



wwPDB EM Validation Summary Report ⓘ

Nov 29, 2022 – 03:51 AM JST

PDB ID : 7VOP
EMDB ID : EMD-32056
Title : Cryo-EM structure of *Xenopus laevis* nuclear pore complex cytoplasmic ring subunit
Authors : Tai, L.; Zhu, Y.; Sun, F.
Deposited on : 2021-10-14
Resolution : 8.70 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:

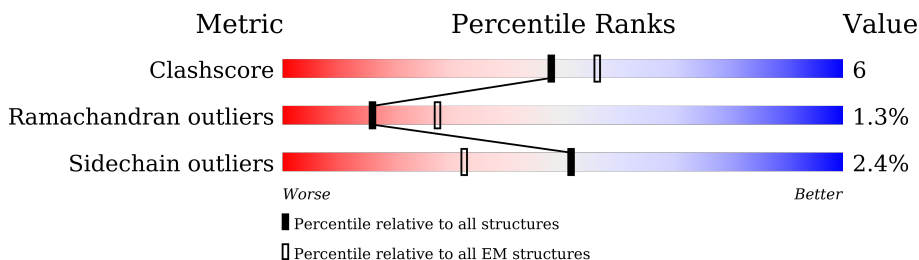
EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

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 8.70 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	A	653	
1	J	653	
2	B	375	
2	K	375	
3	C	360	
3	L	360	
4	D	1414	
4	M	1414	

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Mol	Chain	Length	Quality of chain
5	E	326	16% 80% 19%
5	N	326	84% 74% 24%
6	F	924	12% 52% 16% 31%
6	O	924	9% 56% 12% 31%
7	G	320	15% 75% 15% 8%
7	P	320	7% 70% 21% 8%
8	H	916	26% 76% 10% 13%
8	Q	916	22% 71% 15% 14%
9	I	1140	57% 78% 16% 6%
9	R	1140	90% 76% 18% 5%
10	S	2011	28% 83% 16%
10	T	2011	17% 82% 17%
11	U	820	14% 64% 16% 20%
12	V	2931	11% 21% 5% 74%
12	W	2931	5% 22% 74%
12	X	2931	13% 22% 74%
12	Y	2931	11% 21% 5% 74%
12	Z	2931	11% 21% 5% 74%
13	a	2037	5% 10% 90%
13	e	2037	5% 7% 92%
14	b	728	42% 97%
14	d	728	73% 92% 6%
15	c	547	17% 35% 64%
15	f	547	17% 25% 75%

2 Entry composition [i](#)

There are 15 unique types of molecules in this entry. The entry contains 178773 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 Nuclear pore complex protein Nup85.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	653	Total	C	N	O	S	0	0
			5268	3341	904	984	39		
1	J	653	Total	C	N	O	S	0	0
			5268	3341	904	984	39		

- Molecule 2 is a protein called MGC154553 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	375	Total	C	N	O	S	0	0
			2927	1813	524	571	19		
2	K	375	Total	C	N	O	S	0	0
			2927	1813	524	571	19		

- Molecule 3 is a protein called Nucleoporin SEH1-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	333	Total	C	N	O	S	0	0
			2607	1632	466	491	18		
3	L	325	Total	C	N	O	S	0	0
			2546	1592	455	482	17		

- Molecule 4 is a protein called Nucleoporin 160kDa.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	1394	Total	C	N	O	S	0	0
			11118	7052	1912	2086	68		
4	M	1394	Total	C	N	O	S	0	0
			11118	7052	1912	2086	68		

- Molecule 5 is a protein called MGC83926 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	E	326	Total	C	N	O	S	0	0
			2573	1640	443	473	17		
5	N	326	Total	C	N	O	S	0	0
			2573	1640	443	473	17		

- Molecule 6 is a protein called Nuclear pore complex protein Nup96.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	638	Total	C	N	O	S	0	0
			5177	3287	912	949	29		
6	O	637	Total	C	N	O	S	0	0
			5168	3282	911	946	29		

- Molecule 7 is a protein called GATOR complex protein SEC13.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	294	Total	C	N	O	S	0	0
			2300	1454	394	440	12		
7	P	294	Total	C	N	O	S	0	0
			2300	1454	394	440	12		

- Molecule 8 is a protein called Nuclear pore complex protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	798	Total	C	N	O	S	0	0
			6494	4126	1096	1240	32		
8	Q	790	Total	C	N	O	S	0	0
			6430	4085	1087	1226	32		

- Molecule 9 is a protein called outer Nup133.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	1076	Total	C	N	O	S	0	0
			8482	5362	1409	1661	50		
9	R	1082	Total	C	N	O	S	0	0
			8536	5397	1420	1669	50		

- Molecule 10 is a protein called MGC83295 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	S	2011	Total	C	N	O	S	0	0
			15974	10112	2785	2978	99		

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Mol	Chain	Residues	Atoms					AltConf	Trace
10	T	2011	Total	C	N	O	S	0	0
			15974	10112	2785	2978	99		

- Molecule 11 is a protein called Nuclear pore complex protein Nup93.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	U	654	Total	C	N	O	S	0	0
			5260	3328	918	986	28		

- Molecule 12 is a protein called Nup358.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	V	772	Total	C	N	O	S	0	0
			6225	3966	1061	1166	32		
12	W	756	Total	C	N	O	S	0	0
			6100	3890	1040	1139	31		
12	X	767	Total	C	N	O	S	0	0
			6190	3944	1056	1158	32		
12	Y	761	Total	C	N	O	S	0	0
			6139	3912	1047	1149	31		
12	Z	758	Total	C	N	O	S	0	0
			6116	3898	1042	1145	31		

There are 130 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
V	2480	GLY	-	insertion	UNP A0A1L8HGL2
V	2481	PHE	-	insertion	UNP A0A1L8HGL2
V	2482	ASN	-	insertion	UNP A0A1L8HGL2
V	2483	PHE	-	insertion	UNP A0A1L8HGL2
V	2484	SER	-	insertion	UNP A0A1L8HGL2
V	2485	LEU	-	insertion	UNP A0A1L8HGL2
V	2486	PHE	-	insertion	UNP A0A1L8HGL2
V	2487	LYS	-	insertion	UNP A0A1L8HGL2
V	2488	SER	-	insertion	UNP A0A1L8HGL2
V	2489	ASN	-	insertion	UNP A0A1L8HGL2
V	2490	PRO	-	insertion	UNP A0A1L8HGL2
V	2491	ARG	-	insertion	UNP A0A1L8HGL2
V	2492	ALA	-	insertion	UNP A0A1L8HGL2
V	2493	PHE	-	insertion	UNP A0A1L8HGL2
V	2494	TRP	-	insertion	UNP A0A1L8HGL2
V	2495	THR	-	insertion	UNP A0A1L8HGL2

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Chain	Residue	Modelled	Actual	Comment	Reference
V	2496	CYS	-	insertion	UNP A0A1L8HGL2
V	2497	THR	-	insertion	UNP A0A1L8HGL2
V	2498	SER	-	insertion	UNP A0A1L8HGL2
V	2499	SER	-	insertion	UNP A0A1L8HGL2
V	2500	SER	-	insertion	UNP A0A1L8HGL2
V	2501	LYS	-	insertion	UNP A0A1L8HGL2
V	2502	PRO	-	insertion	UNP A0A1L8HGL2
V	2503	GLU	-	insertion	UNP A0A1L8HGL2
V	2504	VAL	-	insertion	UNP A0A1L8HGL2
V	2505	GLU	-	insertion	UNP A0A1L8HGL2
W	2480	GLY	-	insertion	UNP A0A1L8HGL2
W	2481	PHE	-	insertion	UNP A0A1L8HGL2
W	2482	ASN	-	insertion	UNP A0A1L8HGL2
W	2483	PHE	-	insertion	UNP A0A1L8HGL2
W	2484	SER	-	insertion	UNP A0A1L8HGL2
W	2485	LEU	-	insertion	UNP A0A1L8HGL2
W	2486	PHE	-	insertion	UNP A0A1L8HGL2
W	2487	LYS	-	insertion	UNP A0A1L8HGL2
W	2488	SER	-	insertion	UNP A0A1L8HGL2
W	2489	ASN	-	insertion	UNP A0A1L8HGL2
W	2490	PRO	-	insertion	UNP A0A1L8HGL2
W	2491	ARG	-	insertion	UNP A0A1L8HGL2
W	2492	ALA	-	insertion	UNP A0A1L8HGL2
W	2493	PHE	-	insertion	UNP A0A1L8HGL2
W	2494	TRP	-	insertion	UNP A0A1L8HGL2
W	2495	THR	-	insertion	UNP A0A1L8HGL2
W	2496	CYS	-	insertion	UNP A0A1L8HGL2
W	2497	THR	-	insertion	UNP A0A1L8HGL2
W	2498	SER	-	insertion	UNP A0A1L8HGL2
W	2499	SER	-	insertion	UNP A0A1L8HGL2
W	2500	SER	-	insertion	UNP A0A1L8HGL2
W	2501	LYS	-	insertion	UNP A0A1L8HGL2
W	2502	PRO	-	insertion	UNP A0A1L8HGL2
W	2503	GLU	-	insertion	UNP A0A1L8HGL2
W	2504	VAL	-	insertion	UNP A0A1L8HGL2
W	2505	GLU	-	insertion	UNP A0A1L8HGL2
X	2480	GLY	-	insertion	UNP A0A1L8HGL2
X	2481	PHE	-	insertion	UNP A0A1L8HGL2
X	2482	ASN	-	insertion	UNP A0A1L8HGL2
X	2483	PHE	-	insertion	UNP A0A1L8HGL2
X	2484	SER	-	insertion	UNP A0A1L8HGL2
X	2485	LEU	-	insertion	UNP A0A1L8HGL2

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Chain	Residue	Modelled	Actual	Comment	Reference
X	2486	PHE	-	insertion	UNP A0A1L8HGL2
X	2487	LYS	-	insertion	UNP A0A1L8HGL2
X	2488	SER	-	insertion	UNP A0A1L8HGL2
X	2489	ASN	-	insertion	UNP A0A1L8HGL2
X	2490	PRO	-	insertion	UNP A0A1L8HGL2
X	2491	ARG	-	insertion	UNP A0A1L8HGL2
X	2492	ALA	-	insertion	UNP A0A1L8HGL2
X	2493	PHE	-	insertion	UNP A0A1L8HGL2
X	2494	TRP	-	insertion	UNP A0A1L8HGL2
X	2495	THR	-	insertion	UNP A0A1L8HGL2
X	2496	CYS	-	insertion	UNP A0A1L8HGL2
X	2497	THR	-	insertion	UNP A0A1L8HGL2
X	2498	SER	-	insertion	UNP A0A1L8HGL2
X	2499	SER	-	insertion	UNP A0A1L8HGL2
X	2500	SER	-	insertion	UNP A0A1L8HGL2
X	2501	LYS	-	insertion	UNP A0A1L8HGL2
X	2502	PRO	-	insertion	UNP A0A1L8HGL2
X	2503	GLU	-	insertion	UNP A0A1L8HGL2
X	2504	VAL	-	insertion	UNP A0A1L8HGL2
X	2505	GLU	-	insertion	UNP A0A1L8HGL2
Y	2480	GLY	-	insertion	UNP A0A1L8HGL2
Y	2481	PHE	-	insertion	UNP A0A1L8HGL2
Y	2482	ASN	-	insertion	UNP A0A1L8HGL2
Y	2483	PHE	-	insertion	UNP A0A1L8HGL2
Y	2484	SER	-	insertion	UNP A0A1L8HGL2
Y	2485	LEU	-	insertion	UNP A0A1L8HGL2
Y	2486	PHE	-	insertion	UNP A0A1L8HGL2
Y	2487	LYS	-	insertion	UNP A0A1L8HGL2
Y	2488	SER	-	insertion	UNP A0A1L8HGL2
Y	2489	ASN	-	insertion	UNP A0A1L8HGL2
Y	2490	PRO	-	insertion	UNP A0A1L8HGL2
Y	2491	ARG	-	insertion	UNP A0A1L8HGL2
Y	2492	ALA	-	insertion	UNP A0A1L8HGL2
Y	2493	PHE	-	insertion	UNP A0A1L8HGL2
Y	2494	TRP	-	insertion	UNP A0A1L8HGL2
Y	2495	THR	-	insertion	UNP A0A1L8HGL2
Y	2496	CYS	-	insertion	UNP A0A1L8HGL2
Y	2497	THR	-	insertion	UNP A0A1L8HGL2
Y	2498	SER	-	insertion	UNP A0A1L8HGL2
Y	2499	SER	-	insertion	UNP A0A1L8HGL2
Y	2500	SER	-	insertion	UNP A0A1L8HGL2
Y	2501	LYS	-	insertion	UNP A0A1L8HGL2

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Chain	Residue	Modelled	Actual	Comment	Reference
Y	2502	PRO	-	insertion	UNP A0A1L8HGL2
Y	2503	GLU	-	insertion	UNP A0A1L8HGL2
Y	2504	VAL	-	insertion	UNP A0A1L8HGL2
Y	2505	GLU	-	insertion	UNP A0A1L8HGL2
Z	2480	GLY	-	insertion	UNP A0A1L8HGL2
Z	2481	PHE	-	insertion	UNP A0A1L8HGL2
Z	2482	ASN	-	insertion	UNP A0A1L8HGL2
Z	2483	PHE	-	insertion	UNP A0A1L8HGL2
Z	2484	SER	-	insertion	UNP A0A1L8HGL2
Z	2485	LEU	-	insertion	UNP A0A1L8HGL2
Z	2486	PHE	-	insertion	UNP A0A1L8HGL2
Z	2487	LYS	-	insertion	UNP A0A1L8HGL2
Z	2488	SER	-	insertion	UNP A0A1L8HGL2
Z	2489	ASN	-	insertion	UNP A0A1L8HGL2
Z	2490	PRO	-	insertion	UNP A0A1L8HGL2
Z	2491	ARG	-	insertion	UNP A0A1L8HGL2
Z	2492	ALA	-	insertion	UNP A0A1L8HGL2
Z	2493	PHE	-	insertion	UNP A0A1L8HGL2
Z	2494	TRP	-	insertion	UNP A0A1L8HGL2
Z	2495	THR	-	insertion	UNP A0A1L8HGL2
Z	2496	CYS	-	insertion	UNP A0A1L8HGL2
Z	2497	THR	-	insertion	UNP A0A1L8HGL2
Z	2498	SER	-	insertion	UNP A0A1L8HGL2
Z	2499	SER	-	insertion	UNP A0A1L8HGL2
Z	2500	SER	-	insertion	UNP A0A1L8HGL2
Z	2501	LYS	-	insertion	UNP A0A1L8HGL2
Z	2502	PRO	-	insertion	UNP A0A1L8HGL2
Z	2503	GLU	-	insertion	UNP A0A1L8HGL2
Z	2504	VAL	-	insertion	UNP A0A1L8HGL2
Z	2505	GLU	-	insertion	UNP A0A1L8HGL2

- Molecule 13 is a protein called Nucleoporin CAN.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	a	209	Total	C	N	O	S	0	0
			1738	1086	308	341	3		
13	e	155	Total	C	N	O	S	0	0
			1282	797	224	258	3		

- Molecule 14 is a protein called Nup88A protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	b	728	5787	3645	991	1119	32	0	0
14	d	683	5414	3413	919	1051	31	0	0

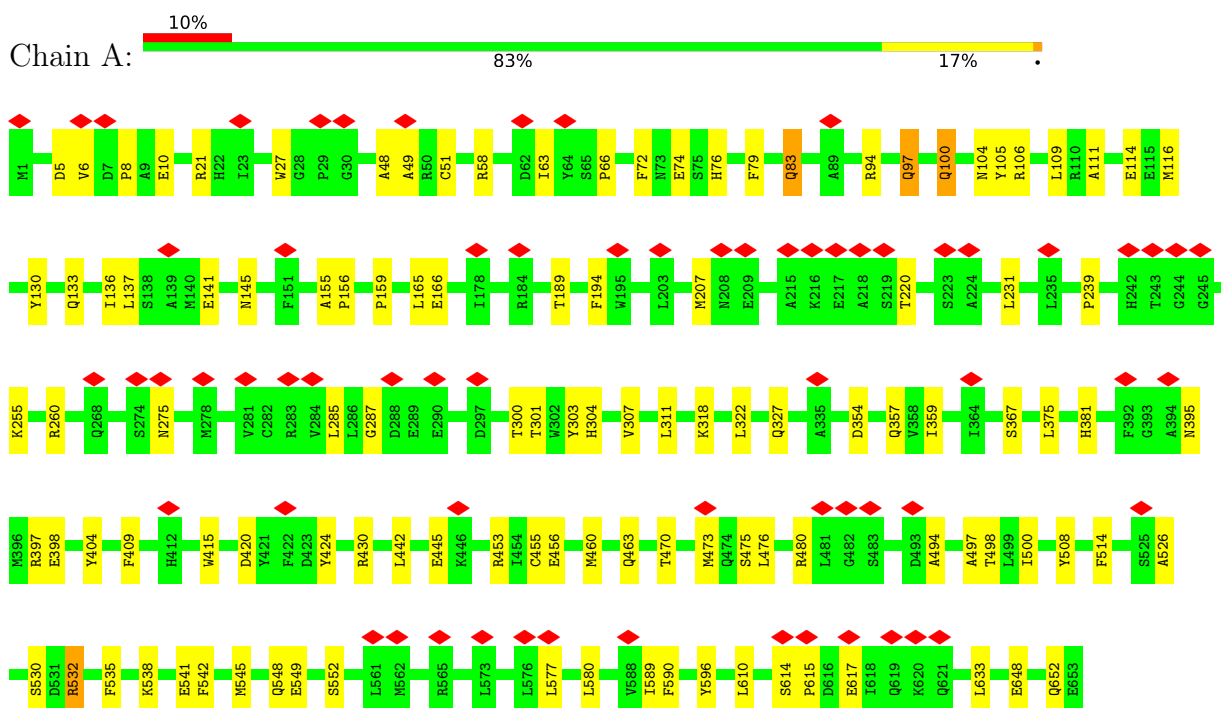
- Molecule 15 is a protein called IL4I1 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	c	198	1621	1001	286	327	7	0	0
15	f	138	1141	708	197	232	4	0	0

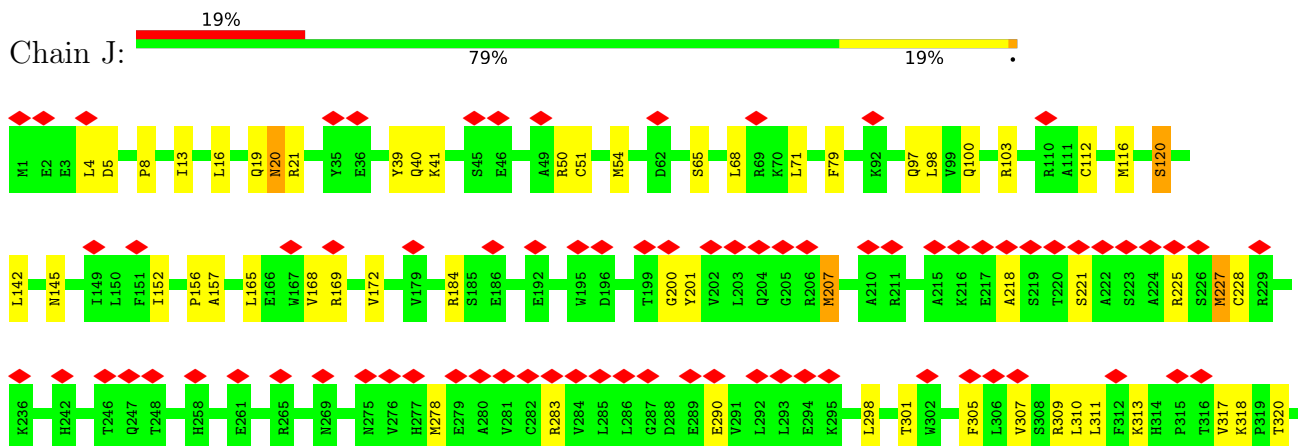
3 Residue-property plots

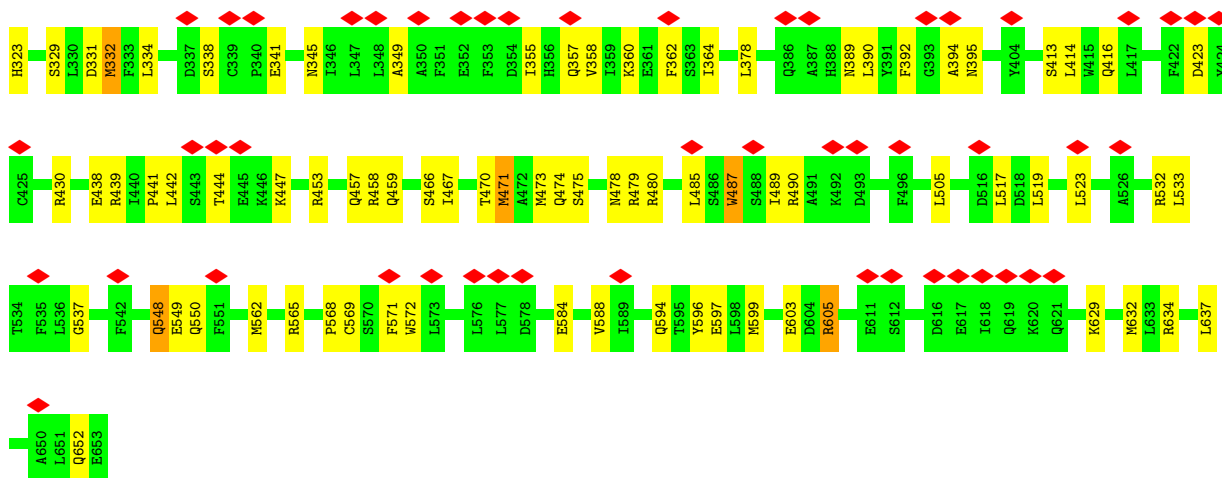
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Nuclear pore complex protein Nup85

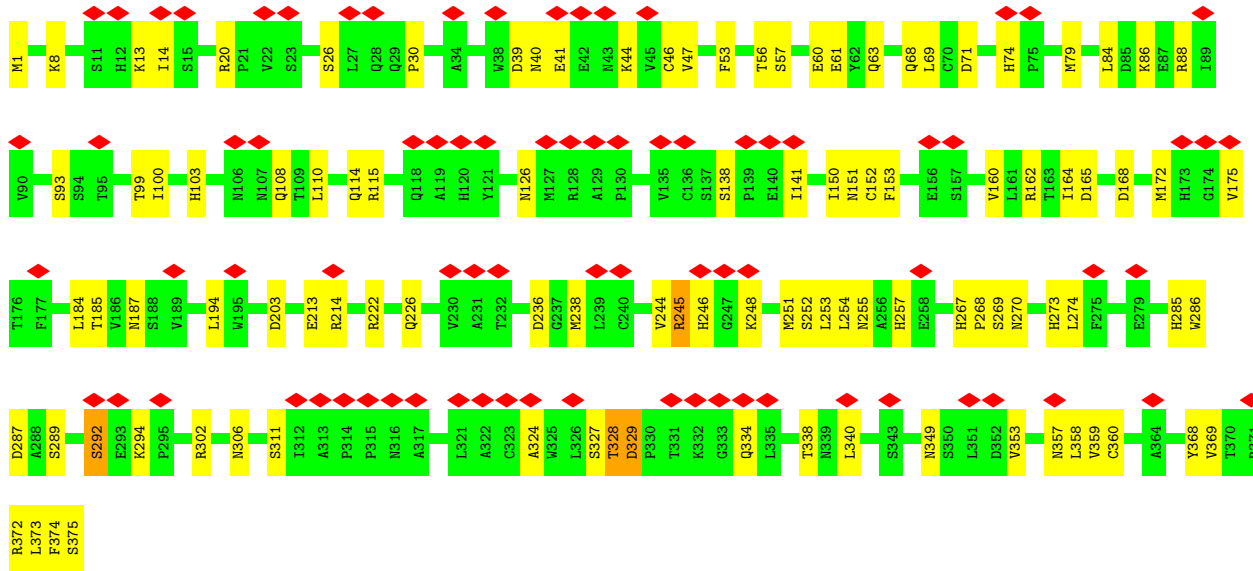


- Molecule 1: Nuclear pore complex protein Nup85

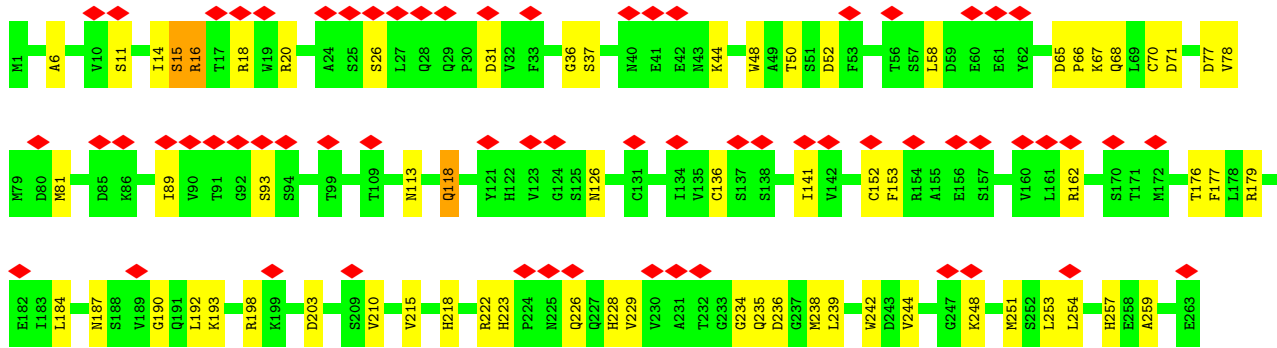
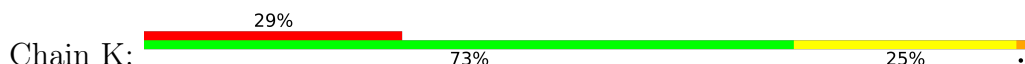


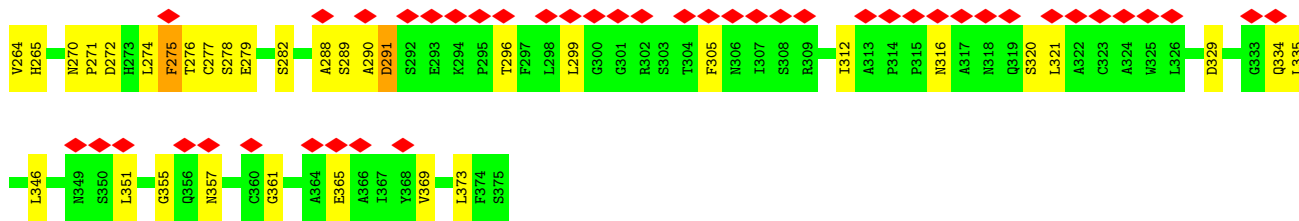


• Molecule 2: MGC154553 protein

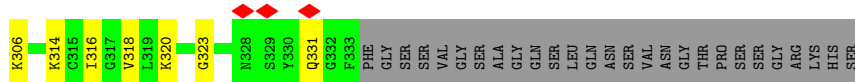
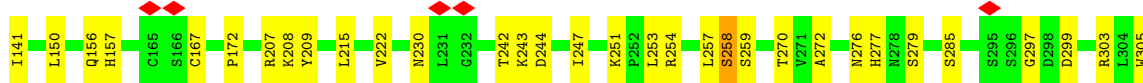


• Molecule 2: MGC154553 protein

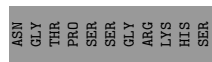
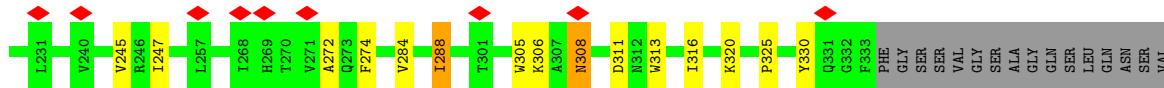
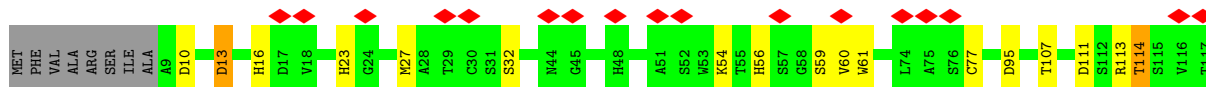
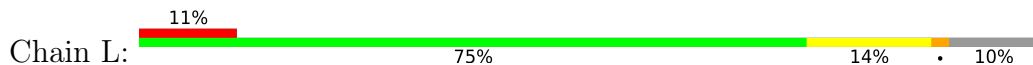




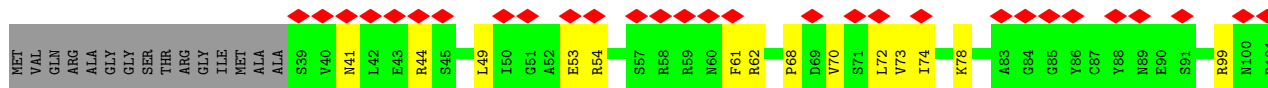
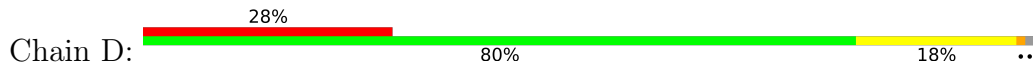
• Molecule 3: Nucleoporin SEH1-A

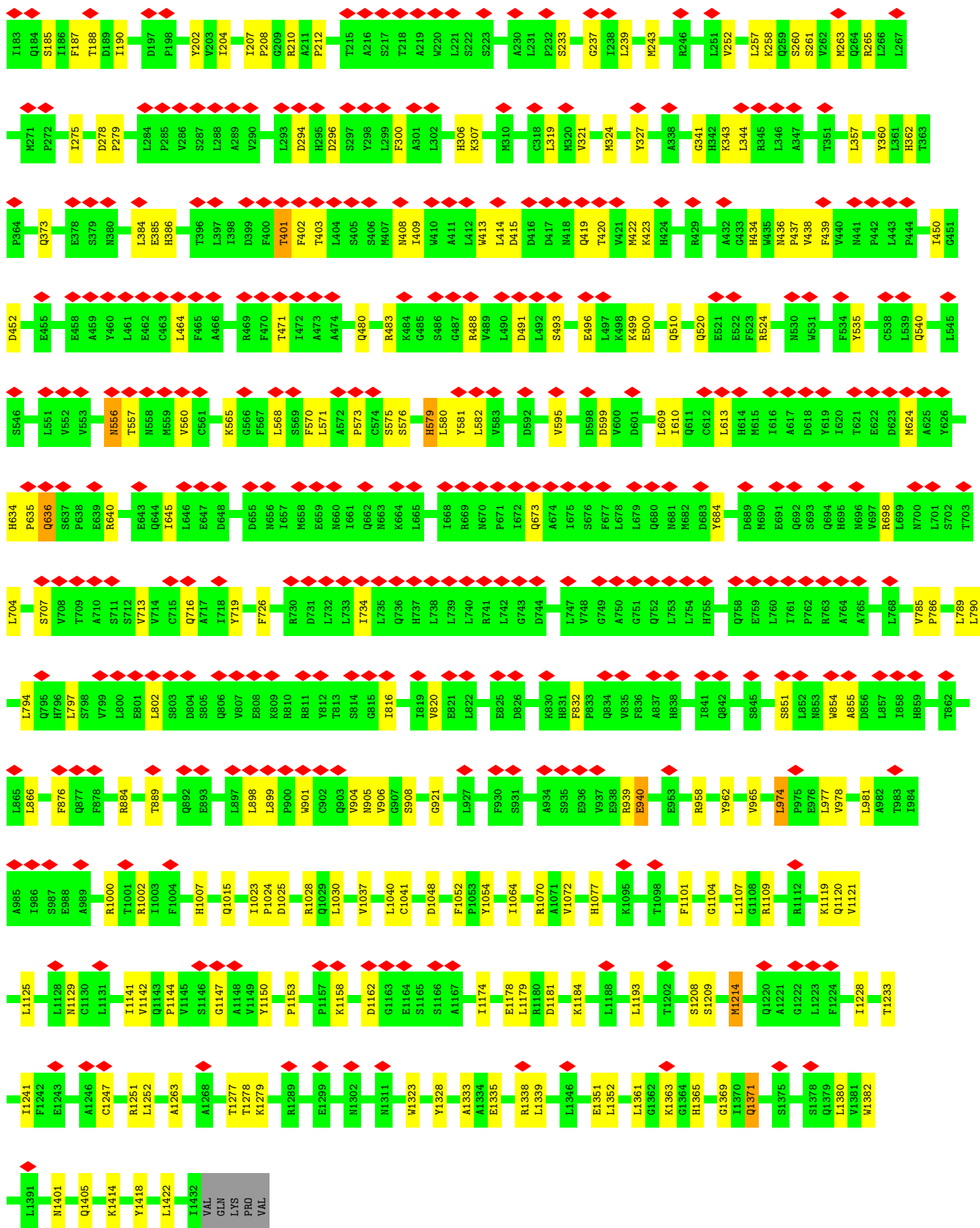


• Molecule 3: Nucleoporin SEH1-A

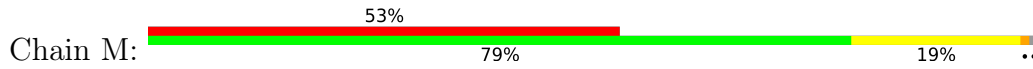


• Molecule 4: Nucleoporin 160kDa

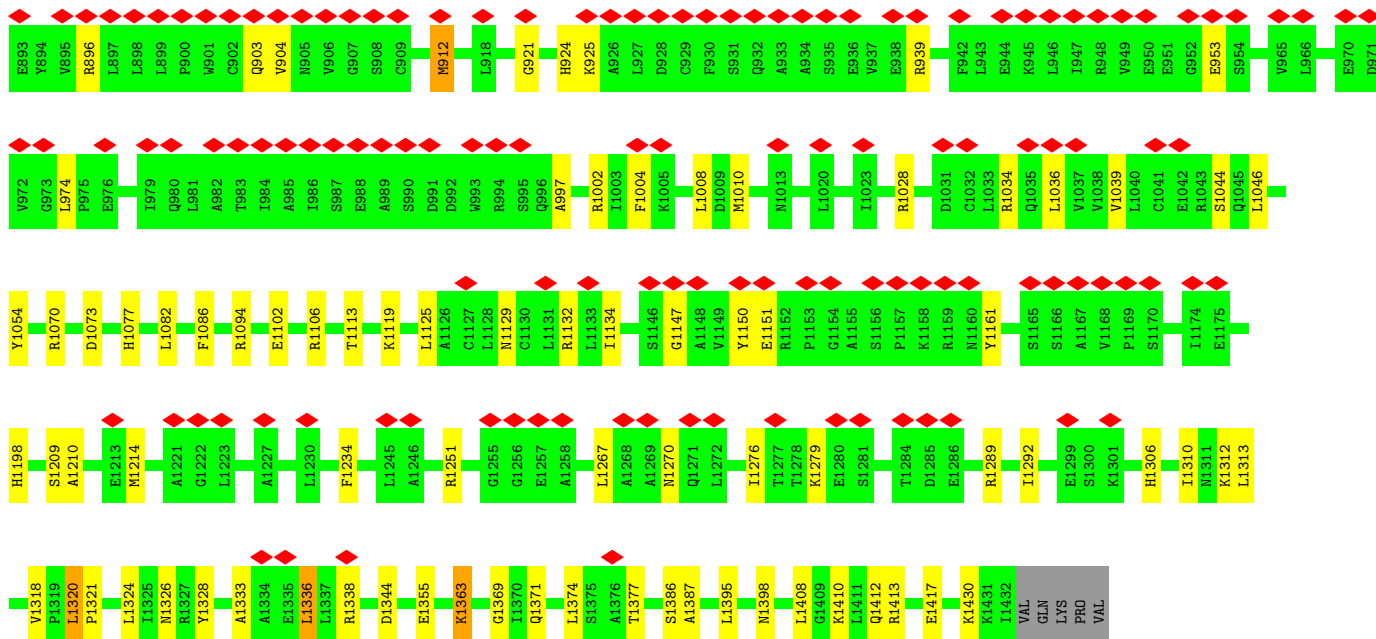




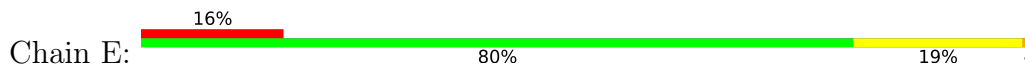
• Molecule 4: Nucleoporin 160kDa



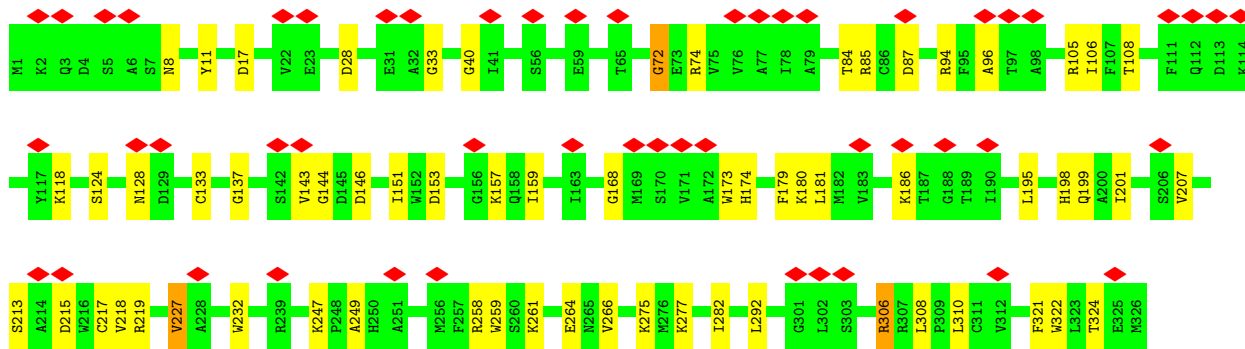
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G84	G85	Y86	C87	Y88	N89	E90	S91	A97	T98	R99	N100	R101	F102	L103	H104	V105	T106	L107	Y108	A109	D110	T111	L112	E113	L114	V115	E116	L117	S118	L119	D120	I121	I122	M123	L124	R125	N126	A127	V128	R129	L130	K131	I132	L133	M134	C135	K136	L137	L138	P139	G140	V142	H143						
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P212	M213	S214	T215	A216	S217	W220	S221	S222	S223	D224	L228	S235	I241	K242	M243	P244	P245	R246	D247	M248	E249	G250	L251	V252	T253	L254	A255	E256	L257	K258	Q259	S260	S261	V262	M263	Q264	R265	L266	L267	T268	G269	M270	M271	P272	S273	S274	L275	R276	G277	D278	P279	G280	P285						
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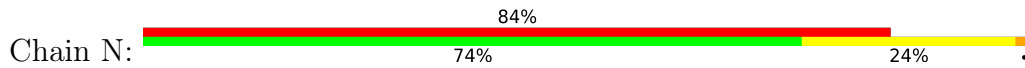
• Molecule 5: MGC83926 protein



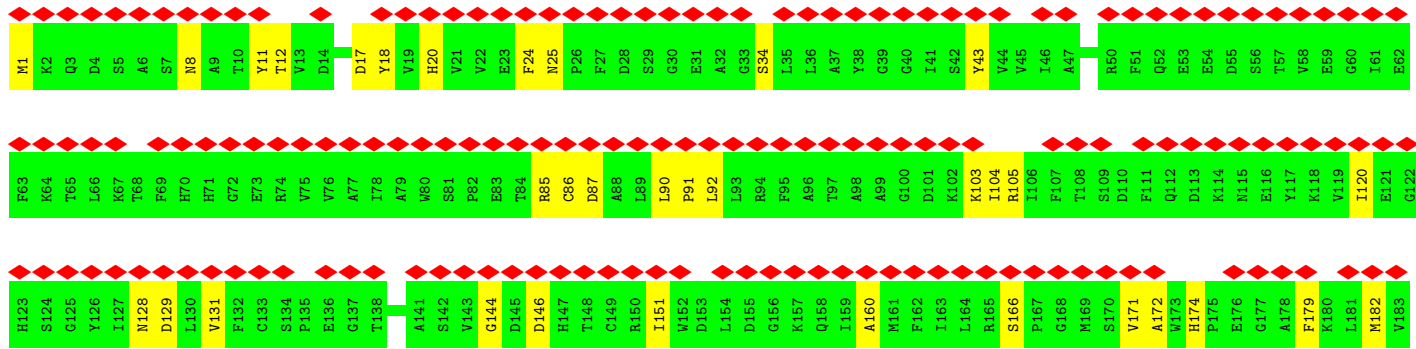
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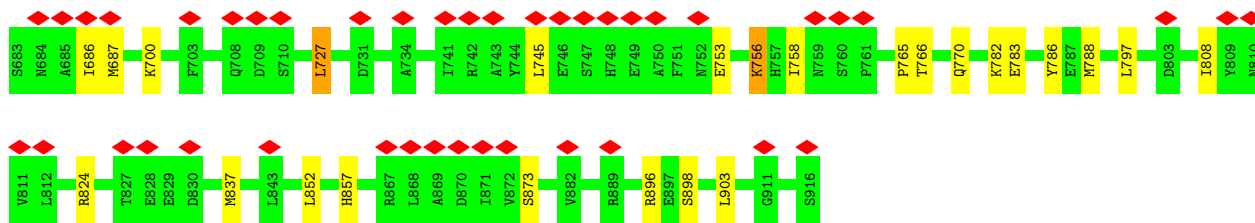


• Molecule 5: MGC83926 protein

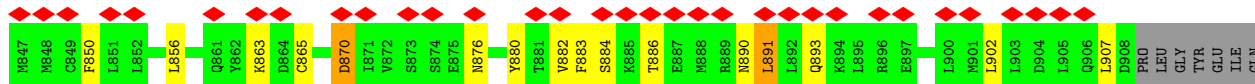
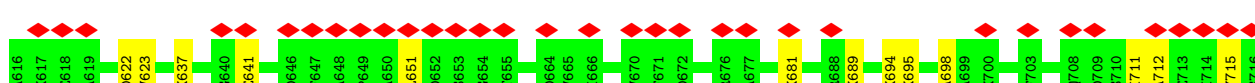
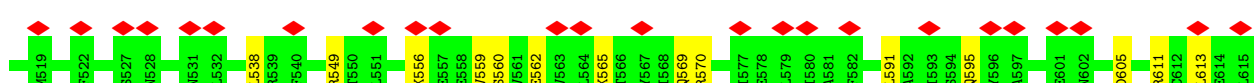
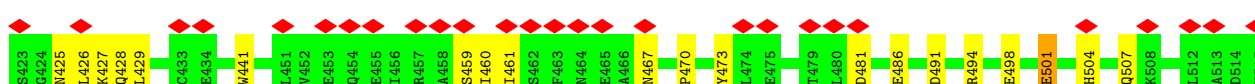
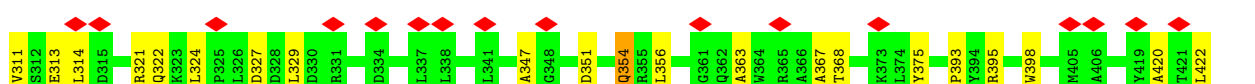
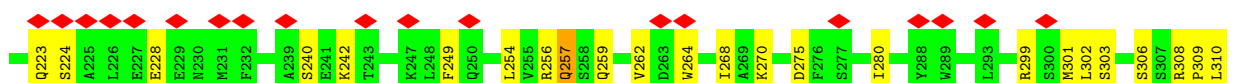
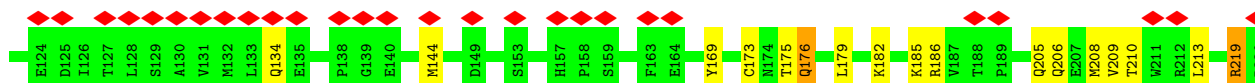
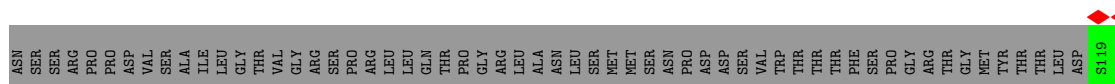


Chain N:

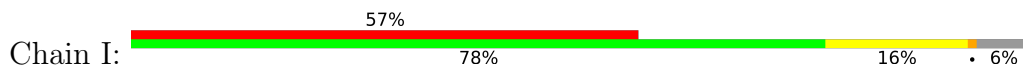




• Molecule 8: Nuclear pore complex protein

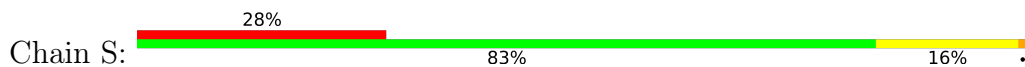


• Molecule 9: outer Nup133

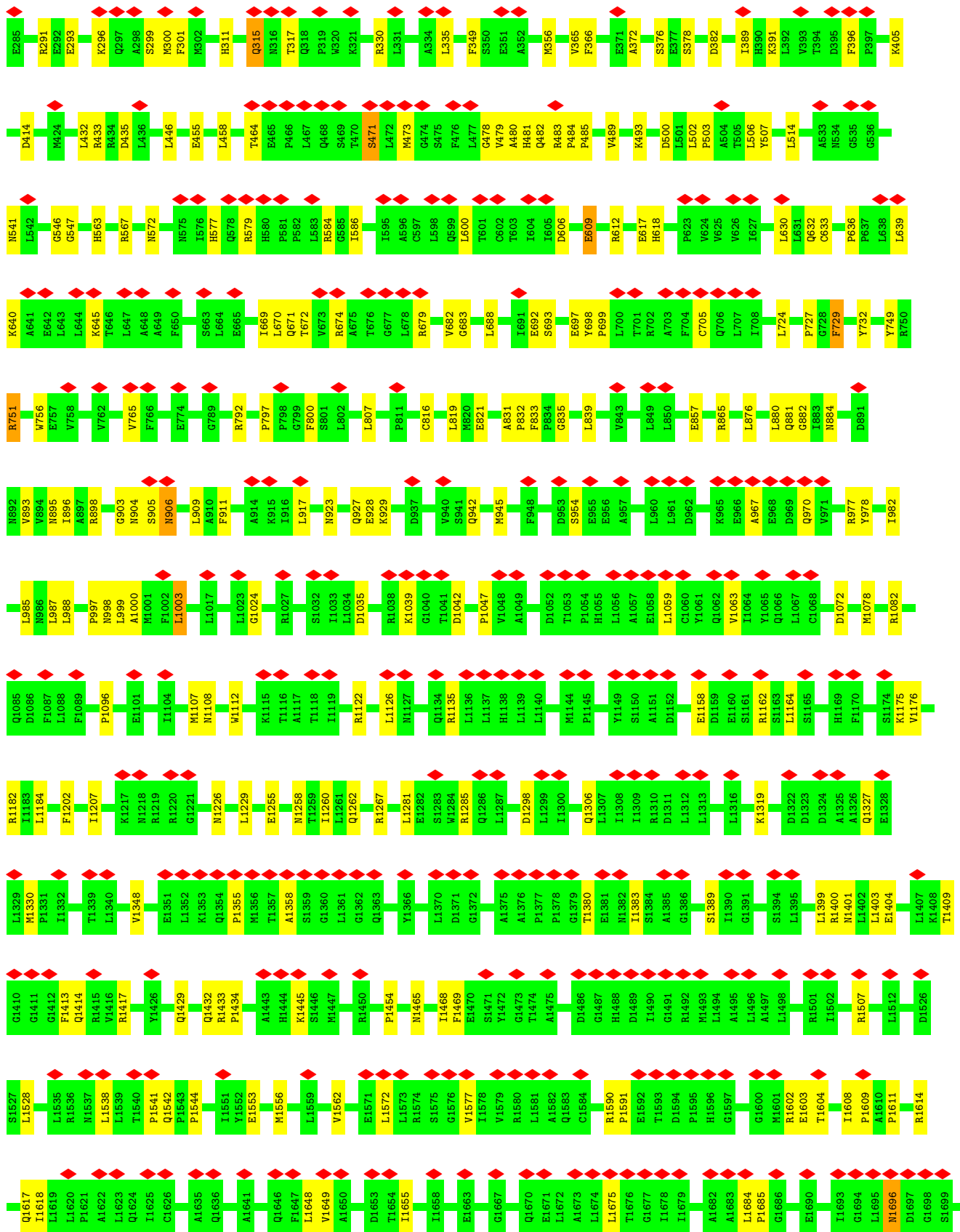


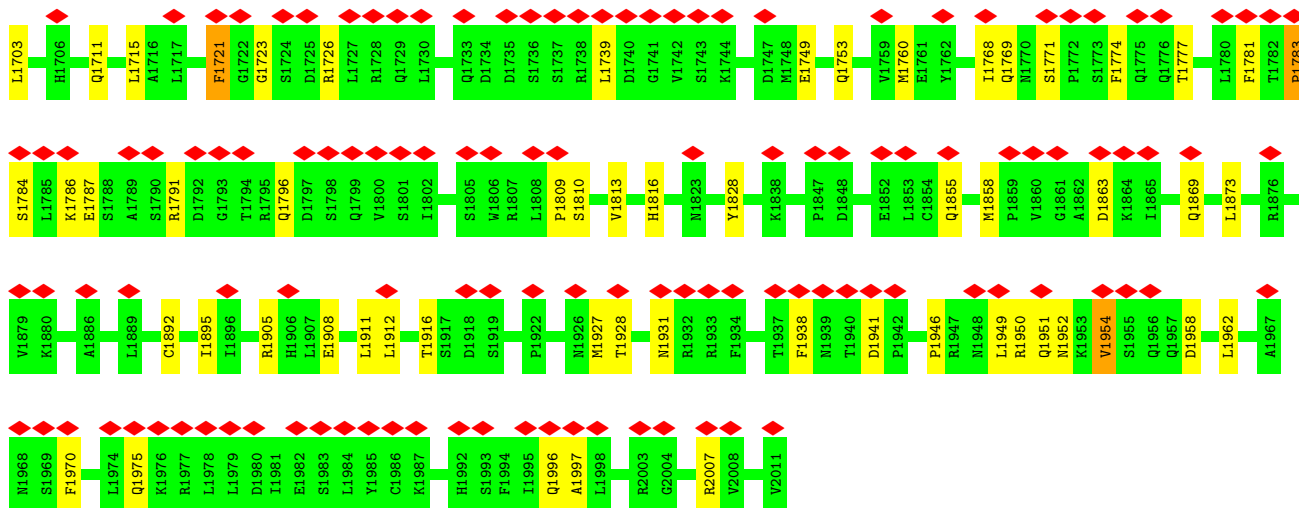
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R677	E678	V679	S680	Q681	M682	E683	I684	L685	F686	E687	C688	L689	V690	D691	K692	E693	E694	A695	D696	L697	V698	S699	T700	S701	I702	D703	S704	V705	E706	W707	A708	N709	I710	V711	V712	V713	V714	N715	T716	I717	L718	K719	D720	M721	L722	H723	V724	A725	C726	Q727	Y728	R729	M730	H731	K732	N733	V734	L735	Y736
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L797	D798	D799	Y800	V801	T802	Q803	L804	K805	S806	I807	D808	K809	L810	A811	N812	E813	E814	L815	Y816	N817	I818	L819	E820	M821	E822	Y823	A824	Q825	K826	R827	S828	E829	L830	L831	S832	P833	L834	L835	I836	L837	G838	Q839	Y840	A841	W842	A843	S844	N845	L846	A847	Q848	K849	Y850	C851	D852	F853	L854	I855	L856
V857	Q858	I859	C860	E861	M862	T863	D864	K865	Q866	S867	R868	L869	Q870	R871	Y872	M873	T874	L875	F876	A877	E878	Q879	N880	F881	S882	D883	F884	L885	F886	R887	W888	Y889	L890	E891	K892	G893	K894	R895	G896	L897	G898	L899	S900	P901	Q902	A903	S904	Q905	H906	G907	Q908	L909	A910	A911	F912	L913	Q914	A915	H916
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E977	E978	I979	A980	E981	Q982	E983	H984	F985	L986	L987	H988	Q989	E990	T991	L992	P993	K994	K995	L996	L997	E998	E999	K1000	Q1001	L1002	D1003	L1004	N1005	A1006	M1007	P1008	V1009	L1010	A1011	K992	F1013	Q1014	L1015	I1016	Q1017	L1018	Y1019	V1020	C1021	E1022	E1023	A1024	S965	V1026	A1027	N1028	E1029	M1030	D1031	F1032	M1033	K1034	A1035	L1036
D1037	L1038	L1039	E1040	Y1041	L1042	G1043	D1044	D1045	S1046	E1047	V1048	D1049	V1050	E1051	E1052	L1053	K1054	L1055	E1056	I1057	L1058	C1059	K1060	A1061	I1062	K1063	R1064	D1065	E1066	W1067	S1068	A1069	T1070	D1071	G1072	K1073	D1074	D1075	P1076	I1077	E1078	A1079	T1080	K1081	D1082	S1083	L1084	F1085	V1086	K1087	V1088	L1089	Q1090	N1091	L1092	L1093	N1094	K1095	L1096
I1097	E1098	L1099	K1100	G1101	Y1102	L1103	P1104	K1105	A1106	E1107	T1108	L1109	L1110	Q1111	S1112	E1113	L1114	L1115	N1116	S1117	L1118	K1119	T1120	M1121	S1122	Y1123	F1124	E1125	F1126	S1127	L1128	K1129	A1130	M1131	Y1132	E1133	C1134	Y1135	M1136	K1137	M1138	Q1139	S1140																

• Molecule 10: MGC83295 protein

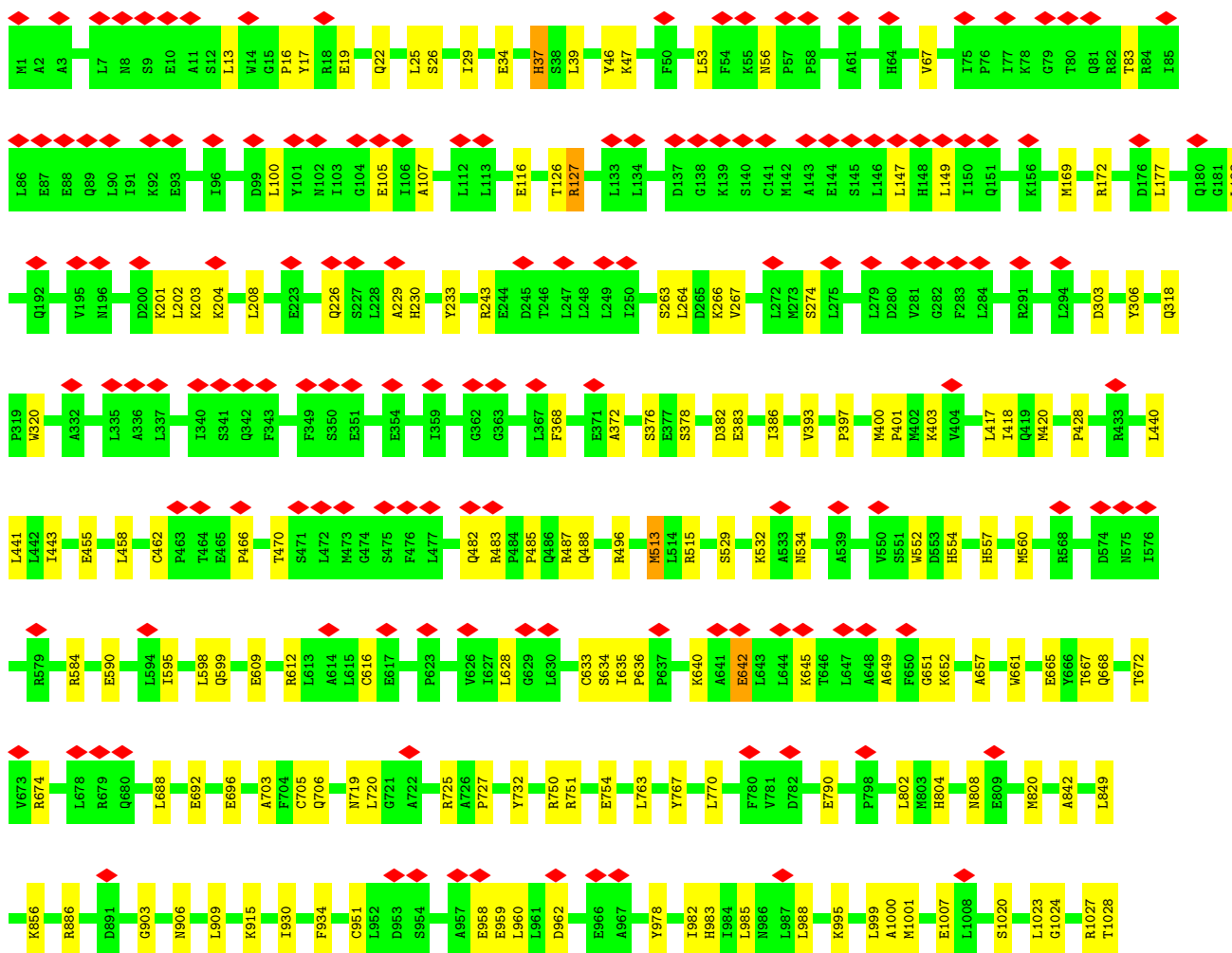
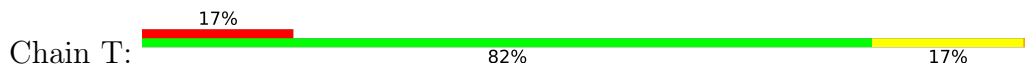


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F95	I96	D99	E105	I106	L125	T126	R127	G128	L129	V130	A131	L132	L133	L134	D137	G138	K139	S140	C141	M142	A143	E144	S145	L146	L147	H148	L149	I150	Q151	A152	R153	K154	G155	K156	T157	F158	T159	R172	F173	T174	D175	E176	L177	M178	L182	T183	M184	K185	L186	I186	I190	S191	Q192
I193	D194	F199	D200	K201	L202	K203	K204	E205	R206	G207	L208	S218	D219	K222	Q225	Q226	S227	L228	A229	H230	Y233	P240	L241	N242	R243	E244	D245	T246	L247	L248	L249	I250	L253	L264	N268	L269	L272	M273	S274	L275	L276	Y277	C278	D280	V281	G282	F283	L284					

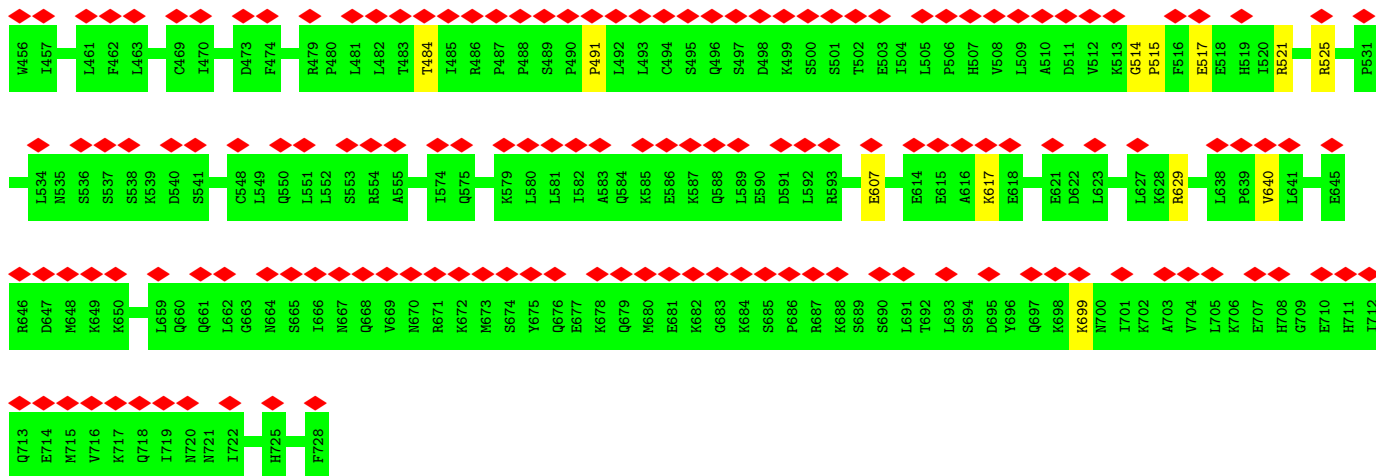




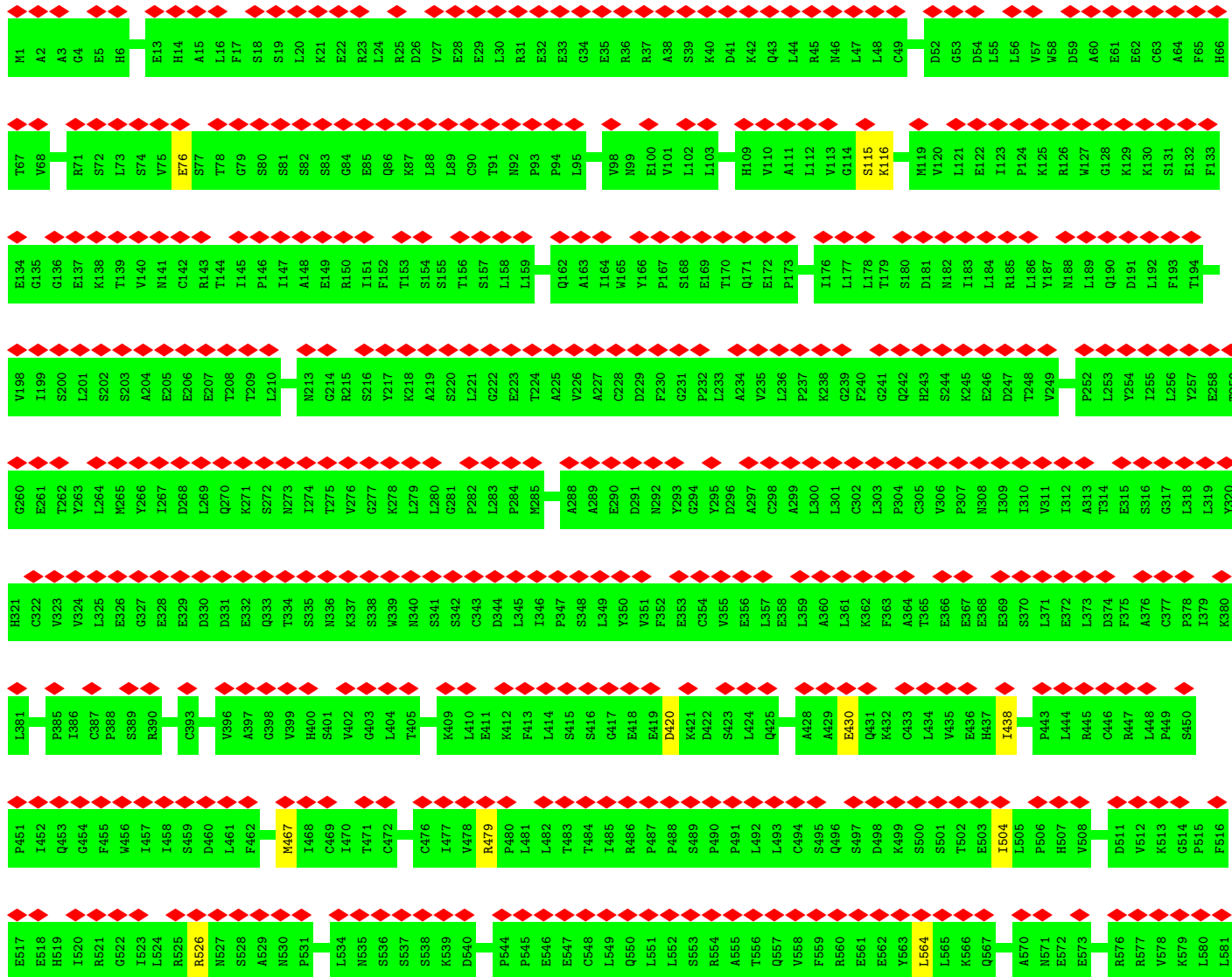
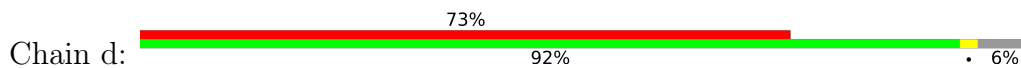
• Molecule 10: MGC83295 protein



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K5	E73	Q142	L228	A316	I406	S495	N589	I686	P761	ALA	GLN	TYR	PHE	ARG	GLY
A6	G74	G143	E231	Y319	V409	L499	S590	I688	ALA	PHE	GLY	PRO	GLY	GLY	PRO
E7	V76	E144	L232	A322	V409	D501	F591	Q687	ALA	GLU	ASN	VAL	CYS	ARG	LEU
I8	E77	A145	L233	A322	E410	N503	Y592	R688	ALA	ASN	VAL	VAL	GLY	GLY	LEU
Q9	K78	A148	L234	S330	V413	R610	K595	K689	ALA	HIS	LEU	VAL	HIS	GLN	LEU
R10	A79	F151	A235	K331	V413	P511	M598	A690	ALA	SER	LEU	VAL	SER	LEU	LEU
Y11	V80	D152	Q236	F332	S426	R512	V602	E692	ALA	THR	ARG	ALA	THR	ALA	THR
V12	G81	L153	V240	F333	L427	C513	L602	E693	ALA	THR	ASN	ALA	THR	ALA	THR
E13	C82	I154	F241	K334	R428	L514	R606	E694	ALA	THR	SER	ALA	THR	ALA	THR
N14	Y83	Q155	S245	G335	I429	P815	K607	I695	ALA	THR	ASN	ALA	THR	ALA	THR
A15	K84	Q155	K251	D336	H430	P815	L608	I696	ALA	THR	ASN	ALA	THR	ALA	THR
Q16	R85	A156	K251	D337	N431	L516	L609	D696	ALA	THR	ASN	ALA	THR	ALA	THR
N17	S86	E157	K251	D337	N431	L516	L609	C697	ALA	THR	ASN	ALA	THR	ALA	THR
S18	L87	L158	A255	G339	D433	P818	L609	L698	ALA	THR	ASN	ALA	THR	ALA	THR
A19	E88	F159	L256	Q340	L434	C519	P610	P699	ALA	THR	ASN	ALA	THR	ALA	THR
S20	A160	F159	E257	Q341	G441	K520	L611	A700	ALA	THR	ASN	ALA	THR	ALA	THR
S21	T92	R161	E257	F342	G441	K520	L612	E701	ALA	THR	ASN	ALA	THR	ALA	THR
P22	Q93	P162	R258	F342	G441	K520	L613	E702	ALA	THR	ASN	ALA	THR	ALA	THR
R23	K94	N163	F259	F343	G441	K520	L614	E703	ALA	THR	ASN	ALA	THR	ALA	THR
E24	R99	D164	A262	E345	L450	T524	R618	E704	ALA	THR	ASN	ALA	THR	ALA	THR
K25	I100	Y166	L263	L346	P451	D525	K619	E705	ALA	THR	ASN	ALA	THR	ALA	THR
S26	A101	Y166	L264	L346	P451	D525	K619	E705	ALA	THR	ASN	ALA	THR	ALA	THR
M27	E102	K170	L171	A347	P452	R526	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
K28	L103	L171	S265	F348	P452	Q527	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
A33	I104	V172	V266	D349	K455	R528	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
R34	C105	D173	Q268	R350	K455	S529	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
A39	T106	L176	S269	S852	F461	D532	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
K40	L107	S177	V270	K353	P462	T538	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
E41	N108	L186	S271	S854	R463	F539	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
Y42	I109	L186	G272	S854	R463	K540	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
E43	K110	L189	S276	L359	R470	F544	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
L44	D111	L189	S276	L361	L471	G545	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
A45	G112	R194	T281	S362	E472	I546	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
K46	R113	A195	E284	H363	S473	F546	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
R47	A114	L196	M285	G364	N474	K549	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
S48	E115	R197	M285	K365	I475	V553	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
V49	Y116	T198	M291	Q366	P476	V553	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
S50	W117	I200	M291	I373	E477	L564	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
S51	V118	E201	T295	I373	I479	Q555	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
Y52	E119	E201	L296	E374	C480	F559	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
I53	R120	C203	L297	T375	L481	T560	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
S54	A121	S204	L298	F376	L482	T560	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
V55	S122	C205	L299	F376	D483	L561	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
Q56	K123	W206	M300	C380	L484	R562	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
E57	L124	V207	M300	C380	E485	R562	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
R58	F125	R208	A301	Q382	V486	E565	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
D59	G127	P126	Q302	S383	F467	K566	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
P60	G127	P126	S303	I384	L488	L569	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
K61	S128	G127	S303	L385	L488	L569	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
A62	P129	S128	E305	L386	L488	L569	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
H63	E130	P129	V306	K387	A490	V573	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
L66	I131	E130	Q307	F388	V491	L574	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
F70	R133	Y132	F390	L389	V492	L574	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR
Q137	R133	Y132	F390	L389	V492	L574	L626	E708	ALA	THR	ASN	ALA	THR	ALA	THR



• Molecule 14: Nup88A protein



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	354460	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 ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	5000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	3.582	Depositor
Minimum map value	-2.369	Depositor
Average map value	0.010	Depositor
Map value standard deviation	0.112	Depositor
Recommended contour level	0.505	Depositor
Map size (Å)	716.8, 716.8, 716.8	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	2.24, 2.24, 2.24	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.23	0/5377	0.44	0/7265
1	J	0.89	7/5377 (0.1%)	0.48	2/7265 (0.0%)
2	B	0.23	0/2996	0.47	0/4074
2	K	0.24	0/2996	0.48	0/4074
3	C	0.24	0/2674	0.48	0/3628
3	L	0.23	0/2612	0.46	0/3545
4	D	0.23	0/11349	0.43	0/15414
4	M	0.23	0/11349	0.43	0/15414
5	E	0.24	0/2643	0.46	0/3587
5	N	0.24	0/2643	0.47	0/3587
6	F	0.23	0/5308	0.43	0/7201
6	O	0.23	0/5299	0.44	0/7189
7	G	0.23	0/2367	0.44	0/3231
7	P	0.23	0/2367	0.45	0/3231
8	H	0.23	0/6628	0.41	0/8968
8	Q	0.23	0/6562	0.42	0/8879
9	I	0.23	0/8647	0.41	0/11720
9	R	0.23	0/8703	0.42	0/11797
10	S	0.23	0/16272	0.44	0/22021
10	T	0.23	0/16272	0.43	0/22021
11	U	0.24	0/5360	0.45	0/7239
12	V	0.23	0/6356	0.41	0/8594
12	W	0.23	0/6227	0.41	0/8417
12	X	0.23	0/6321	0.41	0/8545
12	Y	0.23	0/6268	0.40	0/8474
12	Z	1.17	8/6243 (0.1%)	0.52	4/8439 (0.0%)
13	a	0.23	0/1762	0.40	0/2365
13	e	0.23	0/1298	0.39	0/1738
14	b	0.23	0/5896	0.45	0/7976
14	d	0.23	0/5517	0.45	0/7471
15	c	0.23	0/1641	0.39	0/2206
15	f	0.23	0/1154	0.39	0/1553
All	All	0.35	15/182484 (0.0%)	0.44	6/247128 (0.0%)

The worst 5 of 15 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	Z	308	TRP	CE3-CZ3	61.34	2.42	1.38
1	J	487	TRP	CE3-CZ3	38.83	2.04	1.38
12	Z	308	TRP	CZ3-CH2	38.33	2.01	1.40
12	Z	308	TRP	CE2-CZ2	32.92	1.95	1.39
12	Z	308	TRP	CD2-CE2	27.05	1.73	1.41

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	Z	510	ARG	CD-NE-CZ	22.20	154.69	123.60
1	J	471	MET	CG-SD-CE	16.96	127.33	100.20
12	Z	510	ARG	NE-CZ-NH1	12.45	126.53	120.30
12	Z	308	TRP	CE3-CZ3-CH2	-8.84	111.47	121.20
12	Z	510	ARG	CG-CD-NE	6.80	126.08	111.80

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	A	5268	0	5226	61	0
1	J	5268	0	5226	100	0
2	B	2927	0	2800	63	0
2	K	2927	0	2800	48	0
3	C	2607	0	2513	40	0
3	L	2546	0	2444	32	0
4	D	11118	0	11035	144	0
4	M	11118	0	11035	166	0
5	E	2573	0	2503	36	0
5	N	2573	0	2503	50	0
6	F	5177	0	5086	81	0
6	O	5168	0	5080	67	0
7	G	2300	0	2180	30	0
7	P	2300	0	2180	38	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	H	6494	0	6413	52	0
8	Q	6430	0	6353	82	0
9	I	8482	0	8354	106	0
9	R	8536	0	8407	113	0
10	S	15974	0	16156	175	0
10	T	15974	0	16156	201	0
11	U	5260	0	5256	78	0
12	V	6225	0	6236	84	0
12	W	6100	0	6128	59	0
12	X	6190	0	6197	67	0
12	Y	6139	0	6155	83	0
12	Z	6116	0	6136	113	0
13	a	1738	0	1741	0	0
13	e	1282	0	1269	0	0
14	b	5787	0	5811	0	0
14	d	5414	0	5424	0	0
15	c	1621	0	1597	0	0
15	f	1141	0	1127	0	0
All	All	178773	0	177527	2026	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 6.

The worst 5 of 2026 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:J:487:TRP:CZ2	1:J:487:TRP:CE2	1.76	1.70
1:J:487:TRP:CH2	1:J:487:TRP:CZ3	1.81	1.63
12:Z:308:TRP:CZ2	12:Z:308:TRP:CE2	1.95	1.51
12:Z:510:ARG:CD	12:Z:510:ARG:NE	1.75	1.49
12:Z:308:TRP:CZ3	12:Z:510:ARG:NE	1.73	1.47

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	651/653 (100%)	584 (90%)	60 (9%)	7 (1%)	14	52
1	J	651/653 (100%)	590 (91%)	53 (8%)	8 (1%)	13	50
2	B	373/375 (100%)	300 (80%)	64 (17%)	9 (2%)	6	33
2	K	373/375 (100%)	306 (82%)	53 (14%)	14 (4%)	3	24
3	C	331/360 (92%)	286 (86%)	40 (12%)	5 (2%)	10	46
3	L	323/360 (90%)	268 (83%)	49 (15%)	6 (2%)	8	38
4	D	1392/1414 (98%)	1227 (88%)	144 (10%)	21 (2%)	10	46
4	M	1392/1414 (98%)	1254 (90%)	125 (9%)	13 (1%)	17	57
5	E	324/326 (99%)	275 (85%)	46 (14%)	3 (1%)	17	57
5	N	324/326 (99%)	273 (84%)	45 (14%)	6 (2%)	8	38
6	F	636/924 (69%)	530 (83%)	91 (14%)	15 (2%)	6	33
6	O	635/924 (69%)	560 (88%)	68 (11%)	7 (1%)	14	52
7	G	292/320 (91%)	251 (86%)	35 (12%)	6 (2%)	7	36
7	P	292/320 (91%)	235 (80%)	50 (17%)	7 (2%)	6	33
8	H	796/916 (87%)	736 (92%)	53 (7%)	7 (1%)	17	57
8	Q	788/916 (86%)	704 (89%)	75 (10%)	9 (1%)	14	52
9	I	1074/1140 (94%)	926 (86%)	131 (12%)	17 (2%)	9	44
9	R	1080/1140 (95%)	957 (89%)	113 (10%)	10 (1%)	17	57
10	S	2009/2011 (100%)	1790 (89%)	193 (10%)	26 (1%)	12	48
10	T	2009/2011 (100%)	1815 (90%)	171 (8%)	23 (1%)	14	52
11	U	652/820 (80%)	593 (91%)	51 (8%)	8 (1%)	13	50
12	V	770/2931 (26%)	702 (91%)	59 (8%)	9 (1%)	13	50
12	W	754/2931 (26%)	690 (92%)	57 (8%)	7 (1%)	17	57
12	X	765/2931 (26%)	698 (91%)	62 (8%)	5 (1%)	22	63
12	Y	759/2931 (26%)	699 (92%)	49 (6%)	11 (1%)	11	46
12	Z	756/2931 (26%)	688 (91%)	58 (8%)	10 (1%)	12	48
13	a	207/2037 (10%)	202 (98%)	5 (2%)	0	100	100
13	e	153/2037 (8%)	149 (97%)	3 (2%)	1 (1%)	22	63
14	b	726/728 (100%)	653 (90%)	65 (9%)	8 (1%)	14	52
14	d	681/728 (94%)	609 (89%)	65 (10%)	7 (1%)	15	55

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
15	c	196/547 (36%)	192 (98%)	4 (2%)	0	100	100
15	f	136/547 (25%)	136 (100%)	0	0	100	100
All	All	22300/38977 (57%)	19878 (89%)	2137 (10%)	285 (1%)	16	48

5 of 285 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	D	178	ILE
4	D	565	LYS
9	R	837	LEU
11	U	203	PRO
12	W	271	SER

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	580/580 (100%)	560 (97%)	20 (3%)	37	60
1	J	580/580 (100%)	557 (96%)	23 (4%)	31	55
2	B	329/329 (100%)	321 (98%)	8 (2%)	49	69
2	K	329/329 (100%)	317 (96%)	12 (4%)	35	59
3	C	288/309 (93%)	282 (98%)	6 (2%)	53	72
3	L	282/309 (91%)	275 (98%)	7 (2%)	47	68
4	D	1230/1244 (99%)	1206 (98%)	24 (2%)	55	74
4	M	1230/1244 (99%)	1198 (97%)	32 (3%)	46	66
5	E	275/275 (100%)	271 (98%)	4 (2%)	65	80
5	N	275/275 (100%)	264 (96%)	11 (4%)	31	55
6	F	564/816 (69%)	538 (95%)	26 (5%)	27	52
6	O	563/816 (69%)	542 (96%)	21 (4%)	34	58
7	G	250/272 (92%)	241 (96%)	9 (4%)	35	59
7	P	250/272 (92%)	242 (97%)	8 (3%)	39	61

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	H	712/816 (87%)	692 (97%)	20 (3%)	43	65
8	Q	705/816 (86%)	682 (97%)	23 (3%)	38	61
9	I	944/993 (95%)	931 (99%)	13 (1%)	67	80
9	R	950/993 (96%)	926 (98%)	24 (2%)	47	68
10	S	1779/1779 (100%)	1741 (98%)	38 (2%)	53	72
10	T	1779/1779 (100%)	1730 (97%)	49 (3%)	43	65
11	U	577/721 (80%)	566 (98%)	11 (2%)	57	75
12	V	692/2545 (27%)	682 (99%)	10 (1%)	67	80
12	W	677/2545 (27%)	669 (99%)	8 (1%)	71	83
12	X	687/2545 (27%)	681 (99%)	6 (1%)	78	87
12	Y	682/2545 (27%)	665 (98%)	17 (2%)	47	68
12	Z	679/2545 (27%)	667 (98%)	12 (2%)	59	77
13	a	195/1634 (12%)	195 (100%)	0	100	100
13	e	143/1634 (9%)	138 (96%)	5 (4%)	36	59
14	b	660/660 (100%)	646 (98%)	14 (2%)	53	72
14	d	617/660 (94%)	611 (99%)	6 (1%)	76	86
15	c	179/429 (42%)	174 (97%)	5 (3%)	43	65
15	f	126/429 (29%)	125 (99%)	1 (1%)	81	89
All	All	19808/33718 (59%)	19335 (98%)	473 (2%)	51	69

5 of 473 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
6	O	714	LEU
14	b	143	ARG
9	R	868	ARG
12	Z	444	TRP
12	W	23	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 254 such sidechains are listed below:

Mol	Chain	Res	Type
8	Q	507	GLN
12	Y	759	HIS
10	S	884	ASN

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Mol	Chain	Res	Type
12	Y	675	ASN
14	b	109	HIS

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.

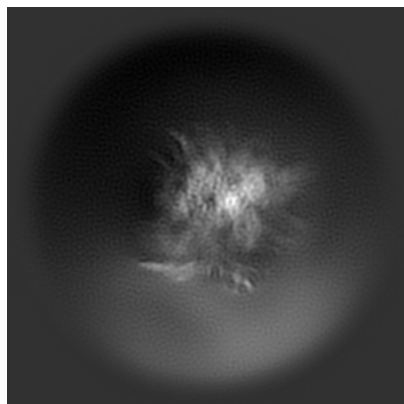
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-32056. These allow visual inspection of the internal detail of the map and identification of artifacts.

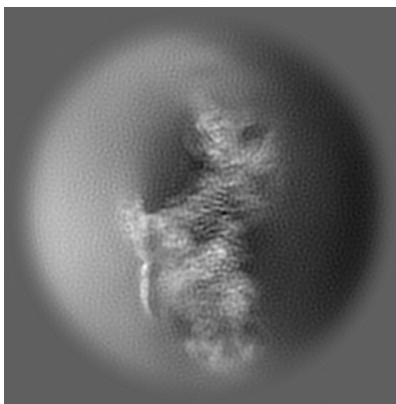
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

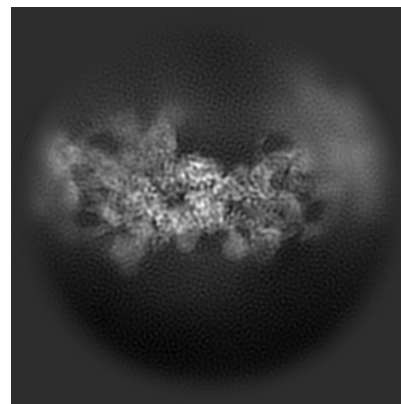
6.1.1 Primary map



X

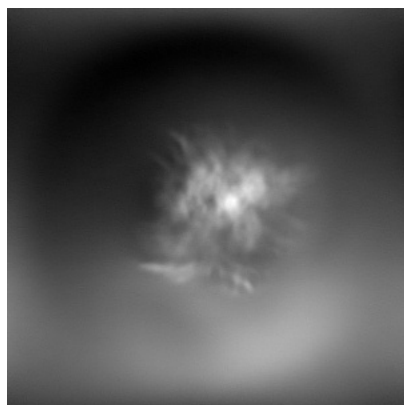


Y

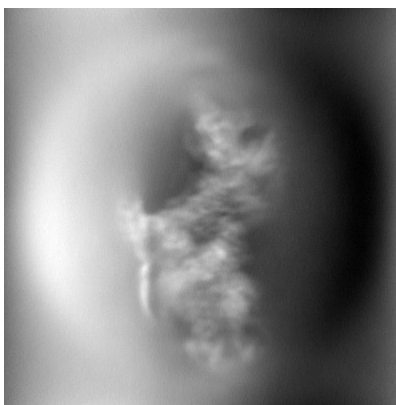


Z

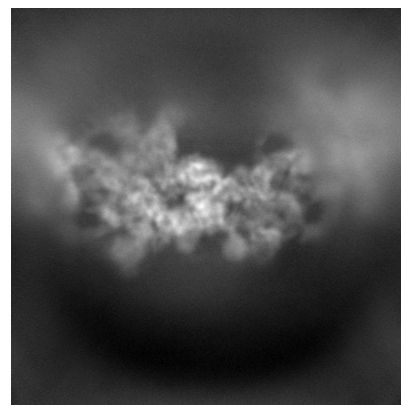
6.1.2 Raw map



X



Y

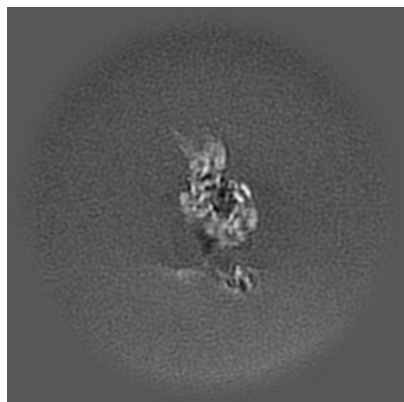


Z

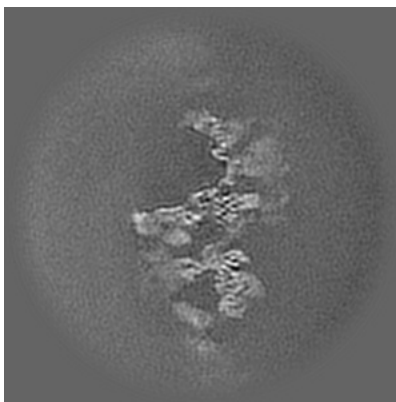
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

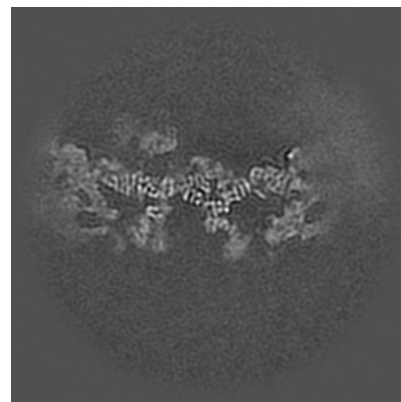
6.2.1 Primary map



X Index: 160

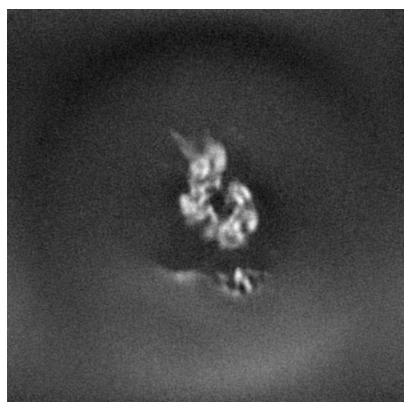


Y Index: 160

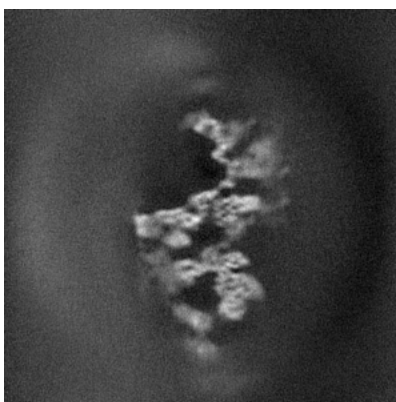


Z Index: 160

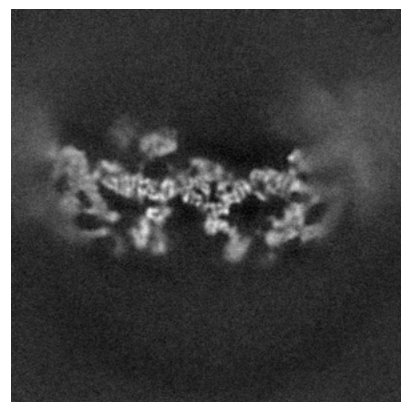
6.2.2 Raw map



X Index: 160



Y Index: 160

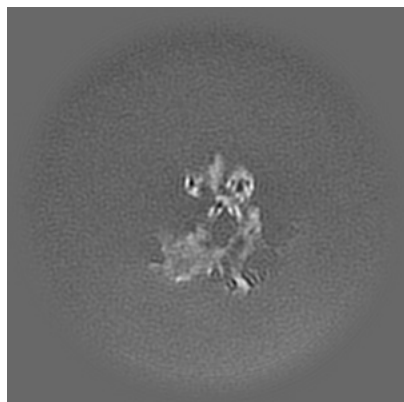


Z Index: 160

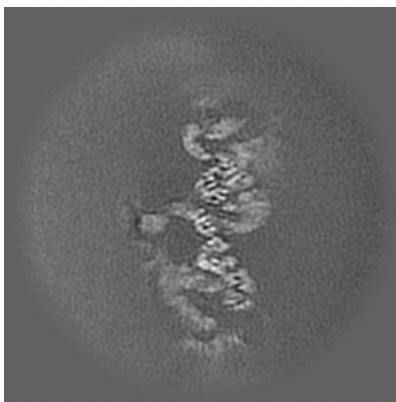
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

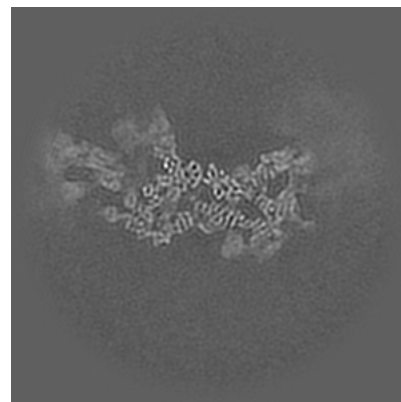
6.3.1 Primary map



X Index: 143



Y Index: 169

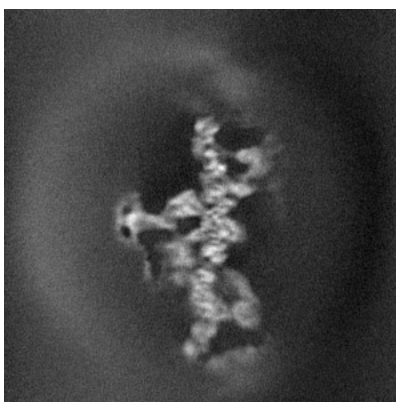


Z Index: 171

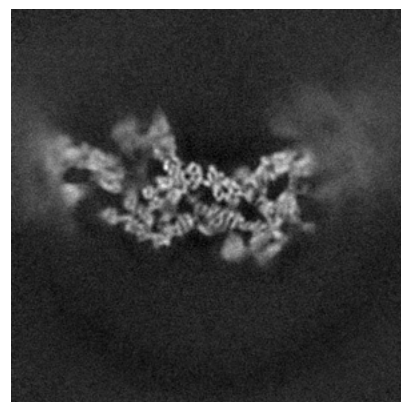
6.3.2 Raw map



X Index: 143



Y Index: 182

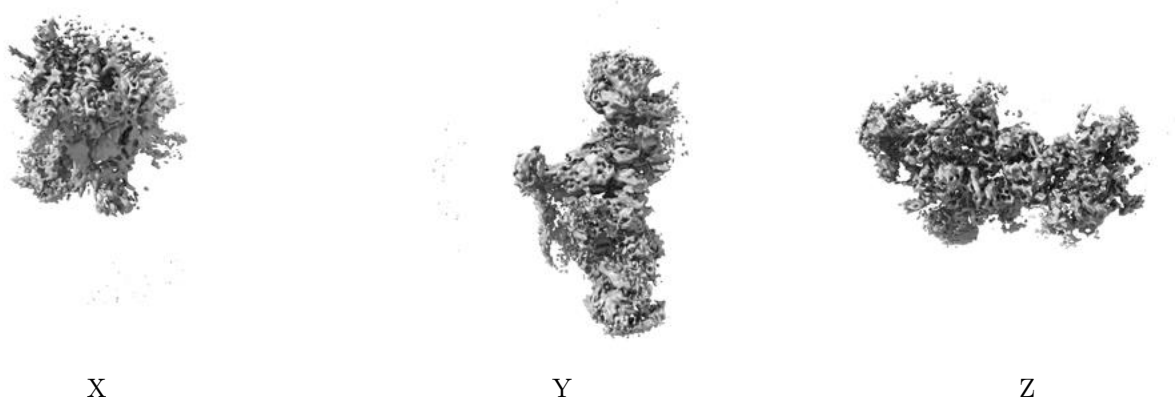


Z Index: 171

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

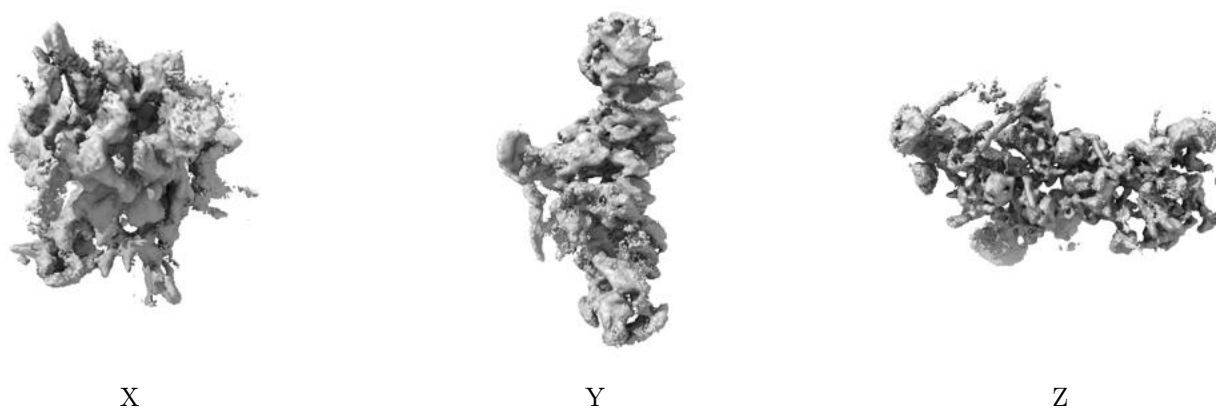
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.505. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



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

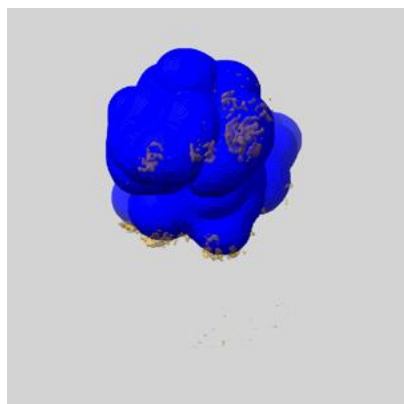
6.5 Mask visualisation [i](#)

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

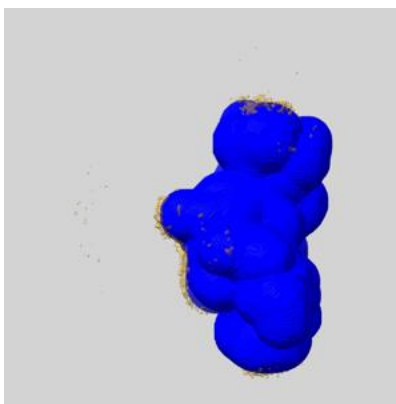
A mask typically either:

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

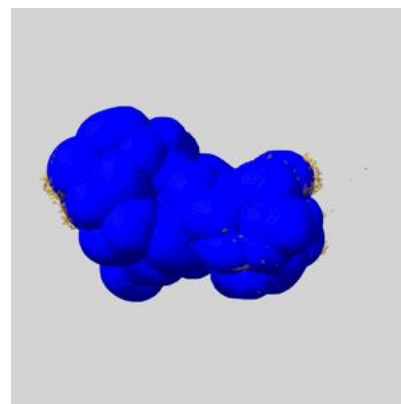
6.5.1 emd_32056_msk_1.map [i](#)



X



Y

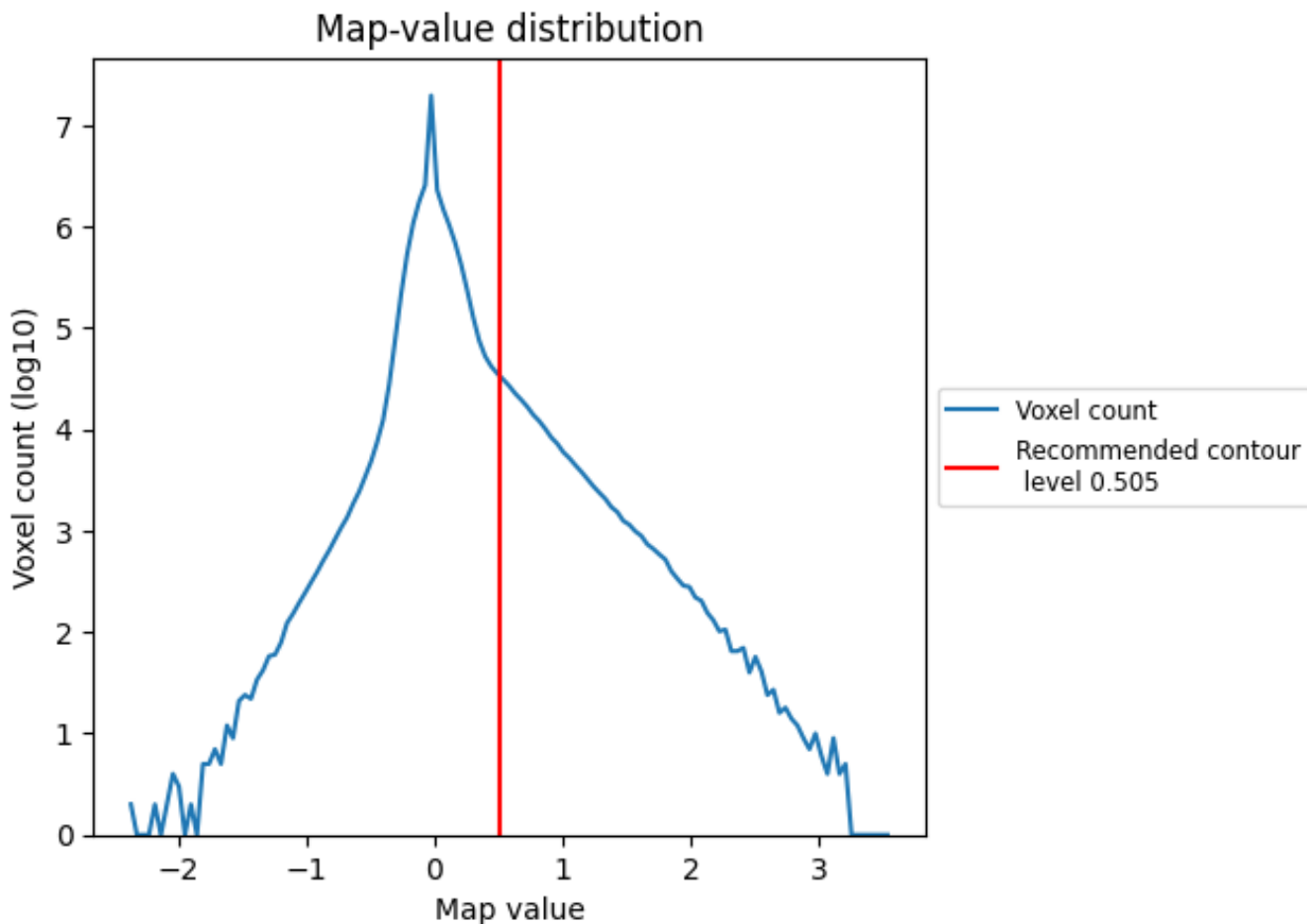


Z

7 Map analysis [i](#)

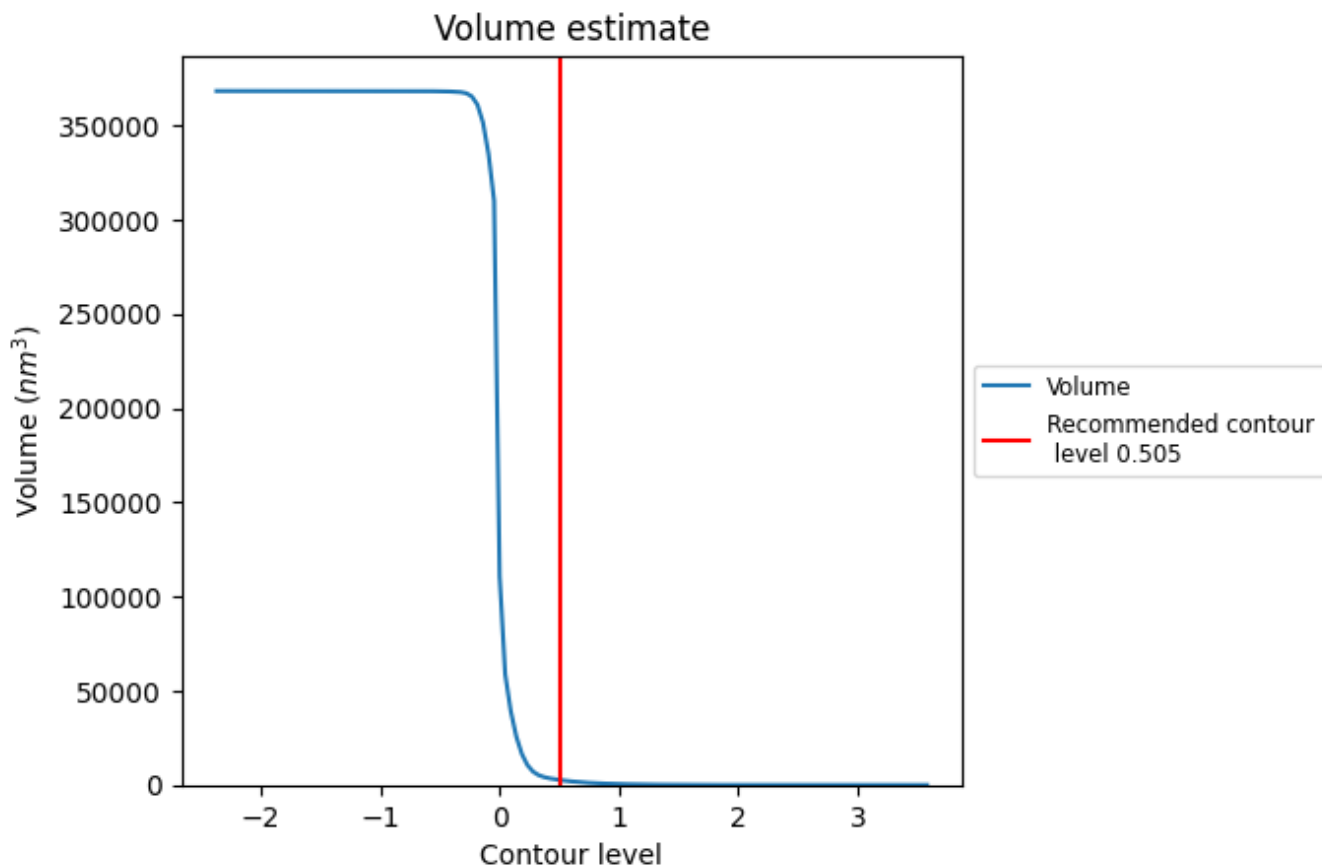
This section contains the results of statistical analysis of the map.

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.

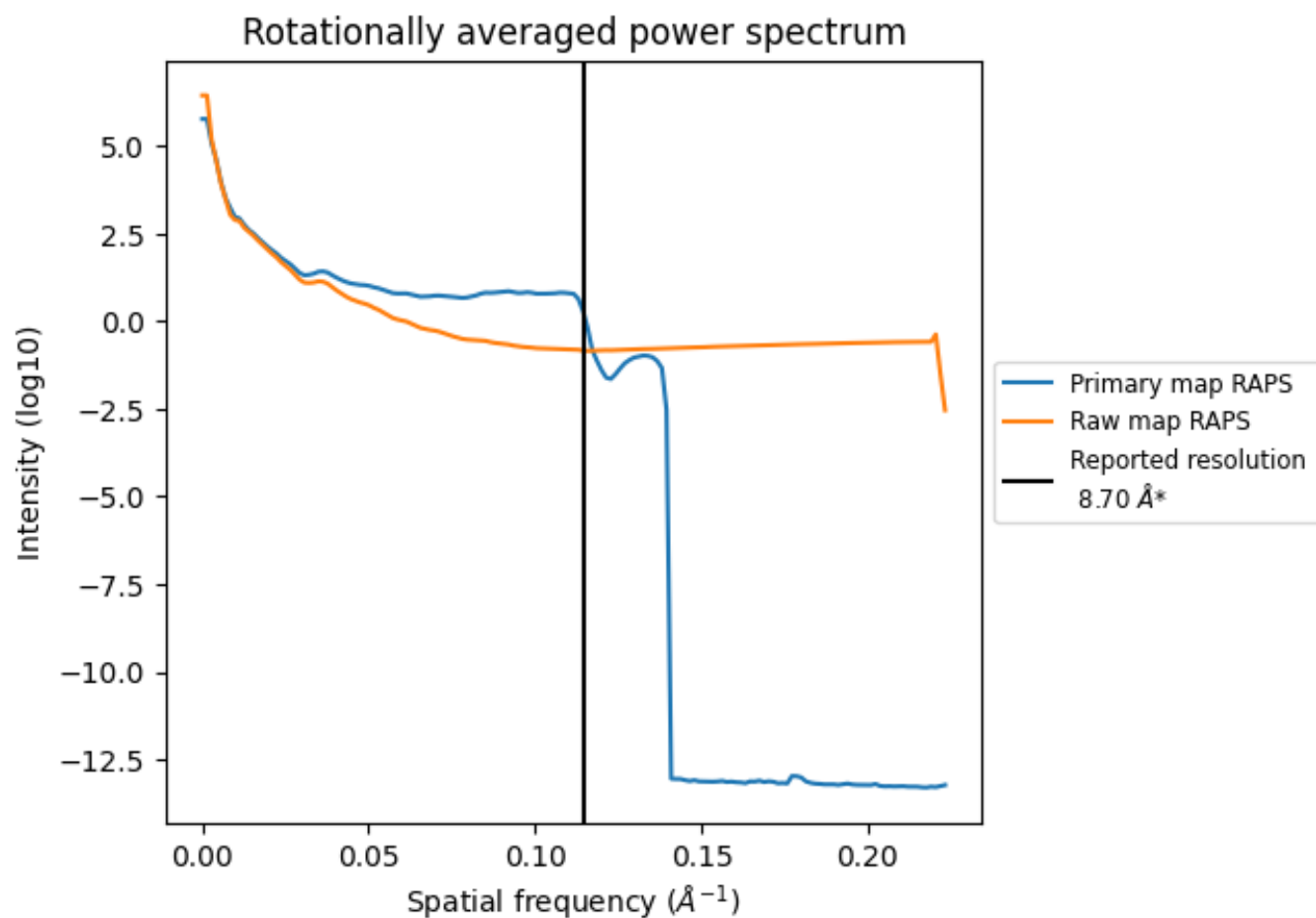
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2642 nm^3 ; this corresponds to an approximate mass of 2387 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](#)

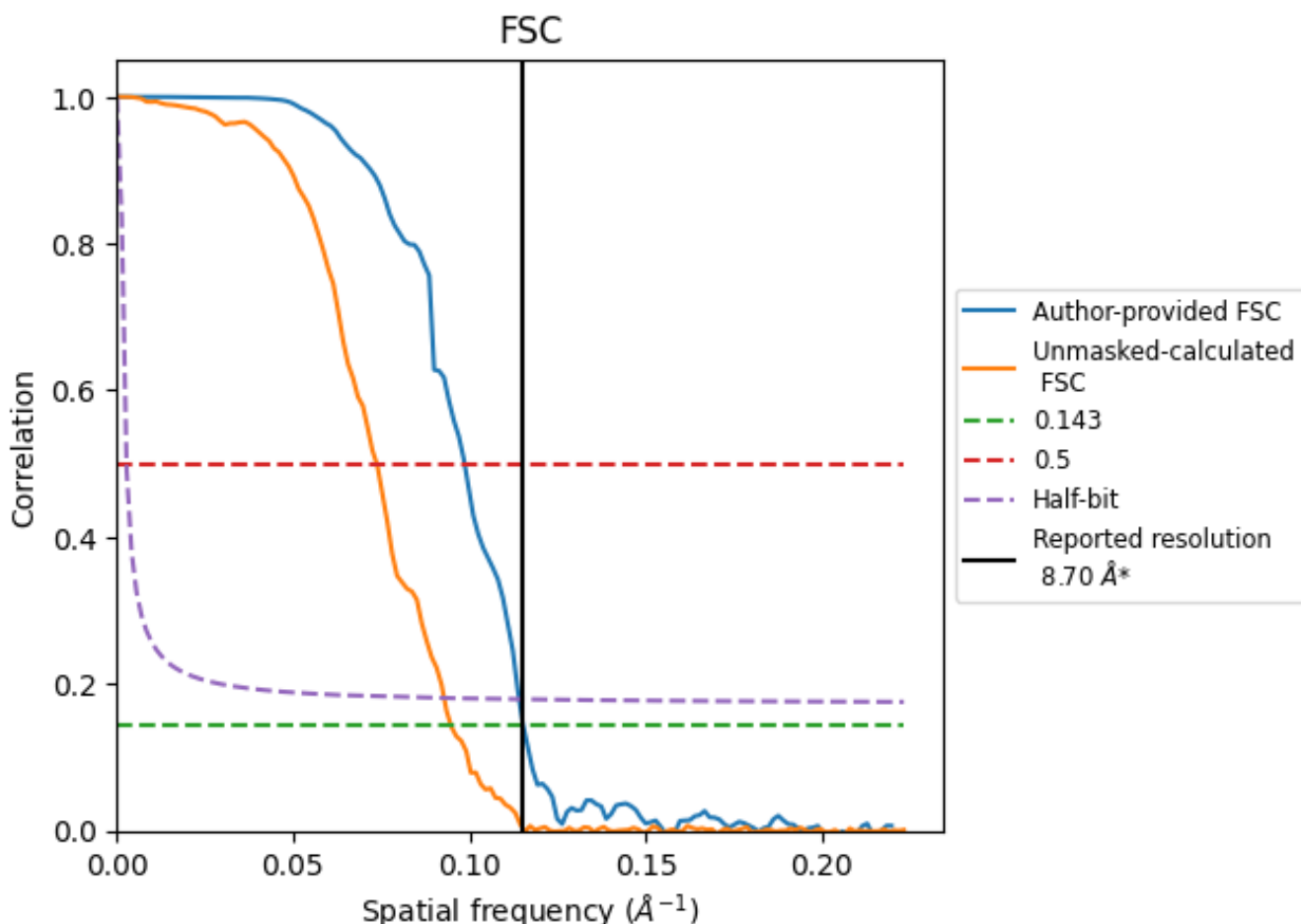


*Reported resolution corresponds to spatial frequency of 0.115 Å⁻¹

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 0.115 \AA^{-1}

8.2 Resolution estimates

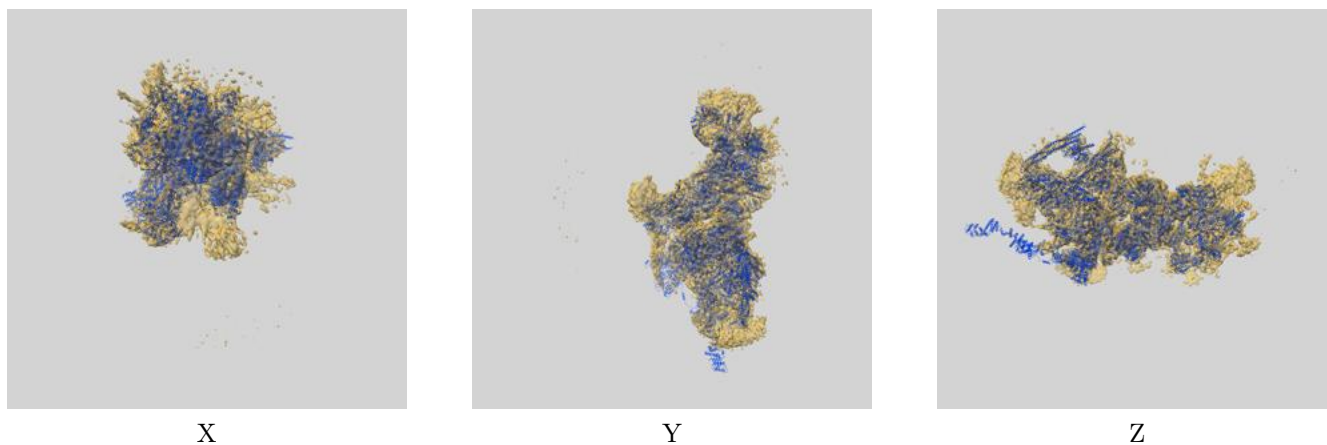
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	8.70	-	-
Author-provided FSC curve	8.68	10.14	8.76
Unmasked-calculated*	10.56	13.55	10.78

*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 10.56 differs from the reported value 8.7 by more than 10 %

9 Map-model fit [i](#)

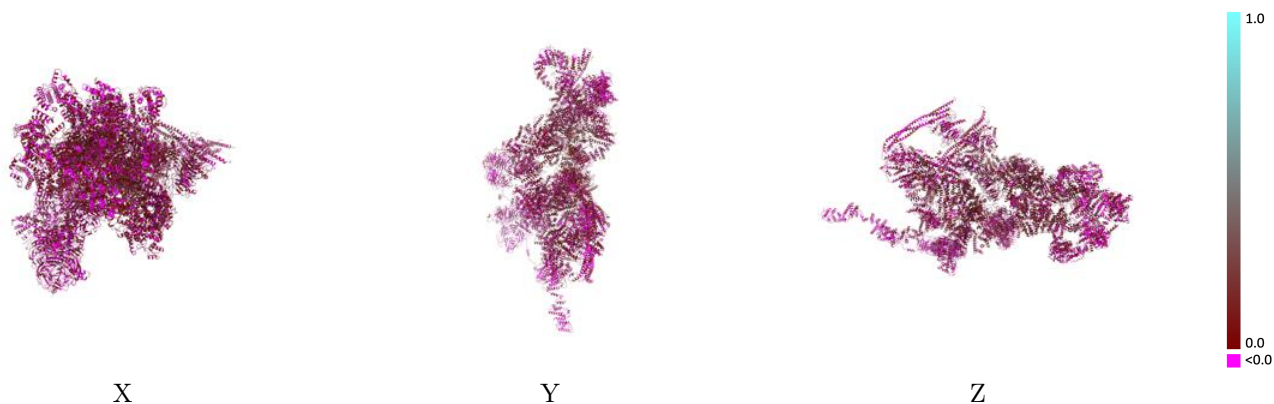
This section contains information regarding the fit between EMDB map EMD-32056 and PDB model 7VOP. Per-residue inclusion information can be found in section 3 on page 11.

9.1 Map-model overlay [i](#)



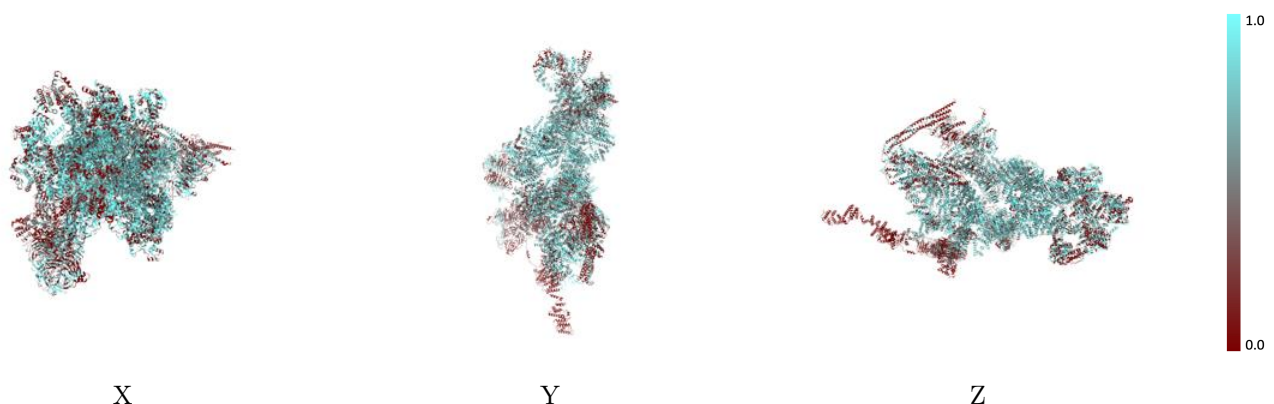
The images above show the 3D surface view of the map at the recommended contour level 0.505 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



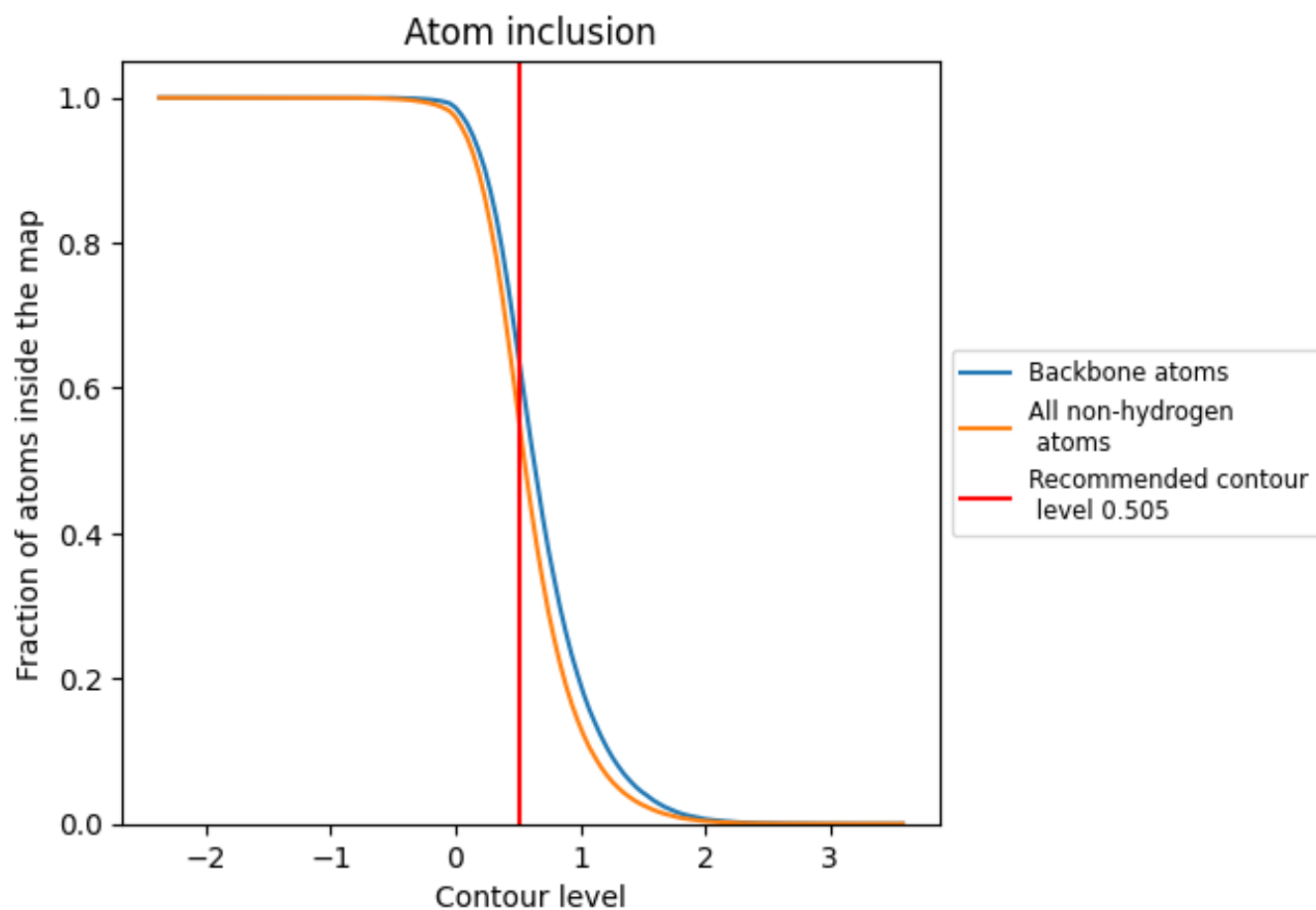
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.505).



































































9.4 Atom inclusion [i](#)



At the recommended contour level, 64% of all backbone atoms, 56% 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 (0.505) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5613	 0.0860
A	 0.7264	 0.1500
B	 0.6855	 0.0950
C	 0.8048	 0.1310
D	 0.6358	 0.0820
E	 0.7929	 0.0860
F	 0.7049	 0.1140
G	 0.7034	 0.1080
H	 0.6260	 0.0910
I	 0.3518	 0.0610
J	 0.6646	 0.1240
K	 0.6427	 0.0790
L	 0.7593	 0.1190
M	 0.4194	 0.0550
N	 0.1556	 0.0390
O	 0.7360	 0.1380
P	 0.8083	 0.1180
Q	 0.6303	 0.1170
R	 0.0453	 0.0030
S	 0.6453	 0.1010
T	 0.7116	 0.1190
U	 0.7093	 0.1000
V	 0.5218	 0.0830
W	 0.7178	 0.1070
X	 0.4615	 0.0360
Y	 0.5213	 0.0410
Z	 0.5153	 0.0490
a	 0.4523	 0.1090
b	 0.4979	 0.0840
c	 0.4476	 0.1040
d	 0.2065	 0.0500
e	 0.3415	 0.0740
f	 0.3158	 0.0280

