



Full wwPDB EM Validation Report ⓘ

Apr 10, 2025 – 05:00 PM EDT

PDB ID : 9EG4 / pdb_00009eg4
EMDB ID : EMD-47984
Title : Cryo-EM structure of the icosahedral capsid of LME-1 phage
Authors : Deme, J.C.; Lea, S.M.
Deposited on : 2024-11-20
Resolution : 2.10 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.dev117
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.42

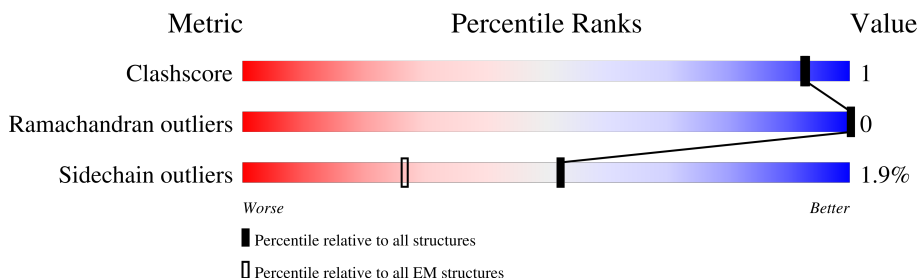
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.10 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 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	289	91% 8% .
1	B	289	94% 5%
1	C	289	94% 6%
1	D	289	94% 6%
1	E	289	96% .
1	F	289	94% 5%
1	G	289	94% 5%
2	H	269	32% . 67%

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Mol	Chain	Length	Quality of chain
2	I	269	<div><div></div><div>32%</div><div></div><div>67%</div></div>
2	J	269	<div><div></div><div>32%</div><div></div><div>67%</div></div>
2	K	269	<div><div></div><div>32%</div><div></div><div>67%</div></div>
2	L	269	<div><div></div><div>32%</div><div></div><div>67%</div></div>
2	M	269	<div><div></div><div>33%</div><div></div><div>67%</div></div>
2	N	269	<div><div></div><div>32%</div><div></div><div>67%</div></div>

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 20202 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 Phage major capsid protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	288	Total	C	N	O	S	0	0
			2233	1407	384	433	9		
1	C	288	Total	C	N	O	S	0	0
			2233	1407	384	433	9		
1	E	288	Total	C	N	O	S	0	0
			2233	1407	384	433	9		
1	D	288	Total	C	N	O	S	0	0
			2233	1407	384	433	9		
1	F	288	Total	C	N	O	S	0	0
			2233	1407	384	433	9		
1	B	288	Total	C	N	O	S	0	0
			2233	1407	384	433	9		
1	G	288	Total	C	N	O	S	0	0
			2233	1407	384	433	9		

- Molecule 2 is a protein called orf16.

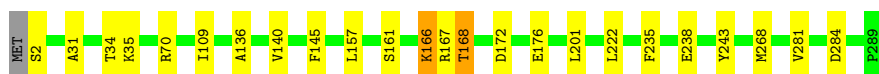
Mol	Chain	Residues	Atoms					AltConf	Trace
2	H	89	Total	C	N	O	S	0	0
			653	415	107	129	2		
2	I	89	Total	C	N	O	S	0	0
			653	415	107	129	2		
2	J	89	Total	C	N	O	S	0	0
			653	415	107	129	2		
2	K	89	Total	C	N	O	S	0	0
			653	415	107	129	2		
2	L	89	Total	C	N	O	S	0	0
			653	415	107	129	2		
2	M	89	Total	C	N	O	S	0	0
			653	415	107	129	2		
2	N	89	Total	C	N	O	S	0	0
			653	415	107	129	2		

3 Residue-property plots [i](#)

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

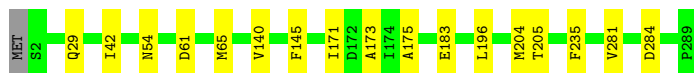
- Molecule 1: Phage major capsid protein

Chain A: 



- Molecule 1: Phage major capsid protein

Chain C: 



- Molecule 1: Phage major capsid protein

Chain E: 



- Molecule 1: Phage major capsid protein

Chain D: 



- Molecule 1: Phage major capsid protein

Chain F: 



- Molecule 1: Phage major capsid protein

MET	S2	Q11	I42	M52	M65	I109	V140	F145	T186	Y190	I195	S216	F235	M268	V281	D284	P289
-----	----	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------

- | | | | | | | | | | | | | | | | | | |
|-----|----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| MET | S2 | Q11 | K35 | M52 | M65 | V140 | F145 | R164 | R167 | I171 | E176 | L196 | L201 | Q218 | A233 | D284 | P289 |
|-----|----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|

- | | | | |
|-----|-----|-----|-----|
| LEU | ALA | VAL | MET |
| TRP | GLY | PRO | A2 |
| TYR | GLU | LEU | |
| ARG | ALA | THR | M8 |
| THR | ALA | ALA | |
| VAL | SER | ASN | S32 |
| PRO | SER | ASN | R33 |
| THR | THR | ILE | E34 |
| VAL | ALA | ILE | |
| | ALA | ALA | F90 |
| | ALA | MET | ALA |
| | ALA | ASN | ALA |
| | ASN | GLY | SER |
| | VAL | ALA | GLY |
| | GLN | PRO | VAL |
| | GLY | VAL | VAL |
| | ALA | GLN | GLY |
| | ALA | VAL | THR |
| | SER | LEU | SER |
| | THR | ALA | ASN |
| | MET | ALA | ILE |
| | ASP | GLY | GLN |
| | MET | GLY | ASP |
| | VAL | ALA | GLY |
| | GLU | ASN | ALA |
| | GLY | THR | VAL |
| | ALA | VAL | THR |
| | LEU | HIS | ALA |
| | SER | LEU | ASN |
| | GLY | VAL | LYS |
| | ALA | GLU | LEU |
| | PHE | HIS | ALA |
| | THR | ALA | THR |
| | THR | CYS | ASP |
| | ALA | LEU | SER |
| | VAL | MET | VAL |
| | ALA | MET | THR |
| | ASN | THR | THR |
| | LEU | TYR | VAL |
| | GLY | GLY | LYS |
| | LEU | THR | ILE |
| | PHE | THR | LEU |
| | ILE | GLN | ASP |
| | SER | PHE | ASP |
| | ASN | THR | ASN |
| | ASN | GLY | VAL |
| | THR | GLY | THR |
| | ALA | GLY | SER |
| | ALA | ALA | ASP |
| | PHE | ILE | LYS |
| | ALA | GLY | ILE |
| | ALA | LEU | ALA |
| | GLY | GLN | ALA |
| | ASP | TYR | SER |
| | SER | GLY | VAL |
| | ASP | ASN | LEU |
| | PHE | THR | LYS |
| | LEU | ALA | TYR |
| | THR | ALA | VAL |

- | | | | |
|-----|-----|-----|-----|
| LEU | ALA | VAL | MET |
| TRP | GLY | PRO | A2 |
| TYR | GLU | LEU | |
| ARG | ALA | THR | I66 |
| THR | ALA | ALA | |
| VAL | SER | ASN | F75 |
| PRO | SER | ASN | |
| THR | THR | ILE | S88 |
| VAL | ALA | ILE | V89 |
| | ALA | ILE | F90 |
| | ALA | MET | ALA |
| | ALA | ASN | ALA |
| | ASN | GLY | SER |
| | VAL | ALA | GLY |
| | GLN | PRO | VAL |
| | GLY | VAL | VAL |
| | ALA | GLN | GLY |
| | ALA | VAL | THR |
| | SER | LEU | SER |
| | THR | ALA | ASN |
| | MET | ALA | ILE |
| | ASP | GLY | GLN |
| | MET | GLY | ASP |
| | VAL | ALA | GLY |
| | GLU | ASN | ALA |
| | GLY | THR | VAL |
| | ALA | THR | THR |
| | LEU | HIS | ALA |
| | SER | LEU | ASN |
| | SER | VAL | LYS |
| | GLY | GLU | LEU |
| | ALA | HIS | ALA |
| | PHE | ALA | THR |
| | THR | CYS | ASP |
| | ALA | LEU | SER |
| | VAL | MET | VAL |
| | ALA | MET | THR |
| | ASN | GLN | THR |
| | LEU | THR | VAL |
| | GLY | GLY | LYS |
| | LEU | THR | ILE |
| | PHE | THR | LEU |
| | ILE | PHE | ASP |
| | SER | THR | ASN |
| | ASN | GLY | VAL |
| | THR | GLY | THR |
| | ALA | GLY | SER |
| | ALA | ALA | ASP |
| | PHE | ILE | LYS |
| | ALA | GLY | ILE |
| | ALA | LEU | ALA |
| | GLY | GLN | ALA |
| | ASP | TTR | SER |
| | SER | GLY | VAL |
| | ASP | ASN | LEU |
| | PHE | THR | LYS |
| | VAL | THR | THR |
| | LEU | ALA | VAL |
| | | ALA | ALA |

- [illegible]

Chain N:  32% . 67%

LEU	ALA	VAL	MET
TRP	GLY	PRO	A2
TYR	GLU	LEU	
ARG	ALA	THR	M8
THR	ALA	ALA	
VAL	SER	ALA	S42
PRO	SER	ASN	
THR	THR	ASN	T82
VAL	ILE	ILE	
	ALA	ALA	F90
	ALA	MET	ALA
	ALA	ASN	ALA
	ASN	GLY	SER
	VAL	ALA	GLY
	GLN	PRO	VAL
	GLY	VAL	VAL
	ALA	GLN	GLY
	ALA	VAL	THR
	SER	LEU	SER
	THR	ALA	ASN
	MET	ALA	ILE
	ASP	GLY	GLN
	MET	GLY	ASP
	VAL	ALA	GLY
	GLU	ASN	ALA
	GLY	THR	VAL
	ALA	VAL	THR
	LEU	HIS	ALA
	SER	LEU	ASN
	SER	VAL	LYS
	GLY	GLU	LEU
	ALA	HIS	ALA
	PHE	ALA	THR
	THR	CYS	ASP
	ALA	LEU	SER
	VAL	MET	VAL
	ALA	MET	THR
	ASN	THR	THR
	LEU	TVR	VAL
	GLY	GLY	LYS
	LEU	THR	ILE
	PHE	THR	LEU
	ILE	GLN	ASP
	SER	PHE	ASP
	ASN	THR	ASN
	ASN	GLY	VAL
	THR	GLY	THR
	ALA	GLY	SER
	ALA	ALA	ASP
	PHE	ILE	LYS
	ALA	GLY	ILE
	ALA	LEU	ALA
	GLY	GLN	ALA
	ASP	TTR	SER
	SER	GLY	VAL
	ASP	ASN	LEU
	PHE	THR	LYS
	VAL	THR	THR
	ALA	ALA	VAL
	LEU	ALA	ALA
	HIS	THR	ALA

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	88530	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 ($e^-/\text{\AA}^2$)	52.9	Depositor
Minimum defocus (nm)	100	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	TFS FALCON 4i (4k x 4k)	Depositor
Maximum map value	1.108	Depositor
Minimum map value	-0.262	Depositor
Average map value	0.024	Depositor
Map value standard deviation	0.079	Depositor
Recommended contour level	0.25	Depositor
Map size (Å)	878.0, 878.0, 878.0	wwPDB
Map dimensions	1000, 1000, 1000	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.878, 0.878, 0.878	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	0.31	0/2276	0.47	0/3083
1	B	0.32	0/2276	0.47	0/3083
1	C	0.32	0/2276	0.47	0/3083
1	D	0.32	0/2276	0.47	0/3083
1	E	0.32	0/2276	0.48	0/3083
1	F	0.32	0/2276	0.47	0/3083
1	G	0.32	0/2276	0.48	0/3083
2	H	0.32	0/665	0.44	0/909
2	I	0.32	0/665	0.44	0/909
2	J	0.33	0/665	0.44	0/909
2	K	0.33	0/665	0.46	0/909
2	L	0.34	0/665	0.45	0/909
2	M	0.33	0/665	0.45	0/909
2	N	0.33	0/665	0.44	0/909
All	All	0.32	0/20587	0.47	0/27944

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	2233	0	2175	11	0
1	B	2233	0	2175	9	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	2233	0	2175	9	0
1	D	2233	0	2175	8	0
1	E	2233	0	2175	7	0
1	F	2233	0	2175	7	0
1	G	2233	0	2175	8	0
2	H	653	0	635	1	0
2	I	653	0	635	1	0
2	J	653	0	635	1	0
2	K	653	0	635	0	0
2	L	653	0	635	0	0
2	M	653	0	635	0	0
2	N	653	0	635	0	0
All	All	20202	0	19670	53	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 1.

All (53) 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:F:87:ARG:HG2	1:F:260:THR:HG22	1.69	0.73
1:G:176:GLU:HG3	1:G:201:LEU:HB2	1.71	0.71
1:E:164:ARG:HH11	1:E:164:ARG:HG3	1.61	0.65
1:F:52:MET:HB3	1:F:65:MET:HG3	1.78	0.65
1:G:52:MET:HB3	1:G:65:MET:HG3	1.79	0.64
1:C:42:ILE:HB	1:B:11:GLN:HG2	1.79	0.62
1:E:196:LEU:HD12	1:F:190:TYR:HB3	1.83	0.59
1:F:176:GLU:HG3	1:F:201:LEU:HB2	1.84	0.59
1:C:54:ASN:HD22	1:C:65:MET:HG2	1.67	0.58
1:E:42:ILE:HB	1:D:11:GLN:HG2	1.89	0.55
1:E:11:GLN:HG2	1:F:42:ILE:HB	1.90	0.54
1:B:109:ILE:HD12	1:B:268:MET:HG2	1.90	0.53
1:A:176:GLU:HG3	1:A:201:LEU:HB2	1.92	0.52
1:B:190:TYR:HB3	1:G:196:LEU:HD12	1.92	0.52
1:A:166:LYS:H	1:A:238:GLU:HG2	1.75	0.52
1:D:182:VAL:HB	1:D:185:LEU:HD12	1.93	0.51
1:B:52:MET:HB3	1:B:65:MET:HE2	1.93	0.50
1:A:34:THR:HG23	1:A:243:TYR:HD2	1.77	0.49
1:E:164:ARG:HG3	1:E:164:ARG:NH1	2.26	0.49
1:D:35:LYS:HB3	1:D:35:LYS:HE3	1.53	0.47
1:E:109:ILE:HD12	1:E:268:MET:HG2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:109:ILE:HD12	1:A:268:MET:HG2	1.96	0.47
1:C:204:MET:HG2	1:C:205:THR:N	2.31	0.46
1:C:196:LEU:HD12	1:D:190:TYR:HB3	1.98	0.45
1:G:176:GLU:HA	1:G:201:LEU:HD12	1.98	0.45
1:C:235:PHE:HB2	1:C:281:VAL:HB	1.99	0.45
1:B:186:THR:HG22	1:B:195:ILE:HD11	1.99	0.45
1:C:171:ILE:HB	1:C:175:ALA:HB3	1.98	0.44
1:E:187:ASN:HB3	1:E:190:TYR:HD2	1.83	0.44
1:D:171:ILE:HB	1:D:175:ALA:HB3	1.99	0.44
1:B:42:ILE:HB	1:G:11:GLN:HG2	1.99	0.43
1:D:186:THR:HG22	1:D:195:ILE:HD11	2.01	0.43
2:H:32:SER:HB3	2:H:34:GLU:HG3	2.01	0.43
1:B:140:VAL:HB	1:B:284:ASP:HB3	2.00	0.43
1:G:140:VAL:HB	1:G:284:ASP:HB3	2.01	0.43
1:C:140:VAL:HB	1:C:284:ASP:HB3	2.01	0.43
1:C:54:ASN:ND2	1:C:65:MET:HG2	2.33	0.42
1:A:140:VAL:HB	1:A:284:ASP:HB3	2.02	0.42
2:I:66:ILE:HG12	2:I:75:PHE:CE1	2.55	0.42
1:B:235:PHE:HB2	1:B:281:VAL:HB	2.01	0.42
1:A:157:LEU:O	1:A:161:SER:HB2	2.20	0.41
1:C:173:ALA:HB1	1:D:155:ARG:HG2	2.02	0.41
1:A:136:ALA:HB3	1:A:281:VAL:HG22	2.01	0.41
1:A:157:LEU:HD23	1:A:157:LEU:HA	1.92	0.41
1:D:174:ILE:HD12	1:D:287:LEU:HD22	2.02	0.41
1:A:35:LYS:HB3	1:A:35:LYS:HE3	1.61	0.41
1:F:193:GLN:H	1:F:193:GLN:HG2	1.73	0.41
2:J:56:LYS:HD3	2:J:56:LYS:HA	1.78	0.41
1:B:52:MET:HE1	1:G:218:GLN:HB2	2.03	0.41
1:A:31:ALA:HB1	1:A:168:THR:HG21	2.03	0.40
1:F:171:ILE:HB	1:F:175:ALA:HB3	2.03	0.40
1:A:222:LEU:HD23	1:A:222:LEU:HA	1.92	0.40
1:G:171:ILE:HG22	1:G:233:ALA:HB1	2.03	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	286/289 (99%)	280 (98%)	6 (2%)	0	100	100
1	B	286/289 (99%)	280 (98%)	6 (2%)	0	100	100
1	C	286/289 (99%)	280 (98%)	6 (2%)	0	100	100
1	D	286/289 (99%)	279 (98%)	7 (2%)	0	100	100
1	E	286/289 (99%)	281 (98%)	5 (2%)	0	100	100
1	F	286/289 (99%)	281 (98%)	5 (2%)	0	100	100
1	G	286/289 (99%)	284 (99%)	2 (1%)	0	100	100
2	H	87/269 (32%)	86 (99%)	1 (1%)	0	100	100
2	I	87/269 (32%)	84 (97%)	3 (3%)	0	100	100
2	J	87/269 (32%)	86 (99%)	1 (1%)	0	100	100
2	K	87/269 (32%)	86 (99%)	1 (1%)	0	100	100
2	L	87/269 (32%)	83 (95%)	4 (5%)	0	100	100
2	M	87/269 (32%)	86 (99%)	1 (1%)	0	100	100
2	N	87/269 (32%)	86 (99%)	1 (1%)	0	100	100
All	All	2611/3906 (67%)	2562 (98%)	49 (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	233/234 (100%)	225 (97%)	8 (3%)	32	35
1	B	233/234 (100%)	231 (99%)	2 (1%)	75	82
1	C	233/234 (100%)	229 (98%)	4 (2%)	56	63
1	D	233/234 (100%)	229 (98%)	4 (2%)	56	63

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	E	233/234 (100%)	230 (99%)	3 (1%)	65	72
1	F	233/234 (100%)	229 (98%)	4 (2%)	56	63
1	G	233/234 (100%)	229 (98%)	4 (2%)	56	63
2	H	69/196 (35%)	68 (99%)	1 (1%)	62	70
2	I	69/196 (35%)	68 (99%)	1 (1%)	62	70
2	J	69/196 (35%)	67 (97%)	2 (3%)	37	41
2	K	69/196 (35%)	67 (97%)	2 (3%)	37	41
2	L	69/196 (35%)	67 (97%)	2 (3%)	37	41
2	M	69/196 (35%)	69 (100%)	0	100	100
2	N	69/196 (35%)	66 (96%)	3 (4%)	25	25
All	All	2114/3010 (70%)	2074 (98%)	40 (2%)	52	59

All (40) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	SER
1	A	70	ARG
1	A	145	PHE
1	A	166	LYS
1	A	167	ARG
1	A	168	THR
1	A	172	ASP
1	A	235	PHE
2	H	8	MET
2	I	88	SER
2	J	63	ASP
2	J	82	THR
1	C	29	GLN
1	C	61	ASP
1	C	145	PHE
1	C	183	GLU
1	E	54	ASN
1	E	71	ASP
1	E	145	PHE
2	K	8	MET
2	K	88	SER
2	L	14	SER
2	L	56	LYS

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Mol	Chain	Res	Type
1	D	70	ARG
1	D	145	PHE
1	D	161	SER
1	D	288	GLU
1	F	145	PHE
1	F	164	ARG
1	F	167	ARG
1	F	192	ASN
1	B	145	PHE
1	B	216	SER
1	G	35	LYS
1	G	145	PHE
1	G	164	ARG
1	G	167	ARG
2	N	8	MET
2	N	42	SER
2	N	82	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	54	ASN

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 ⓘ

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

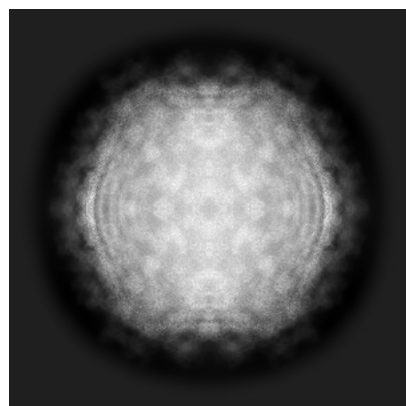
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-47984. These allow visual inspection of the internal detail of the map and identification of artifacts.

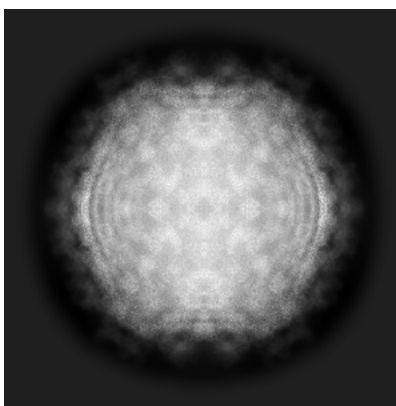
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

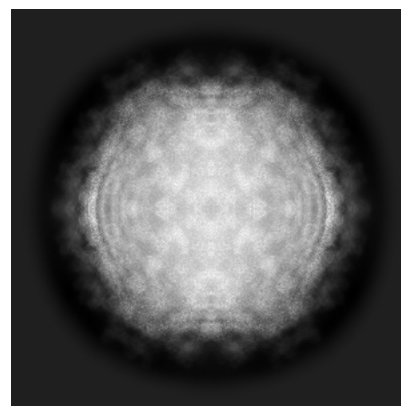
6.1.1 Primary map



X

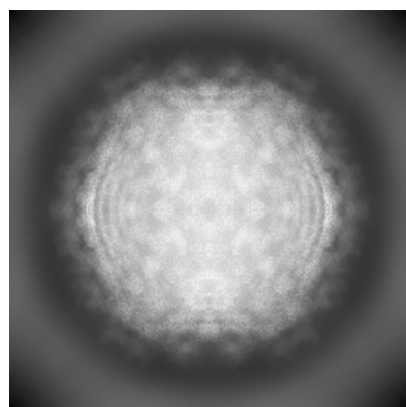


Y

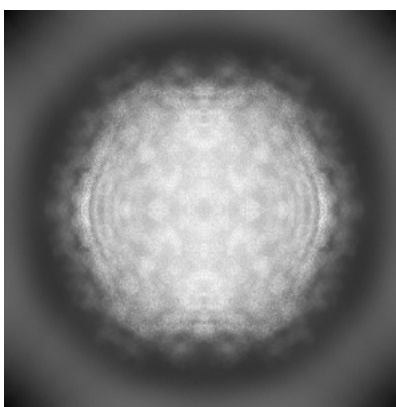


Z

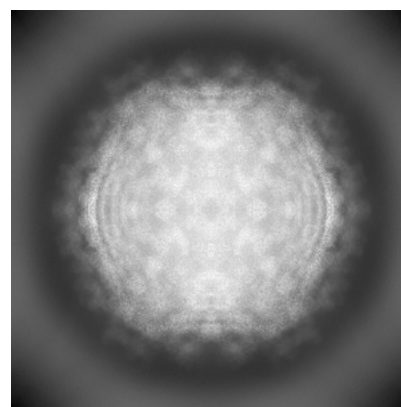
6.1.2 Raw map



X



Y

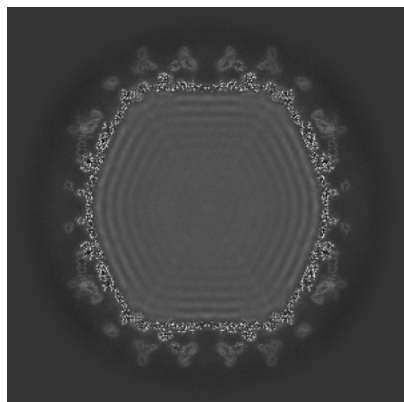


Z

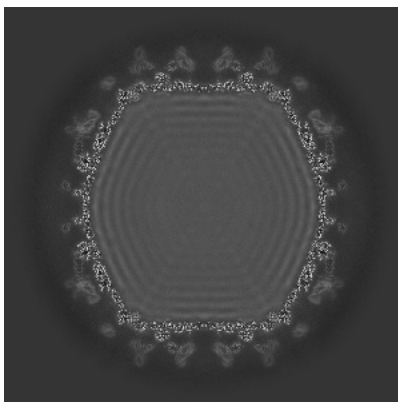
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

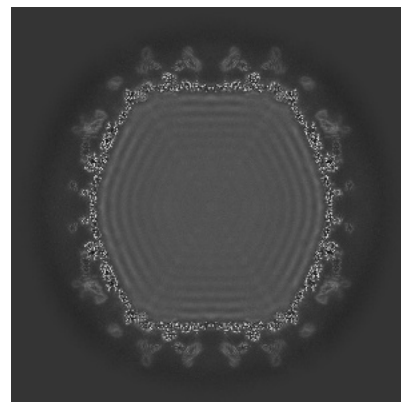
6.2.1 Primary map



X Index: 500

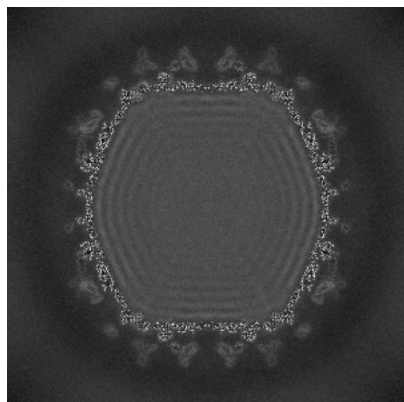


Y Index: 500

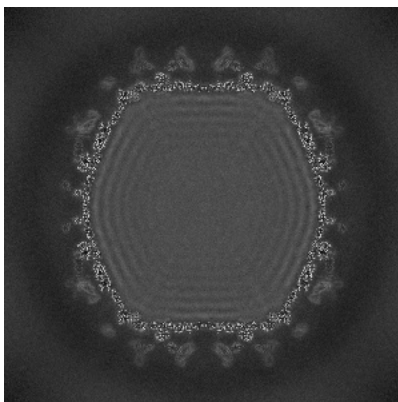


Z Index: 500

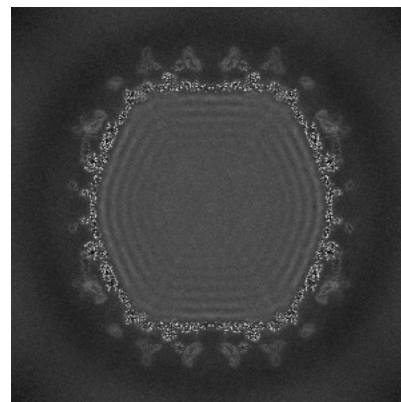
6.2.2 Raw map



X Index: 500



Y Index: 500

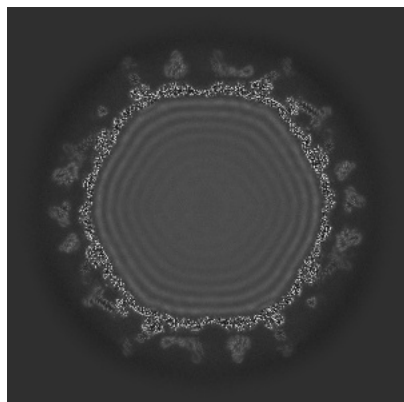


Z Index: 500

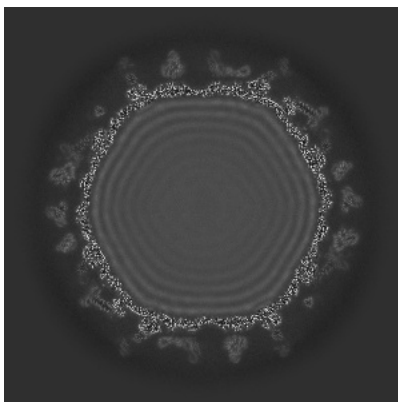
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

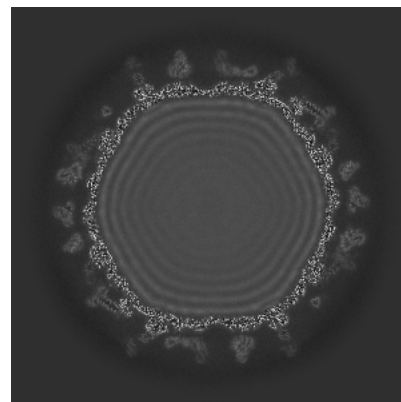
6.3.1 Primary map



X Index: 429

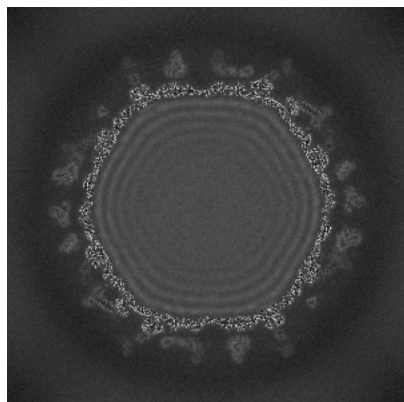


Y Index: 429

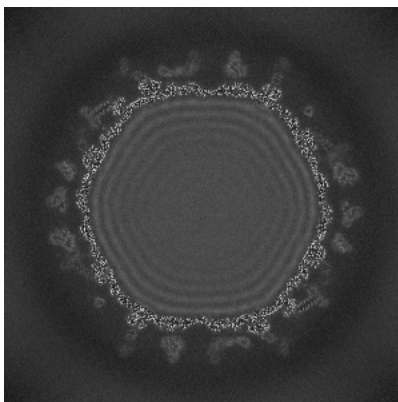


Z Index: 429

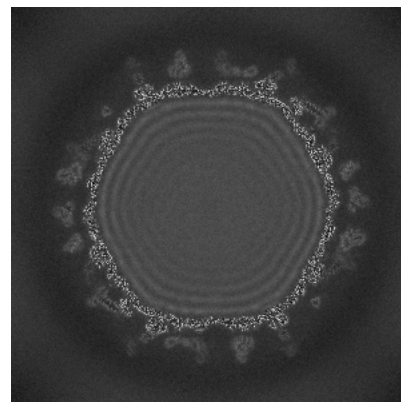
6.3.2 Raw map



X Index: 429



Y Index: 571

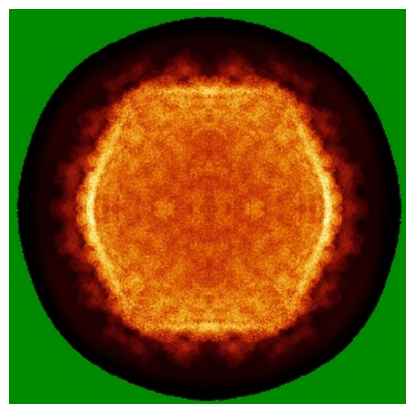


Z Index: 429

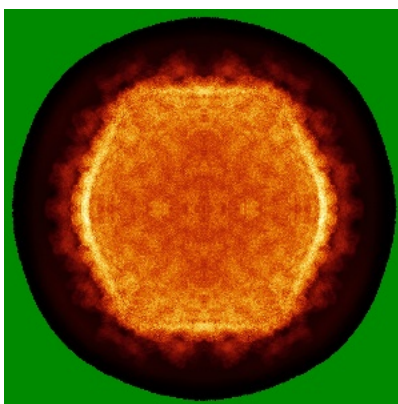
The images above show the largest variance slices of the map in three orthogonal directions.

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

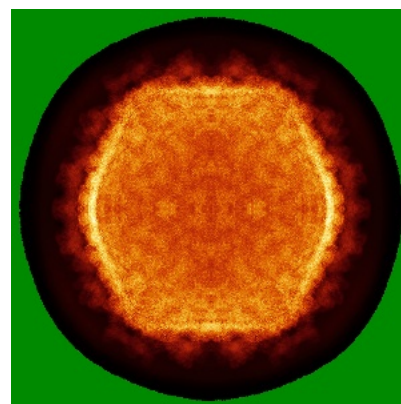
6.4.1 Primary map



X

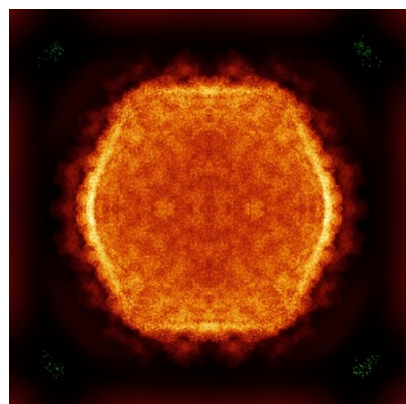


Y

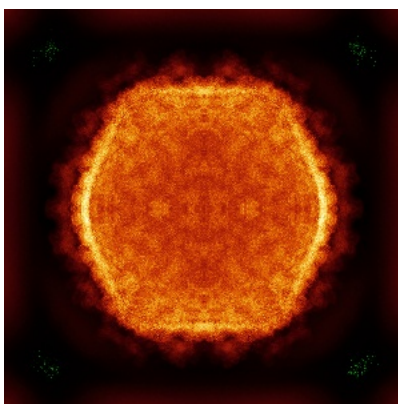


Z

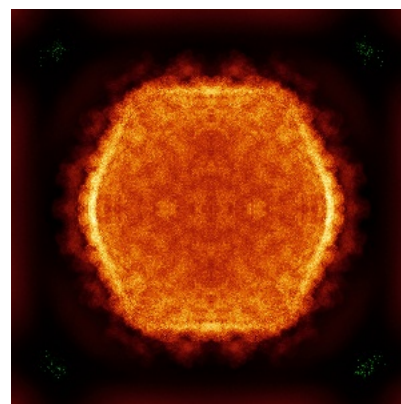
6.4.2 Raw map



X



Y



Z

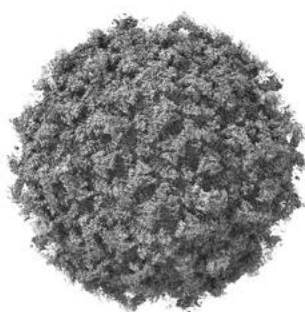
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.25. 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



X



Y



Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

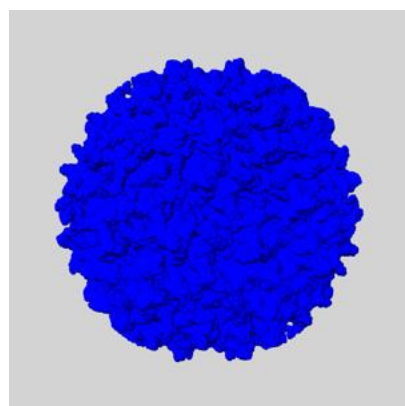
6.6 Mask visualisation [i](#)

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

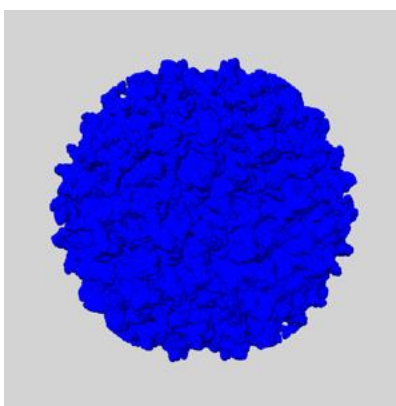
A mask typically either:

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

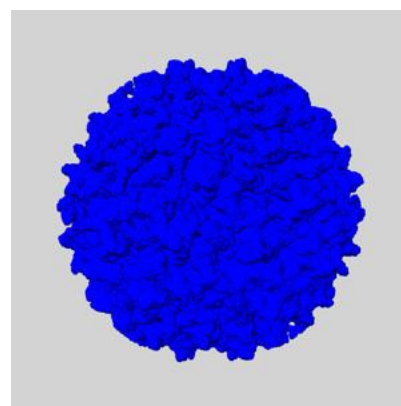
6.6.1 emd_47984_msk_1.map [i](#)



X



Y

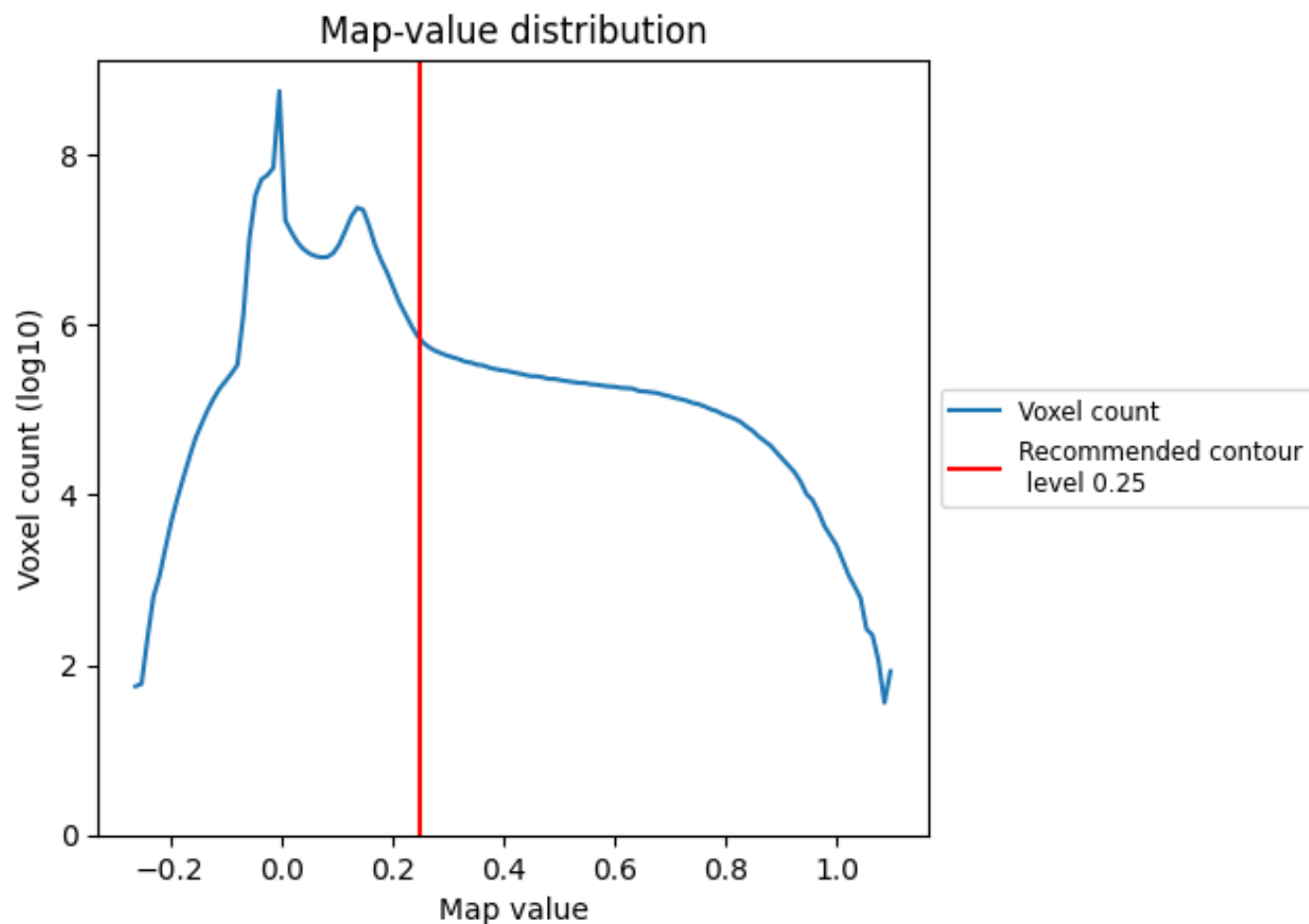


Z

7 Map analysis [i](#)

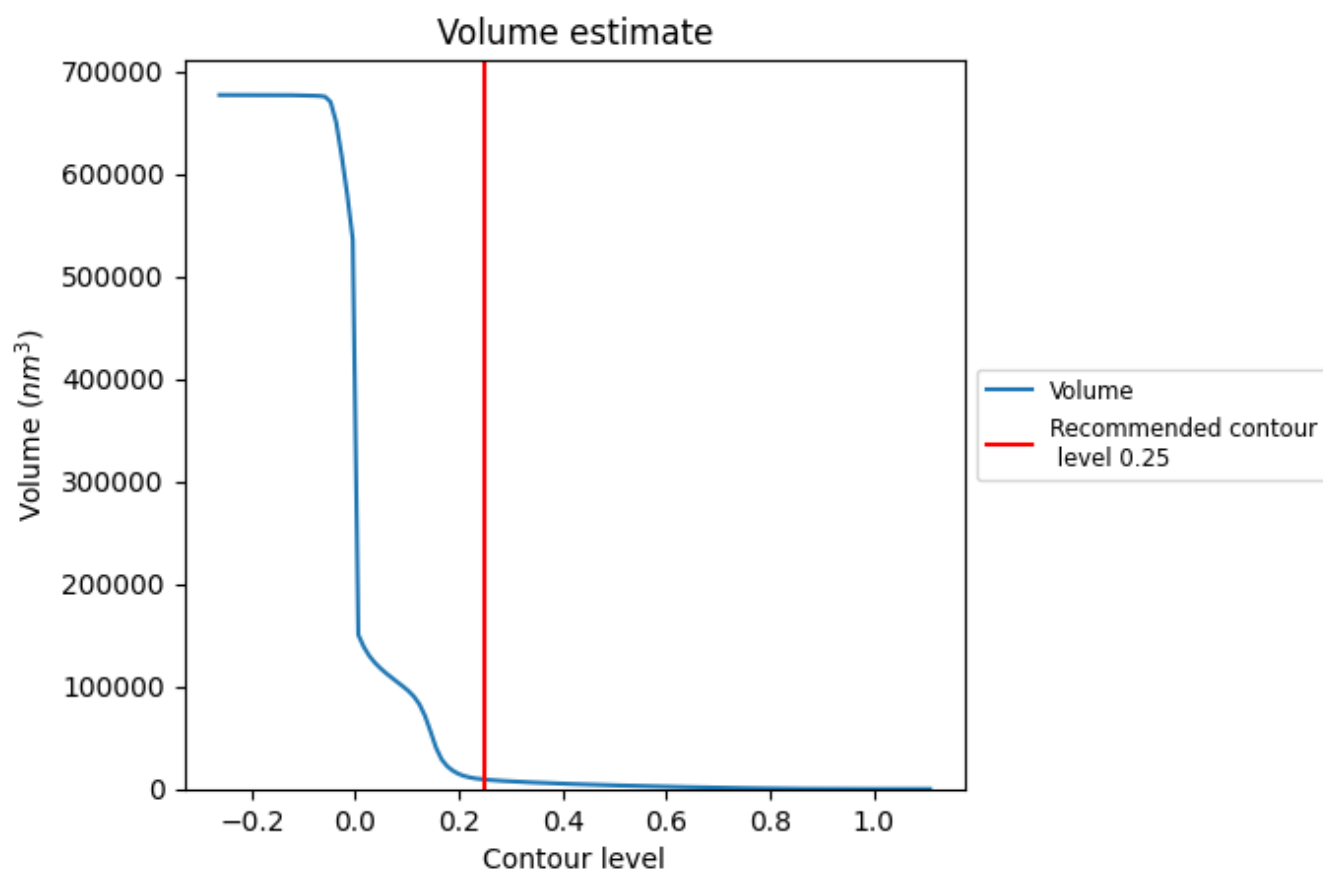
This section contains the results of statistical analysis of the map.

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.

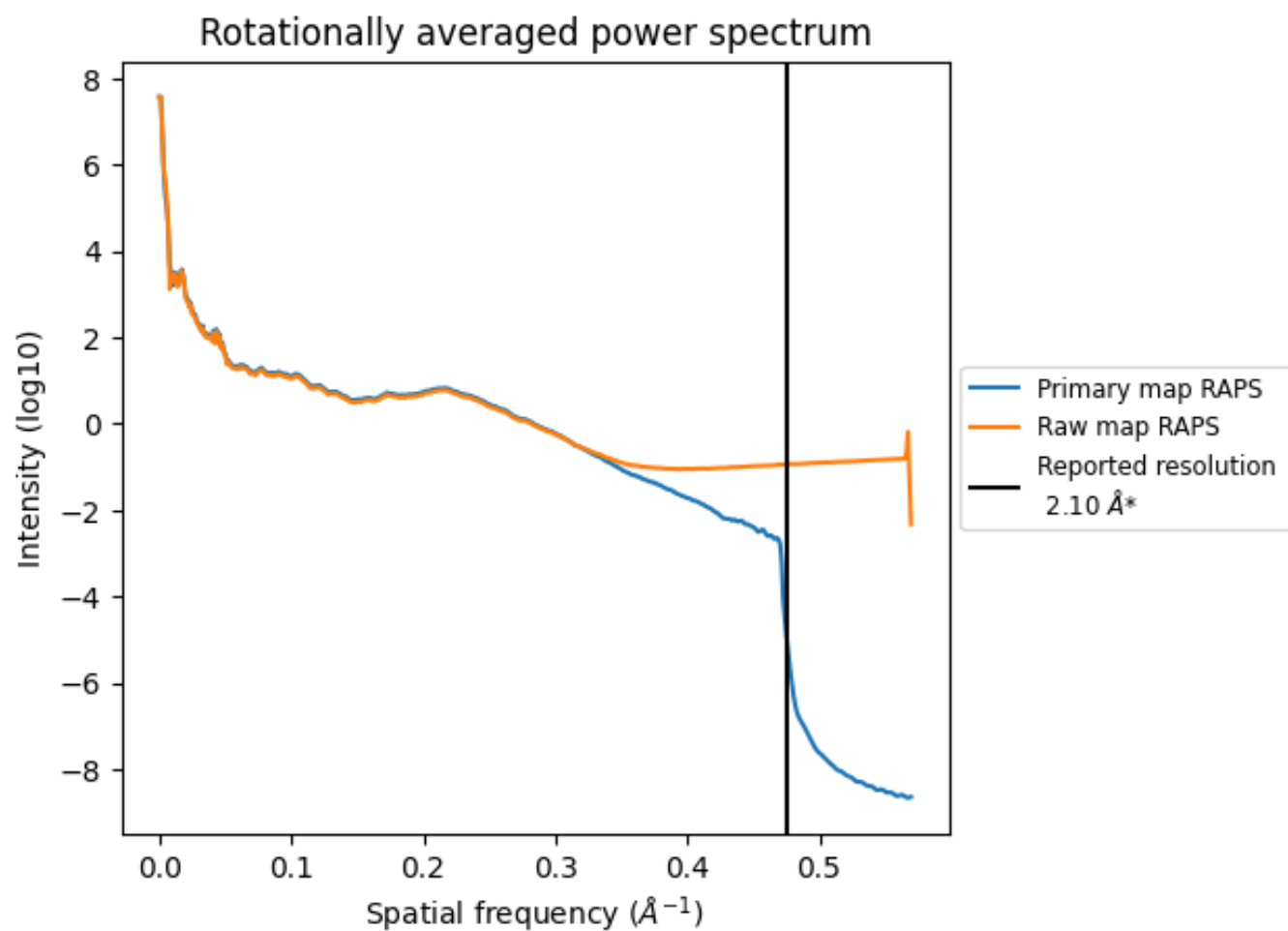
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 9134 nm³; this corresponds to an approximate mass of 8251 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 ⓘ

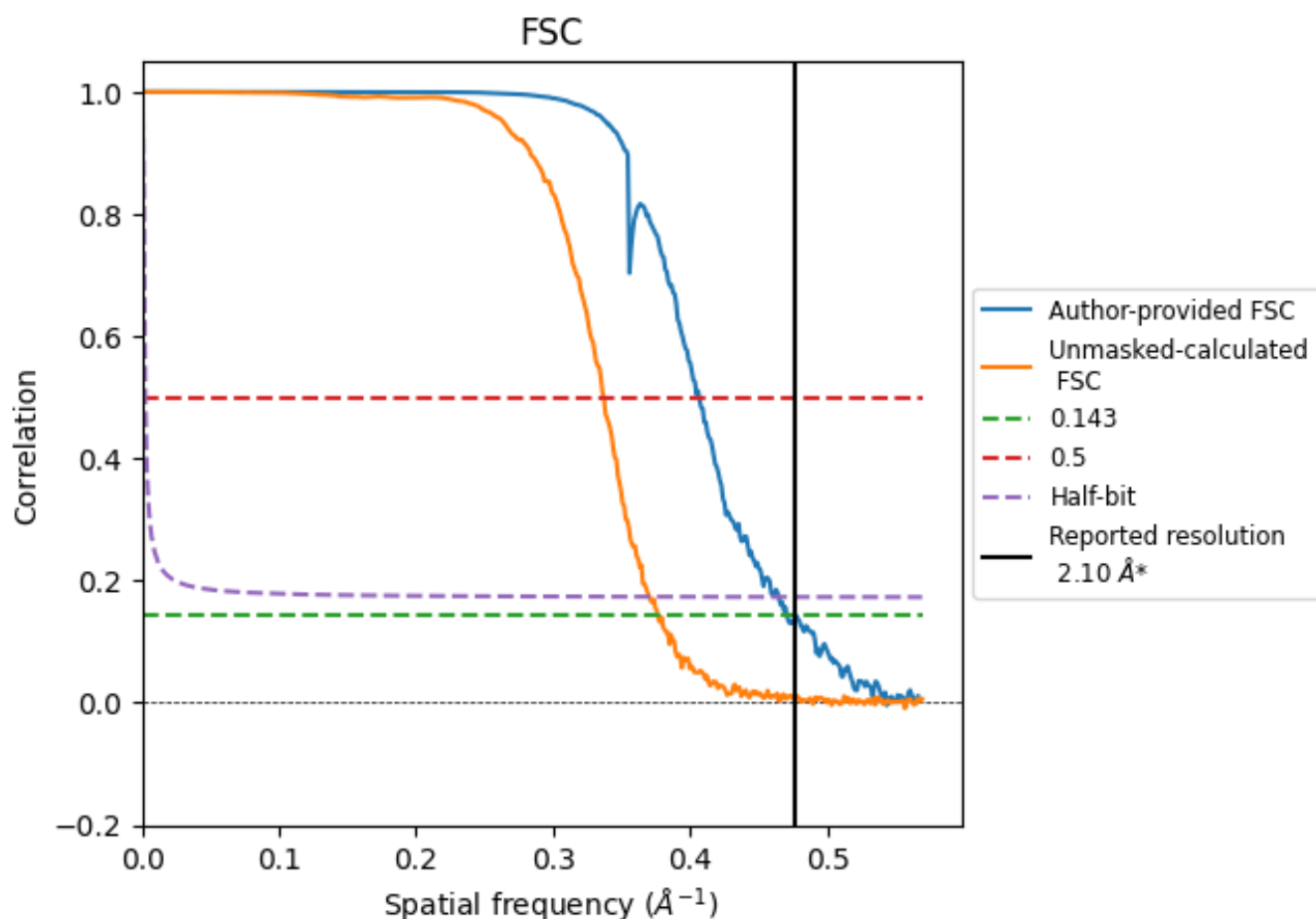


*Reported resolution corresponds to spatial frequency of 0.476 Å⁻¹

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 0.476 \AA^{-1}

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.10	-	-
Author-provided FSC curve	2.12	2.46	2.15
Unmasked-calculated*	2.66	2.97	2.70

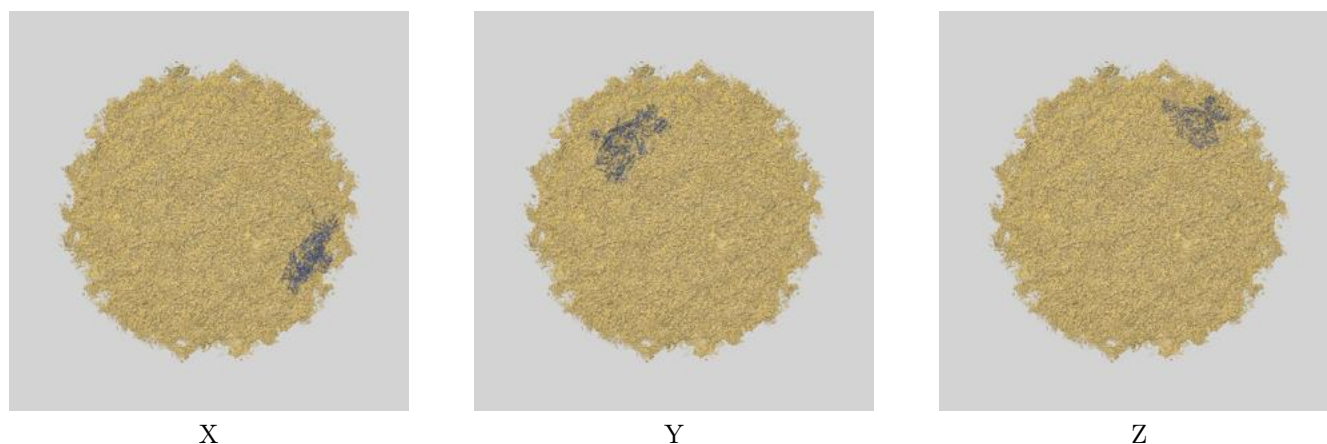
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 2.66 differs from the reported value 2.1 by more than 10 %

9 Map-model fit [i](#)

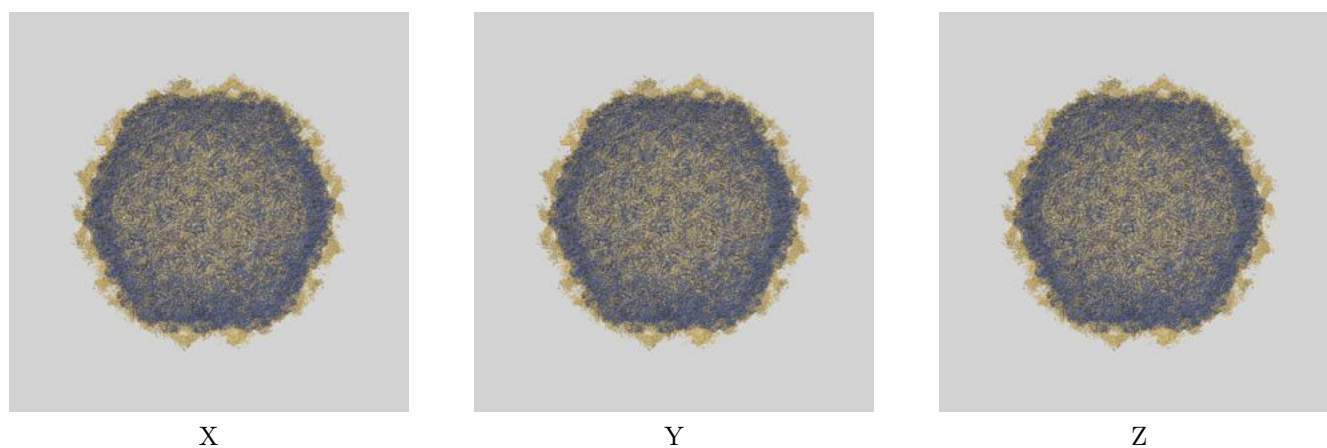
This section contains information regarding the fit between EMDB map EMD-47984 and PDB model 9EG4. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlays

9.1.1 Map-model overlay [i](#)



9.1.2 Map-model assembly overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.25 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](#)



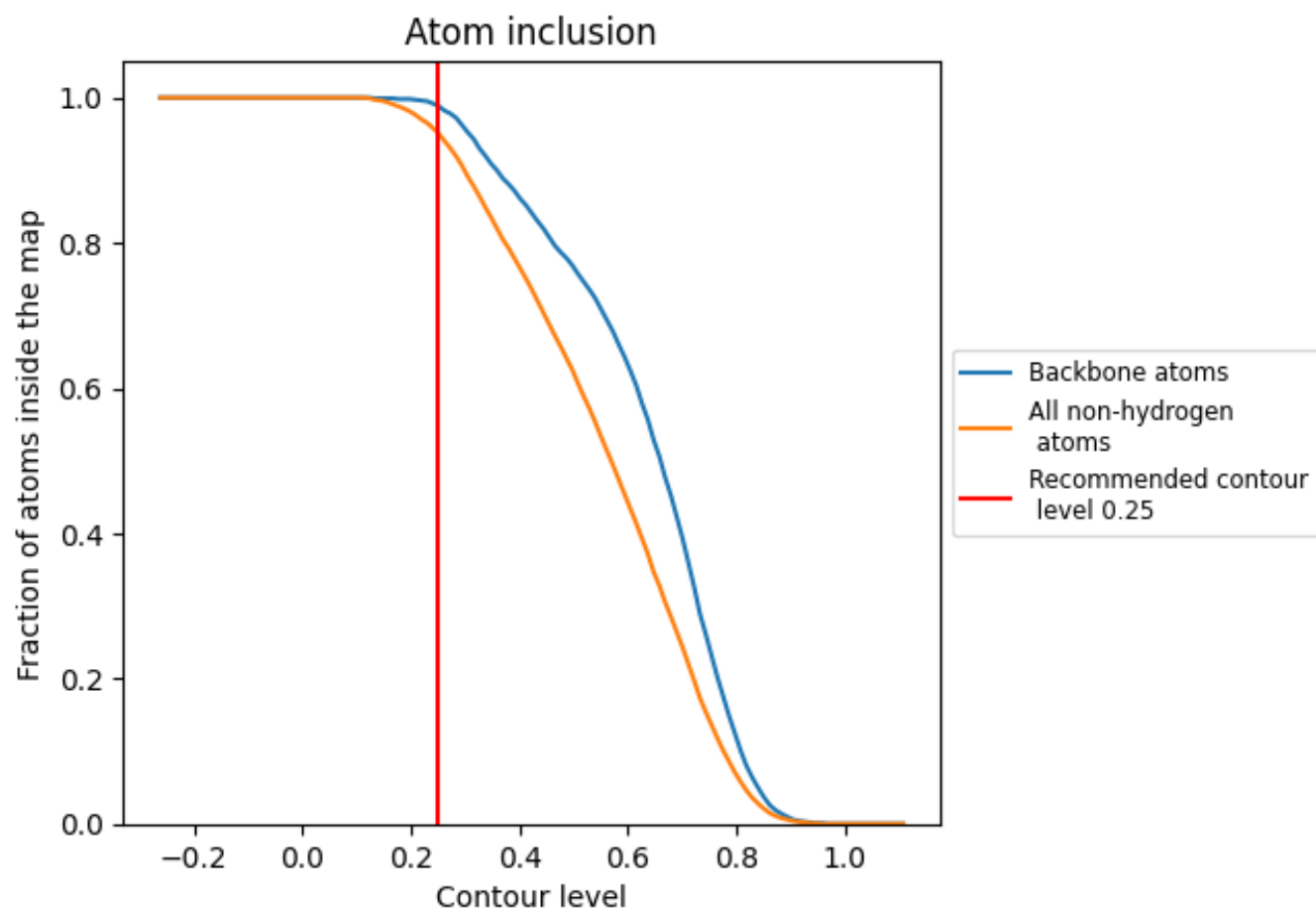
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.25).

9.4 Atom inclusion [i](#)



At the recommended contour level, 99% of all backbone atoms, 95% 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 (0.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div><div></div></div> 0.9520	<div><div></div></div> 0.5960
A	<div><div></div></div> 0.9480	<div><div></div></div> 0.5880
B	<div><div></div></div> 0.9480	<div><div></div></div> 0.5950
C	<div><div></div></div> 0.9440	<div><div></div></div> 0.5940
D	<div><div></div></div> 0.9500	<div><div></div></div> 0.6020
E	<div><div></div></div> 0.9500	<div><div></div></div> 0.6060
F	<div><div></div></div> 0.9490	<div><div></div></div> 0.6050
G	<div><div></div></div> 0.9540	<div><div></div></div> 0.5990
H	<div><div></div></div> 0.9640	<div><div></div></div> 0.5770
I	<div><div></div></div> 0.9490	<div><div></div></div> 0.5750
J	<div><div></div></div> 0.9490	<div><div></div></div> 0.5830
K	<div><div></div></div> 0.9720	<div><div></div></div> 0.5920
L	<div><div></div></div> 0.9600	<div><div></div></div> 0.5900
M	<div><div></div></div> 0.9640	<div><div></div></div> 0.5920
N	<div><div></div></div> 0.9710	<div><div></div></div> 0.5900

