



wwPDB EM Validation Summary Report ⓘ

Mar 8, 2026 – 03:27 PM UTC

PDB ID : 8C4H / pdb_00008c4h
EMDB ID : EMD-16426
Title : CryoEM structure of the Hendra henipavirus nucleocapsid sauronoid assembly multimer
Authors : Passchier, T.C.; Maskell, D.P.; Edwards, T.A.; Barr, J.N.
Deposited on : 2023-01-04
Resolution : 3.48 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:

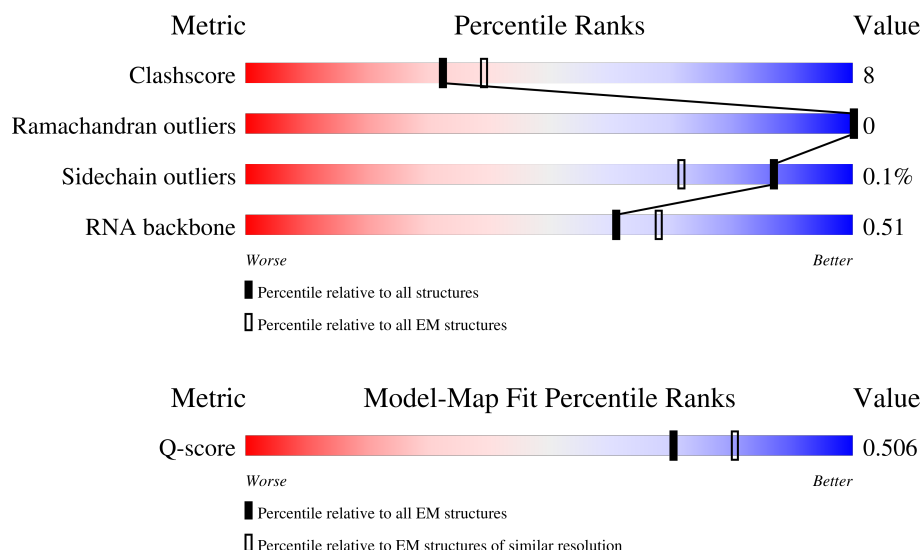
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & 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 3.48 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	13580 (2.99 - 3.98)

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	532	
1	B	532	
1	C	532	

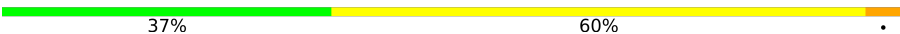
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Mol	Chain	Length	Quality of chain
1	D	532	
1	E	532	
1	F	532	
1	G	532	
1	H	532	
1	I	532	
1	J	532	
1	K	532	
1	L	532	
1	M	532	
1	N	532	
1	a	532	
1	b	532	
1	c	532	
1	d	532	
1	e	532	
1	f	532	
1	g	532	
1	h	532	
1	i	532	
1	j	532	
1	k	532	
1	l	532	
1	m	532	
1	n	532	

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Mol	Chain	Length	Quality of chain
2	1	84	 36% 62% .
2	2	84	 37% 60% .

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 87752 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 Nucleocapsid.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	C	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	D	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	E	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	F	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	G	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	H	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	I	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	J	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	K	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	L	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	M	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	N	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	A	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	B	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	a	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	b	394	Total 3014	C 1915	N 520	O 562	S 17	0	0
1	c	394	Total 3014	C 1915	N 520	O 562	S 17	0	0

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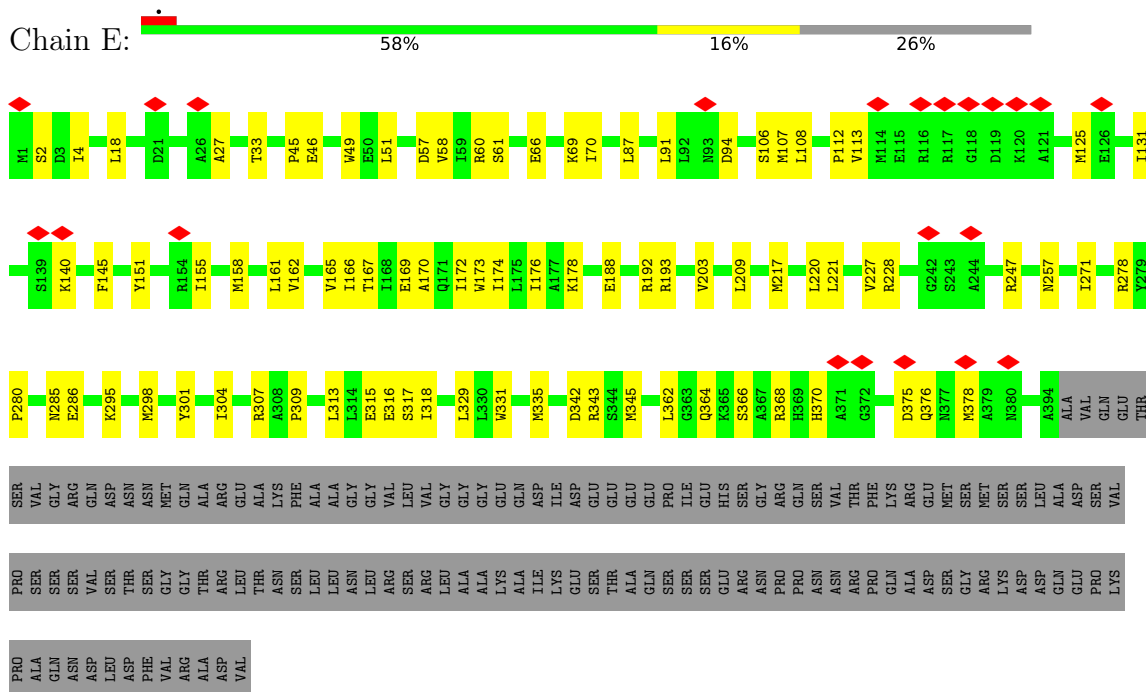
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Mol	Chain	Residues	Atoms					AltConf	Trace
1	d	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		
1	e	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		
1	f	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		
1	g	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		
1	h	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		
1	i	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		
1	j	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		
1	k	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		
1	l	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		
1	m	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		
1	n	394	Total	C	N	O	S	0	0
			3014	1915	520	562	17		

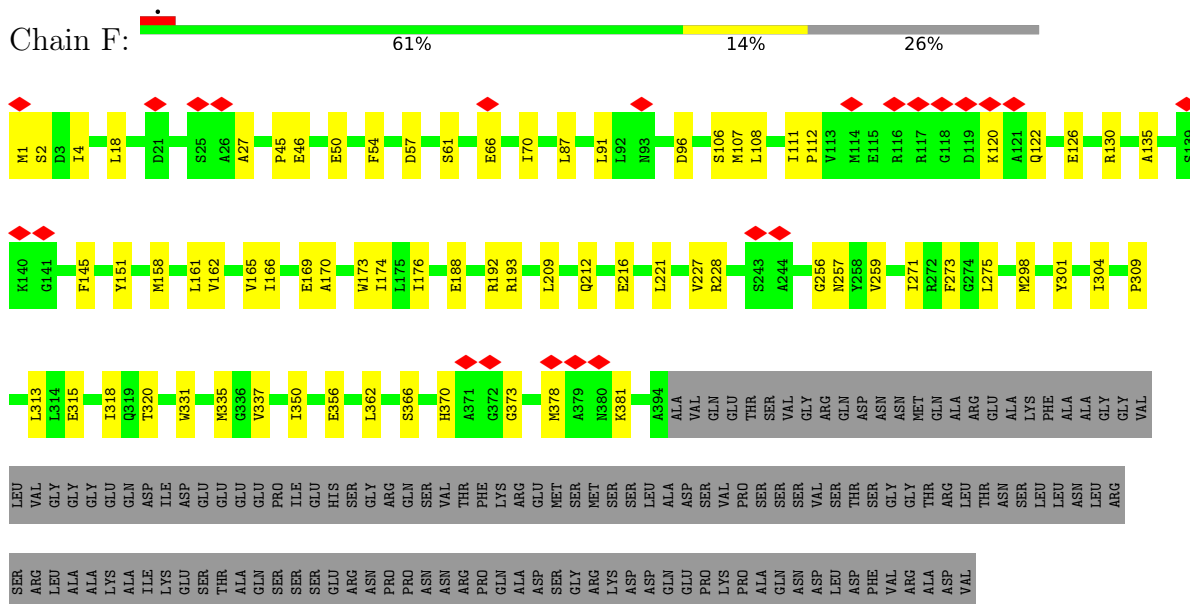
- Molecule 2 is a RNA chain called RNA (84-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
2	1	84	Total	C	N	O	P	0	0
			1680	756	168	672	84		
2	2	84	Total	C	N	O	P	0	0
			1680	756	168	672	84		

- Molecule 1: Nucleocapsid



- Molecule 1: Nucleocapsid

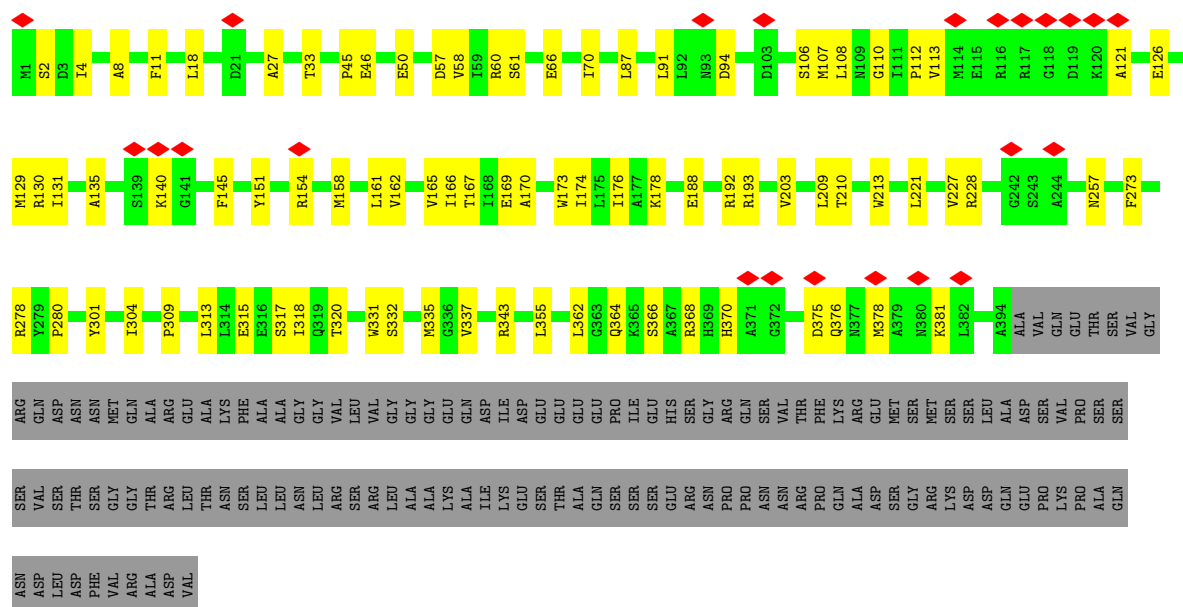


Chain G:

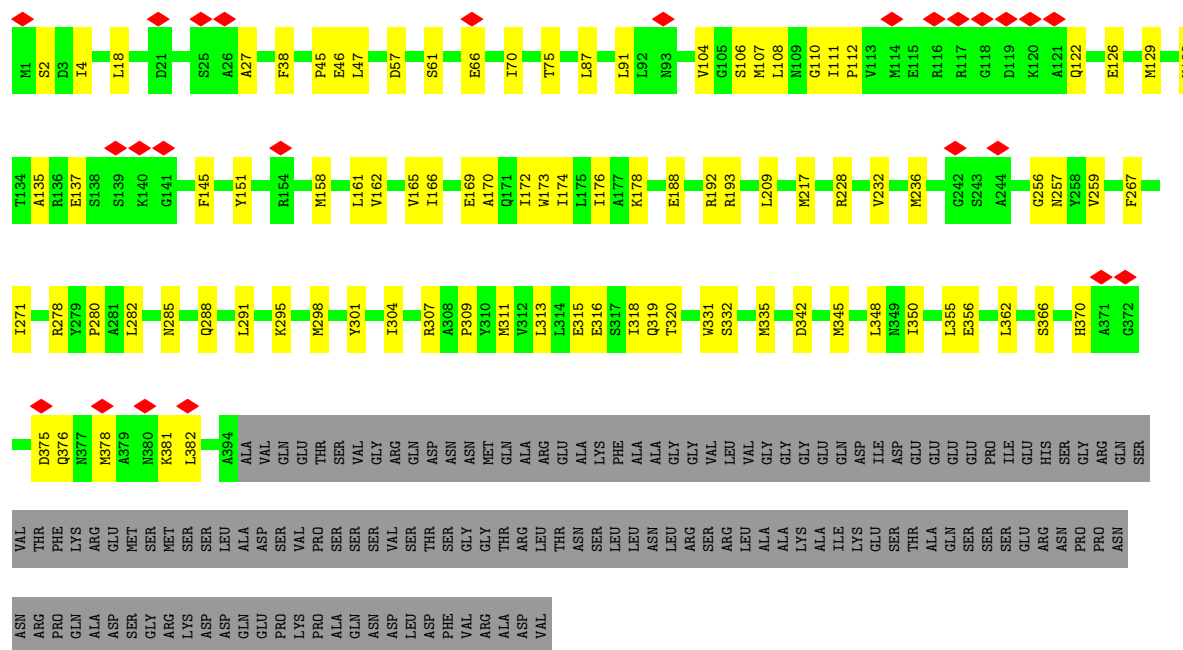
Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26											
PRO	LYS	PRO	PRO	GLN	ASN	ASP	LEU	ASP	PHE	VAL	VAL	ASP	ASP	ALA	ALA	ARG	GLY	GLY	GLN	GLN	ALA	ALA	ARG	VAL	VAL	ASP											
SER	VAL	PRO	SER	ALA	SER	SER	VAL	VAL	THR	THR	GLY	GLY	THR	ASN	SER	LEU	LEU	ASN	THR	SER	LEU	LEU	THR	GLN	GLU	ASP											
THR	THR	SER	VAL	GLY	ARG	GLN	ASP	ASN	ASN	MET	GLN	ALA	ARG	GLU	LYS	PHE	ALA	ALA	GLY	GLY	GLY	GLY	ILE	GLU	GLY	ASP											
GLU	THR	SER	VAL	GLY	ARG	GLN	ASP	ASN	ASN	MET	GLN	ALA	ARG	GLU	LYS	PHE	ALA	ALA	GLY	GLY	GLY	GLY	ILE	GLU	GLY	ASP											
I271	A135	S138	S139	K140	G141	K142	F145	Y151	R154	M158	L161	V162	V165	I166	T167	I168	E169	W173	I176	K178	E188	R192	R193	V203	L209	T210	W213	L220	L221	V227	R228	W231	G242	S243	A244	R247	N257

[illegible]

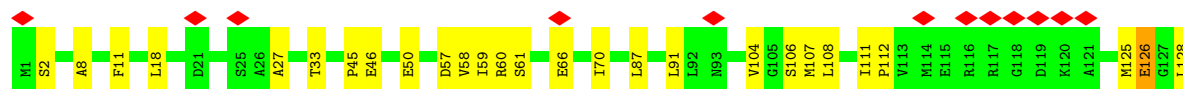
Chain I: 58% 16% 26%

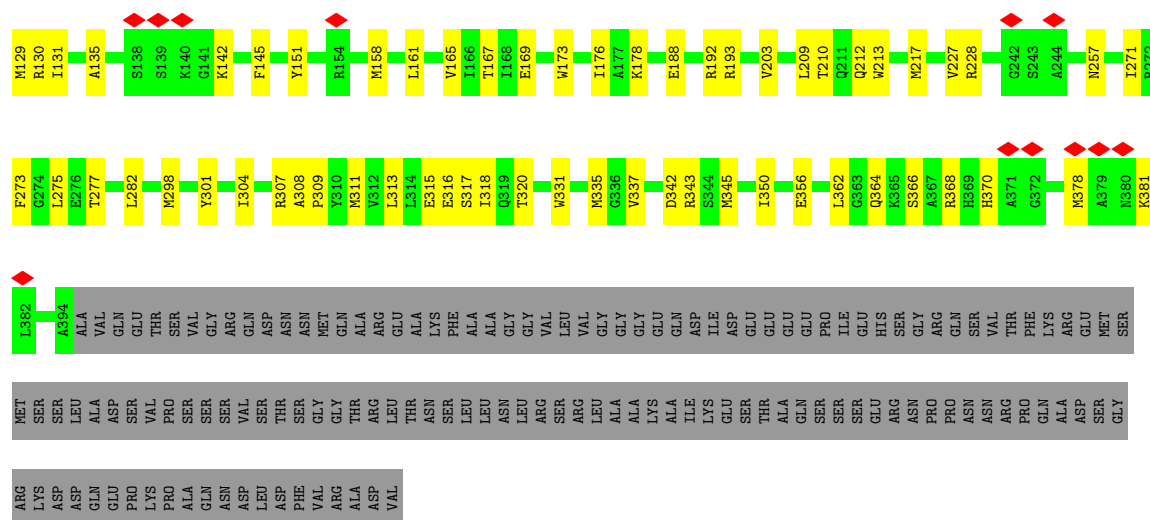


• Molecule 1: Nucleocapsid

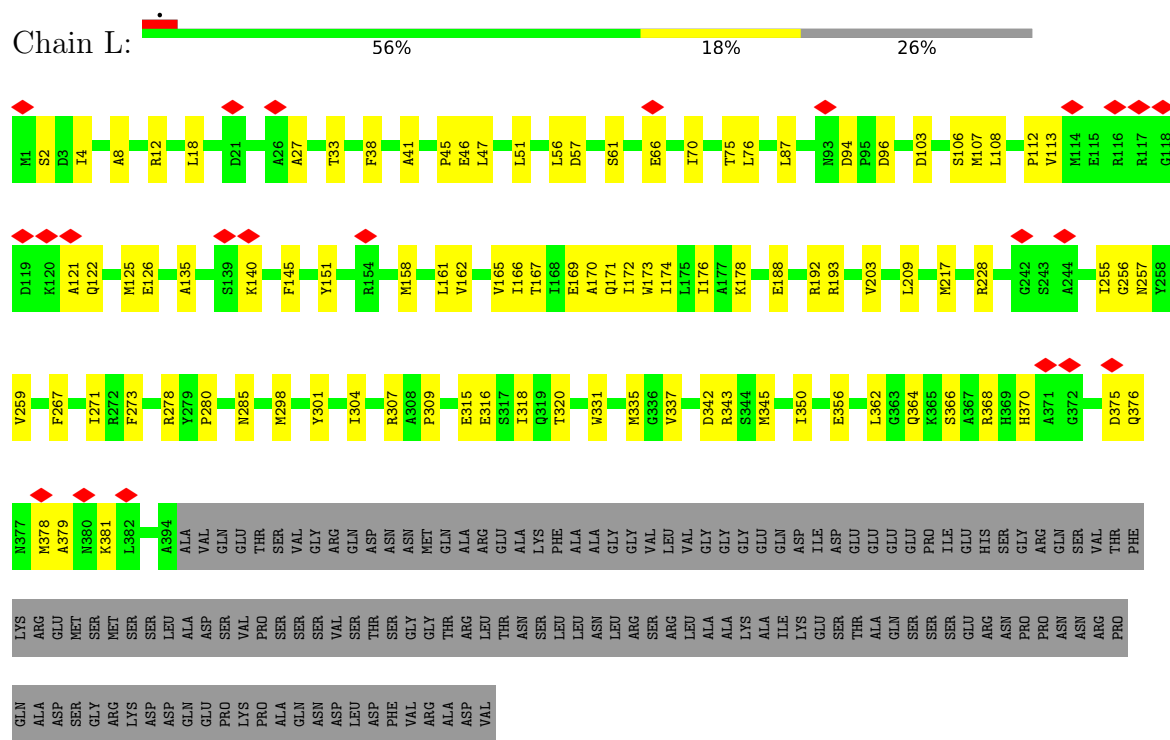


• Molecule 1: Nucleocapsid

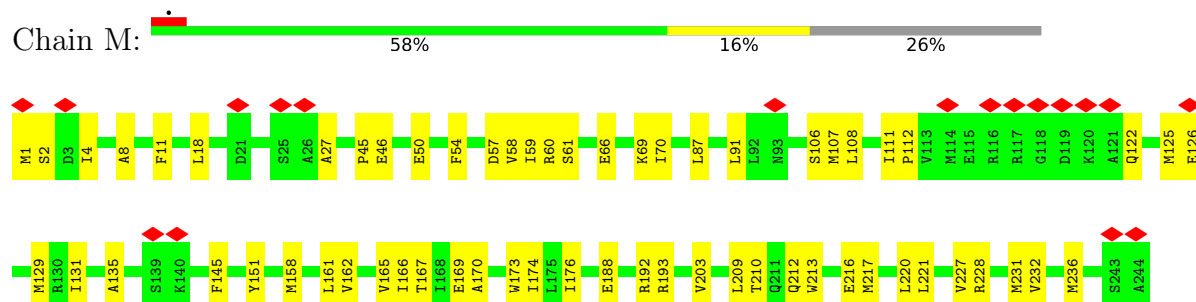


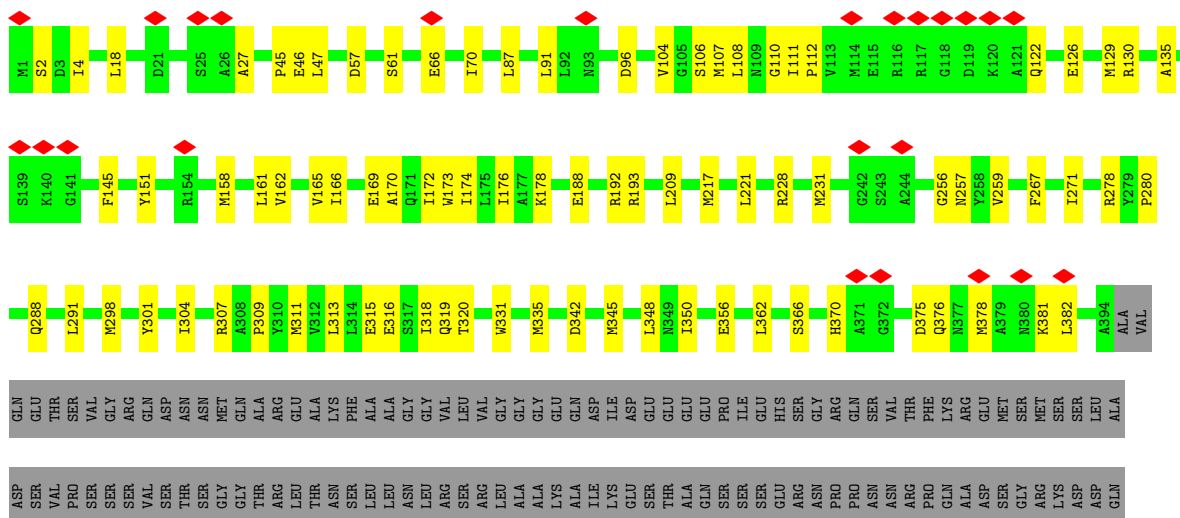


• Molecule 1: Nucleocapsid



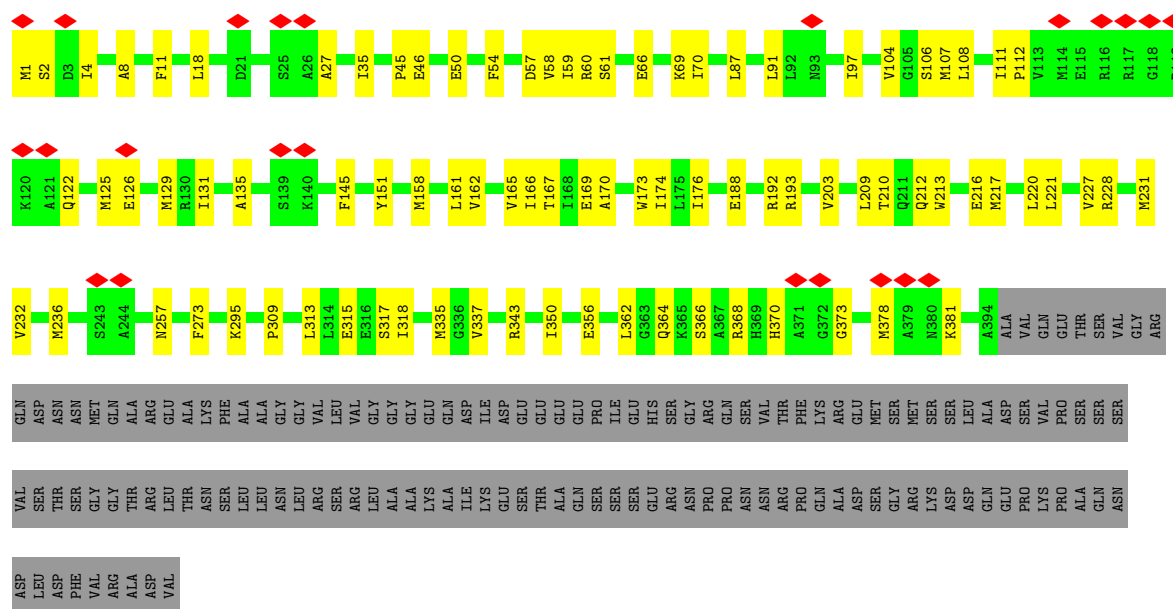
• Molecule 1: Nucleocapsid





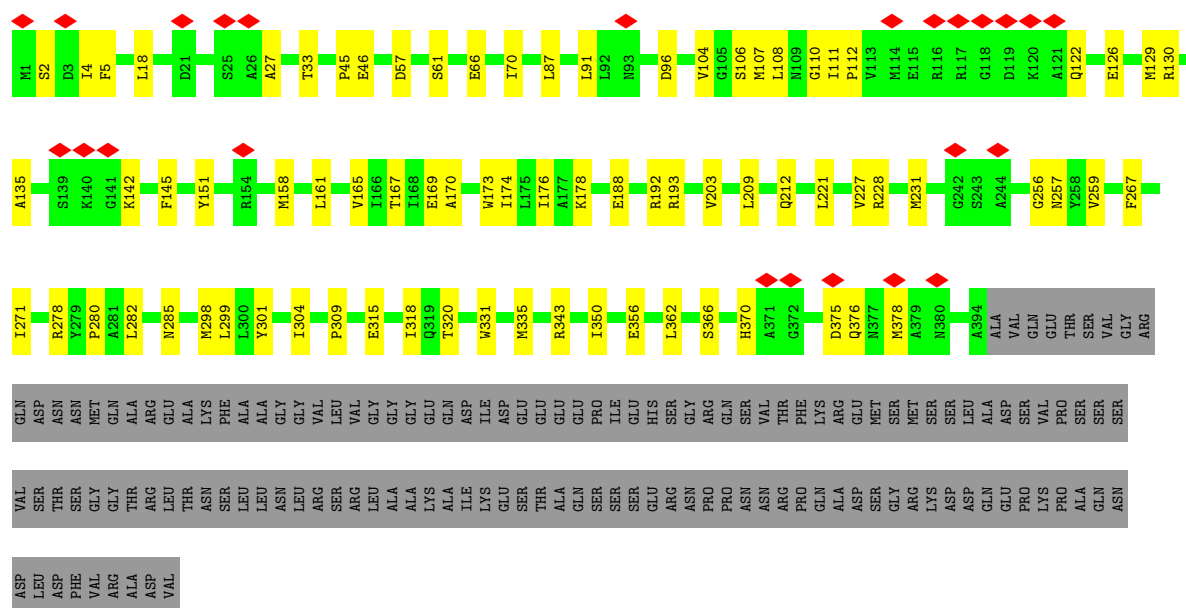
- Molecule 1: Nucleocapsid

Chain d:  58% 16% 26%



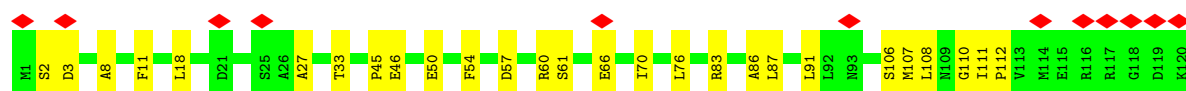
• Molecule 1: Nucleocapsid

Chain e:  5% 59% 15% 26%

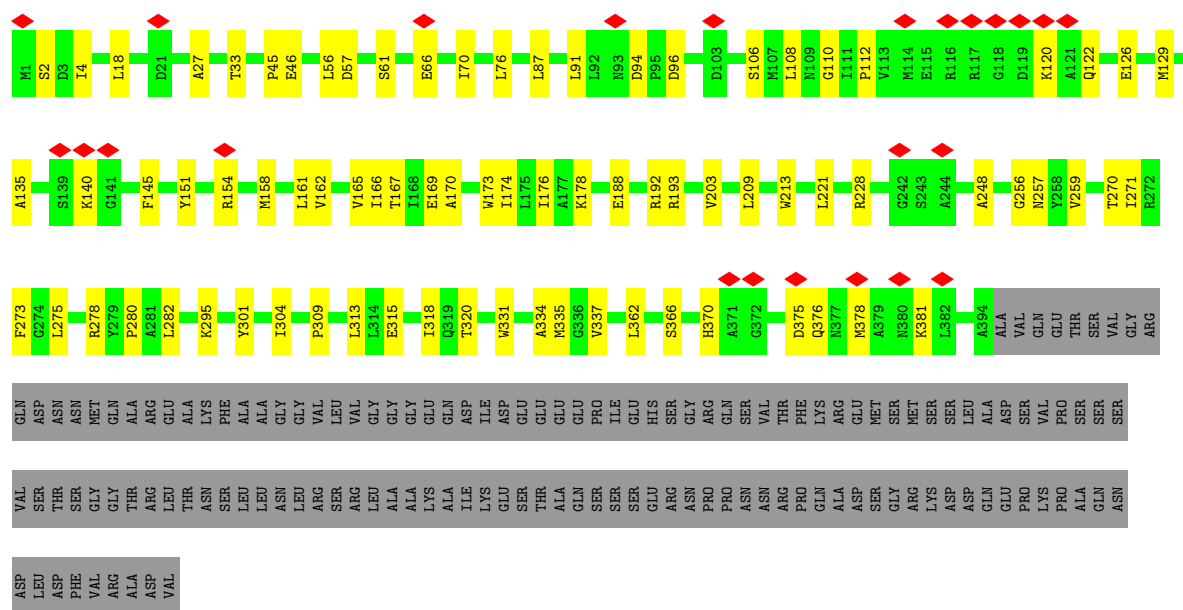


• Molecule 1: Nucleocapsid

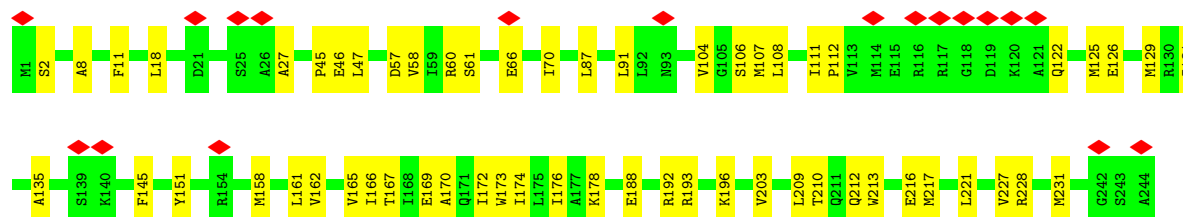
Chain f:  5% 59% 15% 26%

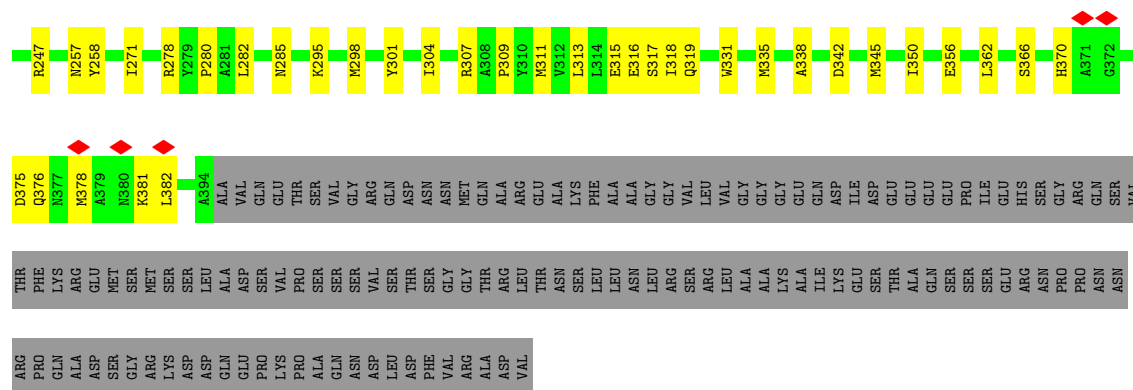


- Molecule 1: Nucleocapsid

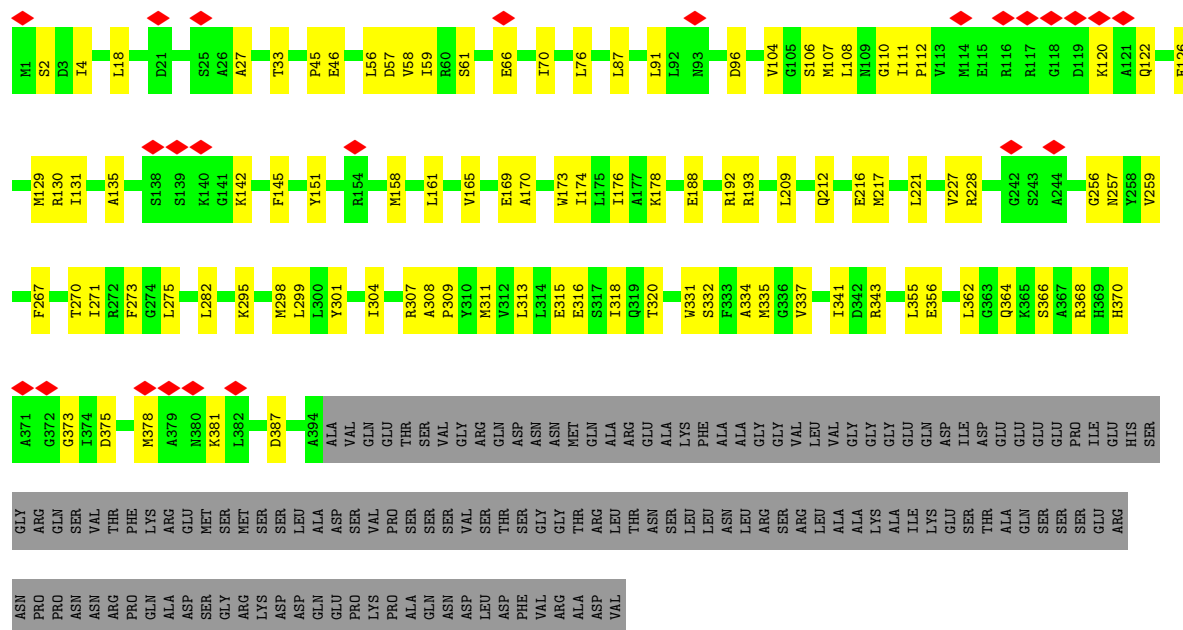


- Molecule 1: Nucleocapsid

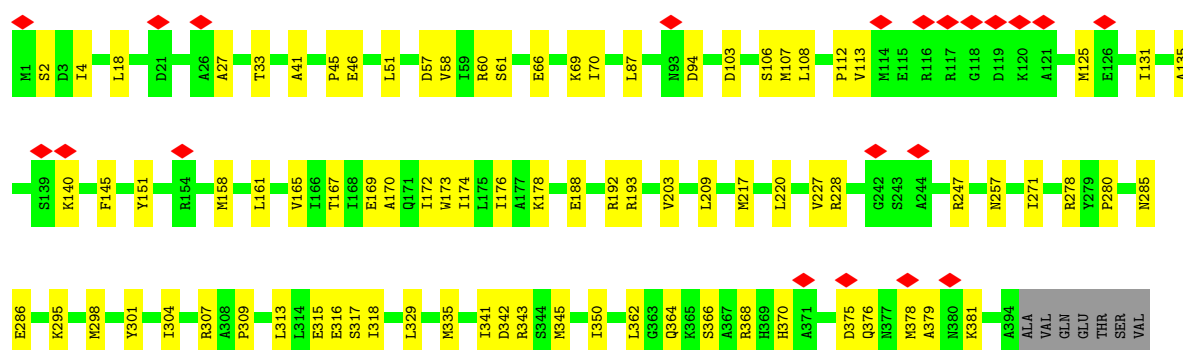


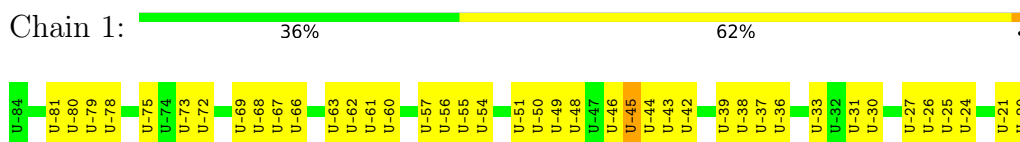


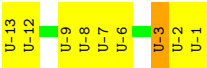
• Molecule 1: Nucleocapsid



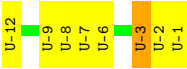
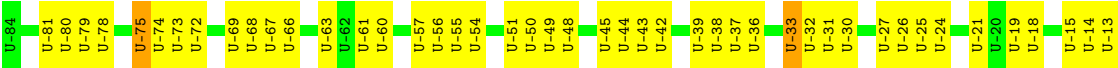
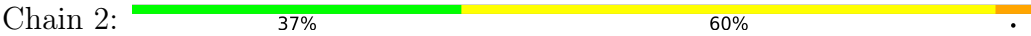
• Molecule 1: Nucleocapsid







• Molecule 2: RNA (84-MER)



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D14	Depositor
Number of particles used	5683	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 ($e^-/\text{\AA}^2$)	59.7	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	2800	Depositor
Magnification	75000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.121	Depositor
Minimum map value	-0.051	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.031	Depositor
Map size (Å)	383.40002, 383.40002, 383.40002	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.065, 1.065, 1.065	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	0.11	0/3067	0.27	0/4146
1	B	0.11	0/3067	0.28	0/4146
1	C	0.09	0/3067	0.26	0/4146
1	D	0.11	0/3067	0.28	0/4146
1	E	0.09	0/3067	0.24	0/4146
1	F	0.11	0/3067	0.28	0/4146
1	G	0.10	0/3067	0.26	0/4146
1	H	0.11	0/3067	0.26	0/4146
1	I	0.10	0/3067	0.27	0/4146
1	J	0.11	0/3067	0.27	0/4146
1	K	0.10	0/3067	0.27	0/4146
1	L	0.10	0/3067	0.26	0/4146
1	M	0.09	0/3067	0.27	0/4146
1	N	0.11	0/3067	0.28	0/4146
1	a	0.10	0/3067	0.27	0/4146
1	b	0.09	0/3067	0.26	0/4146
1	c	0.10	0/3067	0.26	0/4146
1	d	0.09	0/3067	0.27	0/4146
1	e	0.11	0/3067	0.28	0/4146
1	f	0.09	0/3067	0.25	0/4146
1	g	0.11	0/3067	0.28	0/4146
1	h	0.09	0/3067	0.26	0/4146
1	i	0.11	0/3067	0.28	0/4146
1	j	0.09	0/3067	0.25	0/4146
1	k	0.10	0/3067	0.28	0/4146
1	l	0.10	0/3067	0.27	0/4146
1	m	0.11	0/3067	0.26	0/4146
1	n	0.10	0/3067	0.27	0/4146
2	1	0.10	0/1847	0.32	0/2852
2	2	0.10	0/1847	0.33	0/2852
All	All	0.10	0/89570	0.27	0/121792

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3014	0	3029	67	0
1	B	3014	0	3029	60	0
1	C	3014	0	3029	65	0
1	D	3014	0	3029	66	0
1	E	3014	0	3029	59	0
1	F	3014	0	3029	52	0
1	G	3014	0	3029	61	0
1	H	3014	0	3029	67	0
1	I	3014	0	3029	58	0
1	J	3014	0	3029	62	0
1	K	3014	0	3029	59	0
1	L	3014	0	3029	66	0
1	M	3014	0	3029	59	0
1	N	3014	0	3029	59	0
1	a	3014	0	3029	60	0
1	b	3014	0	3029	61	0
1	c	3014	0	3029	65	0
1	d	3014	0	3029	60	0
1	e	3014	0	3029	61	0
1	f	3014	0	3029	61	0
1	g	3014	0	3029	58	0
1	h	3014	0	3029	68	0
1	i	3014	0	3029	71	0
1	j	3014	0	3029	60	0
1	k	3014	0	3029	55	0
1	l	3014	0	3029	61	0
1	m	3014	0	3029	70	0
1	n	3014	0	3029	55	0
2	1	1680	0	841	29	0
2	2	1680	0	841	29	0
All	All	87752	0	86494	1477	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 8.

The worst 5 of 1477 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:375:ASP:OD1	1:C:376:GLN:N	2.10	0.84
1:I:375:ASP:OD1	1:I:376:GLN:N	2.11	0.84
1:h:375:ASP:OD1	1:h:376:GLN:N	2.10	0.84
1:J:375:ASP:OD1	1:J:376:GLN:N	2.11	0.84
1:g:375:ASP:OD1	1:g:376:GLN:N	2.11	0.83

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	392/532 (74%)	372 (95%)	20 (5%)	0	100	100
1	B	392/532 (74%)	377 (96%)	15 (4%)	0	100	100
1	C	392/532 (74%)	380 (97%)	12 (3%)	0	100	100
1	D	392/532 (74%)	372 (95%)	20 (5%)	0	100	100
1	E	392/532 (74%)	378 (96%)	14 (4%)	0	100	100
1	F	392/532 (74%)	373 (95%)	19 (5%)	0	100	100
1	G	392/532 (74%)	380 (97%)	12 (3%)	0	100	100
1	H	392/532 (74%)	370 (94%)	22 (6%)	0	100	100
1	I	392/532 (74%)	378 (96%)	14 (4%)	0	100	100
1	J	392/532 (74%)	378 (96%)	14 (4%)	0	100	100
1	K	392/532 (74%)	374 (95%)	18 (5%)	0	100	100
1	L	392/532 (74%)	380 (97%)	12 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	M	392/532 (74%)	376 (96%)	16 (4%)	0	100	100
1	N	392/532 (74%)	378 (96%)	14 (4%)	0	100	100
1	a	392/532 (74%)	377 (96%)	15 (4%)	0	100	100
1	b	392/532 (74%)	374 (95%)	18 (5%)	0	100	100
1	c	392/532 (74%)	380 (97%)	12 (3%)	0	100	100
1	d	392/532 (74%)	376 (96%)	16 (4%)	0	100	100
1	e	392/532 (74%)	380 (97%)	12 (3%)	0	100	100
1	f	392/532 (74%)	376 (96%)	16 (4%)	0	100	100
1	g	392/532 (74%)	376 (96%)	16 (4%)	0	100	100
1	h	392/532 (74%)	379 (97%)	13 (3%)	0	100	100
1	i	392/532 (74%)	372 (95%)	20 (5%)	0	100	100
1	j	392/532 (74%)	378 (96%)	14 (4%)	0	100	100
1	k	392/532 (74%)	373 (95%)	19 (5%)	0	100	100
1	l	392/532 (74%)	380 (97%)	12 (3%)	0	100	100
1	m	392/532 (74%)	372 (95%)	20 (5%)	0	100	100
1	n	392/532 (74%)	380 (97%)	12 (3%)	0	100	100
All	All	10976/14896 (74%)	10539 (96%)	437 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	310/439 (71%)	310 (100%)	0	100	100
1	B	310/439 (71%)	310 (100%)	0	100	100
1	C	310/439 (71%)	310 (100%)	0	100	100
1	D	310/439 (71%)	310 (100%)	0	100	100
1	E	310/439 (71%)	310 (100%)	0	100	100

Continued on next page...

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	F	310/439 (71%)	310 (100%)	0	100	100
1	G	310/439 (71%)	309 (100%)	1 (0%)	86	83
1	H	310/439 (71%)	310 (100%)	0	100	100
1	I	310/439 (71%)	310 (100%)	0	100	100
1	J	310/439 (71%)	310 (100%)	0	100	100
1	K	310/439 (71%)	309 (100%)	1 (0%)	86	83
1	L	310/439 (71%)	310 (100%)	0	100	100
1	M	310/439 (71%)	309 (100%)	1 (0%)	86	83
1	N	310/439 (71%)	308 (99%)	2 (1%)	78	79
1	a	310/439 (71%)	310 (100%)	0	100	100
1	b	310/439 (71%)	310 (100%)	0	100	100
1	c	310/439 (71%)	309 (100%)	1 (0%)	86	83
1	d	310/439 (71%)	310 (100%)	0	100	100
1	e	310/439 (71%)	309 (100%)	1 (0%)	86	83
1	f	310/439 (71%)	310 (100%)	0	100	100
1	g	310/439 (71%)	309 (100%)	1 (0%)	86	83
1	h	310/439 (71%)	310 (100%)	0	100	100
1	i	310/439 (71%)	309 (100%)	1 (0%)	86	83
1	j	310/439 (71%)	310 (100%)	0	100	100
1	k	310/439 (71%)	310 (100%)	0	100	100
1	l	310/439 (71%)	309 (100%)	1 (0%)	86	83
1	m	310/439 (71%)	310 (100%)	0	100	100
1	n	310/439 (71%)	310 (100%)	0	100	100
All	All	8680/12292 (71%)	8670 (100%)	10 (0%)	87	87

5 of 10 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	g	282	LEU
1	i	107	MET
1	l	107	MET
1	N	1	MET
1	N	107	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 36 such sidechains are listed below:

Mol	Chain	Res	Type
1	j	257	ASN
1	n	257	ASN
1	j	285	ASN
1	l	285	ASN
1	L	285	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	1	83/84 (98%)	27 (32%)	0
2	2	83/84 (98%)	27 (32%)	0
All	All	166/168 (98%)	54 (32%)	0

5 of 54 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	1	-81	U
2	1	-78	U
2	1	-75	U
2	1	-72	U
2	1	-69	U

There are no RNA pucker outliers to report.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

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.

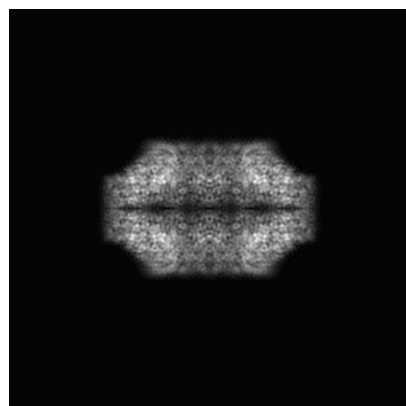
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-16426. These allow visual inspection of the internal detail of the map and identification of artifacts.

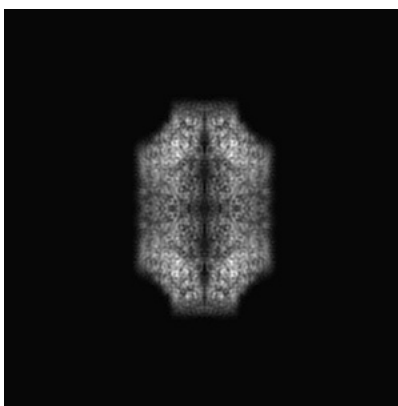
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

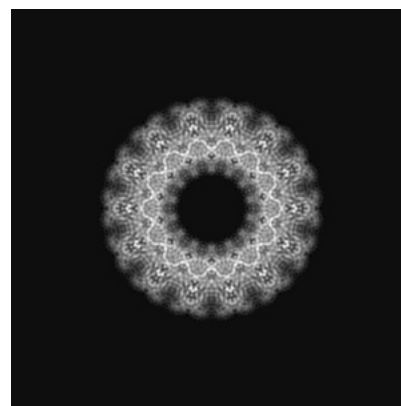
6.1.1 Primary map



X

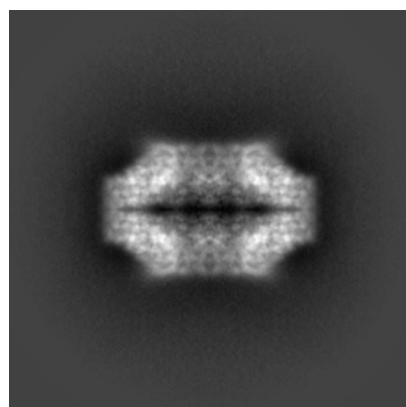


Y

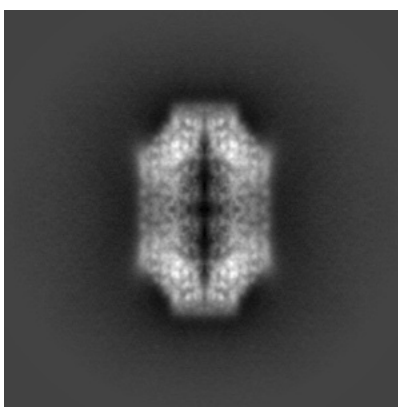


Z

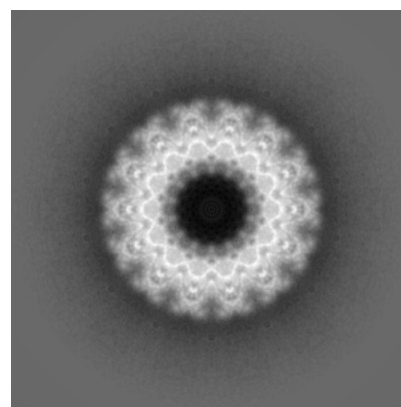
6.1.2 Raw map



X



Y

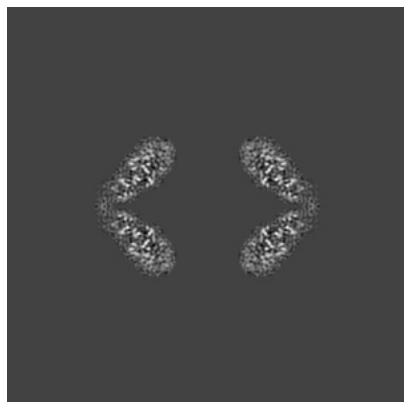


Z

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

6.2 Central slices [i](#)

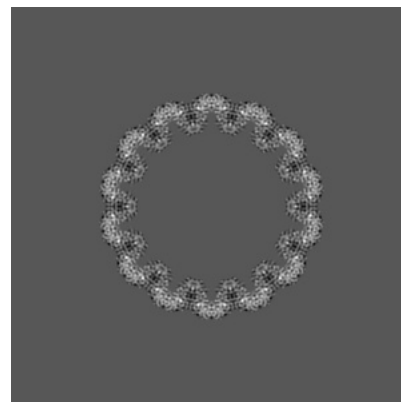
6.2.1 Primary map



X Index: 180

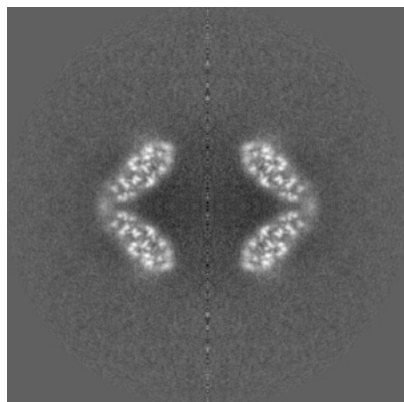


Y Index: 180

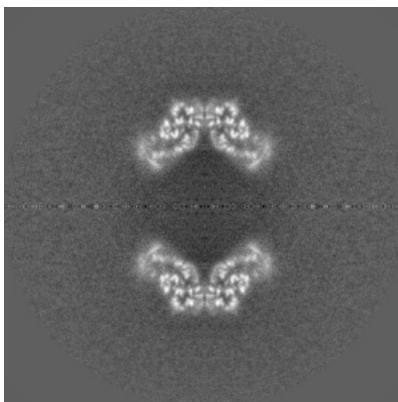


Z Index: 180

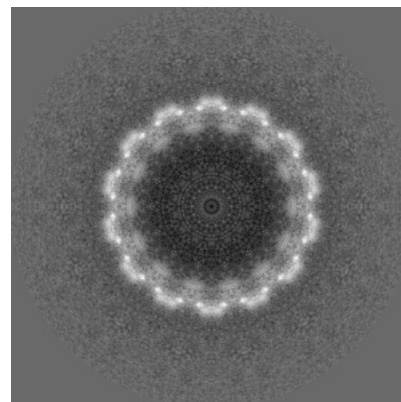
6.2.2 Raw map



X Index: 180



Y Index: 180

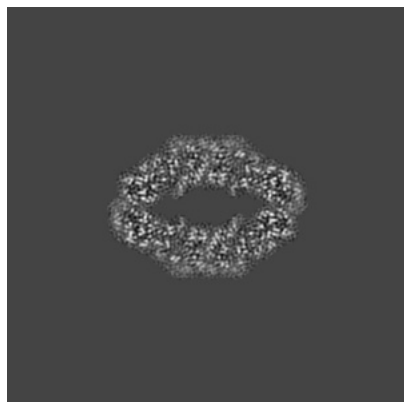


Z Index: 180

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

6.3 Largest variance slices [i](#)

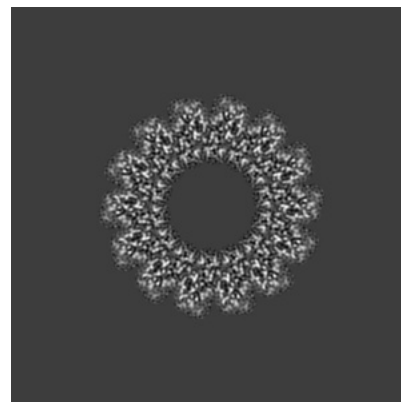
6.3.1 Primary map



X Index: 228

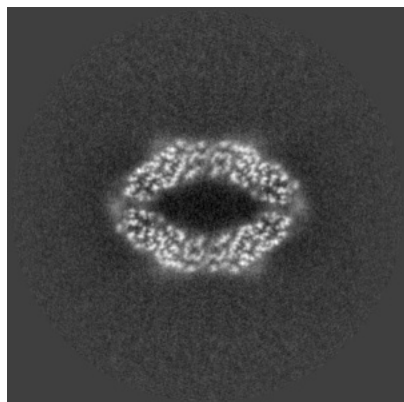


Y Index: 147

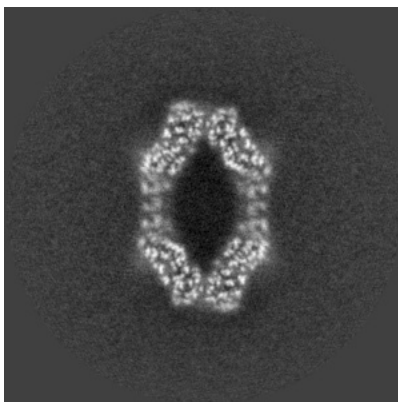


Z Index: 205

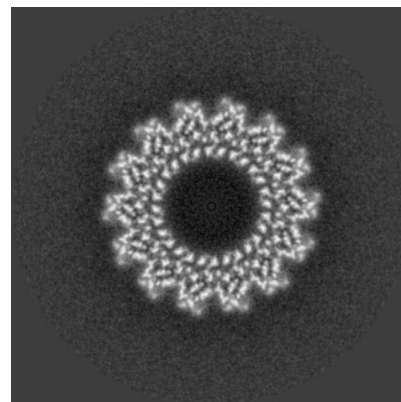
6.3.2 Raw map



X Index: 222



Y Index: 213

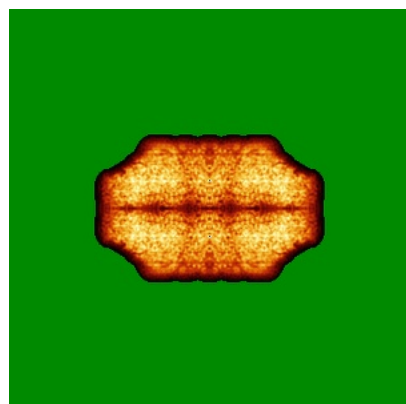


Z Index: 205

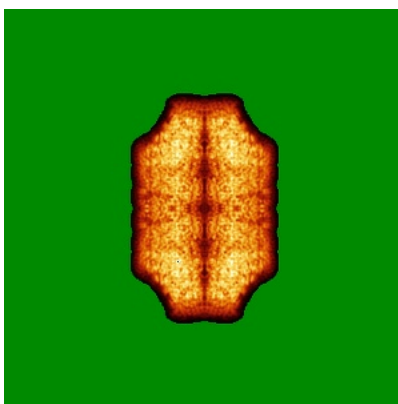
The images above show the largest variance slices of the map in three orthogonal directions.

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

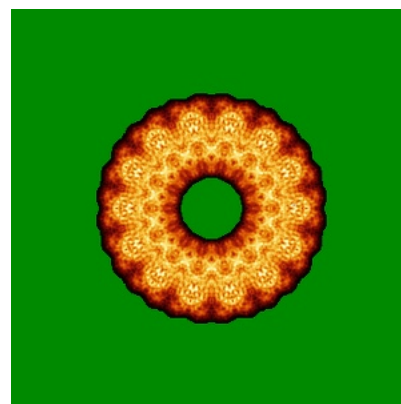
6.4.1 Primary map



X

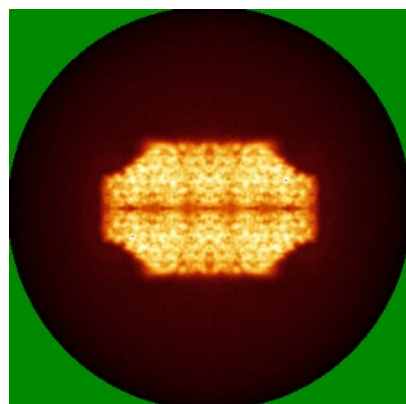


Y

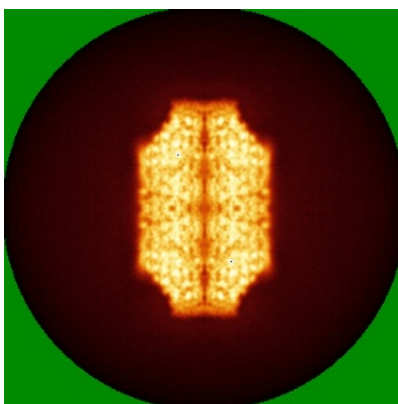


Z

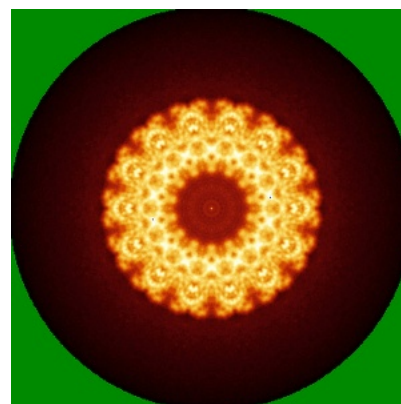
6.4.2 Raw map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.031. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

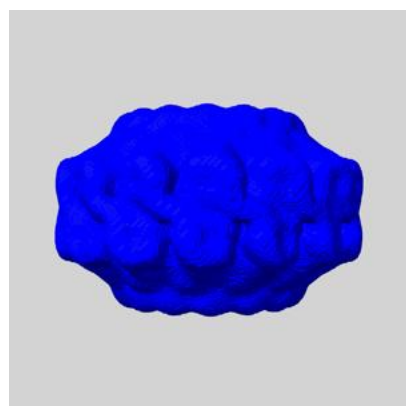
6.6 Mask visualisation [i](#)

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

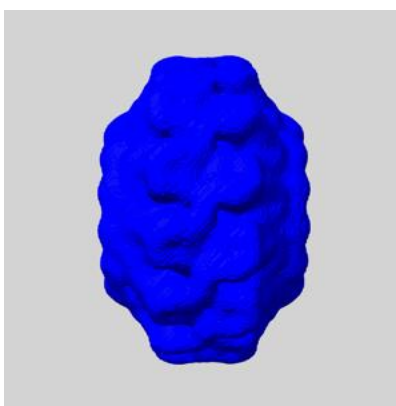
A mask typically either:

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

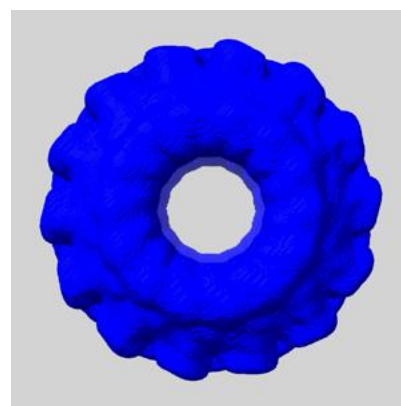
6.6.1 emd_16426_msk_1.map [i](#)



X



Y

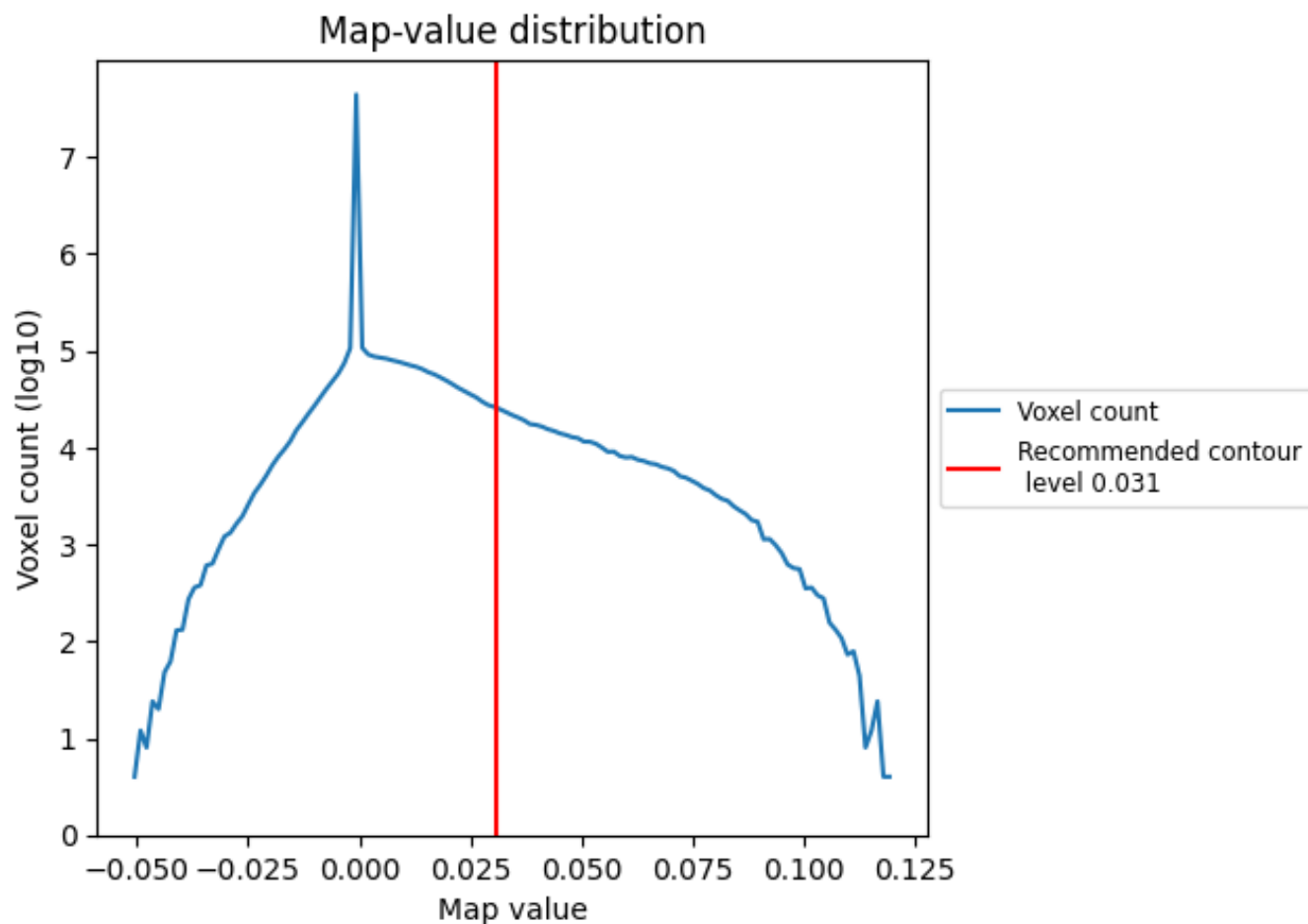


Z

7 Map analysis [i](#)

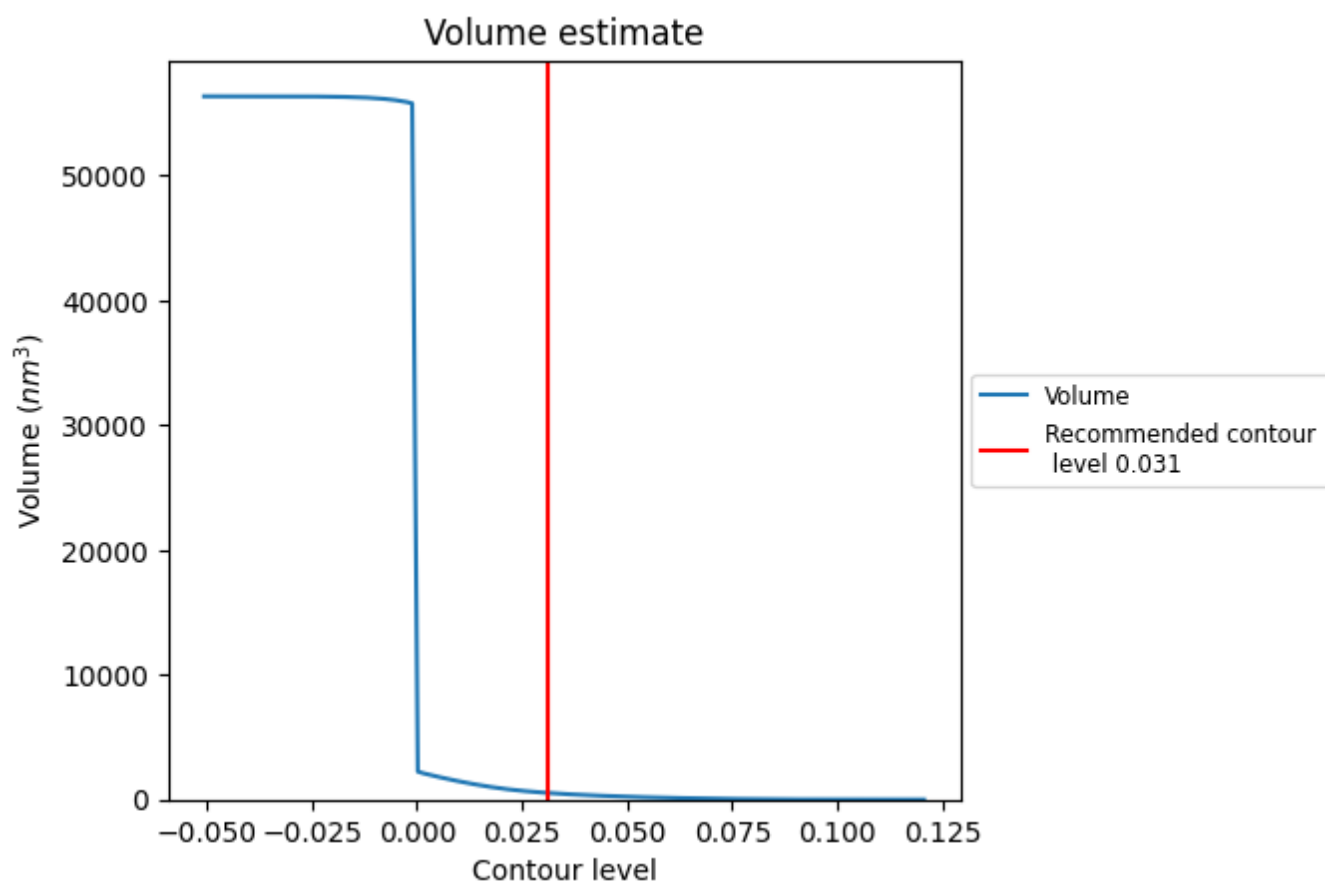
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

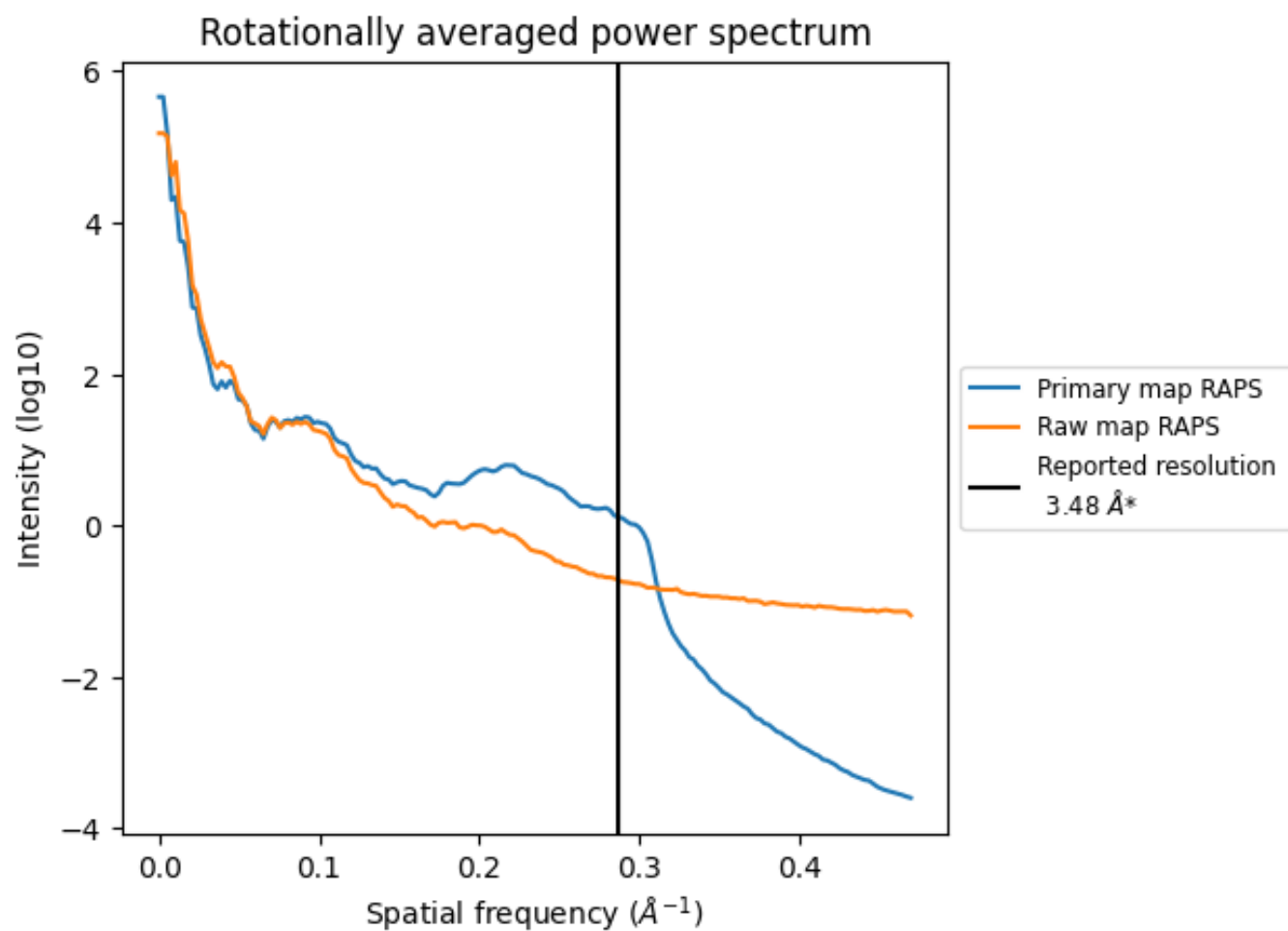
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 536 nm³; this corresponds to an approximate mass of 484 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 ⓘ

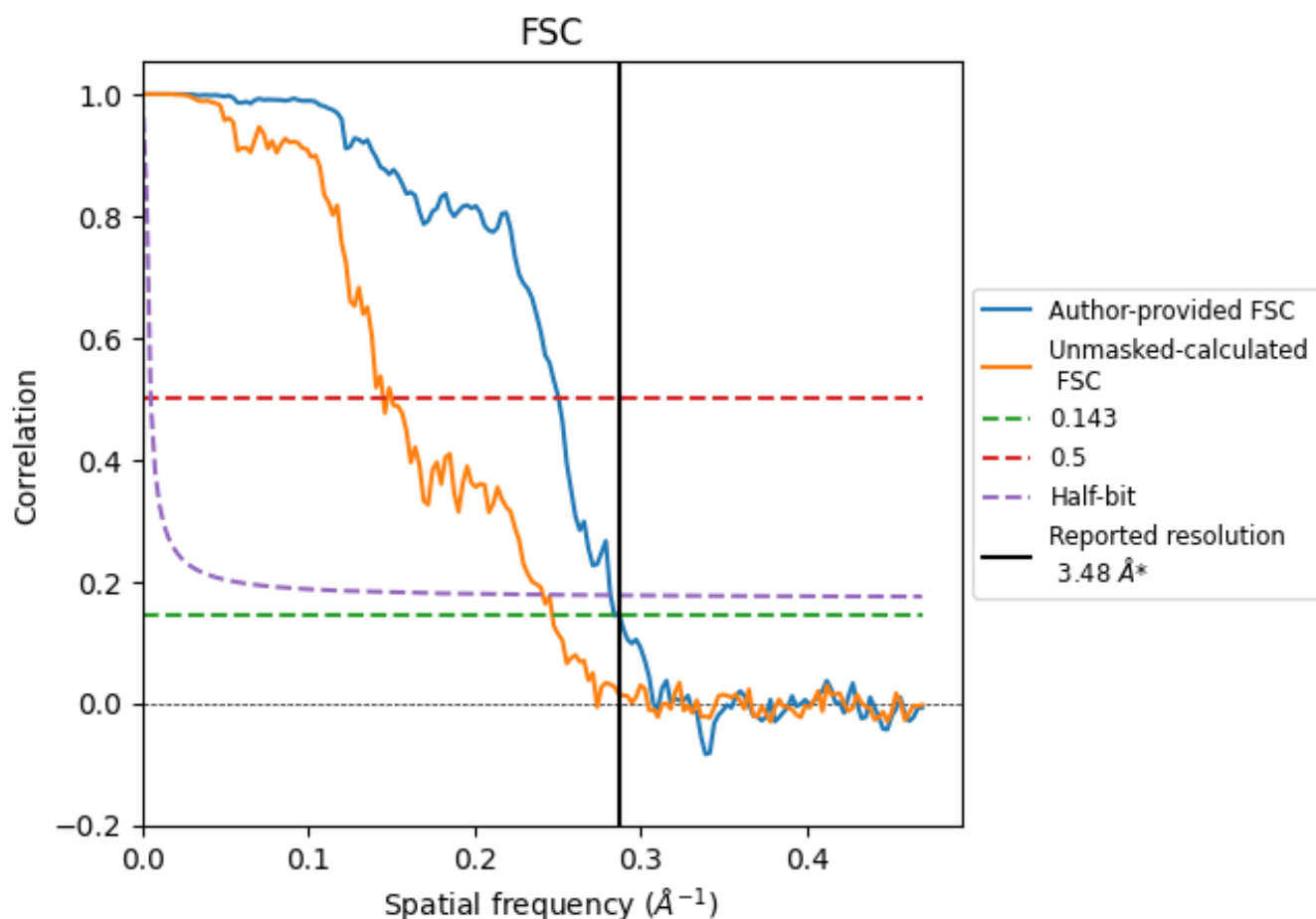


*Reported resolution corresponds to spatial frequency of 0.287 Å⁻¹

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 $0.287 \text{ \AA}^{-1}$

8.2 Resolution estimates [i](#)

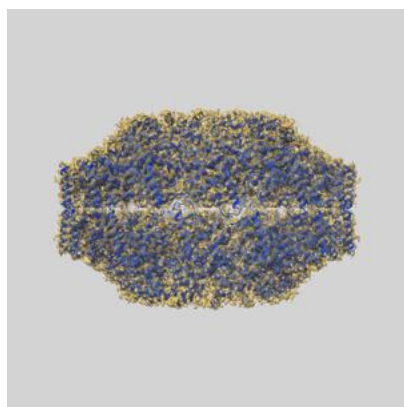
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.48	-	-
Author-provided FSC curve	3.48	3.99	3.55
Unmasked-calculated*	4.05	6.90	4.15

*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 4.05 differs from the reported value 3.485 by more than 10 %

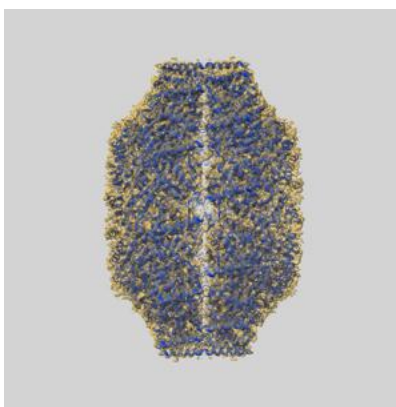
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-16426 and PDB model 8C4H. Per-residue inclusion information can be found in section [3](#) on page [7](#).

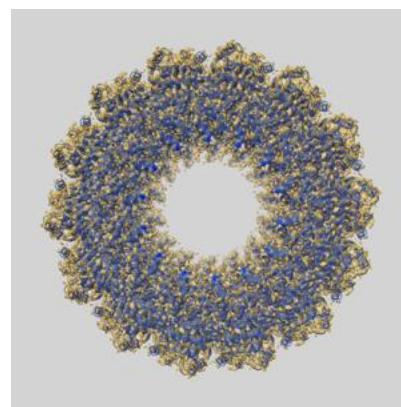
9.1 Map-model overlay [i](#)



X



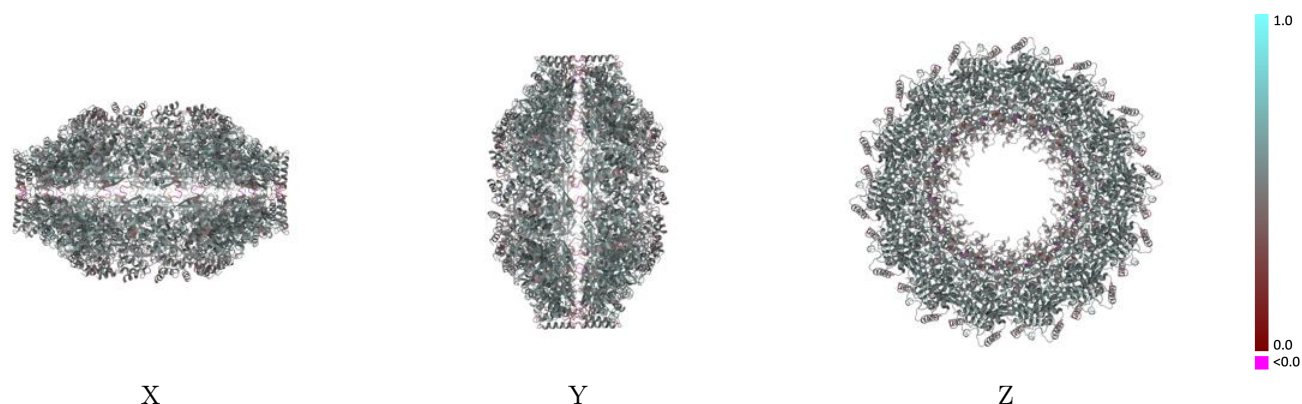
Y



Z

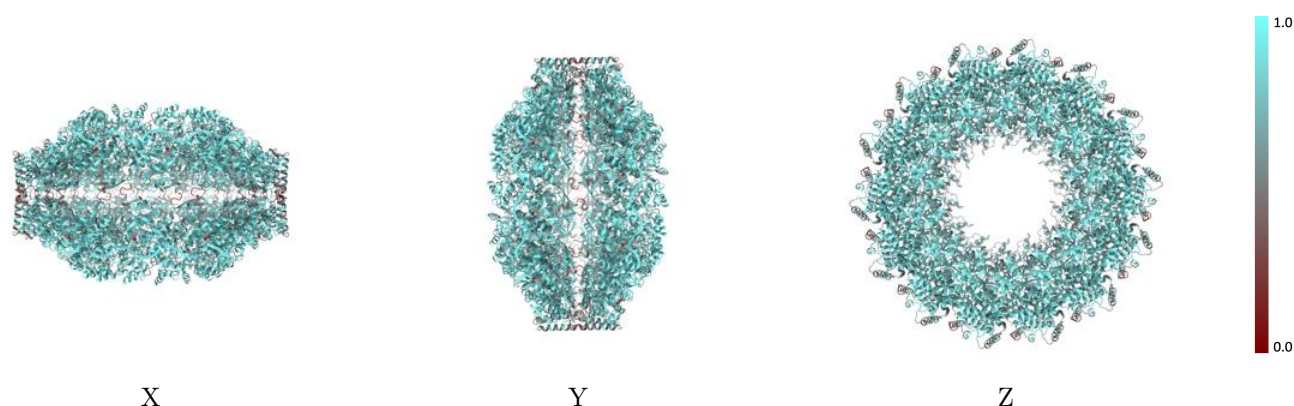
The images above show the 3D surface view of the map at the recommended contour level 0.031 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



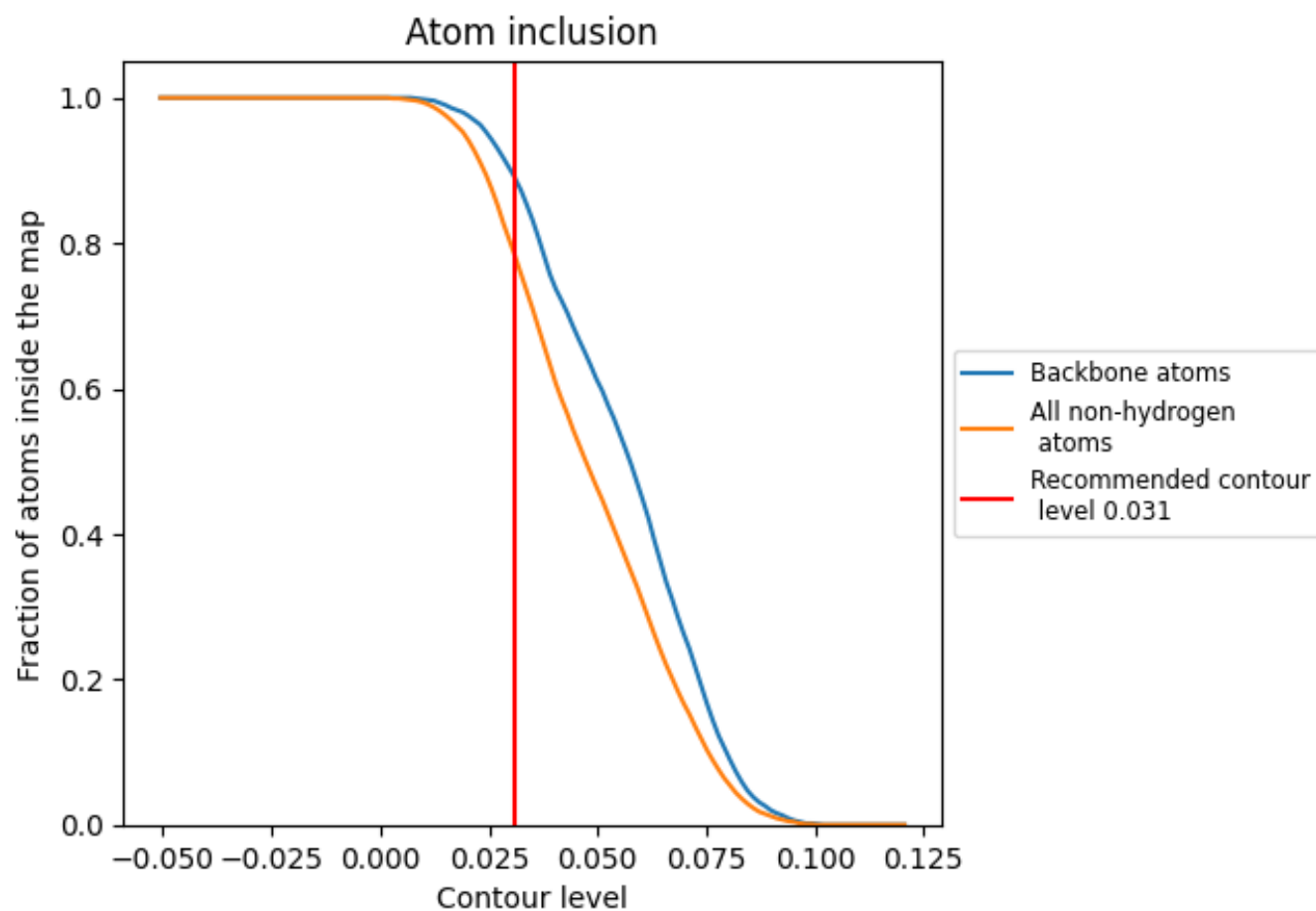
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.031).

9.4 Atom inclusion ⓘ



At the recommended contour level, 89% of all backbone atoms, 78% 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 (0.031) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7830	 0.5060
1	 0.9130	 0.5210
2	 0.9130	 0.5220
A	 0.7720	 0.5040
B	 0.7780	 0.5040
C	 0.7800	 0.5080
D	 0.7750	 0.5040
E	 0.7760	 0.5090
F	 0.7750	 0.5050
G	 0.7800	 0.5080
H	 0.7740	 0.5030
I	 0.7800	 0.5070
J	 0.7750	 0.5040
K	 0.7800	 0.5080
L	 0.7740	 0.5040
M	 0.7800	 0.5080
N	 0.7770	 0.5040
a	 0.7740	 0.5040
b	 0.7800	 0.5080
c	 0.7750	 0.5040
d	 0.7800	 0.5090
e	 0.7760	 0.5040
f	 0.7780	 0.5060
g	 0.7780	 0.5030
h	 0.7790	 0.5080
i	 0.7760	 0.5030
j	 0.7760	 0.5080
k	 0.7750	 0.5060
l	 0.7790	 0.5090
m	 0.7750	 0.5040
n	 0.7820	 0.5090

