



wwPDB EM Validation Summary Report ⓘ

Jul 19, 2023 – 08:07 pm BST

PDB ID : 8BDA
EMDB ID : EMD-15980
Title : IFTA complex in anterograde intraflagellar transport trains (*Chlamydomonas reinhardtii*)
Authors : Lacey, S.E.; Foster, H.E.; Pigino, G.
Deposited on : 2022-10-18
Resolution : 20.70 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev50
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) : 2.34

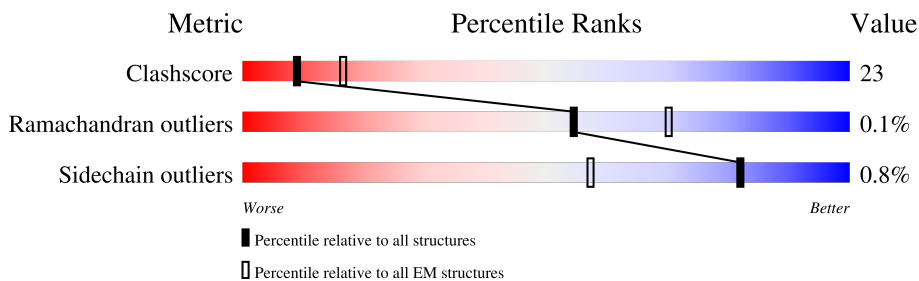
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 20.70 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 $\leq 5\%$. 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	C	1224	
2	E	1355	
3	G	1409	
4	I	1367	
5	L	1239	

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 48086 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 Intraflagellar transport protein 121.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	C	1074	8511	5406	1464	1579	62	0	0

- Molecule 2 is a protein called Intraflagellar transport protein 139.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	E	1325	10464	6587	1860	1956	61	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	188	GLN	GLU	variant	UNP A9XPA6

- Molecule 3 is a protein called Intraflagellar transport particle protein 140.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	G	1354	10600	6657	1867	1998	78	0	0

- Molecule 4 is a protein called Intraflagellar transport protein 144.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	I	1367	10579	6654	1857	1998	70	0	0

- Molecule 5 is a protein called Intraflagellar transport protein 122 homolog.

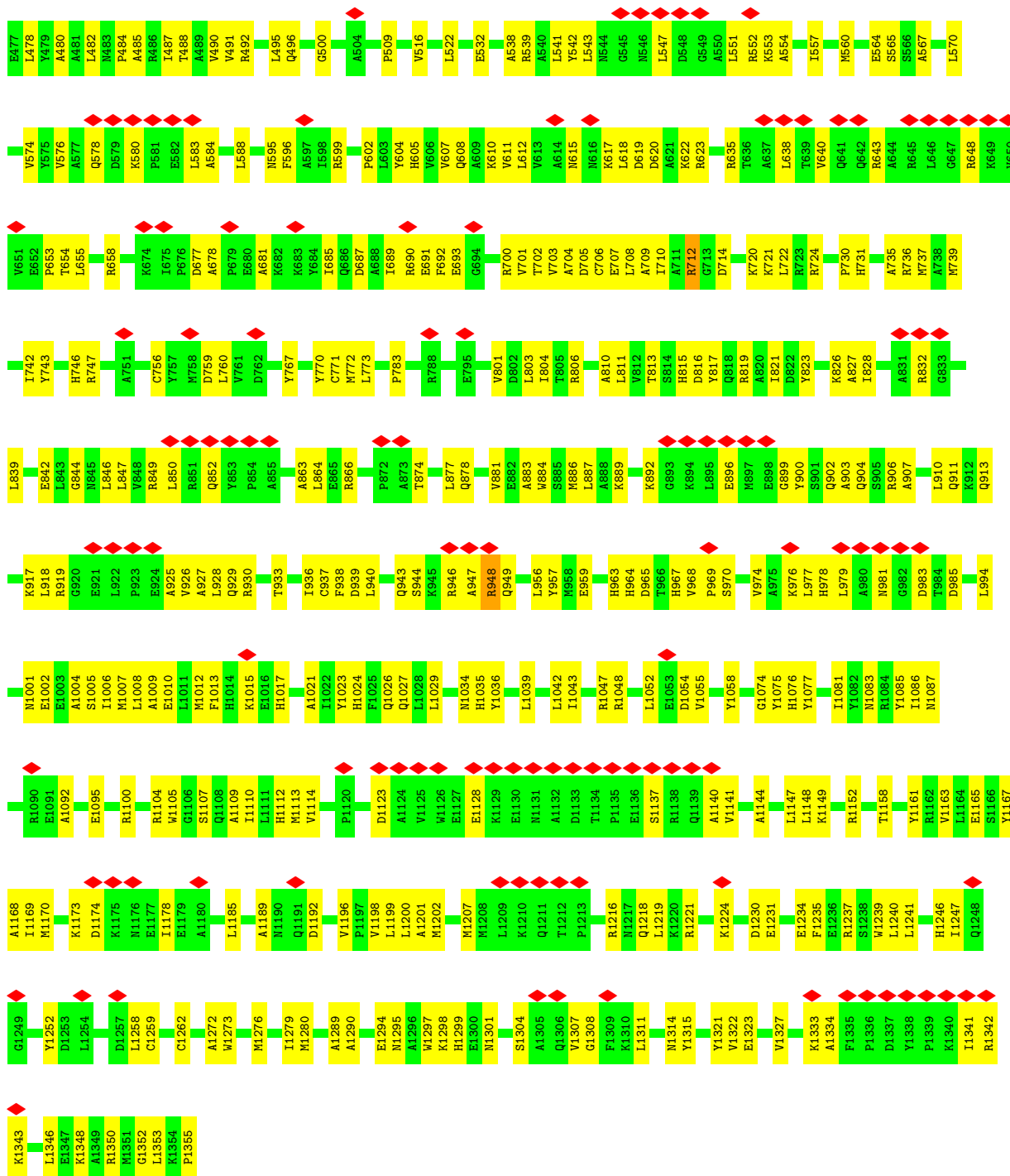
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	L	997	7932	5064	1373	1455	40	0	0

3 Residue-property plots i

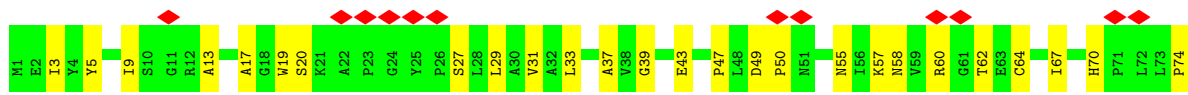
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

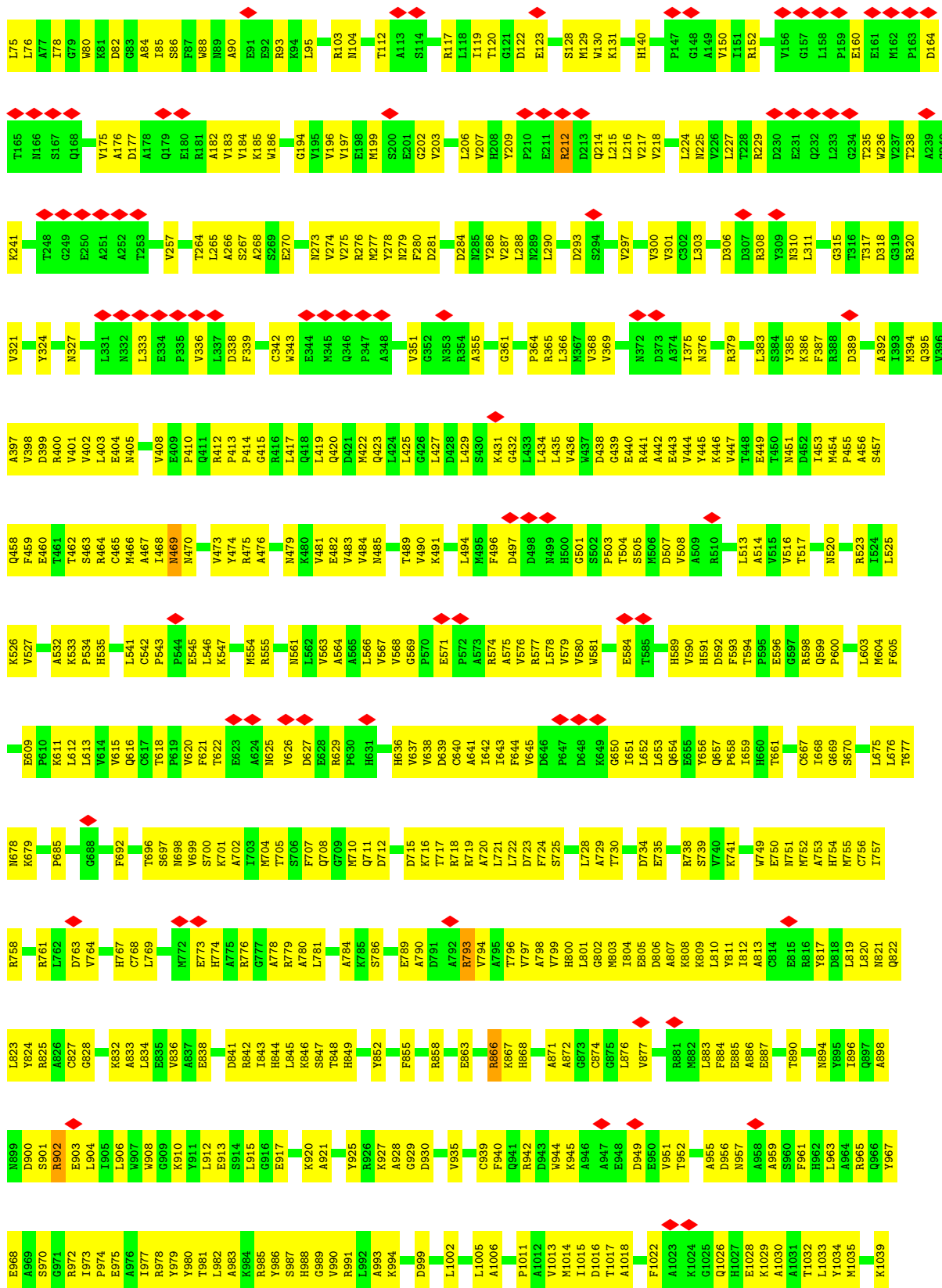
• Molecule 1: Intraflagellar transport protein 121

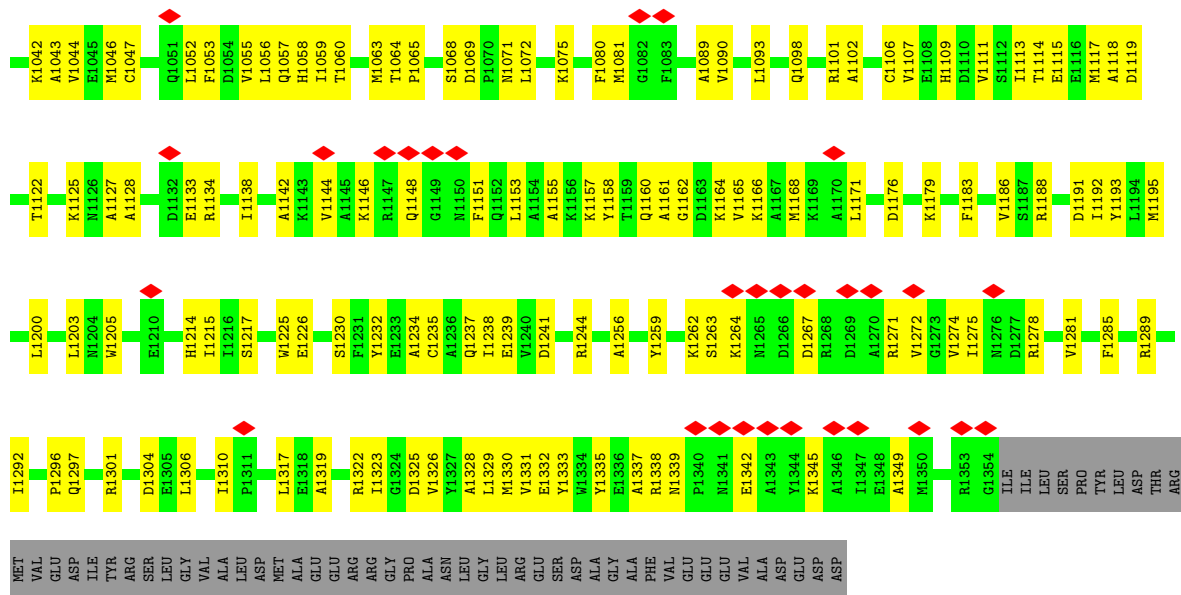




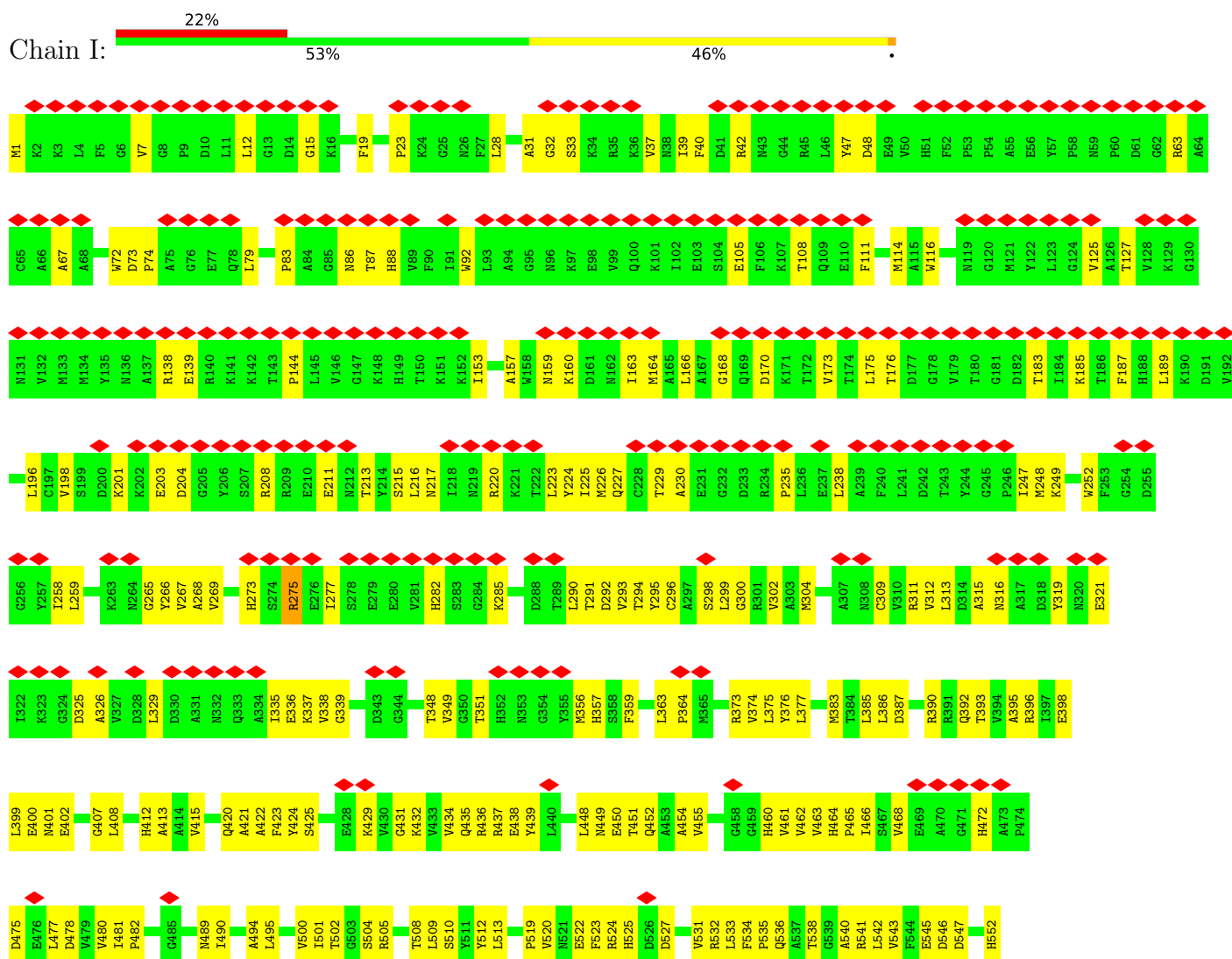
• Molecule 3: Intraflagellar transport particle protein 140

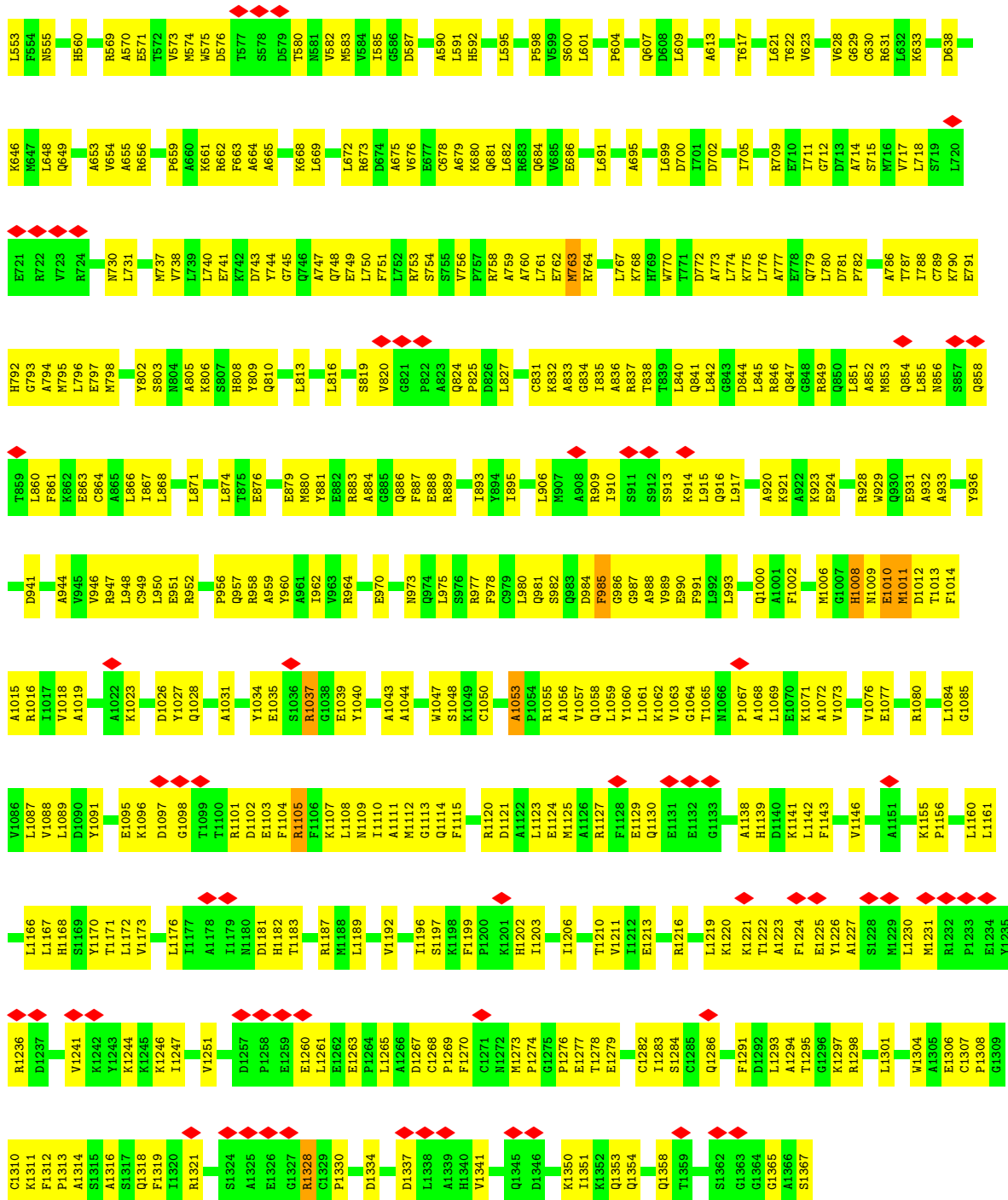




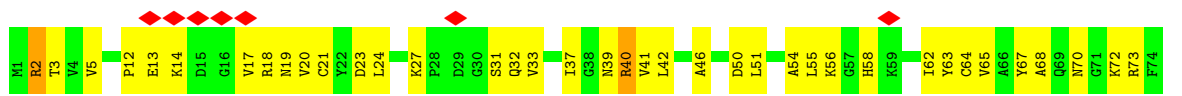


● Molecule 4: Intraflagellar transport protein 144





● Molecule 5: Intraflagellar transport protein 122 homolog



VAL	ASP	ARG	ALA	GLY	ALA	PHE	7919	7841	7775	7696	7627	Q529	V458	H386	Q309	E234	L155	A75
ASP	ARG	ALA	LEU	LEU	GLY	SER	A928	R842	K776	R699	E632	R830	R459	V387	M310	Y235	G156	S76
ALA	LEU	LEU	LEU	LEU	LEU	LYS	S929	R843	W777	R700	Q633	L531	C460	L389	T311	T236	G157	G77
MET	LEU	GLY	LEU	LEU	GLY	GLU	R930	R844	D778	Q905	Q634	F534	L461	L388	G	T237	F158	G78
ARG	GLU	GLY	ASP	ASP	GLY	GLY	E845	Q846	D779	E705	L635	F535	L462	L389	I314	G240	I162	G79
ARG	ASP	ASP	ASP	ASP	ASP	LEU	R847	L847	T780	A713	L636	I643	C390	L318	I315	T241	S163	V83
ARG	ASP	ASP	ASP	ASP	ASP	LEU	C848	C848	L783	A717	L637	I644	C391	H317	I316	T242	S164	I84
LEU	PRO	PRO	PRO	PRO	PRO	PRO	A849	A849	I784	Y717	E638	L546	M468	L317	I317	D243	S165	I85
LEU	PRO	PRO	PRO	PRO	PRO	PRO	R850	R850	L785	Y121	I639	L547	M469	L318	I318	T244	I166	I86
LYS	THR	THR	THR	THR	THR	CYS	R851	R851	L786	A720	M640	M551	A471	E321	I319	V245	G168	T87
THR	THR	THR	THR	THR	THR	CYS	R852	R852	L787	A721	M641	M552	A472	E322	I320	V246	G169	T88
ALA	ALA	ALA	ALA	ALA	ALA	CYS	R853	R853	L788	A722	M642	M553	A473	E323	I321	V247	G170	T89
VAL	VAL	VAL	VAL	VAL	VAL	CYS	R854	R854	L789	K721	F642	M554	A474	E324	I322	V248	G171	T90
VAL	MET	MET	MET	MET	MET	THR	A790	A790	I784	Y723	R645	M562	K475	E405	C328	T249	E171	K89
VAL	MET	MET	MET	MET	MET	THR	R791	R791	L785	Y724	R646	M563	K476	E406	C329	T250	E172	K90
THR	THR	THR	THR	THR	THR	THR	R792	R792	L786	D724	Q647	M564	K477	E407	D330	R251	K172	L94
TRP	TRP	TRP	TRP	TRP	TRP	ASN	R793	R793	L787	R725	Q648	M565	K478	E408	D331	D252	K173	L95
PRO	PRO	PRO	PRO	PRO	PRO	ASN	Y796	Y796	L788	I727	E649	M566	K479	E409	D332	G253	K174	L96
ASN	ASN	ASN	ASN	ASN	ASN	LEU	A796	A796	L789	A728	E649	M567	K480	E410	D333	L255	K175	A101
LEU	LEU	LEU	LEU	LEU	LEU	LEU	F797	F797	L790	A729	E650	M568	K481	E411	D334	G178	P179	I102
LEU	LEU	LEU	LEU	LEU	LEU	LEU	R798	R798	L791	I729	E651	M569	K482	E412	D335	P180	P179	Q103
GLN	GLN	GLN	GLN	GLN	GLN	ASN	Q866	Q866	L792	L730	L652	M570	K483	E413	D336	P181	P180	Q104
GLN	GLN	GLN	GLN	GLN	GLN	ASN	L867	L867	L793	L731	L653	M571	K484	E414	D337	P182	P181	C104
PRO	PRO	PRO	PRO	PRO	PRO	GLY	L871	L871	L794	L732	L654	M572	K485	E415	D338	P183	P182	Y107
LYS	LYS	LYS	LYS	LYS	LYS	GLY	R801	R801	L795	K732	T654	M573	K486	E416	D339	P184	P183	M108
ALA	ALA	ALA	ALA	ALA	ALA	ASP	R802	R802	L796	W735	G657	M574	K487	E417	D340	P185	P184	M109
ALA	ALA	ALA	ALA	ALA	ALA	ASP	A802	A802	L797	W736	G658	M575	K488	E418	D341	P186	P185	M110
GLN	GLN	GLN	GLN	GLN	GLN	TYR	R803	R803	L798	D737	E658	M576	K489	E419	D342	P187	P186	M111
TYR	TYR	TYR	TYR	TYR	TYR	CYS	R804	R804	L799	D738	E659	M577	K490	E420	D343	P188	P187	M112
PHE	PHE	PHE	PHE	PHE	PHE	ILE	E805	E805	L800	L739	L655	M578	K491	E421	D344	P189	P188	M113
ARG	ARG	ARG	ARG	ARG	ARG	ASN	R806	R806	L801	L740	L656	M579	K492	E422	D345	P190	P189	M114
VAL	VAL	VAL	VAL	VAL	VAL	CYS	C806	C806	L802	L741	L657	M580	K493	E423	D346	P191	P190	A117
VAL	VAL	VAL	VAL	VAL	VAL	CYS	R807	R807	L803	W742	A662	M581	K494	E424	D347	P192	P191	M188
ASN	ASN	ASN	ASN	ASN	ASN	ALA	R808	R808	L804	V743	A663	M582	K495	E425	D348	P193	P192	M189
ASP	ASP	ASP	ASP	ASP	ASP	ALA	Q808	Q808	L805	V744	E664	M583	K496	E426	D349	P194	P193	M190
GLN	GLN	GLN	GLN	GLN	GLN	PRO	R810	R810	L806	R744	E665	M584	K497	E427	D350	P195	P194	E191
GLN	GLN	GLN	GLN	GLN	GLN	PHE	L810	L810	L807	R745	E666	M585	K498	E428	D351	P196	P195	V121
GLY	GLY	GLY	GLY	GLY	GLY	ILE	R811	R811	L808	Q746	F666	M586	K499	E429	D352	P197	P196	V122
ASP	ASP	ASP	ASP	ASP	ASP	ARG	L812	L812	L809	L746	F667	M587	K500	E430	D353	P198	P197	V123
LEU	LEU	LEU	LEU	LEU	LEU	ARG	R813	R813	L810	L747	S667	M588	K501	E431	D354	P199	P198	G123
ASN	ASN	ASN	ASN	ASN	ASN	SER	P813	P813	L811	D747	S668	M589	K502	E432	D355	P200	P199	L124
ASN	ASN	ASN	ASN	ASN	ASN	PHE	Y814	Y814	L812	K748	D668	M590	K503	E433	D356	P201	P200	L125
VAL	VAL	VAL	VAL	VAL	VAL	VAL	A815	A815	L813	T749	D669	M591	K504	E434	D357	P202	P201	L126
THR	THR	THR	THR	THR	THR	THR	R816	R816	L814	D750	F672	M592	K505	E435	D358	P203	P202	L127
THR	THR	THR	THR	THR	THR	THR	W817	W817	L815	A751	D673	M593	K506	E436	D359	P204	P203	L128
GLY	GLY	GLY	GLY	GLY	GLY	GLY	L818	L818	L816	R752	E674	M594	K507	E437	D360	P205	P204	L129
GLY	GLY	GLY	GLY	GLY	GLY	GLY	R819	R819	L817	C753	A675	M595	K508	E438	D361	P206	P205	L130
HIS	HIS	HIS	HIS	HIS	HIS	HIS	S819	S819	L818	L754	K676	M596	K509	E439	D362	P207	P206	L131
ASP	ASP	ASP	ASP	ASP	ASP	ASP	D822	D822	L819	G755	K677	M597	K510	E440	D363	P208	P207	L132
PHE	PHE	PHE	PHE	PHE	PHE	PHE	R823	R823	L820	C757	K677	M598	K511	E441	D364	P209	P208	L133
PHE	PHE	PHE	PHE	PHE	PHE	PHE	F824	F824	L821	F757	K678	M599	K512	E442	D365	P210	P209	L134
GLN	GLN	GLN	GLN	GLN	GLN	GLN	A827	A827	L822	A679	F682	M600	K513	E443	D366	P211	P210	L135
ASP	ASP	ASP	ASP	ASP	ASP	ASP	R828	R828	L823	F761	A683	M601	K514	E444	D367	P212	P211	L136
GLU	GLU	GLU	GLU	GLU	GLU	GLU	R829	R829	L824	R762	A684	M602	K515	E445	D368	P213	P212	L137
GLU	GLU	GLU	GLU	GLU	GLU	GLU	A830	A830	L825	R763	G686	M603	K516	E446	D369	P214	P213	L138
GLU	GLU	GLU	GLU	GLU	GLU	GLU	R831	R831	L826	A764	R687	M604	K517	E447	D370	P215	P214	L139
ALA	ALA	ALA	ALA	ALA	ALA	ALA	Q832	Q832	L827	F767	R688	M605	K518	E448	D371	P216	P215	L140
ALA	ALA	ALA	ALA	ALA	ALA	ALA	R833	R833	L828	F768	A688	M606	K519	E449	D372	P217	P216	L141
ASN	ASN	ASN	ASN	ASN	ASN	ASN	G834	G834	L829	K771	S692	M607	K520	E450	D373	P218	P217	L142
LEU	LEU	LEU	LEU	LEU	LEU	LEU	R837	R837	L830	W772	A689	M608	K521	E451	D374	P219	P218	L143
THR	THR	THR	THR	THR	THR	THR	A840	A840	L831	T773	Q694	M609	K522	E452	D375	P220	P219	L144
ILE	ILE	ILE	ILE	ILE	ILE	ILE	L774	L774	L832	L774	E695	M610	K523	E453	D376	P221	P220	L145
ARG	ARG	ARG	ARG	ARG	ARG	ARG	L775	L775	L833	L775	F696	M611	K524	E454	D377	P222	P221	L146
ARG	ARG	ARG	ARG	ARG	ARG	ARG	L776	L776	L834	L776	E697	M612	K525	E455	D378	P223	P222	L147
GLY	GLY	GLY	GLY	GLY	GLY	GLY	L777	L777	L835	L777	F697	M613	K526	E456	D379	P224	P223	L148
GLY	GLY	GLY	GLY	GLY	GLY	GLY	L778	L778	L836	L778	E698	M614	K527	E457	D380	P225	P224	L149
GLY	GLY	GLY	GLY	GLY	GLY	GLY	L779	L779	L837	L779	F698	M615	K528	E458	D381	P226	P225	L150
GLY	GLY	GLY	GLY	GLY	GLY	GLY	L780	L780	L838	L780	E699	M616	K529	E459	D382	P227	P226	L151
GLY	GLY	GLY	GLY	GLY	GLY	GLY	L781	L781	L839	L781	F699	M617	K530	E460	D383	P228	P227	L152
GLY	GLY	GLY	GLY	GLY	GLY	GLY	L782	L782	L840	L782	E700	M618	K531	E461	D384	P229	P228	L153
GLY	GLY	GLY	GLY	GLY	GLY	GLY	L783	L783	L841	L783	F700	M619	K532	E462	D385	P230	P229	L154
GLY	GLY	GLY	GLY	GLY	GLY	GLY	L784	L784	L842	L784	E701	M620	K533	E463	D386	P231	P230	L155
GLY	GLY	GLY	GLY	GLY	GLY	GLY	L785	L785	L843	L785	F701	M621	K534	E464	D387	P232	P231	L156
GLY																		

THR
ALA
PRO
PHE
SER
ARG
THR
THR
VAL
ARG
GLY
GLY
GLY
LEU
ALA
PRO
GLY
GLY
ASP
ALA
GLY
GLY
ASP
ASP
GLY
ALA
GLY
GLY
ASN
LYS
LEU
GLY
GLY
PRO
LEU
GLY
SER
ALA
ALA
ARG
GLY
PRO
ILE
GLY
GLY
ALA
SER
LYS
ALA
ARG
MET
SER
SER
VAL
PRO
PHE
GLN
GLN
GLY
GLY
ARG
PRO
LEU
VAL

4 Experimental information

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of subtomograms used	3897	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION; Warp/Relion/M - CTF Refinement in M	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	104	Depositor
Minimum defocus (nm)	2500	Depositor
Maximum defocus (nm)	5000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	2.122	Depositor
Minimum map value	-1.291	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.098	Depositor
Recommended contour level	0.5	Depositor
Map size (\AA)	727.2, 727.2, 727.2	wwPDB
Map dimensions	120, 120, 120	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	6.06, 6.06, 6.06	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	C	0.30	0/8701	0.57	0/11769
2	E	0.31	0/10649	0.61	0/14397
3	G	0.33	0/10815	0.63	0/14651
4	I	0.32	0/10781	0.61	0/14601
5	L	0.33	0/8108	0.61	0/10978
All	All	0.32	0/49054	0.61	0/66396

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 [i](#)

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	C	8511	0	8356	348	0
2	E	10464	0	10515	374	0
3	G	10600	0	10441	569	0
4	I	10579	0	10549	516	0
5	L	7932	0	7900	470	0
All	All	48086	0	47761	2227	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 23.

The worst 5 of 2227 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)
5:L:796:ALA:HB1	5:L:800:LEU:HG	1.44	0.98
3:G:1028:GLU:HA	3:G:1052:LEU:HD11	1.45	0.98
2:E:1144:ALA:O	2:E:1148:LEU:HB2	1.65	0.96
5:L:907:GLU:O	5:L:911:LYS:HB2	1.70	0.91
1:C:445:GLN:HE22	1:C:524:PRO:HB3	1.38	0.89

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	C	1070/1224 (87%)	974 (91%)	96 (9%)	0	100	100
2	E	1321/1355 (98%)	1229 (93%)	91 (7%)	1 (0%)	51	86
3	G	1352/1409 (96%)	1191 (88%)	160 (12%)	1 (0%)	51	86
4	I	1365/1367 (100%)	1245 (91%)	116 (8%)	4 (0%)	41	77
5	L	995/1239 (80%)	872 (88%)	121 (12%)	2 (0%)	47	81
All	All	6103/6594 (93%)	5511 (90%)	584 (10%)	8 (0%)	54	86

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	E	730	PRO
3	G	1165	VAL
4	I	1053	ALA
5	L	778	ASP
4	I	1008	HIS

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	C	904/1005 (90%)	897 (99%)	7 (1%)	81	89
2	E	1092/1114 (98%)	1082 (99%)	10 (1%)	78	87
3	G	1117/1162 (96%)	1107 (99%)	10 (1%)	78	87
4	I	1119/1119 (100%)	1112 (99%)	7 (1%)	86	92
5	L	840/1035 (81%)	834 (99%)	6 (1%)	84	90
All	All	5072/5435 (93%)	5032 (99%)	40 (1%)	82	89

5 of 40 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	I	763	MET
5	L	40	ARG
4	I	1011	MET
4	I	1221	LYS
5	L	418	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 24 such sidechains are listed below:

Mol	Chain	Res	Type
4	I	227	GLN
4	I	811	GLN
4	I	792	HIS
4	I	1052	GLN
2	E	289	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](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-15980. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

6.1.1 Primary map



X

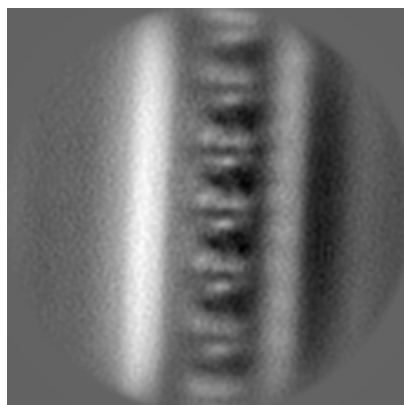


Y

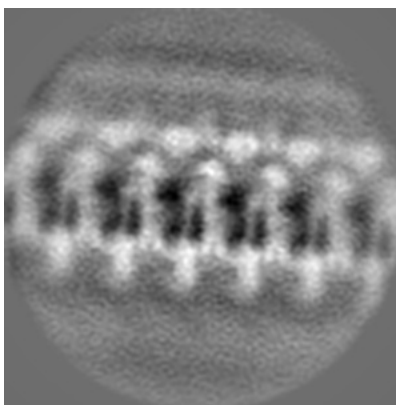


Z

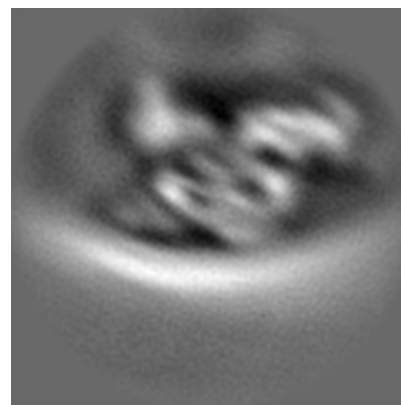
6.1.2 Raw map



X



Y



Z

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

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 60

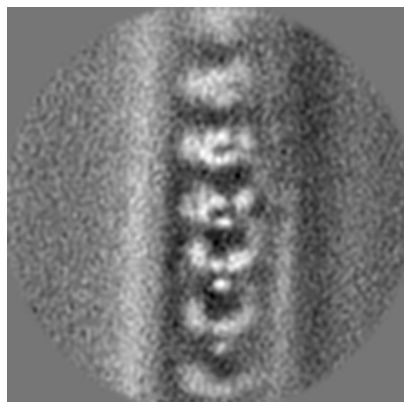


Y Index: 60

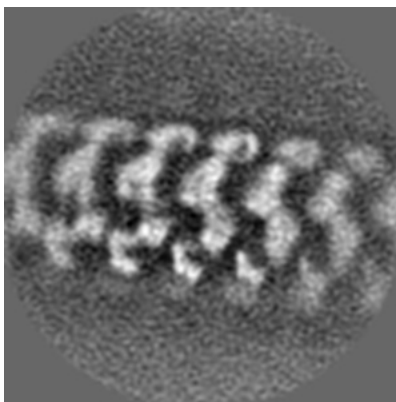


Z Index: 60

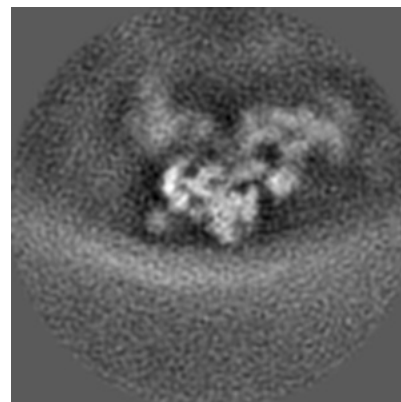
6.2.2 Raw map



X Index: 60



Y Index: 60



Z Index: 60

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: 48



Y Index: 63

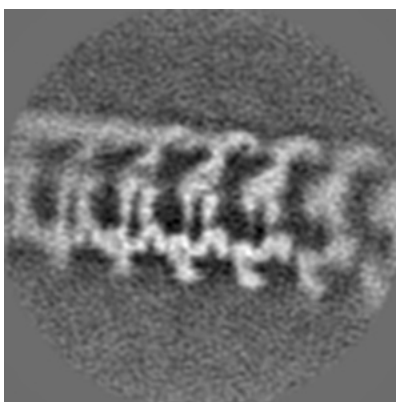


Z Index: 61

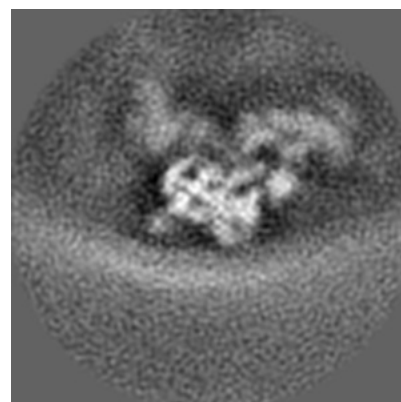
6.3.2 Raw map



X Index: 49



Y Index: 63



Z Index: 61

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

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

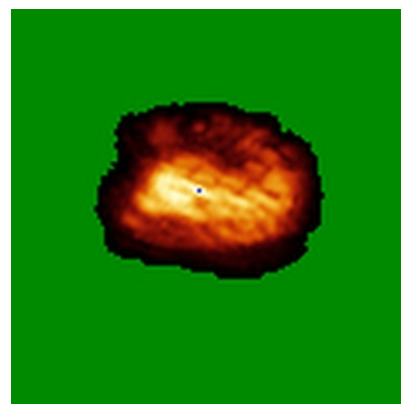
6.4.1 Primary map



X

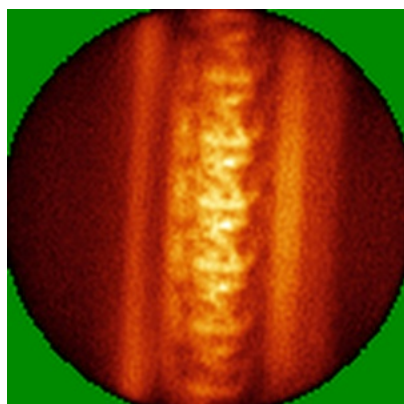


Y

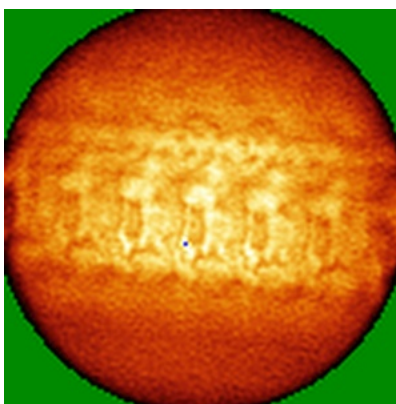


Z

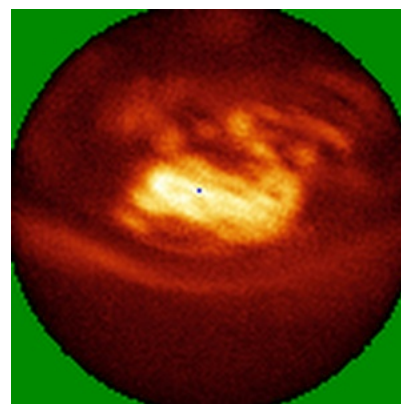
6.4.2 Raw map



X



Y



Z

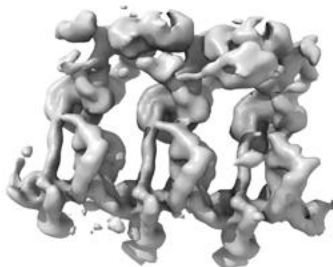
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

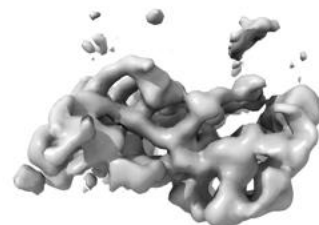
6.5.1 Primary map



X



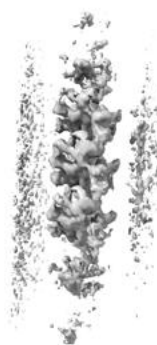
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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.

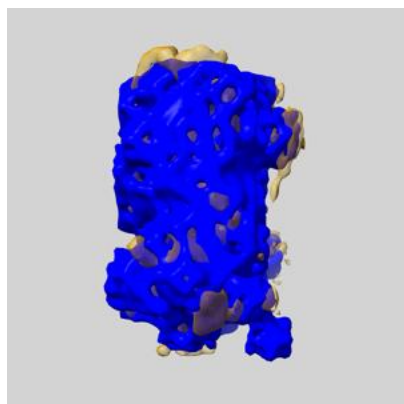
6.6 Mask visualisation [i](#)

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

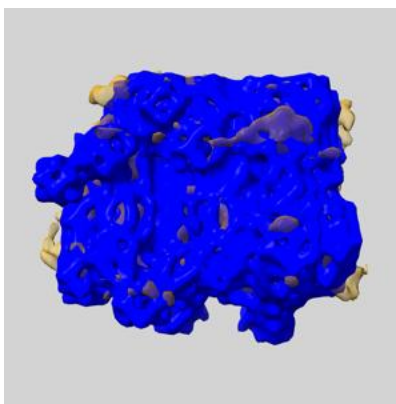
A mask typically either:

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

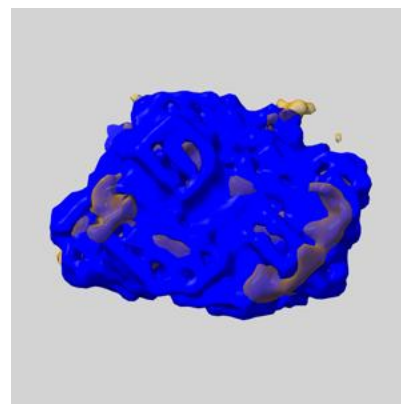
6.6.1 emd_15980_msk_1.map [i](#)



X



Y

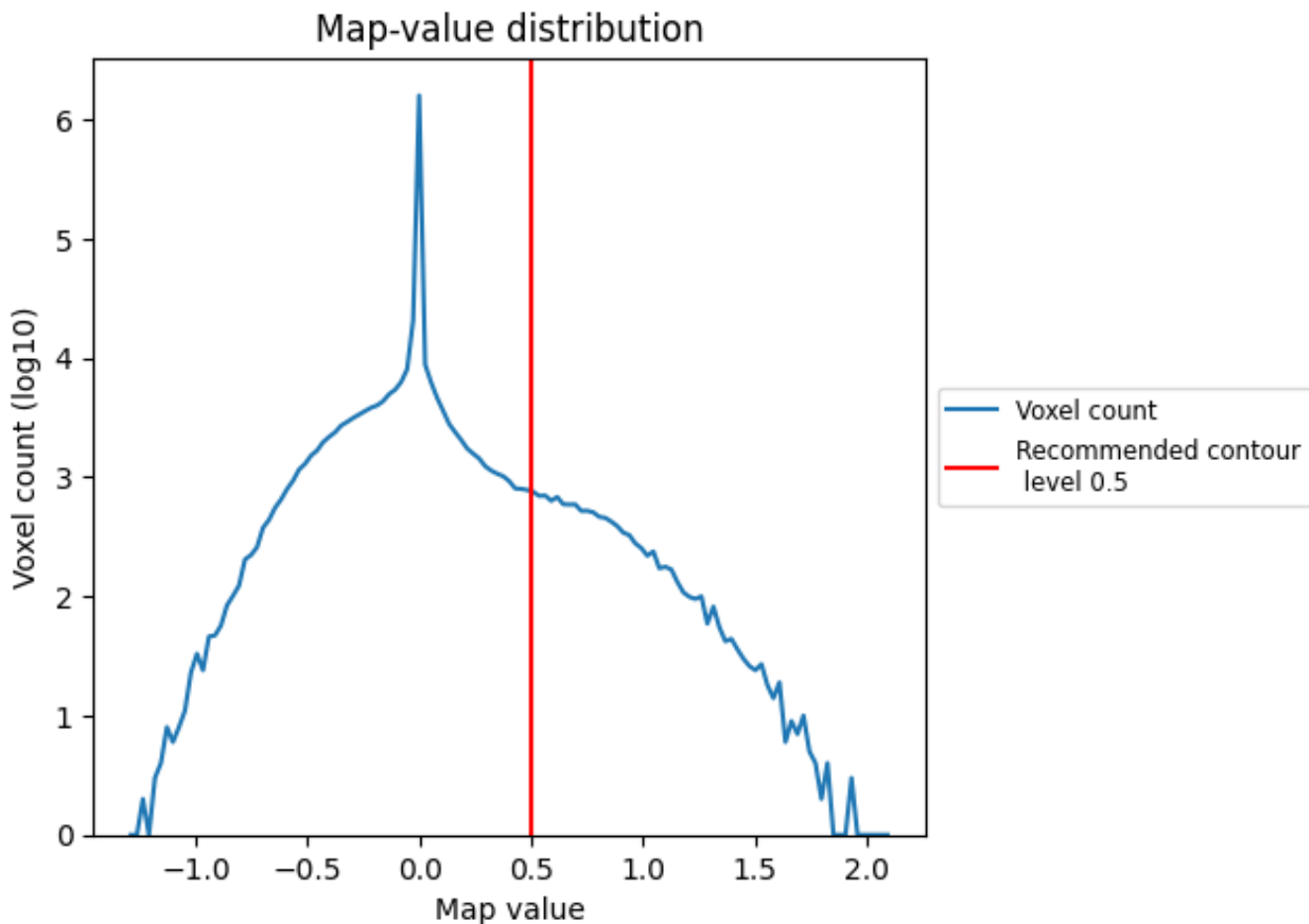


Z

7 Map analysis [i](#)

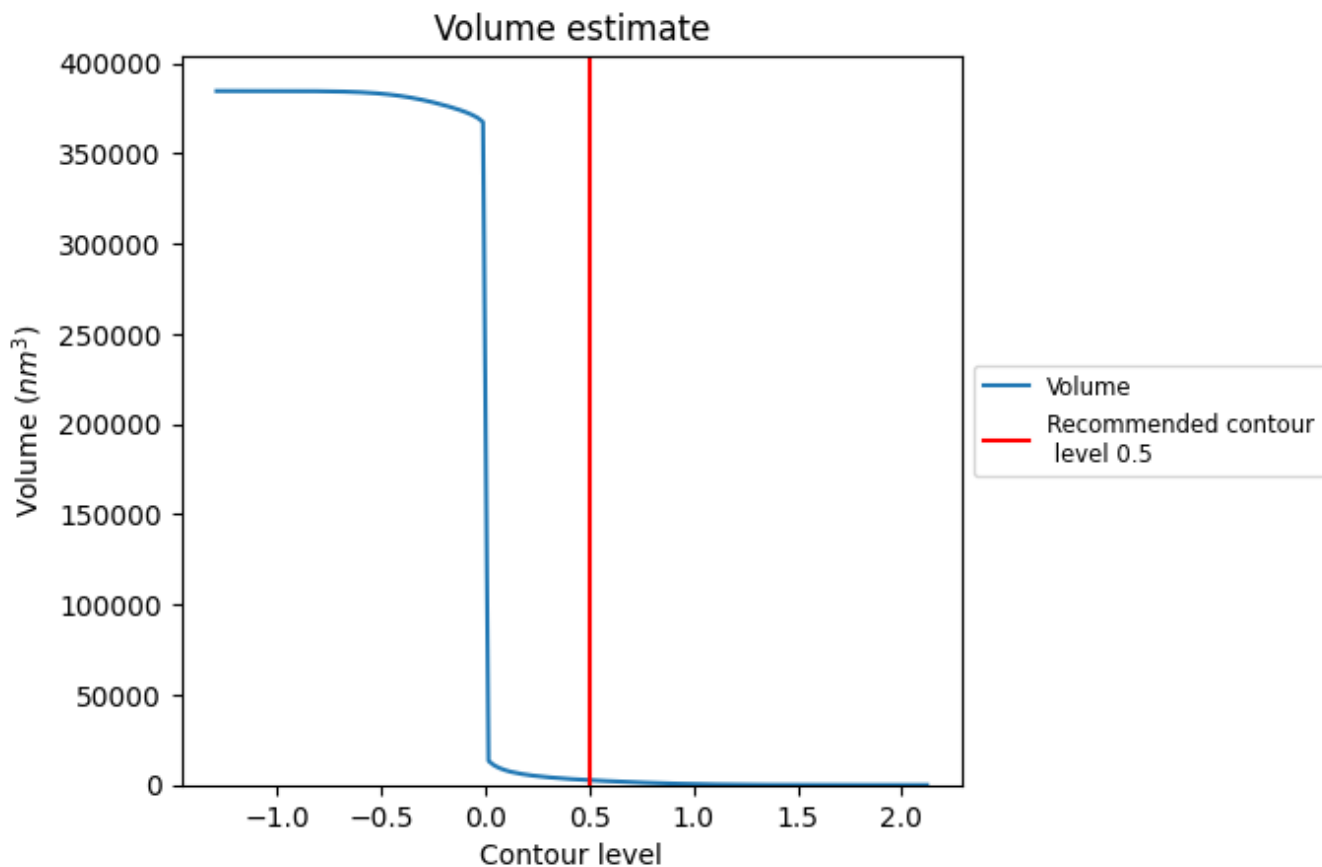
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

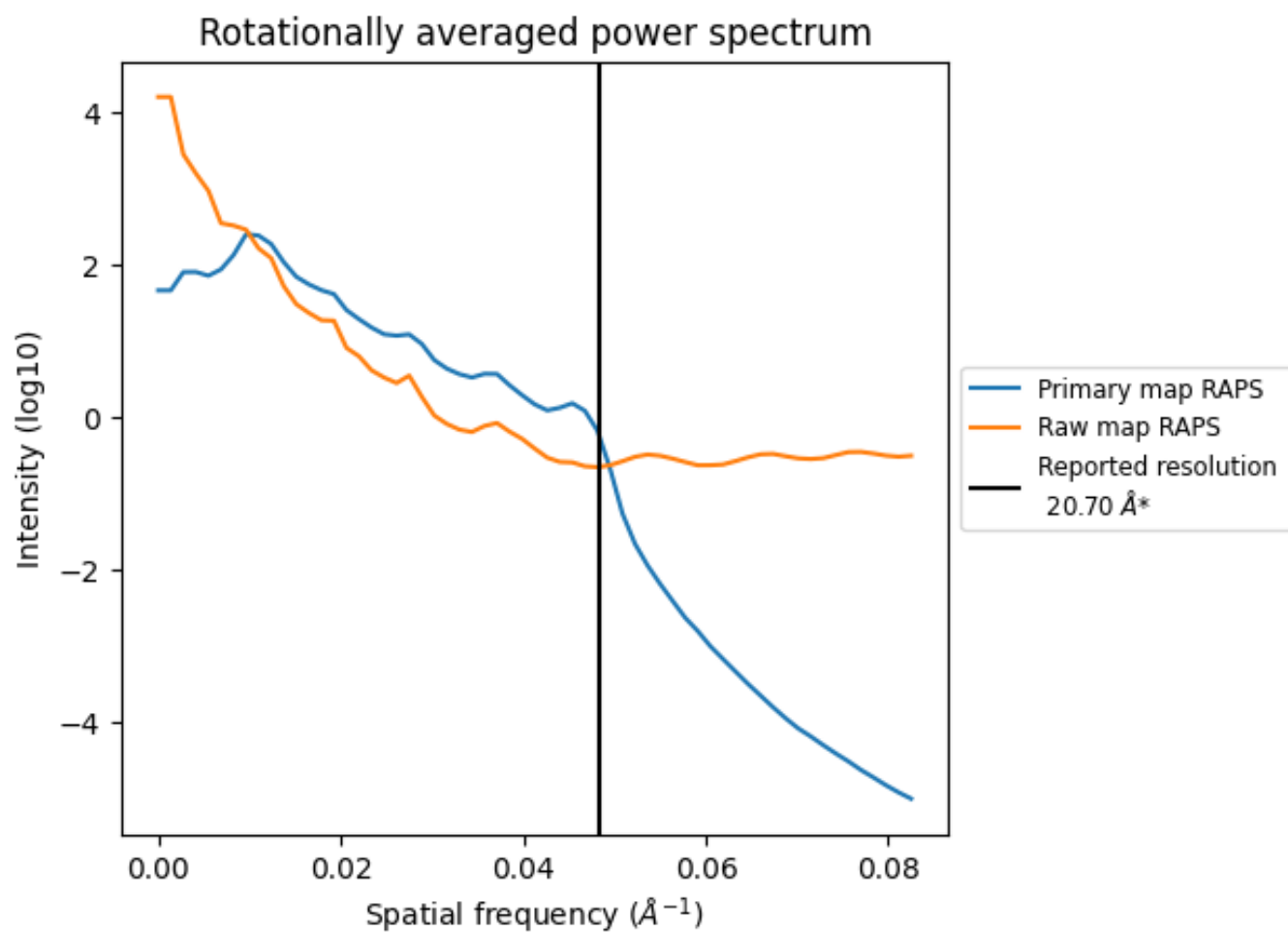
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 2681 nm³; this corresponds to an approximate mass of 2422 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](#)

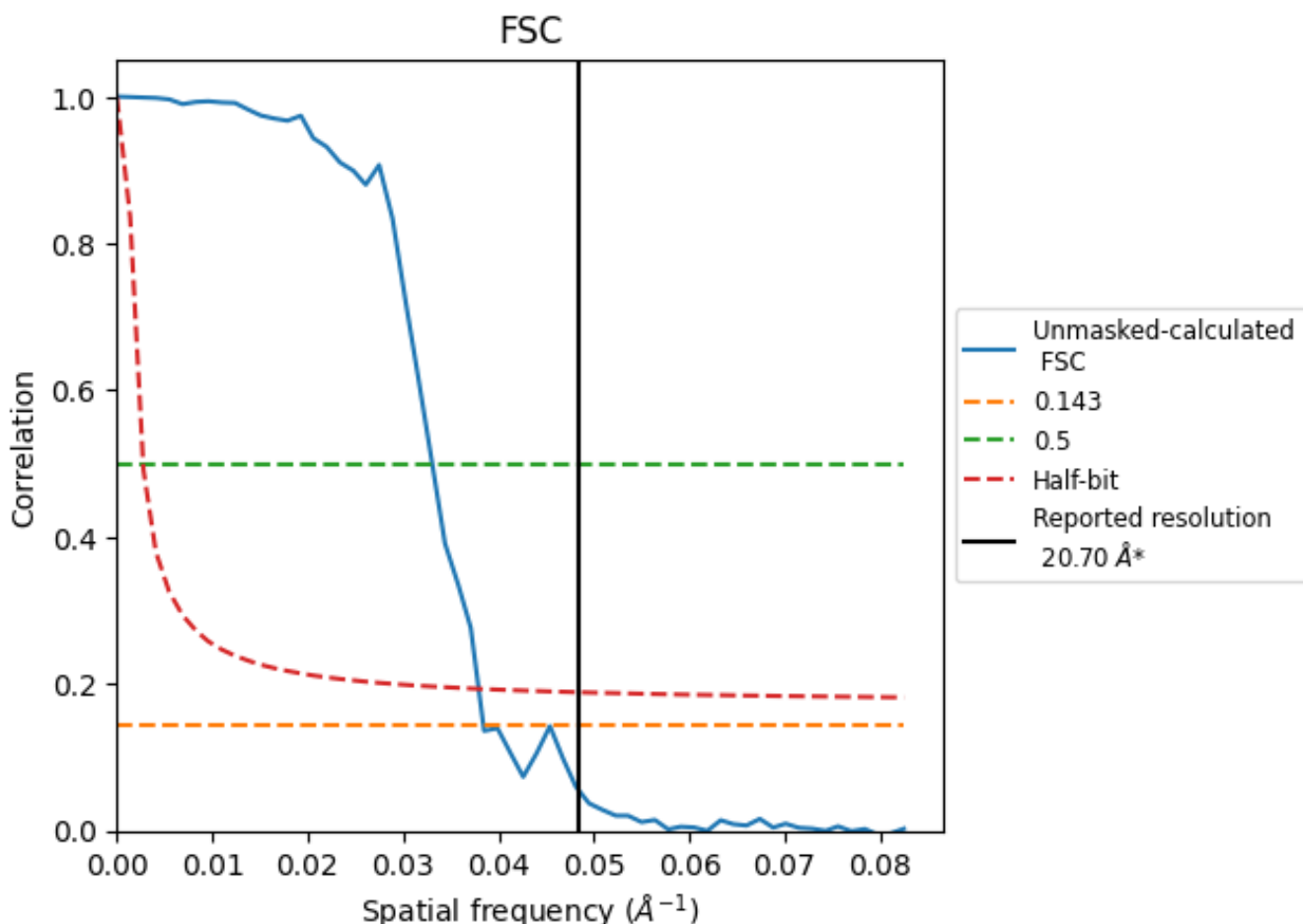


*Reported resolution corresponds to spatial frequency of 0.048 Å⁻¹

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 0.048 Å⁻¹

8.2 Resolution estimates [i](#)

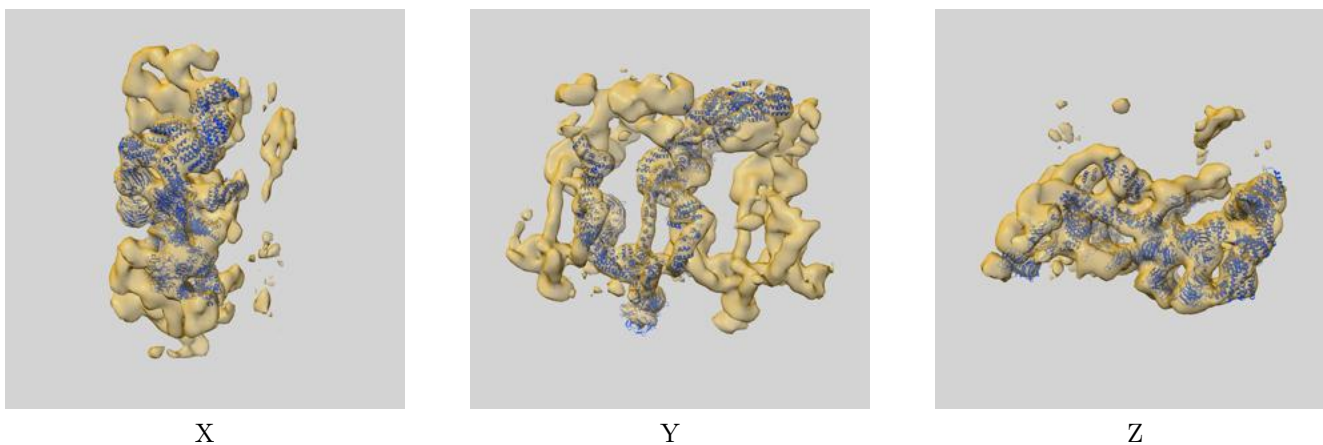
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	20.70	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	26.04	30.21	26.39

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 26.04 differs from the reported value 20.7 by more than 10 %

9 Map-model fit [i](#)

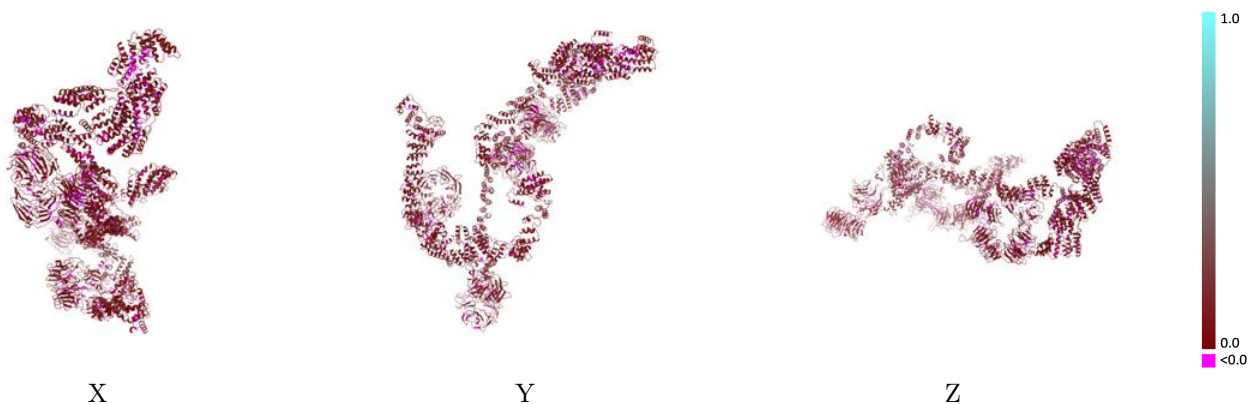
This section contains information regarding the fit between EMDB map EMD-15980 and PDB model 8BDA. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



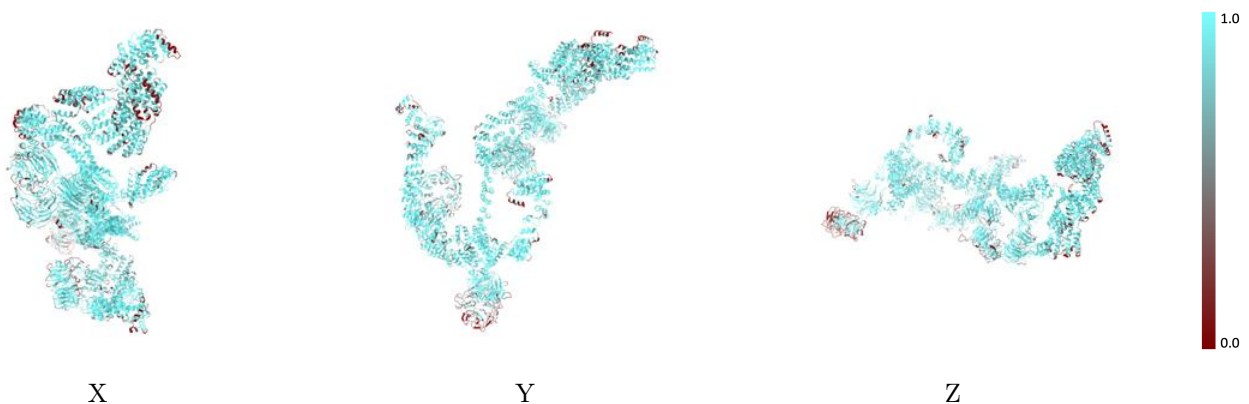
The images above show the 3D surface view of the map at the recommended contour level 0.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



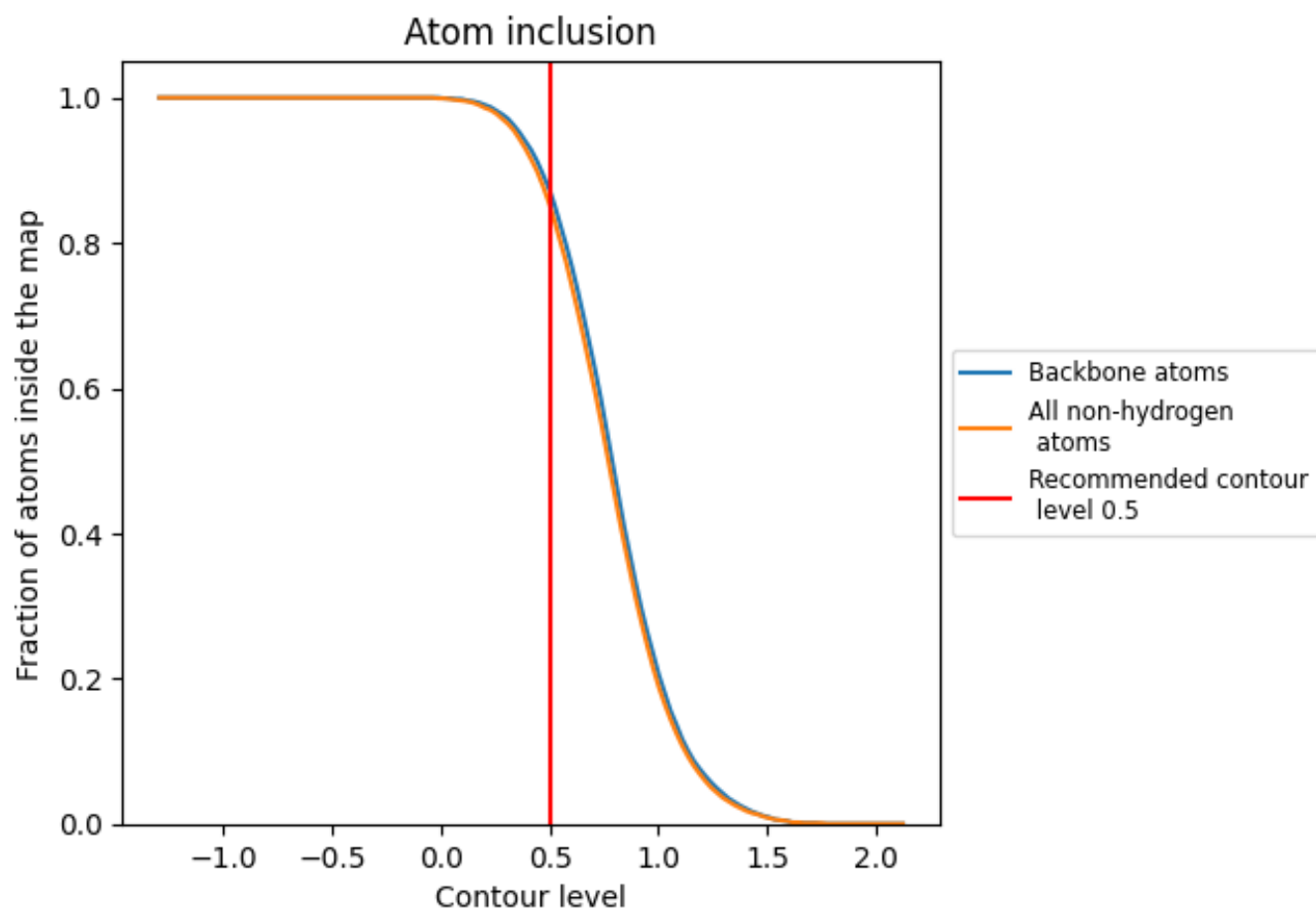
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.5).













9.4 Atom inclusion [i](#)



At the recommended contour level, 87% of all backbone atoms, 85% 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 (0.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8530	 0.0800
C	 0.8840	 0.0780
E	 0.8250	 0.0740
G	 0.8790	 0.0840
I	 0.7550	 0.0810
L	 0.9510	 0.0840

