	UNP A0A6A5PUS7
J	?	-	ASN	deletion	UNP A0A6A5PUS7
J	?	-	LEU	deletion	UNP A0A6A5PUS7
J	?	-	MET	deletion	UNP A0A6A5PUS7
J	?	-	LEU	deletion	UNP A0A6A5PUS7
J	?	-	ARG	deletion	UNP A0A6A5PUS7
J	236	SER	LYS	conflict	UNP A0A6A5PUS7
J	279	GLY	-	expression tag	UNP A0A6A5PUS7
J	280	ARG	-	expression tag	UNP A0A6A5PUS7
J	281	ARG	-	expression tag	UNP A0A6A5PUS7
J	282	ILE	-	expression tag	UNP A0A6A5PUS7
J	283	PRO	-	expression tag	UNP A0A6A5PUS7
J	284	GLY	-	expression tag	UNP A0A6A5PUS7
J	285	LEU	-	expression tag	UNP A0A6A5PUS7
J	286	ILE	-	expression tag	UNP A0A6A5PUS7
J	287	ASN	-	expression tag	UNP A0A6A5PUS7
J	288	GLY	-	expression tag	UNP A0A6A5PUS7
J	289	GLY	-	expression tag	UNP A0A6A5PUS7
J	290	GLY	-	expression tag	UNP A0A6A5PUS7
J	291	GLY	-	expression tag	UNP A0A6A5PUS7
J	292	GLY	-	expression tag	UNP A0A6A5PUS7
J	293	GLY	-	expression tag	UNP A0A6A5PUS7
J	294	ASP	-	expression tag	UNP A0A6A5PUS7
J	295	TYR	-	expression tag	UNP A0A6A5PUS7
J	296	LYS	-	expression tag	UNP A0A6A5PUS7
J	297	ASP	-	expression tag	UNP A0A6A5PUS7

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Chain	Residue	Modelled	Actual	Comment	Reference
J	298	HIS	-	expression tag	UNP A0A6A5PUS7
J	299	ASP	-	expression tag	UNP A0A6A5PUS7
J	300	GLY	-	expression tag	UNP A0A6A5PUS7
J	301	ASP	-	expression tag	UNP A0A6A5PUS7
J	302	TYR	-	expression tag	UNP A0A6A5PUS7
J	303	LYS	-	expression tag	UNP A0A6A5PUS7
J	304	ASP	-	expression tag	UNP A0A6A5PUS7
J	305	HIS	-	expression tag	UNP A0A6A5PUS7
J	306	ASP	-	expression tag	UNP A0A6A5PUS7
J	307	ILE	-	expression tag	UNP A0A6A5PUS7
J	308	ASP	-	expression tag	UNP A0A6A5PUS7
J	309	TYR	-	expression tag	UNP A0A6A5PUS7
J	310	LYS	-	expression tag	UNP A0A6A5PUS7
J	311	ASP	-	expression tag	UNP A0A6A5PUS7
J	312	ASP	-	expression tag	UNP A0A6A5PUS7
J	313	ASP	-	expression tag	UNP A0A6A5PUS7
J	314	ASP	-	expression tag	UNP A0A6A5PUS7
J	315	LYS	-	expression tag	UNP A0A6A5PUS7



Chain I:



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C10	Depositor
Number of particles used	260532	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 ($e^-/\text{\AA}^2$)	59.1	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.259	Depositor
Minimum map value	-0.136	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.035	Depositor
Map size (Å)	359.424, 359.424, 359.424	wwPDB
Map dimensions	432, 432, 432	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.832, 0.832, 0.832	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	0.13	0/1390	0.34	0/1881
1	B	0.13	0/1390	0.33	0/1881
1	C	0.13	0/1390	0.34	0/1881
1	D	0.13	0/1390	0.34	0/1881
1	E	0.13	0/1390	0.34	0/1881
1	F	0.13	0/1390	0.34	0/1881
1	G	0.13	0/1390	0.34	0/1881
1	H	0.13	0/1390	0.34	0/1881
1	I	0.13	0/1390	0.34	0/1881
1	J	0.13	0/1390	0.34	0/1881
All	All	0.13	0/13900	0.34	0/18810

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	1367	0	1368	25	0
1	B	1367	0	1368	24	0
1	C	1367	0	1368	22	0
1	D	1367	0	1368	23	0
1	E	1367	0	1368	22	0
1	F	1367	0	1368	23	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	G	1367	0	1368	22	0
1	H	1367	0	1368	22	0
1	I	1367	0	1368	37	0
1	J	1367	0	1368	37	0
All	All	13670	0	13680	231	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 8.

All (231) 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:I:182:TYR:OH	1:J:121:ASN:ND2	2.00	0.94
1:I:182:TYR:CD2	1:J:122:LEU:HD12	2.16	0.80
1:I:77:ILE:HD11	1:I:83:LEU:HD23	1.70	0.74
1:I:178:ARG:HD2	1:J:186:TRP:CZ2	2.23	0.73
1:J:77:ILE:HD11	1:J:83:LEU:HD23	1.70	0.73
1:H:77:ILE:HD11	1:H:83:LEU:HD23	1.70	0.72
1:D:77:ILE:HD11	1:D:83:LEU:HD23	1.70	0.72
1:C:77:ILE:HD11	1:C:83:LEU:HD23	1.70	0.72
1:E:77:ILE:HD11	1:E:83:LEU:HD23	1.70	0.72
1:F:77:ILE:HD11	1:F:83:LEU:HD23	1.70	0.72
1:G:77:ILE:HD11	1:G:83:LEU:HD23	1.70	0.72
1:A:77:ILE:HD11	1:A:83:LEU:HD23	1.70	0.71
1:B:77:ILE:HD11	1:B:83:LEU:HD23	1.70	0.71
1:I:114:GLN:NE2	1:J:120:LEU:HB3	2.10	0.67
1:D:78:PRO:O	1:D:98:ARG:NH1	2.31	0.64
1:G:78:PRO:O	1:G:98:ARG:NH1	2.31	0.64
1:F:78:PRO:O	1:F:98:ARG:NH1	2.31	0.64
1:I:78:PRO:O	1:I:98:ARG:NH1	2.31	0.64
1:B:78:PRO:O	1:B:98:ARG:NH1	2.31	0.64
1:J:78:PRO:O	1:J:98:ARG:NH1	2.31	0.64
1:H:78:PRO:O	1:H:98:ARG:NH1	2.31	0.64
1:C:78:PRO:O	1:C:98:ARG:NH1	2.31	0.63
1:C:120:LEU:HB2	1:C:216:ARG:HH22	1.64	0.63
1:E:78:PRO:O	1:E:98:ARG:NH1	2.31	0.63
1:B:120:LEU:HB2	1:B:216:ARG:HH22	1.64	0.63
1:A:120:LEU:HB2	1:A:216:ARG:HH22	1.64	0.63
1:H:120:LEU:HB2	1:H:216:ARG:HH22	1.64	0.63
1:F:120:LEU:HB2	1:F:216:ARG:HH22	1.64	0.63
1:A:78:PRO:O	1:A:98:ARG:NH1	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:120:LEU:HB2	1:D:216:ARG:HH22	1.64	0.62
1:I:120:LEU:HB2	1:I:216:ARG:HH22	1.64	0.62
1:I:114:GLN:HE22	1:J:120:LEU:HB3	1.65	0.62
1:J:120:LEU:HB2	1:J:216:ARG:HH22	1.64	0.62
1:G:120:LEU:HB2	1:G:216:ARG:HH22	1.64	0.62
1:E:120:LEU:HB2	1:E:216:ARG:HH22	1.64	0.62
1:I:219:ILE:HD11	1:J:213:ILE:HD11	1.83	0.61
1:J:107:LEU:HD23	1:J:192:ILE:HD13	1.84	0.60
1:A:178:ARG:NE	1:B:185:GLU:OE2	2.33	0.60
1:E:112:TYR:HB2	1:E:219:ILE:HB	1.84	0.60
1:F:112:TYR:HB2	1:F:219:ILE:HB	1.84	0.60
1:H:107:LEU:HD23	1:H:192:ILE:HD13	1.84	0.60
1:D:112:TYR:HB2	1:D:219:ILE:HB	1.84	0.59
1:G:107:LEU:HD23	1:G:192:ILE:HD13	1.84	0.59
1:I:107:LEU:HD23	1:I:192:ILE:HD13	1.84	0.59
1:J:112:TYR:HB2	1:J:219:ILE:HB	1.83	0.59
1:A:107:LEU:HD23	1:A:192:ILE:HD13	1.84	0.59
1:A:112:TYR:HB2	1:A:219:ILE:HB	1.83	0.59
1:I:112:TYR:HB2	1:I:219:ILE:HB	1.84	0.59
1:C:107:LEU:HD23	1:C:192:ILE:HD13	1.84	0.59
1:F:107:LEU:HD23	1:F:192:ILE:HD13	1.84	0.59
1:H:112:TYR:HB2	1:H:219:ILE:HB	1.83	0.59
1:G:112:TYR:HB2	1:G:219:ILE:HB	1.83	0.59
1:B:107:LEU:HD23	1:B:192:ILE:HD13	1.84	0.59
1:B:112:TYR:HB2	1:B:219:ILE:HB	1.83	0.59
1:C:112:TYR:HB2	1:C:219:ILE:HB	1.84	0.59
1:D:107:LEU:HD23	1:D:192:ILE:HD13	1.84	0.58
1:E:107:LEU:HD23	1:E:192:ILE:HD13	1.84	0.58
1:H:117:THR:O	1:H:119:HIS:ND1	2.38	0.57
1:D:117:THR:O	1:D:119:HIS:ND1	2.38	0.57
1:C:117:THR:O	1:C:119:HIS:ND1	2.38	0.57
1:I:117:THR:O	1:I:119:HIS:ND1	2.38	0.56
1:E:117:THR:O	1:E:119:HIS:ND1	2.38	0.56
1:A:117:THR:O	1:A:119:HIS:ND1	2.38	0.55
1:B:117:THR:O	1:B:119:HIS:ND1	2.38	0.55
1:I:114:GLN:NE2	1:J:120:LEU:HD22	2.21	0.55
1:F:117:THR:O	1:F:119:HIS:ND1	2.38	0.55
1:J:117:THR:O	1:J:119:HIS:ND1	2.38	0.55
1:B:115:SER:OG	1:B:216:ARG:NH1	2.41	0.54
1:A:115:SER:OG	1:A:216:ARG:NH1	2.41	0.54
1:C:115:SER:OG	1:C:216:ARG:NH1	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:115:SER:OG	1:J:216:ARG:NH1	2.41	0.54
1:G:117:THR:O	1:G:119:HIS:ND1	2.38	0.53
1:I:182:TYR:HD2	1:J:122:LEU:HD12	1.69	0.53
1:I:115:SER:OG	1:I:216:ARG:NH1	2.41	0.53
1:A:178:ARG:HG3	1:B:185:GLU:HG3	1.90	0.53
1:F:115:SER:OG	1:F:216:ARG:NH1	2.41	0.53
1:H:115:SER:OG	1:H:216:ARG:NH1	2.41	0.53
1:E:115:SER:OG	1:E:216:ARG:NH1	2.41	0.53
1:D:115:SER:OG	1:D:216:ARG:NH1	2.41	0.52
1:B:123:ASP:HA	1:B:213:ILE:HD12	1.92	0.52
1:C:123:ASP:HA	1:C:213:ILE:HD12	1.92	0.52
1:G:115:SER:OG	1:G:216:ARG:NH1	2.41	0.52
1:J:123:ASP:HA	1:J:213:ILE:HD12	1.92	0.51
1:D:123:ASP:HA	1:D:213:ILE:HD12	1.92	0.51
1:G:123:ASP:HA	1:G:213:ILE:HD12	1.92	0.51
1:H:123:ASP:HA	1:H:213:ILE:HD12	1.92	0.51
1:C:182:TYR:CD2	1:D:122:LEU:HD12	2.46	0.51
1:A:123:ASP:HA	1:A:213:ILE:HD12	1.92	0.51
1:I:123:ASP:HA	1:I:213:ILE:HD12	1.92	0.51
1:F:123:ASP:HA	1:F:213:ILE:HD12	1.92	0.50
1:E:123:ASP:HA	1:E:213:ILE:HD12	1.92	0.50
1:I:178:ARG:HD2	1:J:186:TRP:CH2	2.47	0.49
1:I:50:SER:HB3	1:I:227:LYS:HD2	1.95	0.48
1:A:219:ILE:HD13	1:B:122:LEU:HD22	1.95	0.48
1:A:122:LEU:HD12	1:J:182:TYR:CD2	2.47	0.48
1:J:50:SER:HB3	1:J:227:LYS:HD2	1.96	0.48
1:I:114:GLN:HE21	1:J:120:LEU:HD22	1.78	0.48
1:I:120:LEU:HB2	1:I:216:ARG:NH2	2.29	0.48
1:G:130:TYR:HB2	1:G:206:SER:HB2	1.96	0.48
1:H:120:LEU:HB2	1:H:216:ARG:NH2	2.29	0.48
1:C:120:LEU:HB2	1:C:216:ARG:NH2	2.29	0.48
1:F:130:TYR:HB2	1:F:206:SER:HB2	1.96	0.48
1:A:50:SER:HB3	1:A:227:LYS:HD2	1.96	0.47
1:D:120:LEU:HB2	1:D:216:ARG:NH2	2.29	0.47
1:H:50:SER:HB3	1:H:227:LYS:HD2	1.96	0.47
1:H:130:TYR:HB2	1:H:206:SER:HB2	1.96	0.47
1:B:120:LEU:HB2	1:B:216:ARG:NH2	2.29	0.47
1:E:120:LEU:HB2	1:E:216:ARG:NH2	2.29	0.47
1:A:91:LEU:HD21	1:B:149:LYS:HD2	1.95	0.47
1:C:50:SER:HB3	1:C:227:LYS:HD2	1.96	0.47
1:D:50:SER:HB3	1:D:227:LYS:HD2	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:50:SER:HB3	1:F:227:LYS:HD2	1.95	0.47
1:F:120:LEU:HB2	1:F:216:ARG:NH2	2.29	0.47
1:I:130:TYR:HB2	1:I:206:SER:HB2	1.96	0.47
1:E:50:SER:HB3	1:E:227:LYS:HD2	1.96	0.47
1:B:50:SER:HB3	1:B:227:LYS:HD2	1.96	0.47
1:E:130:TYR:HB2	1:E:206:SER:HB2	1.96	0.47
1:G:50:SER:HB3	1:G:227:LYS:HD2	1.95	0.47
1:G:120:LEU:HB2	1:G:216:ARG:NH2	2.29	0.47
1:J:130:TYR:HB2	1:J:206:SER:HB2	1.96	0.47
1:B:130:TYR:HB2	1:B:206:SER:HB2	1.96	0.47
1:A:120:LEU:HB2	1:A:216:ARG:NH2	2.29	0.46
1:A:130:TYR:HB2	1:A:206:SER:HB2	1.96	0.46
1:D:130:TYR:HB2	1:D:206:SER:HB2	1.96	0.46
1:C:83:LEU:HG	1:C:98:ARG:NH2	2.31	0.46
1:C:130:TYR:HB2	1:C:206:SER:HB2	1.96	0.46
1:G:83:LEU:HG	1:G:98:ARG:NH2	2.31	0.46
1:D:83:LEU:HG	1:D:98:ARG:NH2	2.31	0.46
1:I:83:LEU:HG	1:I:98:ARG:NH2	2.31	0.46
1:B:83:LEU:HG	1:B:98:ARG:NH2	2.31	0.46
1:J:83:LEU:HG	1:J:98:ARG:NH2	2.31	0.46
1:E:83:LEU:HG	1:E:98:ARG:NH2	2.31	0.46
1:J:98:ARG:HA	1:J:98:ARG:HD3	1.71	0.46
1:H:83:LEU:HG	1:H:98:ARG:NH2	2.31	0.46
1:A:83:LEU:HG	1:A:98:ARG:NH2	2.31	0.46
1:F:83:LEU:HG	1:F:98:ARG:NH2	2.31	0.45
1:D:98:ARG:HA	1:D:98:ARG:HD3	1.71	0.45
1:C:73:SER:HB2	1:C:94:LEU:HD22	1.99	0.45
1:C:98:ARG:HA	1:C:98:ARG:HD3	1.71	0.45
1:D:73:SER:HB2	1:D:94:LEU:HD22	1.99	0.45
1:F:182:TYR:CD2	1:G:122:LEU:HD12	2.52	0.45
1:G:182:TYR:CD2	1:H:122:LEU:HD12	2.52	0.45
1:J:120:LEU:HB2	1:J:216:ARG:NH2	2.29	0.45
1:D:182:TYR:CD2	1:E:122:LEU:HD12	2.52	0.45
1:E:182:TYR:CD2	1:F:122:LEU:HD12	2.52	0.45
1:F:221:HIS:CE1	1:F:223:GLU:HG2	2.52	0.45
1:E:221:HIS:CE1	1:E:223:GLU:HG2	2.52	0.44
1:G:221:HIS:CE1	1:G:223:GLU:HG2	2.53	0.44
1:A:73:SER:HB2	1:A:94:LEU:HD22	1.99	0.44
1:B:221:HIS:CE1	1:B:223:GLU:HG2	2.53	0.44
1:D:221:HIS:CE1	1:D:223:GLU:HG2	2.52	0.44
1:H:182:TYR:CD2	1:I:122:LEU:HD12	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:73:SER:HB2	1:B:94:LEU:HD22	1.99	0.44
1:I:176:PRO:O	1:J:185:GLU:HG3	2.17	0.44
1:C:221:HIS:CE1	1:C:223:GLU:HG2	2.52	0.44
1:H:221:HIS:CE1	1:H:223:GLU:HG2	2.53	0.44
1:J:73:SER:HB2	1:J:94:LEU:HD22	1.99	0.44
1:A:98:ARG:HA	1:A:98:ARG:HD3	1.71	0.44
1:I:73:SER:HB2	1:I:94:LEU:HD22	1.99	0.44
1:E:73:SER:HB2	1:E:94:LEU:HD22	1.99	0.44
1:I:221:HIS:CE1	1:I:223:GLU:HG2	2.52	0.44
1:H:73:SER:HB2	1:H:94:LEU:HD22	1.99	0.43
1:G:73:SER:HB2	1:G:94:LEU:HD22	1.99	0.43
1:E:198:LEU:HD22	1:E:205:ILE:HD13	2.01	0.43
1:G:104:LYS:HE2	1:G:194:ASP:OD1	2.19	0.43
1:A:221:HIS:CE1	1:A:223:GLU:HG2	2.52	0.43
1:E:104:LYS:HE2	1:E:194:ASP:OD1	2.19	0.43
1:J:221:HIS:CE1	1:J:223:GLU:HG2	2.52	0.43
1:F:73:SER:HB2	1:F:94:LEU:HD22	1.99	0.43
1:C:104:LYS:HE2	1:C:194:ASP:OD1	2.19	0.43
1:I:168:PRO:HB3	1:J:167:SER:CB	2.49	0.43
1:J:198:LEU:HD22	1:J:205:ILE:HD13	2.01	0.43
1:C:119:HIS:NE2	1:C:162:LEU:HD13	2.34	0.43
1:D:198:LEU:HD22	1:D:205:ILE:HD13	2.01	0.43
1:J:104:LYS:HE2	1:J:194:ASP:OD1	2.19	0.43
1:A:119:HIS:NE2	1:A:162:LEU:HD13	2.34	0.43
1:F:119:HIS:NE2	1:F:162:LEU:HD13	2.34	0.43
1:I:104:LYS:HE2	1:I:194:ASP:OD1	2.19	0.43
1:B:119:HIS:NE2	1:B:162:LEU:HD13	2.34	0.43
1:H:119:HIS:NE2	1:H:162:LEU:HD13	2.34	0.43
1:B:104:LYS:HE2	1:B:194:ASP:OD1	2.19	0.42
1:D:119:HIS:NE2	1:D:162:LEU:HD13	2.34	0.42
1:A:198:LEU:HD22	1:A:205:ILE:HD13	2.01	0.42
1:F:198:LEU:HD22	1:F:205:ILE:HD13	2.01	0.42
1:I:104:LYS:HE3	1:I:104:LYS:HB3	1.85	0.42
1:B:78:PRO:HA	1:B:99:ASP:HB2	2.01	0.42
1:I:119:HIS:NE2	1:I:162:LEU:HD13	2.34	0.42
1:D:104:LYS:HE2	1:D:194:ASP:OD1	2.19	0.42
1:F:98:ARG:HD3	1:F:98:ARG:HA	1.71	0.42
1:I:198:LEU:HD22	1:I:205:ILE:HD13	2.01	0.42
1:A:104:LYS:HE2	1:A:194:ASP:OD1	2.19	0.42
1:C:78:PRO:HA	1:C:99:ASP:HB2	2.01	0.42
1:F:78:PRO:HA	1:F:99:ASP:HB2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:179:LEU:HD13	1:J:158:VAL:HG13	2.02	0.42
1:J:119:HIS:NE2	1:J:162:LEU:HD13	2.34	0.42
1:E:78:PRO:HA	1:E:99:ASP:HB2	2.01	0.42
1:G:119:HIS:NE2	1:G:162:LEU:HD13	2.34	0.42
1:E:119:HIS:NE2	1:E:162:LEU:HD13	2.34	0.42
1:F:221:HIS:CG	1:F:222:PRO:HD2	2.55	0.42
1:H:221:HIS:CG	1:H:222:PRO:HD2	2.55	0.42
1:I:178:ARG:CD	1:J:186:TRP:CZ2	2.98	0.42
1:J:78:PRO:HA	1:J:99:ASP:HB2	2.01	0.42
1:J:221:HIS:CG	1:J:222:PRO:HD2	2.55	0.42
1:F:104:LYS:HE2	1:F:194:ASP:OD1	2.19	0.42
1:H:98:ARG:HD3	1:H:98:ARG:HA	1.71	0.42
1:H:104:LYS:HE2	1:H:194:ASP:OD1	2.19	0.42
1:H:198:LEU:HD22	1:H:205:ILE:HD13	2.01	0.42
1:B:198:LEU:HD22	1:B:205:ILE:HD13	2.01	0.41
1:C:198:LEU:HD22	1:C:205:ILE:HD13	2.01	0.41
1:F:54:PRO:HG2	1:F:57:THR:HG23	2.03	0.41
1:H:78:PRO:HA	1:H:99:ASP:HB2	2.01	0.41
1:A:78:PRO:HA	1:A:99:ASP:HB2	2.01	0.41
1:B:221:HIS:CG	1:B:222:PRO:HD2	2.55	0.41
1:G:78:PRO:HA	1:G:99:ASP:HB2	2.01	0.41
1:I:221:HIS:CG	1:I:222:PRO:HD2	2.55	0.41
1:A:221:HIS:CG	1:A:222:PRO:HD2	2.55	0.41
1:B:182:TYR:CD2	1:C:122:LEU:HD12	2.55	0.41
1:I:78:PRO:HA	1:I:99:ASP:HB2	2.01	0.41
1:G:54:PRO:HG2	1:G:57:THR:HG23	2.03	0.41
1:G:198:LEU:HD22	1:G:205:ILE:HD13	2.01	0.41
1:G:221:HIS:CG	1:G:222:PRO:HD2	2.55	0.41
1:I:98:ARG:HA	1:I:98:ARG:HD3	1.71	0.41
1:D:78:PRO:HA	1:D:99:ASP:HB2	2.01	0.41
1:D:221:HIS:CG	1:D:222:PRO:HD2	2.55	0.41
1:E:221:HIS:CG	1:E:222:PRO:HD2	2.55	0.41
1:E:54:PRO:HG2	1:E:57:THR:HG23	2.03	0.41
1:I:54:PRO:HG2	1:I:57:THR:HG23	2.03	0.41
1:J:54:PRO:HG2	1:J:57:THR:HG23	2.03	0.41
1:J:104:LYS:HE3	1:J:104:LYS:HB3	1.85	0.41
1:D:54:PRO:HG2	1:D:57:THR:HG23	2.03	0.40
1:C:221:HIS:CG	1:C:222:PRO:HD2	2.55	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	166/315 (53%)	162 (98%)	4 (2%)	0	100	100
1	B	166/315 (53%)	162 (98%)	4 (2%)	0	100	100
1	C	166/315 (53%)	162 (98%)	4 (2%)	0	100	100
1	D	166/315 (53%)	162 (98%)	4 (2%)	0	100	100
1	E	166/315 (53%)	162 (98%)	4 (2%)	0	100	100
1	F	166/315 (53%)	162 (98%)	4 (2%)	0	100	100
1	G	166/315 (53%)	162 (98%)	4 (2%)	0	100	100
1	H	166/315 (53%)	162 (98%)	4 (2%)	0	100	100
1	I	166/315 (53%)	162 (98%)	4 (2%)	0	100	100
1	J	166/315 (53%)	162 (98%)	4 (2%)	0	100	100
All	All	1660/3150 (53%)	1620 (98%)	40 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	161/282 (57%)	161 (100%)	0	100	100
1	B	161/282 (57%)	161 (100%)	0	100	100
1	C	161/282 (57%)	161 (100%)	0	100	100
1	D	161/282 (57%)	161 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	E	161/282 (57%)	161 (100%)	0	100	100
1	F	161/282 (57%)	161 (100%)	0	100	100
1	G	161/282 (57%)	161 (100%)	0	100	100
1	H	161/282 (57%)	161 (100%)	0	100	100
1	I	161/282 (57%)	161 (100%)	0	100	100
1	J	161/282 (57%)	161 (100%)	0	100	100
All	All	1610/2820 (57%)	1610 (100%)	0	100	100

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

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	221	HIS
1	B	173	GLN
1	B	221	HIS
1	C	221	HIS
1	D	173	GLN
1	F	221	HIS
1	I	114	GLN
1	I	221	HIS
1	J	114	GLN
1	J	121	ASN
1	J	221	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry [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.

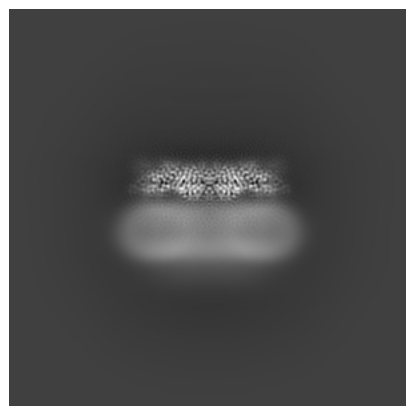
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13104. 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](#)

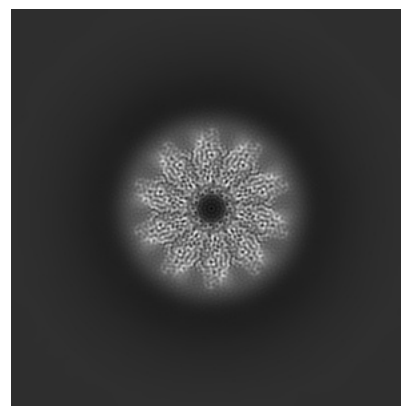
6.1.1 Primary map



X

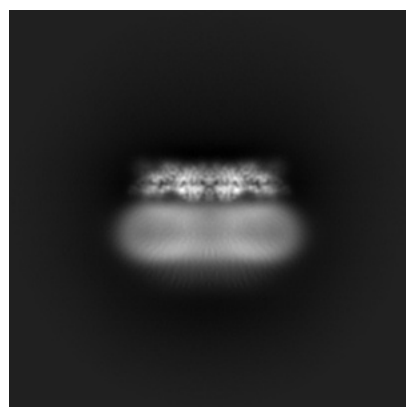


Y

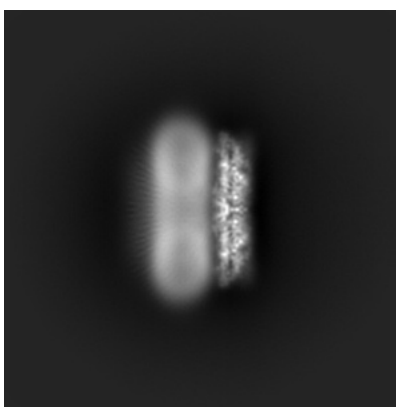


Z

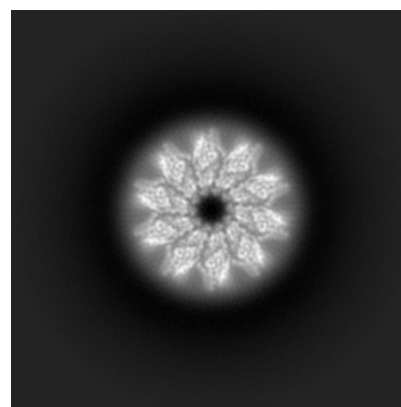
6.1.2 Raw map



X



Y

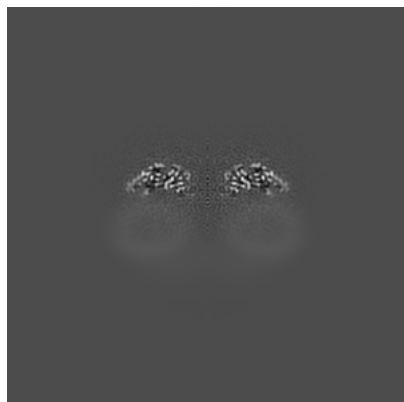


Z

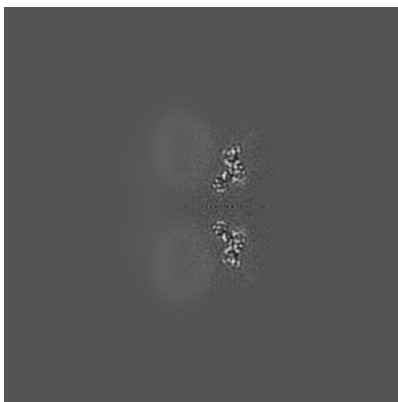
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

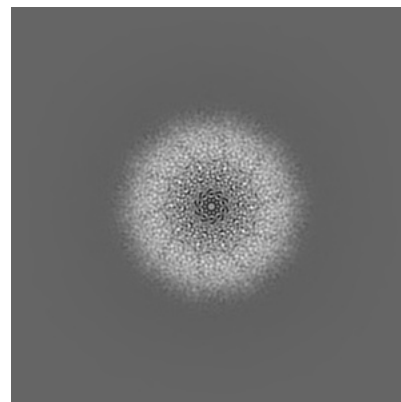
6.2.1 Primary map



X Index: 216

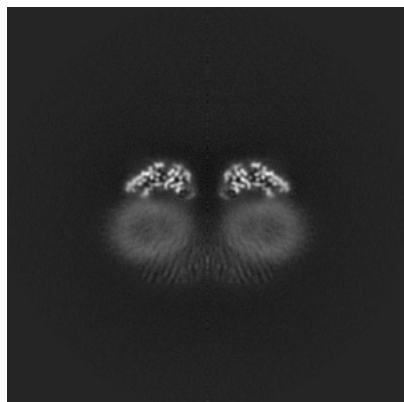


Y Index: 216

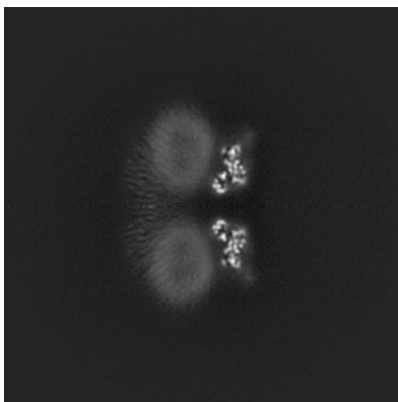


Z Index: 216

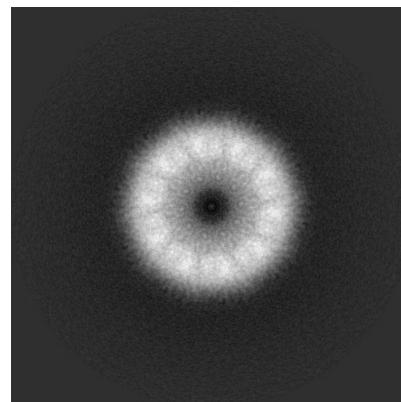
6.2.2 Raw map



X Index: 216



Y Index: 216

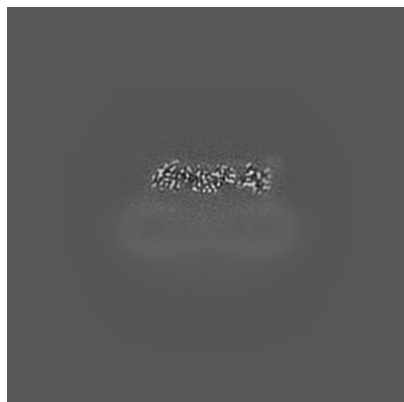


Z Index: 216

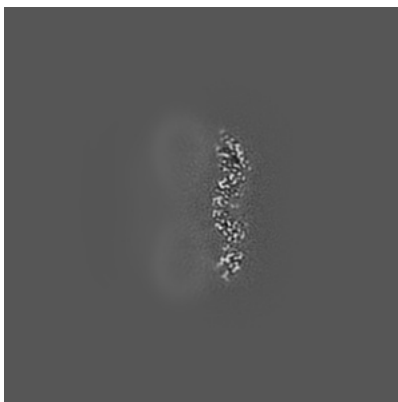
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

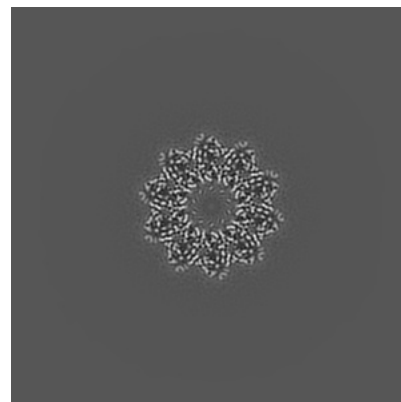
6.3.1 Primary map



X Index: 248

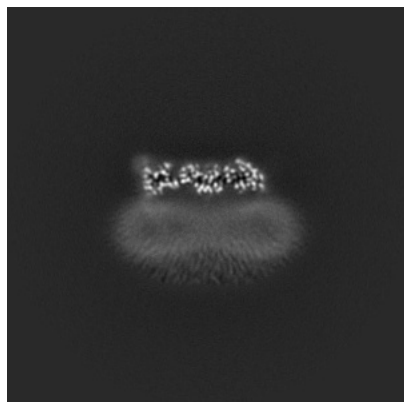


Y Index: 237

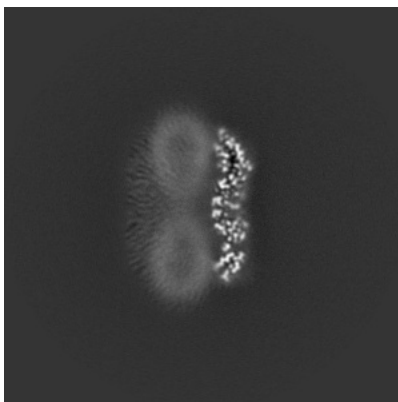


Z Index: 248

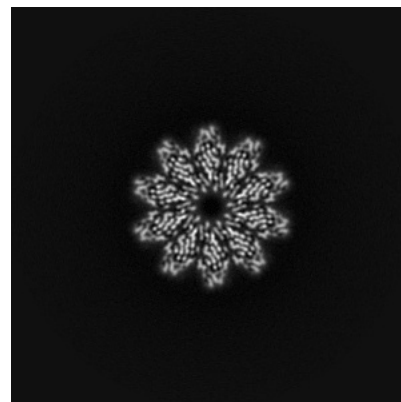
6.3.2 Raw map



X Index: 184



Y Index: 237



Z Index: 239

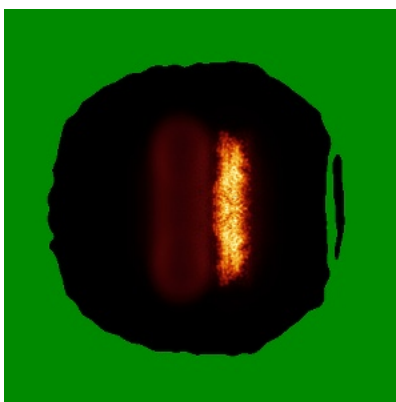
The images above show the largest variance slices of the map in three orthogonal directions.

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

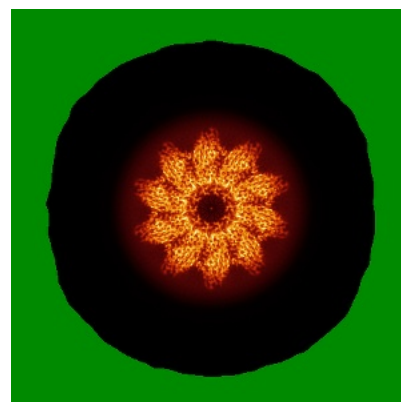
6.4.1 Primary map



X

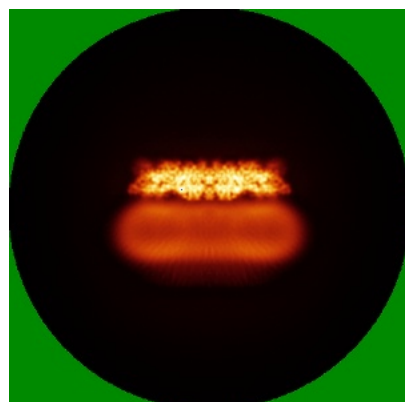


Y

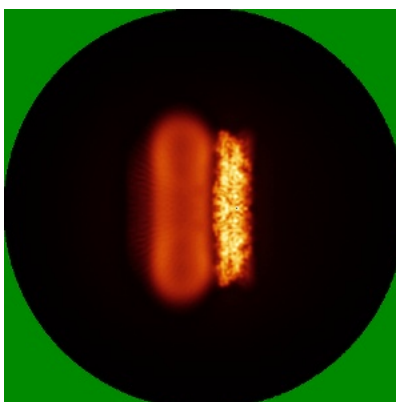


Z

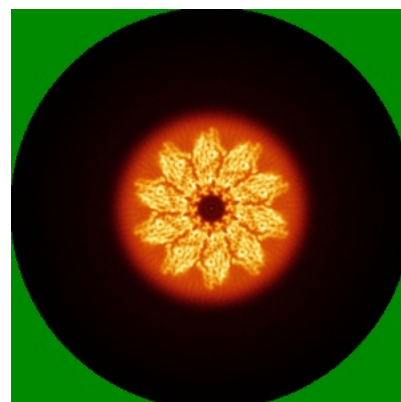
6.4.2 Raw map



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](#)

This section was not generated.

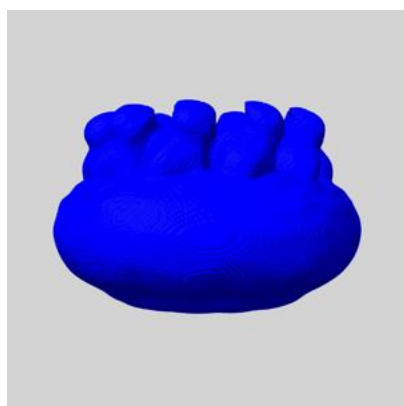
6.6 Mask visualisation [i](#)

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

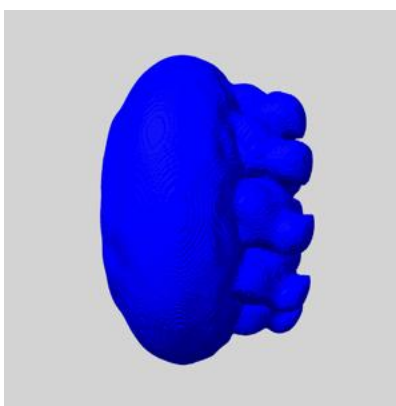
A mask typically either:

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

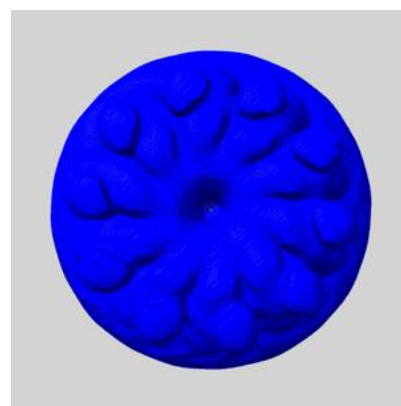
6.6.1 emd_13104_msk_1.map [i](#)



X



Y

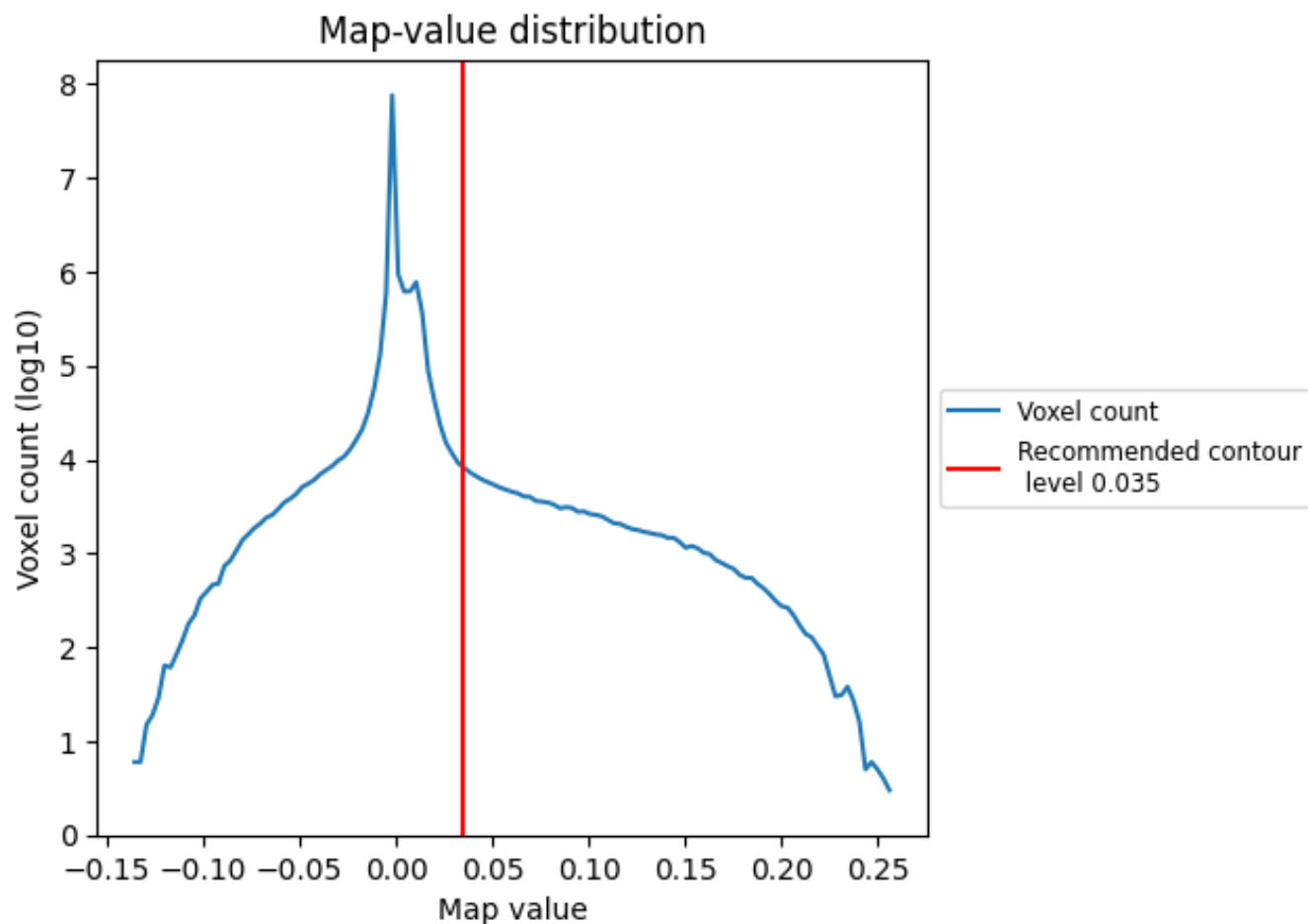


Z

7 Map analysis [i](#)

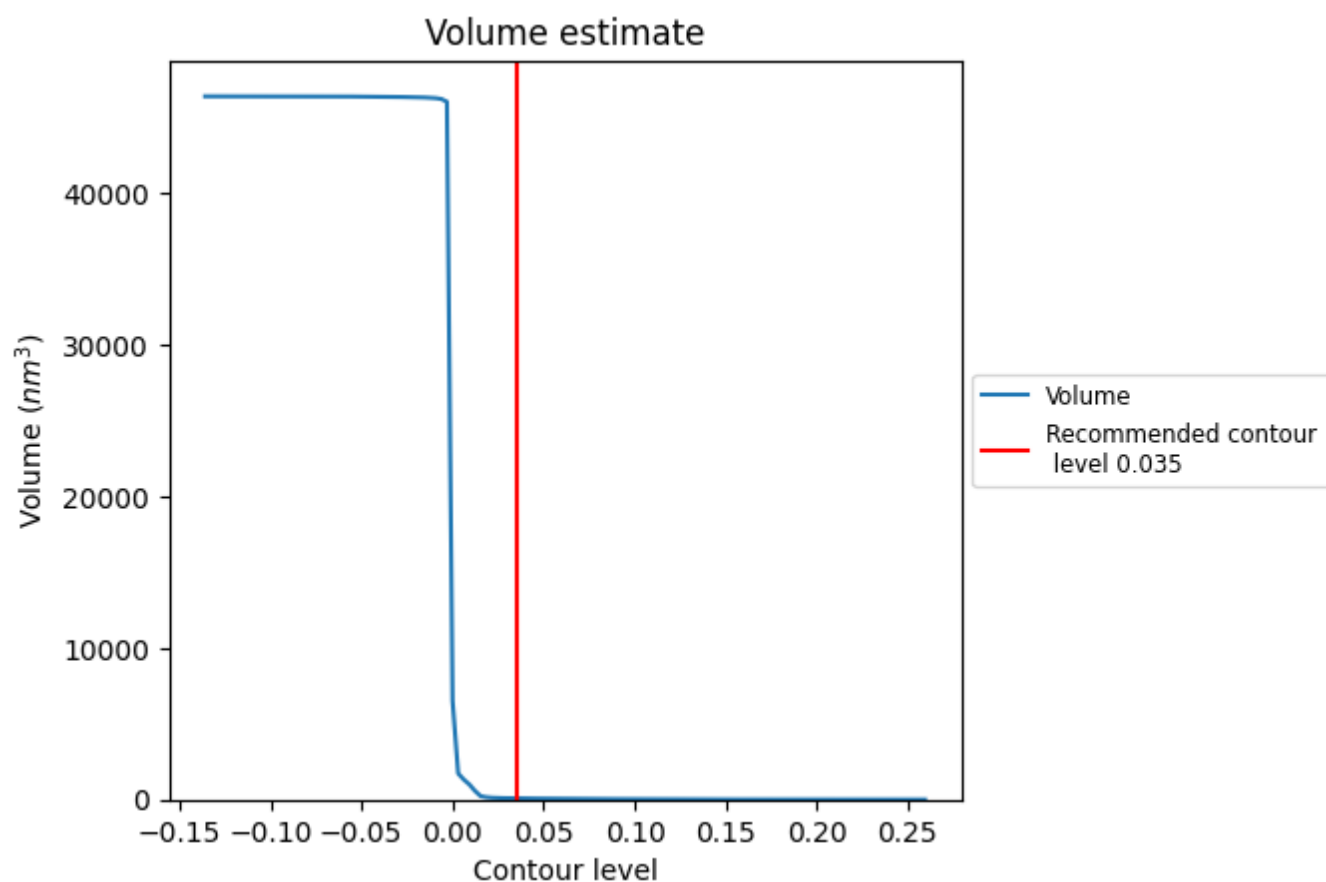
This section contains the results of statistical analysis of the map.

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.

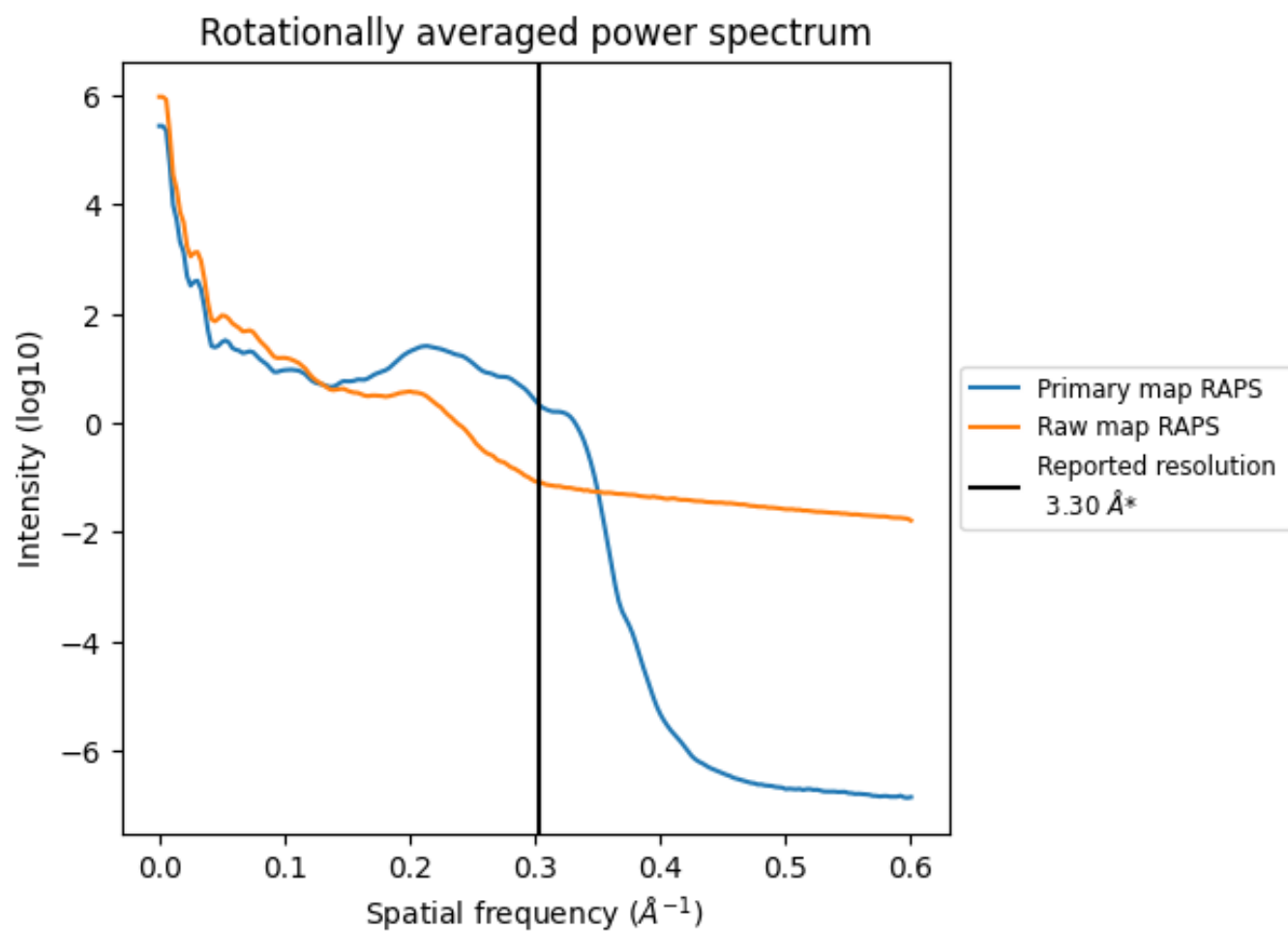
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 80 nm^3 ; this corresponds to an approximate mass of 73 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

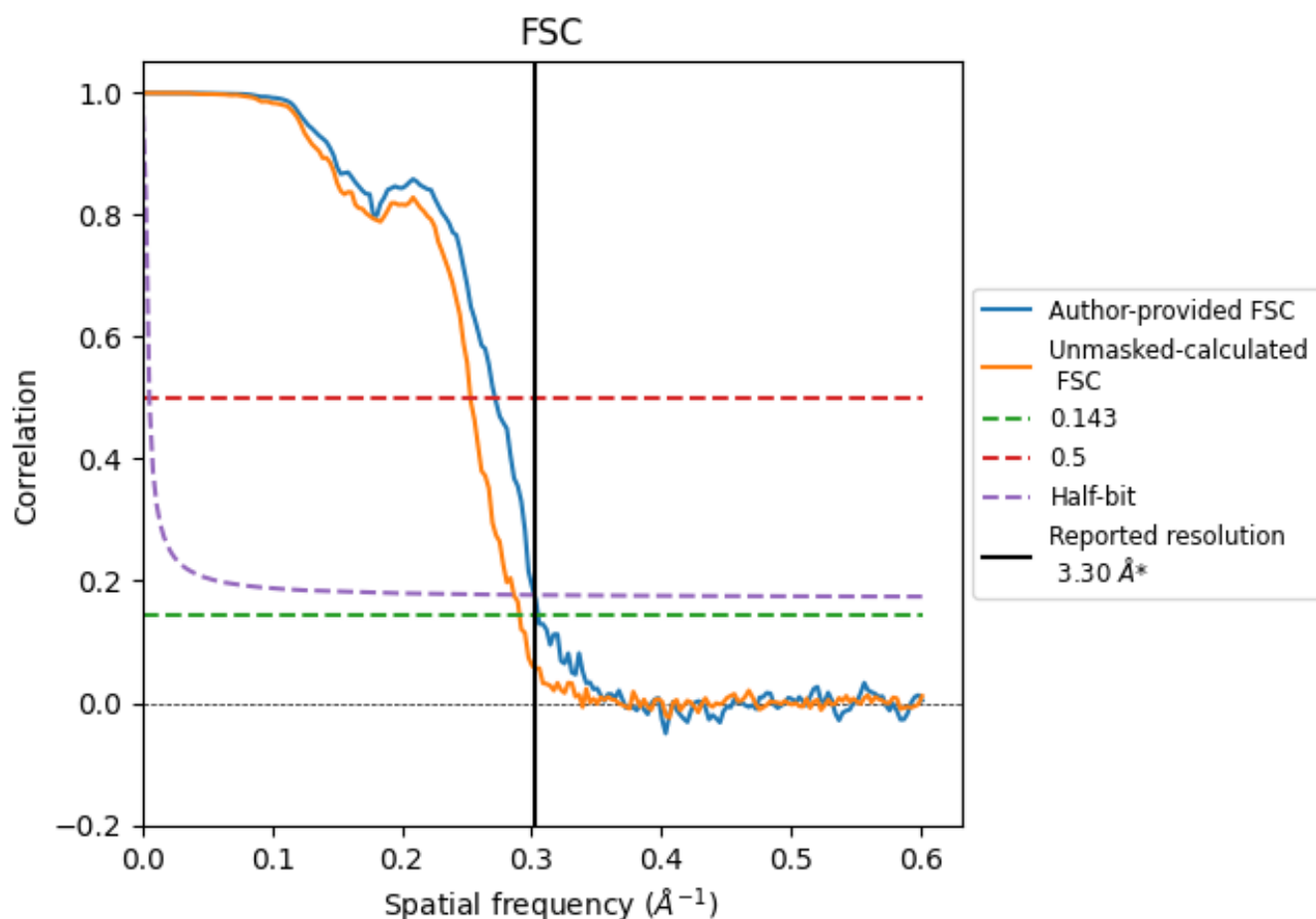


*Reported resolution corresponds to spatial frequency of $0.303 \text{ \AA}^{-1}$

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 0.303 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

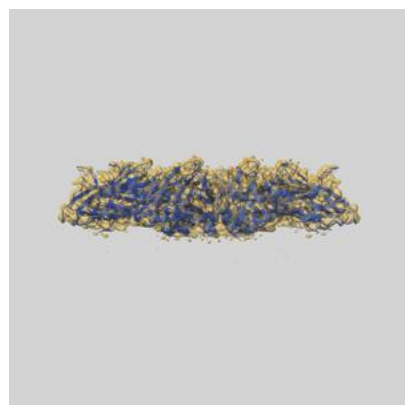
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.30	-	-
Author-provided FSC curve	3.28	3.68	3.31
Unmasked-calculated*	3.44	3.95	3.49

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

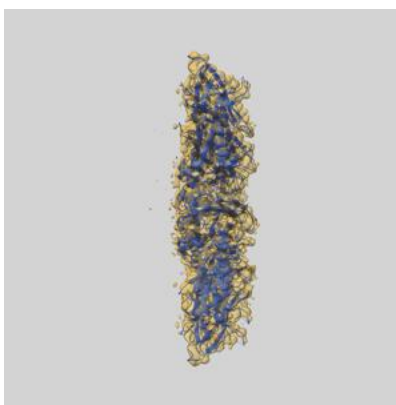
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-13104 and PDB model 7OXR. Per-residue inclusion information can be found in section [3](#) on page [17](#).

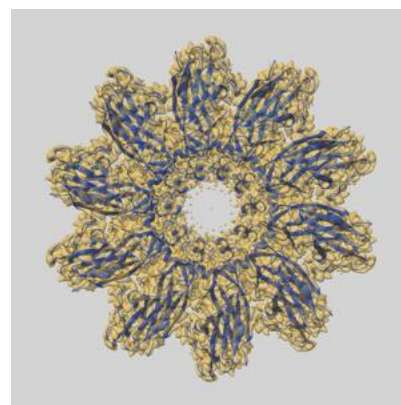
9.1 Map-model overlay [i](#)



X



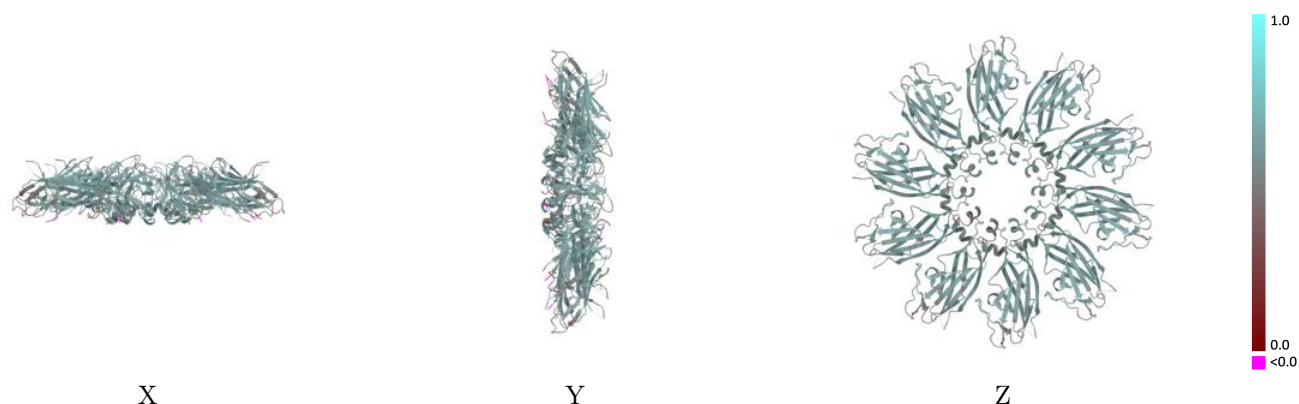
Y



Z

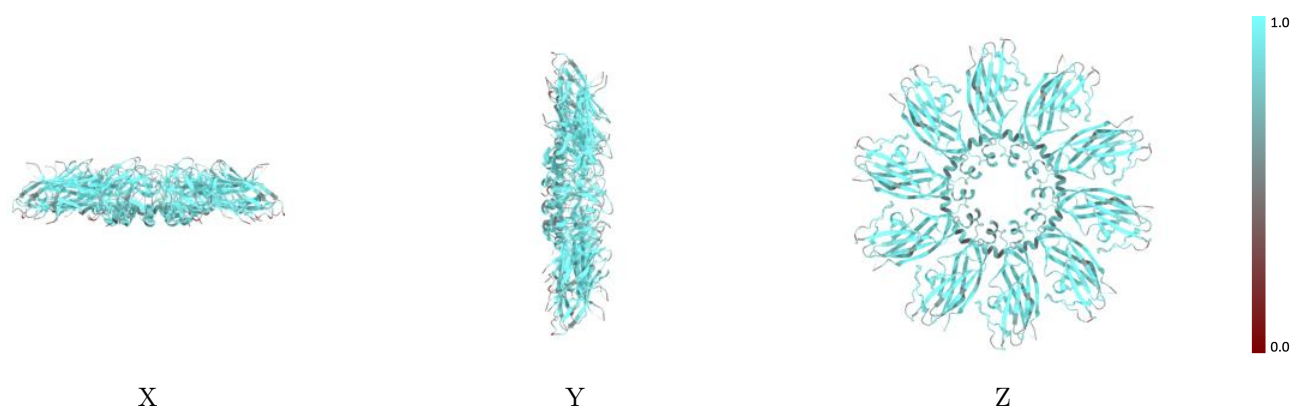
The images above show the 3D surface view of the map at the recommended contour level 0.035 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



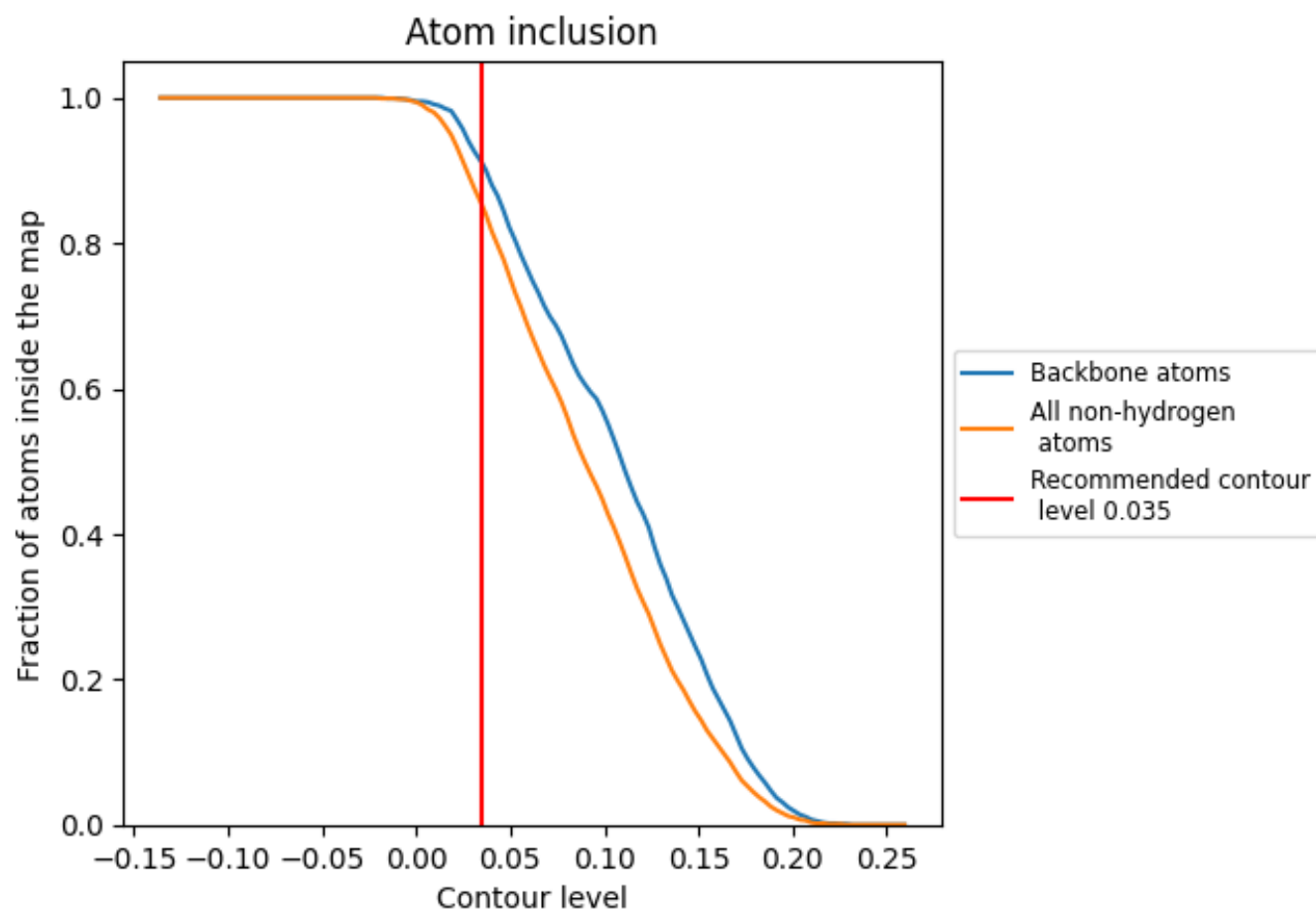
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.035).

9.4 Atom inclusion [i](#)



At the recommended contour level, 91% 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 (0.035) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8520	0.5610
A	0.8320	0.5410
B	0.8550	0.5660
C	0.8570	0.5630
D	0.8600	0.5660
E	0.8560	0.5650
F	0.8600	0.5670
G	0.8540	0.5650
H	0.8580	0.5660
I	0.8580	0.5650
J	0.8300	0.5410

1.0

0.0

<0.0