



wwPDB EM Validation Summary Report ⓘ

Oct 10, 2022 – 12:12 pm BST

PDB ID : 7Z8J
EMDB ID : EMD-14553
Title : Cytoplasmic dynein (A2) bound to BICDR1
Authors : Chaaban, S.; Carter, A.P.
Deposited on : 2022-03-17
Resolution : 3.93 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.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

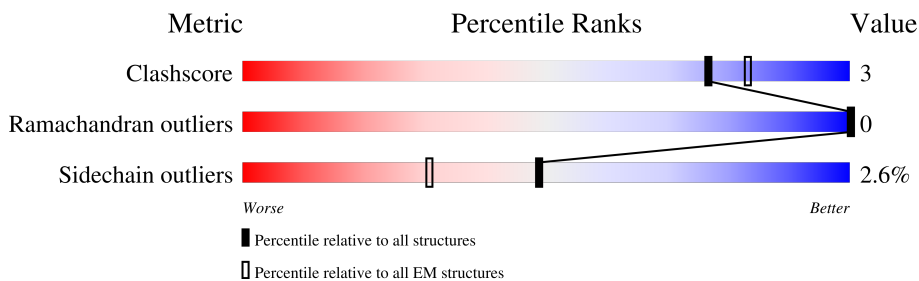
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.93 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.



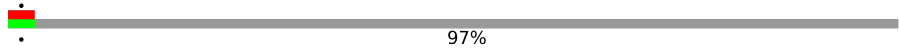
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	X	577	
1	x	577	
2	f	4646	
2	m	4646	
2	n	4646	
3	h	638	
3	o	638	
4	j	492	

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Mol	Chain	Length	Quality of chain
4	r	492	 97%

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 20189 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 BICD family-like cargo adapter 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	X	93	Total	C	N	O	S	0	0
			797	488	153	154	2		
1	x	93	Total	C	N	O	S	0	0
			797	488	153	154	2		

- Molecule 2 is a protein called Cytoplasmic dynein 1 heavy chain 1.

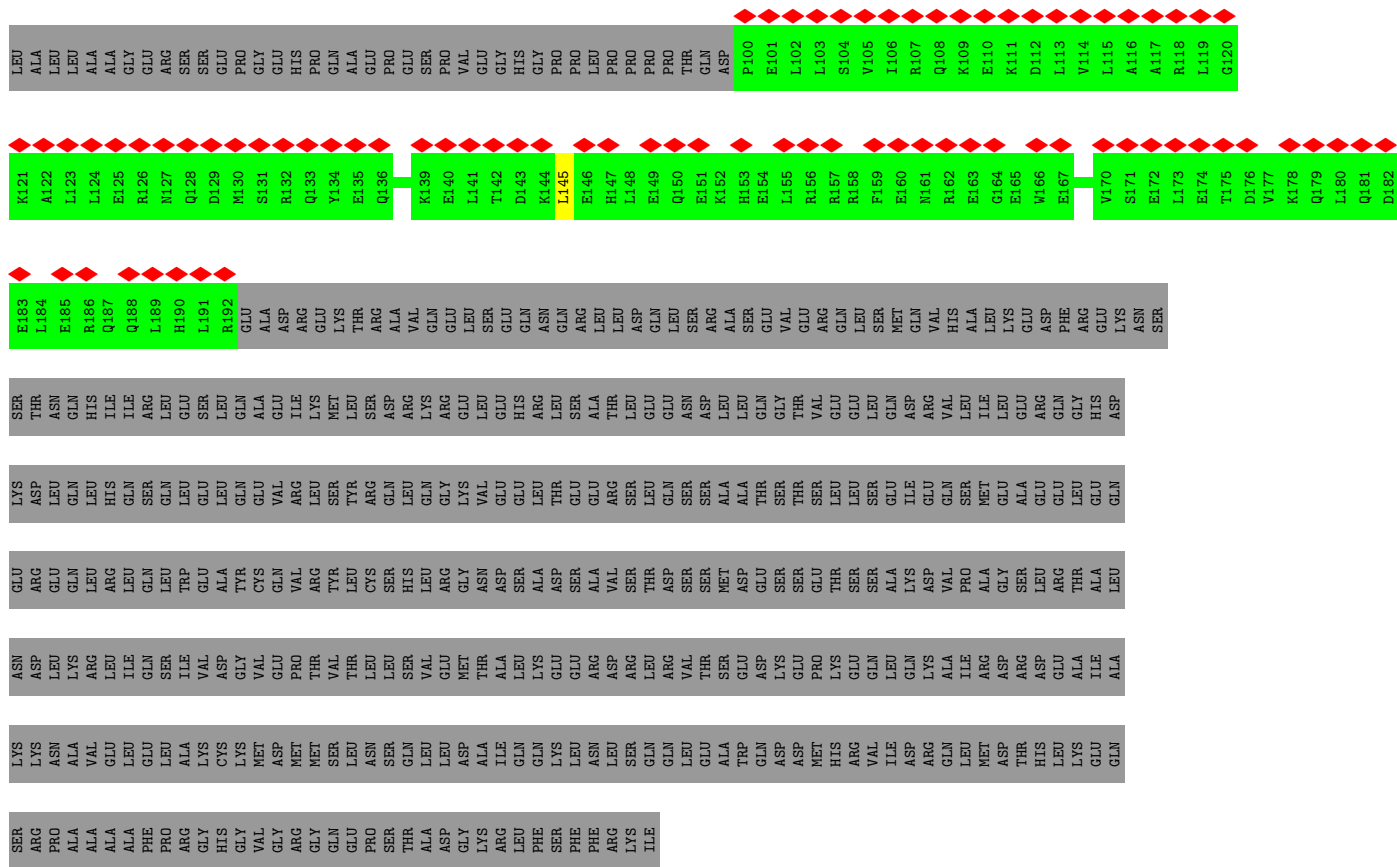
Mol	Chain	Residues	Atoms					AltConf	Trace
2	f	674	Total	C	N	O	S	0	0
			5545	3521	994	1009	21		
2	m	524	Total	C	N	O	S	0	0
			4333	2751	789	780	13		
2	n	126	Total	C	N	O	S	0	0
			1068	667	211	186	4		

- Molecule 3 is a protein called Cytoplasmic dynein 1 intermediate chain 2.

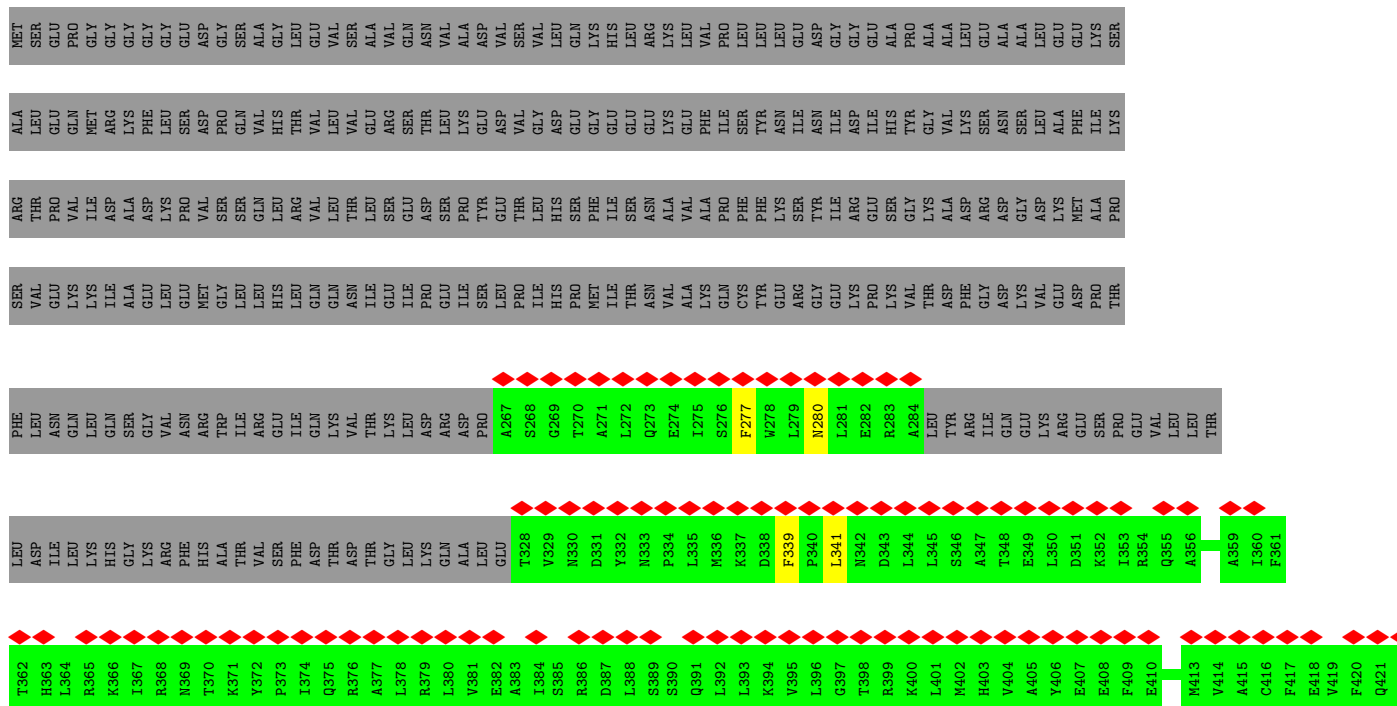
Mol	Chain	Residues	Atoms					AltConf	Trace
3	h	358	Total	C	N	O	S	0	0
			2804	1769	490	530	15		
3	o	358	Total	C	N	O	S	0	0
			2808	1771	490	532	15		

- Molecule 4 is a protein called Cytoplasmic dynein 1 light intermediate chain 2.

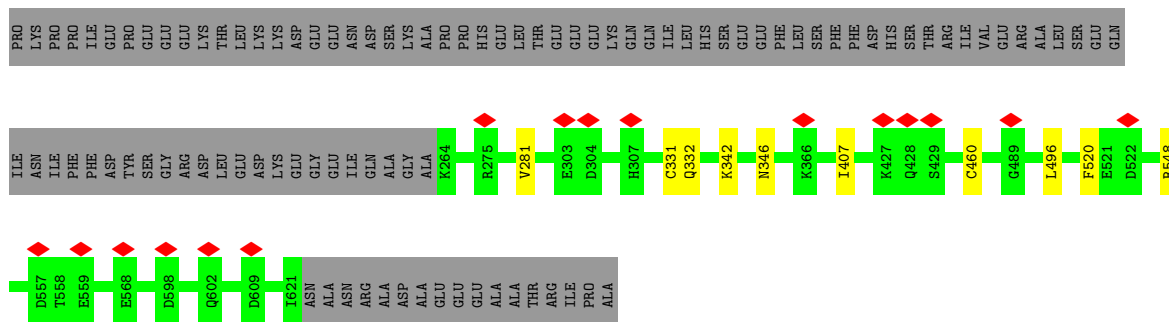
Mol	Chain	Residues	Atoms					AltConf	Trace
4	j	247	Total	C	N	O	S	0	0
			1981	1278	331	362	10		
4	r	14	Total	C	N	O		0	0
			56	28	14	14			



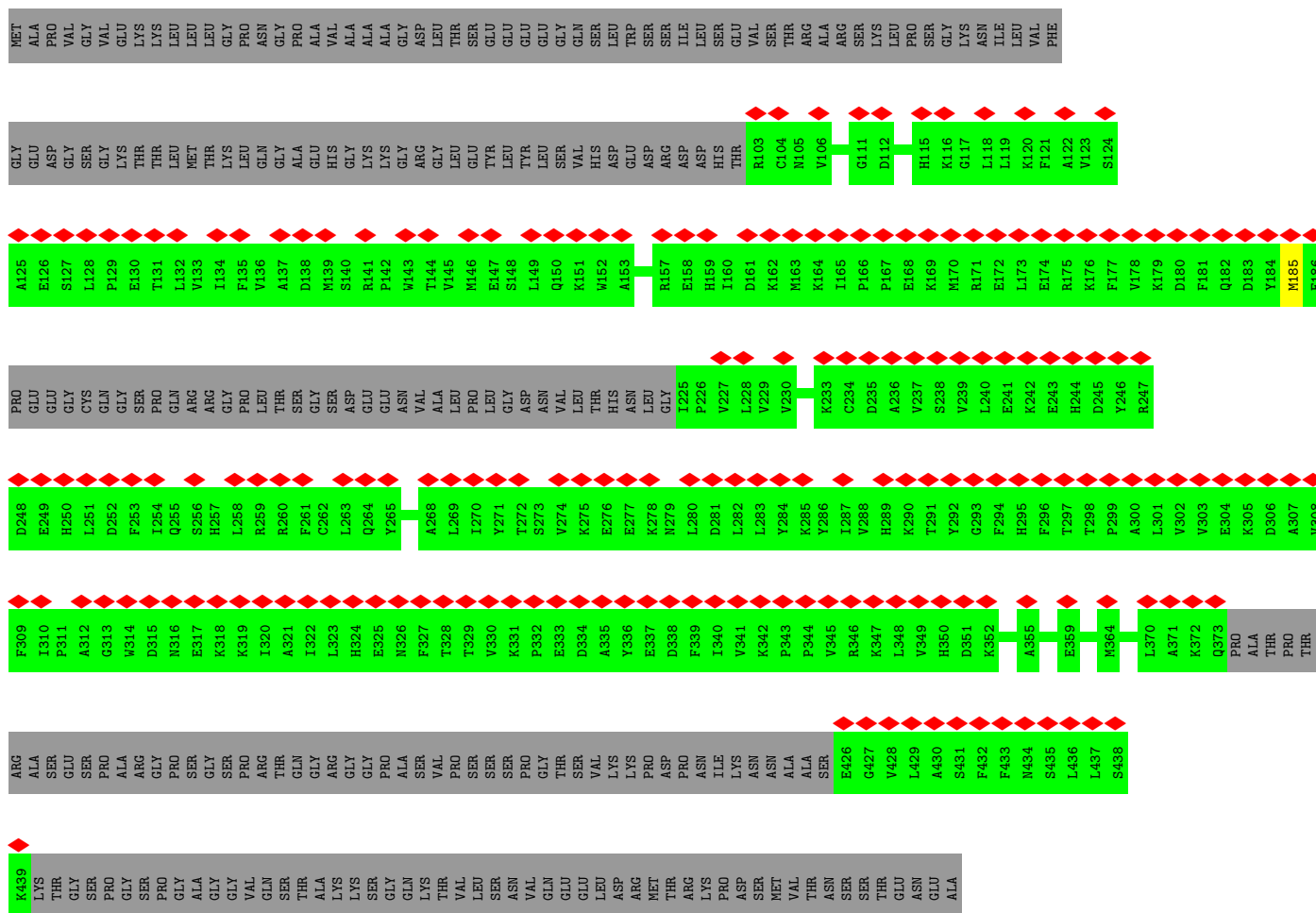
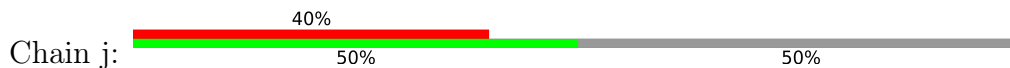
● Molecule 2: Cytoplasmic dynein 1 heavy chain 1



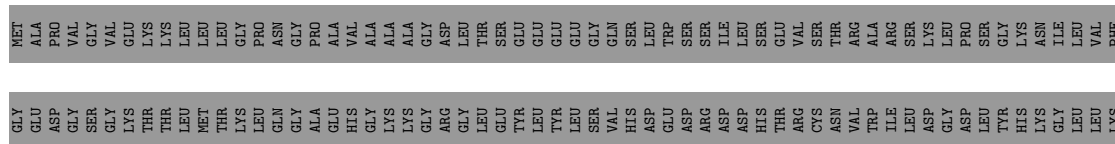
R587	V593	R594	P595	H596	L619	D640	D667	D701	K705	R709	N710	L711	G712	V713	S714	G715	R716	T719	I720	GLU	SER	THR	ARG	VAL	ARG	GLY	ASN	VAL	LEU	R734	L735	R738	E742	L762	K767	Q773	R786	T787	Y788	R790												
K794	V795	E796	E797	R798	N799	T800	I801	S802	L803	L808	K809	K810	E811	V812	Q813	A814	L815	I816	A817	E818	G819	I820	A821	L822	Y827	K828	L829	D830	Q834	R835	F841	N842	F843	Q844	E845	D848	L849	L850	L851	I852	ILE	GLU	GLU	L853	ASP	LEU	R786	T787	Y788	R790		
CYS	MET	TYR	ASP	HIS	LYS	THR	PHE	SER	GLU	LEU	ASN	ARG	VAL	THR	ASP	VAL	GLN	HIS	ASP	TYR	SER	ASN	PRO	ILE	TRP	VAL	ASN	GLY	THR	ILE	ILE	GLY	THR	THR	ARG	GLY	GLN	ALA	GLY	GLY	CYS	ASP	LEU	R786	T787	Y788	R790					
LEU	GLY	GLN	ALA	LYS	GLU	ASP	ALA	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	THR				
PHE	ALA	TRP	LYS	MET	VAL	LEU	LEU	SER	ILE	GLN	SER	ASP	THR	GLN	VAL	VAL	VAL	VAL	VAL	THR	THR	GLY	VAL	VAL	TRP	THR	ARG	PRO	THR	ARG	PRO	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR			
VAL	GLU	GLN	TYR	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL		
ILE	ASP	TYR	GLY	LYS	VAL	GLN	SER	VAL	THR	ASP	SER	THR	PHE	GLY	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL		
VAL	THR	PHE	ILE	THR	THR	VAL	GLN	SER	ILE	ILE	GLN	VAL	THR	ARG	GLY	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL		
ARG	LYS	ASP	SER	ILE	ALA	GLM	GLM	MET	GLM	MET	LYS	VAL	VAL	VAL	GLU	ARG	GLU	GLU	GLU	GLU	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR		
PHE	GLY	ARG	LEU	LYS	ASP	ARG	GLU	GLY	VAL	ALA	GLY	ALA	GLY	LEU	LEU	LEU	LEU	LEU	LEU	LEU	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER	SER		
LYS	GLU	GLN	PRO	TRP	VAL	SER	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	
ALA	LEU	LYS	ASP	ARG	HIS	TRP	LYS	GLN	THR	VAL	HIS	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	
ARG	GLU	VAL	TRP	ASN	THR	TYR	GLU	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	
LEU	ASN	ARG	ILE	MET	ALA	PHE	ASP	GLN	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	
LEU	VAL	MET	VAL	VAL	ILE	ASN	GLN	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	
VAL	ALA	LYS	GLM	HIS	PHE	ALA	GLY	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	
LYS	GLY	MET	ARG	VAL	THR	LEU	ALA	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	
SER	SER	MET	GLY	GLY	GLY	GLY	ASP	ALA	PRO	LEU	HIS	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
LYS	SER	ILE	ASP	ASN	ALA	LYS	VAL	PHE	THR	LEU	SER	VAL	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
ARG	CYS	TYR	THR	MET	THR	GLN	ALA	GLY	LEU	GLY	THR	PRO	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR



● Molecule 4: Cytoplasmic dynein 1 light intermediate chain 2



● Molecule 4: Cytoplasmic dynein 1 light intermediate chain 2



PHE ALA
GLN VAL
VAL ASP
SER TYR
SER MET
GLU LYS
GLU ASP
SER PRO
LEU GLU
PRO GLU
GLY THR
CYS THR
GLY LEU
VAL ASP
ILE SER

PHE GLN
GLN ASP
TYR HIS
MET LYS
GLU ASP
PRO TYR
GLU ARG
GLU ASP
GLY THR
CYS LEU
GLY ASP
SER ARG
PRO GLY
SER ARG
GLU ARG
GLU THR
SER CYS
THR LEU
GLY THR
SER GLY
VAL TYR
MET ASP
GLU THR

GLU LYS
GLU HIS
HIS ASP
TYR LYS
ARG ASP
ASP ARG
PHE HIS
GLU THR
ASP LEU
PHE CYS
ILE THR
GLY ASP
PHE LEU
ILE SER

LEU VAL
PHE VAL
VAL GLU
MET LYS
SER ASP
GLN LYS
GLN ASP
SER VAL
LEU PHE
LEU ILE
LEU THR
ALA PRO
GLY LYS
GLN ASP
TRP TRP
ILE SER

VAL PHE
LEU LEU
MET MET
GLN LYS
GLN ASP
SER VAL
LEU PHE
LEU ILE
ALA PRO
GLY LYS
GLN ASP
PRO TRP
ALA THR
PHE THR
SER THR
LEU ILE
SER LEU
PRO HIS
ALA GLU
ARG ASN
THR PHE

ASN ASN
ALA ALA
SER SER
E426
G427
V428
L429
A430
S431
F432
F433
M434
S435
L436
L437
S438
K439
LYS THR
GLY THR
SER GLY
PRO PRO
SER THR
SER GLY
SER SER
PRO PRO
GLY GLY
ALA ARG
GLY THR
VAL GLY
GLN GLN
SER SER
THR THR
ALA ALA
LYS LYS
SER SER
GLY GLY
GLN GLN
LEU LEU
SER SER
ASN ASN
VAL VAL
GLN GLN
GLU GLU
GLU GLU
LEU LEU
ASP ASP
ARG ARG
MET MET
THR THR
ARG ARG
LYS LYS
PRO PRO
ASP ASP

SER MET
VAL THR
THR ASN
SER SER
THR THR
GLU ASN
GLU GLU
ALA

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	78061	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	53	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	4000	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.021	Depositor
Minimum map value	-0.002	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.000	Depositor
Recommended contour level	0.00128	Depositor
Map size (Å)	955.776, 955.776, 955.776	wwPDB
Map dimensions	768, 768, 768	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.2445, 1.2445, 1.2445	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	X	0.42	0/805	0.74	0/1072
1	x	0.33	0/805	0.67	0/1072
2	f	0.36	0/5641	0.60	0/7605
2	m	0.33	0/4403	0.61	0/5927
2	n	0.36	0/1081	0.64	0/1442
3	h	0.38	0/2883	0.58	0/3932
3	o	0.41	0/2887	0.59	0/3938
4	j	0.28	0/2026	0.56	0/2731
4	r	0.23	0/55	0.34	0/67
All	All	0.36	0/20586	0.60	0/27786

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	X	797	0	797	5	0
1	x	797	0	797	0	0
2	f	5545	0	5644	0	0
2	m	4333	0	4444	0	0
2	n	1068	0	1079	0	0
3	h	2804	0	2670	0	0
3	o	2808	0	2673	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	j	1981	0	1950	0	0
4	r	56	0	15	0	0
All	All	20189	0	20069	5	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 3.

All (5) 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:X:173:LEU:HD13	1:X:173:LEU:HB3	2.60	0.56
1:X:180:LEU:HD23	1:X:180:LEU:HB3	2.45	0.51
1:X:115:LEU:O	1:X:119:LEU:HD23	2.15	0.47
1:X:155:LEU:HD23	1:X:155:LEU:O	2.15	0.46
1:X:110:GLU:HA	1:X:113:LEU:HD12	2.02	0.41

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	X	91/577 (16%)	91 (100%)	0	0	100	100
1	x	91/577 (16%)	91 (100%)	0	0	100	100
2	f	664/4646 (14%)	651 (98%)	13 (2%)	0	100	100
2	m	516/4646 (11%)	502 (97%)	14 (3%)	0	100	100
2	n	118/4646 (2%)	115 (98%)	3 (2%)	0	100	100
3	h	356/638 (56%)	343 (96%)	13 (4%)	0	100	100
3	o	356/638 (56%)	342 (96%)	14 (4%)	0	100	100
4	j	241/492 (49%)	236 (98%)	5 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	r	12/492 (2%)	12 (100%)	0	0	100	100
All	All	2445/17352 (14%)	2383 (98%)	62 (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	X	87/503 (17%)	82 (94%)	5 (6%)	20	49
1	x	87/503 (17%)	86 (99%)	1 (1%)	73	84
2	f	603/4125 (15%)	579 (96%)	24 (4%)	31	57
2	m	468/4125 (11%)	459 (98%)	9 (2%)	57	75
2	n	110/4125 (3%)	107 (97%)	3 (3%)	44	66
3	h	308/557 (55%)	304 (99%)	4 (1%)	69	81
3	o	309/557 (56%)	299 (97%)	10 (3%)	39	62
4	j	213/422 (50%)	212 (100%)	1 (0%)	88	93
All	All	2185/14917 (15%)	2128 (97%)	57 (3%)	49	67

5 of 57 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	f	987	PHE
3	o	548	ARG
2	m	352	LYS
3	o	520	PHE
3	o	342	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 6 such sidechains are listed below:

Mol	Chain	Res	Type
2	f	889	ASN
3	o	419	GLN
1	x	133	GLN
2	f	342	ASN
2	f	280	ASN

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 monosaccharides 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.

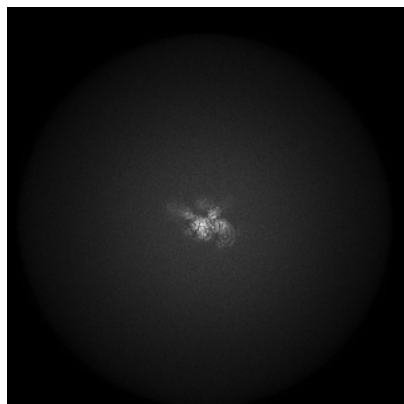
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-14553. These allow visual inspection of the internal detail of the map and identification of artifacts.

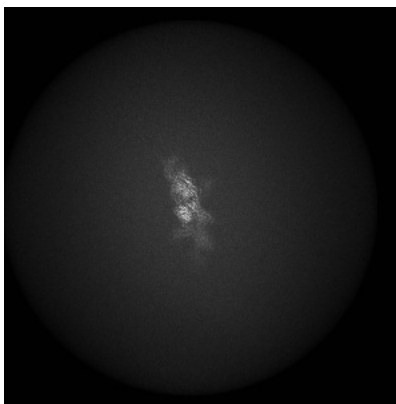
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

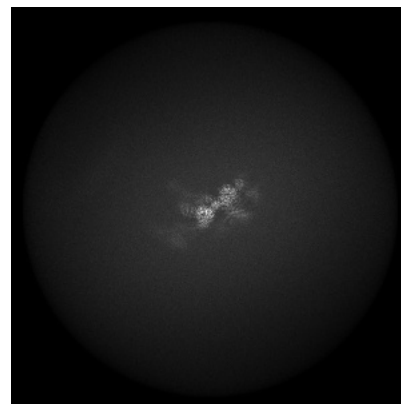
6.1.1 Primary map



X

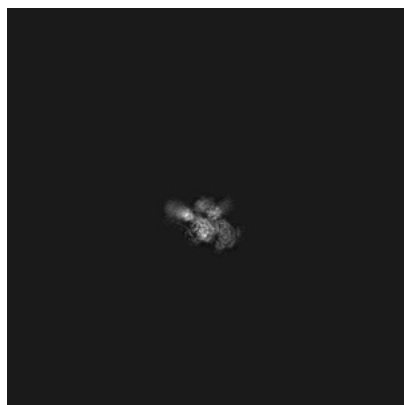


Y



Z

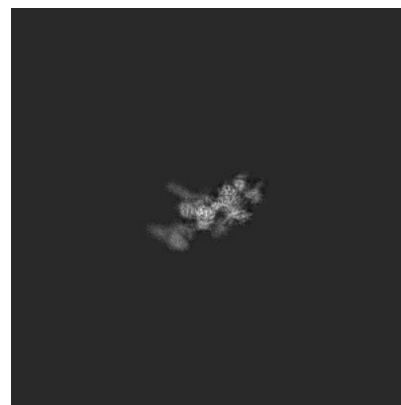
6.1.2 Raw map



X



Y

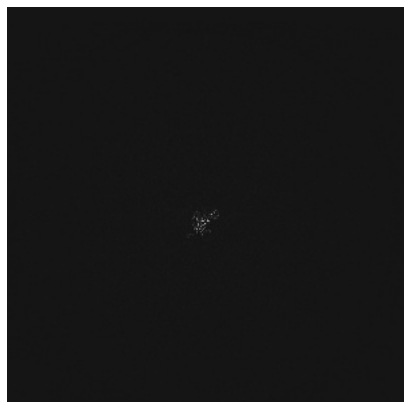


Z

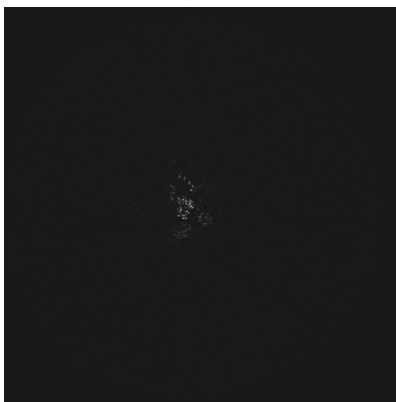
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

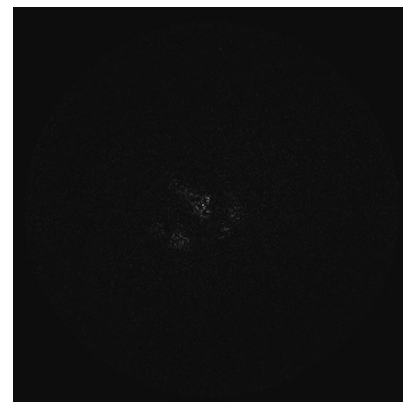
6.2.1 Primary map



X Index: 384

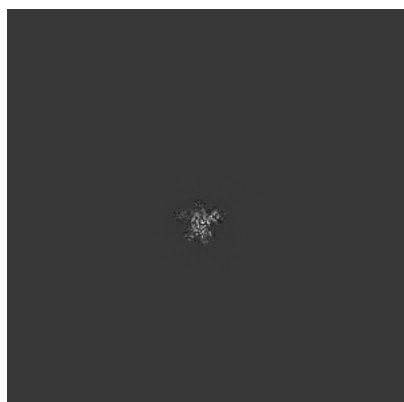


Y Index: 384



Z Index: 384

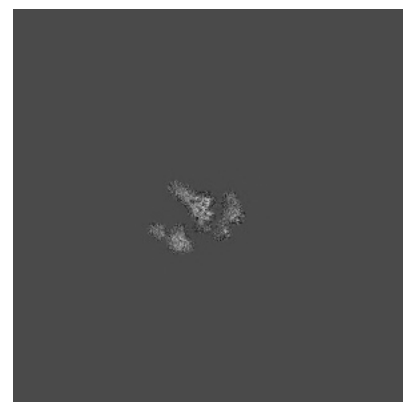
6.2.2 Raw map



X Index: 384



Y Index: 384

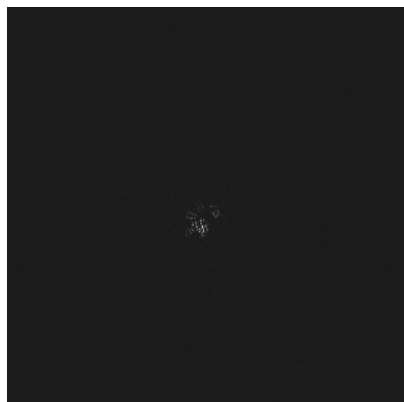


Z Index: 384

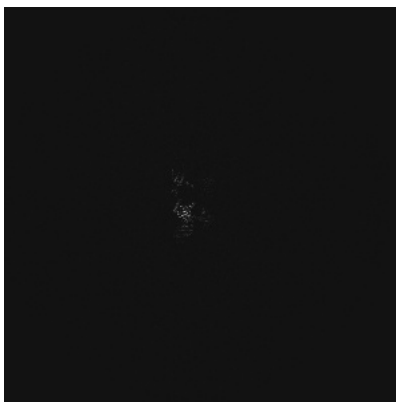
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

6.3.1 Primary map



X Index: 374

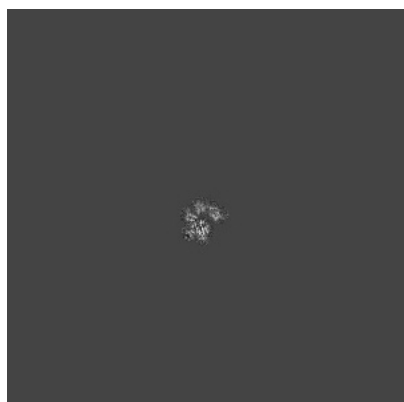


Y Index: 375



Z Index: 349

6.3.2 Raw map



X Index: 374



Y Index: 375



Z Index: 349

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

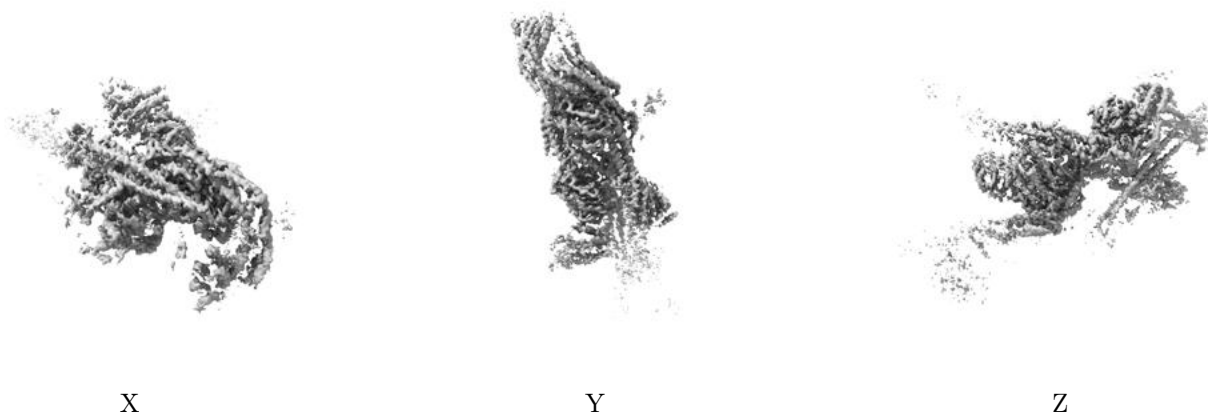
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.00128. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 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.

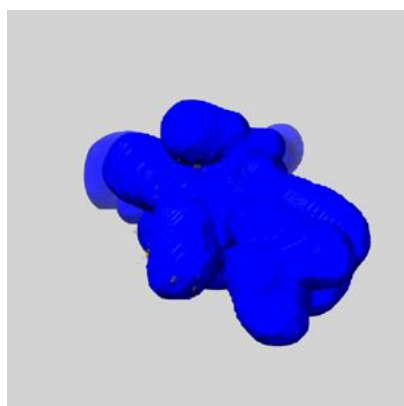
6.5 Mask visualisation [i](#)

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

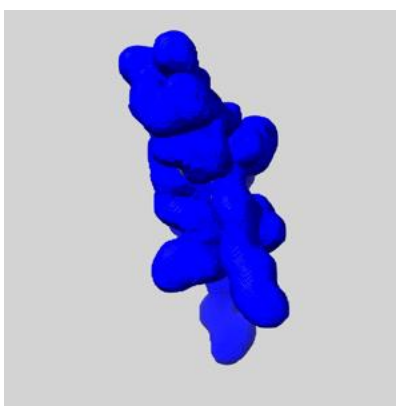
A mask typically either:

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

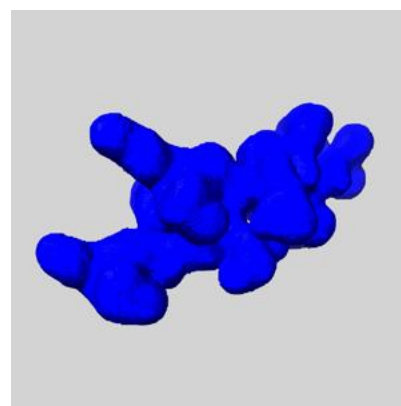
6.5.1 emd_14553_msk_1.map [i](#)



X



Y

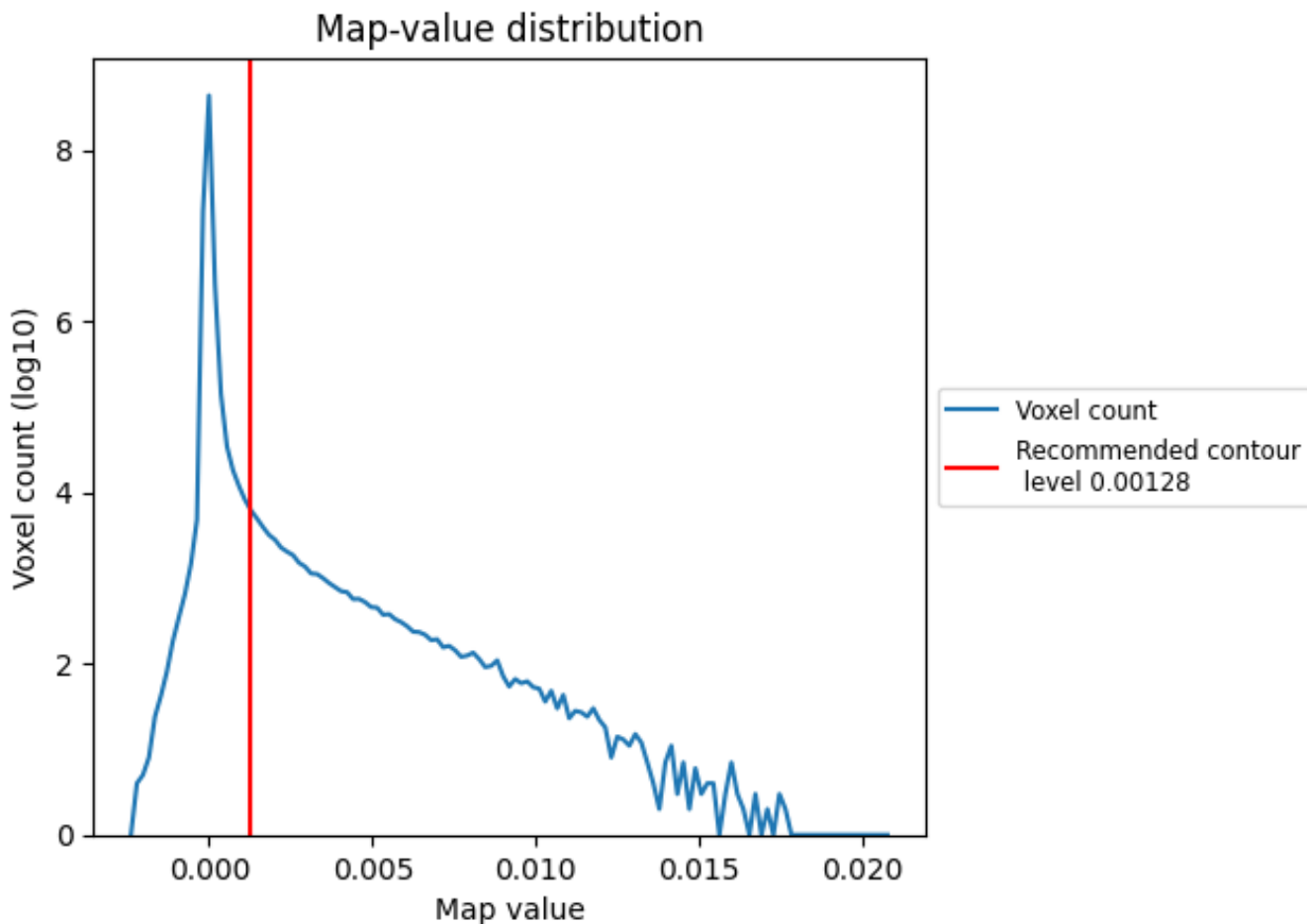


Z

7 Map analysis [i](#)

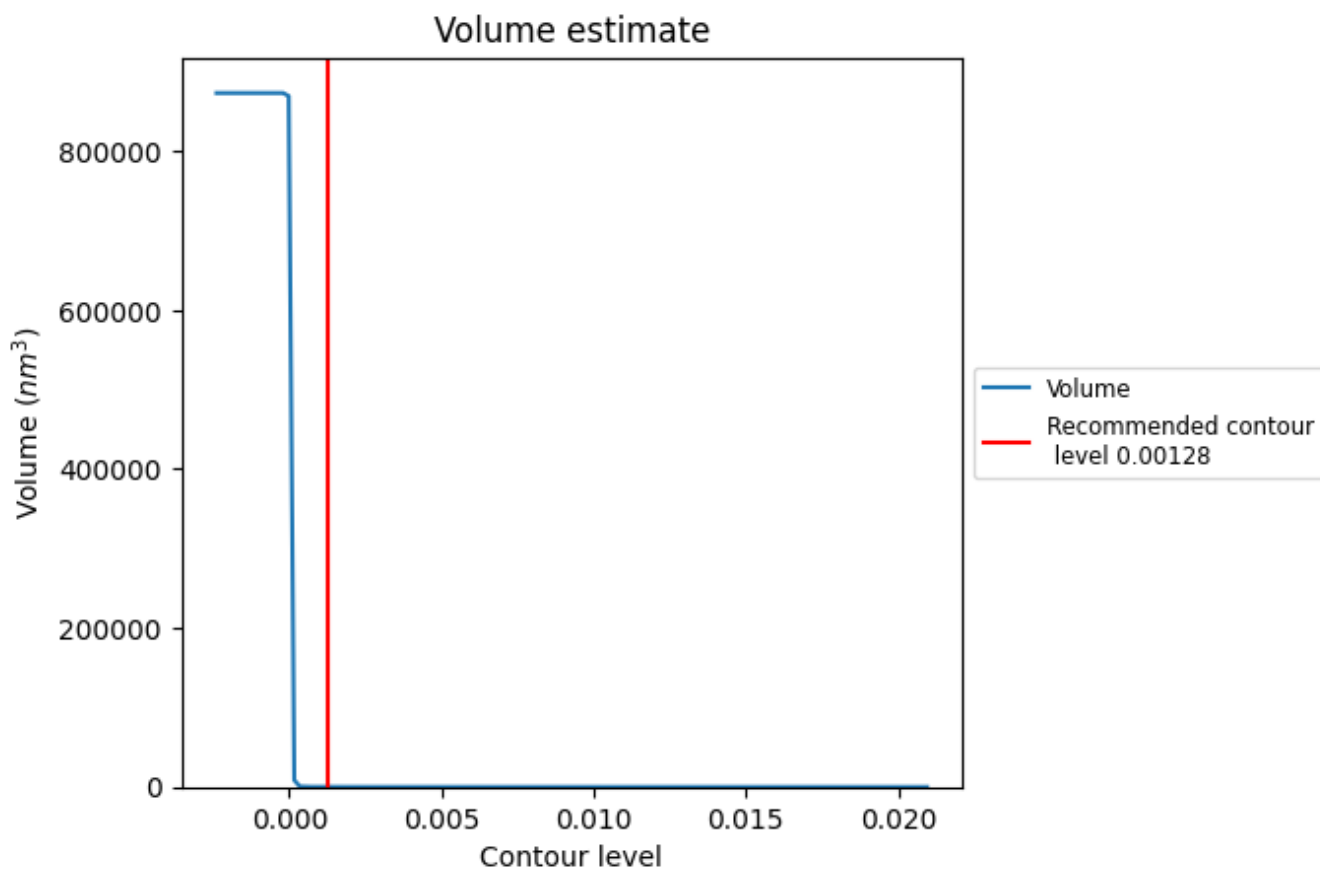
This section contains the results of statistical analysis of the map.

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.

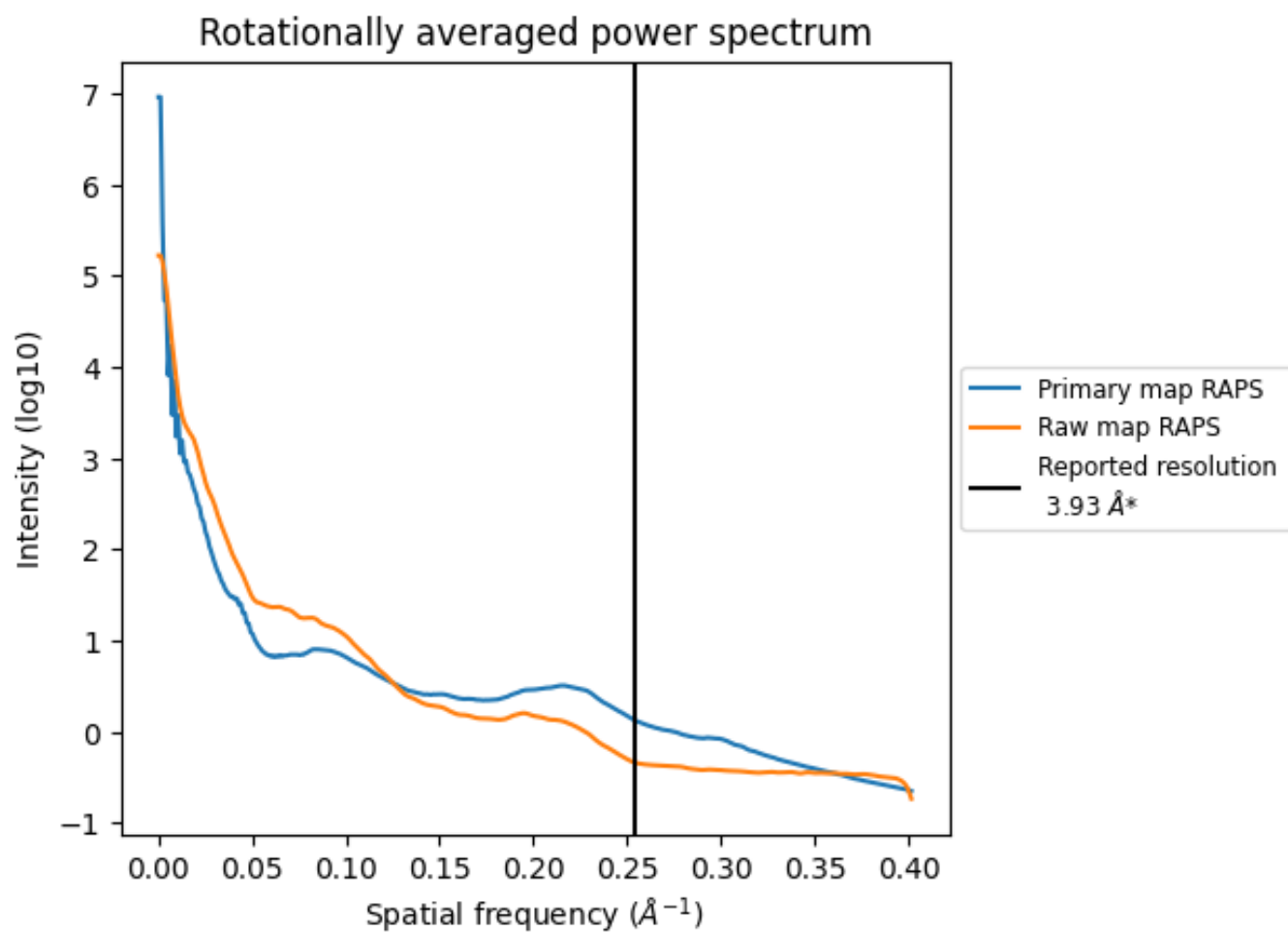
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 85 nm³; this corresponds to an approximate mass of 77 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

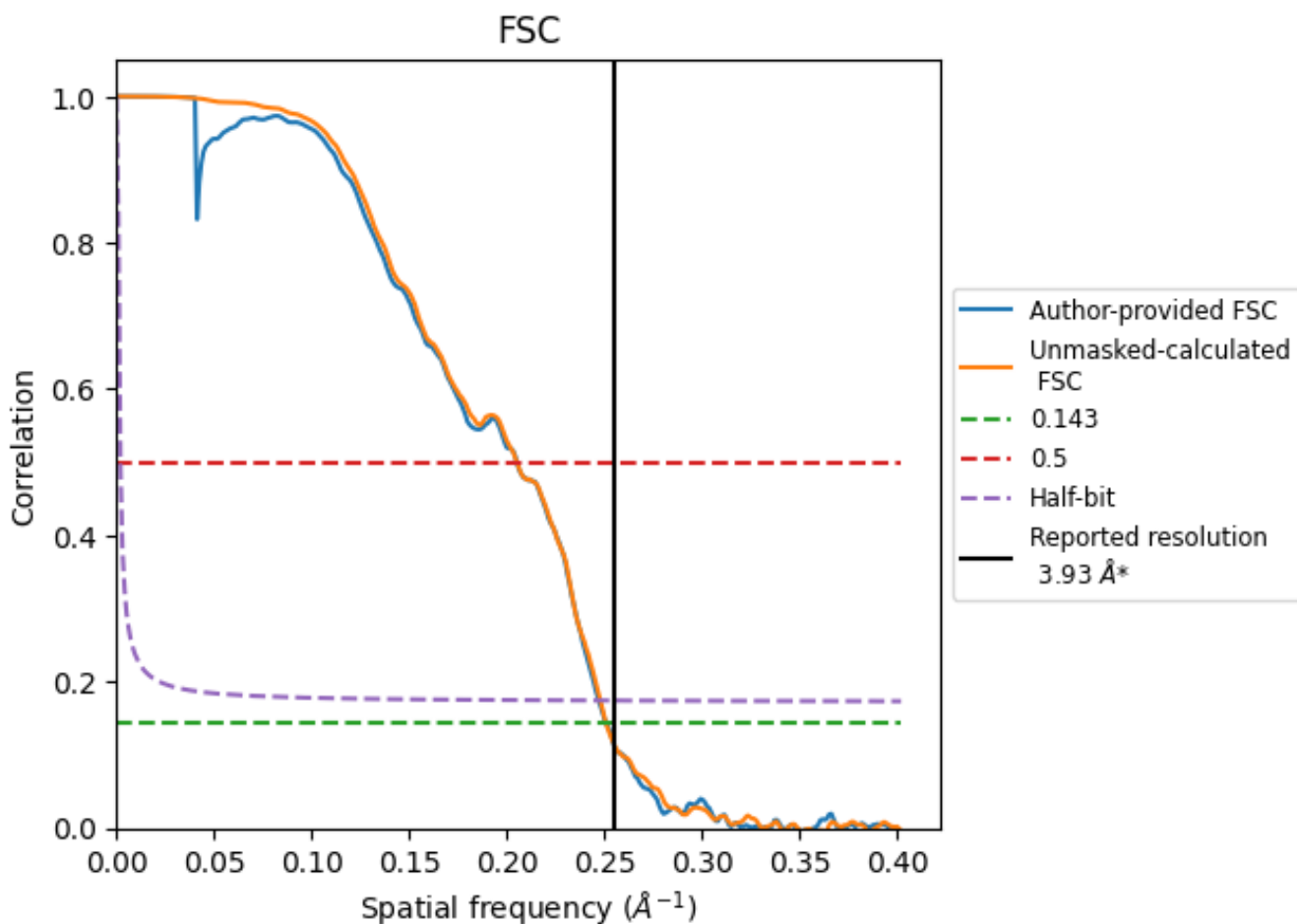


*Reported resolution corresponds to spatial frequency of 0.254 Å⁻¹

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 0.254 Å⁻¹

8.2 Resolution estimates [i](#)

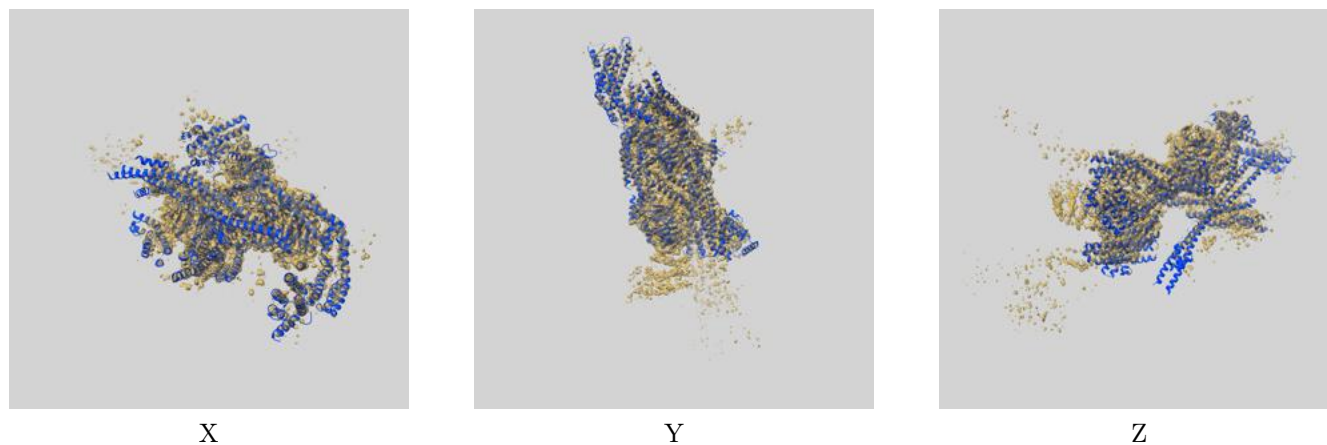
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.93	-	-
Author-provided FSC curve	3.99	4.88	4.05
Unmasked-calculated*	3.99	4.88	4.04

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

9 Map-model fit [i](#)

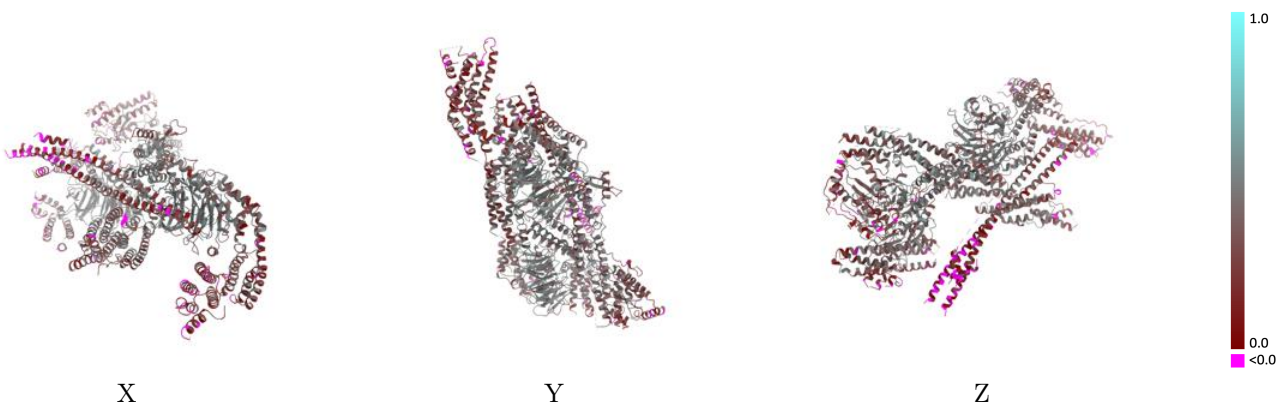
This section contains information regarding the fit between EMDB map EMD-14553 and PDB model 7Z8J. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



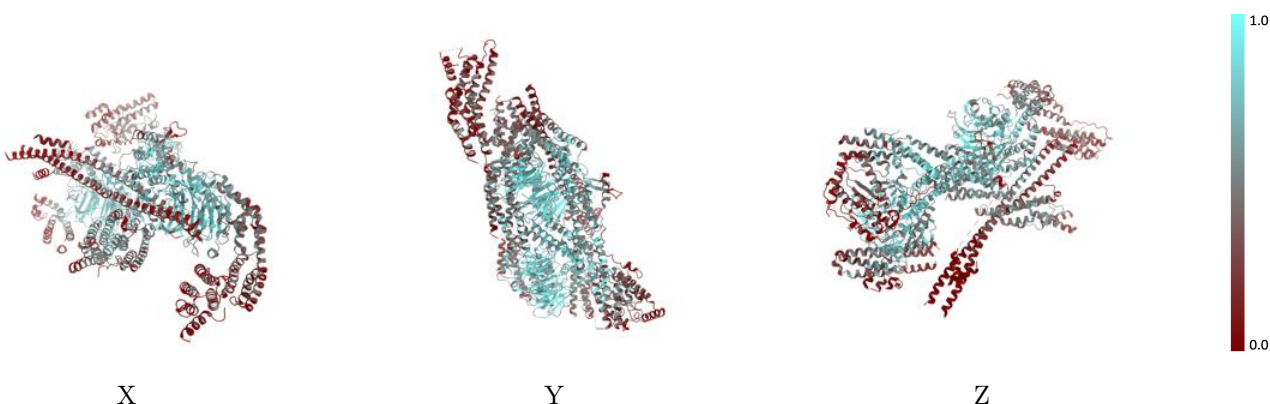
The images above show the 3D surface view of the map at the recommended contour level 0.00128 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



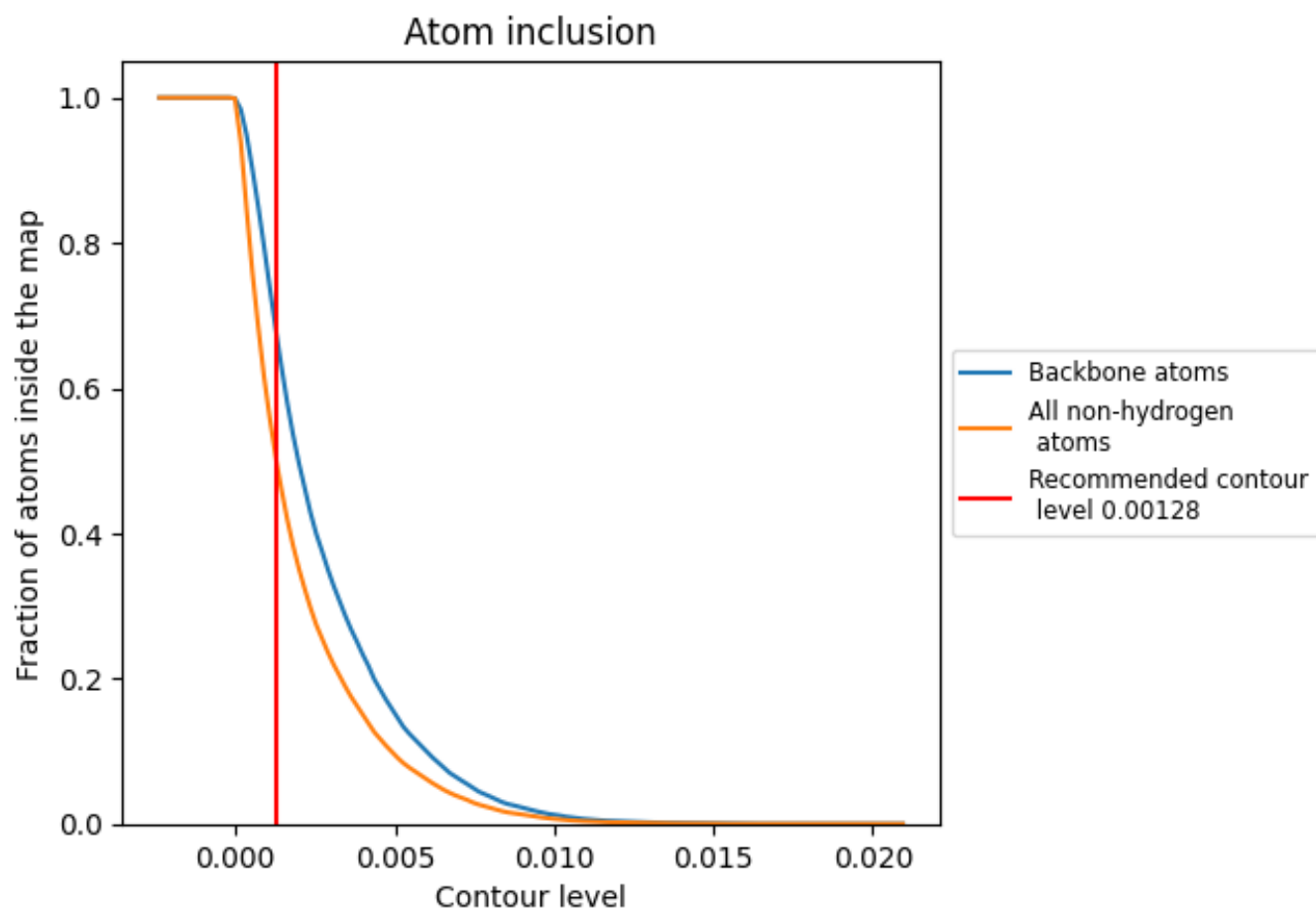
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.00128).





















9.4 Atom inclusion [i](#)



At the recommended contour level, 68% of all backbone atoms, 50% 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 (0.00128) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.4994	 0.3640
X	 0.2691	 0.2180
f	 0.4553	 0.3510
h	 0.7211	 0.4520
j	 0.2097	 0.2700
m	 0.5346	 0.3820
n	 0.2232	 0.2710
o	 0.7796	 0.4690
r	 0.0000	 0.1370
x	 0.1902	 0.2020

