



wwPDB EM Validation Summary Report ⓘ

Mar 6, 2026 – 06:01 PM UTC

PDB ID : 8UXJ / pdb_00008uxj
EMDB ID : EMD-42766
Title : Caulobacter crescentus FljK flagellar filament (asymmetrical)
Authors : Sanchez, J.C.; Montemayor, E.J.; Ploscariu, N.T.; Parrell, D.; Baumgardt, J.K.; Yang, J.E.; Sibert, B.; Cai, K.; Wright, E.R.
Deposited on : 2023-11-09
Resolution : 2.71 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:

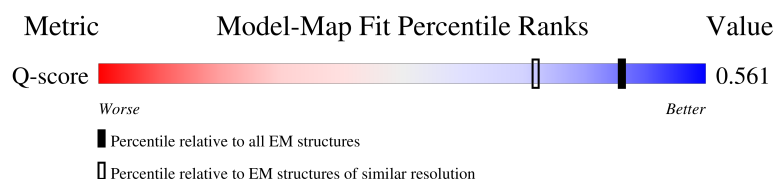
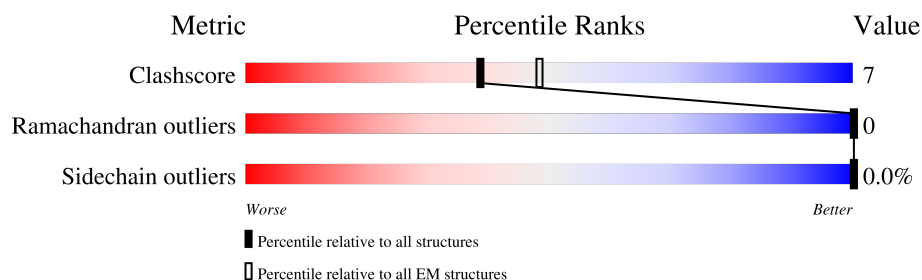
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh &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

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 2.71 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	10297 (2.21 - 3.21)

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	270	
1	B	270	
1	C	270	
1	D	270	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	E	270	 79%21%
1	F	270	 86%14%
1	G	270	 85%15%
1	H	270	 79%21%
1	I	270	 82%18%
1	J	270	 83%17%
1	K	270	 86%14%
1	L	270	 75%25%
1	M	270	 87%13%
1	N	270	 88%12%
1	O	270	 84%16%
1	P	270	 78%22%
1	Q	270	 79%21%
1	R	270	 87%13%
1	S	270	 86%14%
1	T	270	 79%21%
1	U	270	 82%18%
1	V	270	 87%13%
1	W	270	 83%17%
1	X	270	 79%21%
1	Y	270	 83%17%
1	Z	270	 86%14%
1	a	270	 84%16%
1	b	270	 77%23%
1	c	270	 81%19%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	d	270	 83%16%
1	e	270	 80%20%
1	f	270	 77%23%
1	g	270	 70%30%
1	h	270	 84%16%
1	i	270	 87%13%
1	j	270	 80%20%

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 69696 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 FljK.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	B	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	C	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	D	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	E	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	F	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	G	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	H	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	I	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	J	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	K	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	L	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	M	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	N	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	O	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	P	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	Q	270	Total 1936	C 1188	N 335	O 409	S 4	0	0

Continued on next page...

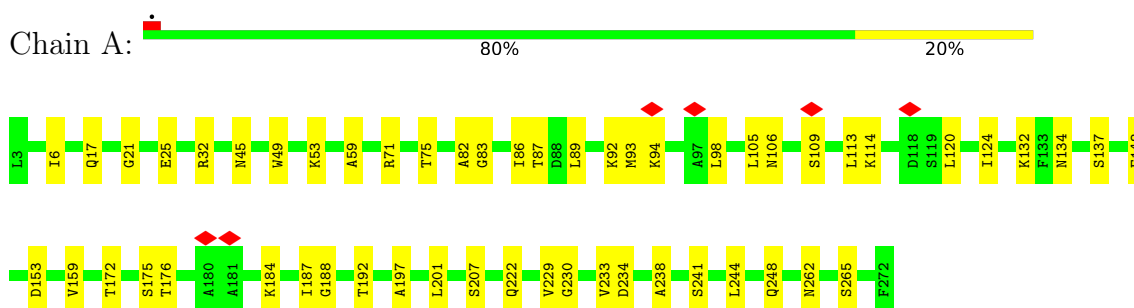
Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
1	R	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	S	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	T	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	U	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	V	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	W	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	X	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	Y	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	Z	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	a	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	b	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	c	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	d	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	e	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	f	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	h	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	i	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	j	270	Total 1936	C 1188	N 335	O 409	S 4	0	0
1	g	270	Total 1936	C 1188	N 335	O 409	S 4	0	0

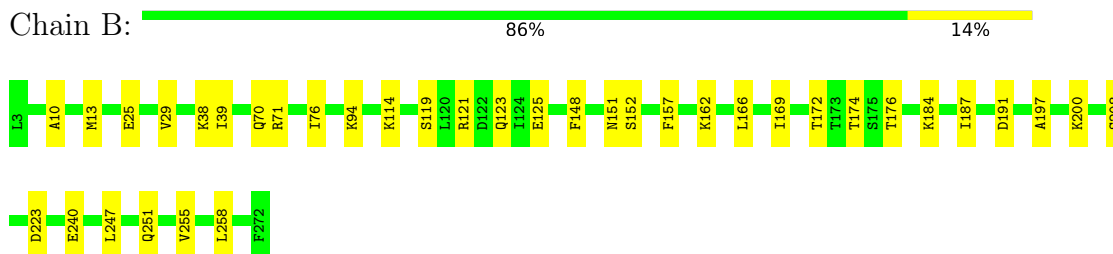
3 Residue-property plots

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.

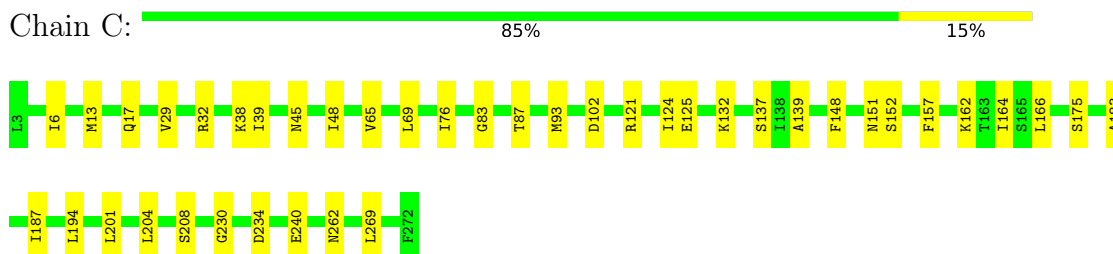
- Molecule 1: Flagellin FljK



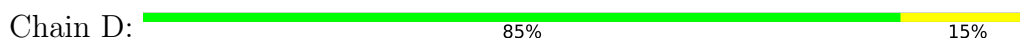
- Molecule 1: Flagellin FljK

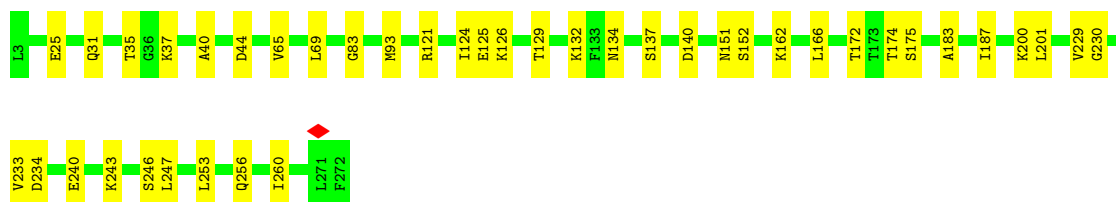


- Molecule 1: Flagellin FljK



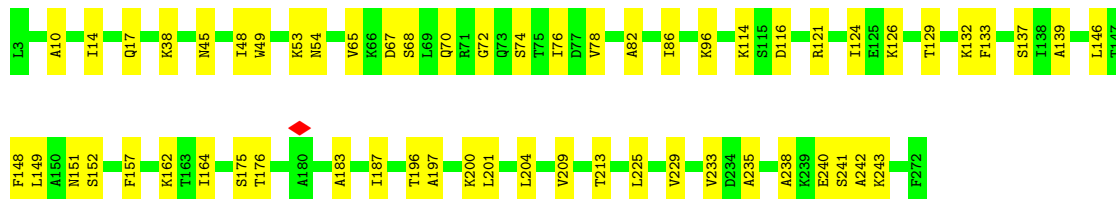
- Molecule 1: Flagellin FljK





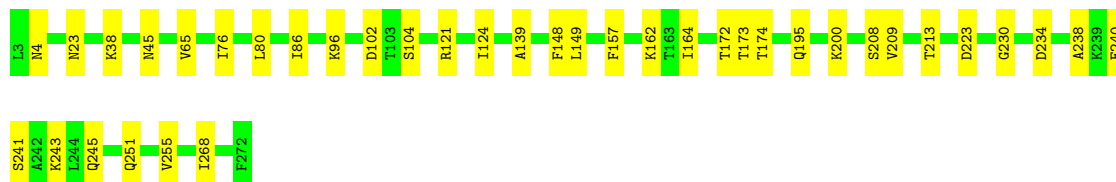
- Molecule 1: Flagellin FljK

Chain E: 79% 21%



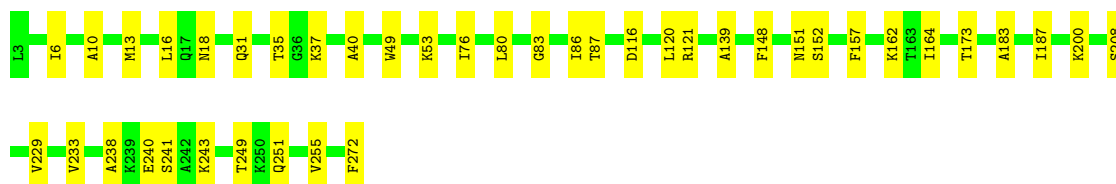
- Molecule 1: Flagellin FljK

Chain F: 86% 14%



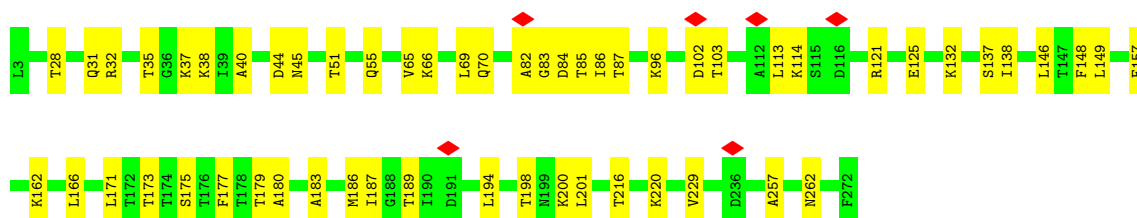
- Molecule 1: Flagellin FljK

Chain G: 85% 15%



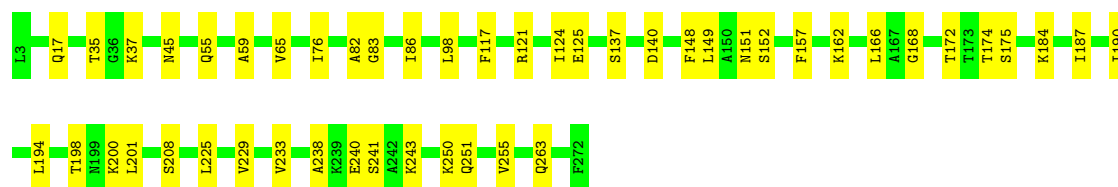
- Molecule 1: Flagellin FljK

Chain H: 79% 21%



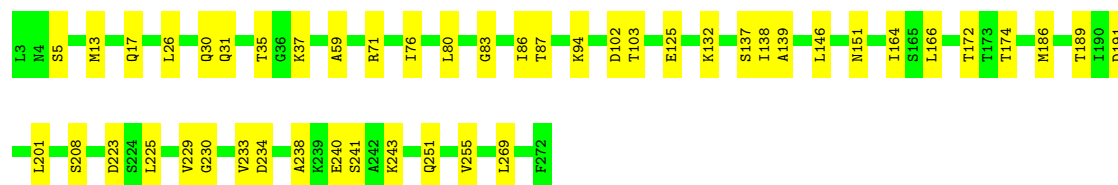
- Molecule 1: Flagellin FljK

Chain I:  82% 18%



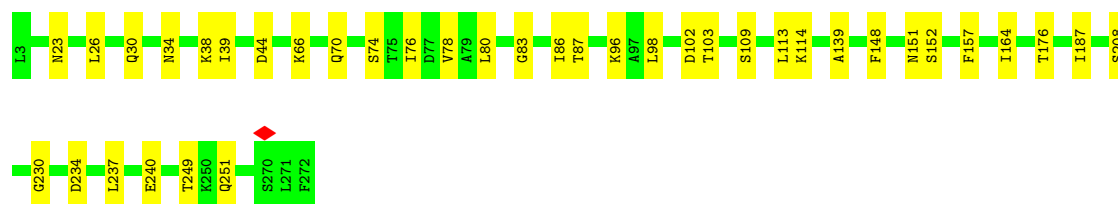
- Molecule 1: Flagellin FljK

Chain J:  83% 17%



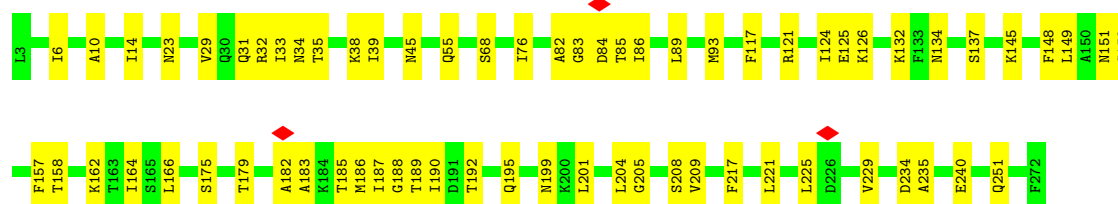
- Molecule 1: Flagellin FljK

Chain K:  86% 14%



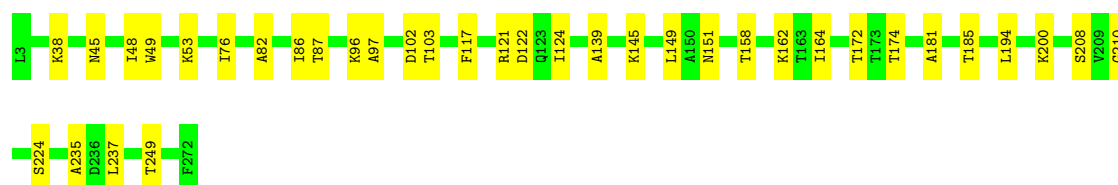
- Molecule 1: Flagellin FljK

Chain L:  75% 25%



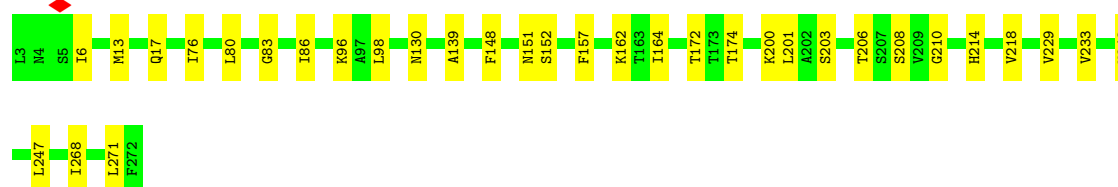
- Molecule 1: Flagellin FljK

Chain M:  87% 13%



- Molecule 1: Flagellin FljK

Chain N:  88% 12%



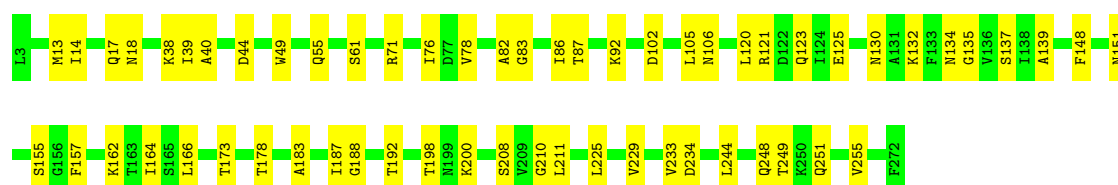
- Molecule 1: Flagellin FljK

Chain O:  84% 16%



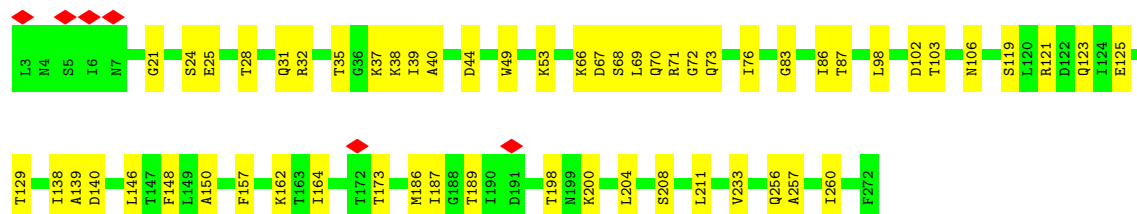
- Molecule 1: Flagellin FljK

Chain P:  78% 22%



- Molecule 1: Flagellin FljK

Chain Q:  79% 21%



- Molecule 1: Flagellin FljK

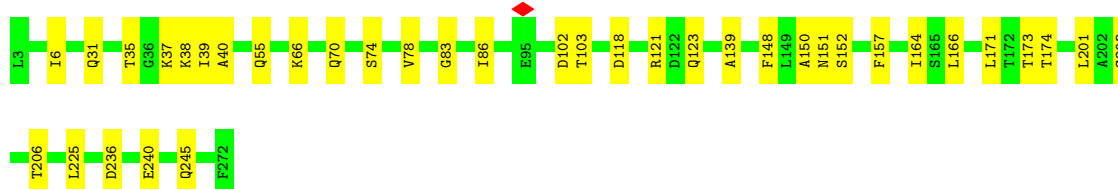
Chain R:  87% 13%





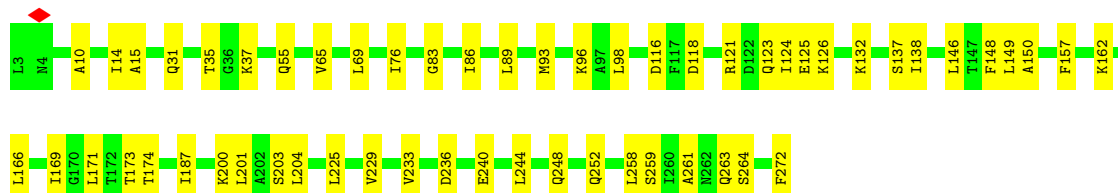
- Molecule 1: Flagellin FljK

Chain S: 86% 14%



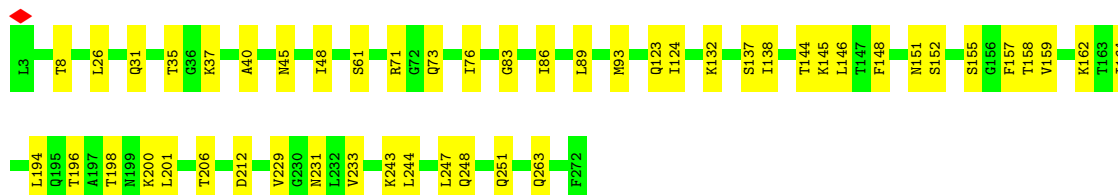
- Molecule 1: Flagellin FljK

Chain T: 79% 21%



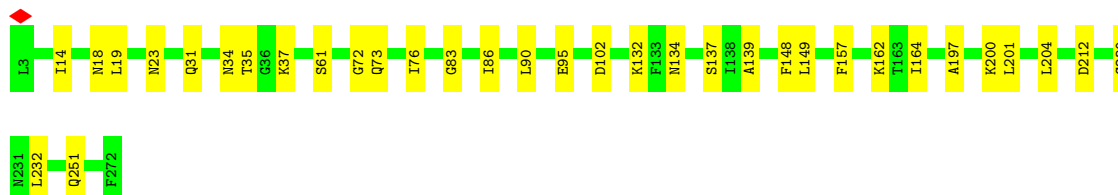
- Molecule 1: Flagellin FljK

Chain U: 82% 18%



- Molecule 1: Flagellin FljK

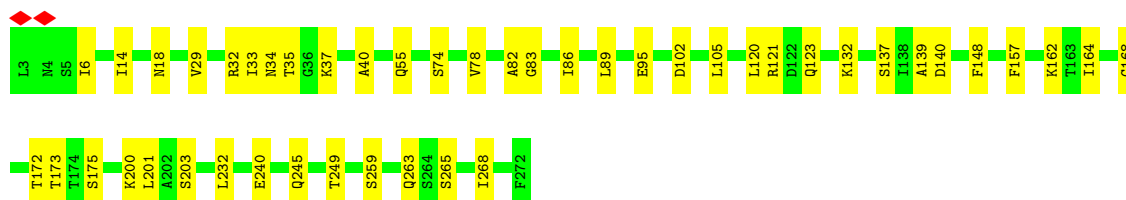
Chain V: 87% 13%



- Molecule 1: Flagellin FljK

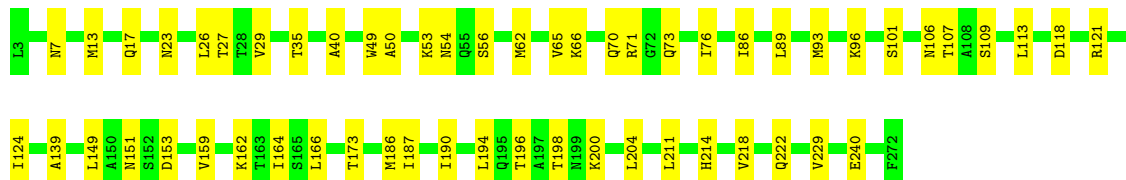
Chain W: 83% 17%





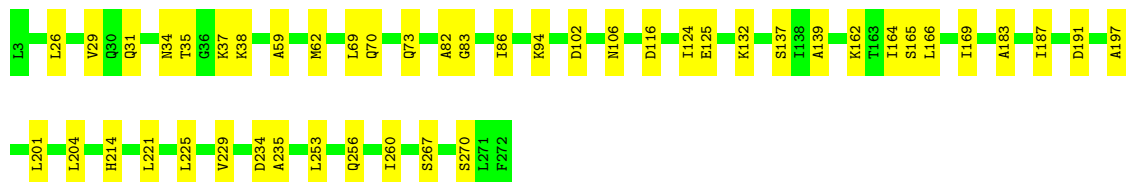
• Molecule 1: Flagellin FljK

Chain X: 79% 21%



• Molecule 1: Flagellin FljK

Chain Y: 83% 17%



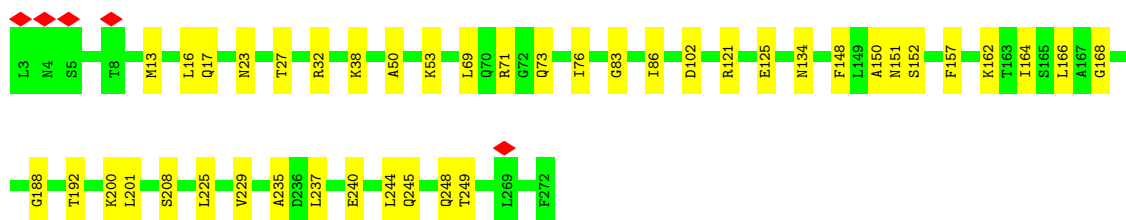
• Molecule 1: Flagellin FljK

Chain Z: 86% 14%



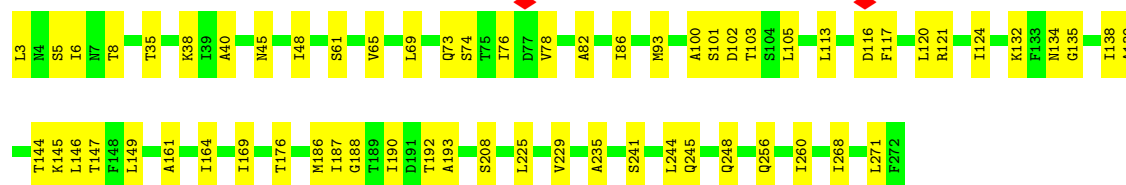
• Molecule 1: Flagellin FljK

Chain a: 84% 16%



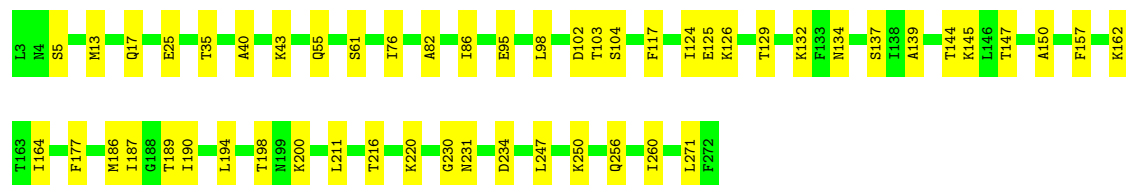
• Molecule 1: Flagellin FljK

Chain b:  77% 23%



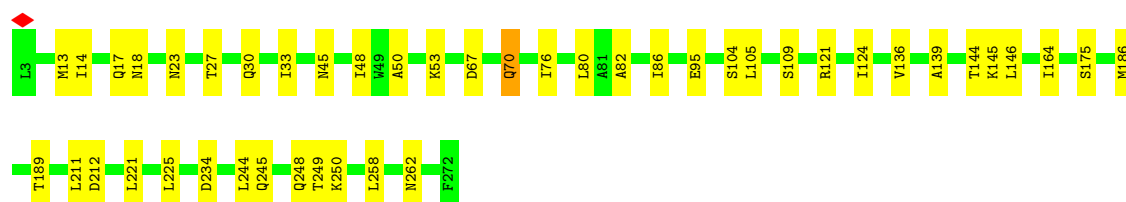
• Molecule 1: Flagellin FljK

Chain c:  81% 19%



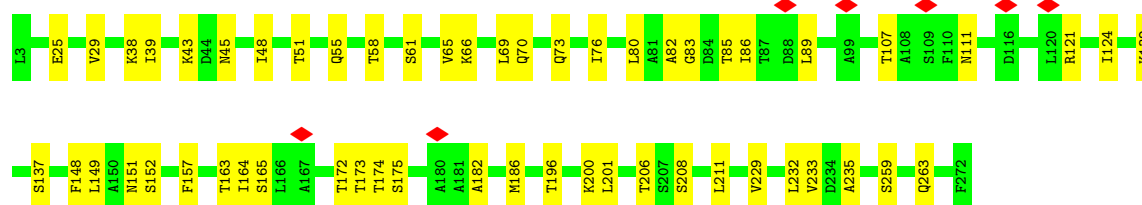
• Molecule 1: Flagellin FljK

Chain d:  83% 16%



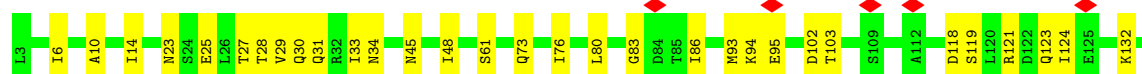
• Molecule 1: Flagellin FljK

Chain e:  80% 20%



• Molecule 1: Flagellin FljK

Chain f:  77% 23%





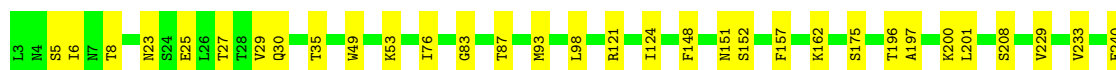
• Molecule 1: Flagellin FljK

Chain h: 84% 16%



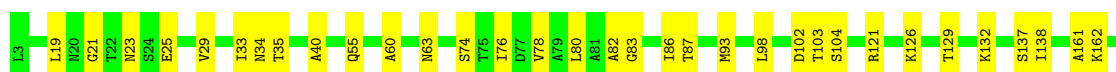
• Molecule 1: Flagellin FljK

Chain i: 87% 13%



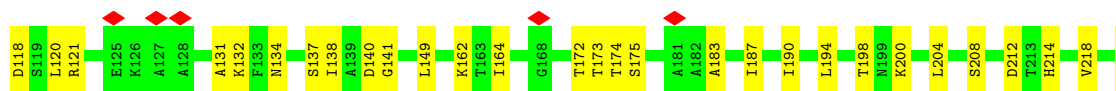
• Molecule 1: Flagellin FljK

Chain j: 80% 20%



• Molecule 1: Flagellin FljK

Chain g: 70% 30%



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	44978	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	45	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	1.011	Depositor
Minimum map value	-0.599	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.046	Depositor
Recommended contour level	0.183	Depositor
Map size ($\text{\AA}$)	427.008, 427.008, 427.008	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.834, 0.834, 0.834	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	0.16	0/1946	0.35	0/2634
1	B	0.16	0/1946	0.32	0/2634
1	C	0.16	0/1946	0.31	0/2634
1	D	0.16	0/1946	0.33	0/2634
1	E	0.17	0/1946	0.35	0/2634
1	F	0.16	0/1946	0.29	0/2634
1	G	0.15	0/1946	0.30	0/2634
1	H	0.16	0/1946	0.36	0/2634
1	I	0.16	0/1946	0.32	0/2634
1	J	0.16	0/1946	0.29	0/2634
1	K	0.16	0/1946	0.32	0/2634
1	L	0.17	0/1946	0.37	0/2634
1	M	0.16	0/1946	0.32	0/2634
1	N	0.15	0/1946	0.32	0/2634
1	O	0.16	0/1946	0.34	0/2634
1	P	0.17	0/1946	0.39	0/2634
1	Q	0.18	0/1946	0.41	0/2634
1	R	0.16	0/1946	0.34	0/2634
1	S	0.16	0/1946	0.34	0/2634
1	T	0.16	0/1946	0.35	0/2634
1	U	0.16	0/1946	0.34	0/2634
1	V	0.15	0/1946	0.31	0/2634
1	W	0.17	0/1946	0.35	0/2634
1	X	0.16	0/1946	0.33	0/2634
1	Y	0.16	0/1946	0.33	0/2634
1	Z	0.16	0/1946	0.32	0/2634
1	a	0.16	0/1946	0.34	0/2634
1	b	0.15	0/1946	0.35	0/2634
1	c	0.17	0/1946	0.36	0/2634
1	d	0.16	0/1946	0.36	0/2634
1	e	0.17	0/1946	0.40	0/2634
1	f	0.18	0/1946	0.37	0/2634
1	g	0.22	0/1946	0.42	0/2634
1	h	0.16	0/1946	0.33	0/2634

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	i	0.17	0/1946	0.33	0/2634
1	j	0.17	0/1946	0.34	0/2634
All	All	0.16	0/70056	0.34	0/94824

There are no bond length outliers.

There are no bond angle outliers.

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	1936	0	1973	34	0
1	B	1936	0	1973	22	0
1	C	1936	0	1973	25	0
1	D	1936	0	1973	24	0
1	E	1936	0	1973	36	0
1	F	1936	0	1973	24	0
1	G	1936	0	1973	27	0
1	H	1936	0	1973	35	0
1	I	1936	0	1973	30	0
1	J	1936	0	1973	29	0
1	K	1936	0	1973	25	0
1	L	1936	0	1973	48	0
1	M	1936	0	1973	24	0
1	N	1936	0	1973	20	0
1	O	1936	0	1973	26	0
1	P	1936	0	1973	45	0
1	Q	1936	0	1973	40	0
1	R	1936	0	1973	20	0
1	S	1936	0	1973	26	0
1	T	1936	0	1973	39	0
1	U	1936	0	1973	31	0
1	V	1936	0	1973	24	0
1	W	1936	0	1973	34	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	X	1936	0	1973	38	0
1	Y	1936	0	1973	34	0
1	Z	1936	0	1973	24	0
1	a	1936	0	1973	26	0
1	b	1936	0	1973	37	0
1	c	1936	0	1973	36	0
1	d	1936	0	1973	28	0
1	e	1936	0	1973	37	0
1	f	1936	0	1973	45	0
1	g	1936	0	1973	56	0
1	h	1936	0	1973	30	0
1	i	1936	0	1973	24	0
1	j	1936	0	1973	34	0
All	All	69696	0	71028	1026	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 7.

The worst 5 of 1026 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:D:132:LYS:HA	1:D:137:SER:HB2	1.59	0.84
1:Z:71:ARG:NH2	1:a:102:ASP:OD2	2.11	0.82
1:P:121:ARG:NH1	1:P:173:THR:O	2.14	0.81
1:O:121:ARG:NH1	1:O:173:THR:O	2.13	0.81
1:f:132:LYS:HG2	1:f:137:SER:HB2	1.63	0.81

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	268/270 (99%)	262 (98%)	6 (2%)	0	100	100
1	B	268/270 (99%)	267 (100%)	1 (0%)	0	100	100
1	C	268/270 (99%)	264 (98%)	4 (2%)	0	100	100
1	D	268/270 (99%)	263 (98%)	5 (2%)	0	100	100
1	E	268/270 (99%)	262 (98%)	6 (2%)	0	100	100
1	F	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	G	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	H	268/270 (99%)	262 (98%)	6 (2%)	0	100	100
1	I	268/270 (99%)	264 (98%)	4 (2%)	0	100	100
1	J	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	K	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	L	268/270 (99%)	261 (97%)	7 (3%)	0	100	100
1	M	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	N	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	O	268/270 (99%)	266 (99%)	2 (1%)	0	100	100
1	P	268/270 (99%)	263 (98%)	5 (2%)	0	100	100
1	Q	268/270 (99%)	264 (98%)	4 (2%)	0	100	100
1	R	268/270 (99%)	264 (98%)	4 (2%)	0	100	100
1	S	268/270 (99%)	263 (98%)	5 (2%)	0	100	100
1	T	268/270 (99%)	264 (98%)	4 (2%)	0	100	100
1	U	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	V	268/270 (99%)	263 (98%)	5 (2%)	0	100	100
1	W	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	X	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	Y	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	Z	268/270 (99%)	264 (98%)	4 (2%)	0	100	100
1	a	268/270 (99%)	265 (99%)	3 (1%)	0	100	100
1	b	268/270 (99%)	263 (98%)	5 (2%)	0	100	100
1	c	268/270 (99%)	266 (99%)	2 (1%)	0	100	100
1	d	268/270 (99%)	263 (98%)	5 (2%)	0	100	100
1	e	268/270 (99%)	264 (98%)	4 (2%)	0	100	100
1	f	268/270 (99%)	263 (98%)	5 (2%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	g	268/270 (99%)	266 (99%)	2 (1%)	0	100	100
1	h	268/270 (99%)	264 (98%)	4 (2%)	0	100	100
1	i	268/270 (99%)	261 (97%)	7 (3%)	0	100	100
1	j	268/270 (99%)	263 (98%)	5 (2%)	0	100	100
All	All	9648/9720 (99%)	9504 (98%)	144 (2%)	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	210/210 (100%)	210 (100%)	0	100	100
1	B	210/210 (100%)	210 (100%)	0	100	100
1	C	210/210 (100%)	210 (100%)	0	100	100
1	D	210/210 (100%)	210 (100%)	0	100	100
1	E	210/210 (100%)	210 (100%)	0	100	100
1	F	210/210 (100%)	210 (100%)	0	100	100
1	G	210/210 (100%)	210 (100%)	0	100	100
1	H	210/210 (100%)	210 (100%)	0	100	100
1	I	210/210 (100%)	210 (100%)	0	100	100
1	J	210/210 (100%)	210 (100%)	0	100	100
1	K	210/210 (100%)	210 (100%)	0	100	100
1	L	210/210 (100%)	210 (100%)	0	100	100
1	M	210/210 (100%)	210 (100%)	0	100	100
1	N	210/210 (100%)	210 (100%)	0	100	100
1	O	210/210 (100%)	210 (100%)	0	100	100
1	P	210/210 (100%)	210 (100%)	0	100	100
1	Q	210/210 (100%)	210 (100%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	R	210/210 (100%)	210 (100%)	0	100	100
1	S	210/210 (100%)	210 (100%)	0	100	100
1	T	210/210 (100%)	210 (100%)	0	100	100
1	U	210/210 (100%)	210 (100%)	0	100	100
1	V	210/210 (100%)	210 (100%)	0	100	100
1	W	210/210 (100%)	210 (100%)	0	100	100
1	X	210/210 (100%)	210 (100%)	0	100	100
1	Y	210/210 (100%)	210 (100%)	0	100	100
1	Z	210/210 (100%)	209 (100%)	1 (0%)	81	91
1	a	210/210 (100%)	210 (100%)	0	100	100
1	b	210/210 (100%)	209 (100%)	1 (0%)	81	91
1	c	210/210 (100%)	210 (100%)	0	100	100
1	d	210/210 (100%)	209 (100%)	1 (0%)	81	91
1	e	210/210 (100%)	210 (100%)	0	100	100
1	f	210/210 (100%)	210 (100%)	0	100	100
1	g	210/210 (100%)	210 (100%)	0	100	100
1	h	210/210 (100%)	210 (100%)	0	100	100
1	i	210/210 (100%)	210 (100%)	0	100	100
1	j	210/210 (100%)	210 (100%)	0	100	100
All	All	7560/7560 (100%)	7557 (100%)	3 (0%)	100	100

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	Z	130	ASN
1	b	134	ASN
1	d	70	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 127 such sidechains are listed below:

Mol	Chain	Res	Type
1	O	256	GLN
1	e	199	ASN
1	S	245	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	e	123	GLN
1	i	262	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

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.

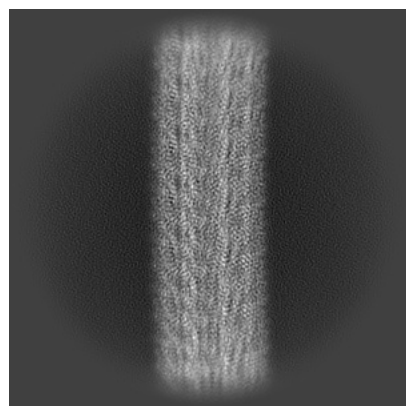
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-42766. These allow visual inspection of the internal detail of the map and identification of artifacts.

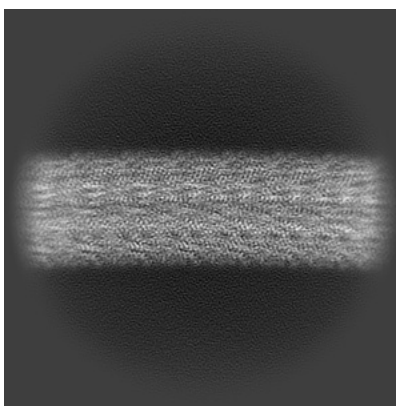
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

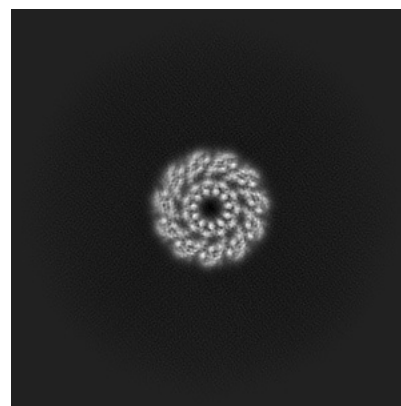
6.1.1 Primary map



X

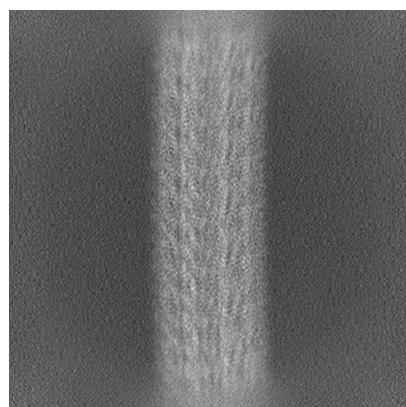


Y

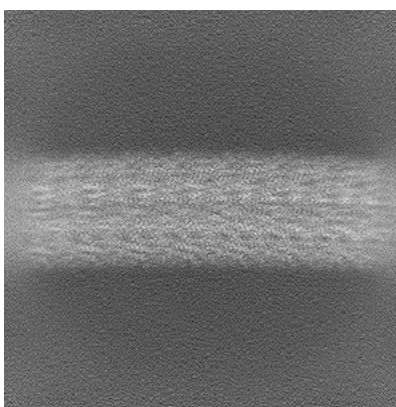


Z

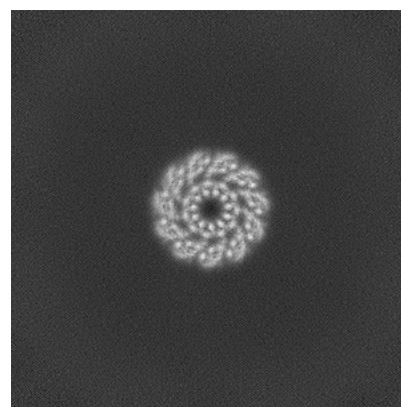
6.1.2 Raw map



X



Y

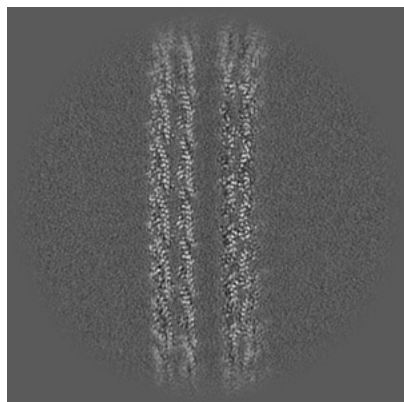


Z

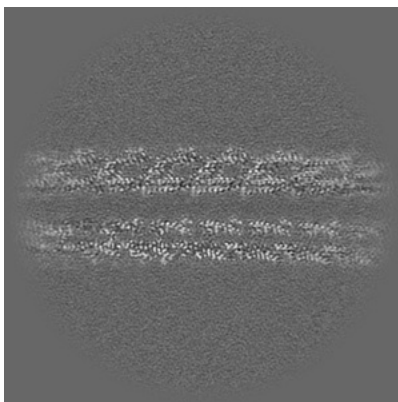
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

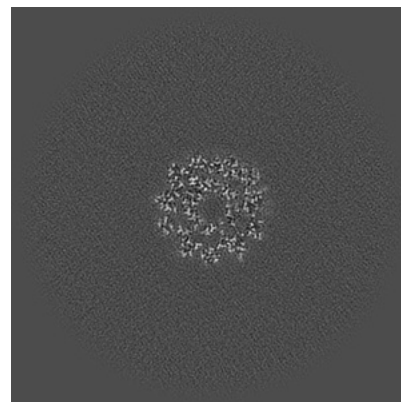
6.2.1 Primary map



X Index: 256

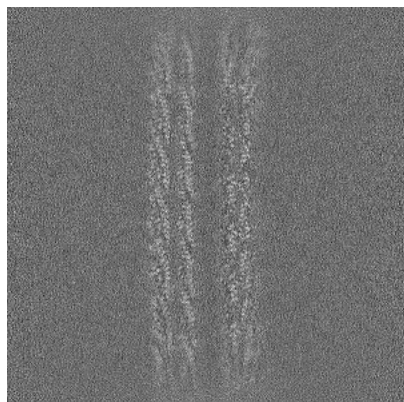


Y Index: 256

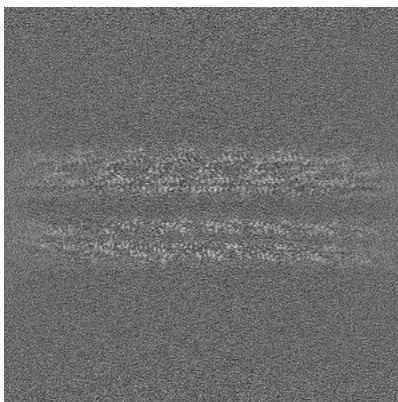


Z Index: 256

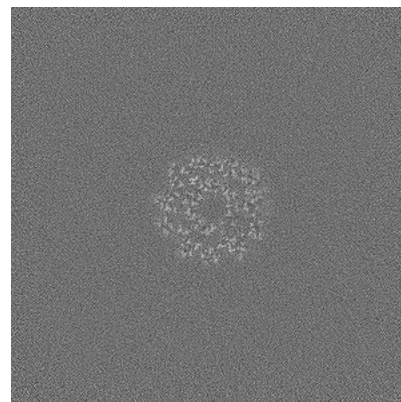
6.2.2 Raw map



X Index: 256



Y Index: 256

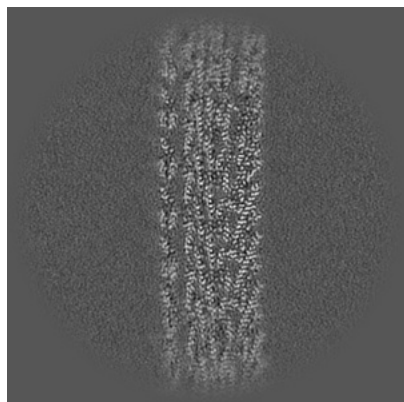


Z Index: 256

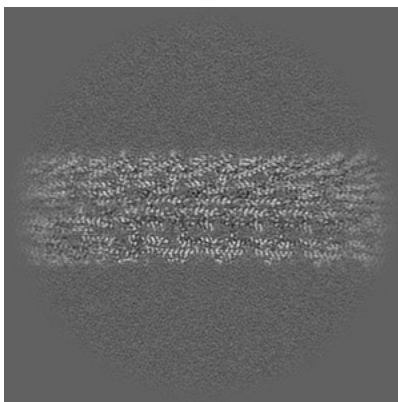
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

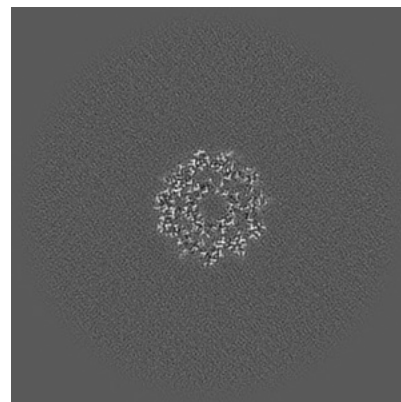
6.3.1 Primary map



X Index: 233

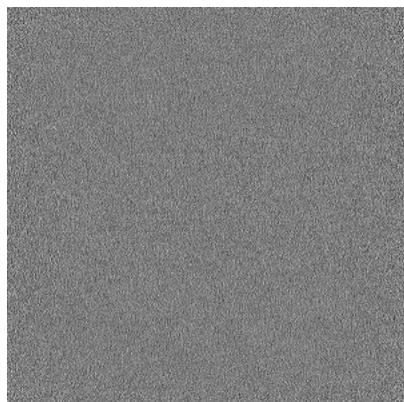


Y Index: 275

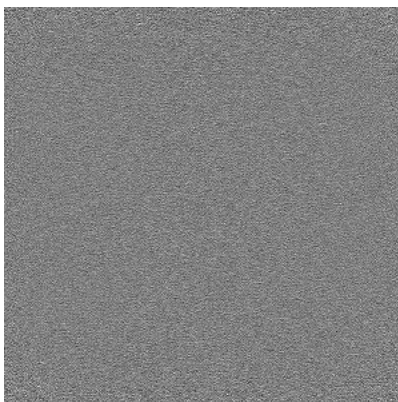


Z Index: 266

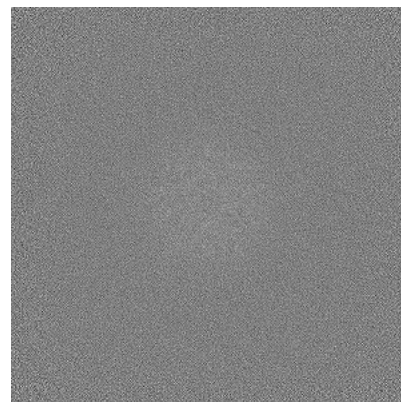
6.3.2 Raw map



X Index: 0



Y Index: 0

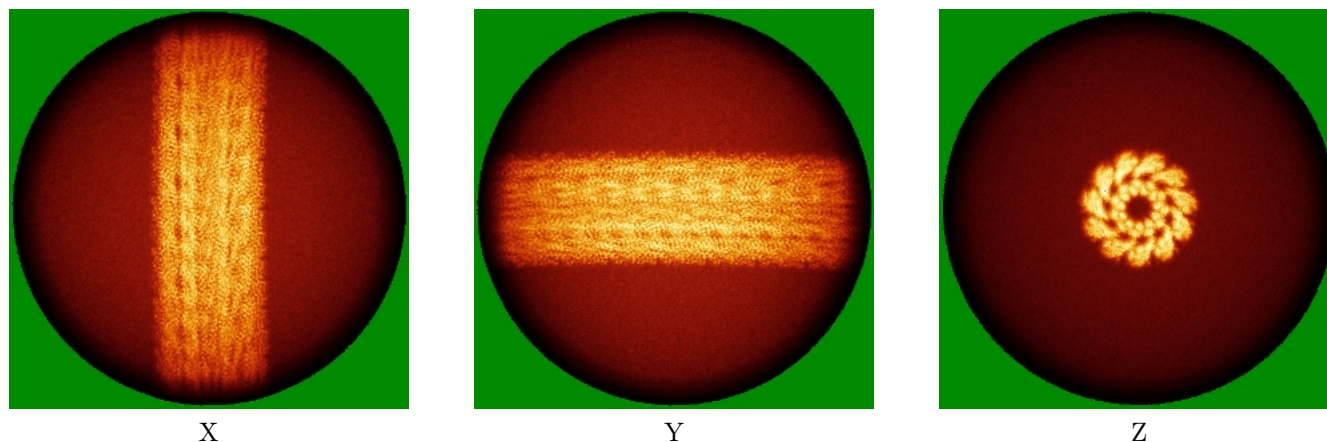


Z Index: 0

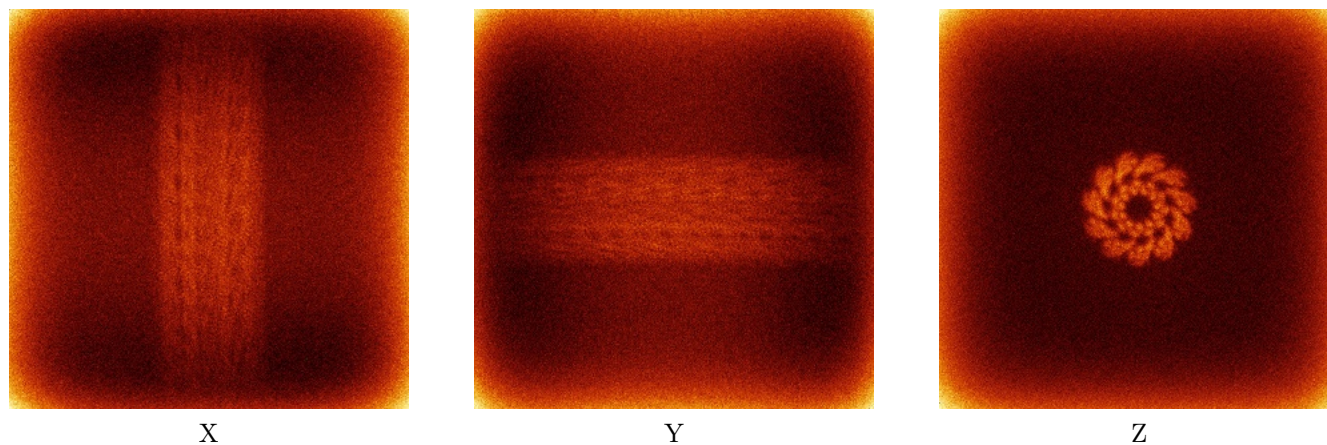
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map



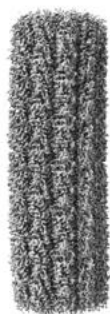
6.4.2 Raw map



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



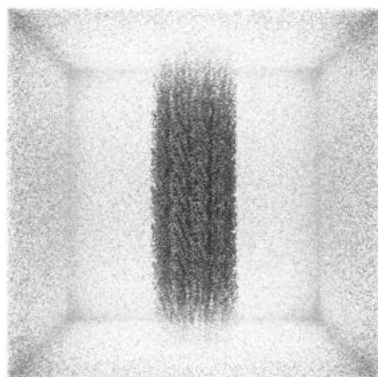
Y



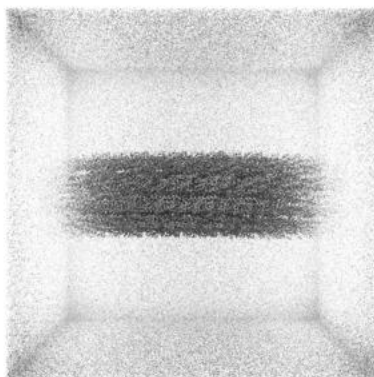
Z

The images above show the 3D surface view of the map at the recommended contour level 0.183. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

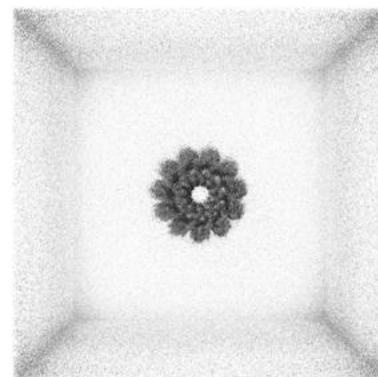
6.5.2 Raw map



X



Y



Z

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.

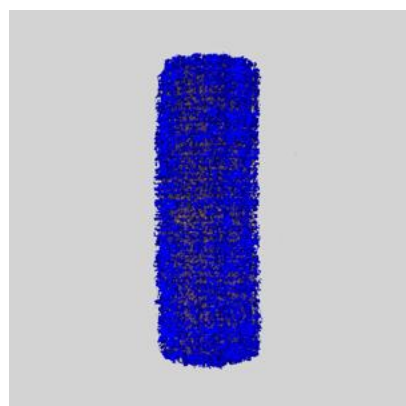
6.6 Mask visualisation [i](#)

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

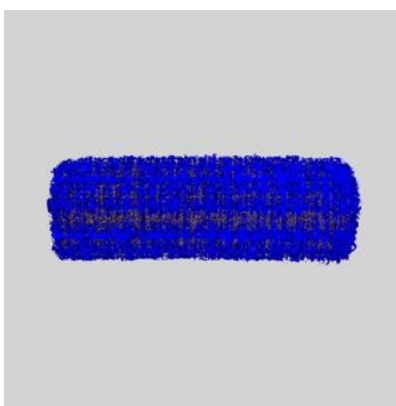
A mask typically either:

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

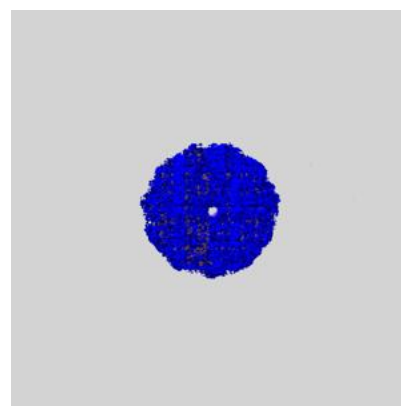
6.6.1 emd_42766_msk_1.map [i](#)



X



Y

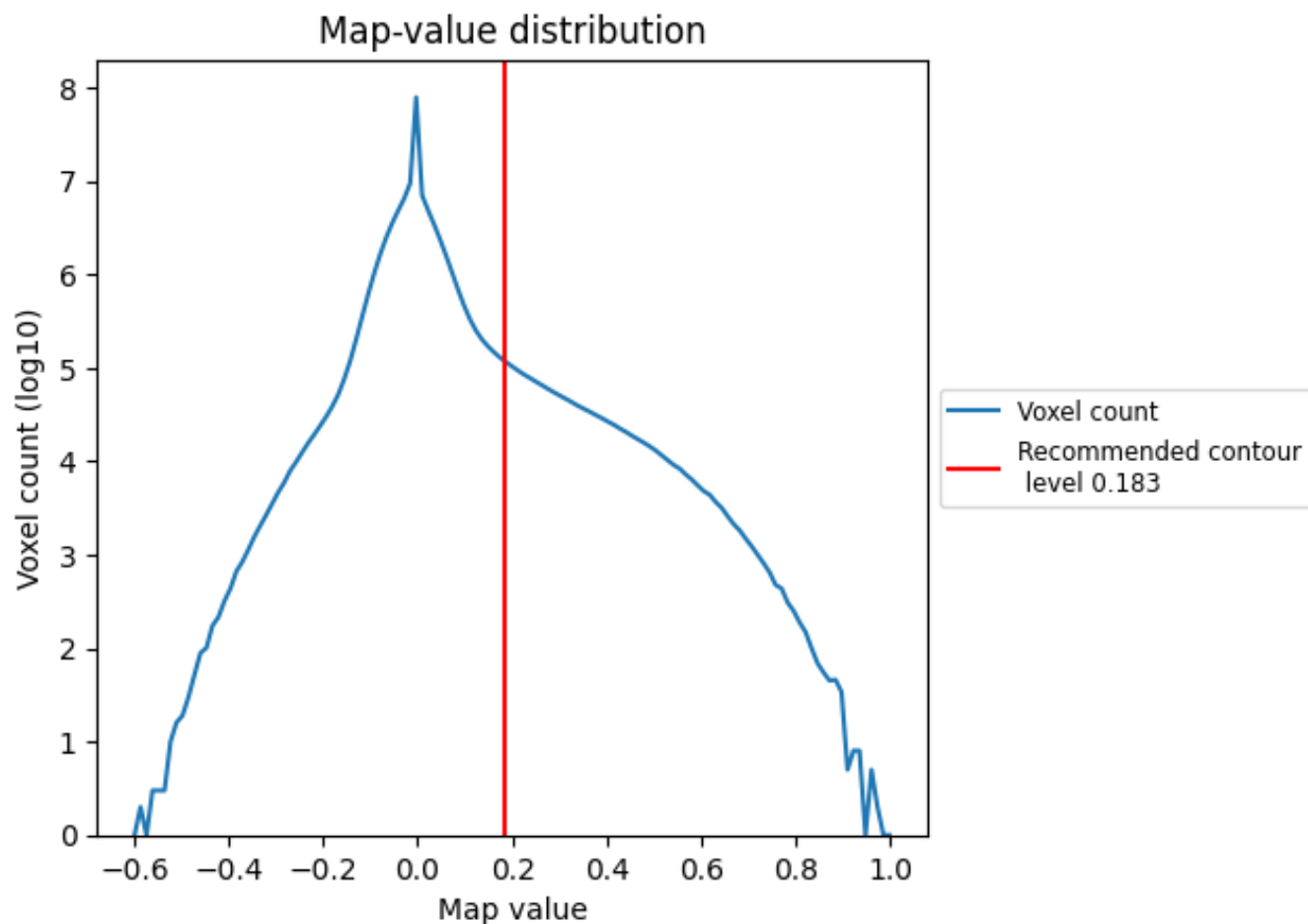


Z

7 Map analysis [i](#)

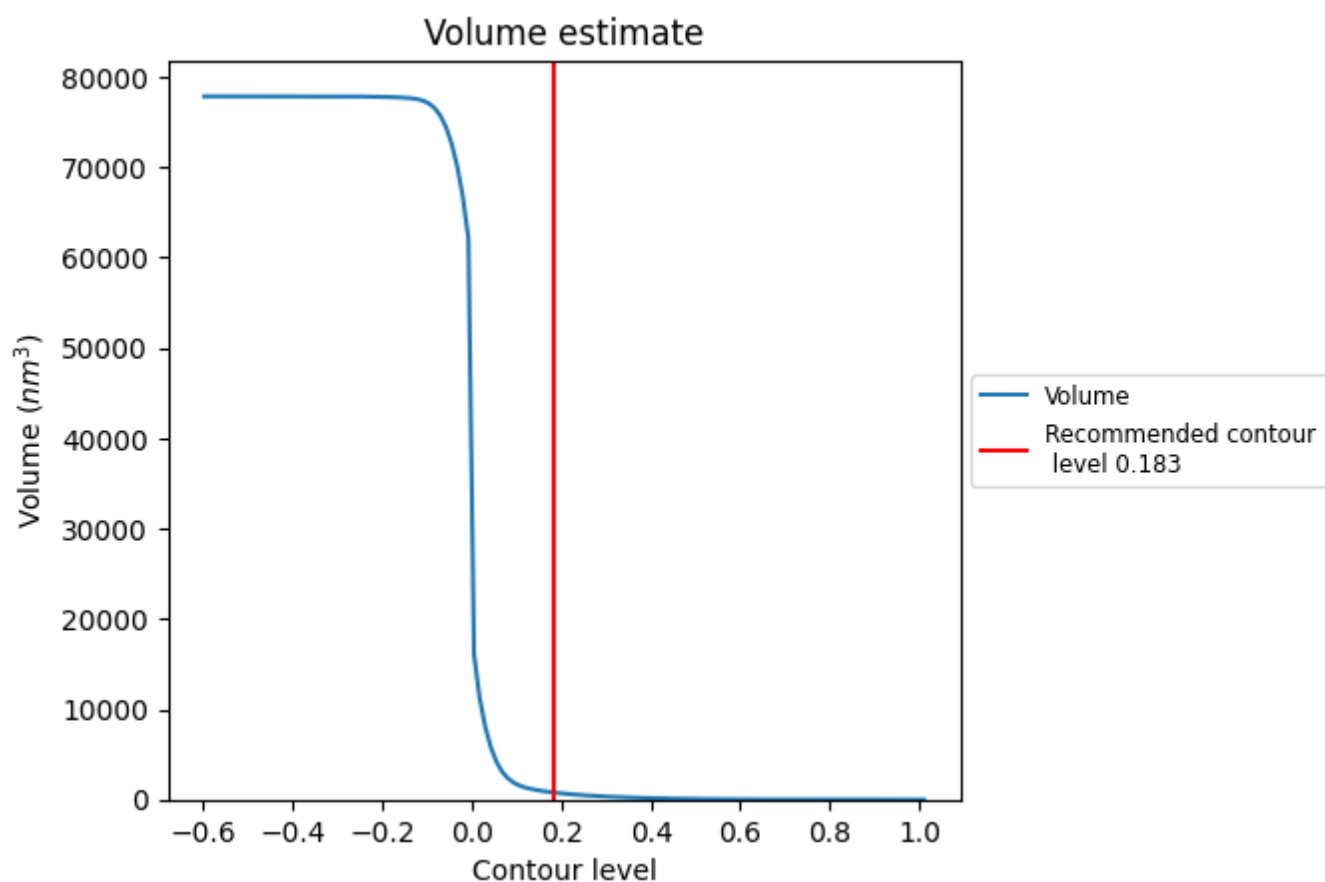
This section contains the results of statistical analysis of the map.

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.

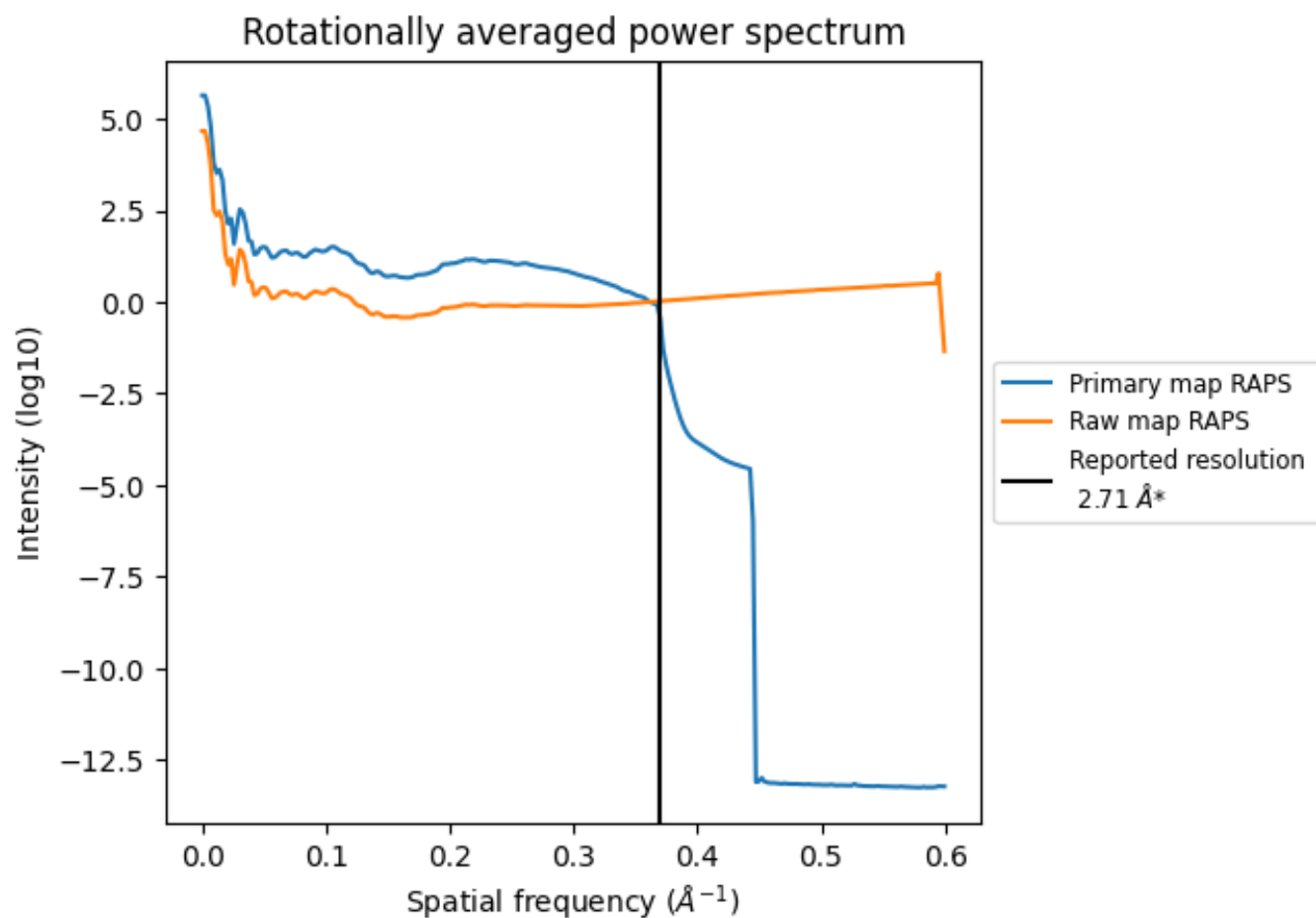
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 779 nm³; this corresponds to an approximate mass of 703 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 ⓘ

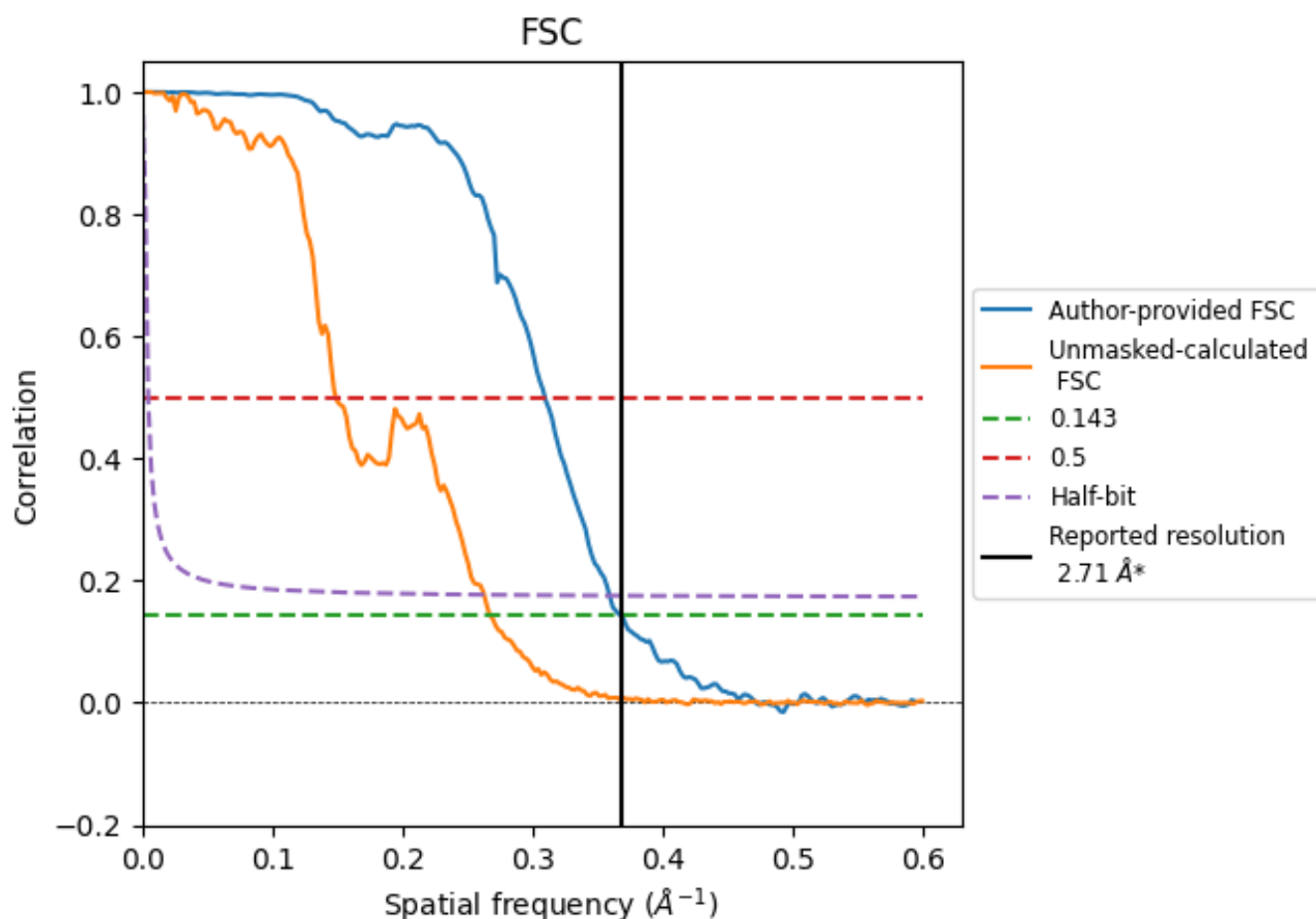


*Reported resolution corresponds to spatial frequency of 0.369 $\text{\AA}^{-1}$

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 0.369 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

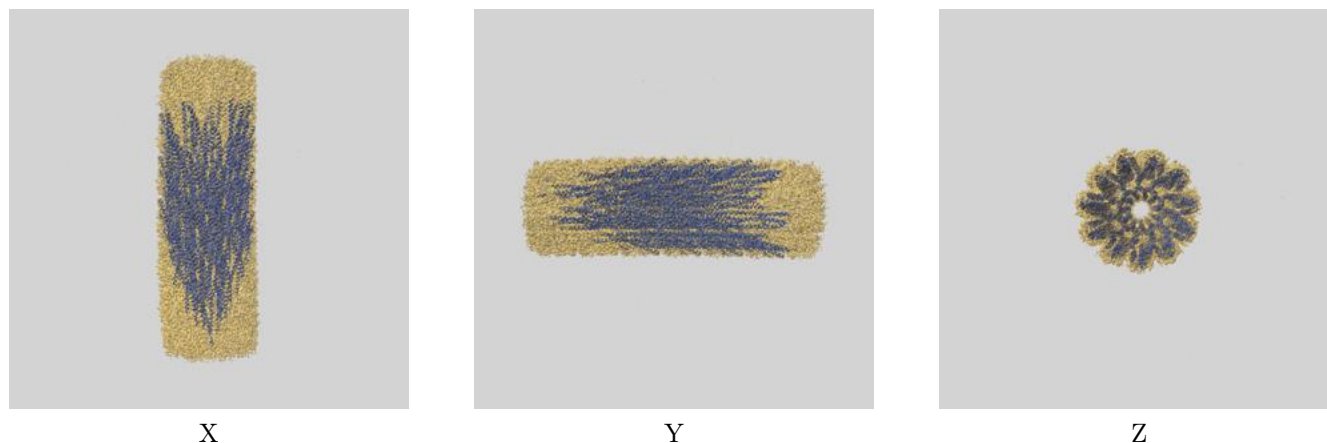
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.71	-	-
Author-provided FSC curve	2.71	3.23	2.78
Unmasked-calculated*	3.74	6.71	3.81

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.74 differs from the reported value 2.71 by more than 10 %

9 Map-model fit [i](#)

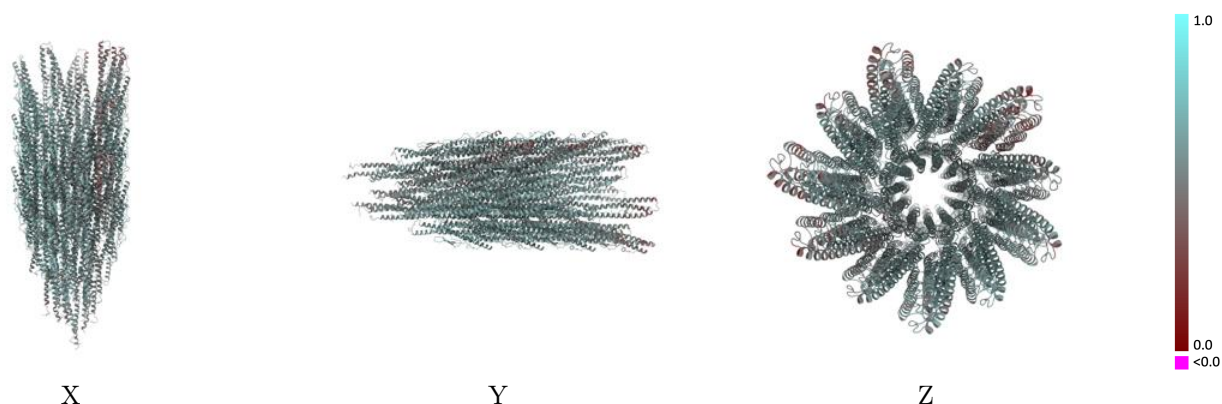
This section contains information regarding the fit between EMDB map EMD-42766 and PDB model 8UXJ. Per-residue inclusion information can be found in section [3](#) on page [7](#).

9.1 Map-model overlay [i](#)



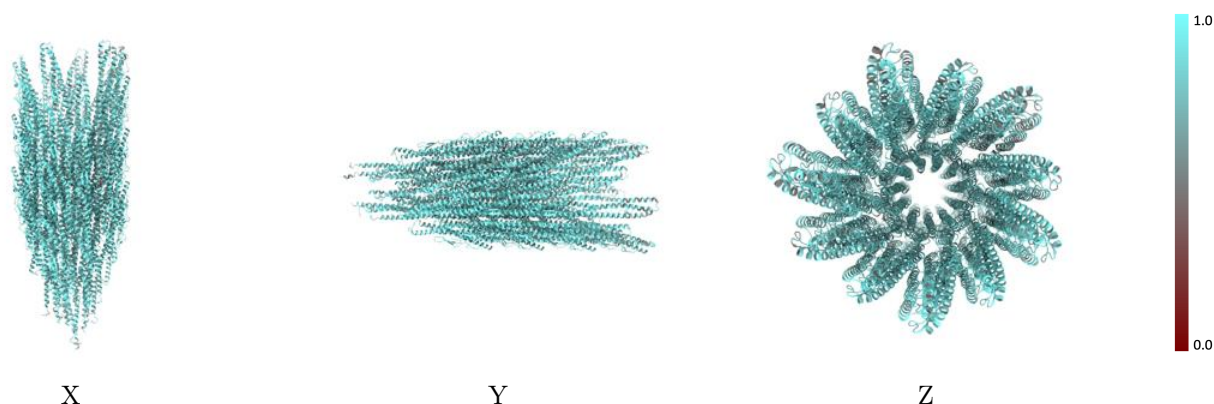
The images above show the 3D surface view of the map at the recommended contour level 0.183 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



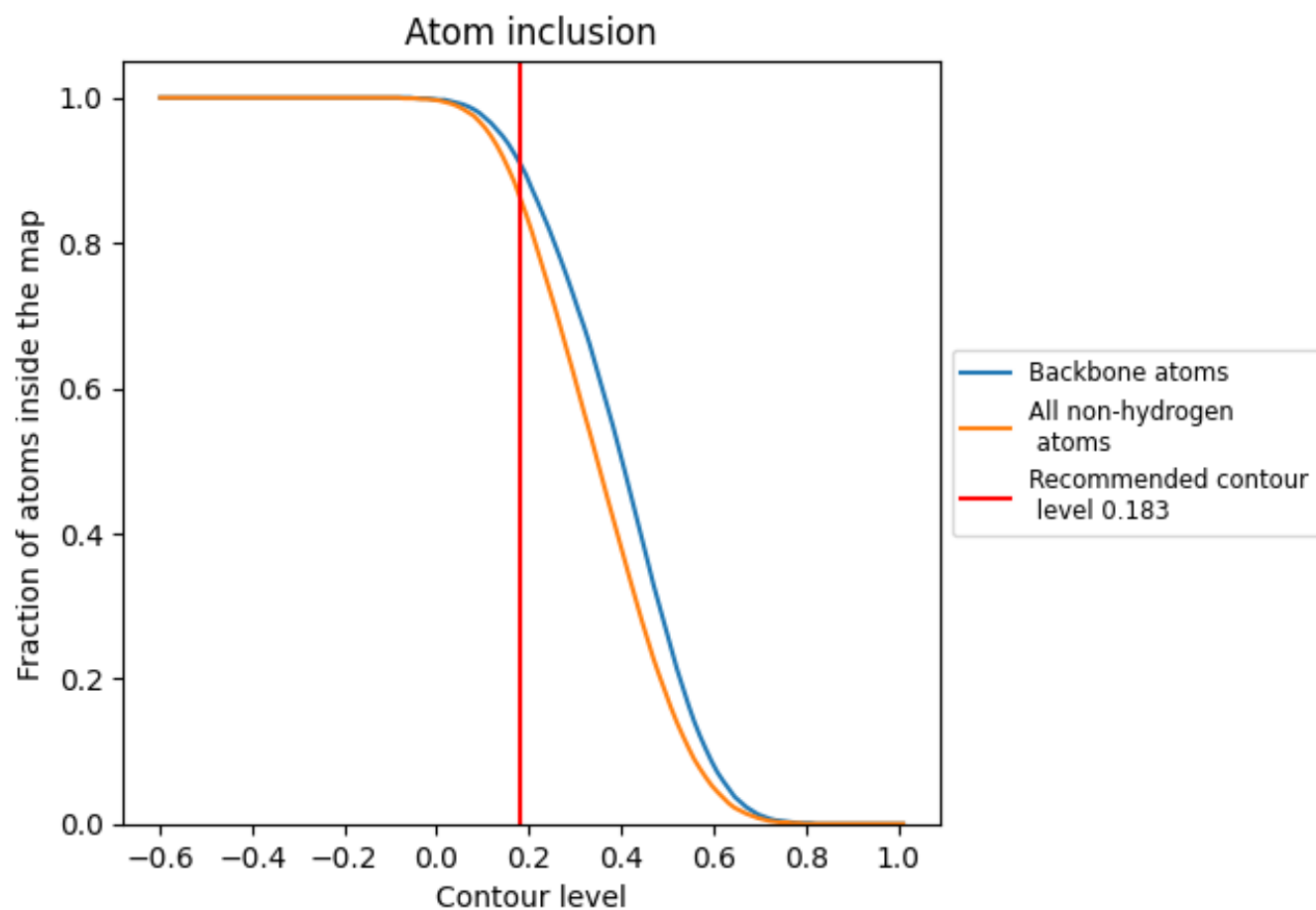
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.183).

9.4 Atom inclusion [i](#)



At the recommended contour level, 91% of all backbone atoms, 86% 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 (0.183) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8590	 0.5610
A	 0.8310	 0.5400
B	 0.8900	 0.5910
C	 0.9070	 0.6030
D	 0.8530	 0.5650
E	 0.8590	 0.5600
F	 0.9010	 0.5980
G	 0.8960	 0.5970
H	 0.7980	 0.5180
I	 0.8710	 0.5730
J	 0.8920	 0.5910
K	 0.8660	 0.5710
L	 0.8090	 0.5020
M	 0.8670	 0.5590
N	 0.8660	 0.5730
O	 0.8570	 0.5610
P	 0.8680	 0.5560
Q	 0.7990	 0.4990
R	 0.8600	 0.5700
S	 0.8960	 0.5880
T	 0.8760	 0.5760
U	 0.8840	 0.5860
V	 0.9000	 0.5970
W	 0.8730	 0.5780
X	 0.8510	 0.5500
Y	 0.8900	 0.5850
Z	 0.8790	 0.5830
a	 0.8350	 0.5650
b	 0.8370	 0.5380
c	 0.8690	 0.5620
d	 0.8480	 0.5550
e	 0.8050	 0.5150
f	 0.8200	 0.5090
g	 0.7650	 0.4640
h	 0.8710	 0.5740



Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
i	 0.8830	 0.5840
j	 0.8600	 0.5500