wwPDB EM Validation Summary Report (i)

Mar 19, 2024 – 09:27 PM JST

PDB ID	:	6JY0
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 (i) 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 (i)) were used in the production of this report:

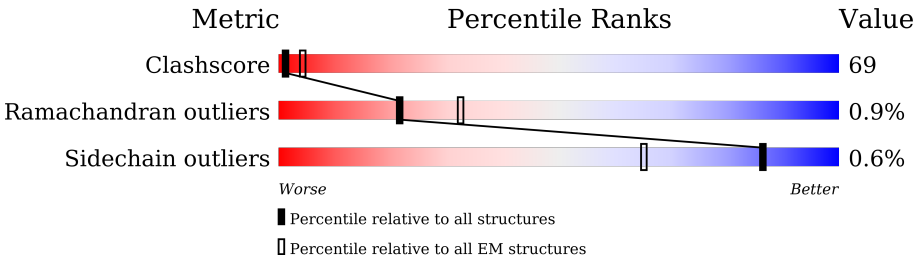
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 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	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 <=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	21% 41% 39% • 19%
1	B	506	21% 42% 39% • 19%
1	C	506	20% 42% 39% • 19%
1	D	506	22% 42% 39% • 19%
1	E	506	18% 42% 39% • 19%
1	F	506	20% 41% 40% • 19%
1	G	506	20% 40% 40% • 19%
1	H	506	19% 40% 40% • 19%

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Mol	Chain	Length	Quality of chain
1	I	506	18% 40% 40% 19%
1	J	506	19% 40% 40% 19%
1	K	506	17% 40% 40% 19%
1	L	506	18% 41% 40% 19%
1	M	506	19% 41% 40% 19%
1	N	506	18% 40% 41% 19%
1	O	506	20% 41% 40% 19%
1	P	506	17% 40% 40% 19%
1	Q	506	17% 41% 40% 19%
1	R	506	20% 42% 38% 19%
1	S	506	20% 42% 38% 19%
1	T	506	19% 42% 38% 19%
1	U	506	18% 42% 38% 19%
1	W	506	18% 42% 38% 19%

2 Entry composition (i)

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	C	N	O	S	0	0
			3027	1833	544	648	2		
1	B	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	C	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	D	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	E	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	F	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	G	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	H	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	I	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	J	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	K	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	L	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	M	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	N	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	O	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	P	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		
1	Q	410	Total	C	N	O	S	0	0
			3027	1833	544	648	2		

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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:

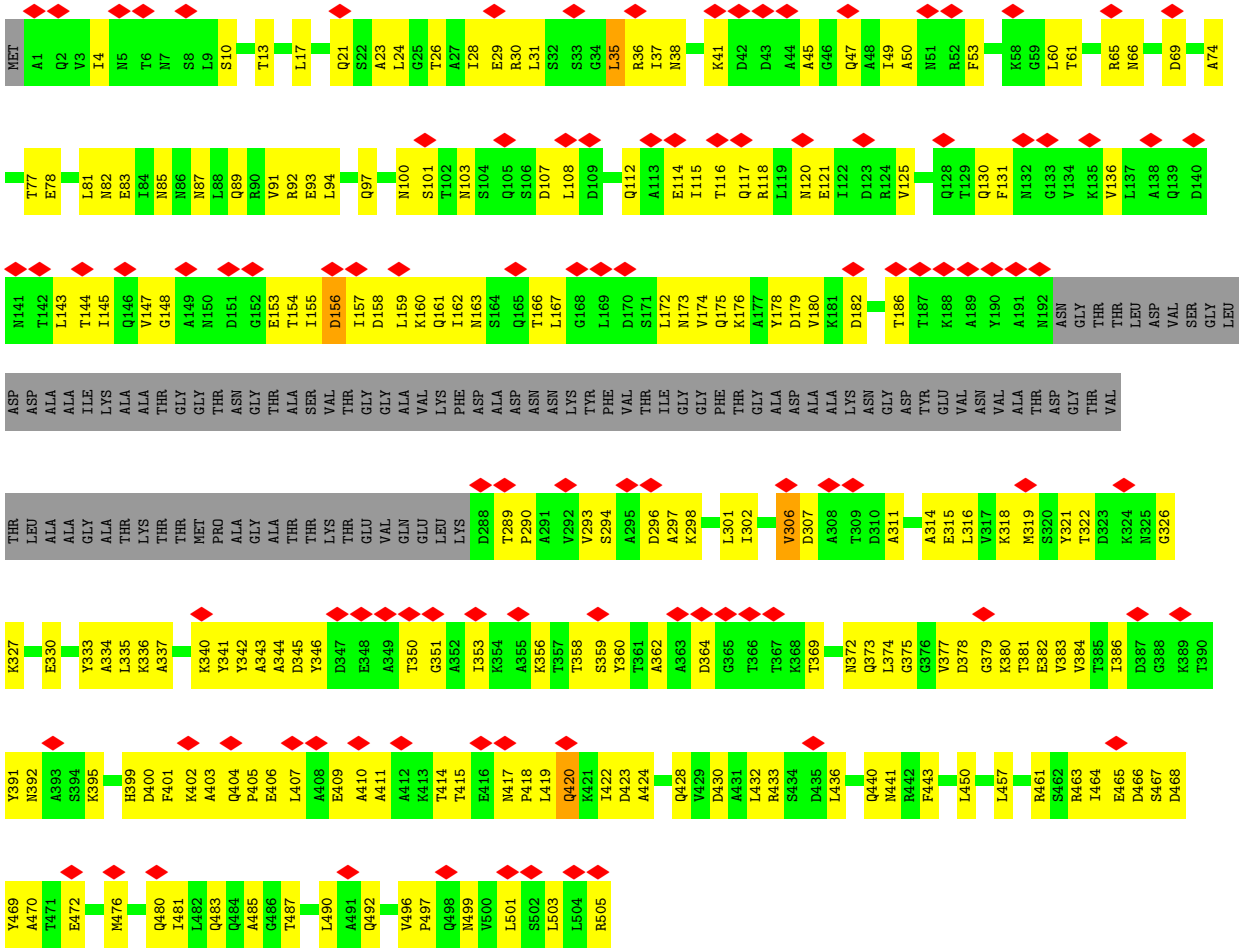
Chain	Residue	Modelled	Actual	Comment	Reference
A	460	VAL	ALA	engineered mutation	UNP Q549S3
B	460	VAL	ALA	engineered mutation	UNP Q549S3
C	460	VAL	ALA	engineered mutation	UNP Q549S3
D	460	VAL	ALA	engineered mutation	UNP Q549S3
E	460	VAL	ALA	engineered mutation	UNP Q549S3
F	460	VAL	ALA	engineered mutation	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

3 Residue-property plots (i)

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.

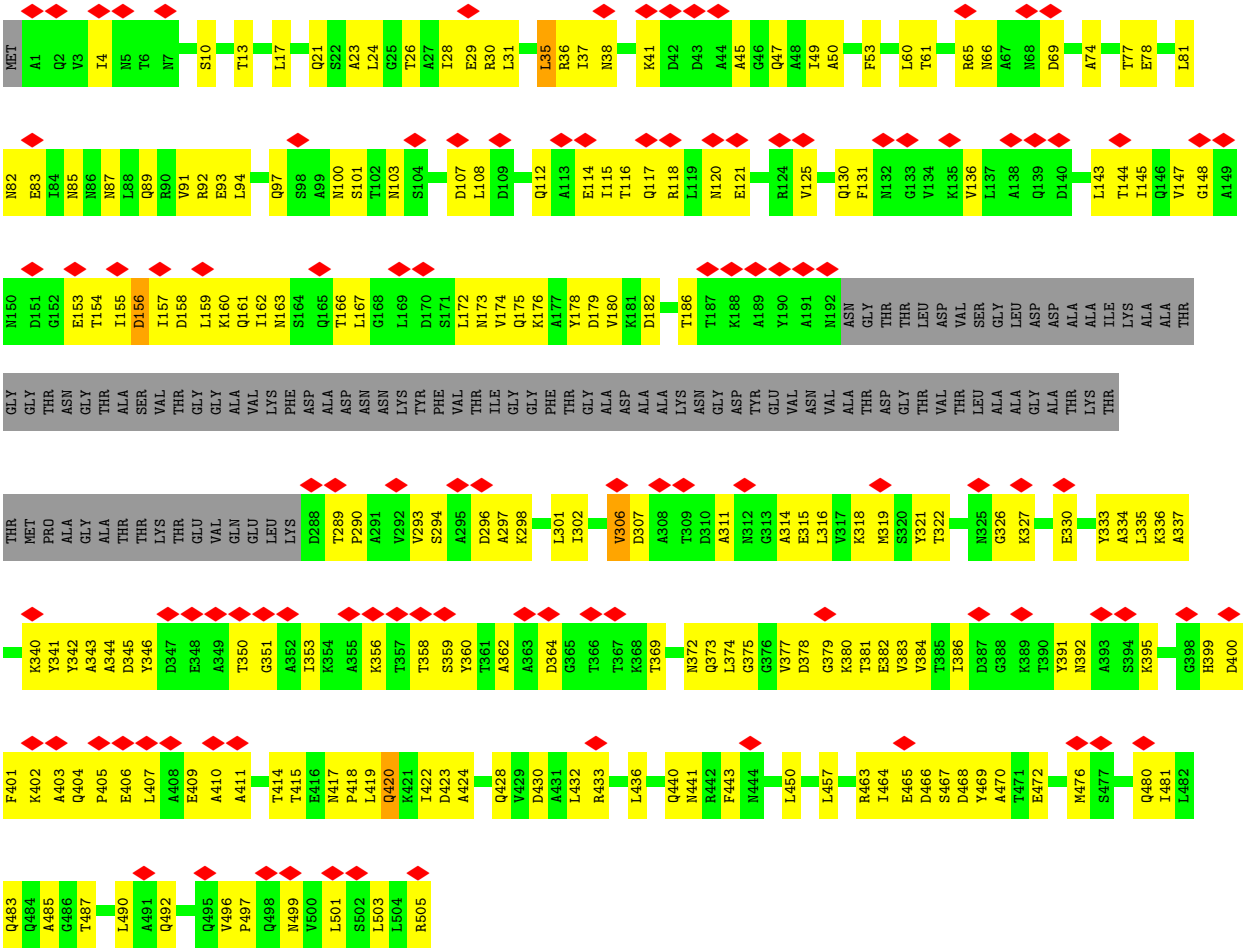
• Molecule 1: Flagellin

Chain A:



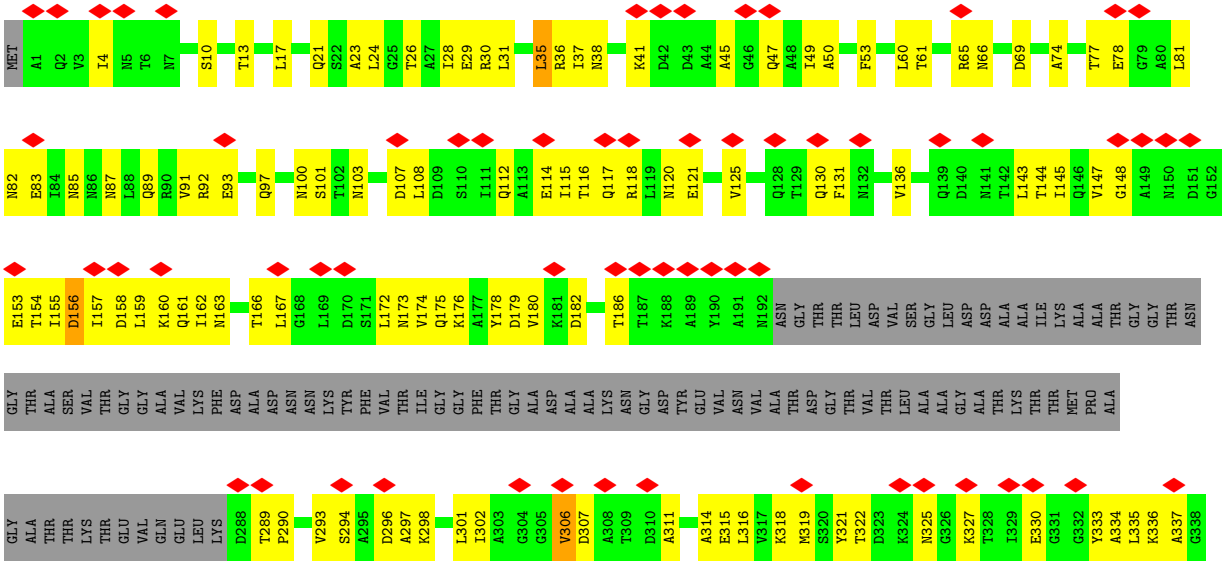
• Molecule 1: Flagellin

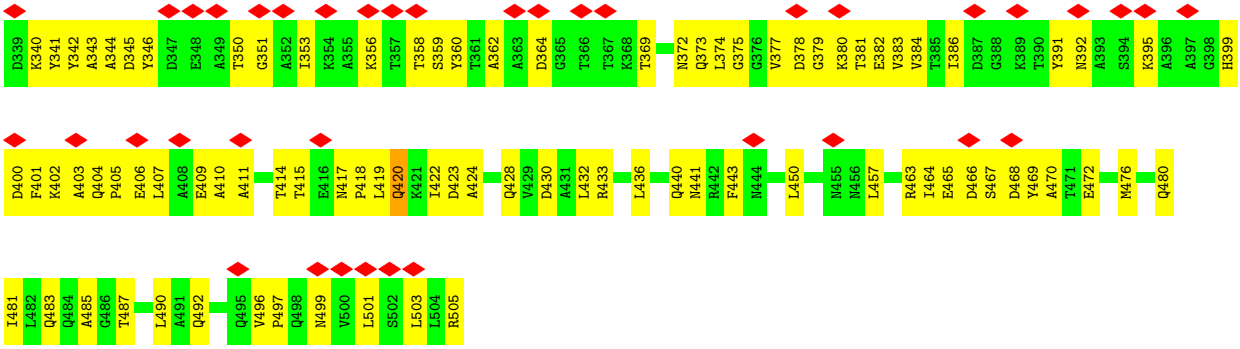
Chain B:



• Molecule 1: Flagellin

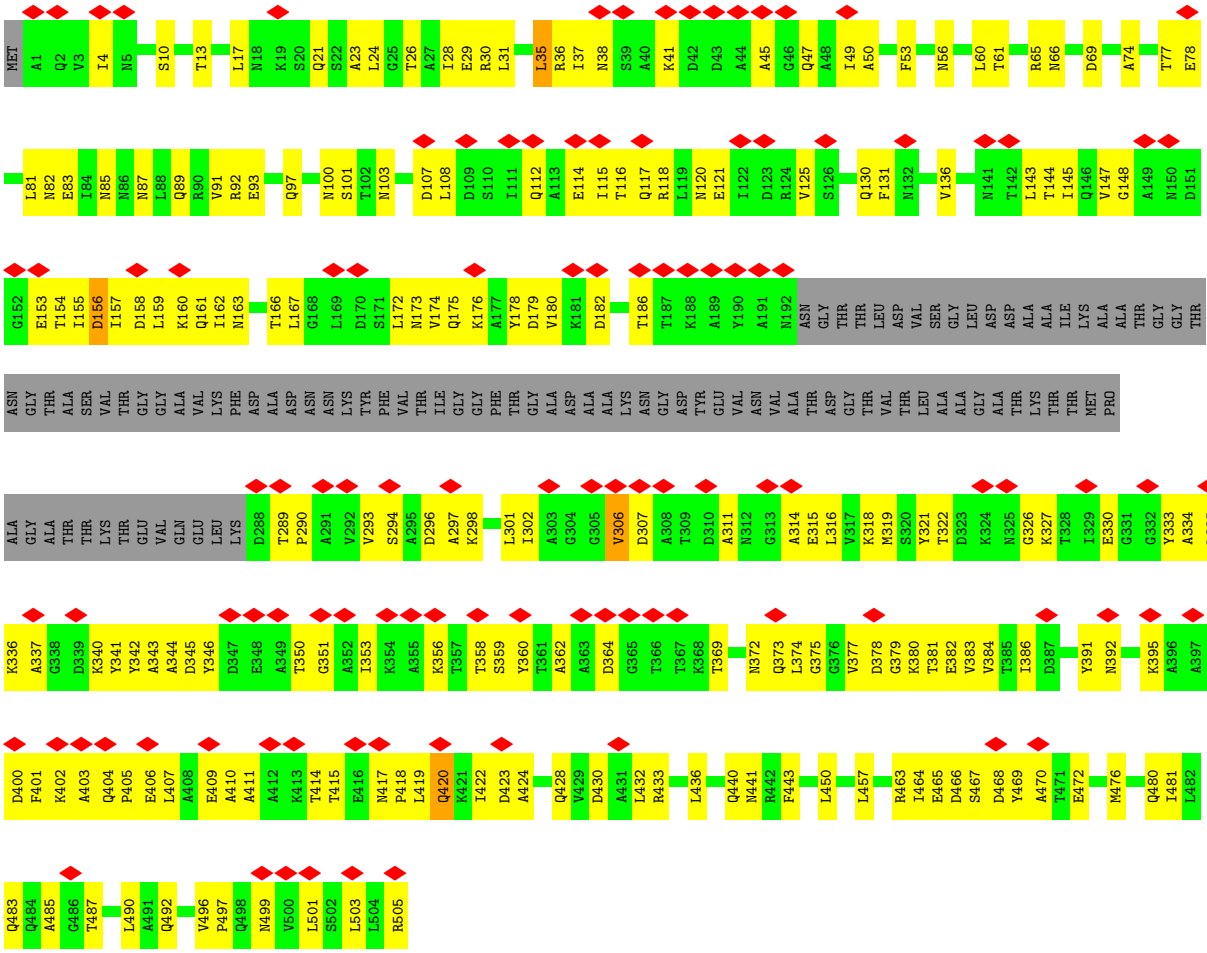
Chain C:





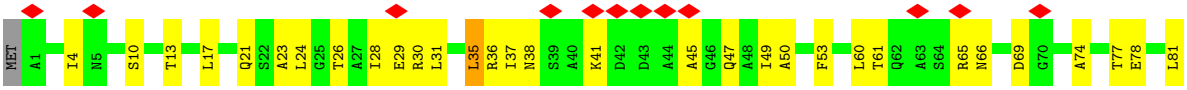
• Molecule 1: Flagellin

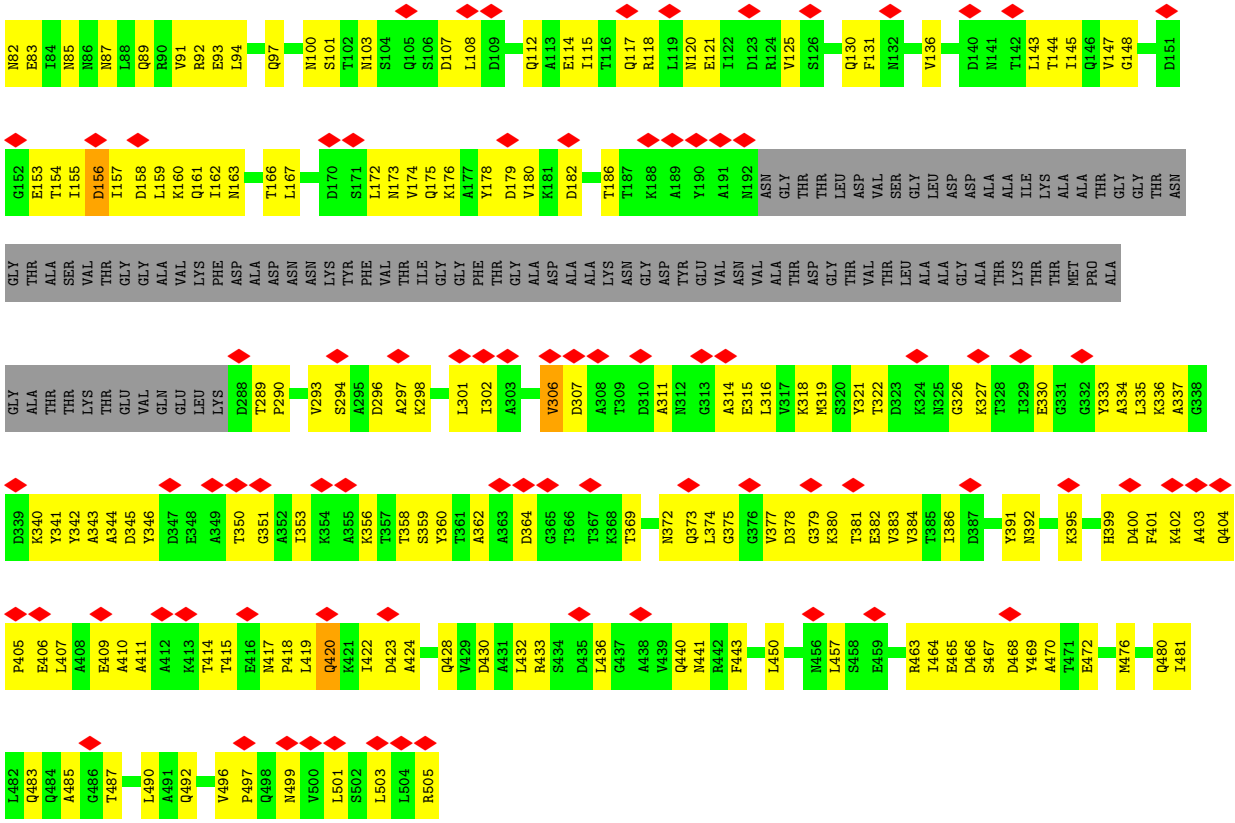
Chain D:



• Molecule 1: Flagellin

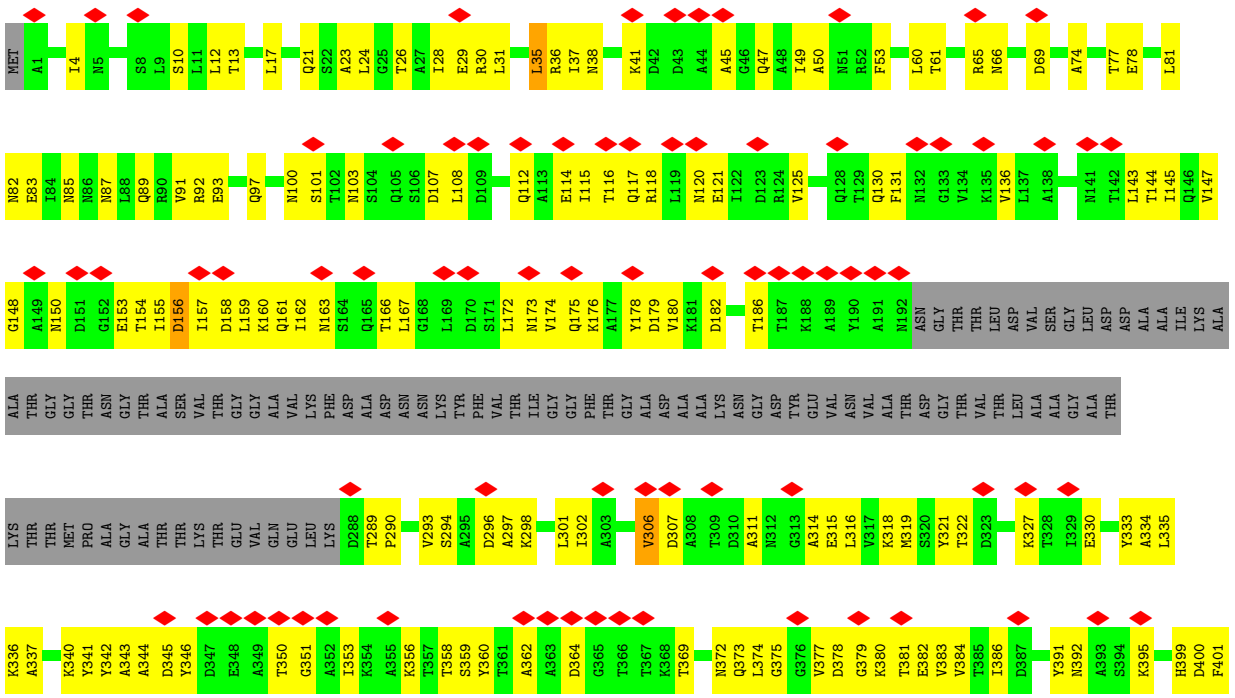
Chain E:

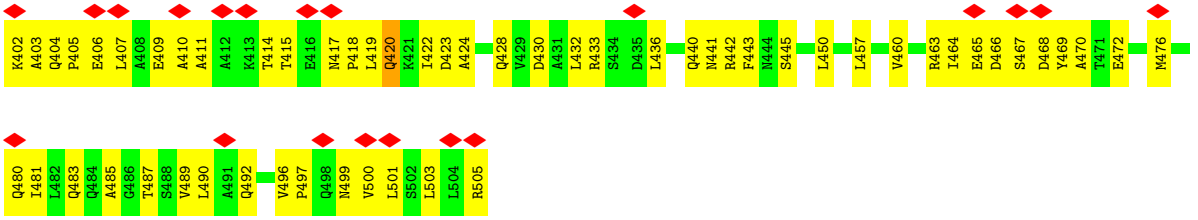




• Molecule 1: Flagellin

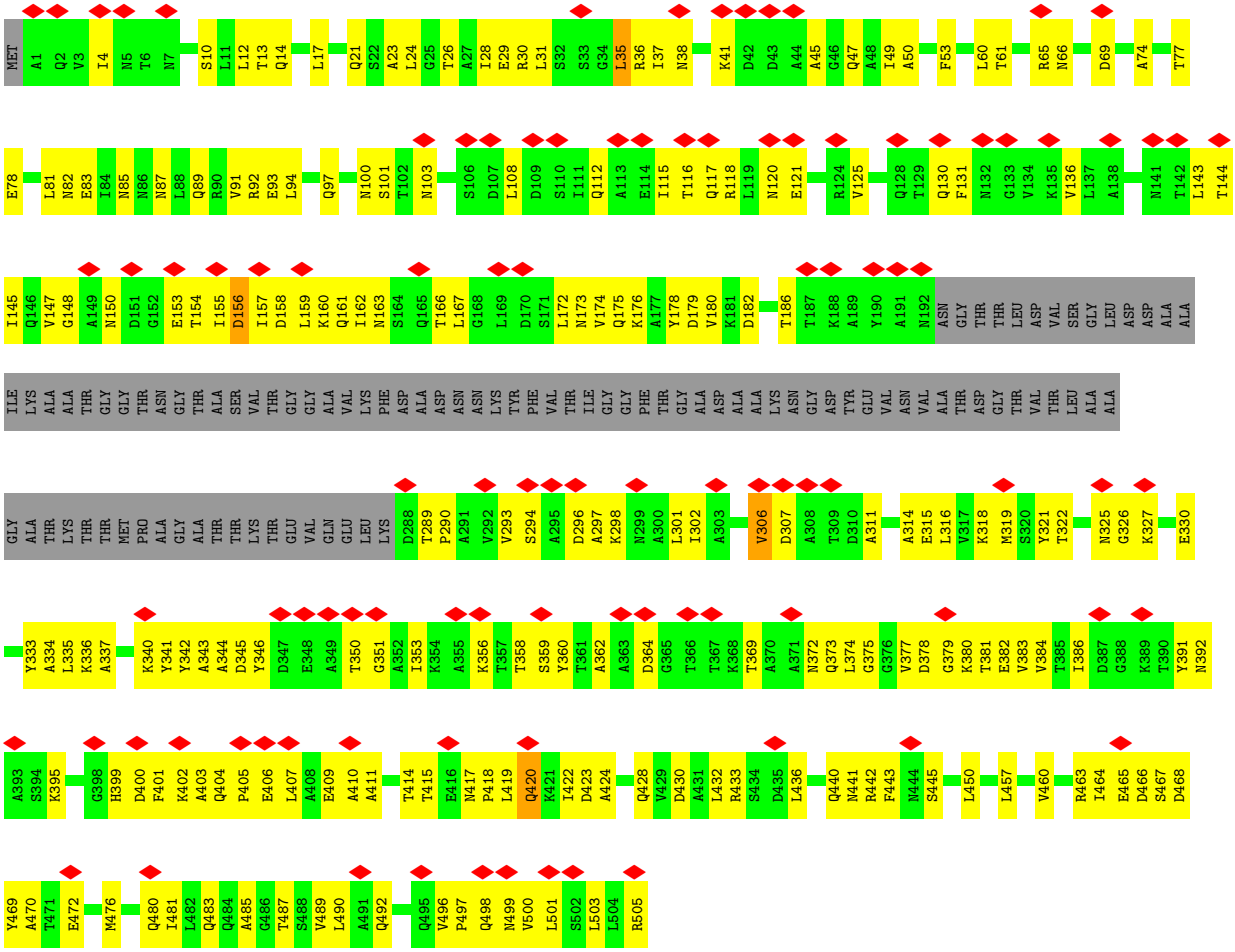
Chain F:





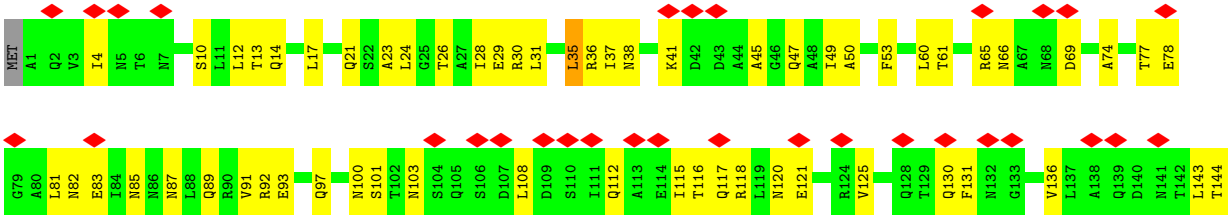
• Molecule 1: Flagellin

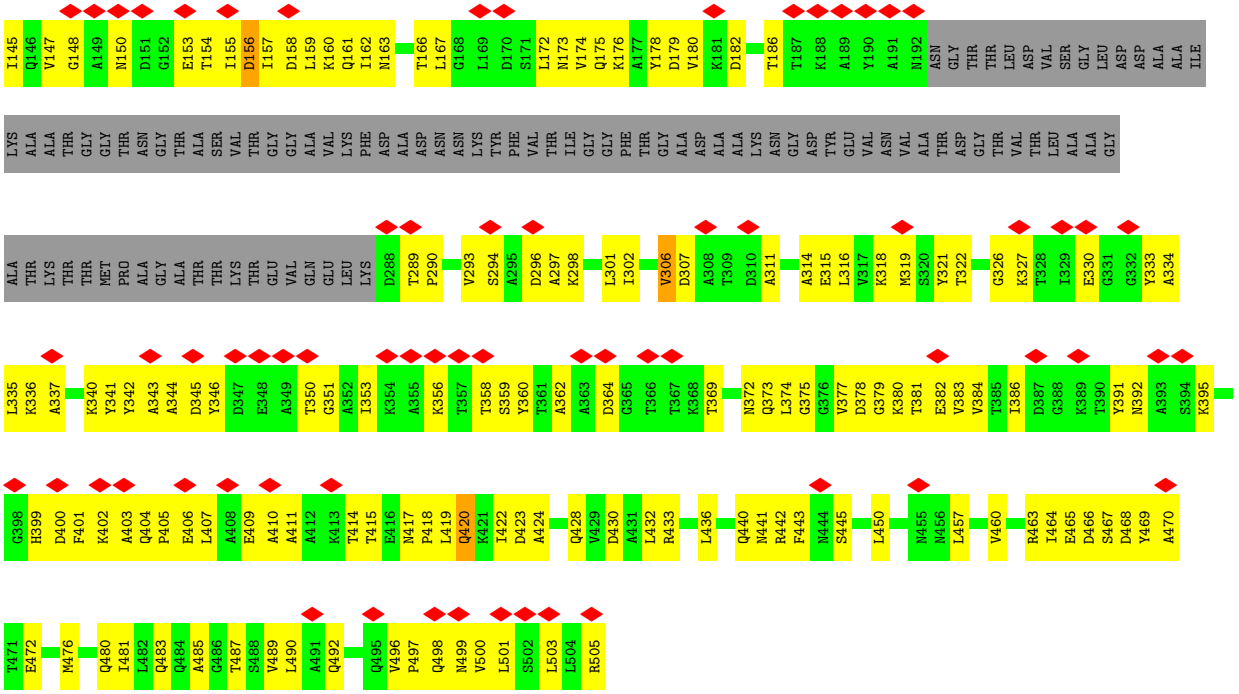
Chain G:



• Molecule 1: Flagellin

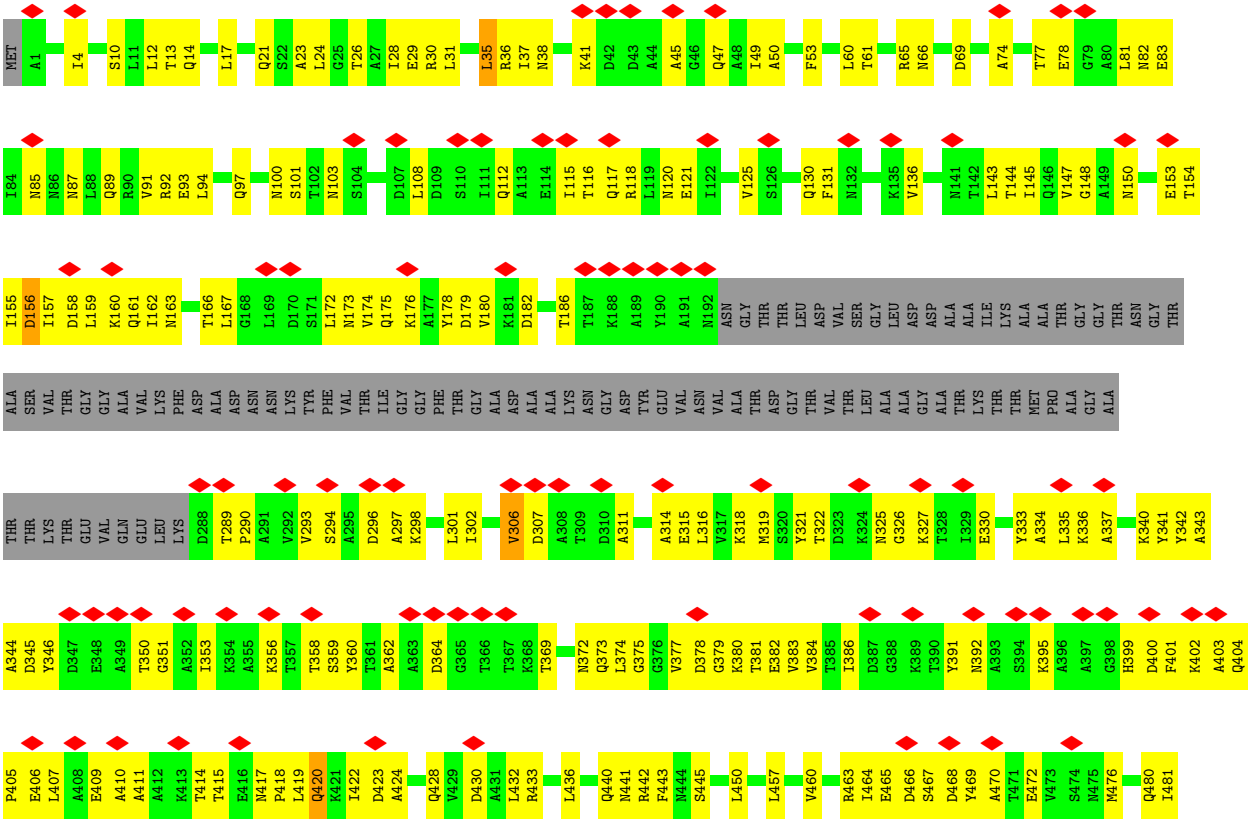
Chain H:

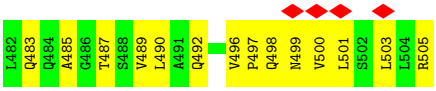




• Molecule 1: Flagellin

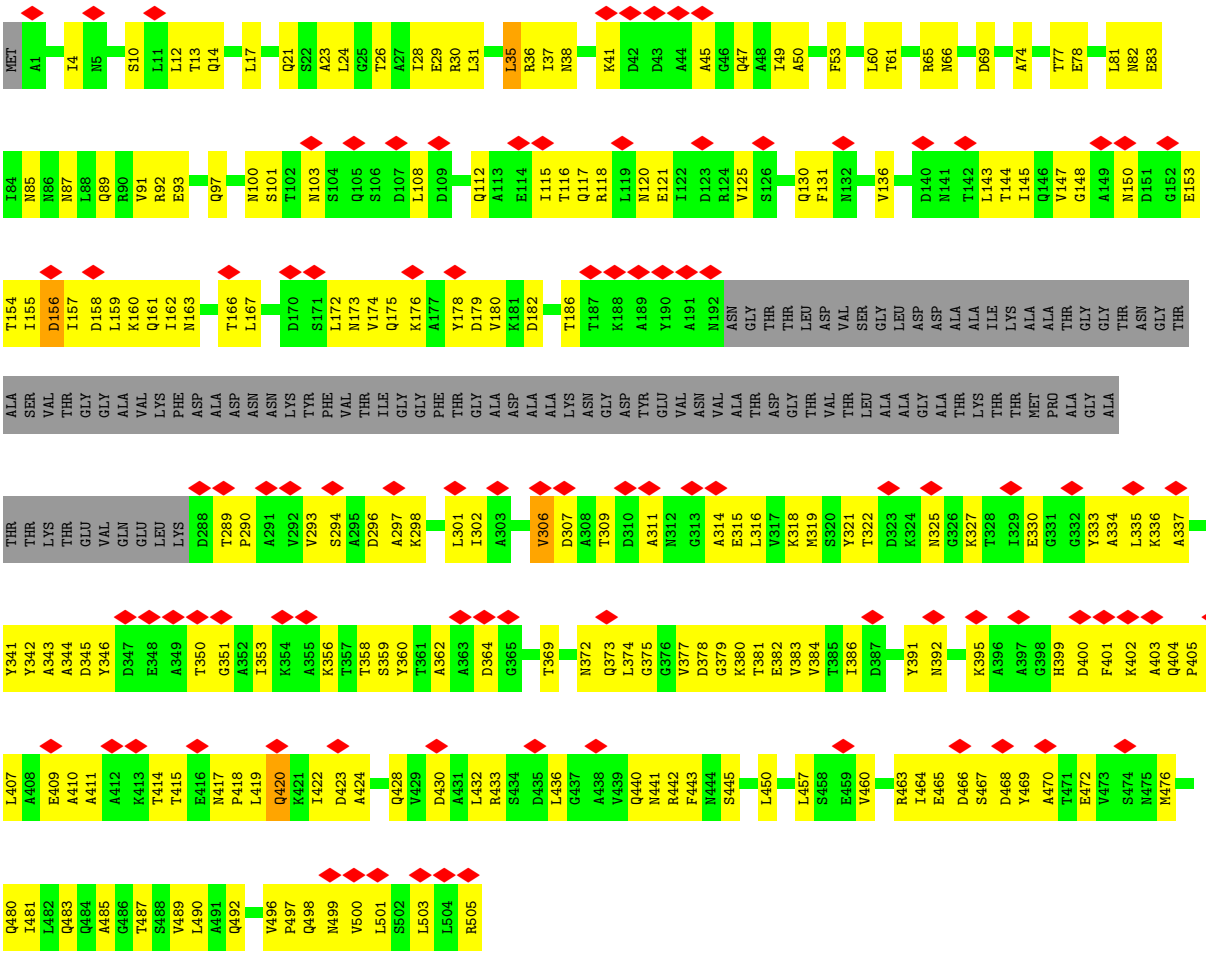
Chain I:





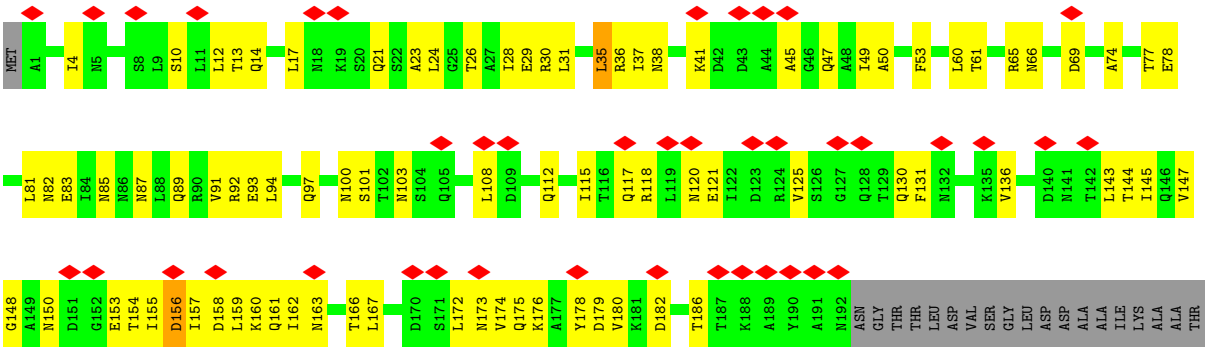
• Molecule 1: Flagellin

Chain J:

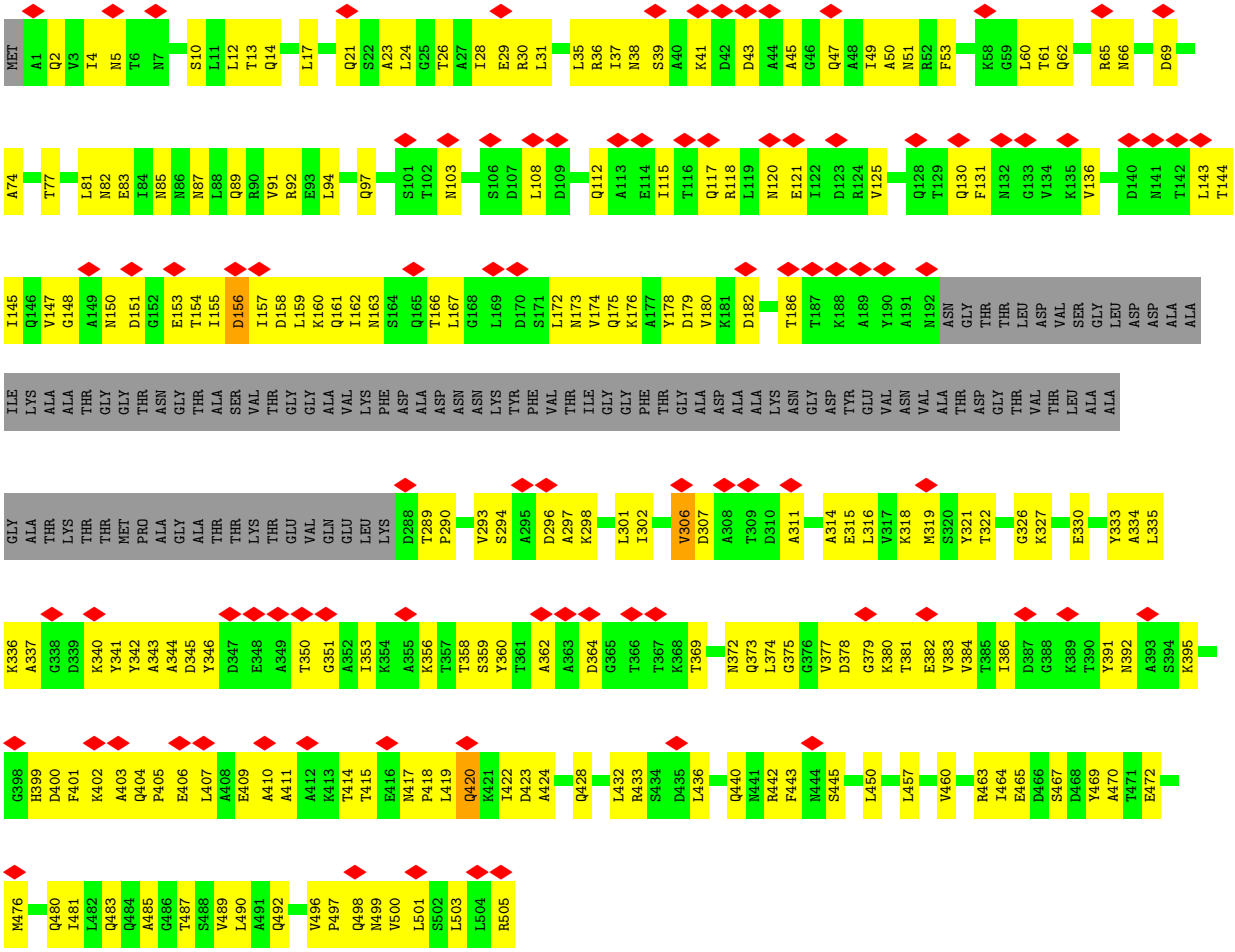


• Molecule 1: Flagellin

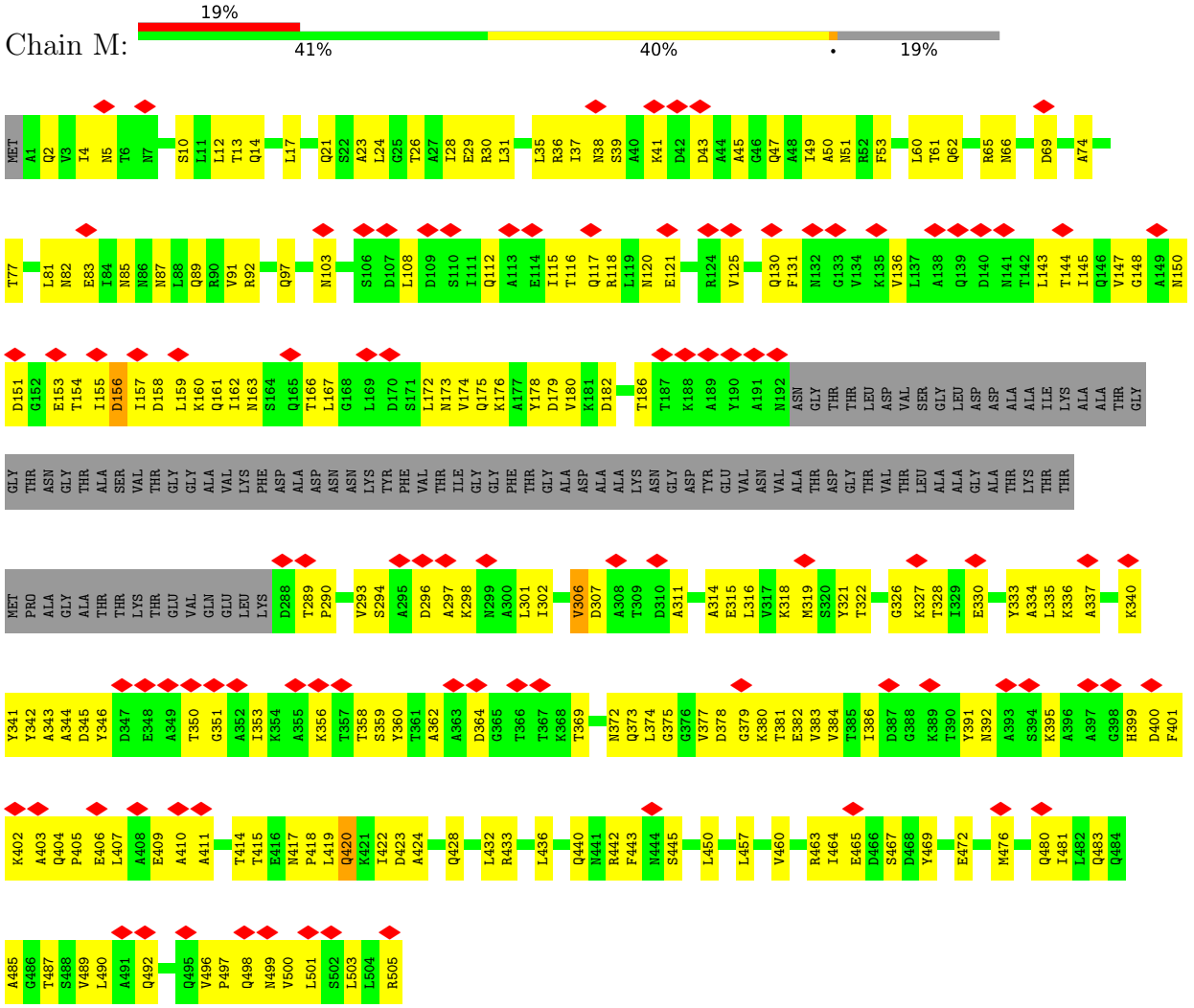
Chain K:



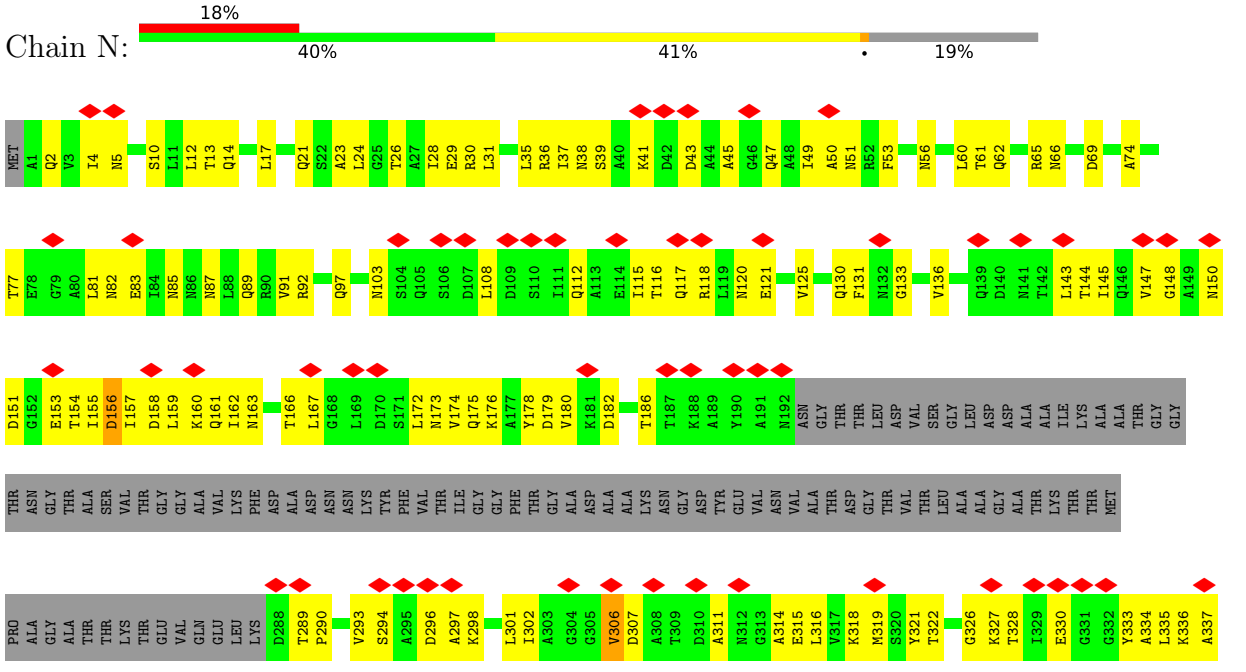
• Molecule 1: Flagellin

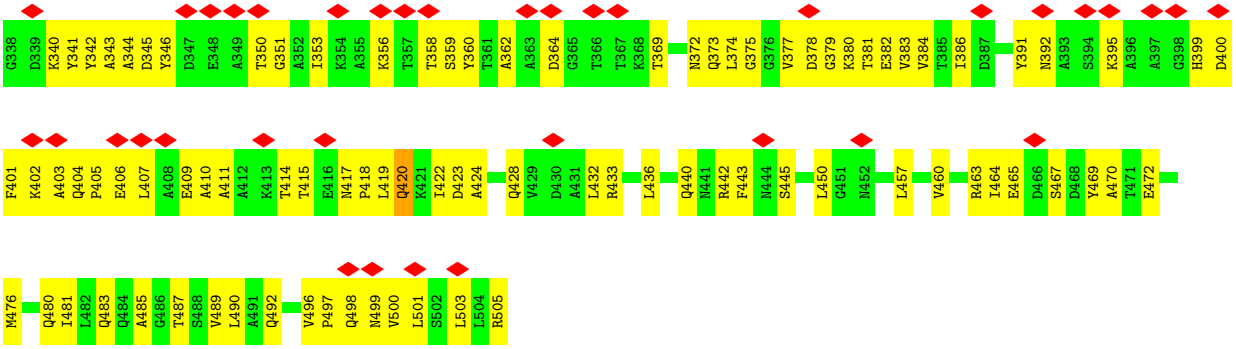


• Molecule 1: Flagellin



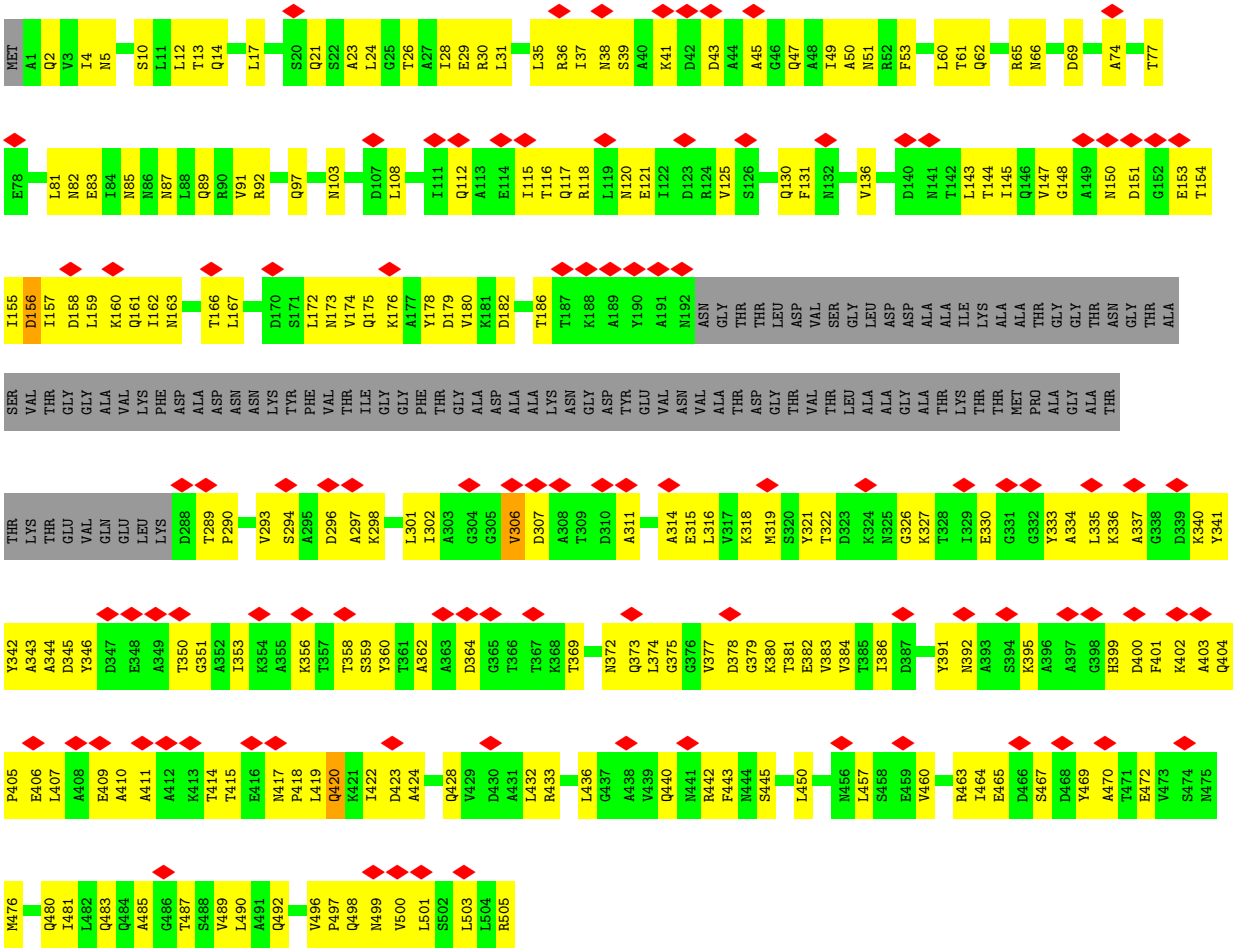
• Molecule 1: Flagellin





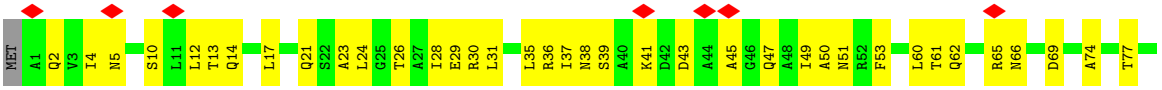
• Molecule 1: Flagellin

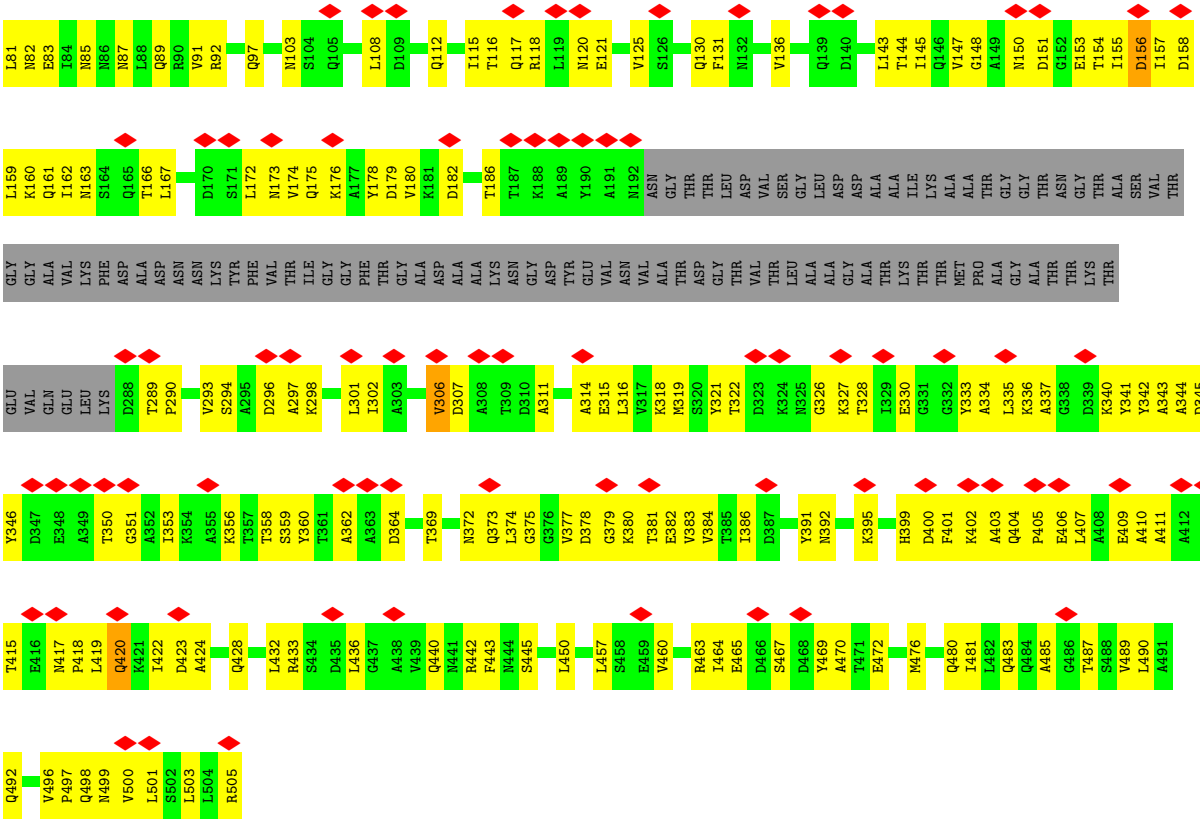
Chain O:



• Molecule 1: Flagellin

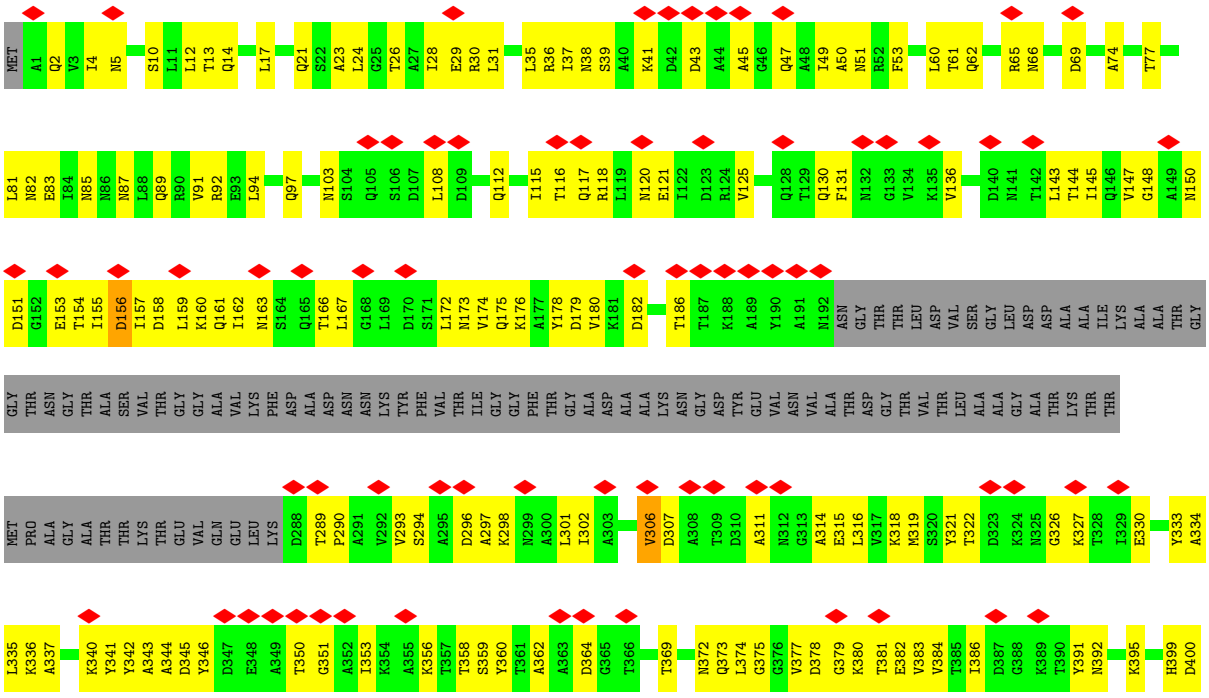
Chain P:

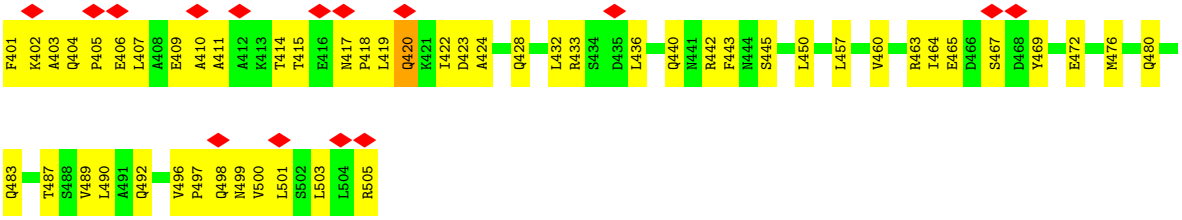




• Molecule 1: Flagellin

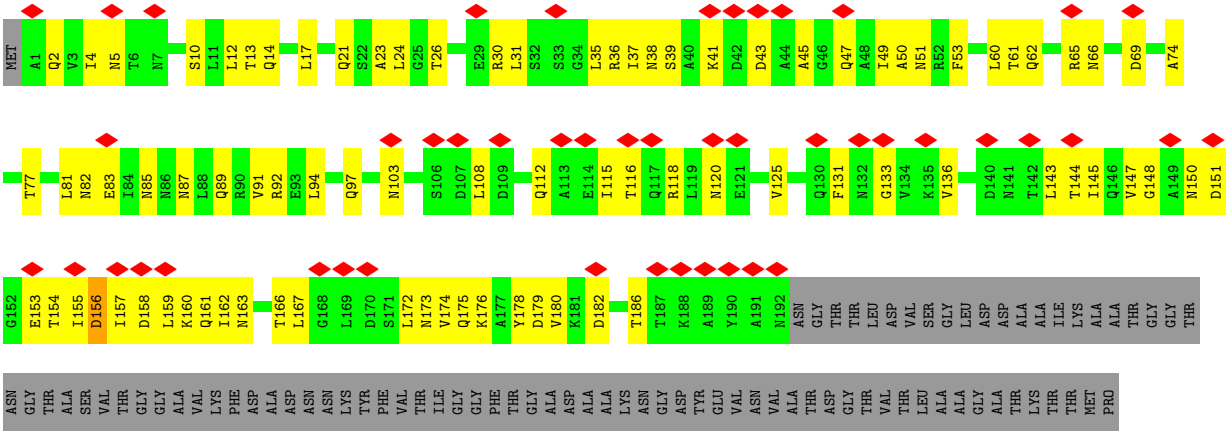
Chain Q:





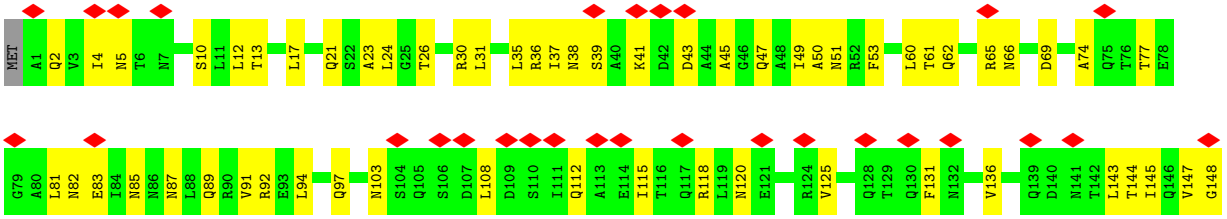
• Molecule 1: Flagellin

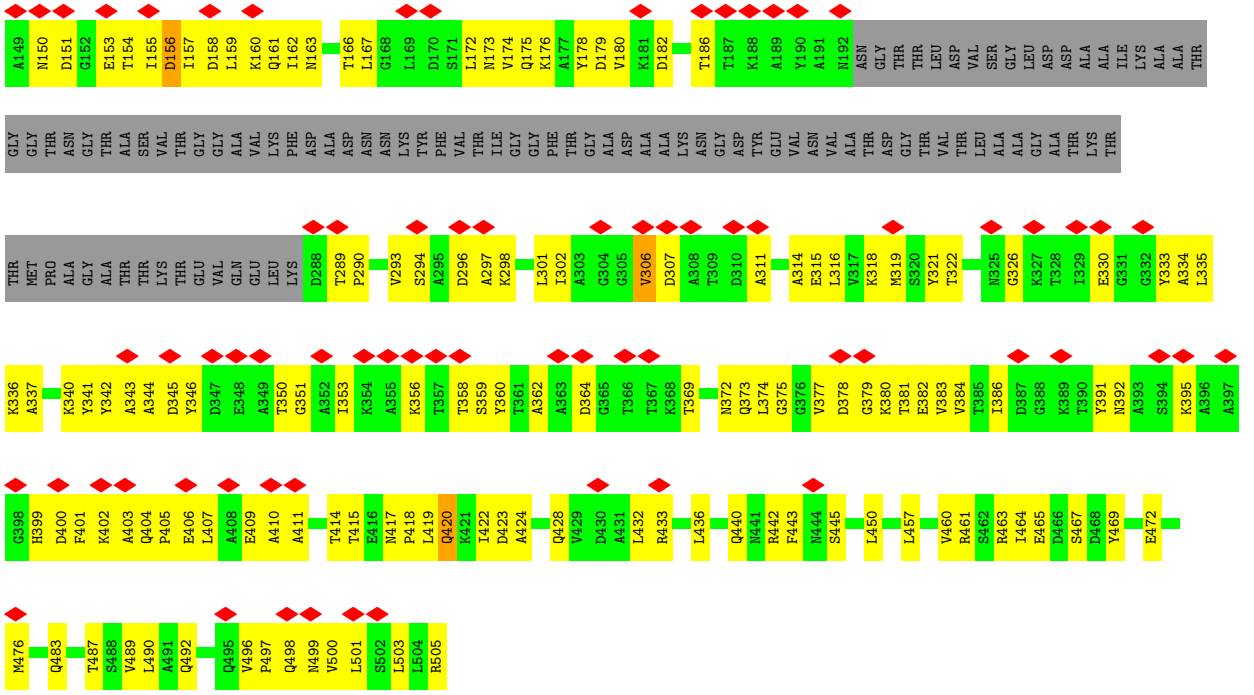
Chain R:



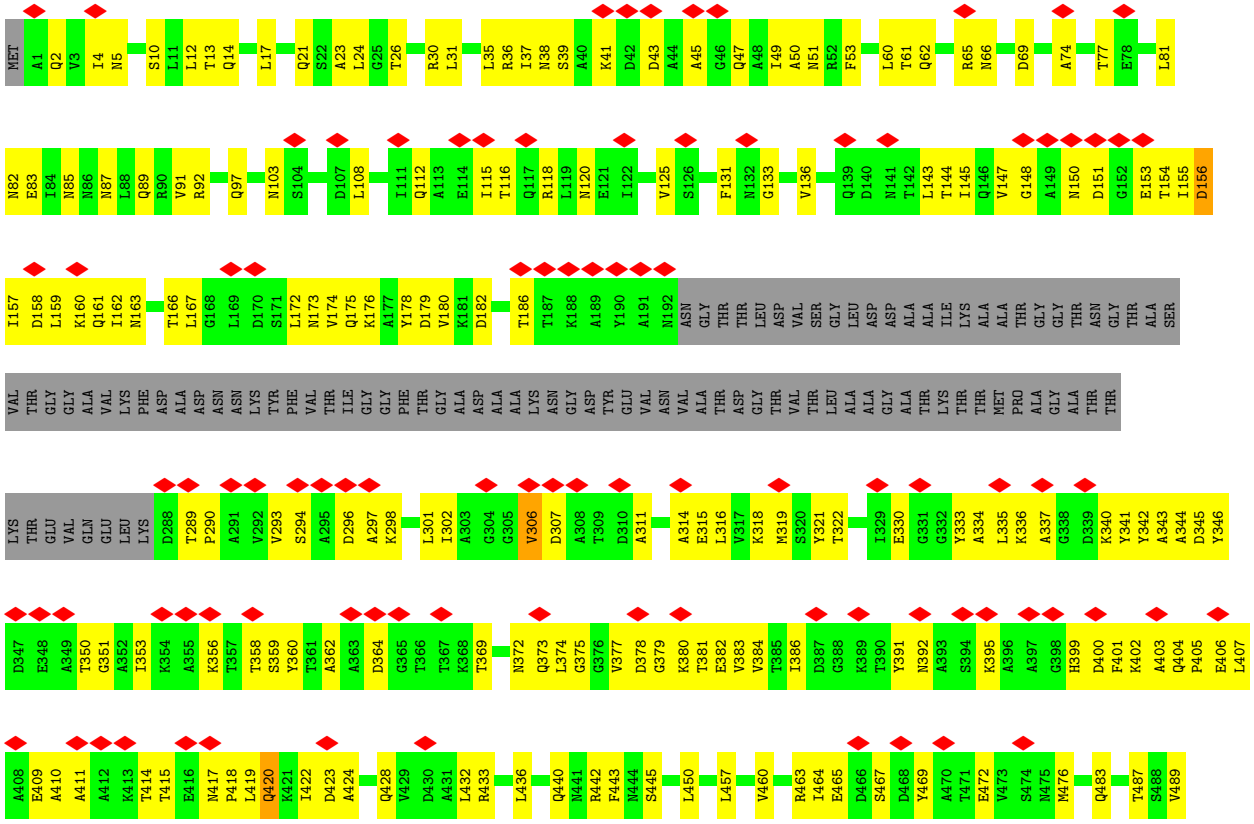
• Molecule 1: Flagellin

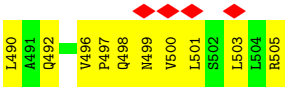
Chain S:





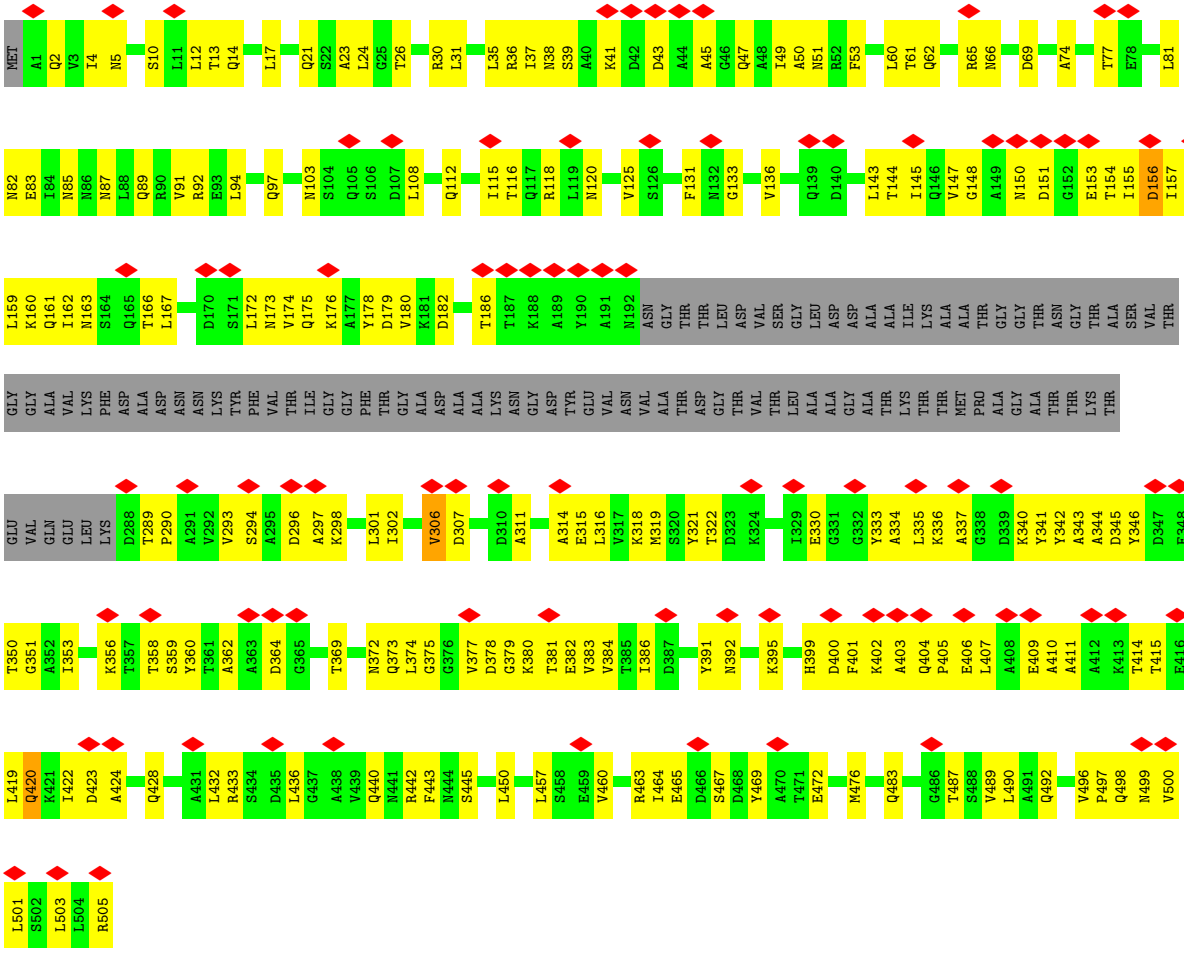
• Molecule 1: Flagellin





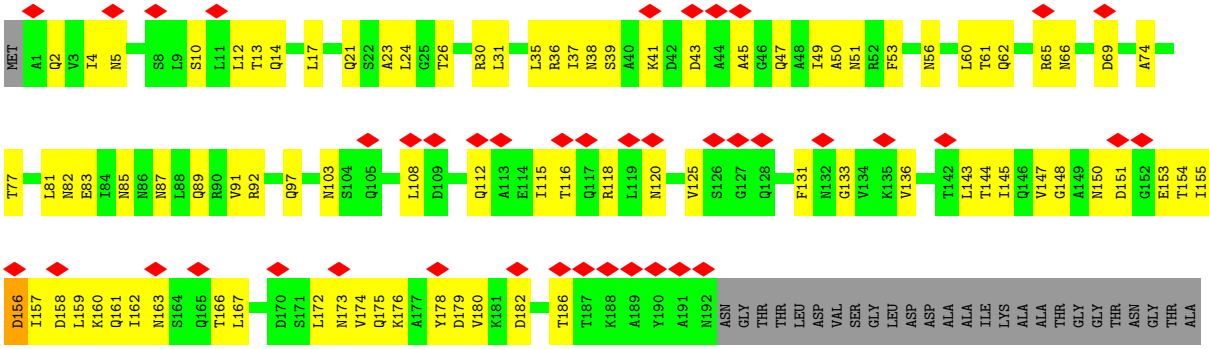
• Molecule 1: Flagellin

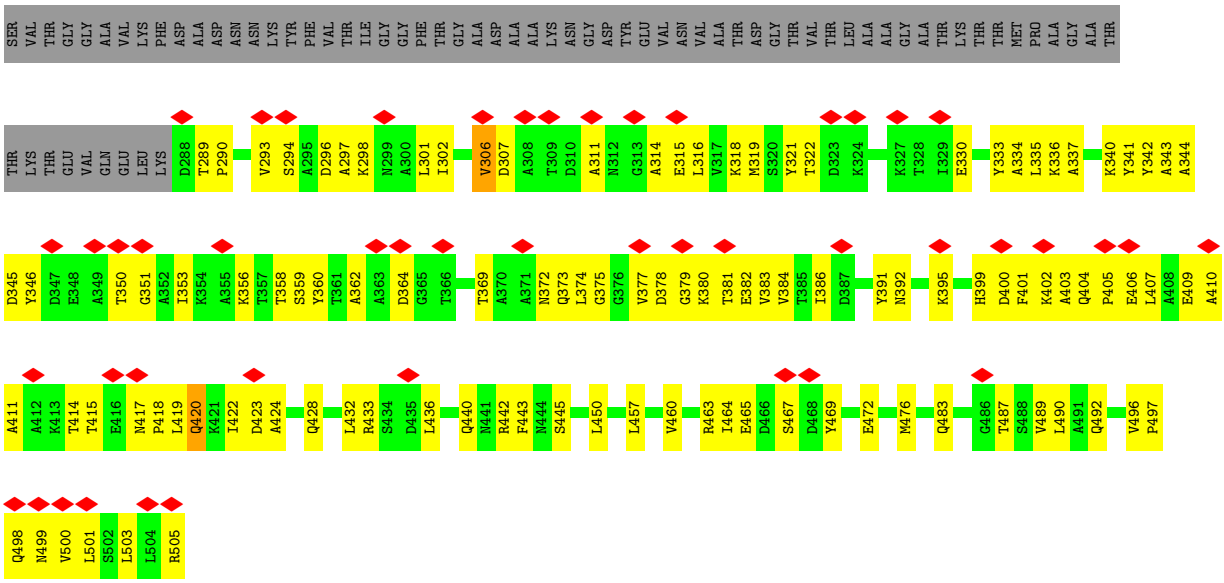
Chain U:



• Molecule 1: Flagellin

Chain W:




SER VAL 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 LYS ASN GLY ASP TYR GLU VAL ASN VAL ALA THR ASP GLY THR VAL THR LEU ALA ALA GLY ALA THR LYS THR THR MET PRO ALA GLY ALA THR
THR LYS THR GLU VAL GLN GLU LEU LYS D288 T289 P290 V293 S294 A295 D296 A297 K298 W299 A300 L301 T302 V306 D307 A308 T309 D310 A311 N312 G313 A314 E315 L316 V317 K318 M319 S320 Y321 T322 D323 K324 K327 T328 I329 E330 Y333 A334 L335 K336 A337 K340 Y341 Y342 A343 A344
D345 Y346 D347 E348 A349 T350 G351 A352 I353 K354 A355 K356 T357 T358 S359 Y360 T361 A362 A363 D364 G365 T366 T369 A370 A371 N372 Q373 L374 G375 G376 V377 D378 G379 K380 T381 E382 V383 V384 T385 I386 D387 Y391 N392 K395 H399 D400 F401 K402 A403 Q404 P405 E406 L407 A408 E409 A410
A411 A412 K413 T414 T415 E416 N417 P418 L419 Q420 K421 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 M476 Q483 G486 T487 S488 V489 L490 A491 Q492 V496 P497
Q498 N499 V500 L501 S502 L503 L504 R505

4 Experimental information (i)

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 ($e^-/Å^2$)	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

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	0.40	0/3044	0.63	0/4128
1	B	0.40	0/3044	0.63	0/4128
1	C	0.40	0/3044	0.64	0/4128
1	D	0.40	0/3044	0.64	0/4128
1	E	0.40	0/3044	0.64	0/4128
1	F	0.40	0/3044	0.64	0/4128
1	G	0.40	0/3044	0.64	0/4128
1	H	0.40	0/3044	0.64	0/4128
1	I	0.40	0/3044	0.63	0/4128
1	J	0.40	0/3044	0.64	0/4128
1	K	0.40	0/3044	0.64	0/4128
1	L	0.40	0/3044	0.64	0/4128
1	M	0.40	0/3044	0.64	0/4128
1	N	0.40	0/3044	0.64	0/4128
1	O	0.40	0/3044	0.64	0/4128
1	P	0.40	0/3044	0.64	0/4128
1	Q	0.40	0/3044	0.64	0/4128
1	R	0.40	0/3044	0.63	0/4128
1	S	0.40	0/3044	0.64	0/4128
1	T	0.40	0/3044	0.64	0/4128
1	U	0.40	0/3044	0.63	0/4128
1	W	0.40	0/3044	0.64	0/4128
All	All	0.40	0/66968	0.64	0/90816

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 (i)

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	454	0
1	B	3027	0	2999	448	0
1	C	3027	0	2999	458	0
1	D	3027	0	2999	451	0
1	E	3027	0	2999	448	0
1	F	3027	0	2999	476	0
1	G	3027	0	2999	475	0
1	H	3027	0	2999	475	0
1	I	3027	0	2999	475	0
1	J	3027	0	2999	478	0
1	K	3027	0	2999	476	0
1	L	3027	0	2999	477	0
1	M	3027	0	2999	463	0
1	N	3027	0	2999	475	0
1	O	3027	0	2999	474	0
1	P	3027	0	2999	472	0
1	Q	3027	0	2999	478	0
1	R	3027	0	2999	451	0
1	S	3027	0	2999	456	0
1	T	3027	0	2999	457	0
1	U	3027	0	2999	454	0
1	W	3027	0	2999	457	0
All	All	66594	0	65978	9171	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 9171 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
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 (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	B	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	C	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	22	62
1	D	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	E	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	F	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	22	62
1	G	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	H	406/506 (80%)	381 (94%)	21 (5%)	4 (1%)	15	55
1	I	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	J	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	22	62
1	K	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	L	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	M	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	N	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	O	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	P	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	Q	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	R	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	S	406/506 (80%)	380 (94%)	22 (5%)	4 (1%)	15	55
1	T	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	22	62
1	U	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	22	62
1	W	406/506 (80%)	380 (94%)	23 (6%)	3 (1%)	22	62
All	All	8932/11132 (80%)	8361 (94%)	489 (6%)	82 (1%)	21	57

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 (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	B	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	C	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	D	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	E	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	F	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	G	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	H	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	I	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	J	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	K	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	L	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	M	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	N	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	O	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	P	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	Q	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	R	322/388 (83%)	320 (99%)	2 (1%)	86	94
1	S	322/388 (83%)	320 (99%)	2 (1%)	86	94

Continued on next page...

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	T	322/388 (83%)	320 (99%)	2 (1%)	86 94
1	U	322/388 (83%)	320 (99%)	2 (1%)	86 94
1	W	322/388 (83%)	320 (99%)	2 (1%)	86 94
All	All	7084/8536 (83%)	7040 (99%)	44 (1%)	86 94

5 of 44 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	O	35	LEU
1	R	156	ASP
1	O	156	ASP
1	Q	35	LEU
1	S	156	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 271 such sidechains are listed below:

Mol	Chain	Res	Type
1	S	173	ASN
1	T	62	GLN
1	W	38	ASN
1	H	492	GLN
1	H	373	GLN

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 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.

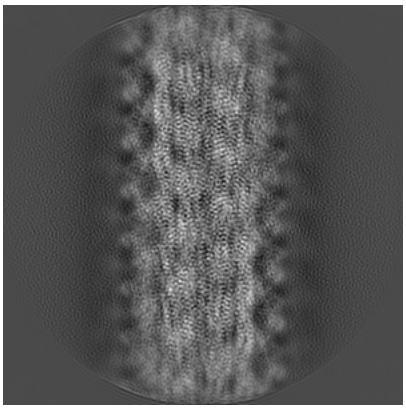
6 Map visualisation

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.

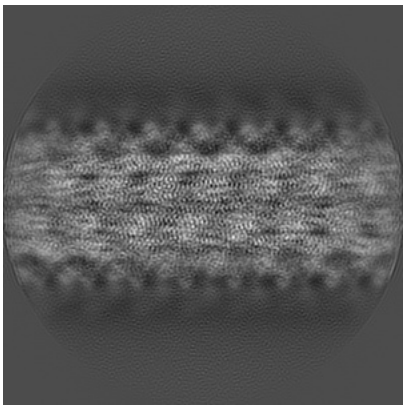
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

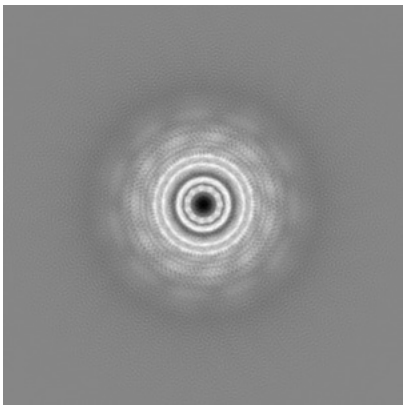
6.1.1 Primary map



X

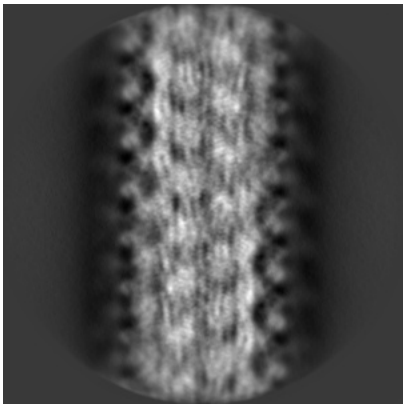


Y

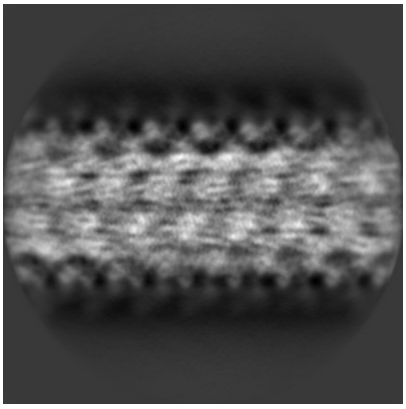


Z

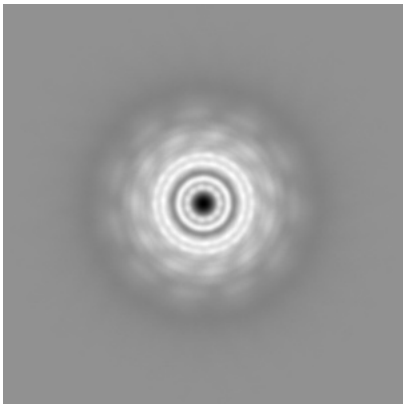
6.1.2 Raw map



X



Y

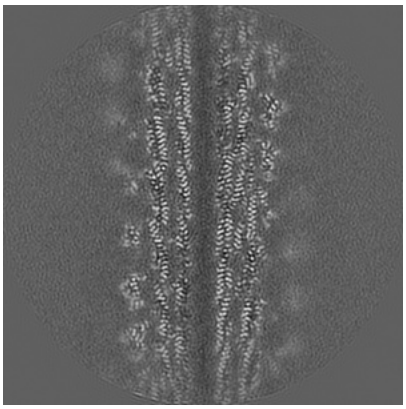


Z

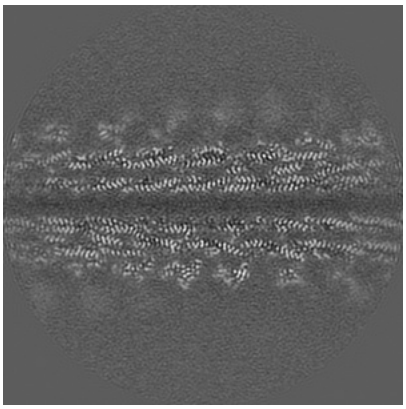
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

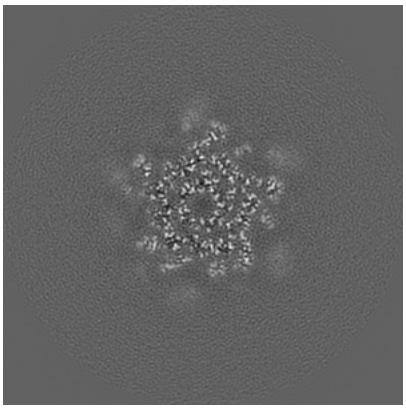
6.2.1 Primary map



X Index: 200

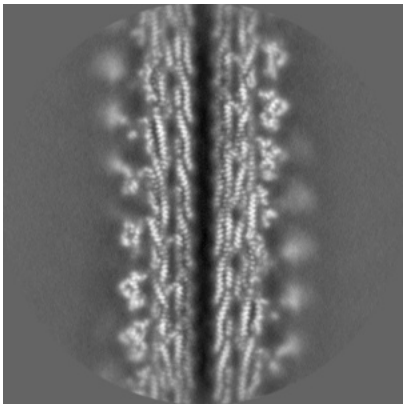


Y Index: 200

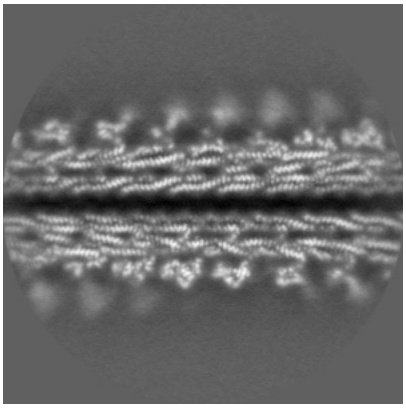


Z Index: 200

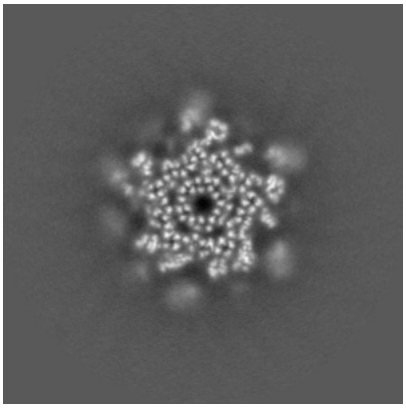
6.2.2 Raw map



X Index: 200



Y Index: 200

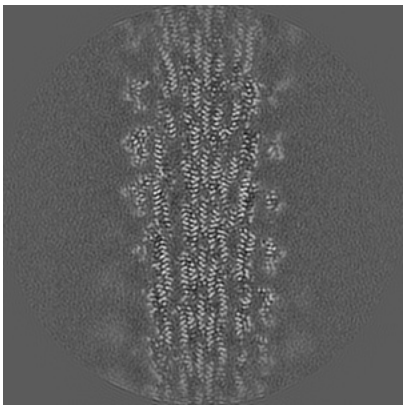


Z Index: 200

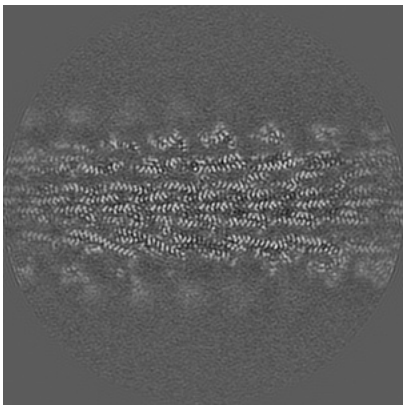
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

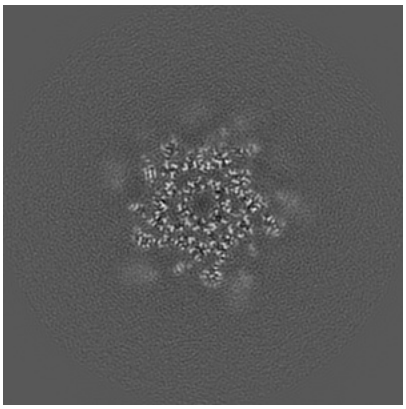
6.3.1 Primary map



X Index: 216

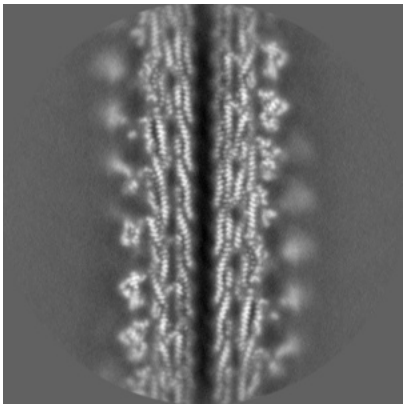


Y Index: 182

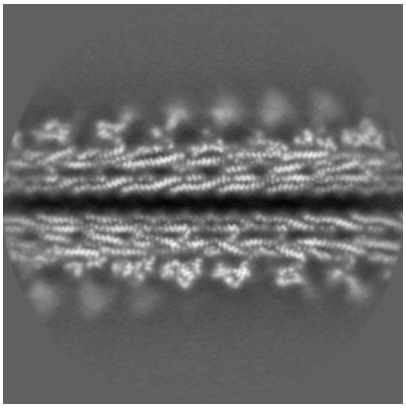


Z Index: 216

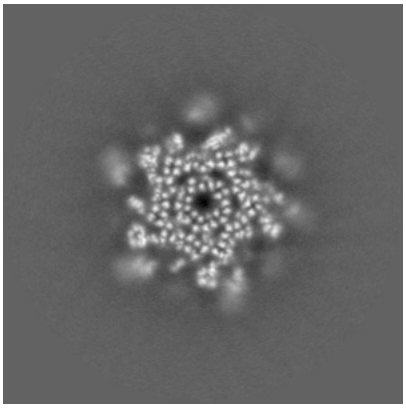
6.3.2 Raw map



X Index: 199



Y Index: 200

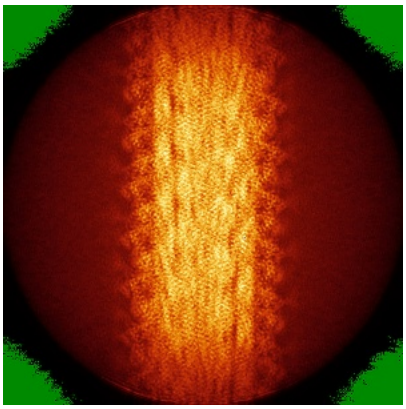


Z Index: 163

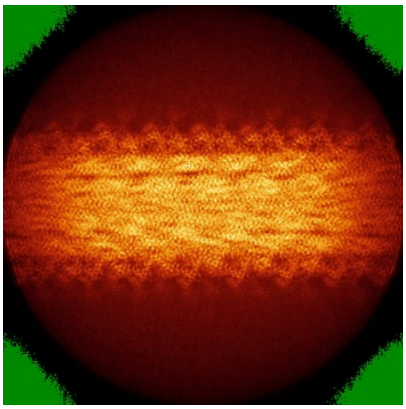
The images above show the largest variance slices of the map in three orthogonal directions.

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

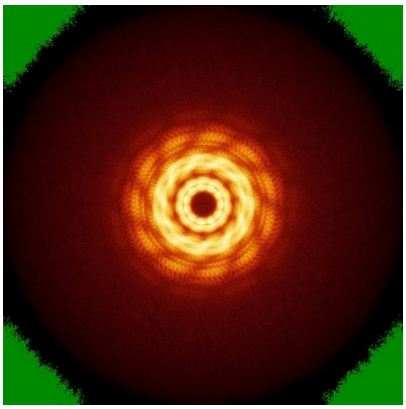
6.4.1 Primary map



X

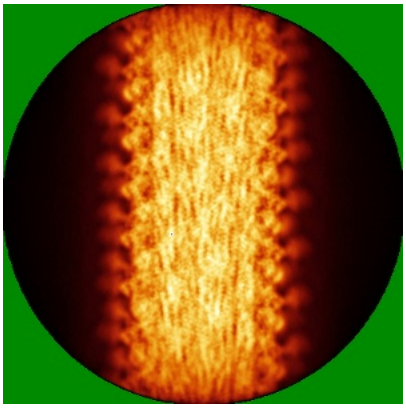


Y

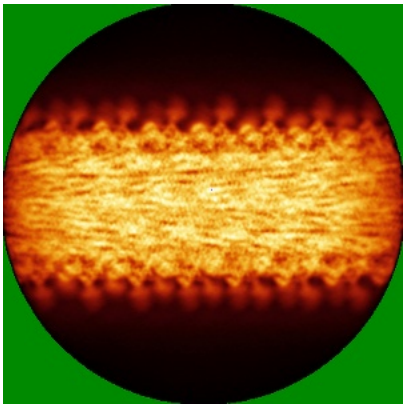


Z

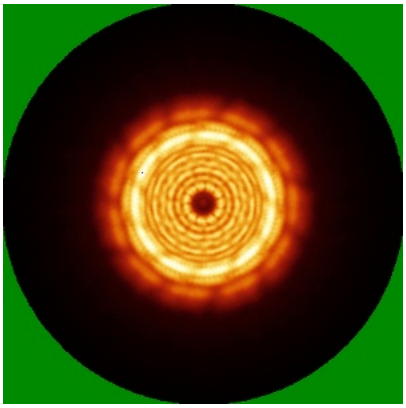
6.4.2 Raw map



X



Y

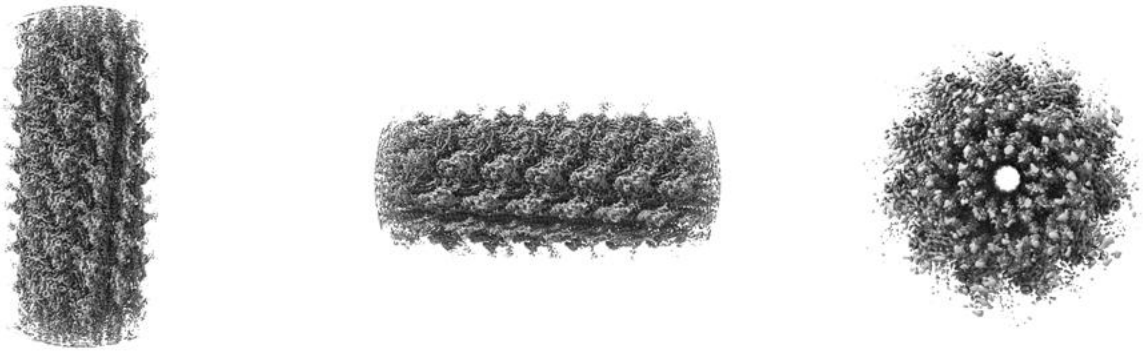


Z

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)

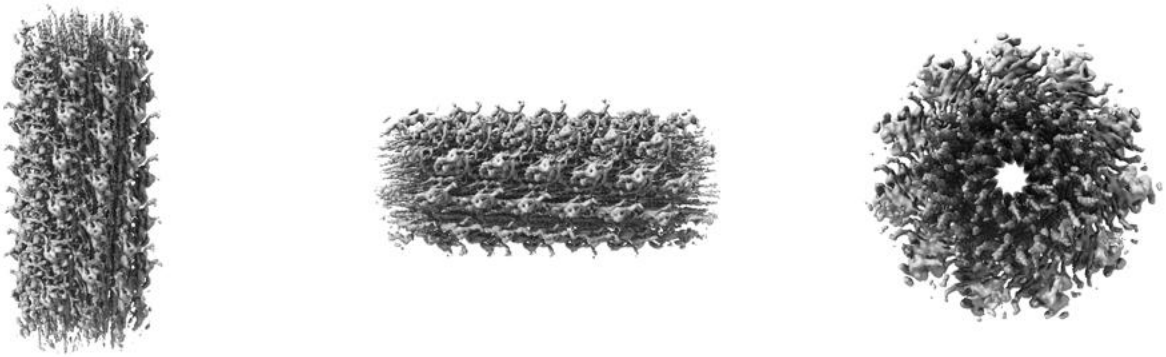
6.5.1 Primary map



X Y Z

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



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.

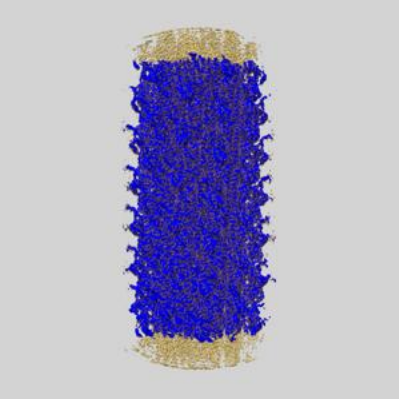
6.6 Mask visualisation (i)

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

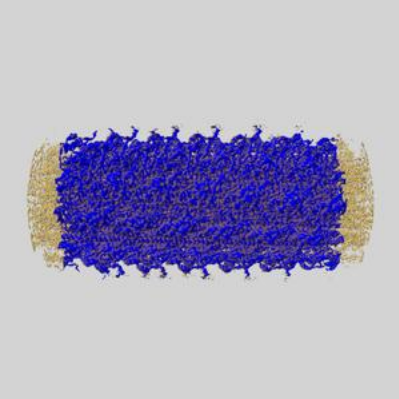
A mask typically either:

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

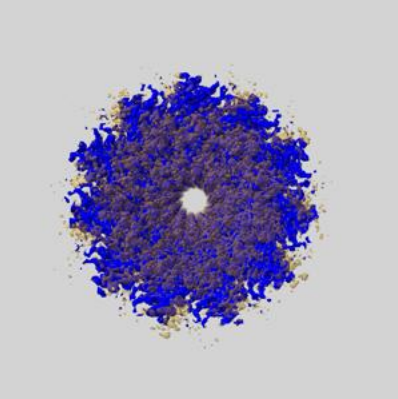
6.6.1 emd_9896_msk_1.map (i)



X



Y

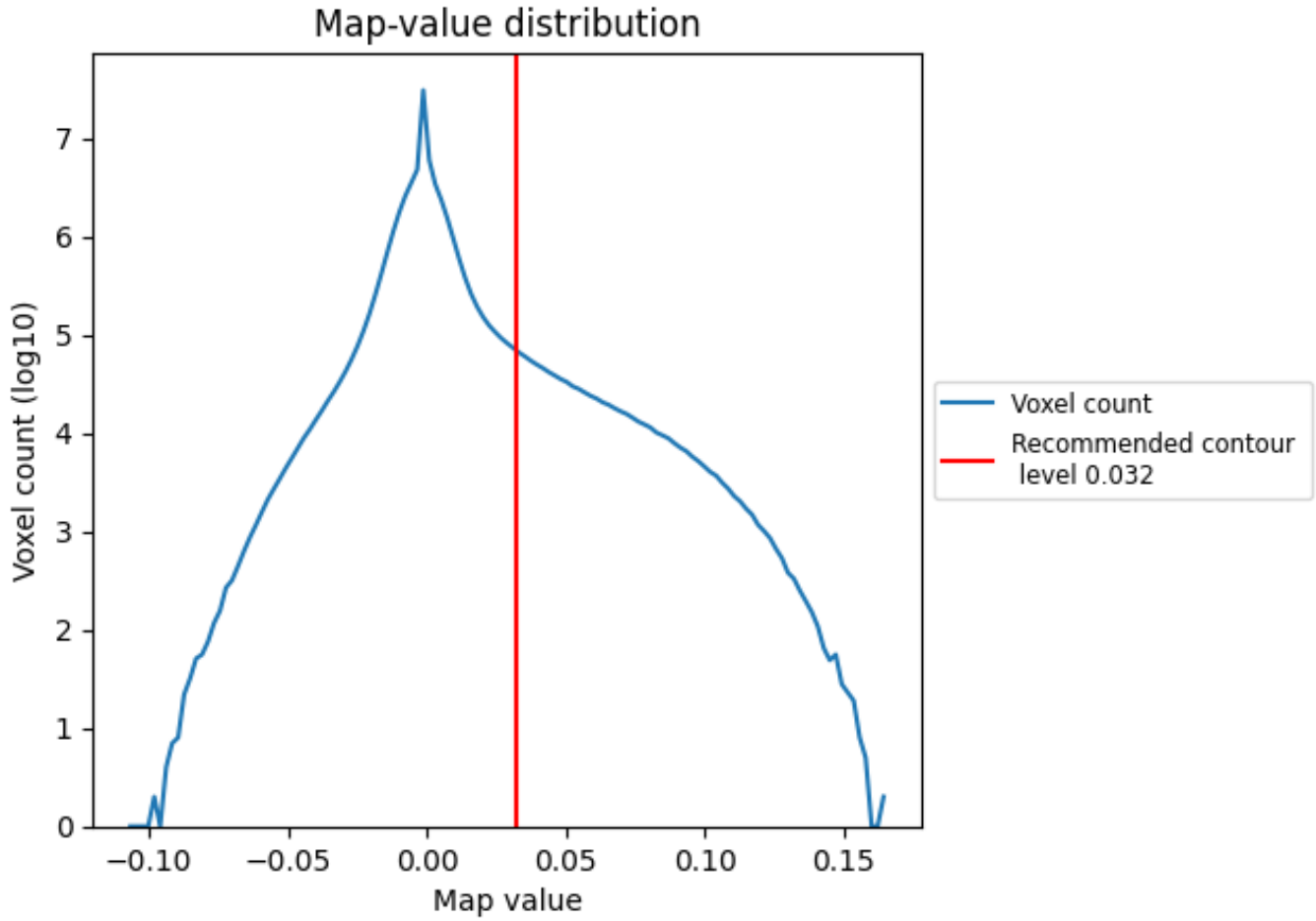


Z

7 Map analysis

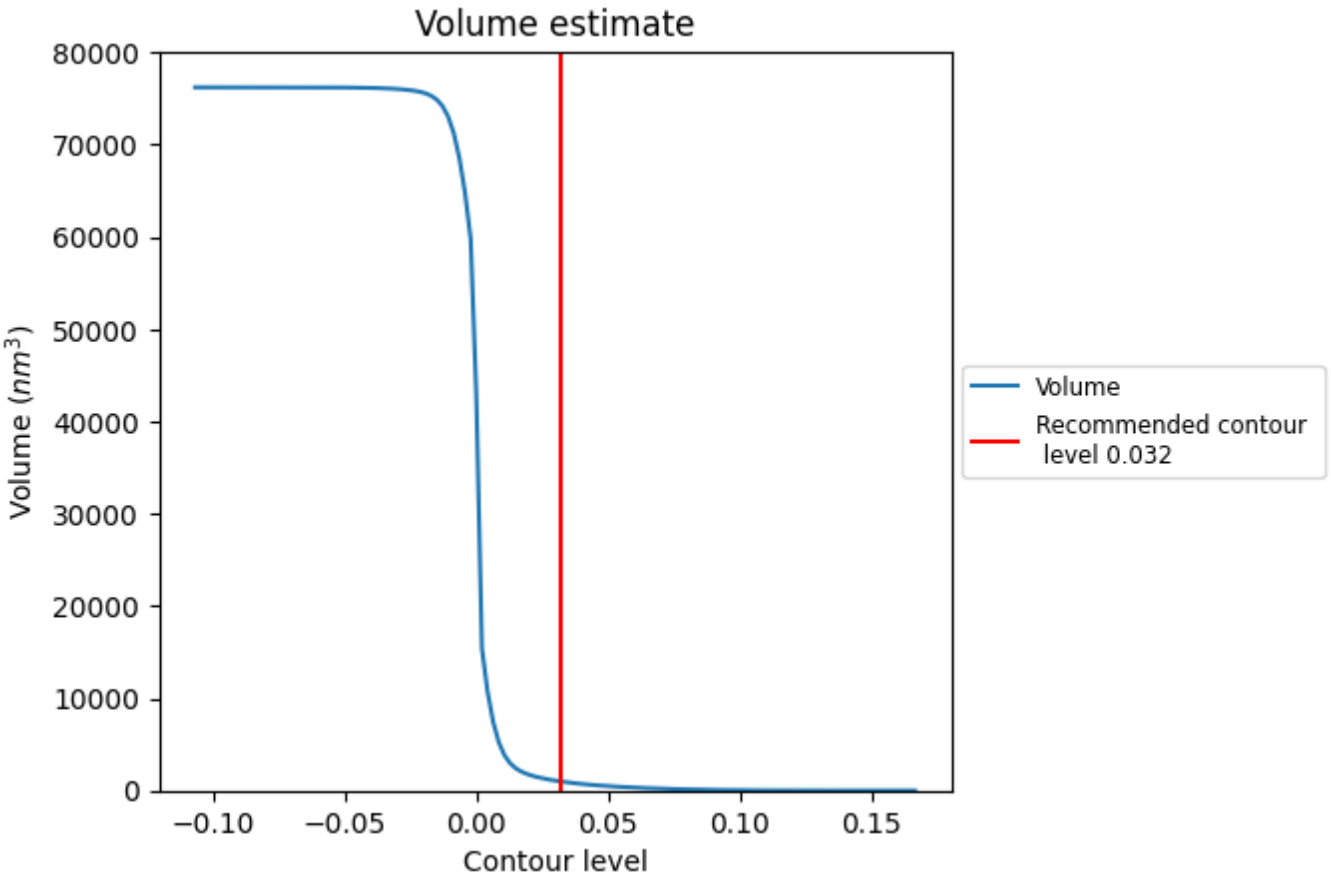
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

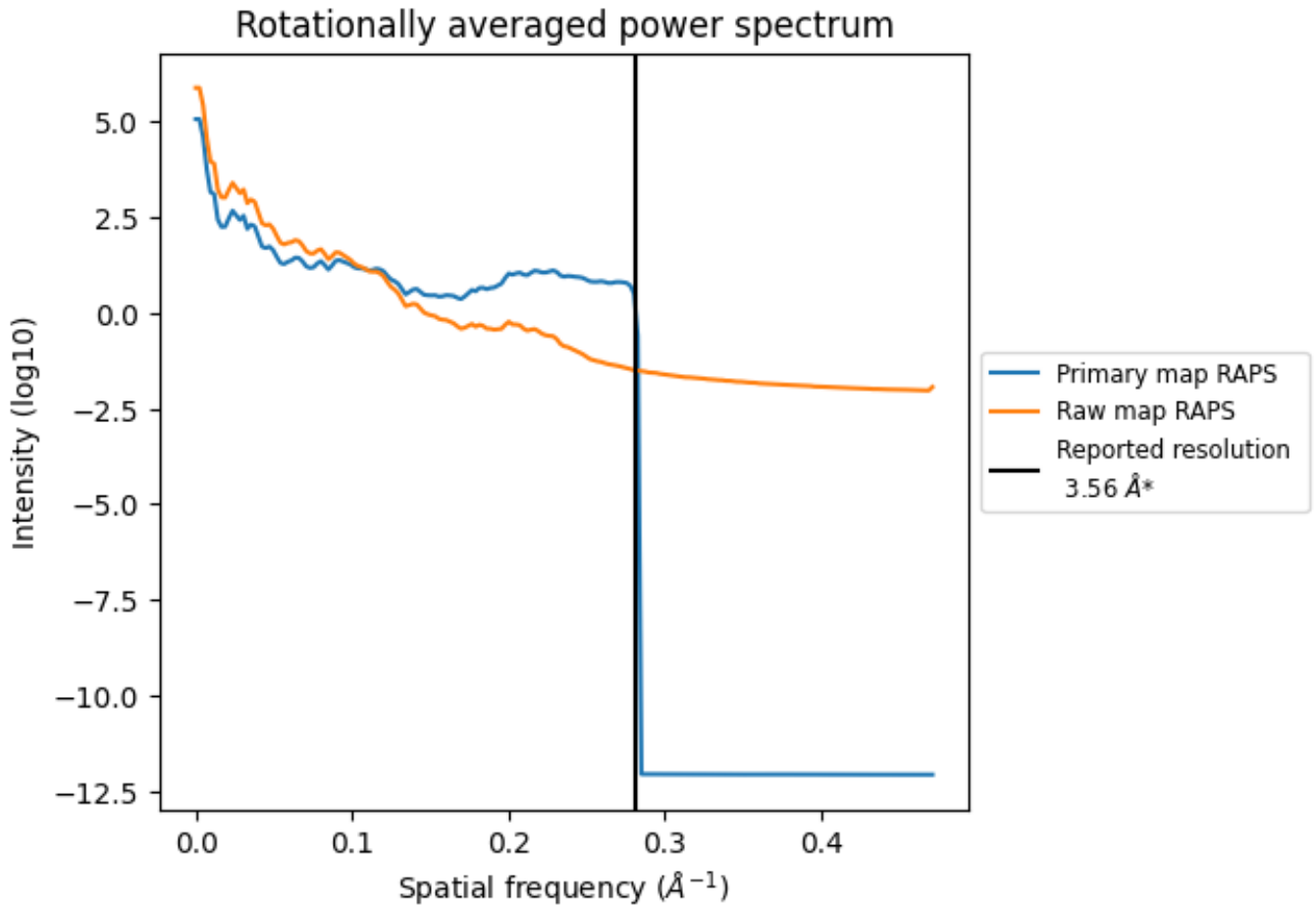
7.2 Volume estimate (i)



The volume at the recommended contour level is 988 nm^3; 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 (i)

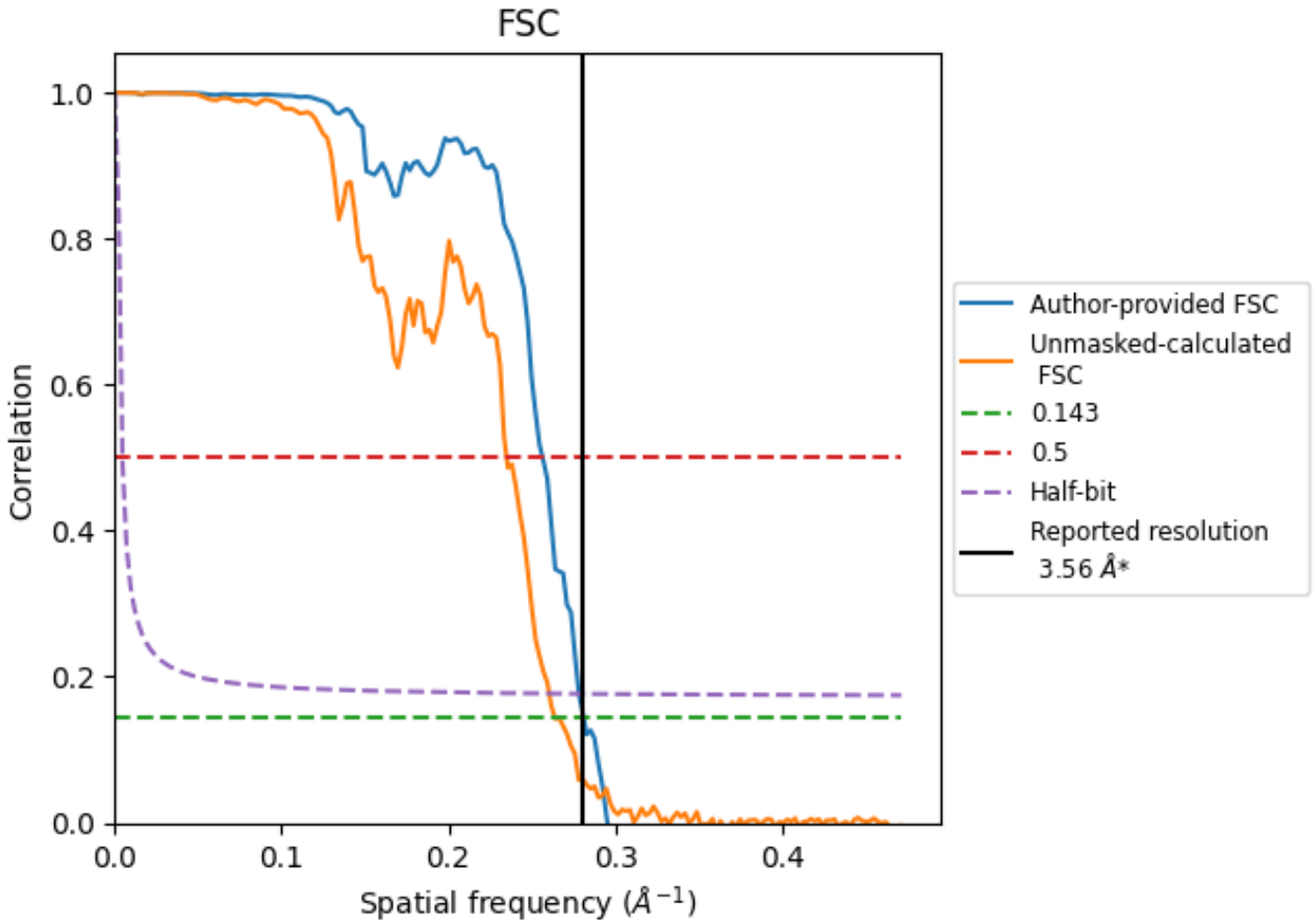


*Reported resolution corresponds to spatial frequency of 0.281 $Å^{-1}$

8 Fourier-Shell correlation

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



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

8.2 Resolution estimates (i)

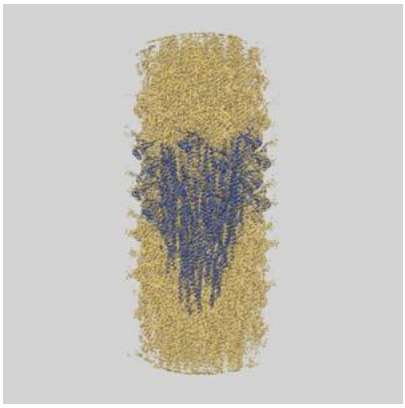
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.56	-	-
Author-provided FSC curve	3.56	3.90	3.59
Unmasked-calculated*	3.79	4.25	3.84

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

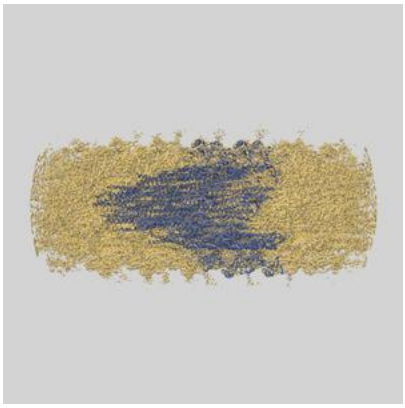
9 Map-model fit

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.

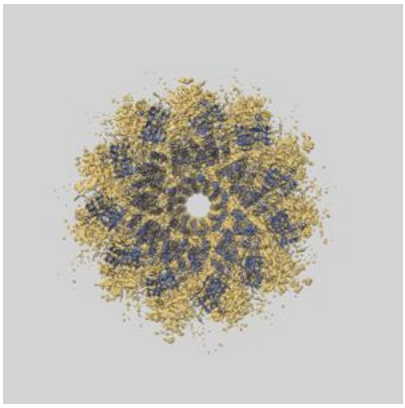
9.1 Map-model overlay



X



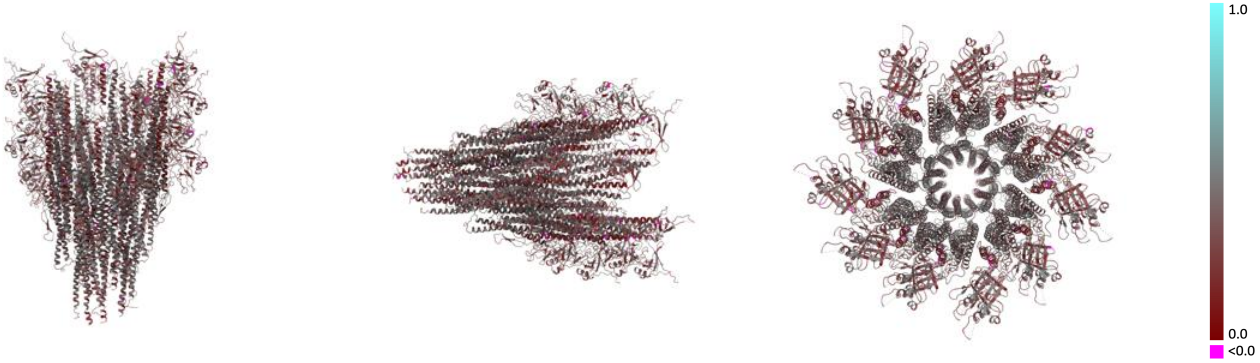
Y



Z

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.

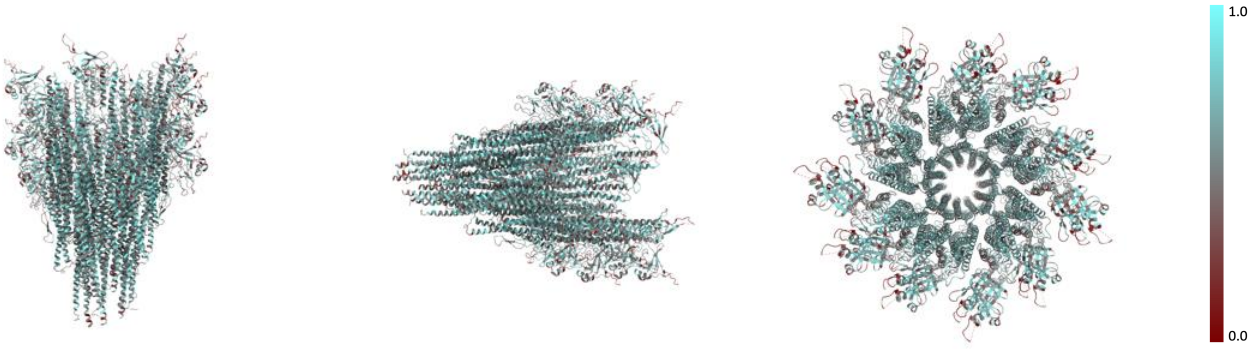
9.2 Q-score mapped to coordinate model



X Y Z

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

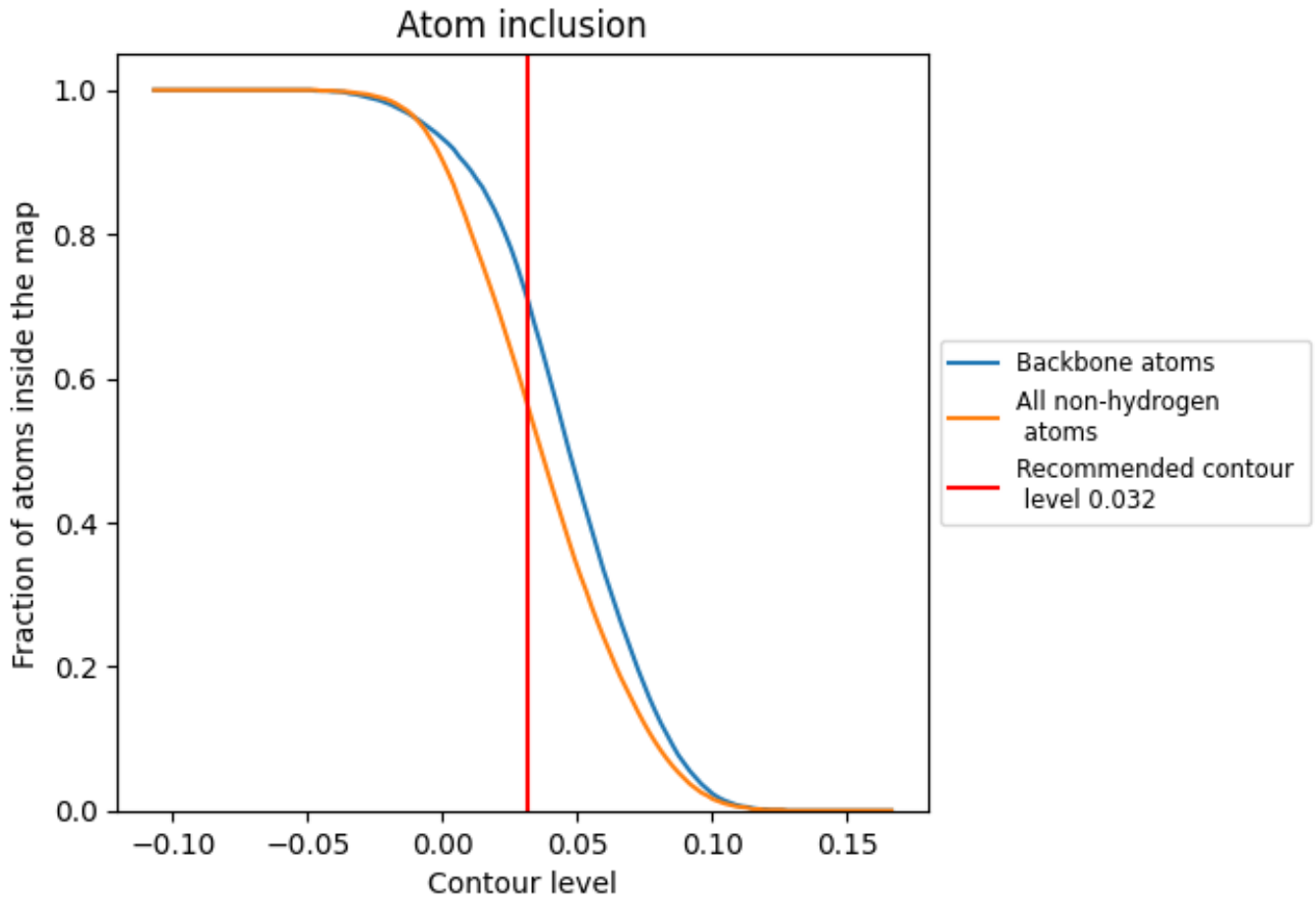
9.3 Atom inclusion mapped to coordinate model



X Y Z

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