



## wwPDB EM Validation Summary Report ⓘ

Jun 24, 2026 – 11:56 AM EDT

PDB ID : 9PZB / pdb\_00009pzb  
EMDB ID : EMD-72060  
Title : HCMV trimer in complex with E4K, E11K, A9K, E9L, E8K, B1K, E7K, F12L  
and E10L Fabs  
Authors : Goldsmith, J.A.; McLellan, J.S.  
Deposited on : 2025-08-09  
Resolution : 3.20 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](mailto: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>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

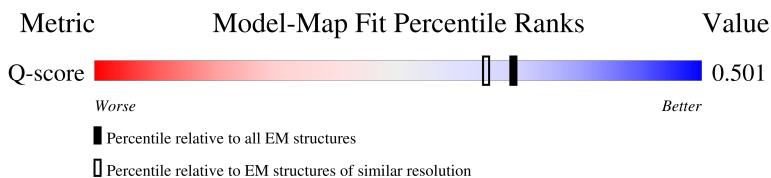
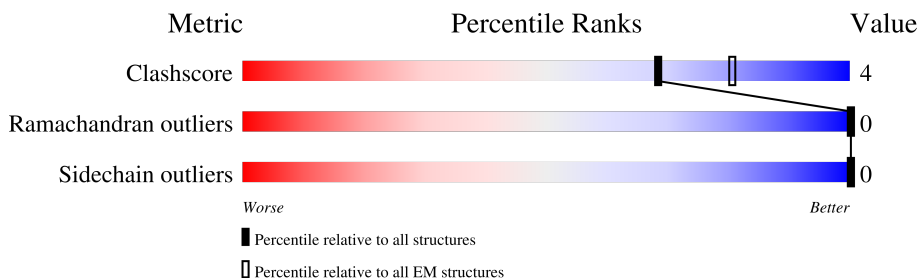
EMDB validation analysis : 0.0.1.dev132  
Mogul : 2022.3.0, CSD as543be (2022)  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.49

# 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 3.20 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.



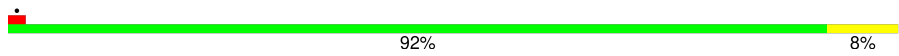
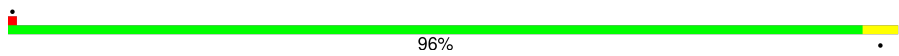



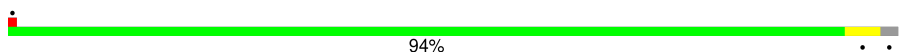



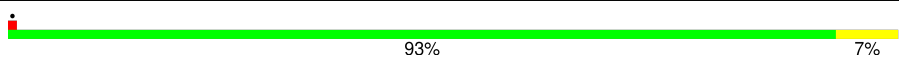

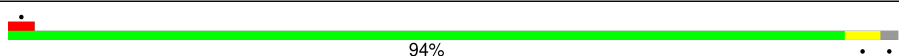
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	15020 ( 2.70 - 3.70 )

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  $\geq 3$ , 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	743	 13% 77% 10% 13%
2	B	268	 13% 82% 8% 10%
3	D	111	 13% 86% 12% .
4	E	122	 13% 87% 12% .

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Mol	Chain	Length	Quality of chain
5	F	116	 92% 8%
6	G	107	 96%
7	H	126	 81% 19%
8	I	113	 90% 10%
9	J	118	 89% 11%
10	K	115	 94%
11	L	107	 37% 87% 12%
12	M	118	 35% 90% 8%
13	N	117	 85% 15%
14	O	107	 93% 7%
15	P	121	 5% 90% 10%
16	Q	108	 94%

## 2 Entry composition i

There are 17 unique types of molecules in this entry. The entry contains 19419 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 Envelope glycoprotein H.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	645	5179	3315	875	964	25	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	12	THR	ALA	engineered mutation	UNP Q69155

- Molecule 2 is a protein called Envelope glycoprotein L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	240	1891	1203	333	347	8	0	0

There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	11	MET	-	expression tag	UNP Q8JP80
B	12	SER	-	expression tag	UNP Q8JP80
B	13	VAL	-	expression tag	UNP Q8JP80
B	14	PRO	-	expression tag	UNP Q8JP80
B	15	THR	-	expression tag	UNP Q8JP80
B	16	GLN	-	expression tag	UNP Q8JP80
B	17	VAL	-	expression tag	UNP Q8JP80
B	18	LEU	-	expression tag	UNP Q8JP80
B	19	GLY	-	expression tag	UNP Q8JP80
B	20	LEU	-	expression tag	UNP Q8JP80
B	21	LEU	-	expression tag	UNP Q8JP80
B	22	LEU	-	expression tag	UNP Q8JP80
B	23	LEU	-	expression tag	UNP Q8JP80
B	24	TRP	-	expression tag	UNP Q8JP80
B	25	LEU	-	expression tag	UNP Q8JP80
B	26	THR	-	expression tag	UNP Q8JP80

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Chain	Residue	Modelled	Actual	Comment	Reference
B	27	ASP	-	expression tag	UNP Q8JP80
B	28	ALA	-	expression tag	UNP Q8JP80
B	29	ARG	-	expression tag	UNP Q8JP80
B	30	CYS	-	expression tag	UNP Q8JP80
B	41	GLU	LYS	engineered mutation	UNP Q8JP80
B	77	ARG	GLY	engineered mutation	UNP Q8JP80

- Molecule 3 is a protein called E10L Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	109	808	504	136	166	2	0	0

- Molecule 4 is a protein called E10L Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	E	121	937	590	164	177	6	0	0

- Molecule 5 is a protein called A9K Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	F	116	911	574	163	170	4	0	0

- Molecule 6 is a protein called A9K Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	G	107	815	505	144	163	3	0	0

- Molecule 7 is a protein called E8K Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	H	126	1010	637	173	192	8	0	0

- Molecule 8 is a protein called E8K Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	I	113	Total	C	N	O	S	0	0
			880	561	141	175	3		

- Molecule 9 is a protein called F12L Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	J	118	Total	C	N	O	S	0	0
			913	583	147	179	4		

- Molecule 10 is a protein called F12L Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	K	113	Total	C	N	O	S	0	0
			862	541	149	169	3		

- Molecule 11 is a protein called E9L Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	L	106	Total	C	N	O	S	0	0
			799	499	131	165	4		

- Molecule 12 is a protein called E9L Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	M	116	Total	C	N	O	S	0	0
			898	562	159	172	5		

- Molecule 13 is a protein called B1K Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	N	116	Total	C	N	O	S	0	0
			904	564	160	175	5		

- Molecule 14 is a protein called B1K Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	O	107	Total	C	N	O	S	0	0
			813	513	134	162	4		

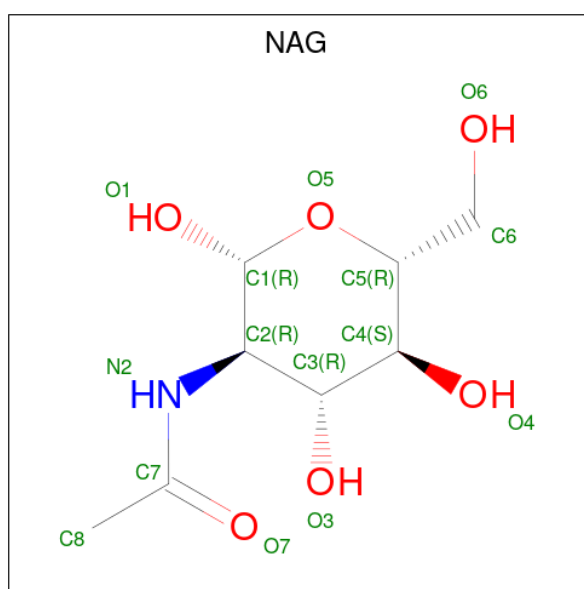
- Molecule 15 is a protein called E4K Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	P	121	952	601	164	182	5	0	0

- Molecule 16 is a protein called E4K Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	Q	106	805	513	135	154	3	0	0

- Molecule 17 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).

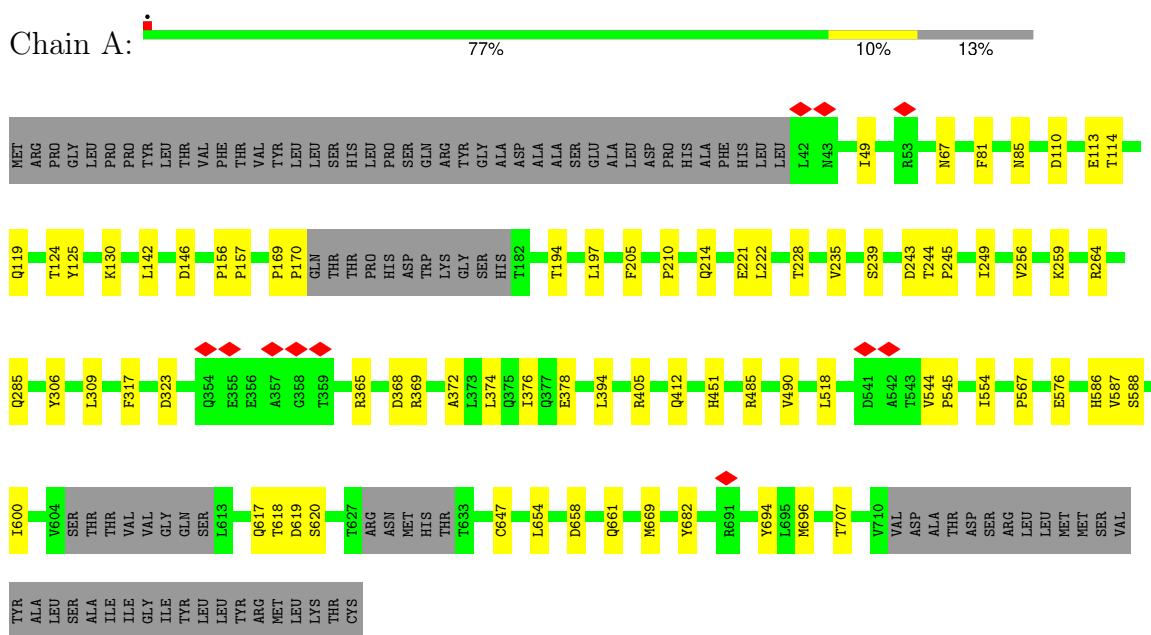


Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
17	A	1	14	8	1	5	0
17	A	1	14	8	1	5	0
17	A	1	14	8	1	5	0

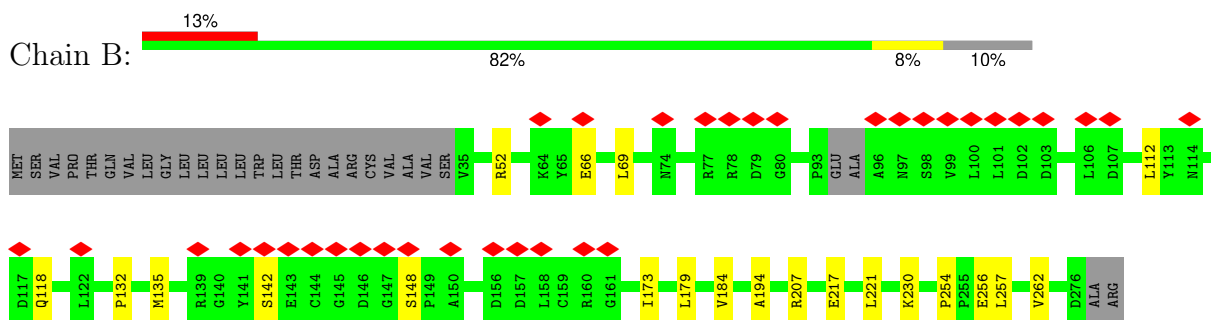
### 3 Residue-property plots [i](#)

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.

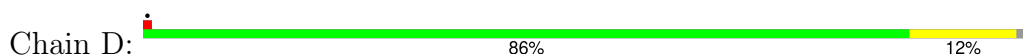
- Molecule 1: Envelope glycoprotein H

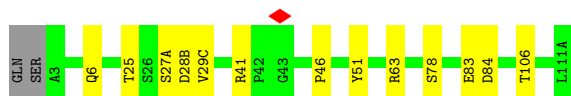


- Molecule 2: Envelope glycoprotein L

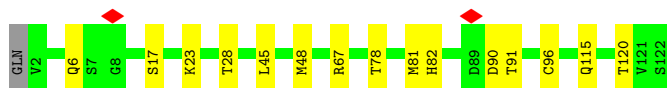
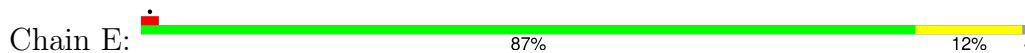


- Molecule 3: E10L Fab light chain

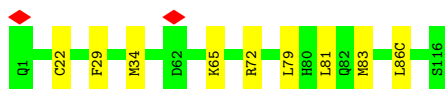




- Molecule 4: E10L Fab heavy chain



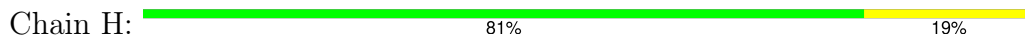
- Molecule 5: A9K Fab heavy chain



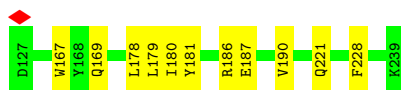
- Molecule 6: A9K Fab light chain



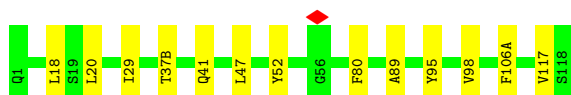
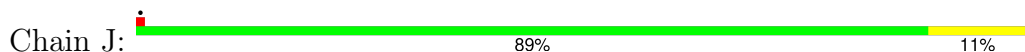
- Molecule 7: E8K Fab heavy chain



- Molecule 8: E8K Fab light chain

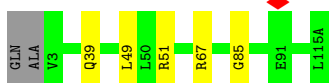


- Molecule 9: F12L Fab heavy chain




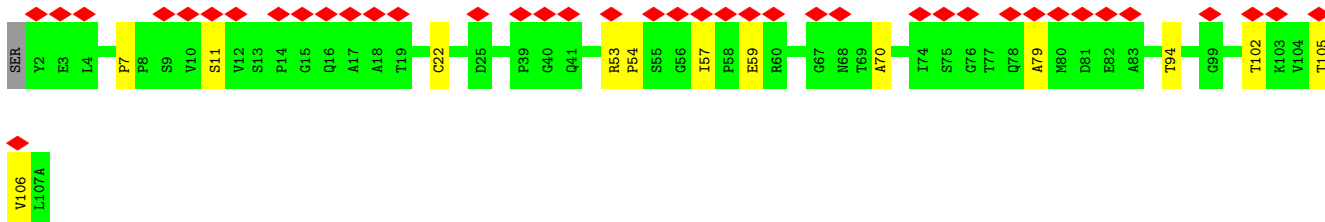
- Molecule 10: F12L Fab light chain

Chain K:  94%

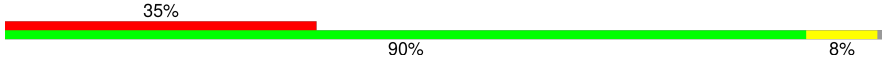


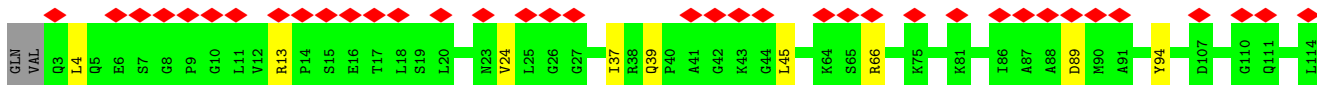
- Molecule 11: E9L Fab light chain

Chain L:  37% 87% 12%




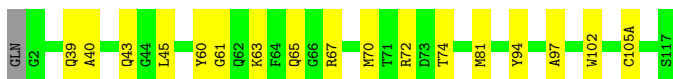
- Molecule 12: E9L Fab heavy chain

Chain M:  35% 90% 8%



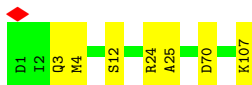
- Molecule 13: B1K Fab heavy chain

Chain N:  85% 15%




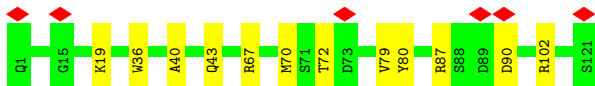
- Molecule 14: B1K Fab light chain

Chain O:  93% 7%



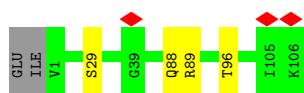
- Molecule 15: E4K Fab heavy chain

Chain P:  5% 90% 10%



- Molecule 16: E4K Fab light chain

Chain Q:  94%



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	141765	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS GLACIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.715	Depositor
Minimum map value	-0.274	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.019	Depositor
Recommended contour level	0.15	Depositor
Map size ( $\text{\AA}$ )	376.0, 376.0, 376.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	0.94, 0.94, 0.94	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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

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	0.17	0/5298	0.40	0/7216
2	B	0.15	0/1936	0.36	0/2644
3	D	0.14	0/827	0.38	0/1126
4	E	0.13	0/961	0.33	0/1297
5	F	0.13	0/933	0.34	0/1262
6	G	0.14	0/832	0.29	0/1128
7	H	0.17	0/1038	0.36	0/1404
8	I	0.16	0/902	0.38	0/1224
9	J	0.18	0/936	0.45	0/1273
10	K	0.13	0/883	0.32	0/1201
11	L	0.14	0/818	0.37	0/1116
12	M	0.13	0/918	0.38	0/1246
13	N	0.15	0/924	0.34	0/1252
14	O	0.15	0/832	0.38	0/1128
15	P	0.14	0/977	0.35	0/1324
16	Q	0.14	0/826	0.43	1/1121 (0.1%)
All	All	0.15	0/19841	0.37	1/26962 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	Q	29	SER	CB-CA-C	-5.06	110.76	116.63

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	5179	0	5131	48	0
2	B	1891	0	1889	14	0
3	D	808	0	766	8	0
4	E	937	0	894	9	0
5	F	911	0	867	6	0
6	G	815	0	796	4	0
7	H	1010	0	948	15	0
8	I	880	0	848	9	0
9	J	913	0	887	7	0
10	K	862	0	833	3	0
11	L	799	0	759	7	0
12	M	898	0	880	5	0
13	N	904	0	861	10	0
14	O	813	0	791	4	0
15	P	952	0	910	7	0
16	Q	805	0	782	2	0
17	A	42	0	39	0	0
All	All	19419	0	18881	143	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 4.

The worst 5 of 143 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:A:694:TYR:H	1:A:707:THR:HB	1.55	0.70
3:D:41:ARG:NH2	3:D:83:GLU:OE1	2.24	0.70
1:A:365:ARG:NH2	1:A:368:ASP:OD2	2.26	0.68
9:J:37(B):THR:HG22	9:J:52:TYR:HB3	1.75	0.68
1:A:256:VAL:O	1:A:264:ARG:NH2	2.26	0.68

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	637/743 (86%)	621 (98%)	16 (2%)	0	100	100
2	B	236/268 (88%)	233 (99%)	3 (1%)	0	100	100
3	D	107/111 (96%)	103 (96%)	4 (4%)	0	100	100
4	E	119/122 (98%)	116 (98%)	3 (2%)	0	100	100
5	F	114/116 (98%)	113 (99%)	1 (1%)	0	100	100
6	G	105/107 (98%)	102 (97%)	3 (3%)	0	100	100
7	H	124/126 (98%)	122 (98%)	2 (2%)	0	100	100
8	I	111/113 (98%)	107 (96%)	4 (4%)	0	100	100
9	J	116/118 (98%)	110 (95%)	6 (5%)	0	100	100
10	K	111/115 (96%)	108 (97%)	3 (3%)	0	100	100
11	L	104/107 (97%)	97 (93%)	7 (7%)	0	100	100
12	M	114/118 (97%)	110 (96%)	4 (4%)	0	100	100
13	N	114/117 (97%)	111 (97%)	3 (3%)	0	100	100
14	O	105/107 (98%)	103 (98%)	2 (2%)	0	100	100
15	P	119/121 (98%)	115 (97%)	4 (3%)	0	100	100
16	Q	104/108 (96%)	97 (93%)	7 (7%)	0	100	100
All	All	2440/2617 (93%)	2368 (97%)	72 (3%)	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	585/670 (87%)	585 (100%)	0	100	100
2	B	207/230 (90%)	207 (100%)	0	100	100
3	D	89/91 (98%)	89 (100%)	0	100	100
4	E	98/99 (99%)	98 (100%)	0	100	100
5	F	94/96 (98%)	94 (100%)	0	100	100
6	G	92/92 (100%)	92 (100%)	0	100	100
7	H	107/107 (100%)	107 (100%)	0	100	100
8	I	99/99 (100%)	99 (100%)	0	100	100
9	J	100/100 (100%)	100 (100%)	0	100	100
10	K	95/96 (99%)	95 (100%)	0	100	100
11	L	88/89 (99%)	88 (100%)	0	100	100
12	M	99/101 (98%)	99 (100%)	0	100	100
13	N	94/95 (99%)	94 (100%)	0	100	100
14	O	89/89 (100%)	89 (100%)	0	100	100
15	P	101/101 (100%)	101 (100%)	0	100	100
16	Q	86/89 (97%)	86 (100%)	0	100	100
All	All	2123/2244 (95%)	2123 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 20 such sidechains are listed below:

Mol	Chain	Res	Type
7	H	43	GLN
8	I	169	GLN
16	Q	88	GLN
8	I	221	GLN
2	B	190	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 oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

3 ligands are modelled in this entry.

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
17	NAG	A	803	1	14,14,15	0.73	0	17,19,21	0.82	0
17	NAG	A	802	1	14,14,15	0.67	0	17,19,21	1.29	1 (5%)
17	NAG	A	801	1	14,14,15	0.67	0	17,19,21	1.44	2 (11%)

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
17	NAG	A	803	1	-	0/6/23/26	0/1/1/1
17	NAG	A	802	1	-	2/6/23/26	0/1/1/1
17	NAG	A	801	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	A	802	NAG	O5-C1-C2	-4.62	104.14	111.29
17	A	801	NAG	C2-N2-C7	4.25	128.59	122.90
17	A	801	NAG	O5-C1-C2	-2.26	107.80	111.29

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
17	A	802	NAG	C4-C5-C6-O6
17	A	802	NAG	O5-C5-C6-O6
17	A	801	NAG	C1-C2-N2-C7
17	A	801	NAG	C3-C2-N2-C7

There are no ring outliers.

No monomer is involved in short contacts.

## 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.

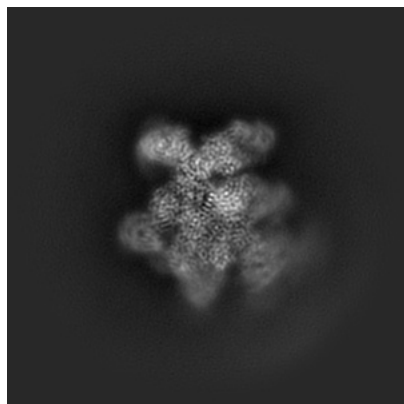
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-72060. These allow visual inspection of the internal detail of the map and identification of artifacts.

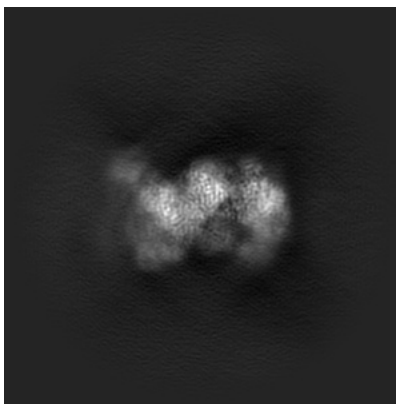
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

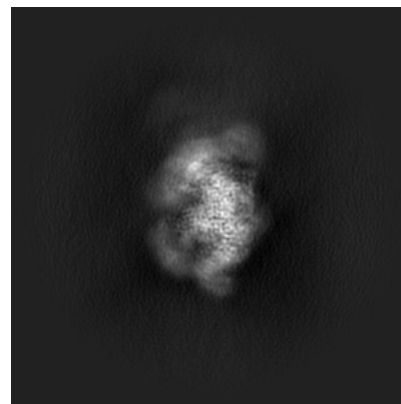
#### 6.1.1 Primary map



X

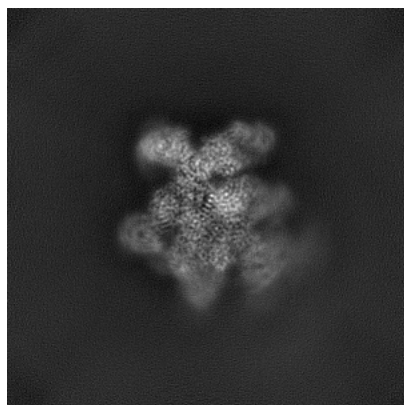


Y

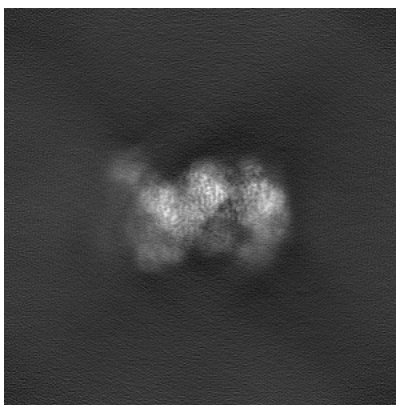


Z

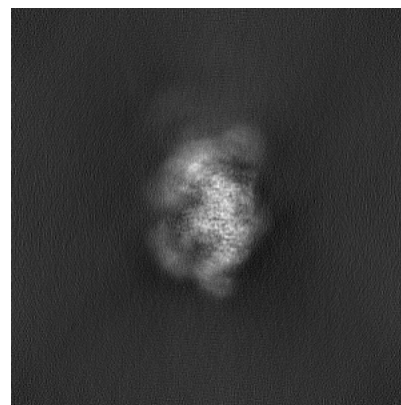
#### 6.1.2 Raw map



X



Y

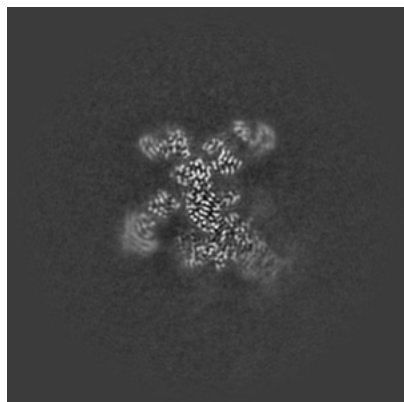


Z

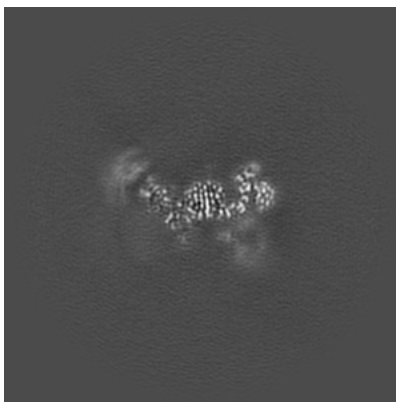
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

### 6.2.1 Primary map



X Index: 200

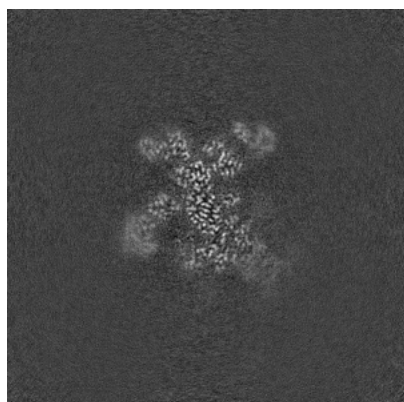


Y Index: 200

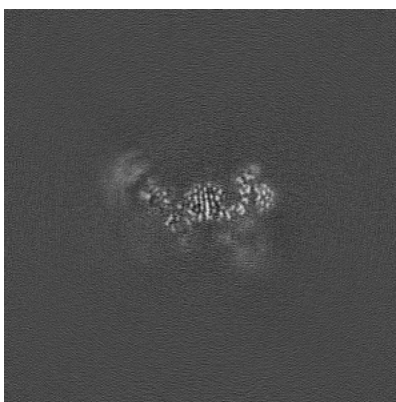


Z Index: 200

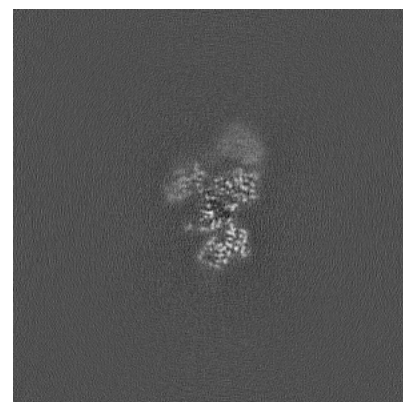
### 6.2.2 Raw map



X Index: 200



Y Index: 200

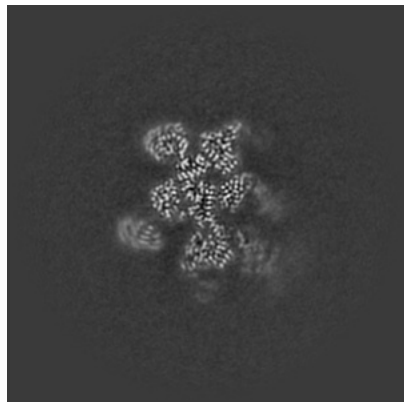


Z Index: 200

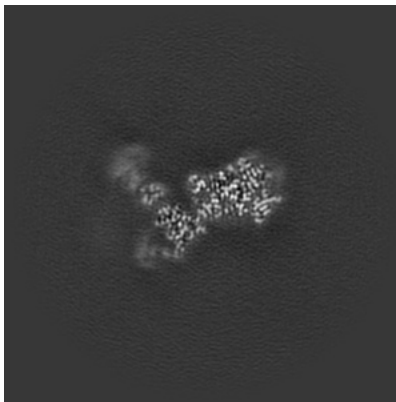
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

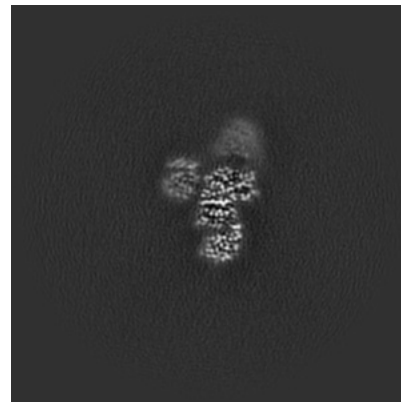
### 6.3.1 Primary map



X Index: 210

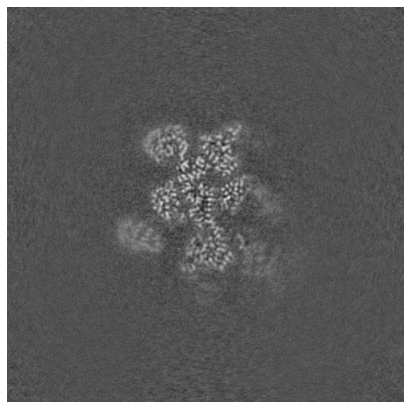


Y Index: 180

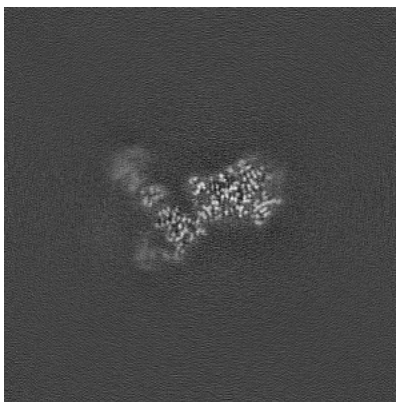


Z Index: 207

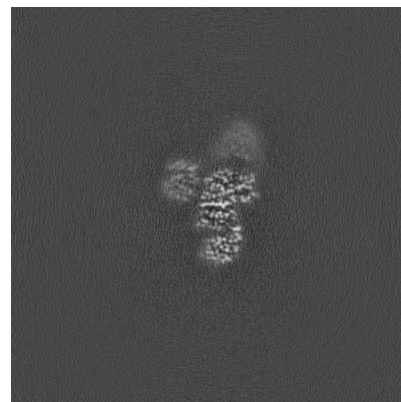
### 6.3.2 Raw map



X Index: 210



Y Index: 180

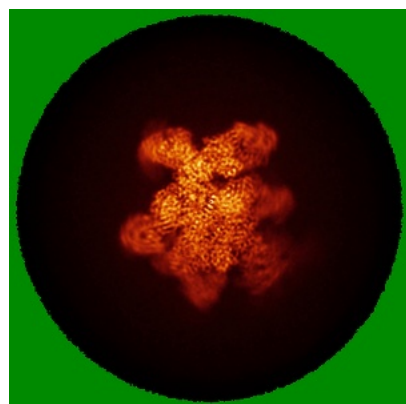


Z Index: 207

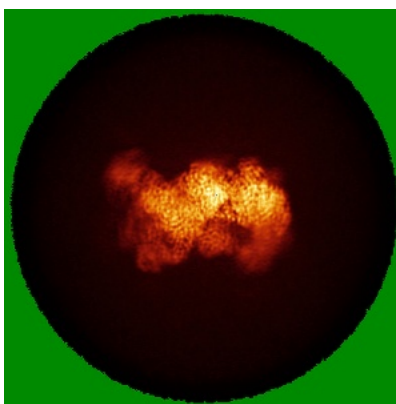
The images above show the largest variance slices of the map in three orthogonal directions.

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

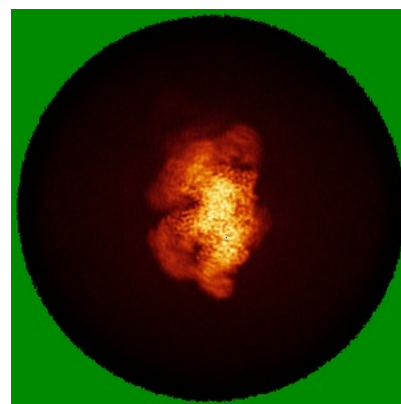
### 6.4.1 Primary map



X

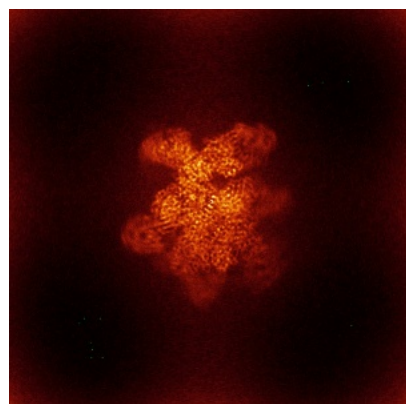


Y

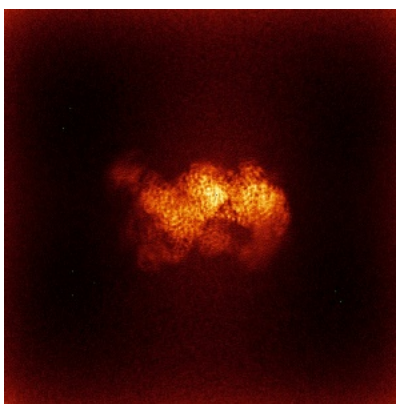


Z

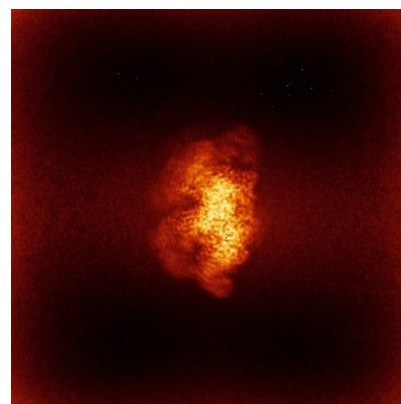
### 6.4.2 Raw map



X



Y

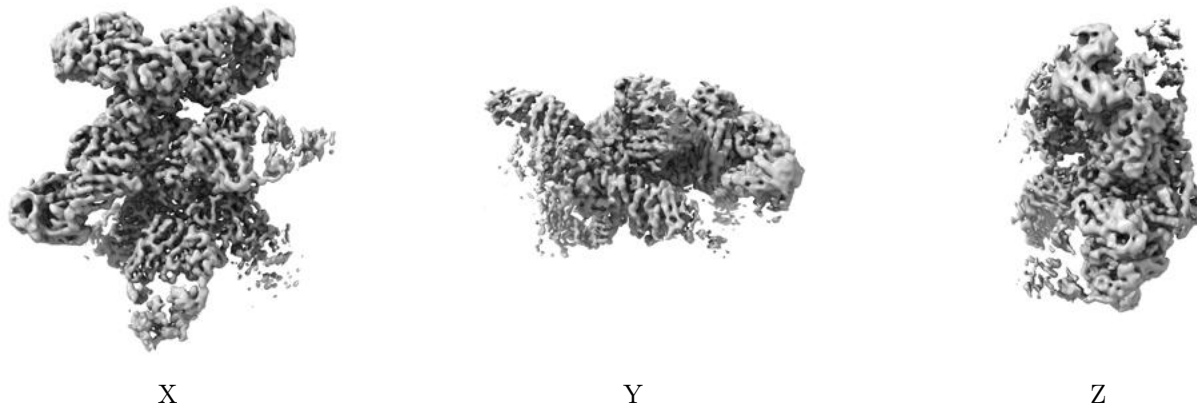


Z

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.

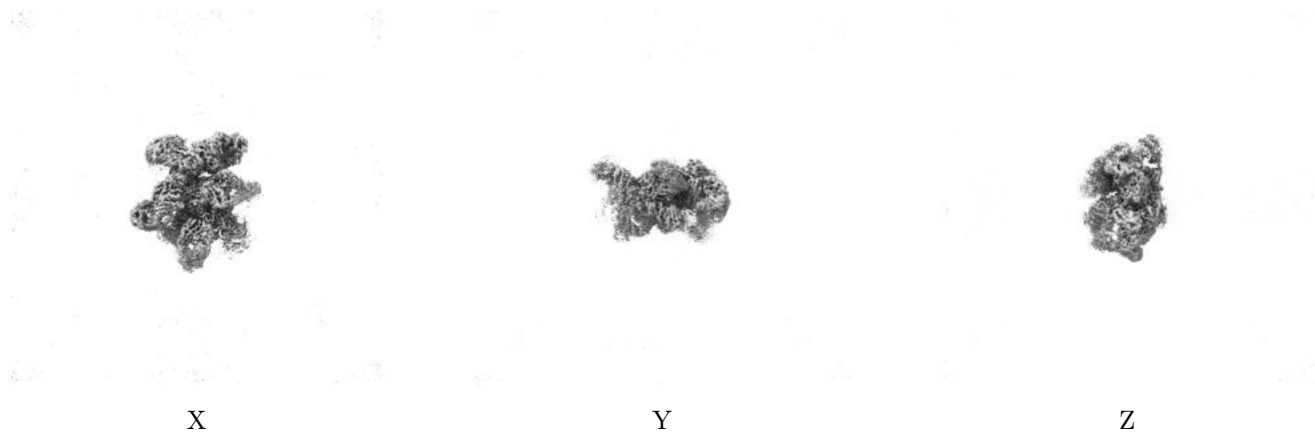
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.15. 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.

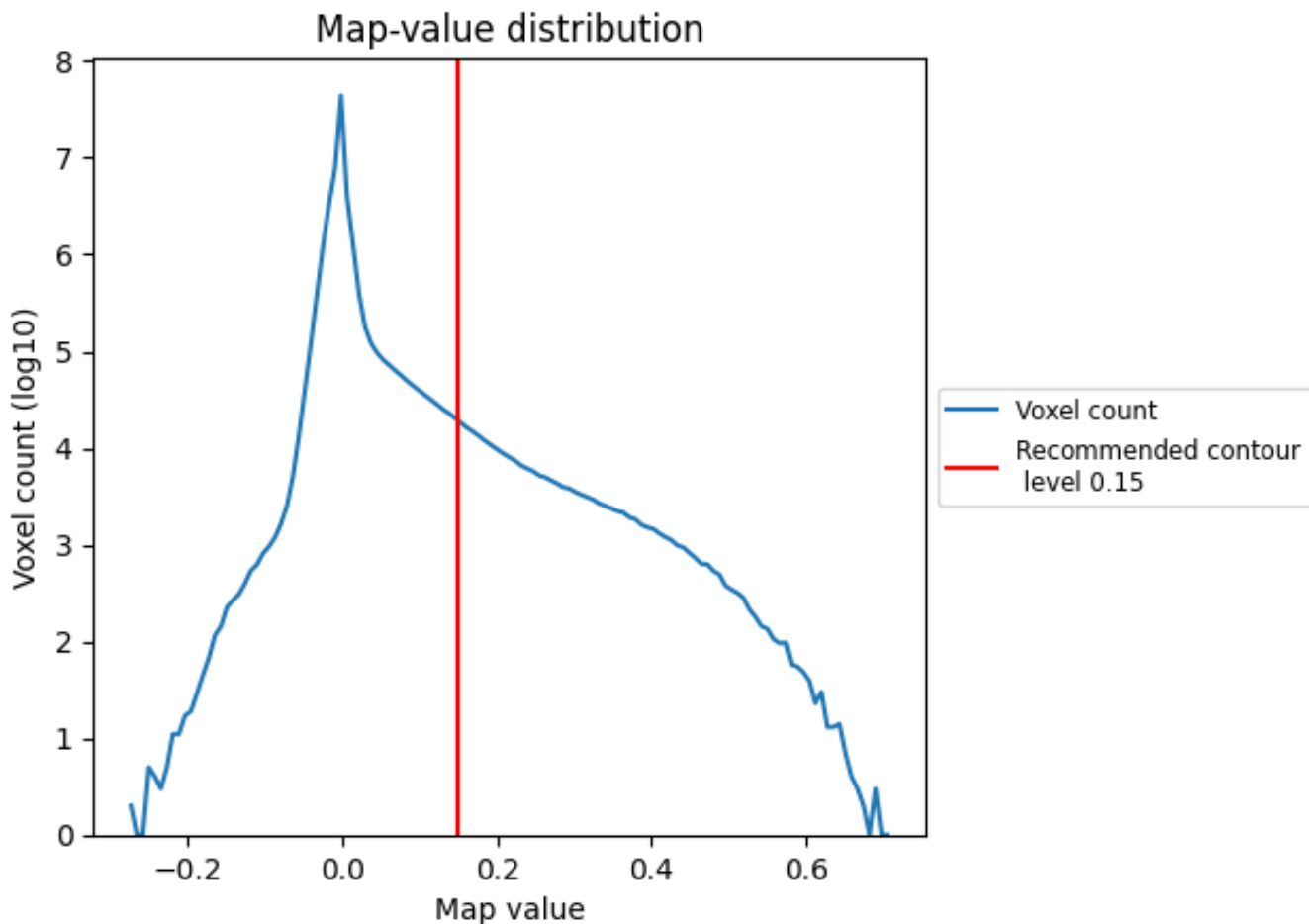
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

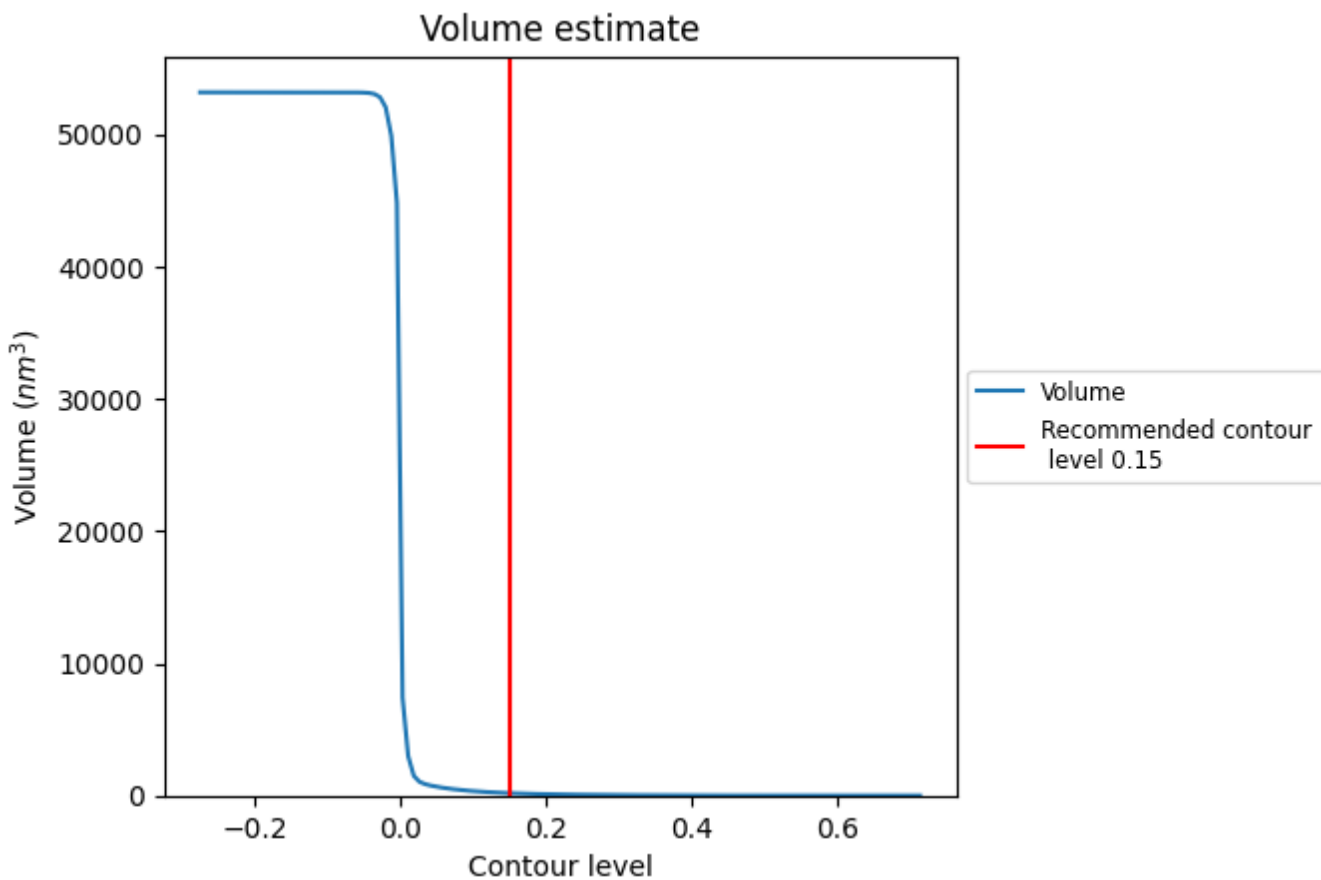
This section contains the results of statistical analysis of the map.

### 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.

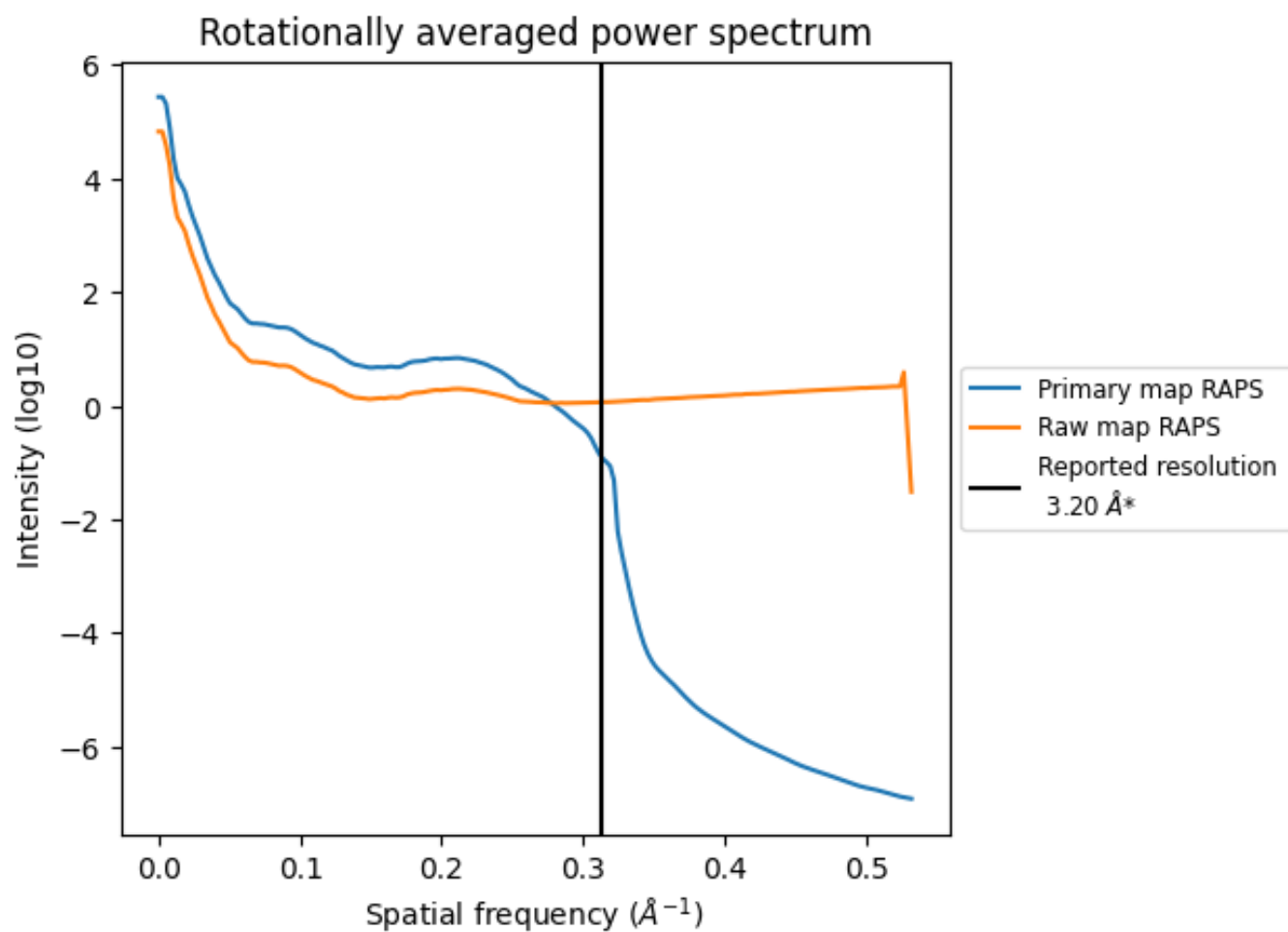
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 182  $\text{nm}^3$ ; this corresponds to an approximate mass of 164 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

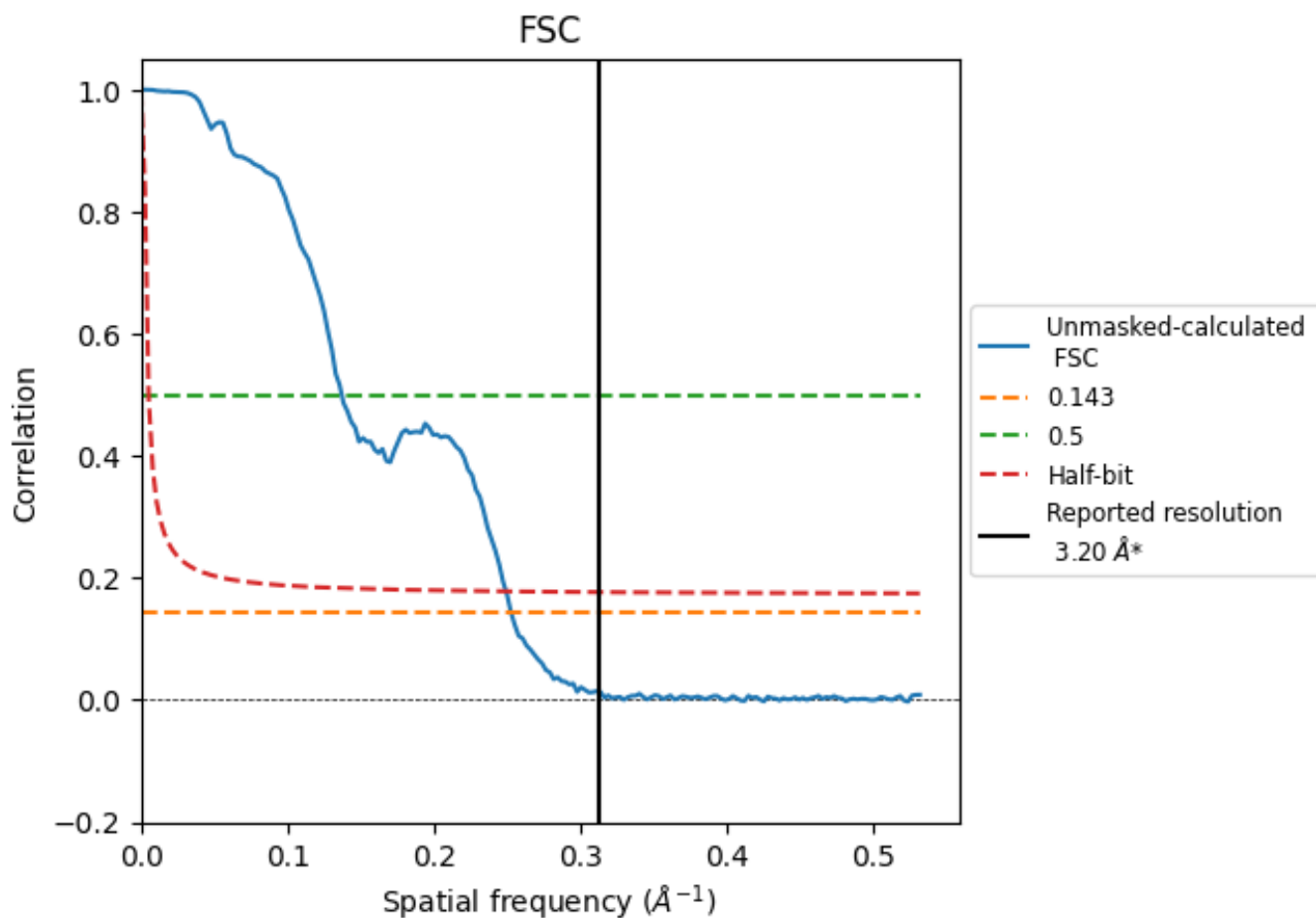


\*Reported resolution corresponds to spatial frequency of 0.312 Å<sup>-1</sup>

## 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 0.312 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

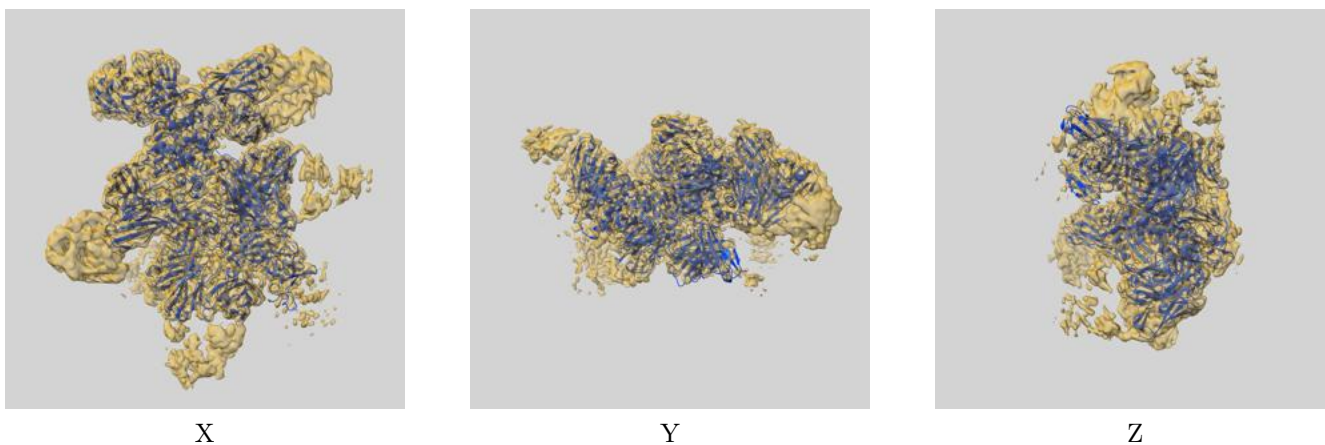
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.96	7.29	4.01

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.96 differs from the reported value 3.2 by more than 10 %

## 9 Map-model fit [i](#)

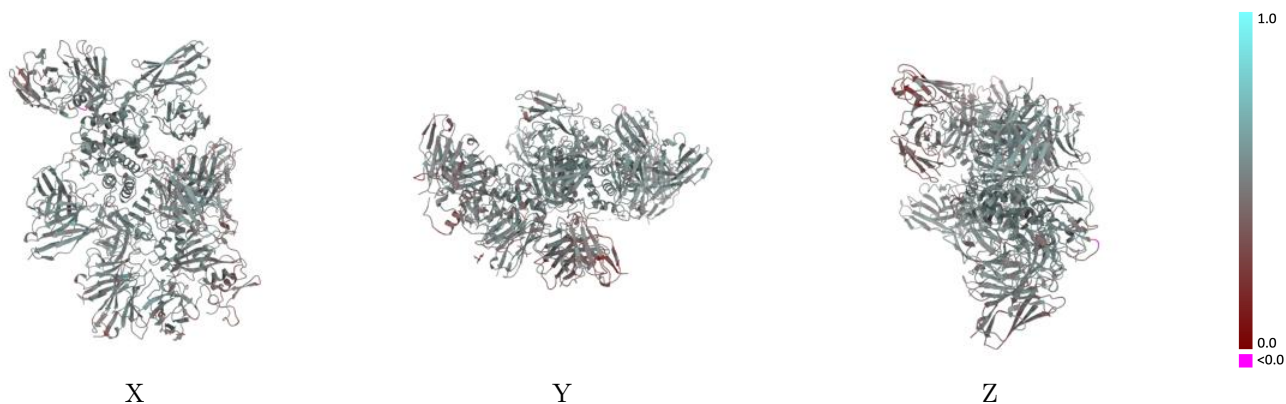
This section contains information regarding the fit between EMDB map EMD-72060 and PDB model 9PZB. Per-residue inclusion information can be found in section 3 on page 8.

### 9.1 Map-model overlay [i](#)



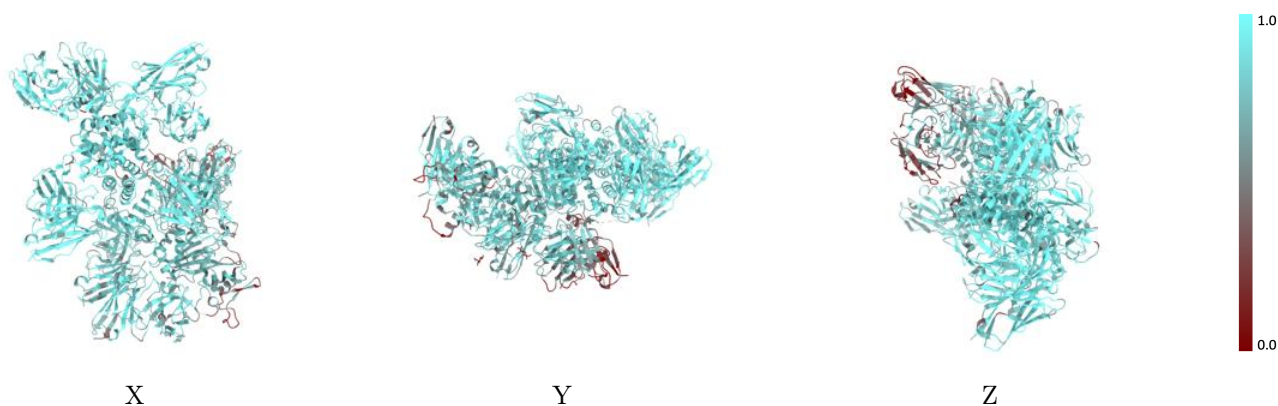
The images above show the 3D surface view of the map at the recommended contour level 0.15 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



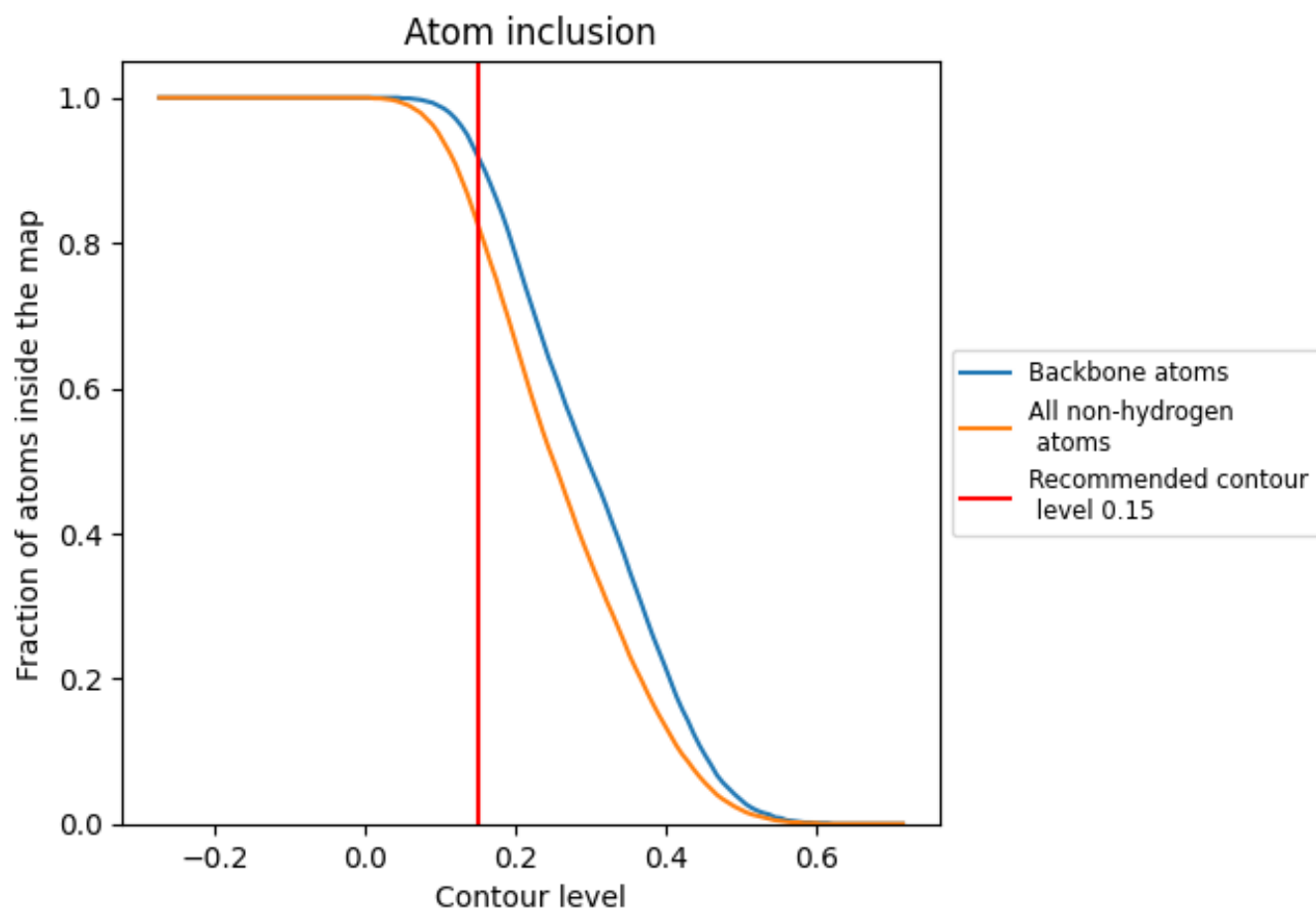
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.15).



































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 82% 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 (0.15) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8230	 0.5010
A	 0.8740	 0.5230
B	 0.7000	 0.4730
D	 0.8900	 0.5060
E	 0.8920	 0.4710
F	 0.7980	 0.5000
G	 0.8280	 0.5130
H	 0.9290	 0.5330
I	 0.8940	 0.5110
J	 0.8570	 0.5210
K	 0.8540	 0.5100
L	 0.4960	 0.4050
M	 0.5410	 0.4230
N	 0.9310	 0.5240
O	 0.9020	 0.5210
P	 0.8020	 0.4930
Q	 0.8310	 0.5060

