



wwPDB EM Validation Summary Report ⓘ

Oct 26, 2024 – 08:50 PM EDT

PDB ID : 6NK7
EMDB ID : EMD-9395
Title : Electron Cryo-Microscopy of Chikungunya in Complex with Mouse Mxra8 Receptor
Authors : Basore, K.; Kim, A.S.; Nelson, C.A.; Fremont, D.H.; Center for Structural Genomics of Infectious Diseases (CSGID)
Deposited on : 2019-01-04
Resolution : 4.99 Å(reported)
Based on initial models : 3N42, 6NK3, 3J0C, 5H23

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.dev113
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

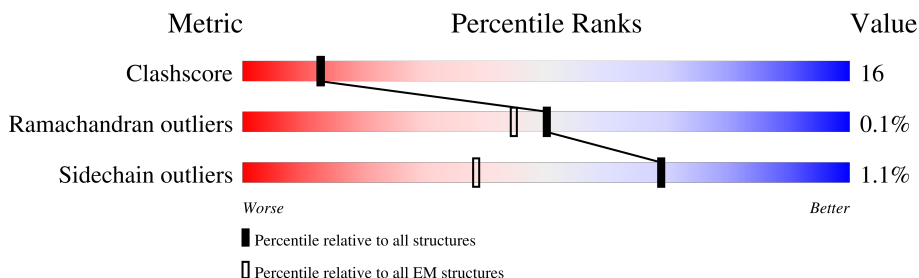
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.99 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	439	
1	B	439	
1	C	439	
1	D	439	
2	E	419	
2	F	419	
2	G	419	
2	H	419	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
3	I	151	
3	J	151	
3	K	151	
3	L	151	
4	U	60	
4	V	60	
4	W	60	
4	X	60	
5	N	261	

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 35205 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 E1 glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	439	Total	C	N	O	S	0	0
			3326	2106	556	637	27		
1	B	439	Total	C	N	O	S	0	0
			3326	2106	556	637	27		
1	C	439	Total	C	N	O	S	0	0
			3326	2106	556	637	27		
1	D	439	Total	C	N	O	S	0	0
			3326	2106	556	637	27		

- Molecule 2 is a protein called E2 glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	419	Total	C	N	O	S	0	0
			3295	2067	592	608	28		
2	F	419	Total	C	N	O	S	0	0
			3295	2067	592	608	28		
2	G	419	Total	C	N	O	S	0	0
			3295	2067	592	608	28		
2	H	419	Total	C	N	O	S	0	0
			3295	2067	592	608	28		

- Molecule 3 is a protein called Capsid protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	I	151	Total	C	N	O	S	0	0
			1156	730	204	217	5		
3	J	151	Total	C	N	O	S	0	0
			1156	730	204	217	5		
3	K	151	Total	C	N	O	S	0	0
			1156	730	204	217	5		
3	L	151	Total	C	N	O	S	0	0
			1156	730	204	217	5		

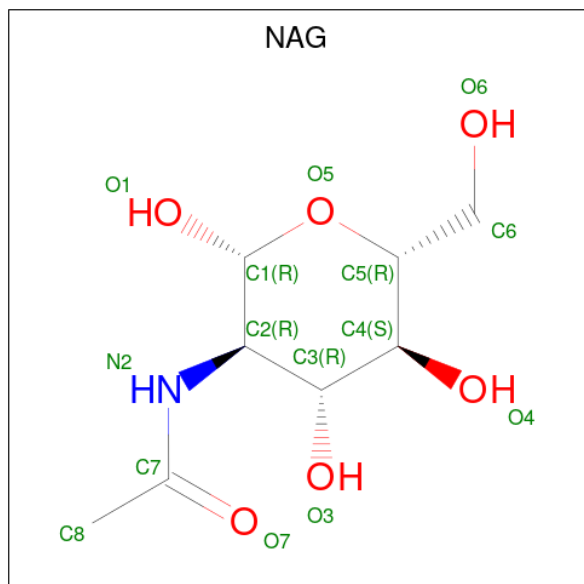
- Molecule 4 is a protein called E3 glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	U	60	Total	C	N	O	S	0	0
			479	297	84	89	9		
4	V	60	Total	C	N	O	S	0	0
			479	297	84	89	9		
4	W	60	Total	C	N	O	S	0	0
			479	297	84	89	9		
4	X	60	Total	C	N	O	S	0	0
			479	297	84	89	9		

- Molecule 5 is a protein called Matrix remodeling-associated protein 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	N	261	Total	C	N	O	S	0	0
			2111	1306	408	388	9		

- Molecule 6 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				AltConf
6	A	1	Total	C	N	O	0
			14	8	1	5	
6	B	1	Total	C	N	O	0
			14	8	1	5	
6	C	1	Total	C	N	O	0
			14	8	1	5	
6	D	1	Total	C	N	O	0
			14	8	1	5	

Continued on next page...

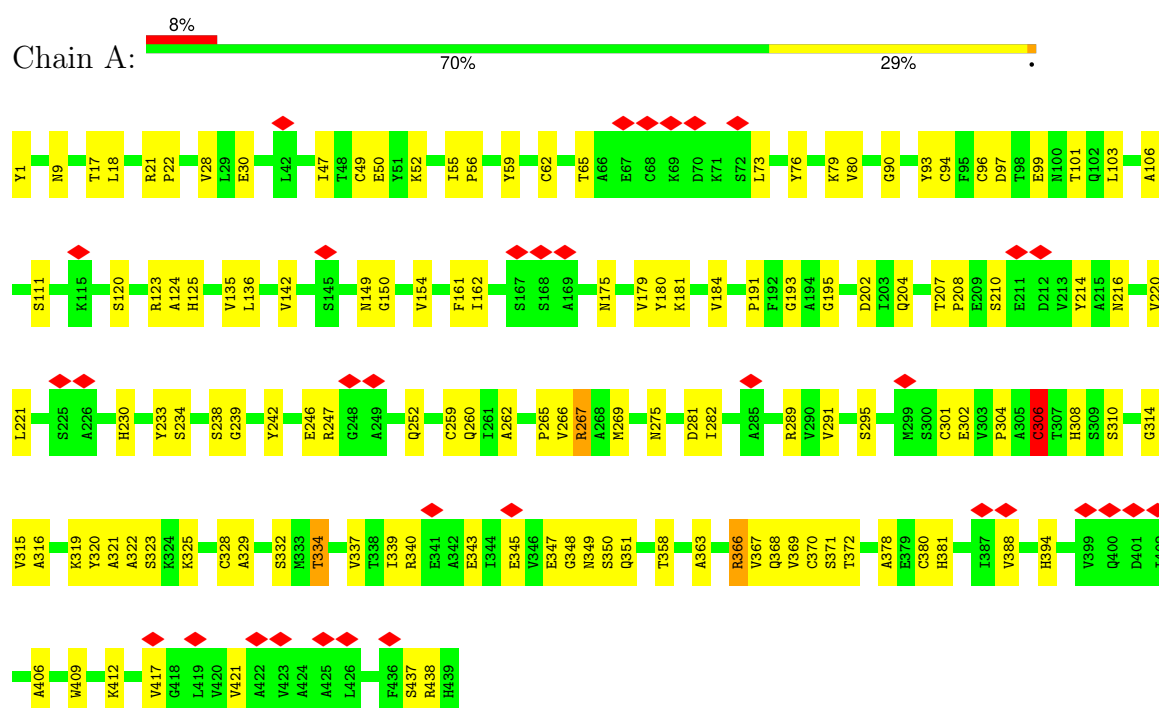
Continued from previous page...

Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
6	N	1	14	8	1	5	0

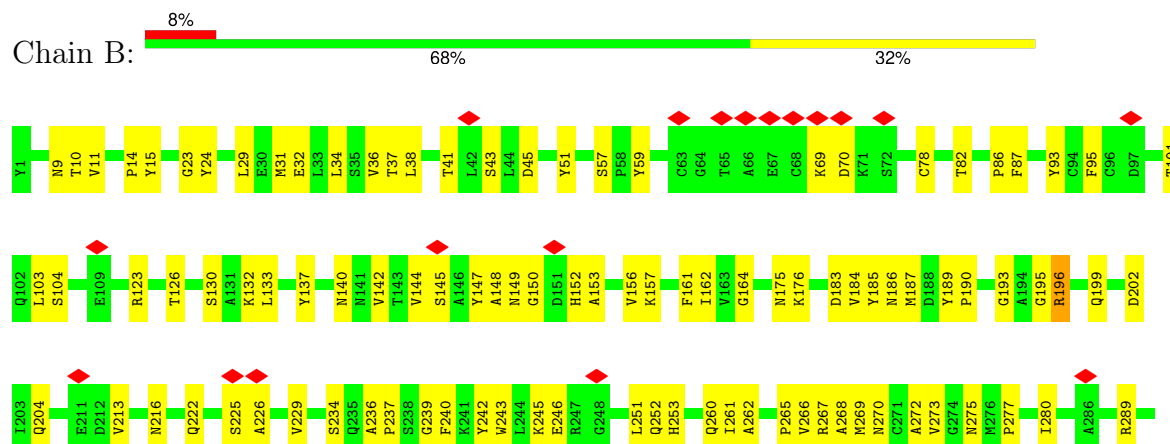
3 Residue-property plots

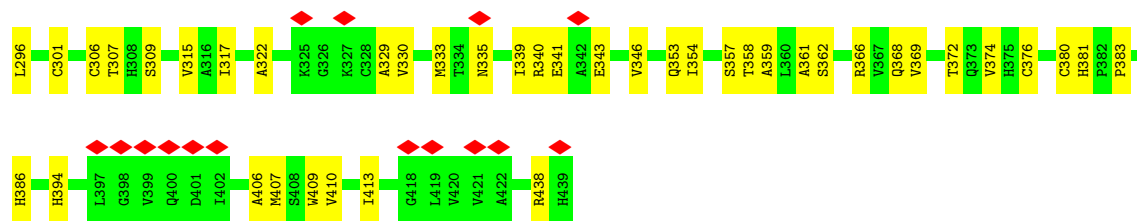
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: E1 glycoprotein

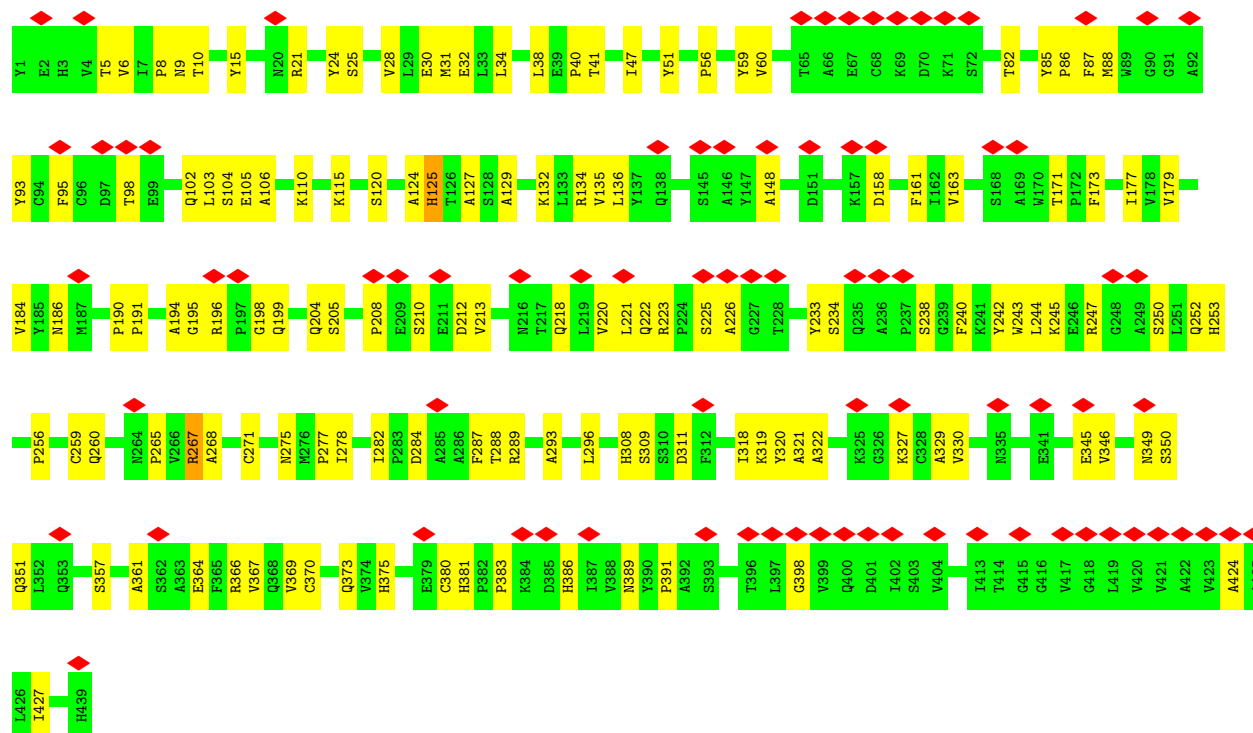


• Molecule 1: E1 glycoprotein

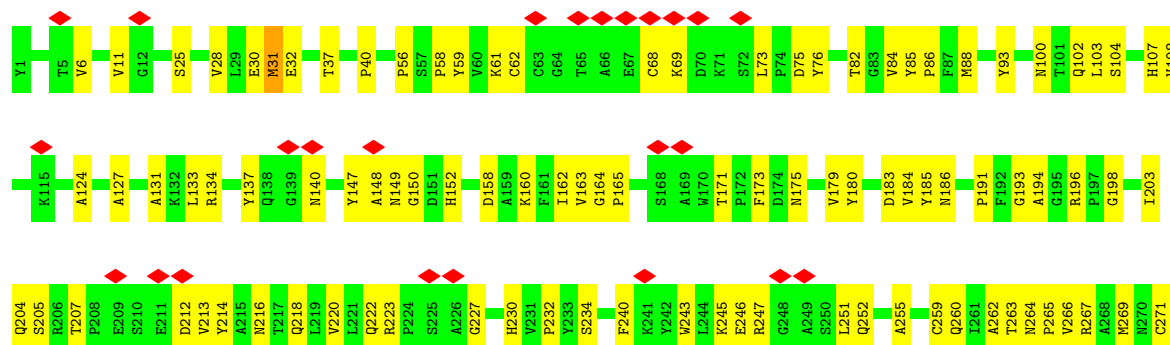


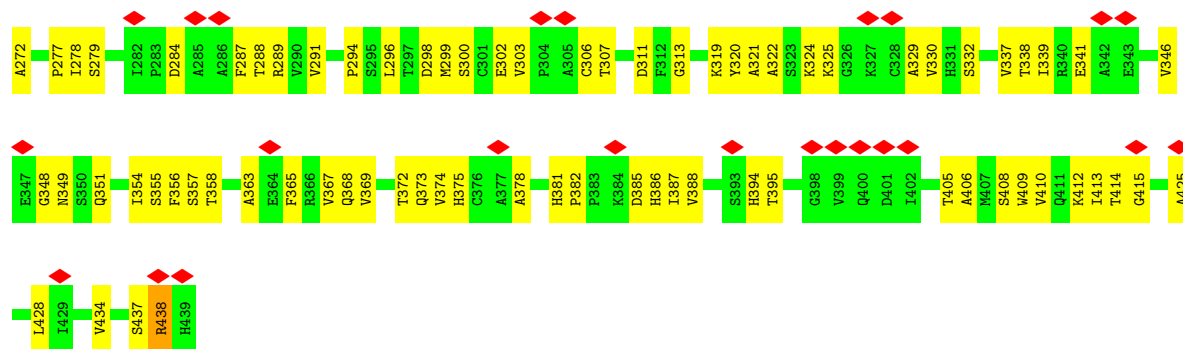


• Molecule 1: E1 glycoprotein

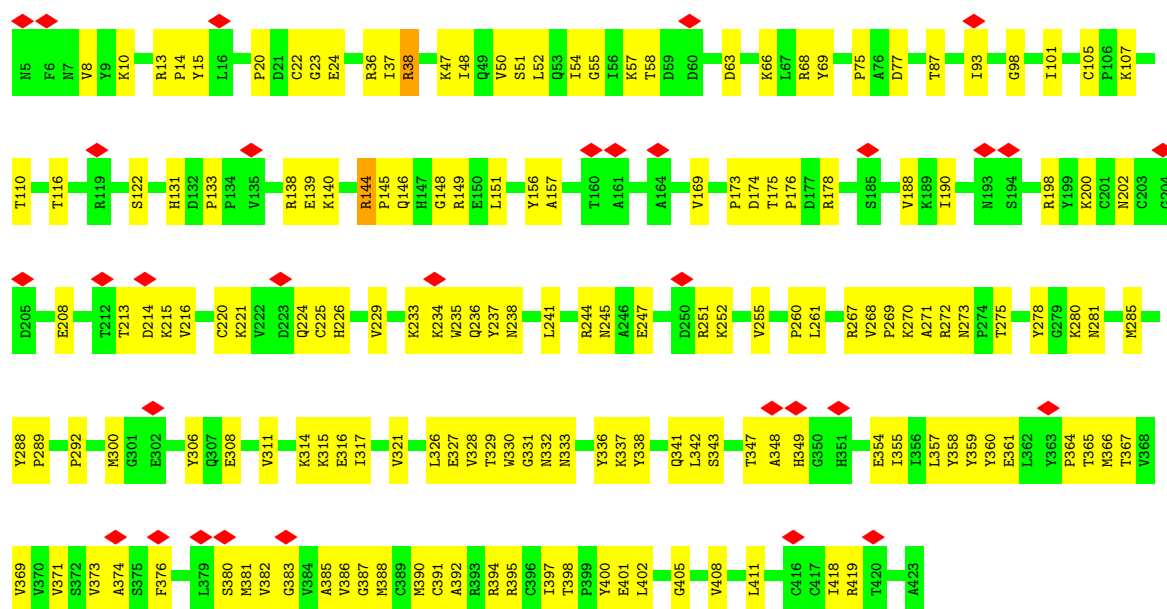


• Molecule 1: E1 glycoprotein

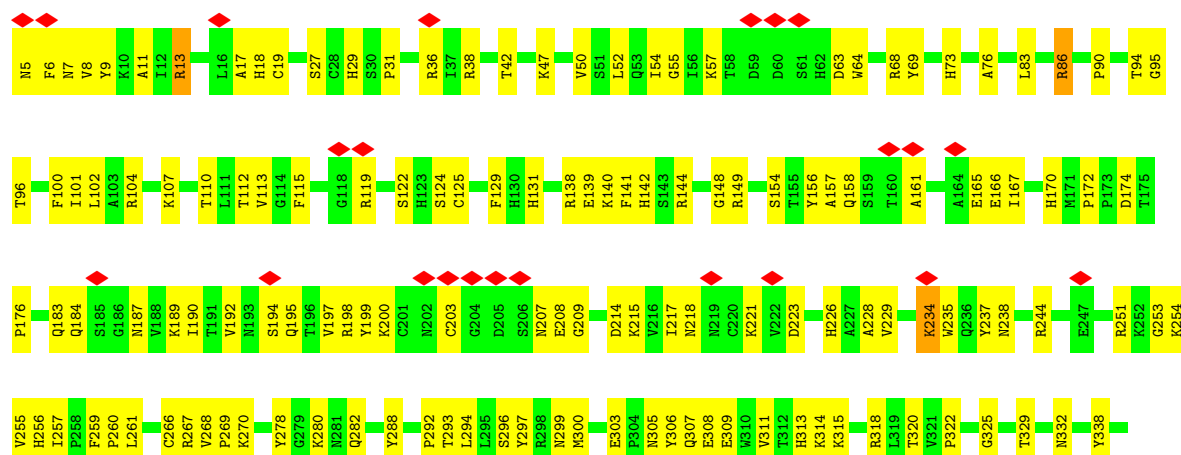


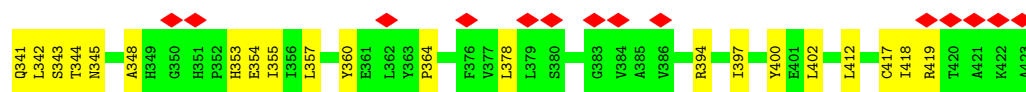


• Molecule 2: E2 glycoprotein

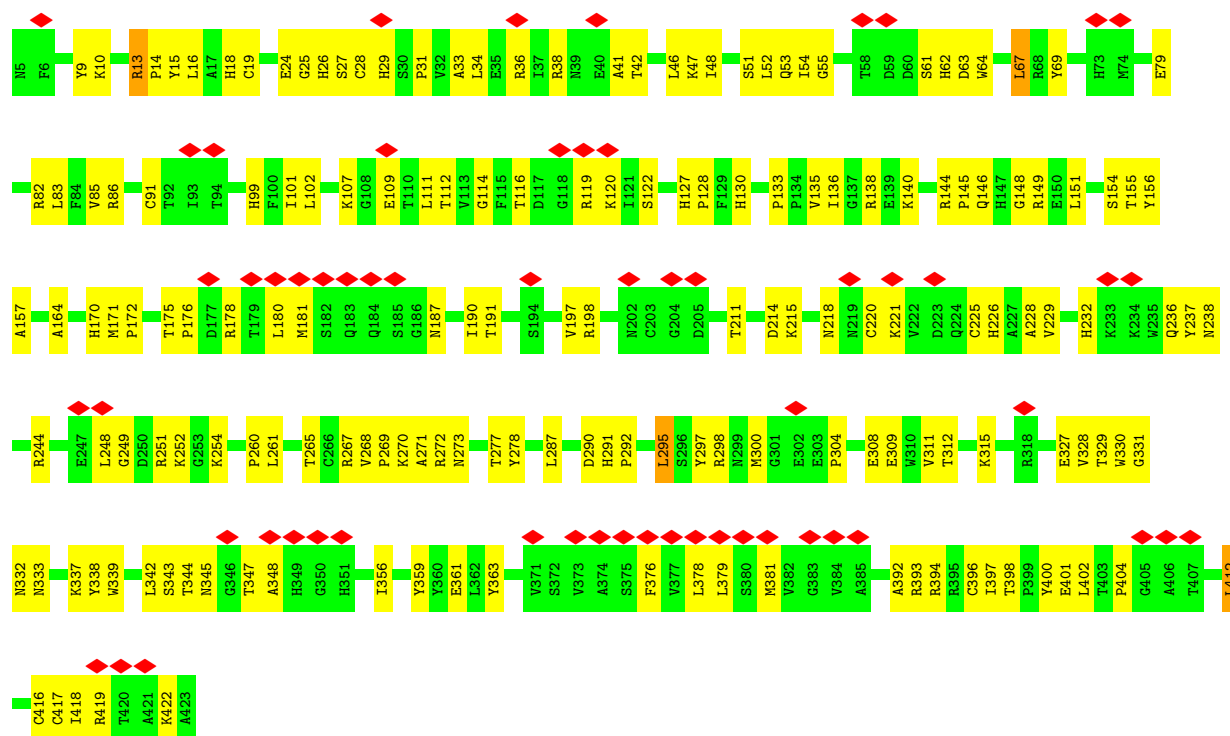


• Molecule 2: E2 glycoprotein

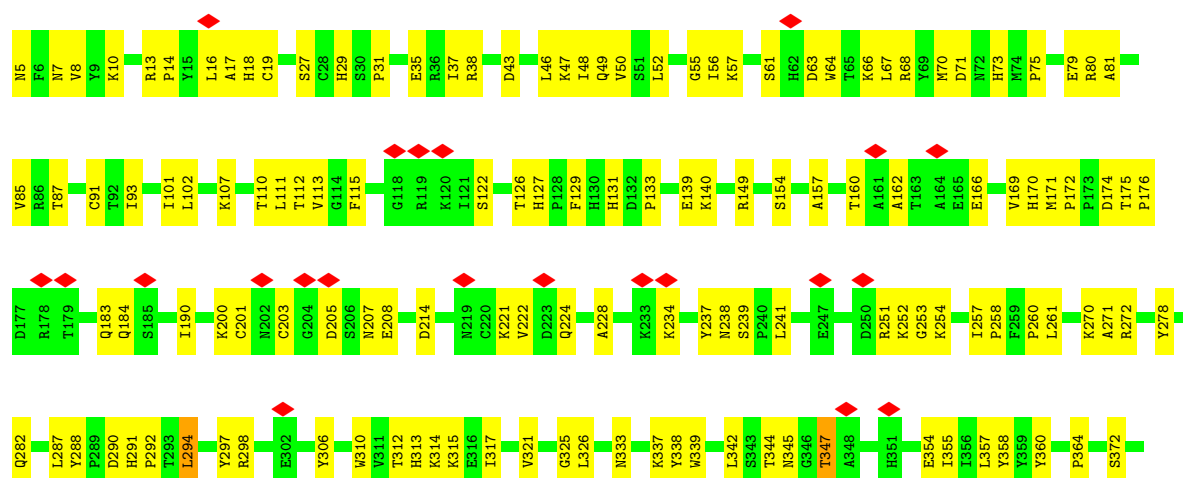


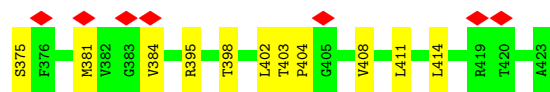


• Molecule 2: E2 glycoprotein



• Molecule 2: E2 glycoprotein

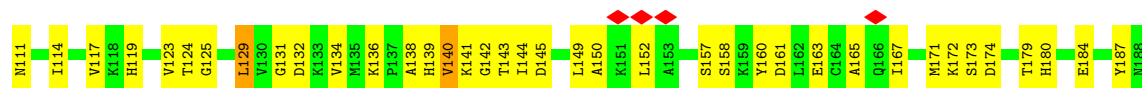




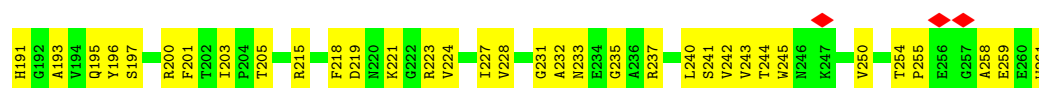
- Molecule 3: Capsid protein



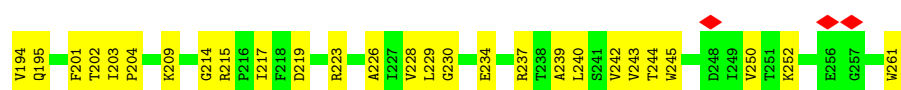
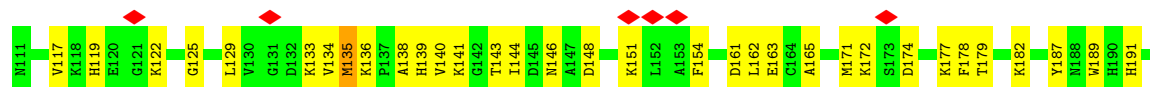
- Molecule 3: Capsid protein



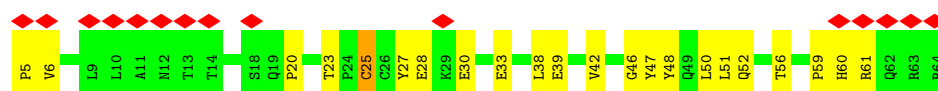
- Molecule 3: Capsid protein



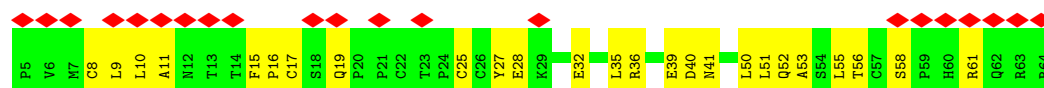
- Molecule 3: Capsid protein



- Molecule 4: E3 glycoprotein



• Molecule 4: E3 glycoprotein



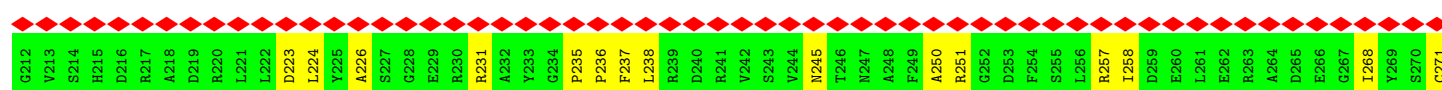
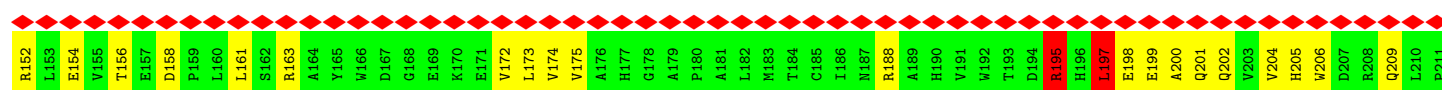
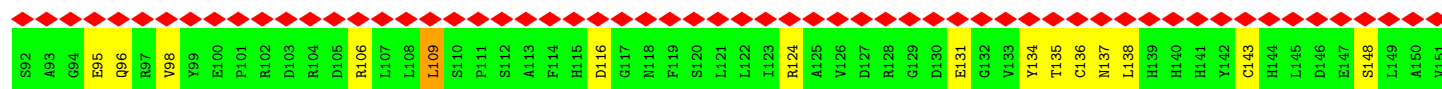
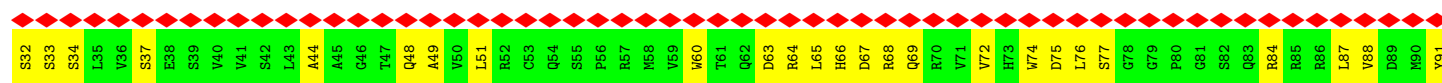
• Molecule 4: E3 glycoprotein



• Molecule 4: E3 glycoprotein



• Molecule 5: Matrix remodeling-associated protein 8



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, I	Depositor
Number of particles used	8357	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50.0	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	6.398	Depositor
Minimum map value	-4.307	Depositor
Average map value	0.147	Depositor
Map value standard deviation	0.739	Depositor
Recommended contour level	2	Depositor
Map size (\AA)	841.8, 841.8, 841.8	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.403, 1.403, 1.403	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.38	0/3408	0.62	1/4651 (0.0%)
1	B	0.37	0/3408	0.61	0/4651
1	C	0.34	0/3408	0.63	3/4651 (0.1%)
1	D	0.34	0/3408	0.61	1/4651 (0.0%)
2	E	0.36	0/3382	0.65	0/4606
2	F	0.37	0/3382	0.67	3/4606 (0.1%)
2	G	0.35	0/3382	0.64	3/4606 (0.1%)
2	H	0.37	0/3382	0.66	1/4606 (0.0%)
3	I	0.38	0/1184	0.65	0/1599
3	J	0.38	0/1184	0.64	1/1599 (0.1%)
3	K	0.38	0/1184	0.63	1/1599 (0.1%)
3	L	0.38	0/1184	0.63	1/1599 (0.1%)
4	U	0.29	0/491	0.58	1/667 (0.1%)
4	V	0.27	0/491	0.57	0/667
4	W	0.34	0/491	0.52	0/667
4	X	0.31	0/491	0.60	1/667 (0.1%)
5	N	0.34	0/2162	0.70	2/2932 (0.1%)
All	All	0.36	0/36022	0.64	19/49024 (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
1	C	0	1
1	D	0	2
2	E	0	2
2	F	0	2
2	G	0	3
2	H	0	3

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
3	I	0	1
All	All	0	14

There are no bond length outliers.

The worst 5 of 19 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	158	ASP	CB-CG-OD1	9.24	126.62	118.30
2	H	205	ASP	CB-CG-OD1	8.66	126.10	118.30
1	C	389	ASN	C-N-CA	8.46	142.86	121.70
3	L	129	LEU	CA-CB-CG	7.13	131.69	115.30
2	F	238	ASN	C-N-CA	6.33	137.52	121.70

There are no chirality outliers.

5 of 14 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	125	HIS	Peptide
1	D	180	TYR	Peptide
1	D	415	GLY	Peptide
2	E	342	LEU	Peptide
2	E	348	ALA	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	3326	0	3252	89	0
1	B	3326	0	3254	113	0
1	C	3326	0	3252	107	0
1	D	3326	0	3250	116	0
2	E	3295	0	3241	115	0
2	F	3295	0	3241	116	0
2	G	3295	0	3241	150	0
2	H	3295	0	3241	110	0
3	I	1156	0	1135	43	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	J	1156	0	1135	40	0
3	K	1156	0	1135	56	0
3	L	1156	0	1135	38	0
4	U	479	0	468	20	0
4	V	479	0	468	19	0
4	W	479	0	468	20	0
4	X	479	0	468	15	0
5	N	2111	0	2011	103	0
6	A	14	0	12	0	0
6	B	14	0	12	0	0
6	C	14	0	12	1	0
6	D	14	0	12	0	0
6	N	14	0	13	0	0
All	All	35205	0	34456	1135	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 1135 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:145:SER:CB	5:N:236:PRO:HB2	1.20	1.61
2:G:27:SER:CB	5:N:65:LEU:HD12	1.09	1.57
2:G:180:LEU:CD2	5:N:84:ARG:HH22	1.18	1.52
2:G:180:LEU:HD22	5:N:84:ARG:NH2	1.30	1.43
1:C:87:PHE:CE2	5:N:65:LEU:HD22	1.53	1.41

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	437/439 (100%)	394 (90%)	43 (10%)	0	100	100
1	B	437/439 (100%)	405 (93%)	32 (7%)	0	100	100
1	C	437/439 (100%)	392 (90%)	44 (10%)	1 (0%)	44	78
1	D	437/439 (100%)	407 (93%)	30 (7%)	0	100	100
2	E	417/419 (100%)	366 (88%)	51 (12%)	0	100	100
2	F	417/419 (100%)	350 (84%)	67 (16%)	0	100	100
2	G	417/419 (100%)	348 (84%)	68 (16%)	1 (0%)	44	78
2	H	417/419 (100%)	345 (83%)	72 (17%)	0	100	100
3	I	149/151 (99%)	135 (91%)	14 (9%)	0	100	100
3	J	149/151 (99%)	135 (91%)	14 (9%)	0	100	100
3	K	149/151 (99%)	132 (89%)	17 (11%)	0	100	100
3	L	149/151 (99%)	136 (91%)	13 (9%)	0	100	100
4	U	58/60 (97%)	51 (88%)	7 (12%)	0	100	100
4	V	58/60 (97%)	47 (81%)	11 (19%)	0	100	100
4	W	58/60 (97%)	46 (79%)	12 (21%)	0	100	100
4	X	58/60 (97%)	49 (84%)	9 (16%)	0	100	100
5	N	259/261 (99%)	242 (93%)	15 (6%)	2 (1%)	16	54
All	All	4503/4537 (99%)	3980 (88%)	519 (12%)	4 (0%)	50	83

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	G	401	GLU
5	N	195	ARG
1	C	370	CYS
5	N	197	LEU

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	369/369 (100%)	365 (99%)	4 (1%)	70	80
1	B	369/369 (100%)	366 (99%)	3 (1%)	79	85
1	C	369/369 (100%)	368 (100%)	1 (0%)	91	92
1	D	369/369 (100%)	366 (99%)	3 (1%)	79	85
2	E	369/369 (100%)	365 (99%)	4 (1%)	70	80
2	F	369/369 (100%)	363 (98%)	6 (2%)	58	74
2	G	369/369 (100%)	367 (100%)	2 (0%)	86	89
2	H	369/369 (100%)	367 (100%)	2 (0%)	86	89
3	I	120/120 (100%)	118 (98%)	2 (2%)	56	72
3	J	120/120 (100%)	115 (96%)	5 (4%)	25	47
3	K	120/120 (100%)	119 (99%)	1 (1%)	79	85
3	L	120/120 (100%)	117 (98%)	3 (2%)	42	62
4	U	57/57 (100%)	57 (100%)	0	100	100
4	V	57/57 (100%)	56 (98%)	1 (2%)	54	71
4	W	57/57 (100%)	56 (98%)	1 (2%)	54	71
4	X	57/57 (100%)	55 (96%)	2 (4%)	31	51
5	N	226/226 (100%)	223 (99%)	3 (1%)	65	77
All	All	3886/3886 (100%)	3843 (99%)	43 (1%)	69	80

5 of 43 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	J	141	LYS
3	L	209	LYS
3	J	171	MET
3	K	122	LYS
4	W	61	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 45 such sidechains are listed below:

Mol	Chain	Res	Type
2	G	29	HIS
2	H	332	ASN
2	G	147	HIS
2	G	307	GLN
3	J	195	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

5 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
6	NAG	C	501	1	14,14,15	0.33	0	17,19,21	0.46	0
6	NAG	A	501	1	14,14,15	0.48	0	17,19,21	0.49	0
6	NAG	N	301	5	14,14,15	0.36	0	17,19,21	0.66	1 (5%)
6	NAG	B	501	1	14,14,15	0.62	1 (7%)	17,19,21	0.59	0
6	NAG	D	501	1	14,14,15	0.59	0	17,19,21	0.66	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NAG	C	501	1	-	2/6/23/26	0/1/1/1
6	NAG	A	501	1	-	0/6/23/26	0/1/1/1
6	NAG	N	301	5	-	1/6/23/26	0/1/1/1
6	NAG	B	501	1	-	0/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NAG	D	501	1	-	2/6/23/26	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	B	501	NAG	C1-C2	2.01	1.55	1.52

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	N	301	NAG	C1-O5-C5	2.29	115.26	112.19

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	C	501	NAG	O5-C5-C6-O6
6	D	501	NAG	O5-C5-C6-O6
6	D	501	NAG	C4-C5-C6-O6
6	C	501	NAG	C4-C5-C6-O6
6	N	301	NAG	O5-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	C	501	NAG	1	0

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.

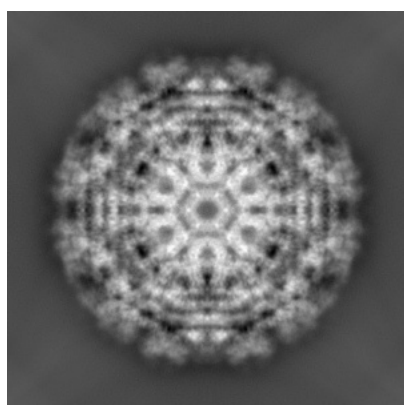
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-9395. These allow visual inspection of the internal detail of the map and identification of artifacts.

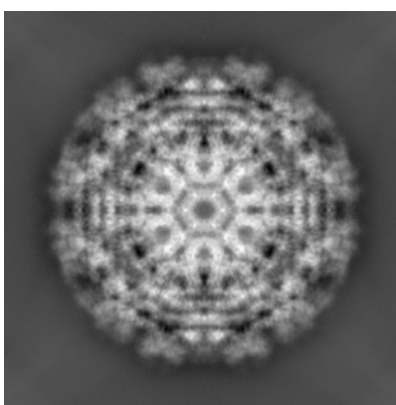
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

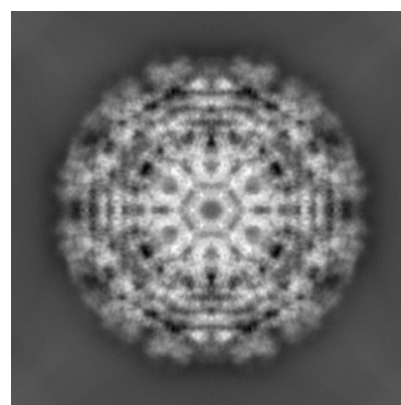
6.1.1 Primary map



X



Y

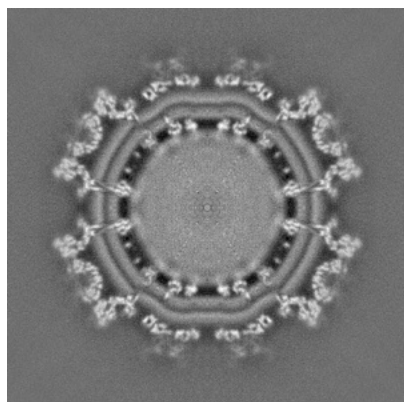


Z

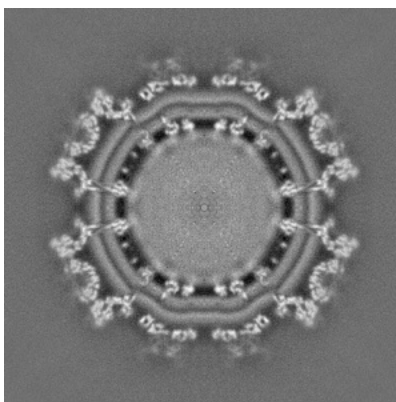
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

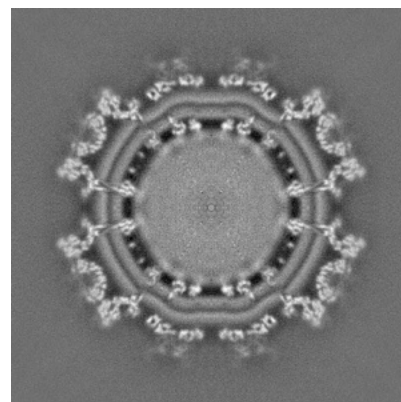
6.2.1 Primary map



X Index: 300



Y Index: 300

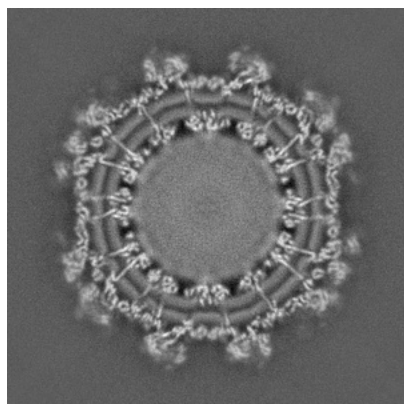


Z Index: 300

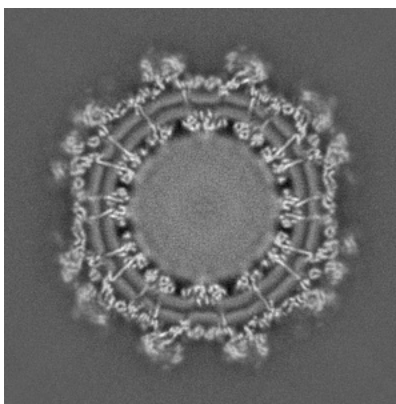
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

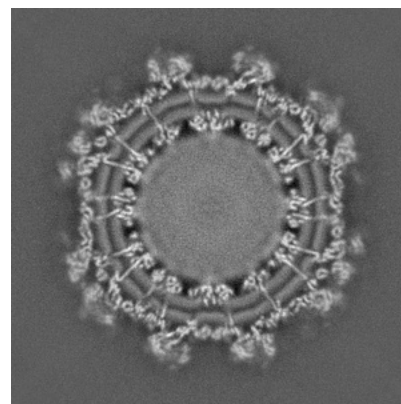
6.3.1 Primary map



X Index: 279



Y Index: 279

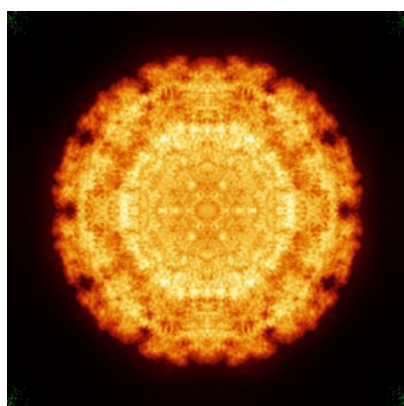


Z Index: 279

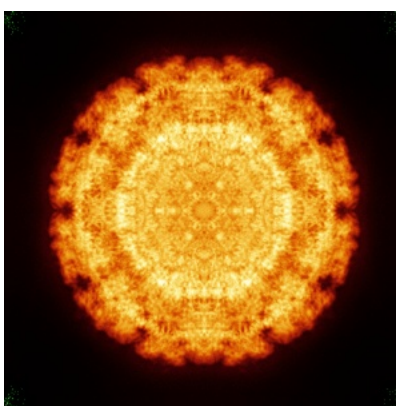
The images above show the largest variance slices of the map in three orthogonal directions.

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

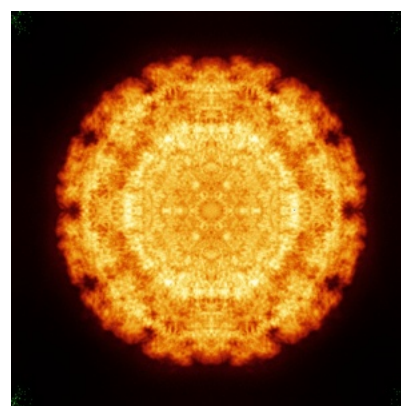
6.4.1 Primary map



X



Y

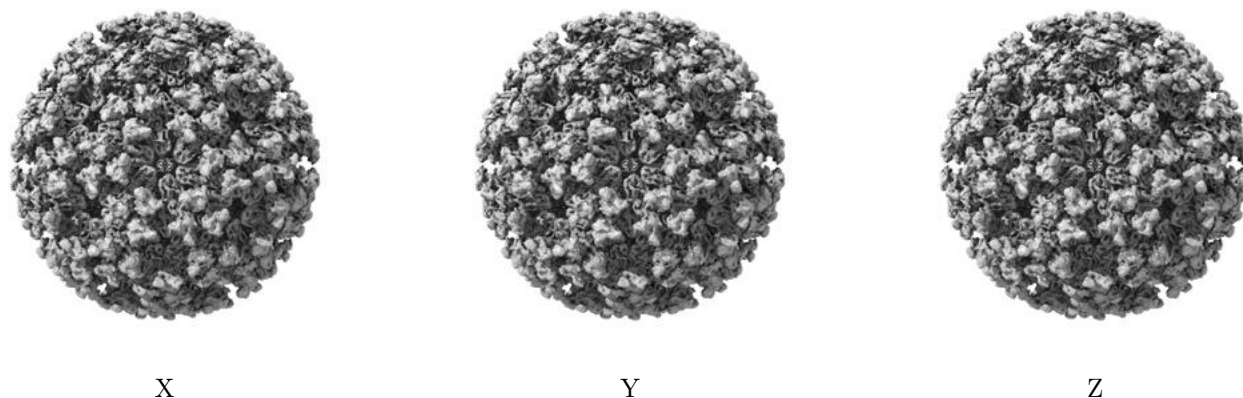


Z

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



The images above show the 3D surface view of the map at the recommended contour level 2.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

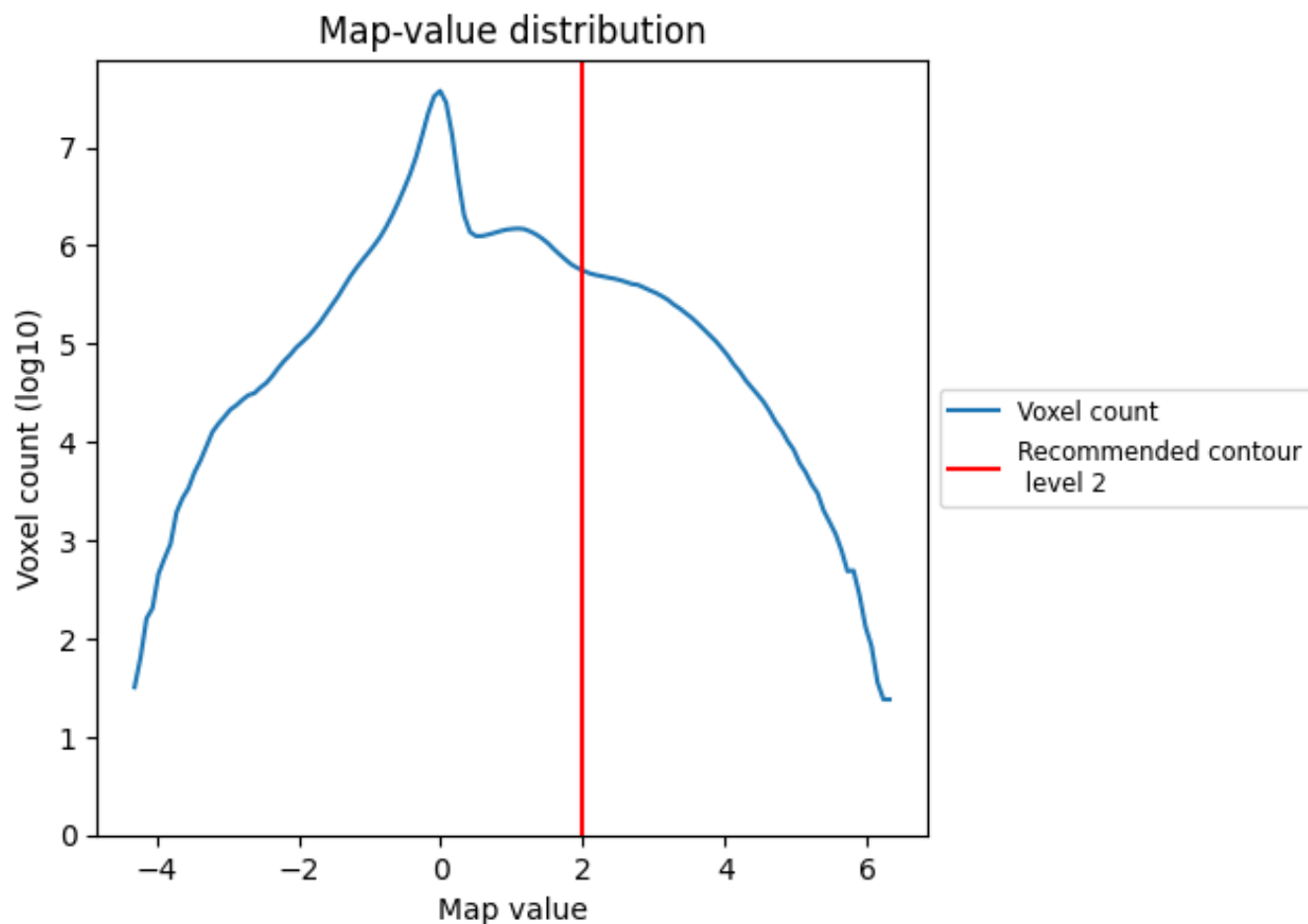
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

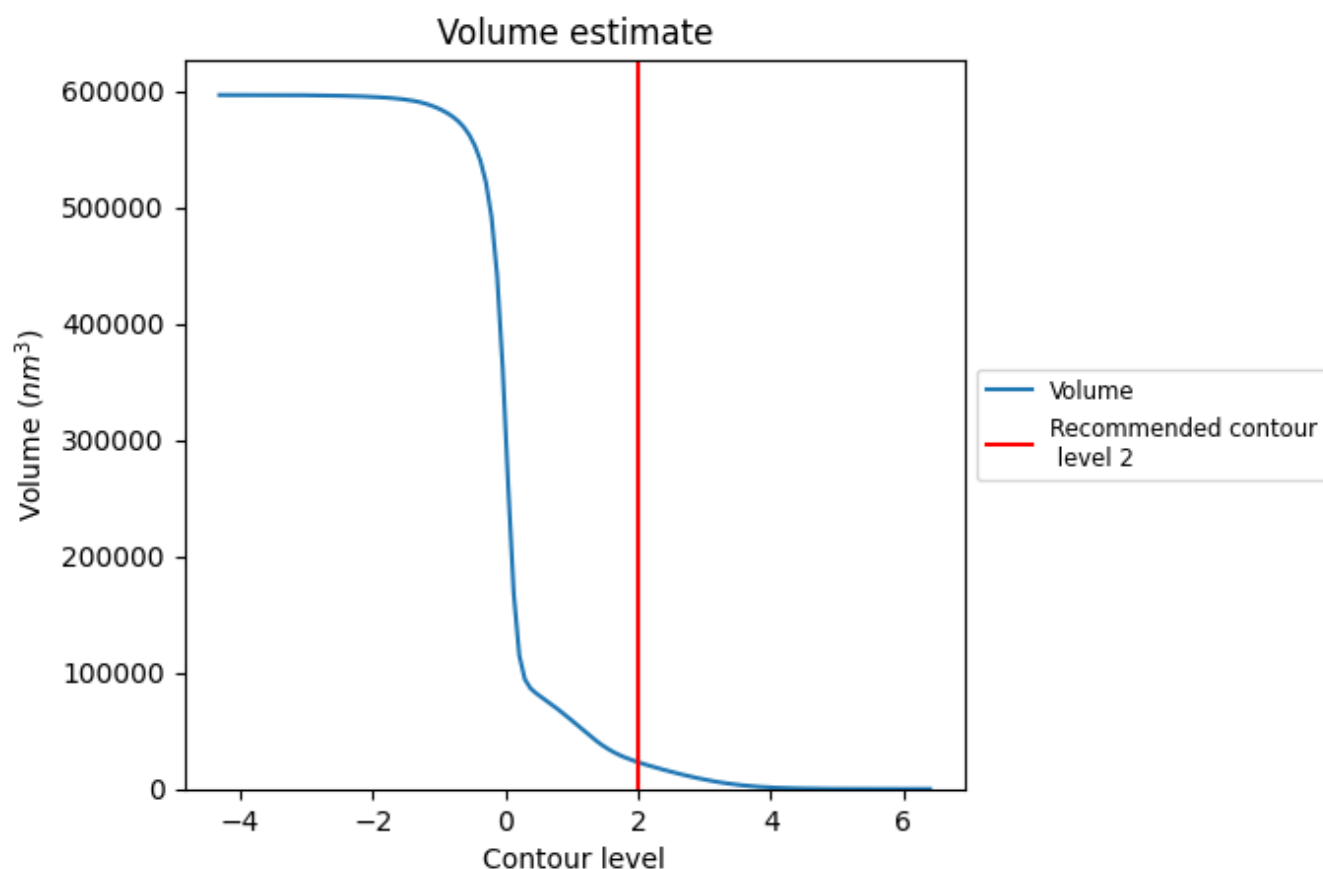
This section contains the results of statistical analysis of the map.

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.

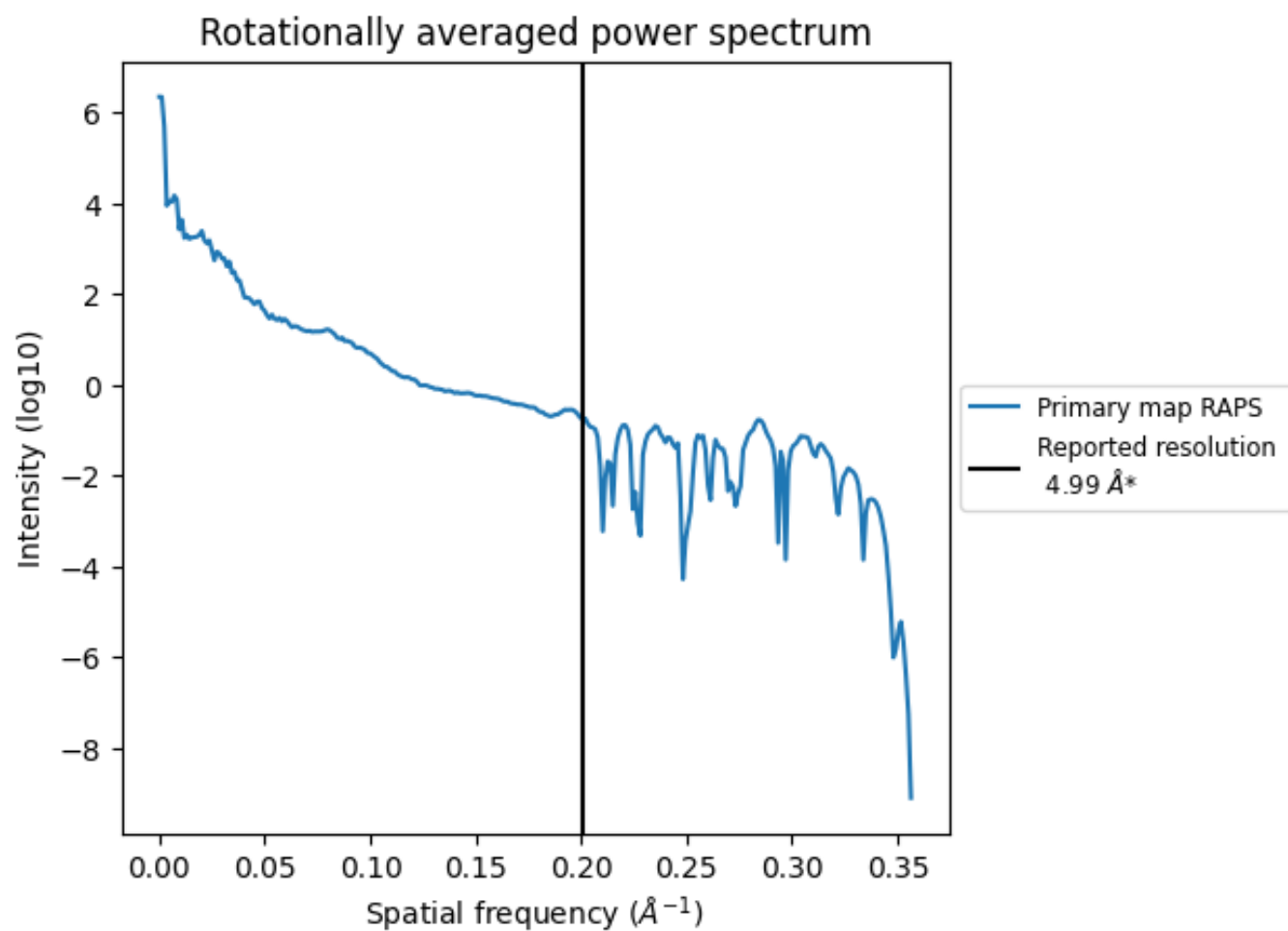
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 22996 nm^3 ; this corresponds to an approximate mass of 20773 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 ⓘ

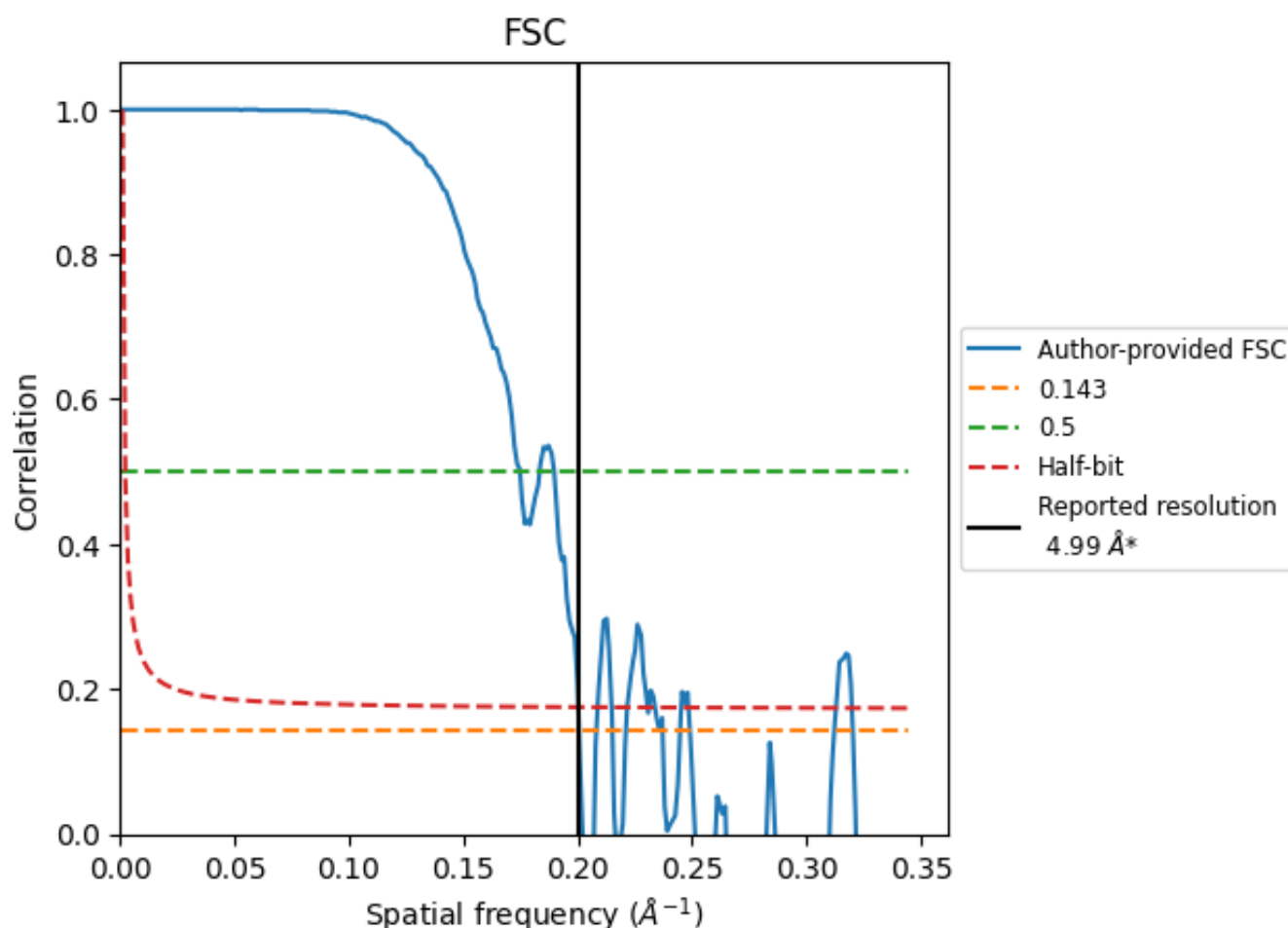


*Reported resolution corresponds to spatial frequency of 0.200 Å⁻¹

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 0.200 Å⁻¹

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.99	-	-
Author-provided FSC curve	4.98	5.72	4.99
Unmasked-calculated*	-	-	-

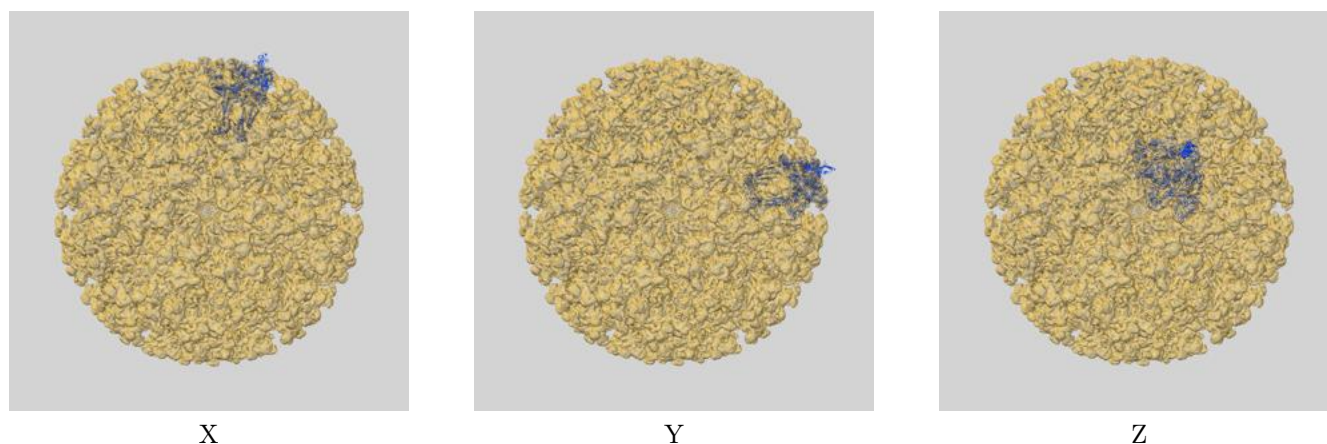
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

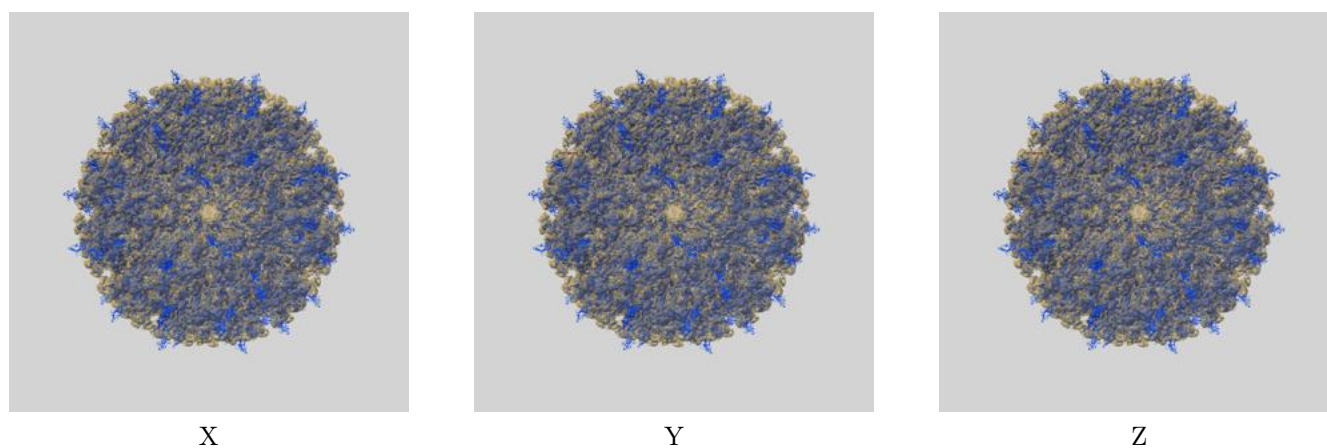
This section contains information regarding the fit between EMDB map EMD-9395 and PDB model 6NK7. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlays

9.1.1 Map-model overlay [i](#)



9.1.2 Map-model assembly overlay [i](#)



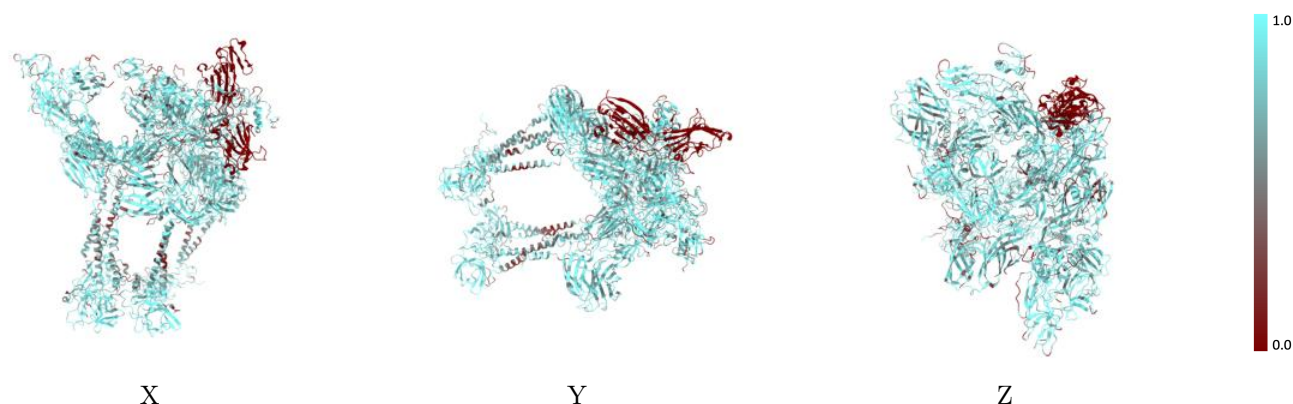
The images above show the 3D surface view of the map at the recommended contour level 2.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



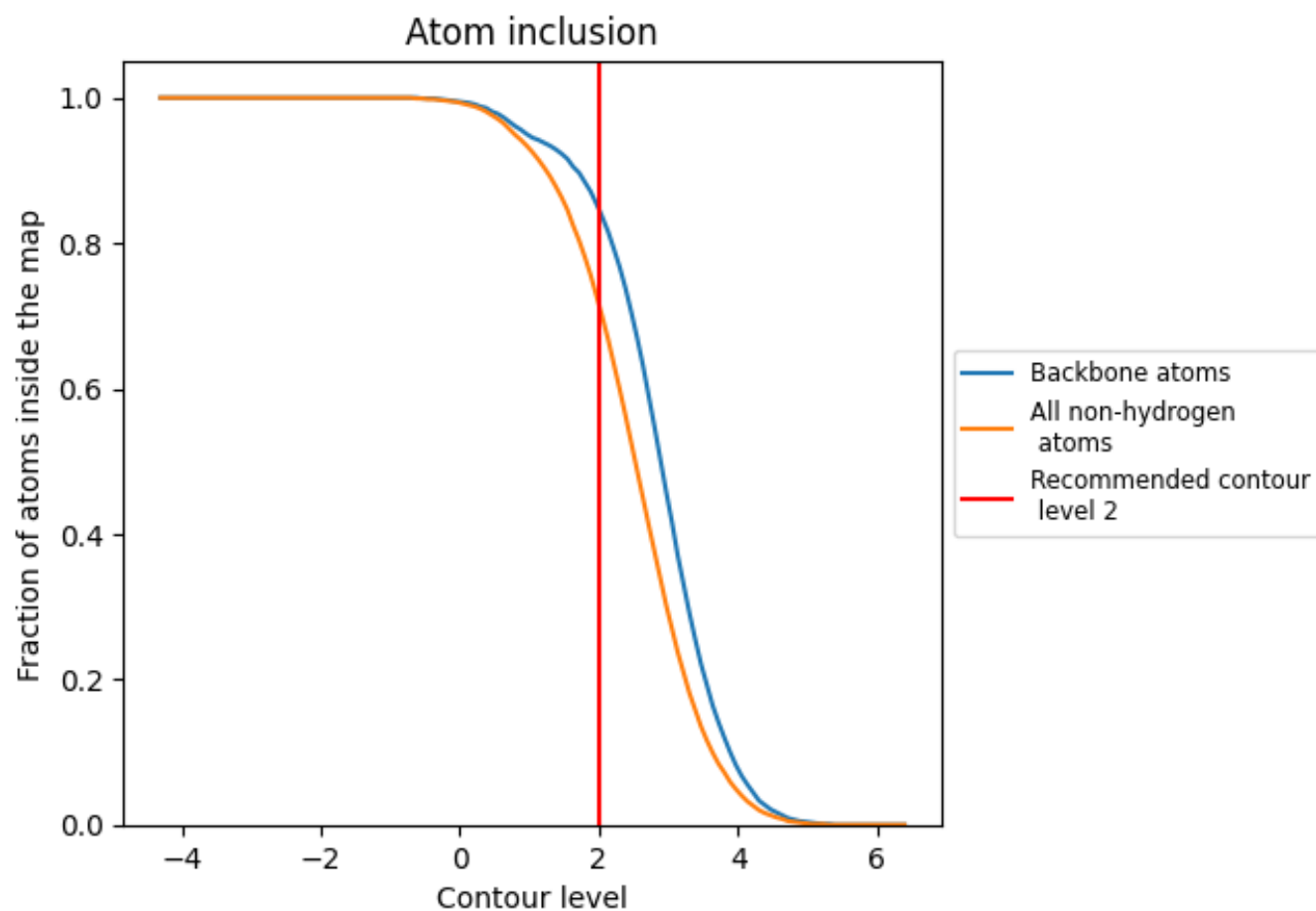
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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





































9.4 Atom inclusion [i](#)



At the recommended contour level, 85% of all backbone atoms, 72% 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) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7160	 0.2050
A	 0.7710	 0.2450
B	 0.7830	 0.2390
C	 0.6920	 0.2090
D	 0.7560	 0.2130
E	 0.7700	 0.2070
F	 0.7700	 0.2050
G	 0.7370	 0.1990
H	 0.7960	 0.1990
I	 0.8000	 0.2250
J	 0.8090	 0.2250
K	 0.8240	 0.2160
L	 0.8180	 0.2120
N	 0.0000	 0.0660
U	 0.6390	 0.1910
V	 0.5820	 0.1770
W	 0.7040	 0.1970
X	 0.7020	 0.2040

