



wwPDB EM Validation Summary Report ⓘ

Mar 17, 2026 – 03:13 PM UTC

PDB ID : 3J46 / pdb_00003j46
EMDB ID : EMD-5693
Title : Structure of the SecY protein translocation channel in action
Authors : Akey, C.W.; Park, E.; Menetret, J.F.; Gumbart, J.C.; Ludtke, S.J.; Li, W.;
Whynot, A.; Rapoport, T.A.
Deposited on : 2013-06-18
Resolution : 10.10 Å (reported)
Based on initial models : 3I8G, 3J01, 2I2P

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

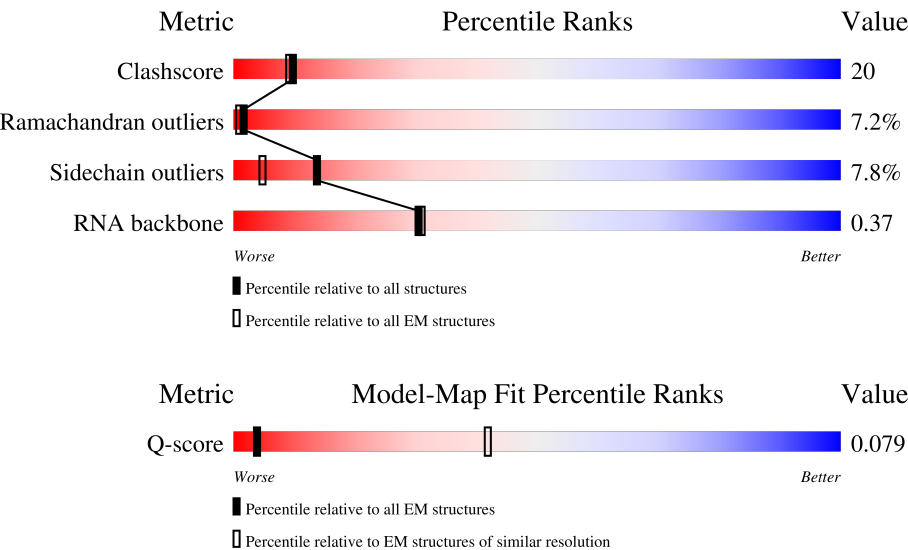
EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
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 10.10 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	-
RNA backbone	8273	3508	-
Q-score	-	25397	127 (9.60 - 10.60)

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	y	437	13% 28% 52% 15% 5%
2	E	56	23% 25% 54% 21%
3	G	67	10% 19% 58% 13% 9%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
4	n	101	
5	p	76	
6	a	76	
7	5	234	
8	T	100	
9	U	103	
10	Y	63	
11	1	63	
12	2	36	
13	3	44	
14	4	109	

2 Entry composition

There are 14 unique types of molecules in this entry. The entry contains 17478 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 Protein translocase subunit SecY.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	y	437	Total	C	N	O	S	0	1
			3361	2220	554	569	18		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
y	5	ACE	-	acetylation	UNP P0AGA2
y	68	CYS	SER	engineered mutation	UNP P0AGA2
y	441	NH2	-	amidation	UNP P0AGA2

- Molecule 2 is a protein called Preprotein translocase subunit SecE.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	56	Total	C	N	O	S	0	1
			433	283	76	73	1		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	73	ACE	-	acetylation	UNP P0AG96
E	128	NH2	-	amidation	UNP P0AG96

- Molecule 3 is a protein called Protein-export membrane protein SecG.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	G	67	Total	C	N	O	S	0	1
			461	301	74	82	4		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	8	ACE	-	acetylation	UNP P0AG99
G	74	NH2	-	amidation	UNP P0AG99

- Molecule 4 is a protein called NC100.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	n	101	Total	C	N	O	S	0	0
			760	480	132	146	2		

- Molecule 5 is a RNA chain called P-tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	p	76	Total	C	N	O	P	0	0
			1621	722	287	536	76		

- Molecule 6 is a RNA chain called A-tRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
6	a	76	Total	C	N	O	P	S	0	0
			1626	729	290	531	75	1		

- Molecule 7 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	5	234	Total	C	N	O	S	0	0
			1733	1081	315	330	7		

- Molecule 8 is a protein called 50S ribosomal protein L23P.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	T	100	Total	C	N	O	S	0	0
			787	496	146	143	2		

- Molecule 9 is a protein called 50S ribosomal protein L24P.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	U	103	Total	C	N	O	0	0
			789	498	148	143		

- Molecule 10 is a protein called 50S ribosomal protein L29P.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Y	63	Total	C	N	O	S	0	0
			509	313	99	95	2		

- Molecule 11 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	1	63	Total	C	N	O	P	0	0
			1350	603	245	439	63		

- Molecule 12 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	2	36	Total	C	N	O	P	0	0
			775	345	142	252	36		

- Molecule 13 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	3	44	Total	C	N	O	P	0	0
			948	423	180	301	44		

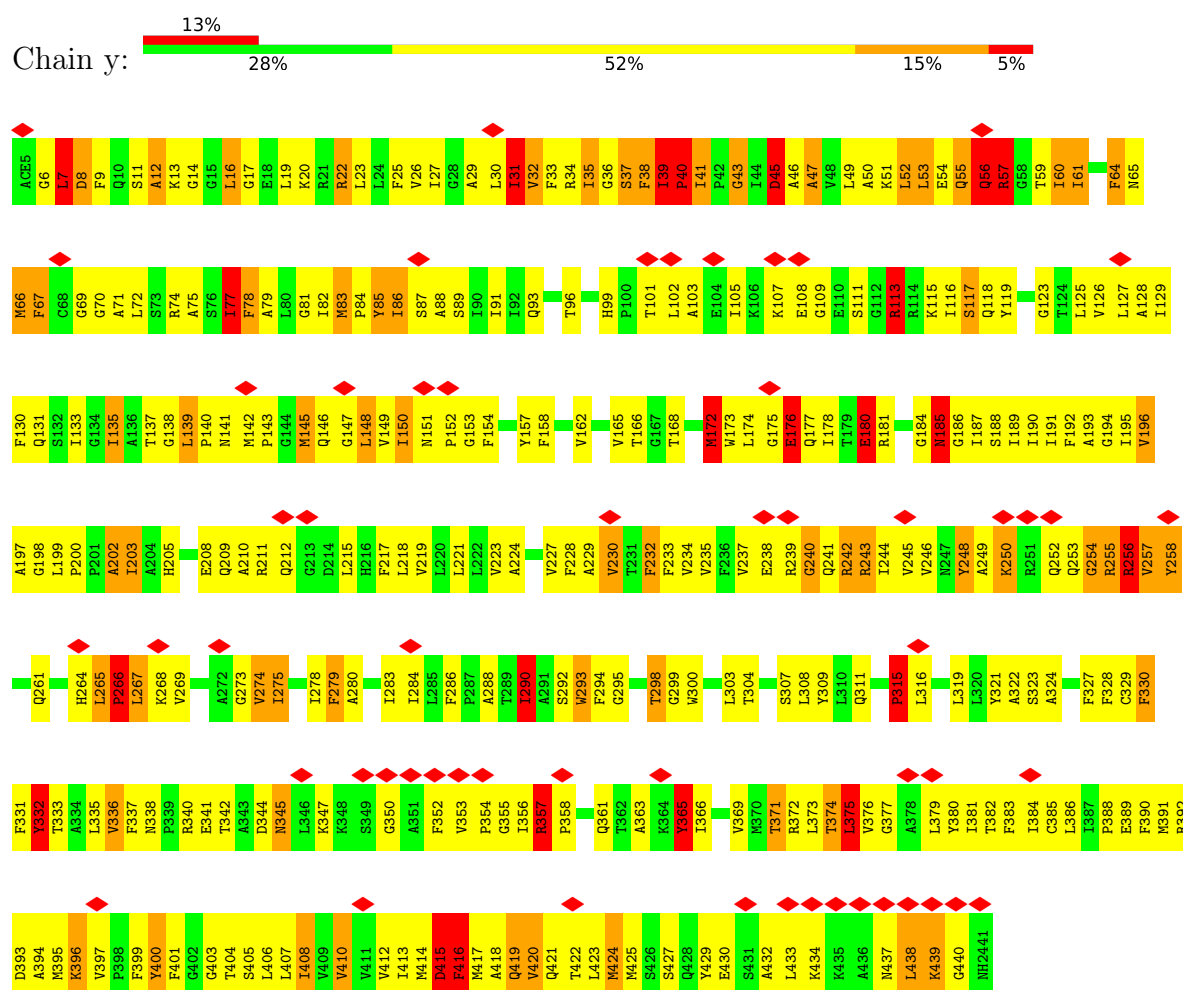
- Molecule 14 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	4	109	Total	C	N	O	P	0	0
			2325	1038	409	769	109		

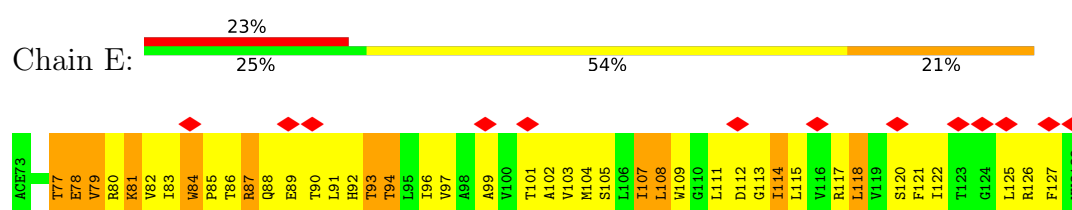
3 Residue-property plots

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.

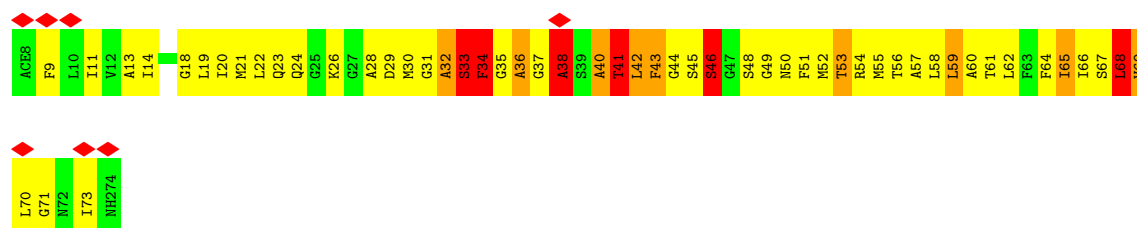
• Molecule 1: Protein translocase subunit SecY



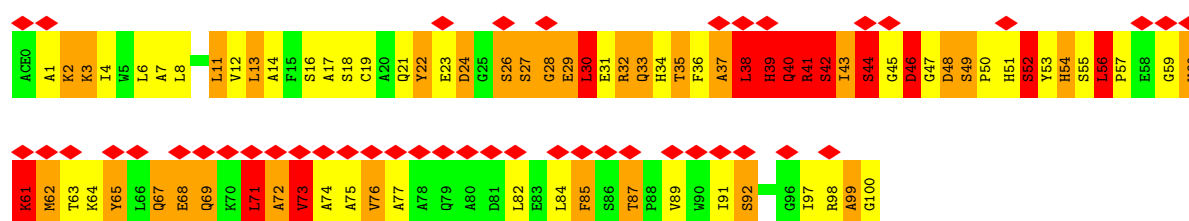
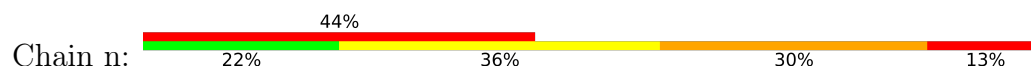
• Molecule 2: Preprotein translocase subunit SecE



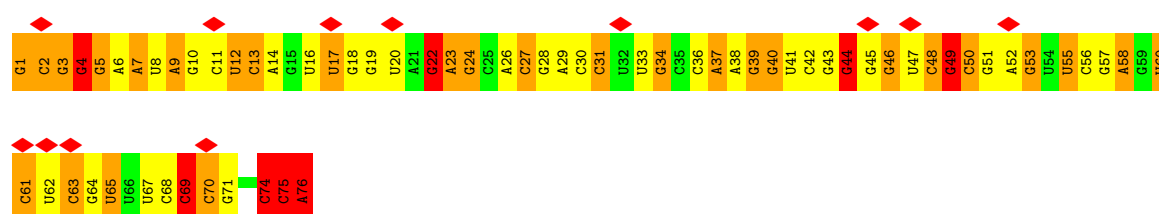
- Molecule 3: Protein-export membrane protein SecE



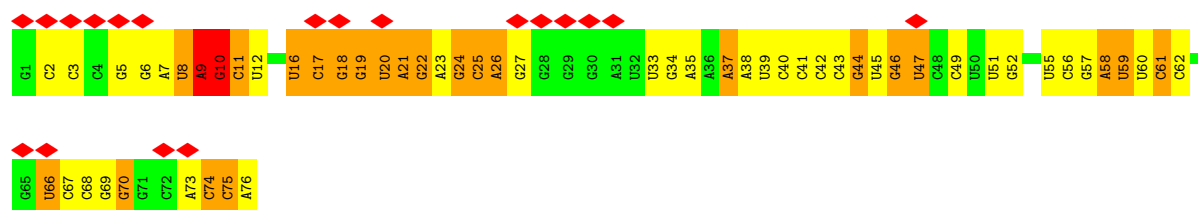
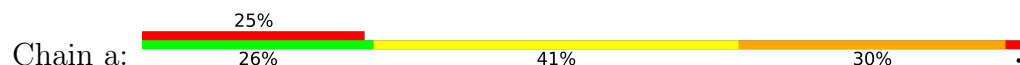
- Molecule 4: NC100



- Molecule 5: P-tRNA

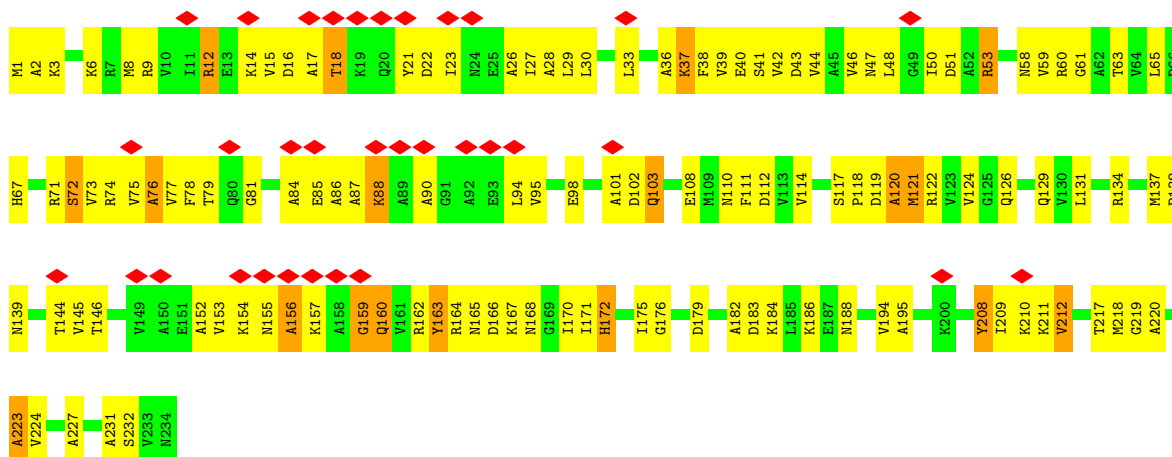


- Molecule 6: A-tRNA

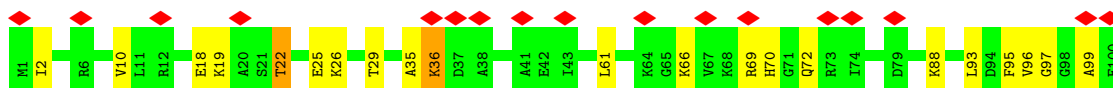
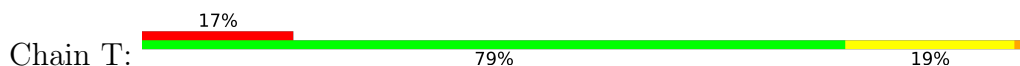


- Molecule 7: 50S ribosomal protein L1

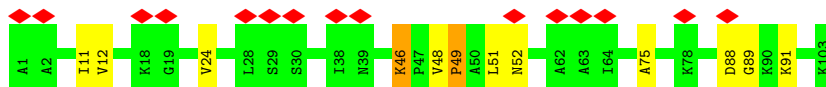




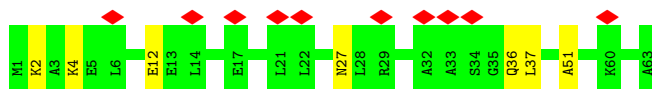
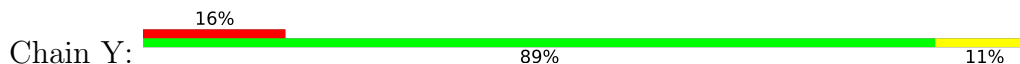
• Molecule 8: 50S ribosomal protein L23P



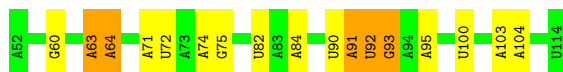
• Molecule 9: 50S ribosomal protein L24P



• Molecule 10: 50S ribosomal protein L29P



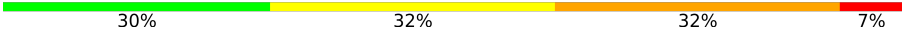
• Molecule 11: 23S ribosomal RNA



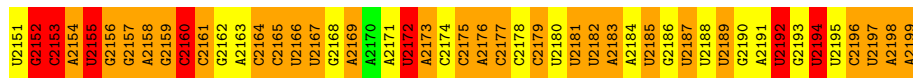
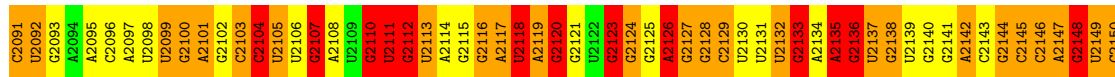
• Molecule 12: 23S ribosomal RNA



● Molecule 13: 23S ribosomal RNA

Chain 3:  30% 32% 32% 7%

● Molecule 14: 23S ribosomal RNA

Chain 4:  31% 47% 18%

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	53000	Depositor
Resolution determination method	FSC 0.5 CUT-OFF	Depositor
CTF correction method	per micrograph	Depositor
Microscope	FEI TECNAI F20	Depositor
Voltage (kV)	160	Depositor
Electron dose ($e^-/\text{\AA}^2$)	20	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	42000	Depositor
Image detector	KODAK SO-163 FILM	Depositor
Maximum map value	3.245	Depositor
Minimum map value	-0.464	Depositor
Average map value	0.072	Depositor
Map value standard deviation	0.294	Depositor
Recommended contour level	0.8	Depositor
Map size ($\text{\AA}$)	407.03998, 407.03998, 407.03998	wwPDB
Map dimensions	192, 192, 192	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	2.12, 2.12, 2.12	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: NH2, ACE, MIA

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	y	2.31	132/3434 (3.8%)	2.96	435/4657 (9.3%)
2	E	2.30	19/437 (4.3%)	3.24	64/596 (10.7%)
3	G	2.32	23/463 (5.0%)	3.02	71/622 (11.4%)
4	n	2.26	8/774 (1.0%)	1.95	30/1048 (2.9%)
5	p	1.91	24/1810 (1.3%)	1.82	53/2820 (1.9%)
6	a	0.33	0/1783	0.73	3/2776 (0.1%)
7	5	2.30	65/1748 (3.7%)	2.48	124/2355 (5.3%)
8	T	1.28	0/794	1.53	5/1060 (0.5%)
9	U	1.26	0/797	1.44	7/1062 (0.7%)
10	Y	1.27	0/510	1.61	6/677 (0.9%)
11	1	0.91	0/1511	1.11	0/2354
12	2	0.91	0/867	1.17	3/1351 (0.2%)
13	3	2.00	16/1062 (1.5%)	1.76	21/1655 (1.3%)
14	4	2.01	46/2599 (1.8%)	1.88	93/4049 (2.3%)
All	All	1.84	333/18589 (1.8%)	2.04	915/27082 (3.4%)

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	y	2	18
2	E	0	2
3	G	0	1
4	n	3	0
5	p	0	29
6	a	0	1
7	5	0	3
9	U	0	1
11	1	0	2

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
12	2	0	2
13	3	0	19
14	4	0	63
All	All	5	141

The worst 5 of 333 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	n	99	ALA	C-N	40.18	1.89	1.33
4	n	22	TYR	C-N	38.43	1.84	1.33
13	3	1516	G	O3'-P	20.45	1.91	1.61
13	3	1551	A	O3'-P	14.37	1.82	1.61
1	y	350	GLY	CA-C	-10.51	1.42	1.52

The worst 5 of 915 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	y	403	GLY	N-CA-C	30.48	152.45	114.66
1	y	56	GLN	N-CA-CB	20.17	144.58	110.49
4	n	41	ARG	N-CA-CB	17.51	140.09	110.49
4	n	46	ASP	N-CA-CB	17.15	139.47	110.49
1	y	404	THR	N-CA-CB	-15.60	87.06	110.61

All (5) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	y	55	GLN	CA
1	y	56	GLN	CA
4	n	38	LEU	CA
4	n	39	HIS	CA
4	n	40	GLN	CA

5 of 141 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	y	22	ARG	Sidechain
1	y	34	ARG	Sidechain
1	y	38	PHE	Sidechain
1	y	45	ASP	Sidechain
1	y	57	ARG	Sidechain

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	y	3361	0	3514	284	0
2	E	433	0	466	31	0
3	G	461	0	485	22	0
4	n	760	0	742	376	0
5	p	1621	0	818	10	0
6	a	1626	0	833	74	0
7	5	1733	0	1824	8	0
8	T	787	0	844	35	0
9	U	789	0	847	12	0
10	Y	509	0	543	6	0
11	1	1350	0	678	37	0
12	2	775	0	389	13	0
13	3	948	0	478	0	0
14	4	2325	0	1168	8	0
All	All	17478	0	13629	610	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 20.

The worst 5 of 610 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)
2:E:81:LYS:HD2	8:T:93:LEU:CD1	1.30	1.62
1:y:52:LEU:HB2	4:n:29:GLU:CB	1.23	1.58
1:y:52:LEU:CB	4:n:29:GLU:HB3	1.36	1.52
2:E:81:LYS:CD	8:T:93:LEU:HD12	1.04	1.51
1:y:253:GLN:HB3	11:1:91:A:N6	1.27	1.43

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	y	435/437 (100%)	392 (90%)	18 (4%)	25 (6%)	1	14
2	E	54/56 (96%)	49 (91%)	4 (7%)	1 (2%)	6	32
3	G	65/67 (97%)	57 (88%)	4 (6%)	4 (6%)	1	13
4	n	99/101 (98%)	42 (42%)	26 (26%)	31 (31%)	0	0
7	5	232/234 (99%)	198 (85%)	25 (11%)	9 (4%)	2	19
8	T	98/100 (98%)	71 (72%)	20 (20%)	7 (7%)	1	11
9	U	101/103 (98%)	84 (83%)	14 (14%)	3 (3%)	3	23
10	Y	61/63 (97%)	48 (79%)	11 (18%)	2 (3%)	3	21
All	All	1145/1161 (99%)	941 (82%)	122 (11%)	82 (7%)	2	11

5 of 82 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	y	45	ASP
1	y	56	GLN
1	y	258	TYR
1	y	266	PRO
1	y	298	THR

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	y	353/353 (100%)	329 (93%)	24 (7%)	14	36

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	E	47/47 (100%)	44 (94%)	3 (6%)	16	37
3	G	46/46 (100%)	37 (80%)	9 (20%)	1	7
4	n	77/77 (100%)	59 (77%)	18 (23%)	1	5
7	5	181/181 (100%)	172 (95%)	9 (5%)	22	43
8	T	84/84 (100%)	79 (94%)	5 (6%)	17	39
9	U	84/84 (100%)	81 (96%)	3 (4%)	31	52
10	Y	55/55 (100%)	54 (98%)	1 (2%)	51	68
All	All	927/927 (100%)	855 (92%)	72 (8%)	14	32

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

Mol	Chain	Res	Type
7	5	77	VAL
10	Y	27	ASN
7	5	95	VAL
8	T	66	LYS
2	E	77	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 29 such sidechains are listed below:

Mol	Chain	Res	Type
4	n	40	GLN
10	Y	39	GLN
7	5	103	GLN
9	U	53	GLN
7	5	67	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
11	1	62/63 (98%)	13 (20%)	1 (1%)
12	2	35/36 (97%)	8 (22%)	1 (2%)
13	3	43/44 (97%)	7 (16%)	2 (4%)
14	4	108/109 (99%)	39 (36%)	8 (7%)
5	p	75/76 (98%)	17 (22%)	0
6	a	75/76 (98%)	28 (37%)	0
All	All	398/404 (98%)	112 (28%)	12 (3%)

5 of 112 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
5	p	2	C
5	p	4	G
5	p	5	G
5	p	7	A
5	p	8	U

5 of 12 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
14	4	2147	A
14	4	2152	G
14	4	2172	U
14	4	2157	G
13	3	1551	A

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

1 non-standard protein/DNA/RNA residue is 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	$\# Z > 2$
6	MIA	a	37	6	28,31,32	1.57	3 (10%)	38,44,47	1.99	3 (7%)

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
6	MIA	a	37	6	-	2/15/33/34	0/3/3/3

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	a	37	MIA	C13-C14	6.14	1.50	1.32
6	a	37	MIA	C2-S10	4.34	1.79	1.75
6	a	37	MIA	C12-C13	-2.50	1.35	1.47

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	a	37	MIA	C11-S10-C2	10.54	110.16	102.25
6	a	37	MIA	C12-C13-C14	-3.48	120.76	127.01
6	a	37	MIA	C16-C14-C15	2.50	120.33	114.59

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	a	37	MIA	N6-C12-C13-C14
6	a	37	MIA	C3'-C4'-C5'-O5'

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	a	37	MIA	2	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
13	3	2
4	n	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	3	1516:G	O3'	1517:G	P	1.91
1	n	99:ALA	C	100:GLY	N	1.89
1	n	22:TYR	C	23:GLU	N	1.84
1	3	1551:A	O3'	1552:A	P	1.82

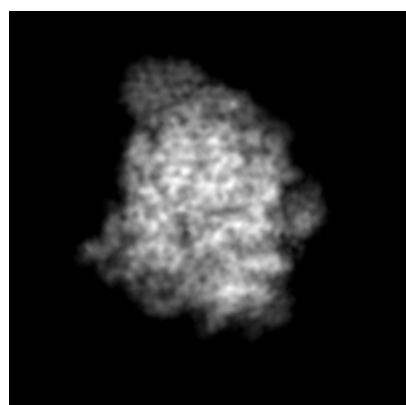
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-5693. These allow visual inspection of the internal detail of the map and identification of artifacts.

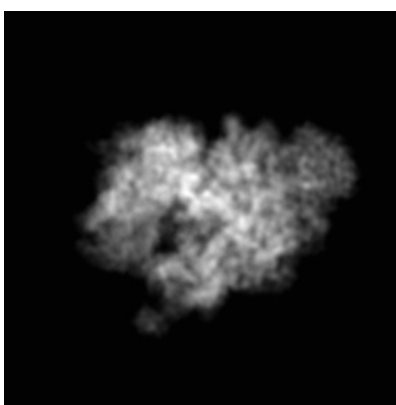
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

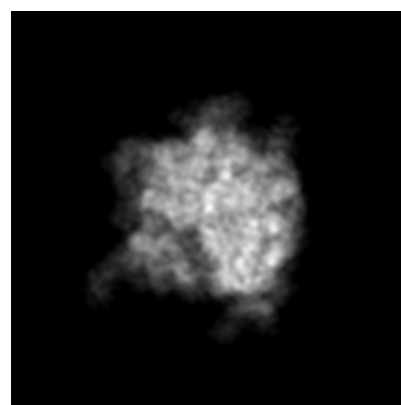
6.1.1 Primary map



X



Y

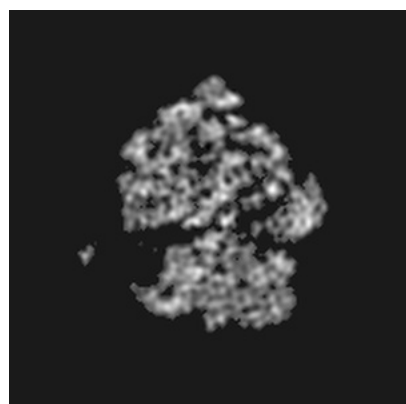


Z

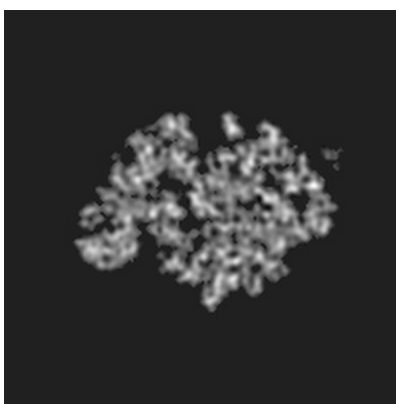
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

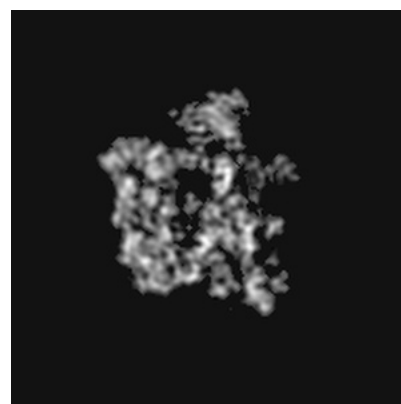
6.2.1 Primary map



X Index: 96



Y Index: 96

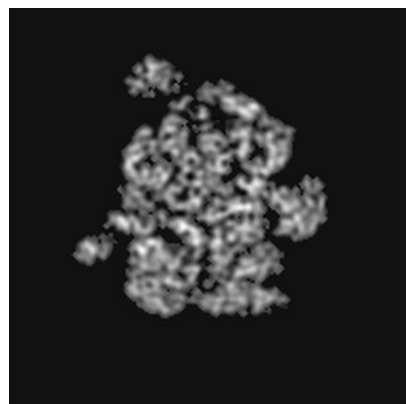


Z Index: 96

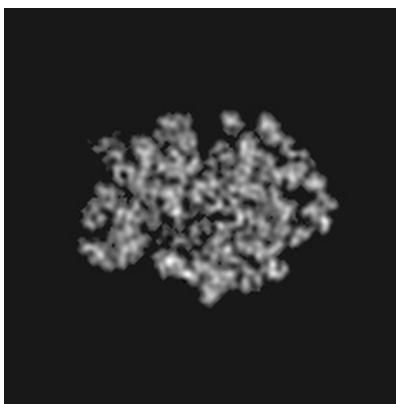
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

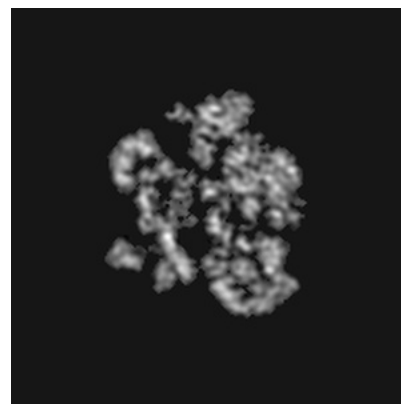
6.3.1 Primary map



X Index: 103



Y Index: 99

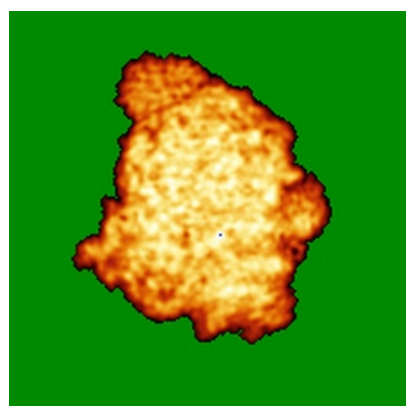


Z Index: 89

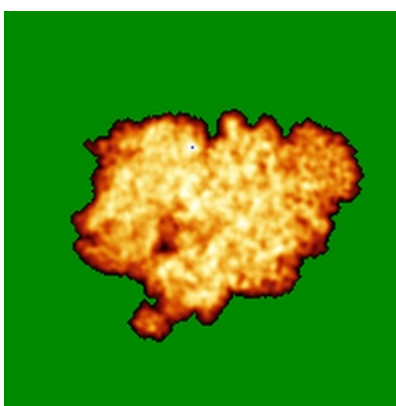
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map



X



Y



Z

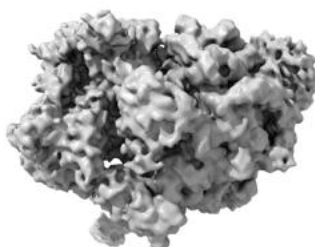
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

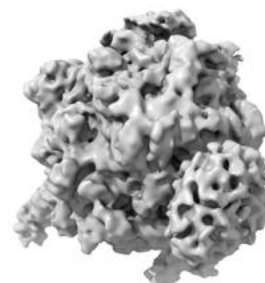
6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.8. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

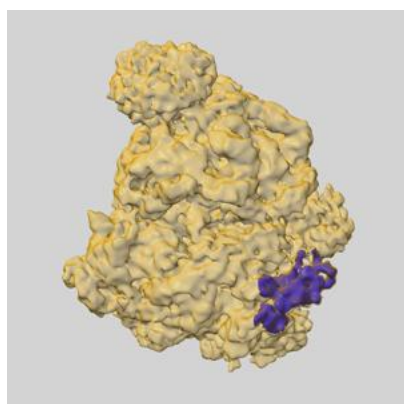
6.6 Mask visualisation [i](#)

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

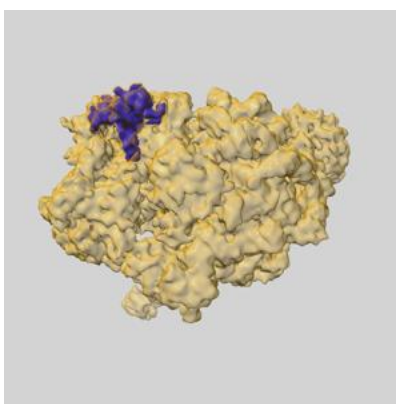
A mask typically either:

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

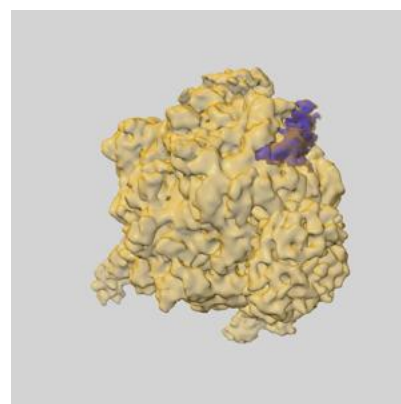
6.6.1 emd_5693_msk_8.map [i](#)



X

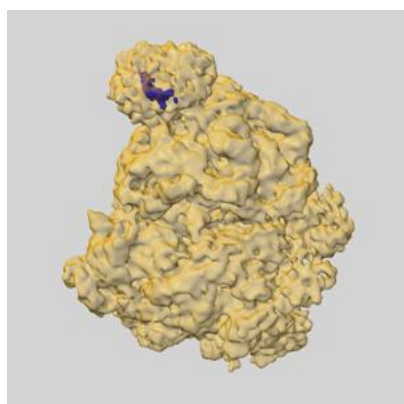


Y

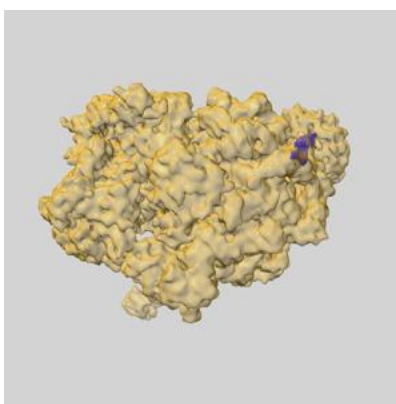


Z

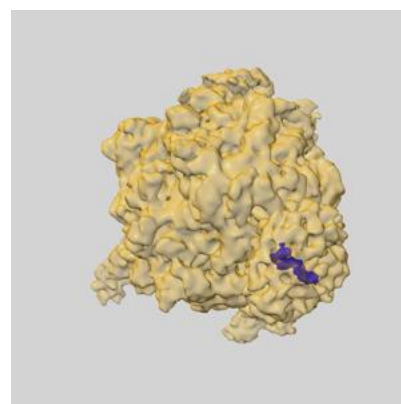
6.6.2 emd_5693_msk_7.map [i](#)



X

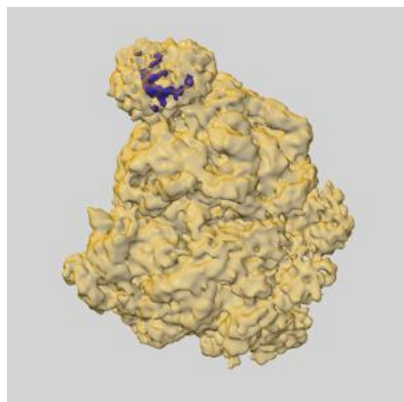


Y

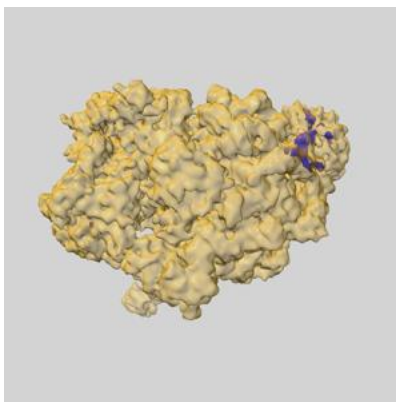


Z

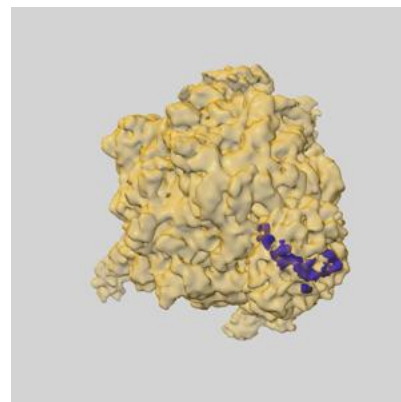
6.6.3 emd_5693_msk_6.map [i](#)



X

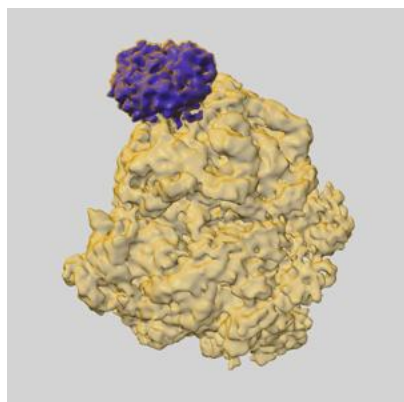


Y

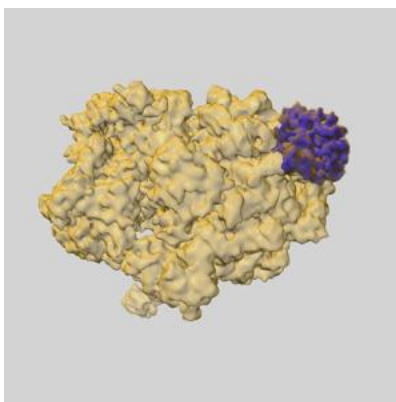


Z

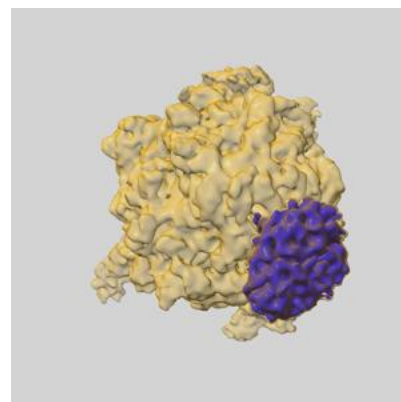
6.6.4 emd_5693_msk_5.map [i](#)



X

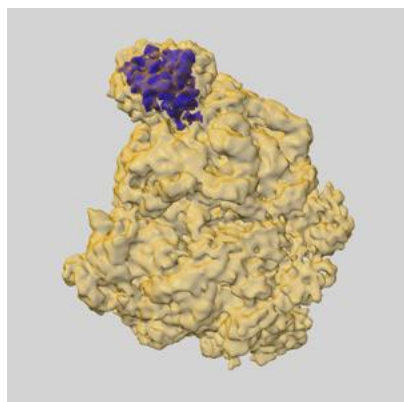


Y

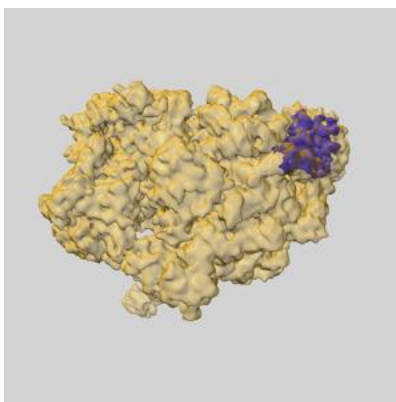


Z

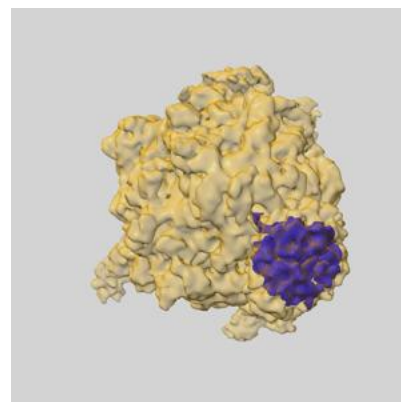
6.6.5 emd_5693_msk_4.map [i](#)



X

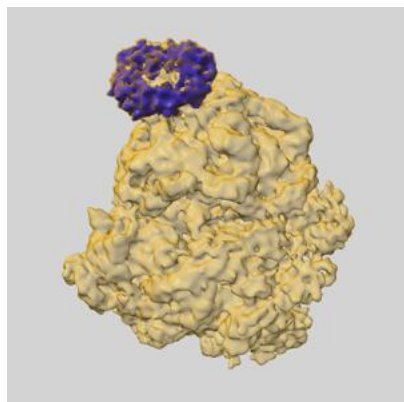


Y

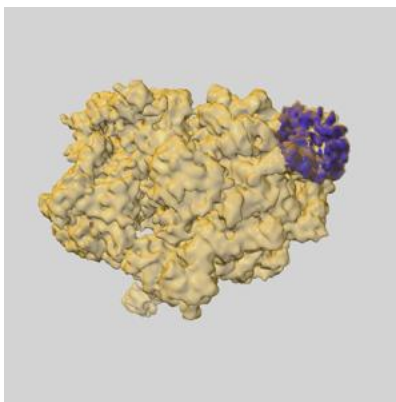


Z

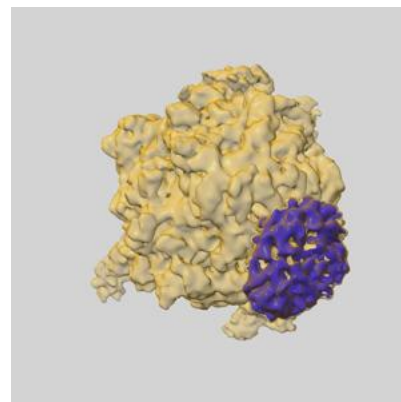
6.6.6 emd_5693_msk_3.map [i](#)



X

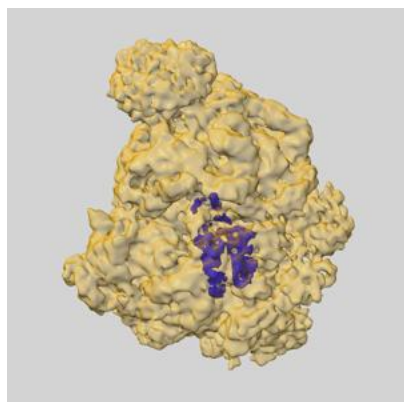


Y

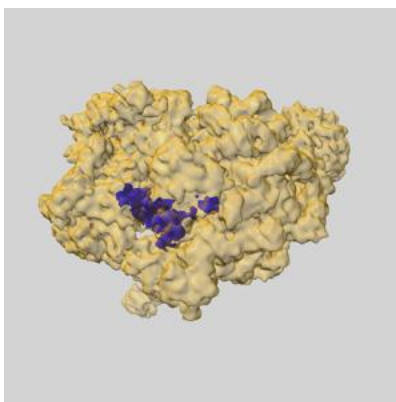


Z

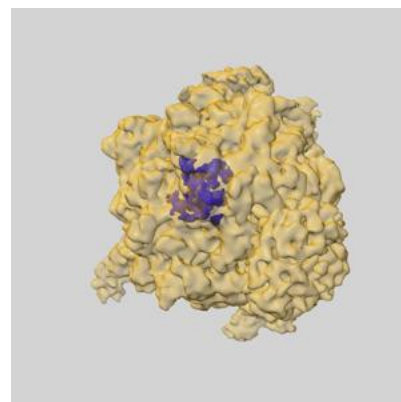
6.6.7 emd_5693_msk_2.map [i](#)



X

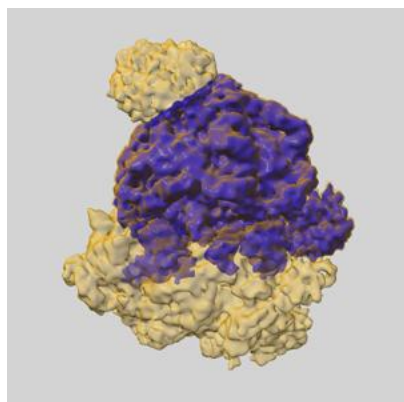


Y

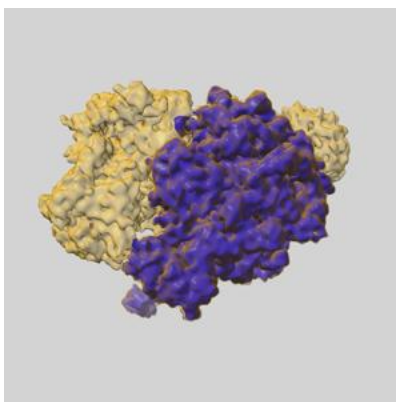


Z

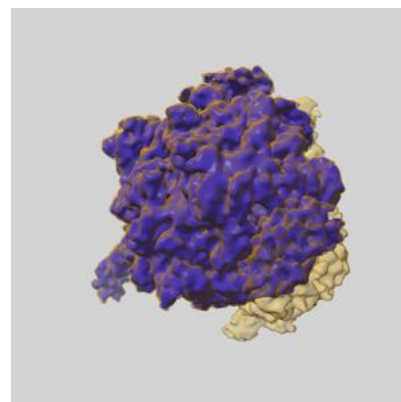
6.6.8 emd_5693_msk_1.map [i](#)



X

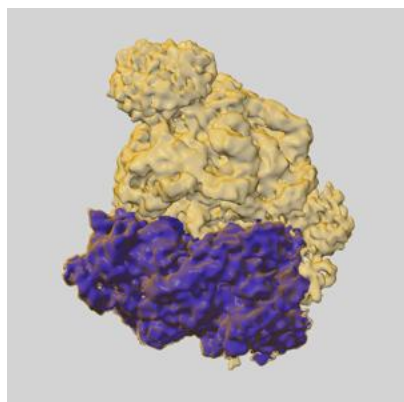


Y

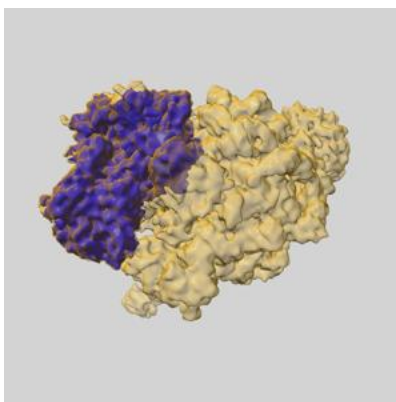


Z

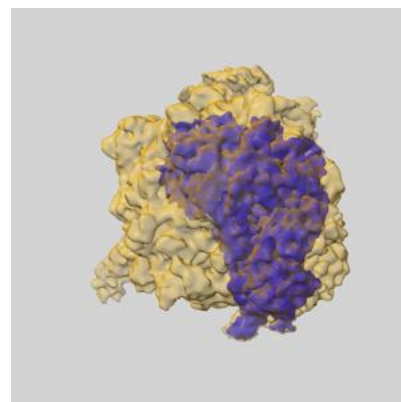
6.6.9 emd_5693_msk_9.map [i](#)



X



Y

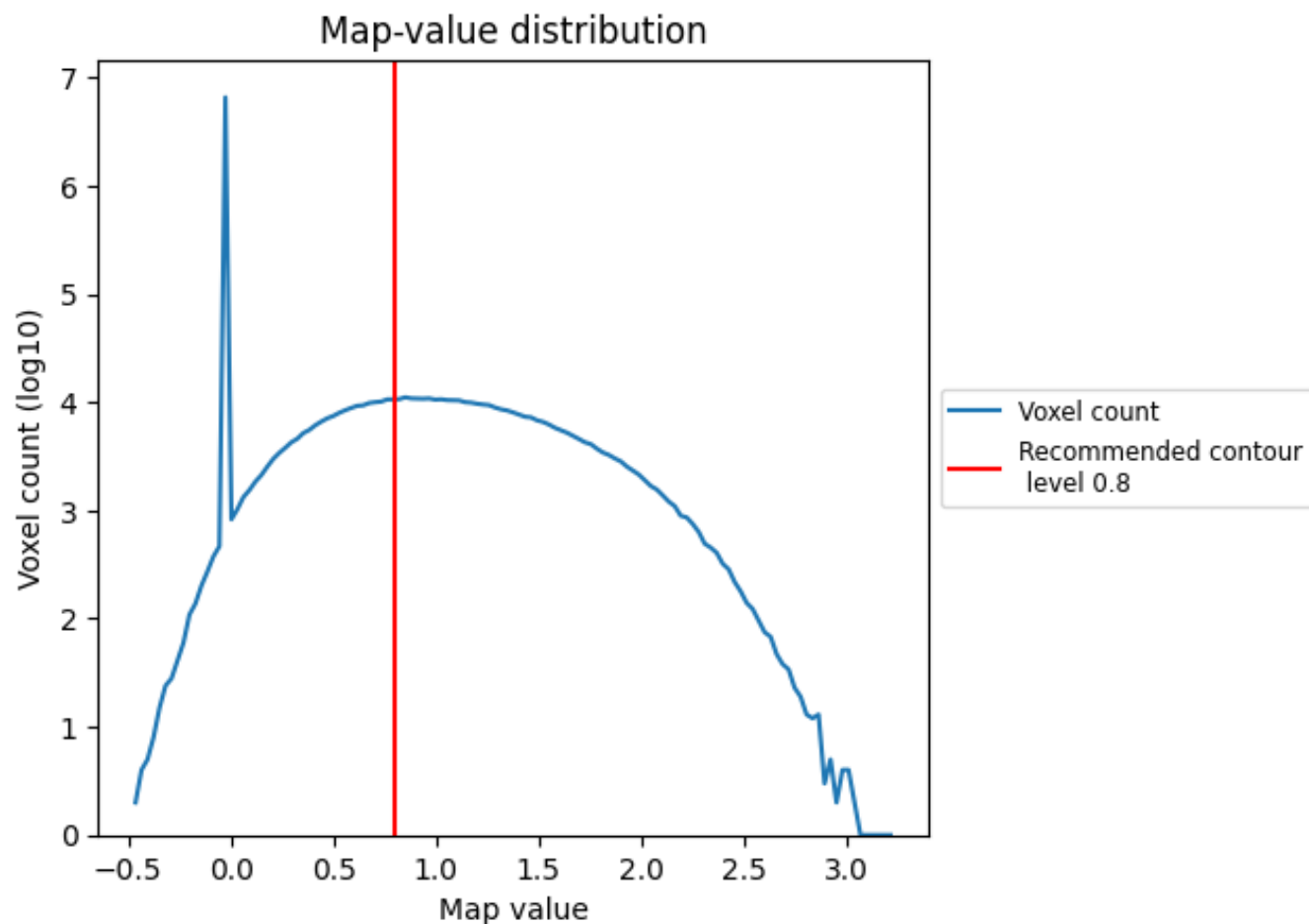


Z

7 Map analysis [i](#)

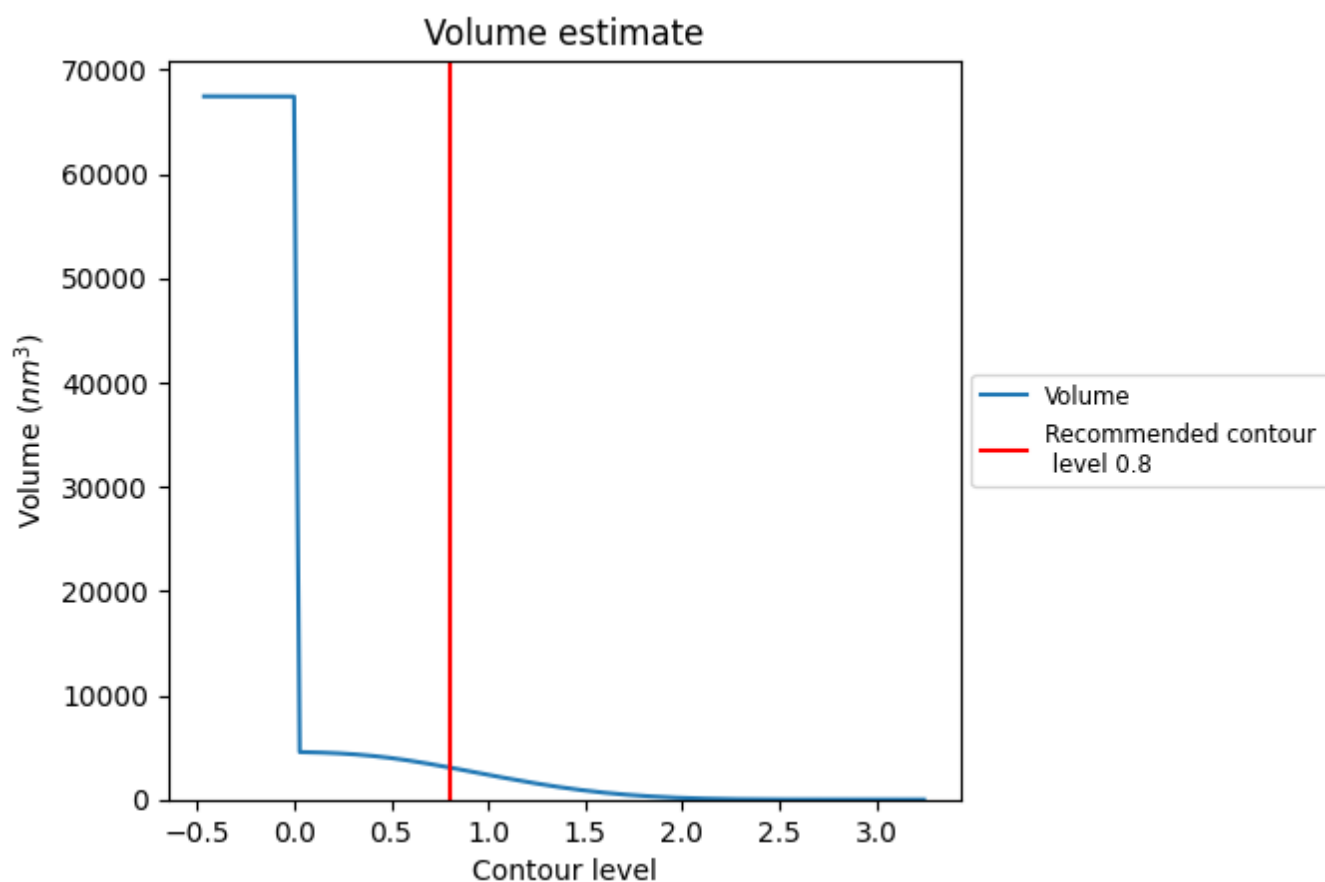
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

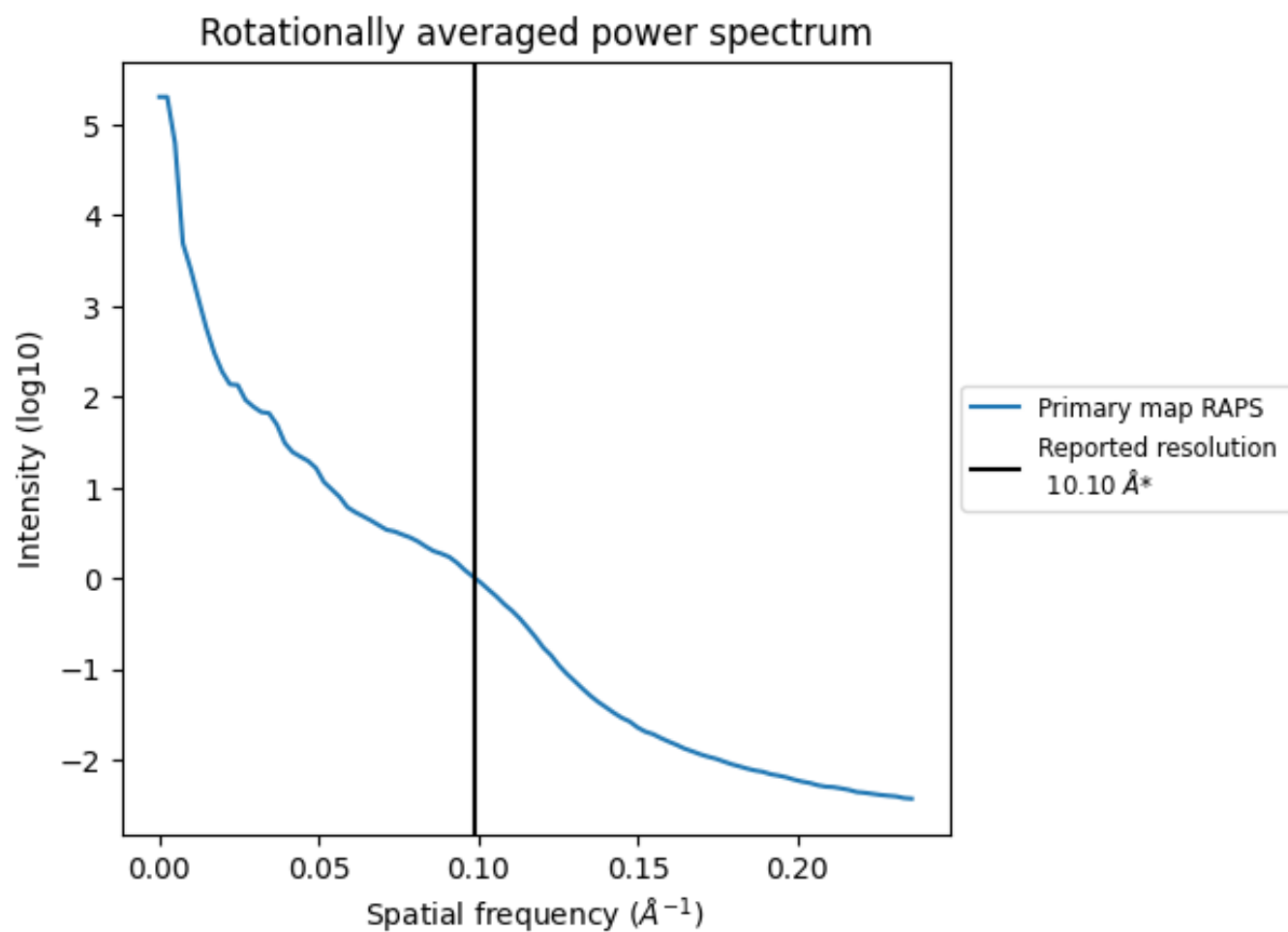
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 3075 nm³; this corresponds to an approximate mass of 2778 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 ⓘ



*Reported resolution corresponds to spatial frequency of 0.099 Å⁻¹

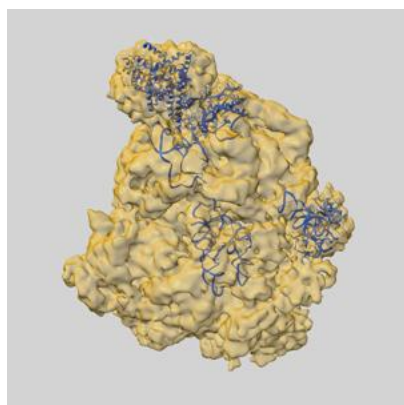
8 Fourier-Shell correlation

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

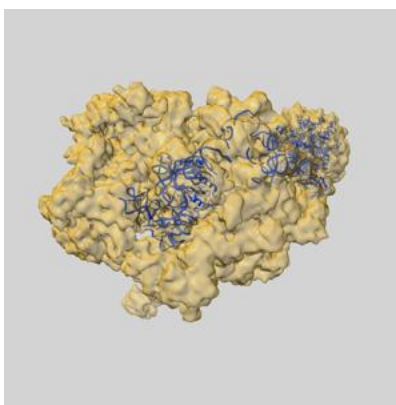
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-5693 and PDB model 3J46. Per-residue inclusion information can be found in [section 3](#) on [page 7](#).

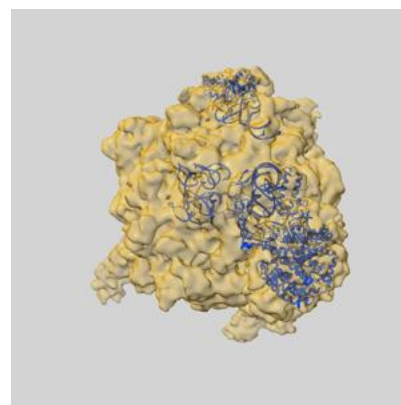
9.1 Map-model overlay [i](#)



X



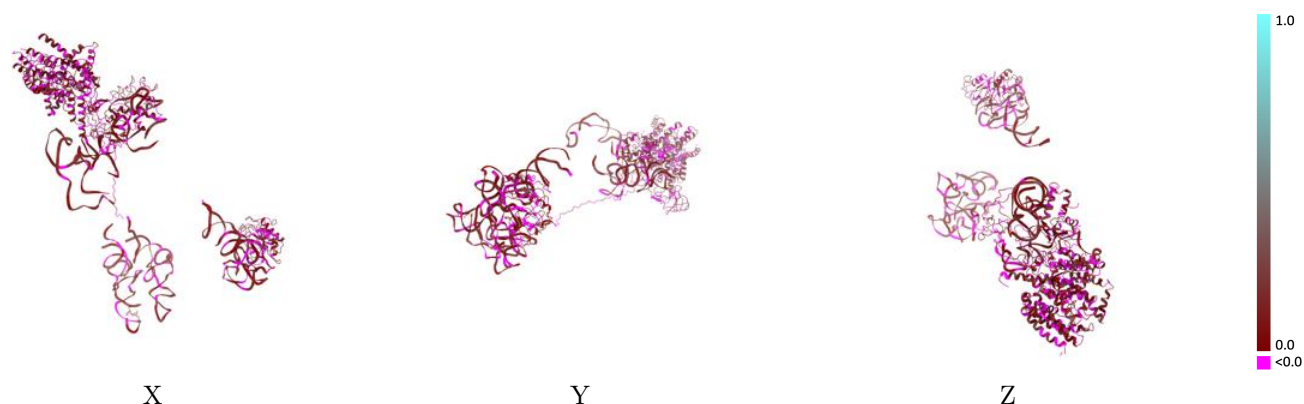
Y



Z

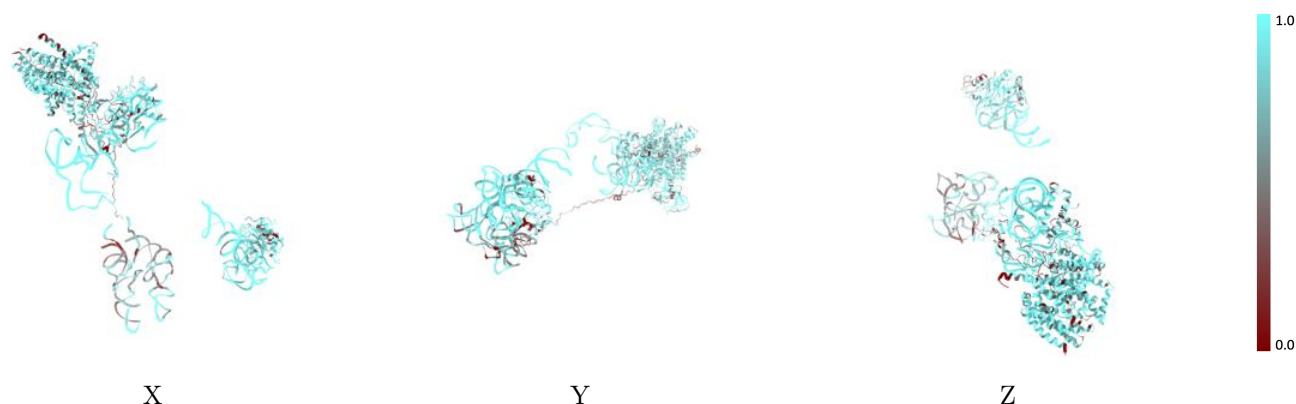
The images above show the 3D surface view of the map at the recommended contour level 0.8 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



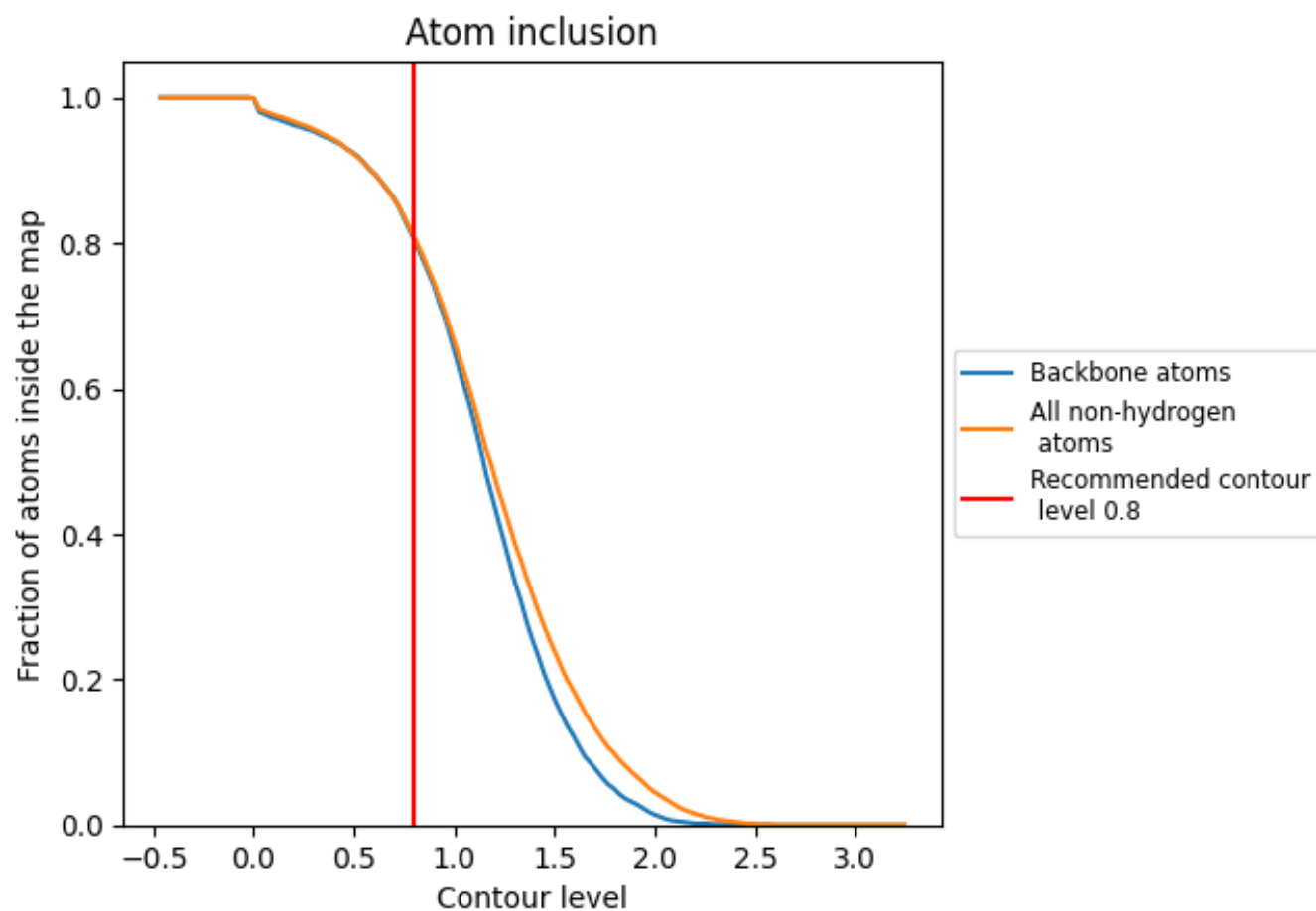
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.8).

9.4 Atom inclusion [i](#)



At the recommended contour level, 80% of all backbone atoms, 81% 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 (0.8) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8080	 0.0790
1	 0.9530	 0.1260
2	 0.9550	 0.1000
3	 0.9590	 0.1440
4	 0.9630	 0.0950
5	 0.8070	 0.0590
E	 0.7240	 0.0410
G	 0.8580	 0.0510
T	 0.7280	 0.0700
U	 0.8110	 0.0750
Y	 0.7910	 0.0870
a	 0.6290	 0.0690
n	 0.5290	 -0.0090
p	 0.6580	 0.0960
y	 0.8140	 0.0630

