Full wwPDB EM Validation Report ⓘ

Apr 26, 2023 – 01:07 PM JST

PDB ID	:	7F92
EMDB ID	:	EMD-31495
Title	:	Structure of connexin43/Cx43/GJA1 gap junction intercellular channel in LMNG/CHS detergents at pH 8.0
Authors	:	Lee, H.J.; Cha, H.J.; Jeong, H.; Lee, S.N.; Lee, C.W.; Woo, J.S.
Deposited on	:	2021-07-03
Resolution	:	3.10 Å(reported)

This is a Full wwPDB EM Validation 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:

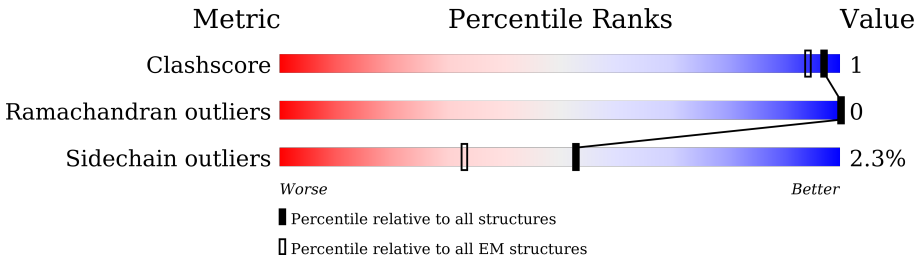
EMDB validation analysis	:	0.0.1.dev50
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.32.2

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 3.10 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	382	7% 49% · 49%
1	B	382	7% 49% · 49%
1	C	382	7% 49% · 49%
1	D	382	7% 49% · 49%
1	E	382	7% 49% · 49%
1	F	382	7% 49% · 49%
1	G	382	7% 49% · 49%
1	H	382	7% 49% · 49%

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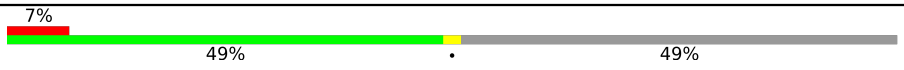
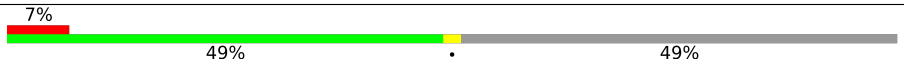
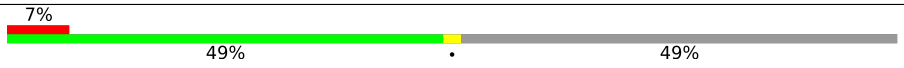
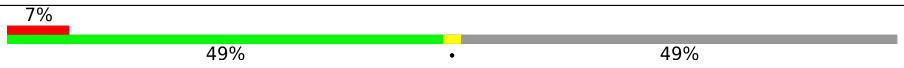
Mol	Chain	Length	Quality of chain
1	I	382	
1	J	382	
1	K	382	
1	L	382	

2 Entry composition (i)

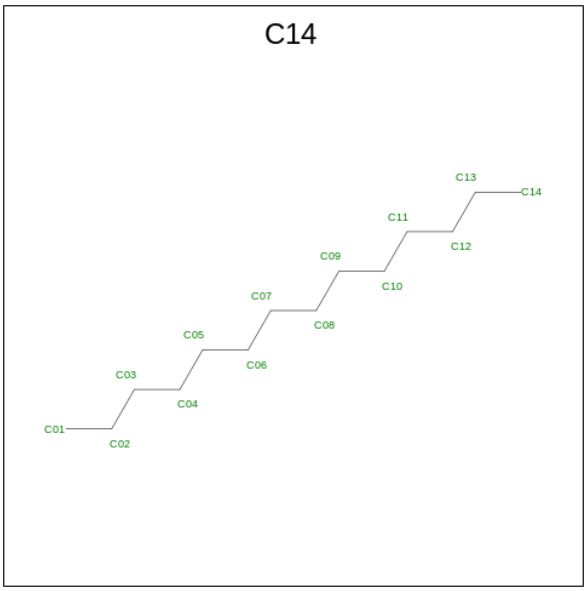
There are 3 unique types of molecules in this entry. The entry contains 21240 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Gap junction alpha-1 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	B	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	C	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	D	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	E	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	F	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	G	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	H	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	I	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	J	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	K	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		
1	L	196	Total	C	N	O	S	0	0
			1594	1065	254	267	8		

- Molecule 2 is TETRADECANE (three-letter code: C14) (formula: $C_{14}H_{30}$).



Mol	Chain	Residues	Atoms	AltConf
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	A	1	Total C 14 14	0
2	B	1	Total C 14 14	0
2	B	1	Total C 14 14	0
2	B	1	Total C 14 14	0

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Mol	Chain	Residues	Atoms	AltConf
2	B	1	Total C 14 14	0
2	B	1	Total C 14 14	0
2	B	1	Total C 14 14	0
2	B	1	Total C 14 14	0
2	B	1	Total C 14 14	0
2	B	1	Total C 14 14	0
2	B	1	Total C 14 14	0
2	B	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	C	1	Total C 14 14	0
2	D	1	Total C 14 14	0
2	D	1	Total C 14 14	0

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Mol	Chain	Residues	Atoms	AltConf
2	D	1	Total C 14 14	0
2	D	1	Total C 14 14	0
2	D	1	Total C 14 14	0
2	D	1	Total C 14 14	0
2	D	1	Total C 14 14	0
2	D	1	Total C 14 14	0
2	D	1	Total C 14 14	0
2	D	1	Total C 14 14	0
2	D	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	E	1	Total C 14 14	0
2	F	1	Total C 14 14	0

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Mol	Chain	Residues	Atoms	AltConf
2	F	1	Total C 14 14	0
2	F	1	Total C 14 14	0
2	F	1	Total C 14 14	0
2	F	1	Total C 14 14	0
2	F	1	Total C 14 14	0
2	F	1	Total C 14 14	0
2	F	1	Total C 14 14	0
2	F	1	Total C 14 14	0
2	F	1	Total C 14 14	0
2	F	1	Total C 14 14	0
2	G	1	Total C 14 14	0
2	G	1	Total C 14 14	0
2	G	1	Total C 14 14	0
2	G	1	Total C 14 14	0
2	G	1	Total C 14 14	0
2	G	1	Total C 14 14	0
2	G	1	Total C 14 14	0
2	G	1	Total C 14 14	0
2	G	1	Total C 14 14	0
2	G	1	Total C 14 14	0

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Mol	Chain	Residues	Atoms	AltConf
2	H	1	Total C 14 14	0
2	H	1	Total C 14 14	0
2	H	1	Total C 14 14	0
2	H	1	Total C 14 14	0
2	H	1	Total C 14 14	0
2	H	1	Total C 14 14	0
2	H	1	Total C 14 14	0
2	H	1	Total C 14 14	0
2	H	1	Total C 14 14	0
2	H	1	Total C 14 14	0
2	H	1	Total C 14 14	0
2	I	1	Total C 14 14	0
2	I	1	Total C 14 14	0
2	I	1	Total C 14 14	0
2	I	1	Total C 14 14	0
2	I	1	Total C 14 14	0
2	I	1	Total C 14 14	0
2	I	1	Total C 14 14	0
2	I	1	Total C 14 14	0
2	I	1	Total C 14 14	0

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Mol	Chain	Residues	Atoms	AltConf
2	I	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	J	1	Total C 14 14	0
2	K	1	Total C 14 14	0
2	K	1	Total C 14 14	0
2	K	1	Total C 14 14	0
2	K	1	Total C 14 14	0
2	K	1	Total C 14 14	0
2	K	1	Total C 14 14	0
2	K	1	Total C 14 14	0
2	K	1	Total C 14 14	0

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Mol	Chain	Residues	Atoms	AltConf
2	K	1	Total C 14 14	0
2	K	1	Total C 14 14	0
2	L	1	Total C 14 14	0
2	L	1	Total C 14 14	0
2	L	1	Total C 14 14	0
2	L	1	Total C 14 14	0
2	L	1	Total C 14 14	0
2	L	1	Total C 14 14	0
2	L	1	Total C 14 14	0
2	L	1	Total C 14 14	0
2	L	1	Total C 14 14	0
2	L	1	Total C 14 14	0
2	L	1	Total C 14 14	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms	AltConf
3	A	22	Total O 22 22	0
3	B	21	Total O 21 21	0
3	C	23	Total O 23 23	0
3	D	22	Total O 22 22	0
3	E	21	Total O 21 21	0
3	F	23	Total O 23 23	0

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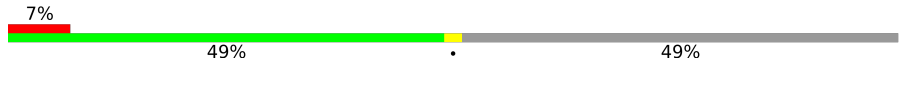
Mol	Chain	Residues	Atoms	AltConf
3	G	23	Total O 23 23	0
3	H	22	Total O 22 22	0
3	I	21	Total O 21 21	0
3	J	23	Total O 23 23	0
3	K	22	Total O 22 22	0
3	L	21	Total O 21 21	0

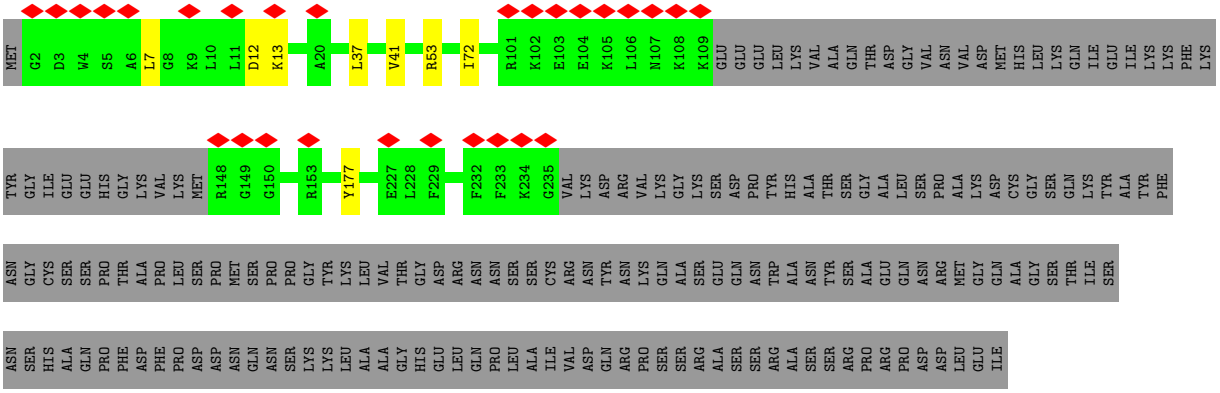
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Gap junction alpha-1 protein

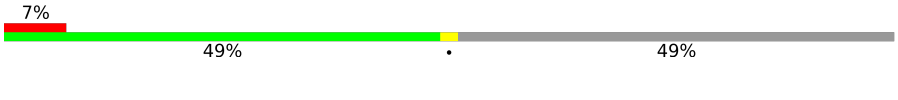
Chain A:

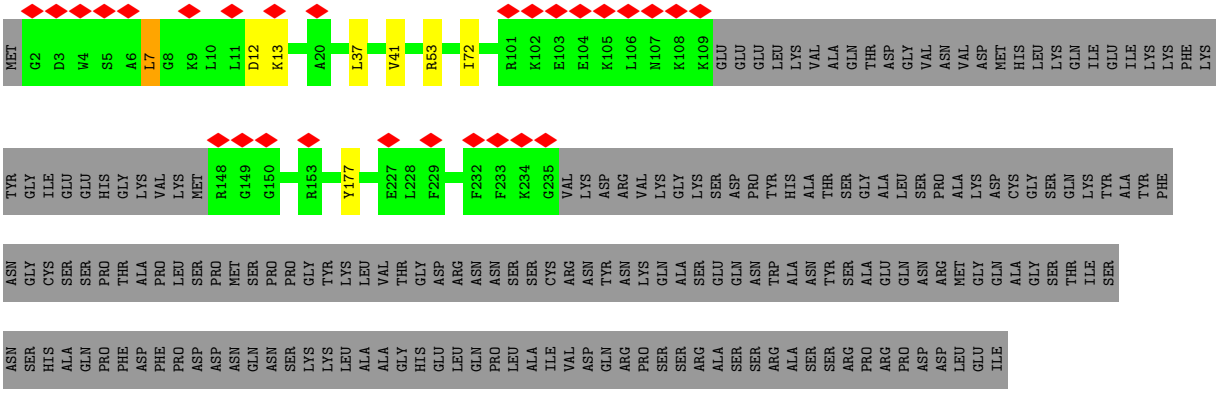




• Molecule 1: Gap junction alpha-1 protein

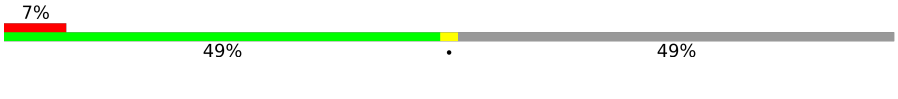
Chain B:

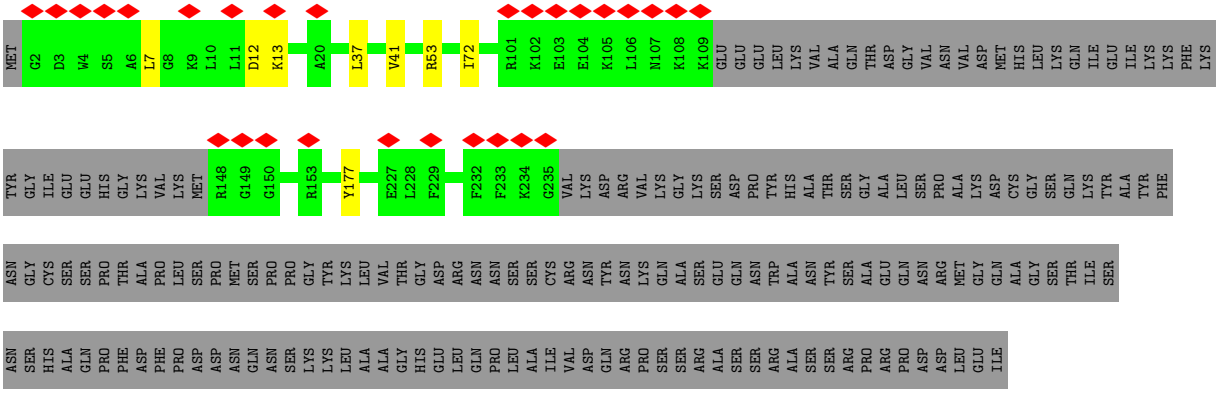




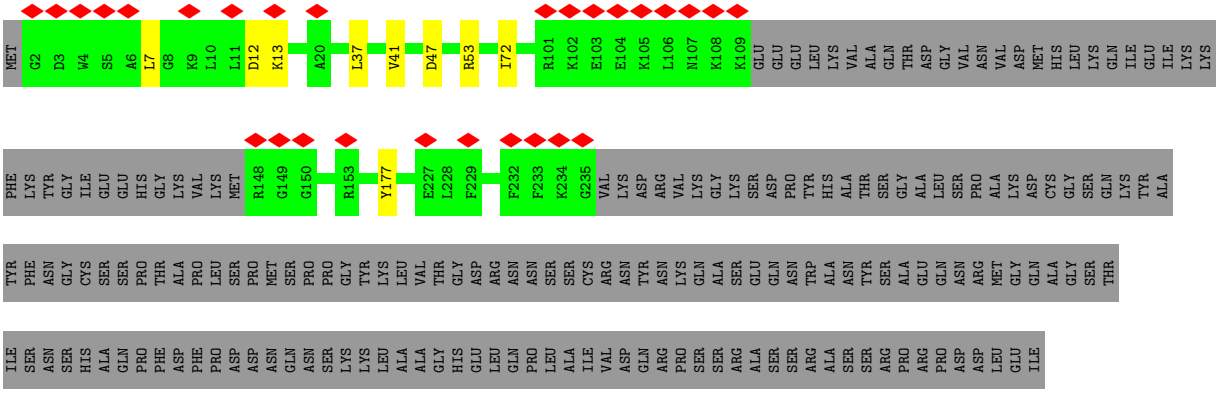
• Molecule 1: Gap junction alpha-1 protein

Chain C:

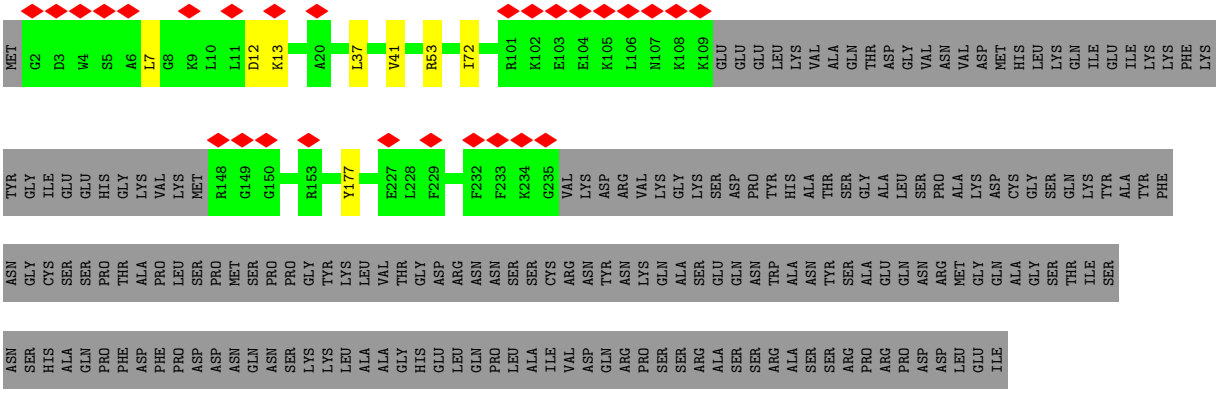




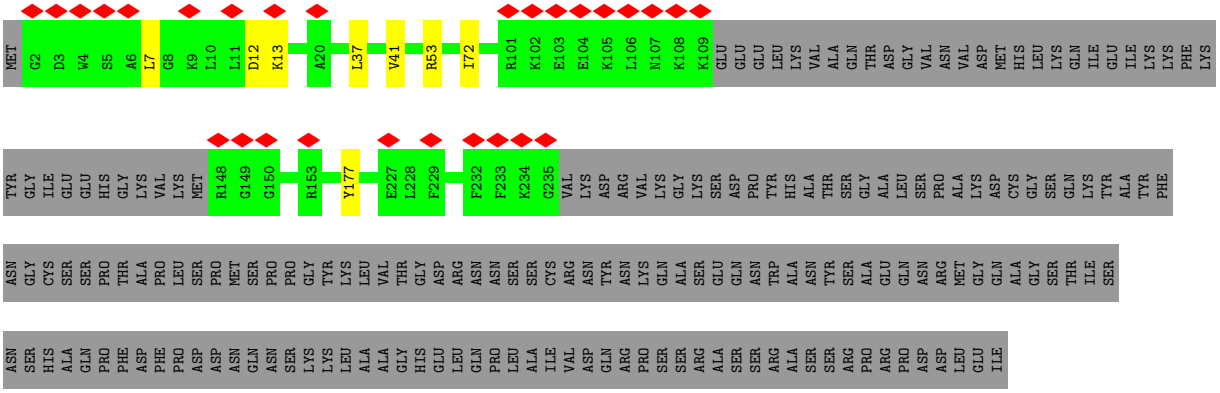
• Molecule 1: Gap junction alpha-1 protein



• Molecule 1: Gap junction alpha-1 protein

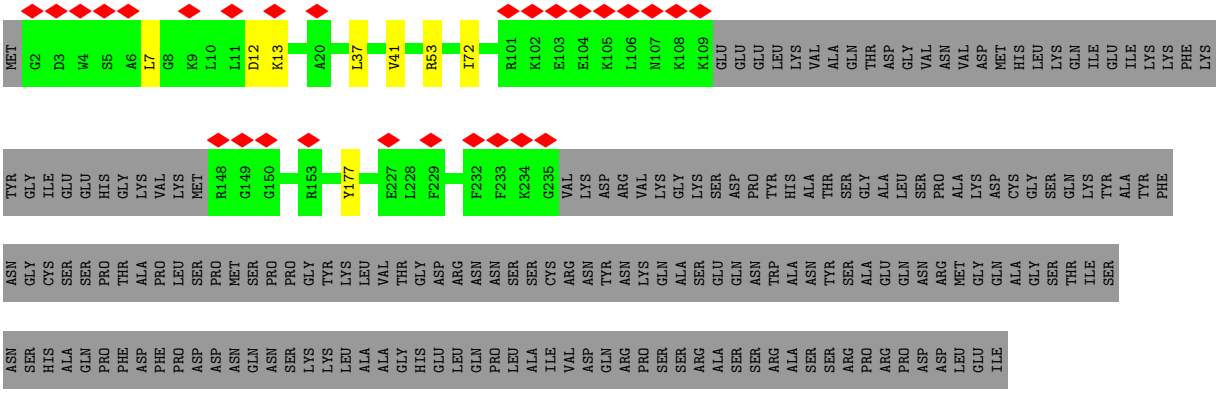


• Molecule 1: Gap junction alpha-1 protein



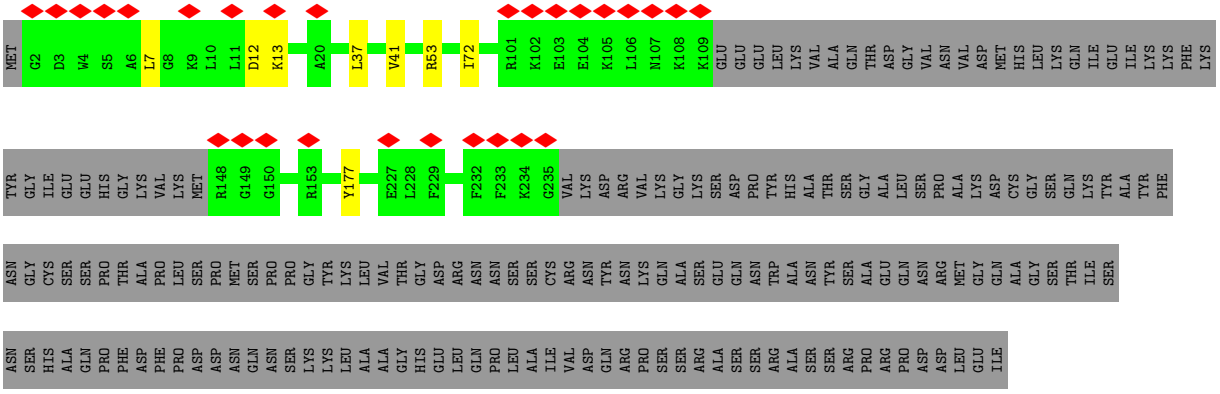
• Molecule 1: Gap junction alpha-1 protein

Chain G:



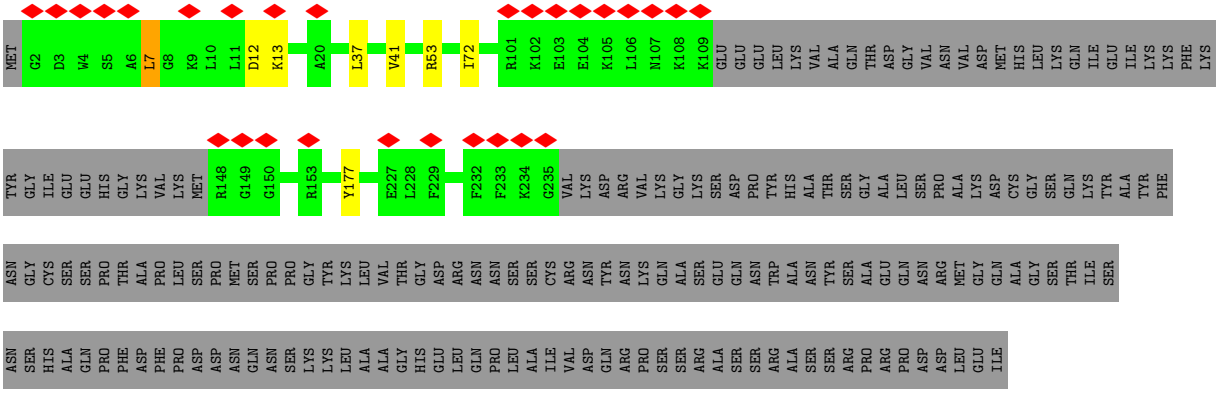
• Molecule 1: Gap junction alpha-1 protein

Chain H:



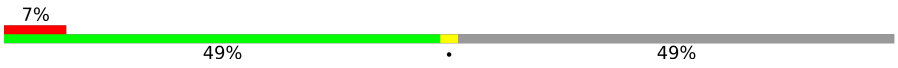
• Molecule 1: Gap junction alpha-1 protein

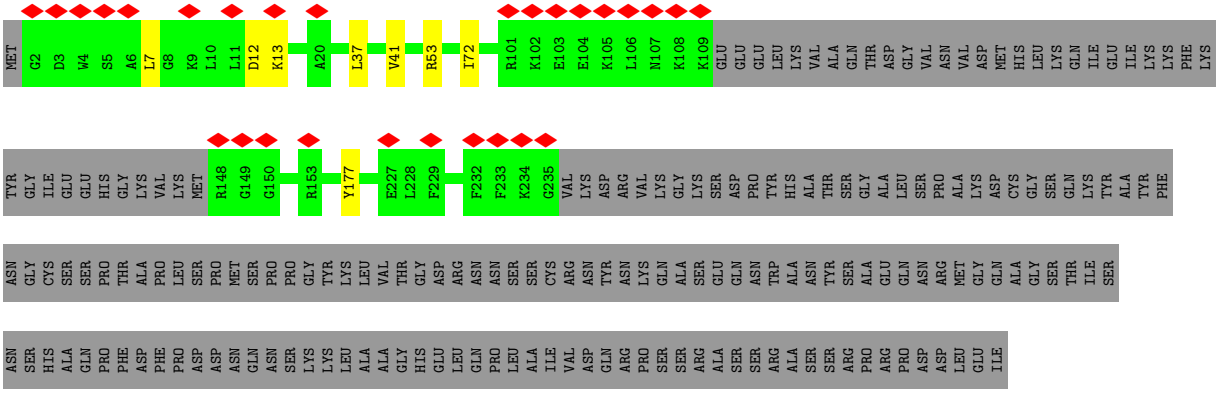
Chain I:



• Molecule 1: Gap junction alpha-1 protein

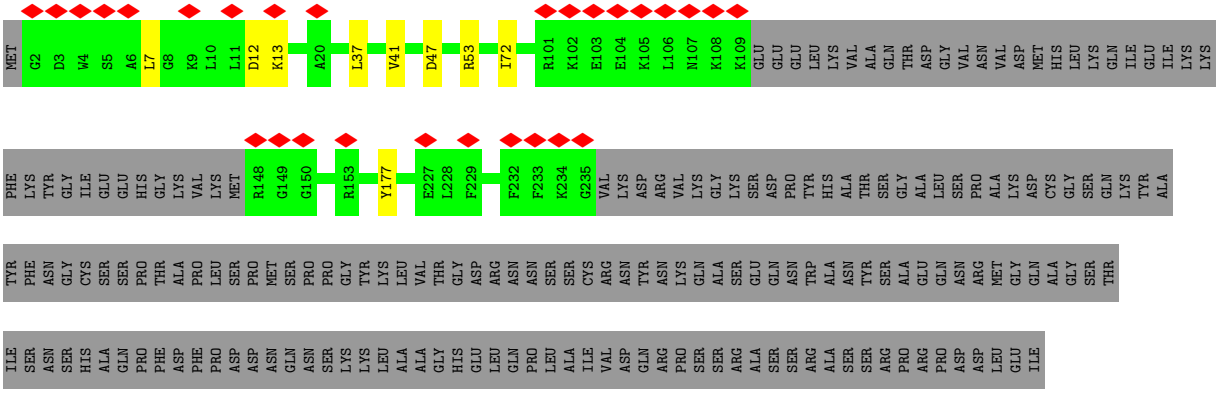
Chain J:





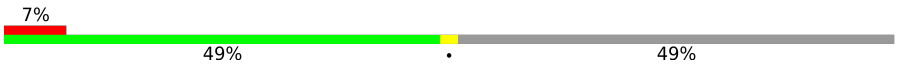
• Molecule 1: Gap junction alpha-1 protein

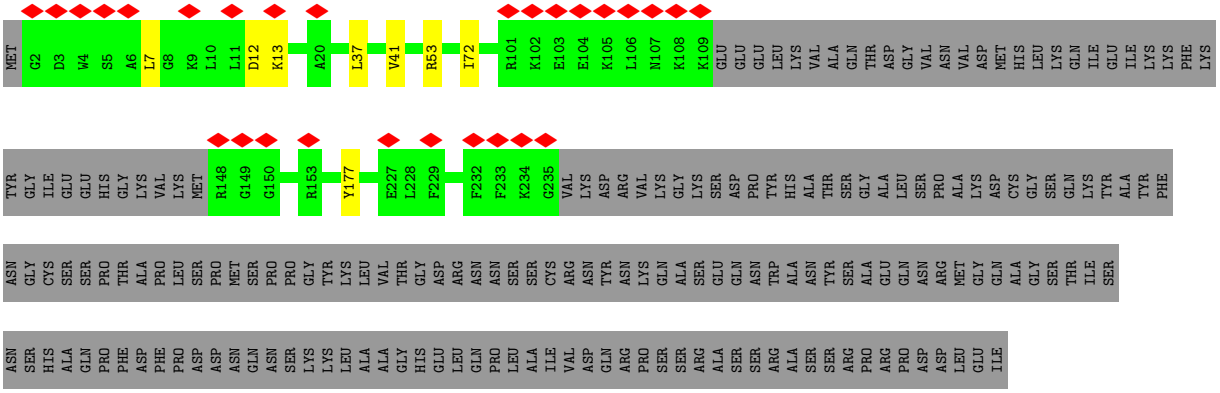
Chain K:



• Molecule 1: Gap junction alpha-1 protein

Chain L:




MET G2 D3 W4 S5 A6 L7 G8 K9 L10 L11 D12 K13 A20 L37 V41 R53 I72 R101 K102 E103 E104 K105 L106 N107 K108 K109 GLU GLU GLU LEU LYS VAL ALA GLN THR ASP GLY VAL ASN VAL ASP MET HIS LEU LYS GLN ILE GLU ILE LYS LYS PHE LYS
TYR GLY ILE GLU GLU HIS GLY LYS VAL LYS MET R148 G149 G150 R153 Y177 E227 L228 F229 F232 F233 K234 G235 VAL LYS ASP ARG VAL LYS GLY LYS SER ASP PRO TYR HIS ALA THR SER GLY ALA LEU SER PRO ALA LYS ASP CYS GLY SER GLN LYS TYR ALA TYR PHE
ASN GLY CYS SER SER PRO THR ALA PRO LEU SER PRO MET SER PRO PRO GLY TYR LYS LEU VAL THR GLY ASP ARG ASN ASN SER SER CYS ARG ASN TYR ASN LYS GLN ALA SER GLU GLN ASN TRP ALA ASN TYR SER ALA GLU GLN ASN ARG MET GLY GLN ALA GLY SER THR ILE SER
ASN SER HIS ALA GLN PRO PHE ASP PHE PRO ASP ASP ASN GLN ASN SER LYS LYS LEU ALA ALA GLY HIS GLU LEU GLN PRO LEU ALA ILE VAL ASP GLN ARG PRO SER SER ARG ALA SER SER ARG PRO ARG PRO ASP ASP LEU GLU ILE

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	21689	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 ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.204	Depositor
Minimum map value	-0.133	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.032	Depositor
Map size (Å)	270.0, 270.0, 270.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.675, 0.675, 0.675	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: C14

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.40	0/1637	0.54	0/2218
1	B	0.40	0/1637	0.54	0/2218
1	C	0.41	0/1637	0.54	0/2218
1	D	0.41	0/1637	0.54	0/2218
1	E	0.40	0/1637	0.54	0/2218
1	F	0.41	0/1637	0.54	0/2218
1	G	0.41	0/1637	0.54	0/2218
1	H	0.41	0/1637	0.54	0/2218
1	I	0.40	0/1637	0.54	0/2218
1	J	0.41	0/1637	0.54	0/2218
1	K	0.40	0/1637	0.54	0/2218
1	L	0.40	0/1637	0.54	0/2218
All	All	0.41	0/19644	0.54	0/26616

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	1594	0	1626	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	1594	0	1626	3	0
1	C	1594	0	1626	2	0
1	D	1594	0	1626	3	0
1	E	1594	0	1626	2	0
1	F	1594	0	1626	2	0
1	G	1594	0	1626	2	0
1	H	1594	0	1626	2	0
1	I	1594	0	1626	3	0
1	J	1594	0	1626	2	0
1	K	1594	0	1626	3	0
1	L	1594	0	1626	2	0
2	A	154	0	330	0	0
2	B	154	0	330	0	0
2	C	154	0	330	0	0
2	D	154	0	330	0	0
2	E	154	0	330	0	0
2	F	154	0	330	0	0
2	G	154	0	330	0	0
2	H	154	0	330	0	0
2	I	154	0	330	0	0
2	J	154	0	330	0	0
2	K	154	0	330	0	0
2	L	154	0	330	0	0
3	A	22	0	0	0	0
3	B	21	0	0	0	0
3	C	23	0	0	0	0
3	D	22	0	0	0	0
3	E	21	0	0	0	0
3	F	23	0	0	0	0
3	G	23	0	0	0	0
3	H	22	0	0	0	0
3	I	21	0	0	0	0
3	J	23	0	0	0	0
3	K	22	0	0	0	0
3	L	21	0	0	0	0
All	All	21240	0	23472	28	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 1.

All (28) 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:37:LEU:HA	1:B:41:VAL:HG22	1.93	0.51
1:I:37:LEU:HA	1:I:41:VAL:HG22	1.93	0.51
1:J:37:LEU:HA	1:J:41:VAL:HG22	1.93	0.51
1:C:37:LEU:HA	1:C:41:VAL:HG22	1.93	0.50
1:K:37:LEU:HA	1:K:41:VAL:HG22	1.93	0.50
1:D:37:LEU:HA	1:D:41:VAL:HG22	1.93	0.50
1:A:37:LEU:HA	1:A:41:VAL:HG22	1.93	0.50
1:H:37:LEU:HA	1:H:41:VAL:HG22	1.93	0.50
1:E:37:LEU:HA	1:E:41:VAL:HG22	1.93	0.49
1:L:37:LEU:HA	1:L:41:VAL:HG22	1.93	0.49
1:F:37:LEU:HA	1:F:41:VAL:HG22	1.93	0.49
1:G:37:LEU:HA	1:G:41:VAL:HG22	1.93	0.49
1:I:72:ILE:O	1:I:177:TYR:OH	2.27	0.48
1:J:72:ILE:O	1:J:177:TYR:OH	2.27	0.46
1:C:72:ILE:O	1:C:177:TYR:OH	2.27	0.46
1:F:72:ILE:O	1:F:177:TYR:OH	2.27	0.46
1:G:72:ILE:O	1:G:177:TYR:OH	2.27	0.46
1:K:72:ILE:O	1:K:177:TYR:OH	2.28	0.45
1:D:72:ILE:O	1:D:177:TYR:OH	2.28	0.44
1:B:72:ILE:O	1:B:177:TYR:OH	2.27	0.44
1:H:72:ILE:O	1:H:177:TYR:OH	2.28	0.43
1:A:72:ILE:O	1:A:177:TYR:OH	2.28	0.43
1:D:47:ASP:OD1	1:D:47:ASP:N	2.50	0.42
1:I:7:LEU:HD22	1:I:7:LEU:HA	1.88	0.42
1:L:72:ILE:O	1:L:177:TYR:OH	2.27	0.42
1:K:47:ASP:OD1	1:K:47:ASP:N	2.50	0.42
1:E:72:ILE:O	1:E:177:TYR:OH	2.27	0.42
1:B:7:LEU:HD22	1:B:7:LEU:HA	1.88	0.41

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	192/382 (50%)	186 (97%)	6 (3%)	0	100	100
1	B	192/382 (50%)	186 (97%)	6 (3%)	0	100	100
1	C	192/382 (50%)	186 (97%)	6 (3%)	0	100	100
1	D	192/382 (50%)	186 (97%)	6 (3%)	0	100	100
1	E	192/382 (50%)	187 (97%)	5 (3%)	0	100	100
1	F	192/382 (50%)	186 (97%)	6 (3%)	0	100	100
1	G	192/382 (50%)	186 (97%)	6 (3%)	0	100	100
1	H	192/382 (50%)	186 (97%)	6 (3%)	0	100	100
1	I	192/382 (50%)	187 (97%)	5 (3%)	0	100	100
1	J	192/382 (50%)	186 (97%)	6 (3%)	0	100	100
1	K	192/382 (50%)	186 (97%)	6 (3%)	0	100	100
1	L	192/382 (50%)	186 (97%)	6 (3%)	0	100	100
All	All	2304/4584 (50%)	2234 (97%)	70 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	175/333 (53%)	171 (98%)	4 (2%)	50	77
1	B	175/333 (53%)	171 (98%)	4 (2%)	50	77
1	C	175/333 (53%)	171 (98%)	4 (2%)	50	77
1	D	175/333 (53%)	171 (98%)	4 (2%)	50	77
1	E	175/333 (53%)	171 (98%)	4 (2%)	50	77
1	F	175/333 (53%)	171 (98%)	4 (2%)	50	77
1	G	175/333 (53%)	171 (98%)	4 (2%)	50	77
1	H	175/333 (53%)	171 (98%)	4 (2%)	50	77
1	I	175/333 (53%)	171 (98%)	4 (2%)	50	77

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	J	175/333 (53%)	171 (98%)	4 (2%)	50 77
1	K	175/333 (53%)	171 (98%)	4 (2%)	50 77
1	L	175/333 (53%)	171 (98%)	4 (2%)	50 77
All	All	2100/3996 (53%)	2052 (98%)	48 (2%)	53 77

All (48) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	7	LEU
1	A	12	ASP
1	A	13	LYS
1	A	53	ARG
1	B	7	LEU
1	B	12	ASP
1	B	13	LYS
1	B	53	ARG
1	C	7	LEU
1	C	12	ASP
1	C	13	LYS
1	C	53	ARG
1	D	7	LEU
1	D	12	ASP
1	D	13	LYS
1	D	53	ARG
1	E	7	LEU
1	E	12	ASP
1	E	13	LYS
1	E	53	ARG
1	F	7	LEU
1	F	12	ASP
1	F	13	LYS
1	F	53	ARG
1	G	7	LEU
1	G	12	ASP
1	G	13	LYS
1	G	53	ARG
1	H	7	LEU
1	H	12	ASP
1	H	13	LYS
1	H	53	ARG
1	I	7	LEU

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Mol	Chain	Res	Type
1	I	12	ASP
1	I	13	LYS
1	I	53	ARG
1	J	7	LEU
1	J	12	ASP
1	J	13	LYS
1	J	53	ARG
1	K	7	LEU
1	K	12	ASP
1	K	13	LYS
1	K	53	ARG
1	L	7	LEU
1	L	12	ASP
1	L	13	LYS
1	L	53	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	49	GLN
1	B	49	GLN
1	C	49	GLN
1	D	49	GLN
1	E	49	GLN
1	F	49	GLN
1	G	49	GLN
1	H	49	GLN
1	I	49	GLN
1	J	49	GLN
1	K	49	GLN
1	L	49	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

132 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	$\#\|Z\| > 2$
2	C14	K	407	-	13,13,13	0.21	0	12,12,12	0.94	0
2	C14	K	401	-	13,13,13	0.22	0	12,12,12	0.98	0
2	C14	K	404	-	13,13,13	0.28	0	12,12,12	0.85	0
2	C14	C	409	-	13,13,13	0.24	0	12,12,12	0.88	0
2	C14	E	408	-	13,13,13	0.26	0	12,12,12	0.90	0
2	C14	D	407	-	13,13,13	0.21	0	12,12,12	0.94	0
2	C14	L	402	-	13,13,13	0.22	0	12,12,12	0.98	0
2	C14	C	406	-	13,13,13	0.28	0	12,12,12	0.80	0
2	C14	B	402	-	13,13,13	0.27	0	12,12,12	0.86	0
2	C14	B	403	-	13,13,13	0.27	0	12,12,12	0.81	0
2	C14	F	401	-	13,13,13	0.27	0	12,12,12	0.83	0
2	C14	F	405	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	E	402	-	13,13,13	0.27	0	12,12,12	0.86	0
2	C14	A	405	-	13,13,13	0.24	0	12,12,12	0.89	0
2	C14	J	411	-	13,13,13	0.27	0	12,12,12	0.83	0
2	C14	E	405	-	13,13,13	0.18	0	12,12,12	1.01	0
2	C14	I	404	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	H	409	-	13,13,13	0.24	0	12,12,12	0.89	0
2	C14	H	405	-	13,13,13	0.17	0	12,12,12	1.01	0
2	C14	L	401	-	13,13,13	0.27	0	12,12,12	0.83	0
2	C14	A	404	-	13,13,13	0.26	0	12,12,12	0.90	0
2	C14	C	401	-	13,13,13	0.22	0	12,12,12	0.98	0
2	C14	C	405	-	13,13,13	0.18	0	12,12,12	1.02	0
2	C14	E	407	-	13,13,13	0.21	0	12,12,12	0.95	0
2	C14	C	402	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	E	404	-	13,13,13	0.27	0	12,12,12	0.84	0
2	C14	I	411	-	13,13,13	0.27	0	12,12,12	0.83	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	C14	K	405	-	13,13,13	0.17	0	12,12,12	1.01	0
2	C14	D	402	-	13,13,13	0.27	0	12,12,12	0.86	0
2	C14	J	406	-	13,13,13	0.28	0	12,12,12	0.80	0
2	C14	K	402	-	13,13,13	0.27	0	12,12,12	0.86	0
2	C14	C	404	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	A	401	-	13,13,13	0.18	0	12,12,12	1.01	0
2	C14	D	406	-	13,13,13	0.28	0	12,12,12	0.80	0
2	C14	G	401	-	13,13,13	0.18	0	12,12,12	1.01	0
2	C14	F	402	-	13,13,13	0.22	0	12,12,12	0.98	0
2	C14	F	411	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	I	409	-	13,13,13	0.24	0	12,12,12	0.89	0
2	C14	J	409	-	13,13,13	0.24	0	12,12,12	0.88	0
2	C14	B	408	-	13,13,13	0.26	0	12,12,12	0.90	0
2	C14	E	401	-	13,13,13	0.22	0	12,12,12	0.98	0
2	C14	C	411	-	13,13,13	0.27	0	12,12,12	0.83	0
2	C14	I	410	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	B	407	-	13,13,13	0.21	0	12,12,12	0.95	0
2	C14	G	405	-	13,13,13	0.24	0	12,12,12	0.88	0
2	C14	A	402	-	13,13,13	0.28	0	12,12,12	0.80	0
2	C14	A	410	-	13,13,13	0.27	0	12,12,12	0.82	0
2	C14	I	403	-	13,13,13	0.27	0	12,12,12	0.81	0
2	C14	L	405	-	13,13,13	0.27	0	12,12,12	0.84	0
2	C14	J	403	-	13,13,13	0.27	0	12,12,12	0.81	0
2	C14	I	402	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	J	407	-	13,13,13	0.21	0	12,12,12	0.95	0
2	C14	I	408	-	13,13,13	0.26	0	12,12,12	0.90	0
2	C14	H	406	-	13,13,13	0.28	0	12,12,12	0.79	0
2	C14	J	408	-	13,13,13	0.26	0	12,12,12	0.90	0
2	C14	D	403	-	13,13,13	0.27	0	12,12,12	0.81	0
2	C14	C	410	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	G	409	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	B	404	-	13,13,13	0.27	0	12,12,12	0.84	0
2	C14	L	410	-	13,13,13	0.24	0	12,12,12	0.89	0
2	C14	A	406	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	B	409	-	13,13,13	0.24	0	12,12,12	0.89	0
2	C14	E	411	-	13,13,13	0.27	0	12,12,12	0.83	0
2	C14	K	409	-	13,13,13	0.24	0	12,12,12	0.89	0
2	C14	D	411	-	13,13,13	0.27	0	12,12,12	0.83	0
2	C14	I	401	-	13,13,13	0.22	0	12,12,12	0.98	0
2	C14	L	408	-	13,13,13	0.21	0	12,12,12	0.95	0
2	C14	F	407	-	13,13,13	0.28	0	12,12,12	0.80	0
2	C14	G	402	-	13,13,13	0.28	0	12,12,12	0.80	0
2	C14	H	411	-	13,13,13	0.27	0	12,12,12	0.83	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	C14	J	401	-	13,13,13	0.22	0	12,12,12	0.98	0
2	C14	G	404	-	13,13,13	0.26	0	12,12,12	0.89	0
2	C14	H	407	-	13,13,13	0.21	0	12,12,12	0.94	0
2	C14	B	411	-	13,13,13	0.27	0	12,12,12	0.83	0
2	C14	B	401	-	13,13,13	0.22	0	12,12,12	0.98	0
2	C14	D	409	-	13,13,13	0.24	0	12,12,12	0.89	0
2	C14	L	409	-	13,13,13	0.26	0	12,12,12	0.90	0
2	C14	B	405	-	13,13,13	0.18	0	12,12,12	1.01	0
2	C14	E	410	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	I	407	-	13,13,13	0.21	0	12,12,12	0.95	0
2	C14	J	410	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	L	407	-	13,13,13	0.28	0	12,12,12	0.80	0
2	C14	D	405	-	13,13,13	0.17	0	12,12,12	1.01	0
2	C14	F	410	-	13,13,13	0.24	0	12,12,12	0.88	0
2	C14	H	402	-	13,13,13	0.27	0	12,12,12	0.86	0
2	C14	F	403	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	B	406	-	13,13,13	0.28	0	12,12,12	0.81	0
2	C14	J	404	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	A	411	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	L	411	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	A	403	-	13,13,13	0.21	0	12,12,12	0.94	0
2	C14	F	408	-	13,13,13	0.21	0	12,12,12	0.95	0
2	C14	G	410	-	13,13,13	0.27	0	12,12,12	0.81	0
2	C14	I	406	-	13,13,13	0.28	0	12,12,12	0.80	0
2	C14	G	407	-	13,13,13	0.27	0	12,12,12	0.83	0
2	C14	D	404	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	A	408	-	13,13,13	0.22	0	12,12,12	0.97	0
2	C14	E	403	-	13,13,13	0.27	0	12,12,12	0.81	0
2	C14	F	404	-	13,13,13	0.27	0	12,12,12	0.81	0
2	C14	G	403	-	13,13,13	0.21	0	12,12,12	0.95	0
2	C14	A	407	-	13,13,13	0.27	0	12,12,12	0.83	0
2	C14	K	406	-	13,13,13	0.28	0	12,12,12	0.80	0
2	C14	E	406	-	13,13,13	0.28	0	12,12,12	0.80	0
2	C14	G	408	-	13,13,13	0.22	0	12,12,12	0.97	0
2	C14	L	404	-	13,13,13	0.27	0	12,12,12	0.81	0
2	C14	H	403	-	13,13,13	0.27	0	12,12,12	0.82	0
2	C14	C	403	-	13,13,13	0.27	0	12,12,12	0.81	0
2	C14	C	408	-	13,13,13	0.26	0	12,12,12	0.90	0
2	C14	C	407	-	13,13,13	0.21	0	12,12,12	0.95	0
2	C14	K	403	-	13,13,13	0.27	0	12,12,12	0.82	0
2	C14	K	408	-	13,13,13	0.26	0	12,12,12	0.90	0
2	C14	D	410	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	K	411	-	13,13,13	0.27	0	12,12,12	0.83	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	C14	L	406	-	13,13,13	0.18	0	12,12,12	1.01	0
2	C14	H	410	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	B	410	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	D	401	-	13,13,13	0.22	0	12,12,12	0.98	0
2	C14	D	408	-	13,13,13	0.26	0	12,12,12	0.90	0
2	C14	F	409	-	13,13,13	0.26	0	12,12,12	0.89	0
2	C14	K	410	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	A	409	-	13,13,13	0.27	0	12,12,12	0.86	0
2	C14	H	408	-	13,13,13	0.26	0	12,12,12	0.90	0
2	C14	H	401	-	13,13,13	0.22	0	12,12,12	0.97	0
2	C14	I	405	-	13,13,13	0.18	0	12,12,12	1.01	0
2	C14	G	406	-	13,13,13	0.26	0	12,12,12	0.86	0
2	C14	E	409	-	13,13,13	0.24	0	12,12,12	0.89	0
2	C14	F	406	-	13,13,13	0.18	0	12,12,12	1.01	0
2	C14	J	405	-	13,13,13	0.18	0	12,12,12	1.01	0
2	C14	H	404	-	13,13,13	0.27	0	12,12,12	0.84	0
2	C14	J	402	-	13,13,13	0.27	0	12,12,12	0.85	0
2	C14	G	411	-	13,13,13	0.27	0	12,12,12	0.84	0
2	C14	L	403	-	13,13,13	0.27	0	12,12,12	0.86	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
2	C14	K	407	-	-	1/11/11/11	-
2	C14	K	401	-	-	3/11/11/11	-
2	C14	K	404	-	-	3/11/11/11	-
2	C14	C	409	-	-	1/11/11/11	-
2	C14	E	408	-	-	2/11/11/11	-
2	C14	D	407	-	-	1/11/11/11	-
2	C14	L	402	-	-	3/11/11/11	-
2	C14	C	406	-	-	5/11/11/11	-
2	C14	B	402	-	-	2/11/11/11	-
2	C14	B	403	-	-	4/11/11/11	-
2	C14	F	401	-	-	2/11/11/11	-
2	C14	F	405	-	-	3/11/11/11	-
2	C14	E	402	-	-	2/11/11/11	-
2	C14	A	405	-	-	1/11/11/11	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	C14	J	411	-	-	2/11/11/11	-
2	C14	E	405	-	-	2/11/11/11	-
2	C14	I	404	-	-	3/11/11/11	-
2	C14	H	409	-	-	1/11/11/11	-
2	C14	H	405	-	-	2/11/11/11	-
2	C14	L	401	-	-	2/11/11/11	-
2	C14	A	404	-	-	2/11/11/11	-
2	C14	C	401	-	-	3/11/11/11	-
2	C14	C	405	-	-	2/11/11/11	-
2	C14	E	407	-	-	1/11/11/11	-
2	C14	C	402	-	-	2/11/11/11	-
2	C14	E	404	-	-	3/11/11/11	-
2	C14	I	411	-	-	2/11/11/11	-
2	C14	K	405	-	-	2/11/11/11	-
2	C14	D	402	-	-	2/11/11/11	-
2	C14	J	406	-	-	5/11/11/11	-
2	C14	K	402	-	-	2/11/11/11	-
2	C14	C	404	-	-	3/11/11/11	-
2	C14	A	401	-	-	2/11/11/11	-
2	C14	D	406	-	-	5/11/11/11	-
2	C14	G	401	-	-	2/11/11/11	-
2	C14	F	402	-	-	3/11/11/11	-
2	C14	F	411	-	-	4/11/11/11	-
2	C14	I	409	-	-	1/11/11/11	-
2	C14	J	409	-	-	1/11/11/11	-
2	C14	B	408	-	-	2/11/11/11	-
2	C14	E	401	-	-	3/11/11/11	-
2	C14	C	411	-	-	2/11/11/11	-
2	C14	I	410	-	-	4/11/11/11	-
2	C14	B	407	-	-	1/11/11/11	-
2	C14	G	405	-	-	1/11/11/11	-
2	C14	A	402	-	-	5/11/11/11	-
2	C14	A	410	-	-	4/11/11/11	-
2	C14	I	403	-	-	4/11/11/11	-
2	C14	L	405	-	-	3/11/11/11	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	C14	J	403	-	-	4/11/11/11	-
2	C14	I	402	-	-	2/11/11/11	-
2	C14	J	407	-	-	1/11/11/11	-
2	C14	I	408	-	-	2/11/11/11	-
2	C14	H	406	-	-	5/11/11/11	-
2	C14	J	408	-	-	2/11/11/11	-
2	C14	D	403	-	-	4/11/11/11	-
2	C14	C	410	-	-	4/11/11/11	-
2	C14	G	409	-	-	2/11/11/11	-
2	C14	B	404	-	-	3/11/11/11	-
2	C14	L	410	-	-	1/11/11/11	-
2	C14	A	406	-	-	4/11/11/11	-
2	C14	B	409	-	-	1/11/11/11	-
2	C14	E	411	-	-	2/11/11/11	-
2	C14	K	409	-	-	1/11/11/11	-
2	C14	D	411	-	-	2/11/11/11	-
2	C14	I	401	-	-	3/11/11/11	-
2	C14	L	408	-	-	1/11/11/11	-
2	C14	F	407	-	-	5/11/11/11	-
2	C14	G	402	-	-	5/11/11/11	-
2	C14	H	411	-	-	2/11/11/11	-
2	C14	J	401	-	-	3/11/11/11	-
2	C14	G	404	-	-	2/11/11/11	-
2	C14	H	407	-	-	1/11/11/11	-
2	C14	B	411	-	-	2/11/11/11	-
2	C14	B	401	-	-	3/11/11/11	-
2	C14	D	409	-	-	1/11/11/11	-
2	C14	L	409	-	-	2/11/11/11	-
2	C14	B	405	-	-	2/11/11/11	-
2	C14	E	410	-	-	4/11/11/11	-
2	C14	I	407	-	-	1/11/11/11	-
2	C14	J	410	-	-	4/11/11/11	-
2	C14	L	407	-	-	5/11/11/11	-
2	C14	D	405	-	-	2/11/11/11	-
2	C14	F	410	-	-	1/11/11/11	-
2	C14	H	402	-	-	2/11/11/11	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	C14	F	403	-	-	2/11/11/11	-
2	C14	B	406	-	-	5/11/11/11	-
2	C14	J	404	-	-	3/11/11/11	-
2	C14	A	411	-	-	3/11/11/11	-
2	C14	L	411	-	-	4/11/11/11	-
2	C14	A	403	-	-	1/11/11/11	-
2	C14	F	408	-	-	1/11/11/11	-
2	C14	G	410	-	-	4/11/11/11	-
2	C14	I	406	-	-	5/11/11/11	-
2	C14	G	407	-	-	2/11/11/11	-
2	C14	D	404	-	-	3/11/11/11	-
2	C14	A	408	-	-	3/11/11/11	-
2	C14	E	403	-	-	4/11/11/11	-
2	C14	F	404	-	-	4/11/11/11	-
2	C14	G	403	-	-	1/11/11/11	-
2	C14	A	407	-	-	2/11/11/11	-
2	C14	K	406	-	-	5/11/11/11	-
2	C14	E	406	-	-	5/11/11/11	-
2	C14	G	408	-	-	3/11/11/11	-
2	C14	L	404	-	-	4/11/11/11	-
2	C14	H	403	-	-	4/11/11/11	-
2	C14	C	403	-	-	4/11/11/11	-
2	C14	C	408	-	-	2/11/11/11	-
2	C14	C	407	-	-	1/11/11/11	-
2	C14	K	403	-	-	4/11/11/11	-
2	C14	K	408	-	-	2/11/11/11	-
2	C14	D	410	-	-	4/11/11/11	-
2	C14	K	411	-	-	2/11/11/11	-
2	C14	L	406	-	-	2/11/11/11	-
2	C14	H	410	-	-	4/11/11/11	-
2	C14	B	410	-	-	4/11/11/11	-
2	C14	D	401	-	-	3/11/11/11	-
2	C14	D	408	-	-	2/11/11/11	-
2	C14	F	409	-	-	2/11/11/11	-
2	C14	K	410	-	-	4/11/11/11	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	C14	A	409	-	-	2/11/11/11	-
2	C14	H	408	-	-	2/11/11/11	-
2	C14	H	401	-	-	3/11/11/11	-
2	C14	I	405	-	-	2/11/11/11	-
2	C14	G	406	-	-	4/11/11/11	-
2	C14	E	409	-	-	1/11/11/11	-
2	C14	F	406	-	-	2/11/11/11	-
2	C14	J	405	-	-	2/11/11/11	-
2	C14	H	404	-	-	3/11/11/11	-
2	C14	J	402	-	-	2/11/11/11	-
2	C14	G	411	-	-	3/11/11/11	-
2	C14	L	403	-	-	2/11/11/11	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (348) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	C14	C10-C11-C12-C13
2	B	405	C14	C10-C11-C12-C13
2	C	405	C14	C10-C11-C12-C13
2	D	405	C14	C10-C11-C12-C13
2	E	405	C14	C10-C11-C12-C13
2	F	406	C14	C10-C11-C12-C13
2	G	401	C14	C10-C11-C12-C13
2	H	405	C14	C10-C11-C12-C13
2	I	405	C14	C10-C11-C12-C13
2	J	405	C14	C10-C11-C12-C13
2	K	405	C14	C10-C11-C12-C13
2	L	406	C14	C10-C11-C12-C13
2	C	403	C14	C06-C07-C08-C09
2	I	403	C14	C06-C07-C08-C09
2	J	403	C14	C06-C07-C08-C09
2	A	410	C14	C06-C07-C08-C09
2	B	403	C14	C06-C07-C08-C09
2	D	403	C14	C06-C07-C08-C09
2	E	403	C14	C06-C07-C08-C09

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Mol	Chain	Res	Type	Atoms
2	F	404	C14	C06-C07-C08-C09
2	G	410	C14	C06-C07-C08-C09
2	H	403	C14	C06-C07-C08-C09
2	K	403	C14	C06-C07-C08-C09
2	L	404	C14	C06-C07-C08-C09
2	A	404	C14	C08-C09-C10-C11
2	B	408	C14	C08-C09-C10-C11
2	C	408	C14	C08-C09-C10-C11
2	D	408	C14	C08-C09-C10-C11
2	E	408	C14	C08-C09-C10-C11
2	F	409	C14	C08-C09-C10-C11
2	G	404	C14	C08-C09-C10-C11
2	H	408	C14	C08-C09-C10-C11
2	I	408	C14	C08-C09-C10-C11
2	J	408	C14	C08-C09-C10-C11
2	K	408	C14	C08-C09-C10-C11
2	L	409	C14	C08-C09-C10-C11
2	K	408	C14	C07-C08-C09-C10
2	A	404	C14	C07-C08-C09-C10
2	B	408	C14	C07-C08-C09-C10
2	C	408	C14	C07-C08-C09-C10
2	D	408	C14	C07-C08-C09-C10
2	E	408	C14	C07-C08-C09-C10
2	F	409	C14	C07-C08-C09-C10
2	G	404	C14	C07-C08-C09-C10
2	H	408	C14	C07-C08-C09-C10
2	I	408	C14	C07-C08-C09-C10
2	J	408	C14	C07-C08-C09-C10
2	L	409	C14	C07-C08-C09-C10
2	A	405	C14	C09-C10-C11-C12
2	B	409	C14	C09-C10-C11-C12
2	C	409	C14	C09-C10-C11-C12
2	D	409	C14	C09-C10-C11-C12
2	E	409	C14	C09-C10-C11-C12
2	F	410	C14	C09-C10-C11-C12
2	G	405	C14	C09-C10-C11-C12
2	H	409	C14	C09-C10-C11-C12
2	I	409	C14	C09-C10-C11-C12
2	J	409	C14	C09-C10-C11-C12
2	K	409	C14	C09-C10-C11-C12
2	L	410	C14	C09-C10-C11-C12
2	A	403	C14	C06-C07-C08-C09

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Mol	Chain	Res	Type	Atoms
2	B	407	C14	C06-C07-C08-C09
2	D	407	C14	C06-C07-C08-C09
2	F	408	C14	C06-C07-C08-C09
2	J	407	C14	C06-C07-C08-C09
2	L	408	C14	C06-C07-C08-C09
2	C	407	C14	C06-C07-C08-C09
2	E	407	C14	C06-C07-C08-C09
2	G	403	C14	C06-C07-C08-C09
2	H	407	C14	C06-C07-C08-C09
2	I	407	C14	C06-C07-C08-C09
2	K	407	C14	C06-C07-C08-C09
2	B	405	C14	C08-C09-C10-C11
2	D	405	C14	C08-C09-C10-C11
2	E	405	C14	C08-C09-C10-C11
2	H	405	C14	C08-C09-C10-C11
2	K	405	C14	C08-C09-C10-C11
2	L	406	C14	C08-C09-C10-C11
2	A	401	C14	C08-C09-C10-C11
2	C	405	C14	C08-C09-C10-C11
2	F	406	C14	C08-C09-C10-C11
2	G	401	C14	C08-C09-C10-C11
2	I	405	C14	C08-C09-C10-C11
2	J	405	C14	C08-C09-C10-C11
2	A	402	C14	C08-C09-C10-C11
2	B	406	C14	C08-C09-C10-C11
2	E	406	C14	C08-C09-C10-C11
2	G	402	C14	C08-C09-C10-C11
2	I	406	C14	C08-C09-C10-C11
2	K	406	C14	C08-C09-C10-C11
2	L	407	C14	C08-C09-C10-C11
2	C	406	C14	C08-C09-C10-C11
2	D	406	C14	C08-C09-C10-C11
2	F	407	C14	C08-C09-C10-C11
2	H	406	C14	C08-C09-C10-C11
2	J	406	C14	C08-C09-C10-C11
2	A	402	C14	C01-C02-C03-C04
2	B	406	C14	C01-C02-C03-C04
2	C	406	C14	C01-C02-C03-C04
2	D	406	C14	C01-C02-C03-C04
2	G	402	C14	C01-C02-C03-C04
2	H	406	C14	C01-C02-C03-C04
2	K	406	C14	C01-C02-C03-C04

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Mol	Chain	Res	Type	Atoms
2	L	407	C14	C01-C02-C03-C04
2	A	409	C14	C06-C07-C08-C09
2	B	402	C14	C06-C07-C08-C09
2	C	402	C14	C06-C07-C08-C09
2	D	402	C14	C06-C07-C08-C09
2	E	402	C14	C06-C07-C08-C09
2	E	406	C14	C01-C02-C03-C04
2	F	403	C14	C06-C07-C08-C09
2	F	407	C14	C01-C02-C03-C04
2	G	409	C14	C06-C07-C08-C09
2	H	402	C14	C06-C07-C08-C09
2	I	402	C14	C06-C07-C08-C09
2	I	406	C14	C01-C02-C03-C04
2	J	402	C14	C06-C07-C08-C09
2	J	406	C14	C01-C02-C03-C04
2	L	403	C14	C06-C07-C08-C09
2	K	402	C14	C06-C07-C08-C09
2	A	408	C14	C02-C03-C04-C05
2	B	401	C14	C02-C03-C04-C05
2	D	401	C14	C02-C03-C04-C05
2	E	401	C14	C02-C03-C04-C05
2	G	408	C14	C02-C03-C04-C05
2	H	401	C14	C02-C03-C04-C05
2	I	401	C14	C02-C03-C04-C05
2	J	401	C14	C02-C03-C04-C05
2	K	401	C14	C02-C03-C04-C05
2	L	402	C14	C02-C03-C04-C05
2	C	401	C14	C02-C03-C04-C05
2	F	402	C14	C02-C03-C04-C05
2	A	406	C14	C05-C06-C07-C08
2	C	410	C14	C05-C06-C07-C08
2	D	410	C14	C05-C06-C07-C08
2	F	411	C14	C05-C06-C07-C08
2	I	410	C14	C05-C06-C07-C08
2	J	410	C14	C05-C06-C07-C08
2	L	411	C14	C05-C06-C07-C08
2	B	410	C14	C05-C06-C07-C08
2	E	410	C14	C05-C06-C07-C08
2	G	406	C14	C05-C06-C07-C08
2	H	410	C14	C05-C06-C07-C08
2	K	410	C14	C05-C06-C07-C08
2	D	411	C14	C05-C06-C07-C08

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Mol	Chain	Res	Type	Atoms
2	J	411	C14	C05-C06-C07-C08
2	A	407	C14	C05-C06-C07-C08
2	B	411	C14	C05-C06-C07-C08
2	C	411	C14	C05-C06-C07-C08
2	E	411	C14	C05-C06-C07-C08
2	F	401	C14	C05-C06-C07-C08
2	G	407	C14	C05-C06-C07-C08
2	H	411	C14	C05-C06-C07-C08
2	I	411	C14	C05-C06-C07-C08
2	K	411	C14	C05-C06-C07-C08
2	L	401	C14	C05-C06-C07-C08
2	H	411	C14	C06-C07-C08-C09
2	K	411	C14	C06-C07-C08-C09
2	B	411	C14	C06-C07-C08-C09
2	D	411	C14	C06-C07-C08-C09
2	F	401	C14	C06-C07-C08-C09
2	G	407	C14	C06-C07-C08-C09
2	I	411	C14	C06-C07-C08-C09
2	J	411	C14	C06-C07-C08-C09
2	A	407	C14	C06-C07-C08-C09
2	C	411	C14	C06-C07-C08-C09
2	E	411	C14	C06-C07-C08-C09
2	L	401	C14	C06-C07-C08-C09
2	K	406	C14	C09-C10-C11-C12
2	A	402	C14	C09-C10-C11-C12
2	C	406	C14	C09-C10-C11-C12
2	D	406	C14	C09-C10-C11-C12
2	E	406	C14	C09-C10-C11-C12
2	J	406	C14	C09-C10-C11-C12
2	L	407	C14	C09-C10-C11-C12
2	B	406	C14	C09-C10-C11-C12
2	F	407	C14	C09-C10-C11-C12
2	G	402	C14	C09-C10-C11-C12
2	H	406	C14	C09-C10-C11-C12
2	I	406	C14	C09-C10-C11-C12
2	D	410	C14	C01-C02-C03-C04
2	F	411	C14	C01-C02-C03-C04
2	G	406	C14	C01-C02-C03-C04
2	H	410	C14	C01-C02-C03-C04
2	I	410	C14	C01-C02-C03-C04
2	A	406	C14	C01-C02-C03-C04
2	B	410	C14	C01-C02-C03-C04

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Mol	Chain	Res	Type	Atoms
2	C	410	C14	C01-C02-C03-C04
2	E	410	C14	C01-C02-C03-C04
2	J	410	C14	C01-C02-C03-C04
2	K	410	C14	C01-C02-C03-C04
2	L	411	C14	C01-C02-C03-C04
2	A	410	C14	C02-C03-C04-C05
2	D	403	C14	C09-C10-C11-C12
2	E	403	C14	C09-C10-C11-C12
2	I	403	C14	C09-C10-C11-C12
2	J	403	C14	C09-C10-C11-C12
2	L	404	C14	C09-C10-C11-C12
2	A	410	C14	C09-C10-C11-C12
2	B	403	C14	C02-C03-C04-C05
2	B	403	C14	C09-C10-C11-C12
2	C	403	C14	C02-C03-C04-C05
2	C	403	C14	C09-C10-C11-C12
2	D	403	C14	C02-C03-C04-C05
2	E	403	C14	C02-C03-C04-C05
2	F	404	C14	C02-C03-C04-C05
2	F	404	C14	C09-C10-C11-C12
2	G	410	C14	C02-C03-C04-C05
2	G	410	C14	C09-C10-C11-C12
2	H	403	C14	C02-C03-C04-C05
2	H	403	C14	C09-C10-C11-C12
2	I	403	C14	C02-C03-C04-C05
2	J	403	C14	C02-C03-C04-C05
2	K	403	C14	C02-C03-C04-C05
2	K	403	C14	C09-C10-C11-C12
2	L	404	C14	C02-C03-C04-C05
2	F	402	C14	C04-C05-C06-C07
2	G	408	C14	C04-C05-C06-C07
2	A	408	C14	C04-C05-C06-C07
2	B	401	C14	C04-C05-C06-C07
2	C	401	C14	C04-C05-C06-C07
2	E	401	C14	C04-C05-C06-C07
2	H	401	C14	C04-C05-C06-C07
2	I	401	C14	C04-C05-C06-C07
2	J	401	C14	C04-C05-C06-C07
2	L	402	C14	C04-C05-C06-C07
2	D	401	C14	C04-C05-C06-C07
2	K	401	C14	C04-C05-C06-C07
2	C	402	C14	C05-C06-C07-C08

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Mol	Chain	Res	Type	Atoms
2	F	403	C14	C05-C06-C07-C08
2	G	409	C14	C05-C06-C07-C08
2	J	402	C14	C05-C06-C07-C08
2	A	409	C14	C05-C06-C07-C08
2	B	402	C14	C05-C06-C07-C08
2	D	402	C14	C05-C06-C07-C08
2	E	402	C14	C05-C06-C07-C08
2	I	402	C14	C05-C06-C07-C08
2	L	403	C14	C05-C06-C07-C08
2	H	402	C14	C05-C06-C07-C08
2	K	402	C14	C05-C06-C07-C08
2	C	404	C14	C08-C09-C10-C11
2	D	404	C14	C08-C09-C10-C11
2	F	404	C14	C08-C09-C10-C11
2	H	404	C14	C08-C09-C10-C11
2	L	405	C14	C08-C09-C10-C11
2	B	404	C14	C08-C09-C10-C11
2	D	403	C14	C08-C09-C10-C11
2	F	405	C14	C08-C09-C10-C11
2	G	411	C14	C08-C09-C10-C11
2	H	403	C14	C08-C09-C10-C11
2	I	404	C14	C08-C09-C10-C11
2	J	404	C14	C08-C09-C10-C11
2	A	411	C14	C08-C09-C10-C11
2	E	404	C14	C08-C09-C10-C11
2	I	403	C14	C08-C09-C10-C11
2	K	404	C14	C08-C09-C10-C11
2	L	404	C14	C08-C09-C10-C11
2	C	403	C14	C08-C09-C10-C11
2	E	403	C14	C08-C09-C10-C11
2	A	410	C14	C08-C09-C10-C11
2	B	403	C14	C08-C09-C10-C11
2	G	410	C14	C08-C09-C10-C11
2	J	403	C14	C08-C09-C10-C11
2	K	403	C14	C08-C09-C10-C11
2	B	401	C14	C09-C10-C11-C12
2	C	401	C14	C09-C10-C11-C12
2	F	402	C14	C09-C10-C11-C12
2	L	402	C14	C09-C10-C11-C12
2	A	408	C14	C09-C10-C11-C12
2	D	401	C14	C09-C10-C11-C12
2	E	401	C14	C09-C10-C11-C12

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Mol	Chain	Res	Type	Atoms
2	G	408	C14	C09-C10-C11-C12
2	H	401	C14	C09-C10-C11-C12
2	I	401	C14	C09-C10-C11-C12
2	K	401	C14	C09-C10-C11-C12
2	J	401	C14	C09-C10-C11-C12
2	C	406	C14	C02-C03-C04-C05
2	F	407	C14	C02-C03-C04-C05
2	G	402	C14	C02-C03-C04-C05
2	A	402	C14	C02-C03-C04-C05
2	B	406	C14	C02-C03-C04-C05
2	D	406	C14	C02-C03-C04-C05
2	E	406	C14	C02-C03-C04-C05
2	H	406	C14	C02-C03-C04-C05
2	I	406	C14	C02-C03-C04-C05
2	J	406	C14	C02-C03-C04-C05
2	K	406	C14	C02-C03-C04-C05
2	L	407	C14	C02-C03-C04-C05
2	L	407	C14	C04-C05-C06-C07
2	C	406	C14	C04-C05-C06-C07
2	E	406	C14	C04-C05-C06-C07
2	F	407	C14	C04-C05-C06-C07
2	G	402	C14	C04-C05-C06-C07
2	I	406	C14	C04-C05-C06-C07
2	A	402	C14	C04-C05-C06-C07
2	B	406	C14	C04-C05-C06-C07
2	D	406	C14	C04-C05-C06-C07
2	J	406	C14	C04-C05-C06-C07
2	H	406	C14	C04-C05-C06-C07
2	K	406	C14	C04-C05-C06-C07
2	H	410	C14	C10-C11-C12-C13
2	G	406	C14	C10-C11-C12-C13
2	B	410	C14	C10-C11-C12-C13
2	J	410	C14	C10-C11-C12-C13
2	A	406	C14	C10-C11-C12-C13
2	C	410	C14	C10-C11-C12-C13
2	D	410	C14	C10-C11-C12-C13
2	E	410	C14	C10-C11-C12-C13
2	F	411	C14	C10-C11-C12-C13
2	I	410	C14	C10-C11-C12-C13
2	K	410	C14	C10-C11-C12-C13
2	L	411	C14	C10-C11-C12-C13
2	C	404	C14	C02-C03-C04-C05

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Mol	Chain	Res	Type	Atoms
2	F	405	C14	C02-C03-C04-C05
2	J	404	C14	C02-C03-C04-C05
2	B	404	C14	C02-C03-C04-C05
2	I	404	C14	C02-C03-C04-C05
2	K	404	C14	C02-C03-C04-C05
2	L	405	C14	C02-C03-C04-C05
2	A	411	C14	C02-C03-C04-C05
2	E	404	C14	C02-C03-C04-C05
2	G	411	C14	C02-C03-C04-C05
2	D	404	C14	C02-C03-C04-C05
2	H	404	C14	C02-C03-C04-C05
2	L	405	C14	C07-C08-C09-C10
2	F	405	C14	C07-C08-C09-C10
2	A	411	C14	C07-C08-C09-C10
2	B	404	C14	C07-C08-C09-C10
2	C	404	C14	C07-C08-C09-C10
2	D	404	C14	C07-C08-C09-C10
2	E	404	C14	C07-C08-C09-C10
2	G	411	C14	C07-C08-C09-C10
2	I	404	C14	C07-C08-C09-C10
2	J	404	C14	C07-C08-C09-C10
2	K	404	C14	C07-C08-C09-C10
2	H	404	C14	C07-C08-C09-C10
2	B	410	C14	C02-C03-C04-C05
2	E	410	C14	C02-C03-C04-C05
2	F	411	C14	C02-C03-C04-C05
2	D	410	C14	C02-C03-C04-C05
2	K	410	C14	C02-C03-C04-C05
2	A	406	C14	C02-C03-C04-C05
2	H	410	C14	C02-C03-C04-C05
2	G	406	C14	C02-C03-C04-C05
2	I	410	C14	C02-C03-C04-C05
2	L	411	C14	C02-C03-C04-C05
2	C	410	C14	C02-C03-C04-C05
2	J	410	C14	C02-C03-C04-C05

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.

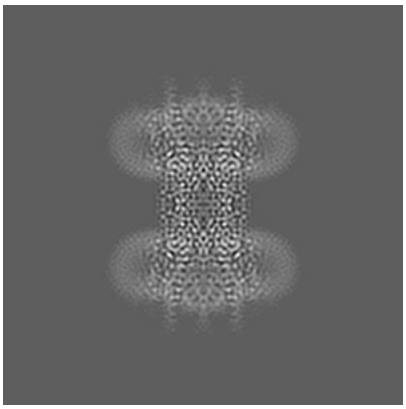
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-31495. These allow visual inspection of the internal detail of the map and identification of artifacts.

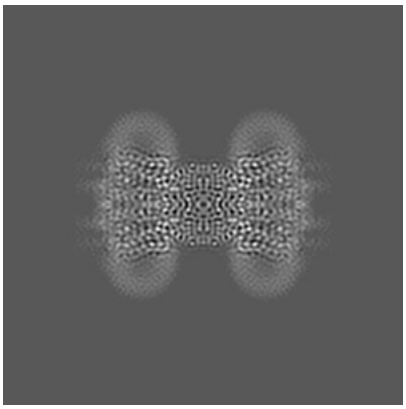
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

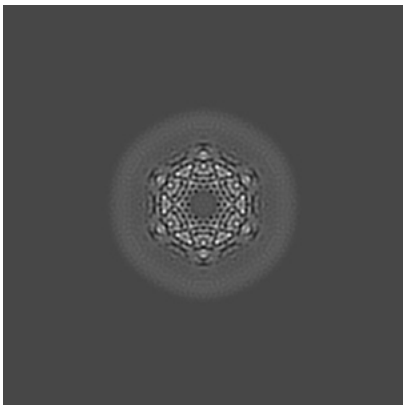
6.1.1 Primary map



X

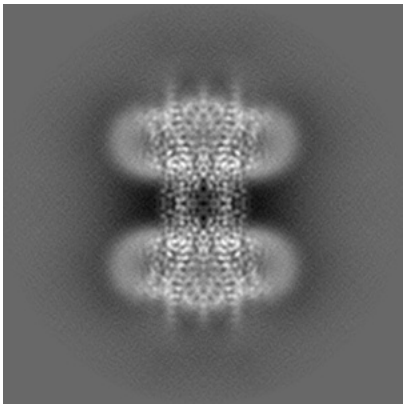


Y

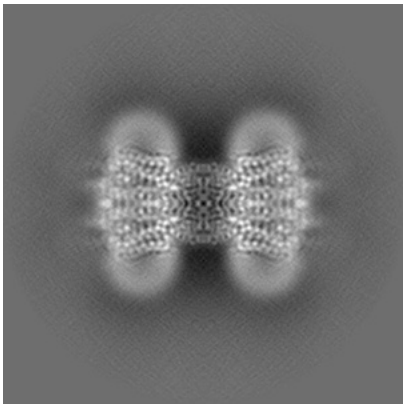


Z

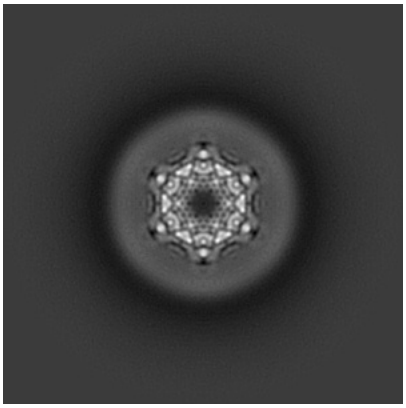
6.1.2 Raw map



X



Y

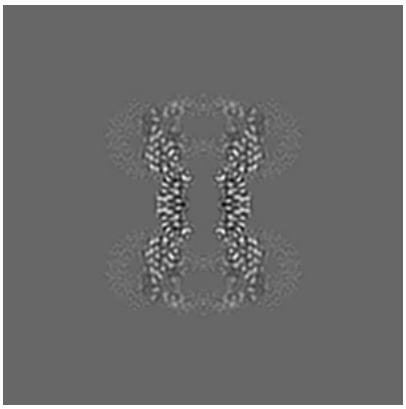


Z

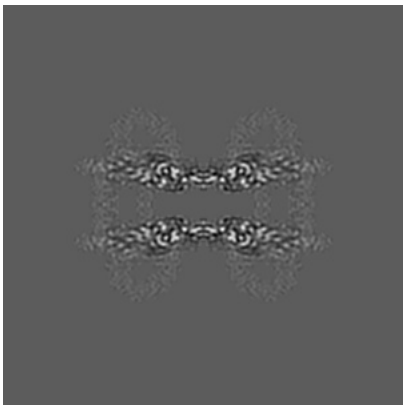
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

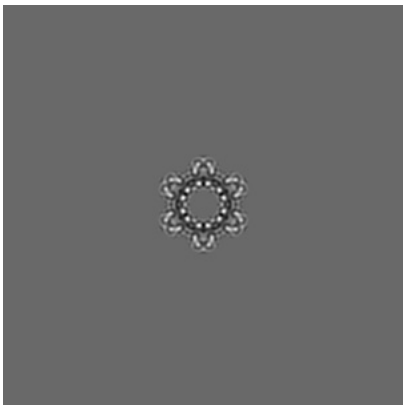
6.2.1 Primary map



X Index: 200

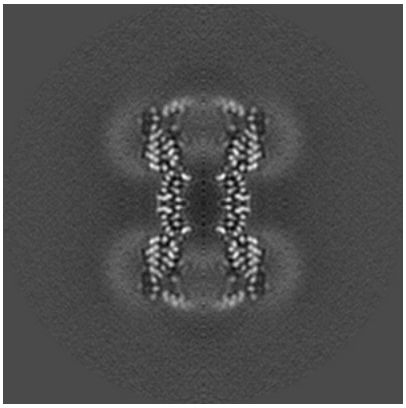


Y Index: 200

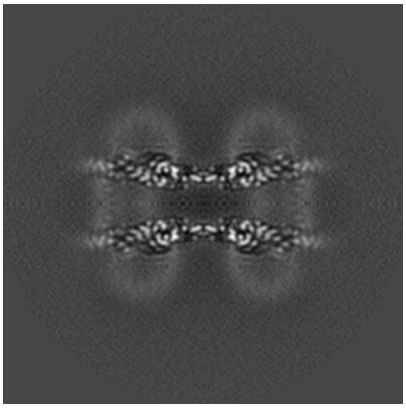


Z Index: 200

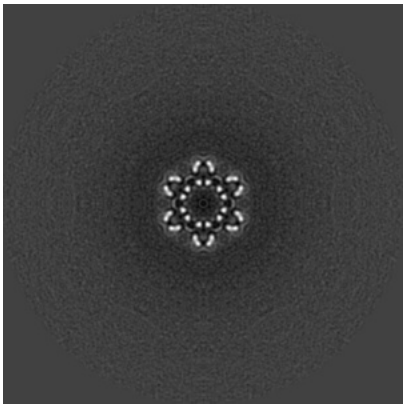
6.2.2 Raw map



X Index: 200



Y Index: 200

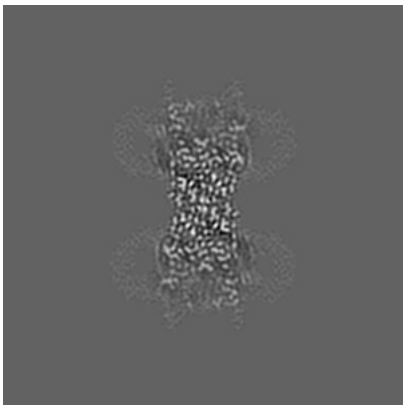


Z Index: 200

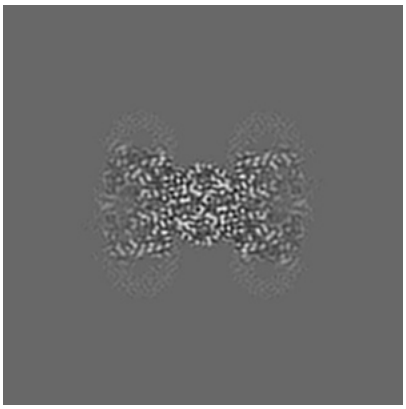
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

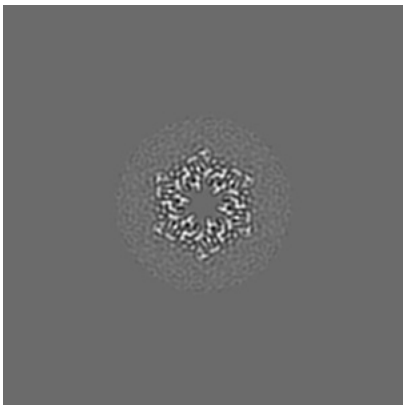
6.3.1 Primary map



X Index: 224

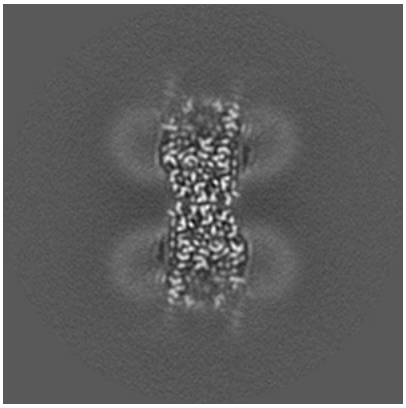


Y Index: 222

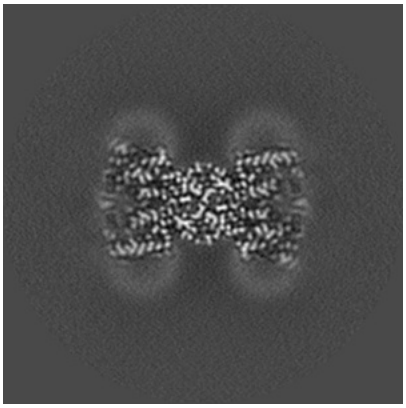


Z Index: 238

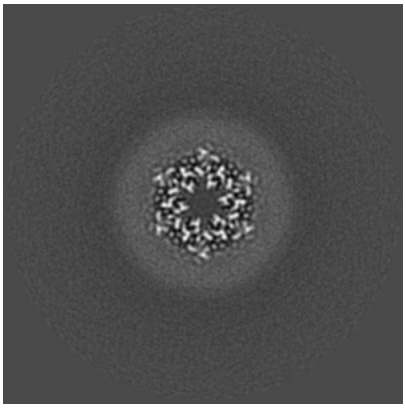
6.3.2 Raw map



X Index: 175



Y Index: 222

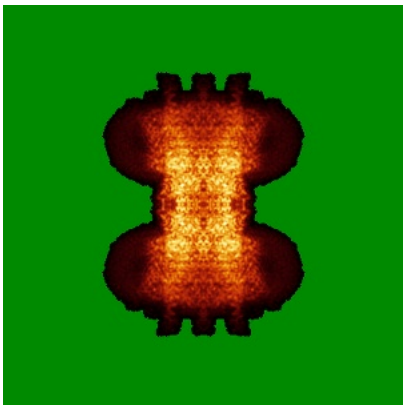


Z Index: 162

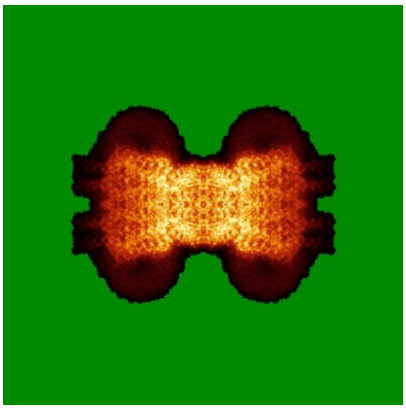
The images above show the largest variance slices of the map in three orthogonal directions.

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

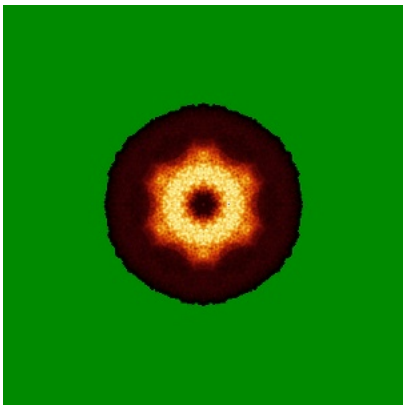
6.4.1 Primary map



X

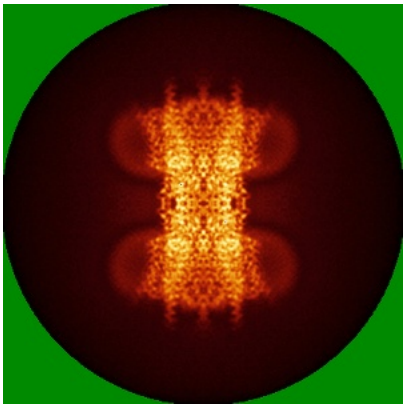


Y

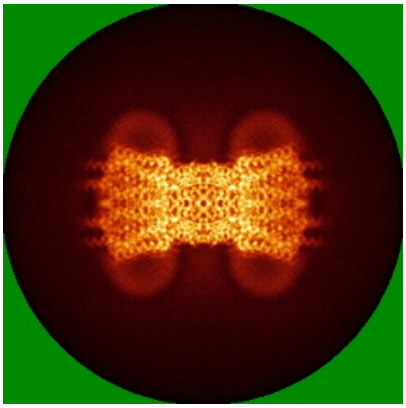


Z

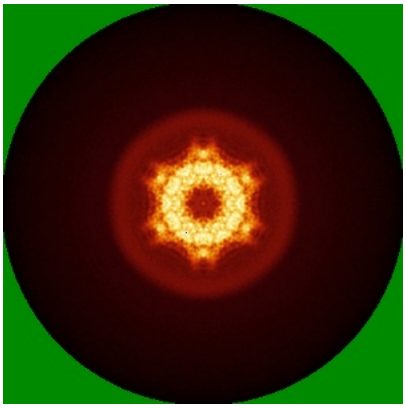
6.4.2 Raw map



X



Y

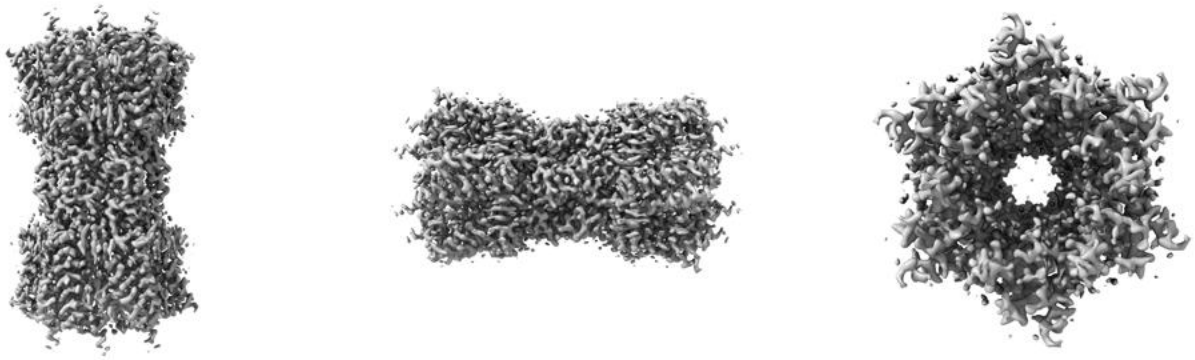


Z

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

6.5 Orthogonal surface views (i)

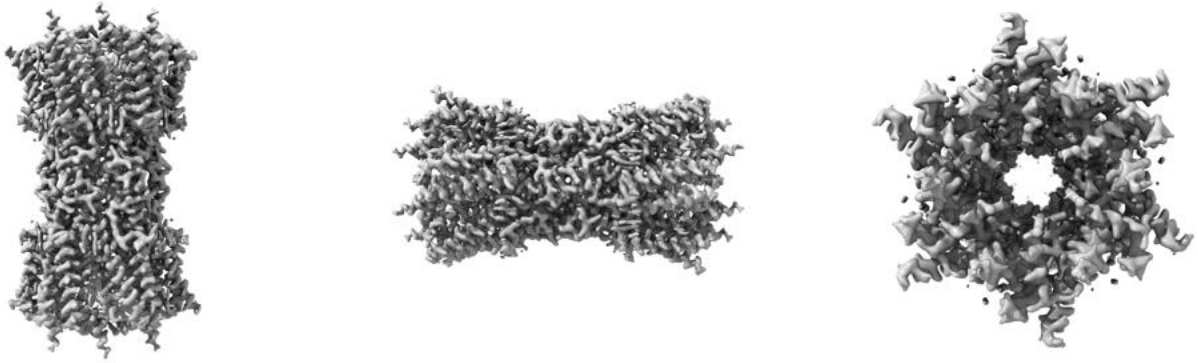
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.032. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

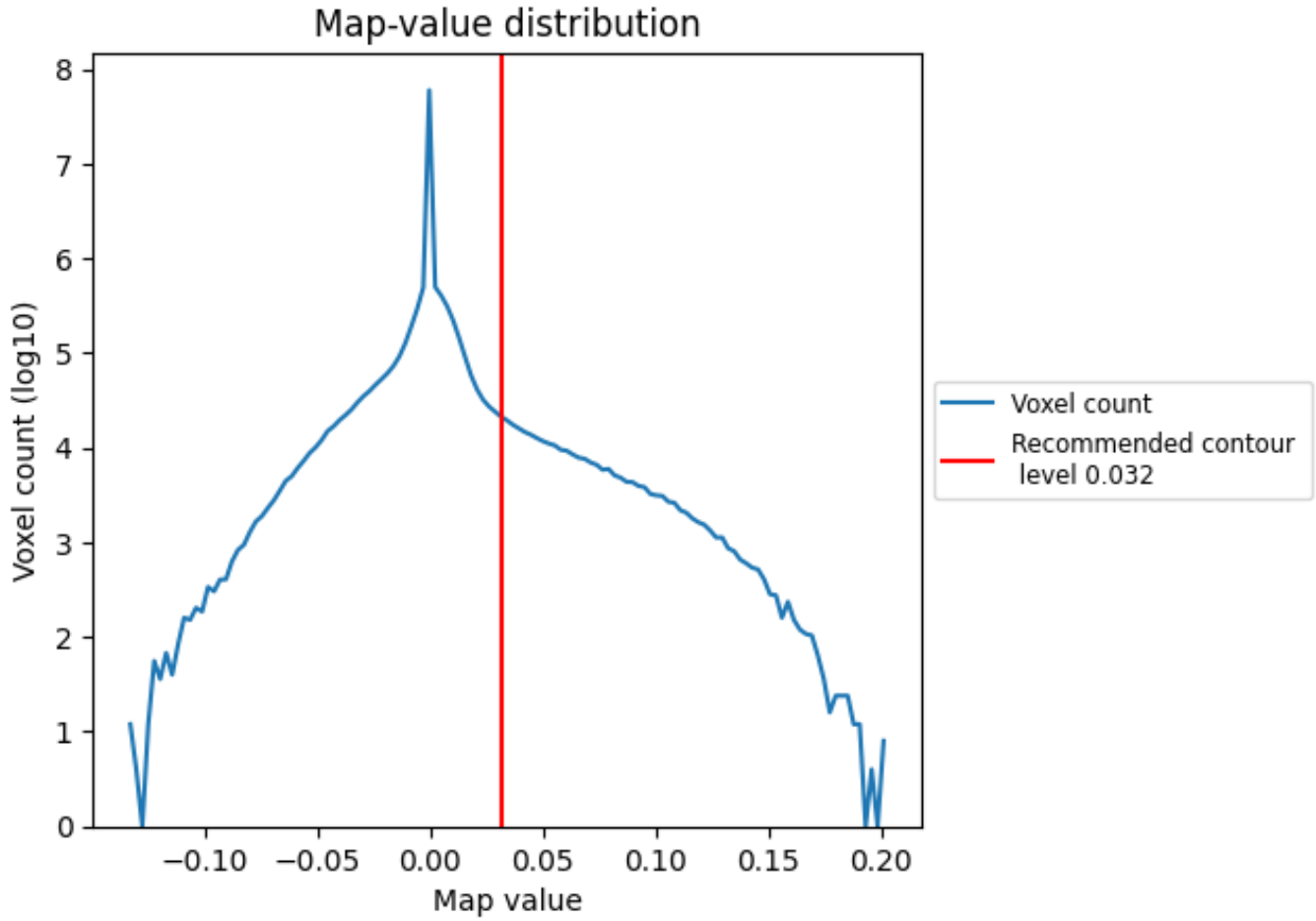
6.6 Mask visualisation (i)

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

7 Map analysis

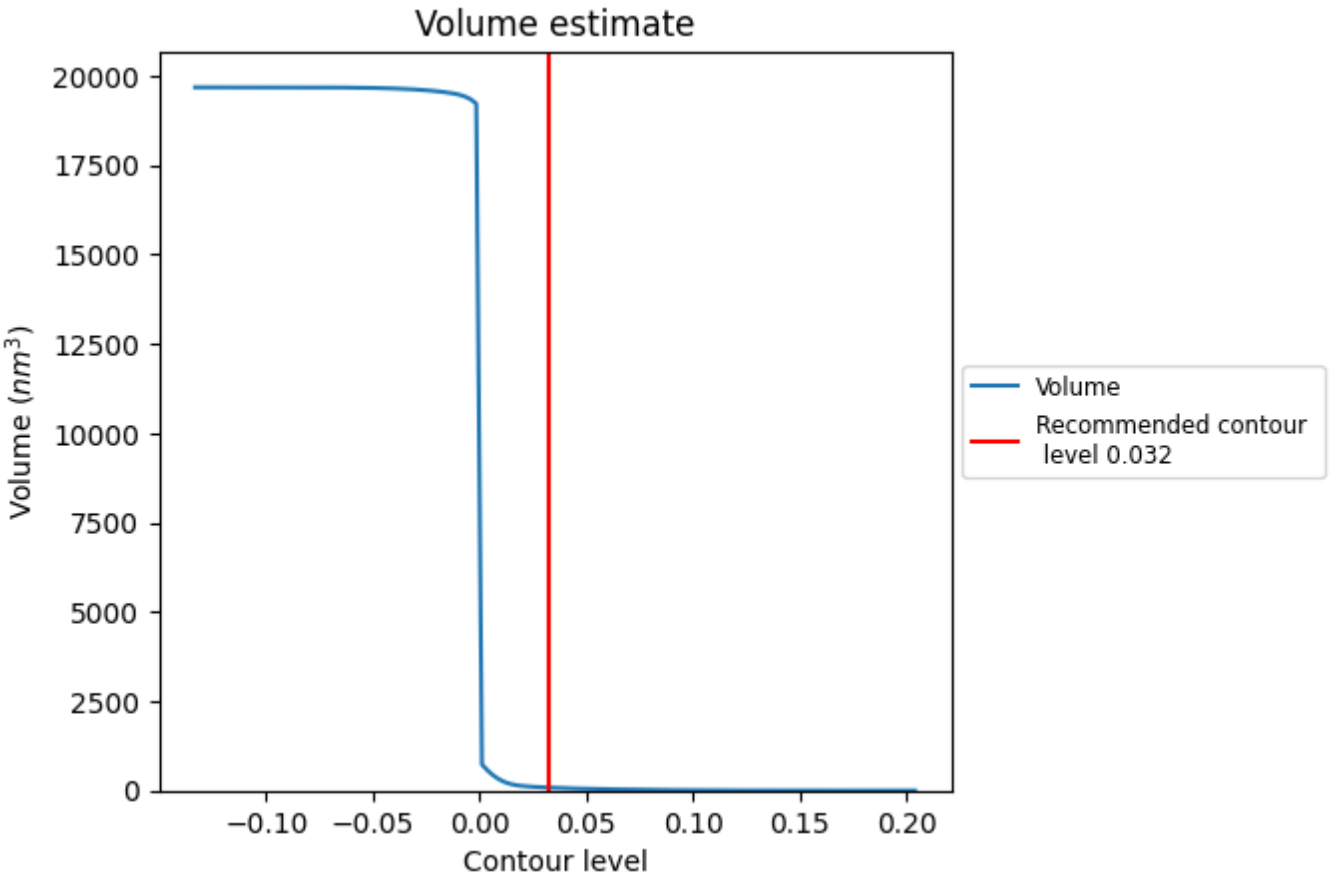
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

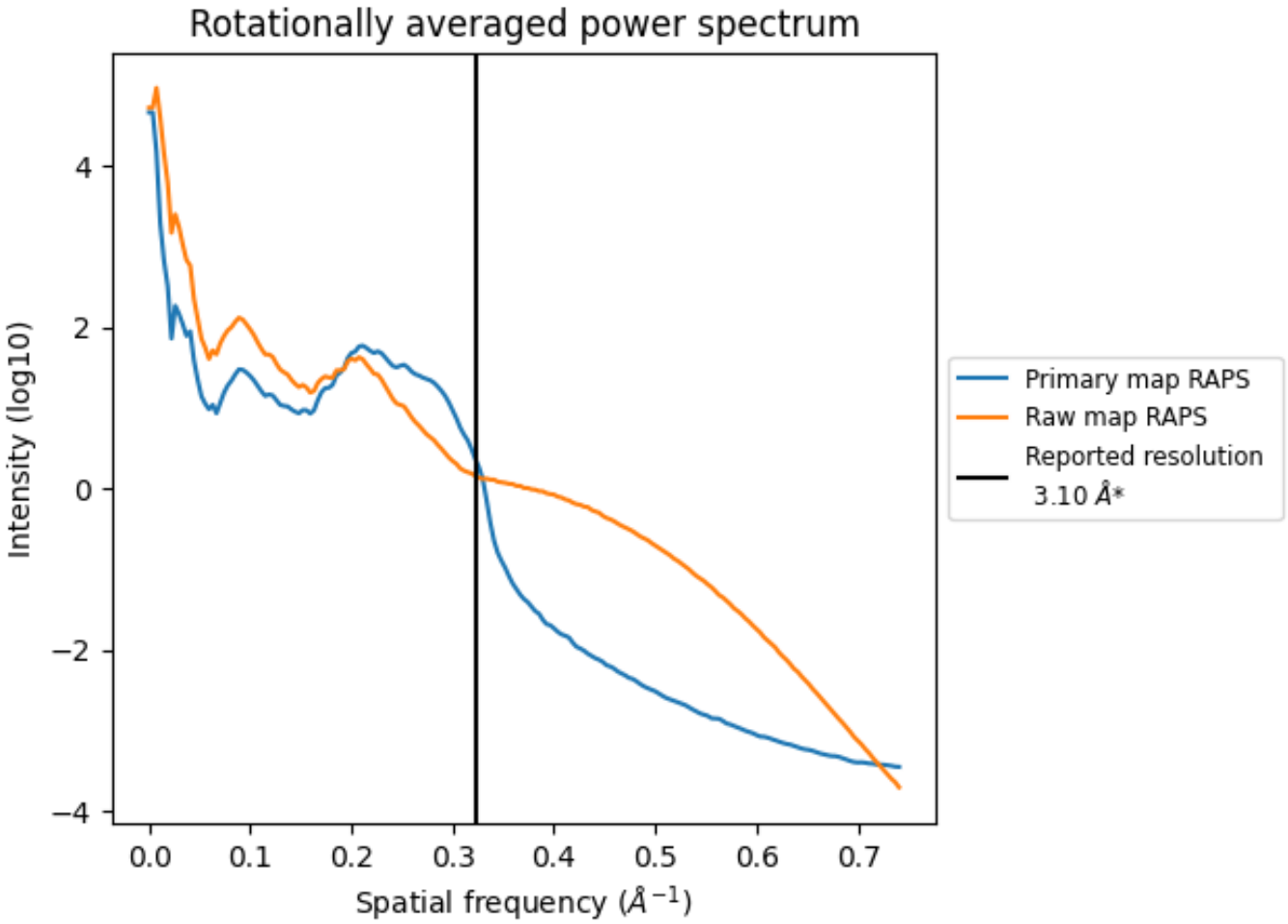
7.2 Volume estimate



The volume at the recommended contour level is 84 nm^3; this corresponds to an approximate mass of 76 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)

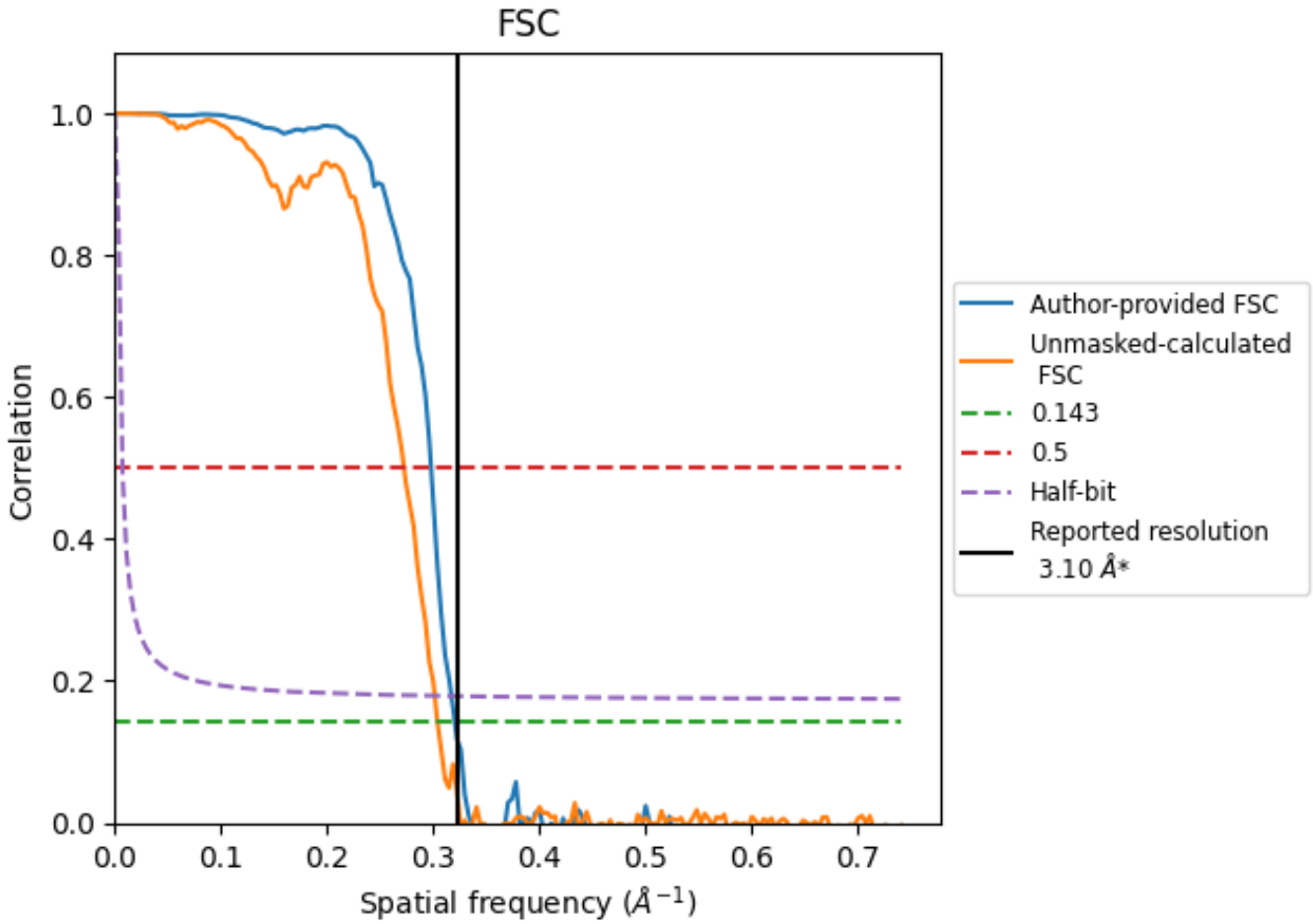


*Reported resolution corresponds to spatial frequency of 0.323 Å^{-1}

8 Fourier-Shell correlation

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.323 Å^{-1}

8.2 Resolution estimates (i)

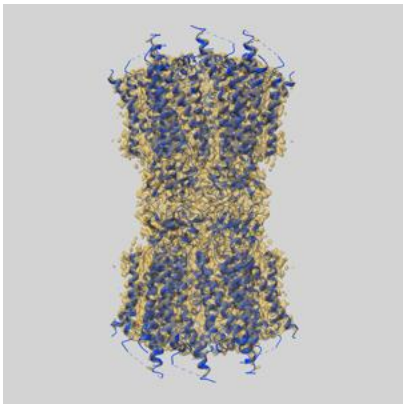
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	3.12	3.36	3.15
Unmasked-calculated*	3.29	3.67	3.32

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

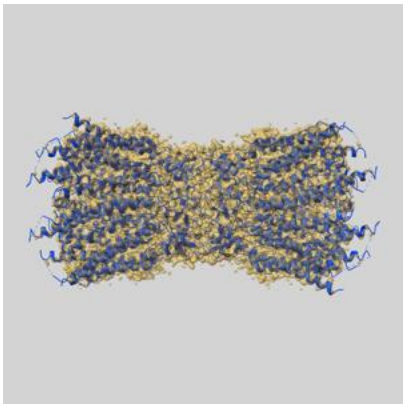
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-31495 and PDB model 7F92. Per-residue inclusion information can be found in section 3 on page 13.

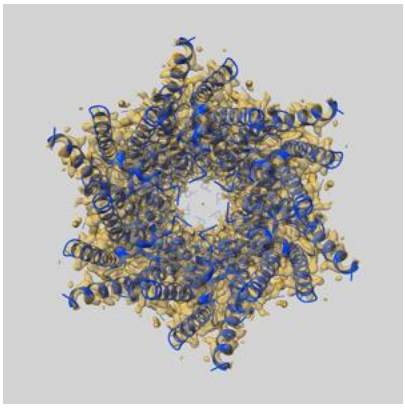
9.1 Map-model overlay



X



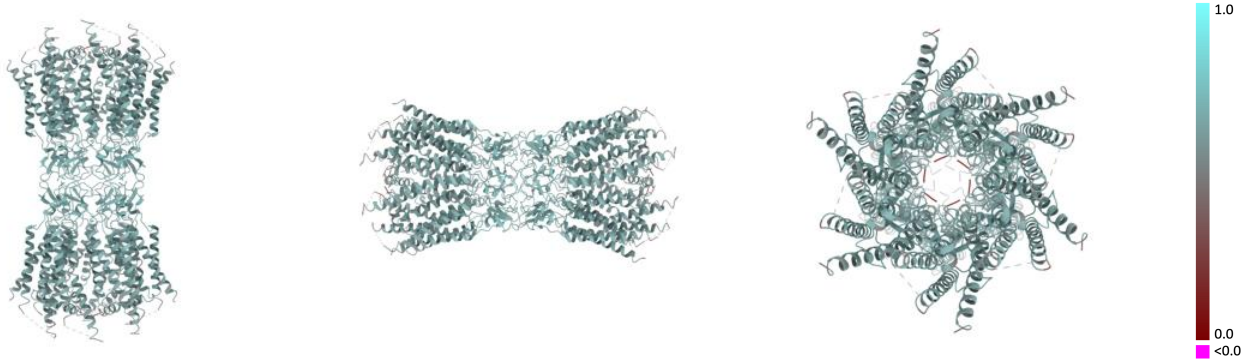
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.032 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

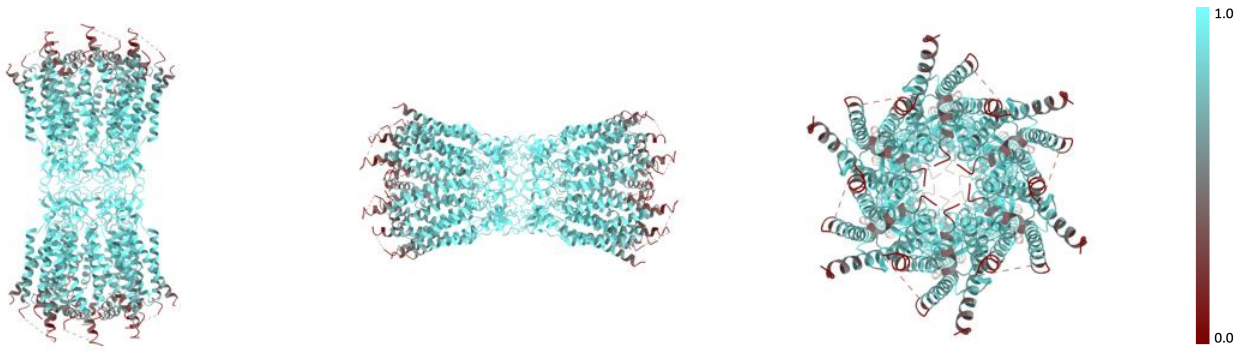
9.2 Q-score mapped to coordinate model



X Y Z

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

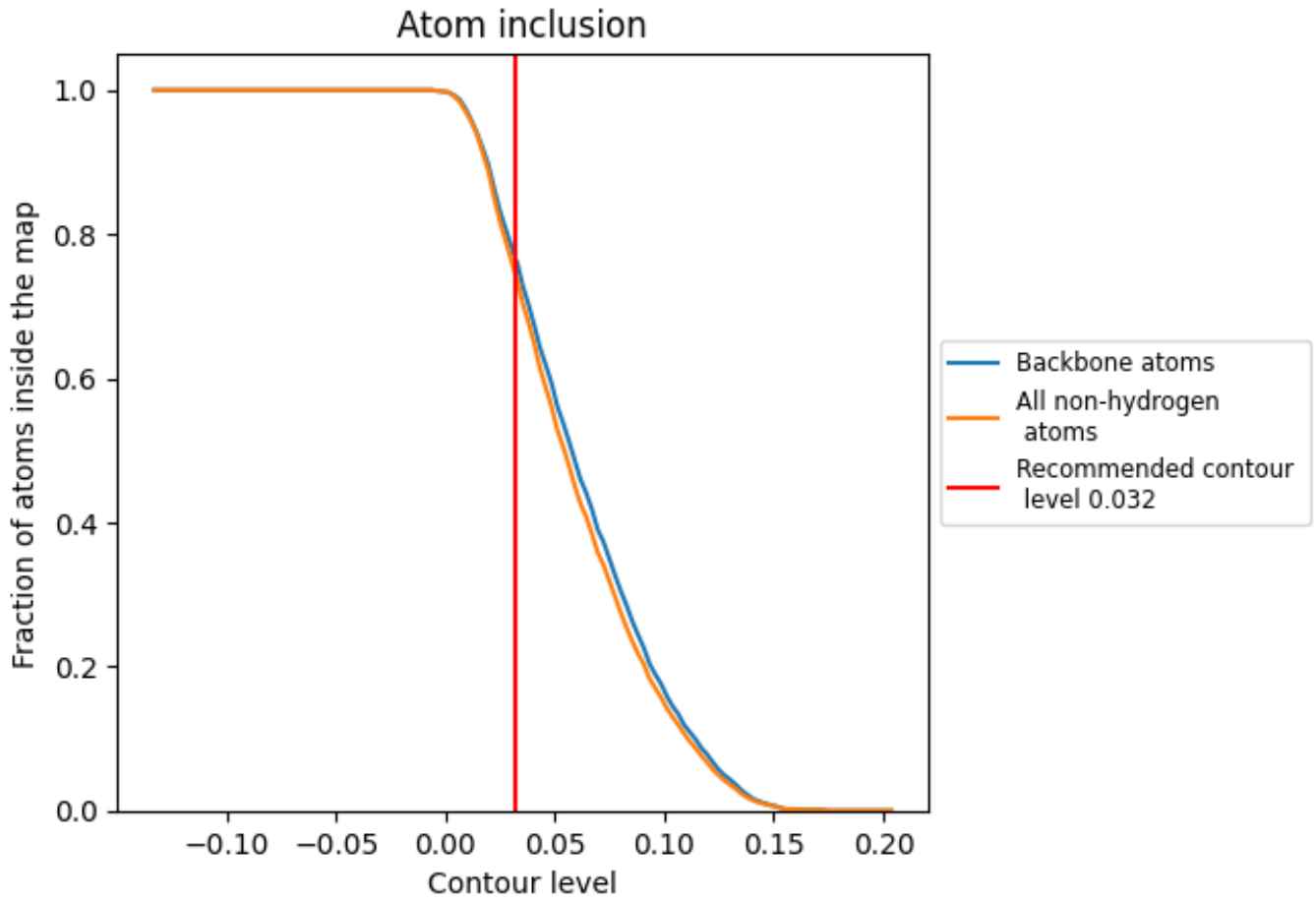
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.032).

9.4 Atom inclusion (i)



At the recommended contour level, 76% of all backbone atoms, 74% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.032) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7430	0.6140
A	0.7460	0.6130
B	0.7500	0.6140
C	0.7460	0.6140
D	0.7460	0.6140
E	0.7500	0.6140
F	0.7460	0.6130
G	0.7460	0.6140
H	0.7460	0.6140
I	0.7500	0.6140
J	0.7460	0.6130
K	0.7460	0.6130
L	0.7500	0.6140