



wwPDB EM Validation Summary Report ⓘ

Jun 26, 2025 – 08:45 AM JST

PDB ID : 6JY0 / pdb_00006jy0
EMDB ID : EMD-9896
Title : CryoEM structure of S.typhimurium R-type straight flagellar filament made of FljB (A461V)
Authors : Yamaguchi, T.; Toma, S.; Terahara, N.; Miyata, T.; Minamino, T.; Ashikara, M.; Namba, K.; Kato, T.
Deposited on : 2019-04-25
Resolution : 3.56 Å(reported)

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

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

A user guide is available at

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

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.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) : 2.44

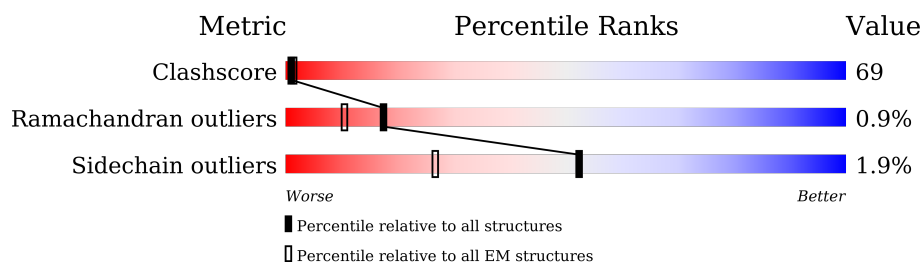
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.56 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	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 $\leq 5\%$. 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	506	
1	B	506	
1	C	506	
1	D	506	
1	E	506	
1	F	506	
1	G	506	
1	H	506	

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Mol	Chain	Length	Quality of chain
1	I	506	
1	J	506	
1	K	506	
1	L	506	
1	M	506	
1	N	506	
1	O	506	
1	P	506	
1	Q	506	
1	R	506	
1	S	506	
1	T	506	
1	U	506	
1	W	506	

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 66594 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 Flagellin.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	B	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	C	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	D	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	E	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	F	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	G	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	H	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	I	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	J	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	K	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	L	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	M	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	N	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	O	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	P	410	Total 3027	C 1833	N 544	O 648	S 2	0	0
1	Q	410	Total 3027	C 1833	N 544	O 648	S 2	0	0

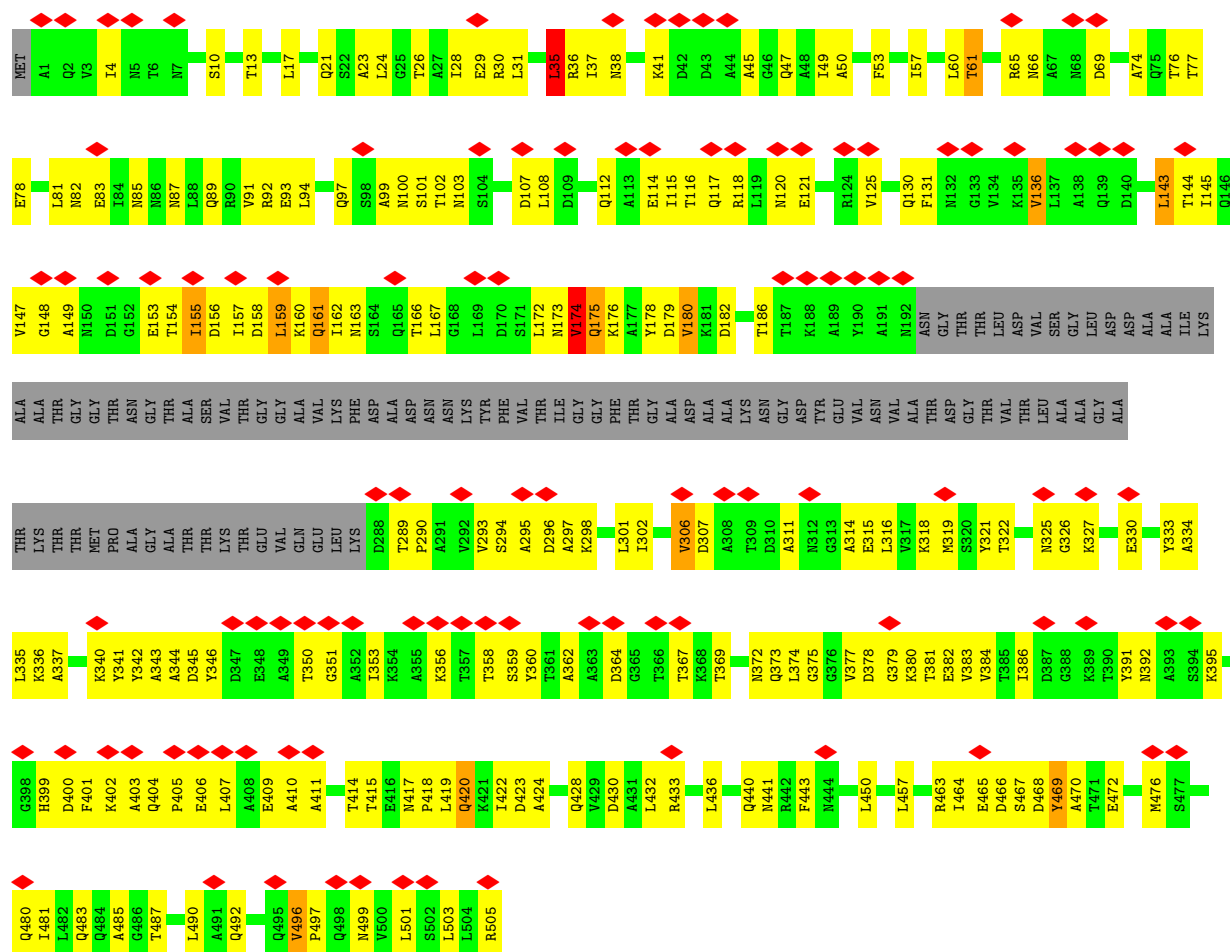
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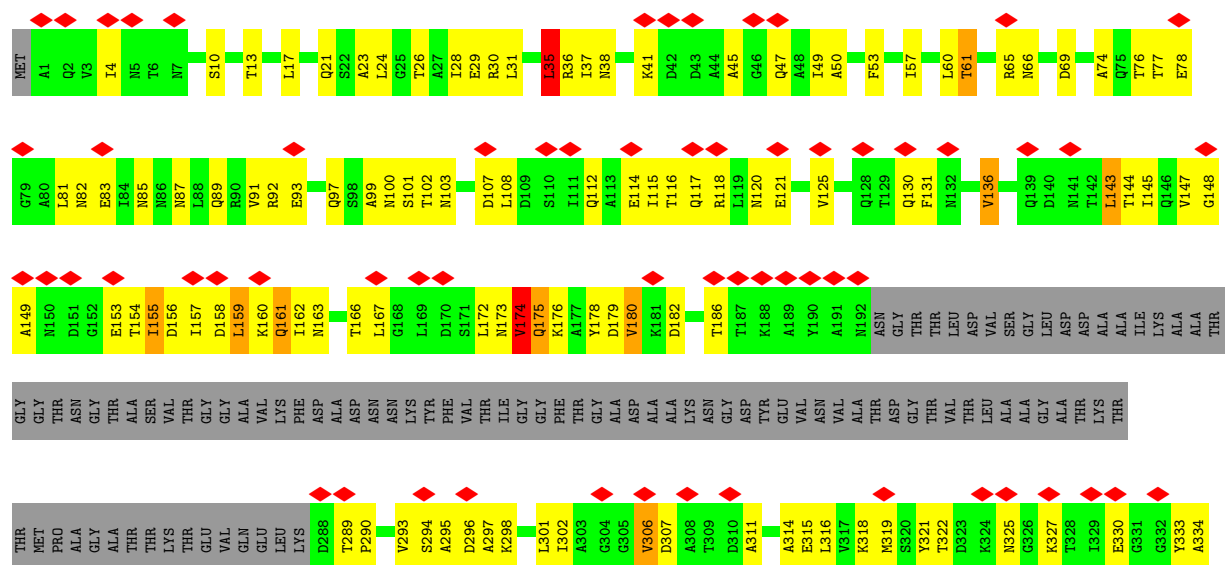
Mol	Chain	Residues	Atoms					AltConf	Trace
1	R	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	S	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	T	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	U	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	W	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		

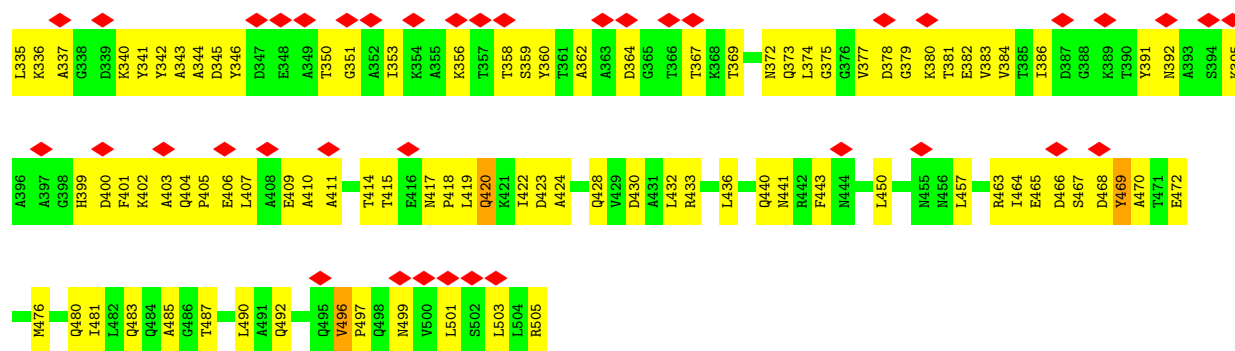
There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	460	VAL	ALA	engineered mutation	UNP Q549S3
B	460	VAL	ALA	engineered mutation	UNP Q549S3
C	460	VAL	ALA	engineered mutation	UNP Q549S3
D	460	VAL	ALA	engineered mutation	UNP Q549S3
E	460	VAL	ALA	engineered mutation	UNP Q549S3
F	460	VAL	ALA	engineered mutation	UNP Q549S3
G	460	VAL	ALA	engineered mutation	UNP Q549S3
H	460	VAL	ALA	engineered mutation	UNP Q549S3
I	460	VAL	ALA	engineered mutation	UNP Q549S3
J	460	VAL	ALA	engineered mutation	UNP Q549S3
K	460	VAL	ALA	engineered mutation	UNP Q549S3
L	460	VAL	ALA	engineered mutation	UNP Q549S3
M	460	VAL	ALA	engineered mutation	UNP Q549S3
N	460	VAL	ALA	engineered mutation	UNP Q549S3
O	460	VAL	ALA	engineered mutation	UNP Q549S3
P	460	VAL	ALA	engineered mutation	UNP Q549S3
Q	460	VAL	ALA	engineered mutation	UNP Q549S3
R	460	VAL	ALA	engineered mutation	UNP Q549S3
S	460	VAL	ALA	engineered mutation	UNP Q549S3
T	460	VAL	ALA	engineered mutation	UNP Q549S3
U	460	VAL	ALA	engineered mutation	UNP Q549S3
W	460	VAL	ALA	engineered mutation	UNP Q549S3

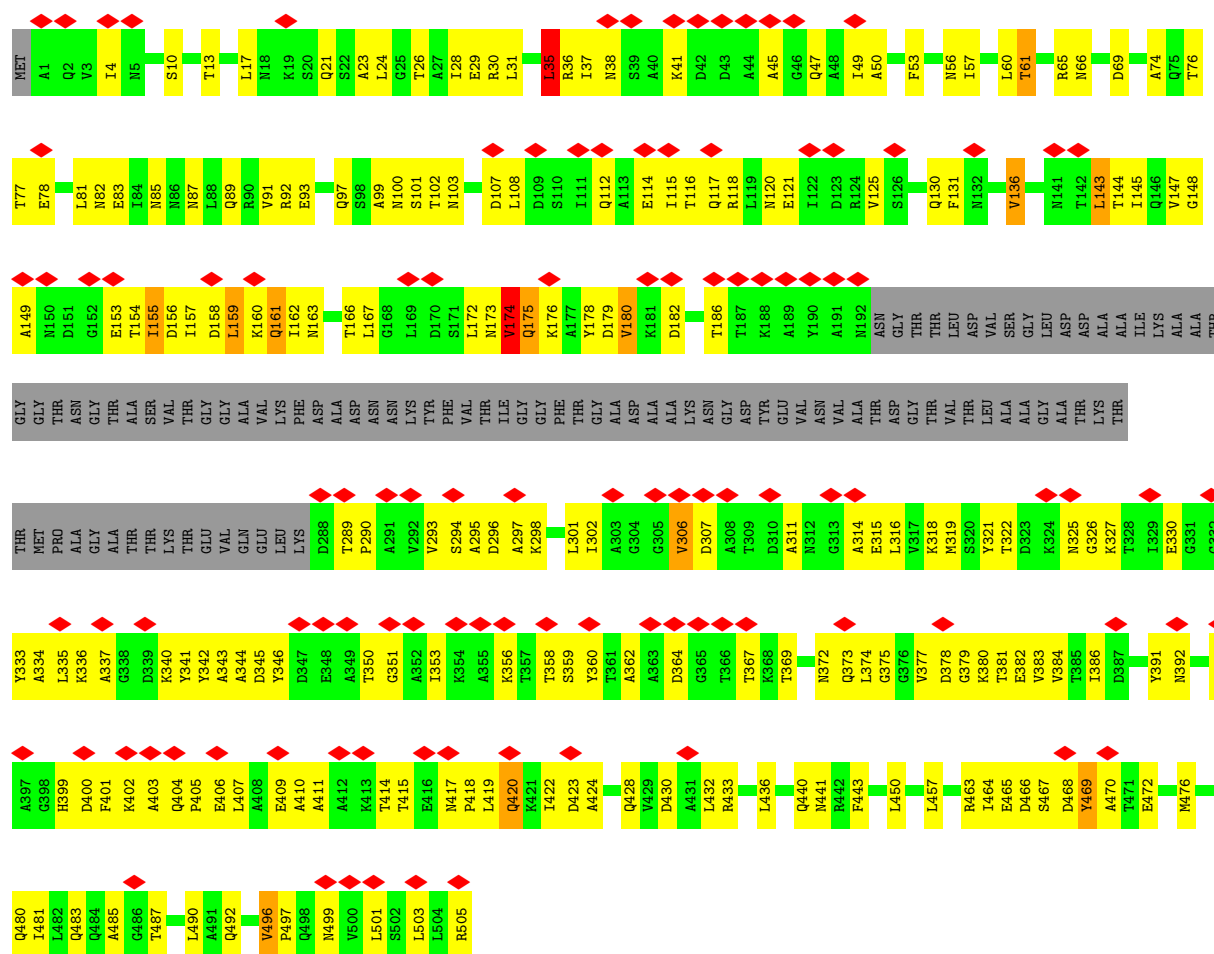


• Molecule 1: Flagellin

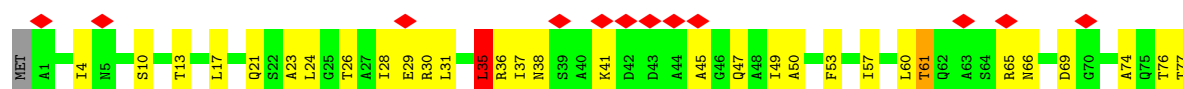


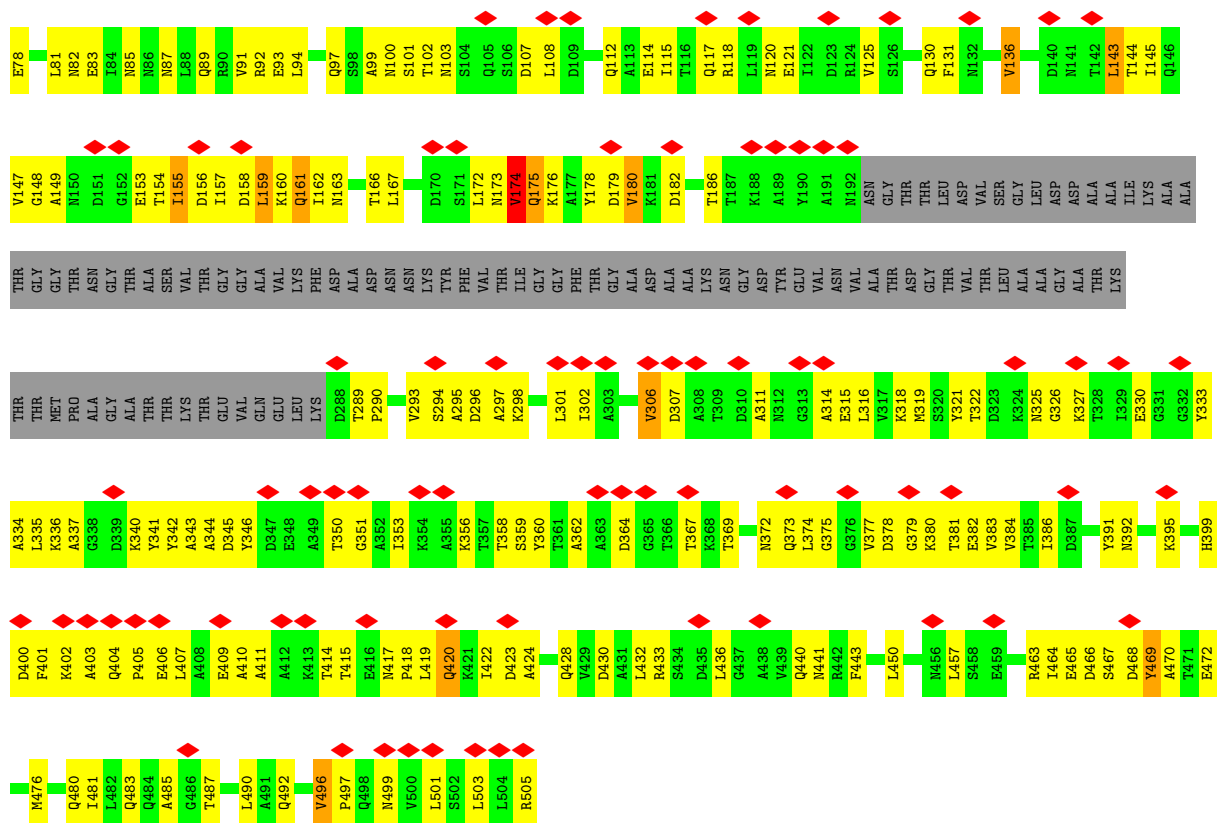


• Molecule 1: Flagellin

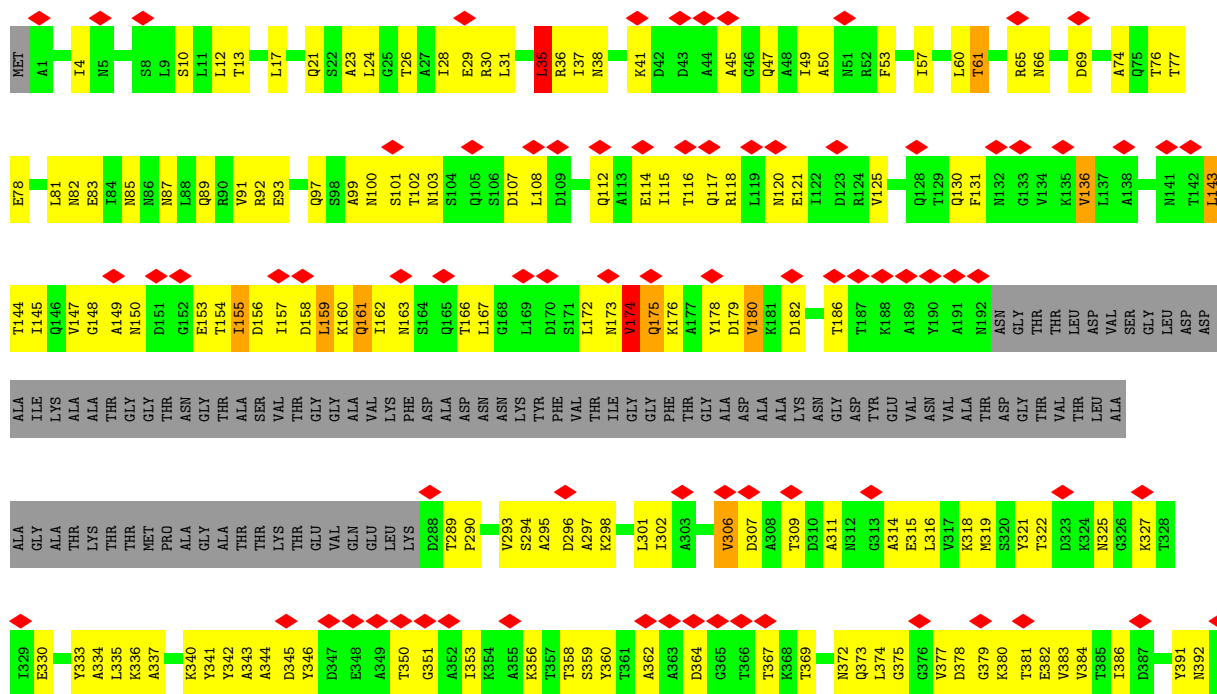


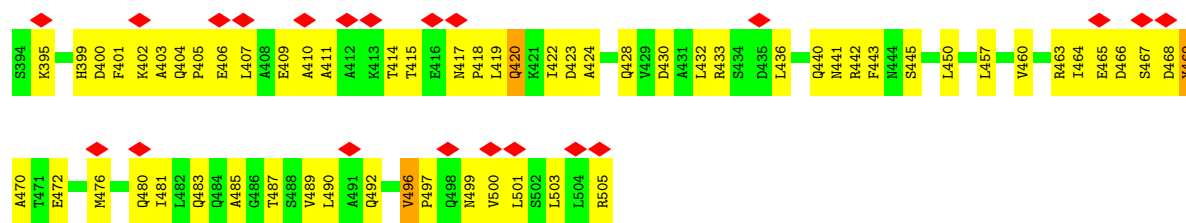
• Molecule 1: Flagellin



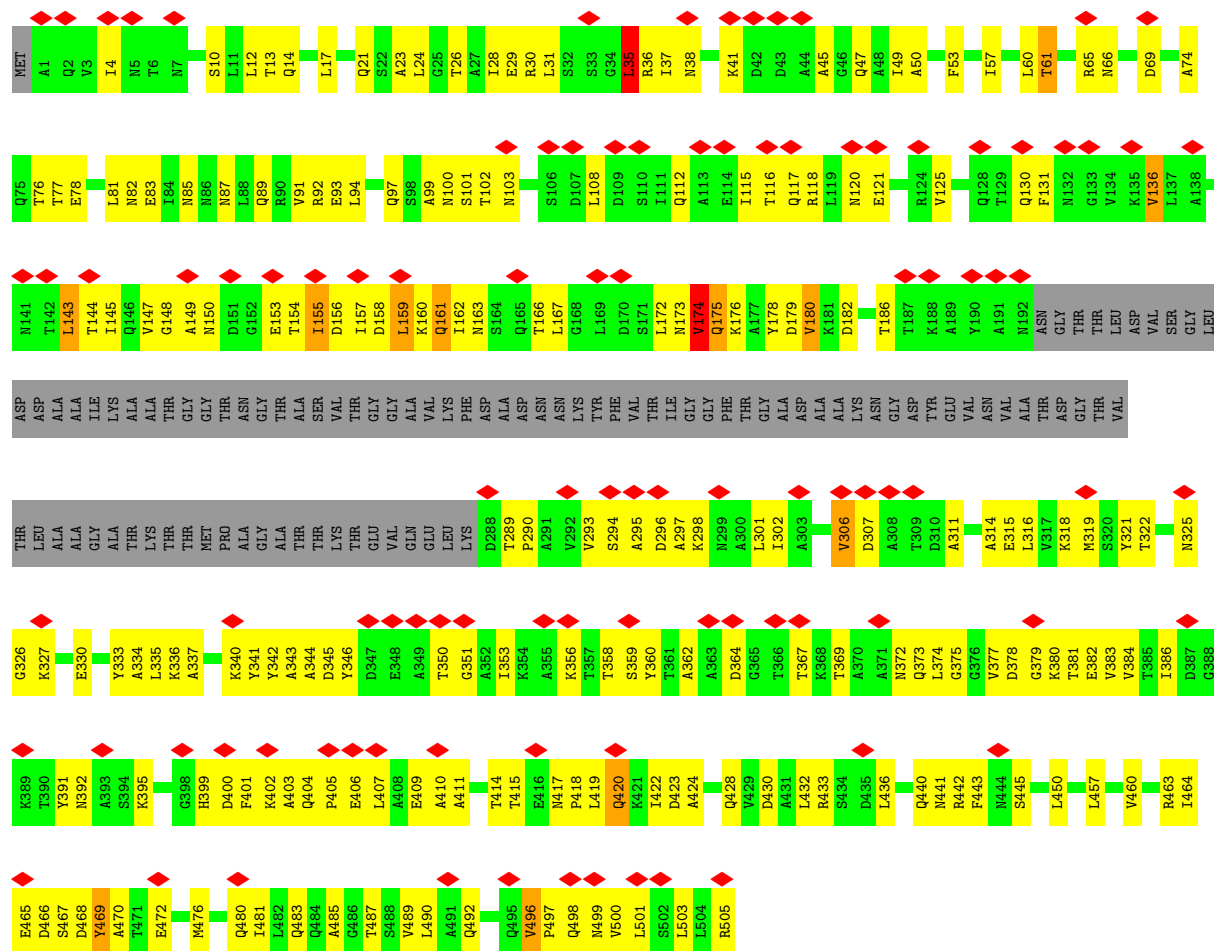


• Molecule 1: Flagellin

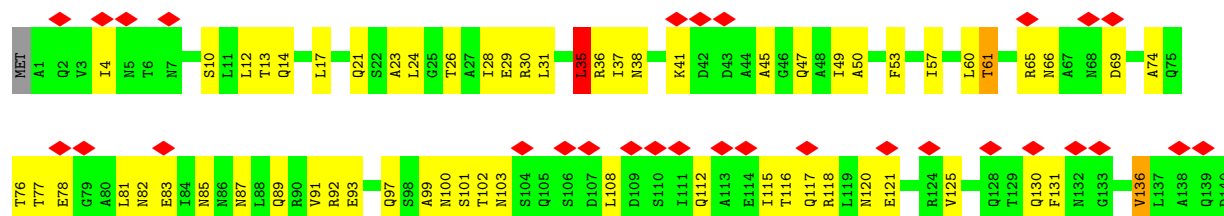




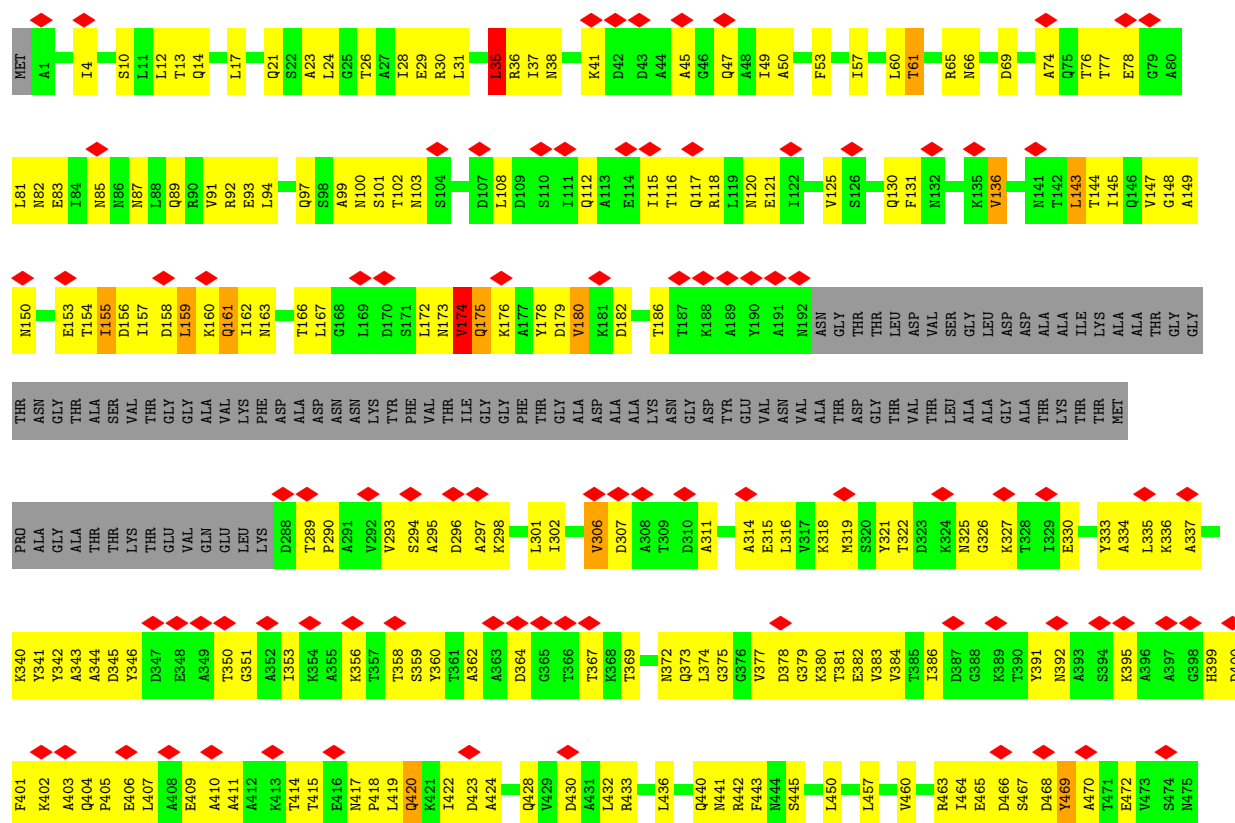
• Molecule 1: Flagellin



• Molecule 1: Flagellin

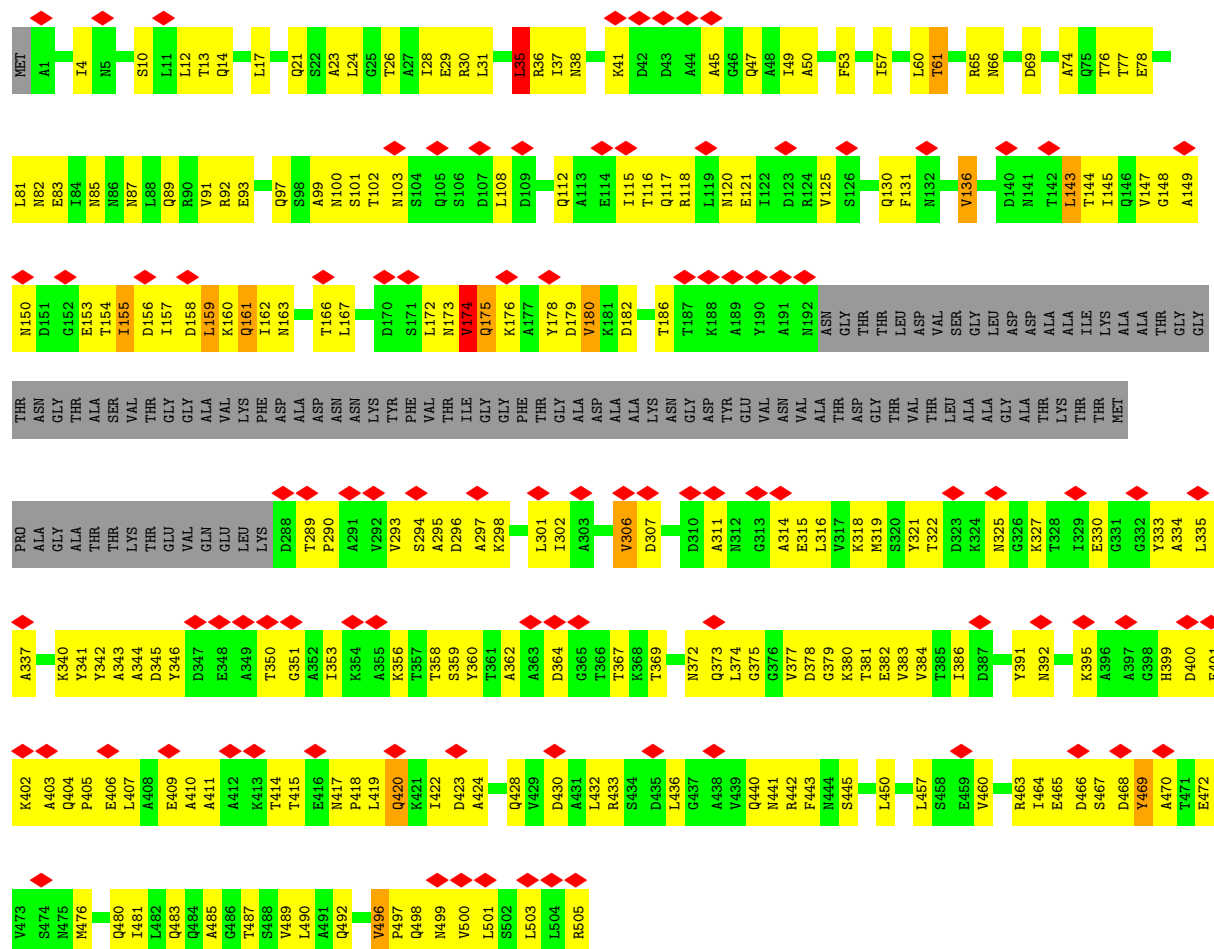


- Molecule 1: Flagellin

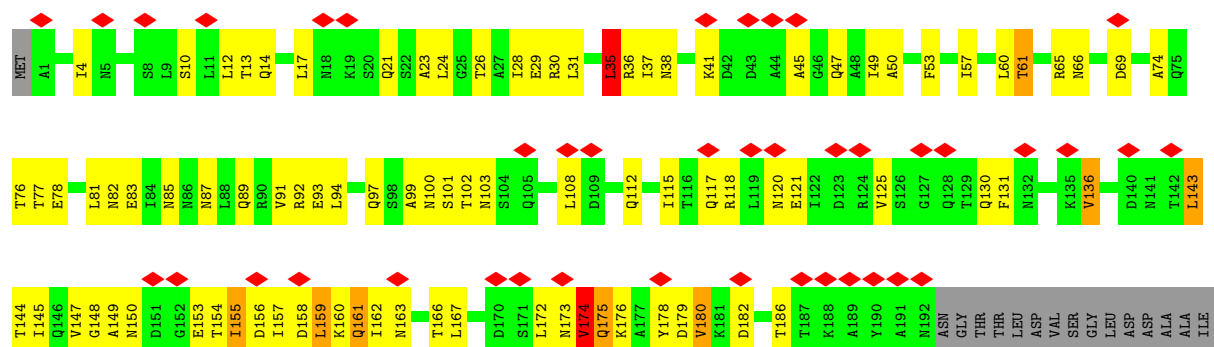


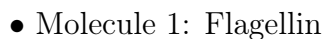


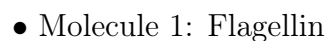
• Molecule 1: Flagellin

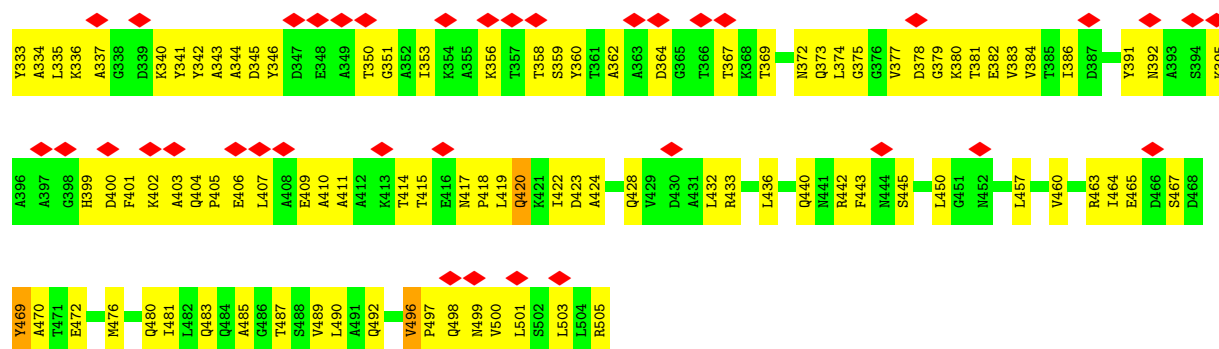


• Molecule 1: Flagellin

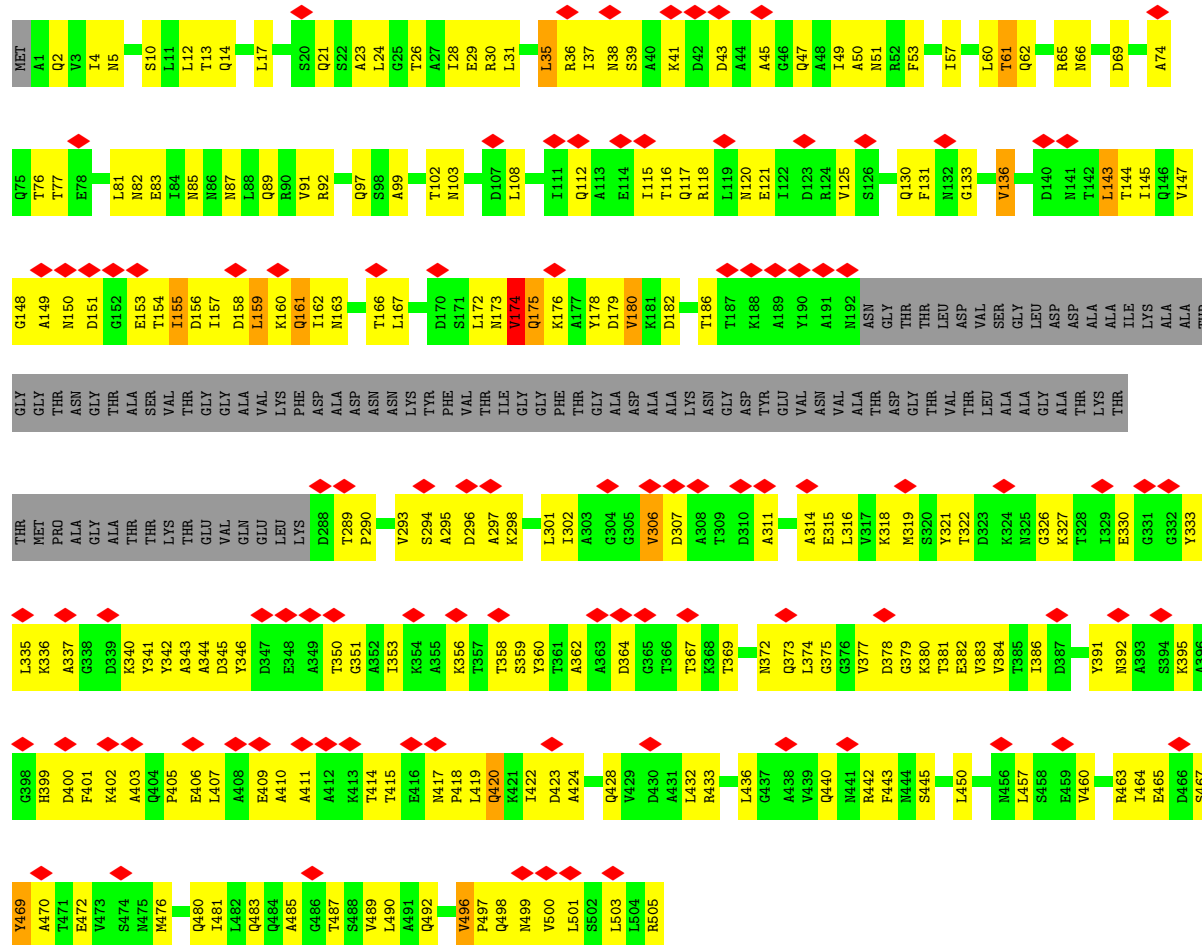






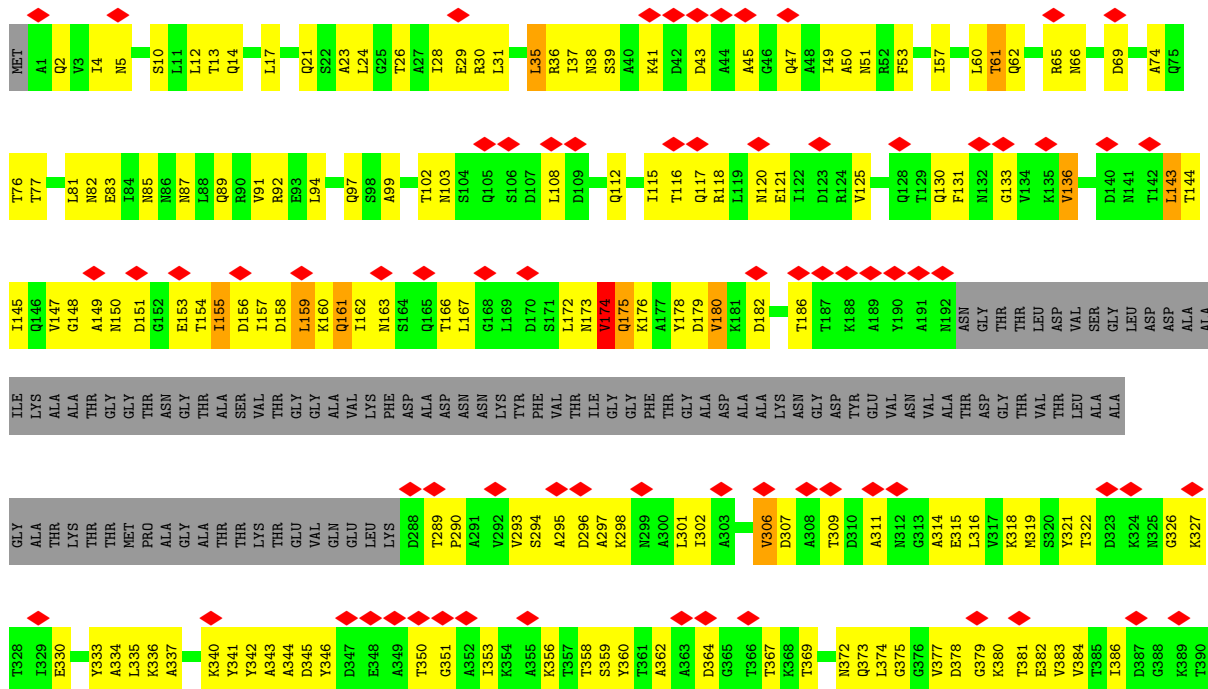


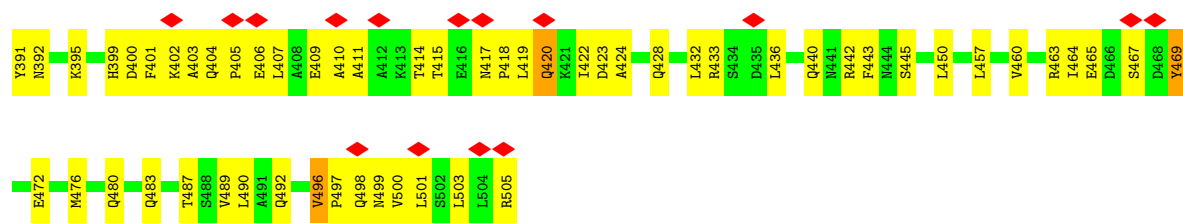
• Molecule 1: Flagellin



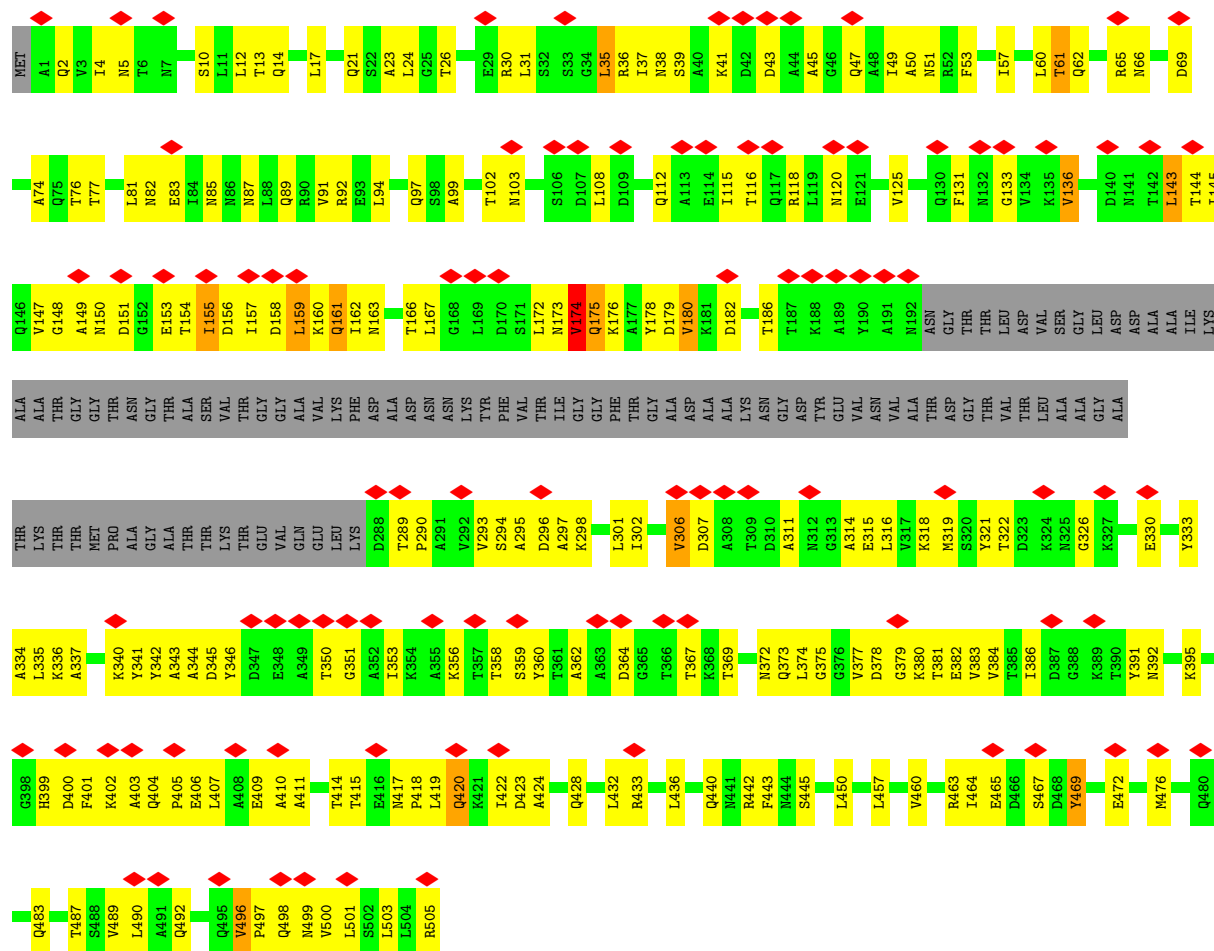
• Molecule 1: Flagellin



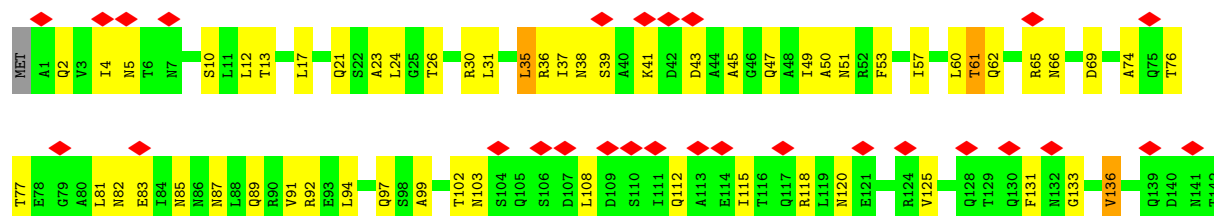




• Molecule 1: Flagellin



• Molecule 1: Flagellin



L490	L491	A491	Q492	V496	P497	Q498	V500	L501	S502	L503	L504	R505	P405	E406	L407	A408	E409	A410	A411	A412	E413	T414	T415	E416	N417	F418	L419	Q420	R421	I422	D423	A424	Q428	L432	R433	S434	D435	L436	Q440	N441	R442	F443	N444	S445	L450	L457	V460	R463	I464	E465	D466	S467	D468	Y469	E472	N476	Q483	G486	T487	S488	V489	K340	Y341	Y342	A343	A344	D345	Y346	D347	E348	A349	T350	G351	A352	K353	R354	A355	K356	T357	T358	S359	Y360	T361	A362	A363	D364	G365	T366	T367	K368	T369	A370	A371	N372	Q373	L374	G375	G376	V377	D378	L379	G379	K380	T381	E382	V383	Y384	T385	I386	D387	Y391	N392	K395	H399	D400	F401	K402	A403	Q404	K306	D307	A308	T309	D310	A311	N312	G313	A314	E315	L316	V317	K318	K319	S320	Y321	T322	D323	K324	K327	T328	T329	E330	Y333	A334	L335	K336	A337
THR	ASN	GLY	THR	ALA	SER	VAL	THR	THR	THR	GLY	GLY	ALA	VAL	LYS	PHE	ASP	ALA	ASP	ASN	ASN	LYS	TYR	PHE	VAL	THR	ILE	GLY	GLY	PHE	THR	GLY	ALA	ASP	ALA	ALA	THR	ASP	GLY	THR	VAL	THR	THR	LEU	ALA	ALA	GLY	ALA	THR	LYS	THR	THR	MET																																																																																															

4 Experimental information

Property	Value	Source
EM reconstruction method	HELICAL	Depositor
Imposed symmetry	HELICAL, twist=65.813°, rise=4.86758 Å, axial sym=C1	Depositor
Number of segments used	114110	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 ($e^-/\text{\AA}^2$)	10.3	Depositor
Minimum defocus (nm)	210	Depositor
Maximum defocus (nm)	1600	Depositor
Magnification	72273	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.167	Depositor
Minimum map value	-0.107	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.009	Depositor
Recommended contour level	0.032	Depositor
Map size (Å)	423.99997, 423.99997, 423.99997	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.55	0/3044	1.00	16/4128 (0.4%)
1	B	0.55	0/3044	1.00	16/4128 (0.4%)
1	C	0.55	0/3044	1.00	16/4128 (0.4%)
1	D	0.55	0/3044	1.00	16/4128 (0.4%)
1	E	0.55	0/3044	1.00	16/4128 (0.4%)
1	F	0.55	0/3044	1.01	16/4128 (0.4%)
1	G	0.55	0/3044	1.01	16/4128 (0.4%)
1	H	0.55	0/3044	1.00	16/4128 (0.4%)
1	I	0.55	0/3044	1.00	16/4128 (0.4%)
1	J	0.55	0/3044	1.01	16/4128 (0.4%)
1	K	0.55	0/3044	1.00	16/4128 (0.4%)
1	L	0.55	0/3044	1.00	16/4128 (0.4%)
1	M	0.55	0/3044	1.00	16/4128 (0.4%)
1	N	0.55	0/3044	1.00	16/4128 (0.4%)
1	O	0.55	0/3044	1.00	16/4128 (0.4%)
1	P	0.55	0/3044	1.01	16/4128 (0.4%)
1	Q	0.55	0/3044	1.00	16/4128 (0.4%)
1	R	0.55	0/3044	1.00	16/4128 (0.4%)
1	S	0.55	0/3044	1.01	16/4128 (0.4%)
1	T	0.55	0/3044	1.01	16/4128 (0.4%)
1	U	0.55	0/3044	1.00	16/4128 (0.4%)
1	W	0.55	0/3044	1.00	16/4128 (0.4%)
All	All	0.55	0/66968	1.00	352/90816 (0.4%)

There are no bond length outliers.

The worst 5 of 352 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	S	149	ALA	N-CA-C	-8.98	102.09	113.23
1	G	149	ALA	N-CA-C	-8.95	102.13	113.23
1	D	149	ALA	N-CA-C	-8.93	102.16	113.23
1	K	149	ALA	N-CA-C	-8.93	102.16	113.23
1	Q	149	ALA	N-CA-C	-8.93	102.16	113.23

There are no chirality outliers.

There are no planarity outliers.

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	3027	0	2999	453	0
1	B	3027	0	2999	447	0
1	C	3027	0	2999	452	0
1	D	3027	0	2999	450	0
1	E	3027	0	2999	449	0
1	F	3027	0	2999	475	0
1	G	3027	0	2999	477	0
1	H	3027	0	2999	473	0
1	I	3027	0	2999	475	0
1	J	3027	0	2999	474	0
1	K	3027	0	2999	477	0
1	L	3027	0	2999	479	0
1	M	3027	0	2999	465	0
1	N	3027	0	2999	475	0
1	O	3027	0	2999	473	0
1	P	3027	0	2999	475	0
1	Q	3027	0	2999	480	0
1	R	3027	0	2999	454	0
1	S	3027	0	2999	454	0
1	T	3027	0	2999	454	0
1	U	3027	0	2999	456	0
1	W	3027	0	2999	457	0
All	All	66594	0	65978	9135	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 69.

The worst 5 of 9135 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:186:THR:CG2	1:B:290:PRO:HA	1.25	1.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:Q:186:THR:CG2	1:Q:290:PRO:HA	1.25	1.60
1:O:186:THR:CG2	1:O:290:PRO:HA	1.25	1.60
1:R:186:THR:CG2	1:R:290:PRO:HA	1.25	1.59
1:D:186:THR:CG2	1:D:290:PRO:HA	1.25	1.59

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	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	B	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	C	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	19	53
1	D	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	E	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	F	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	19	53
1	G	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	H	406/506 (80%)	381 (94%)	21 (5%)	4 (1%)	13	47
1	I	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	J	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	19	53
1	K	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	L	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	M	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	N	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	O	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	P	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	Q	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	R	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	S	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	13	47
1	T	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	19	53
1	U	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	19	53
1	W	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	19	53
All	All	8932/11132 (80%)	8361 (94%)	489 (6%)	82 (1%)	17	49

5 of 82 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	163	ASN
1	B	163	ASN
1	C	163	ASN
1	D	163	ASN
1	E	163	ASN

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	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	B	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	C	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	D	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	E	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	F	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	G	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	H	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	I	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	J	322/388 (83%)	316 (98%)	6 (2%)	52	73

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	K	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	L	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	M	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	N	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	O	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	P	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	Q	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	R	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	S	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	T	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	U	322/388 (83%)	316 (98%)	6 (2%)	52	73
1	W	322/388 (83%)	316 (98%)	6 (2%)	52	73
All	All	7084/8536 (83%)	6952 (98%)	132 (2%)	52	73

5 of 132 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	T	57	ILE
1	T	180	VAL
1	W	174	VAL
1	I	35	LEU
1	H	180	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 346 such sidechains are listed below:

Mol	Chain	Res	Type
1	O	440	GLN
1	S	85	ASN
1	P	75	GLN
1	Q	175	GLN
1	T	51	ASN

5.3.3 RNA ⓘ

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](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

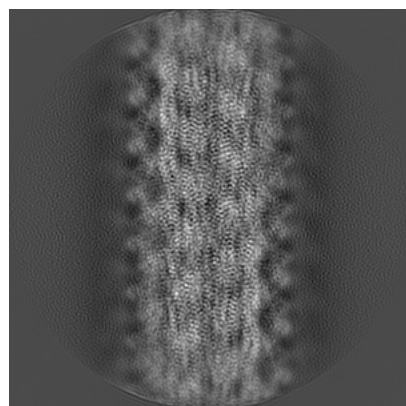
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-9896. These allow visual inspection of the internal detail of the map and identification of artifacts.

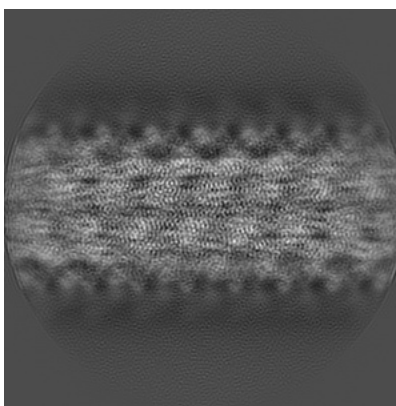
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

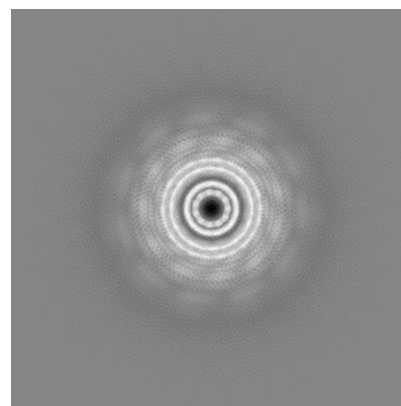
6.1.1 Primary map



X

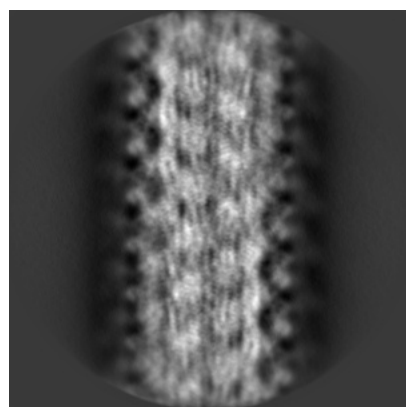


Y

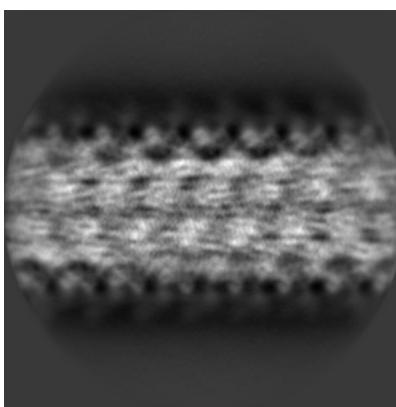


Z

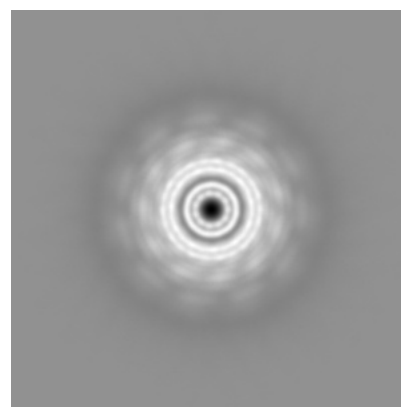
6.1.2 Raw map



X



Y

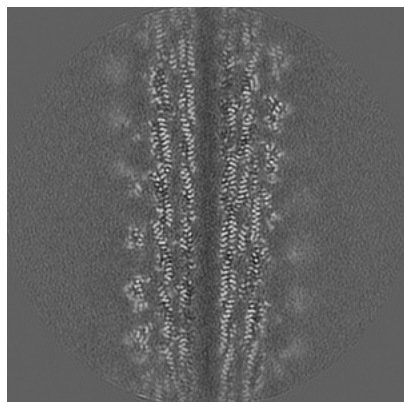


Z

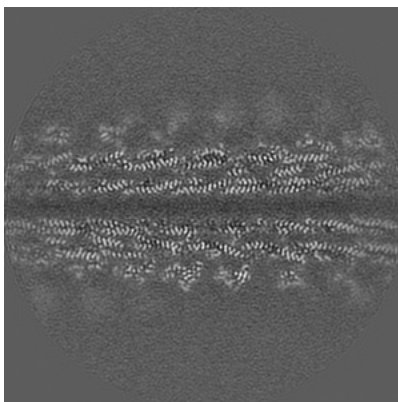
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

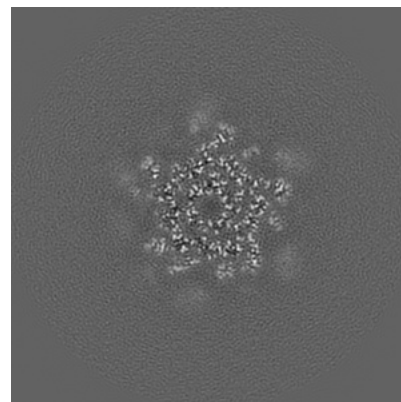
6.2.1 Primary map



X Index: 200

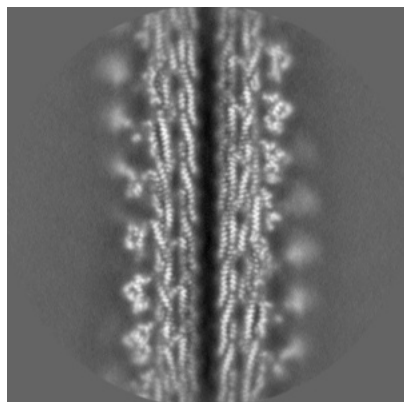


Y Index: 200

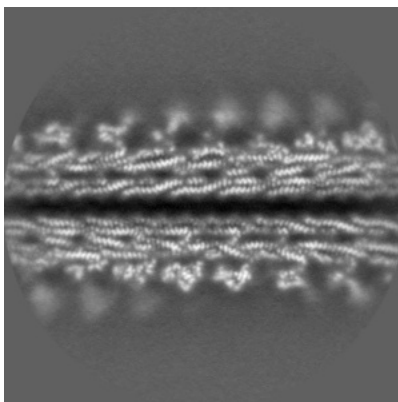


Z Index: 200

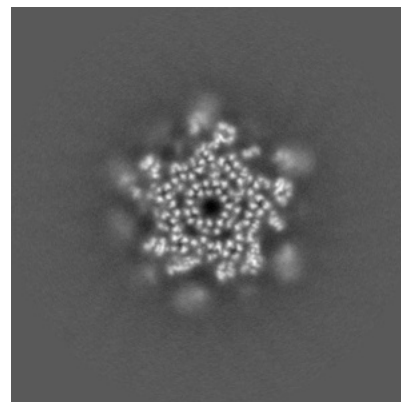
6.2.2 Raw map



X Index: 200



Y Index: 200

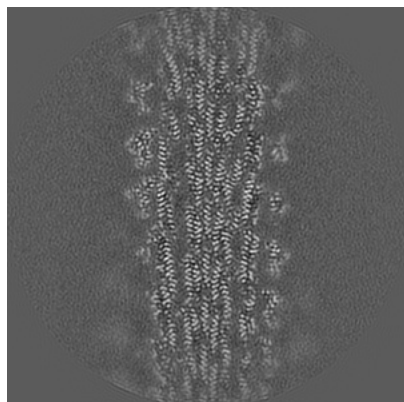


Z Index: 200

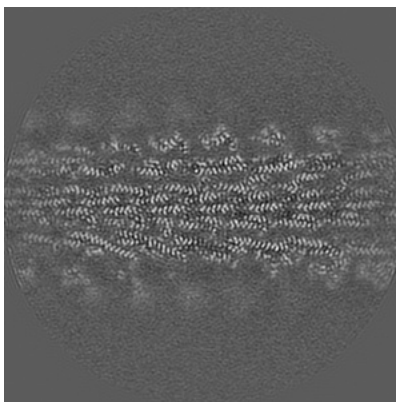
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

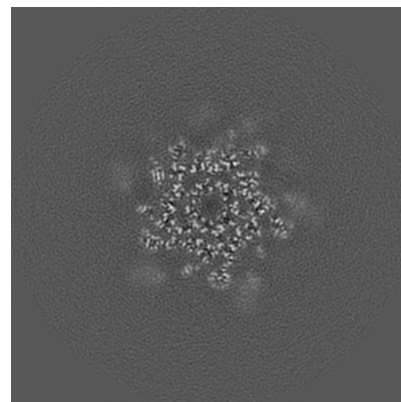
6.3.1 Primary map



X Index: 216

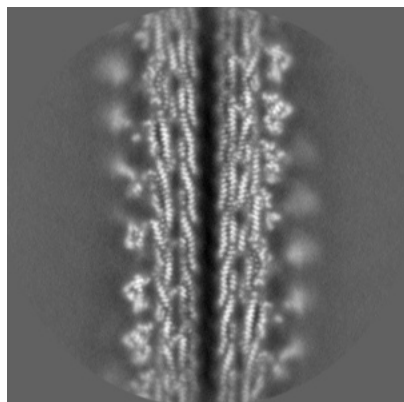


Y Index: 182

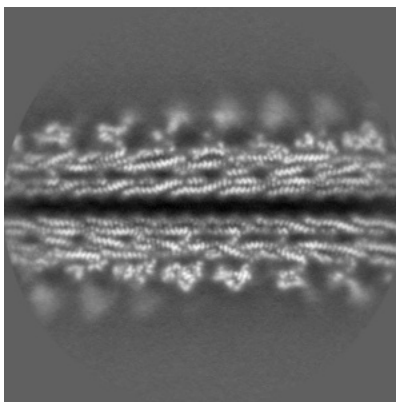


Z Index: 216

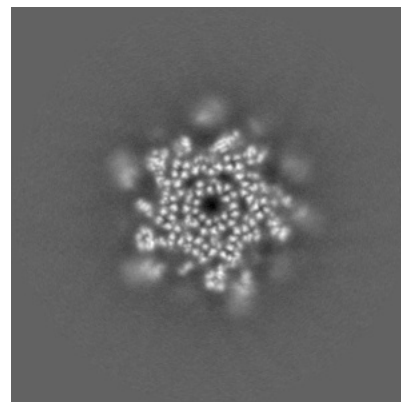
6.3.2 Raw map



X Index: 199



Y Index: 200

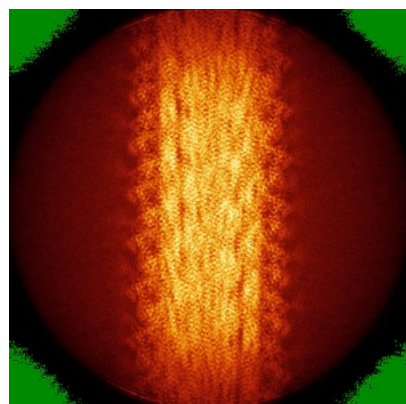


Z Index: 163

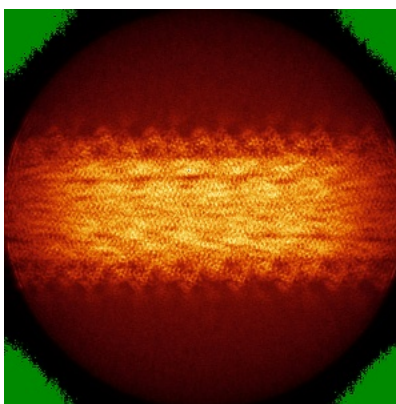
The images above show the largest variance slices of the map in three orthogonal directions.

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

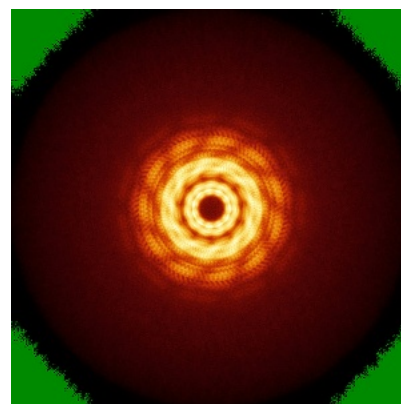
6.4.1 Primary map



X

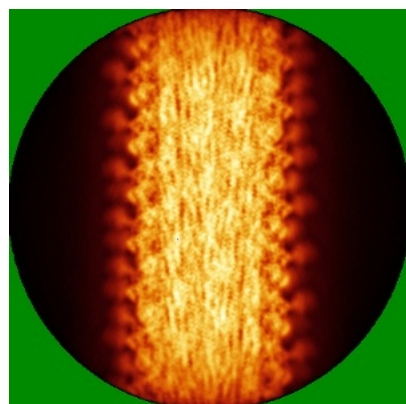


Y

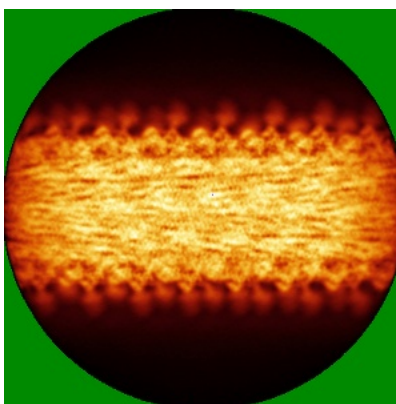


Z

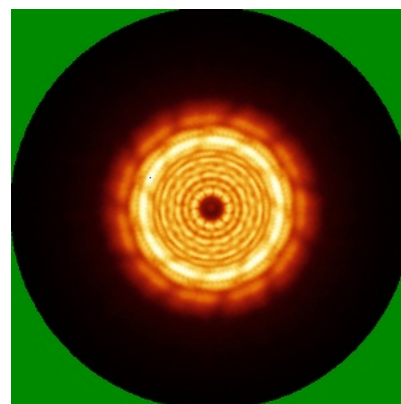
6.4.2 Raw map



X



Y

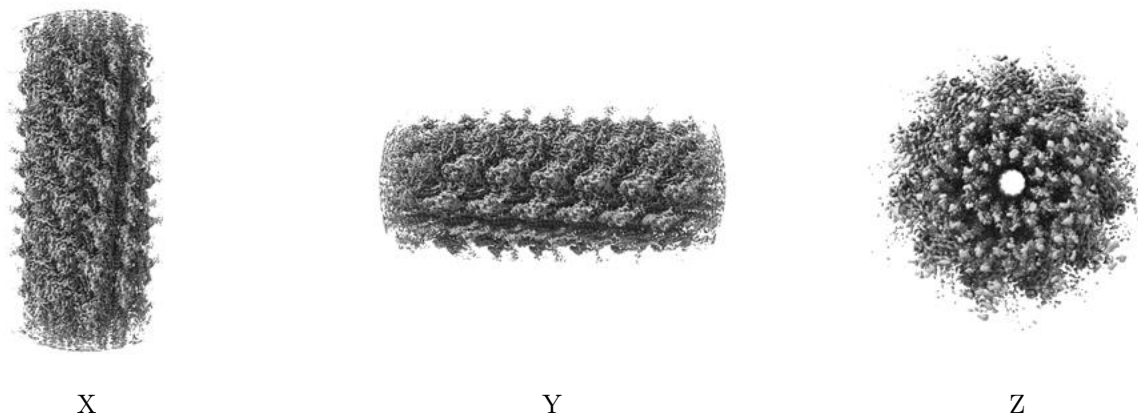


Z

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.

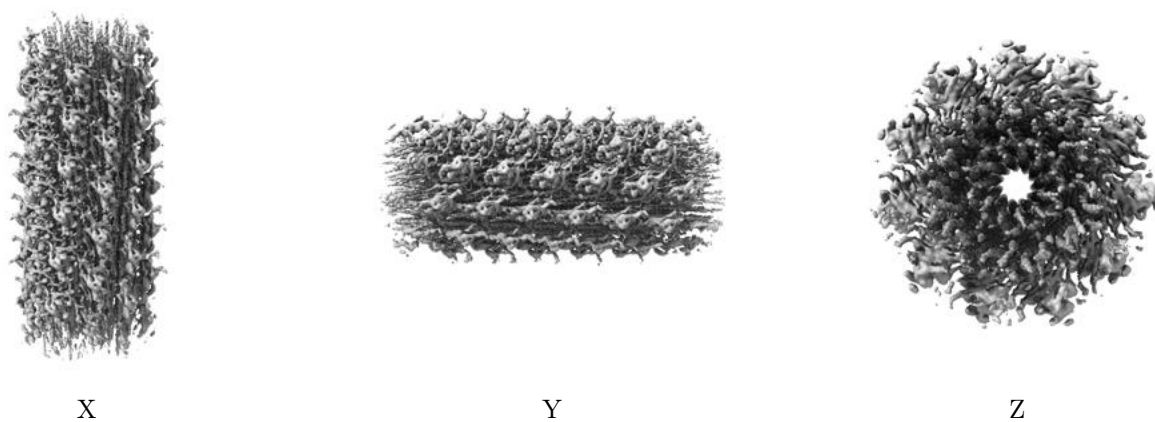
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.032. 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.

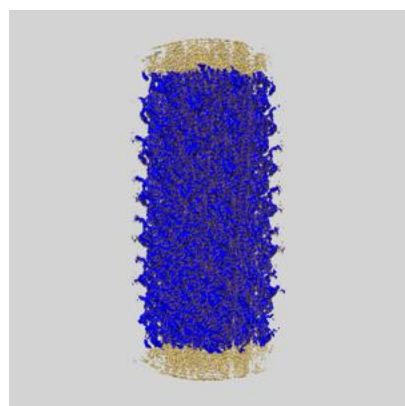
6.6 Mask visualisation [i](#)

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

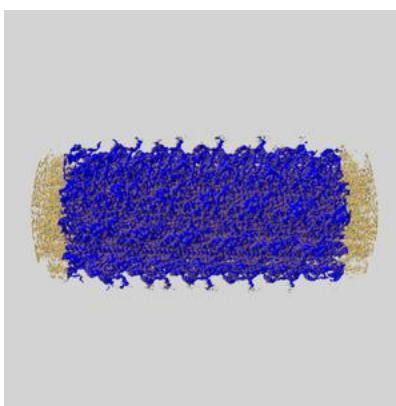
A mask typically either:

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

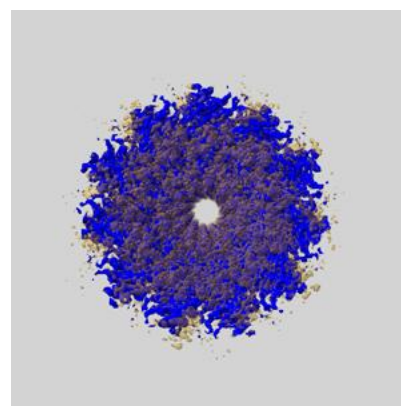
6.6.1 emd_9896_msk_1.map [i](#)



X



Y

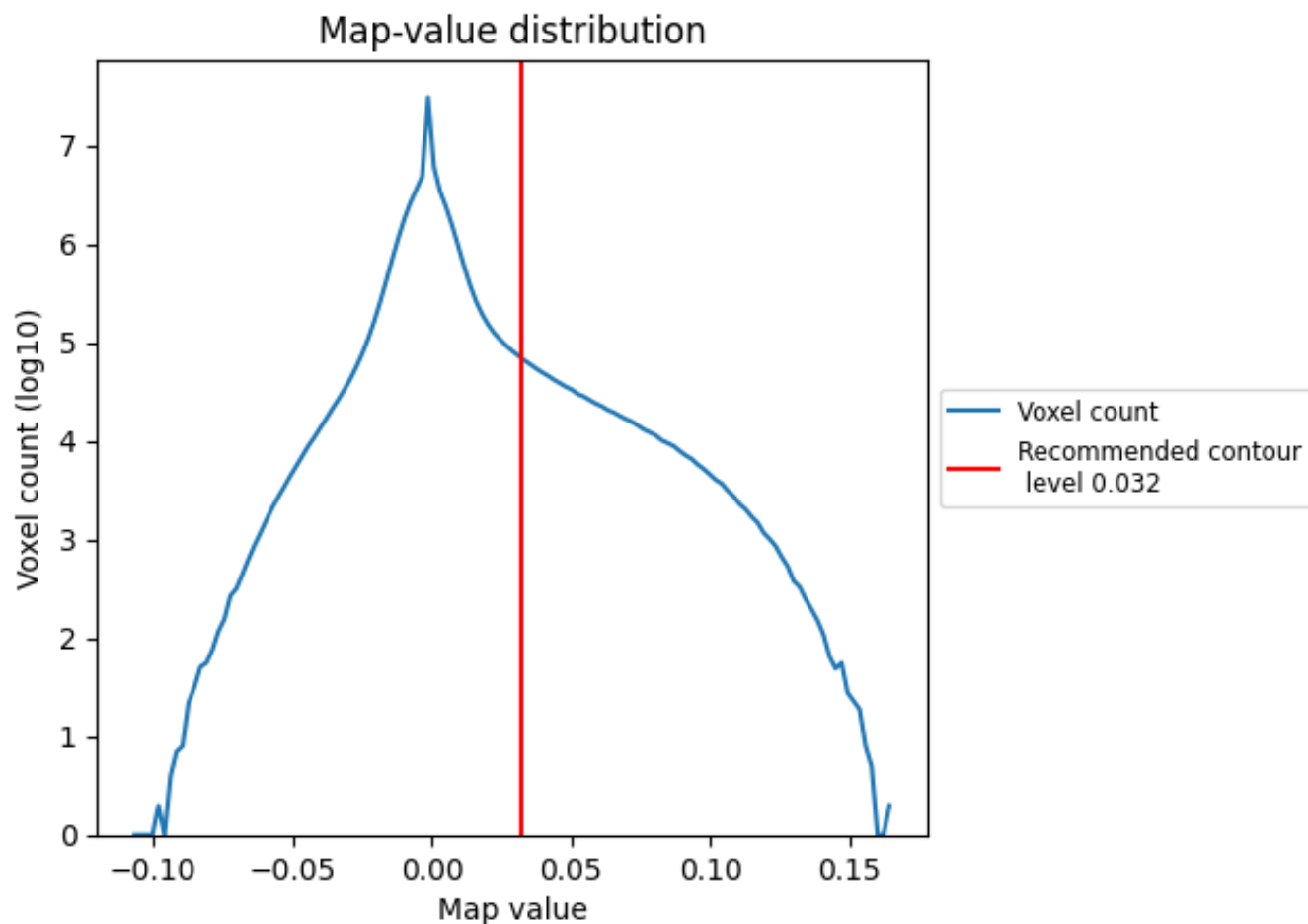


Z

7 Map analysis [i](#)

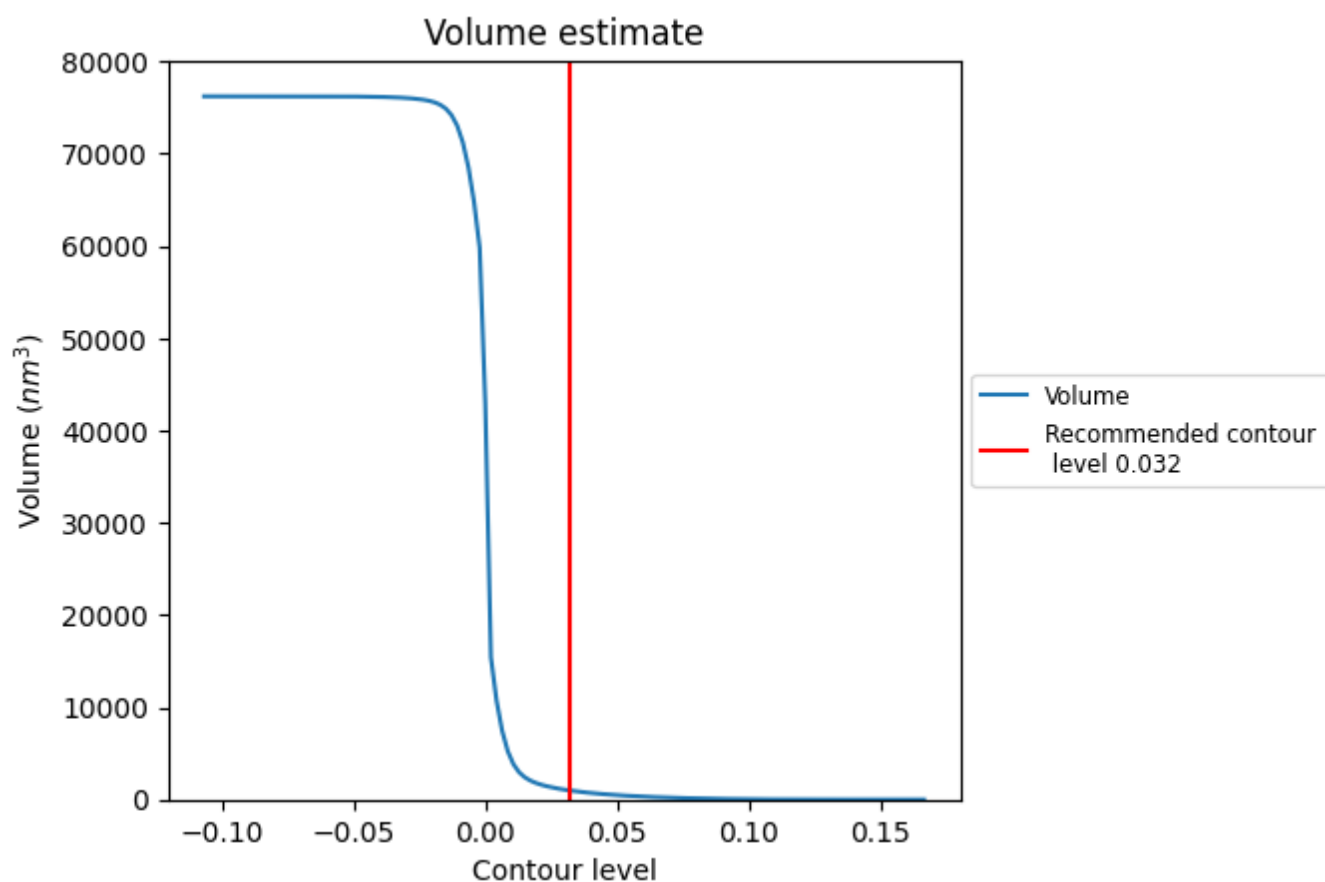
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

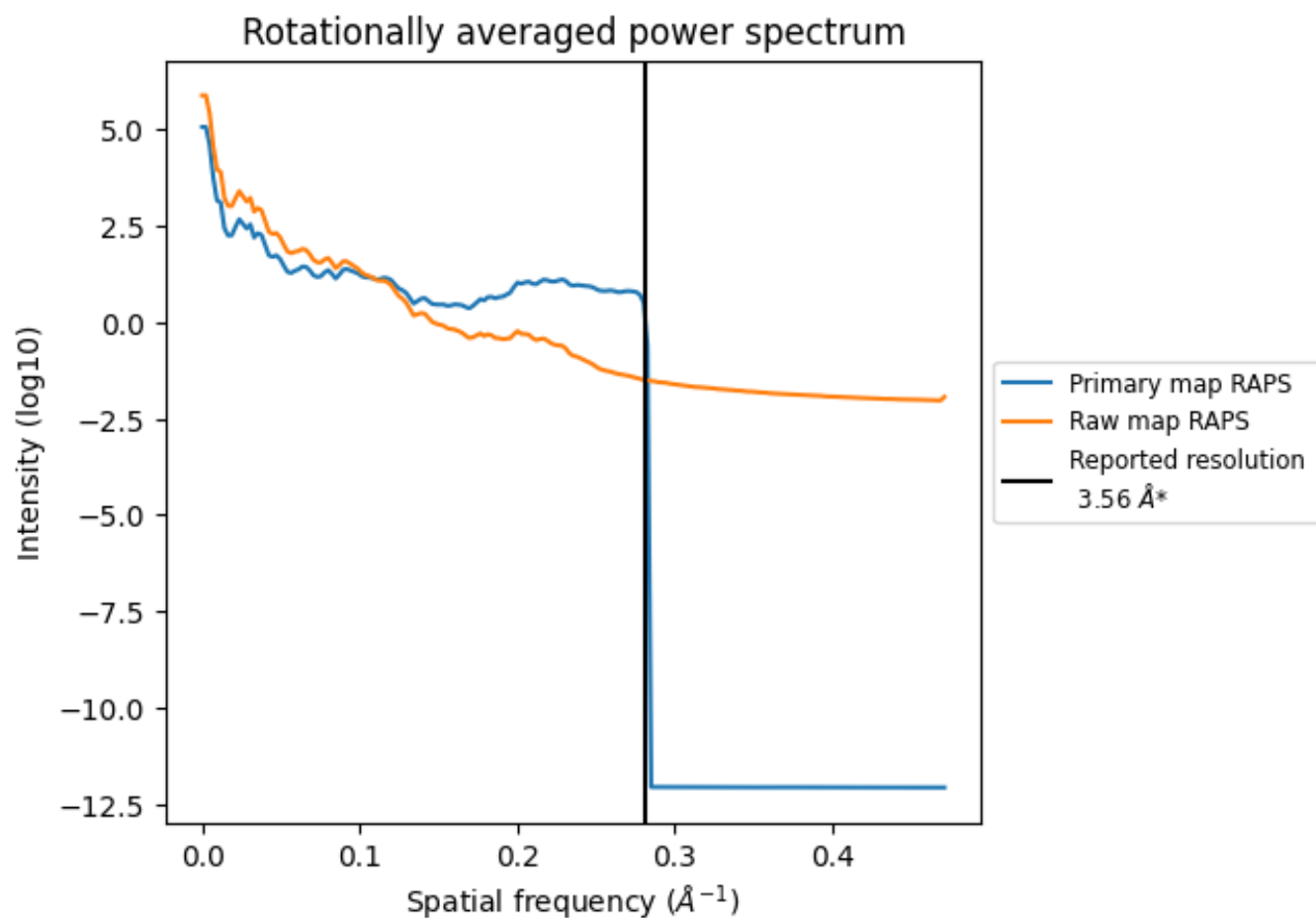
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 988 nm³; this corresponds to an approximate mass of 892 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 ⓘ

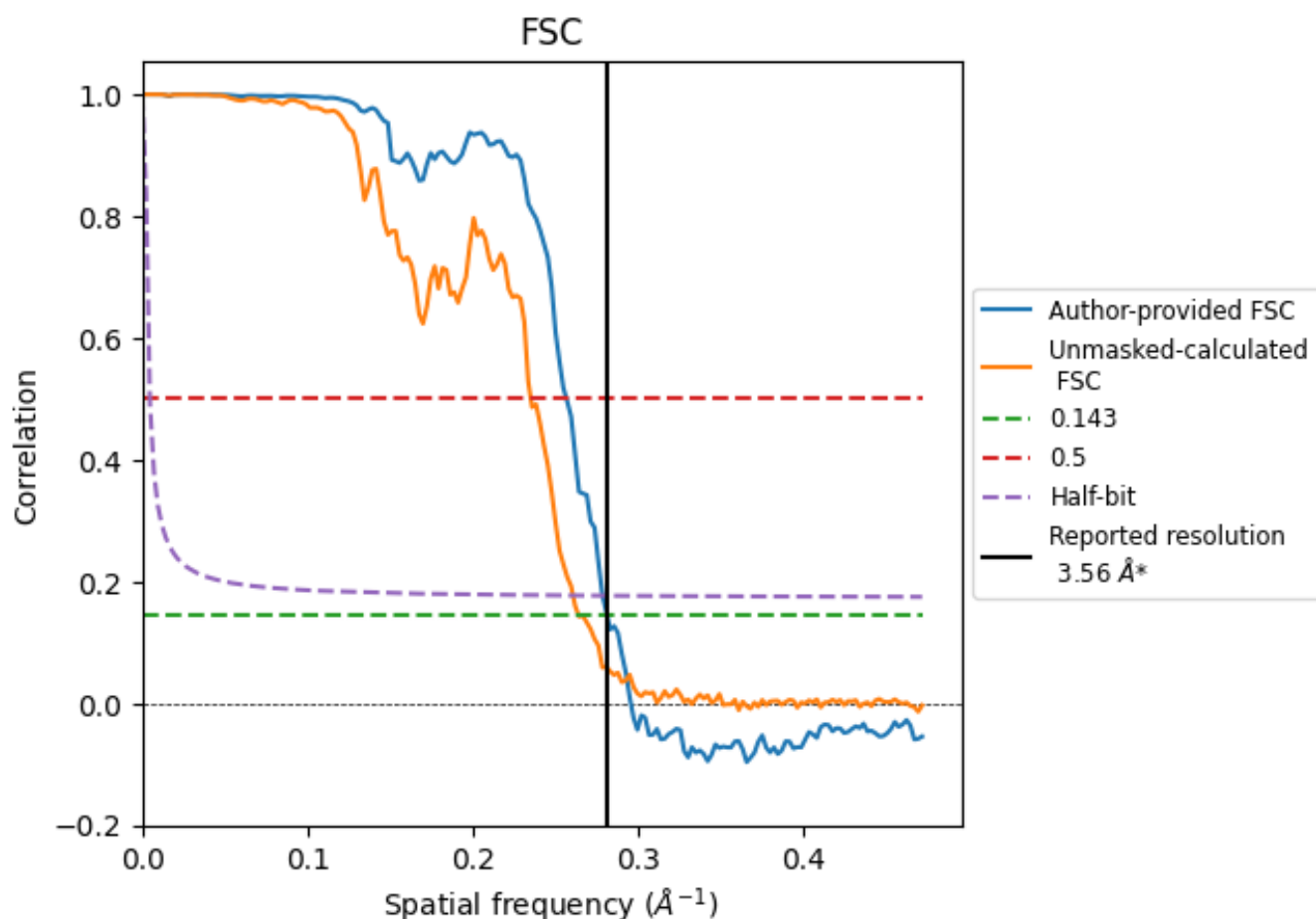


*Reported resolution corresponds to spatial frequency of 0.281 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.281 \AA^{-1}

8.2 Resolution estimates [i](#)

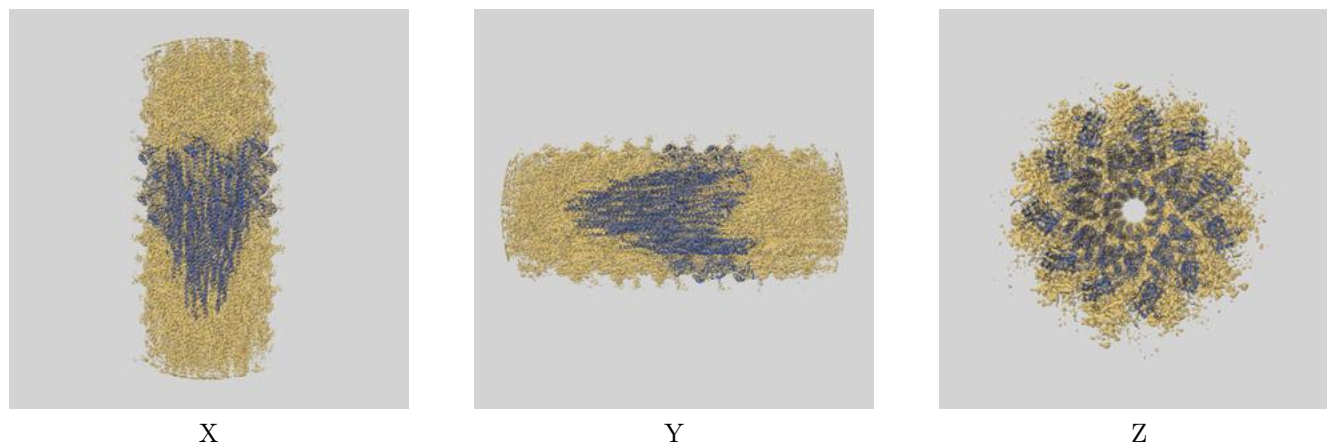
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.56	-	-
Author-provided FSC curve	3.56	3.90	3.59
Unmasked-calculated*	3.79	4.25	3.84

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

9 Map-model fit [i](#)

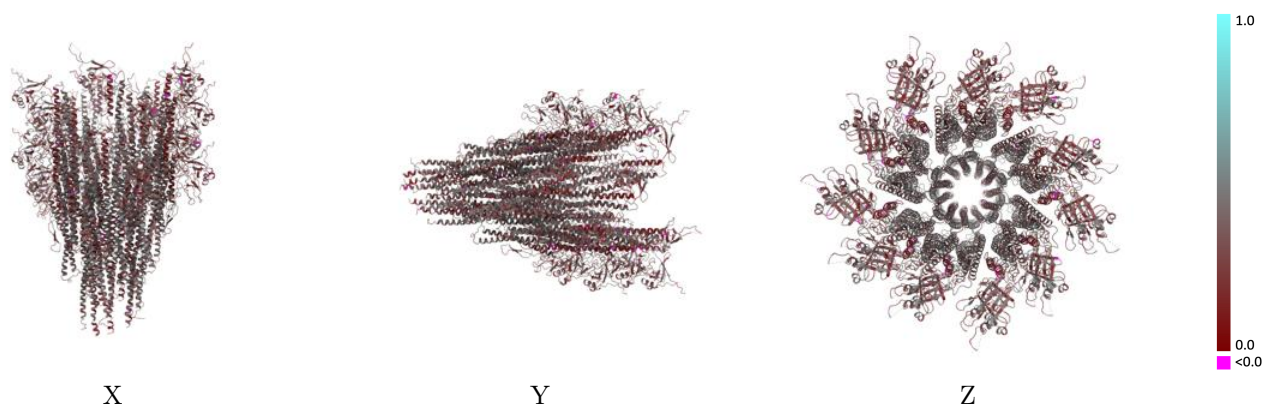
This section contains information regarding the fit between EMDB map EMD-9896 and PDB model 6JY0. Per-residue inclusion information can be found in [section 3](#) on [page 6](#).

9.1 Map-model overlay [i](#)



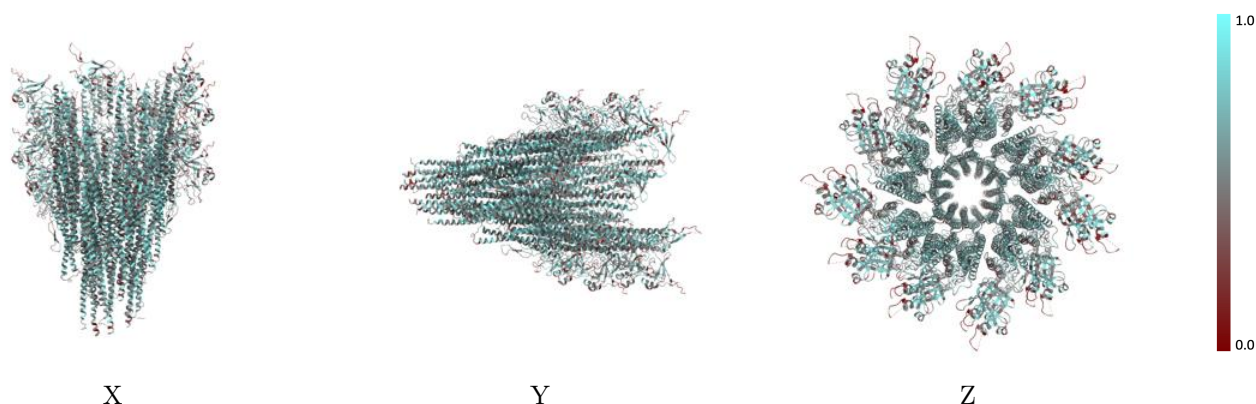
The images above show the 3D surface view of the map at the recommended contour level 0.032 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



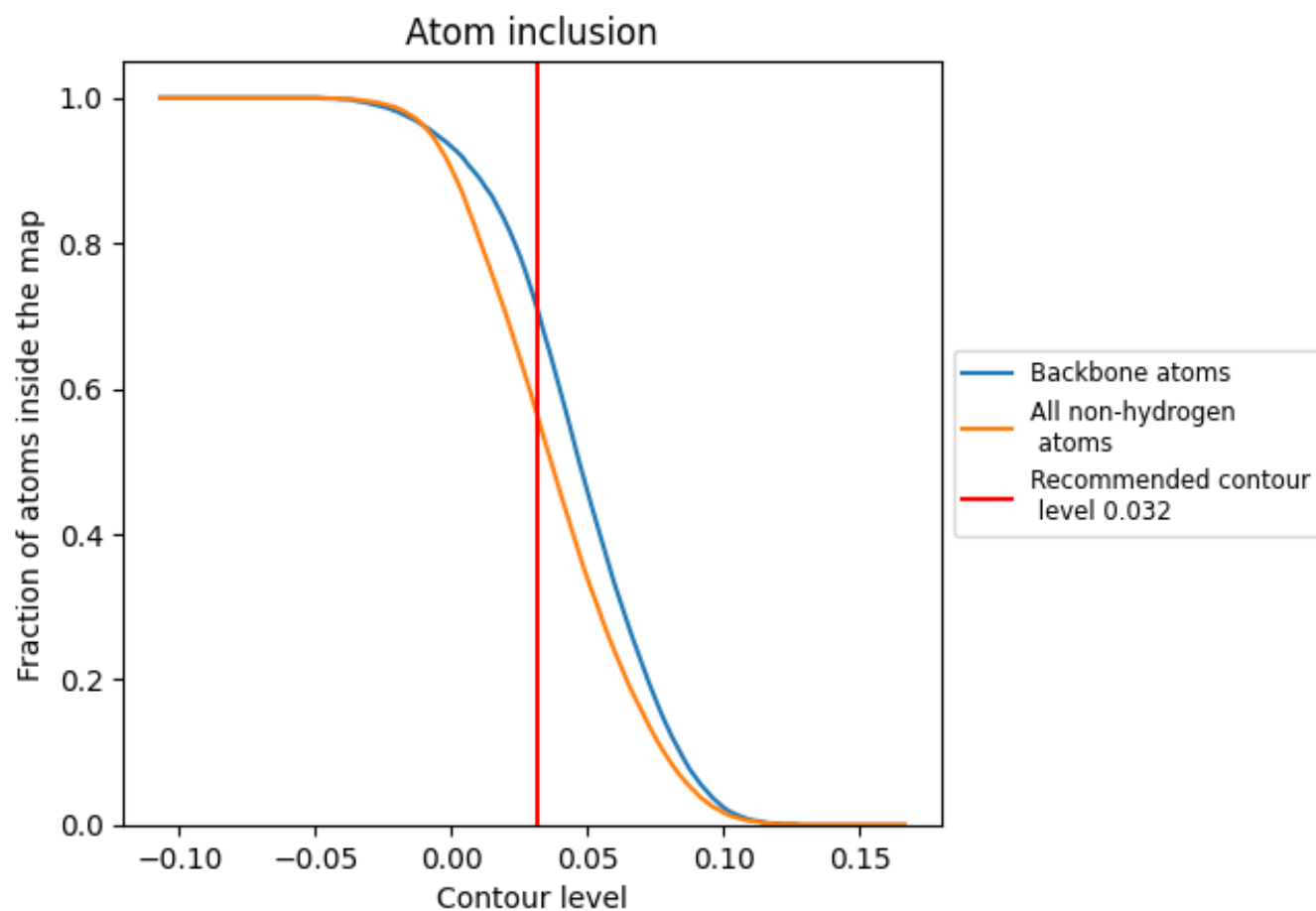
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.032).















































9.4 Atom inclusion [i](#)



At the recommended contour level, 71% of all backbone atoms, 56% 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 (0.032) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5590	 0.3330
A	 0.5490	 0.3280
B	 0.5480	 0.3290
C	 0.5520	 0.3290
D	 0.5530	 0.3240
E	 0.5590	 0.3390
F	 0.5570	 0.3350
G	 0.5540	 0.3320
H	 0.5600	 0.3360
I	 0.5640	 0.3340
J	 0.5620	 0.3350
K	 0.5630	 0.3420
L	 0.5620	 0.3360
M	 0.5620	 0.3370
N	 0.5640	 0.3330
O	 0.5620	 0.3280
P	 0.5600	 0.3350
Q	 0.5620	 0.3340
R	 0.5580	 0.3300
S	 0.5640	 0.3350
T	 0.5570	 0.3280
U	 0.5580	 0.3300
W	 0.5580	 0.3350

