



wwPDB EM Validation Summary Report ⓘ

Mar 5, 2026 – 09:33 AM UTC

PDB ID : 7CGB / pdb_00007cgb
EMDB ID : EMD-30354
Title : Cryo-EM structure of the flagellar hook from Salmonella
Authors : Tan, J.X.; Chang, S.H.; Wang, X.F.; Xu, C.H.; Zhou, Y.; Zhang, X.; Zhu, Y.Q.
Deposited on : 2020-07-01
Resolution : 3.40 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

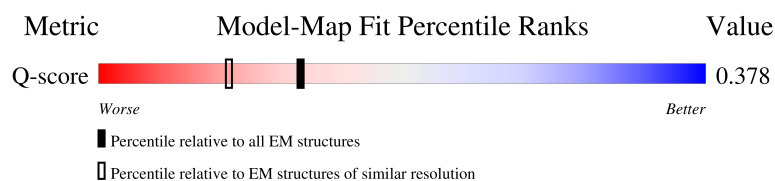
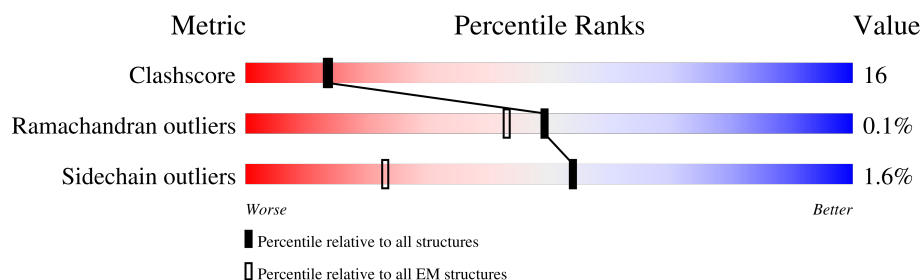
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.40 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.



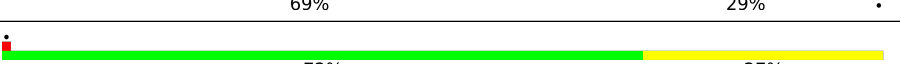
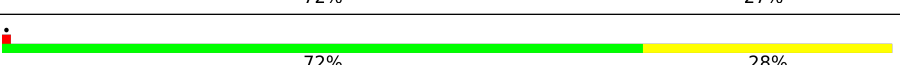
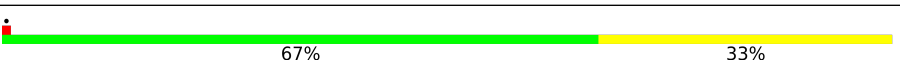
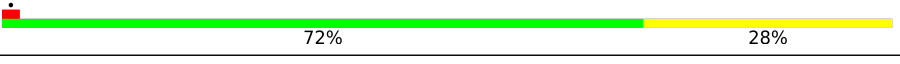
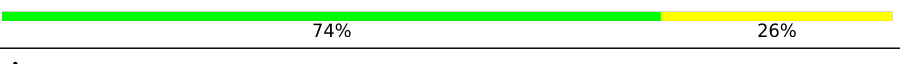
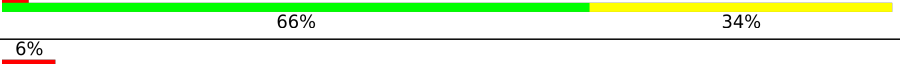
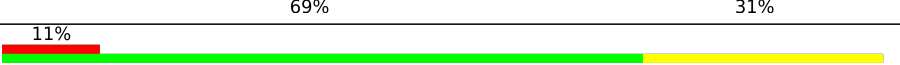
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	14717 (2.90 - 3.90)

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	DL	403	6% 60% 33% 5%
1	DM	403	62% 35%
1	DN	403	62% 34%
1	DO	403	62% 32% 6%

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Mol	Chain	Length	Quality of chain
1	DP	403	
1	DQ	403	
1	DR	403	
1	DS	403	
1	DT	403	
1	DU	403	
1	DV	403	
1	DW	403	
1	DX	403	
1	DY	403	
1	DZ	403	
1	EA	403	
1	EB	403	
1	EC	403	
1	ED	403	
1	EE	403	
1	EF	403	
1	EG	403	

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 64834 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 hook protein FlgE.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	DL	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DM	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DN	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DO	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DP	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DQ	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DR	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DS	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DT	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DU	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DV	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DW	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DX	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DY	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	DZ	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	EA	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		
1	EB	401	Total	C	N	O	S	0	0
			2947	1814	507	618	8		

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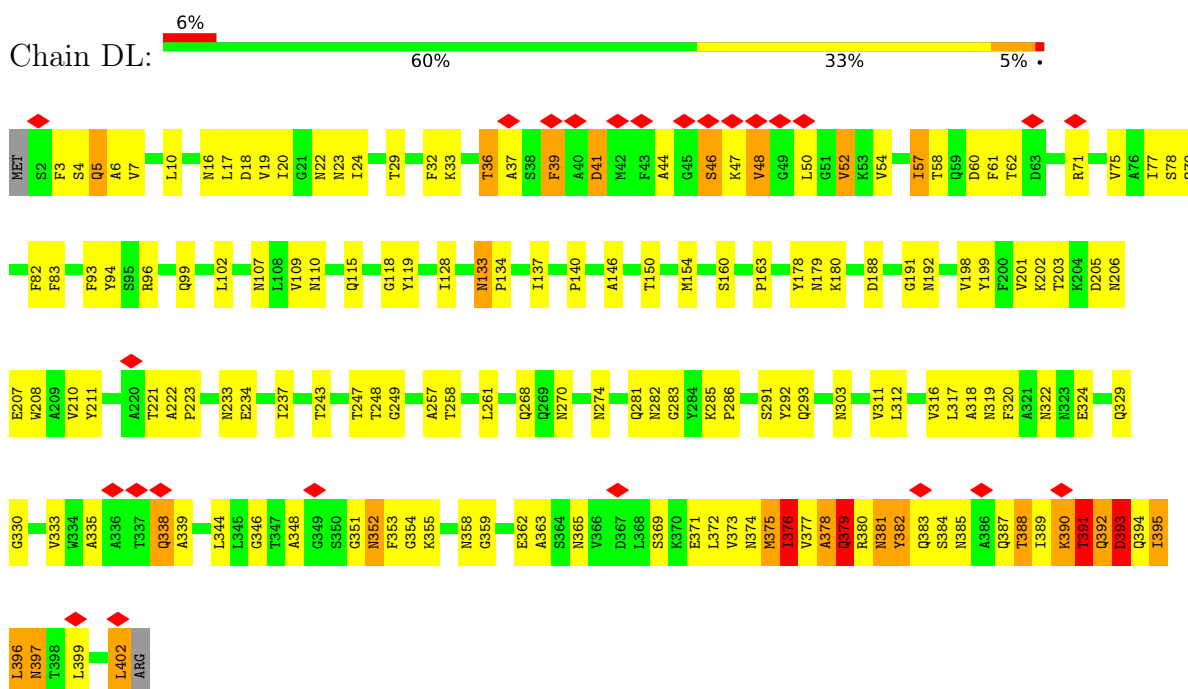
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Mol	Chain	Residues	Atoms					AltConf	Trace
1	EC	401	Total 2947	C 1814	N 507	O 618	S 8	0	0
1	ED	401	Total 2947	C 1814	N 507	O 618	S 8	0	0
1	EE	401	Total 2947	C 1814	N 507	O 618	S 8	0	0
1	EF	401	Total 2947	C 1814	N 507	O 618	S 8	0	0
1	EG	401	Total 2947	C 1814	N 507	O 618	S 8	0	0

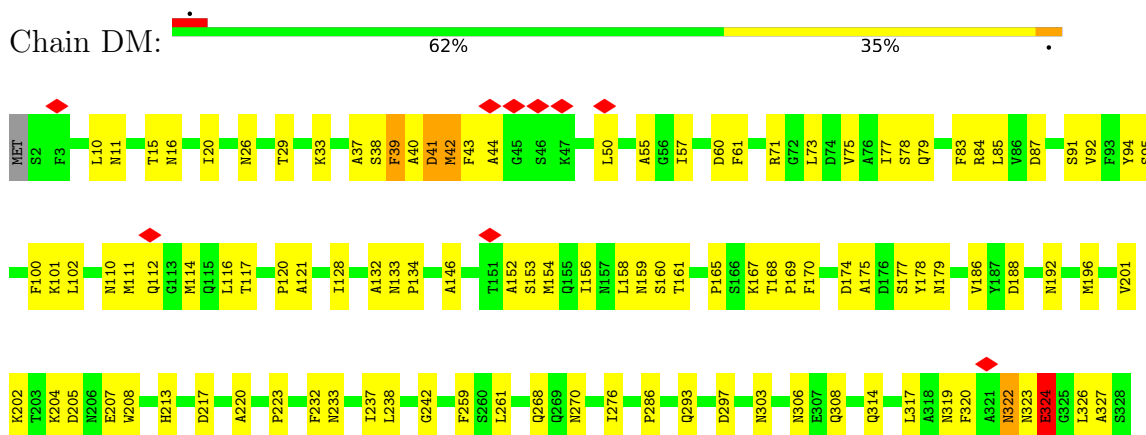
3 Residue-property plots

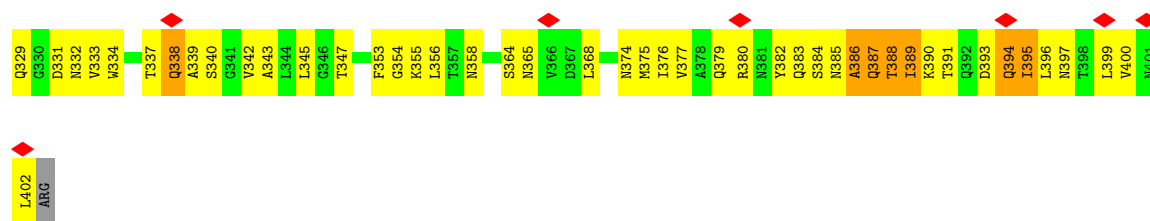
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Flagellar hook protein FlgE

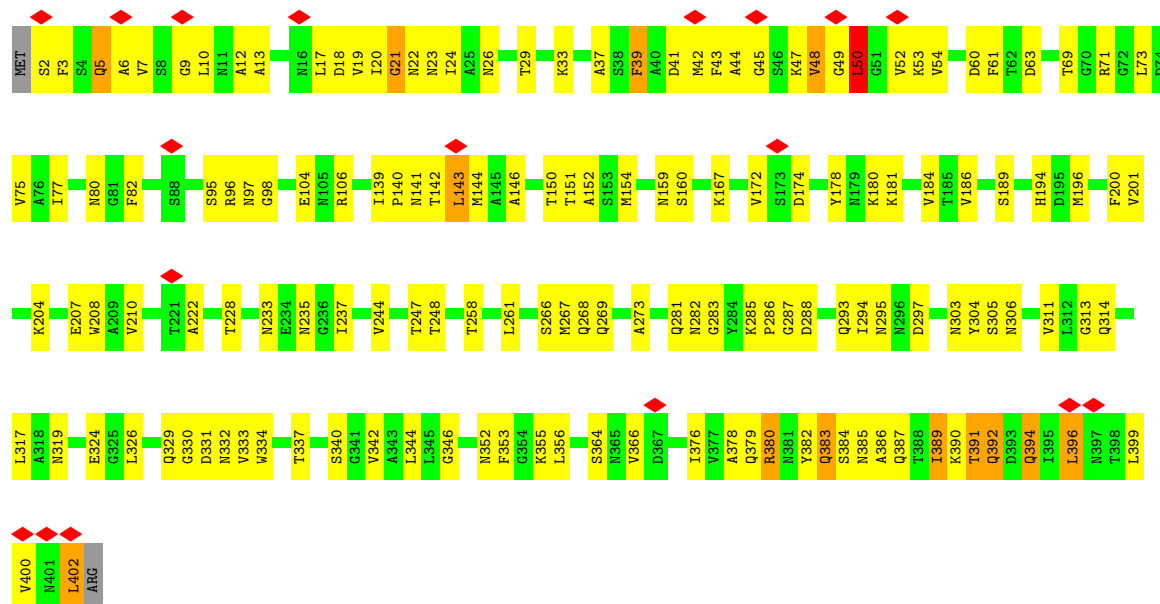


• Molecule 1: Flagellar hook protein FlgE

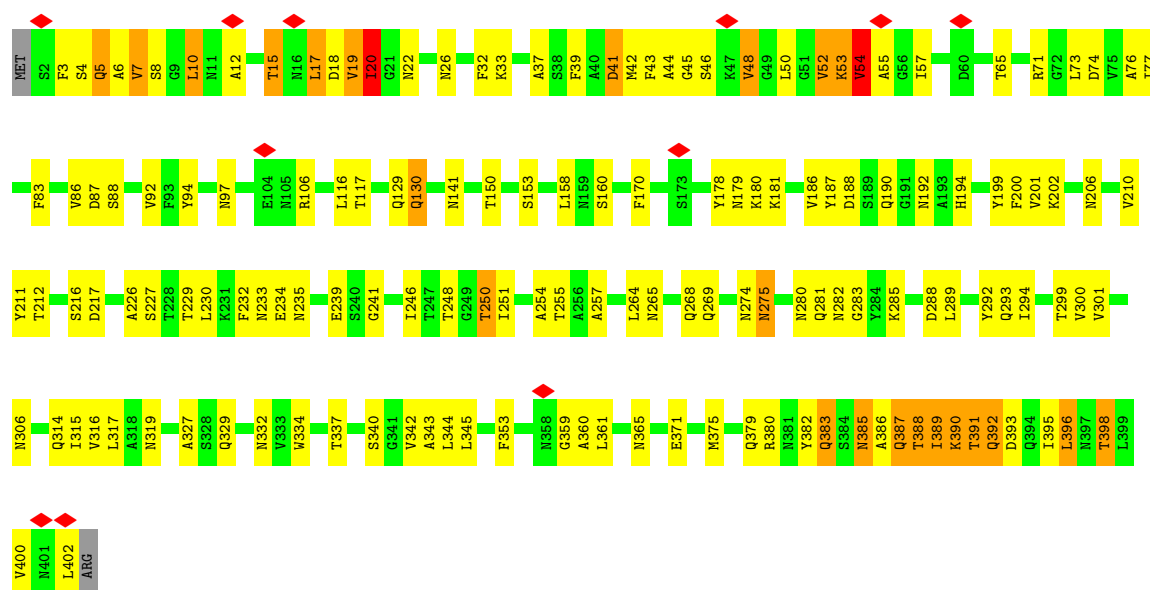




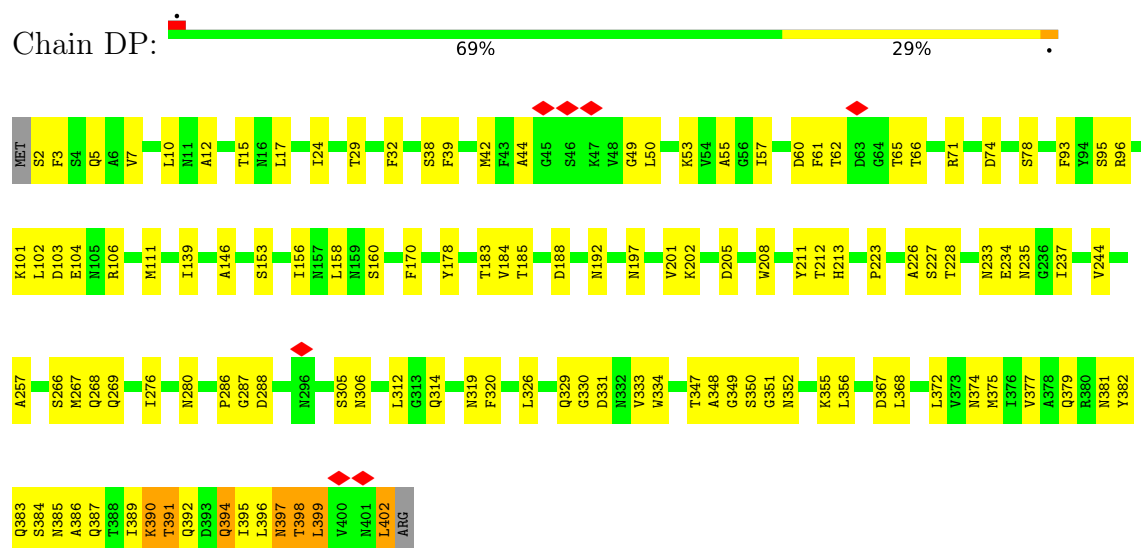
• Molecule 1: Flagellar hook protein FlgE



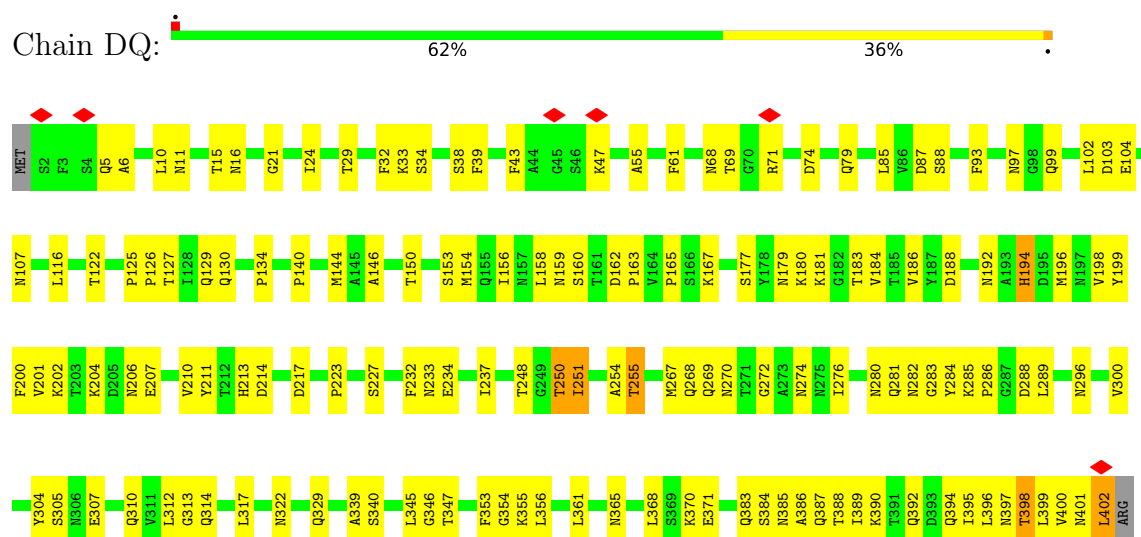
• Molecule 1: Flagellar hook protein FlgE



• Molecule 1: Flagellar hook protein FlgE



• Molecule 1: Flagellar hook protein FlgE



• Molecule 1: Flagellar hook protein FlgE

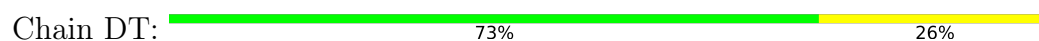




• Molecule 1: Flagellar hook protein FlgE

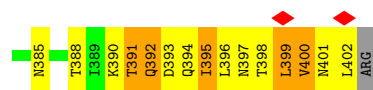


• Molecule 1: Flagellar hook protein FlgE

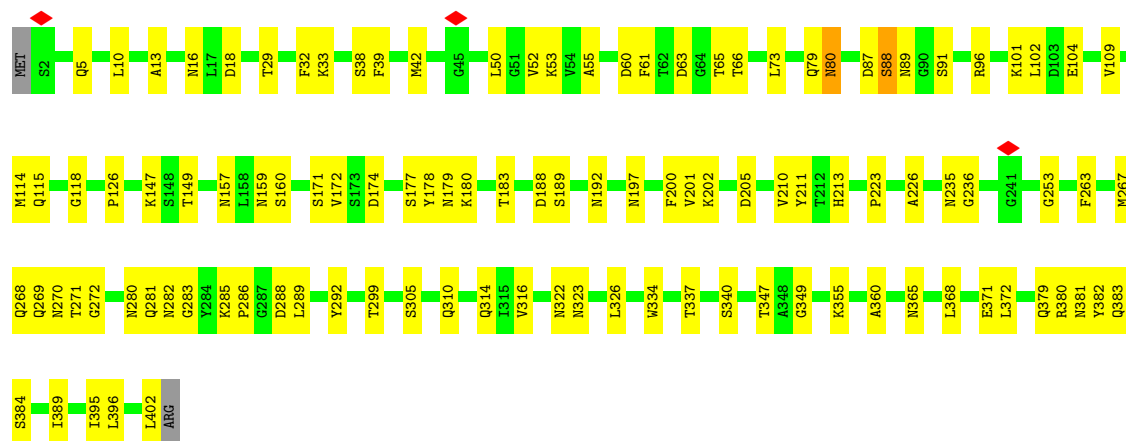
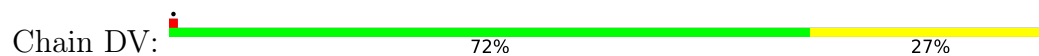


• Molecule 1: Flagellar hook protein FlgE

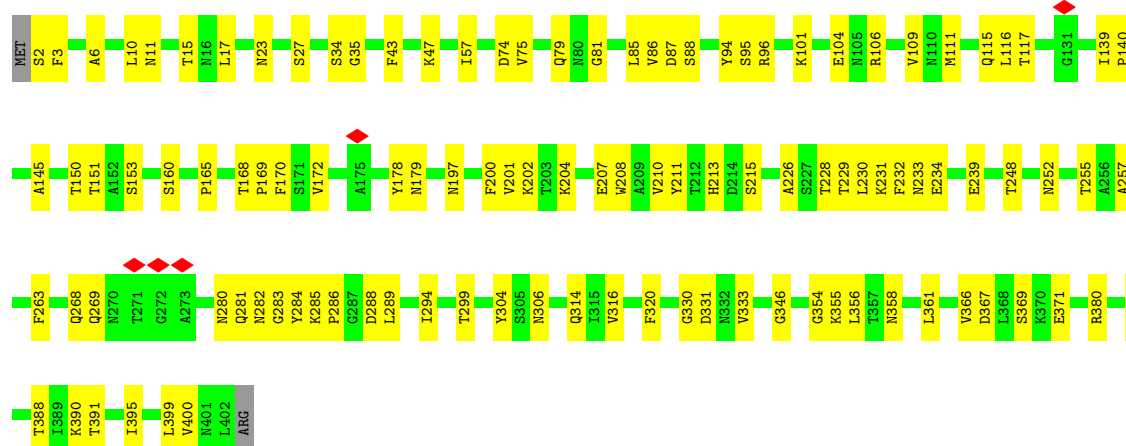
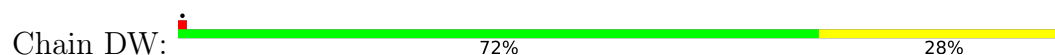




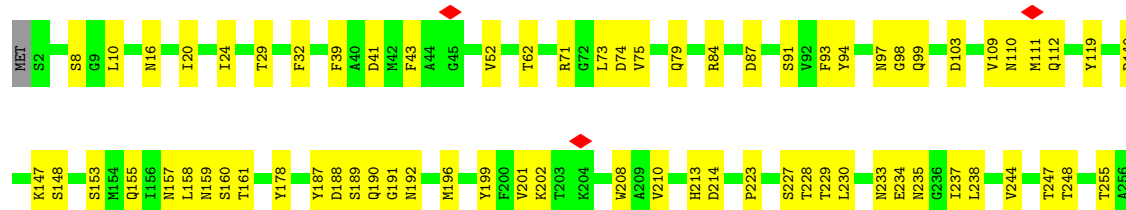
• Molecule 1: Flagellar hook protein FlgE



• Molecule 1: Flagellar hook protein FlgE

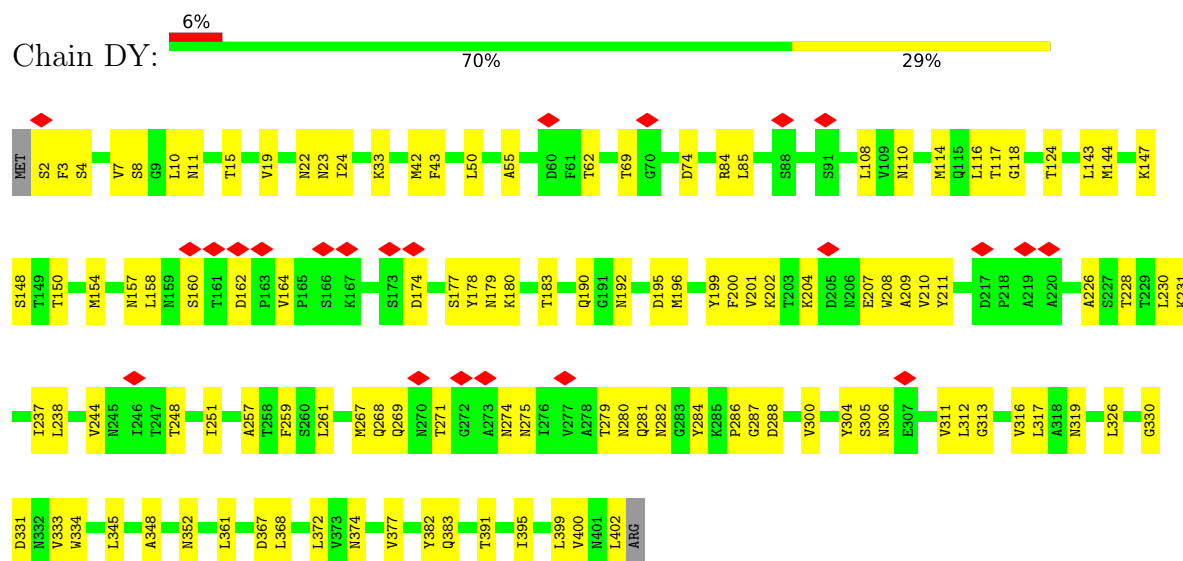


• Molecule 1: Flagellar hook protein FlgE

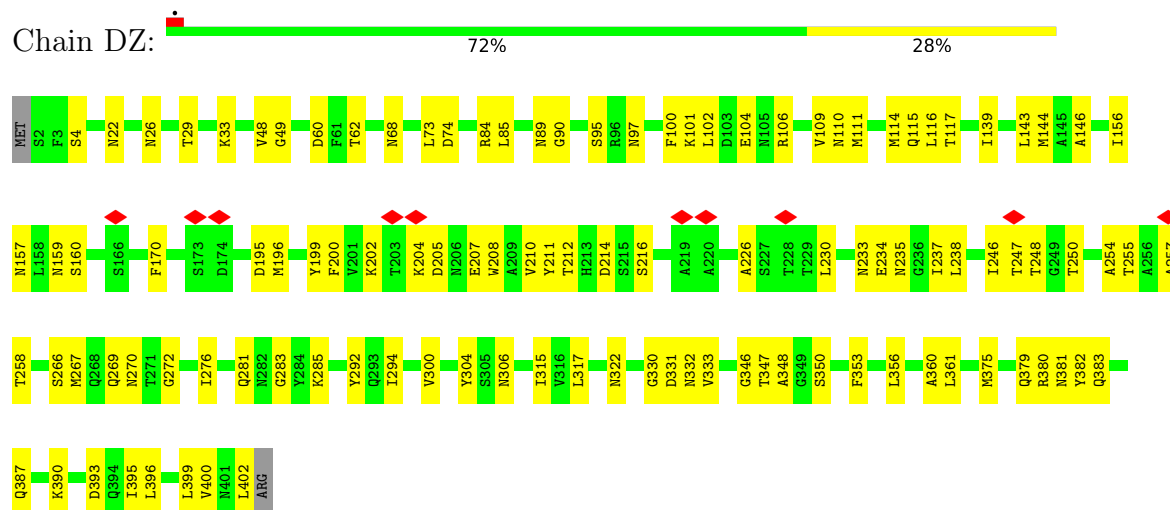


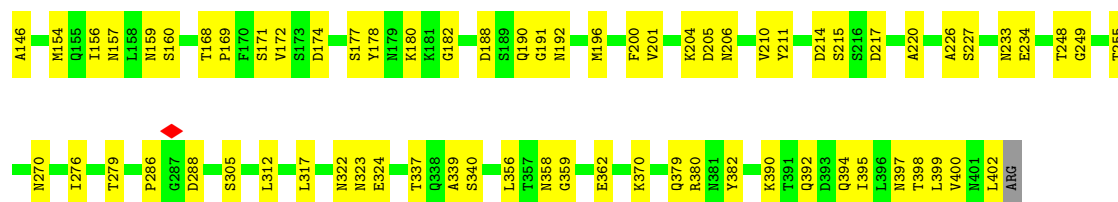


• Molecule 1: Flagellar hook protein FlgE

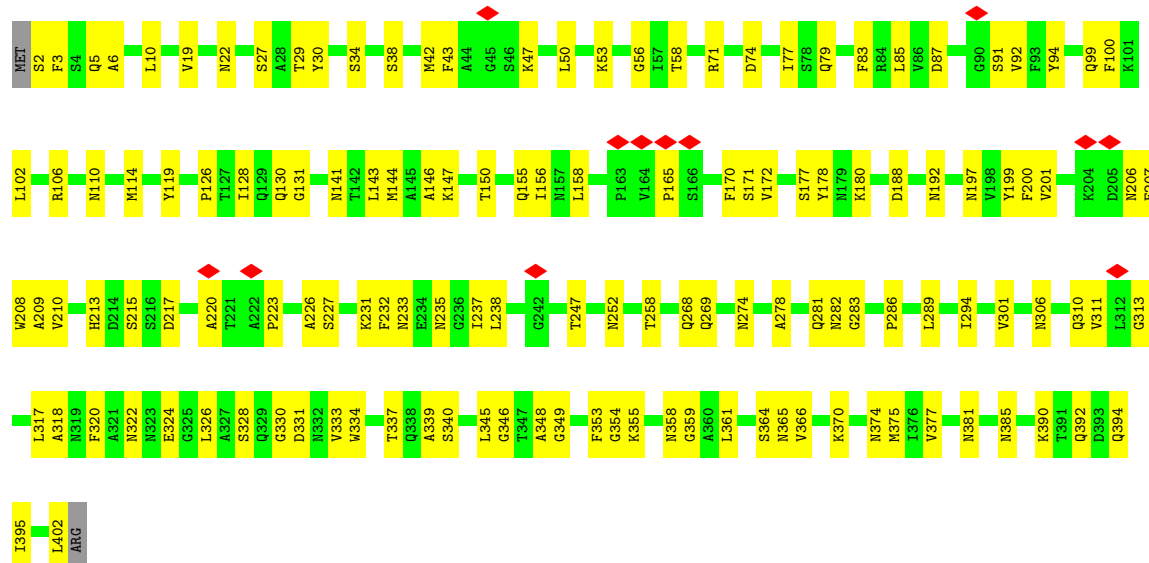


• Molecule 1: Flagellar hook protein FlgE

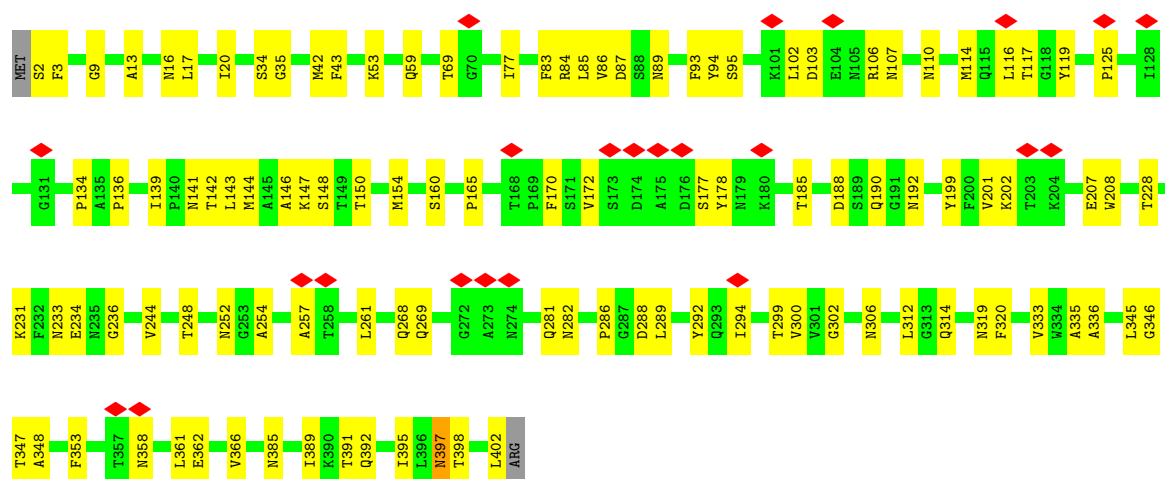
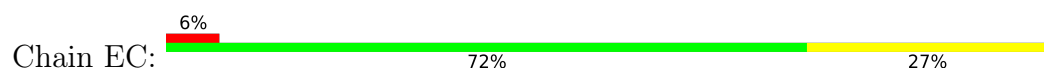




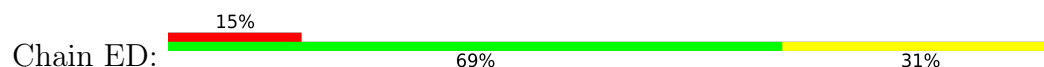
• Molecule 1: Flagellar hook protein FlgE

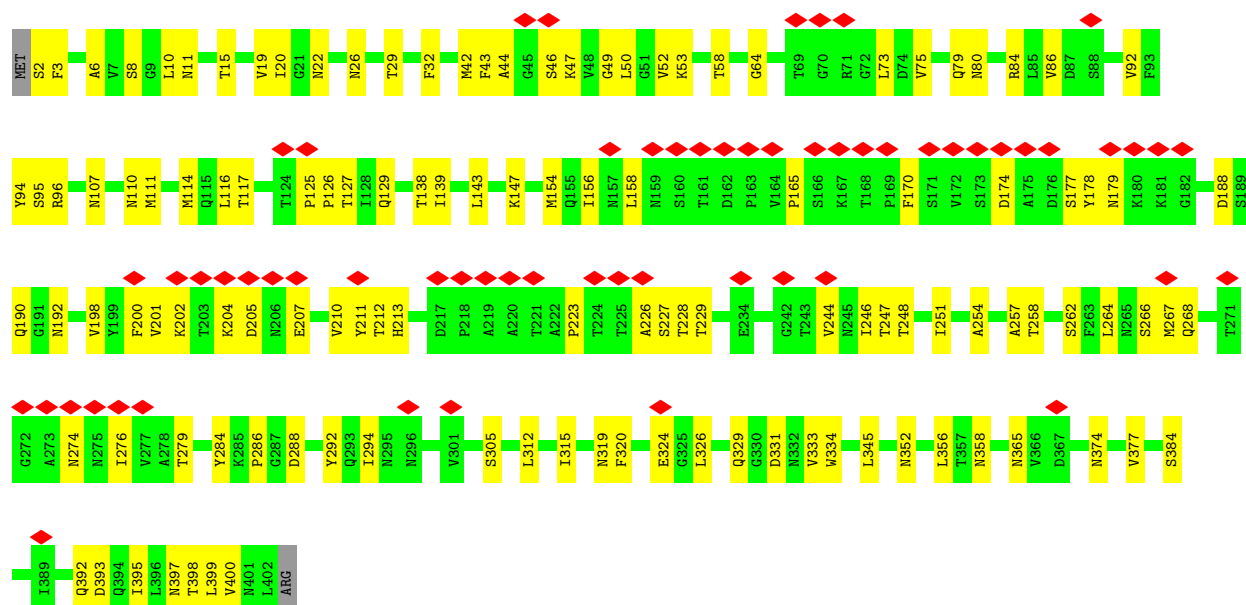


• Molecule 1: Flagellar hook protein FlgE

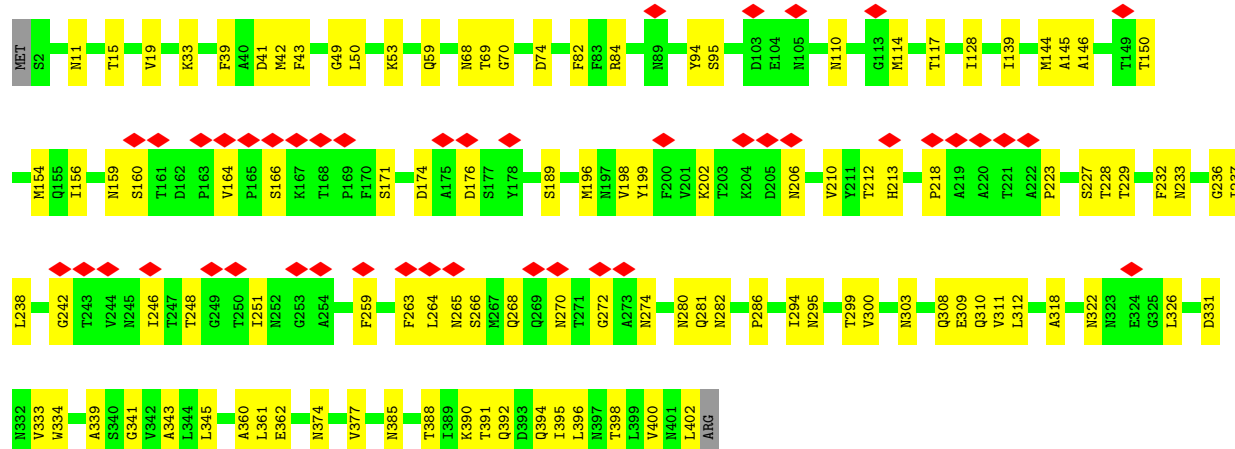
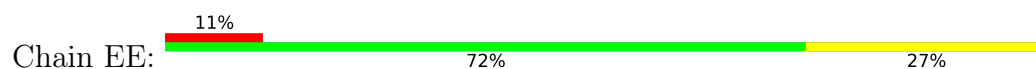


• Molecule 1: Flagellar hook protein FlgE

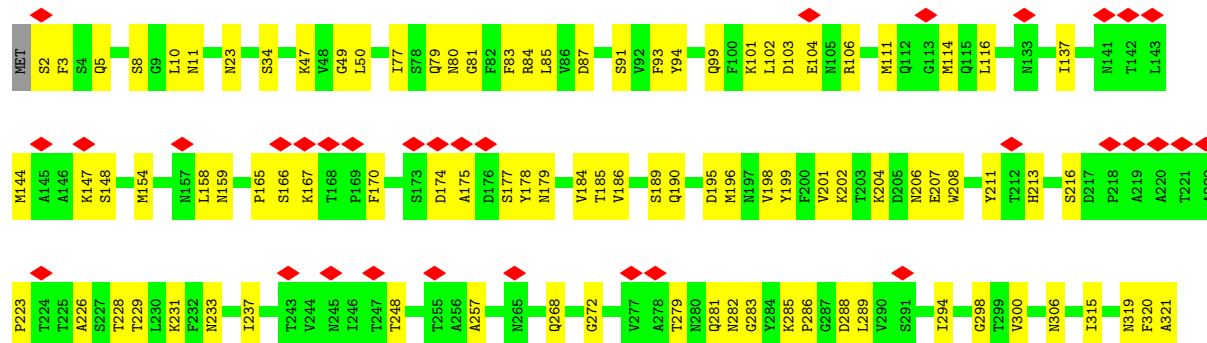




• Molecule 1: Flagellar hook protein FlgE

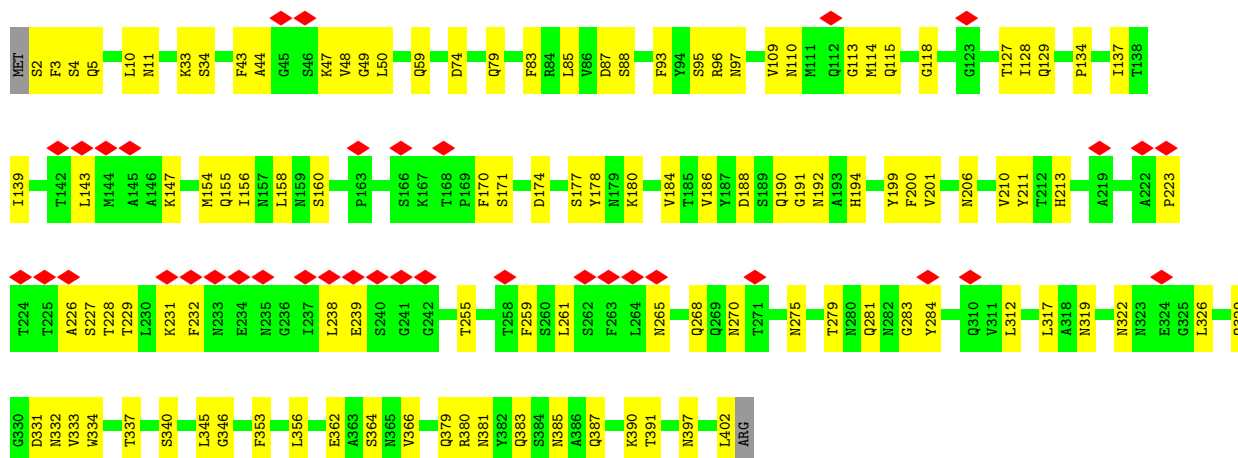
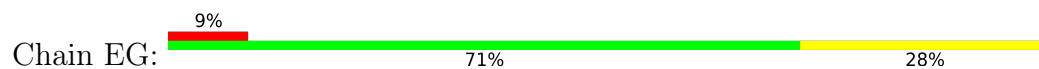


• Molecule 1: Flagellar hook protein FlgE





• Molecule 1: Flagellar hook protein FlgE



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	148517	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 ($e^-/\text{\AA}^2$)	47	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	1.394	Depositor
Minimum map value	-0.674	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.040	Depositor
Recommended contour level	0.263	Depositor
Map size (Å)	669.184, 669.184, 669.184	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.307, 1.307, 1.307	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	DL	0.59	8/2991 (0.3%)	0.91	15/4076 (0.4%)
1	DM	0.38	0/2991	0.70	9/4076 (0.2%)
1	DN	0.50	1/2991 (0.0%)	0.80	8/4076 (0.2%)
1	DO	0.47	0/2991	0.87	9/4076 (0.2%)
1	DP	0.26	0/2991	0.56	6/4076 (0.1%)
1	DQ	0.36	1/2991 (0.0%)	0.60	5/4076 (0.1%)
1	DR	0.14	0/2991	0.39	0/4076
1	DS	0.21	0/2991	0.49	1/4076 (0.0%)
1	DT	0.16	0/2991	0.39	1/4076 (0.0%)
1	DU	0.21	0/2991	0.50	4/4076 (0.1%)
1	DV	0.14	0/2991	0.39	0/4076
1	DW	0.15	0/2991	0.43	2/4076 (0.0%)
1	DX	0.14	0/2991	0.35	0/4076
1	DY	0.15	0/2991	0.39	0/4076
1	DZ	0.15	0/2991	0.39	0/4076
1	EA	0.15	0/2991	0.37	0/4076
1	EB	0.14	0/2991	0.36	0/4076
1	EC	0.15	0/2991	0.37	2/4076 (0.0%)
1	ED	0.14	0/2991	0.35	0/4076
1	EE	0.13	0/2991	0.36	0/4076
1	EF	0.15	0/2991	0.37	0/4076
1	EG	0.14	0/2991	0.38	0/4076
All	All	0.26	10/65802 (0.0%)	0.52	62/89672 (0.1%)

The worst 5 of 10 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	DQ	285	LYS	C-N	13.61	1.50	1.33
1	DL	133	ASN	C-N	12.86	1.50	1.33
1	DL	379	GLN	C-O	-6.55	1.16	1.24
1	DL	397	ASN	C-O	-6.18	1.16	1.24
1	DL	391	THR	C-O	-6.12	1.16	1.24

The worst 5 of 62 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	DQ	285	LYS	CA-C-N	14.40	134.59	119.90
1	DQ	285	LYS	C-N-CA	14.40	134.59	119.90
1	DL	133	ASN	CA-C-N	13.97	134.17	119.78
1	DL	133	ASN	C-N-CA	13.97	134.17	119.78
1	DN	49	GLY	CA-C-O	-10.73	114.83	122.23

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	DL	2947	0	2839	147	0
1	DM	2947	0	2839	139	0
1	DN	2947	0	2839	142	0
1	DO	2947	0	2839	138	0
1	DP	2947	0	2839	109	0
1	DQ	2947	0	2839	119	0
1	DR	2947	0	2839	86	0
1	DS	2947	0	2839	115	0
1	DT	2947	0	2839	89	0
1	DU	2947	0	2839	129	0
1	DV	2947	0	2839	89	0
1	DW	2947	0	2839	82	0
1	DX	2947	0	2839	98	0
1	DY	2947	0	2839	94	0
1	DZ	2947	0	2839	83	0
1	EA	2947	0	2839	82	0
1	EB	2947	0	2839	96	0
1	EC	2947	0	2839	77	0
1	ED	2947	0	2839	86	0
1	EE	2947	0	2839	73	0
1	EF	2947	0	2839	85	0
1	EG	2947	0	2839	82	0
All	All	64834	0	62458	2022	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 16.

The worst 5 of 2022 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:DN:146:ALA:HB3	1:DN:189:SER:O	1.21	1.30
1:DM:385:ASN:HA	1:DM:388:THR:CG2	1.60	1.29
1:DL:372:LEU:O	1:DL:376:ILE:HG12	1.36	1.21
1:DM:385:ASN:O	1:DM:388:THR:HG23	1.45	1.15
1:DU:396:LEU:O	1:DU:400:VAL:HG13	1.50	1.11

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	DL	399/403 (99%)	369 (92%)	27 (7%)	3 (1%)	16	44
1	DM	399/403 (99%)	383 (96%)	14 (4%)	2 (0%)	24	54
1	DN	399/403 (99%)	366 (92%)	31 (8%)	2 (0%)	24	54
1	DO	399/403 (99%)	373 (94%)	23 (6%)	3 (1%)	16	44
1	DP	399/403 (99%)	375 (94%)	24 (6%)	0	100	100
1	DQ	399/403 (99%)	379 (95%)	20 (5%)	0	100	100
1	DR	399/403 (99%)	382 (96%)	17 (4%)	0	100	100
1	DS	399/403 (99%)	381 (96%)	18 (4%)	0	100	100
1	DT	399/403 (99%)	377 (94%)	22 (6%)	0	100	100
1	DU	399/403 (99%)	381 (96%)	18 (4%)	0	100	100
1	DV	399/403 (99%)	374 (94%)	23 (6%)	2 (0%)	24	54
1	DW	399/403 (99%)	381 (96%)	18 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	DX	399/403 (99%)	380 (95%)	19 (5%)	0	100	100
1	DY	399/403 (99%)	378 (95%)	21 (5%)	0	100	100
1	DZ	399/403 (99%)	377 (94%)	22 (6%)	0	100	100
1	EA	399/403 (99%)	378 (95%)	21 (5%)	0	100	100
1	EB	399/403 (99%)	373 (94%)	26 (6%)	0	100	100
1	EC	399/403 (99%)	385 (96%)	14 (4%)	0	100	100
1	ED	399/403 (99%)	380 (95%)	19 (5%)	0	100	100
1	EE	399/403 (99%)	379 (95%)	20 (5%)	0	100	100
1	EF	399/403 (99%)	379 (95%)	20 (5%)	0	100	100
1	EG	399/403 (99%)	376 (94%)	23 (6%)	0	100	100
All	All	8778/8866 (99%)	8306 (95%)	460 (5%)	12 (0%)	49	78

5 of 12 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	DN	22	ASN
1	DM	324	GLU
1	DO	52	VAL
1	DL	39	PHE
1	DL	352	ASN

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	DL	321/323 (99%)	300 (94%)	21 (6%)	15	42
1	DM	321/323 (99%)	304 (95%)	17 (5%)	20	47
1	DN	321/323 (99%)	305 (95%)	16 (5%)	22	49
1	DO	321/323 (99%)	294 (92%)	27 (8%)	10	34
1	DP	321/323 (99%)	315 (98%)	6 (2%)	50	66
1	DQ	321/323 (99%)	315 (98%)	6 (2%)	50	66

Continued on next page...

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	DR	321/323 (99%)	321 (100%)	0	100	100
1	DS	321/323 (99%)	314 (98%)	7 (2%)	45	63
1	DT	321/323 (99%)	320 (100%)	1 (0%)	86	84
1	DU	321/323 (99%)	315 (98%)	6 (2%)	50	66
1	DV	321/323 (99%)	320 (100%)	1 (0%)	86	84
1	DW	321/323 (99%)	321 (100%)	0	100	100
1	DX	321/323 (99%)	321 (100%)	0	100	100
1	DY	321/323 (99%)	320 (100%)	1 (0%)	86	84
1	DZ	321/323 (99%)	321 (100%)	0	100	100
1	EA	321/323 (99%)	321 (100%)	0	100	100
1	EB	321/323 (99%)	320 (100%)	1 (0%)	86	84
1	EC	321/323 (99%)	320 (100%)	1 (0%)	86	84
1	ED	321/323 (99%)	321 (100%)	0	100	100
1	EE	321/323 (99%)	321 (100%)	0	100	100
1	EF	321/323 (99%)	320 (100%)	1 (0%)	86	84
1	EG	321/323 (99%)	320 (100%)	1 (0%)	86	84
All	All	7062/7106 (99%)	6949 (98%)	113 (2%)	54	68

5 of 113 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	DO	15	THR
1	EC	397	ASN
1	DO	275	ASN
1	EB	394	GLN
1	DS	402	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 159 such sidechains are listed below:

Mol	Chain	Res	Type
1	EB	26	ASN
1	EE	80	ASN
1	EB	379	GLN
1	ED	105	ASN
1	EG	26	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.

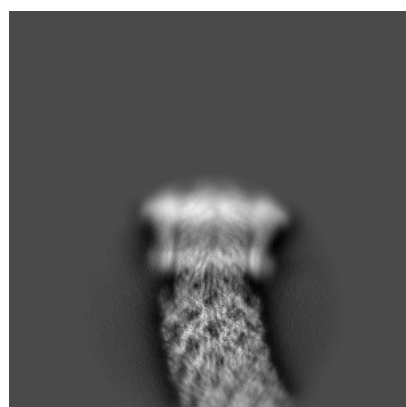
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-30354. These allow visual inspection of the internal detail of the map and identification of artifacts.

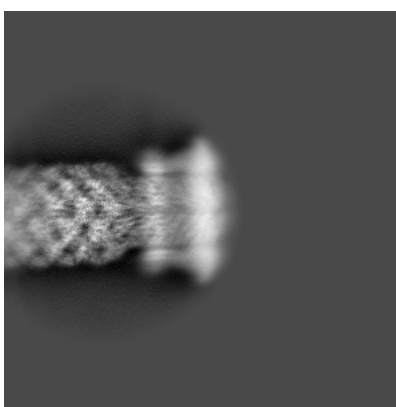
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

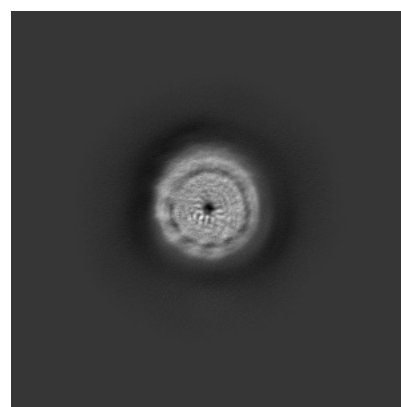
6.1.1 Primary map



X



Y

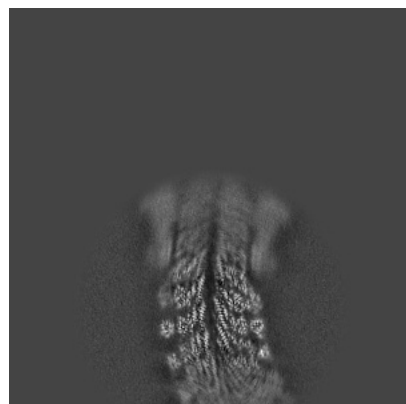


Z

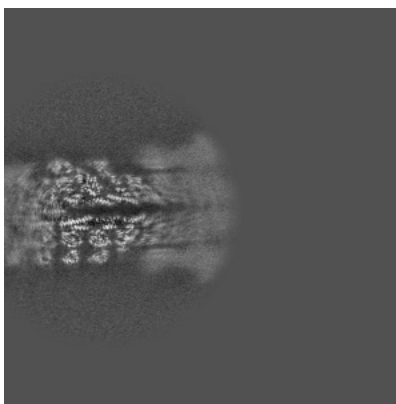
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

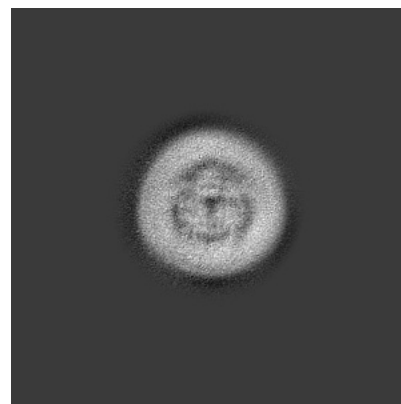
6.2.1 Primary map



X Index: 256



Y Index: 256

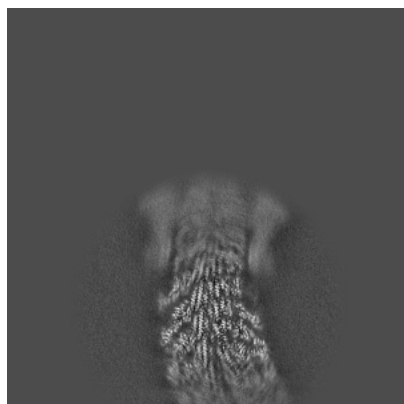


Z Index: 256

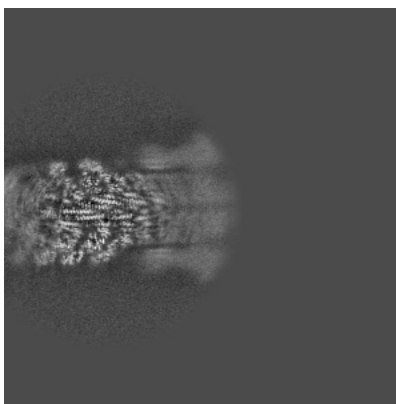
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

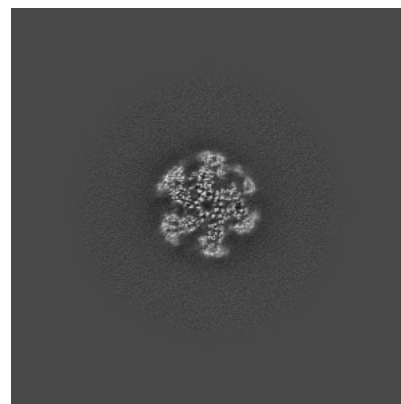
6.3.1 Primary map



X Index: 243



Y Index: 248

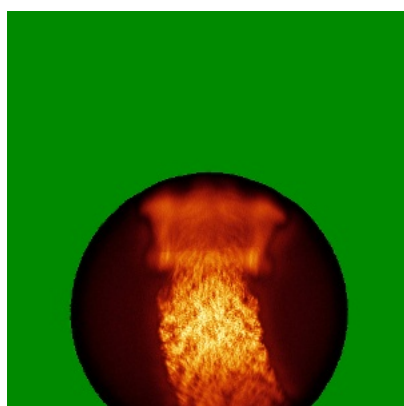


Z Index: 102

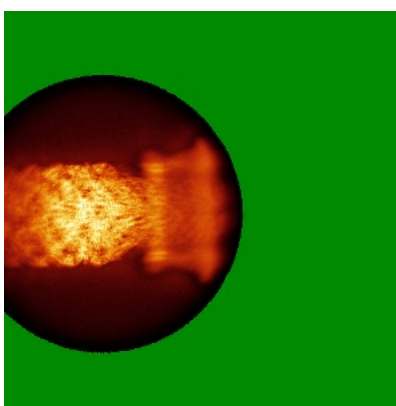
The images above show the largest variance slices of the map in three orthogonal directions.

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

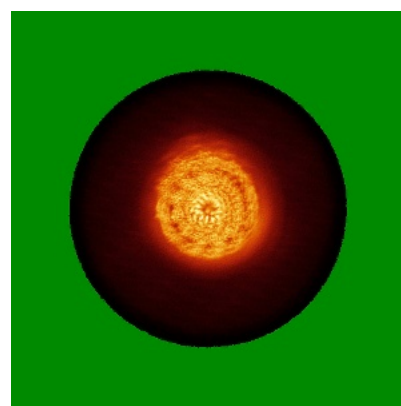
6.4.1 Primary map



X



Y



Z

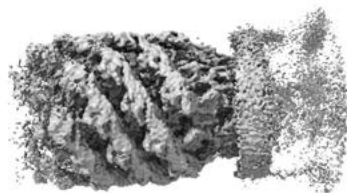
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.263. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

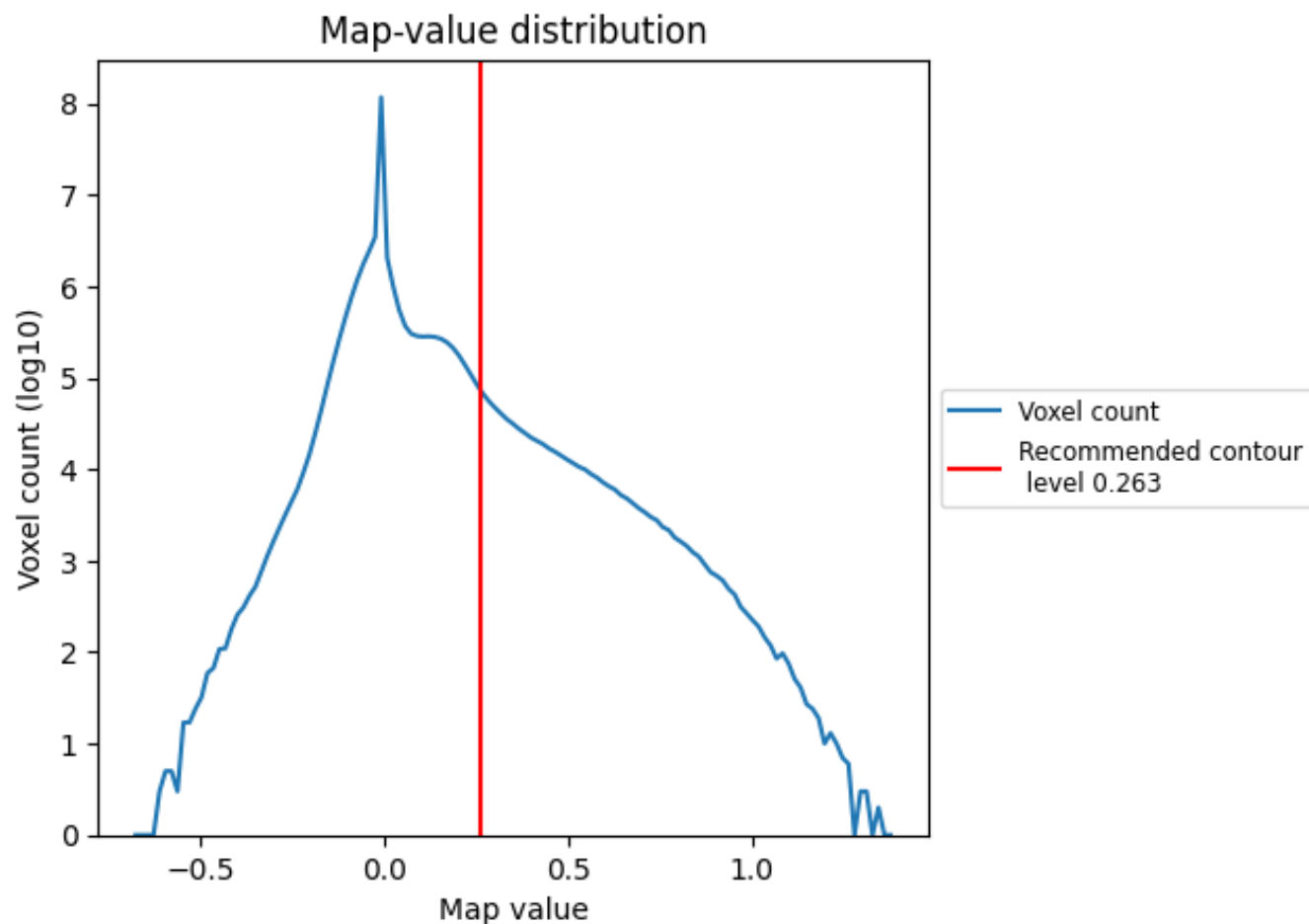
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

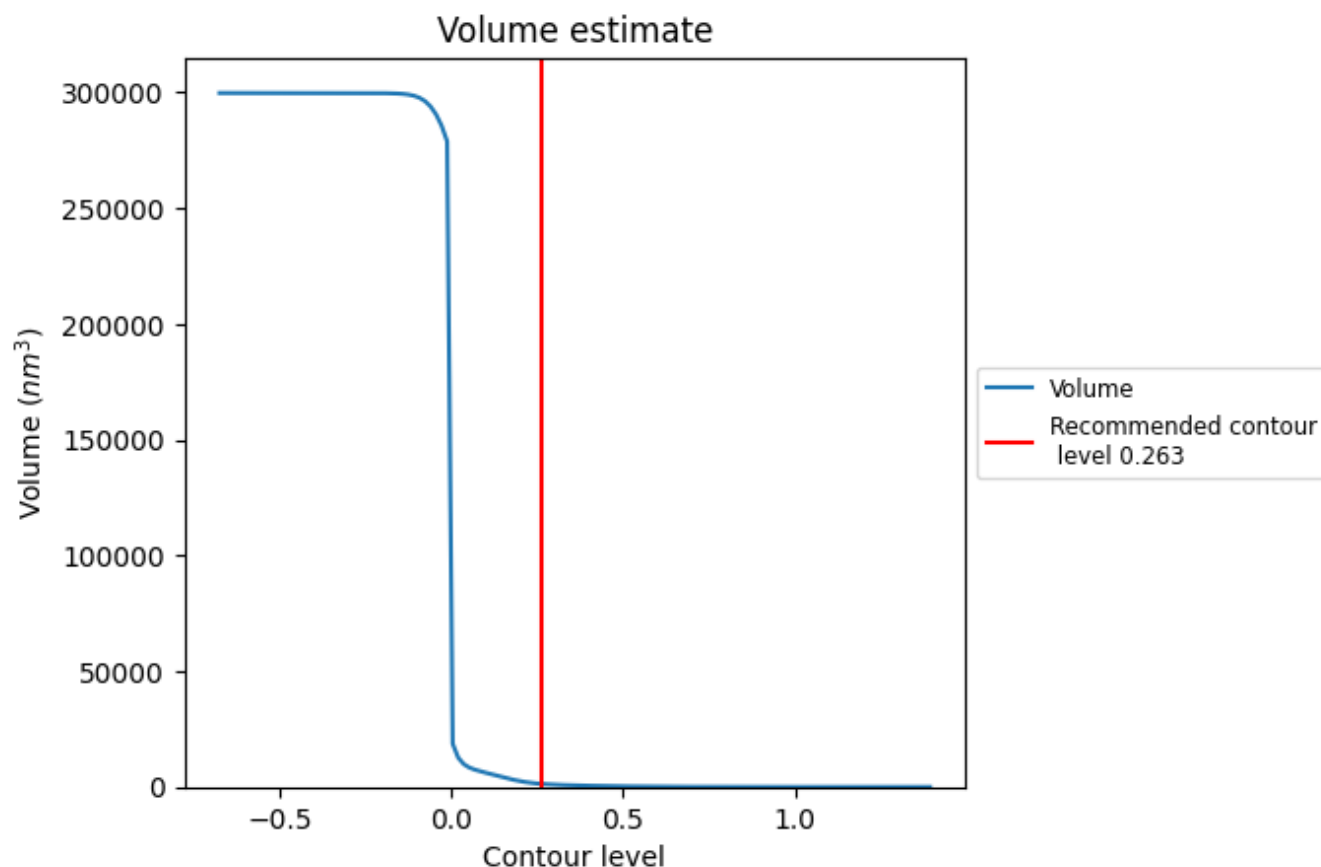
This section contains the results of statistical analysis of the map.

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.

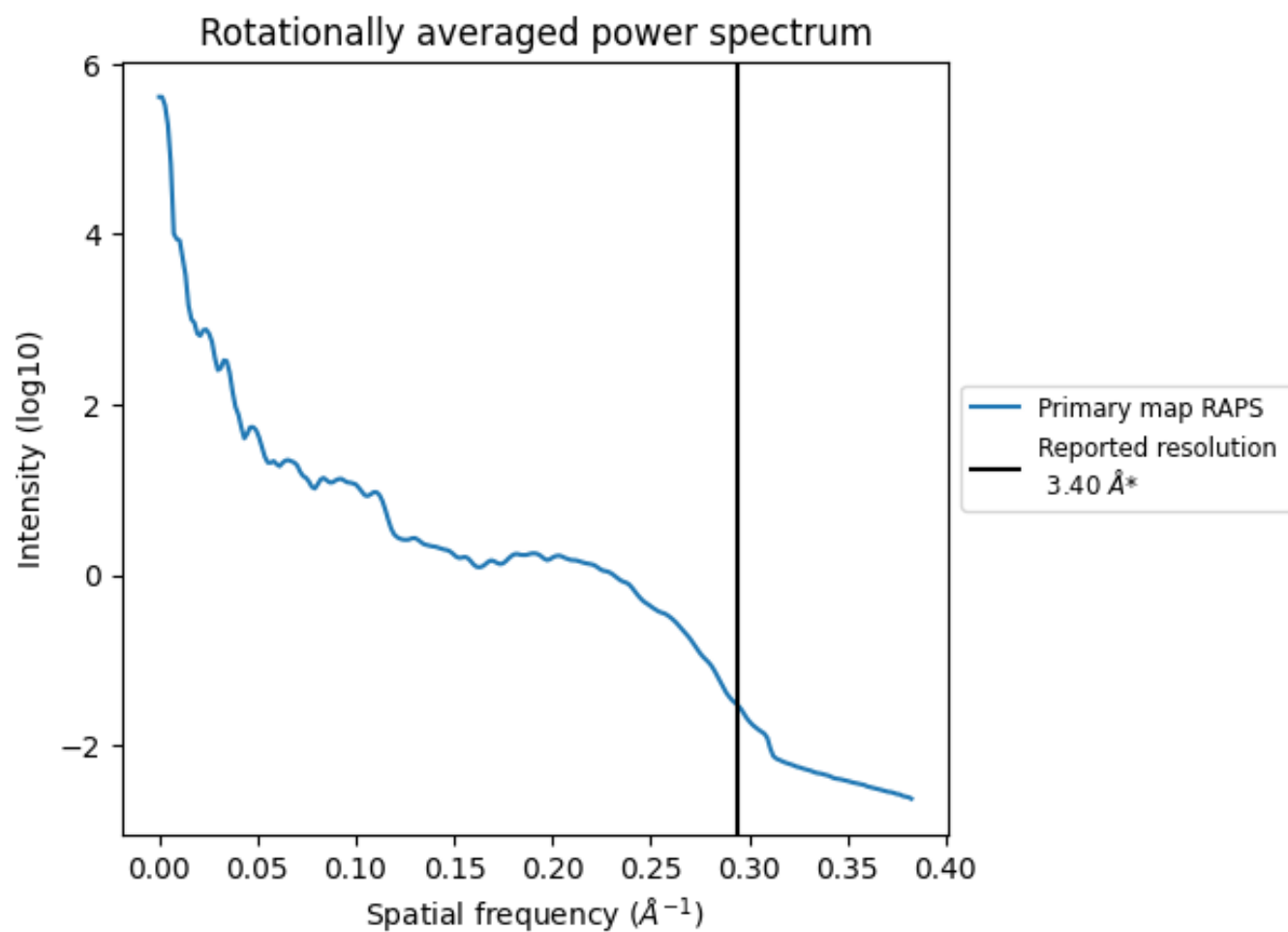
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1333 nm³; this corresponds to an approximate mass of 1205 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 0.294 Å⁻¹

8 Fourier-Shell correlation

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

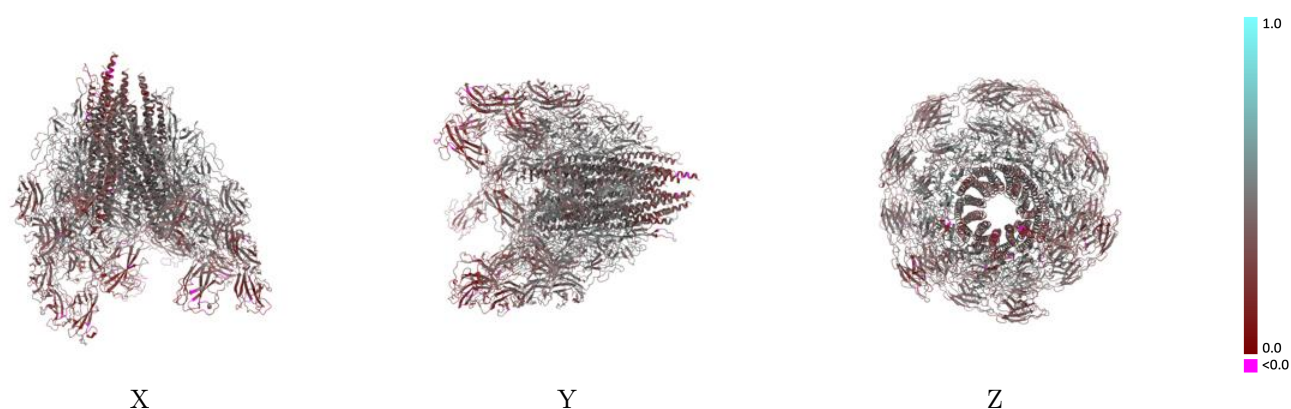
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-30354 and PDB model 7CGB. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlay [i](#)

This section was not generated.

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

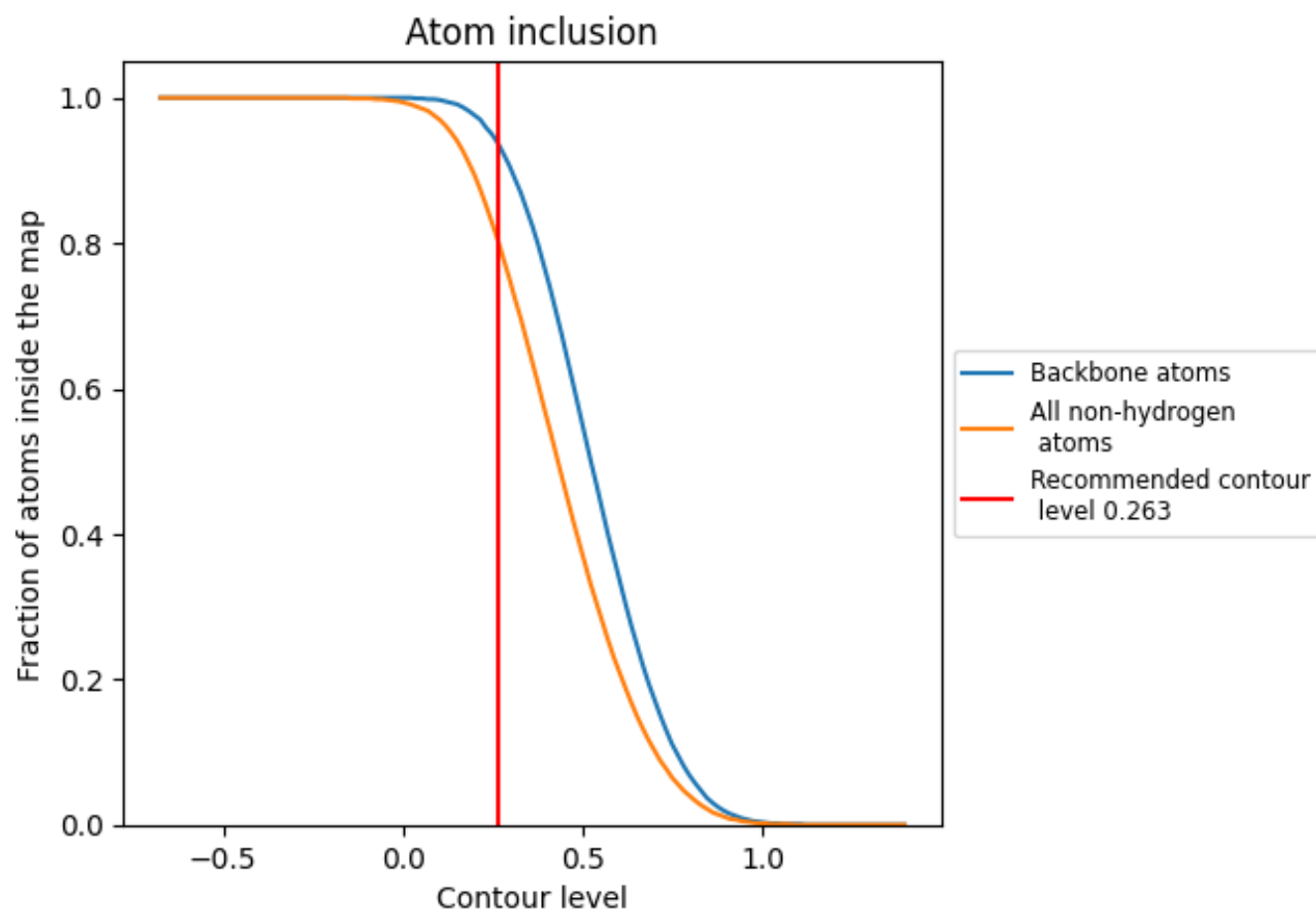


The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

This section was not generated.

9.4 Atom inclusion [i](#)



At the recommended contour level, 94% of all backbone atoms, 80% 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 (0.263) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8050	 0.3780
DL	 0.7710	 0.3020
DM	 0.7930	 0.3490
DN	 0.7940	 0.3460
DO	 0.8110	 0.3990
DP	 0.8540	 0.4160
DQ	 0.8210	 0.3850
DR	 0.8410	 0.3930
DS	 0.8330	 0.4000
DT	 0.8550	 0.4330
DU	 0.8450	 0.4160
DV	 0.8380	 0.4070
DW	 0.8300	 0.3850
DX	 0.8390	 0.3980
DY	 0.7960	 0.3500
DZ	 0.8140	 0.3920
EA	 0.8450	 0.4190
EB	 0.7890	 0.3620
EC	 0.7730	 0.3470
ED	 0.7130	 0.3460
EE	 0.7370	 0.3370
EF	 0.7730	 0.3700
EG	 0.7430	 0.3580

