wwPDB EM Validation Summary Report

Feb 4, 2026 – 04:12 PM JST

PDB ID	:	9UBR / pdb_00009ubr
EMDB ID	:	EMD-64015
Title	:	CryoEM structure of human Galectin-10 with iTrimbody
Authors	:	Song, J.Y.; Wang, W.
Deposited on	:	2025-04-03
Resolution	:	2.62 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:

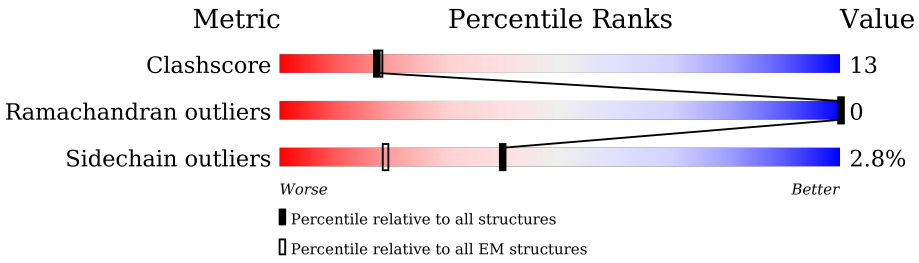
EMDB validation analysis	:	0.0.1.dev129
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.47

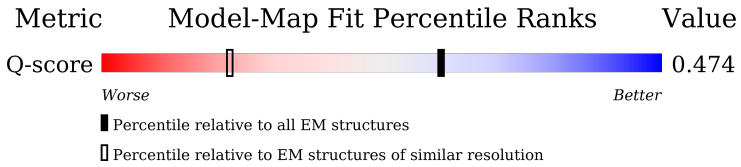
1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 2.62 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	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	8810 (2.12 - 3.12)

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 <=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	260	65% 33%
1	B	260	67% 33%
1	C	260	70% 28%
1	D	260	71% 27%

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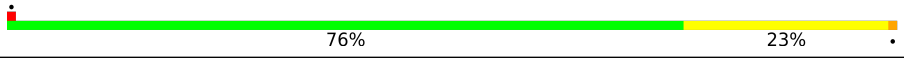
Mol	Chain	Length	Quality of chain
1	E	260	
1	F	260	
2	G	118	
2	H	118	
2	I	118	
2	J	118	
2	K	118	
2	L	118	
3	M	140	
3	N	140	
3	O	140	
3	P	140	
3	Q	140	
3	R	140	

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 23871 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 PrAC-5350A,2-dehydro-3-deoxyphosphogluconate aldolase/4-hydroxy-2-oxoglutarate aldolase.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	259	Total	C	N	O	S	0	0
			1964	1257	332	365	10		
1	B	259	Total	C	N	O	S	0	0
			1964	1257	332	365	10		
1	C	259	Total	C	N	O	S	0	0
			1964	1257	332	365	10		
1	D	259	Total	C	N	O	S	0	0
			1964	1257	332	365	10		
1	E	260	Total	C	N	O	S	0	0
			1973	1262	333	368	10		
1	F	259	Total	C	N	O	S	0	0
			1964	1257	332	365	10		

There are 30 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	87	ILE	LYS	conflict	UNP Q9WXS1
A	91	VAL	LEU	conflict	UNP Q9WXS1
A	95	ALA	GLU	conflict	UNP Q9WXS1
A	116	ALA	GLU	conflict	UNP Q9WXS1
A	119	VAL	PHE	conflict	UNP Q9WXS1
B	87	ILE	LYS	conflict	UNP Q9WXS1
B	91	VAL	LEU	conflict	UNP Q9WXS1
B	95	ALA	GLU	conflict	UNP Q9WXS1
B	116	ALA	GLU	conflict	UNP Q9WXS1
B	119	VAL	PHE	conflict	UNP Q9WXS1
C	87	ILE	LYS	conflict	UNP Q9WXS1
C	91	VAL	LEU	conflict	UNP Q9WXS1
C	95	ALA	GLU	conflict	UNP Q9WXS1
C	116	ALA	GLU	conflict	UNP Q9WXS1
C	119	VAL	PHE	conflict	UNP Q9WXS1
D	87	ILE	LYS	conflict	UNP Q9WXS1
D	91	VAL	LEU	conflict	UNP Q9WXS1

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Chain	Residue	Modelled	Actual	Comment	Reference
D	95	ALA	GLU	conflict	UNP Q9WXS1
D	116	ALA	GLU	conflict	UNP Q9WXS1
D	119	VAL	PHE	conflict	UNP Q9WXS1
E	87	ILE	LYS	conflict	UNP Q9WXS1
E	91	VAL	LEU	conflict	UNP Q9WXS1
E	95	ALA	GLU	conflict	UNP Q9WXS1
E	116	ALA	GLU	conflict	UNP Q9WXS1
E	119	VAL	PHE	conflict	UNP Q9WXS1
F	87	ILE	LYS	conflict	UNP Q9WXS1
F	91	VAL	LEU	conflict	UNP Q9WXS1
F	95	ALA	GLU	conflict	UNP Q9WXS1
F	116	ALA	GLU	conflict	UNP Q9WXS1
F	119	VAL	PHE	conflict	UNP Q9WXS1

- Molecule 2 is a protein called hGal10-nanobody.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	G	118	Total	C	N	O	S	0	0
			876	542	152	178	4		
2	H	118	Total	C	N	O	S	0	0
			876	542	152	178	4		
2	I	118	Total	C	N	O	S	0	0
			876	542	152	178	4		
2	J	118	Total	C	N	O	S	0	0
			876	542	152	178	4		
2	K	118	Total	C	N	O	S	0	0
			876	542	152	178	4		
2	L	118	Total	C	N	O	S	0	0
			876	542	152	178	4		

- Molecule 3 is a protein called Galectin-10.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	M	140	Total	C	N	O	S	0	0
			1137	729	189	212	7		
3	N	140	Total	C	N	O	S	0	0
			1137	729	189	212	7		
3	O	140	Total	C	N	O	S	0	0
			1137	729	189	212	7		
3	P	140	Total	C	N	O	S	0	0
			1137	729	189	212	7		
3	Q	140	Total	C	N	O	S	0	0
			1137	729	189	212	7		

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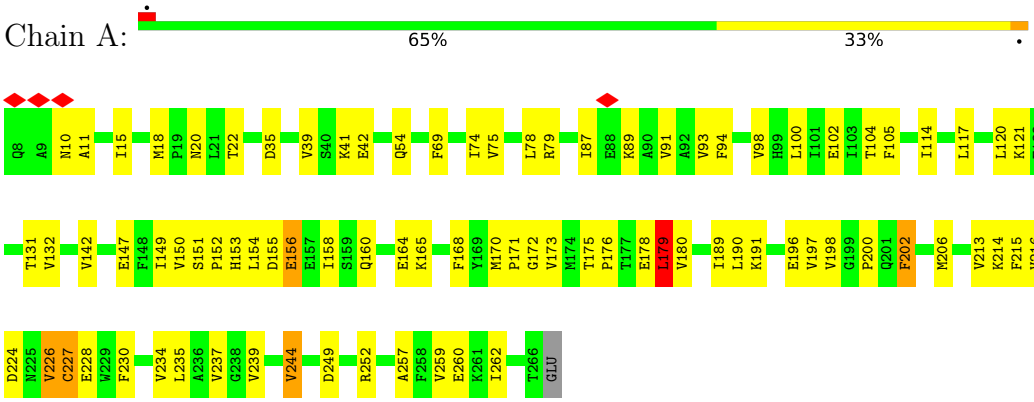
Mol	Chain	Residues	Atoms					AltConf	Trace
3	R	140	Total	C	N	O	S	0	0
			1137	729	189	212	7		

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.

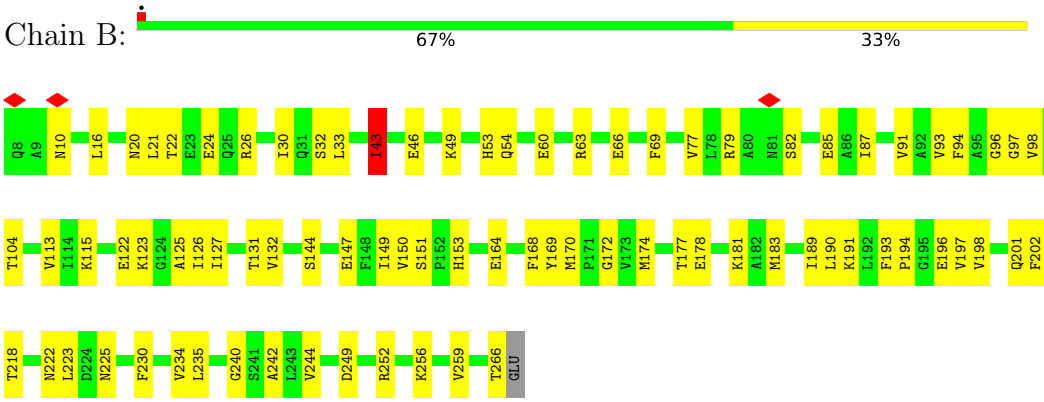
• Molecule 1: PrAC-5350A,2-dehydro-3-deoxyphosphogluconate aldolase/4-hydroxy-2-oxoglutarate aldolase

Chain A:



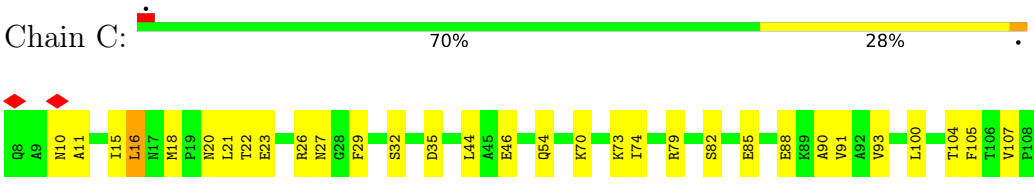
• Molecule 1: PrAC-5350A,2-dehydro-3-deoxyphosphogluconate aldolase/4-hydroxy-2-oxoglutarate aldolase

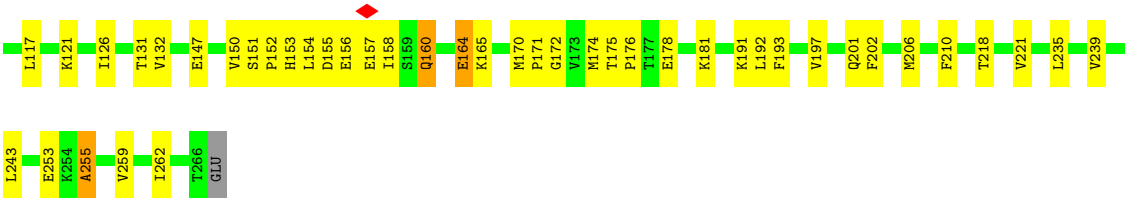
Chain B:



• Molecule 1: PrAC-5350A,2-dehydro-3-deoxyphosphogluconate aldolase/4-hydroxy-2-oxoglutarate aldolase

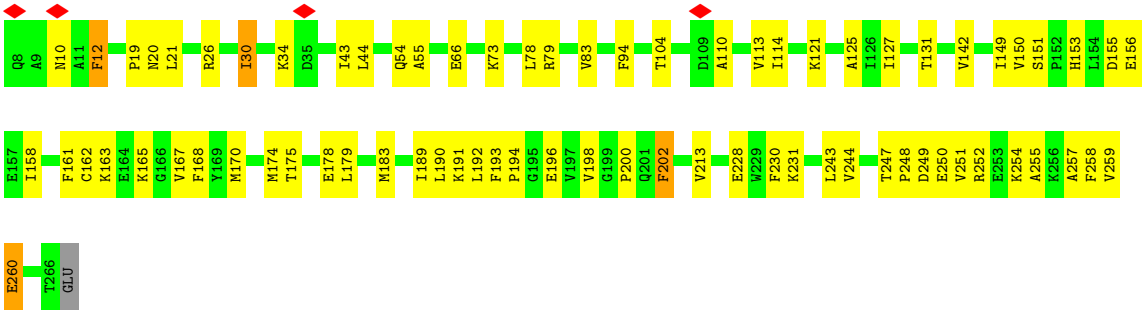
Chain C:





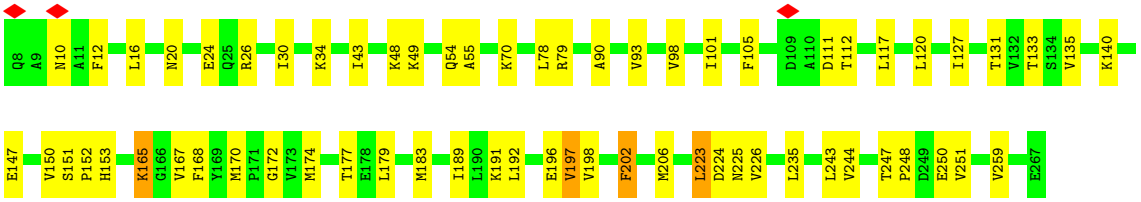
• Molecule 1: PrAC-5350A,2-dehydro-3-deoxyphosphogluconate aldolase/4-hydroxy-2-oxoglutarate aldolase

Chain D:



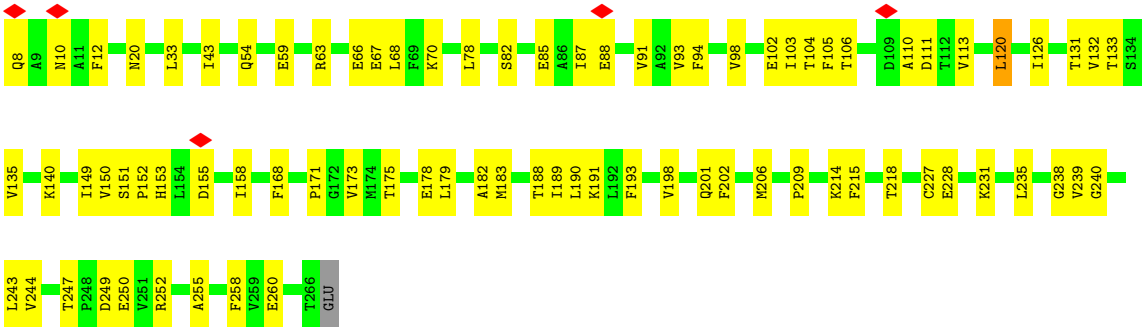
• Molecule 1: PrAC-5350A,2-dehydro-3-deoxyphosphogluconate aldolase/4-hydroxy-2-oxoglutarate aldolase

Chain E:



• Molecule 1: PrAC-5350A,2-dehydro-3-deoxyphosphogluconate aldolase/4-hydroxy-2-oxoglutarate aldolase

Chain F:

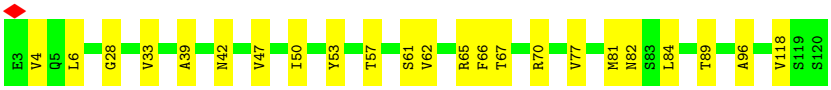


• Molecule 2: hGal10-nanobody

Chain G:

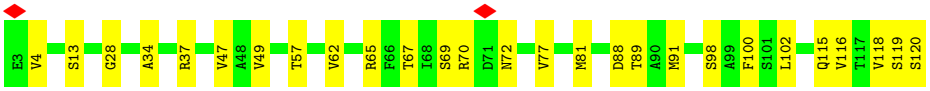
• Molecule 2: hGal10-nanobody

Chain H:



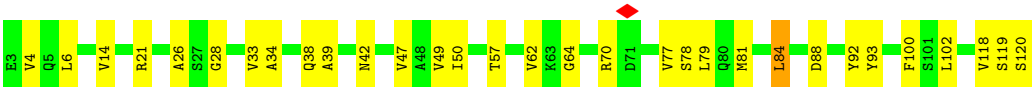
• Molecule 2: hGal10-nanobody

Chain I:



• Molecule 2: hGal10-nanobody

Chain J:

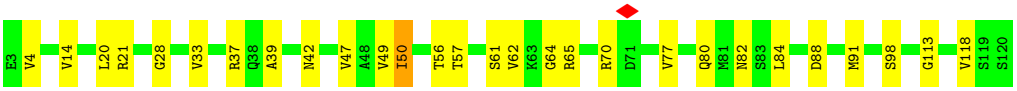


• Molecule 2: hGal10-nanobody

Chain K:

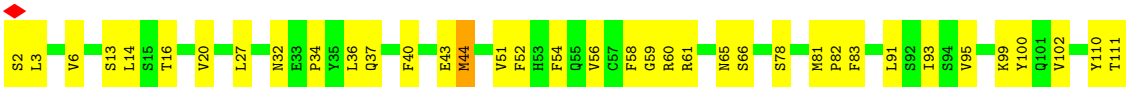
• Molecule 2: hGal10-nanobody

Chain L:



• Molecule 3: Galectin-10

Chain M:

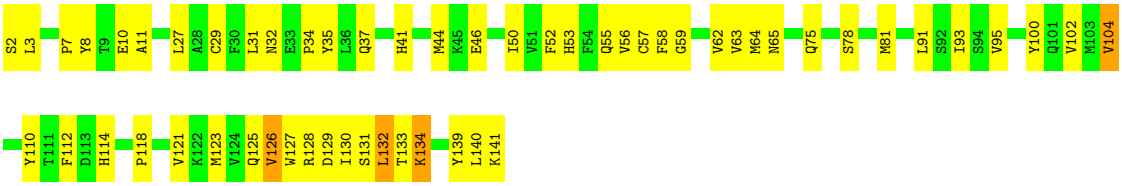


• Molecule 3: Galectin-10

Chain N:

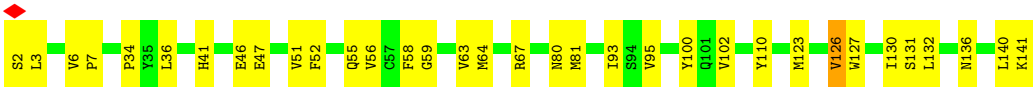
• Molecule 3: Galectin-10

Chain O:



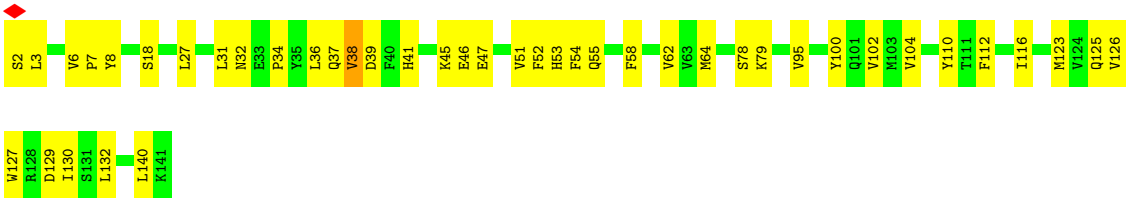
• Molecule 3: Galectin-10

Chain P:



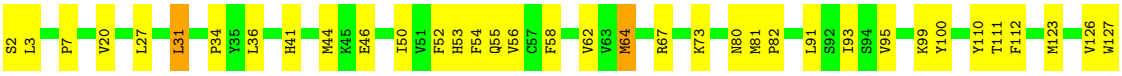
• Molecule 3: Galectin-10

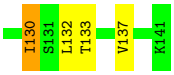
Chain Q:



• Molecule 3: Galectin-10

Chain R:




I130
S131
L132
T133
V137
K141

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	700092	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 ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	2.017	Depositor
Minimum map value	-0.002	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.033	Depositor
Recommended contour level	0.1	Depositor
Map size (Å)	303.6, 303.6, 303.6	wwPDB
Map dimensions	330, 330, 330	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.92, 0.92, 0.92	Depositor

5 Model quality

5.1 Standard geometry

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	0.21	0/1997	0.53	5/2693 (0.2%)
1	B	0.21	0/1997	0.57	3/2693 (0.1%)
1	C	0.24	0/1997	0.51	3/2693 (0.1%)
1	D	0.20	0/1997	0.41	2/2693 (0.1%)
1	E	0.23	0/2006	0.54	2/2705 (0.1%)
1	F	0.21	0/1997	0.45	1/2693 (0.0%)
2	G	0.15	0/893	0.41	1/1209 (0.1%)
2	H	0.16	0/893	0.41	0/1209
2	I	0.16	0/893	0.38	0/1209
2	J	0.14	0/893	0.38	0/1209
2	K	0.14	0/893	0.43	1/1209 (0.1%)
2	L	0.22	0/893	0.40	0/1209
3	M	0.23	0/1165	0.66	3/1576 (0.2%)
3	N	0.30	0/1165	0.67	4/1576 (0.3%)
3	O	0.33	0/1165	0.70	0/1576
3	P	0.21	0/1165	0.61	0/1576
3	Q	0.20	0/1165	0.56	1/1576 (0.1%)
3	R	0.21	0/1165	0.49	0/1576
All	All	0.22	0/24339	0.52	26/32880 (0.1%)

There are no bond length outliers.

The worst 5 of 26 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	226	VAL	N-CA-C	-11.62	99.60	110.53
1	C	255	ALA	N-CA-C	8.39	121.48	111.33
1	D	260	GLU	N-CA-C	-8.33	102.38	112.54
2	K	47	VAL	N-CA-C	7.58	118.87	111.67
1	B	43	ILE	N-CA-C	-6.83	104.11	110.53

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	1964	0	2027	69	0
1	B	1964	0	2027	65	0
1	C	1964	0	2027	64	0
1	D	1964	0	2027	55	0
1	E	1973	0	2033	45	0
1	F	1964	0	2027	57	0
2	G	876	0	830	23	0
2	H	876	0	830	19	0
2	I	876	0	830	20	0
2	J	876	0	830	23	0
2	K	876	0	830	21	0
2	L	876	0	830	22	0
3	M	1137	0	1117	40	0
3	N	1137	0	1117	32	0
3	O	1137	0	1117	50	0
3	P	1137	0	1117	29	0
3	Q	1137	0	1117	28	0
3	R	1137	0	1117	32	0
All	All	23871	0	23850	638	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 13.

The worst 5 of 638 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)
3:O:11:ALA:HB2	3:O:44:MET:HE1	1.49	0.92
3:P:2:SER:N	3:P:131:SER:HG	1.71	0.89
2:H:33:VAL:HG21	2:H:77:VAL:HG21	1.56	0.88
3:O:57:CYS:O	3:O:81:MET:HE1	1.75	0.85
3:O:127:TRP:O	3:O:127:TRP:CG	2.21	0.84

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	257/260 (99%)	252 (98%)	5 (2%)	0	100	100
1	B	257/260 (99%)	254 (99%)	3 (1%)	0	100	100
1	C	257/260 (99%)	251 (98%)	6 (2%)	0	100	100
1	D	257/260 (99%)	251 (98%)	6 (2%)	0	100	100
1	E	258/260 (99%)	255 (99%)	3 (1%)	0	100	100
1	F	257/260 (99%)	252 (98%)	5 (2%)	0	100	100
2	G	116/118 (98%)	115 (99%)	1 (1%)	0	100	100
2	H	116/118 (98%)	115 (99%)	1 (1%)	0	100	100
2	I	116/118 (98%)	115 (99%)	1 (1%)	0	100	100
2	J	116/118 (98%)	115 (99%)	1 (1%)	0	100	100
2	K	116/118 (98%)	115 (99%)	1 (1%)	0	100	100
2	L	116/118 (98%)	114 (98%)	2 (2%)	0	100	100
3	M	138/140 (99%)	136 (99%)	2 (1%)	0	100	100
3	N	138/140 (99%)	135 (98%)	3 (2%)	0	100	100
3	O	138/140 (99%)	135 (98%)	3 (2%)	0	100	100
3	P	138/140 (99%)	134 (97%)	4 (3%)	0	100	100
3	Q	138/140 (99%)	131 (95%)	7 (5%)	0	100	100
3	R	138/140 (99%)	136 (99%)	2 (1%)	0	100	100
All	All	3067/3108 (99%)	3011 (98%)	56 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	210/211 (100%)	205 (98%)	5 (2%)	44	68
1	B	210/211 (100%)	205 (98%)	5 (2%)	44	68
1	C	210/211 (100%)	206 (98%)	4 (2%)	52	75
1	D	210/211 (100%)	206 (98%)	4 (2%)	52	75
1	E	211/211 (100%)	203 (96%)	8 (4%)	28	52
1	F	210/211 (100%)	202 (96%)	8 (4%)	28	52
2	G	92/92 (100%)	91 (99%)	1 (1%)	70	86
2	H	92/92 (100%)	92 (100%)	0	100	100
2	I	92/92 (100%)	91 (99%)	1 (1%)	70	86
2	J	92/92 (100%)	91 (99%)	1 (1%)	70	86
2	K	92/92 (100%)	90 (98%)	2 (2%)	47	70
2	L	92/92 (100%)	91 (99%)	1 (1%)	70	86
3	M	129/129 (100%)	124 (96%)	5 (4%)	27	51
3	N	129/129 (100%)	122 (95%)	7 (5%)	18	37
3	O	129/129 (100%)	122 (95%)	7 (5%)	18	37
3	P	129/129 (100%)	126 (98%)	3 (2%)	45	69
3	Q	129/129 (100%)	124 (96%)	5 (4%)	27	51
3	R	129/129 (100%)	124 (96%)	5 (4%)	27	51
All	All	2587/2592 (100%)	2515 (97%)	72 (3%)	40	63

5 of 72 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	O	133	THR
3	R	133	THR
3	P	51	VAL
3	Q	104	VAL
1	E	225	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	E	72	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	H	82	ASN
3	M	53	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

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.

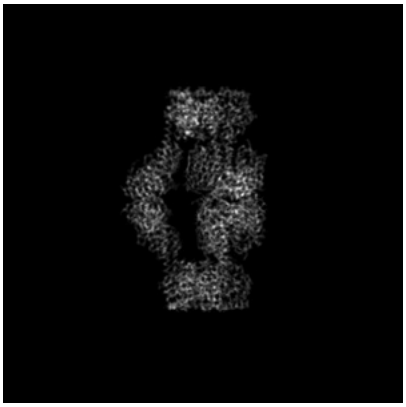
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-64015. These allow visual inspection of the internal detail of the map and identification of artifacts.

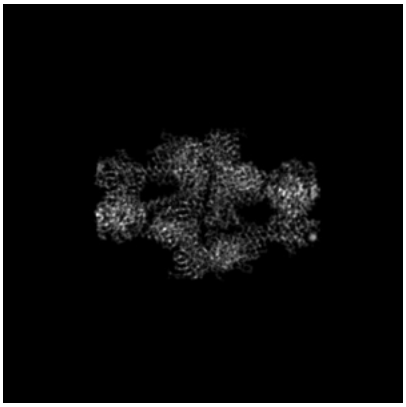
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

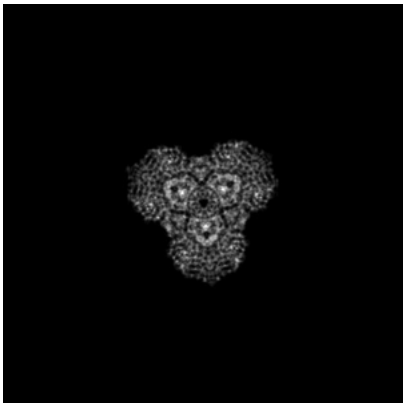
6.1.1 Primary map



X



Y

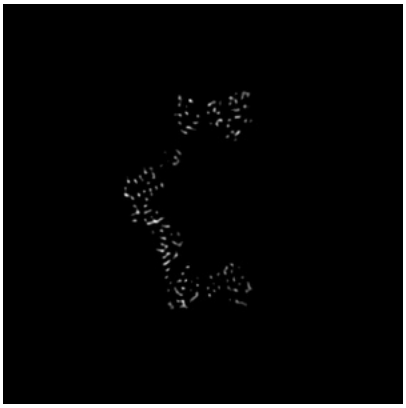


Z

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

6.2 Central slices

6.2.1 Primary map



X Index: 165

Y Index: 165

Z Index: 165

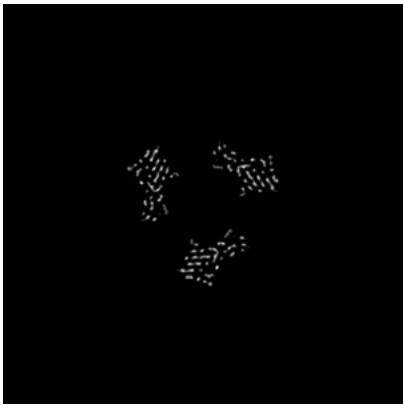
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

6.3.1 Primary map

X Index: 177

Y Index: 174

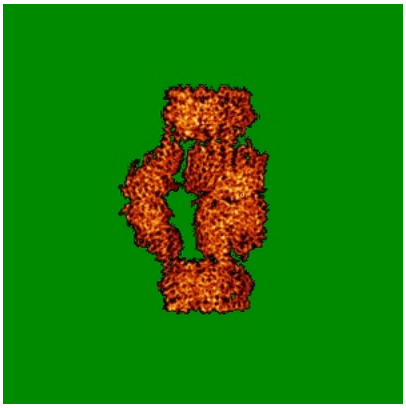


Z Index: 177

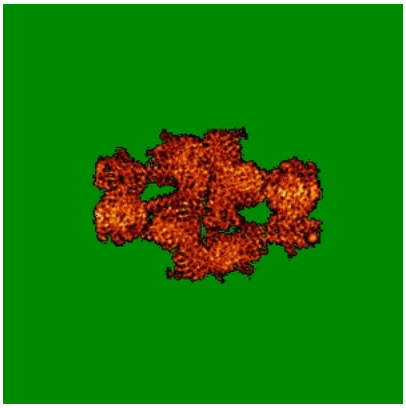
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

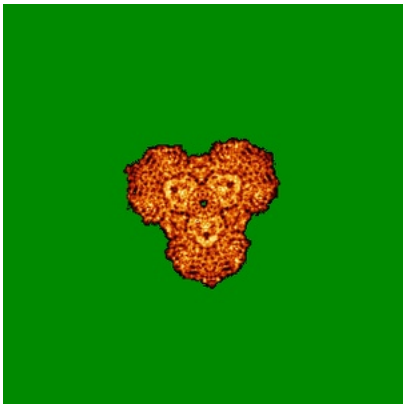
6.4.1 Primary map



X



Y

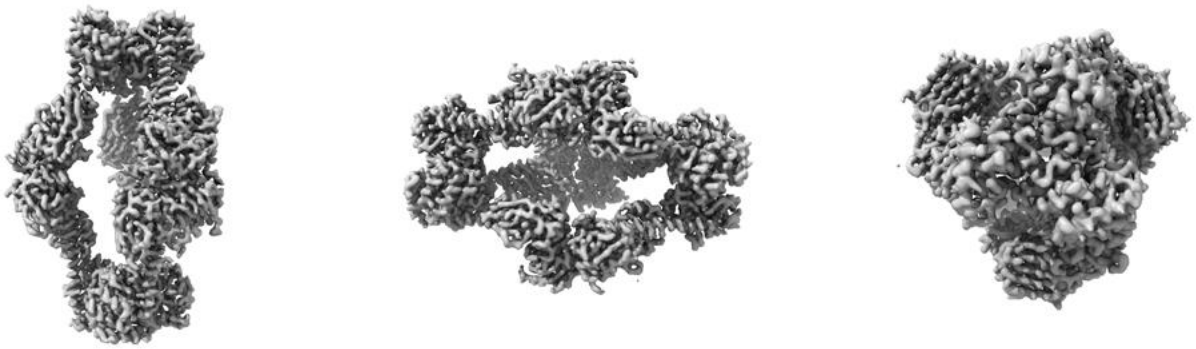


Z

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



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.1. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

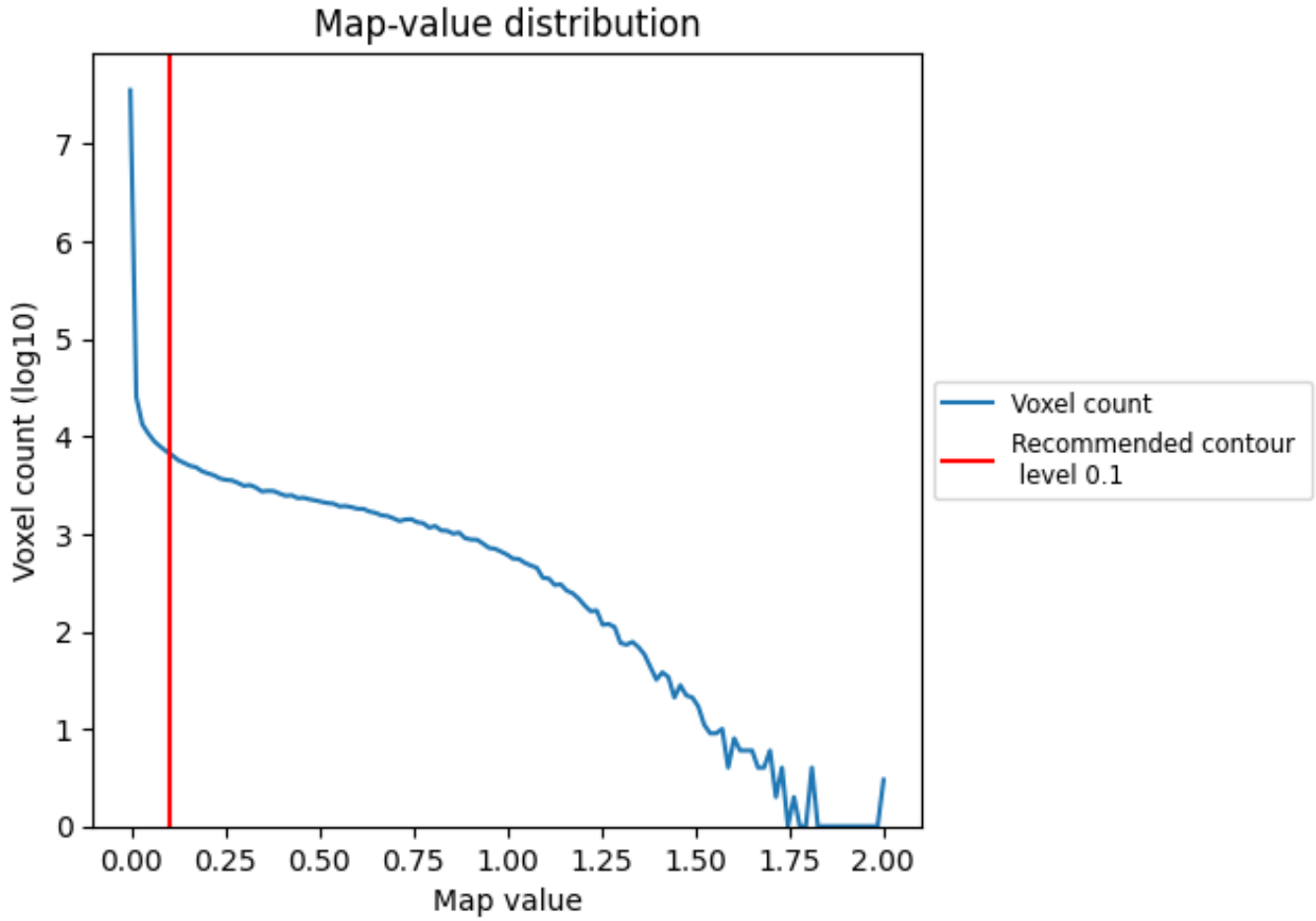
6.6 Mask visualisation (i)

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

7 Map analysis

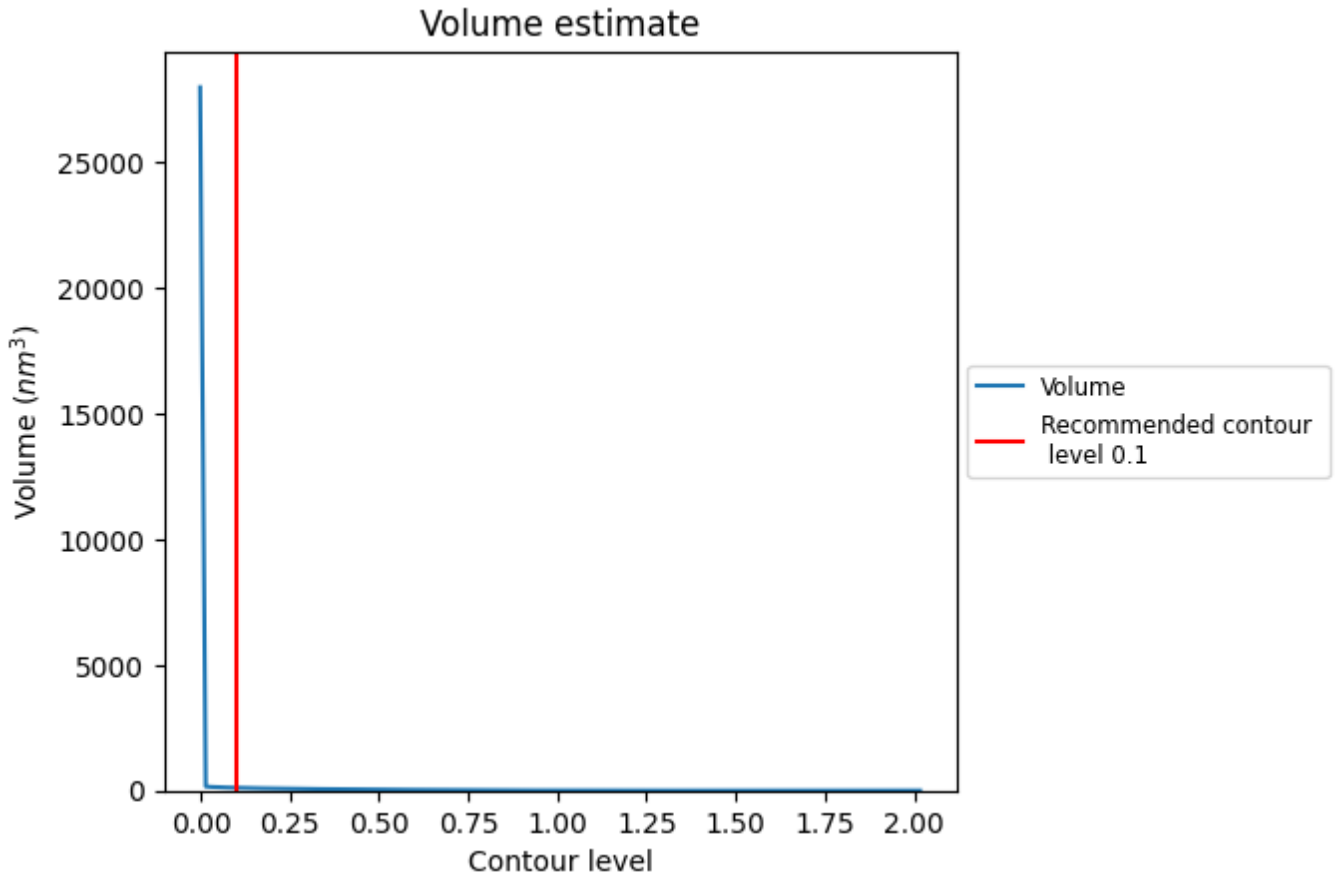
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

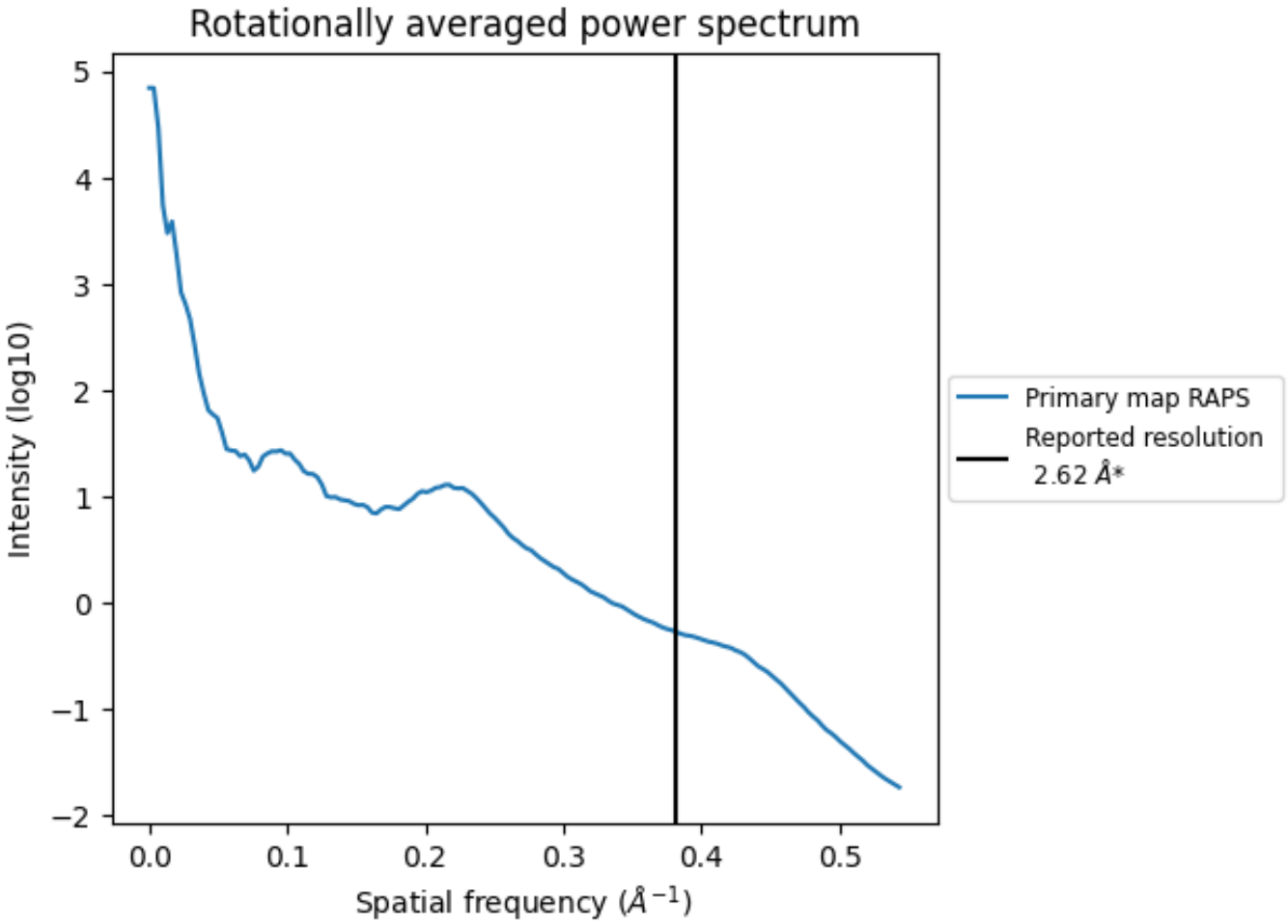
7.2 Volume estimate (i)



The volume at the recommended contour level is 110 nm^3; this corresponds to an approximate mass of 100 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 0.382 Å^{-1}

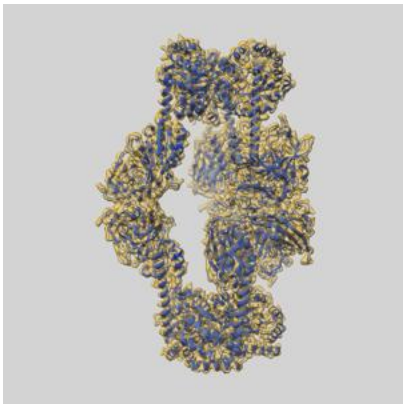
8 Fourier-Shell correlation (i)

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

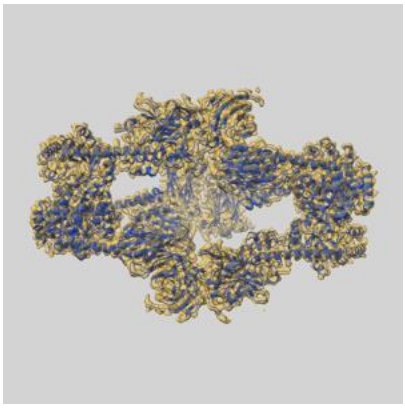
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-64015 and PDB model 9UBR. Per-residue inclusion information can be found in section 3 on page 7.

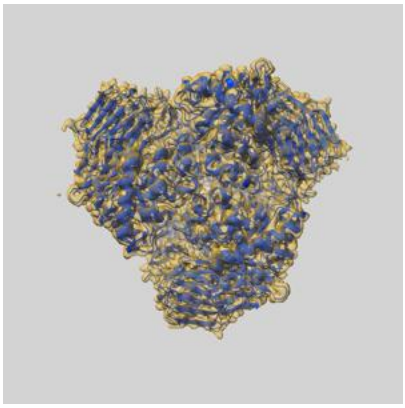
9.1 Map-model overlay



X



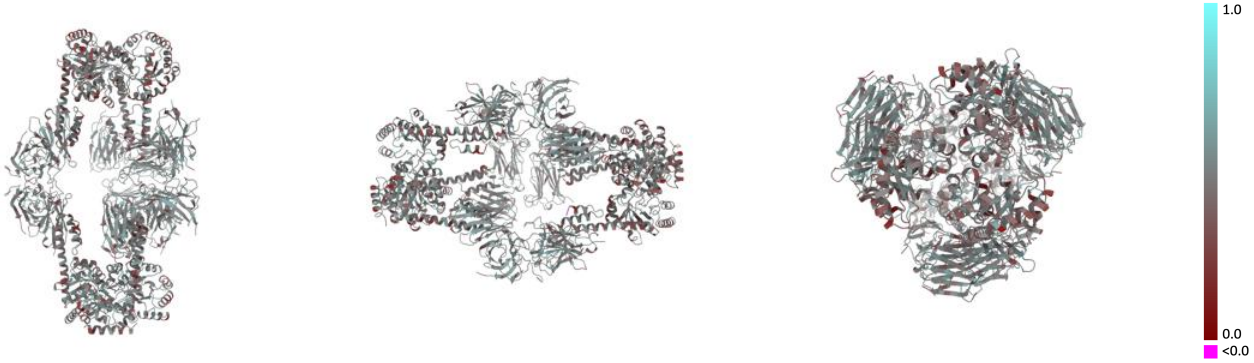
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.1 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.

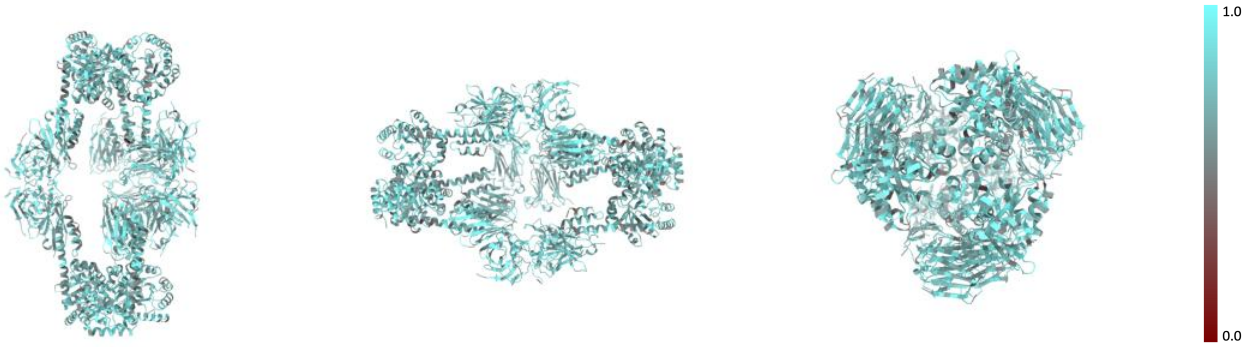
9.2 Q-score mapped to coordinate model (i)



X Y Z

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.

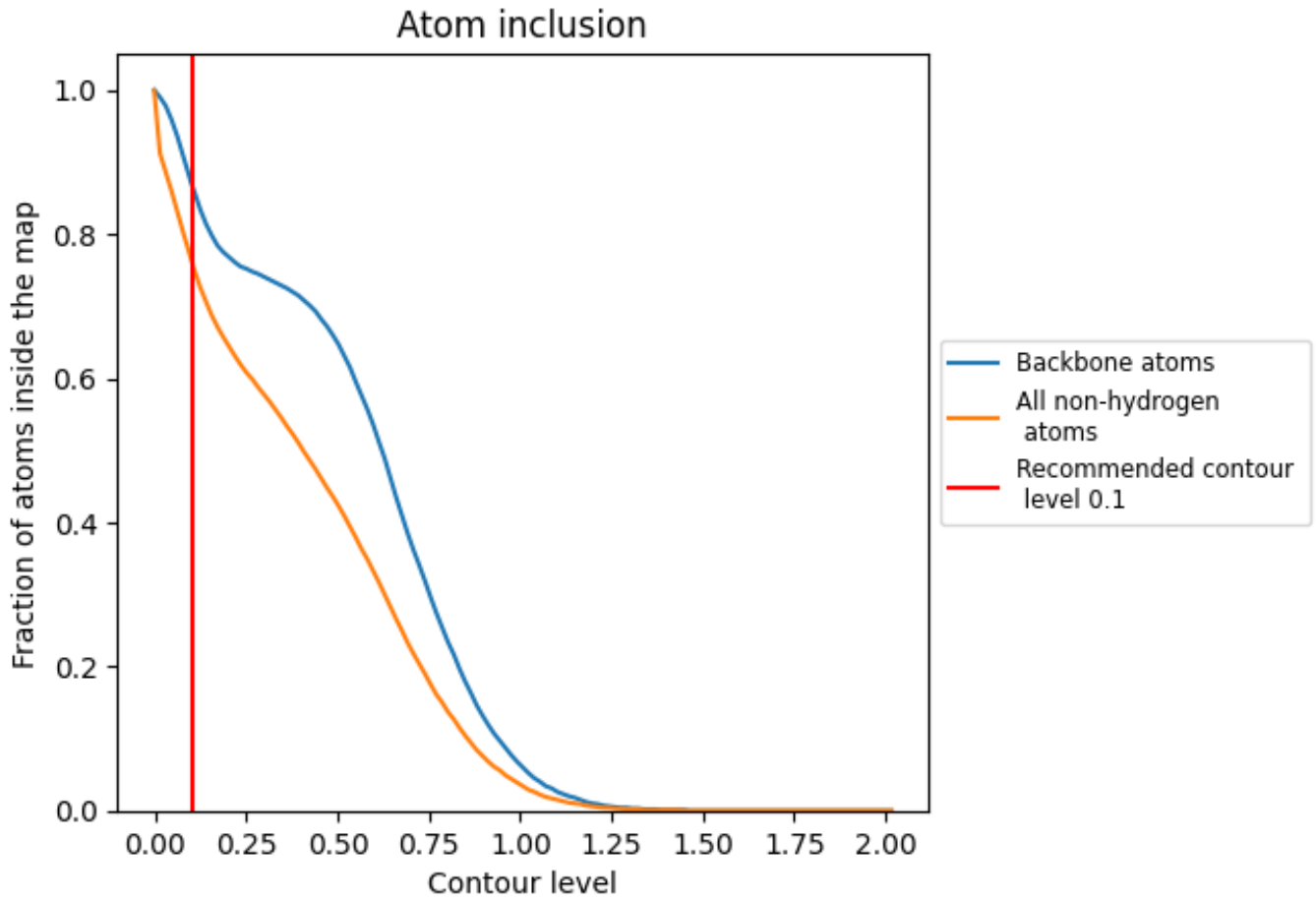
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.1).

9.4 Atom inclusion (i)



At the recommended contour level, 87% of all backbone atoms, 76% 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 (0.1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7630	0.4740
A	0.7350	0.4410
B	0.7400	0.4390
C	0.7430	0.4360
D	0.7570	0.4740
E	0.7470	0.4630
F	0.7520	0.4640
G	0.7840	0.5040
H	0.7920	0.5010
I	0.7700	0.4820
J	0.7650	0.4880
K	0.7790	0.5020
L	0.7810	0.4900
M	0.7860	0.4970
N	0.7700	0.4920
O	0.7820	0.4840
P	0.7770	0.4990
Q	0.7880	0.5050
R	0.7770	0.4920