



wwPDB EM Validation Summary Report ⓘ

Nov 12, 2022 – 10:07 AM EST

PDB ID : 6PKX
EMDB ID : EMD-20369
Title : Cryo-EM structure of the zebrafish TRPM2 channel in the presence of ADPR and Ca²⁺
Authors : Yin, Y.; Wu, M.; Hsu, A.L.; Borschel, W.F.; Borgnia, M.J.; Lander, G.C.; Lee, S.-Y.
Deposited on : 2019-06-30
Resolution : 4.20 Å (reported)
Based on initial model : 6D73

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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
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
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

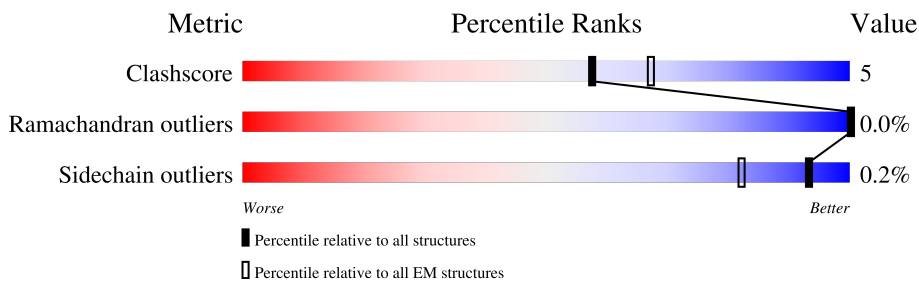
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.20 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	A	1466	
1	B	1466	
1	C	1466	
1	D	1466	

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 32490 atoms, of which 42 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.

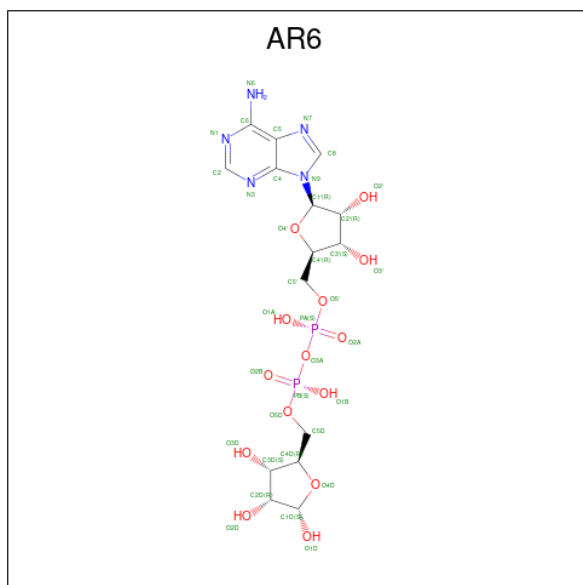
- Molecule 1 is a protein called Transient receptor potential cation channel subfamily M member 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1206	8049	5192	1407	1417	33	0	0
1	B	1218	8138	5271	1423	1419	25	0	0
1	C	1206	8049	5192	1407	1417	33	0	0
1	D	1218	8138	5271	1423	1419	25	0	0

- Molecule 2 is CALCIUM ION (three-letter code: CA) (formula: Ca) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
2	B	1	Total	Ca	0
			1	1	
2	D	1	Total	Ca	0
			1	1	

- Molecule 3 is [(2R,3S,4R,5R)-5-(6-AMINOPURIN-9-YL)-3,4-DIHYDROXY-OXOLAN-2-YL]METHYL [HYDROXY-[(2R,3S,4R,5S)-3,4,5-TRIHYDROXYOXOLAN-2-YL]METHOXY]PHOSPHORYL HYDROGEN PHOSPHATE (three-letter code: AR6) (formula: C₁₅H₂₃N₅O₁₄P₂) (labeled as "Ligand of Interest" by depositor).

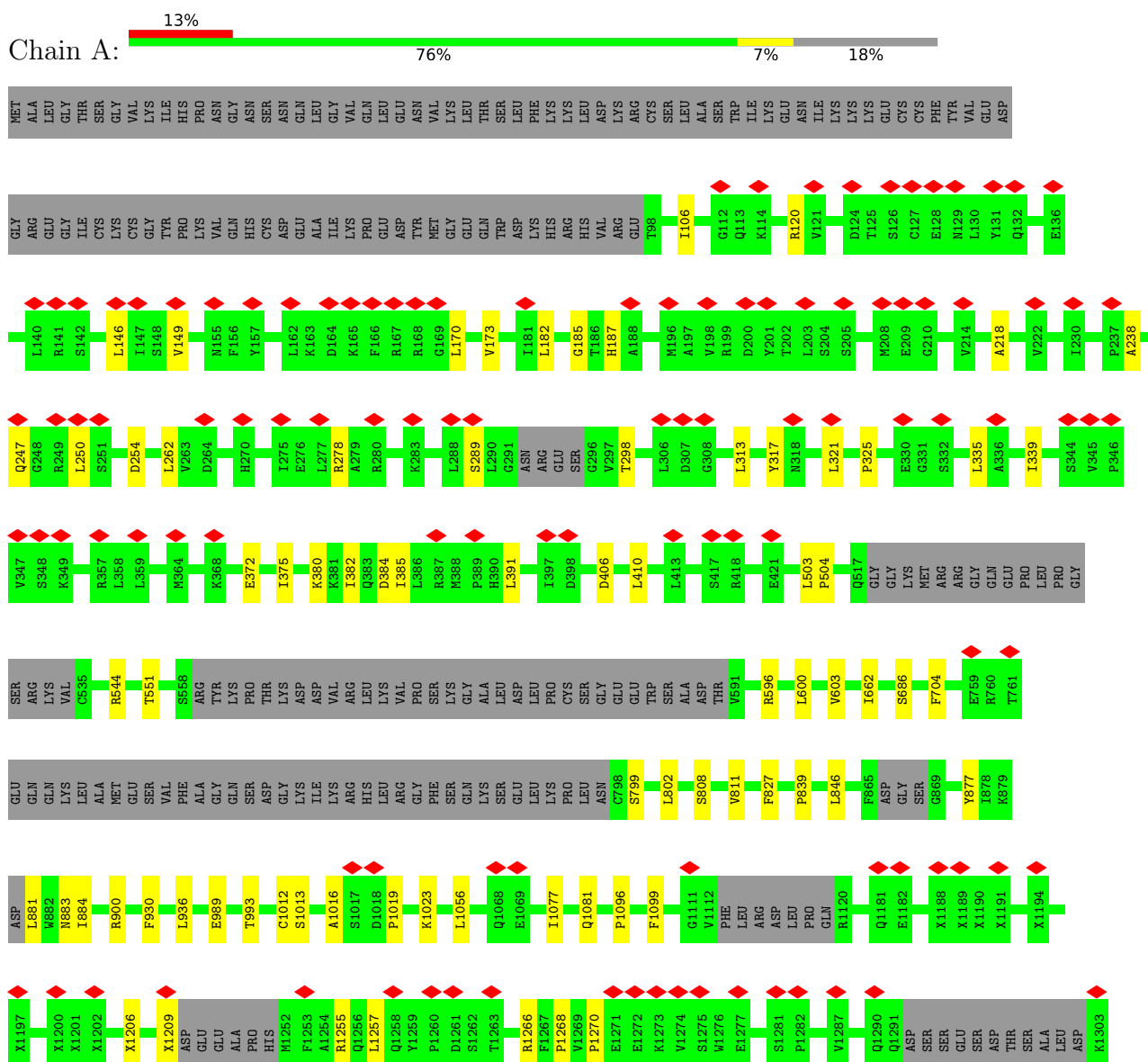


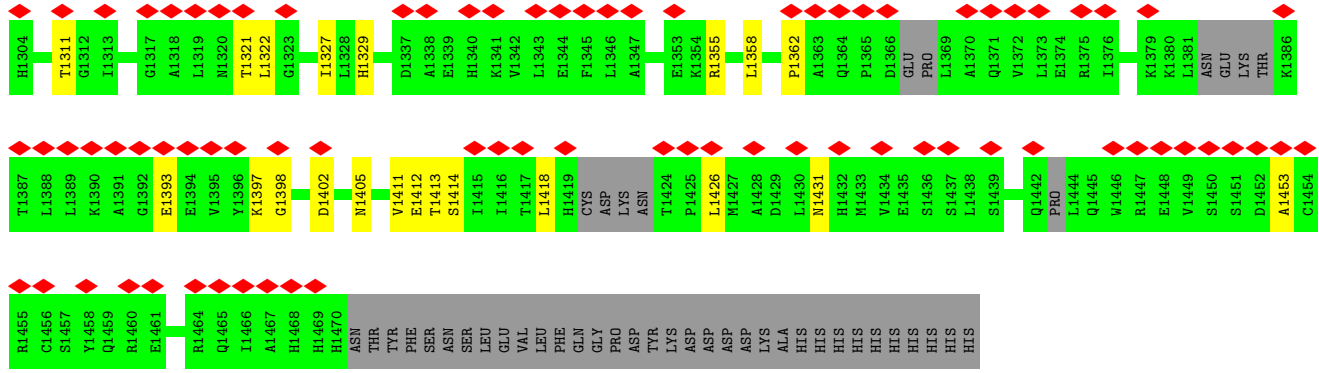
Mol	Chain	Residues	Atoms					AltConf		
			Total	C	H	N	O		P	
3	B	1	Total	57	15	21	5	14	2	0
3	D	1	Total	57	15	21	5	14	2	0

3 Residue-property plots [i](#)

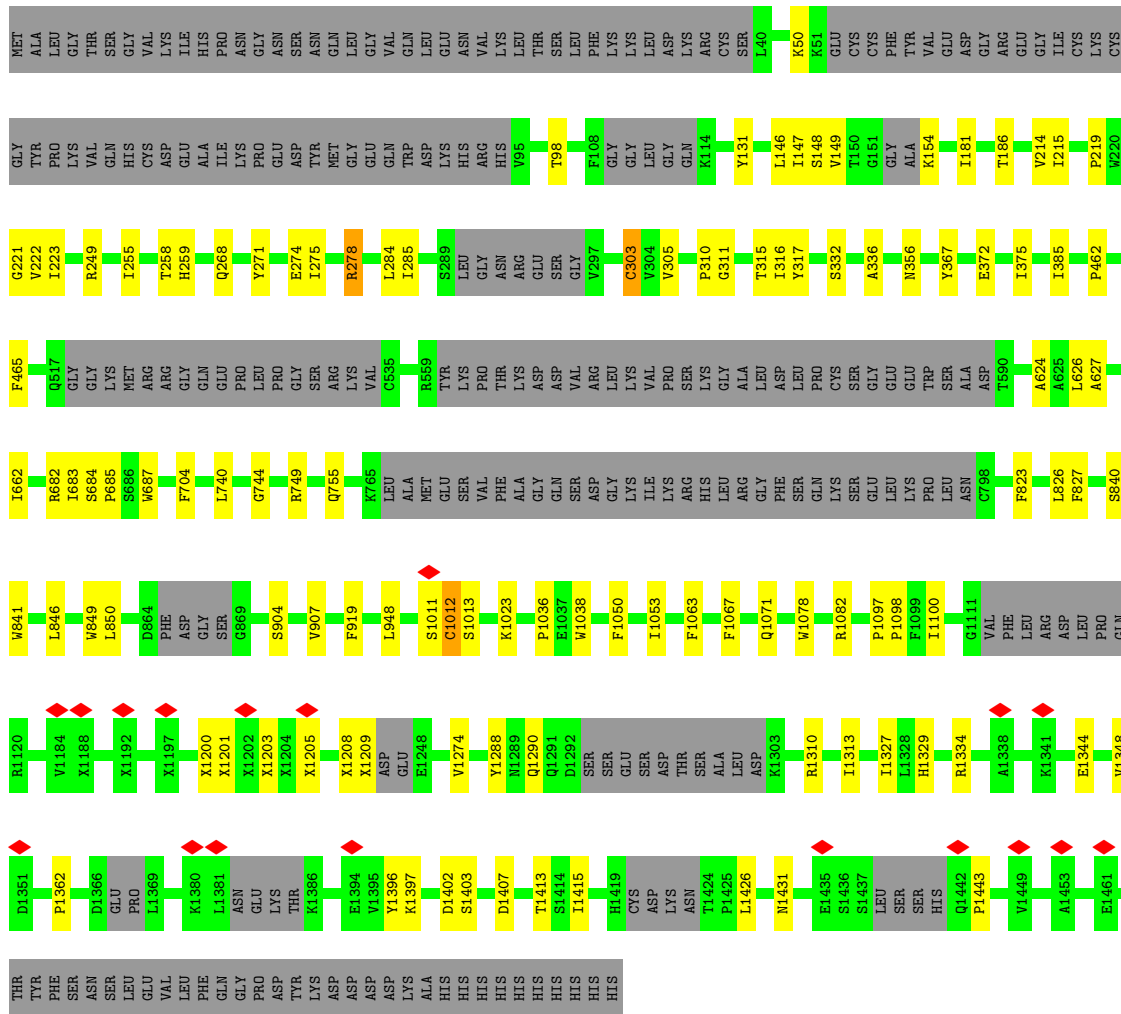
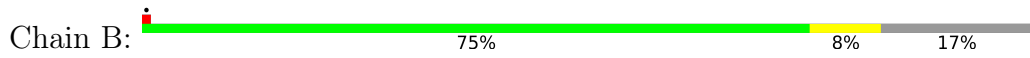
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Transient receptor potential cation channel subfamily M member 2

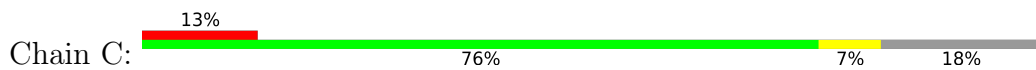




• Molecule 1: Transient receptor potential cation channel subfamily M member 2



• Molecule 1: Transient receptor potential cation channel subfamily M member 2



E1461	H1470	W1349	V1184	L846	I683	G517	G221	GLY	GLY	I683	G517	G221	GLY
H1470	H1470	E1350	X1188	W849	S684	GLY	V222	TYR	GLY	S684	GLY	V222	TYR
ASN	ASN	D1351	X1192	L850	P686	LYS	L223	PRO	LYS	P686	LYS	L223	PRO
THR	THR	P1362	X1197	S864	W687	ARG	R249	VAL	ARG	W687	ARG	R249	VAL
PHE	PHE	D1366	X1200	PHE	F704	GLY	L255	GLN	GLY	F704	GLY	L255	GLN
SER	SER	GLU	X1201	ASP	H707	GLY	T258	ASP	GLN	H707	GLY	T258	ASP
ASN	ASN	PRO	X1202	GLY	V710	GLU	H259	GLU	ASP	V710	GLU	H259	GLU
SER	SER	L1369	X1203	SER	L740	PRO	Q268	ALA	PRO	L740	PRO	Q268	ALA
LEU	LEU	K1380	X1204	G869	G744	LEU	Y271	ILE	LEU	G744	LEU	Y271	ILE
GLU	GLU	I1381	X1205	S904	Q755	PRO	E274	LYS	PRO	Q755	PRO	E274	LYS
VAL	VAL	L1381	X1208	Y907	R278	GLY	I275	TYR	TYR	R278	GLY	I275	TYR
LEU	LEU	ASN	X1209	F919	K765	VAL	R278	MET	MET	K765	VAL	R278	MET
PHE	PHE	GLU	X1210	L948	R559	ASP	L284	GLY	GLY	R559	ASP	L284	GLY
GLY	GLY	THR	X1211	S1011	R559	GLU	I285	GLN	GLN	R559	GLU	I285	GLN
LYS	LYS	ASP	X1212	C1012	ALA	ASP	S289	TRP	TRP	ALA	ASP	S289	TRP
ASN	ASN	E1248	X1213	S1013	ALA	ASP	GLY	ASP	ASP	ALA	ASP	GLY	ASP
ASP	ASP	GLU	X1214	K1023	ALA	ASP	LEU	ASN	ASN	ALA	ASP	LEU	ASN
ASP	ASP	LEU	X1215	P1036	ALA	ASP	GLY	ASP	ASP	ALA	ASP	GLY	ASP
ASP	ASP	K1397	X1216	F1037	GLN	ASP	ARG	ASP	ASP	GLN	ASP	ARG	ASP
LYS	LYS	D1402	X1217	W1038	GLN	ASP	GLY	ASP	ASP	GLN	ASP	GLY	ASP
ALA	ALA	S1403	X1218	F1050	GLY	ASP	VAL	ASP	ASP	GLY	ASP	VAL	ASP
HIS	HIS	S1403	X1219	I1053	LYS	ASP	THR	ASP	ASP	LYS	ASP	THR	ASP
HIS	HIS	D1407	X1220	F1063	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	T1413	X1221	Q1071	LYS	ASP	ALA	ASP	ASP	LYS	ASP	ALA	ASP
HIS	HIS	S1414	X1222	W1078	LYS	ASP	PHE	ASP	ASP	LYS	ASP	PHE	ASP
HIS	HIS	I1415	SER	R1082	LYS	ASP	GLY	ASP	ASP	LYS	ASP	GLY	ASP
HIS	HIS	L1418	SER	P1097	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	H1419	SER	F1098	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	CYS	GLU	I1100	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	ASP	THR	G1111	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	ASP	THR	VAL	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	LYS	SER	PHE	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	LYS	SER	LEU	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	ASN	ALA	ARG	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	ASN	ALA	ARG	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	T1424	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	P1425	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	L1426	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	M1431	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	E1435	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	S1436	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	S1437	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	LEU	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	SER	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	SER	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	HIS	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	Q1442	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	P1443	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	Y1449	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	A1453	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP
HIS	HIS	V1348	ASP	ASP	LYS	ASP	LEU	ASP	ASP	LYS	ASP	LEU	ASP

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	135120	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 ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2250	Depositor
Magnification	59000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.306	Depositor
Minimum map value	-0.167	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.008	Depositor
Recommended contour level	0.02	Depositor
Map size (Å)	355.84, 355.84, 355.84	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.39, 1.39, 1.39	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CA, AR6

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	0.33	0/8120	0.55	0/11174
1	B	0.38	0/8218	0.58	0/11321
1	C	0.33	0/8120	0.55	0/11174
1	D	0.38	0/8218	0.58	0/11321
All	All	0.36	0/32676	0.57	0/44990

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

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

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	1011	SER	Peptide
1	D	1011	SER	Peptide

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	8049	0	6612	68	0
1	B	8138	0	6591	92	0
1	C	8049	0	6612	69	0
1	D	8138	0	6591	94	0
2	B	1	0	0	0	0
2	D	1	0	0	0	0
3	B	36	21	19	6	0
3	D	36	21	19	6	0
All	All	32448	42	26444	297	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 5.

The worst 5 of 297 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:B:1209:UNK:CB	1:C:1209:UNK:CB	2.19	1.20
1:A:1209:UNK:CB	1:D:1209:UNK:CB	2.23	1.15
1:B:1205:UNK:HA	1:C:1206:UNK:HA	1.39	1.03
1:A:1206:UNK:HA	1:D:1205:UNK:HA	1.42	1.01
1:A:1209:UNK:C	1:D:1208:UNK:CB	2.45	0.95

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	1156/1466 (79%)	1074 (93%)	82 (7%)	0	100	100
1	B	1164/1466 (79%)	1070 (92%)	93 (8%)	1 (0%)	51	85
1	C	1156/1466 (79%)	1074 (93%)	82 (7%)	0	100	100
1	D	1164/1466 (79%)	1070 (92%)	93 (8%)	1 (0%)	51	85
All	All	4640/5864 (79%)	4288 (92%)	350 (8%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	1012	CYS
1	D	1012	CYS

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	599/1277 (47%)	599 (100%)	0	100	100
1	B	580/1277 (45%)	578 (100%)	2 (0%)	92	95
1	C	599/1277 (47%)	599 (100%)	0	100	100
1	D	580/1277 (45%)	578 (100%)	2 (0%)	92	95
All	All	2358/5108 (46%)	2354 (100%)	4 (0%)	93	96

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	278	ARG
1	B	303	CYS
1	D	278	ARG
1	D	303	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 40 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	1329	HIS
1	D	707	HIS
1	C	1419	HIS
1	D	259	HIS
1	D	1290	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	AR6	D	1602	-	34,39,39	5.14	12 (35%)	40,60,60	1.49	6 (15%)
3	AR6	B	1602	-	34,39,39	5.14	12 (35%)	40,60,60	1.49	6 (15%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	AR6	D	1602	-	-	3/18/54/54	0/4/4/4
3	AR6	B	1602	-	-	3/18/54/54	0/4/4/4

The worst 5 of 24 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	1602	AR6	C2'-C1'	-15.12	1.30	1.53
3	D	1602	AR6	C2'-C1'	-15.08	1.30	1.53
3	B	1602	AR6	O4'-C1'	14.43	1.61	1.41
3	D	1602	AR6	O4'-C1'	14.39	1.61	1.41
3	B	1602	AR6	O4D-C1D	-13.36	1.27	1.43

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	1602	AR6	N3-C2-N1	-4.35	121.88	128.68
3	D	1602	AR6	N3-C2-N1	-4.35	121.88	128.68
3	B	1602	AR6	PB-O3A-PA	-4.20	118.41	132.83
3	D	1602	AR6	PB-O3A-PA	-4.20	118.42	132.83
3	D	1602	AR6	C1D-C2D-C3D	3.24	106.36	102.30

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	1602	AR6	PB-O3A-PA-O1A
3	D	1602	AR6	PB-O3A-PA-O1A
3	B	1602	AR6	PB-O3A-PA-O2A
3	D	1602	AR6	PB-O3A-PA-O2A
3	B	1602	AR6	C5D-O5D-PB-O2B

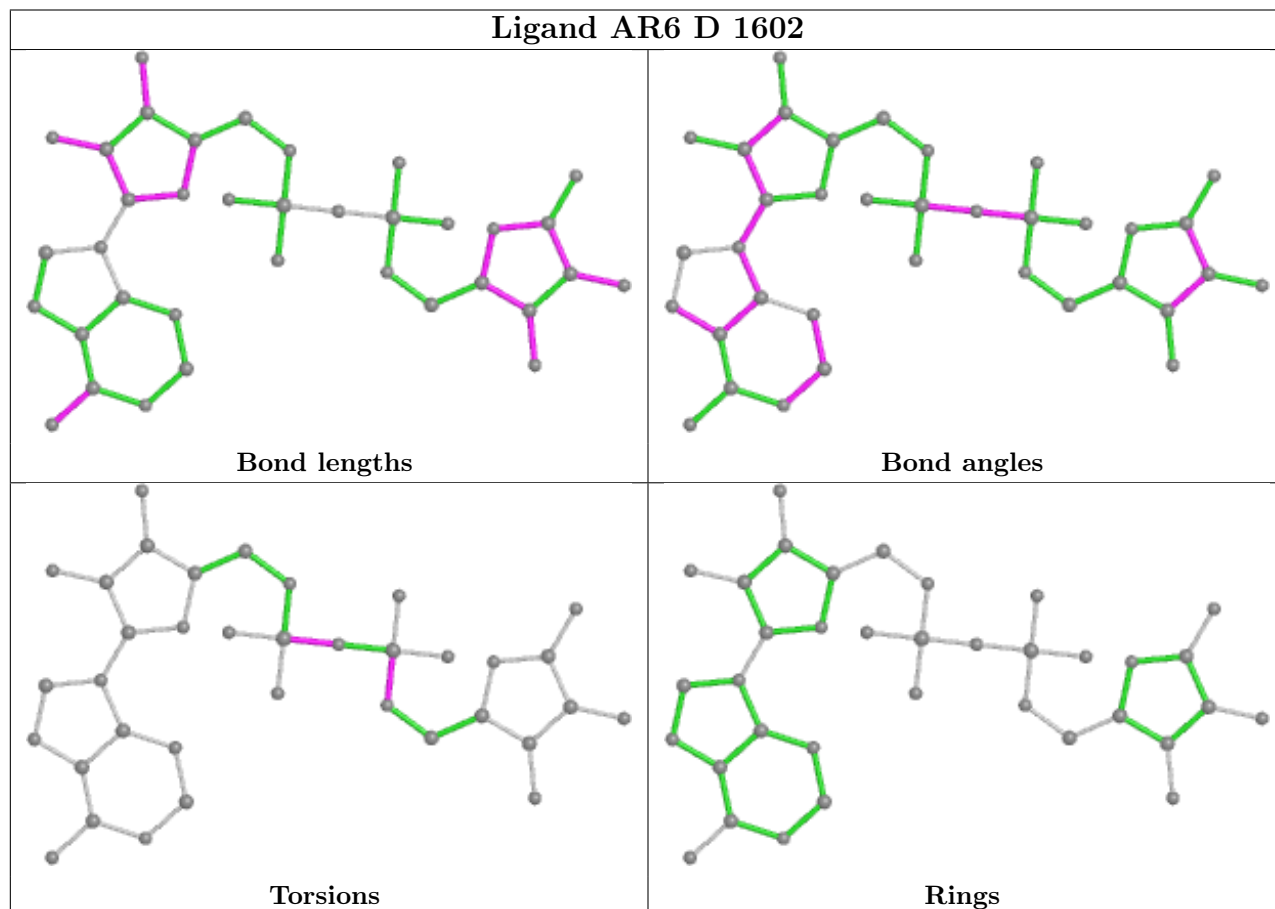
There are no ring outliers.

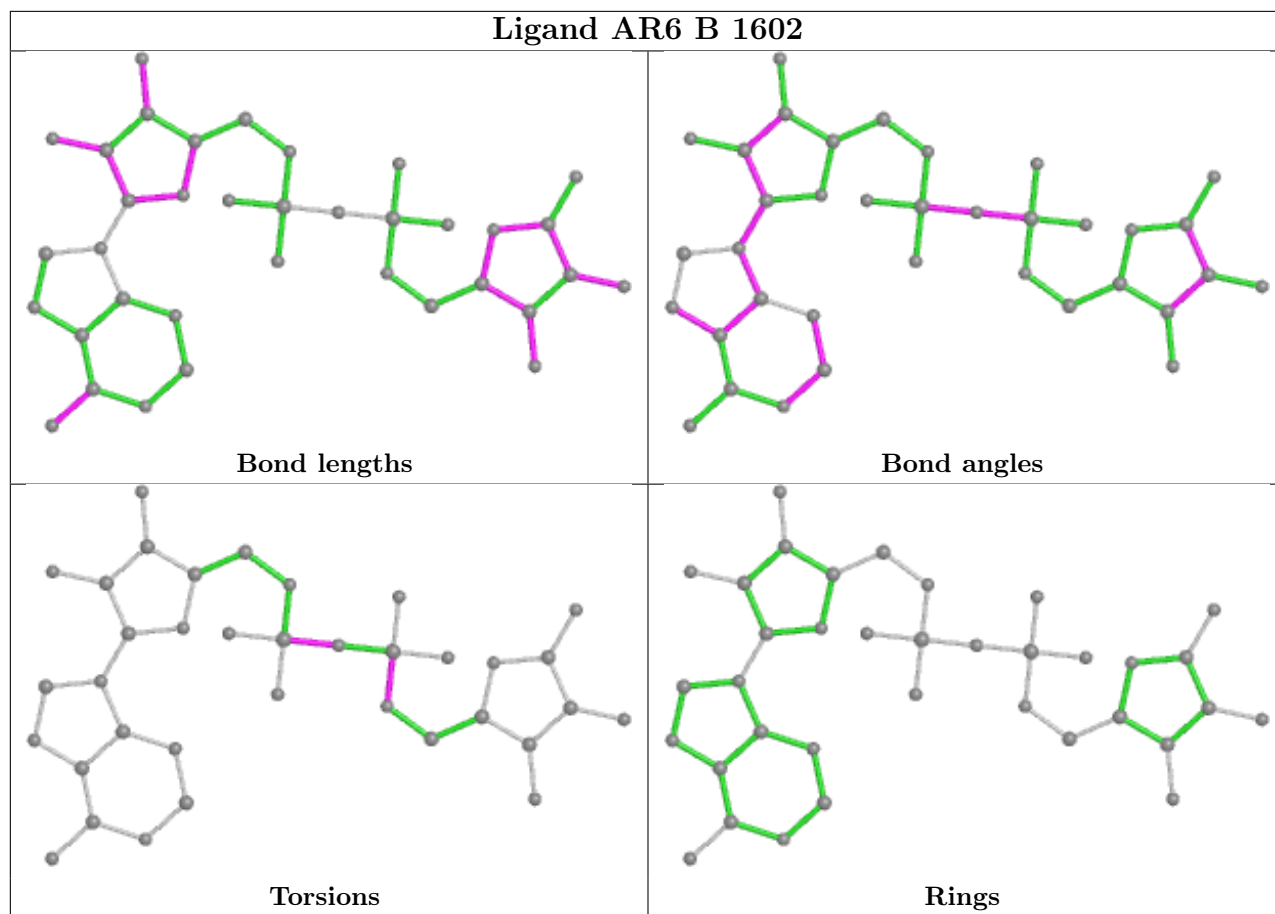
2 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	1602	AR6	6	0
3	B	1602	AR6	6	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is

within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	1
1	C	1
1	B	1
1	D	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	1184:VAL	C	1188:UNK	N	9.50
1	C	1184:VAL	C	1188:UNK	N	9.50
1	B	1184:VAL	C	1188:UNK	N	6.97

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	D	1184:VAL	C	1188:UNK	N	6.97

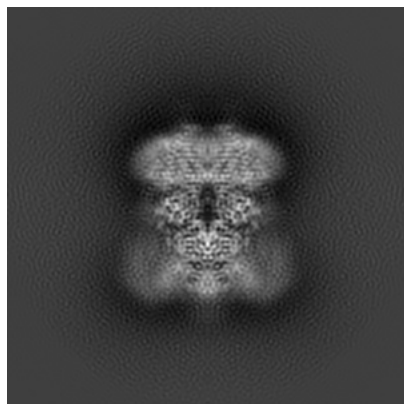
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-20369. These allow visual inspection of the internal detail of the map and identification of artifacts.

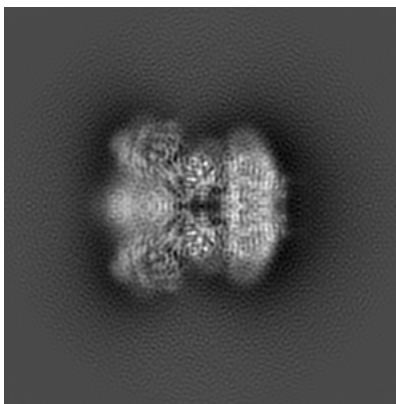
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

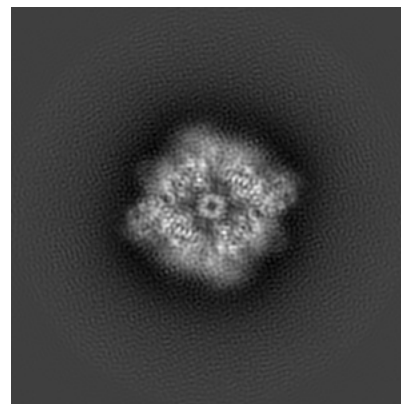
6.1.1 Primary map



X

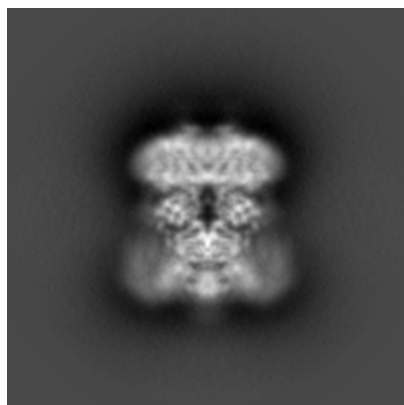


Y

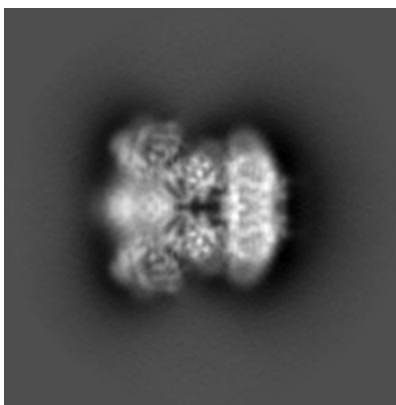


Z

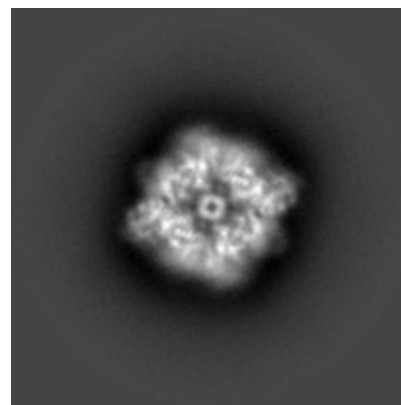
6.1.2 Raw map



X



Y

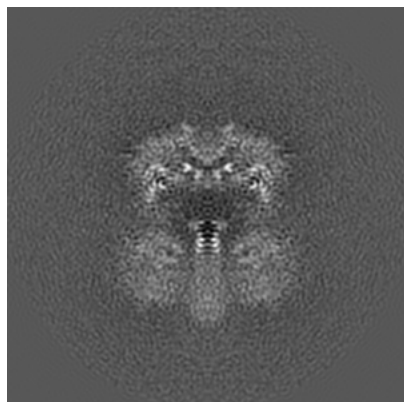


Z

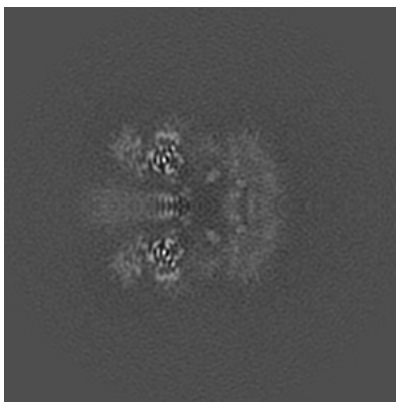
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

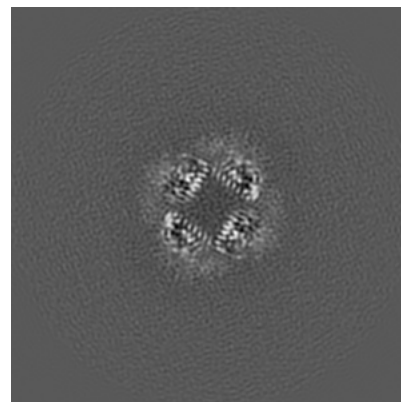
6.2.1 Primary map



X Index: 128



Y Index: 128

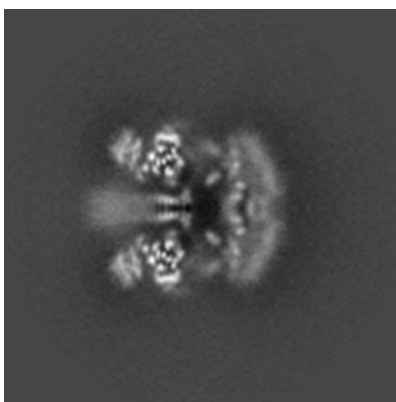


Z Index: 128

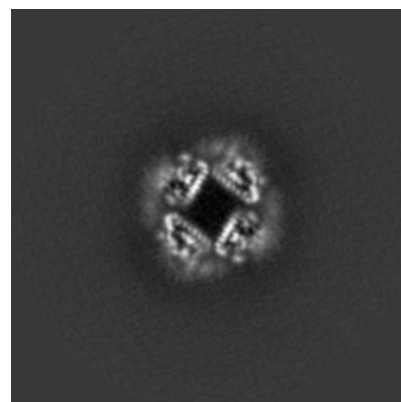
6.2.2 Raw map



X Index: 128



Y Index: 128

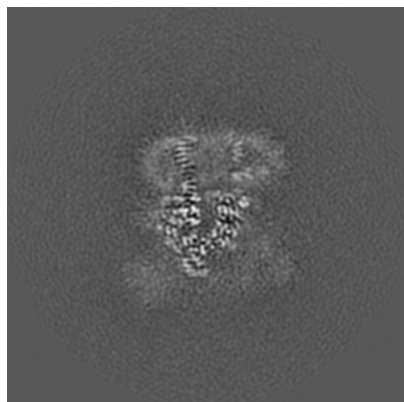


Z Index: 128

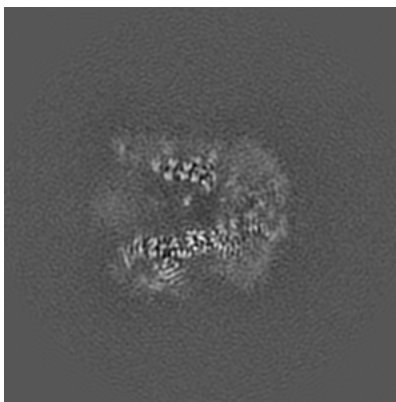
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

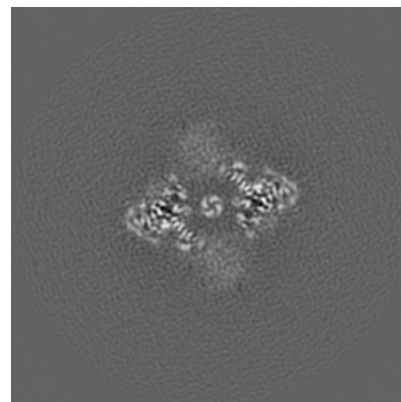
6.3.1 Primary map



X Index: 107

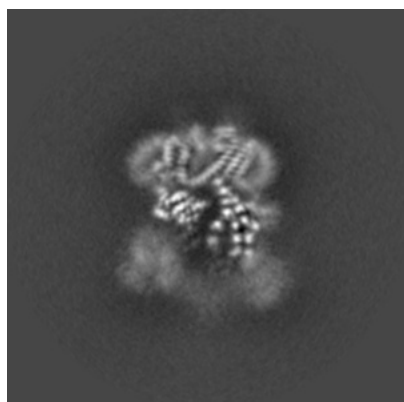


Y Index: 119

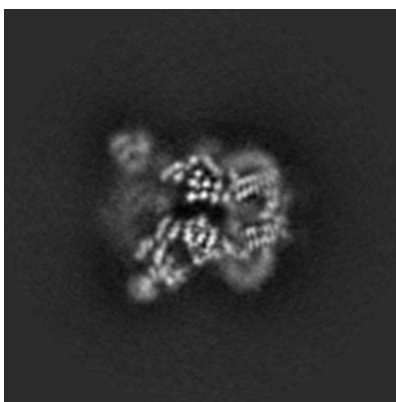


Z Index: 107

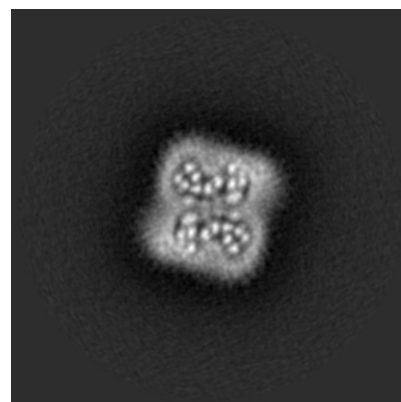
6.3.2 Raw map



X Index: 143



Y Index: 111

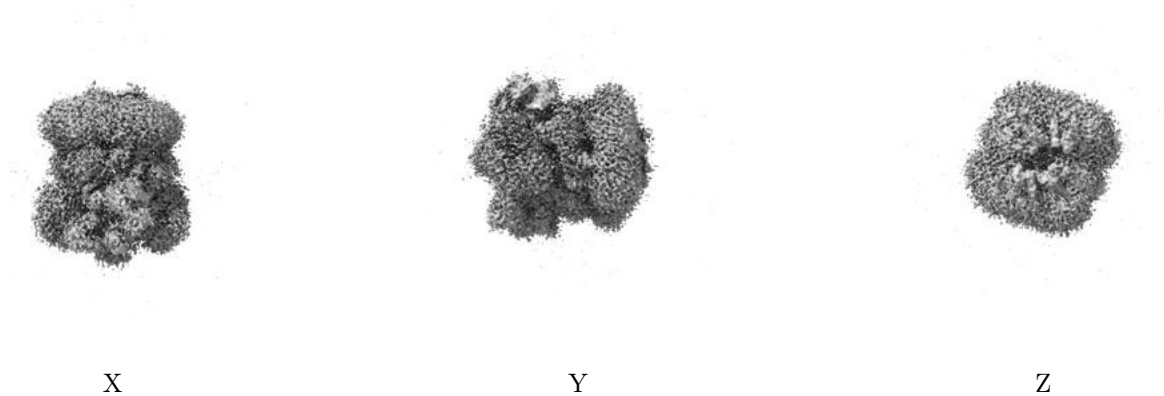


Z Index: 167

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

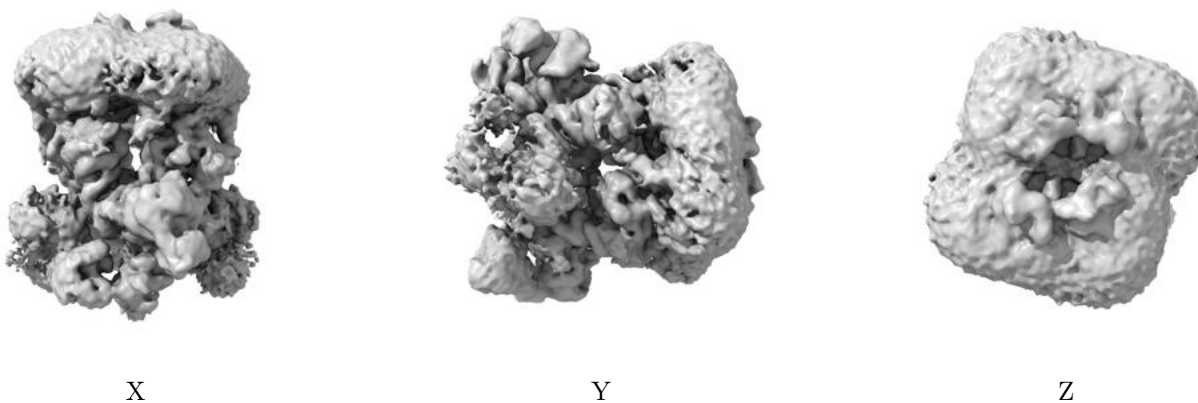
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.02. 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.

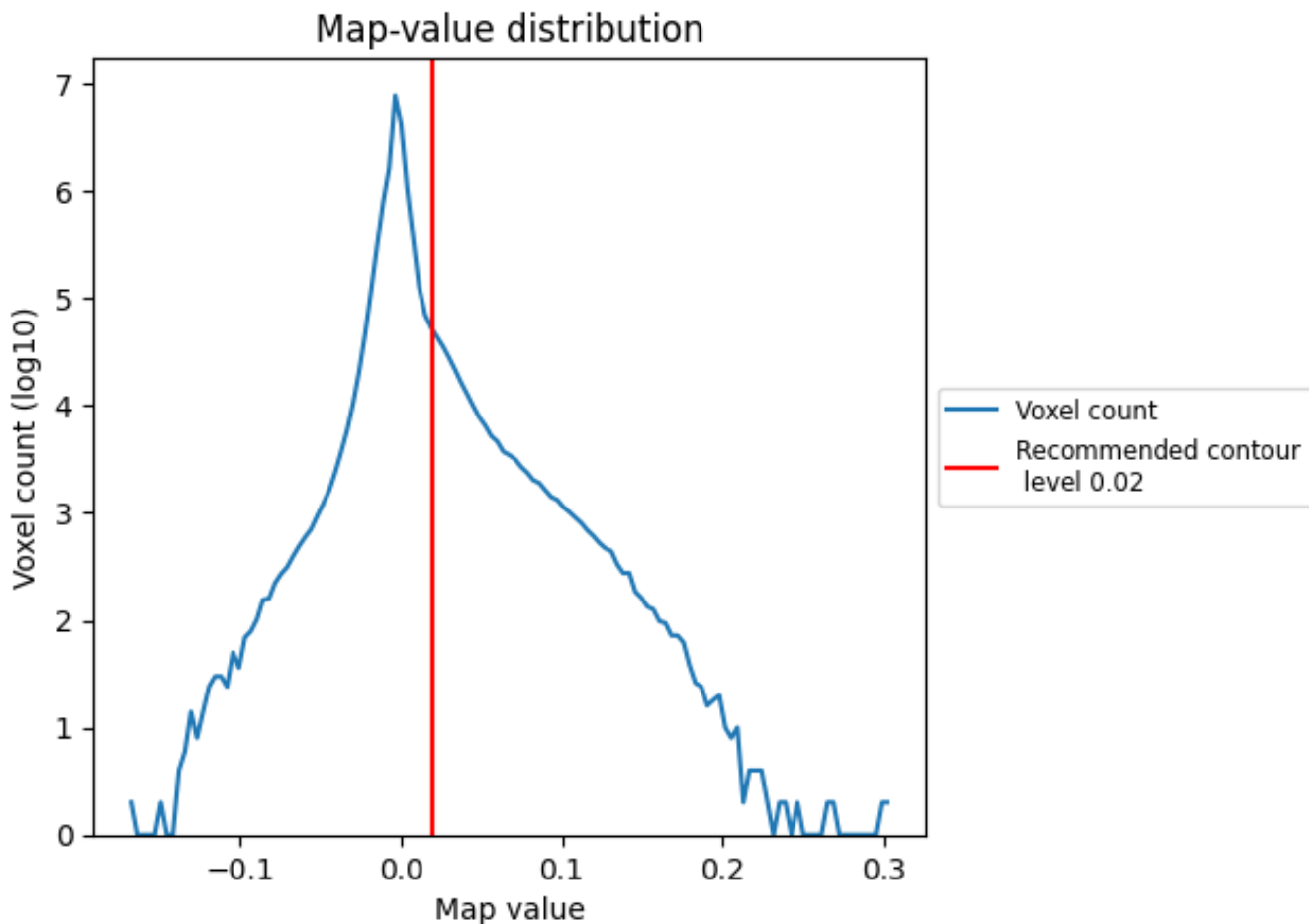
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

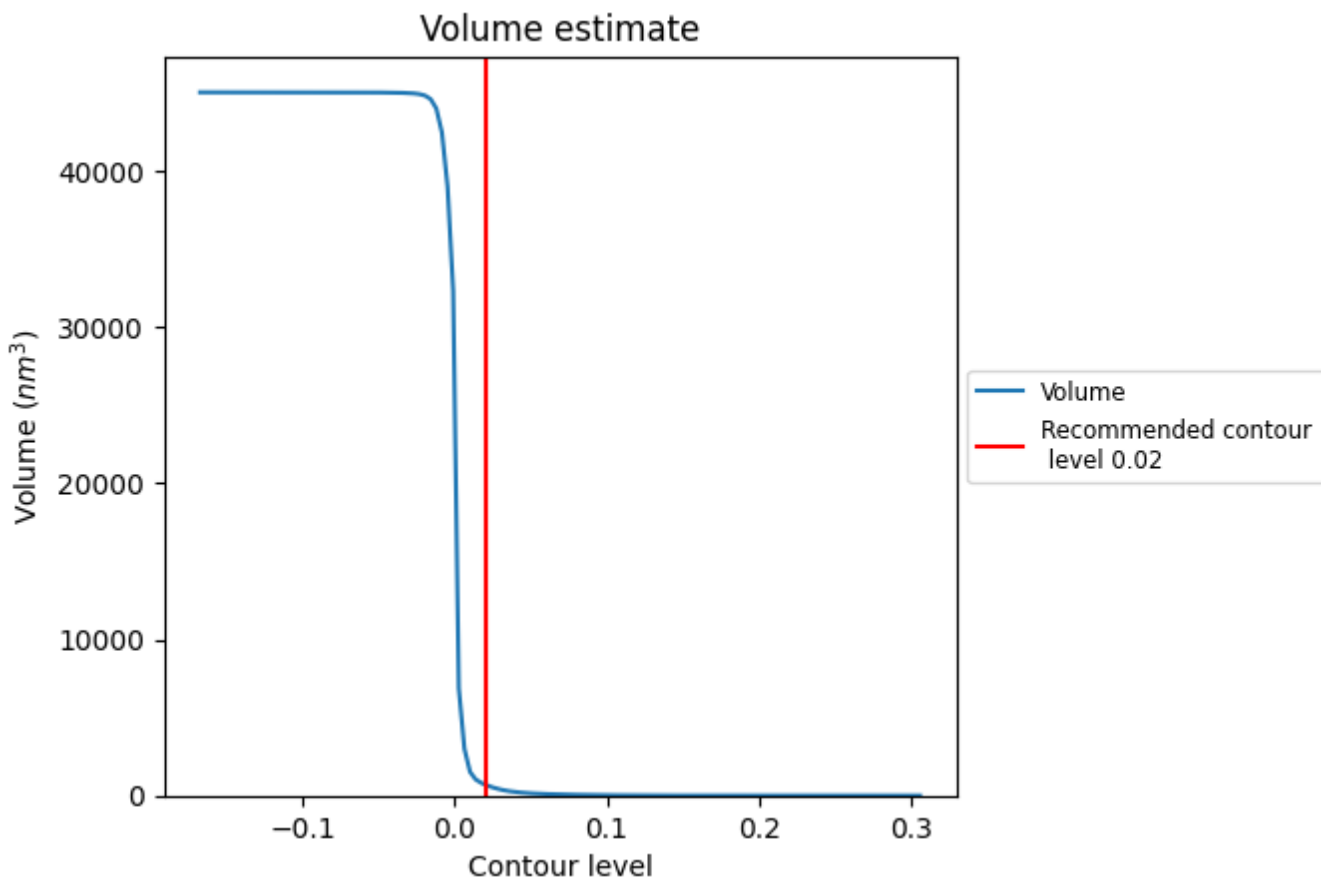
This section contains the results of statistical analysis of the map.

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.

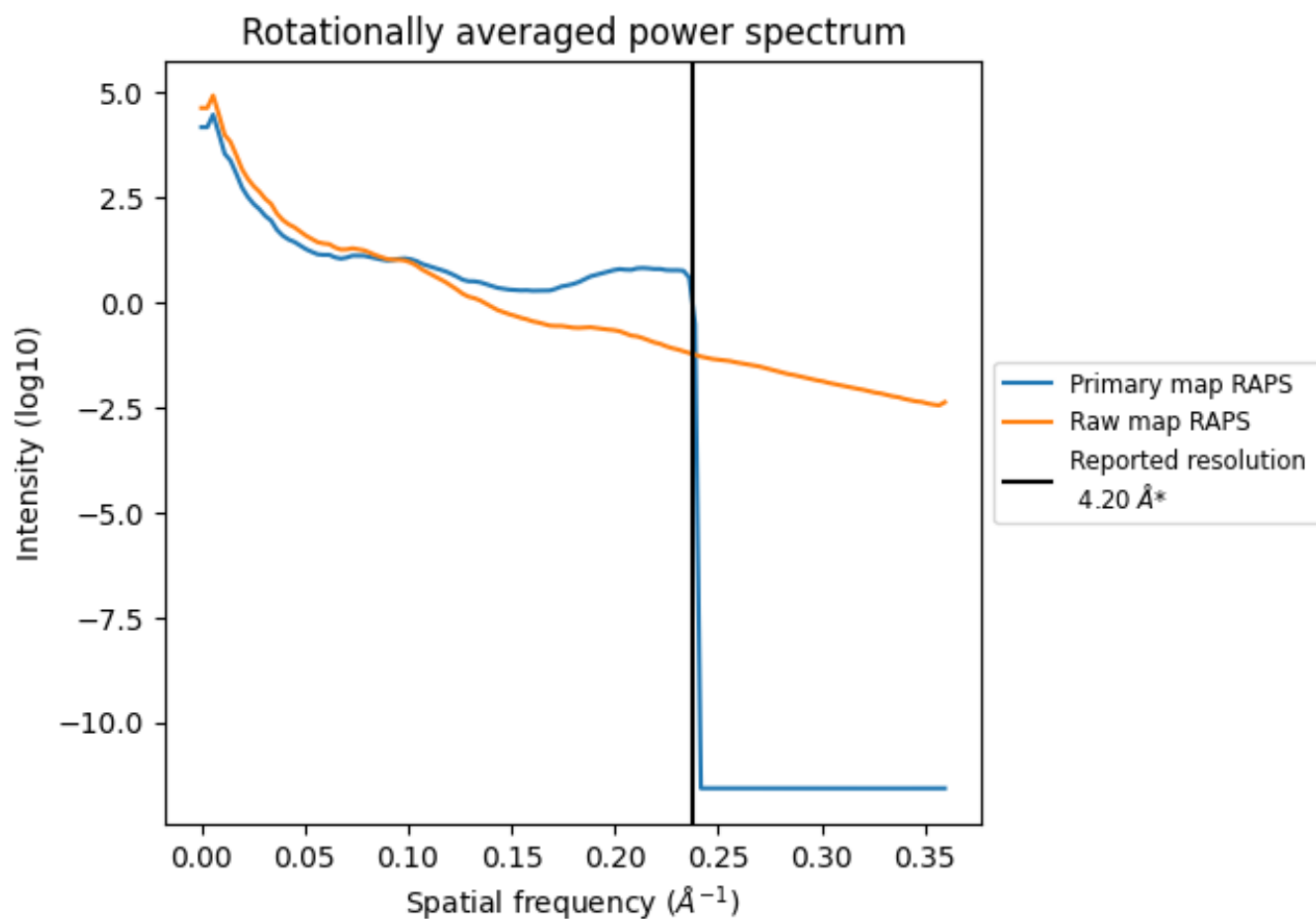
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 706 nm^3 ; this corresponds to an approximate mass of 638 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](#)

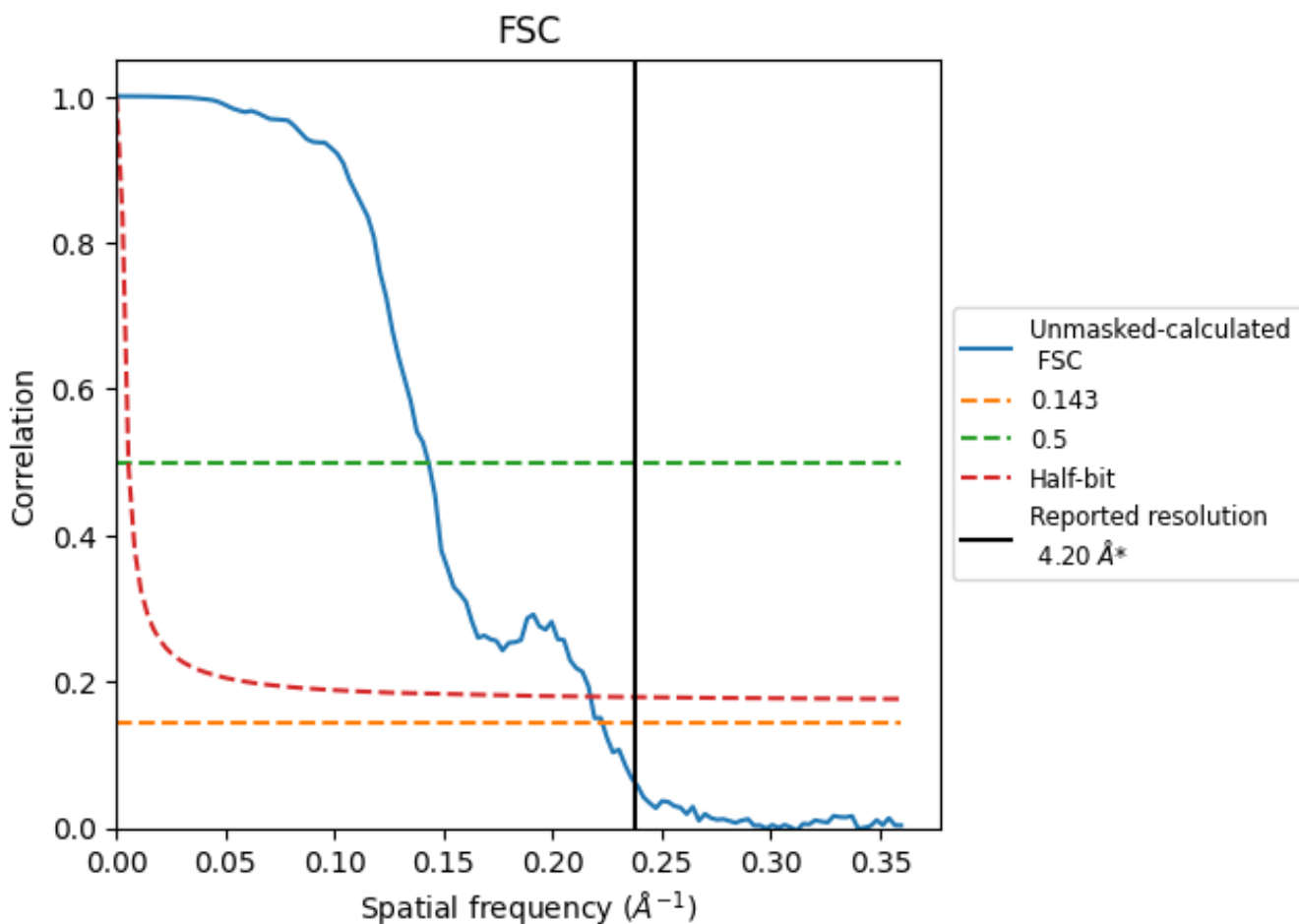


*Reported resolution corresponds to spatial frequency of 0.238 Å⁻¹

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 0.238 Å⁻¹

8.2 Resolution estimates [i](#)

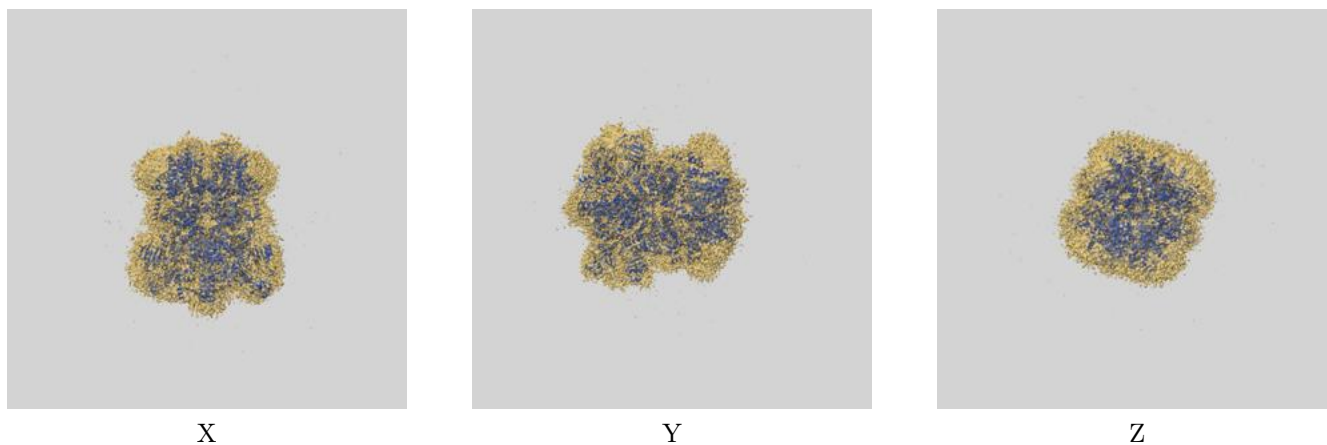
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.20	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.49	6.99	4.60

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

9 Map-model fit [i](#)

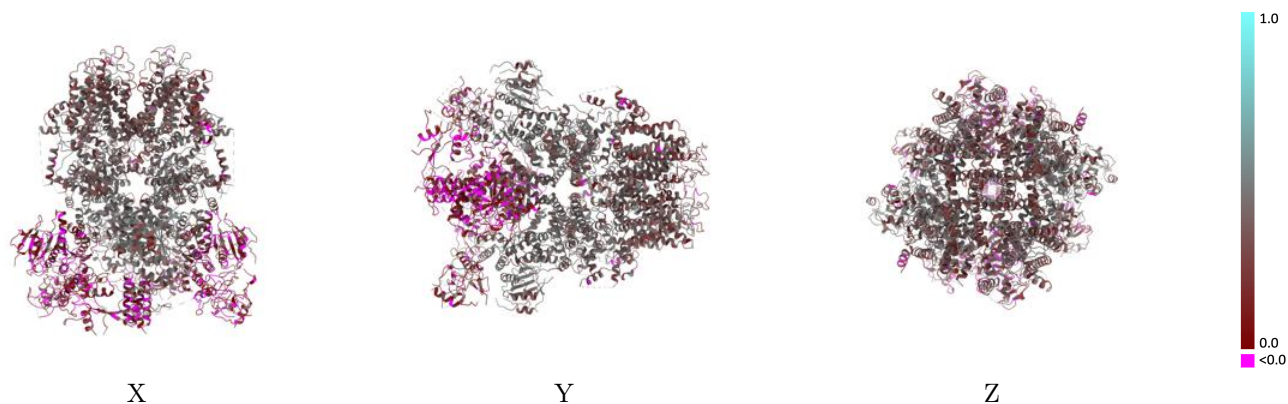
This section contains information regarding the fit between EMDB map EMD-20369 and PDB model 6PKX. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



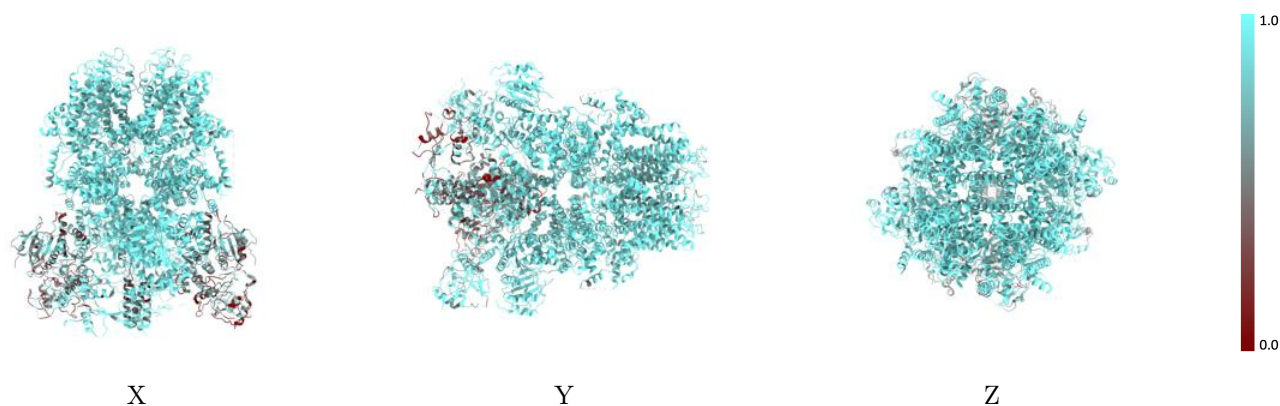
The images above show the 3D surface view of the map at the recommended contour level 0.02 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



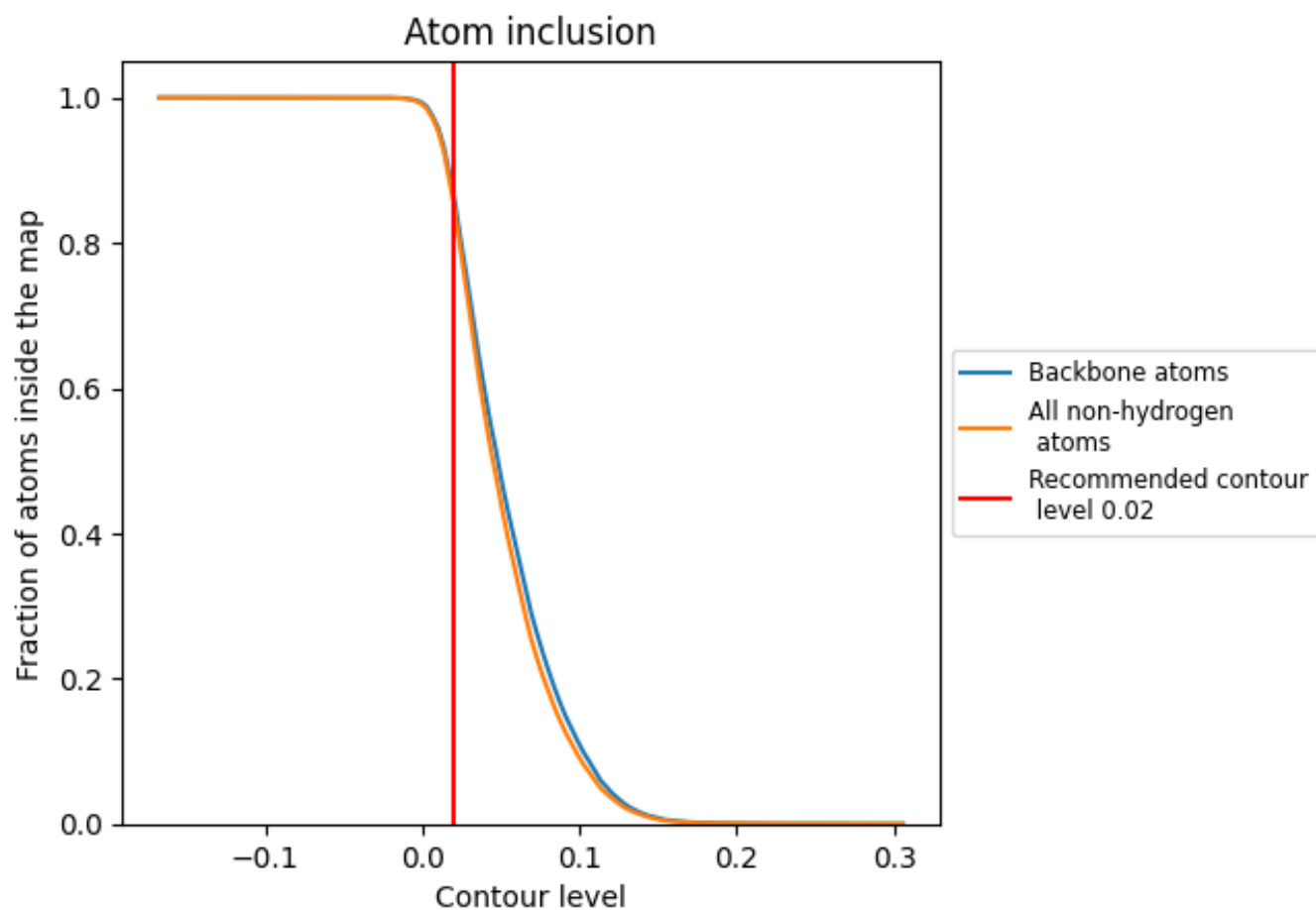
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.02).









9.4 Atom inclusion [i](#)



At the recommended contour level, 87% of all backbone atoms, 85% 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 (0.02) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8543	 0.3170
A	 0.7746	 0.2570
B	 0.9352	 0.3760
C	 0.7755	 0.2580
D	 0.9351	 0.3760

