



wwPDB EM Validation Summary Report ⓘ

Jun 10, 2024 – 02:08 AM EDT

PDB ID : 8FTF
EMDB ID : EMD-29425
Title : CryoEM strucutre of 33-mer RBM3 of the Salmonella MS-ring
Authors : Singh, P.S.; Nakagawa, T.; Cecchini, G.; Iverson, T.M.
Deposited on : 2023-01-12
Resolution : 2.90 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.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

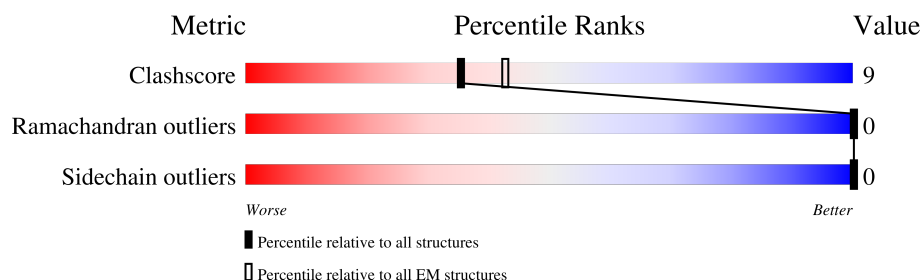
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.90 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.








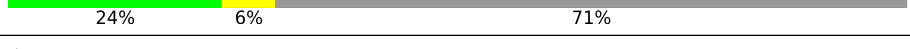

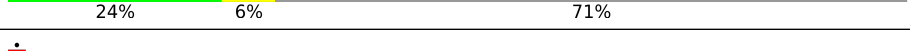
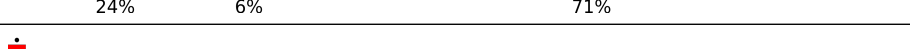
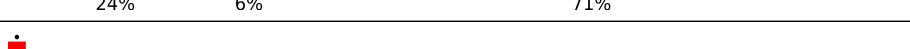















Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	560	
1	AA	560	
1	B	560	
1	BA	560	
1	C	560	
1	CA	560	
1	D	560	
1	DA	560	

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Mol	Chain	Length	Quality of chain
1	E	560	
1	EA	560	
1	F	560	
1	FA	560	
1	G	560	
1	GA	560	
1	H	560	
1	HA	560	
1	I	560	
1	J	560	
1	K	560	
1	L	560	
1	M	560	
1	N	560	
1	O	560	
1	P	560	
1	Q	560	
1	R	560	
1	S	560	
1	T	560	
1	V	560	
1	W	560	
1	X	560	
1	Y	560	
1	Z	560	

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 41646 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.

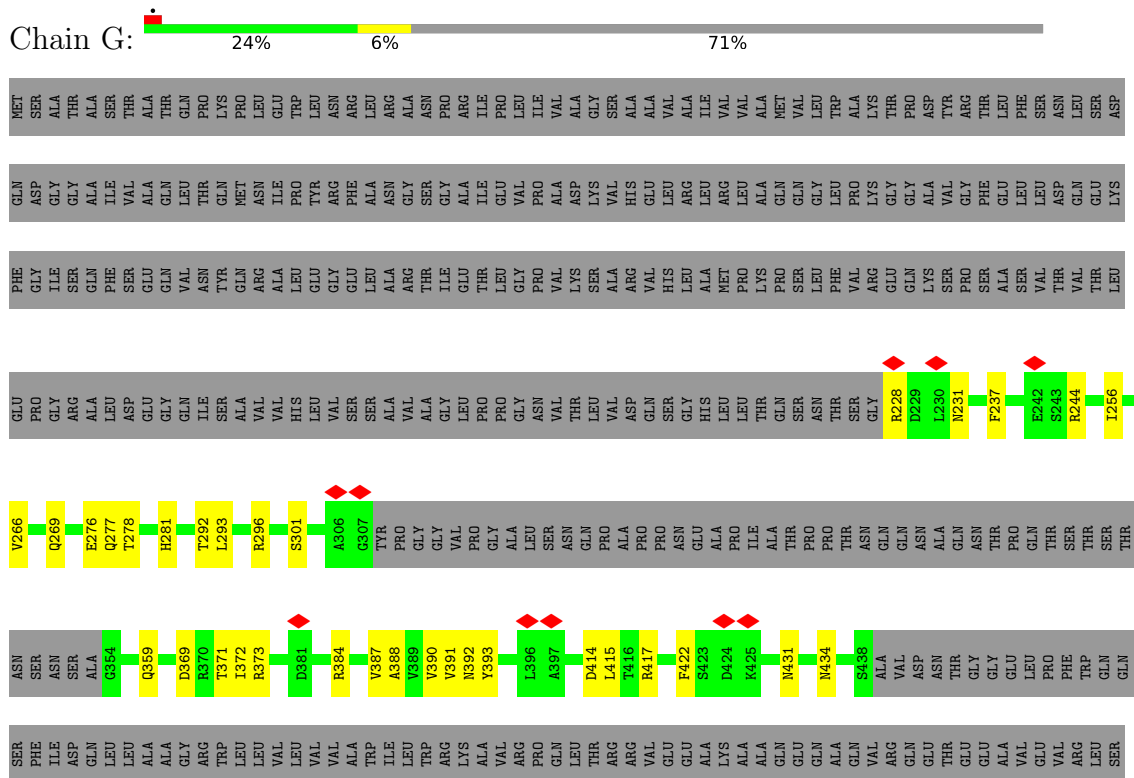
- Molecule 1 is a protein called Flagellar M-ring protein.

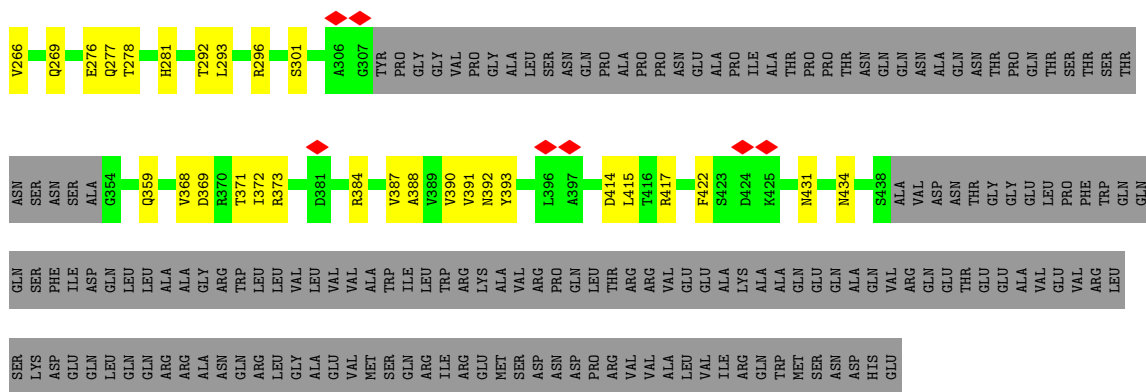
Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	B	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	C	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	D	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	E	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	F	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	G	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	H	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	I	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	J	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	K	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	L	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	M	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	N	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	O	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	P	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	Q	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		

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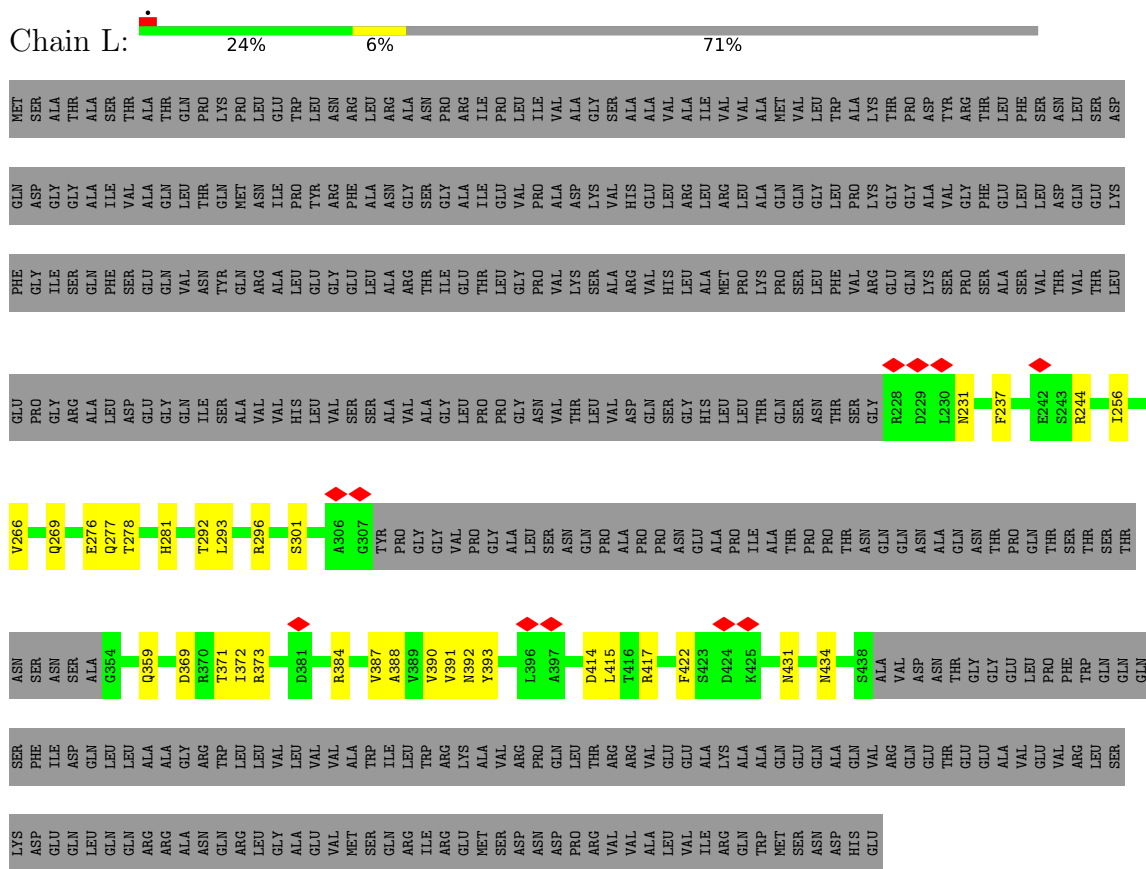
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Mol	Chain	Residues	Atoms					AltConf	Trace
1	R	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	S	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	T	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	V	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	W	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	X	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	Y	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	Z	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	AA	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	BA	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	CA	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	DA	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	EA	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	FA	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	GA	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		
1	HA	165	Total	C	N	O	S	0	0
			1262	770	233	256	3		

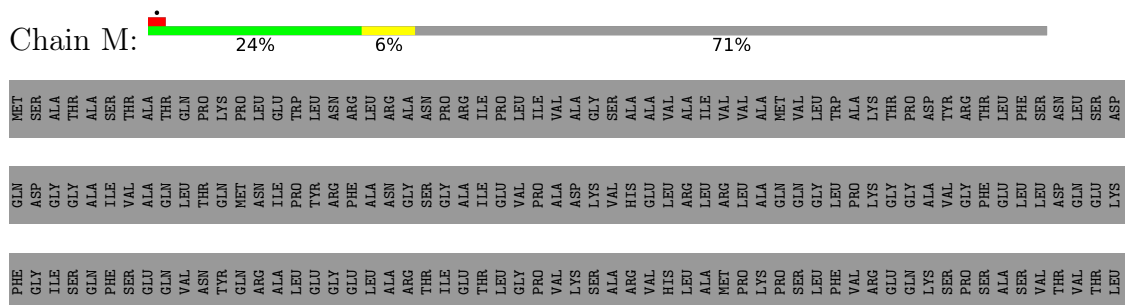




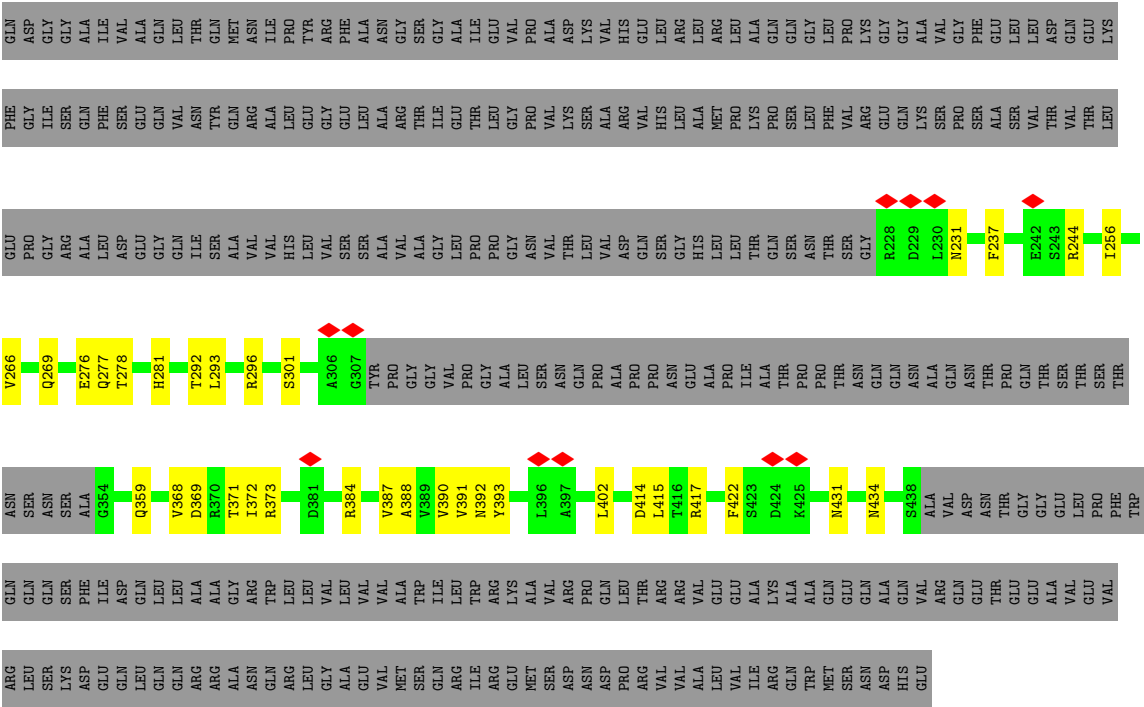
- Molecule 1: Flagellar M-ring protein



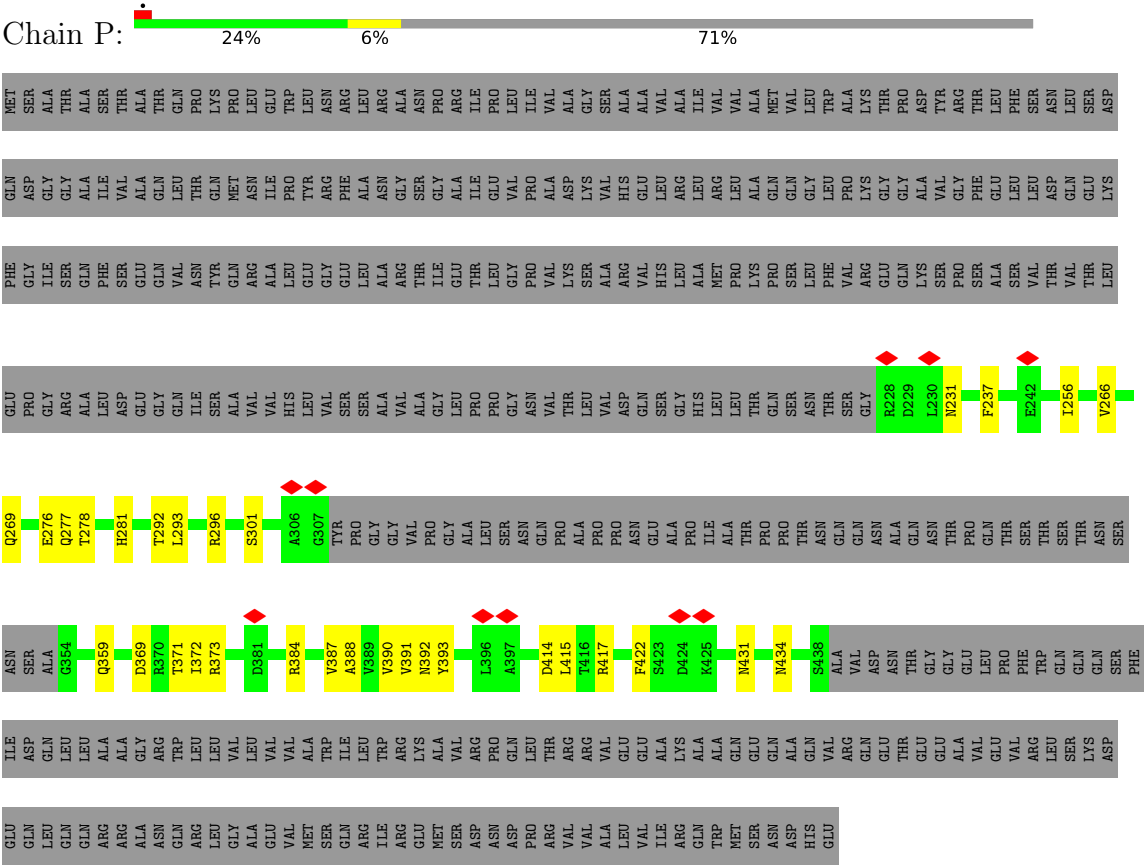
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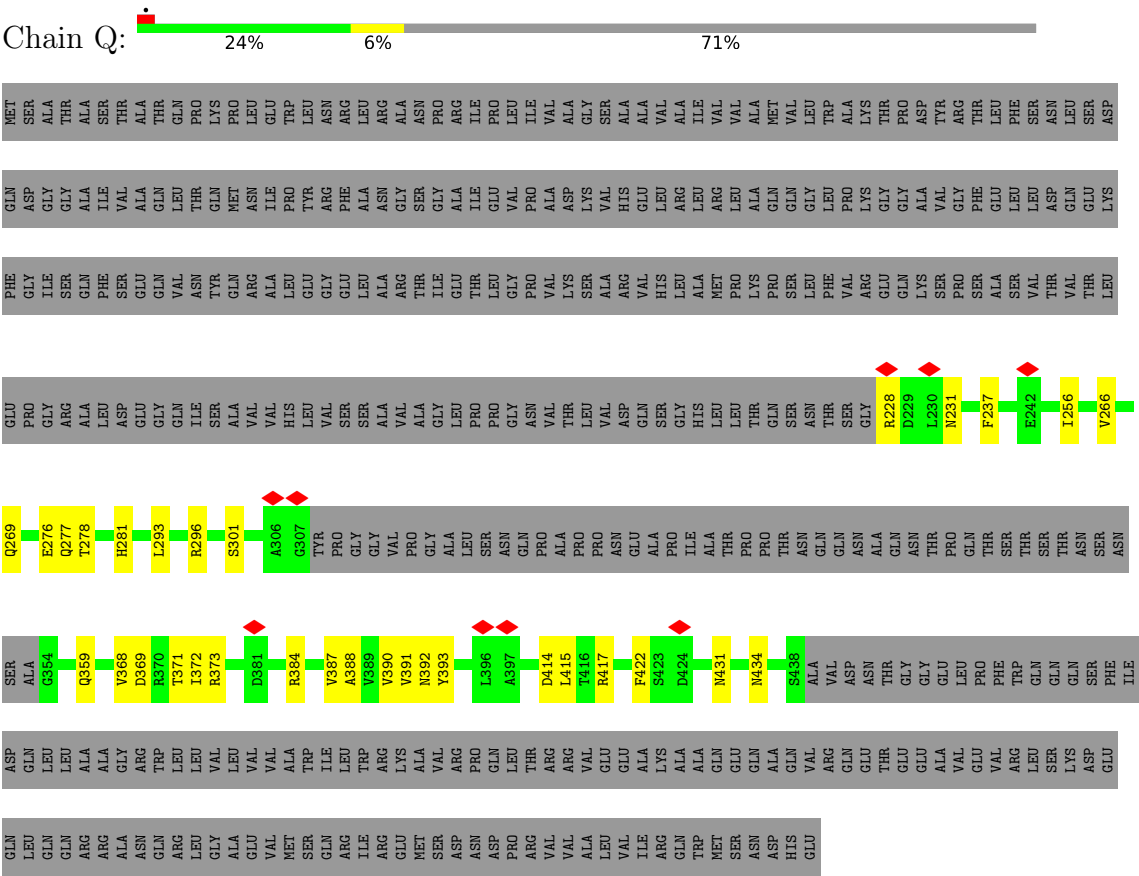




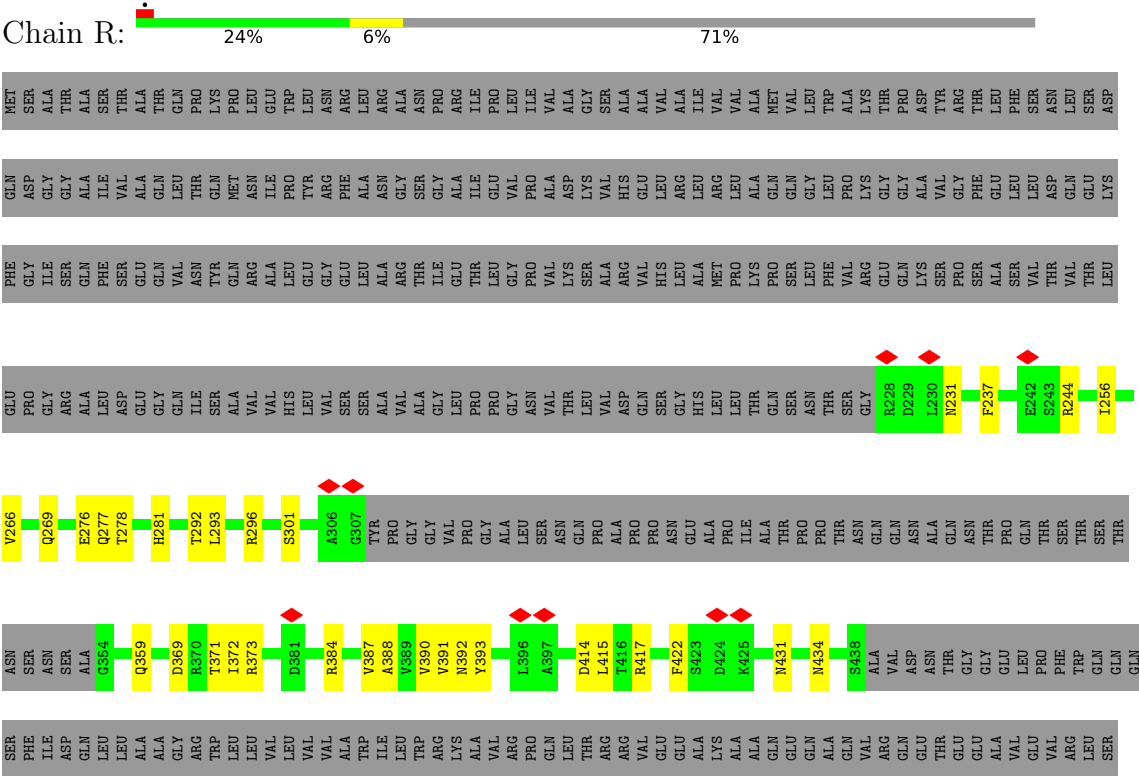
● Molecule 1: Flagellar M-ring protein



● Molecule 1: Flagellar M-ring protein



• Molecule 1: Flagellar M-ring protein



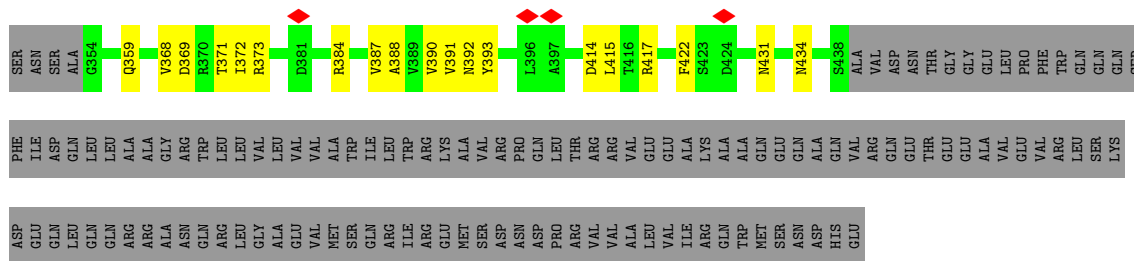
Chain S:



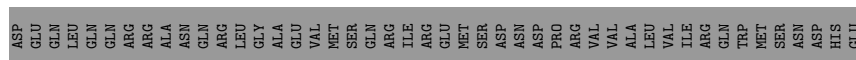
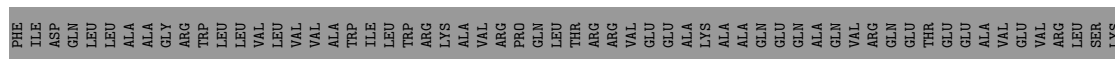
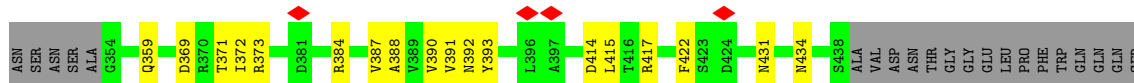
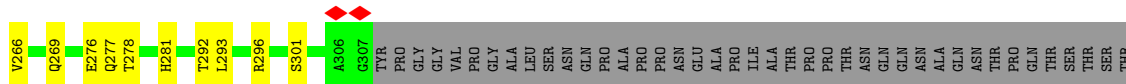
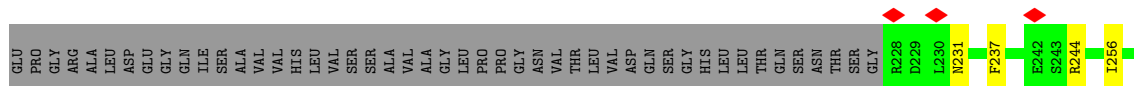
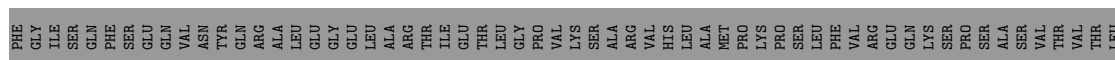
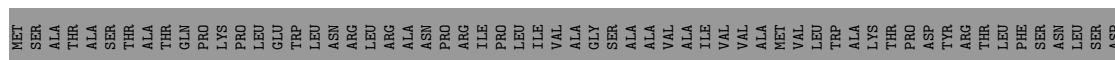
ASP	ASP	PHE	SER	V266	GLU	PHE	GLN	ASP	MET
GLU	GLN	ILE	ASN	Q269	PRO	GLY	ASP	SER	
LEU	LEU	GLN	ALA	G354	ARG	ILE	GLY	GLY	ALA
GLN	GLN	LEU	GLU	E276	ALA	GLN	ALA	ALA	ALA
ARG	ARG	ALA	Q359	Q277	LEU	PHE	ILE	SER	THR
ARG	ARG	ALA	Q359	T278	ASP	SER	VAL	THR	SER
ARG	ARG	ALA	Q359			GLU	ALA	ALA	ALA
ALA	ALA	GLY	D369	H281	GLU	GLN	GLN	GLN	THR
ASN	ASN	ARG	R370		GLY	VAL	VAL	GLN	GLN
GLN	GLN	TRP	T371	L293	ILE	ASN	THR	THR	PRO
ARG	ARG	LEU	I372		SER	TYR	GLN	GLN	LYS
LEU	LEU	LEU	R373	R296	ALA	GLN	MET	PRO	LEU
GLY	GLY	VAL			VAL	ARG	ASN	LEU	LEU
ALA	ALA	LEU	D381	S301	VAL	ALA	ILE	GLU	GLU
GLU	GLU	VAL			HIS	LEU	PRO	TYR	TRP
VAL	VAL	VAL	R384	A306	LEU	GLY	TYR	ARG	ASP
MET	MET	ALA		G307	VAL	GLY	PHE	ARG	ARG
SER	SER	TRP	V387		SER	LEU	ALA	ALA	ARG
GLN	GLN	ILE	A388	TYR	SER	GLY	ASN	GLY	ARG
ARG	ARG	LEU	V389	PRO	ALA	ARG	ALA	ALA	ALA
ILE	ILE	TRP	V390	GLY	VAL	THR	GLY	SER	ALA
ARG	ARG	ARG	V391	VAL	ALA	ILE	GLY	ASN	PRO
GLU	GLU	LYS	N392	PRO	LEU	GLU	ALA	ALA	ARG
MET	MET	ALA	Y393	GLY	PRO	THR	ILE	ILE	ILE
SER	SER	VAL		ALA	PRO	LEU	GLY	VAL	LEU
ASP	ASP	ARG	L396	LEU	GLY	GLY	PRO	GLU	LEU
ASN	ASN	PRO	A397	SER	ASN	PRO	ASN	ILE	ILE
ASP	ASP	GLN			VAL	VAL	ALA	ALA	ALA
PRO	PRO	LEU	D414	GLN	THR	VAL	LYS	GLY	ALA
ARG	ARG	THR	L415	PRO	LEU	SER	LYS	ASP	ALA
VAL	VAL	ARG	T416	ALA	VAL	ALA	VAL	VAL	VAL
ALA	ALA	GLU	R417	PRO	ASP	ARG	HIS	ALA	ALA
LEU	LEU	VAL		PRO	GLN	VAL	GLU	LEU	VAL
VAL	VAL	GLU	F422	ASN	SER	HIS	LEU	VAL	VAL
ILE	ILE	ALA	S423	GLU	GLY	LEU	ARG	ALA	ILE
ARG	ARG	LYS	D424	ALA	HIS	ALA	LEU	LEU	ILE
GLN	GLN	ALA	K425	PRO	LEU	MET	ARG	MET	VAL
TRP	TRP	ALA		ILE	LEU	PRO	LEU	VAL	VAL
MET	MET	GLU		ALA	THR	LYS	ALA	ALA	ALA
SER	SER	GLN	N431	THR	GLN	PRO	GLN	MET	MET
ASN	ASN	GLN		PRO	SER	THR	GLN	VAL	VAL
ASP	ASP	ALA	N434	PRO	ASN	PHE	GLY	LEU	TRP
HIS	HIS	GLN		THR	SER	VAL	LYS	PRO	ALA
GLU	GLU	VAL	S436	ASN	GLY	ARG	GLY	THR	ALA
		ARG	ALA	GLN	GLY	GLU	LYS	GLY	THR
		GLN	VAL	ASN	R228	GLN	GLY	THR	PRO
		GLU	ASP	GLN	D229	GLN	ALA	ASP	ASP
		THR	ASN	ALA	L230	LYS	ALA	TYR	THR
		GLU	THR	GLN	N231	SER	VAL	ARG	THR
		GLU	GLY	ASN		PRO	GLY	THR	THR
		ALA	GLU	THR	F237	SER	PHE	GLU	THR
		VAL	GLU	PRO		ALA	ALA	LEU	PHE
		GLU	PRO	THR		SER	LEU	LEU	SER
		ARG	PHE	GLN	E242	VAL	ASP	ASN	SER
		VAL	THR	THR	S243	THR	GLN	GLU	LEU
		ARG	TRP	SER	R244	VAL	GLU	SER	LEU
		LEU	GLN	THR		THR	THR	GLU	SER
		SER	GLN	SER		THR	LYS	ASP	ASP
		LYS	GLN	ASN	T256	LEU		GLY	GLY

Chain T:

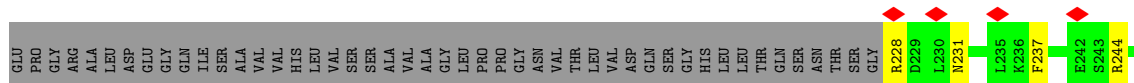
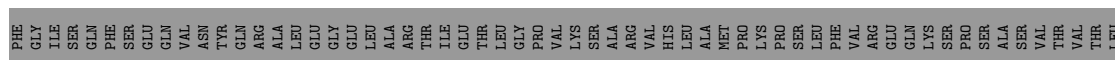
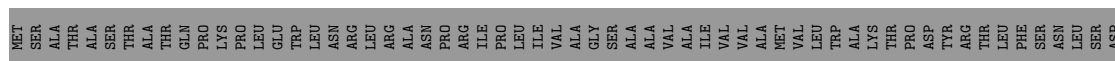
[illegible]



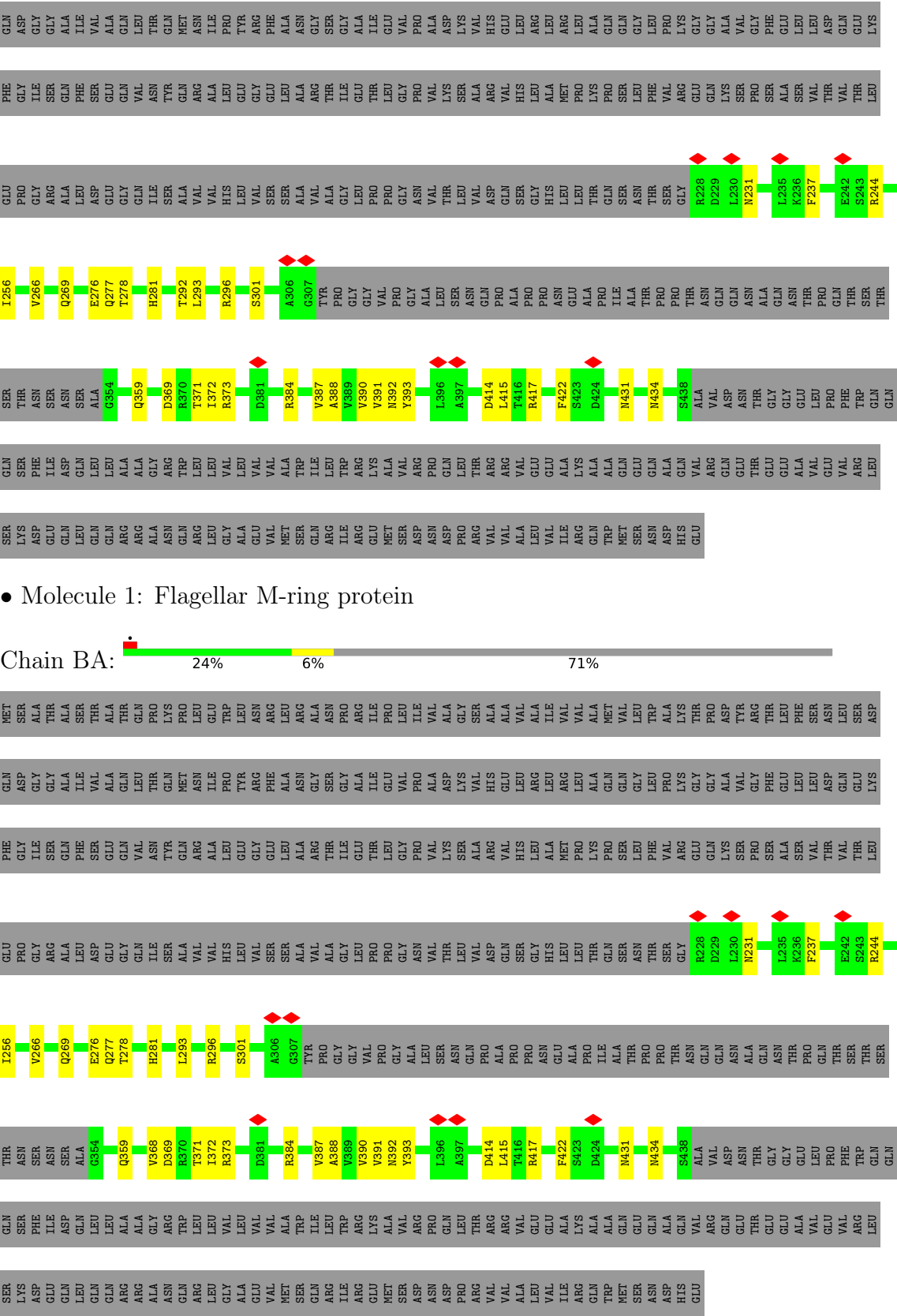
- Molecule 1: Flagellar M-ring protein



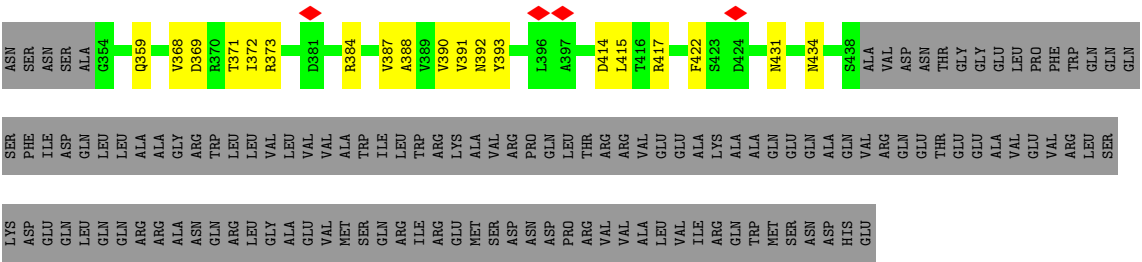
- Molecule 1: Flagellar M-ring protein



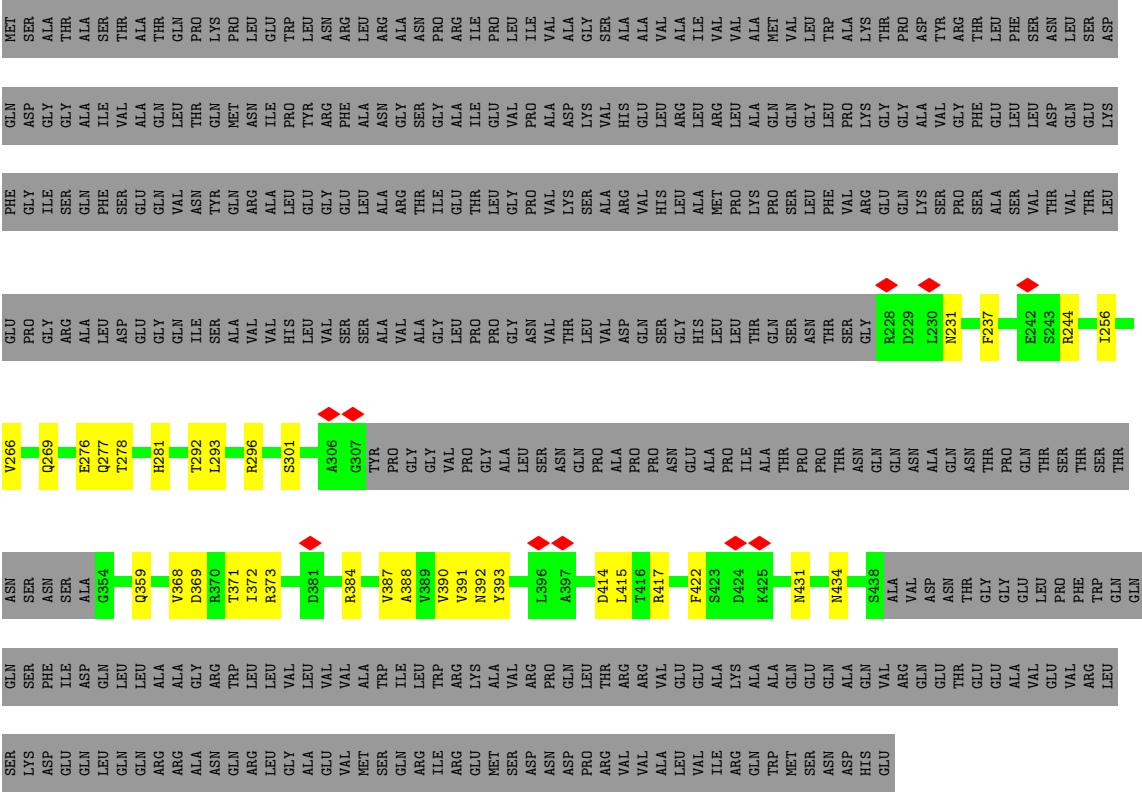




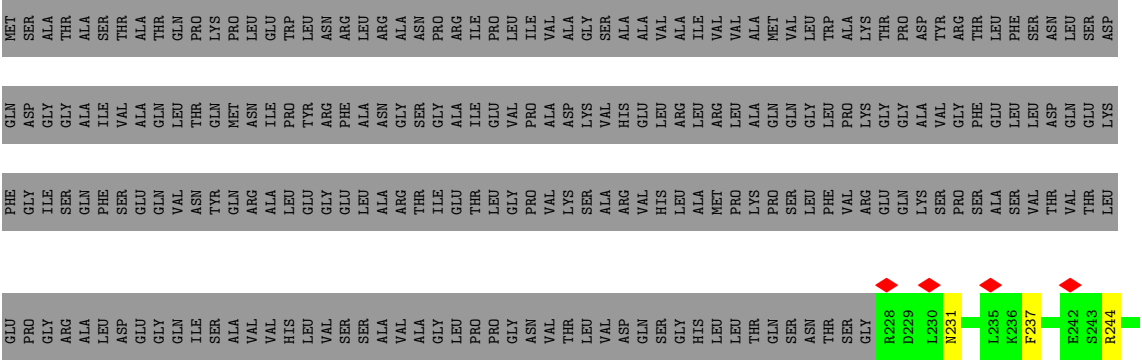


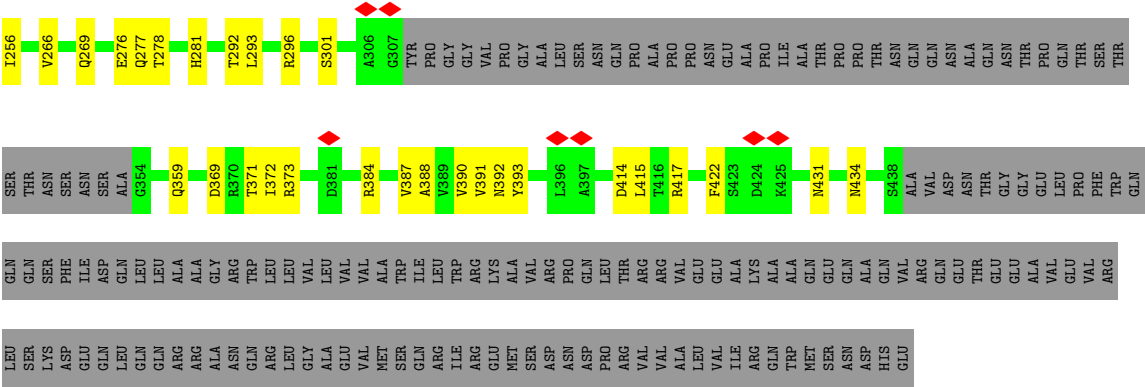


• Molecule 1: Flagellar M-ring protein



• Molecule 1: Flagellar M-ring protein





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C33	Depositor
Number of particles used	32042	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	1.095	Depositor
Minimum map value	-0.466	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.024	Depositor
Recommended contour level	0.163	Depositor
Map size (Å)	544.8, 544.8, 544.8	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.908, 0.908, 0.908	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	0.24	0/1276	0.50	0/1725
1	AA	0.24	0/1276	0.50	0/1725
1	B	0.24	0/1276	0.51	0/1725
1	BA	0.24	0/1276	0.50	0/1725
1	C	0.24	0/1276	0.50	0/1725
1	CA	0.24	0/1276	0.51	0/1725
1	D	0.24	0/1276	0.50	0/1725
1	DA	0.24	0/1276	0.50	0/1725
1	E	0.24	0/1276	0.50	0/1725
1	EA	0.24	0/1276	0.50	0/1725
1	F	0.24	0/1276	0.50	0/1725
1	FA	0.23	0/1276	0.50	0/1725
1	G	0.24	0/1276	0.50	0/1725
1	GA	0.24	0/1276	0.50	0/1725
1	H	0.24	0/1276	0.50	0/1725
1	HA	0.24	0/1276	0.50	0/1725
1	I	0.24	0/1276	0.50	0/1725
1	J	0.24	0/1276	0.50	0/1725
1	K	0.24	0/1276	0.50	0/1725
1	L	0.24	0/1276	0.50	0/1725
1	M	0.23	0/1276	0.50	0/1725
1	N	0.23	0/1276	0.50	0/1725
1	O	0.24	0/1276	0.50	0/1725
1	P	0.24	0/1276	0.50	0/1725
1	Q	0.24	0/1276	0.50	0/1725
1	R	0.24	0/1276	0.50	0/1725
1	S	0.24	0/1276	0.50	0/1725
1	T	0.24	0/1276	0.50	0/1725
1	V	0.24	0/1276	0.50	0/1725
1	W	0.24	0/1276	0.50	0/1725
1	X	0.24	0/1276	0.50	0/1725
1	Y	0.24	0/1276	0.50	0/1725
1	Z	0.24	0/1276	0.50	0/1725
All	All	0.24	0/42108	0.50	0/56925

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	1262	0	1229	33	0
1	AA	1262	0	1229	35	0
1	B	1262	0	1229	34	0
1	BA	1262	0	1229	33	0
1	C	1262	0	1229	37	0
1	CA	1262	0	1229	36	0
1	D	1262	0	1229	35	0
1	DA	1262	0	1229	37	0
1	E	1262	0	1229	33	0
1	EA	1262	0	1229	33	0
1	F	1262	0	1229	37	0
1	FA	1262	0	1229	32	0
1	G	1262	0	1229	37	0
1	GA	1262	0	1229	35	0
1	H	1262	0	1229	34	0
1	HA	1262	0	1229	34	0
1	I	1262	0	1229	34	0
1	J	1262	0	1229	37	0
1	K	1262	0	1229	37	0
1	L	1262	0	1229	35	0
1	M	1262	0	1229	34	0
1	N	1262	0	1229	37	0
1	O	1262	0	1229	38	0
1	P	1262	0	1229	34	0
1	Q	1262	0	1229	35	0
1	R	1262	0	1229	35	0
1	S	1262	0	1229	34	0
1	T	1262	0	1229	37	0
1	V	1262	0	1229	35	0
1	W	1262	0	1229	34	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	X	1262	0	1229	36	0
1	Y	1262	0	1229	36	0
1	Z	1262	0	1229	36	0
All	All	41646	0	40557	708	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 9.

The worst 5 of 708 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:C:231:ASN:CB	1:D:237:PHE:CE1	2.21	1.24
1:CA:231:ASN:CB	1:DA:237:PHE:CE1	2.21	1.24
1:Z:231:ASN:CB	1:AA:237:PHE:CE1	2.21	1.24
1:FA:231:ASN:CB	1:GA:237:PHE:CE1	2.20	1.24
1:Q:231:ASN:CB	1:R:237:PHE:CE1	2.21	1.23

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	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	AA	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	B	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	BA	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	C	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	CA	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	D	161/560 (29%)	158 (98%)	3 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	DA	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	E	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	EA	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	F	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	FA	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	G	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	GA	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	H	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	HA	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	I	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	J	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	K	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	L	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	M	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	N	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	O	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	P	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	Q	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	R	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	S	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	T	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	V	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	W	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	X	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	Y	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
1	Z	161/560 (29%)	158 (98%)	3 (2%)	0	100	100
All	All	5313/18480 (29%)	5214 (98%)	99 (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	137/467 (29%)	137 (100%)	0	100	100
1	AA	137/467 (29%)	137 (100%)	0	100	100
1	B	137/467 (29%)	137 (100%)	0	100	100
1	BA	137/467 (29%)	137 (100%)	0	100	100
1	C	137/467 (29%)	137 (100%)	0	100	100
1	CA	137/467 (29%)	137 (100%)	0	100	100
1	D	137/467 (29%)	137 (100%)	0	100	100
1	DA	137/467 (29%)	137 (100%)	0	100	100
1	E	137/467 (29%)	137 (100%)	0	100	100
1	EA	137/467 (29%)	137 (100%)	0	100	100
1	F	137/467 (29%)	137 (100%)	0	100	100
1	FA	137/467 (29%)	137 (100%)	0	100	100
1	G	137/467 (29%)	137 (100%)	0	100	100
1	GA	137/467 (29%)	137 (100%)	0	100	100
1	H	137/467 (29%)	137 (100%)	0	100	100
1	HA	137/467 (29%)	137 (100%)	0	100	100
1	I	137/467 (29%)	137 (100%)	0	100	100
1	J	137/467 (29%)	137 (100%)	0	100	100
1	K	137/467 (29%)	137 (100%)	0	100	100
1	L	137/467 (29%)	137 (100%)	0	100	100
1	M	137/467 (29%)	137 (100%)	0	100	100
1	N	137/467 (29%)	137 (100%)	0	100	100
1	O	137/467 (29%)	137 (100%)	0	100	100
1	P	137/467 (29%)	137 (100%)	0	100	100
1	Q	137/467 (29%)	137 (100%)	0	100	100
1	R	137/467 (29%)	137 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	S	137/467 (29%)	137 (100%)	0	100	100
1	T	137/467 (29%)	137 (100%)	0	100	100
1	V	137/467 (29%)	137 (100%)	0	100	100
1	W	137/467 (29%)	137 (100%)	0	100	100
1	X	137/467 (29%)	137 (100%)	0	100	100
1	Y	137/467 (29%)	137 (100%)	0	100	100
1	Z	137/467 (29%)	137 (100%)	0	100	100
All	All	4521/15411 (29%)	4521 (100%)	0	100	100

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

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

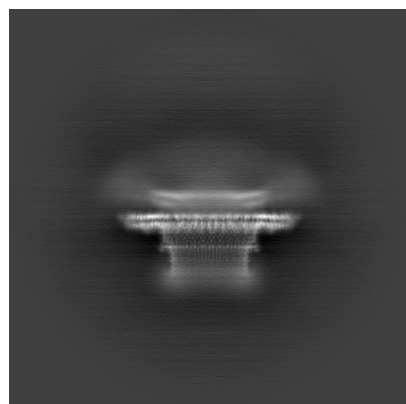
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-29425. These allow visual inspection of the internal detail of the map and identification of artifacts.

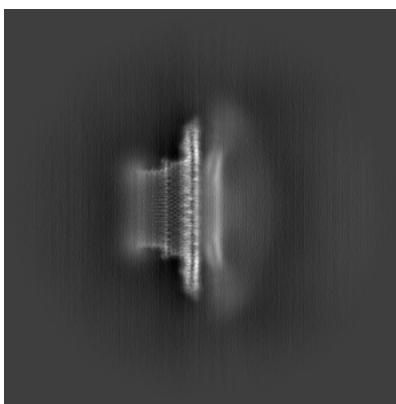
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

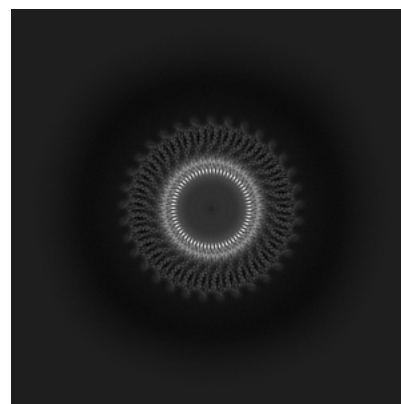
6.1.1 Primary map



X

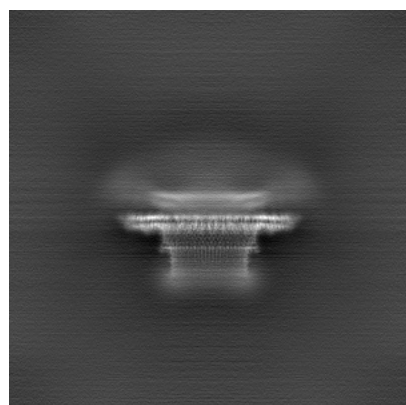


Y

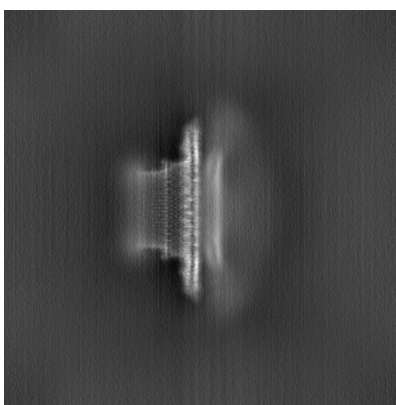


Z

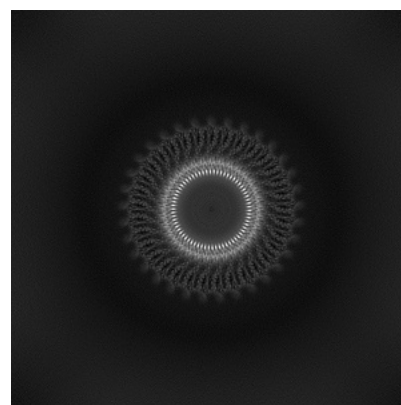
6.1.2 Raw map



X



Y

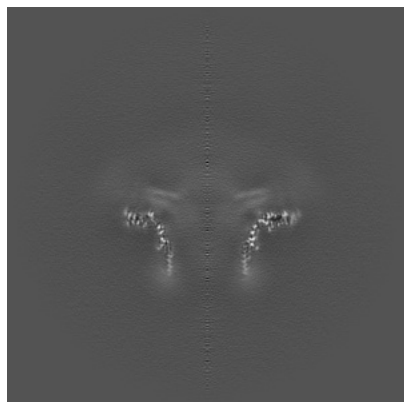


Z

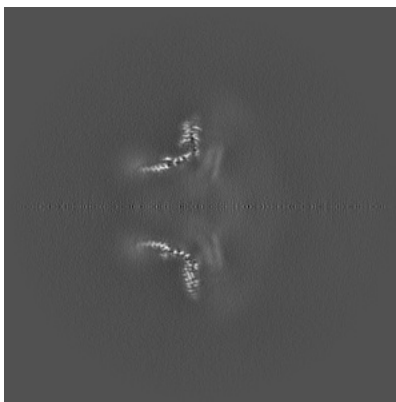
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

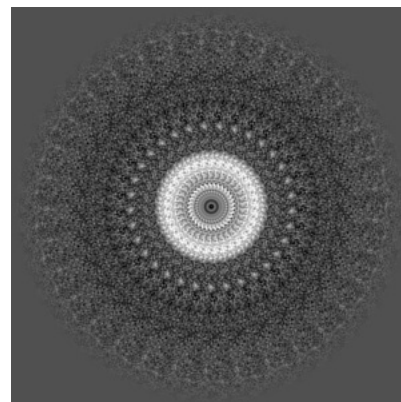
6.2.1 Primary map



X Index: 300

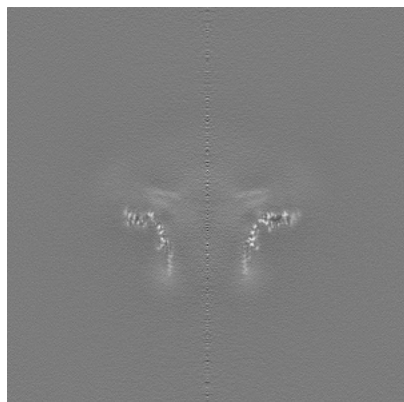


Y Index: 300



Z Index: 300

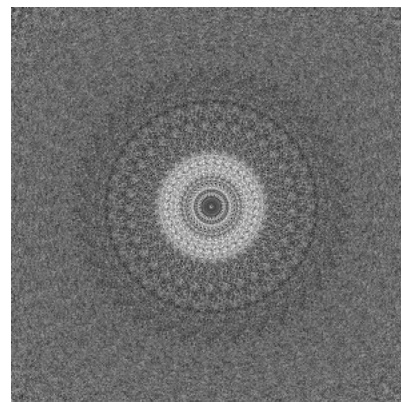
6.2.2 Raw map



X Index: 300



Y Index: 300

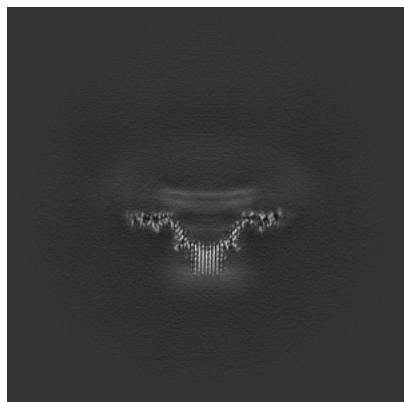


Z Index: 300

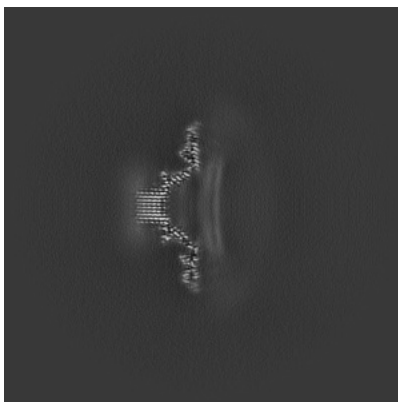
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

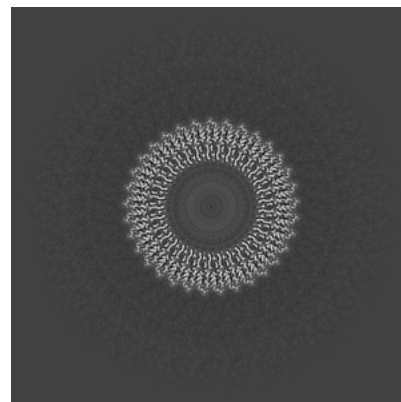
6.3.1 Primary map



X Index: 356

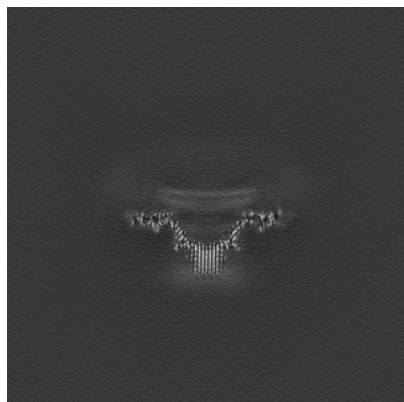


Y Index: 355

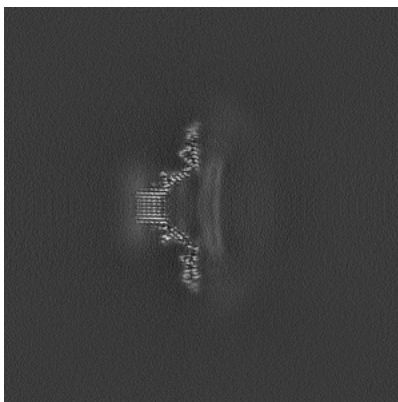


Z Index: 276

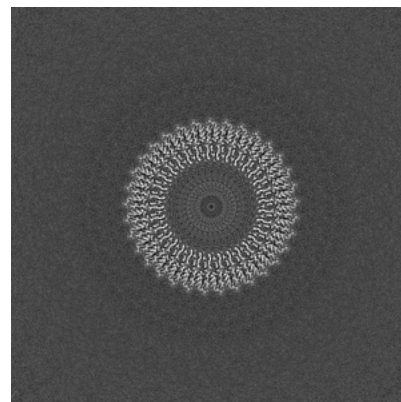
6.3.2 Raw map



X Index: 356



Y Index: 354

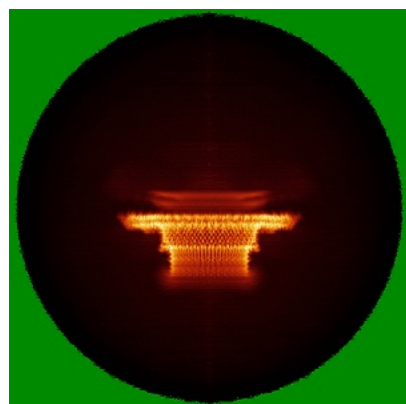


Z Index: 276

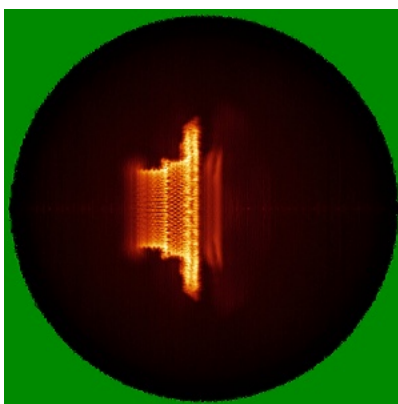
The images above show the largest variance slices of the map in three orthogonal directions.

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

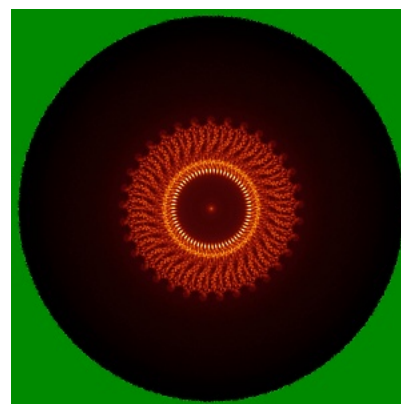
6.4.1 Primary map



X

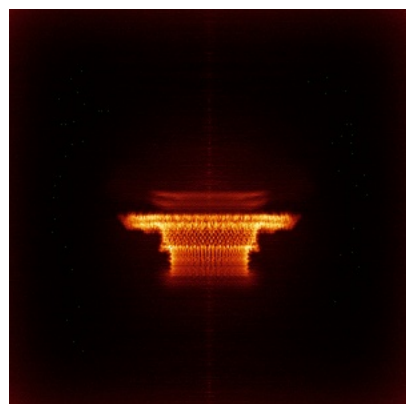


Y

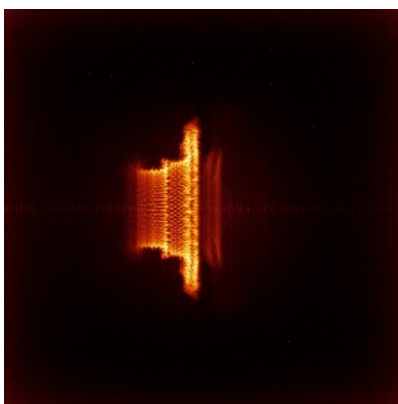


Z

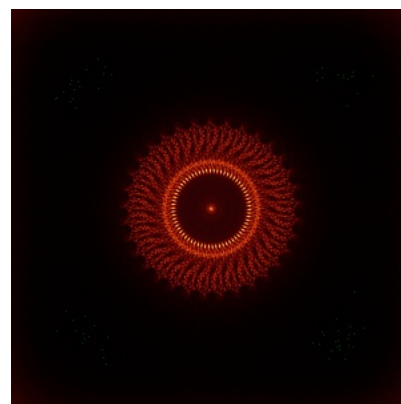
6.4.2 Raw map



X



Y

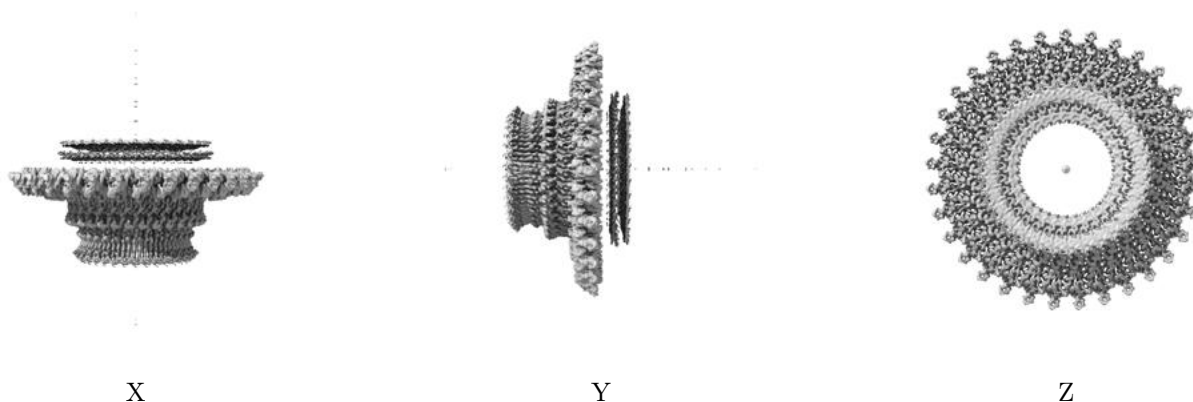


Z

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 0.163. 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.

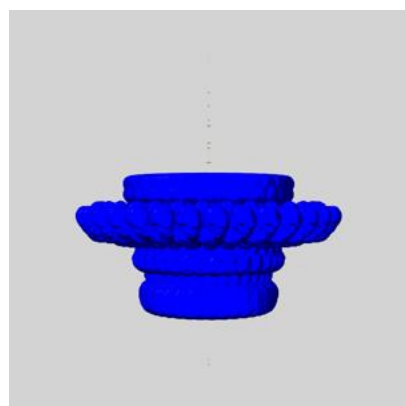
6.6 Mask visualisation [i](#)

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

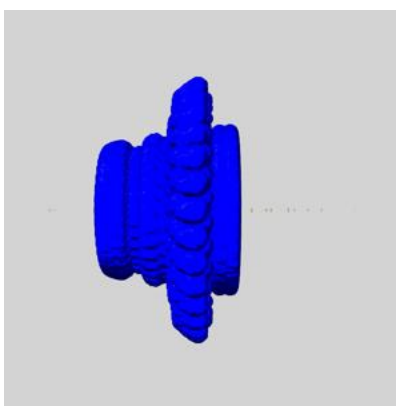
A mask typically either:

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

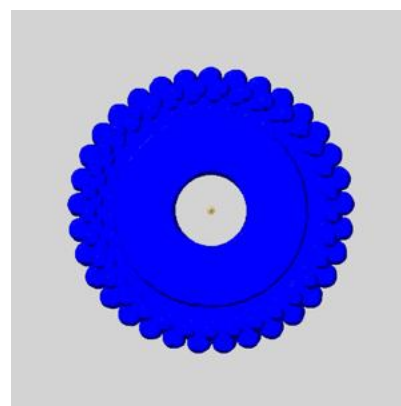
6.6.1 emd_29425_msk_1.map [i](#)



X



Y

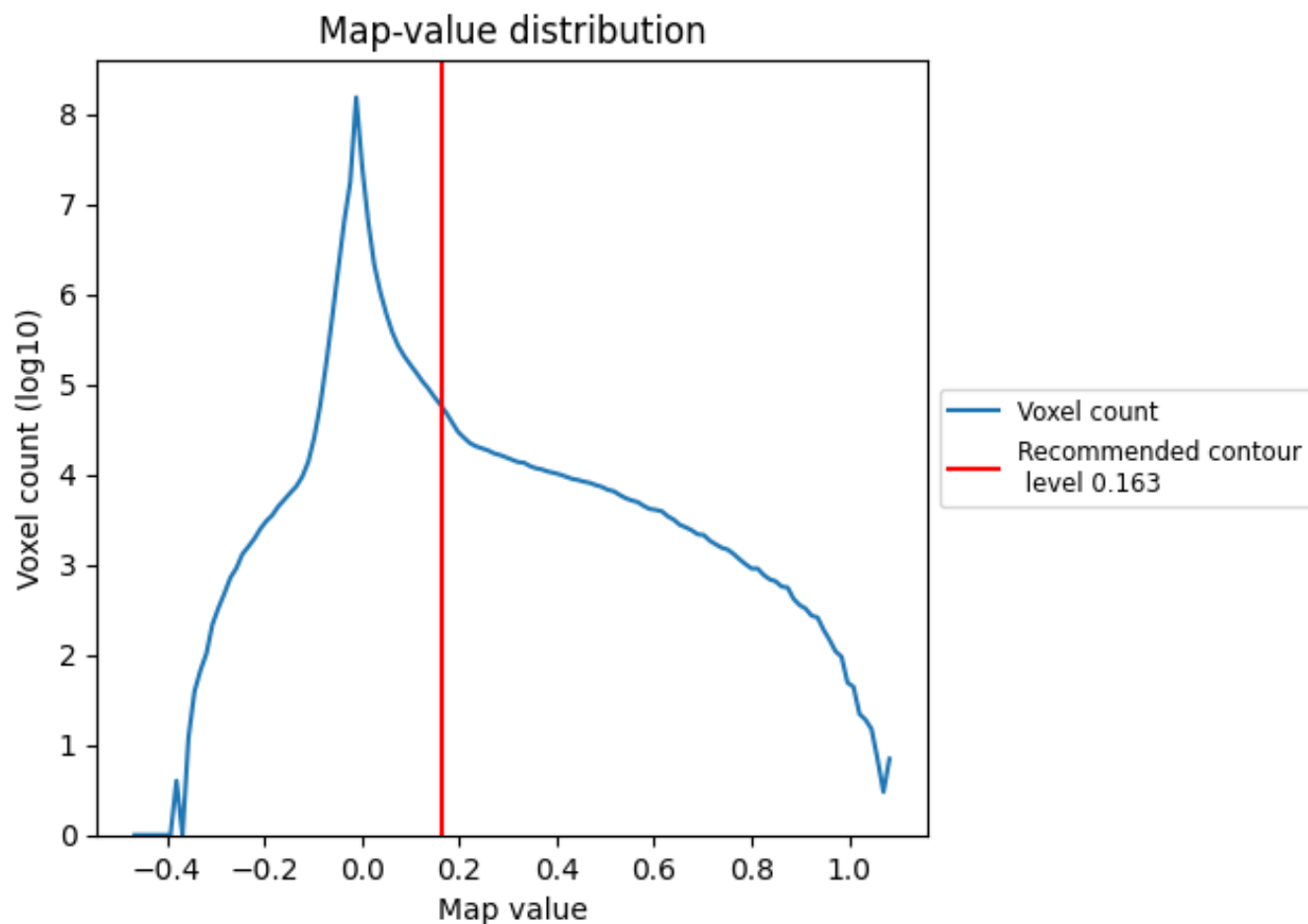


Z

7 Map analysis [i](#)

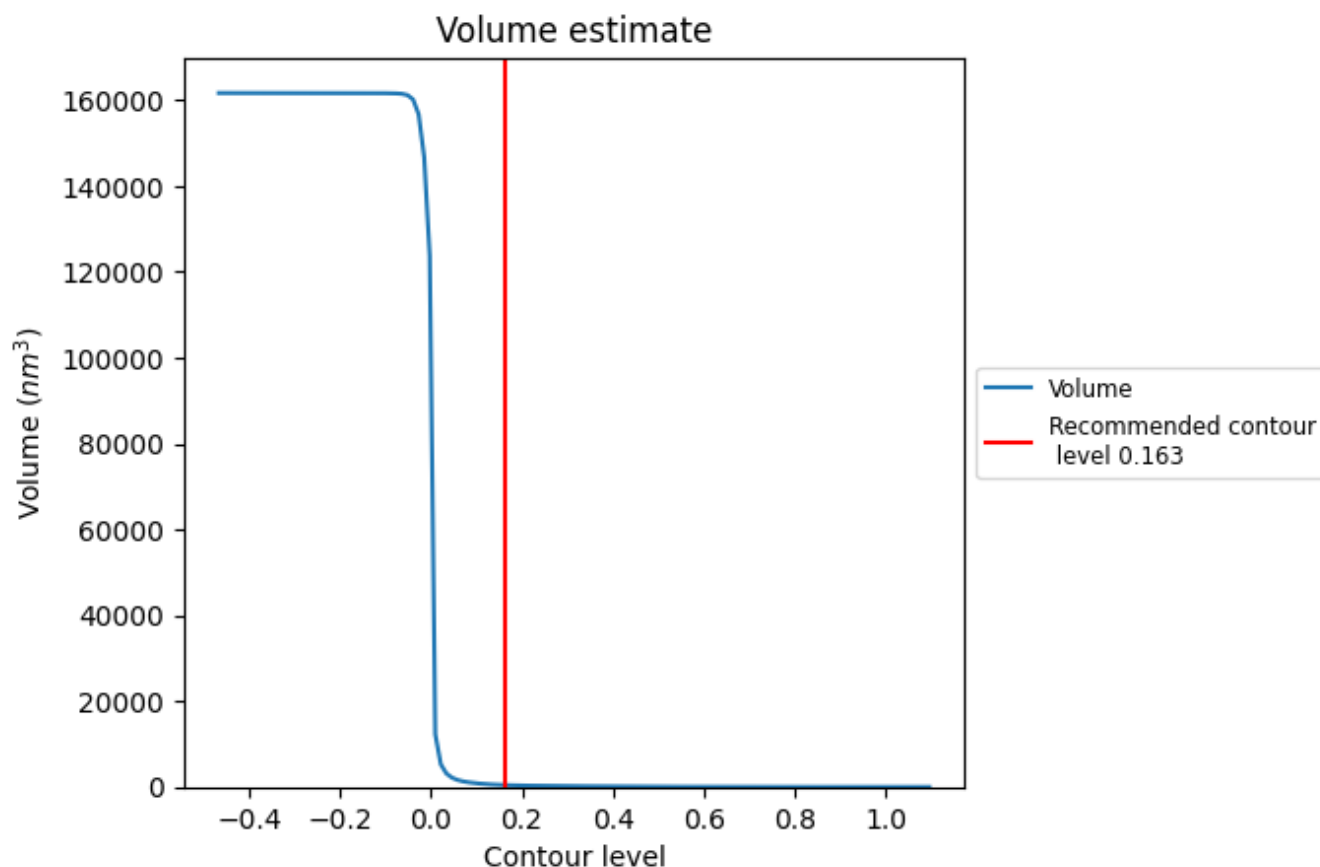
This section contains the results of statistical analysis of the map.

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.

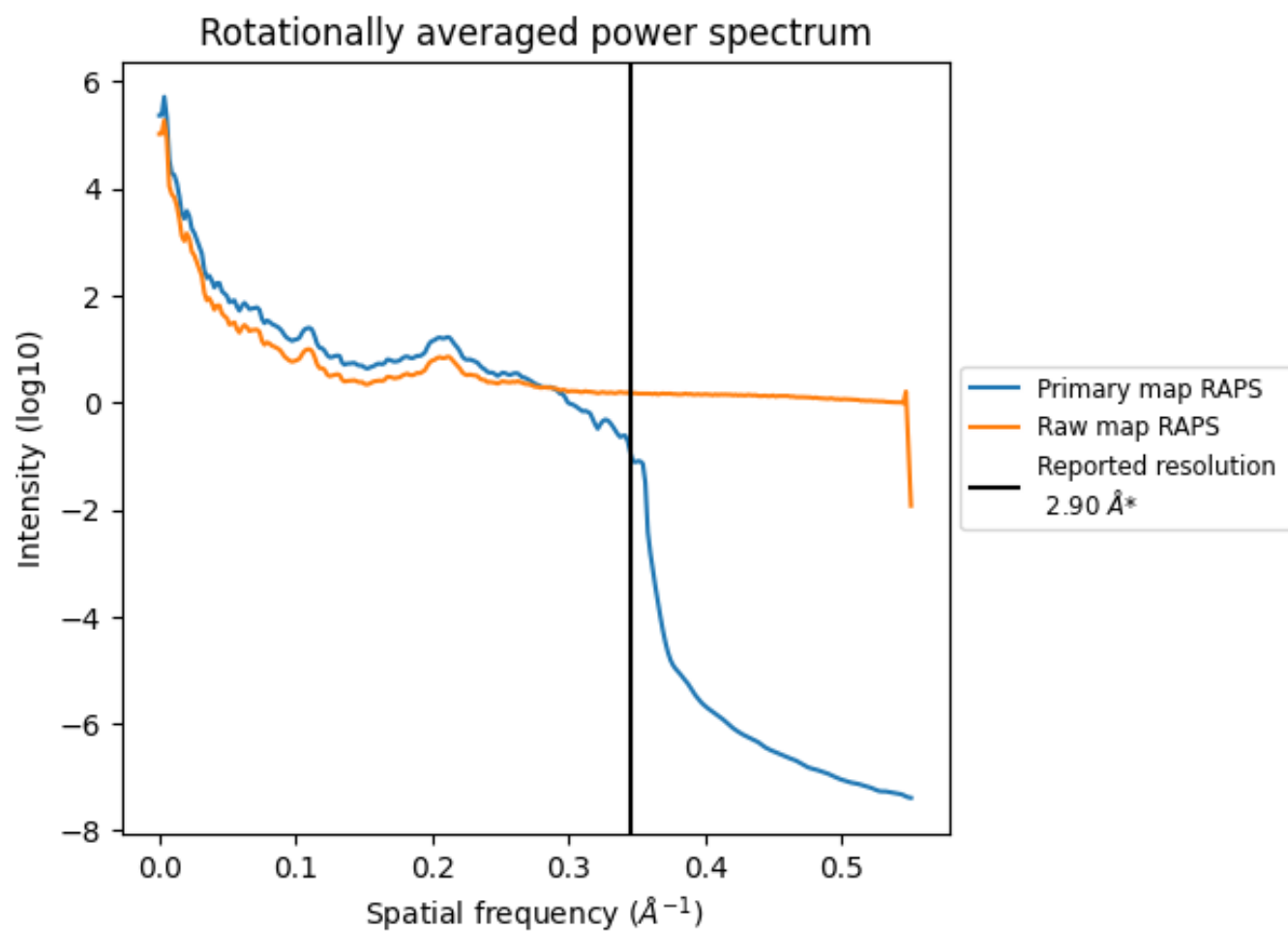
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 430 nm^3 ; this corresponds to an approximate mass of 388 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 ⓘ

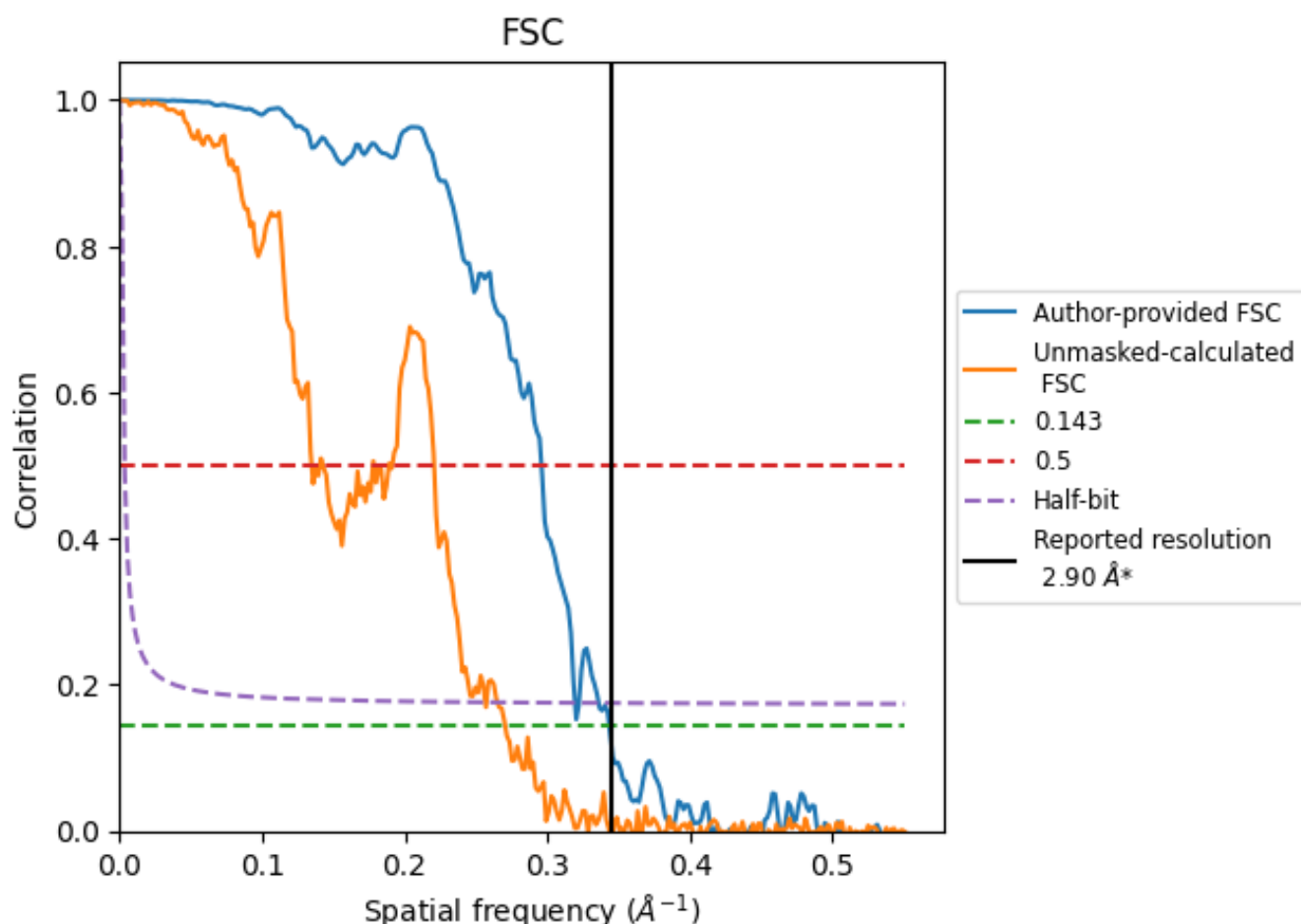


*Reported resolution corresponds to spatial frequency of 0.345 Å⁻¹

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 0.345 Å⁻¹

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.90	-	-
Author-provided FSC curve	2.91	3.38	3.13
Unmasked-calculated*	3.70	7.42	3.90

*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 3.70 differs from the reported value 2.9 by more than 10 %

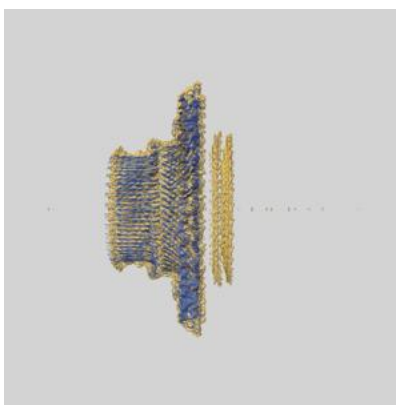
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-29425 and PDB model 8FTF. Per-residue inclusion information can be found in section [3](#) on page [6](#).

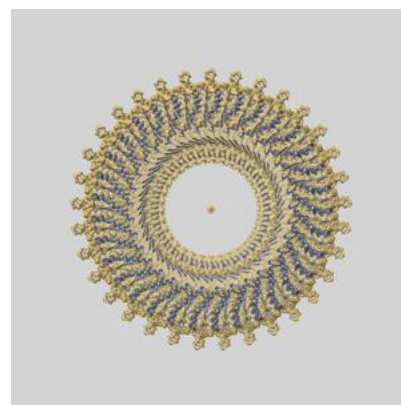
9.1 Map-model overlay [i](#)



X



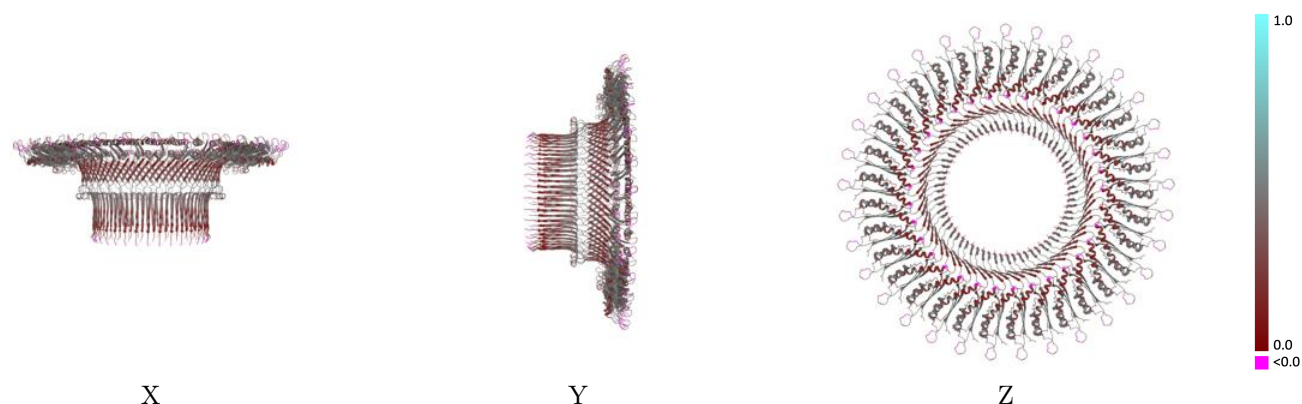
Y



Z

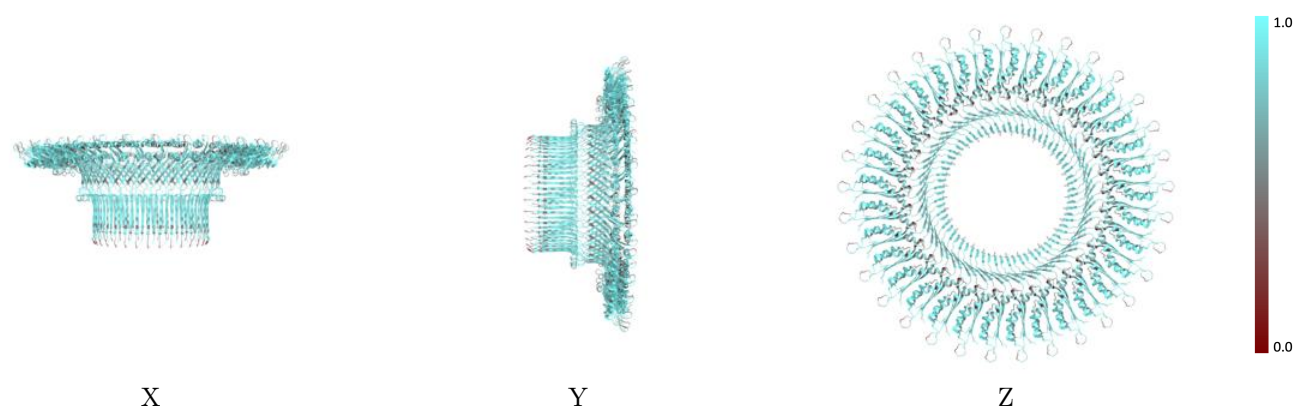
The images above show the 3D surface view of the map at the recommended contour level 0.163 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



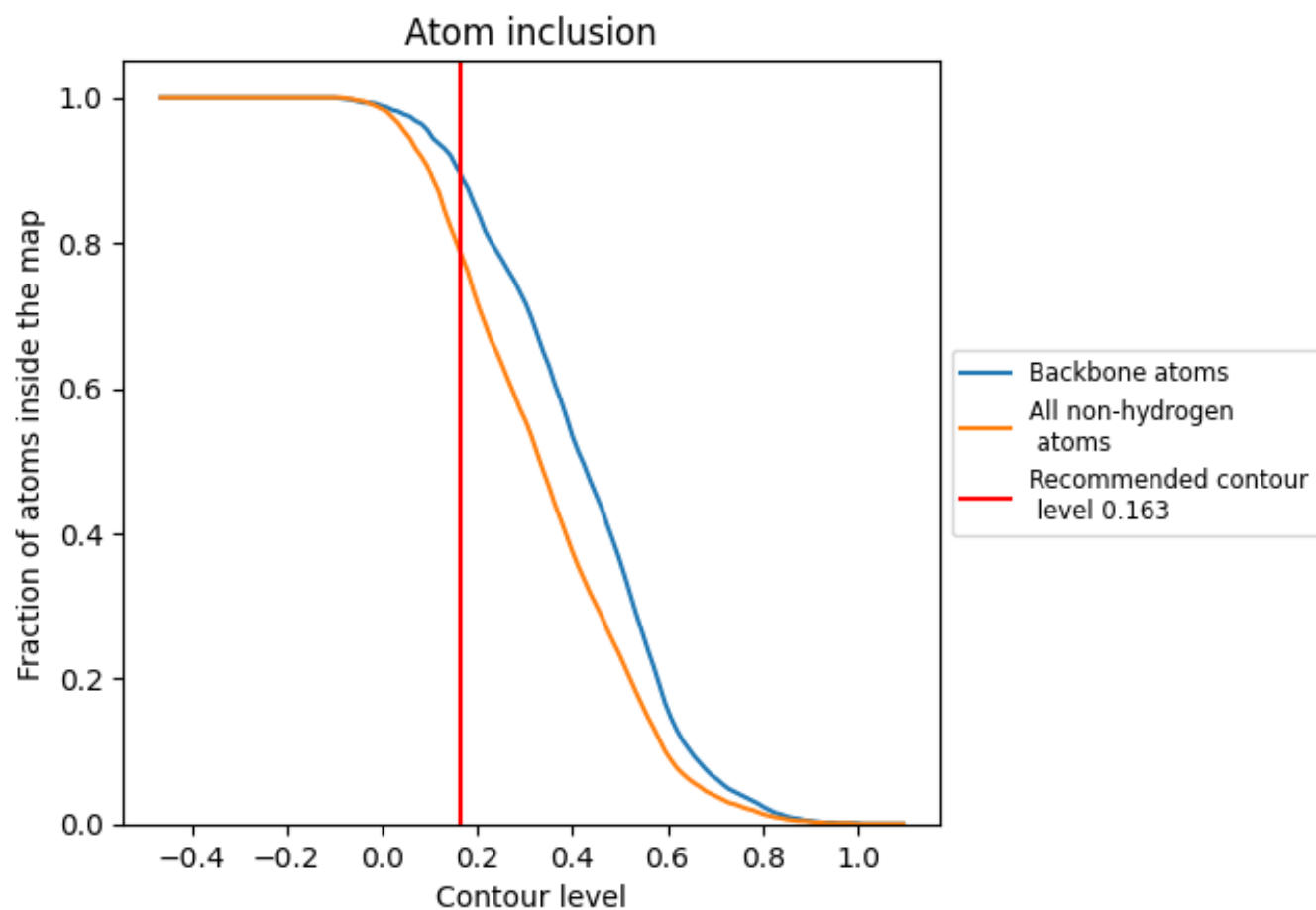
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.163).





































































9.4 Atom inclusion [i](#)



At the recommended contour level, 90% of all backbone atoms, 79% 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 (0.163) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7900	 0.3480
A	 0.7900	 0.3490
AA	 0.7910	 0.3500
B	 0.7900	 0.3510
BA	 0.7900	 0.3510
C	 0.7900	 0.3490
CA	 0.7930	 0.3530
D	 0.7910	 0.3460
DA	 0.7920	 0.3510
E	 0.7930	 0.3490
EA	 0.7910	 0.3540
F	 0.7890	 0.3470
FA	 0.7940	 0.3540
G	 0.7920	 0.3460
GA	 0.7870	 0.3500
H	 0.7910	 0.3440
HA	 0.7880	 0.3500
I	 0.7910	 0.3450
J	 0.7890	 0.3420
K	 0.7890	 0.3430
L	 0.7870	 0.3400
M	 0.7920	 0.3440
N	 0.7890	 0.3450
O	 0.7820	 0.3420
P	 0.7910	 0.3440
Q	 0.7910	 0.3460
R	 0.7870	 0.3450
S	 0.7900	 0.3470
T	 0.7910	 0.3470
V	 0.7910	 0.3470
W	 0.7930	 0.3510
X	 0.7940	 0.3480
Y	 0.7940	 0.3500
Z	 0.7920	 0.3530

