



wwPDB EM Validation Summary Report ⓘ

Jul 13, 2026 – 03:23 pm BST

PDB ID : 9SRW / pdb_00009srw
EMDB ID : EMD-55160
Title : Cryo-EM structure of the Mlc tetramer in complex with the anti-repressor MtfA
Authors : Roth, P.; Fotiadis, D.
Deposited on : 2025-09-25
Resolution : 2.30 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

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:

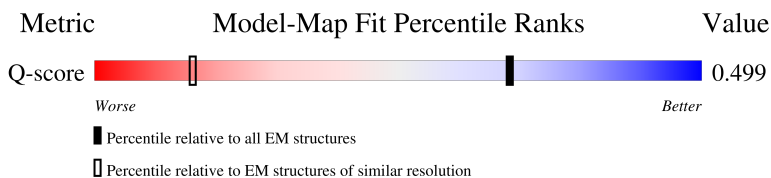
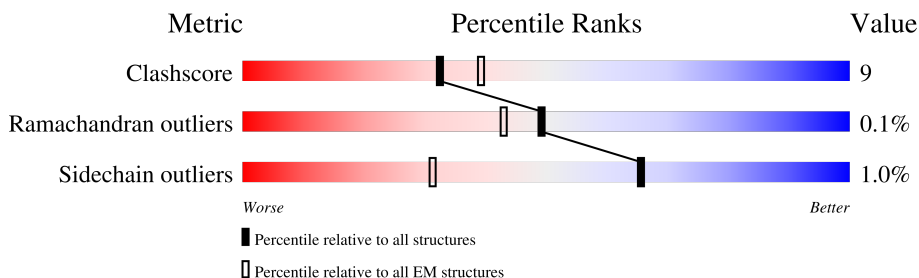
EMDB validation analysis : 0.0.1.dev133
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDb archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.50

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 2.30 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.



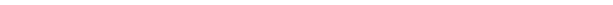
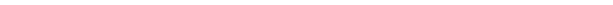
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	4254 (1.80 - 2.80)

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	E	287	60% 14% 26%
1	F	287	60% 14% 26%
2	A	455	74% 11% 15%
2	B	455	72% 12% 15%

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Mol	Chain	Length	Quality of chain
2	C	455	
2	D	455	

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 30838 atoms, of which 15488 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 Mlc titration factor A.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	E	213	Total	C	H	N	O	S	0	0
			3376	1110	1664	283	313	6		
1	F	213	Total	C	H	N	O	S	0	0
			3376	1110	1664	283	313	6		

There are 44 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	266	LEU	-	expression tag	UNP P76346
E	267	GLU	-	expression tag	UNP P76346
E	268	LEU	-	expression tag	UNP P76346
E	269	GLU	-	expression tag	UNP P76346
E	270	VAL	-	expression tag	UNP P76346
E	271	LEU	-	expression tag	UNP P76346
E	272	PHE	-	expression tag	UNP P76346
E	273	GLN	-	expression tag	UNP P76346
E	274	GLY	-	expression tag	UNP P76346
E	275	PRO	-	expression tag	UNP P76346
E	276	VAL	-	expression tag	UNP P76346
E	277	ASP	-	expression tag	UNP P76346
E	278	HIS	-	expression tag	UNP P76346
E	279	HIS	-	expression tag	UNP P76346
E	280	HIS	-	expression tag	UNP P76346
E	281	HIS	-	expression tag	UNP P76346
E	282	HIS	-	expression tag	UNP P76346
E	283	HIS	-	expression tag	UNP P76346
E	284	HIS	-	expression tag	UNP P76346
E	285	HIS	-	expression tag	UNP P76346
E	286	HIS	-	expression tag	UNP P76346
E	287	HIS	-	expression tag	UNP P76346
F	266	LEU	-	expression tag	UNP P76346
F	267	GLU	-	expression tag	UNP P76346
F	268	LEU	-	expression tag	UNP P76346
F	269	GLU	-	expression tag	UNP P76346

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Chain	Residue	Modelled	Actual	Comment	Reference
F	270	VAL	-	expression tag	UNP P76346
F	271	LEU	-	expression tag	UNP P76346
F	272	PHE	-	expression tag	UNP P76346
F	273	GLN	-	expression tag	UNP P76346
F	274	GLY	-	expression tag	UNP P76346
F	275	PRO	-	expression tag	UNP P76346
F	276	VAL	-	expression tag	UNP P76346
F	277	ASP	-	expression tag	UNP P76346
F	278	HIS	-	expression tag	UNP P76346
F	279	HIS	-	expression tag	UNP P76346
F	280	HIS	-	expression tag	UNP P76346
F	281	HIS	-	expression tag	UNP P76346
F	282	HIS	-	expression tag	UNP P76346
F	283	HIS	-	expression tag	UNP P76346
F	284	HIS	-	expression tag	UNP P76346
F	285	HIS	-	expression tag	UNP P76346
F	286	HIS	-	expression tag	UNP P76346
F	287	HIS	-	expression tag	UNP P76346

- Molecule 2 is a protein called DNA-binding transcriptional repressor Mlc.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	A	388	Total	C	H	N	O	S	0	0
			6017	1884	3038	523	559	13		
2	B	388	Total	C	H	N	O	S	0	0
			6023	1886	3042	523	559	13		
2	C	388	Total	C	H	N	O	S	0	0
			6017	1884	3038	523	559	13		
2	D	388	Total	C	H	N	O	S	0	0
			6023	1886	3042	523	559	13		

There are 196 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-46	MET	-	initiating methionine	UNP P50456
A	-45	GLY	-	expression tag	UNP P50456
A	-44	GLY	-	expression tag	UNP P50456
A	-43	SER	-	expression tag	UNP P50456
A	-42	HIS	-	expression tag	UNP P50456
A	-41	HIS	-	expression tag	UNP P50456
A	-40	HIS	-	expression tag	UNP P50456
A	-39	HIS	-	expression tag	UNP P50456

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-38	HIS	-	expression tag	UNP P50456
A	-37	HIS	-	expression tag	UNP P50456
A	-36	GLY	-	expression tag	UNP P50456
A	-35	MET	-	expression tag	UNP P50456
A	-34	ALA	-	expression tag	UNP P50456
A	-33	SER	-	expression tag	UNP P50456
A	-32	MET	-	expression tag	UNP P50456
A	-31	THR	-	expression tag	UNP P50456
A	-30	GLY	-	expression tag	UNP P50456
A	-29	GLY	-	expression tag	UNP P50456
A	-28	GLN	-	expression tag	UNP P50456
A	-27	GLN	-	expression tag	UNP P50456
A	-26	MET	-	expression tag	UNP P50456
A	-25	GLY	-	expression tag	UNP P50456
A	-24	ARG	-	expression tag	UNP P50456
A	-23	ASP	-	expression tag	UNP P50456
A	-22	LEU	-	expression tag	UNP P50456
A	-21	TYR	-	expression tag	UNP P50456
A	-20	ASP	-	expression tag	UNP P50456
A	-19	ASP	-	expression tag	UNP P50456
A	-18	ASP	-	expression tag	UNP P50456
A	-17	ASP	-	expression tag	UNP P50456
A	-16	LYS	-	expression tag	UNP P50456
A	-15	ASP	-	expression tag	UNP P50456
A	-14	ARG	-	expression tag	UNP P50456
A	-13	TRP	-	expression tag	UNP P50456
A	-12	GLY	-	expression tag	UNP P50456
A	-11	SER	-	expression tag	UNP P50456
A	-10	GLU	-	expression tag	UNP P50456
A	-9	LEU	-	expression tag	UNP P50456
A	-8	GLU	-	expression tag	UNP P50456
A	-7	VAL	-	expression tag	UNP P50456
A	-6	LEU	-	expression tag	UNP P50456
A	-5	PHE	-	expression tag	UNP P50456
A	-4	GLN	-	expression tag	UNP P50456
A	-3	GLY	-	expression tag	UNP P50456
A	-2	PRO	-	expression tag	UNP P50456
A	-1	LYS	-	expression tag	UNP P50456
A	0	LEU	-	expression tag	UNP P50456
A	407	LEU	-	expression tag	UNP P50456
A	408	GLU	-	expression tag	UNP P50456
B	-46	MET	-	initiating methionine	UNP P50456

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-45	GLY	-	expression tag	UNP P50456
B	-44	GLY	-	expression tag	UNP P50456
B	-43	SER	-	expression tag	UNP P50456
B	-42	HIS	-	expression tag	UNP P50456
B	-41	HIS	-	expression tag	UNP P50456
B	-40	HIS	-	expression tag	UNP P50456
B	-39	HIS	-	expression tag	UNP P50456
B	-38	HIS	-	expression tag	UNP P50456
B	-37	HIS	-	expression tag	UNP P50456
B	-36	GLY	-	expression tag	UNP P50456
B	-35	MET	-	expression tag	UNP P50456
B	-34	ALA	-	expression tag	UNP P50456
B	-33	SER	-	expression tag	UNP P50456
B	-32	MET	-	expression tag	UNP P50456
B	-31	THR	-	expression tag	UNP P50456
B	-30	GLY	-	expression tag	UNP P50456
B	-29	GLY	-	expression tag	UNP P50456
B	-28	GLN	-	expression tag	UNP P50456
B	-27	GLN	-	expression tag	UNP P50456
B	-26	MET	-	expression tag	UNP P50456
B	-25	GLY	-	expression tag	UNP P50456
B	-24	ARG	-	expression tag	UNP P50456
B	-23	ASP	-	expression tag	UNP P50456
B	-22	LEU	-	expression tag	UNP P50456
B	-21	TYR	-	expression tag	UNP P50456
B	-20	ASP	-	expression tag	UNP P50456
B	-19	ASP	-	expression tag	UNP P50456
B	-18	ASP	-	expression tag	UNP P50456
B	-17	ASP	-	expression tag	UNP P50456
B	-16	LYS	-	expression tag	UNP P50456
B	-15	ASP	-	expression tag	UNP P50456
B	-14	ARG	-	expression tag	UNP P50456
B	-13	TRP	-	expression tag	UNP P50456
B	-12	GLY	-	expression tag	UNP P50456
B	-11	SER	-	expression tag	UNP P50456
B	-10	GLU	-	expression tag	UNP P50456
B	-9	LEU	-	expression tag	UNP P50456
B	-8	GLU	-	expression tag	UNP P50456
B	-7	VAL	-	expression tag	UNP P50456
B	-6	LEU	-	expression tag	UNP P50456
B	-5	PHE	-	expression tag	UNP P50456
B	-4	GLN	-	expression tag	UNP P50456

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-3	GLY	-	expression tag	UNP P50456
B	-2	PRO	-	expression tag	UNP P50456
B	-1	LYS	-	expression tag	UNP P50456
B	0	LEU	-	expression tag	UNP P50456
B	407	LEU	-	expression tag	UNP P50456
B	408	GLU	-	expression tag	UNP P50456
C	-46	MET	-	initiating methionine	UNP P50456
C	-45	GLY	-	expression tag	UNP P50456
C	-44	GLY	-	expression tag	UNP P50456
C	-43	SER	-	expression tag	UNP P50456
C	-42	HIS	-	expression tag	UNP P50456
C	-41	HIS	-	expression tag	UNP P50456
C	-40	HIS	-	expression tag	UNP P50456
C	-39	HIS	-	expression tag	UNP P50456
C	-38	HIS	-	expression tag	UNP P50456
C	-37	HIS	-	expression tag	UNP P50456
C	-36	GLY	-	expression tag	UNP P50456
C	-35	MET	-	expression tag	UNP P50456
C	-34	ALA	-	expression tag	UNP P50456
C	-33	SER	-	expression tag	UNP P50456
C	-32	MET	-	expression tag	UNP P50456
C	-31	THR	-	expression tag	UNP P50456
C	-30	GLY	-	expression tag	UNP P50456
C	-29	GLY	-	expression tag	UNP P50456
C	-28	GLN	-	expression tag	UNP P50456
C	-27	GLN	-	expression tag	UNP P50456
C	-26	MET	-	expression tag	UNP P50456
C	-25	GLY	-	expression tag	UNP P50456
C	-24	ARG	-	expression tag	UNP P50456
C	-23	ASP	-	expression tag	UNP P50456
C	-22	LEU	-	expression tag	UNP P50456
C	-21	TYR	-	expression tag	UNP P50456
C	-20	ASP	-	expression tag	UNP P50456
C	-19	ASP	-	expression tag	UNP P50456
C	-18	ASP	-	expression tag	UNP P50456
C	-17	ASP	-	expression tag	UNP P50456
C	-16	LYS	-	expression tag	UNP P50456
C	-15	ASP	-	expression tag	UNP P50456
C	-14	ARG	-	expression tag	UNP P50456
C	-13	TRP	-	expression tag	UNP P50456
C	-12	GLY	-	expression tag	UNP P50456
C	-11	SER	-	expression tag	UNP P50456

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-10	GLU	-	expression tag	UNP P50456
C	-9	LEU	-	expression tag	UNP P50456
C	-8	GLU	-	expression tag	UNP P50456
C	-7	VAL	-	expression tag	UNP P50456
C	-6	LEU	-	expression tag	UNP P50456
C	-5	PHE	-	expression tag	UNP P50456
C	-4	GLN	-	expression tag	UNP P50456
C	-3	GLY	-	expression tag	UNP P50456
C	-2	PRO	-	expression tag	UNP P50456
C	-1	LYS	-	expression tag	UNP P50456
C	0	LEU	-	expression tag	UNP P50456
C	407	LEU	-	expression tag	UNP P50456
C	408	GLU	-	expression tag	UNP P50456
D	-46	MET	-	initiating methionine	UNP P50456
D	-45	GLY	-	expression tag	UNP P50456
D	-44	GLY	-	expression tag	UNP P50456
D	-43	SER	-	expression tag	UNP P50456
D	-42	HIS	-	expression tag	UNP P50456
D	-41	HIS	-	expression tag	UNP P50456
D	-40	HIS	-	expression tag	UNP P50456
D	-39	HIS	-	expression tag	UNP P50456
D	-38	HIS	-	expression tag	UNP P50456
D	-37	HIS	-	expression tag	UNP P50456
D	-36	GLY	-	expression tag	UNP P50456
D	-35	MET	-	expression tag	UNP P50456
D	-34	ALA	-	expression tag	UNP P50456
D	-33	SER	-	expression tag	UNP P50456
D	-32	MET	-	expression tag	UNP P50456
D	-31	THR	-	expression tag	UNP P50456
D	-30	GLY	-	expression tag	UNP P50456
D	-29	GLY	-	expression tag	UNP P50456
D	-28	GLN	-	expression tag	UNP P50456
D	-27	GLN	-	expression tag	UNP P50456
D	-26	MET	-	expression tag	UNP P50456
D	-25	GLY	-	expression tag	UNP P50456
D	-24	ARG	-	expression tag	UNP P50456
D	-23	ASP	-	expression tag	UNP P50456
D	-22	LEU	-	expression tag	UNP P50456
D	-21	TYR	-	expression tag	UNP P50456
D	-20	ASP	-	expression tag	UNP P50456
D	-19	ASP	-	expression tag	UNP P50456
D	-18	ASP	-	expression tag	UNP P50456

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-17	ASP	-	expression tag	UNP P50456
D	-16	LYS	-	expression tag	UNP P50456
D	-15	ASP	-	expression tag	UNP P50456
D	-14	ARG	-	expression tag	UNP P50456
D	-13	TRP	-	expression tag	UNP P50456
D	-12	GLY	-	expression tag	UNP P50456
D	-11	SER	-	expression tag	UNP P50456
D	-10	GLU	-	expression tag	UNP P50456
D	-9	LEU	-	expression tag	UNP P50456
D	-8	GLU	-	expression tag	UNP P50456
D	-7	VAL	-	expression tag	UNP P50456
D	-6	LEU	-	expression tag	UNP P50456
D	-5	PHE	-	expression tag	UNP P50456
D	-4	GLN	-	expression tag	UNP P50456
D	-3	GLY	-	expression tag	UNP P50456
D	-2	PRO	-	expression tag	UNP P50456
D	-1	LYS	-	expression tag	UNP P50456
D	0	LEU	-	expression tag	UNP P50456
D	407	LEU	-	expression tag	UNP P50456
D	408	GLU	-	expression tag	UNP P50456

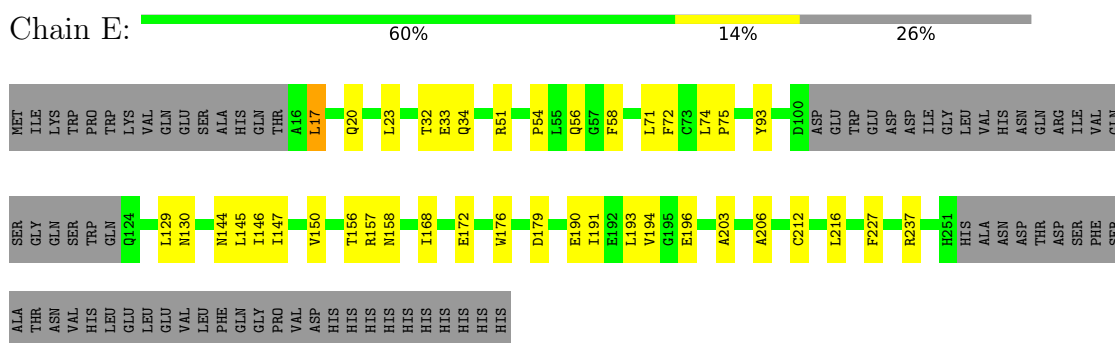
- Molecule 3 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms	AltConf
3	E	1	Total Zn 1 1	0
3	A	1	Total Zn 1 1	0
3	B	1	Total Zn 1 1	0
3	F	1	Total Zn 1 1	0
3	C	1	Total Zn 1 1	0
3	D	1	Total Zn 1 1	0

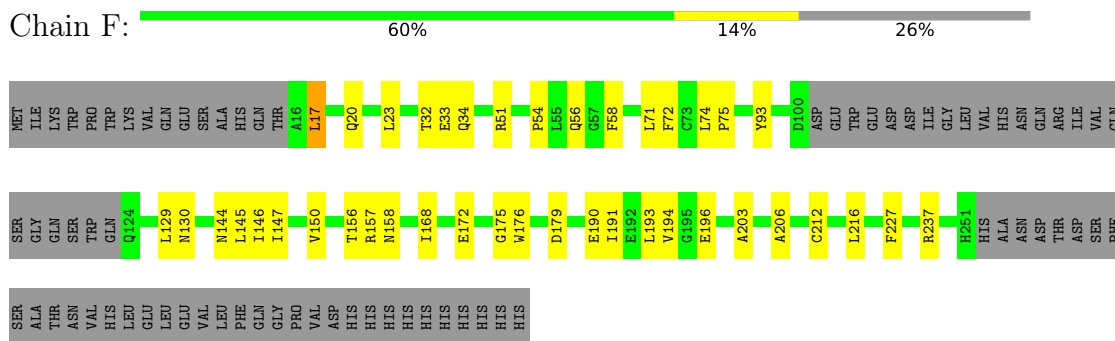
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

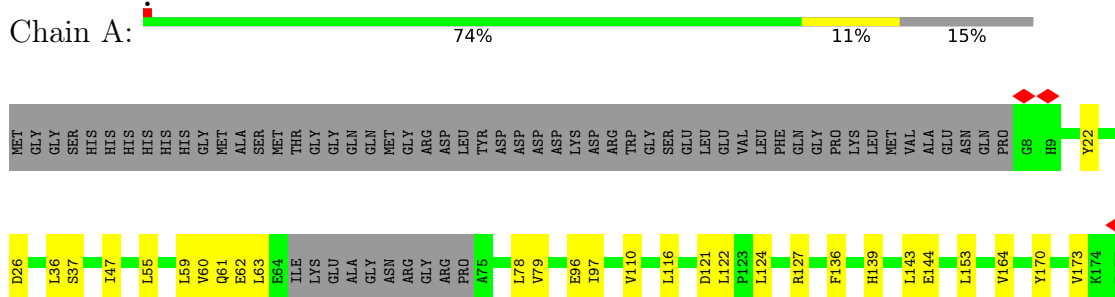
- Molecule 1: Mlc titration factor A



- Molecule 1: Mlc titration factor A

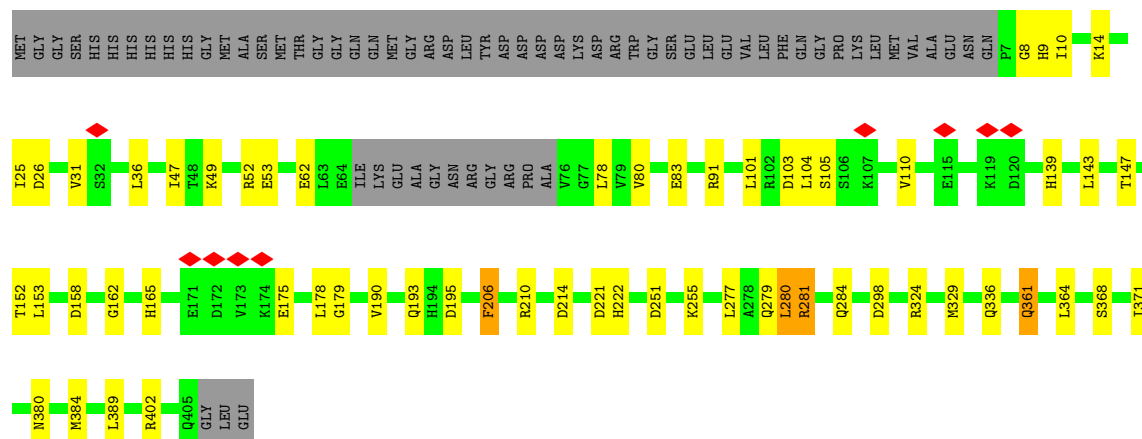


- Molecule 2: DNA-binding transcriptional repressor Mlc

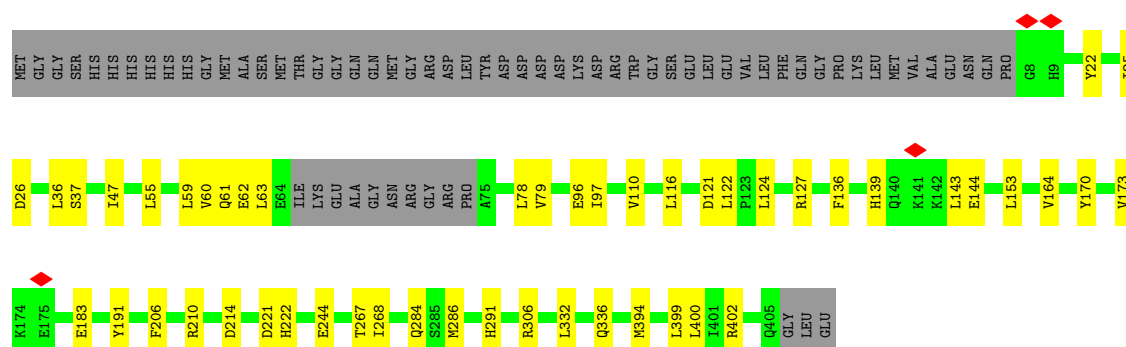




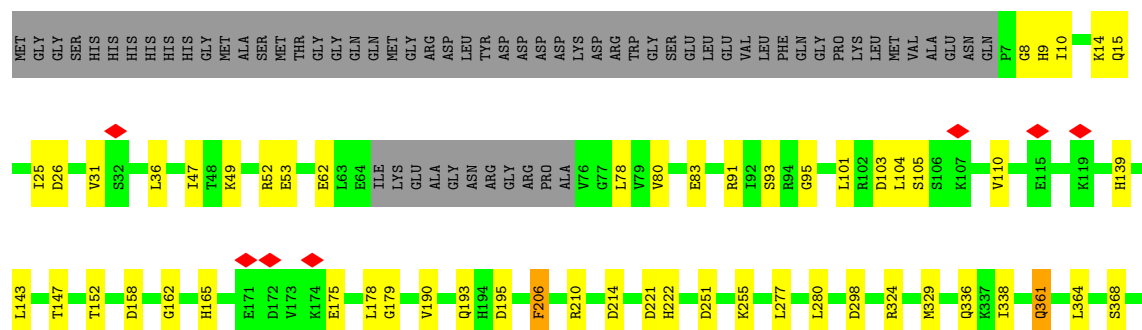
• Molecule 2: DNA-binding transcriptional repressor Mlc



• Molecule 2: DNA-binding transcriptional repressor Mlc



• Molecule 2: DNA-binding transcriptional repressor Mlc



Sequence logo for the 3' UTR region. The y-axis represents information content in bits, ranging from 0.00 to 0.25. The x-axis shows positions from -10 to 0. The sequence logo shows a strong preference for 'G' at position -10, 'A' at position -9, 'G' at position -8, 'A' at position -7, 'G' at position -6, 'A' at position -5, 'G' at position -4, 'A' at position -3, 'G' at position -2, 'A' at position -1, and 'G' at position 0. The background is color-coded: blue for positions -10 to -5, green for positions -4 to -1, and red for position 0.

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	1469021	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	30	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	130000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	2.616	Depositor
Minimum map value	-0.070	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.022	Depositor
Recommended contour level	0.05	Depositor
Map size (Å)	337.53, 337.53, 337.53	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.1251, 1.1251, 1.1251	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ZN

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	E	0.16	0/1759	0.35	0/2398
1	F	0.17	0/1759	0.35	0/2398
2	A	0.16	0/3026	0.31	0/4102
2	B	0.19	0/3029	0.36	1/4106 (0.0%)
2	C	0.16	0/3026	0.31	0/4102
2	D	0.18	0/3029	0.34	0/4106
All	All	0.17	0/15628	0.34	1/21212 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	B	0	1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
2	B	281	ARG	N-CA-CB	-5.15	102.86	110.53

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	281	ARG	Sidechain

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	E	1712	1664	1662	47	0
1	F	1712	1664	1662	48	0
2	A	2979	3038	3036	43	0
2	B	2981	3042	3036	47	0
2	C	2979	3038	3036	45	0
2	D	2981	3042	3036	44	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
3	E	1	0	0	0	0
3	F	1	0	0	0	0
All	All	15350	15488	15468	259	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 9.

The worst 5 of 259 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:E:193:LEU:HD11	2:B:14:LYS:HG3	1.67	0.76
1:F:193:LEU:HD11	2:D:14:LYS:HG3	1.68	0.75
1:E:32:THR:HG22	1:E:33:GLU:N	2.07	0.69
2:B:195:ASP:OD1	2:B:380:ASN:ND2	2.27	0.68
1:F:32:THR:HG22	1:F:33:GLU:N	2.07	0.68

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	E	209/287 (73%)	189 (90%)	20 (10%)	0	100	100
1	F	209/287 (73%)	189 (90%)	20 (10%)	0	100	100
2	A	384/455 (84%)	370 (96%)	14 (4%)	0	100	100
2	B	384/455 (84%)	367 (96%)	16 (4%)	1 (0%)	36	46
2	C	384/455 (84%)	370 (96%)	14 (4%)	0	100	100
2	D	384/455 (84%)	366 (95%)	17 (4%)	1 (0%)	36	46
All	All	1954/2394 (82%)	1851 (95%)	101 (5%)	2 (0%)	49	60

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	9	HIS
2	D	9	HIS

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	E	184/252 (73%)	183 (100%)	1 (0%)	81	90
1	F	184/252 (73%)	183 (100%)	1 (0%)	81	90
2	A	326/379 (86%)	326 (100%)	0	100	100
2	B	327/379 (86%)	319 (98%)	8 (2%)	43	62
2	C	326/379 (86%)	326 (100%)	0	100	100
2	D	327/379 (86%)	320 (98%)	7 (2%)	47	66
All	All	1674/2020 (83%)	1657 (99%)	17 (1%)	65	82

5 of 17 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	D	206	PHE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	D	361	GLN
2	B	284	GLN
2	B	361	GLN
1	F	17	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 13 such sidechains are listed below:

Mol	Chain	Res	Type
2	C	58	HIS
2	C	377	GLN
2	D	249	GLN
2	D	131	HIS
2	D	184	GLN

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 ⓘ

Of 6 ligands modelled in this entry, 6 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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.

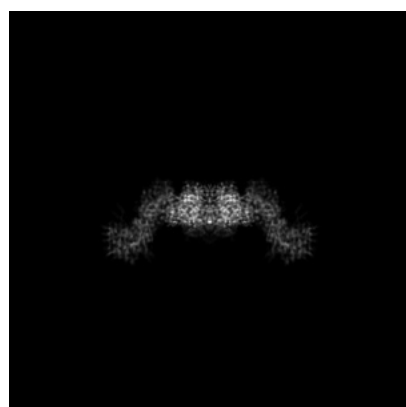
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-55160. These allow visual inspection of the internal detail of the map and identification of artifacts.

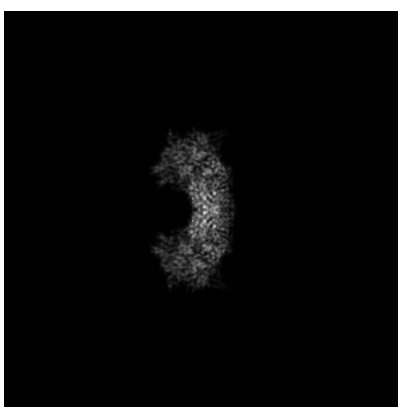
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

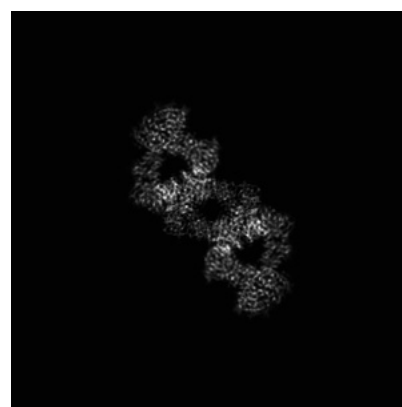
6.1.1 Primary map



X



Y

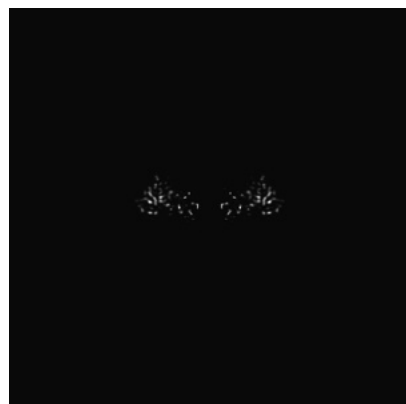


Z

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

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 150



Y Index: 150



Z Index: 150

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: 123



Y Index: 141

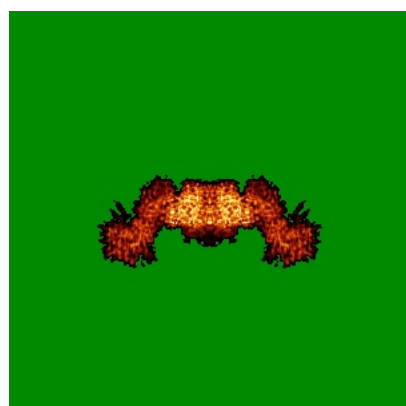


Z Index: 150

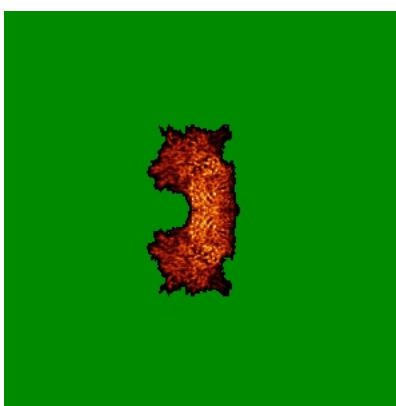
The images above show the largest variance slices of the map in three orthogonal directions.

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

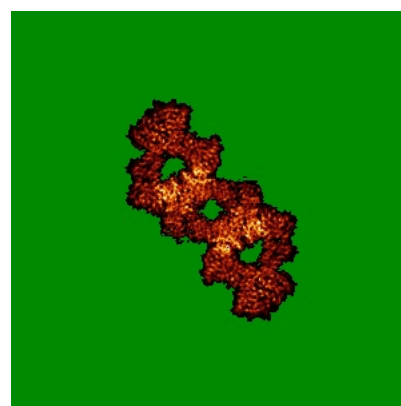
6.4.1 Primary map



X



Y



Z

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 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

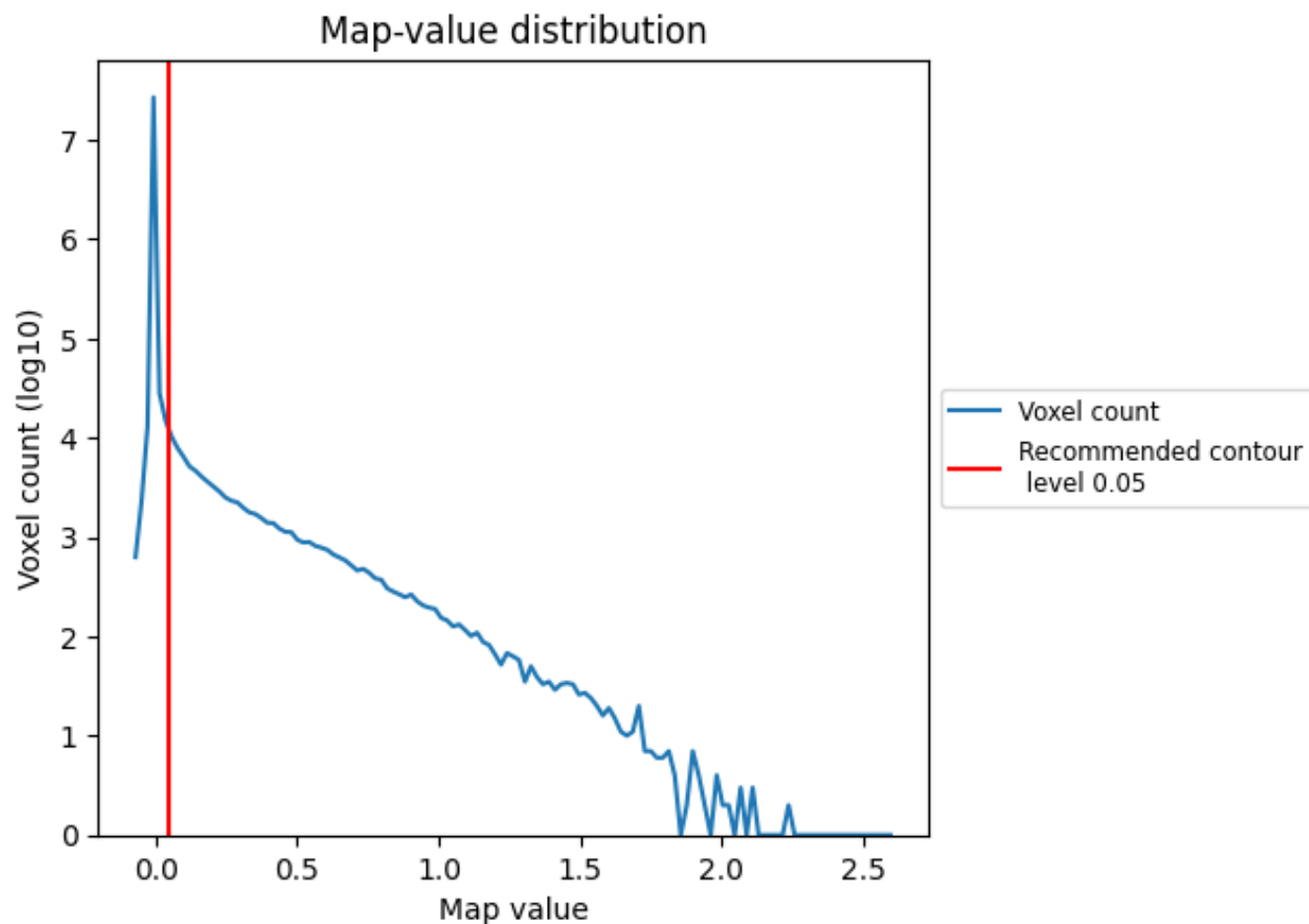
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

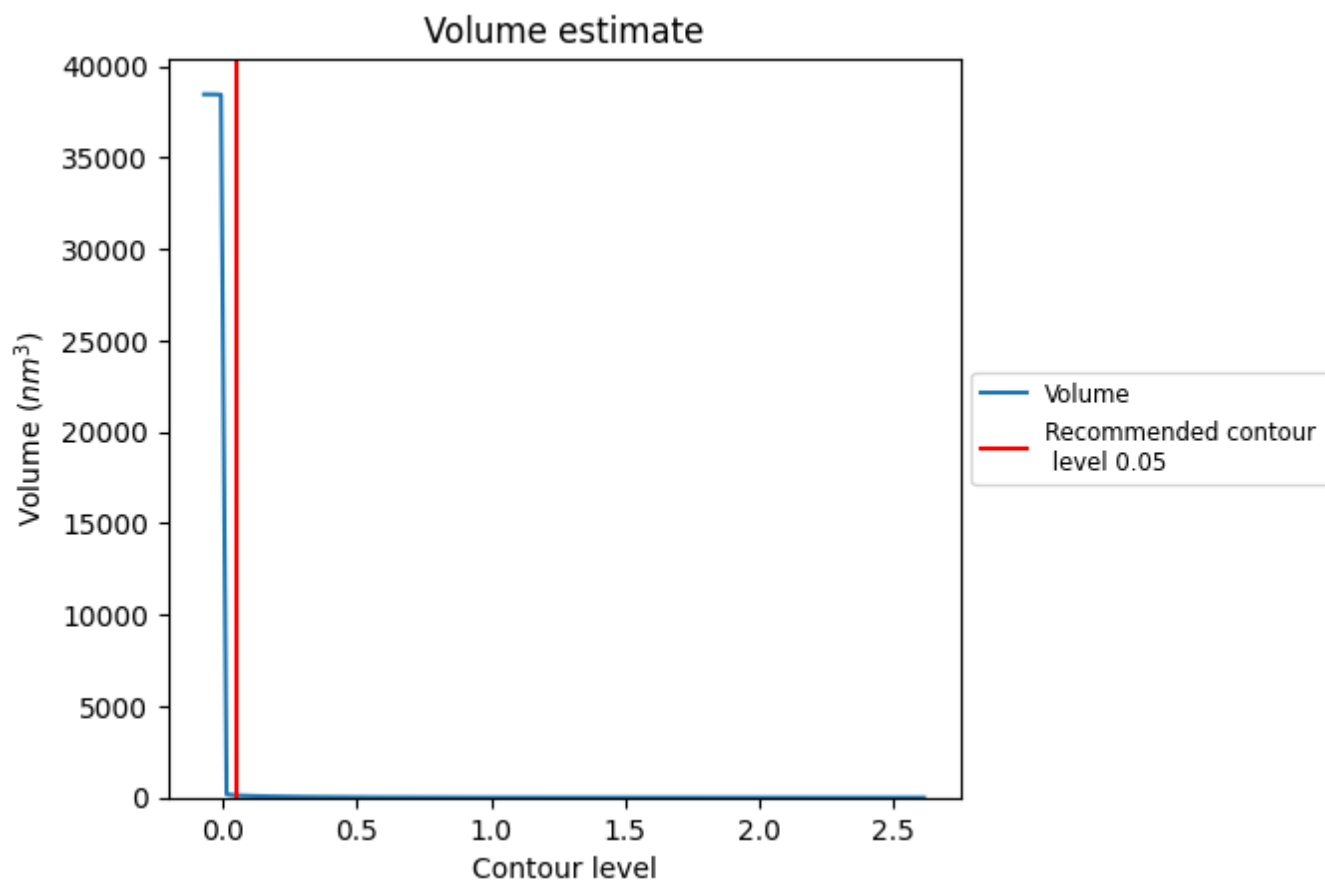
This section contains the results of statistical analysis of the map.

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.

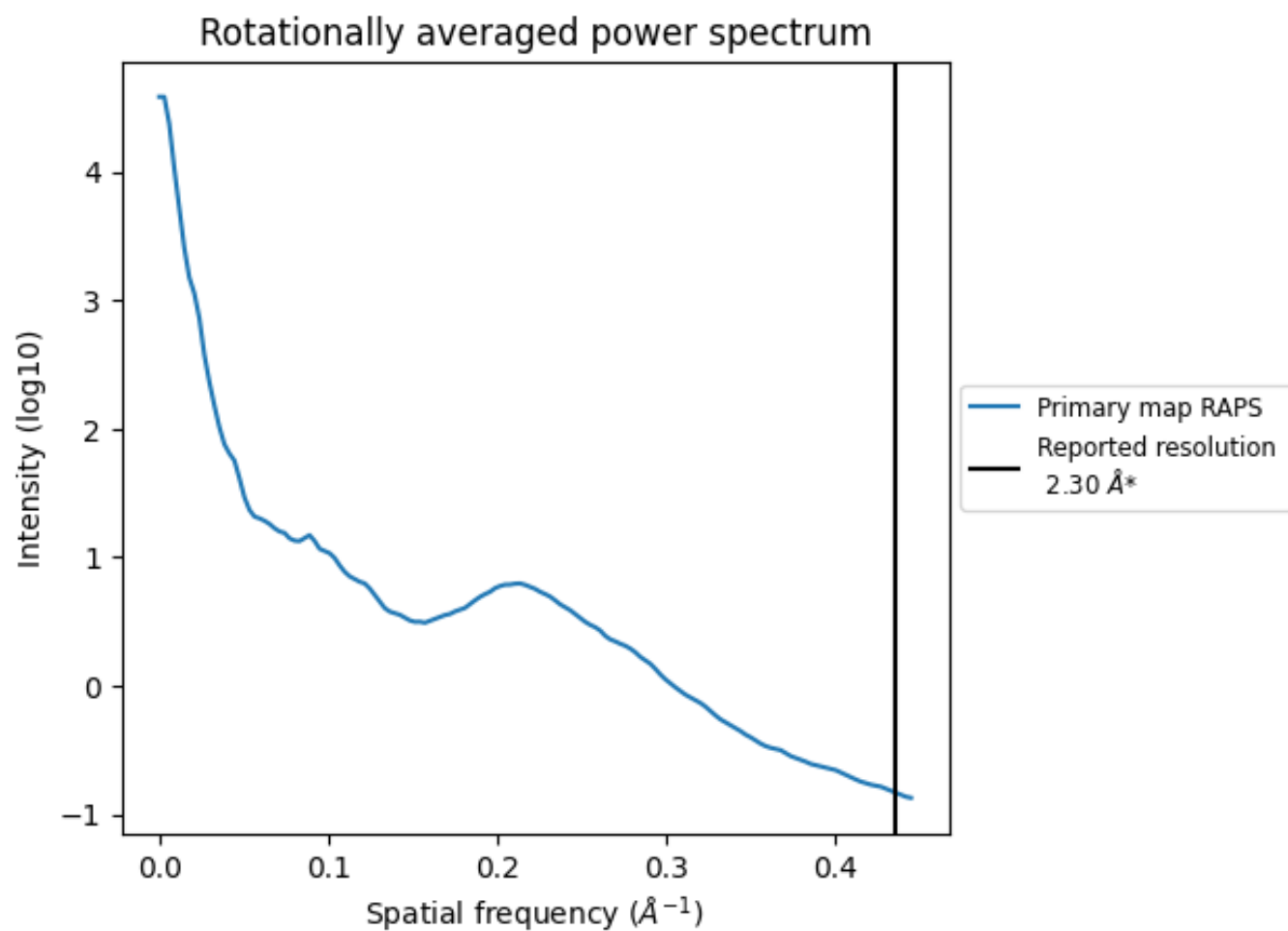
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 124 nm³; this corresponds to an approximate mass of 112 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 0.435 Å⁻¹

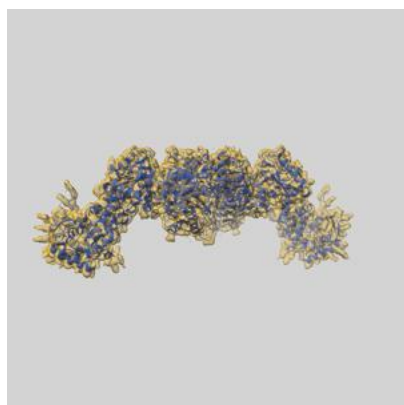
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

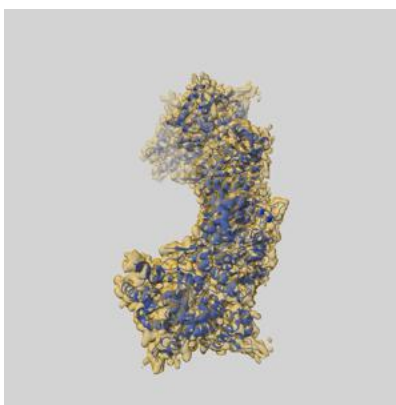
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-55160 and PDB model 9SRW. Per-residue inclusion information can be found in [section 3](#) on [page 11](#).

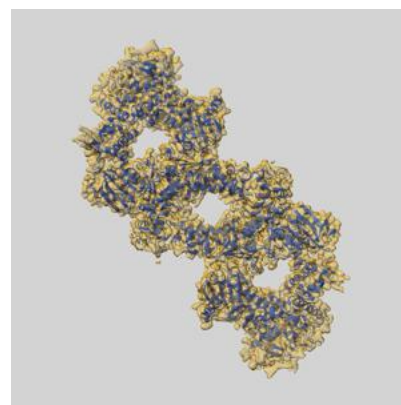
9.1 Map-model overlay [i](#)



X



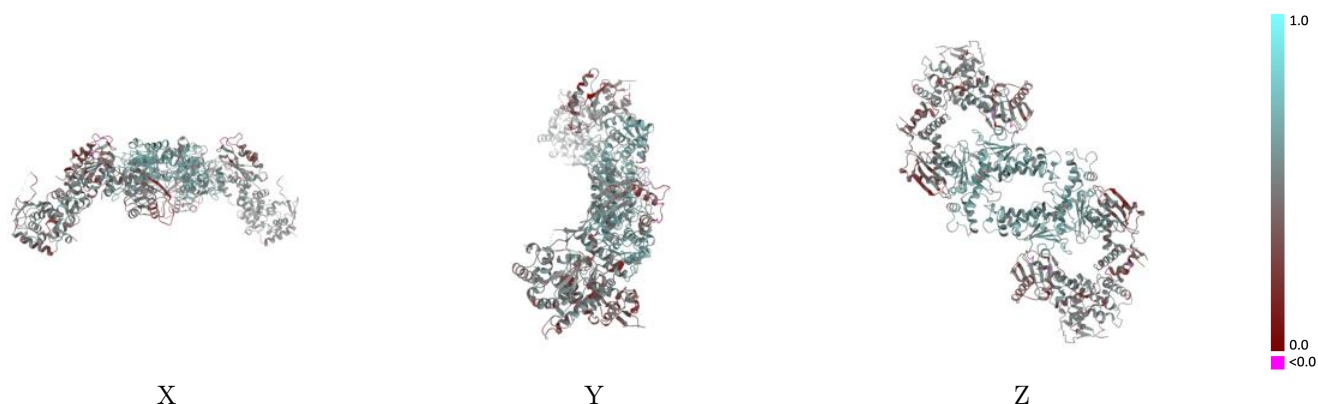
Y



Z

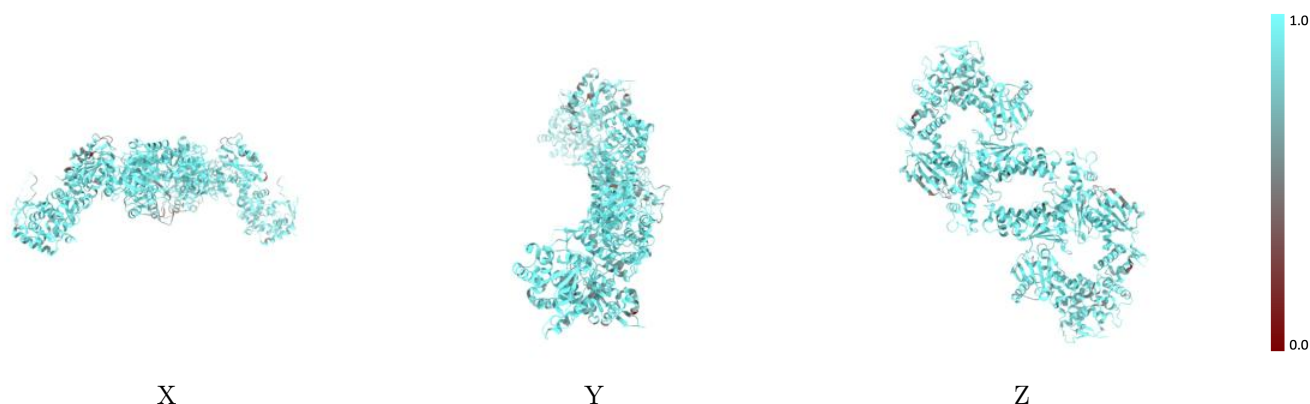
The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



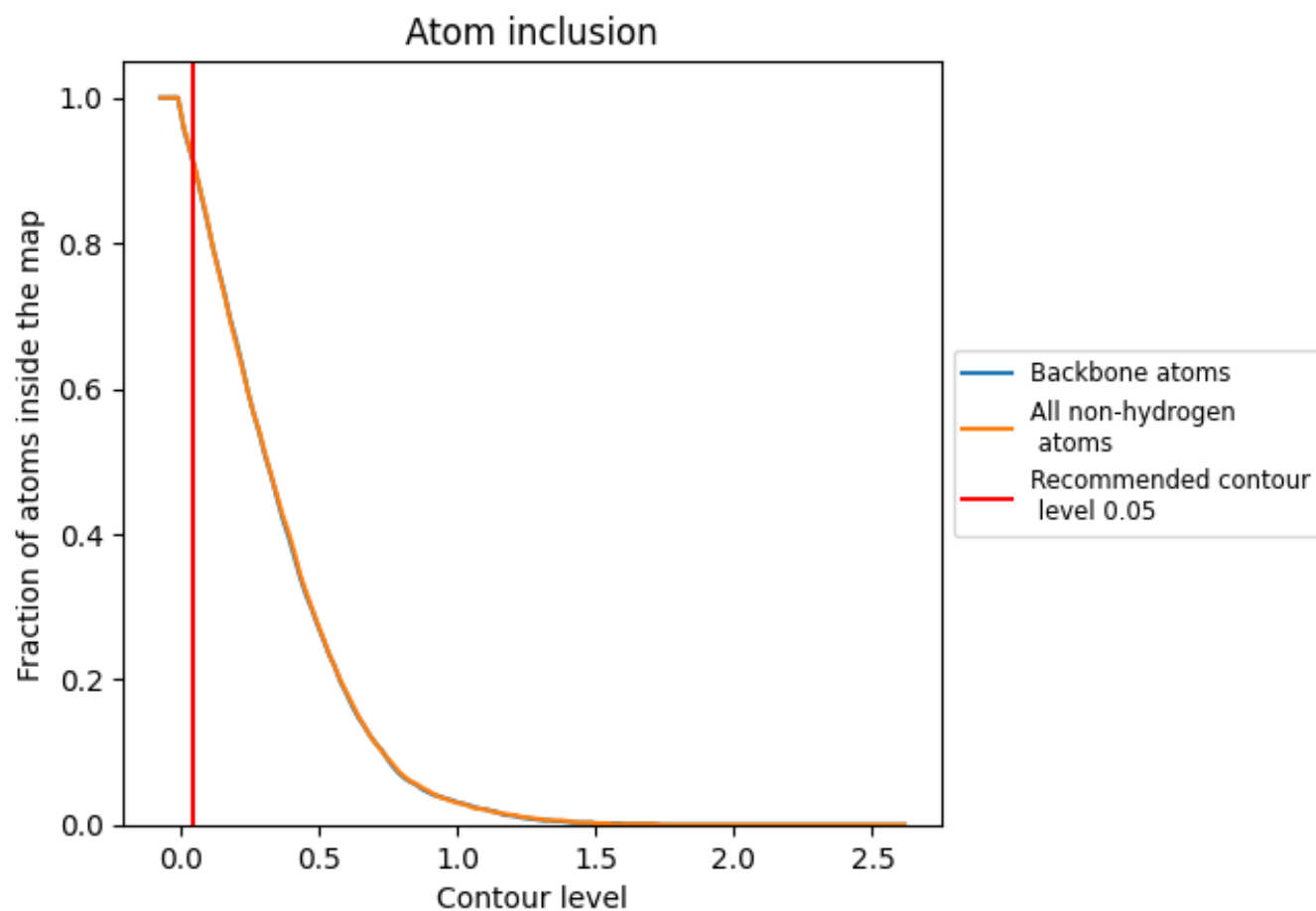
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.05).

9.4 Atom inclusion [i](#)



At the recommended contour level, 91% of all backbone atoms, 91% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9100	0.4990
A	0.9210	0.5210
B	0.8950	0.4890
C	0.9200	0.5210
D	0.8940	0.4900
E	0.9200	0.4780
F	0.9220	0.4780

1.0

0.0

<0.0