



wwPDB EM Validation Summary Report ⓘ

Jun 20, 2024 – 04:29 AM JST

PDB ID : 7WB4
EMDB ID : EMD-32394
Title : Cryo-EM structure of the NR subunit from *X. laevis* NPC
Authors : Huang, G.; Zhan, X.; Shi, Y.
Deposited on : 2021-12-15
Resolution : 5.60 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:

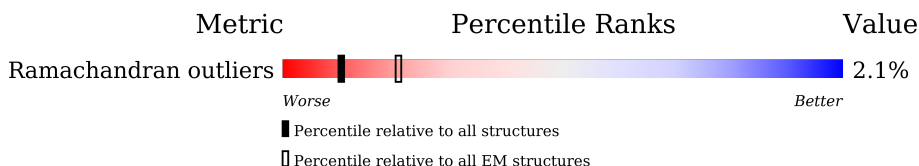
EMDB validation analysis : 0.0.1.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

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 5.60 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)
Ramachandran outliers	154571	4023

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	J	1140	<p>68% 88% 10% 13%</p>
1	P	1140	<p>54% 88% 10% 13%</p>
1	j	1140	<p>87% 85% 13% 13%</p>
1	p	1140	<p>13% 85% 13% 13%</p>
2	B	653	<p>93% 10% 10%</p>
2	b	653	<p>7% 94% 10% 10%</p>
3	C	375	<p>91% 9% 10%</p>
3	c	375	<p>90% 8% 10%</p>
4	F	326	<p>97% 10% 10%</p>
4	f	326	<p>97% 10% 10%</p>
5	D	360	<p>87% 12% 10%</p>

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Mol	Chain	Length	Quality of chain
5	d	360	87% 11%
6	E	1435	89% 5% 5% 8%
6	e	1435	88% 9%
7	K	1388	76% 22%
8	H	320	94%
8	h	320	95%
9	G	923	62% 5% 33%
9	g	923	66% 6% 27%
10	I	916	85% 13% 5%
10	M	916	84% 13%
10	i	916	85% 13% 31%
11	L	820	78% 22%
11	O	820	94% 6%
12	A	2011	83% 5% 11%
13	N	2408	62% 38% 34%
13	n	2408	62% 38%

2 Entry composition i

There are 13 unique types of molecules in this entry. The entry contains 93534 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 outer Nup133.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
1	J	1021	5059	3017	1021	1021	0	0
1	p	995	4934	2944	995	995	0	0
1	j	995	4934	2944	995	995	0	0
1	P	1021	5059	3017	1021	1021	0	0

- Molecule 2 is a protein called Nuclear pore complex protein Nup85.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	B	628	3116	1860	628	628	0	0
2	b	636	3156	1884	636	636	0	0

- Molecule 3 is a protein called MGC154553 protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	C	343	1694	1008	343	343	0	0
3	c	346	1709	1017	346	346	0	0

- Molecule 4 is a protein called MGC83926 protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	F	318	1566	930	318	318	0	0
4	f	321	1581	939	321	321	0	0

- Molecule 5 is a protein called Nucleoporin SEH1-B.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	d	320	Total	C	N	O	0	0
			1581	941	320	320		
5	D	318	Total	C	N	O	0	0
			1571	935	318	318		

- Molecule 6 is a protein called outer Nup160.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	E	1363	Total	C	N	O	0	0
			6759	4033	1363	1363		
6	e	1310	Total	C	N	O	0	0
			6494	3874	1310	1310		

- Molecule 7 is a protein called Nup155-prov protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	K	330	Total	C	N	O	0	0
			1643	983	330	330		

- Molecule 8 is a protein called GATOR complex protein SEC13.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	H	306	Total	C	N	O	0	0
			1505	893	306	306		
8	h	307	Total	C	N	O	0	0
			1510	896	307	307		

- Molecule 9 is a protein called Nuclear pore complex protein Nup96.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	G	618	Total	C	N	O	0	0
			3062	1826	618	618		
9	g	672	Total	C	N	O	0	0
			3329	1985	672	672		

- Molecule 10 is a protein called Nuclear pore complex protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	I	796	Total	C	N	O	0	0
			3956	2364	796	796		

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Mol	Chain	Residues	Atoms				AltConf	Trace
10	i	796	Total	C	N	O	0	0
			3956	2364	796	796		
10	M	796	Total	C	N	O	0	0
			3956	2364	796	796		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
11	L	641	Total	C	N	O	0	0
			3178	1896	641	641		
11	O	50	Total	C	N	O	0	0
			250	150	50	50		

- Molecule 12 is a protein called MGC83295 protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	A	1796	Total	C	N	O	0	0
			8893	5301	1796	1796		

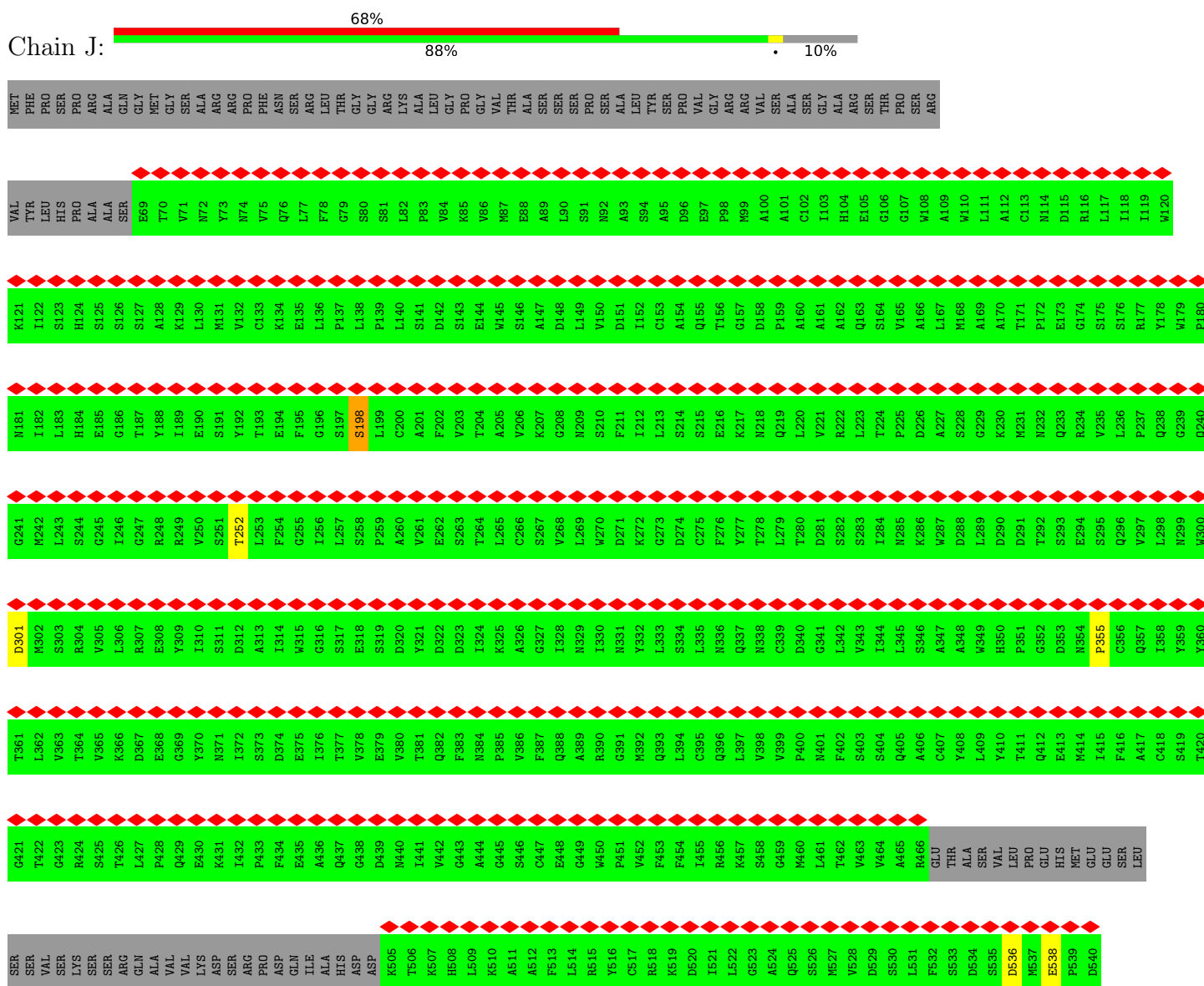
- Molecule 13 is a protein called Protein ELYS.

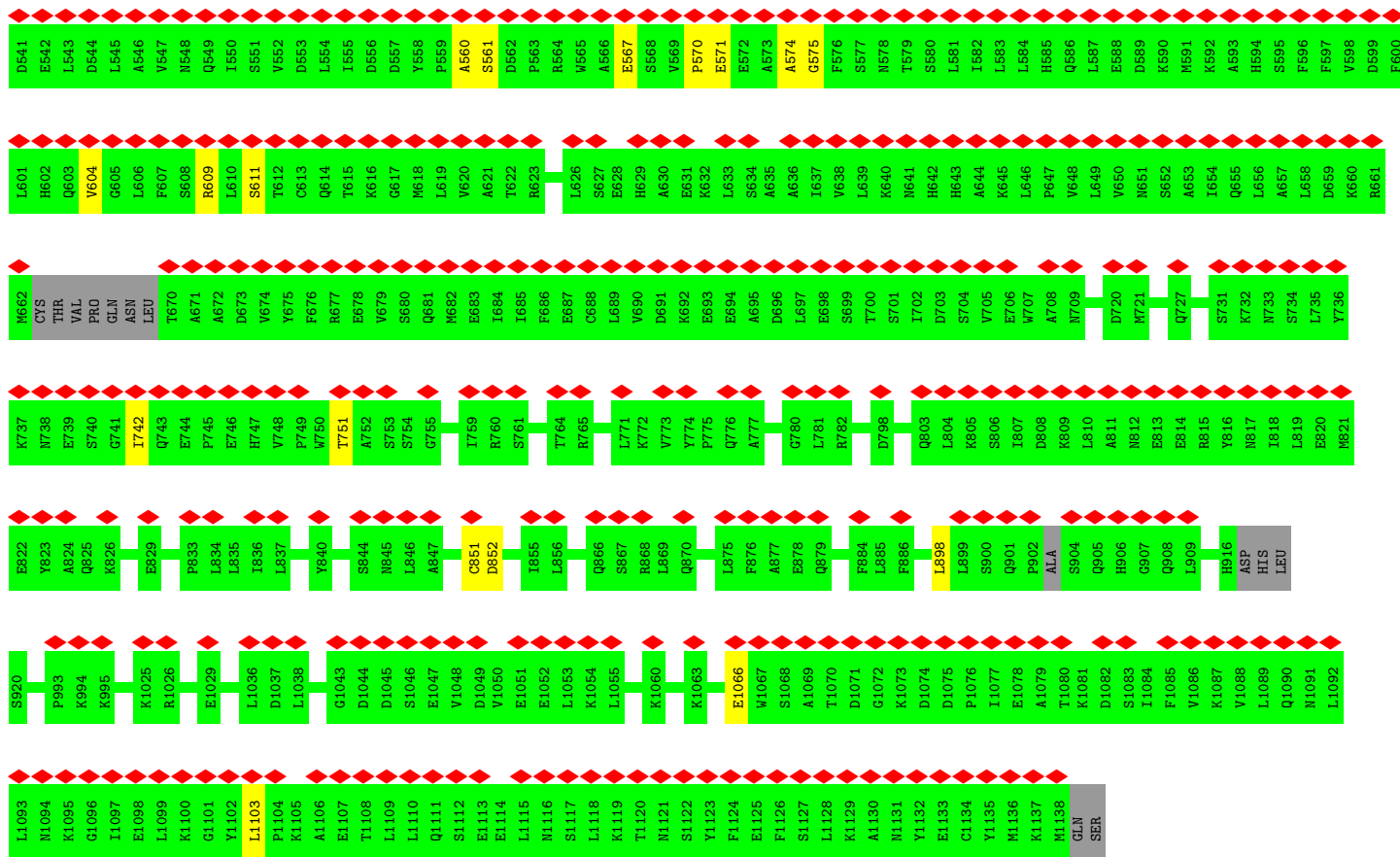
Mol	Chain	Residues	Atoms				AltConf	Trace
13	n	910	Total	C	N	O	0	0
			4502	2682	910	910		
13	N	926	Total	C	N	O	0	0
			4581	2729	926	926		

3 Residue-property plots [i](#)

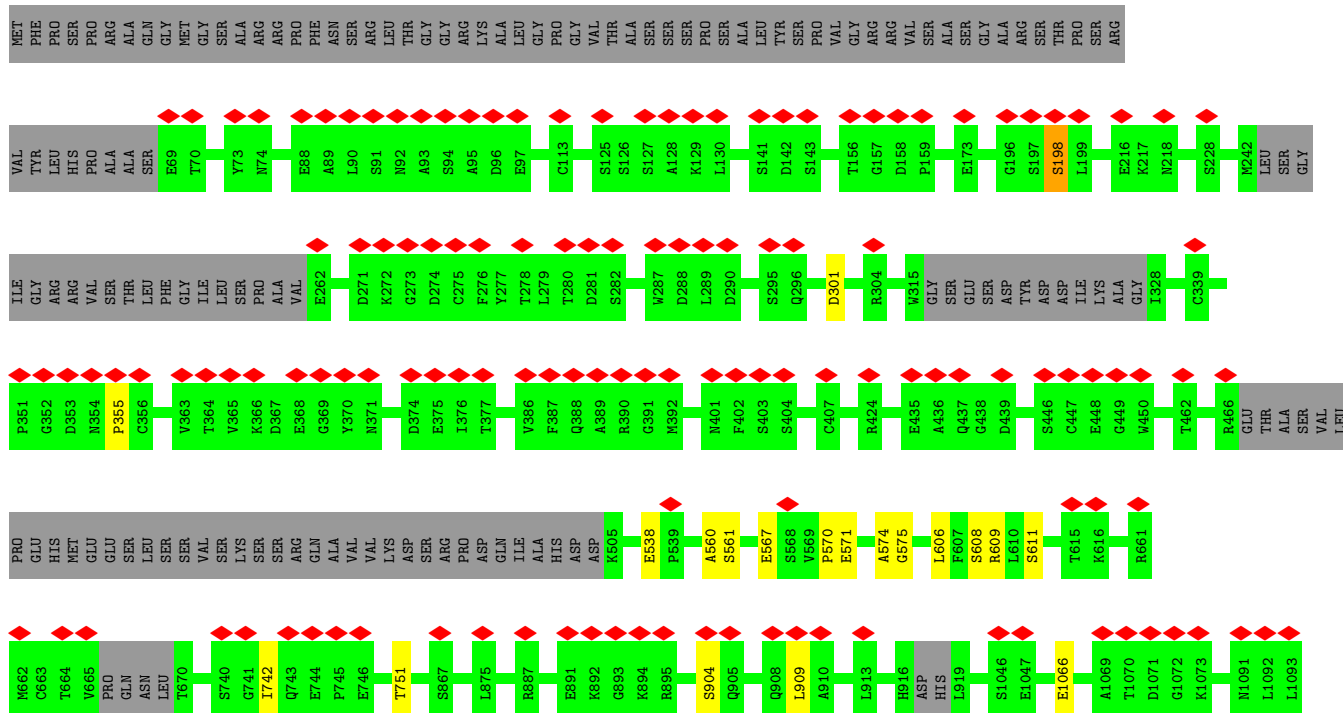
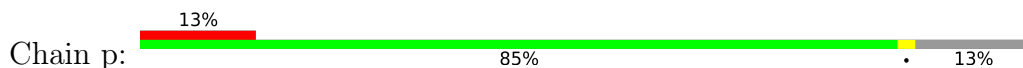
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

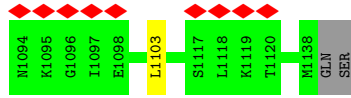
- Molecule 1: outer Nup133



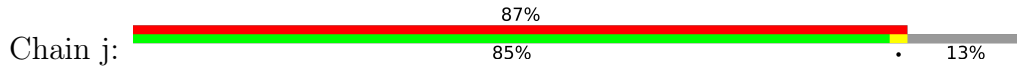


• Molecule 1: outer Nup133





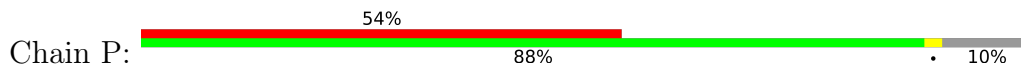
• Molecule 1: outer Nup133



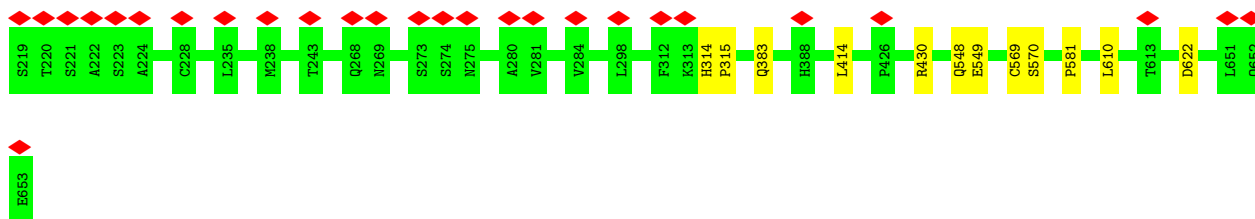
MET	VAL	K121	M181	G241	D301	T361	G421	SER	D541	L601	R661
PHE	TYR	I122	I182	M242	M302	L362	T422	SER	E542	H602	M662
PRO	LEU	S123	L183	LEU	S303	V363	G423	VAL	L543	Q603	C663
SER	HIS	H124	H184	GLY	R304	T364	R424	LYS	D544	V604	T664
ARG	PRO	H125	H185	GLY	V305	V365	S425	SER	L545	G605	V665
ALA	ALA	S126	G186	ARG	L306	K366	T426	ARG	A546	L606	V666
GLN	GLN	S127	T187	ARG	R307	D367	L427	GLN	F547	F607	G667
GLY	GLY	A128	Y188	VAL	E308	E368	P428	ALA	S608	S608	T670
MET	TYR	K129	Y189	SER	Y309	G369	Q429	VAL	Q549	R609	T671
SER	VAL	L130	E190	THR	I310	Y370	A430	VAL	N549	R609	A671
ALA	LEU	M131	S191	LEU	S311	M371	K431	VAL	L550	L610	A672
ARG	ARG	Y132	Y192	PHE	D312	I372	T432	ASP	V552	S611	D673
PRO	PRO	C133	T193	ILE	A313	D374	F434	PRO	D553	C613	V674
PHE	PHE	K134	E194	LEU	L314	D374	F434	ASP	L554	Q614	V675
ASN	ASN	E135	F195	SER	I315	E375	E435	GLN	L555	T615	F676
ARG	ARG	L136	G196	PRO	M315	I376	A436	ILE	D556	K616	R677
SER	LEU	P137	S197	VAL	SER	T377	Q437	HIS	D557	G617	E678
GLY	THR	L138	S198	E262	GLU	V378	G438	ASP	Y558	M618	V679
GLY	GLY	S139	L199	S263	SER	E379	D439	ASP	F559	L619	S680
LYS	ARG	L140	C200	T264	TYR	V380	R440	ASP	A560	V620	Q681
ALA	ALA	P83	F201	L265	ASP	T381	I441	ASP	S561	A621	M682
LEU	LEU	D142	A202	C266	ILE	Q382	V442	H508	P563	T622	D683
GLY	GLY	S43	V203	S267	LYS	F383	G443	L509	R564	R623	T684
PRO	PRO	K85	T204	V268	ALA	N384	A444	K510	A565	L624	L685
GLY	VAL	E144	A205	L269	GLY	P385	G445	A511	A566	L626	F686
VAL	THR	W45	V206	M270	I328	V386	S446	A512	E567	S627	E687
THR	ALA	S46	K207	D271	N329	F387	C447	F513	S568	E628	C688
ALA	SER	A147	G208	K272	I330	Q388	E448	L514	L569	R629	L689
SER	SER	D148	M209	G273	N331	R389	G449	R515	P570	H629	V690
SER	PRO	L90	S210	D274	Y332	A389	R450	R516	E571	E631	D691
PRO	SER	S91	S211	D274	L333	R390	W450	Y516	C517	K632	K692
SER	SER	N92	F211	C275	S334	G391	P451	C517	E572	L633	E593
ALA	LEU	A93	I212	Y276	L335	M392	V452	R518	A573	L634	E694
LEU	TYR	S94	I152	Y277	N336	Q393	F453	K519	A574	S634	A695
SER	SER	A95	C153	T278	Q337	C395	I455	D520	G575	A635	D696
PRO	PRO	D96	Q155	L279	Q337	Q396	R456	L521	F576	A636	L697
VAL	VAL	E97	T156	L280	C339	Q397	R457	L522	S577	L637	E698
GLY	ARG	P98	G157	D281	D340	L397	K458	G523	S578	V638	S699
ARG	VAL	M99	D158	S282	G341	V398	R459	A524	N579	L639	T700
VAL	SER	A100	A160	L284	L342	P400	G459	Q525	S580	K640	S701
SER	ALA	A101	P159	L284	V343	M401	G459	S526	L581	M641	I702
ALA	SER	C102	A160	M285	V343	L461	M460	H527	L582	H642	D703
SER	GLY	I103	A161	K286	I344	F402	L462	V528	L583	H643	S704
ALA	ALA	H104	A162	D288	L345	S403	V463	D529	L584	A644	V705
ARG	ARG	E105	Q163	L288	S346	S404	V464	S530	L584	K645	E706
THR	THR	G106	S164	D289	A347	S404	V464	L531	O586	L646	W707
PRO	SER	G107	V165	D290	A348	Q405	A465	F532	O586	F647	A708
SER	SER	S108	A166	D291	W349	A406	R466	THR	F532	V648	N709
SER	ALA	A109	L167	D291	H350	C407	C407	ALA	S533	V648	N709
GLY	GLY	L110	M168	T292	P351	Y408	Y408	VAL	D534	L649	I710
ALA	ALA	L111	A169	S293	R352	L409	L409	SER	S535	D589	V711
ARG	ARG	A112	A170	E294	D353	Y410	Y410	VAL	S535	K590	V711
SER	SER	A112	K230	S295	D353	T411	T411	LEU	D536	M591	V712
THR	THR	C113	M231	Q296	N354	T412	Q412	PRO	H537	K592	M713
PRO	SER	N114	N232	V297	P355	E413	E413	GLU	E538	K592	M713
SER	SER	D115	Q233	L298	C356	M414	M414	HIS	F539	A593	A653
ARG	ARG	R116	R234	L298	Q357	I415	I415	MET	L540	V714	V714
THR	THR	S175	V235	M299	Q357	I416	I416	GLU	L540	V714	V714
PRO	PRO	S176	L236	N299	Q357	F416	F416	GLU	L540	V714	V714
SER	SER	I118	L236	M300	Y359	A417	A417	SER	L540	V714	V714
SER	SER	I119	Y178	M300	Y359	C418	C418	LEU	L540	V714	V714
ARG	ARG	W120	W179	M300	Y359	S419	S419		L540	V714	V714
						T420	T420				F600

M721	L781	A841	Q901	A961	C1021	K1081
L722	R782	W842	P902	A962	E1022	D1082
H723	T783	A943	A903	L963	E1023	S1083
V724	I784	S844	S904	A964	M1024	I1084
A725	L785	N945	Q905	S965	K1025	F1085
C726	I786	L846	H906	D966	R1026	V1086
Q727	E787	A847	G907	F967	A1027	K1087
Y728	Q788	E848	Q908	Q968	M1028	V1088
R729	L789	K849	L909	E969	E1029	GLY
Q730	A790	Y850	A910	D970	M1030	SER
S731	A791	C851	A911	V971	D1031	ALA
K732	L792	D852	F912	L972	F1032	ARG
N733	L793	F853	L913	Q973	M1033	PRO
S734	N794	D854	Q914	E974	K1034	PHE
L735	Y795	I855	A915	K975	A1035	ASN
Y736	L796	L856	H916	V976	L1036	SER
K737	L797	V857	ASP	E977	D1037	ARG
N738	D798	Q858	HIS	E978	L1038	LEU
E739	D799	I859	L919	E978	L1038	THR
S740	Y800	C860	S920	I979	L1039	GLY
G741	Y801	E861	W921	A980	E1040	ARG
I742	T802	E861	L922	E981	Y1041	LYS
Q743	Q803	T863	H923	E982	G1043	ALA
E744	L804	D864	E924	E983	D1044	GLY
P745	K805	N865	L925	H984	L1045	PRO
E746	S806	Q866	N926	F985	S1046	VAL
H747	I807	S867	S927	L986	E1047	THR
V748	D808	R868	Q928	L987	V1048	ALA
P749	K809	L869	E929	H988	D1049	SER
W750	L810	Q870	F930	E989	D1049	SER
T751	A811	R871	E931	E990	E1051	PRO
A752	N812	Y872	K932	T991	E1052	ALA
S753	E813	M873	A933	P993	L1053	LEU
S754	E814	T874	H934	K994	K1054	TYR
G755	R815	L875	R935	K995	L1055	SER
T756	Y816	F876	T936	L996	L1056	PRO
A757	N817	A877	L937	L997	I1057	VAL
G758	I818	E878	Q938	E998	L1058	GLY
I759	L819	Q879	T939	E999	C1059	ARG
R760	E820	N880	L940	E999	K1060	VAL
S761	M821	F881	A941	K1000	A1061	ALA
V762	E822	S882	N942	Q1001	L1062	GLY
V763	Y823	D883	M943	D1003	K1063	ARG
T764	A824	F884	E944	L1004	R1064	THR
R765	Q825	L885	T945	M1005	D1065	PRO
Q766	K826	F886	R946	A1006	E1066	SER
H767	R827	R887	Y947	M1007	V1067	PRO
G768	S828	W888	F948	P1008	S1068	ARG
I769	E829	Y889	C949	V1009	A1069	
I770	L830	L890	K950	L1010	T1070	
L771	L831	E891	K951	A1011	D1071	
K772	S832	K892	K952	P1012	G1072	
V773	P833	G893	T953	F1013	I073	
V774	L834	K894	L954	Q1014	D1074	
P775	L835	R895	L955	L1015	D1075	
Q776	I836	G896	G956	I1016	P1076	
A777	L837	K897	L957	Q1017	I1077	
D778	L838	R898	S958	L1018	E1078	
S779	Q839	L899	K959	Y1019	A1079	GLN
G780	Y840	S900	L960	V1020		SER

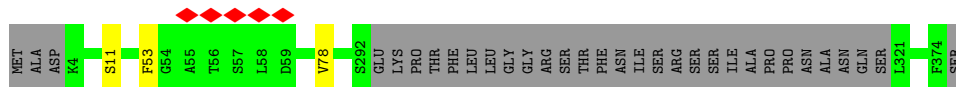
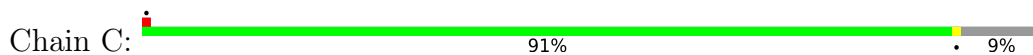
• Molecule 1: outer Nup133



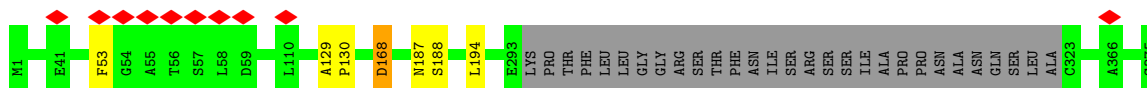
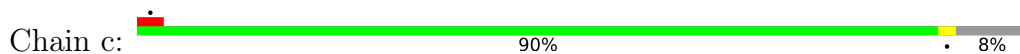
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PRO	LEU	E185	G247	S317
SER	HIS	G186	R248	E318
PRO	PRO	T187	R249	S319
ARG	ALA	Y188	V250	D320
ALA	ALA	I189	S251	Y321
GLN	SER	E190	T252	D322
GLY	MET	S191	L253	D323
MET	GLY	Y192	F254	I324
GLY	SER	T193	G255	K325
ALA	ALA	E194	L256	A326
ARG	ARG	F195	L257	G327
PRO	PRO	G196	S258	L328
PHE	PHE	S197	F259	N329
ASN	SER	S198	A260	I330
SER	ARG	L199	V261	N336
ARG	LEU	L138	E262	Q337
LEU	THR	P139	S263	N338
THR	GLY	L140	T264	C339
GLY	ARG	S141	W270	D340
GLY	GLY	V84	A205	L342
LEU	LEU	K85	K272	G341
LEU	GLY	V86	E144	V343
GLY	PRO	M87	W145	L344
PRO	PRO	E88	S146	I344
VAL	VAL	A89	A147	L345
THR	THR	L90	D148	S346
ALA	SER	S91	L149	A347
ALA	SER	N92	I152	A348
SER	PRO	A93	C153	H350
PRO	ALA	S94	A154	P351
PRO	ALA	A95	Q155	D353
ALA	LEU	D96	T156	N354
LEU	TYR	E97	G157	P355
SER	SER	P98	D158	C356
PRO	PRO	M99	V159	Q357
VAL	VAL	A100	A160	I358
GLY	ARG	I101	A161	V359
ARG	VAL	C102	A162	Y360
ARG	VAL	I103	Q163	T361
VAL	ALA	H104	S164	L362
VAL	GLY	E105	V165	V363
ARG	ARG	G106	A166	V365
ARG	SER	G107	L167	D367
ARG	SER	A109	M168	E368
ARG	ALA	W110	A169	G369
ARG	GLY	L111	A170	Y370
ARG	PRO	L112	T171	N371
ARG	SER	A112	P172	I372
ARG	ALA	C113	E173	S373
ARG	ALA	N114	G174	D374
ARG	GLY	D115	S175	E375
ARG	ARG	R116	L177	T377
ARG	THR	L117	I178	
ARG	PRO	I118	Y179	
ARG	PRO	W119	W179	
ARG	PRO	W120	P180	
ARG	ARG	K121	N181	
ARG	ARG		I182	



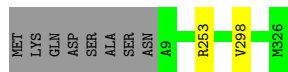
• Molecule 3: MGC154553 protein



• Molecule 3: MGC154553 protein



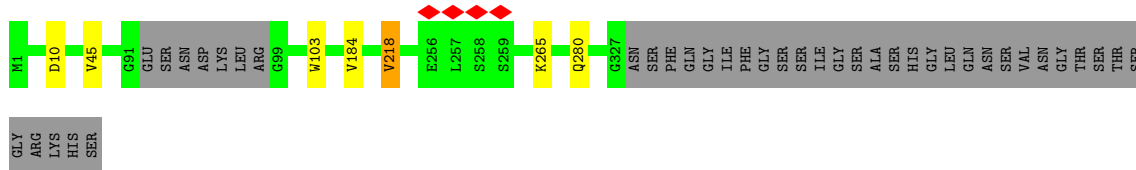
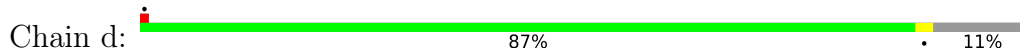
• Molecule 4: MGC83926 protein



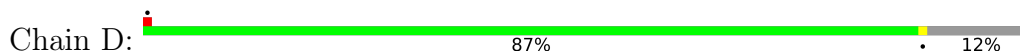
• Molecule 4: MGC83926 protein

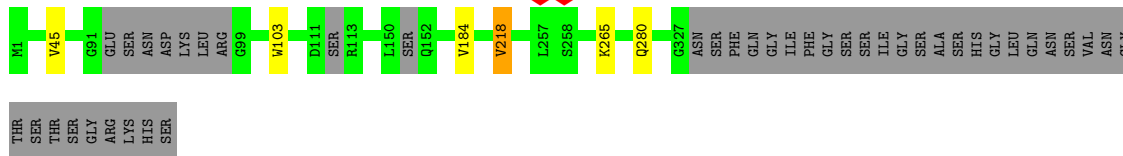


• Molecule 5: Nucleoporin SEH1-B

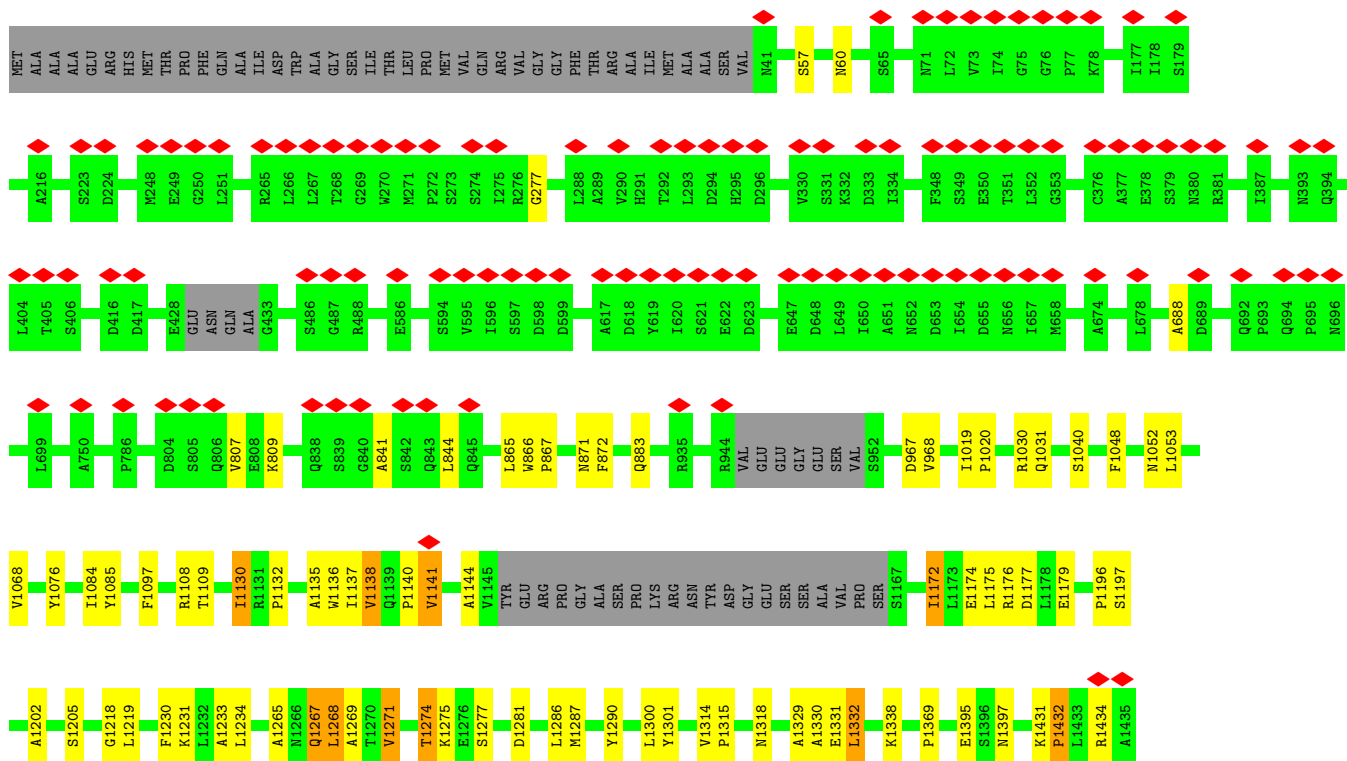
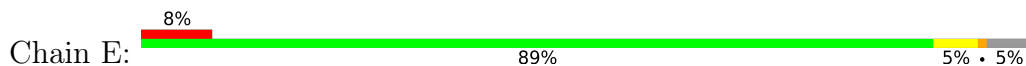


• Molecule 5: Nucleoporin SEH1-B

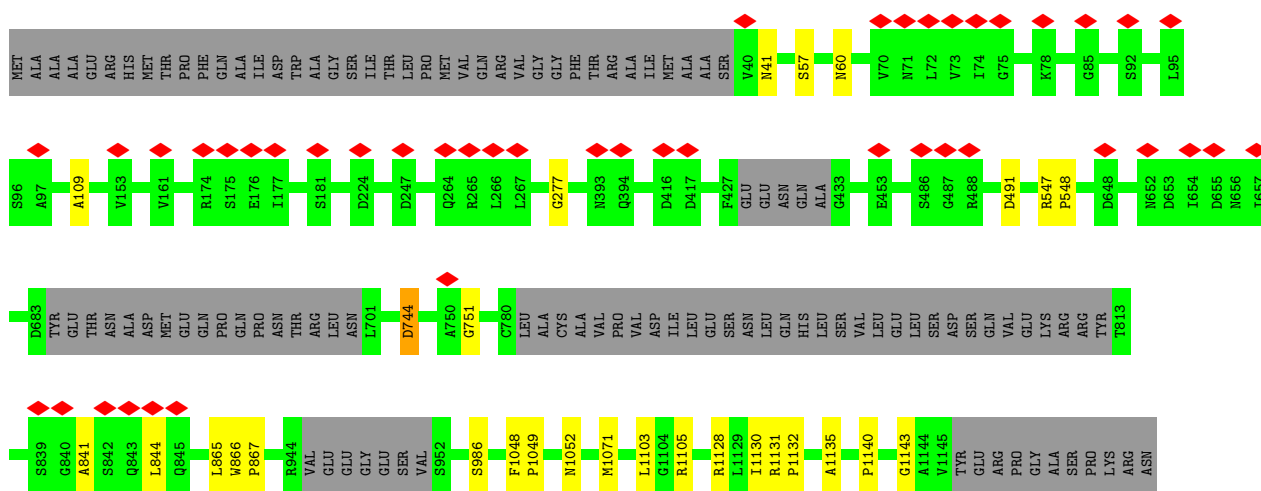
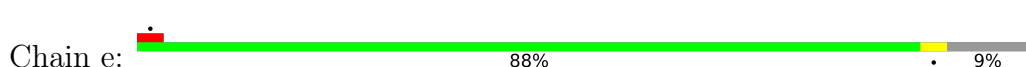


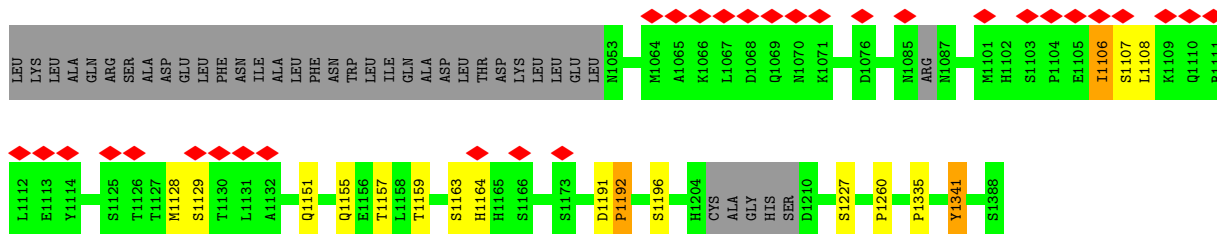


• Molecule 6: outer Nup160

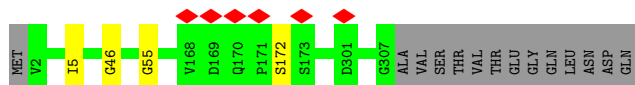


• Molecule 6: outer Nup160

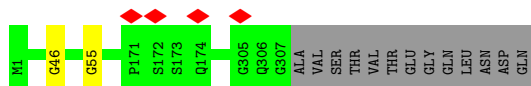




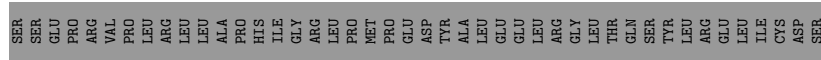
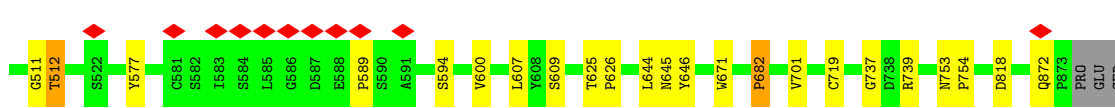
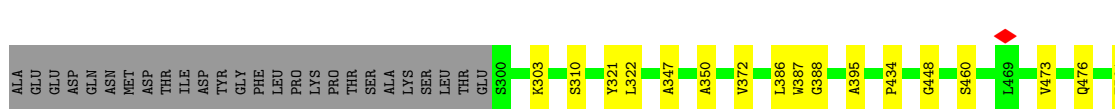
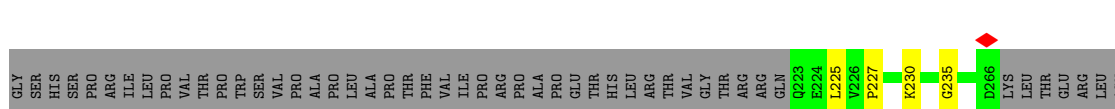
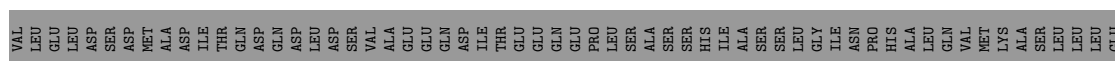
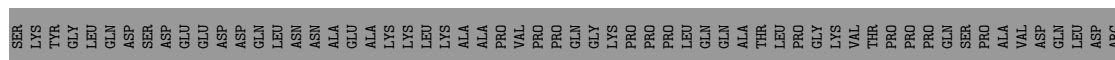
• Molecule 8: GATOR complex protein SEC13



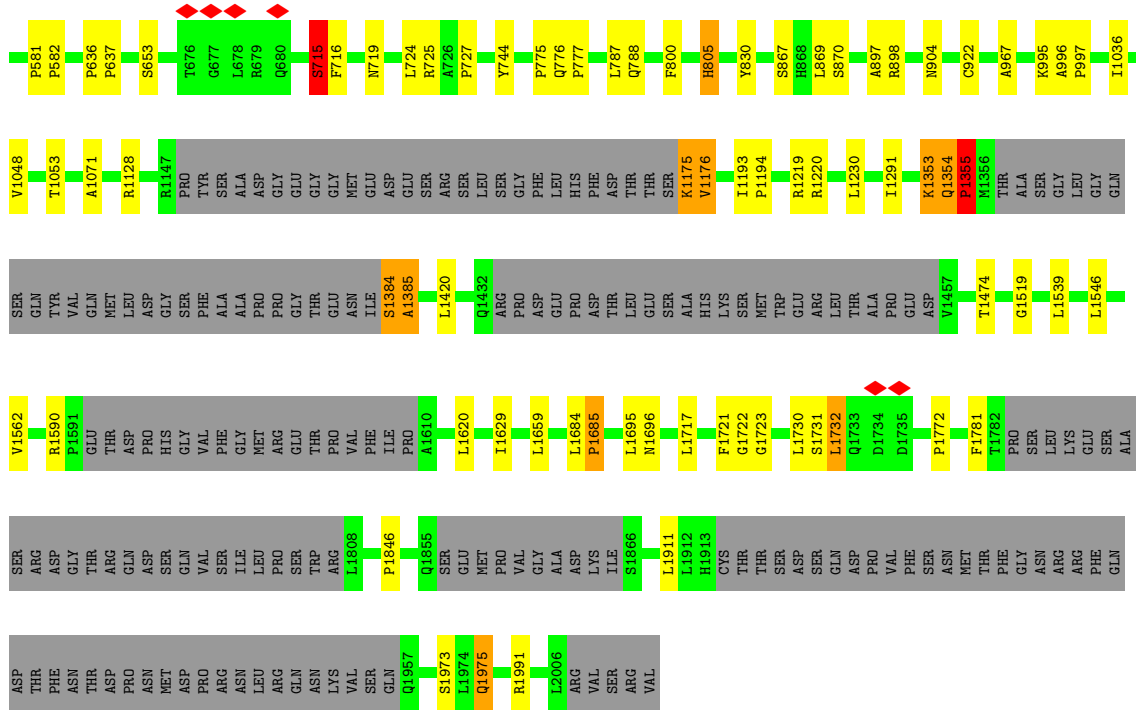
• Molecule 8: GATOR complex protein SEC13



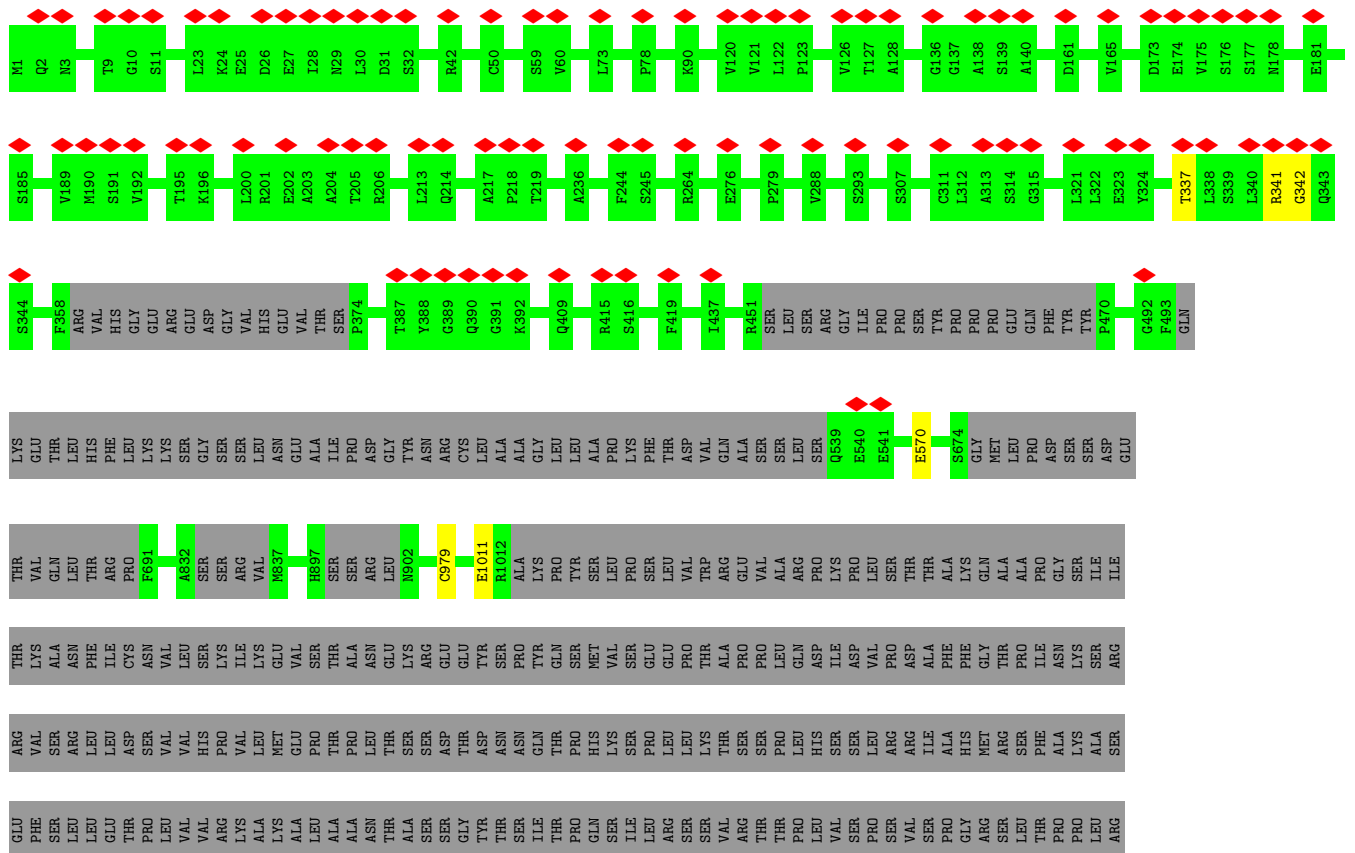
• Molecule 9: Nuclear pore complex protein Nup96



• Molecule 9: Nuclear pore complex protein Nup96



● Molecule 13: Protein ELYS





M1	Q2	N3	L4	E5	A6	Q7	V8	T9	G10	S11	L12	V13	A14	F15	P16	D17	V18	Q20	T19	K21	A22	L23	K24	E25	D26	E27	I28	N29	L30	D31	S32	V33	L34	R35	G36	K37	F38	S39	T40	G41	R42	T43	S44	L45	A46	W47	L48	A49	C50	G51	Q52	Q53	L54	E55	I56	T57	N58	S59	V60	
T61	G62	E63	R64	I65	S66	A67	Y68	H69	F70	S71	G72	L73	T74	E75	R76	P77	F78	V79	V80	V81	A82	V83	K84	E85	F86	T87	H88	Q89	L90	K91	T92	G93	L94	L95	V96	G97	L98	V99	E100	A101	E102	G103	S104	V105	L106	C107	L108	V109	D110	I111	G112	I113	L114	E115	V116	V117	K118	A119	V120	
V121	L122	P123	G124	S125	V126	T127	A128	V129	E130	P131	I132	I133	M134	H135	G136	G137	A138	S139	A140	S141	T142	Q143	H144	L145	H146	Q147	S148	L149	R150	M151	F152	F153	G154	V155	T156	A157	V158	V159	T160	D161	V162	G163	H164	V165	C225	L226	S227	I168	I169	L170	C171	D172	D173	E174	V175	S176	S177	K178	Q179	D180
E181	L182	D183	A184	S185	D186	L187	E188	V189	M190	S191	V192	I193	P194	T195	K196	I197	P198	K199	L200	R201	E202	A203	A204	T205	R206	E207	R208	R209	H210	L211	C212	L213	Q214	L215	A216	A217	P218	T219	G220	T221	T222	V223	S224	C225	L226	S227	Y228	I229	S230	R231	T232	M233	Q234	L235	A236	V237	G238	Y239	S240	
D241	Q242	Y243	F244	S245	L246	W247	W248	M249	K250	T251	L252	R253	R254	D255	Y256	H257	V258	Q259	I260	E261	G262	G263	R264	V265	P266	V267	C268	A269	V270	A271	F272	Q273	E274	P275	E276	M277	D278	P279	R280	M281	C282	C283	Y284	L285	W286	A287	V288	Q289	S291	E292	S293	G294	G295	D296	V297	S298	L299	H300		
L301	L302	Q303	L304	A305	F306	S307	D308	R309	K310	C311	L312	A313	S314	G315	Q316	I317	W318	Y319	E320	L321	L322	E323	Y324	C325	E326	E327	R328	Y329	S330	L331	D332	L333	S334	G335	S336	T337	L338	S339	L340	R341	G342	Q343	S344	N345	N346	T347	K348	L349	L350	G351	C352	Q353	T354	I355	E356	K357	ARG	VAL		
HIS	GLY	ARG	GLU	ASP	GLY	VAL	HIS	VAL	THR	SER	P374	D375	T376	S377	V378	S379	V380	F381	S382	W383	Q384	V385	R386	T387	Y388	Q390	G391	R392	P393	S394	V395	Y396	L397	G398	V399	F400	D401	L402	M403	R404	L405	W406	Q407	A408	Q409	M410	P411	D412	L413	L414	R415	S416	G417	Q418	F419	L420				
R421	M422	C423	S424	L425	F426	A427	F428	W429	S430	L431	E432	A433	V434	V435	M436	I437	T438	T439	Q440	D441	D442	L443	F444	D445	I446	L447	V448	H449	E450	P451	S452	R453	S454	G455	L456	P457	F458	P459	P460	P461	P462	P463	P464	P465	P466	P467	P468	P469	P470	S471	T472	Y473	M474	F475	D476	A477	C478	L480		
L481	H482	S483	G484	L485	I486	H487	F488	A489	C490	T491	G492	F493	GLN	LYS	GLY	THR	LEU	PHE	LEU	LEU	LYS	SER	GLY	SER	LEU	ASN	GLU	ALA	ILE	PRO	ASP	GLY	TYR	ASN	ARG	CYS	LEU	ALA	ALA	GLY	LEU	LEU	ALA	PRO	LYS	PHE	THR	ASP	VAL	GLN	ALA	ALA	SER	SER	LEU	SER	Q539	E540		
E541	Q542	L543	Q544	A545	L546	L547	A548	A549	A550	V551	E552	T553	S554	S555	L556	G557	L558	L559	D560	T561	S562	C563	F564	R565	V566	T567	A568	E569	E570	Q571	P572	R573	M574	A575	A576	M577	F578	L579	R580	F581	P582	V583	W584	T585	W586	K587	K588	V589	D590	L591	T592	Q593	K594	G595	F596	D597	L598	C600		
F601	R602	L603	F604	D605	G606	S607	C608	M609	F610	I611	D612	P613	H614	T615	L616	Q617	S618	L619	Q620	Q621	C622	H623	L624	Y625	F626	S627	M628	L629	T630	A631	V632	L633	M634	C635	F636	I637	A638	Q639	A640	R641	E642	V643	T644	Q645	Q646	G647	A648	V649	D650	L651	T652	M653	K654	G655	S656	V657	T658	R659	L660	
L661	T662	L663	Y664	A665	S666	V667	V668	C672	R673	S674	C675	M676	L677	P678	D679	S680	S681	D682	D683	T684	V685	Q686	L687	T688	R689	P690	F691	Y692	M693	Y694	Q695	V696	L697	L698	Y699	T700	Y701	S702	D703	Q704	K705	K706	K707	L708	E709	R710	L711	A712	R713	G714	K715	W716	D717	L718	S719	D720	L721	M722		
I723	D724	G725	L726	I727	W728	Q729	F730	G731	D732	R733	I734	Q735	L737	W738	S739	R740	D741	D742	W743	G744	T745	G746	K747	Y748	P749	P750	A751	W752	L753	H754	A755	L756	L757	D758	V759	Y760	L761	L762	E763	W764	A765	D766	E767	M768	S769	A772	I773	T774	I775	Y776	F777	L778	L779	D780	I781	W782	Y783			

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	813020	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	4000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.045	Depositor
Minimum map value	-0.018	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.006	Depositor
Map size (\AA)	554.8, 554.8, 554.8	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	2.774, 2.774, 2.774	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	J	0.62	0/5054	1.09	4/7040 (0.1%)
1	P	0.62	0/5054	1.09	4/7040 (0.1%)
1	j	0.63	1/4928 (0.0%)	1.09	4/6865 (0.1%)
1	p	0.63	1/4928 (0.0%)	1.09	4/6865 (0.1%)
2	B	0.73	5/3114 (0.2%)	0.98	7/4342 (0.2%)
2	b	0.64	4/3155 (0.1%)	0.69	1/4401 (0.0%)
3	C	0.34	0/1692	0.74	0/2353
3	c	0.50	2/1707 (0.1%)	0.82	5/2374 (0.2%)
4	F	0.33	0/1565	0.71	0/2175
4	f	0.51	2/1580 (0.1%)	0.74	1/2196 (0.0%)
5	D	0.55	1/1567 (0.1%)	0.74	0/2176
5	d	0.55	1/1579 (0.1%)	0.74	0/2196
6	E	0.67	3/6755 (0.0%)	0.95	24/9417 (0.3%)
6	e	1.05	9/6487 (0.1%)	0.95	9/9037 (0.1%)
7	K	1.23	5/1640 (0.3%)	1.08	5/2287 (0.2%)
8	H	0.41	0/1504	0.72	0/2089
8	h	0.42	0/1509	0.72	0/2096
9	G	0.72	3/3060 (0.1%)	0.97	9/4264 (0.2%)
9	g	0.84	7/3326 (0.2%)	1.12	17/4633 (0.4%)
10	I	0.50	0/3955	0.74	5/5521 (0.1%)
10	M	0.54	2/3955 (0.1%)	0.76	3/5521 (0.1%)
10	i	0.53	2/3955 (0.1%)	0.76	5/5521 (0.1%)
11	L	0.35	0/3177	0.66	0/4430
11	O	0.80	0/249	0.72	0/347
12	A	0.97	32/8883 (0.4%)	0.98	36/12368 (0.3%)
13	N	0.37	0/4575	0.70	0/6366
13	n	0.37	0/4495	0.70	0/6253
All	All	0.68	80/93448 (0.1%)	0.91	143/130173 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	B	0	3
2	b	0	1
3	c	0	2
5	D	0	2
5	d	0	2
6	E	0	10
6	e	0	8
7	K	0	3
9	G	0	14
9	g	0	14
10	I	0	4
10	M	0	8
10	i	0	6
12	A	0	41
13	N	0	1
13	n	0	2
All	All	0	121

The worst 5 of 80 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	f	273	PRO	N-CA	13.76	1.70	1.47
6	e	548	PRO	N-CA	13.41	1.70	1.47
7	K	1192	PRO	N-CA	13.28	1.69	1.47
2	b	315	PRO	N-CA	13.26	1.69	1.47
6	E	1020	PRO	N-CA	13.23	1.69	1.47

The worst 5 of 143 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	394	ALA	O-C-N	-22.51	86.68	122.70
2	B	492	LYS	O-C-N	21.09	156.44	122.70
9	g	577	TYR	O-C-N	-20.13	90.49	122.70
9	g	739	ARG	C-N-CA	-17.51	77.93	121.70
9	g	739	ARG	CA-C-N	-16.30	81.34	117.20

There are no chirality outliers.

5 of 121 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	39	TYR	Peptide
2	B	394	ALA	Mainchain

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Group
2	B	569	CYS	Mainchain
5	d	184	VAL	Mainchain
5	d	218	VAL	Mainchain

5.2 Too-close contacts [i](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	J	1011/1140 (89%)	920 (91%)	70 (7%)	21 (2%)	7	36
1	P	1011/1140 (89%)	920 (91%)	70 (7%)	21 (2%)	7	36
1	j	983/1140 (86%)	896 (91%)	68 (7%)	19 (2%)	8	38
1	p	983/1140 (86%)	899 (92%)	65 (7%)	19 (2%)	8	38
2	B	624/653 (96%)	585 (94%)	23 (4%)	16 (3%)	5	31
2	b	634/653 (97%)	584 (92%)	33 (5%)	17 (3%)	5	31
3	C	339/375 (90%)	322 (95%)	14 (4%)	3 (1%)	17	56
3	c	342/375 (91%)	327 (96%)	12 (4%)	3 (1%)	17	56
4	F	316/326 (97%)	307 (97%)	7 (2%)	2 (1%)	25	65
4	f	319/326 (98%)	308 (97%)	8 (2%)	3 (1%)	17	56
5	D	310/360 (86%)	286 (92%)	20 (6%)	4 (1%)	12	47
5	d	316/360 (88%)	291 (92%)	20 (6%)	5 (2%)	9	43
6	E	1355/1435 (94%)	1184 (87%)	110 (8%)	61 (4%)	2	22
6	e	1296/1435 (90%)	1197 (92%)	71 (6%)	28 (2%)	6	35
7	K	324/1388 (23%)	287 (89%)	27 (8%)	10 (3%)	4	27
8	H	304/320 (95%)	290 (95%)	10 (3%)	4 (1%)	12	47

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	h	305/320 (95%)	293 (96%)	10 (3%)	2 (1%)	22	62
9	G	614/923 (66%)	511 (83%)	79 (13%)	24 (4%)	3	23
9	g	666/923 (72%)	536 (80%)	92 (14%)	38 (6%)	1	18
10	I	794/916 (87%)	751 (95%)	32 (4%)	11 (1%)	11	45
10	M	794/916 (87%)	749 (94%)	33 (4%)	12 (2%)	10	45
10	i	794/916 (87%)	750 (94%)	34 (4%)	10 (1%)	12	47
11	L	639/820 (78%)	623 (98%)	14 (2%)	2 (0%)	41	76
11	O	48/820 (6%)	48 (100%)	0	0	100	100
12	A	1776/2011 (88%)	1558 (88%)	167 (9%)	51 (3%)	4	29
13	N	914/2408 (38%)	886 (97%)	24 (3%)	4 (0%)	34	72
13	n	896/2408 (37%)	867 (97%)	25 (3%)	4 (0%)	34	72
All	All	18707/25947 (72%)	17175 (92%)	1138 (6%)	394 (2%)	10	36

5 of 394 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	J	252	THR
1	J	538	GLU
1	J	561	SER
1	J	567	GLU
1	J	574	ALA

5.3.2 Protein sidechains [i](#)

There are no protein residues with a non-rotameric sidechain to report in this entry.

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.

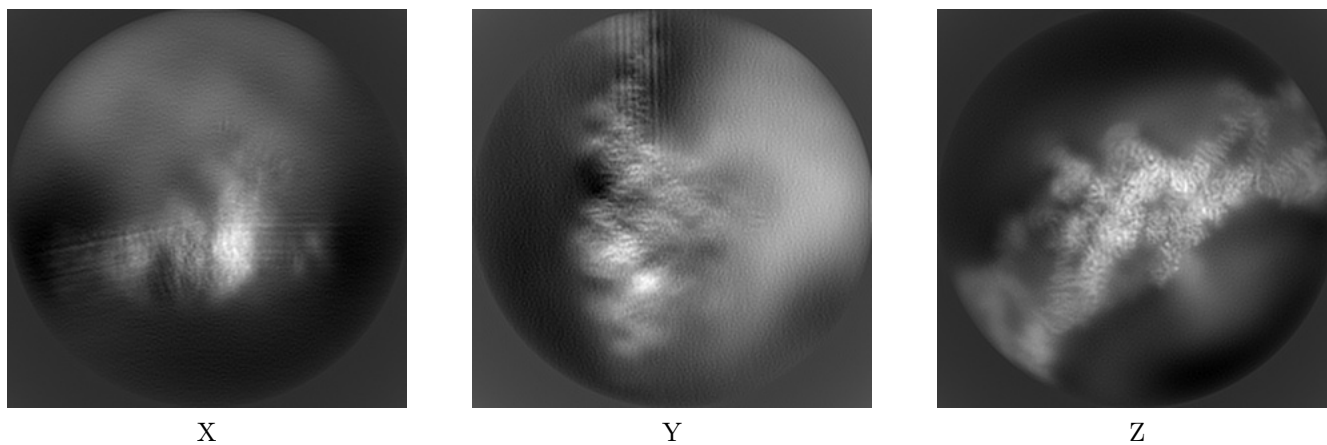
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-32394. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

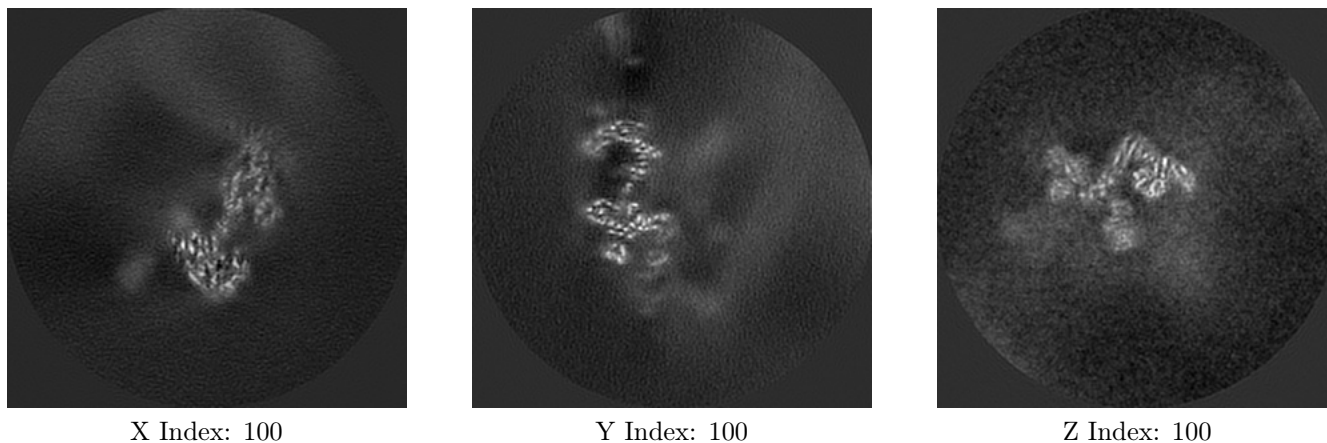
6.1.1 Primary map



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

6.2 Central slices [i](#)

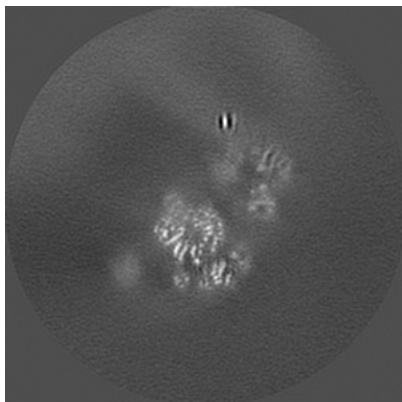
6.2.1 Primary map



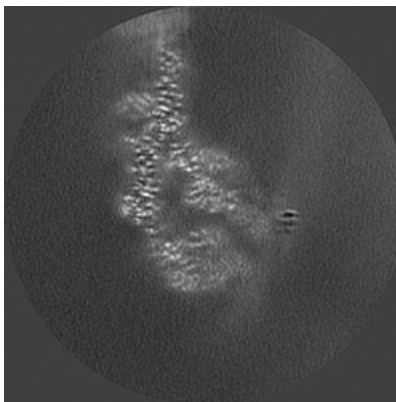
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [\(i\)](#)

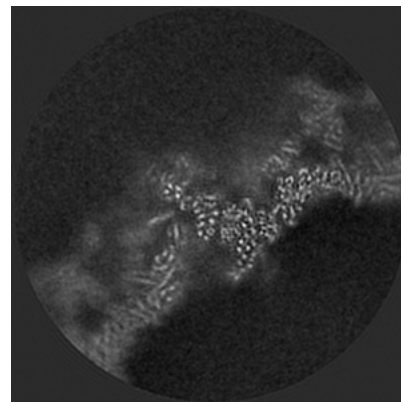
6.3.1 Primary map



X Index: 94



Y Index: 113

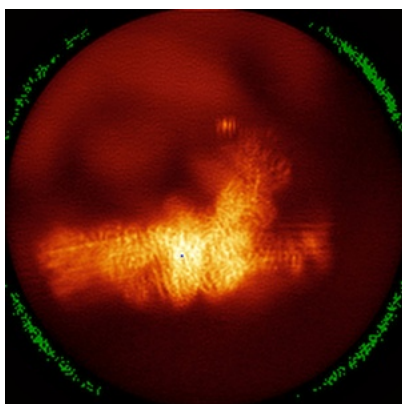


Z Index: 79

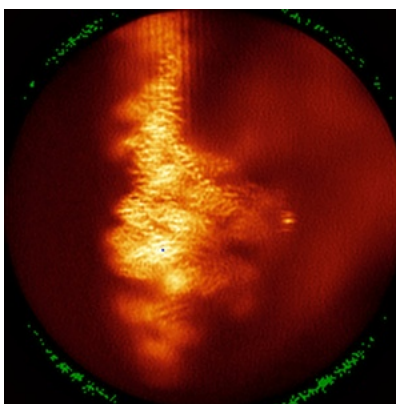
The images above show the largest variance slices of the map in three orthogonal directions.

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

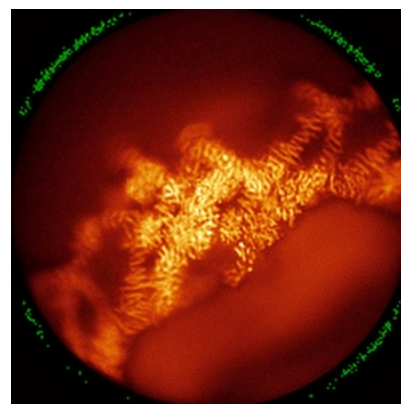
6.4.1 Primary map



X



Y

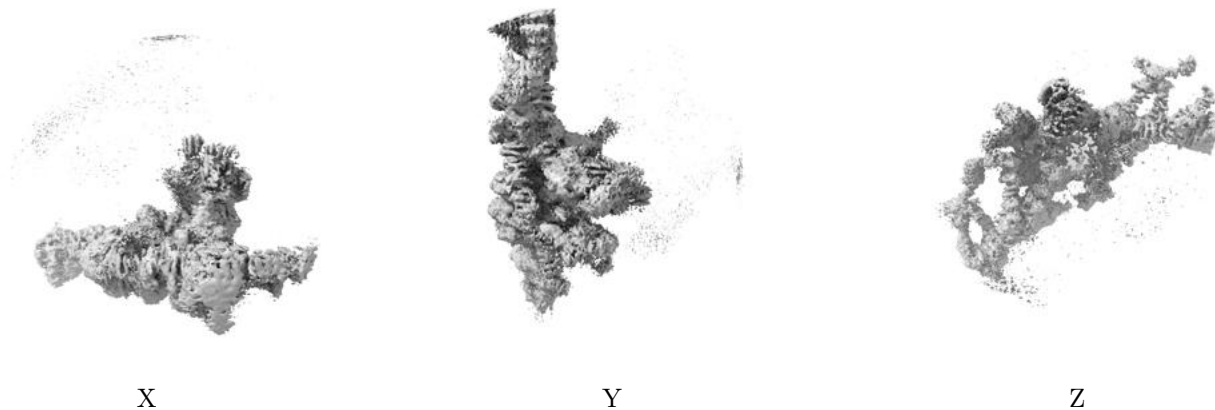


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.006. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

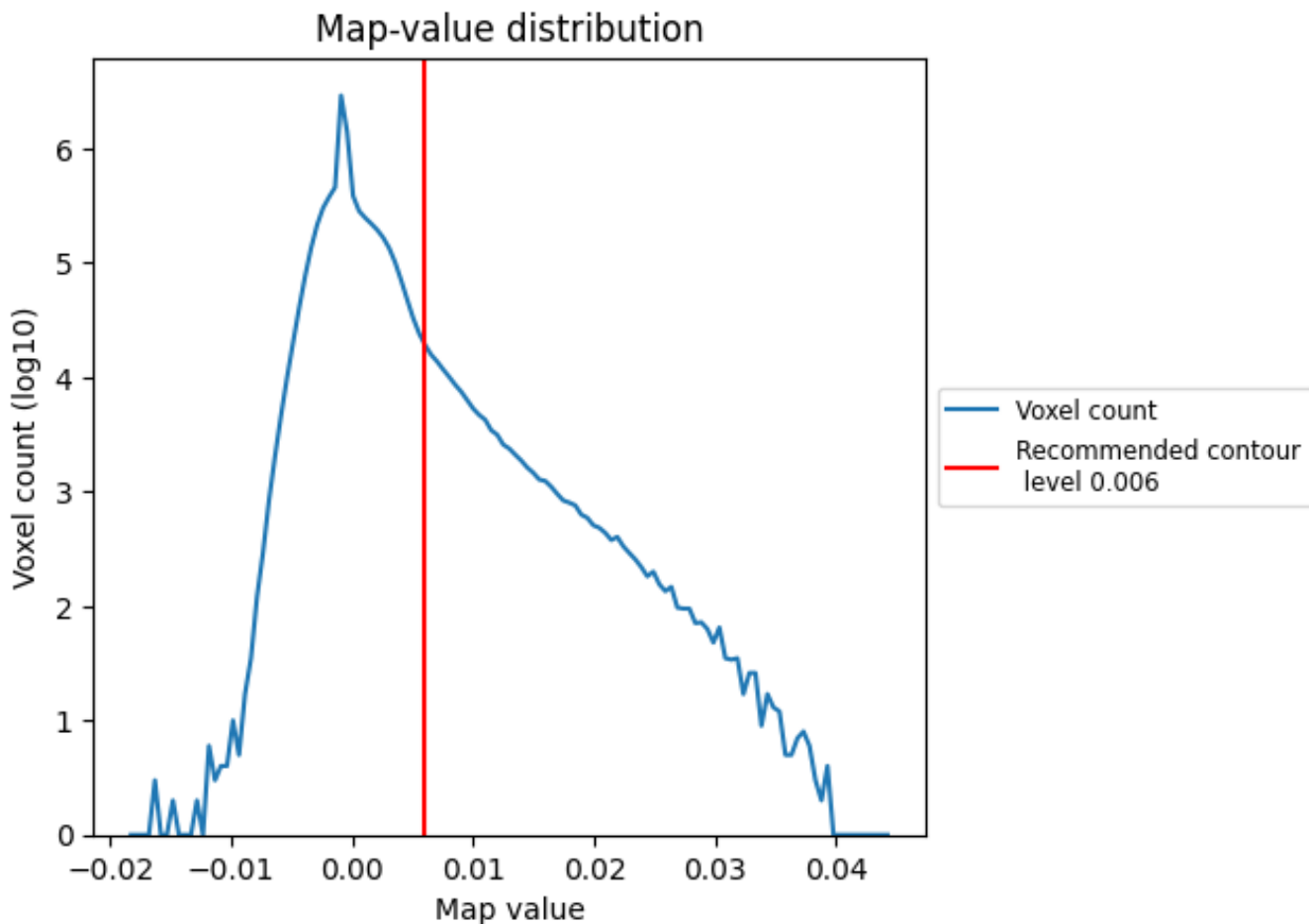
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

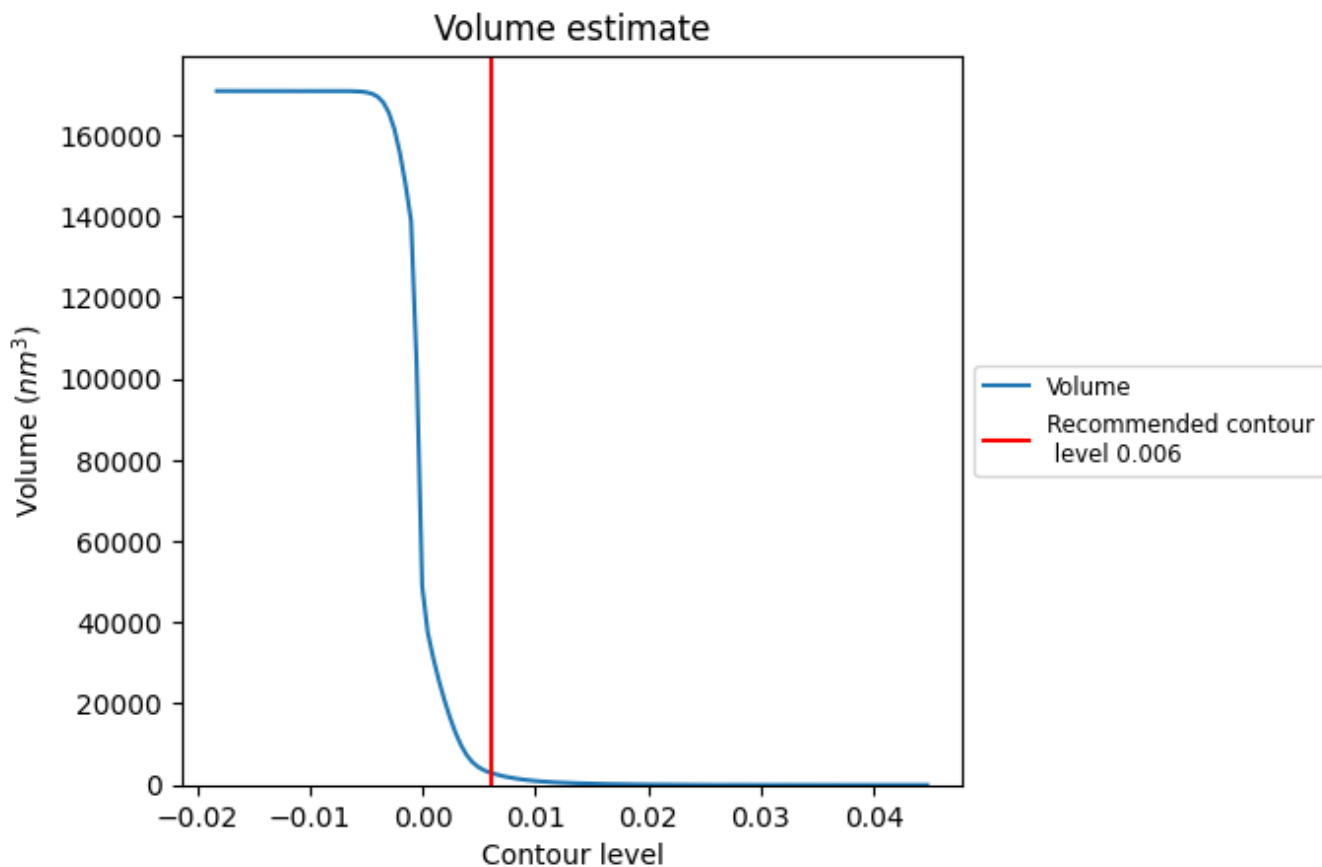
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

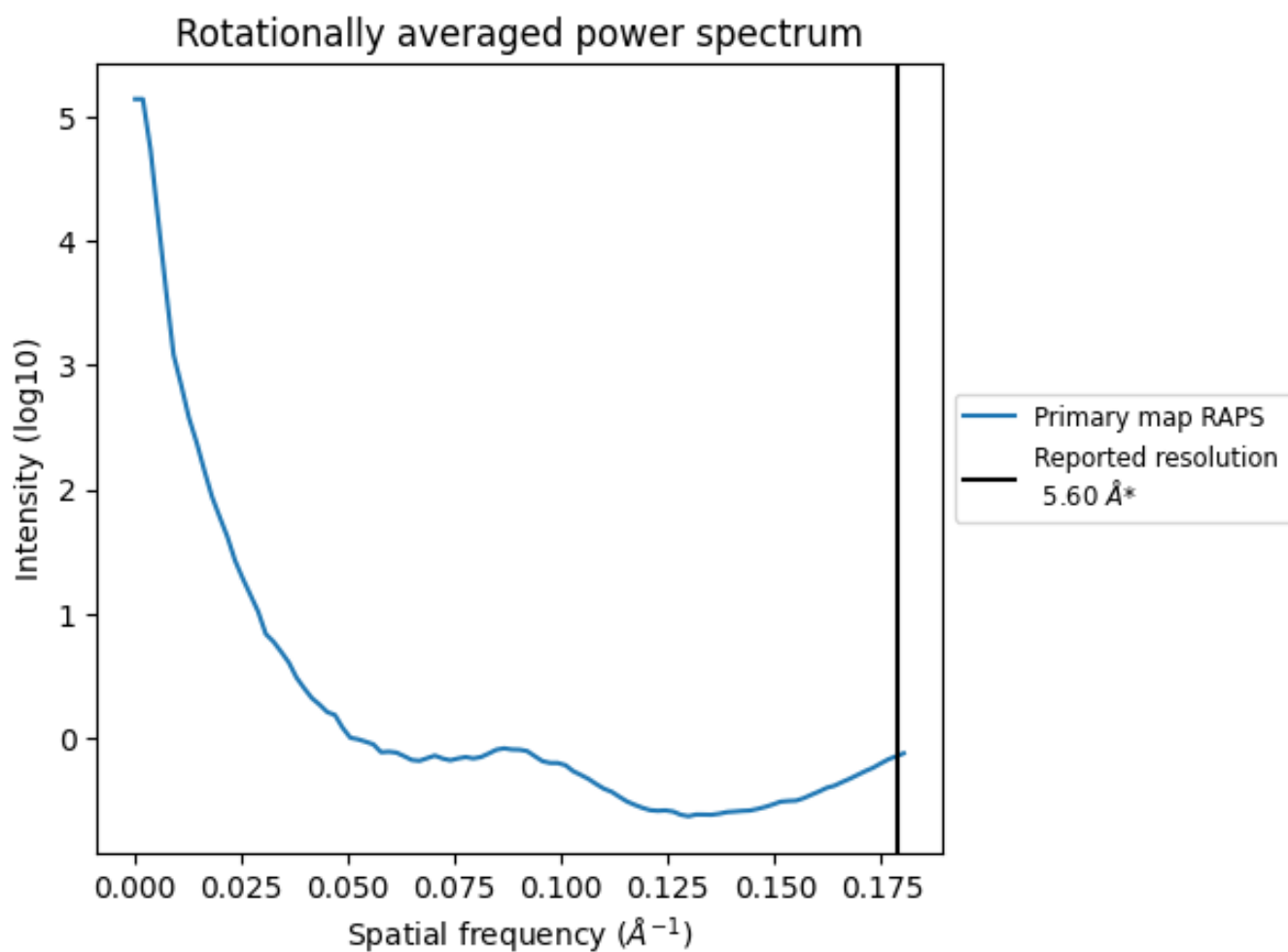
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 3013 nm^3 ; this corresponds to an approximate mass of 2722 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 0.179 Å⁻¹

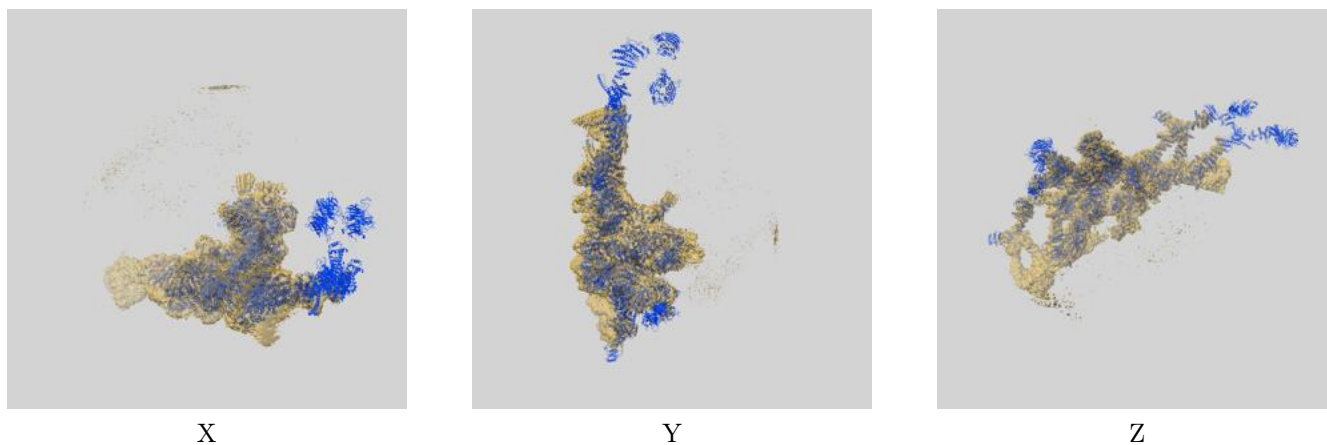
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

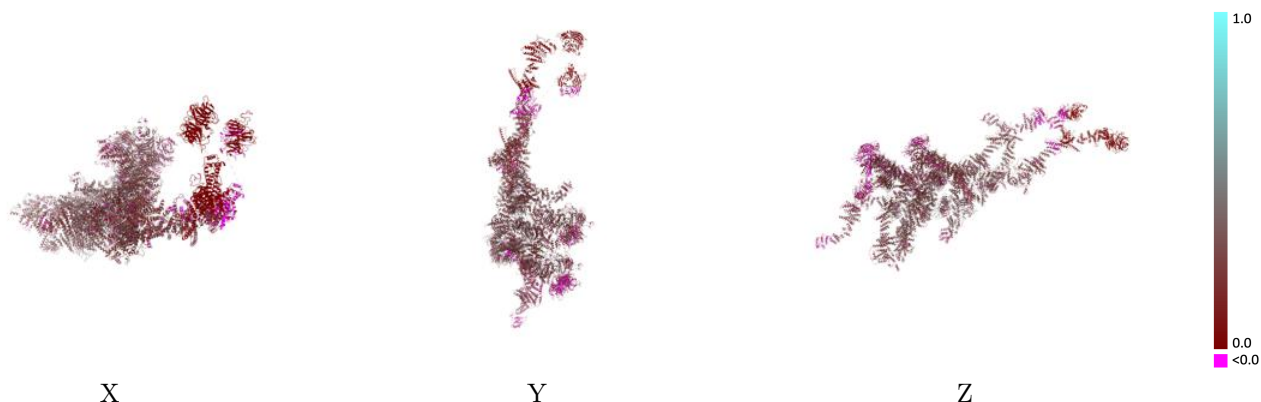
This section contains information regarding the fit between EMDB map EMD-32394 and PDB model 7WB4. Per-residue inclusion information can be found in section [3](#) on page [7](#).

9.1 Map-model overlay [i](#)



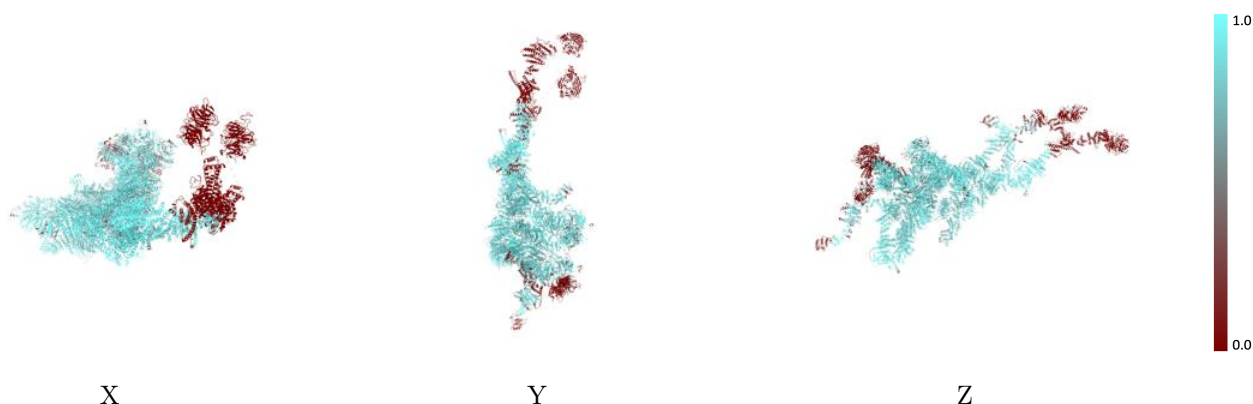
The images above show the 3D surface view of the map at the recommended contour level 0.006 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



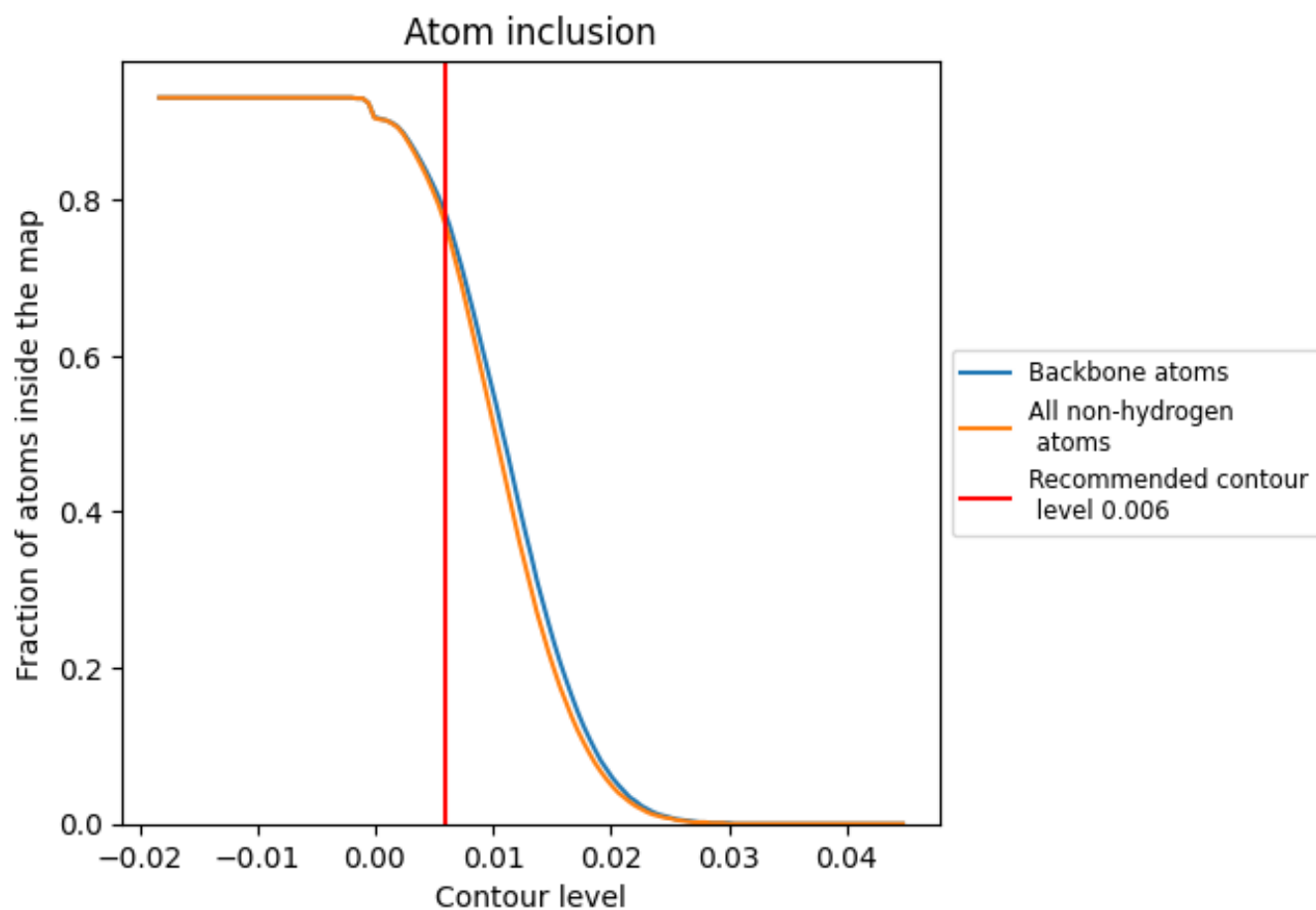
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.006).

























































9.4 Atom inclusion [i](#)



At the recommended contour level, 78% of all backbone atoms, 77% 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 (0.006) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7670	 0.2140
A	 0.9890	 0.2680
B	 0.9770	 0.2570
C	 0.9810	 0.2870
D	 0.9860	 0.2990
E	 0.8980	 0.2630
F	 0.9940	 0.2890
G	 0.9620	 0.2710
H	 0.9700	 0.2820
I	 0.9110	 0.2350
J	 0.2330	 0.0770
K	 0.8820	 0.2440
L	 0.9320	 0.2370
M	 0.9480	 0.2380
N	 0.1220	 0.0990
O	 1.0000	 0.2640
P	 0.4010	 0.1390
b	 0.9010	 0.2240
c	 0.9570	 0.2740
d	 0.9750	 0.2970
e	 0.9360	 0.2520
f	 0.9990	 0.2810
g	 0.9640	 0.2650
h	 0.9760	 0.2660
i	 0.6230	 0.1640
j	 0.0000	 -0.0030
n	 0.8760	 0.2050
p	 0.8320	 0.2360

