WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB EM Validation Report ⓘ

May 14, 2025 – 06:15 AM EDT

PDB ID	:	7T5O / pdb_00007t5o
EMDB ID	:	EMD-25699
Title	:	VFLIP Spike Trimer with GAR03
Authors	:	Sobti, M.; Stewart, A.G.; Rouet, R.; Langley, D.B.
Deposited on	:	2021-12-12
Resolution	:	3.39 Å(reported)

This is a Full wwPDB EM Validation 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:
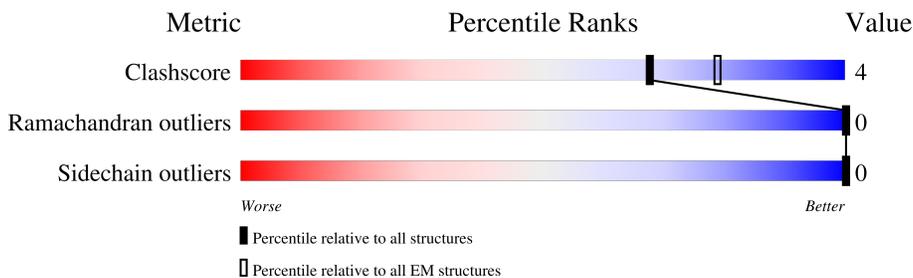
EMDB validation analysis	:	0.0.1.dev118
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

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 3.39 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	Percentile Ranks	Value
Clashscore		4
Ramachandran outliers		0
Sidechain outliers		0

Worse   *Better*

▮ Percentile relative to all structures
▯ Percentile relative to all EM structures

Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	1256	29% 5% 66%
1	B	1256	7% 67% 8% 25%
1	C	1256	5% 67% 8% 25%
2	H	231	93% 5%
3	L	215	9% 92% 7%

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 21263 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.

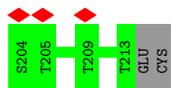- Molecule 1 is a protein called Spike glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	430	Total	C	N	O	S	0	0
			3290	2083	557	631	19		
1	B	948	Total	C	N	O	S	0	0
			7381	4706	1235	1404	36		
1	C	947	Total	C	N	O	S	0	0
			7373	4702	1234	1401	36		

- Molecule 2 is a protein called GAR03 Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	H	220	Total	C	N	O	S	0	0
			1626	1018	272	326	10		

- Molecule 3 is a protein called GAR03 Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	L	213	Total	C	N	O	S	0	0
			1593	993	270	326	4		

3 Residue-property plots ⓘ

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: Spike glycoprotein

• Molecule 1: Spike glycoprotein

Chain B:

• **Molecule 1: Spike glycoprotein**

Chain C:

• **Molecule 2: GAR03 Fab heavy chain**

Chain H:

• **Molecule 3: GAR03 Fab light chain**

Chain L:

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	130129	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	50	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	71.868	Depositor
Minimum map value	-39.751	Depositor
Average map value	0.000	Depositor
Map value standard deviation	1.021	Depositor
Recommended contour level	4	Depositor
Map size (Å)	432.00003, 432.00003, 432.00003	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$ >5	RMSZ	#$|Z|$ >5
1	A	0.37	0/3353	0.83	5/4558 (0.1%)
1	B	0.35	0/7548	0.78	11/10270 (0.1%)
1	C	0.36	0/7539	0.81	21/10256 (0.2%)
2	H	0.35	0/1664	0.79	2/2268 (0.1%)
3	L	0.34	1/1632 (0.1%)	0.70	1/2233 (0.0%)
All	All	0.35	1/21736 (0.0%)	0.79	40/29585 (0.1%)

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	C	0	2

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	L	144	TYR	C-N	5.38	1.40	1.33

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	362	VAL	N-CA-C	-8.96	104.74	113.53
1	C	525	CYS	CA-CB-SG	8.93	134.94	114.40
1	C	773	GLU	N-CA-CB	8.26	123.07	110.44
1	C	773	GLU	CA-CB-CG	7.83	129.77	114.10
1	C	892	PRO	N-CA-CB	7.80	110.99	102.72
1	A	892	PRO	N-CA-CB	7.61	110.06	103.36
1	C	909	ILE	CG1-CB-CG2	-7.00	89.71	110.70
1	B	892	PRO	N-CA-CB	6.81	110.40	103.25
1	C	524	VAL	CB-CA-C	6.62	117.92	111.23
1	C	772	VAL	CA-C-N	-6.44	110.72	122.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	772	VAL	C-N-CA	-6.44	110.72	122.38
1	C	613	GLN	CA-CB-CG	6.33	126.76	114.10
2	H	136	LYS	CA-C-N	6.18	133.34	121.54
2	H	136	LYS	C-N-CA	6.18	133.34	121.54
1	C	1065	VAL	CG1-CB-CG2	-6.05	97.48	110.80
1	A	898	PHE	N-CA-C	6.03	121.72	113.16
1	C	410	ILE	CB-CA-C	5.94	119.45	112.68
1	C	524	VAL	N-CA-CB	-5.86	106.80	112.65
1	B	1028	LYS	CA-C-N	5.85	136.81	126.45
1	B	1028	LYS	C-N-CA	5.85	136.81	126.45
1	C	368	LEU	CA-C-N	5.82	132.65	121.54
1	C	368	LEU	C-N-CA	5.82	132.65	121.54
1	B	328	ARG	CA-CB-CG	5.68	125.47	114.10
1	C	410	ILE	CA-CB-CG1	5.67	120.03	110.40
1	B	350	VAL	CA-C-N	5.61	132.26	121.54
1	B	350	VAL	C-N-CA	5.61	132.26	121.54
1	B	38	TYR	CA-C-N	5.45	140.08	127.00
1	B	38	TYR	C-N-CA	5.45	140.08	127.00
1	B	1029	MET	CA-CB-CG	5.38	124.86	114.10
1	C	910	GLY	N-CA-C	5.33	125.82	113.18
1	A	882	ILE	CB-CG1-CD1	5.32	124.97	113.80
1	C	896	ILE	CB-CA-C	5.30	114.53	109.33
1	C	486	PHE	CA-C-N	5.27	131.60	121.54
1	C	486	PHE	C-N-CA	5.27	131.60	121.54
1	B	1107	ARG	CA-C-N	5.10	131.29	121.54
1	B	1107	ARG	C-N-CA	5.10	131.29	121.54
1	A	815	ARG	CA-C-N	5.08	131.84	121.48
1	A	815	ARG	C-N-CA	5.08	131.84	121.48
1	C	369	TYR	CA-CB-CG	5.05	122.99	113.90
3	L	133	LYS	CA-CB-CG	5.04	124.17	114.10

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	543	PHE	Peptide
1	C	883	CYS	Peptide

5.2 Too-close contacts ⓘ

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	3290	0	3268	37	0
1	B	7381	0	7222	64	0
1	C	7373	0	7217	57	0
2	H	1626	0	1577	3	0
3	L	1593	0	1526	8	0
All	All	21263	0	20810	152	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.

All (152) 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:880:GLY:O	1:A:884:SER:HB2	1.86	0.75
1:B:958:ALA:O	1:B:962:LEU:HB2	1.93	0.68
1:C:916:LEU:O	1:C:920:GLN:HB2	1.97	0.65
1:B:983:ARG:HG3	1:B:984:LEU:HG	1.81	0.63
1:A:739:THR:O	1:A:743:CYS:HB2	2.01	0.61
1:A:953:ASN:O	1:A:957:GLN:HB2	2.01	0.60
1:B:383:SER:HB3	1:C:985:ASP:H	1.68	0.59
1:C:877:LEU:HD13	1:C:1029:MET:HE1	1.85	0.58
1:A:788:ILE:HD13	1:C:699:LEU:HB2	1.86	0.57
1:C:953:ASN:O	1:C:957:GLN:HB2	2.05	0.57
1:C:617:CYS:SG	1:C:644:GLN:NE2	2.79	0.56
1:B:953:ASN:O	1:B:957:GLN:HB2	2.06	0.56
1:B:1029:MET:H	1:B:1032:CYS:HB2	1.72	0.55
1:C:1049:LEU:HB2	1:C:1065:VAL:HG23	1.89	0.55
3:L:141:SER:O	3:L:175:LYS:NZ	2.39	0.55
1:A:760:CYS:HA	1:A:763:LEU:HB2	1.90	0.53
1:C:412:PRO:HB3	1:C:427:ASP:HA	1.90	0.53
1:B:403:ARG:NH1	1:B:495:TYR:OH	2.42	0.52
1:B:946:GLY:O	1:B:950:ASP:N	2.43	0.52
1:C:1028:LYS:O	1:C:1032:CYS:HB2	2.10	0.52
1:A:816:SER:HB3	1:A:819:GLU:HG3	1.92	0.51
1:A:816:SER:O	1:A:820:ASP:N	2.44	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:722:VAL:HB	1:B:934:ILE:HG13	1.93	0.51
1:C:357:ARG:NH2	3:L:49:ASP:OD2	2.43	0.51
1:C:1105:THR:HB	1:C:1112:PRO:HA	1.92	0.51
3:L:53:ARG:NH2	3:L:62:SER:OG	2.44	0.51
1:C:956:ALA:O	1:C:960:ASN:ND2	2.44	0.50
1:B:590:CYS:SG	1:B:625:HIS:NE2	2.80	0.50
3:L:18:ALA:HB3	3:L:74:ILE:HB	1.94	0.50
1:A:718:PHE:HA	1:A:1069:PRO:HA	1.94	0.50
1:B:987:PRO:HA	1:B:990:GLU:HG2	1.93	0.50
1:B:1015:ALA:O	1:B:1019:ARG:HB2	2.12	0.50
1:A:978:ASN:ND2	1:C:547:THR:OG1	2.45	0.49
1:A:726:ILE:HG13	1:A:1061:VAL:HG13	1.93	0.49
1:C:563:GLN:O	1:C:577:ARG:NH2	2.45	0.49
1:B:970:PHE:O	1:B:995:ARG:NH1	2.45	0.49
1:A:970:PHE:HA	1:B:756:TYR:HA	1.95	0.49
1:B:276:LEU:HB3	1:B:289:VAL:HB	1.94	0.49
1:B:382:VAL:HG11	1:B:517:LEU:HD21	1.95	0.49
1:B:1040:VAL:O	1:C:1030:SER:OG	2.31	0.48
1:C:726:ILE:HG12	1:C:945:LEU:HA	1.95	0.48
3:L:124:PRO:HB3	3:L:135:THR:H	1.78	0.48
1:B:737:ASP:OD1	1:B:737:ASP:N	2.47	0.48
1:C:1029:MET:HE2	1:C:1029:MET:HB3	1.80	0.48
1:A:905:ARG:O	1:A:1036:GLN:NE2	2.46	0.47
1:A:738:CYS:O	1:A:742:ILE:HB	2.14	0.47
1:B:568:ASP:HB3	1:B:572:THR:H	1.80	0.47
1:B:1091:ARG:NH2	1:B:1120:THR:O	2.47	0.47
1:A:777:ASN:OD1	1:A:1019:ARG:NH1	2.47	0.47
1:A:878:LEU:O	1:A:881:THR:N	2.48	0.47
1:A:951:VAL:O	1:A:955:ASN:ND2	2.46	0.47
1:B:826:VAL:HG23	1:B:949:GLN:HG3	1.97	0.47
1:C:384:PRO:HA	1:C:387:LEU:HG	1.97	0.46
1:B:769:GLY:O	1:B:773:GLU:HB2	2.14	0.46
1:C:744:GLY:HA3	1:C:977:LEU:HD22	1.98	0.46
1:A:817:PRO:HA	1:A:820:ASP:HB2	1.96	0.46
1:B:773:GLU:HA	1:B:776:LYS:HG2	1.96	0.46
1:A:946:GLY:HA2	1:A:949:GLN:HB3	1.98	0.46
1:C:594:GLY:HA3	1:C:613:GLN:HE21	1.81	0.46
1:B:328:ARG:HH21	1:B:585:LEU:HD11	1.81	0.46
1:B:646:ARG:HH22	1:C:834:ILE:HG23	1.80	0.46
1:A:1011:GLN:OE1	1:A:1014:ARG:NH1	2.45	0.46
1:B:420:ASP:HA	1:B:424:LYS:HD3	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:979:ASP:O	1:C:385:THR:OG1	2.31	0.46
1:B:713:ALA:HB3	1:C:895:GLN:H	1.81	0.46
1:C:902:MET:O	1:C:906:PHE:CB	2.65	0.45
1:B:518:LEU:HD22	1:B:567:ARG:HH22	1.82	0.45
1:B:54:LEU:HB3	1:B:270:LEU:HD12	1.99	0.45
1:B:322:PRO:O	1:B:540:ASN:ND2	2.50	0.45
1:B:567:ARG:NH2	1:C:979:ASP:OD1	2.50	0.45
1:B:946:GLY:HA2	1:B:949:GLN:HB2	1.99	0.45
1:C:792:PRO:HG3	1:C:882:ILE:HD11	1.99	0.45
1:B:938:LEU:HA	1:B:941:THR:HB	1.98	0.45
1:B:1015:ALA:O	1:B:1019:ARG:CB	2.65	0.45
1:A:804:GLN:O	1:A:816:SER:OG	2.34	0.45
1:A:899:PRO:O	1:A:903:ALA:HB2	2.17	0.45
1:B:379:CYS:N	1:B:432:CYS:SG	2.90	0.45
1:B:1024:LEU:O	1:B:1028:LYS:HB2	2.16	0.45
1:C:867:ASP:HA	1:C:870:ILE:HD12	1.97	0.45
1:B:733:LYS:HE3	1:B:771:ALA:HB1	1.99	0.45
1:C:371:SER:HB2	1:C:374:PHE:HD2	1.82	0.45
1:C:905:ARG:HH21	1:C:1050:MET:HA	1.82	0.45
1:C:1086:LYS:HA	1:C:1125:ASN:HA	1.97	0.45
1:B:550:GLY:HA2	1:B:590:CYS:HB2	1.99	0.44
1:C:289:VAL:HG13	1:C:297:SER:HB3	1.99	0.44
3:L:34:TRP:HB2	3:L:47:VAL:HB	1.99	0.44
1:C:986:LYS:NZ	1:C:990:GLU:OE2	2.49	0.44
1:A:903:ALA:HB1	1:A:913:GLN:HB2	2.00	0.44
1:C:907:ASN:O	1:C:910:GLY:N	2.41	0.44
1:A:1028:LYS:NZ	1:A:1042:PHE:O	2.45	0.44
1:B:953:ASN:O	1:B:957:GLN:CB	2.64	0.44
1:B:438:SER:OG	1:B:509:ARG:N	2.51	0.44
1:B:920:GLN:O	1:B:924:ALA:HB2	2.18	0.44
1:B:973:ILE:HD11	1:B:984:LEU:HD11	2.00	0.44
1:C:206:LYS:HB2	1:C:223:LEU:HA	2.00	0.43
1:B:338:PHE:HA	1:B:341:VAL:HG12	2.01	0.43
1:C:924:ALA:O	1:C:928:ASN:ND2	2.50	0.43
3:L:60:ARG:NH2	3:L:81:ASP:OD2	2.46	0.43
1:B:1039:ARG:HH21	1:C:1027:THR:HG21	1.83	0.43
1:A:738:CYS:HB3	1:A:760:CYS:HB2	1.81	0.43
1:B:626:ALA:HB1	1:B:634:ARG:HE	1.82	0.43
1:A:967:SER:O	1:A:975:SER:OG	2.36	0.43
1:A:995:ARG:NH2	1:B:994:ASP:OD1	2.44	0.43
1:C:312:ILE:HD11	1:C:596:SER:HB3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1077:THR:HG21	1:B:897:PRO:HG2	2.00	0.43
1:B:990:GLU:O	1:B:994:ASP:HB3	2.19	0.43
2:H:125:GLY:HA2	2:H:126:PRO:HD3	1.91	0.43
1:B:422:ASN:HD21	1:B:454:ARG:H	1.67	0.43
1:B:760:CYS:HA	1:B:763:LEU:HB2	2.00	0.43
1:B:990:GLU:O	1:B:994:ASP:CB	2.67	0.42
1:C:1030:SER:HA	1:C:1034:LEU:HB2	2.01	0.42
1:A:830:ASP:O	1:A:836:GLN:NE2	2.52	0.42
1:C:328:ARG:HD2	1:C:328:ARG:HA	1.81	0.42
1:A:993:ILE:HA	1:A:996:LEU:HB2	2.00	0.42
1:B:629:LEU:HD13	1:B:633:TRP:HB3	2.02	0.42
1:C:328:ARG:HD3	1:C:533:LEU:HB2	2.02	0.42
1:C:295:PRO:HG2	1:C:608:VAL:HG21	2.00	0.42
1:A:979:ASP:O	1:C:383:SER:OG	2.38	0.42
1:B:986:LYS:HG2	1:C:413:GLY:HA3	2.02	0.42
1:B:1029:MET:HA	1:B:1033:VAL:H	1.85	0.42
1:A:1102:TRP:HB2	1:A:1115:ILE:HD11	2.00	0.42
1:B:742:ILE:HG21	1:B:997:ILE:HG23	2.00	0.42
1:C:725:GLU:OE1	1:C:1064:HIS:NE2	2.48	0.42
1:B:921:LYS:HE2	1:B:921:LYS:HB3	1.94	0.41
1:B:923:ILE:HA	1:B:926:GLN:HB3	2.01	0.41
1:B:1107:ARG:HH12	1:C:904:TYR:HD2	1.69	0.41
1:C:350:VAL:HG22	1:C:400:PHE:HB2	2.01	0.41
1:C:729:VAL:HG11	1:C:781:VAL:HG11	2.02	0.41
2:H:133:PRO:HB2	2:H:139:SER:HB3	2.01	0.41
1:B:564:GLN:NE2	1:B:577:ARG:O	2.54	0.41
1:B:1081:ILE:HG22	1:B:1133:VAL:HB	2.03	0.41
3:L:144:TYR:HA	3:L:175:LYS:HG2	2.03	0.41
1:A:956:ALA:HA	1:A:959:LEU:HD12	2.03	0.41
1:B:851:CYS:HA	1:B:854:LYS:HD3	2.02	0.41
1:B:1018:ILE:HA	1:B:1021:SER:HB2	2.03	0.41
1:A:953:ASN:O	1:A:957:GLN:CB	2.67	0.41
1:A:780:GLU:O	1:A:784:GLN:NE2	2.54	0.41
1:B:538:CYS:N	1:B:590:CYS:SG	2.94	0.41
1:B:966:LEU:O	1:B:975:SER:OG	2.34	0.41
1:C:714:ILE:HA	1:C:715:PRO:HD3	1.93	0.41
1:C:738:CYS:HB2	1:C:760:CYS:HB2	1.68	0.41
1:C:831:ALA:HA	1:C:860:VAL:HG21	2.03	0.41
1:C:1047:TYR:H	1:C:1067:TYR:HB3	1.86	0.41
1:C:310:LYS:HE2	1:C:310:LYS:HB3	1.95	0.41
1:C:359:SER:O	1:C:523:THR:OG1	2.36	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:987:PRO:HA	1:C:990:GLU:HG2	2.03	0.40
1:A:826:VAL:HB	1:A:1057:PRO:HG2	2.02	0.40
1:A:837:TYR:HB3	1:C:592:PHE:HB2	2.02	0.40
1:C:902:MET:O	1:C:906:PHE:HB3	2.22	0.40
1:B:528:LYS:HE2	1:B:528:LYS:HB3	1.96	0.40
1:C:729:VAL:HB	1:C:1059:GLY:HA2	2.04	0.40
2:H:133:PRO:HA	2:H:138:THR:HG22	2.04	0.40

There are no symmetry-related clashes.

5.3　Torsion angles ⓘ

5.3.1　Protein backbone ⓘ

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	428/1256 (34%)	407 (95%)	21 (5%)	0	100	100
1	B	938/1256 (75%)	886 (94%)	52 (6%)	0	100	100
1	C	935/1256 (74%)	889 (95%)	46 (5%)	0	100	100
2	H	218/231 (94%)	208 (95%)	10 (5%)	0	100	100
3	L	211/215 (98%)	200 (95%)	11 (5%)	0	100	100
All	All	2730/4214 (65%)	2590 (95%)	140 (5%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2　Protein sidechains ⓘ

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	367/1084 (34%)	367 (100%)	0	100	100
1	B	823/1084 (76%)	823 (100%)	0	100	100
1	C	822/1084 (76%)	822 (100%)	0	100	100
2	H	184/197 (93%)	184 (100%)	0	100	100
3	L	177/181 (98%)	177 (100%)	0	100	100
All	All	2373/3630 (65%)	2373 (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. All (33) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	755	GLN
1	A	935	GLN
1	A	1064	HIS
1	B	196	ASN
1	B	218	GLN
1	B	370	ASN
1	B	450	ASN
1	B	542	ASN
1	B	657	ASN
1	B	895	GLN
1	B	928	ASN
1	B	1074	ASN
1	B	1134	ASN
1	C	196	ASN
1	C	360	ASN
1	C	414	GLN
1	C	439	ASN
1	C	474	GLN
1	C	498	GLN
1	C	644	GLN
1	C	657	ASN
1	C	675	GLN
1	C	762	GLN
1	C	926	GLN
1	C	928	ASN
1	C	949	GLN
1	C	953	ASN
1	C	1113	GLN
2	H	1	GLN

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Mol	Chain	Res	Type
2	H	6	GLN
2	H	62	GLN
3	L	171	GLN
3	L	173	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-25699. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections ⓘ

6.1.1 Primary map

| X | Y | Z |
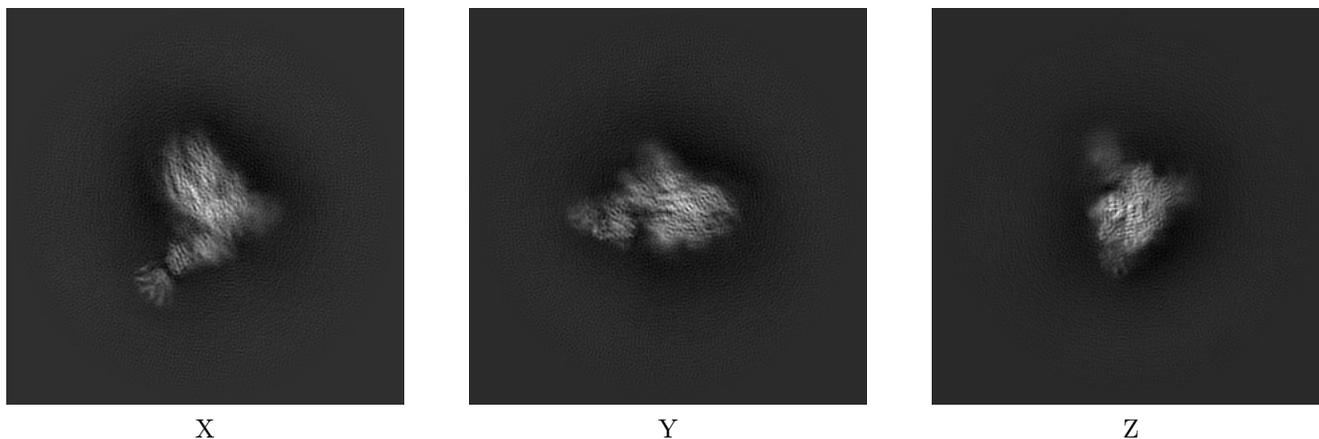
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ

6.2.1 Primary map

| X Index: 200 | Y Index: 200 | Z Index: 200 |
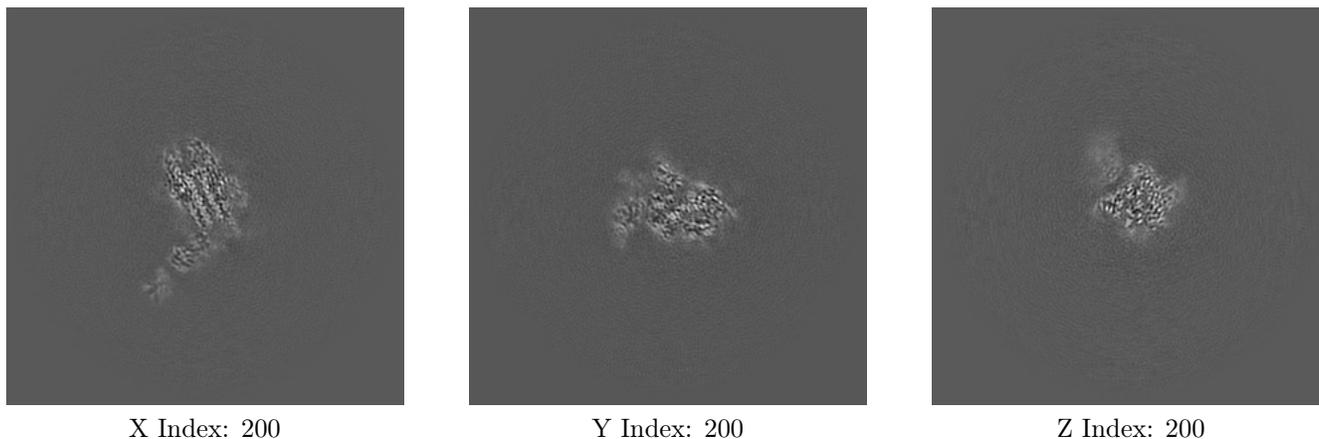
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices ⓘ
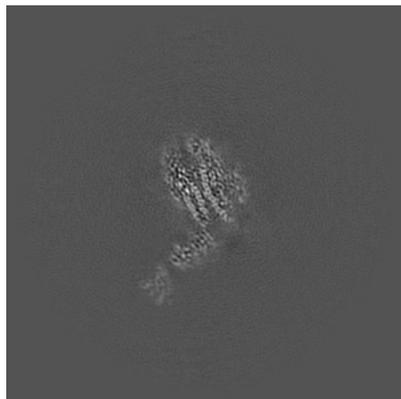
6.3.1 Primary map
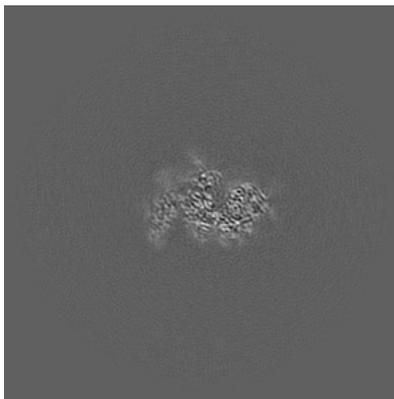
| X Index: 198 | Y Index: 196 | Z Index: 203 |
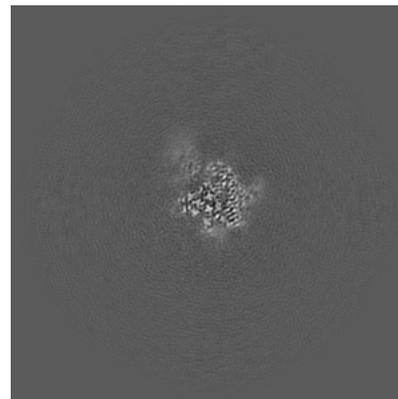
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map

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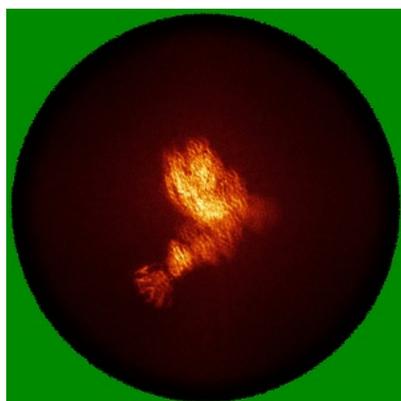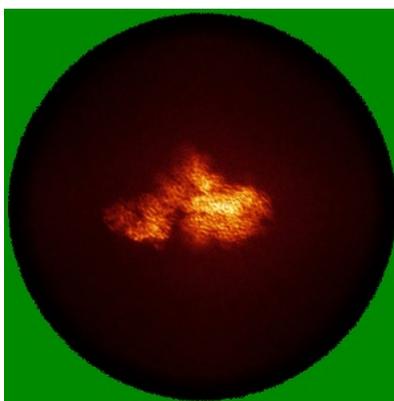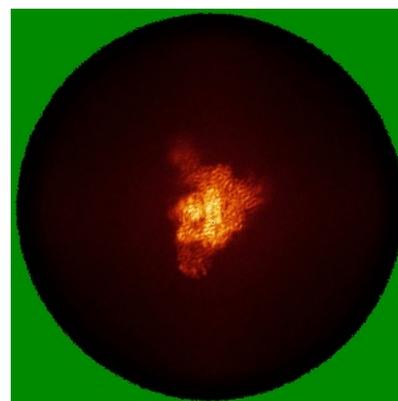
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

X	Y	Z

The images above show the 3D surface view of the map at the recommended contour level 4.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.6 Mask visualisation ⓘ

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

7 Map analysis ⓘ

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

7.1 Map-value distribution ⓘ

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

7.2 Volume estimate ⓘ
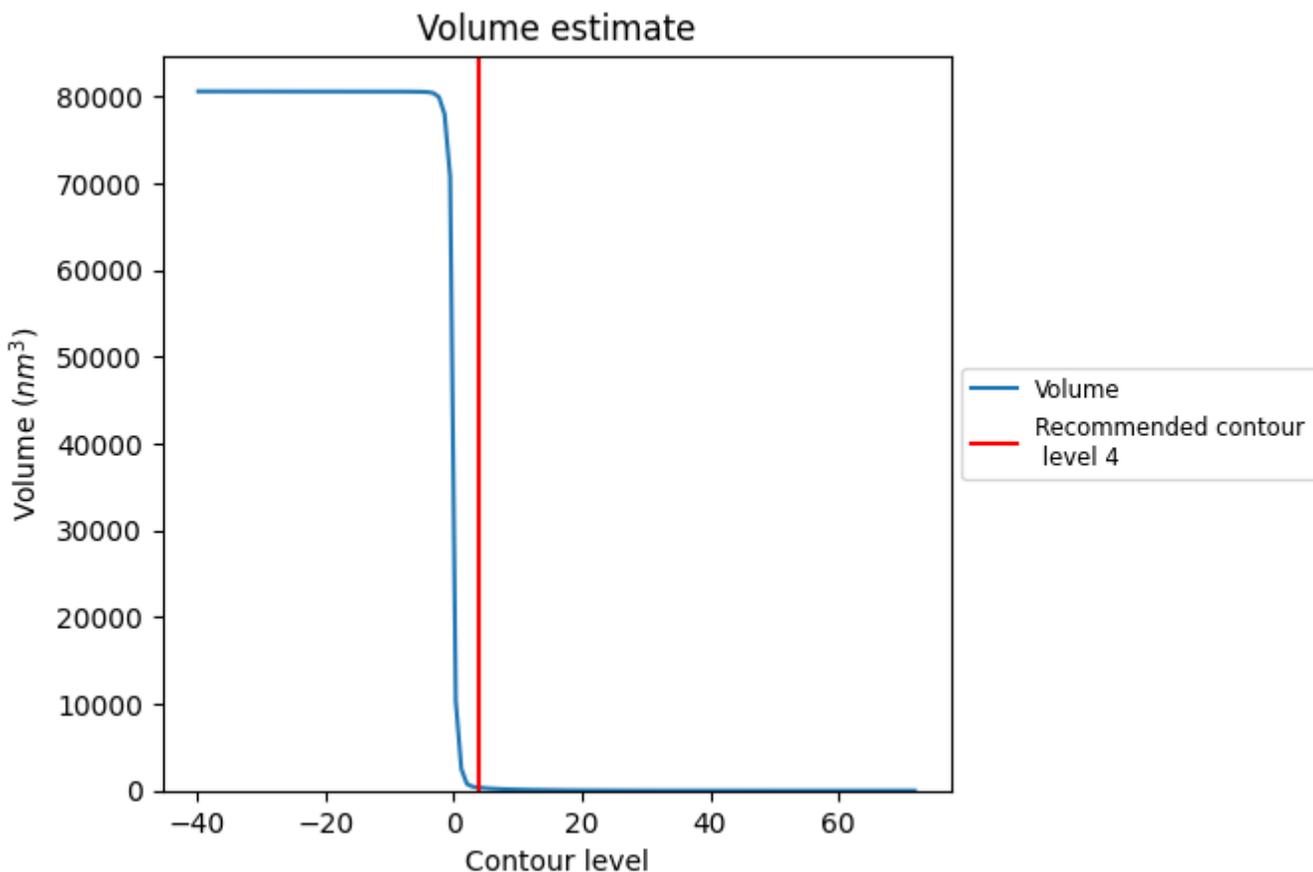
The volume at the recommended contour level is 350 nm^3; this corresponds to an approximate mass of 316 kDa.

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)
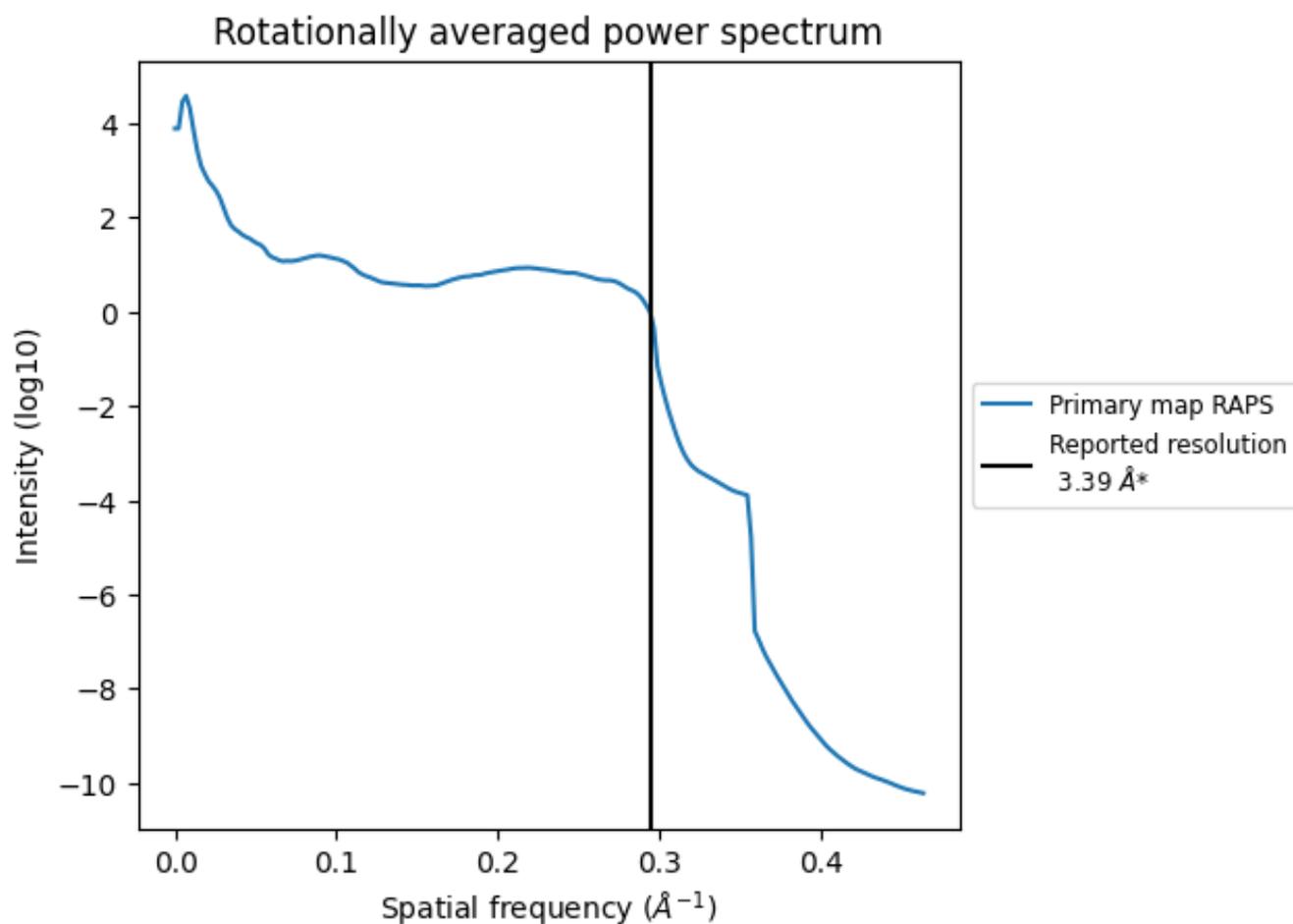
*Reported resolution corresponds to spatial frequency of 0.295 Å^{-1}

8 Fourier-Shell correlation ⓘ

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

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-25699 and PDB model 7T5O. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay ⓘ

X	Y	Z
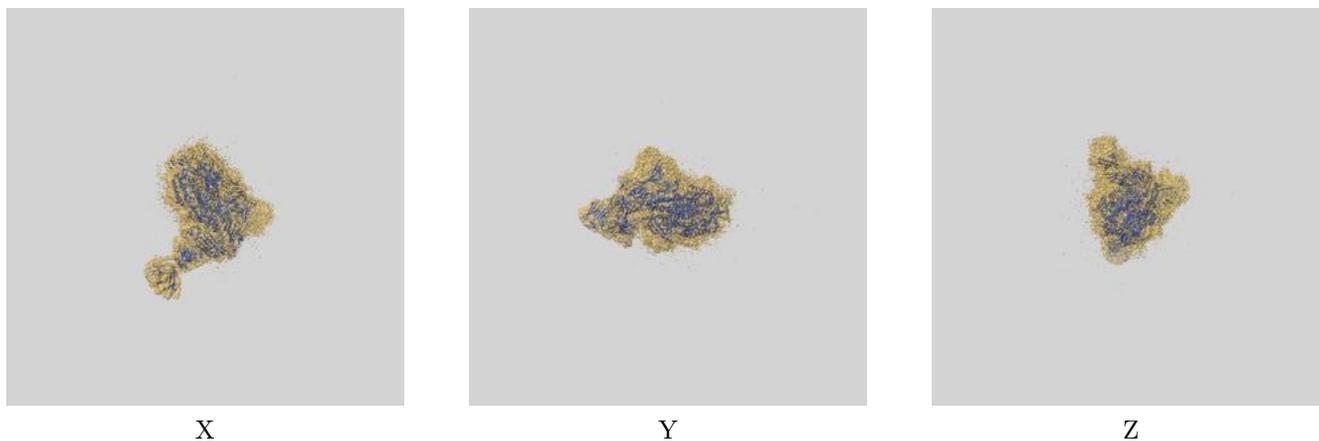
The images above show the 3D surface view of the map at the recommended contour level 4.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ

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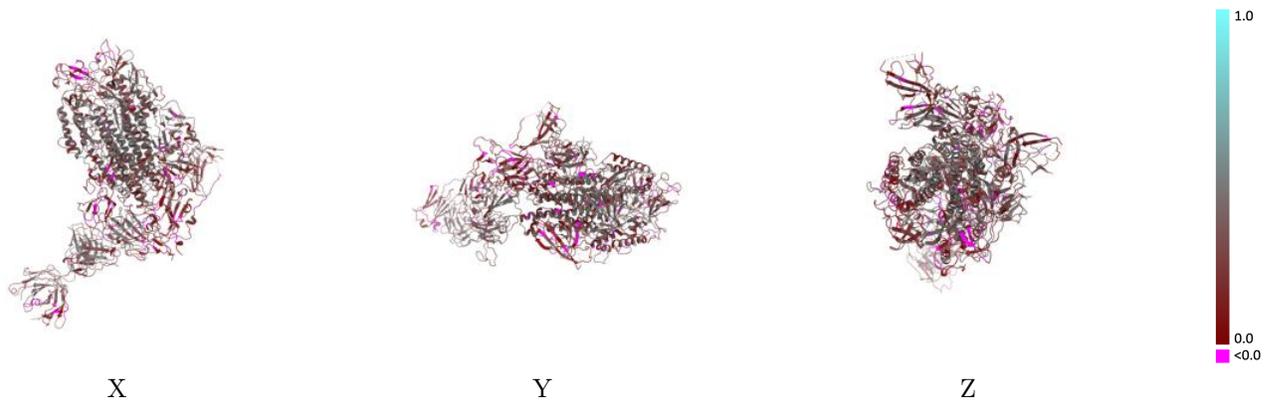
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3 Atom inclusion mapped to coordinate model ⓘ

X Y Z
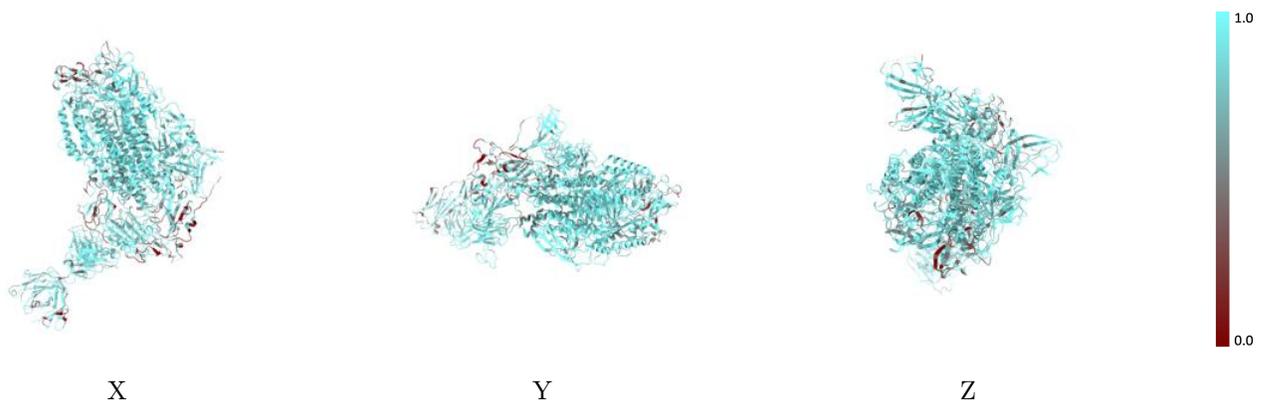
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (4).

9.4　　Atom inclusion ⓘ
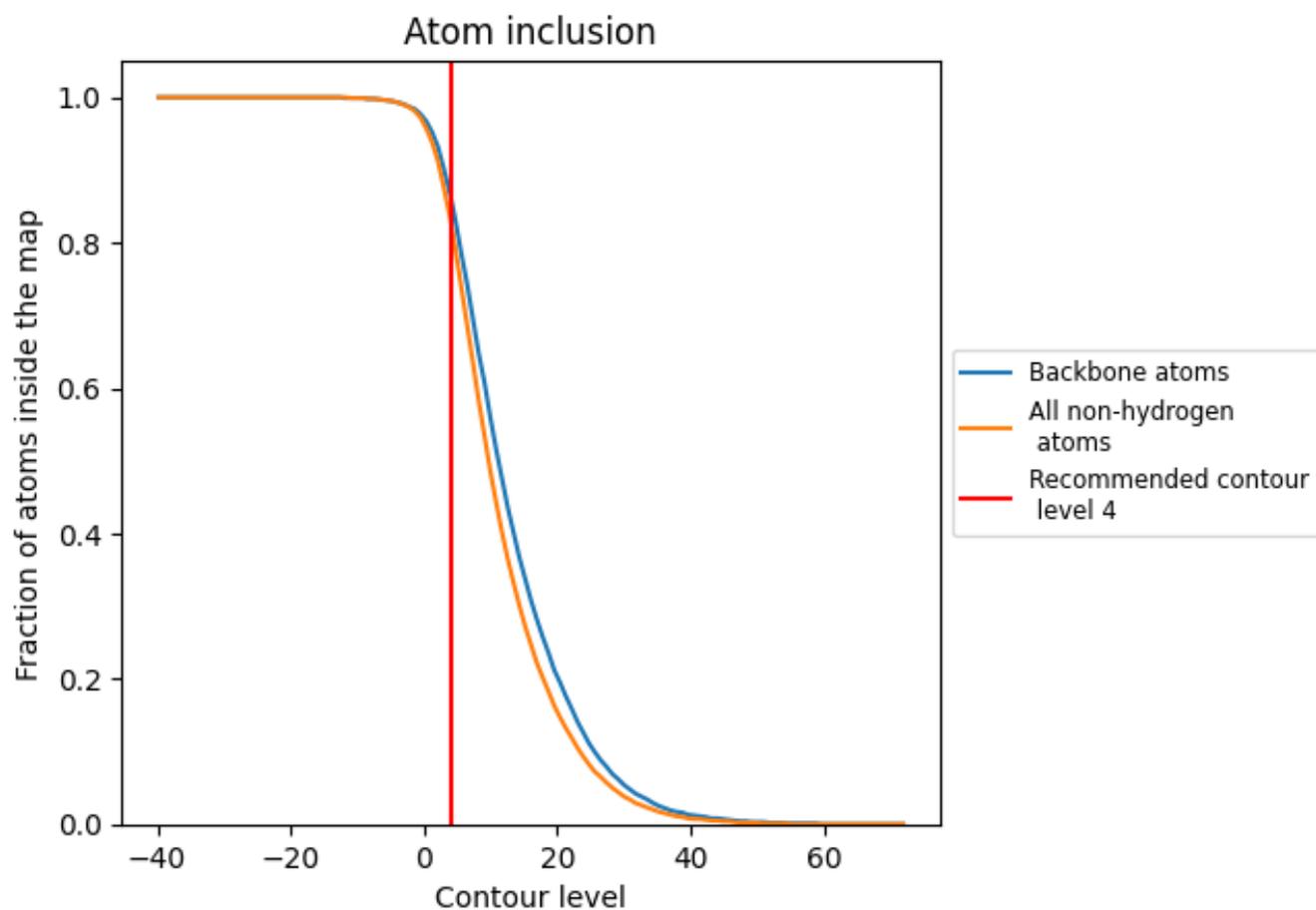
At the recommended contour level, 86% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8310	0.2850
A	0.8620	0.3230
B	0.8140	0.2560
C	0.8390	0.2900
H	0.8680	0.3360
L	0.7680	0.2590

1.0

0.0

<0.0