



wwPDB EM Validation Summary Report ⓘ

Dec 3, 2024 – 05:30 AM JST

PDB ID : 9JYZ
EMDB ID : EMD-61910
Title : portal-tail complex of mature T7
Authors : Liu, H.R.; Chen, W.Y.
Deposited on : 2024-10-13
Resolution : 2.70 Å (reported)

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

We welcome your comments at validation@mail.wwpdb.org

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:

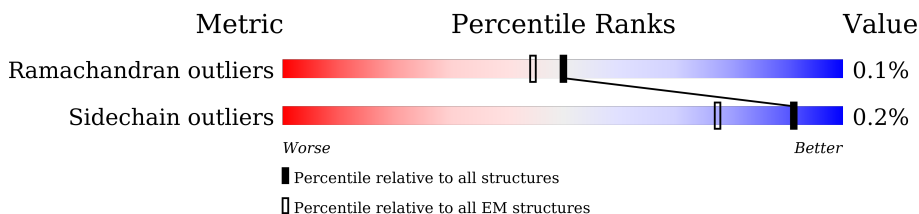
EMDB validation analysis : 0.0.1.dev113
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.40

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 2.70 Å.

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






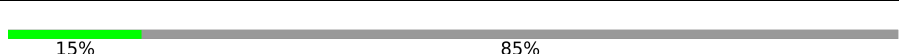
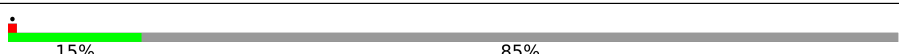
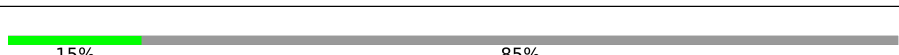
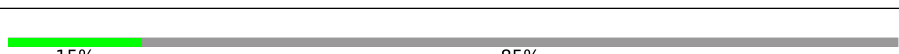
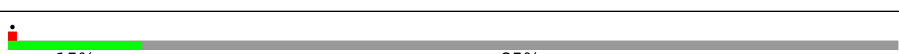





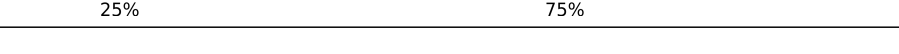











Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	0	88	 13% . 84%
1	3	88	 5% 13% . 84%
1	4	88	 5% 15% . 84%
1	5	88	 14% . 84%
1	6	88	 5% 14% . 84%
1	7	88	 6% 13% . 84%
1	8	88	 14% . 84%
1	9	88	 7% 14% . 84%
1	AA	88	 6% 13% .. 84%



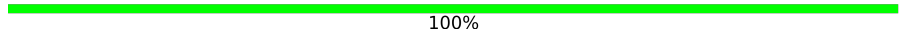
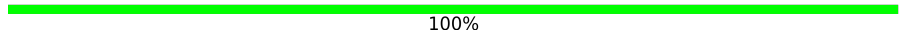
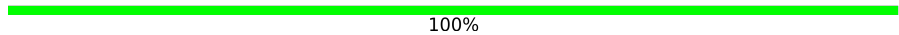
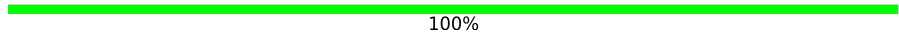
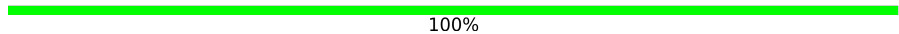
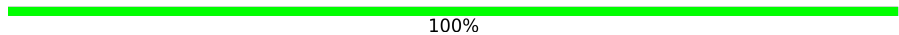
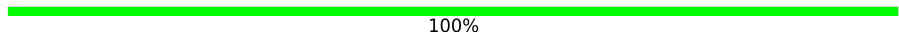
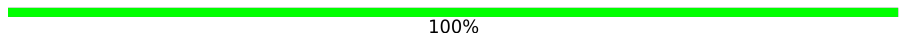
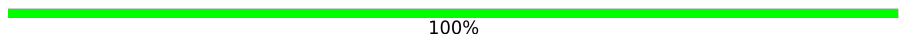
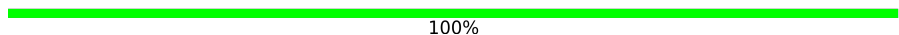
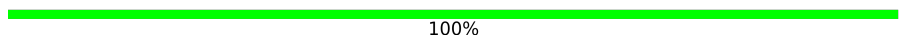
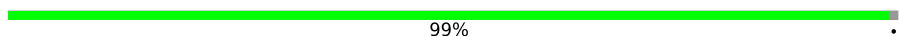

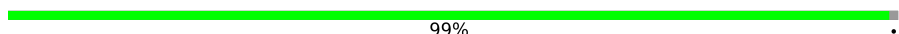
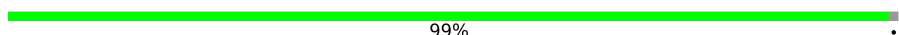
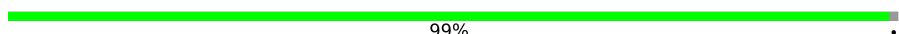
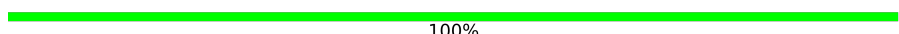
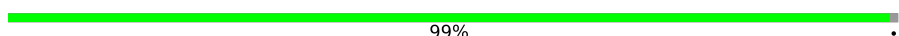
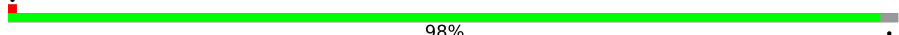
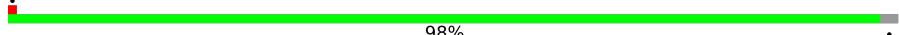
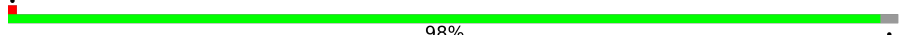
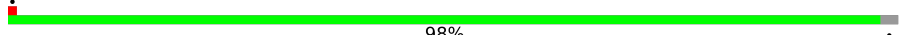
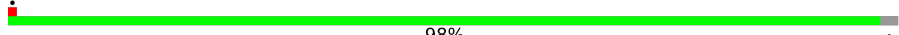
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Mol	Chain	Length	Quality of chain
1	AB	88	 14% 84%
1	AC	88	 6% 13% 84%
1	AD	88	 13% 84%
2	1	99	 15% 85%
2	2	99	 15% 85%
2	v	99	 15% 85%
2	w	99	 15% 85%
2	y	99	 15% 85%
2	z	99	 15% 85%
3	A	553	 25% 75%
3	B	553	 25% 75%
3	C	553	 25% 75%
3	D	553	 25% 75%
3	E	553	 25% 75%
3	F	553	 24% 76%
3	G	553	 24% 76%
3	H	553	 24% 76%
3	I	553	 24% 76%
3	J	553	 24% 76%
3	K	553	 25% 75%
3	L	553	 25% 75%
3	M	553	 25% 75%
3	N	553	 25% 75%
3	O	553	 25% 75%
3	a	553	 25% 75%

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Mol	Chain	Length	Quality of chain
3	b	553	 24% 76%
3	c	553	 25% 75%
4	P	794	 100%
4	Q	794	 100%
4	R	794	 100%
4	S	794	 100%
4	T	794	 100%
4	x	794	 100%
5	U	196	 100%
5	V	196	 100%
5	W	196	 100%
5	X	196	 100%
5	Y	196	 100%
5	Z	196	 99%
5	d	196	 99%
5	e	196	 99%
5	f	196	 99%
5	g	196	 99%
5	h	196	 100%
5	i	196	 99%
6	j	536	 98%
6	k	536	 98%
6	l	536	 98%
6	m	536	 98%
6	n	536	 98%

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Mol	Chain	Length	Quality of chain
6	o	536	<p>98%</p>
6	p	536	<p>98%</p>
6	q	536	<p>98%</p>
6	r	536	<p>98%</p>
6	s	536	<p>98%</p>
6	t	536	<p>98%</p>
6	u	536	<p>98%</p>

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 126948 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 Protein 6.7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	0	14	110	70	18	20	2	0	0
1	3	14	110	70	18	20	2	0	0
1	4	14	110	70	18	20	2	0	0
1	5	14	110	70	18	20	2	0	0
1	6	14	110	70	18	20	2	0	0
1	7	14	110	70	18	20	2	0	0
1	8	14	110	70	18	20	2	0	0
1	9	14	110	70	18	20	2	0	0
1	AA	14	110	70	18	20	2	0	0
1	AB	14	110	70	18	20	2	0	0
1	AC	14	110	70	18	20	2	0	0
1	AD	14	110	70	18	20	2	0	0

- Molecule 2 is a protein called Protein 7.3.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	1	15	101	60	21	20	0	0
2	2	15	101	60	21	20	0	0
2	v	15	101	60	21	20	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
2	w	15	Total	C	N	O	0	0
			101	60	21	20		
2	y	15	Total	C	N	O	0	0
			101	60	21	20		
2	z	15	Total	C	N	O	0	0
			101	60	21	20		

- Molecule 3 is a protein called Tail fiber protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	A	141	Total	C	N	O	S	0	0
			1115	698	201	215	1		
3	B	141	Total	C	N	O	S	0	0
			1115	698	201	215	1		
3	C	141	Total	C	N	O	S	0	0
			1115	698	201	215	1		
3	D	141	Total	C	N	O	S	0	0
			1115	698	201	215	1		
3	E	141	Total	C	N	O	S	0	0
			1115	698	201	215	1		
3	F	134	Total	C	N	O	S	0	0
			1067	668	192	206	1		
3	G	134	Total	C	N	O	S	0	0
			1067	668	192	206	1		
3	H	134	Total	C	N	O	S	0	0
			1067	668	192	206	1		
3	I	134	Total	C	N	O	S	0	0
			1067	668	192	206	1		
3	J	134	Total	C	N	O	S	0	0
			1067	668	192	206	1		
3	K	136	Total	C	N	O	S	0	0
			1080	675	195	209	1		
3	L	136	Total	C	N	O	S	0	0
			1080	675	195	209	1		
3	M	136	Total	C	N	O	S	0	0
			1080	675	195	209	1		
3	N	136	Total	C	N	O	S	0	0
			1080	675	195	209	1		
3	O	136	Total	C	N	O	S	0	0
			1080	675	195	209	1		
3	a	141	Total	C	N	O	S	0	0
			1115	698	201	215	1		

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Mol	Chain	Residues	Atoms					AltConf	Trace
3	b	134	Total	C	N	O	S	0	0
			1067	668	192	206	1		
3	c	136	Total	C	N	O	S	0	0
			1080	675	195	209	1		

- Molecule 4 is a protein called Tail tubular protein gp12.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	P	793	Total	C	N	O	S	0	0
			6313	4003	1087	1208	15		
4	Q	793	Total	C	N	O	S	0	0
			6313	4003	1087	1208	15		
4	R	793	Total	C	N	O	S	0	0
			6313	4003	1087	1208	15		
4	S	793	Total	C	N	O	S	0	0
			6313	4003	1087	1208	15		
4	T	793	Total	C	N	O	S	0	0
			6313	4003	1087	1208	15		
4	x	793	Total	C	N	O	S	0	0
			6313	4003	1087	1208	15		

- Molecule 5 is a protein called Tail tubular protein gp11.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	U	196	Total	C	N	O	S	0	0
			1565	971	267	318	9		
5	V	196	Total	C	N	O	S	0	0
			1565	971	267	318	9		
5	W	196	Total	C	N	O	S	0	0
			1565	971	267	318	9		
5	X	196	Total	C	N	O	S	0	0
			1565	971	267	318	9		
5	Y	196	Total	C	N	O	S	0	0
			1565	971	267	318	9		
5	Z	195	Total	C	N	O	S	0	0
			1557	966	266	317	8		
5	d	195	Total	C	N	O	S	0	0
			1557	966	266	317	8		
5	e	195	Total	C	N	O	S	0	0
			1557	966	266	317	8		
5	f	195	Total	C	N	O	S	0	0
			1557	966	266	317	8		

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Mol	Chain	Residues	Atoms					AltConf	Trace
5	g	195	Total	C	N	O	S	0	0
			1557	966	266	317	8		
5	h	196	Total	C	N	O	S	0	0
			1565	971	267	318	9		
5	i	195	Total	C	N	O	S	0	0
			1557	966	266	317	8		

- Molecule 6 is a protein called Portal protein.

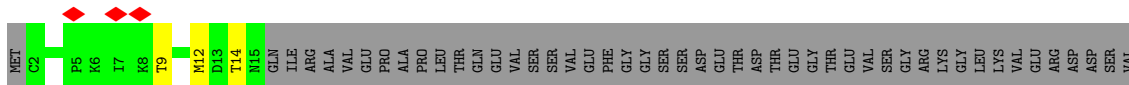
Mol	Chain	Residues	Atoms					AltConf	Trace
6	j	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	k	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	l	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	m	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	n	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	o	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	p	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	q	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	r	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	s	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	t	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		
6	u	526	Total	C	N	O	S	0	0
			4070	2549	692	806	23		

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.

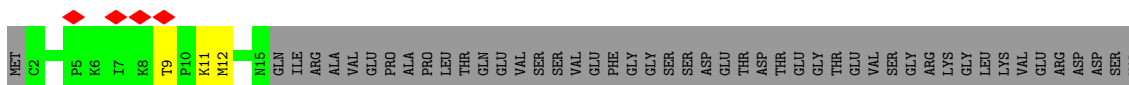
- Molecule 1: Protein 6.7

Chain 0: 



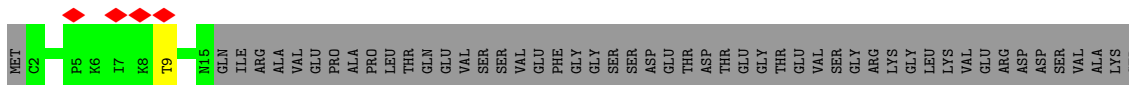
- Molecule 1: Protein 6.7

Chain 3: 



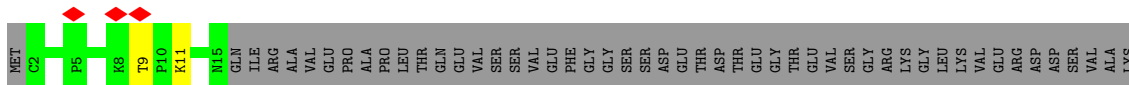
- Molecule 1: Protein 6.7

Chain 4: 



- Molecule 1: Protein 6.7

Chain 5: 



SER
LYS
LYS
ALA
SER
SER
GLY
GLY
ASN
GLY
SER
SER
ALA
ARG
MET
LYS
LYS
SER
SER
SER
ILE
ARG
LYS
LYS
SER
SER
ALA
PHE
GLY
GLY
LYS
LYS

• Molecule 1: Protein 6.7



MET C2 P5 K6 K7 I7 K8 T9 P10 K11 N15 GLN ILE ARG ALA VAL GLU PRO ALA PRO LEU THR GLN VAL VAL SER SER VAL VAL PHE GLY GLY SER SER ASP GLU THR ASP THR THR GLY THR VAL VAL SER SER ARG LYS GLY LEU LYS VAL VAL GLU ARG ASP ASP SER VAL ALA

LYS
SER
LYS
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ALA
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ASN
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MET
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ALA
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LYS
LYS

• Molecule 1: Protein 6.7



MET C2 P5 K6 K7 I7 K8 T9 P10 K11 N15 GLN ILE ARG ALA VAL GLU PRO ALA PRO LEU THR GLN VAL VAL SER SER VAL VAL PHE GLY GLY SER SER ASP GLU THR ASP THR THR GLY THR VAL VAL SER SER ARG LYS GLY LEU LYS VAL VAL GLU ARG ASP ASP SER VAL ALA

LYS
SER
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ALA
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GLY
ASN
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LYS
LYS

• Molecule 1: Protein 6.7



MET C2 P5 K6 K7 I7 K8 T9 P10 K11 N15 GLN ILE ARG ALA VAL GLU PRO ALA PRO LEU THR GLN VAL VAL SER SER VAL VAL PHE GLY GLY SER SER ASP GLU THR ASP THR THR GLY THR VAL VAL SER SER ARG LYS GLY LEU LYS VAL VAL GLU ARG ASP ASP SER VAL ALA

LYS
SER
LYS
LYS
ALA
SER
GLY
ASN
GLY
SER
ALA
ARG
MET
LYS
SER
SER
ILE
ARG
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LYS
SER
SER
ALA
PHE
GLY
GLY
LYS
LYS

• Molecule 1: Protein 6.7



MET C2 P5 K6 K7 I7 K8 T9 P10 K11 N15 GLN ILE ARG ALA VAL GLU PRO ALA PRO LEU THR GLN VAL VAL SER SER VAL VAL PHE GLY GLY SER SER ASP GLU THR ASP THR THR GLY THR VAL VAL SER SER ARG LYS GLY LEU LYS VAL VAL GLU ARG ASP ASP SER VAL ALA

LYS
SER
LYS
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ALA
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LYS

• Molecule 1: Protein 6.7



MET C2 P5 K6 K7 I7 K8 T9 P10 K11 K12 N15 GLN ILE ARG ALA VAL GLU PRO ALA PRO LEU THR GLN VAL VAL SER SER VAL VAL PHE GLY GLY SER SER ASP GLU THR ASP THR THR GLY THR VAL VAL SER SER ARG LYS GLY LEU LYS VAL VAL GLU ARG ASP ASP SER VAL ALA

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• Molecule 1: Protein 6.7



MET C2 P5 K6 K7 K8 T9 P10 K11 N15 GLN ILE ARG ALA VAL ARG VAL PRO ALA PRO PHE LEU THR GLN GLU VAL SER SER VAL VAL PHE GLY GLY SER SER ASP ASP THR ASP THR GLU THR GLU VAL SER GLY ARG LYS LEU VAL VAL ARG ASP ASP SER VAL

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• Molecule 1: Protein 6.7



MET C2 P5 K6 K7 K8 T9 P10 K11 M12 N15 GLN ILE ARG ALA VAL SER VAL VAL PHE GLY GLY SER SER ASP ASP THR ASP THR GLU THR GLU VAL SER GLY ARG LYS LEU VAL VAL ARG ASP ASP SER VAL

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• Molecule 1: Protein 6.7



MET C2 I7 K8 T9 P10 K11 M12 N15 GLN ILE ARG ALA VAL SER VAL VAL PHE GLY GLY SER SER ASP ASP THR ASP THR GLU THR GLU VAL SER GLY ARG LYS LEU VAL VAL ARG ASP ASP SER VAL

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• Molecule 2: Protein 7.3



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ARG
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ALA
GLY
GLY
K84
N98
ILE

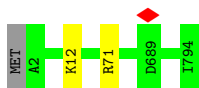
• Molecule 2: Protein 7.3



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GLY
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LYS
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VAL
ALA
ARG
ALA
GLY
GLY
K84
R91
N98
ILE

Chain x:  100%



- Molecule 5: Tail tubular protein gp11

Chain U:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: Tail tubular protein gp11

Chain V:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: Tail tubular protein gp11

Chain W:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: Tail tubular protein gp11

Chain X:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: Tail tubular protein gp11

Chain Y:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: Tail tubular protein gp11

Chain Z:  99%



- Molecule 5: Tail tubular protein gp11

Chain d:  99%



- Molecule 5: Tail tubular protein gp11

Chain e:  99%



- Molecule 5: Tail tubular protein gp11

Chain f:  99%



- Molecule 5: Tail tubular protein gp11

Chain g:  99%



- Molecule 5: Tail tubular protein gp11

Chain h:  100%

There are no outlier residues recorded for this chain.

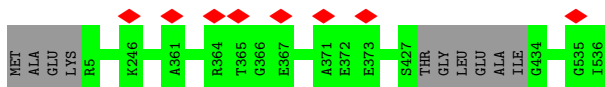
- Molecule 5: Tail tubular protein gp11

Chain i:  99%



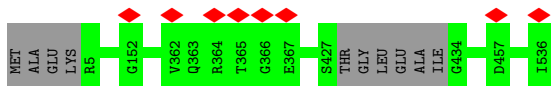
- Molecule 6: Portal protein

Chain j:  98%

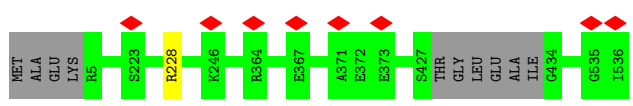


- Molecule 6: Portal protein

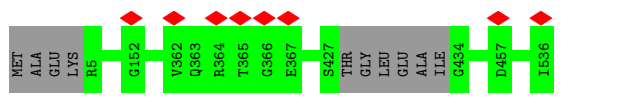
Chain k:  98%



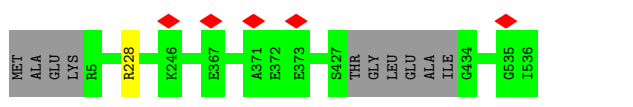
- Molecule 6: Portal protein



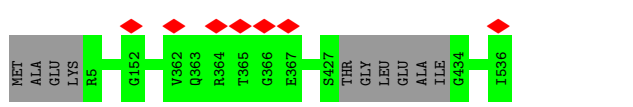
• Molecule 6: Portal protein



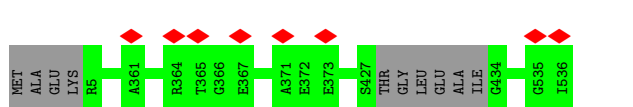
• Molecule 6: Portal protein



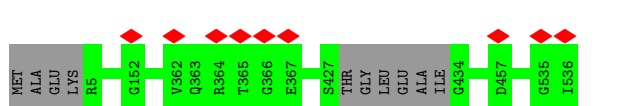
• Molecule 6: Portal protein



• Molecule 6: Portal protein



• Molecule 6: Portal protein

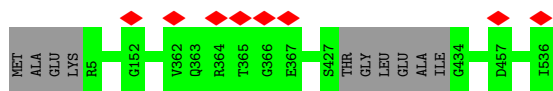


• Molecule 6: Portal protein





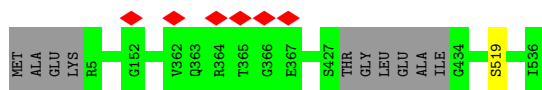
- Molecule 6: Portal protein



- Molecule 6: Portal protein



- Molecule 6: Portal protein



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	65620	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 ($e^-/\text{\AA}^2$)	35	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	4000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	57.231	Depositor
Minimum map value	-33.541	Depositor
Average map value	-0.002	Depositor
Map value standard deviation	2.152	Depositor
Recommended contour level	2	Depositor
Map size (\AA)	423.99997, 423.99997, 423.99997	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.06, 1.06, 1.06	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	0	0.40	0/112	0.87	0/149
1	3	0.35	0/112	0.86	0/149
1	4	0.39	0/112	0.89	0/149
1	5	0.34	0/112	0.92	0/149
1	6	0.40	0/112	0.88	0/149
1	7	0.36	0/112	0.97	0/149
1	8	0.38	0/112	0.87	0/149
1	9	0.26	0/112	0.54	0/149
1	AA	0.33	0/112	0.90	0/149
1	AB	0.41	0/112	0.89	0/149
1	AC	0.34	0/112	0.92	0/149
1	AD	0.37	0/112	0.87	0/149
2	1	0.24	0/100	0.60	0/130
2	2	0.24	0/100	0.61	0/130
2	v	0.25	0/100	0.61	0/130
2	w	0.24	0/100	0.61	0/130
2	y	0.24	0/100	0.62	0/130
2	z	0.25	0/100	0.61	0/130
3	A	0.25	0/1130	0.54	0/1538
3	B	0.26	0/1130	0.54	0/1538
3	C	0.26	0/1130	0.54	0/1538
3	D	0.26	0/1130	0.54	0/1538
3	E	0.26	0/1130	0.54	0/1538
3	F	0.24	0/1082	0.52	0/1471
3	G	0.24	0/1082	0.53	0/1471
3	H	0.25	0/1082	0.53	0/1471
3	I	0.25	0/1082	0.54	0/1471
3	J	0.24	0/1082	0.52	0/1471
3	K	0.25	0/1095	0.54	0/1489
3	L	0.24	0/1095	0.53	0/1489
3	M	0.24	0/1095	0.53	0/1489
3	N	0.25	0/1095	0.53	0/1489
3	O	0.24	0/1095	0.53	0/1489
3	a	0.26	0/1130	0.54	0/1538

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
3	b	0.25	0/1082	0.54	0/1471
3	c	0.24	0/1095	0.53	0/1489
4	P	0.27	0/6473	0.50	0/8804
4	Q	0.27	0/6473	0.50	0/8804
4	R	0.27	0/6473	0.50	0/8804
4	S	0.28	0/6473	0.50	0/8804
4	T	0.27	0/6473	0.50	0/8804
4	x	0.27	0/6473	0.50	0/8804
5	U	0.29	0/1592	0.49	0/2153
5	V	0.28	0/1592	0.49	0/2153
5	W	0.28	0/1592	0.49	0/2153
5	X	0.28	0/1592	0.49	0/2153
5	Y	0.30	0/1592	0.50	0/2153
5	Z	0.29	0/1584	0.49	0/2143
5	d	0.28	0/1584	0.50	0/2143
5	e	0.28	0/1584	0.50	0/2143
5	f	0.29	0/1584	0.49	0/2143
5	g	0.28	0/1584	0.50	0/2143
5	h	0.28	0/1592	0.48	0/2153
5	i	0.28	0/1584	0.50	0/2143
6	j	0.26	0/4131	0.48	0/5590
6	k	0.26	0/4131	0.47	0/5590
6	l	0.26	0/4131	0.47	0/5590
6	m	0.26	0/4131	0.47	0/5590
6	n	0.26	0/4131	0.48	0/5590
6	o	0.26	0/4131	0.47	0/5590
6	p	0.26	0/4131	0.48	0/5590
6	q	0.26	0/4131	0.47	0/5590
6	r	0.26	0/4131	0.47	0/5590
6	s	0.26	0/4131	0.47	0/5590
6	t	0.26	0/4131	0.48	0/5590
6	u	0.26	0/4131	0.47	0/5590
All	All	0.27	0/129252	0.50	0/175236

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](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	0	12/88 (14%)	11 (92%)	0	1 (8%)	0	1
1	3	12/88 (14%)	11 (92%)	0	1 (8%)	0	1
1	4	12/88 (14%)	11 (92%)	0	1 (8%)	0	1
1	5	12/88 (14%)	11 (92%)	0	1 (8%)	0	1
1	6	12/88 (14%)	11 (92%)	0	1 (8%)	0	1
1	7	12/88 (14%)	10 (83%)	1 (8%)	1 (8%)	0	1
1	8	12/88 (14%)	11 (92%)	0	1 (8%)	0	1
1	9	12/88 (14%)	10 (83%)	1 (8%)	1 (8%)	0	1
1	AA	12/88 (14%)	11 (92%)	0	1 (8%)	0	1
1	AB	12/88 (14%)	11 (92%)	0	1 (8%)	0	1
1	AC	12/88 (14%)	11 (92%)	0	1 (8%)	0	1
1	AD	12/88 (14%)	10 (83%)	1 (8%)	1 (8%)	0	1
2	1	13/99 (13%)	12 (92%)	1 (8%)	0	100	100
2	2	13/99 (13%)	12 (92%)	1 (8%)	0	100	100
2	v	13/99 (13%)	12 (92%)	1 (8%)	0	100	100
2	w	13/99 (13%)	12 (92%)	1 (8%)	0	100	100
2	y	13/99 (13%)	12 (92%)	1 (8%)	0	100	100
2	z	13/99 (13%)	12 (92%)	1 (8%)	0	100	100
3	A	139/553 (25%)	135 (97%)	4 (3%)	0	100	100
3	B	139/553 (25%)	134 (96%)	5 (4%)	0	100	100
3	C	139/553 (25%)	134 (96%)	5 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	D	139/553 (25%)	134 (96%)	5 (4%)	0	100	100
3	E	139/553 (25%)	135 (97%)	4 (3%)	0	100	100
3	F	132/553 (24%)	128 (97%)	4 (3%)	0	100	100
3	G	132/553 (24%)	129 (98%)	3 (2%)	0	100	100
3	H	132/553 (24%)	129 (98%)	3 (2%)	0	100	100
3	I	132/553 (24%)	128 (97%)	4 (3%)	0	100	100
3	J	132/553 (24%)	129 (98%)	3 (2%)	0	100	100
3	K	134/553 (24%)	127 (95%)	7 (5%)	0	100	100
3	L	134/553 (24%)	127 (95%)	7 (5%)	0	100	100
3	M	134/553 (24%)	127 (95%)	7 (5%)	0	100	100
3	N	134/553 (24%)	127 (95%)	7 (5%)	0	100	100
3	O	134/553 (24%)	127 (95%)	7 (5%)	0	100	100
3	a	139/553 (25%)	134 (96%)	5 (4%)	0	100	100
3	b	132/553 (24%)	128 (97%)	4 (3%)	0	100	100
3	c	134/553 (24%)	127 (95%)	7 (5%)	0	100	100
4	P	791/794 (100%)	773 (98%)	18 (2%)	0	100	100
4	Q	791/794 (100%)	775 (98%)	16 (2%)	0	100	100
4	R	791/794 (100%)	776 (98%)	15 (2%)	0	100	100
4	S	791/794 (100%)	774 (98%)	17 (2%)	0	100	100
4	T	791/794 (100%)	775 (98%)	16 (2%)	0	100	100
4	x	791/794 (100%)	774 (98%)	17 (2%)	0	100	100
5	U	194/196 (99%)	193 (100%)	1 (0%)	0	100	100
5	V	194/196 (99%)	192 (99%)	2 (1%)	0	100	100
5	W	194/196 (99%)	193 (100%)	1 (0%)	0	100	100
5	X	194/196 (99%)	193 (100%)	1 (0%)	0	100	100
5	Y	194/196 (99%)	193 (100%)	1 (0%)	0	100	100
5	Z	193/196 (98%)	191 (99%)	2 (1%)	0	100	100
5	d	193/196 (98%)	191 (99%)	2 (1%)	0	100	100
5	e	193/196 (98%)	191 (99%)	2 (1%)	0	100	100
5	f	193/196 (98%)	191 (99%)	2 (1%)	0	100	100
5	g	193/196 (98%)	191 (99%)	2 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	h	194/196 (99%)	192 (99%)	2 (1%)	0	100	100
5	i	193/196 (98%)	191 (99%)	2 (1%)	0	100	100
6	j	522/536 (97%)	514 (98%)	8 (2%)	0	100	100
6	k	522/536 (97%)	513 (98%)	9 (2%)	0	100	100
6	l	522/536 (97%)	515 (99%)	7 (1%)	0	100	100
6	m	522/536 (97%)	515 (99%)	7 (1%)	0	100	100
6	n	522/536 (97%)	515 (99%)	7 (1%)	0	100	100
6	o	522/536 (97%)	513 (98%)	9 (2%)	0	100	100
6	p	522/536 (97%)	514 (98%)	8 (2%)	0	100	100
6	q	522/536 (97%)	515 (99%)	7 (1%)	0	100	100
6	r	522/536 (97%)	515 (99%)	7 (1%)	0	100	100
6	s	522/536 (97%)	514 (98%)	8 (2%)	0	100	100
6	t	522/536 (97%)	514 (98%)	8 (2%)	0	100	100
6	u	522/536 (97%)	514 (98%)	8 (2%)	0	100	100
All	All	15984/25152 (64%)	15660 (98%)	312 (2%)	12 (0%)	50	73

5 of 12 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	9	9	THR
1	0	9	THR
1	6	9	THR
1	AB	9	THR
1	AC	9	THR

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	14/73 (19%)	12 (86%)	2 (14%)	2	7
1	3	14/73 (19%)	12 (86%)	2 (14%)	2	7

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	4	14/73 (19%)	14 (100%)	0	100	100
1	5	14/73 (19%)	13 (93%)	1 (7%)	12	30
1	6	14/73 (19%)	13 (93%)	1 (7%)	12	30
1	7	14/73 (19%)	12 (86%)	2 (14%)	2	7
1	8	14/73 (19%)	13 (93%)	1 (7%)	12	30
1	9	14/73 (19%)	13 (93%)	1 (7%)	12	30
1	AA	14/73 (19%)	11 (79%)	3 (21%)	1	2
1	AB	14/73 (19%)	13 (93%)	1 (7%)	12	30
1	AC	14/73 (19%)	11 (79%)	3 (21%)	1	2
1	AD	14/73 (19%)	12 (86%)	2 (14%)	2	7
2	1	11/72 (15%)	11 (100%)	0	100	100
2	2	11/72 (15%)	11 (100%)	0	100	100
2	v	11/72 (15%)	11 (100%)	0	100	100
2	w	11/72 (15%)	11 (100%)	0	100	100
2	y	11/72 (15%)	11 (100%)	0	100	100
2	z	11/72 (15%)	11 (100%)	0	100	100
3	A	122/451 (27%)	122 (100%)	0	100	100
3	B	122/451 (27%)	122 (100%)	0	100	100
3	C	122/451 (27%)	122 (100%)	0	100	100
3	D	122/451 (27%)	122 (100%)	0	100	100
3	E	122/451 (27%)	122 (100%)	0	100	100
3	F	117/451 (26%)	117 (100%)	0	100	100
3	G	117/451 (26%)	117 (100%)	0	100	100
3	H	117/451 (26%)	117 (100%)	0	100	100
3	I	117/451 (26%)	117 (100%)	0	100	100
3	J	117/451 (26%)	117 (100%)	0	100	100
3	K	118/451 (26%)	118 (100%)	0	100	100
3	L	118/451 (26%)	118 (100%)	0	100	100
3	M	118/451 (26%)	118 (100%)	0	100	100
3	N	118/451 (26%)	118 (100%)	0	100	100
3	O	118/451 (26%)	118 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	a	122/451 (27%)	122 (100%)	0	100	100
3	b	117/451 (26%)	117 (100%)	0	100	100
3	c	118/451 (26%)	118 (100%)	0	100	100
4	P	687/688 (100%)	687 (100%)	0	100	100
4	Q	687/688 (100%)	686 (100%)	1 (0%)	92	98
4	R	687/688 (100%)	685 (100%)	2 (0%)	91	97
4	S	687/688 (100%)	686 (100%)	1 (0%)	92	98
4	T	687/688 (100%)	687 (100%)	0	100	100
4	x	687/688 (100%)	685 (100%)	2 (0%)	91	97
5	U	169/169 (100%)	169 (100%)	0	100	100
5	V	169/169 (100%)	169 (100%)	0	100	100
5	W	169/169 (100%)	169 (100%)	0	100	100
5	X	169/169 (100%)	169 (100%)	0	100	100
5	Y	169/169 (100%)	169 (100%)	0	100	100
5	Z	168/169 (99%)	168 (100%)	0	100	100
5	d	168/169 (99%)	168 (100%)	0	100	100
5	e	168/169 (99%)	168 (100%)	0	100	100
5	f	168/169 (99%)	168 (100%)	0	100	100
5	g	168/169 (99%)	168 (100%)	0	100	100
5	h	169/169 (100%)	169 (100%)	0	100	100
5	i	168/169 (99%)	168 (100%)	0	100	100
6	j	435/442 (98%)	435 (100%)	0	100	100
6	k	435/442 (98%)	435 (100%)	0	100	100
6	l	435/442 (98%)	434 (100%)	1 (0%)	92	98
6	m	435/442 (98%)	435 (100%)	0	100	100
6	n	435/442 (98%)	434 (100%)	1 (0%)	92	98
6	o	435/442 (98%)	435 (100%)	0	100	100
6	p	435/442 (98%)	435 (100%)	0	100	100
6	q	435/442 (98%)	435 (100%)	0	100	100
6	r	435/442 (98%)	434 (100%)	1 (0%)	92	98
6	s	435/442 (98%)	435 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
6	t	435/442 (98%)	434 (100%)	1 (0%)	92	98
6	u	435/442 (98%)	434 (100%)	1 (0%)	92	98
All	All	13740/20886 (66%)	13710 (100%)	30 (0%)	91	98

5 of 30 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	AC	9	THR
6	u	519	SER
1	AD	11	LYS
4	x	71	ARG
6	n	228	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 21 such sidechains are listed below:

Mol	Chain	Res	Type
6	p	335	GLN
6	t	335	GLN
4	x	384	ASN
6	u	498	GLN
6	s	515	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

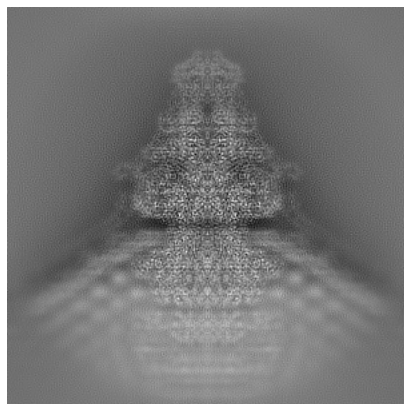
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-61910. These allow visual inspection of the internal detail of the map and identification of artifacts.

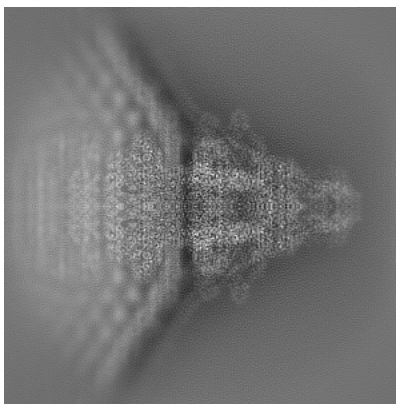
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

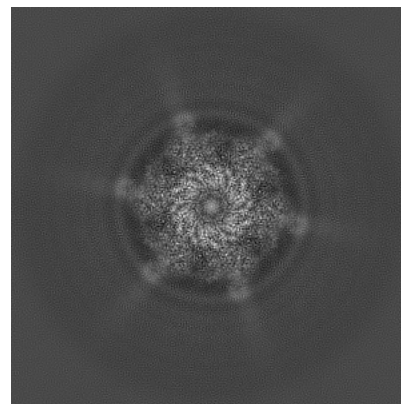
6.1.1 Primary map



X

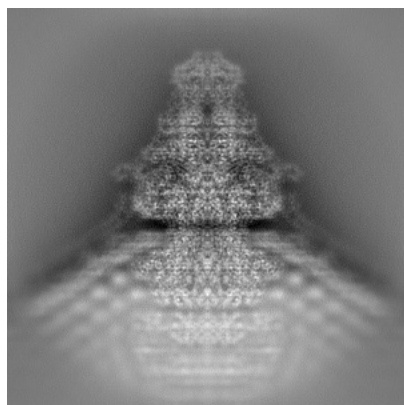


Y

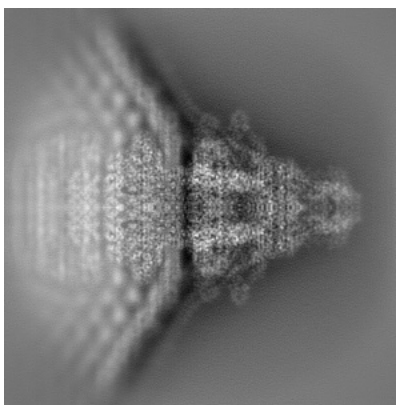


Z

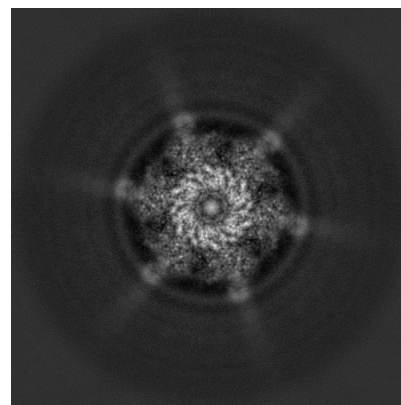
6.1.2 Raw map



X



Y

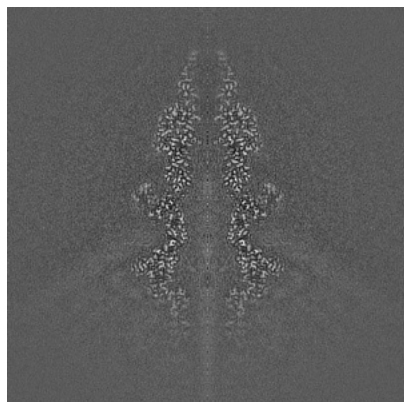


Z

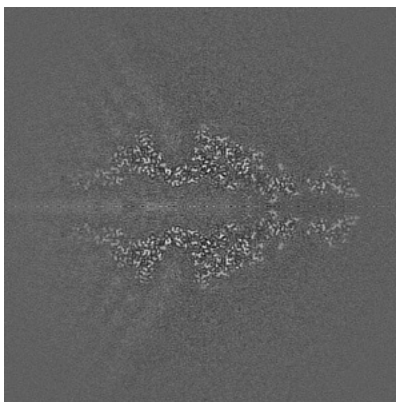
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

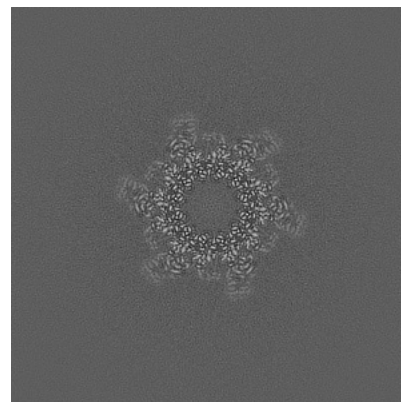
6.2.1 Primary map



X Index: 200

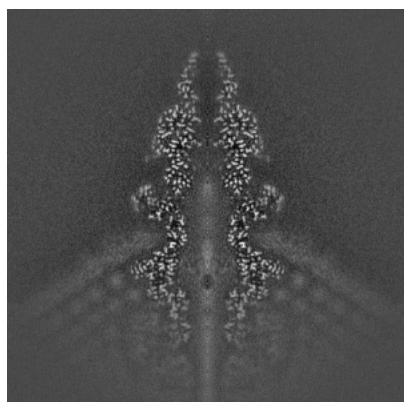


Y Index: 200

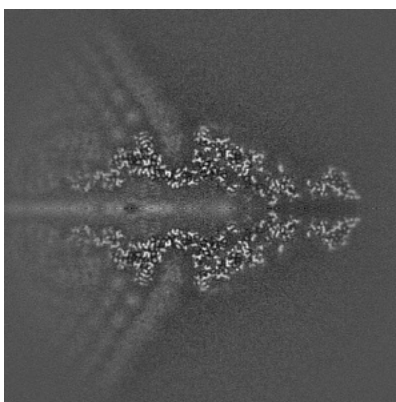


Z Index: 200

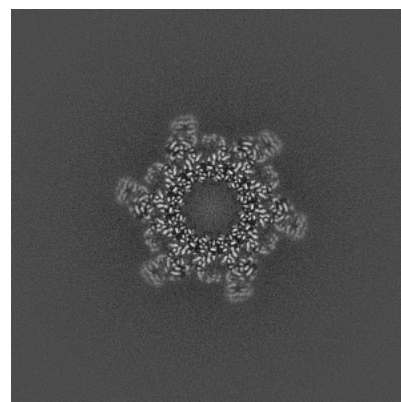
6.2.2 Raw map



X Index: 200



Y Index: 200

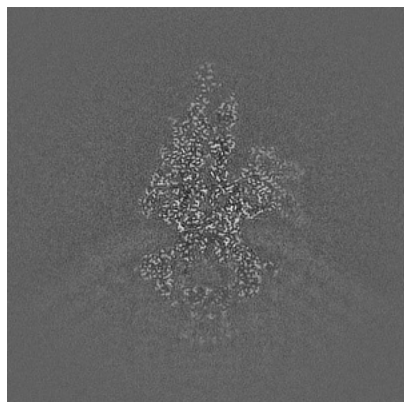


Z Index: 200

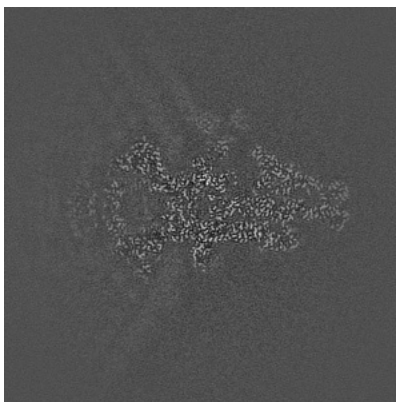
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

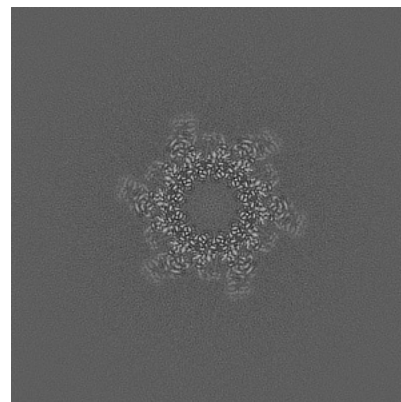
6.3.1 Primary map



X Index: 173

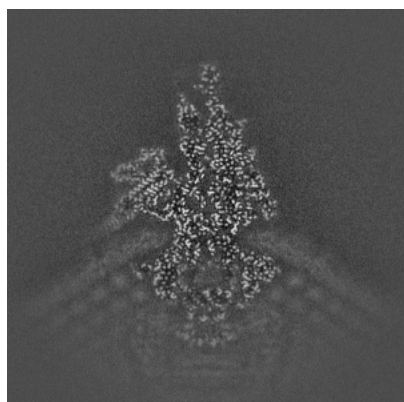


Y Index: 176

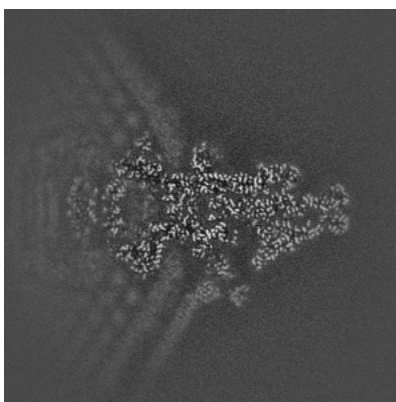


Z Index: 200

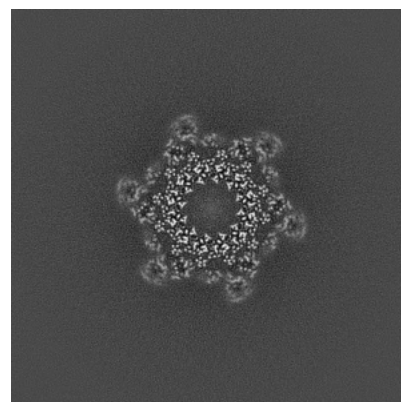
6.3.2 Raw map



X Index: 227



Y Index: 224

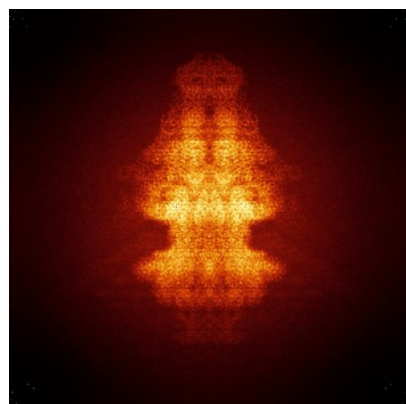


Z Index: 202

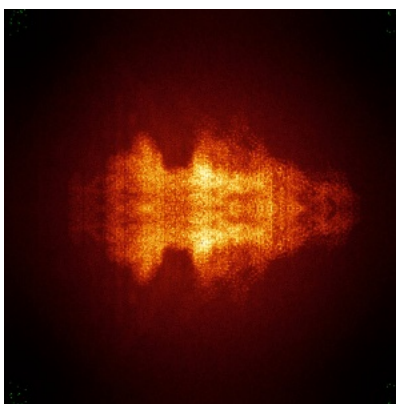
The images above show the largest variance slices of the map in three orthogonal directions.

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

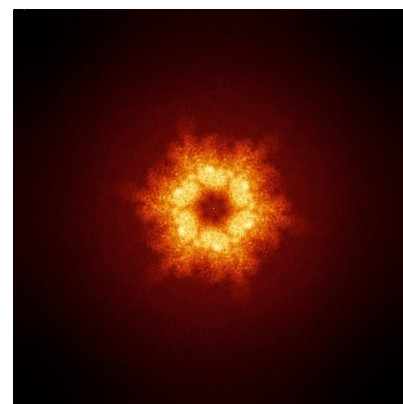
6.4.1 Primary map



X

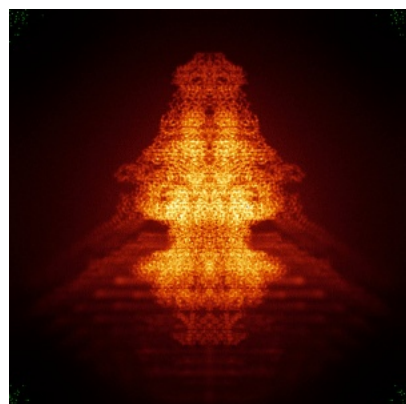


Y

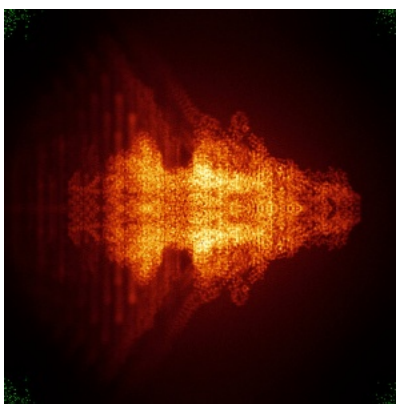


Z

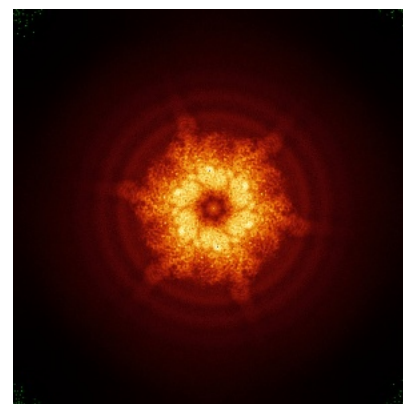
6.4.2 Raw map



X



Y

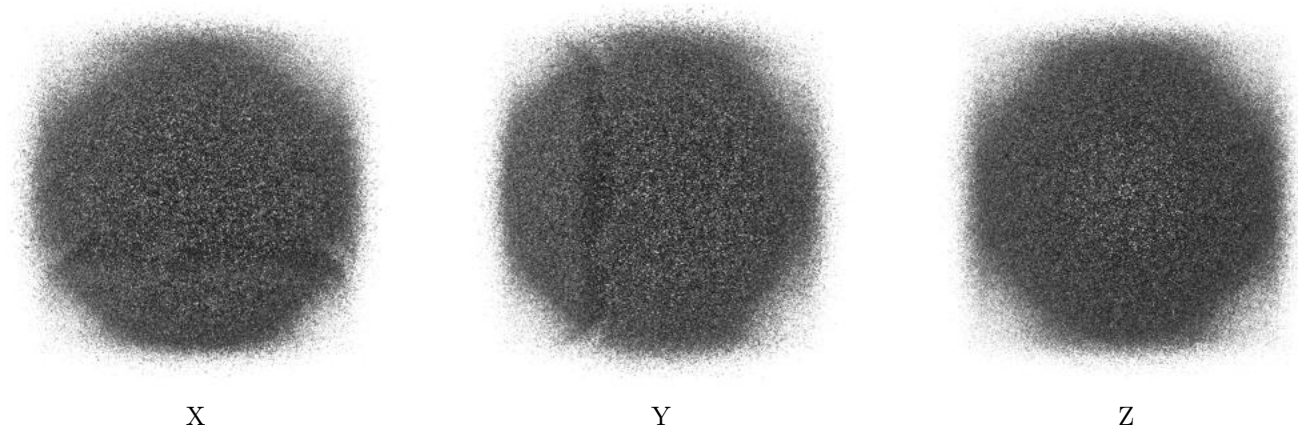


Z

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

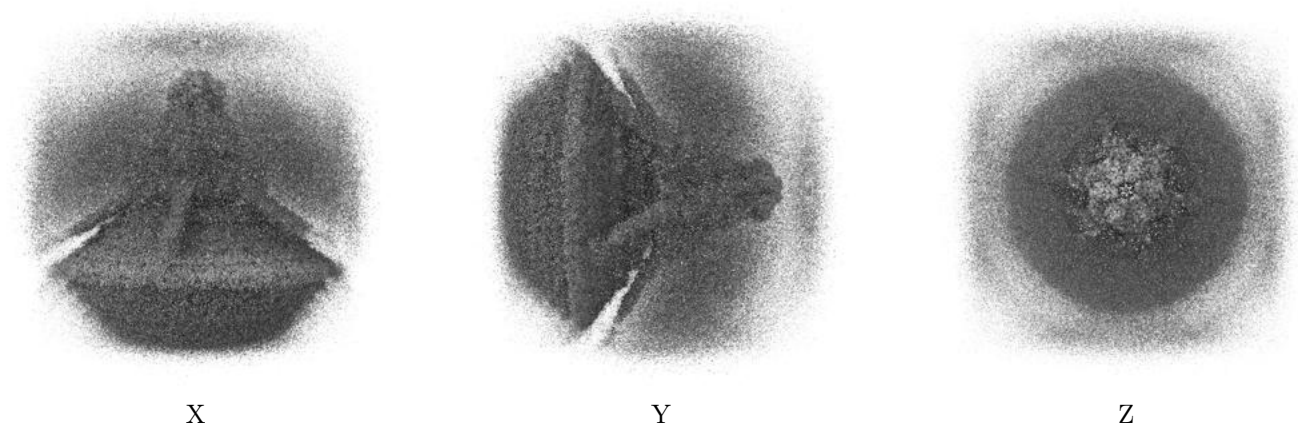
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 2.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

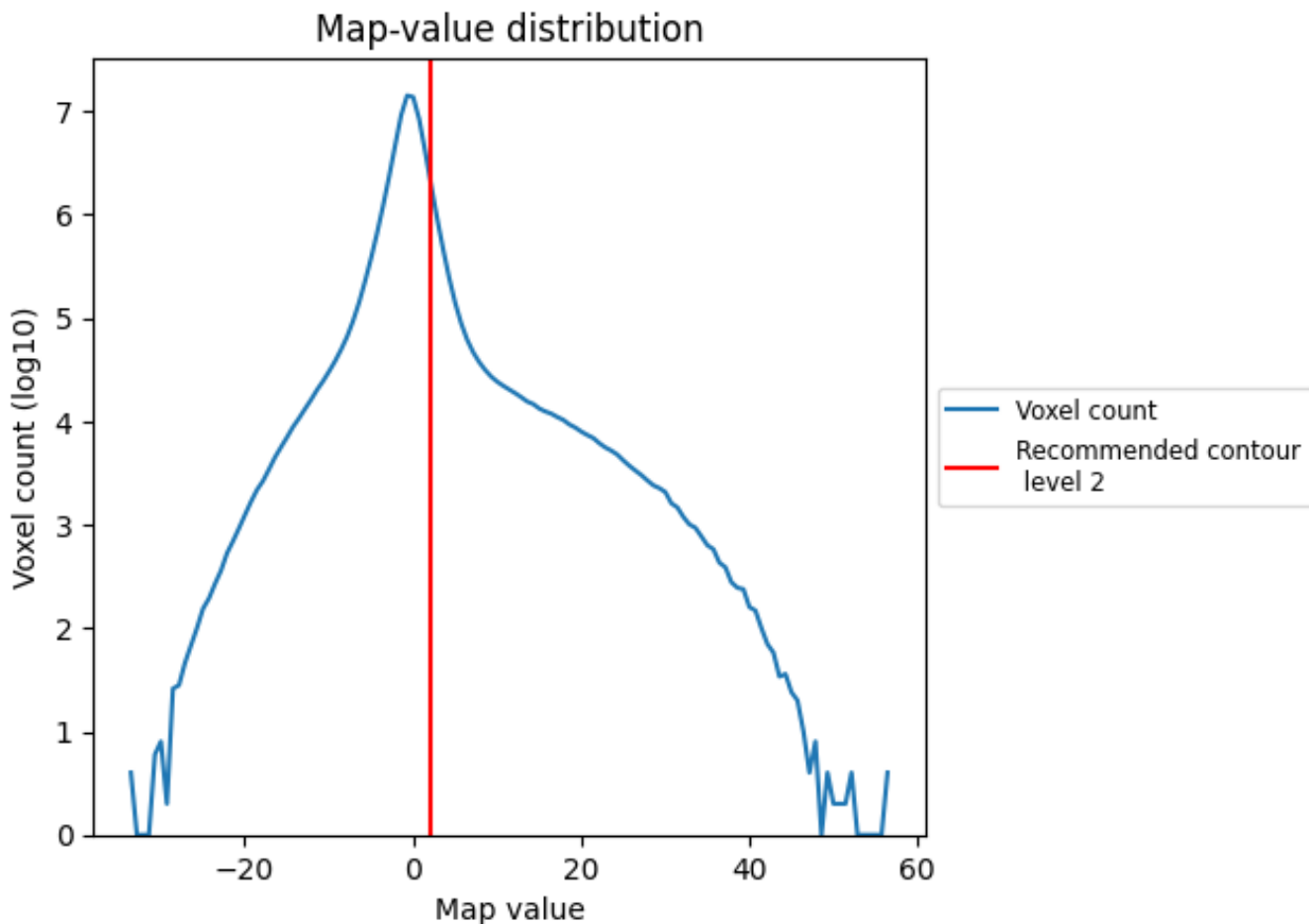
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

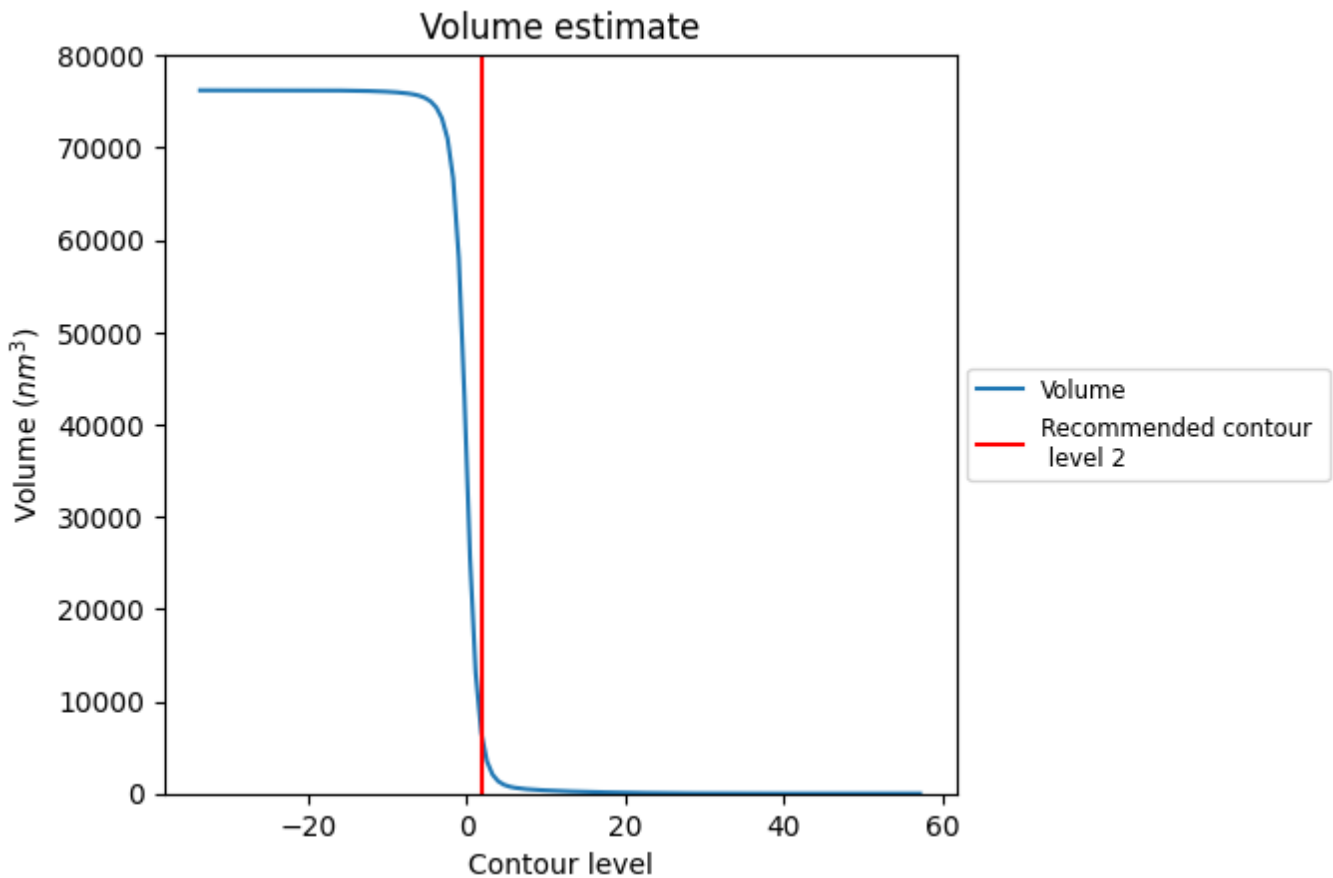
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

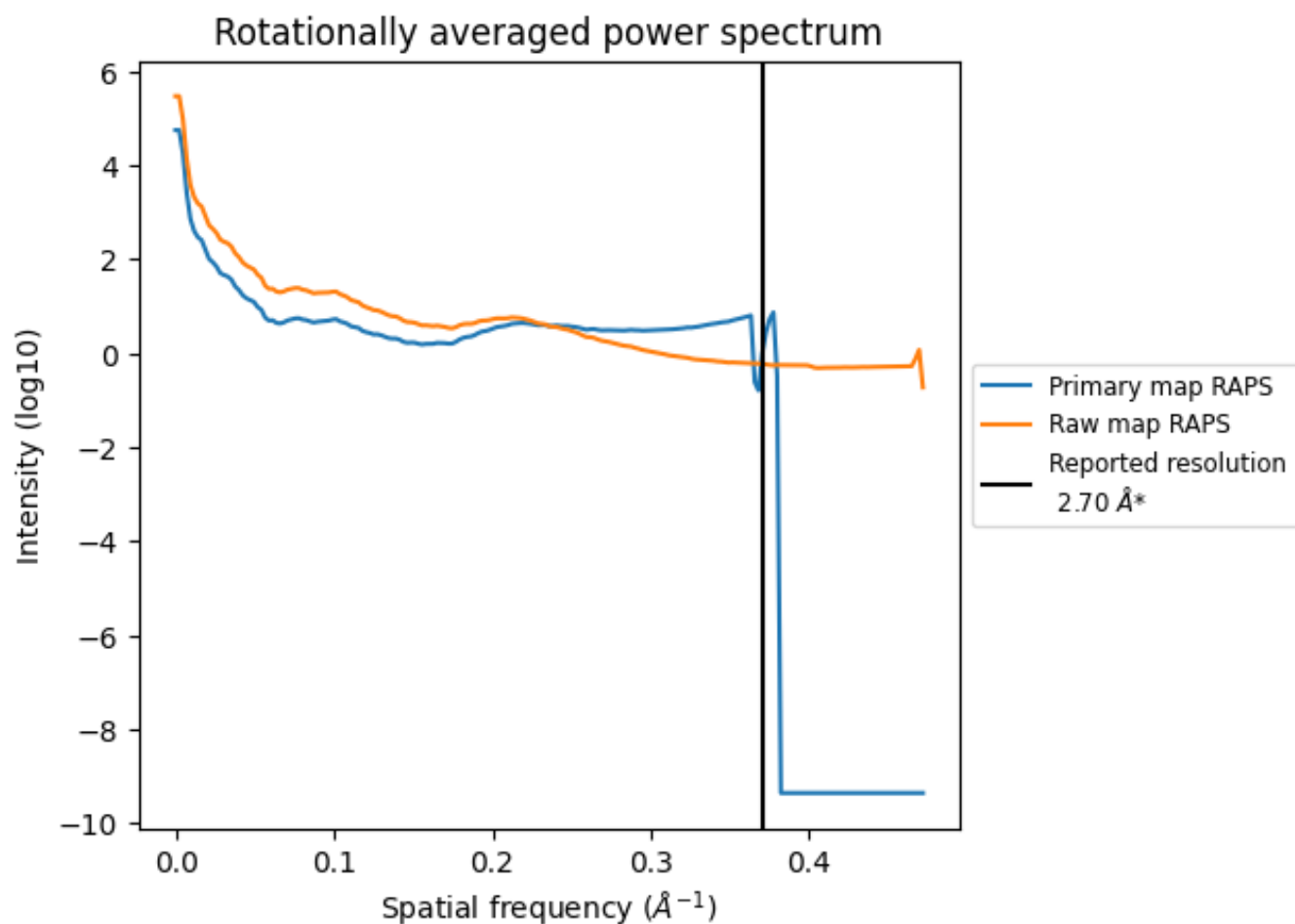
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 6205 nm³; this corresponds to an approximate mass of 5605 kDa.

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

7.3 Rotationally averaged power spectrum [i](#)

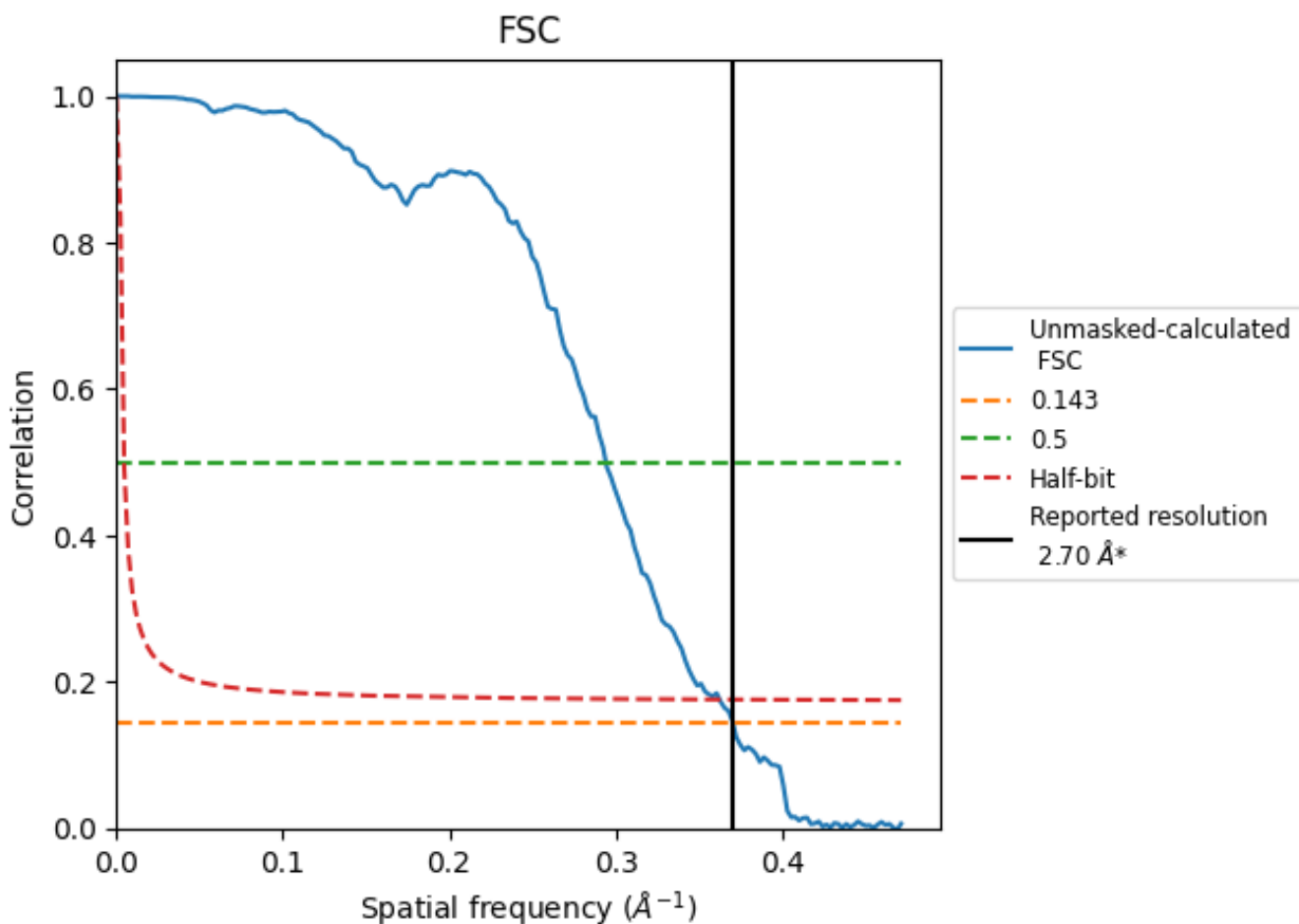


*Reported resolution corresponds to spatial frequency of 0.370 Å⁻¹

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 0.370 \AA^{-1}

8.2 Resolution estimates [i](#)

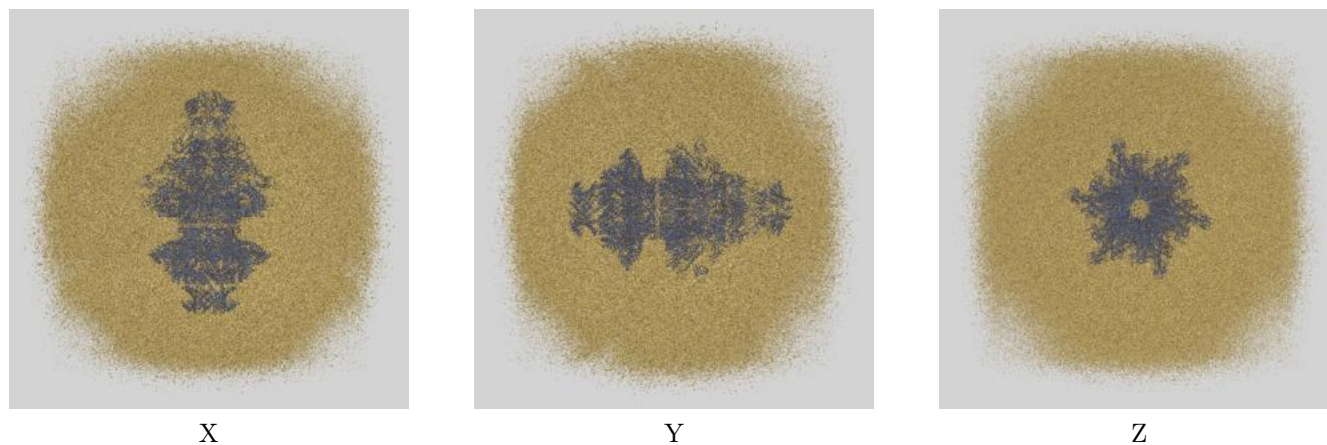
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.70	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	2.70	3.40	2.76

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

9 Map-model fit [i](#)

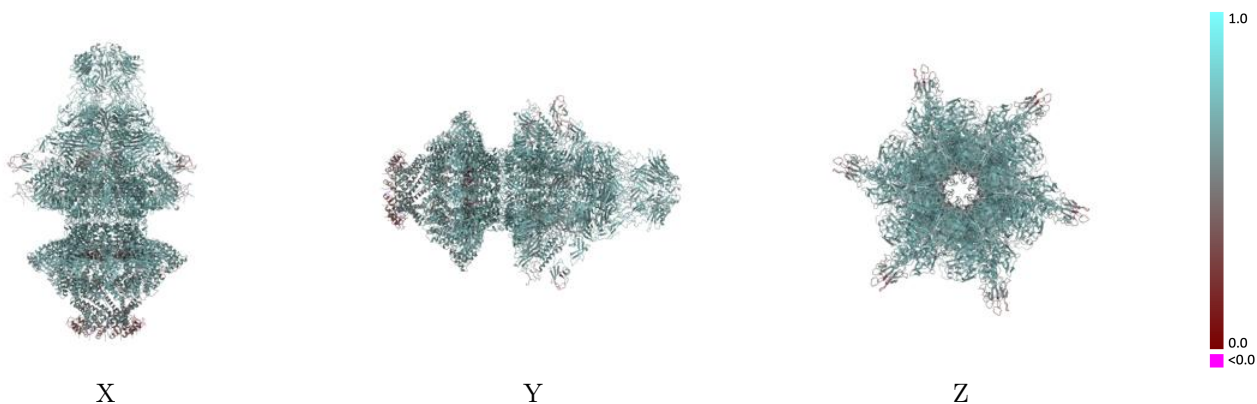
This section contains information regarding the fit between EMDB map EMD-61910 and PDB model 9JYZ. Per-residue inclusion information can be found in section [3](#) on page [10](#).

9.1 Map-model overlay [i](#)



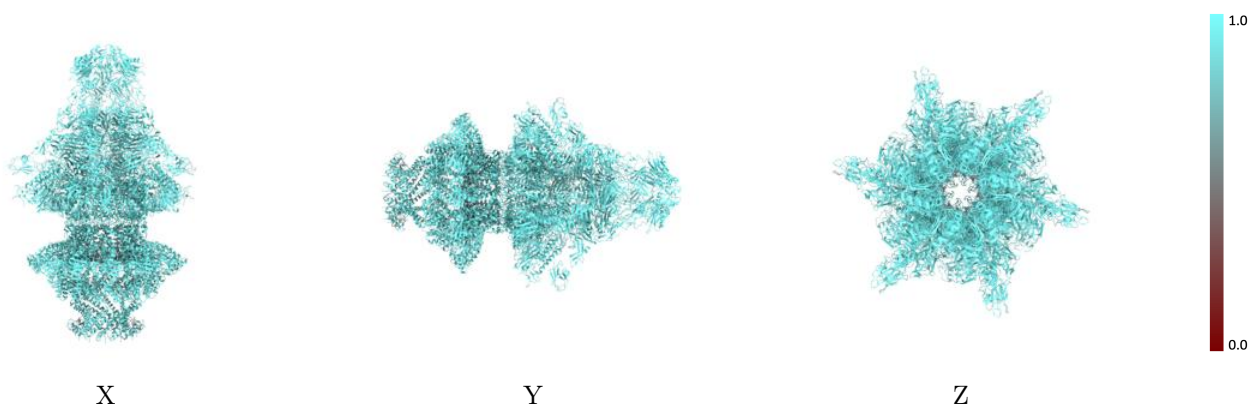
The images above show the 3D surface view of the map at the recommended contour level 2.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



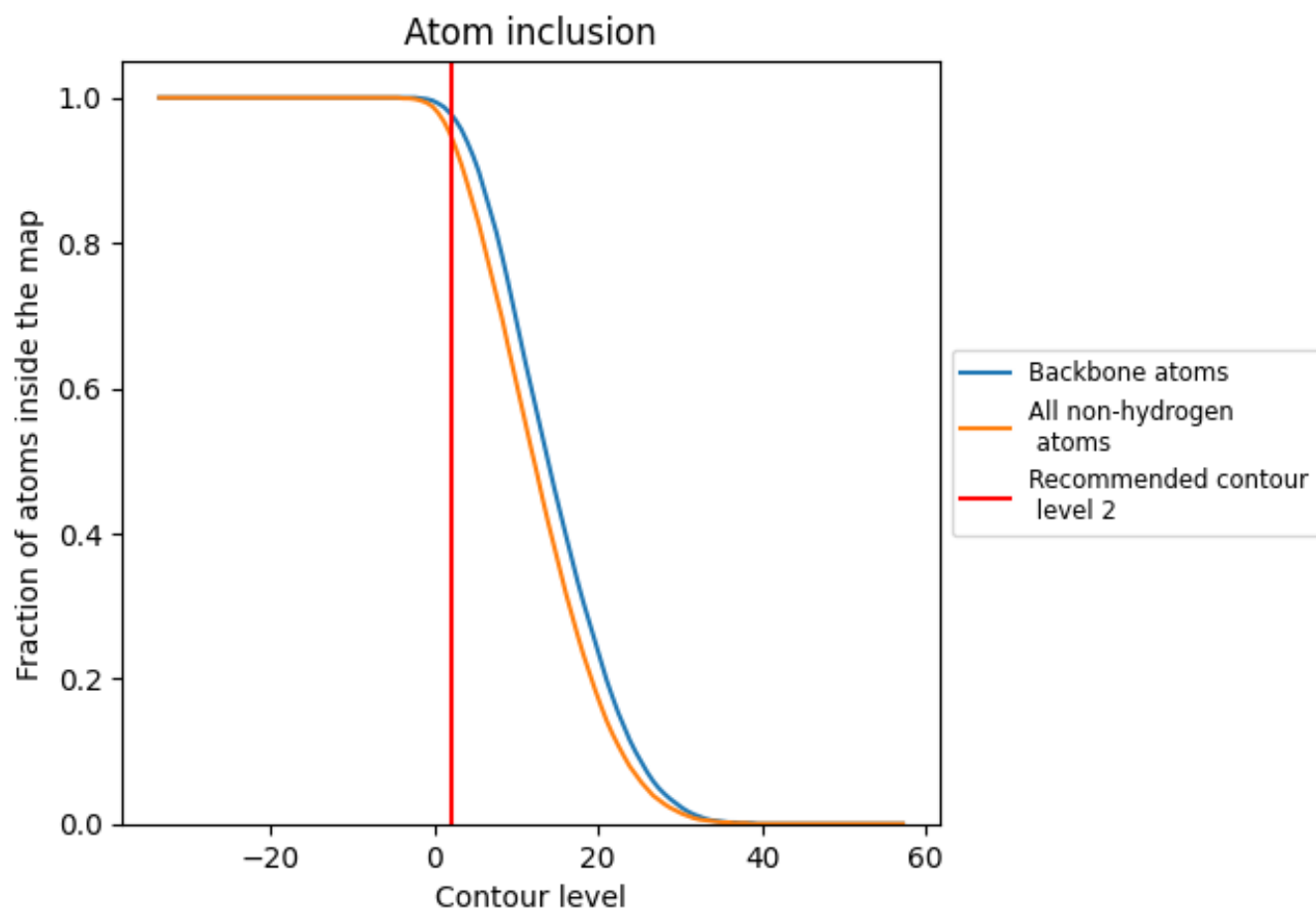
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (2).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 98% 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 (2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9490	 0.6130
0	 0.6000	 0.3620
1	 0.7170	 0.4660
2	 0.7370	 0.4670
3	 0.4820	 0.2770
4	 0.6000	 0.3440
5	 0.5450	 0.3070
6	 0.5820	 0.3550
7	 0.5090	 0.2810
8	 0.5820	 0.3480
9	 0.4640	 0.2300
A	 0.9680	 0.6220
AA	 0.5180	 0.3240
AB	 0.5730	 0.3570
AC	 0.4820	 0.3260
AD	 0.6000	 0.3260
B	 0.9690	 0.6240
C	 0.9670	 0.6250
D	 0.9700	 0.6230
E	 0.9670	 0.6220
F	 0.9680	 0.6060
G	 0.9630	 0.6100
H	 0.9630	 0.6060
I	 0.9690	 0.6040
J	 0.9680	 0.6090
K	 0.9260	 0.5230
L	 0.9280	 0.5230
M	 0.9290	 0.5180
N	 0.9340	 0.5210
O	 0.9250	 0.5200
P	 0.9760	 0.6410
Q	 0.9770	 0.6420
R	 0.9770	 0.6410
S	 0.9760	 0.6410
T	 0.9780	 0.6430



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Chain	Atom inclusion	Q-score
U	 0.9780	 0.6600
V	 0.9760	 0.6640
W	 0.9730	 0.6610
X	 0.9780	 0.6610
Y	 0.9760	 0.6660
Z	 0.9770	 0.6600
a	 0.9700	 0.6230
b	 0.9700	 0.6030
c	 0.9350	 0.5220
d	 0.9740	 0.6560
e	 0.9780	 0.6600
f	 0.9780	 0.6580
g	 0.9730	 0.6550
h	 0.9760	 0.6630
i	 0.9780	 0.6610
j	 0.9270	 0.5900
k	 0.9310	 0.6000
l	 0.9290	 0.5910
m	 0.9290	 0.5970
n	 0.9280	 0.5910
o	 0.9320	 0.5960
p	 0.9270	 0.5900
q	 0.9290	 0.5980
r	 0.9290	 0.5910
s	 0.9300	 0.5960
t	 0.9290	 0.5910
u	 0.9330	 0.5970
v	 0.7580	 0.4670
w	 0.6970	 0.4620
x	 0.9760	 0.6410
y	 0.7480	 0.4770
z	 0.7480	 0.4670