



wwPDB EM Validation Summary Report ⓘ

Mar 6, 2026 – 12:16 AM UTC

PDB ID : 6S6B / pdb_00006s6b
EMDB ID : EMD-10102
Title : Type III-B Cmr-beta Cryo-EM structure of the Apo state
Authors : Sofos, N.; Montoya, G.; Stella, S.
Deposited on : 2019-07-02
Resolution : 2.75 Å(reported)

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

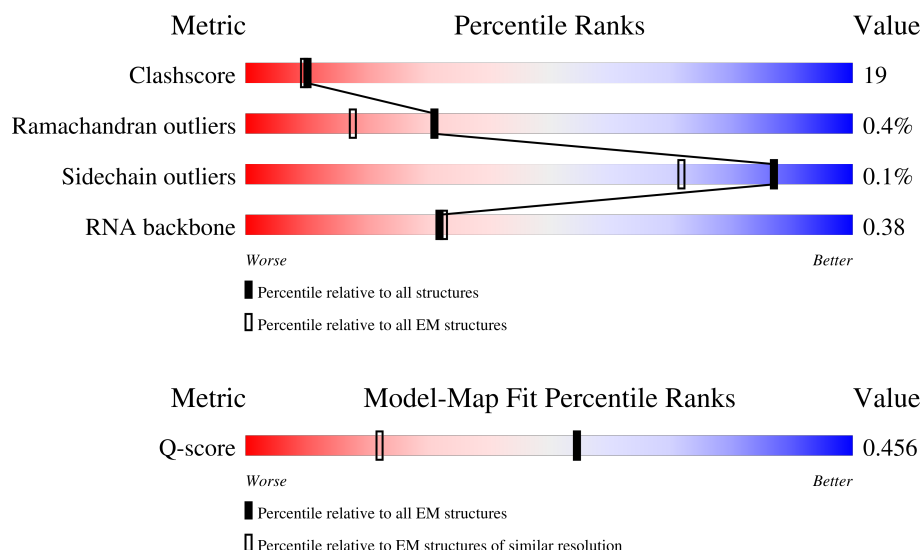
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh &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

1 Overall quality at a glance

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

The reported resolution of this entry is 2.75 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.



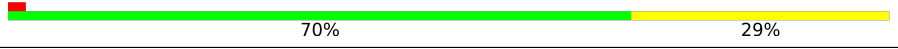
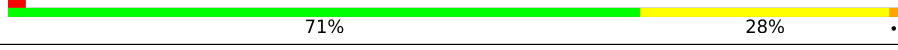
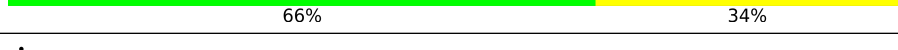
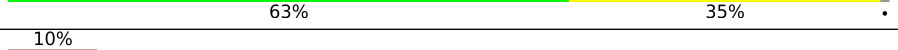
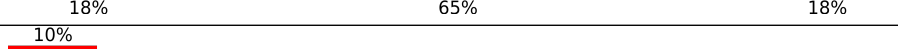
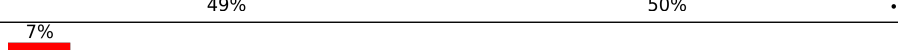
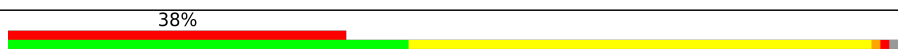
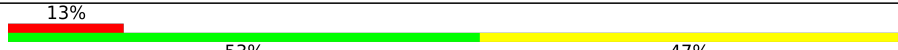
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	10570 (2.25 - 3.25)

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	155	
1	B	155	
1	C	155	

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Mol	Chain	Length	Quality of chain
2	D	286	
2	E	286	
2	F	286	
2	G	286	
3	H	313	
4	I	296	
5	J	476	
6	K	1037	
7	V	51	
8	L	174	
8	M	174	
8	N	174	
8	O	174	
8	P	174	
8	Q	174	
8	R	174	
8	S	174	
8	T	174	
8	W	174	
8	X	174	
8	Y	174	
8	Z	174	
8	l	174	
8	m	174	
8	n	174	

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Mol	Chain	Length	Quality of chain
8	o	174	
8	p	174	
8	q	174	
8	r	174	
8	s	174	
8	t	174	
8	w	174	
8	x	174	
8	y	174	
8	z	174	

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 66914 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 CRISPR-associated protein, Cmr5 family.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	153	Total	C	N	O	S	0	0
			1253	817	205	230	1		
1	B	154	Total	C	N	O	S	0	0
			1261	823	206	231	1		
1	C	154	Total	C	N	O	S	0	0
			1261	823	206	231	1		

- Molecule 2 is a protein called CRISPR-associated RAMP protein, Cmr4 family.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	285	Total	C	N	O	S	0	0
			2276	1479	369	426	2		
2	E	285	Total	C	N	O	S	0	0
			2276	1479	369	426	2		
2	F	285	Total	C	N	O	S	0	0
			2277	1479	369	427	2		
2	G	285	Total	C	N	O	S	0	0
			2276	1479	369	426	2		

- Molecule 3 is a protein called CRISPR-associated protein, Cmr3 family.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	H	312	Total	C	N	O	S	0	0
			2528	1630	418	473	7		

- Molecule 4 is a protein called CRISPR-associated RAMP protein, Cmr6 family.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	I	284	Total	C	N	O	S	0	0
			2282	1470	381	427	4		

There are 13 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
I	284	ALA	-	expression tag	UNP F0NDX3
I	285	ALA	-	expression tag	UNP F0NDX3
I	286	ALA	-	expression tag	UNP F0NDX3
I	287	HIS	-	expression tag	UNP F0NDX3
I	288	HIS	-	expression tag	UNP F0NDX3
I	289	HIS	-	expression tag	UNP F0NDX3
I	290	HIS	-	expression tag	UNP F0NDX3
I	291	HIS	-	expression tag	UNP F0NDX3
I	292	HIS	-	expression tag	UNP F0NDX3
I	293	HIS	-	expression tag	UNP F0NDX3
I	294	HIS	-	expression tag	UNP F0NDX3
I	295	HIS	-	expression tag	UNP F0NDX3
I	296	HIS	-	expression tag	UNP F0NDX3

- Molecule 5 is a protein called Cmr1.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	J	475	Total	C	N	O	S	0	0
			3890	2517	632	728	13		

- Molecule 6 is a protein called CRISPR-associated protein, Cmr2 family.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	K	1024	Total	C	N	O	S	0	0
			8418	5444	1394	1556	24		

- Molecule 7 is a RNA chain called crRNA (51-mer).

Mol	Chain	Residues	Atoms					AltConf	Trace
7	V	51	Total	C	N	O	P	0	0
			1087	489	203	345	50		

- Molecule 8 is a protein called CRISPR-associated protein CmrX.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	M	173	Total	C	N	O	S	0	0
			1378	880	227	269	2		
8	R	173	Total	C	N	O	S	0	0
			1378	880	227	269	2		
8	S	173	Total	C	N	O	S	0	0
			1378	880	227	269	2		
8	Q	173	Total	C	N	O	S	0	0
			1378	880	227	269	2		

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Mol	Chain	Residues	Atoms					AltConf	Trace
8	P	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	W	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	T	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	Z	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	Y	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	r	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	s	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	q	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	p	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	w	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	t	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	z	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	y	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	m	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	L	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	l	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	O	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	o	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	N	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	n	173	Total 1378	C 880	N 227	O 269	S 2	0	0
8	x	173	Total 1378	C 880	N 227	O 269	S 2	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
8	X	173	Total	C	N	O	S	0	0
			1378	880	227	269	2		

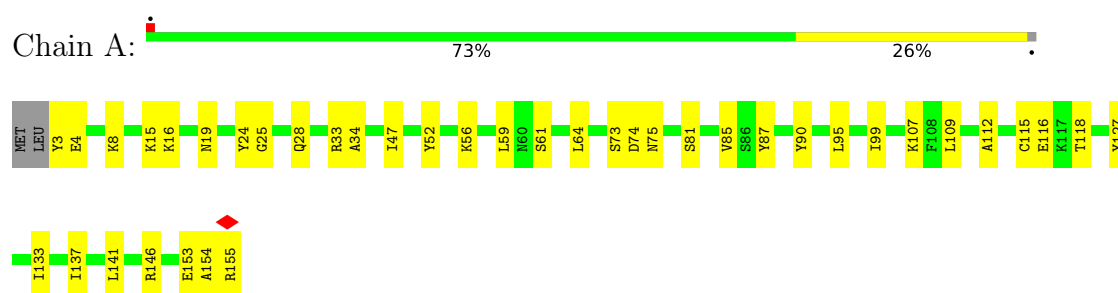
- Molecule 9 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
9	K	1	Total	Zn	0
			1	1	

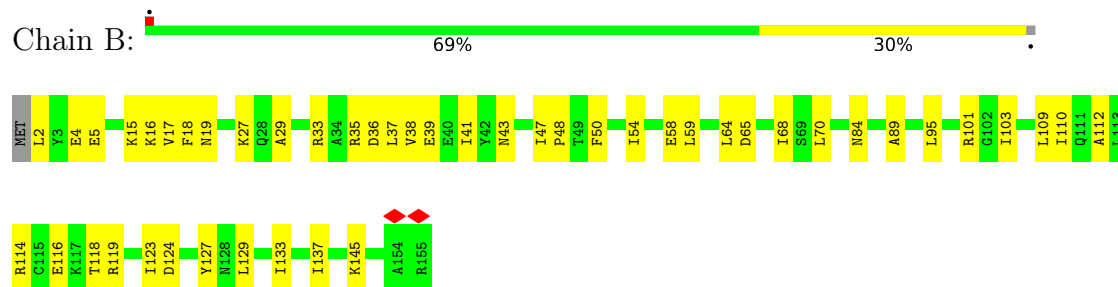
3 Residue-property plots

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.

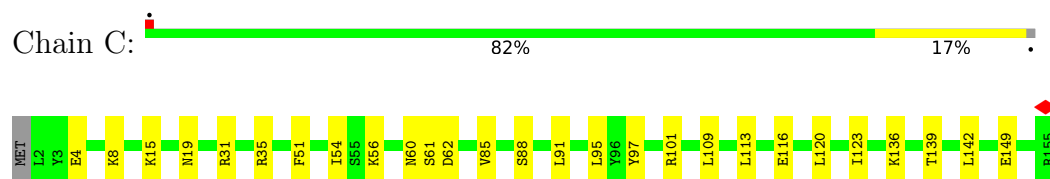
- Molecule 1: CRISPR-associated protein, Cmr5 family



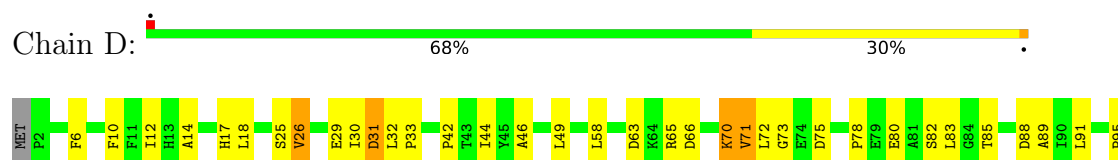
- Molecule 1: CRISPR-associated protein, Cmr5 family

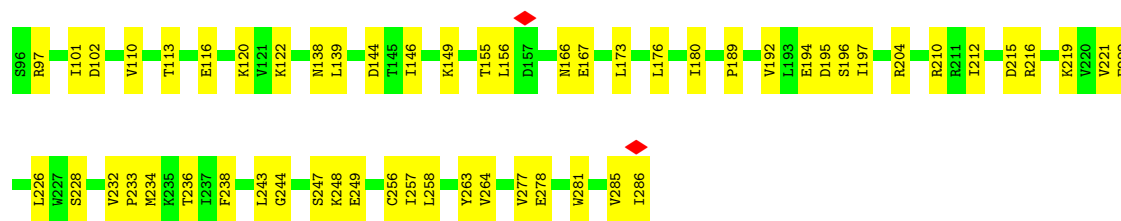


- Molecule 1: CRISPR-associated protein, Cmr5 family



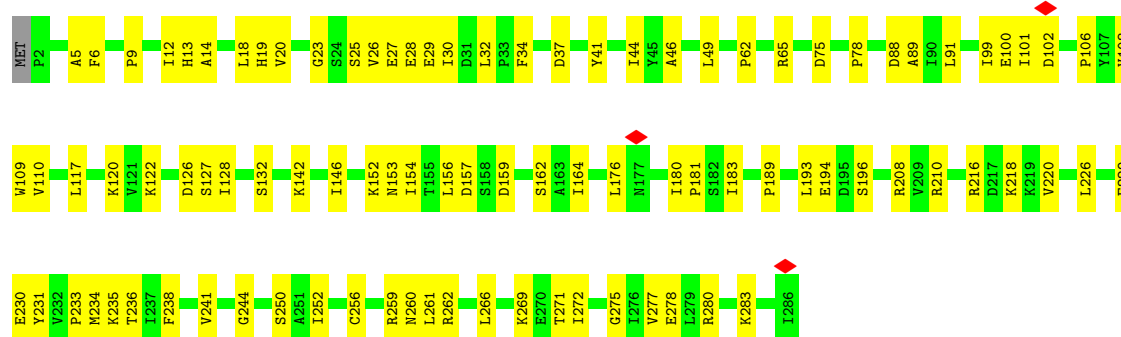
- Molecule 2: CRISPR-associated RAMP protein, Cmr4 family





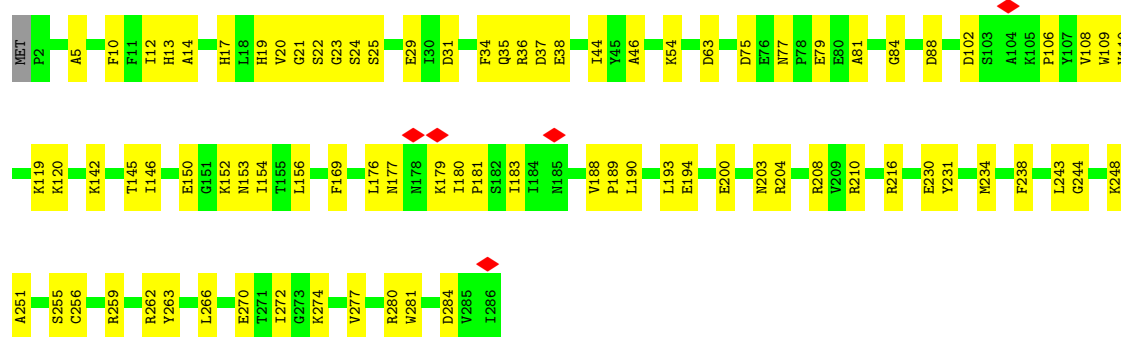
- Molecule 2: CRISPR-associated RAMP protein, Cmr4 family

Chain E: 66% 33%



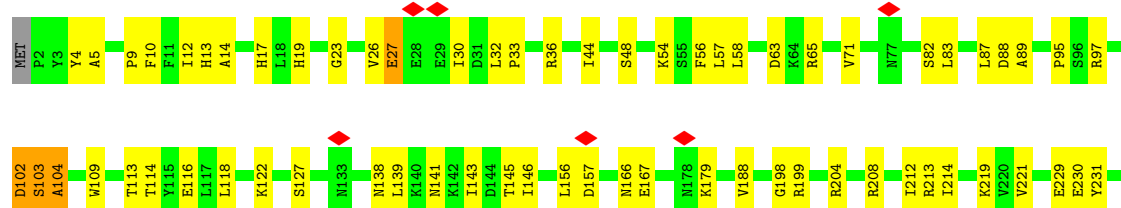
- Molecule 2: CRISPR-associated RAMP protein, Cmr4 family

Chain F: 70% 29%



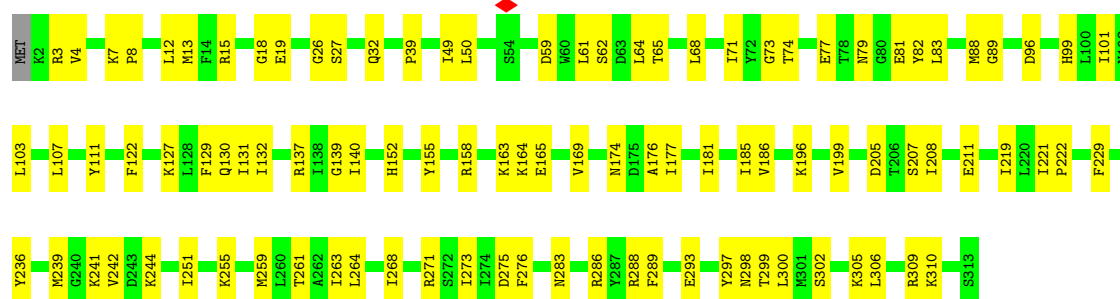
- Molecule 2: CRISPR-associated RAMP protein, Cmr4 family

Chain G: 71% 28%

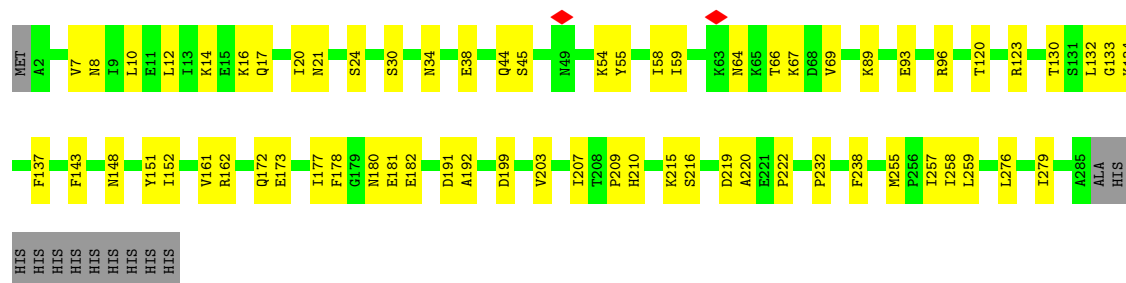




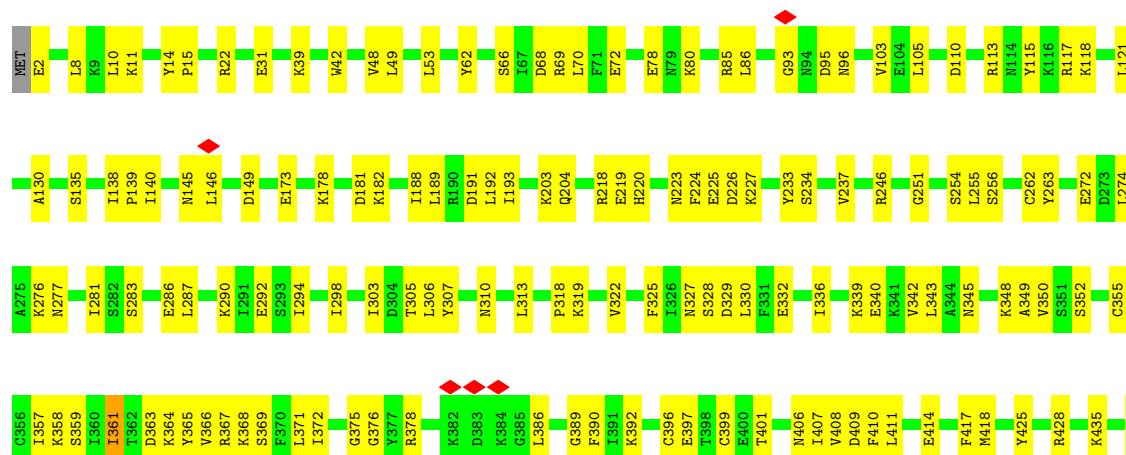
- Molecule 3: CRISPR-associated protein, Cmr3 family

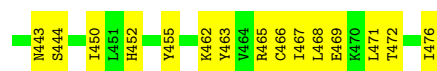


- Molecule 4: CRISPR-associated RAMP protein, Cmr6 family



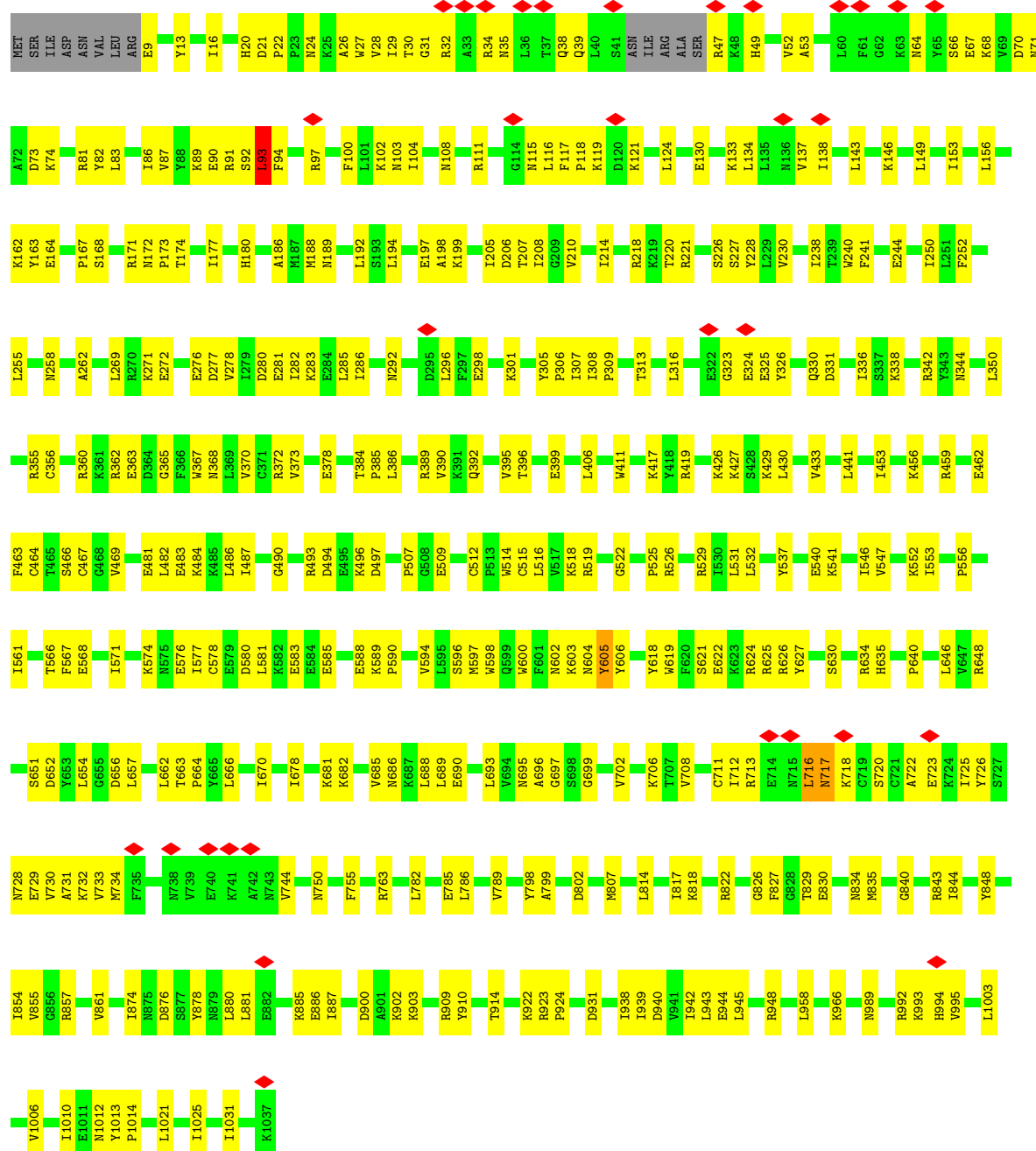
- Molecule 5: Cmr1





• Molecule 6: CRISPR-associated protein, Cmr2 family

Chain K: 63% 35%

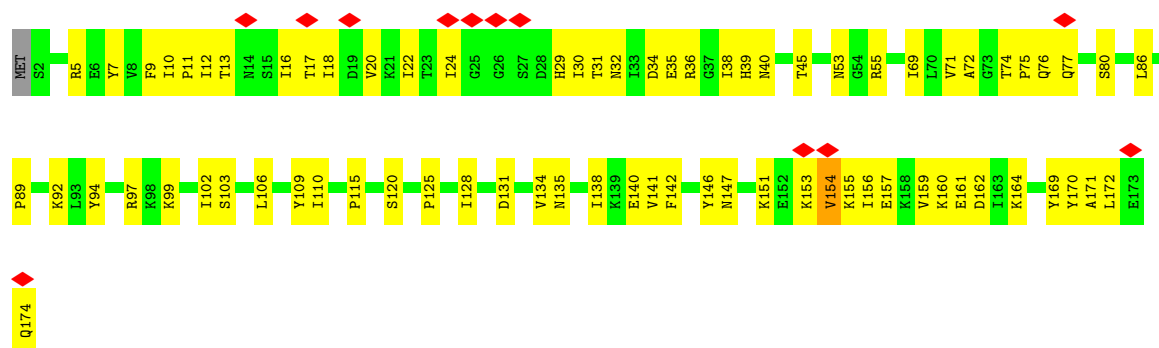


• Molecule 7: crRNA (51-mer)

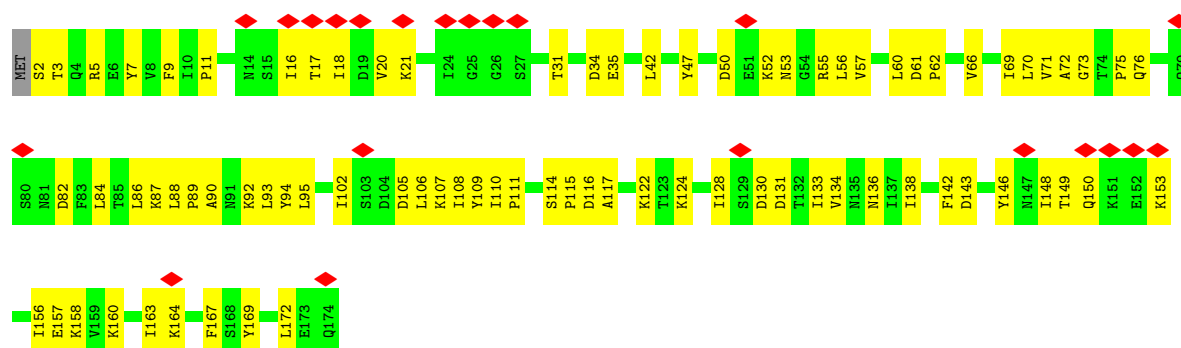
Chain V: 18% 65% 18%



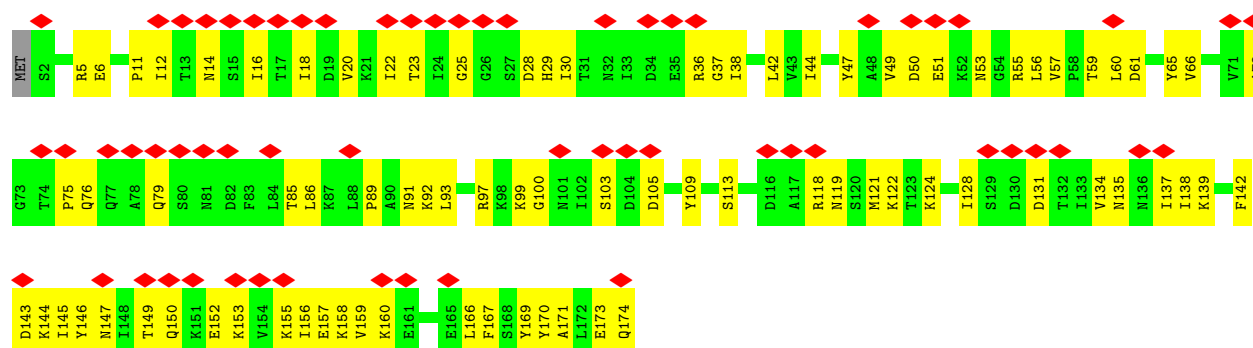
• Molecule 8: CRISPR-associated protein CmrX



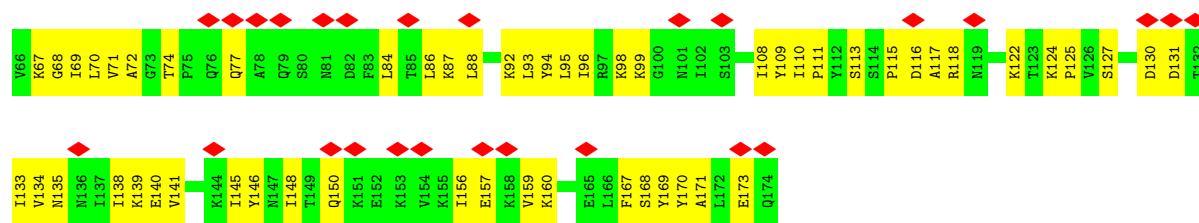
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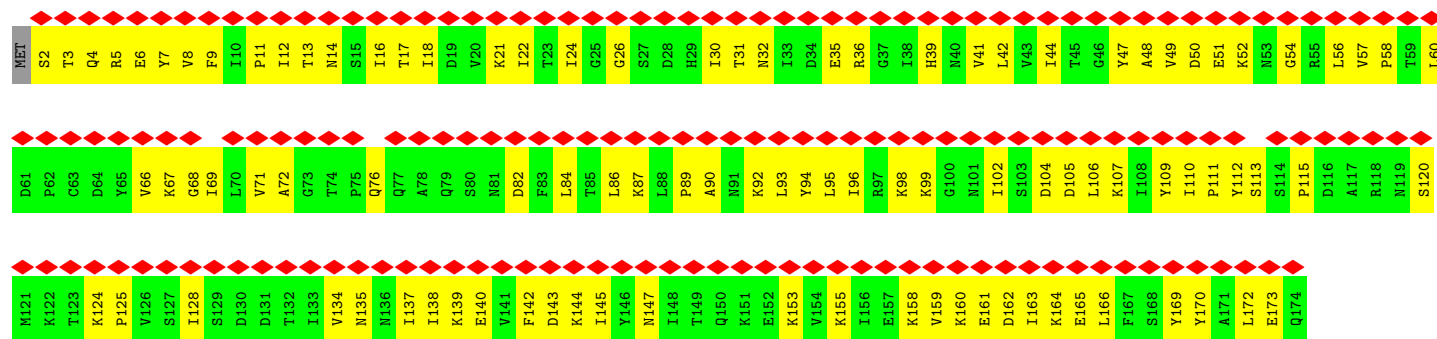
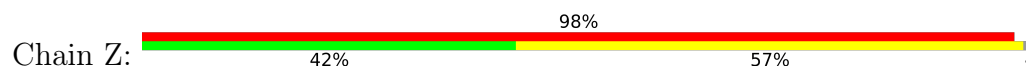
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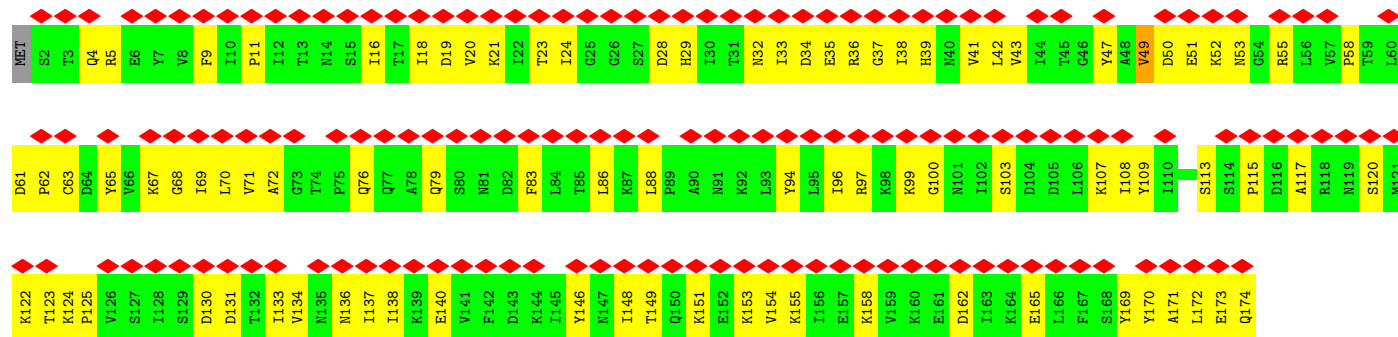
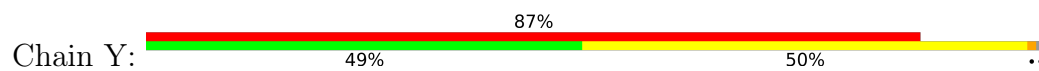
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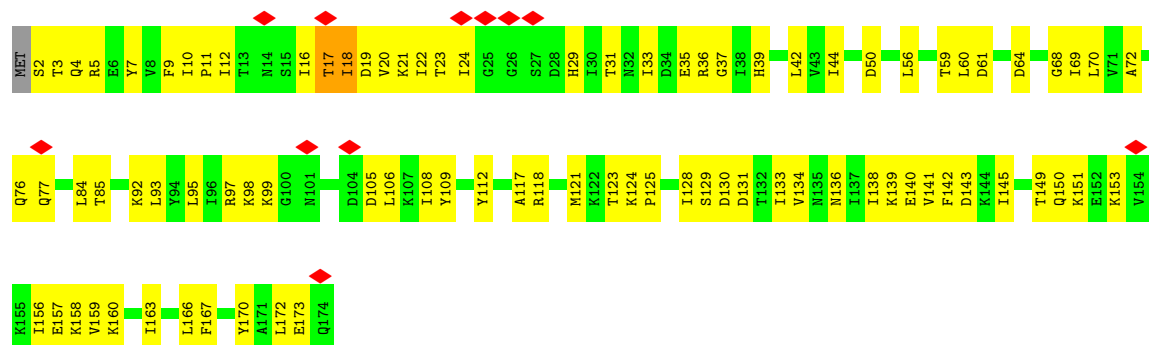
• Molecule 8: CRISPR-associated protein CmrX



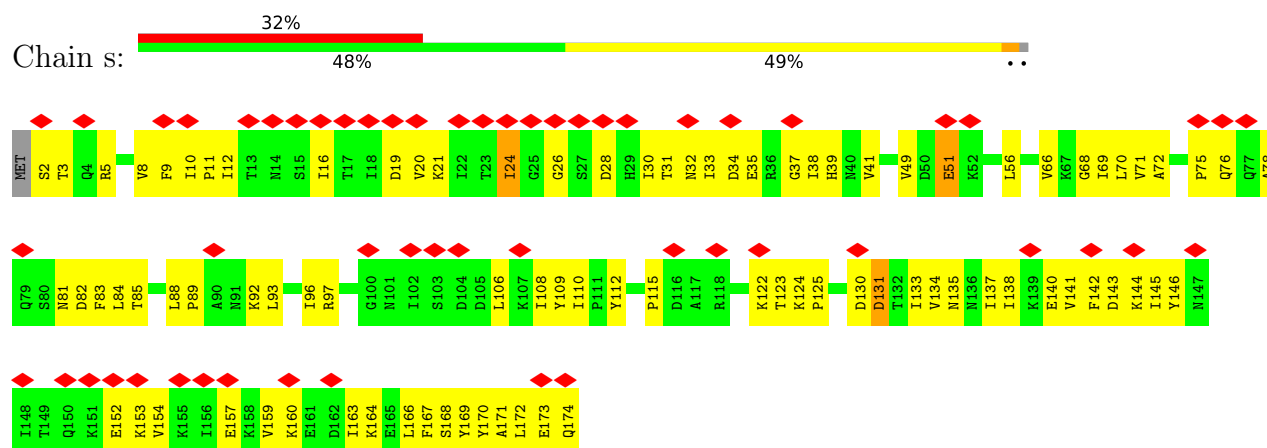
• Molecule 8: CRISPR-associated protein CmrX



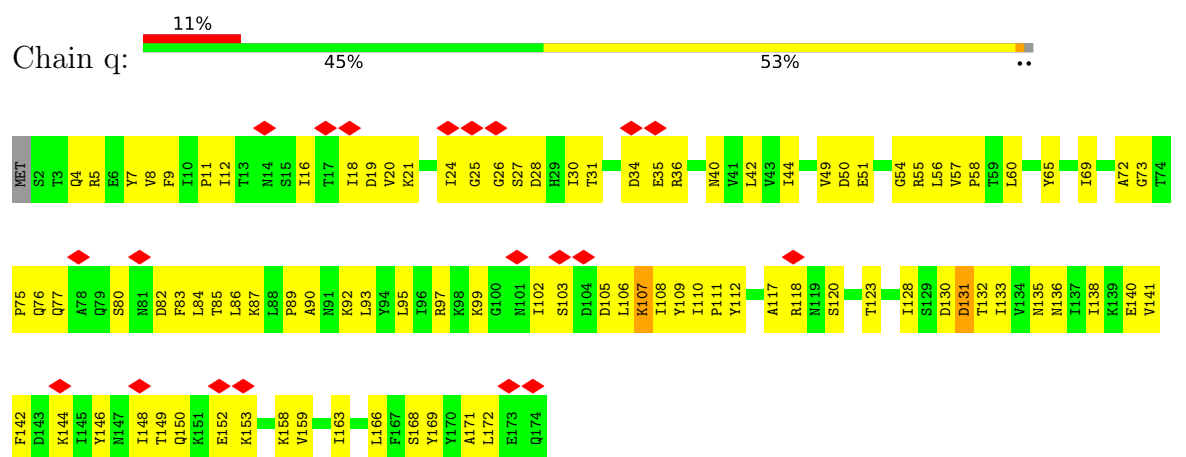
• Molecule 8: CRISPR-associated protein CmrX



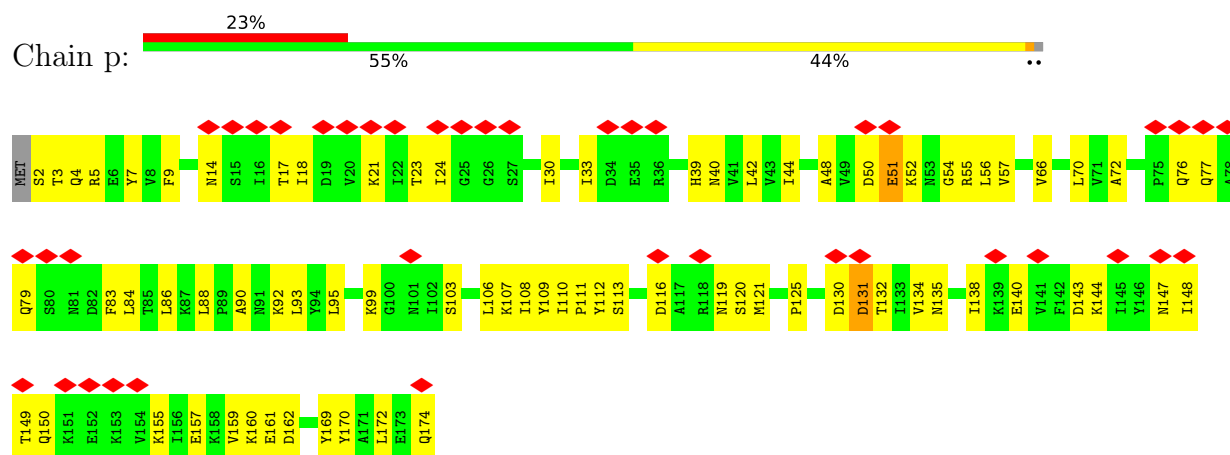
- Molecule 8: CRISPR-associated protein CmrX



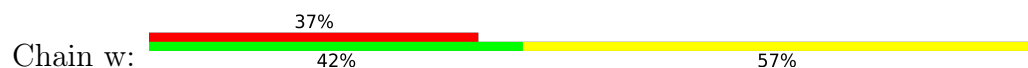
- Molecule 8: CRISPR-associated protein CmrX

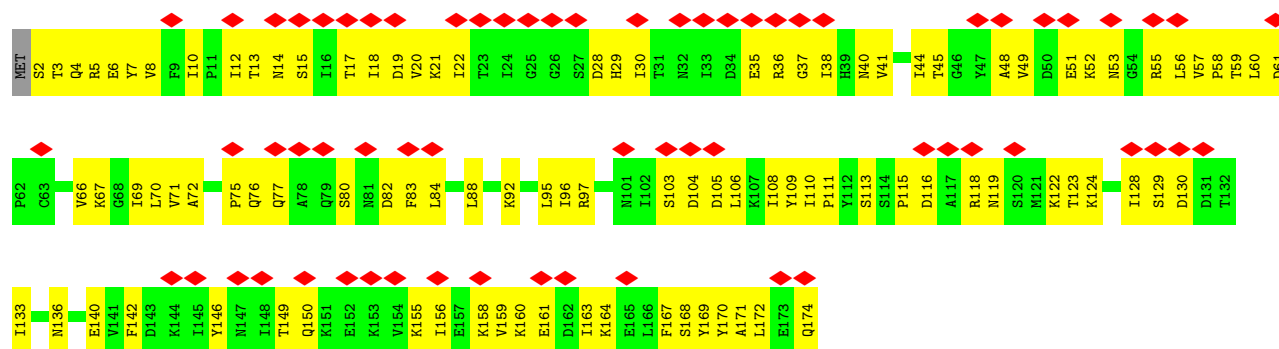


- Molecule 8: CRISPR-associated protein CmrX

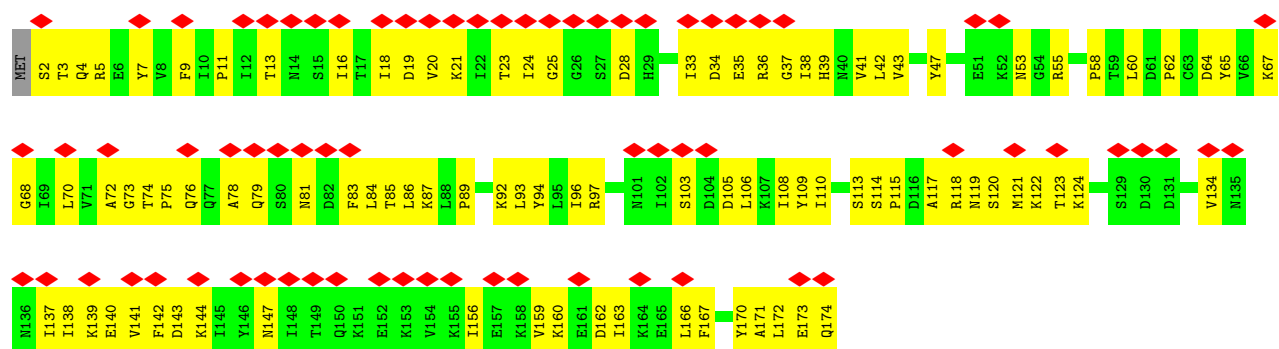
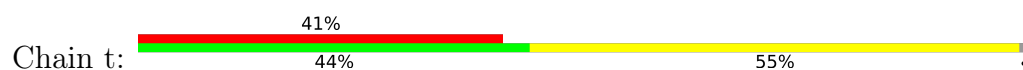


- Molecule 8: CRISPR-associated protein CmrX





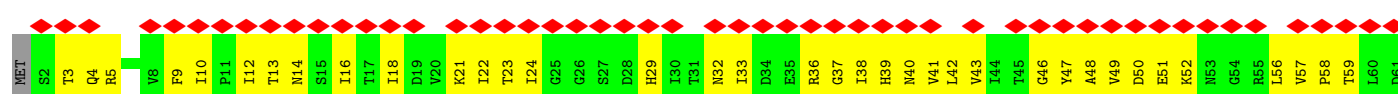
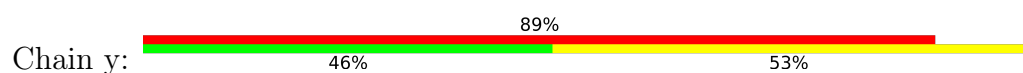
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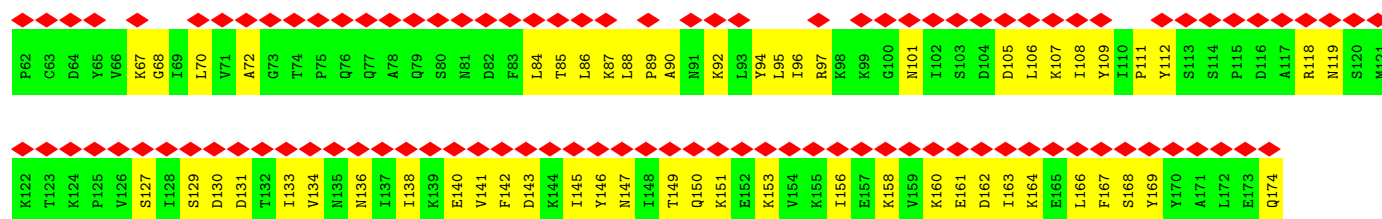


• Molecule 8: CRISPR-associated protein CmrX

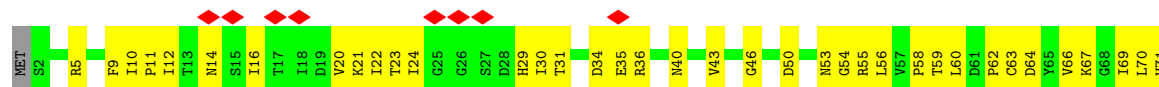


• Molecule 8: CRISPR-associated protein CmrX

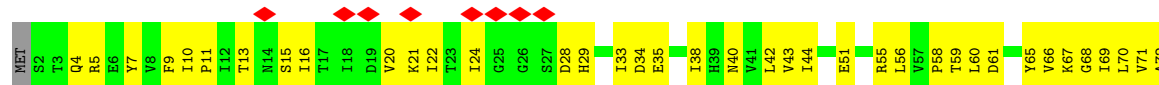




• Molecule 8: CRISPR-associated protein CmrX



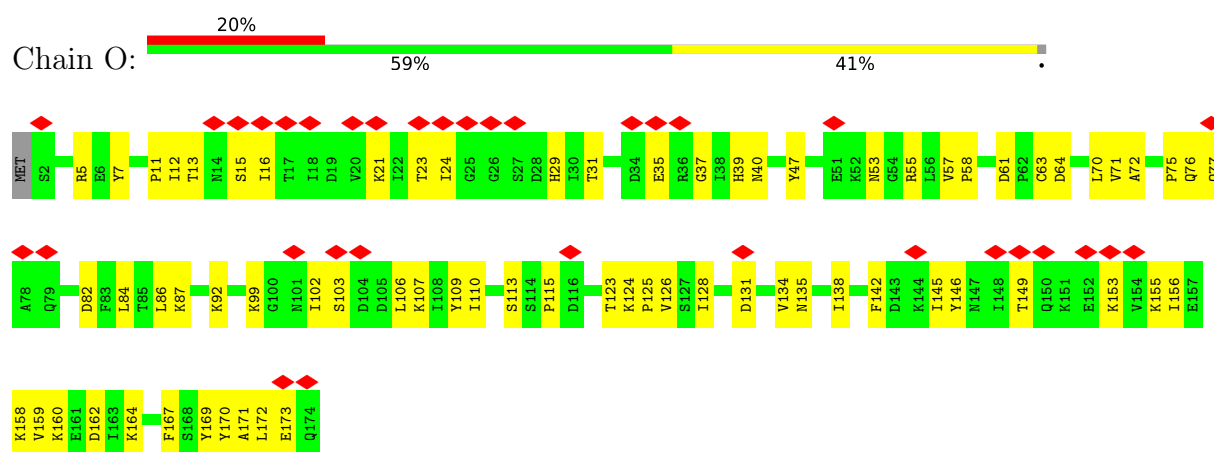
• Molecule 8: CRISPR-associated protein CmrX



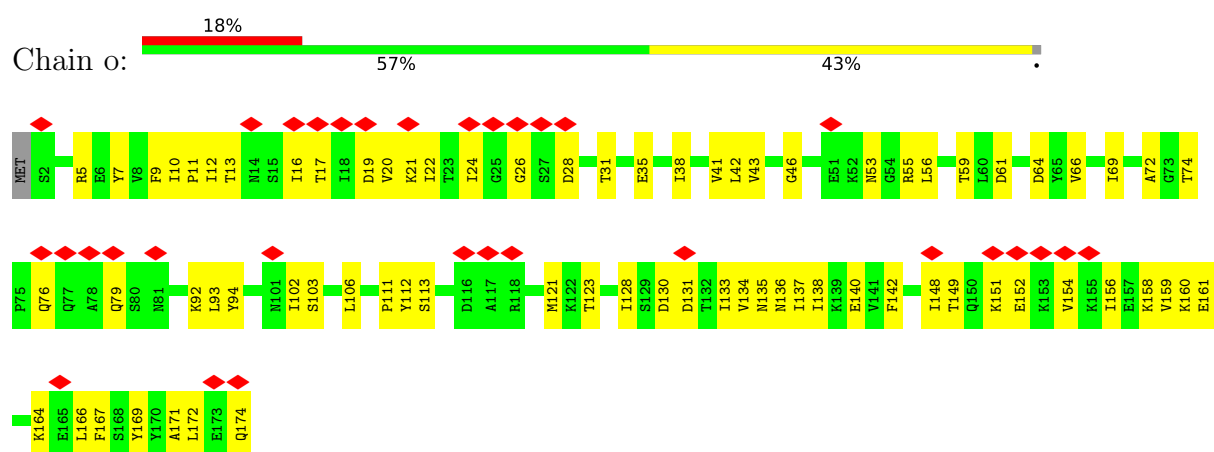
• Molecule 8: CRISPR-associated protein CmrX



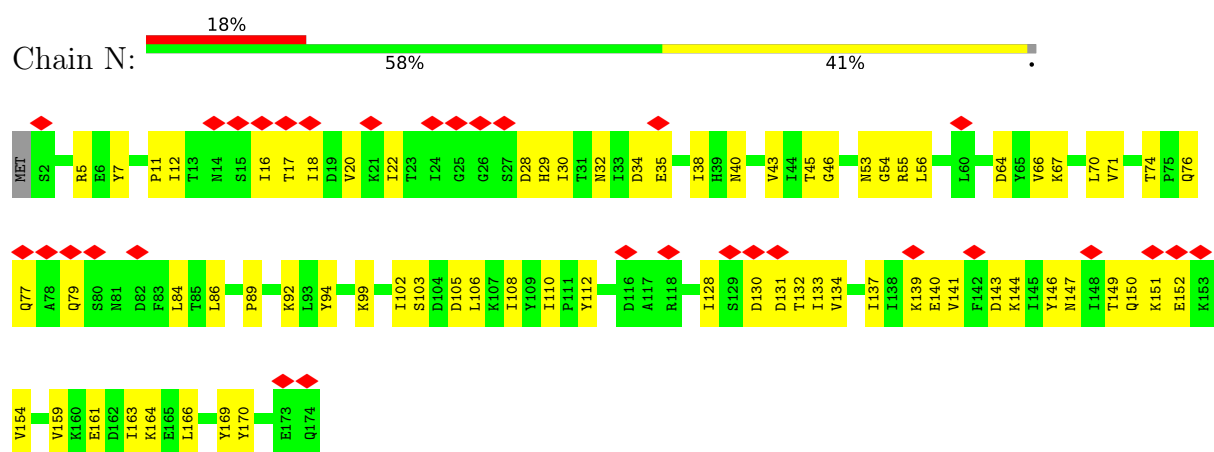
• Molecule 8: CRISPR-associated protein CmrX



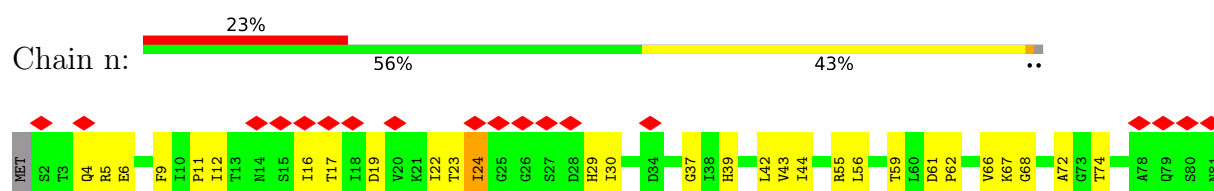
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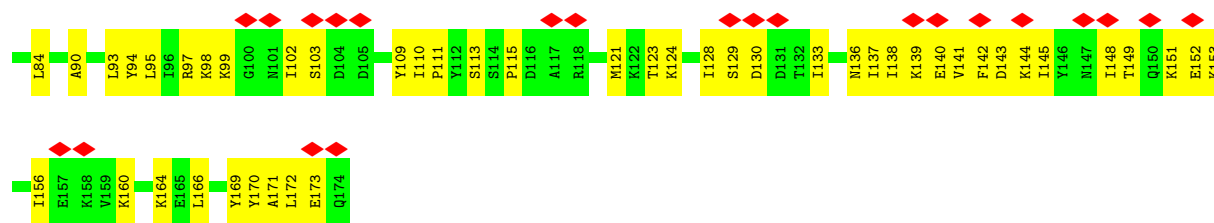


• Molecule 8: CRISPR-associated protein CmrX

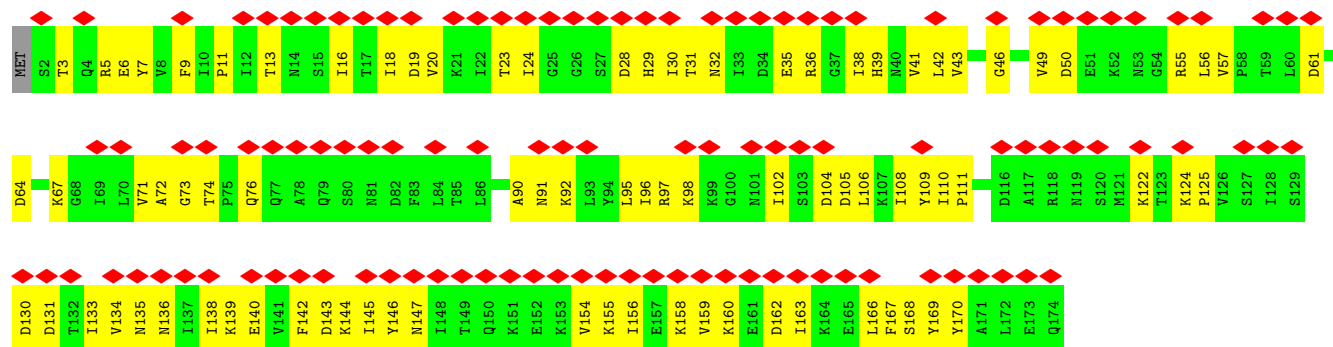


• Molecule 8: CRISPR-associated protein CmrX

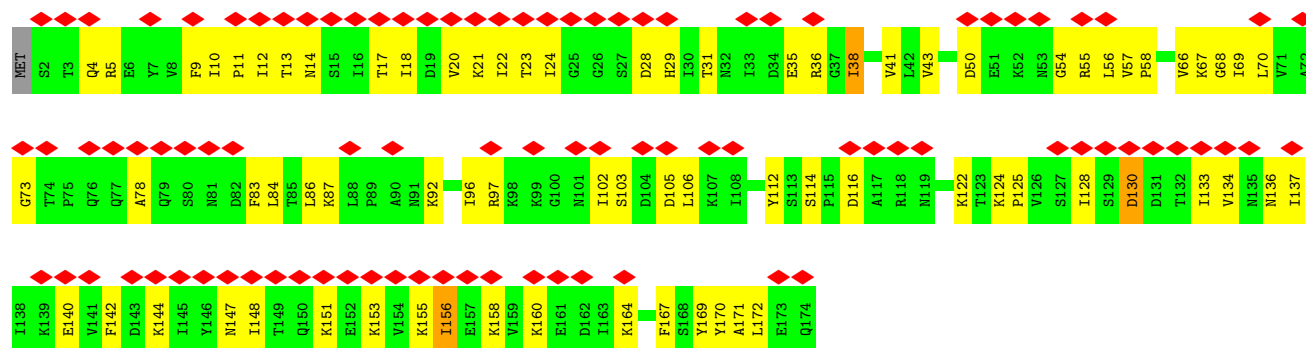




• Molecule 8: CRISPR-associated protein CmrX



• Molecule 8: CRISPR-associated protein CmrX



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	69043	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 ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	1700	Depositor
Maximum defocus (nm)	2600	Depositor
Magnification	96000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	23.336	Depositor
Minimum map value	-11.328	Depositor
Average map value	0.004	Depositor
Map value standard deviation	0.609	Depositor
Recommended contour level	2.5	Depositor
Map size (Å)	416.00003, 415.99997, 416.0	wwPDB
Map dimensions	500, 500, 500	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8320001, 0.83199996, 0.832	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: ZN

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	0.27	0/1275	0.39	0/1716
1	B	0.27	0/1283	0.34	0/1727
1	C	0.27	0/1283	0.33	0/1727
2	D	0.32	0/2320	0.44	1/3137 (0.0%)
2	E	0.32	0/2320	0.38	0/3137
2	F	0.33	0/2321	0.38	0/3138
2	G	0.31	0/2320	0.47	0/3137
3	H	0.27	0/2574	0.39	0/3469
4	I	0.28	0/2325	0.36	0/3138
5	J	0.22	0/3957	0.41	0/5320
6	K	0.24	0/8590	0.43	0/11599
7	V	0.34	0/1218	0.37	0/1896
8	L	0.21	0/1400	0.48	0/1895
8	M	0.20	0/1400	0.40	0/1895
8	N	0.19	0/1400	0.52	0/1895
8	O	0.20	0/1400	0.50	0/1895
8	P	0.21	0/1400	0.63	0/1895
8	Q	0.19	0/1400	0.47	0/1895
8	R	0.17	0/1400	0.46	0/1895
8	S	0.16	0/1400	0.45	0/1895
8	T	0.15	0/1400	0.46	0/1895
8	W	0.16	0/1400	0.48	1/1895 (0.1%)
8	X	0.21	0/1400	0.60	1/1895 (0.1%)
8	Y	0.16	0/1400	0.52	1/1895 (0.1%)
8	Z	0.18	0/1400	0.54	0/1895
8	l	0.21	0/1400	0.50	0/1895
8	m	0.22	0/1400	0.48	0/1895
8	n	0.20	0/1400	0.54	0/1895
8	o	0.20	0/1400	0.54	0/1895
8	p	0.16	0/1400	0.45	0/1895
8	q	0.19	0/1400	0.53	0/1895
8	r	0.19	0/1400	0.51	0/1895

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
8	s	0.17	0/1400	0.52	1/1895 (0.1%)
8	t	0.16	0/1400	0.47	0/1895
8	w	0.16	0/1400	0.44	0/1895
8	x	0.21	0/1400	0.60	0/1895
8	y	0.17	0/1400	0.47	0/1895
8	z	0.15	0/1400	0.53	0/1895
All	All	0.23	0/68186	0.46	5/92411 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	G	0	3
6	K	0	1
8	L	0	1
8	P	0	4
8	T	0	1
8	r	0	1
All	All	0	11

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	W	154	VAL	N-CA-C	-6.11	107.33	113.20
8	s	12	ILE	N-CA-C	6.08	112.71	106.21
8	Y	49	VAL	N-CA-C	-5.65	108.34	113.71
8	X	78	ALA	N-CA-C	-5.37	106.57	113.23
2	D	26	VAL	N-CA-C	-5.32	107.64	112.96

There are no chirality outliers.

5 of 11 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	G	102	ASP	Peptide
2	G	104	ALA	Peptide
2	G	27	GLU	Peptide
6	K	712	ILE	Peptide
8	P	15	SER	Peptide

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	1253	0	1287	28	0
1	B	1261	0	1298	31	0
1	C	1261	0	1298	19	0
2	D	2276	0	2339	66	0
2	E	2276	0	2338	73	0
2	F	2277	0	2341	63	0
2	G	2276	0	2339	64	0
3	H	2528	0	2581	66	0
4	I	2282	0	2332	53	0
5	J	3890	0	3977	129	0
6	K	8418	0	8566	278	0
7	V	1087	0	553	45	0
8	L	1378	0	1418	73	0
8	M	1378	0	1418	60	0
8	N	1378	0	1418	59	0
8	O	1378	0	1418	59	0
8	P	1378	0	1418	82	0
8	Q	1378	0	1417	71	0
8	R	1378	0	1417	69	0
8	S	1378	0	1417	75	0
8	T	1378	0	1418	76	0
8	W	1378	0	1418	74	0
8	X	1378	0	1417	64	0
8	Y	1378	0	1418	81	0
8	Z	1378	0	1418	88	0
8	l	1378	0	1417	73	0
8	m	1378	0	1417	51	0
8	n	1378	0	1418	58	0
8	o	1378	0	1418	54	0
8	p	1378	0	1418	70	0
8	q	1378	0	1418	85	0
8	r	1378	0	1418	68	0
8	s	1378	0	1418	73	0
8	t	1378	0	1417	91	0
8	w	1378	0	1417	80	0
8	x	1378	0	1418	66	0
8	y	1378	0	1418	86	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	z	1378	0	1418	78	0
9	K	1	0	0	0	0
All	All	66914	0	68109	2591	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 19.

The worst 5 of 2591 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)
8:s:21:LYS:HG3	8:s:76:GLN:HA	1.42	0.99
8:p:2:SER:N	8:p:103:SER:HG	1.62	0.98
8:P:24:ILE:HG23	8:P:26:GLY:H	1.34	0.93
1:B:47:ILE:HG13	1:B:48:PRO:HD3	1.49	0.91
8:o:31:THR:HG21	8:o:69:ILE:HB	1.53	0.90

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	151/155 (97%)	143 (95%)	8 (5%)	0	100	100
1	B	152/155 (98%)	146 (96%)	6 (4%)	0	100	100
1	C	152/155 (98%)	150 (99%)	2 (1%)	0	100	100
2	D	283/286 (99%)	258 (91%)	22 (8%)	3 (1%)	11	22
2	E	283/286 (99%)	264 (93%)	19 (7%)	0	100	100
2	F	283/286 (99%)	263 (93%)	20 (7%)	0	100	100
2	G	283/286 (99%)	250 (88%)	32 (11%)	1 (0%)	30	50
3	H	310/313 (99%)	276 (89%)	34 (11%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	I	282/296 (95%)	265 (94%)	17 (6%)	0	100	100
5	J	473/476 (99%)	422 (89%)	49 (10%)	2 (0%)	30	50
6	K	1020/1037 (98%)	892 (88%)	124 (12%)	4 (0%)	30	50
8	L	171/174 (98%)	133 (78%)	38 (22%)	0	100	100
8	M	171/174 (98%)	140 (82%)	30 (18%)	1 (1%)	21	38
8	N	171/174 (98%)	136 (80%)	35 (20%)	0	100	100
8	O	171/174 (98%)	142 (83%)	29 (17%)	0	100	100
8	P	171/174 (98%)	134 (78%)	31 (18%)	6 (4%)	3	5
8	Q	171/174 (98%)	128 (75%)	42 (25%)	1 (1%)	21	38
8	R	171/174 (98%)	137 (80%)	34 (20%)	0	100	100
8	S	171/174 (98%)	136 (80%)	35 (20%)	0	100	100
8	T	171/174 (98%)	129 (75%)	42 (25%)	0	100	100
8	W	171/174 (98%)	138 (81%)	33 (19%)	0	100	100
8	X	171/174 (98%)	136 (80%)	34 (20%)	1 (1%)	21	38
8	Y	171/174 (98%)	134 (78%)	36 (21%)	1 (1%)	21	38
8	Z	171/174 (98%)	128 (75%)	42 (25%)	1 (1%)	21	38
8	l	171/174 (98%)	137 (80%)	33 (19%)	1 (1%)	21	38
8	m	171/174 (98%)	144 (84%)	27 (16%)	0	100	100
8	n	171/174 (98%)	142 (83%)	29 (17%)	0	100	100
8	o	171/174 (98%)	136 (80%)	35 (20%)	0	100	100
8	p	171/174 (98%)	134 (78%)	35 (20%)	2 (1%)	10	20
8	q	171/174 (98%)	129 (75%)	38 (22%)	4 (2%)	5	9
8	r	171/174 (98%)	135 (79%)	35 (20%)	1 (1%)	21	38
8	s	171/174 (98%)	127 (74%)	42 (25%)	2 (1%)	10	20
8	t	171/174 (98%)	134 (78%)	37 (22%)	0	100	100
8	w	171/174 (98%)	134 (78%)	37 (22%)	0	100	100
8	x	171/174 (98%)	139 (81%)	32 (19%)	0	100	100
8	y	171/174 (98%)	143 (84%)	27 (16%)	1 (1%)	21	38
8	z	171/174 (98%)	130 (76%)	40 (23%)	1 (1%)	21	38
All	All	8118/8255 (98%)	6844 (84%)	1241 (15%)	33 (0%)	31	50

5 of 33 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	D	71	VAL
2	G	103	SER
6	K	605	TYR
8	P	16	ILE
8	P	17	THR

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	134/136 (98%)	134 (100%)	0	100	100
1	B	135/136 (99%)	135 (100%)	0	100	100
1	C	135/136 (99%)	135 (100%)	0	100	100
2	D	252/254 (99%)	252 (100%)	0	100	100
2	E	252/254 (99%)	252 (100%)	0	100	100
2	F	253/254 (100%)	253 (100%)	0	100	100
2	G	252/254 (99%)	252 (100%)	0	100	100
3	H	279/280 (100%)	278 (100%)	1 (0%)	84	91
4	I	255/266 (96%)	254 (100%)	1 (0%)	84	91
5	J	443/445 (100%)	442 (100%)	1 (0%)	87	95
6	K	937/949 (99%)	935 (100%)	2 (0%)	87	95
8	L	159/160 (99%)	158 (99%)	1 (1%)	78	88
8	M	159/160 (99%)	159 (100%)	0	100	100
8	N	159/160 (99%)	159 (100%)	0	100	100
8	O	159/160 (99%)	159 (100%)	0	100	100
8	P	159/160 (99%)	159 (100%)	0	100	100
8	Q	159/160 (99%)	159 (100%)	0	100	100
8	R	159/160 (99%)	159 (100%)	0	100	100
8	S	159/160 (99%)	159 (100%)	0	100	100
8	T	159/160 (99%)	158 (99%)	1 (1%)	78	88

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	W	159/160 (99%)	159 (100%)	0	100	100
8	X	159/160 (99%)	157 (99%)	2 (1%)	61	76
8	Y	159/160 (99%)	159 (100%)	0	100	100
8	Z	159/160 (99%)	159 (100%)	0	100	100
8	l	159/160 (99%)	159 (100%)	0	100	100
8	m	159/160 (99%)	159 (100%)	0	100	100
8	n	159/160 (99%)	158 (99%)	1 (1%)	78	88
8	o	159/160 (99%)	159 (100%)	0	100	100
8	p	159/160 (99%)	159 (100%)	0	100	100
8	q	159/160 (99%)	159 (100%)	0	100	100
8	r	159/160 (99%)	159 (100%)	0	100	100
8	s	159/160 (99%)	158 (99%)	1 (1%)	78	88
8	t	159/160 (99%)	159 (100%)	0	100	100
8	w	159/160 (99%)	159 (100%)	0	100	100
8	x	159/160 (99%)	159 (100%)	0	100	100
8	y	159/160 (99%)	159 (100%)	0	100	100
8	z	159/160 (99%)	159 (100%)	0	100	100
All	All	7461/7524 (99%)	7450 (100%)	11 (0%)	87	95

5 of 11 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
8	L	81	ASN
8	n	24	ILE
8	X	156	ILE
8	X	38	ILE
6	K	716	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
8	L	29	HIS
8	N	77	GLN
8	L	150	GLN
8	O	81	ASN

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Mol	Chain	Res	Type
8	x	32	ASN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
7	V	50/51 (98%)	11 (22%)	1 (2%)

5 of 11 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
7	V	2	U
7	V	3	U
7	V	14	A
7	V	16	C
7	V	22	U

All (1) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
7	V	47	C

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](#)

Of 1 ligands modelled in this entry, 1 is monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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.

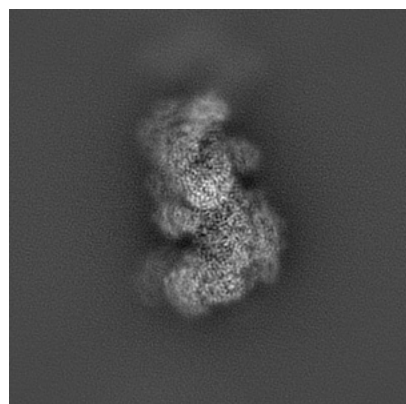
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-10102. These allow visual inspection of the internal detail of the map and identification of artifacts.

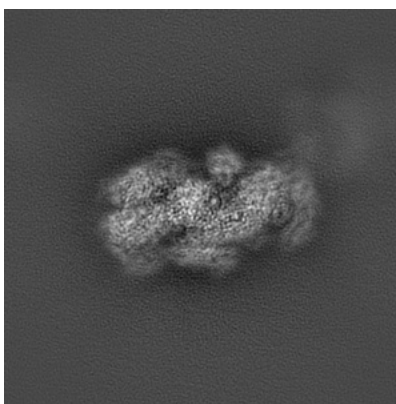
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

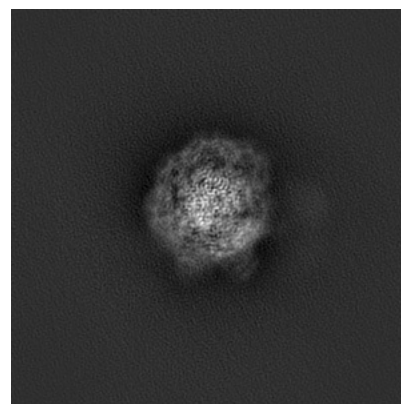
6.1.1 Primary map



X

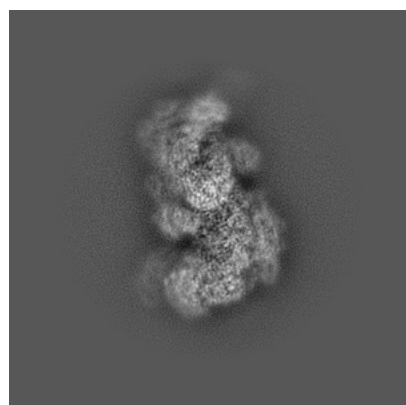


Y

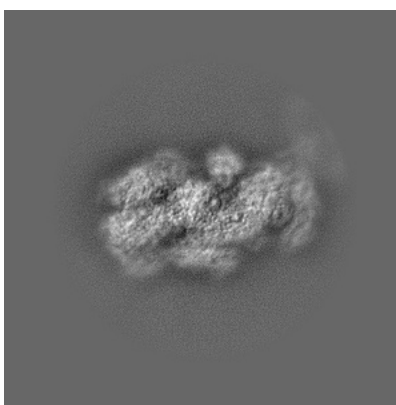


Z

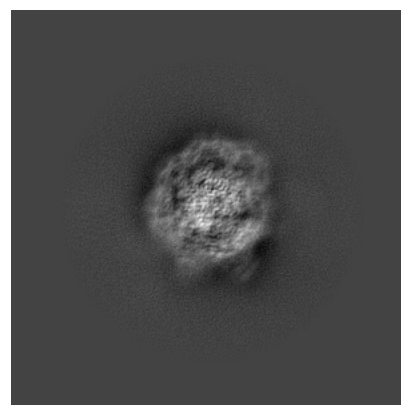
6.1.2 Raw map



X



Y

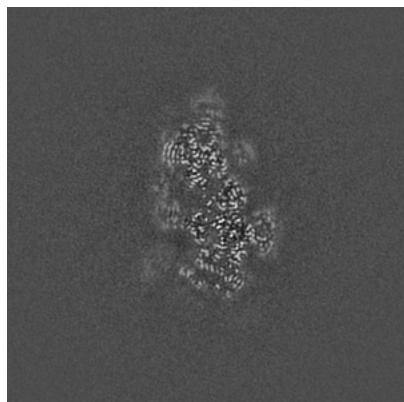


Z

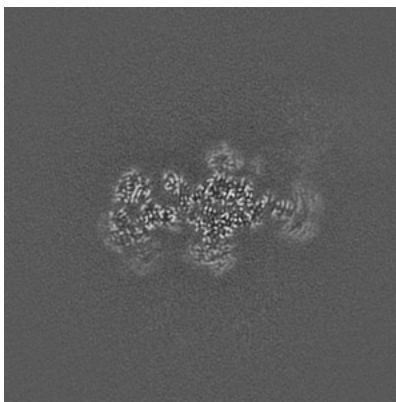
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

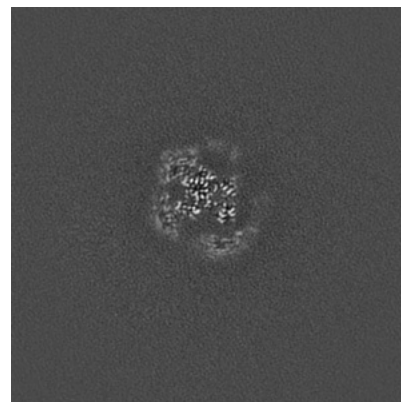
6.2.1 Primary map



X Index: 250

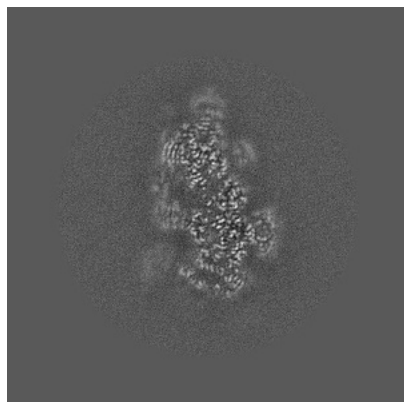


Y Index: 250

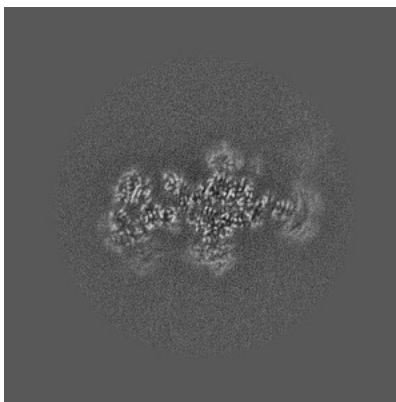


Z Index: 250

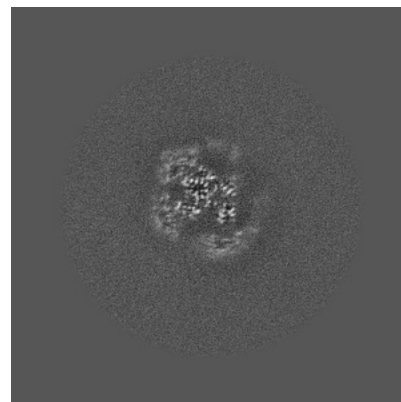
6.2.2 Raw map



X Index: 250



Y Index: 250

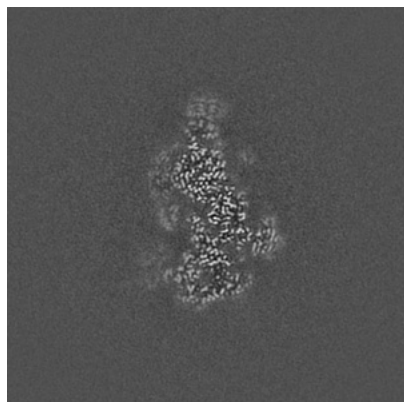


Z Index: 250

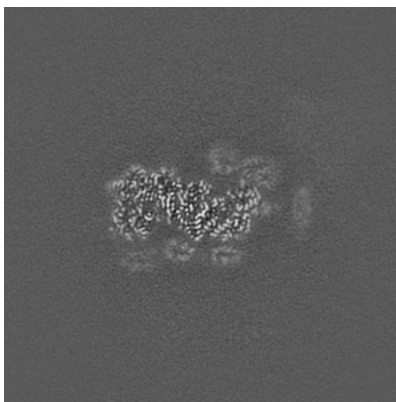
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

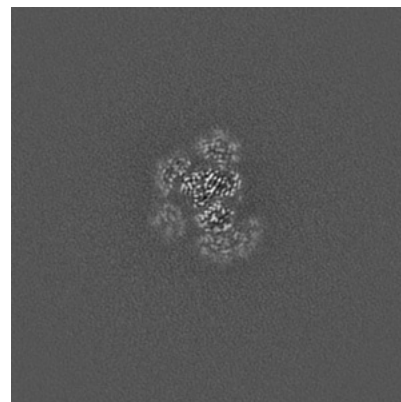
6.3.1 Primary map



X Index: 239

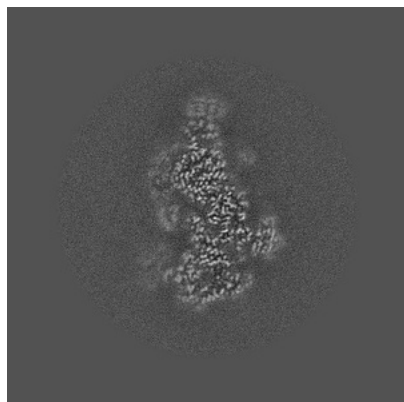


Y Index: 270

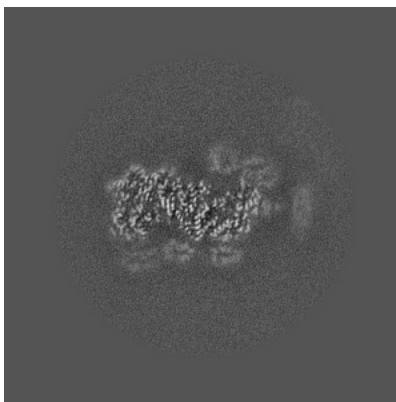


Z Index: 233

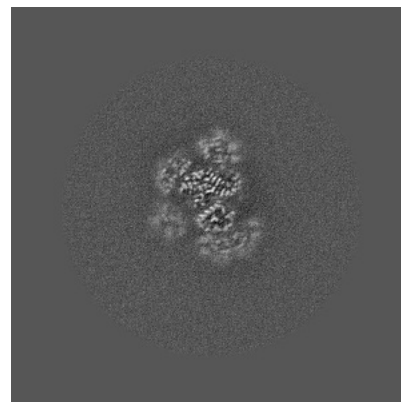
6.3.2 Raw map



X Index: 239



Y Index: 269

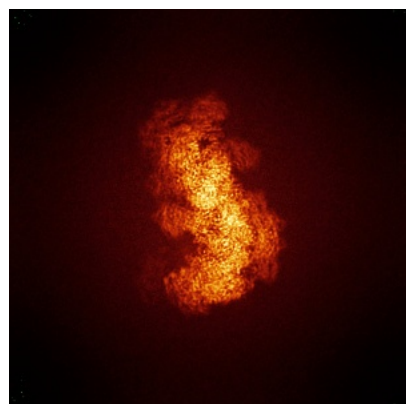


Z Index: 234

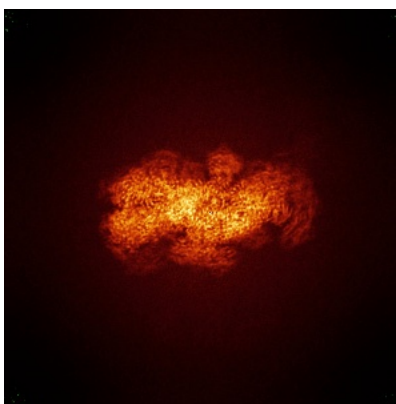
The images above show the largest variance slices of the map in three orthogonal directions.

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

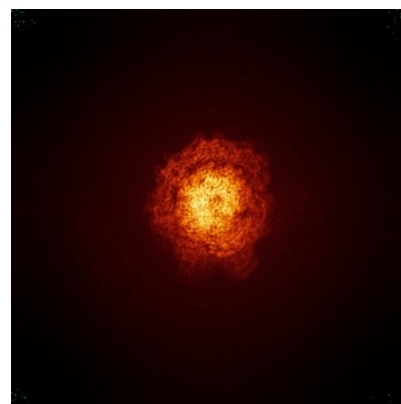
6.4.1 Primary map



X

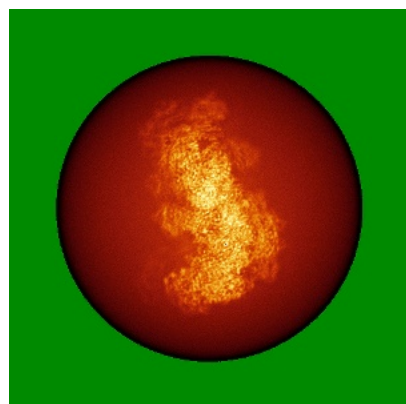


Y

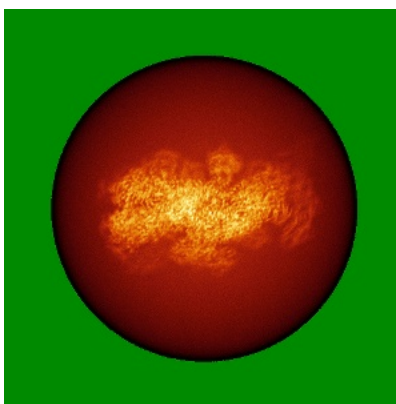


Z

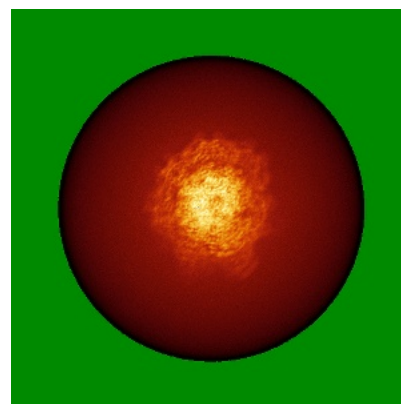
6.4.2 Raw map



X



Y

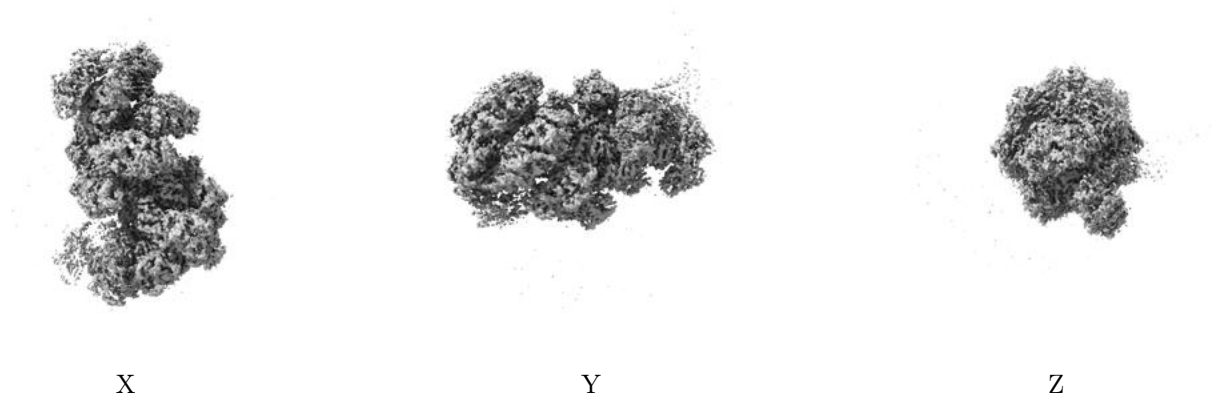


Z

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.

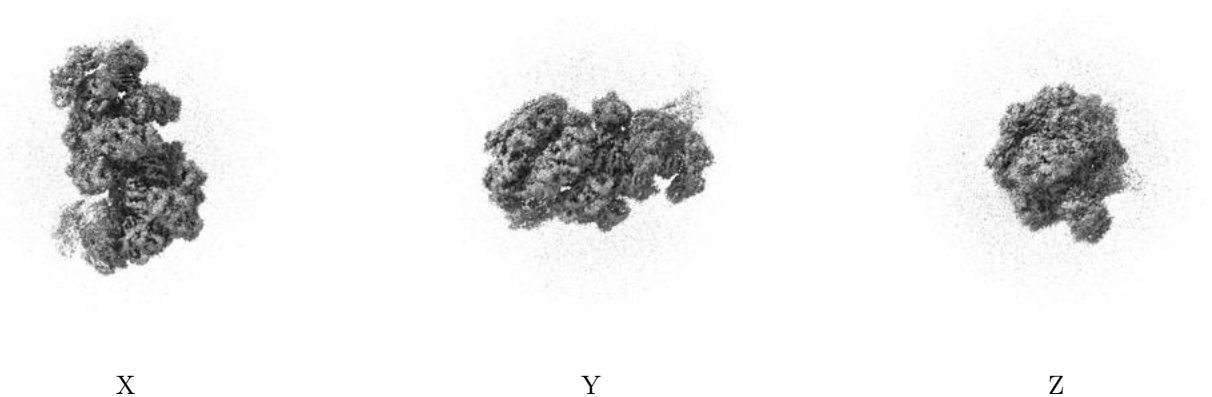
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 2.5. 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.

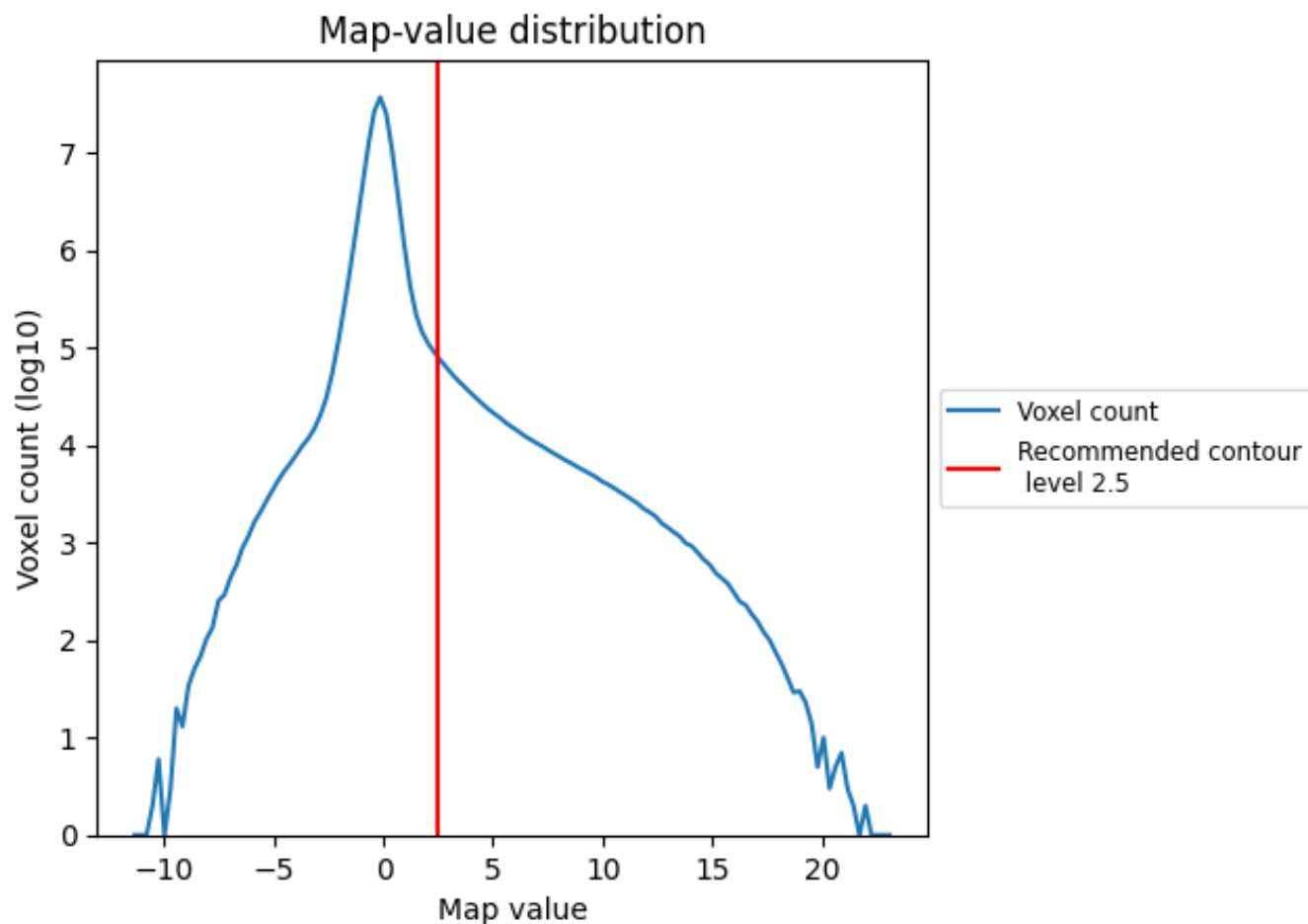
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

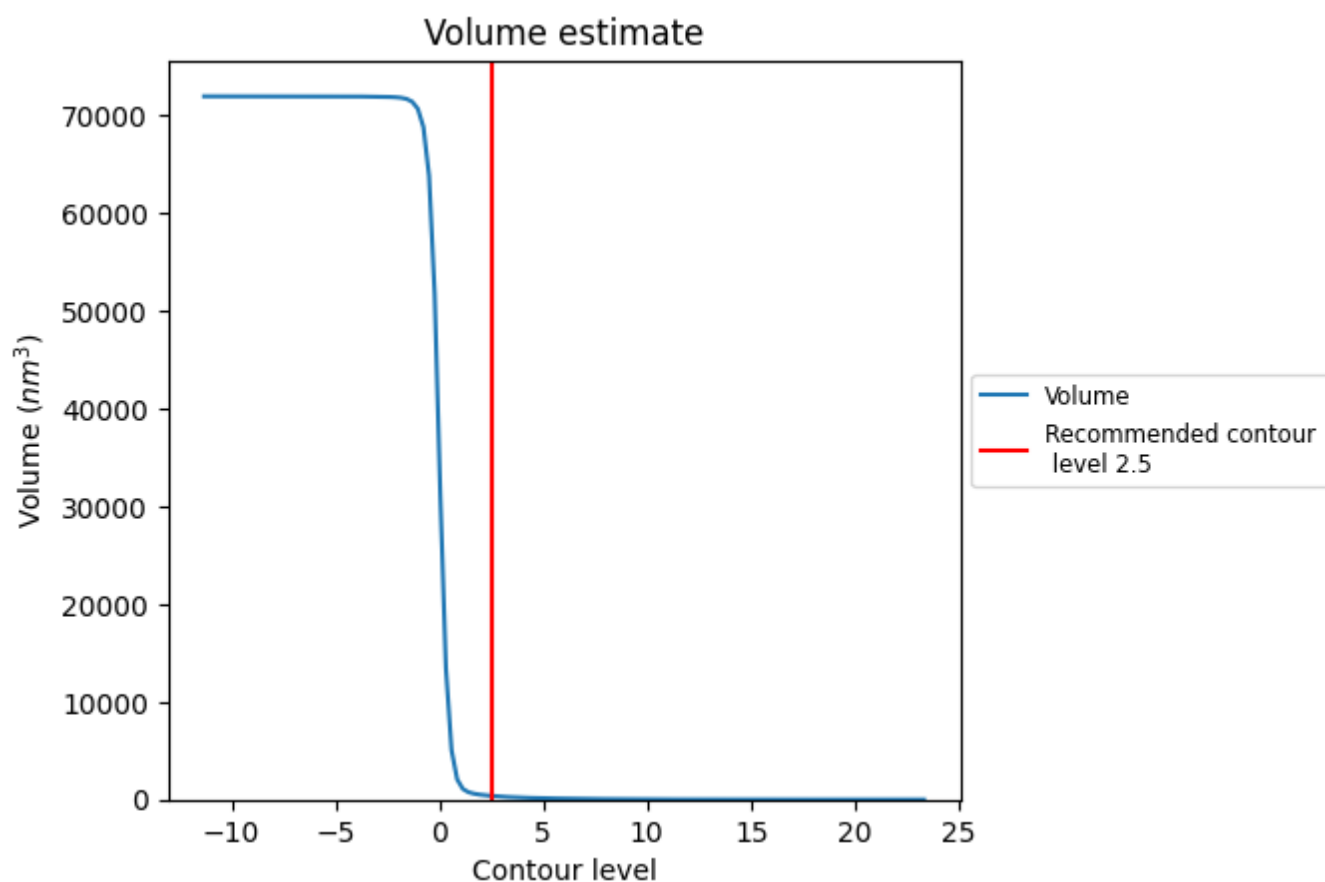
This section contains the results of statistical analysis of the map.

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.

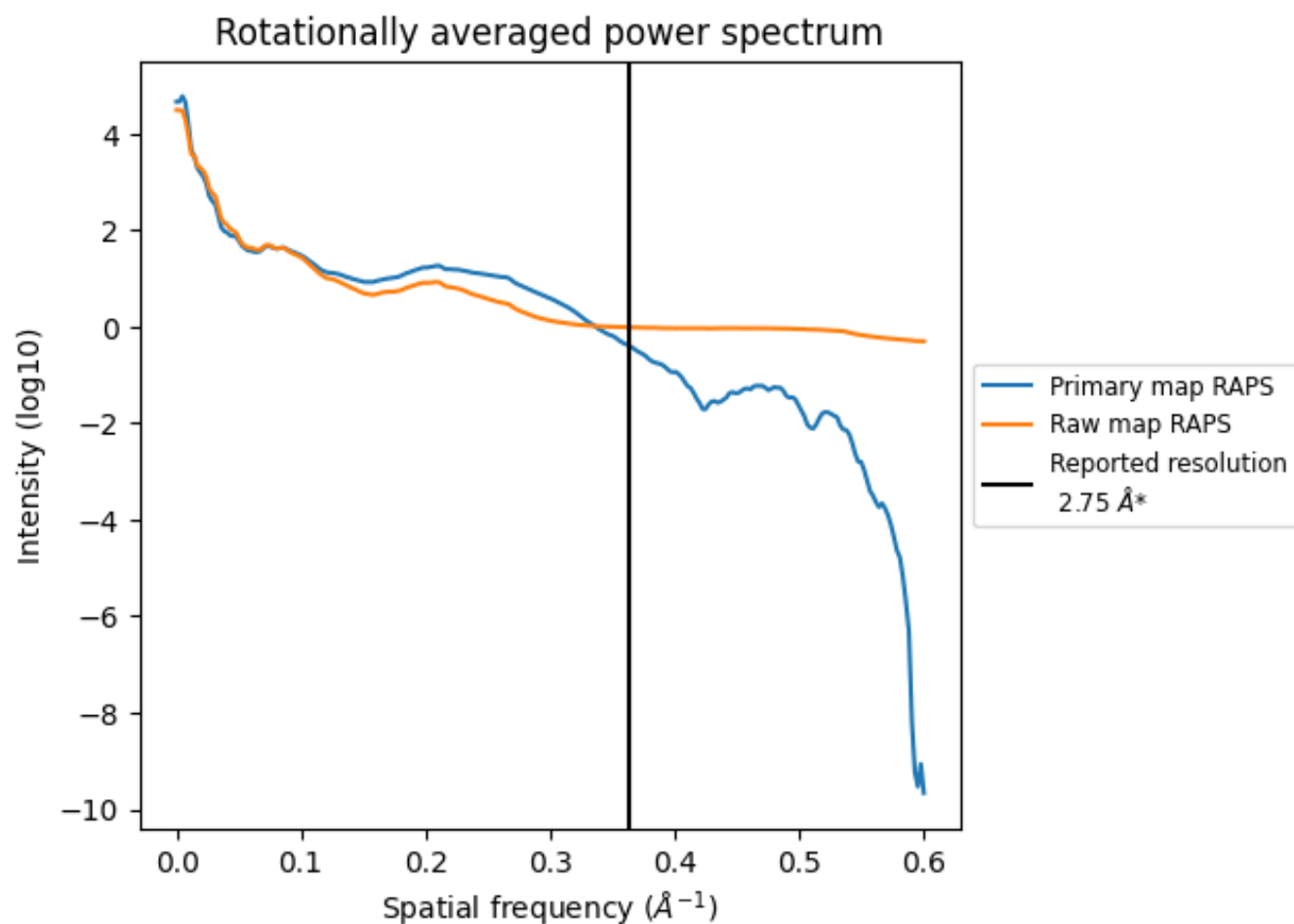
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 378 nm^3 ; this corresponds to an approximate mass of 341 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 ⓘ

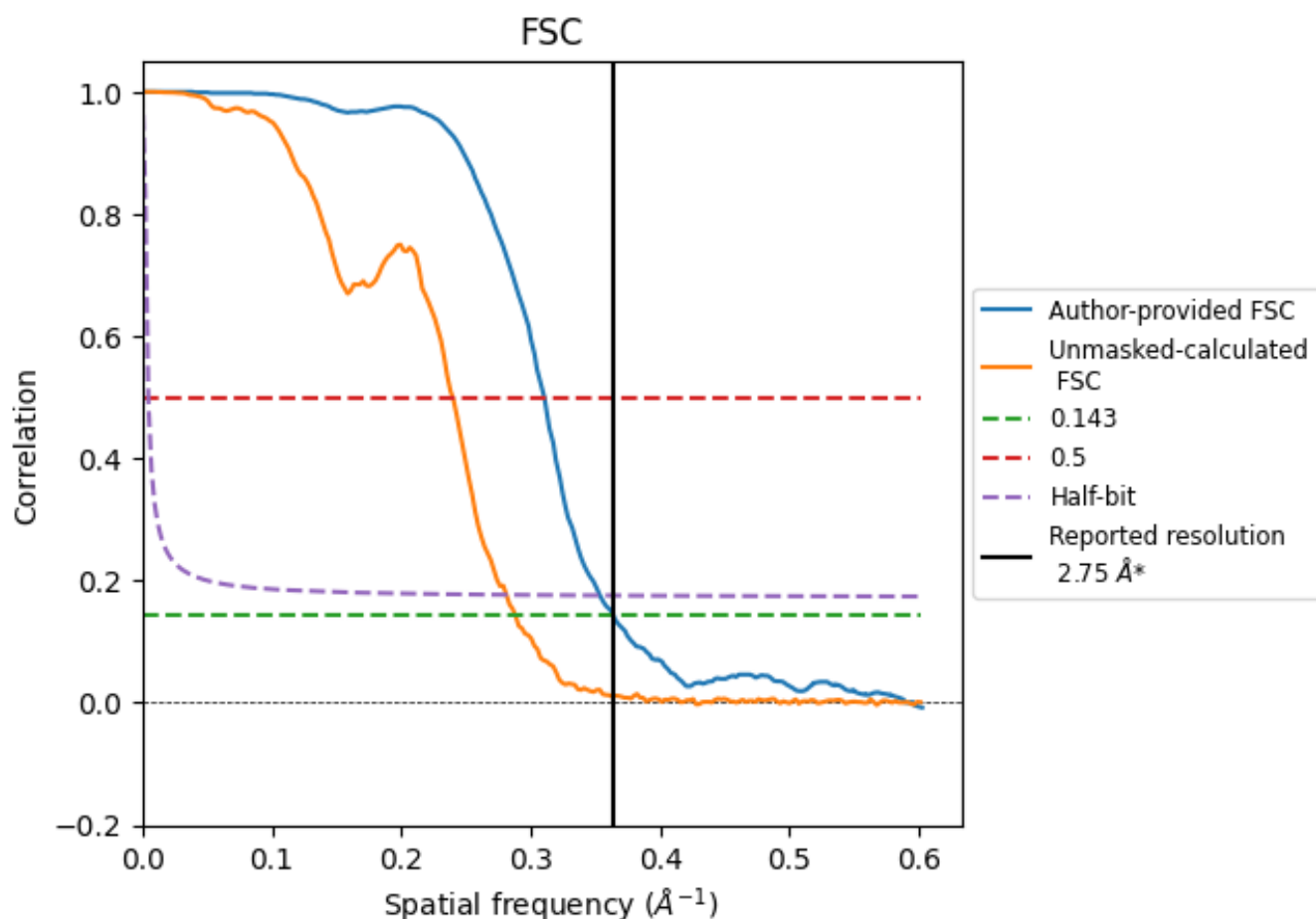


*Reported resolution corresponds to spatial frequency of 0.364 Å⁻¹

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 0.364 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

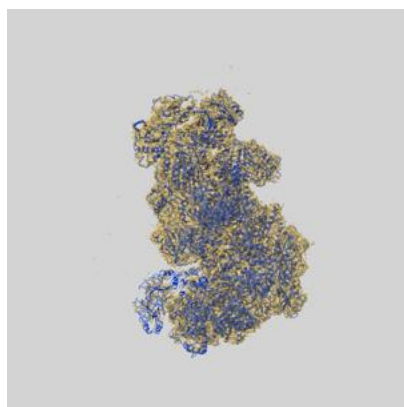
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.75	-	-
Author-provided FSC curve	2.75	3.22	2.83
Unmasked-calculated*	3.47	4.17	3.55

*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 3.47 differs from the reported value 2.75 by more than 10 %

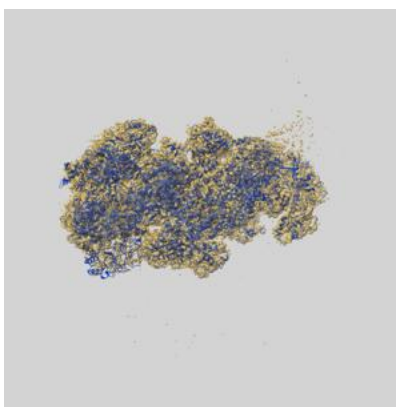
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-10102 and PDB model 6S6B. Per-residue inclusion information can be found in [section 3](#) on [page 9](#).

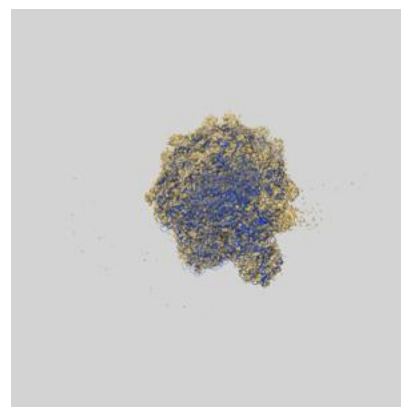
9.1 Map-model overlay [i](#)



X



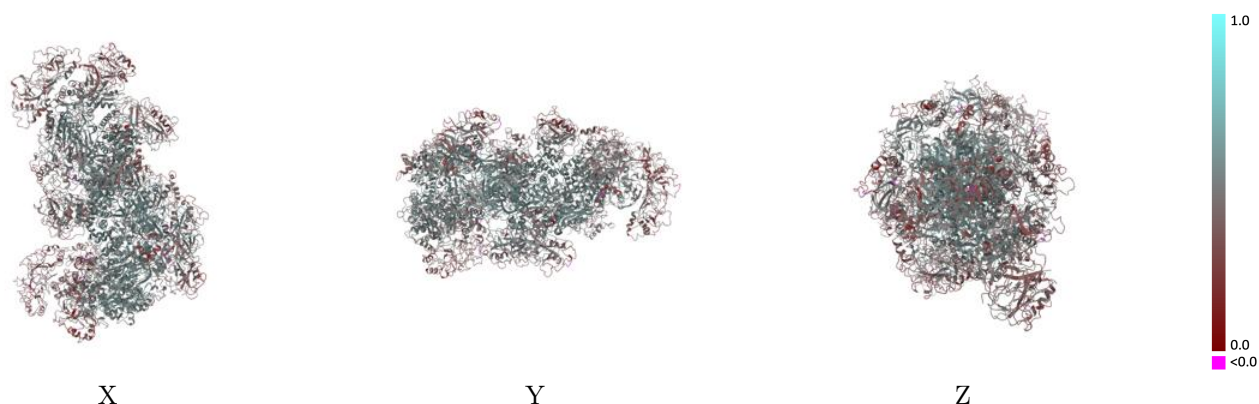
Y



Z

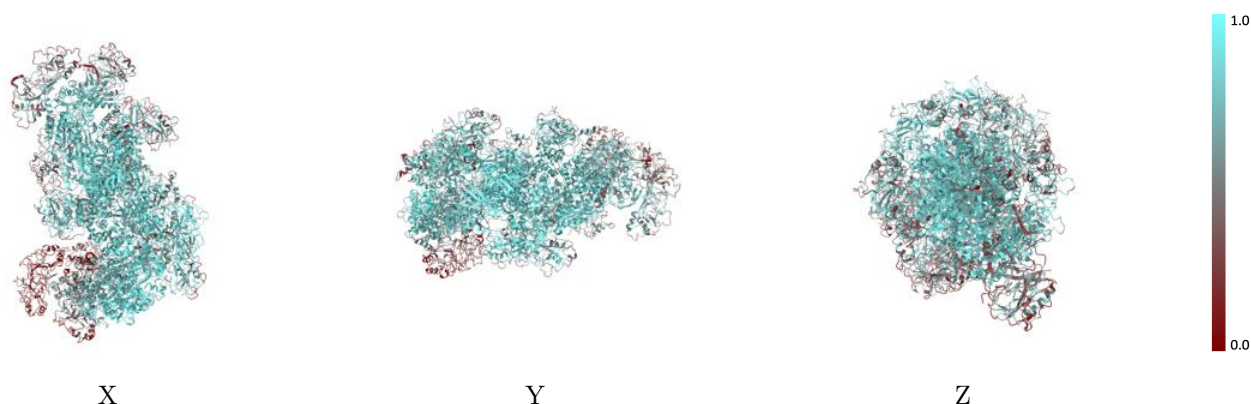
The images above show the 3D surface view of the map at the recommended contour level 2.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



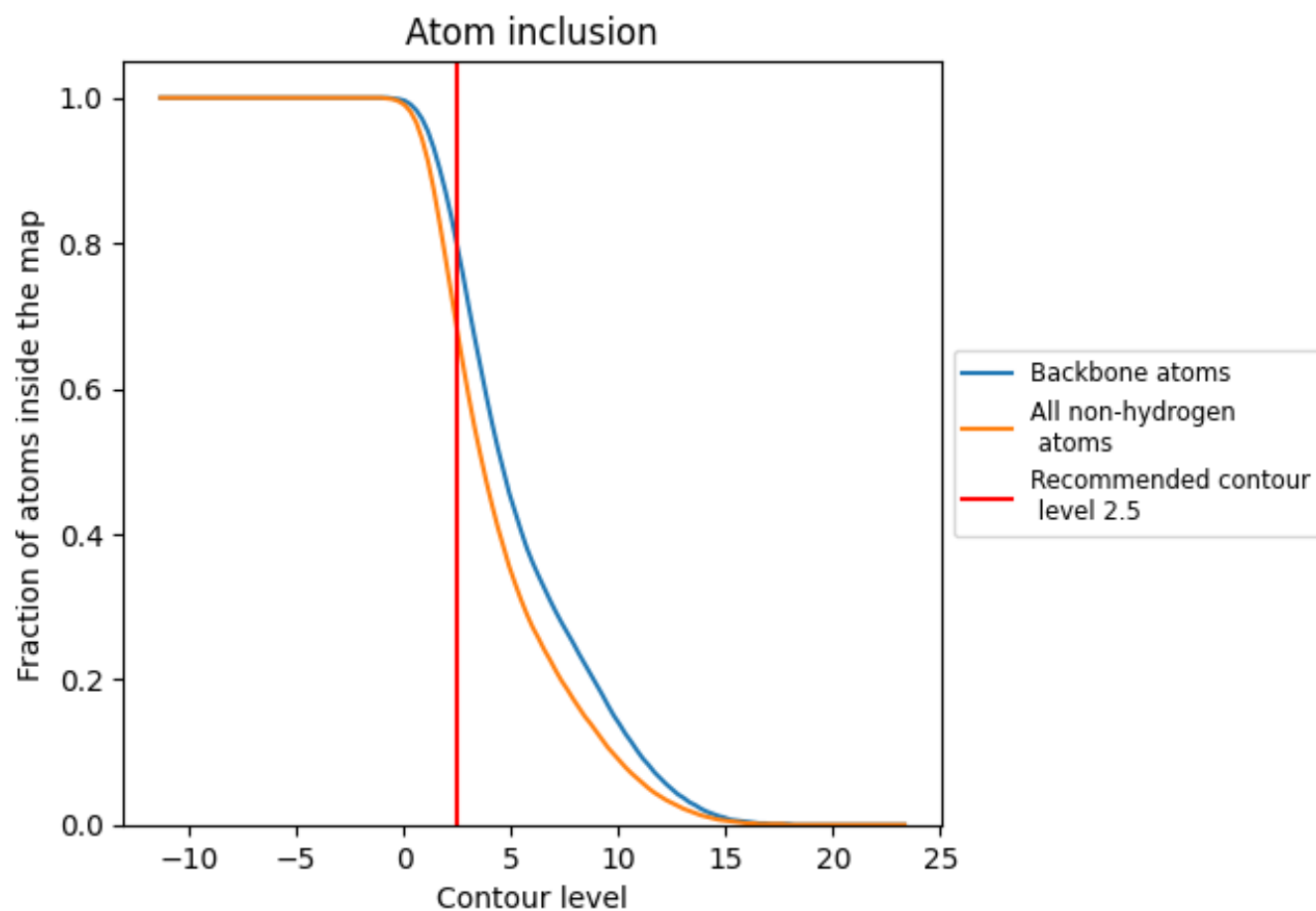
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (2.5).

9.4 Atom inclusion [i](#)



At the recommended contour level, 80% of all backbone atoms, 68% 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 (2.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6790	 0.4560
A	 0.8860	 0.5510
B	 0.8930	 0.5500
C	 0.8980	 0.5540
D	 0.9060	 0.5590
E	 0.8930	 0.5620
F	 0.8930	 0.5630
G	 0.8800	 0.5460
H	 0.8830	 0.5440
I	 0.8930	 0.5510
J	 0.8300	 0.4970
K	 0.8220	 0.5080
L	 0.7230	 0.4260
M	 0.8070	 0.4620
N	 0.6280	 0.3960
O	 0.6270	 0.4060
P	 0.4950	 0.4130
Q	 0.6620	 0.4120
R	 0.7030	 0.3950
S	 0.5000	 0.3790
T	 0.5770	 0.3660
V	 0.8930	 0.5400
W	 0.4110	 0.3920
X	 0.3660	 0.3420
Y	 0.1780	 0.3390
Z	 0.0570	 0.3090
l	 0.7450	 0.4400
m	 0.8030	 0.4670
n	 0.5920	 0.3650
o	 0.6550	 0.4150
p	 0.5700	 0.4240
q	 0.6960	 0.4340
r	 0.7510	 0.4310
s	 0.4800	 0.4010
t	 0.4470	 0.3340



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Chain	Atom inclusion	Q-score
w	 0.4580	 0.3810
x	 0.3010	 0.3370
y	 0.1520	 0.3250
z	 0.0760	 0.3200