



Full wwPDB EM Validation 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 Full wwPDB EM Validation Report for a publicly released PDB entry.

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

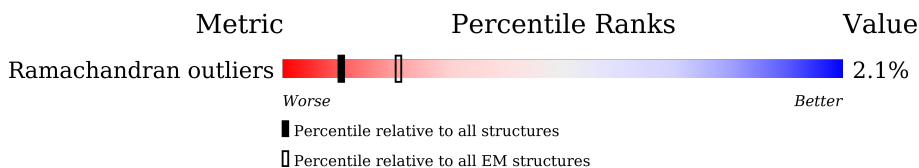
EMDB validation analysis : 0.0.1.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

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

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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
			Total	C	N	O		
5	d	320	1581	941	320	320	0	0
5	D	318	1571	935	318	318	0	0

- Molecule 6 is a protein called outer Nup160.

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

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

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

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

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

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

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

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

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

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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.

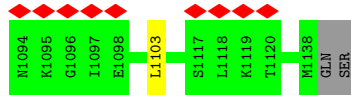
Mol	Chain	Residues	Atoms				AltConf	Trace
11	L	641	Total	C	N	O	0	0
			3178	1896	641	641		
11	O	50	Total	C	N	O	0	0
			250	150	50	50		

- Molecule 12 is a protein called MGC83295 protein.

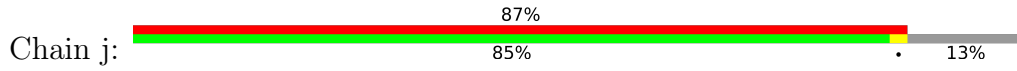
Mol	Chain	Residues	Atoms				AltConf	Trace
12	A	1796	Total	C	N	O	0	0
			8893	5301	1796	1796		

- 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		



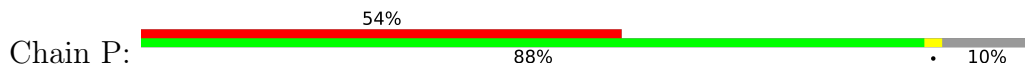
• Molecule 1: outer Nup133



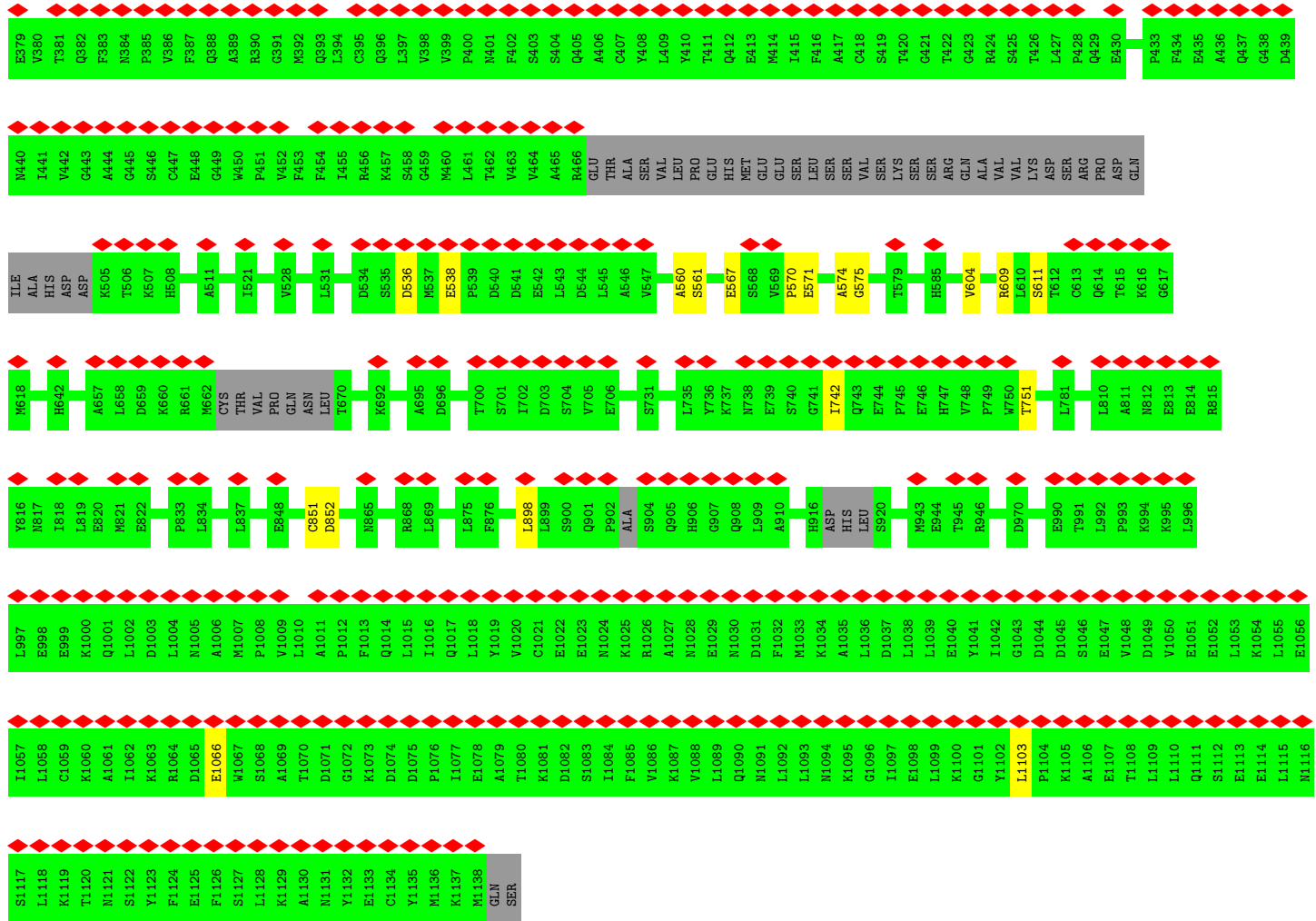
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VAL	TYR	LEU	HIS	PRO	PRO	ALA	ALA	SER	E69	T70	V71	W72	M73	Y74	V75	Q76	L77	F78	G79	S80	S81	L82	P83	V84	K85	V86	M87	E88	A89	L90	S91	N92	A93	S94	A95	D96	E97	P98	M99	A100	A101	C102	I103	H104	E105	G106	G107	W108	A109	W110	L111	A112	C113	N114	D115	R116	L117	I118	I119	W120	
K121	I122	S123	H124	S125	S126	S127	A128	K129	L130	W131	M131	Y132	W133	C133	K134	E135	L136	P137	L138	P139	L140	S141	D142	S143	E144	W145	W146	A147	D148	L149	V150	D151	I152	C153	A154	Q155	T156	G157	D158	P159	A160	A161	Q163	S164	V165	W166	L167	M168	A169	A170	A171	T171	P172	E173	G174	S175	S176	Y177	W178	W179	P180
N181	I182	L183	H184	E185	G186	T187	Y188	E189	S191	Y192	T193	E194	F195	G196	S197	L199	C200	F201	A202	V203	T204	A205	V206	K207	G208	N209	S210	F211	I212	I213	C153	S214	S215	E216	K217	N218	Q219	L220	V221	A161	L223	T224	P225	D226	A227	S228	G229	K230	M231	N232	Q233	R234	V235	L236	Q237	G239	Q240				
G241	M242	LEU	GLY	GLY	GLY	ARG	VAL	SER	THR	LEU	PHE	GLY	ILE	LEU	SER	PRO	VAL	E262	S263	T264	L265	C266	S267	V268	L269	W270	D271	K272	G273	D274	C275	Y277	T278	L279	T280	D281	S282	S283	L284	N285	K286	W288	L289	D290	D291	H350	P351	G352	E294	D353	N354	P355	C356	Q357	L298	M299	W300				
D301	M302	S303	R304	V305	L306	R307	E308	Y309	I310	S311	D312	A313	I314	W315	GLY	SER	GLU	SER	ASP	TYR	ASP	ASP	ILE	LYS	ALA	GLY	I328	N329	I330	N331	Y332	L333	S334	L335	N336	Q337	N338	D340	G341	L342	V343	I344	L345	S346	A347	A348	W349	H350	P351	G352	D353	N354	P355	C356	Q357	L358	Y359	Y360	T420		
T361	L362	V363	T364	V365	K366	D367	E368	G369	Y370	M371	I372	D374	E375	I376	T377	V378	E379	V380	T381	C382	F383	N384	P385	V386	F387	Q388	A389	R390	G391	M392	L393	C395	Q396	L397	V398	V399	P400	M401	F402	S403	S404	Q405	A406	C407	Y408	L409	Y410	T411	Q412	E413	M414	I415	F416	A417	C418	S419	T420				
G421	T422	G423	R424	S425	T426	L427	P428	Q429	E430	K431	T432	P433	F434	E435	A436	Q437	G438	D439	N440	L441	V442	G443	A444	G445	S446	C447	E448	G449	W450	P451	V452	F453	L454	I455	R456	K457	S458	G459	M460	L461	T462	V463	V464	A465	A466	GLU	THR	ALA	SER	VAL	LEU	PRO	GLU	HIS	MET	GLU	GLU	SER	LEU		
SER	VAL	LYS	SER	ARG	GLN	ALA	VAL	VAL	LYS	ASP	SER	ARG	PRO	GLN	ILE	HIS	ASP	ASP	K506	T506	K507	H508	L509	K510	A511	A512	F513	L514	R515	Y516	C517	K519	D520	L521	L522	G523	A524	Q525	S526	H527	V528	D529	S530	L531	F532	S533	P534	S535	K590	M591	K592	A593	H594	S595	F596	F597	D599	F600			
D541	E542	L543	D544	L545	A546	V547	N548	Q549	S551	V552	D553	L554	F555	D556	D557	Y558	F559	A560	S561	P563	R564	W565	A566	E567	S568	V569	L570	P570	E571	E572	A573	A574	G575	F576	S577	N578	T579	S580	L581	I582	L583	L584	H585	O586	L587	E588	D589	K590	M591	K592	A593	H594	S595	F596	F597	D599	F600				
L601	H602	Q603	V604	G605	F607	S608	R609	L610	S611	T612	Q613	G614	Q615	K616	G617	M618	L619	V620	A621	T622	R623	L624	L625	A626	S627	E628	H629	A630	E631	K632	L633	S634	A635	A636	L637	V638	L639	K640	M641	H642	H643	A644	K645	O586	F647	V648	L649	V650	M651	S652	A653	T654	Q655	L656	A657	L658	D659	K660			
R661	M662	C663	T664	V665	PRO	GLN	ASN	LEU	T670	A671	A672	D673	V674	V675	F676	R677	E678	V679	S680	Q681	M682	E683	T684	L685	F686	E687	C688	L689	V690	D691	K692	E593	E694	A695	D696	L697	E698	S699	T700	S701	I702	D703	S704	V705	E706	W707	A708	W709	I710	V711	V712	W713	V714	W715	T716	I717	L718	K719	D720		

M721	L781	A941	Q901	A961	C1021	K1081
L722	R782	W942	P902	A962	E1022	D1082
H723	T783	W943	A903	L963	E1023	S1083
V724	I784	S944	S904	A964	M1024	I1084
A725	L785	N945	Q905	S965	K1025	F1085
C726	I786	L846	H906	D966	R1026	V1086
Q727	E787	A947	G907	F967	A1027	K1087
Y728	Q788	E948	Q908	Q968	M1028	V1088
R729	L789	K949	L909	E969	E1029	GLY
Q730	A790	W950	A910	D970	M1030	SER
S731	A791	C951	A911	V971	D1031	ALA
K732	L792	D952	F912	L972	F1032	ARG
N733	L793	F953	L913	Q973	M1033	PRO
S734	N794	D954	Q914	E974	K1034	PHE
L735	Y795	I955	A915	K975	A1035	ASN
Y736	L796	L956	H916	V976	L1036	SER
K737	L797	V957	ASP	E977	D1037	ARG
N738	D798	Q858	HIS	E978	L1038	THR
E739	D799	I959	L919	E978	L1038	GLY
S740	Y800	C960	S920	I979	L1039	GLY
G741	Y801	S961	W921	A980	E1040	ARG
I742	T802	E961	L922	E981	Y1041	LYS
Q743	Q803	T963	L923	E982	G1043	ALA
E744	L804	D964	H923	E983	G1043	GLY
P745	K805	N965	E924	H984	D1044	PRO
E746	S806	Q966	L925	F985	L1045	VAL
H747	I807	S967	N926	L986	S1046	THR
V748	D808	R968	S927	L987	E1047	ALA
P749	K809	L969	Q928	H988	V1048	SER
W750	L810	Q970	F930	E990	D1049	SER
T751	A811	R971	E931	T991	E1051	PRO
A752	N812	Y972	K932	L992	E1052	ALA
S753	E813	M973	A933	P993	L1053	LEU
H754	E814	T974	H934	K994	K1054	TYR
G755	R815	L975	R935	K995	L1055	SER
T756	Y816	F976	T936	L996	E1056	PRO
A757	N817	A977	L937	L997	I1057	VAL
G758	I818	E978	Q938	E998	L1058	GLY
I759	L819	Q979	T939	E999	C1059	ARG
R760	E820	N980	L940	K1000	K1060	VAL
S761	M921	F981	A941	Q1001	A1061	ALA
V762	E822	S982	N942	L1002	T1062	GLY
V763	Y823	D883	M943	D1003	K1063	ARG
T764	A824	F984	E944	L1004	R1064	THR
R765	Q825	L985	T945	M1005	D1065	PRO
Q766	K826	F986	R946	A1006	E1066	SER
H767	R827	R987	Y947	M1007	V1067	PRO
G768	S828	W988	F948	P1008	S1068	ARG
I769	E829	I989	C949	V1009	A1069	
I770	L830	Y890	K950	L1010	T1070	
L771	L831	E991	K951	A1011	D1071	
K772	S832	K992	K952	P1012	G1072	
V773	P833	G993	L954	F1013	I073	
V774	L834	K994	L954	Q1014	D1074	
P775	L835	R995	L955	L1015	D1075	
Q776	I836	G996	G956	I1016	P1076	
A777	L837	K997	L957	Q1017	I1077	
D778	L838	R998	S958	L1018	E1078	
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G780	Y840	S900	L960	V1020		SER

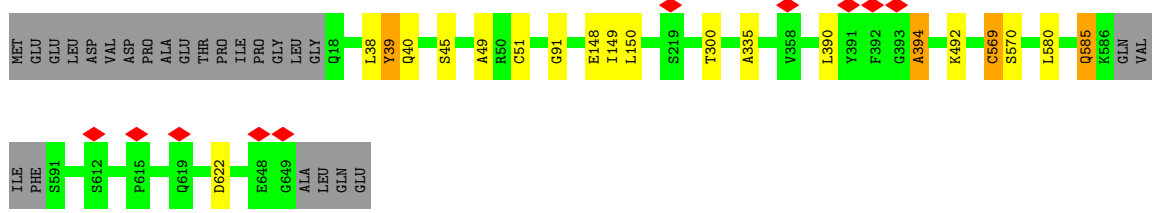
• Molecule 1: outer Nup133



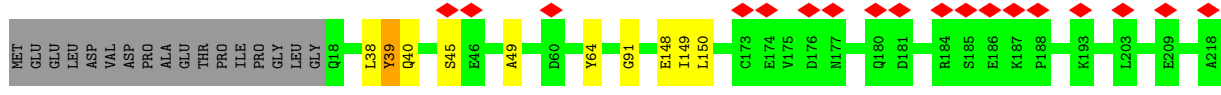
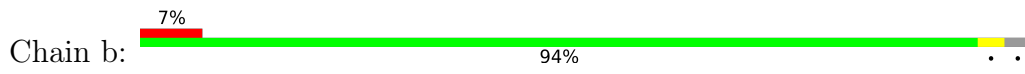
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SER	HIS	G186	R248	E318
PRO	PRO	T187	R249	S319
ARG	ALA	Y188	V250	D320
ALA	ALA	I189	S251	Y321
GLN	SER	E190	T252	D322
GLY	GLY	L191	L253	D323
MET	TRP	S192	F254	I324
GLY	ARG	T193	G255	K325
SER	ALA	E194	L256	A326
ALA	PRO	F195	L257	G327
ALA	PHE	L196	S258	I328
GLN	ASN	G197	F259	N329
GLY	SER	S198	A260	I330
TRP	LEU	L199	V261	N336
THR	THR	C200	E262	Q337
GLY	GLY	A201	S263	N338
GLY	ARG	F202	T264	C339
ARG	LYS	V203	W270	D340
LYS	ALA	T204	D271	L342
ALA	LEU	A205	K272	G341
ALA	LEU	V206	G273	V343
ALA	GLY	K207	D274	I344
LEU	GLY	G208	C275	L345
LEU	VAL	N209	F276	S346
LEU	THR	S210	Y277	A347
LEU	THR	F211	I284	A348
LEU	THR	I212	N285	H350
LEU	ALA	L213	K286	P351
LEU	VAL	A95	N218	G352
LEU	TYR	D96	Q219	D353
SER	SER	E97	L220	N354
SER	PRO	P98	L289	P355
SER	VAL	M99	L290	C356
ARG	GLY	A100	D291	Q357
ARG	ARG	I101	R222	I358
VAL	VAL	A101	L223	V359
VAL	ALA	C102	T224	Y360
SER	ALA	I103	P225	T361
SER	GLY	H104	D226	L362
SER	ARG	E105	S228	V363
ALA	ARG	G106	G229	T364
GLY	THR	G107	K230	V365
ARG	PRO	A109	M231	K366
PRO	SER	W110	N232	M302
ARG	ARG	L111	A170	V305
ARG	ARG	L112	T171	L306
ARG	VAL	A112	P172	R307
ARG	ALA	C113	E173	E308
ARG	GLY	N114	G174	Y309
ARG	ARG	D115	S175	N371
ARG	SER	R116	L177	I372
ARG	THR	L117	I178	S373
ARG	PRO	I118	Y179	I310
ARG	PRO	I119	W178	D374
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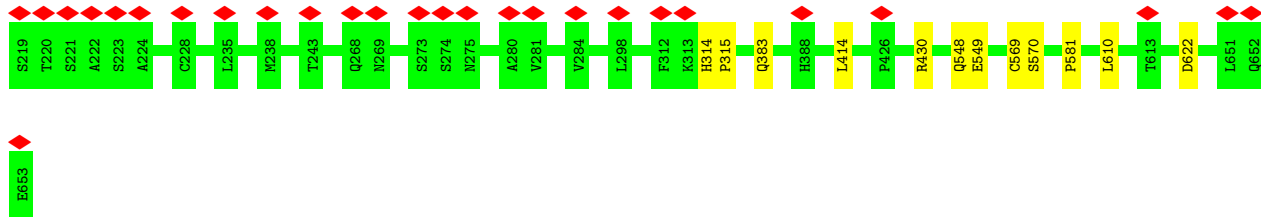


• Molecule 2: Nuclear pore complex protein Nup85

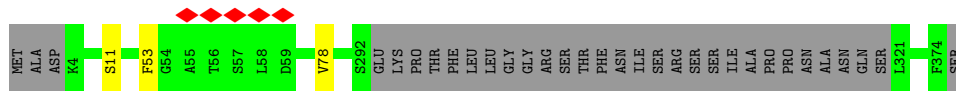
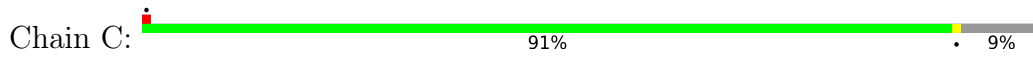


• Molecule 2: Nuclear pore complex protein Nup85

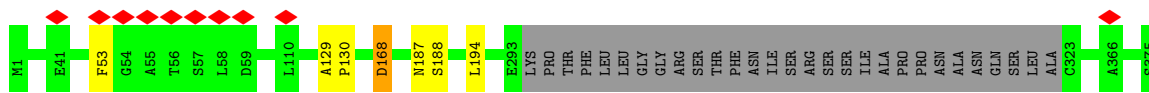
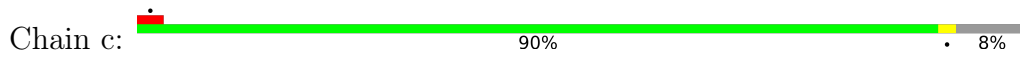




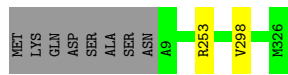
• Molecule 3: MGC154553 protein



• Molecule 3: MGC154553 protein



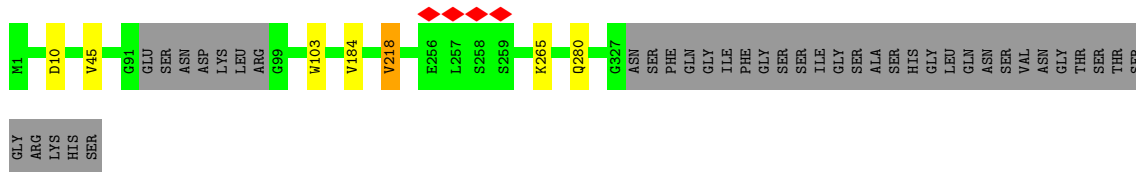
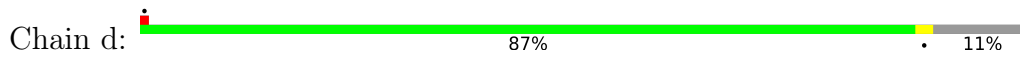
• Molecule 4: MGC83926 protein



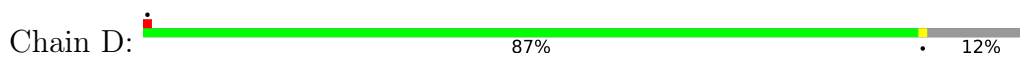
• Molecule 4: MGC83926 protein

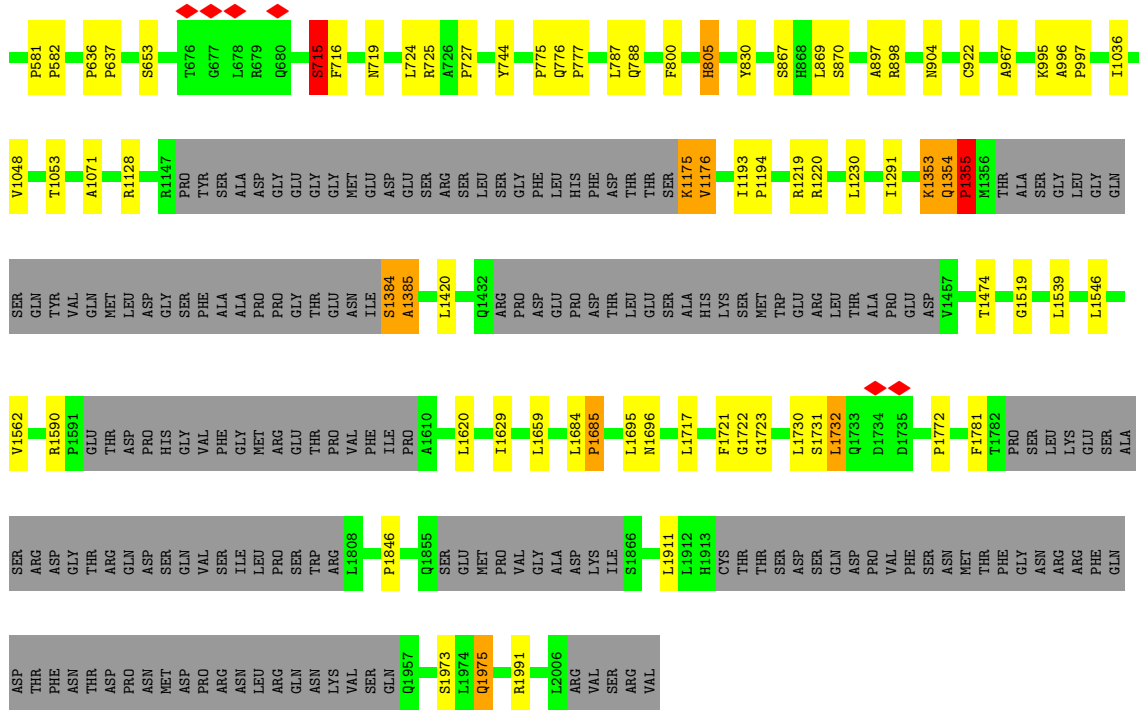


• Molecule 5: Nucleoporin SEH1-B

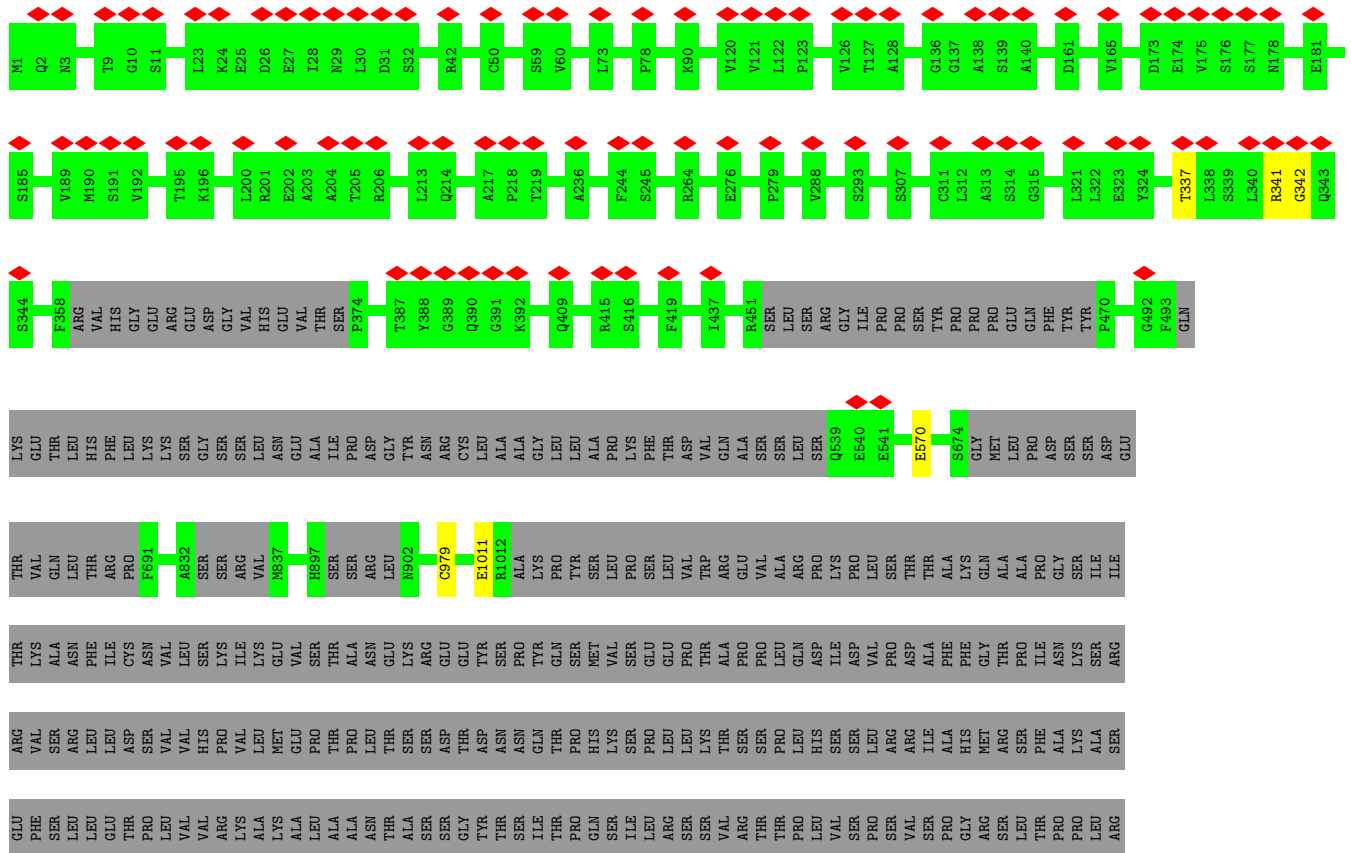


• Molecule 5: Nucleoporin SEH1-B





● Molecule 13: Protein ELYS





M1	Q2	N3	L4	E5	A6	Q7	V8	T9	G10	S11	L12	V13	A14	F15	P16	D17	V18	T19	Q20	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	I142	Q143	H144	L145	H146	Q147	S148	L149	R150	M151	F152	F153	G154	V155	T156	A157	V158	V159	T160	D161	V162	G163	H164	V165	L166	L167	I168	D169	L170	C171	L172	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	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	S238	Y239	S240						
D241	Q242	Y243	F244	S245	L246	W247	W248	M249	K250	T251	L252	R253	R254	D255	Y256	H257	V258	Q259	L260	E261	G262	G263	R264	V265	P266	V267	C268	A269	V270	A271	Q272	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	F381	S382	W383	Q384	V385	R386	T387	Y388	G389	G391	R392	P393	S394	V395	Y396	L397	G398	V399	F400	D401	L402	M403	R404	L405	Y406	Q407	A408	Q409	M410	P411	D412	L413	L414	R415	S416	G417	Q418	F419	L420									
R421	M422	C423	S424	A425	L426	A427	F428	W429	S430	L431	E432	A433	W434	V435	M436	I437	T438	T439	Q440	D441	D442	L443	F444	D445	I446	L447	W448	H449	S450	E451	S452	ARG	LEU	ARG	CYS	LEU	ARG	GLY	ILE	PRO	ASP	GLY	TYR	ASN	SER	LEU	ALA	PRO	PRO	LYS	PHE	THR	ASP	VAL	GLN	ALA	ALA	SER	LEU	SER	LEU	SER	G539	E540
L481	N482	S483	G484	L485	L486	H487	F488	A489	C490	T491	G492	F493	G494	L495	THR	LEU	PHE	LEU	LYS	LYS	SER	GLY	SER	LEU	ASN	GLU	ALA	ILE	PRO	ASP	GLY	TYR	ASN	SER	ARG	CYS	LEU	ALA	ALA	GLY	LEU	LEU	ALA	PRO	LYS	PHE	THR	ASP	VAL	GLN	ALA	ALA	SER	LEU	SER	LEU	SER	G539	E540					
E541	Q542	L543	Q544	A545	L546	L547	A548	A549	A550	V551	E552	T553	S554	S555	L556	G557	L558	L559	D560	T561	S562	C563	H564	F565	K566	R567	S568	S569	E570	Q571	P572	R573	N574	A575	A576	M577	F578	L579	A580	R581	F582	S583	L584	E585	W586	W587	K588	V589	T590	L591	T592	M593	K594	Q595	E596	F597	R598	L599	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	N629	L630	T631	A632	V633	L634	M635	C636	F637	I638	A639	Q640	R641	E642	W643	W644	Q645	Q646	G647	A648	V649	D650	L651	T652	M653	K654	Q655	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	Q699	Y700	Y701	S702	D703	Q704	K706	R705	K707	L708	E709	R710	L711	A712	R713	G714	K715	W716	D717	L718	S719	W720	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	V756	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

All (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
12	A	1194	PRO	N-CA	13.20	1.69	1.47
6	e	1049	PRO	N-CA	13.14	1.69	1.47
10	i	673	PRO	N-CA	12.94	1.69	1.47
9	g	873	PRO	N-CA	12.92	1.69	1.47
10	M	673	PRO	N-CA	12.92	1.69	1.47
9	g	577	TYR	C-N	11.36	1.60	1.34
6	e	1174	GLU	C-O	10.72	1.43	1.23
12	A	904	ASN	C-N	10.65	1.58	1.34
12	A	1722	GLY	C-N	9.93	1.50	1.33
2	B	570	SER	C-O	9.31	1.41	1.23
12	A	1385	ALA	C-N	9.15	1.49	1.33
5	D	218	VAL	C-N	9.15	1.55	1.34
5	d	218	VAL	C-N	9.12	1.55	1.34
12	A	1353	LYS	C-N	9.03	1.54	1.34
12	A	286	GLN	C-N	8.78	1.48	1.33
12	A	285	GLU	C-N	8.63	1.53	1.34
12	A	1220	ARG	C-N	8.12	1.47	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	A	1685	PRO	C-N	8.10	1.47	1.33
6	e	1316	LEU	C-N	8.09	1.49	1.34
12	A	636	PRO	C-N	8.08	1.49	1.34
12	A	776	GLN	C-N	8.00	1.49	1.34
3	c	129	ALA	C-N	8.00	1.49	1.34
12	A	581	PRO	C-N	7.97	1.49	1.34
12	A	1730	LEU	C-N	7.72	1.51	1.34
2	B	492	LYS	C-N	7.65	1.51	1.34
9	g	739	ARG	C-N	7.54	1.51	1.34
9	G	753	ASN	C-N	7.42	1.48	1.34
12	A	396	PHE	C-N	7.14	1.47	1.34
7	K	1227	SER	C-O	7.12	1.36	1.23
6	e	1196	PRO	CA-C	6.93	1.66	1.52
9	G	682	PRO	C-N	6.89	1.49	1.34
9	g	682	PRO	C-N	6.87	1.49	1.34
2	B	585	GLN	N-CA	6.81	1.59	1.46
6	E	1130	ILE	N-CA	6.80	1.59	1.46
12	A	547	GLY	C-N	6.77	1.49	1.34
2	b	570	SER	C-O	6.63	1.35	1.23
12	A	287	GLY	C-N	6.47	1.49	1.34
12	A	552	TRP	C-N	6.40	1.48	1.34
9	g	247	MET	N-CA	-6.31	1.33	1.46
3	c	168	ASP	C-N	6.17	1.48	1.34
12	A	29	ILE	C-N	6.14	1.48	1.34
4	f	272	TYR	C-N	6.06	1.45	1.34
2	b	314	HIS	C-N	6.04	1.45	1.34
6	e	547	ARG	C-N	6.03	1.45	1.34
7	K	1129	SER	CA-CB	6.01	1.61	1.52
12	A	1193	ILE	C-N	6.00	1.45	1.34
6	E	1019	ILE	C-N	6.00	1.45	1.34
7	K	1191	ASP	C-N	5.99	1.45	1.34
12	A	551	SER	C-N	5.97	1.47	1.34
9	g	872	GLN	C-N	5.96	1.45	1.34
6	e	1048	PHE	C-N	5.96	1.45	1.34
12	A	1659	LEU	C-N	5.95	1.47	1.34
10	i	672	ASP	C-N	5.89	1.45	1.34
9	g	235	GLY	C-O	5.85	1.33	1.23
12	A	304	ARG	C-N	-5.84	1.20	1.34
9	G	235	GLY	C-O	5.83	1.32	1.23
7	K	1196	SER	CA-CB	5.82	1.61	1.52
10	M	672	ASP	C-N	5.77	1.45	1.34
6	e	1174	GLU	CA-CB	5.70	1.66	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	A	1546	LEU	C-N	5.51	1.46	1.34
2	B	570	SER	N-CA	5.50	1.57	1.46
1	j	909	LEU	C-N	5.49	1.46	1.34
1	p	909	LEU	C-N	5.48	1.46	1.34
12	A	1420	LEU	C-N	5.48	1.46	1.34
12	A	1562	VAL	C-N	5.44	1.46	1.34
6	e	1196	PRO	C-O	5.41	1.34	1.23
12	A	1732	LEU	C-N	-5.37	1.21	1.34
12	A	787	LEU	C-N	5.26	1.46	1.34
12	A	1721	PHE	C-N	5.23	1.42	1.33
2	b	581	PRO	C-O	5.23	1.33	1.23
12	A	1590	ARG	C-N	5.21	1.44	1.34
12	A	788	GLN	C-N	5.19	1.42	1.33
2	B	585	GLN	CA-C	5.17	1.66	1.52
12	A	1717	LEU	C-N	5.13	1.45	1.34
12	A	1219	ARG	C-N	-5.01	1.22	1.34

All (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
2	B	492	LYS	CA-C-N	-15.77	82.51	117.20
9	G	682	PRO	O-C-N	-15.61	97.72	122.70
9	g	682	PRO	O-C-N	-15.60	97.74	122.70
7	K	1341	TYR	O-C-N	-15.05	98.62	122.70
12	A	805	HIS	O-C-N	-14.78	99.06	122.70
12	A	1175	LYS	O-C-N	-14.01	100.29	122.70
2	B	394	ALA	CA-C-N	13.93	147.84	117.20
2	B	492	LYS	C-N-CA	-13.59	87.72	121.70
10	i	391	GLY	CA-C-N	-13.12	88.34	117.20
10	M	391	GLY	CA-C-N	-13.11	88.36	117.20
6	E	1268	LEU	N-CA-C	-12.33	77.70	111.00
12	A	1385	ALA	O-C-N	-12.03	102.75	123.20
12	A	1355	PRO	C-N-CA	11.78	151.15	121.70
2	B	394	ALA	C-N-CA	11.47	150.37	121.70
12	A	1354	GLN	O-C-N	-11.43	99.38	121.10
6	E	1300	LEU	N-CA-C	-10.77	81.92	111.00
12	A	904	ASN	O-C-N	10.22	139.05	122.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	g	247	MET	N-CA-CB	-10.14	92.35	110.60
12	A	1355	PRO	O-C-N	-10.06	106.61	122.70
12	A	1384	SER	O-C-N	-9.97	106.75	122.70
12	A	805	HIS	CA-C-N	9.85	138.86	117.20
12	A	286	GLN	O-C-N	-9.40	107.22	123.20
10	M	391	GLY	C-N-CA	-9.17	98.78	121.70
10	i	391	GLY	C-N-CA	-9.16	98.79	121.70
7	K	1341	TYR	CA-C-N	8.99	136.99	117.20
6	E	1136	TRP	N-CA-C	8.91	135.05	111.00
3	c	187	ASN	O-C-N	-8.87	108.51	122.70
2	B	569	CYS	O-C-N	-8.73	108.74	122.70
6	E	1332	LEU	N-CA-C	-8.68	87.56	111.00
7	K	1341	TYR	C-N-CA	8.43	142.79	121.70
6	E	1030	ARG	CB-CA-C	8.05	126.50	110.40
12	A	897	ALA	N-CA-CB	-8.05	98.83	110.10
9	G	682	PRO	CA-C-N	7.89	134.57	117.20
9	g	682	PRO	CA-C-N	7.89	134.56	117.20
6	E	1179	GLU	N-CA-C	-7.77	90.02	111.00
6	e	1174	GLU	N-CA-C	-7.75	90.07	111.00
3	c	168	ASP	O-C-N	-7.64	110.48	122.70
6	e	1174	GLU	N-CA-CB	7.63	124.33	110.60
12	A	904	ASN	CA-C-N	-7.61	100.46	117.20
6	e	1174	GLU	O-C-N	-7.55	110.61	122.70
12	A	73	GLU	O-C-N	-7.26	110.86	123.20
6	E	1287	MET	CB-CA-C	-7.21	95.97	110.40
3	c	187	ASN	C-N-CA	6.98	139.15	121.70
9	g	219	THR	N-CA-C	-6.98	92.17	111.00
9	g	322	LEU	CB-CA-C	6.89	123.29	110.20
9	G	322	LEU	CB-CA-C	6.88	123.27	110.20
9	g	682	PRO	C-N-CA	6.73	138.52	121.70
9	G	682	PRO	C-N-CA	6.72	138.51	121.70
9	G	753	ASN	C-N-CA	6.64	149.89	122.00
12	A	77	ILE	O-C-N	-6.60	112.14	122.70
6	E	1097	PHE	CB-CA-C	-6.60	97.20	110.40
12	A	286	GLN	C-N-CA	6.59	136.15	122.30
9	g	247	MET	CB-CA-C	6.52	123.43	110.40
6	E	1138	VAL	CB-CA-C	-6.50	99.05	111.40
9	G	321	TYR	N-CA-CB	6.48	122.27	110.60
10	I	288	TYR	CB-CA-C	6.46	123.32	110.40
12	A	805	HIS	C-N-CA	6.44	137.81	121.70
9	g	321	TYR	N-CA-CB	6.42	122.16	110.60
1	j	198	SER	N-CA-CB	6.38	120.08	110.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	p	198	SER	N-CA-CB	6.38	120.07	110.50
10	i	391	GLY	O-C-N	6.36	132.87	122.70
9	g	225	LEU	N-CA-C	-6.33	93.92	111.00
6	E	1172	ILE	N-CA-C	6.33	128.08	111.00
1	J	198	SER	N-CA-CB	6.32	119.98	110.50
1	P	198	SER	N-CA-CB	6.31	119.97	110.50
10	I	556	LYS	C-N-CA	-6.31	105.93	121.70
10	M	391	GLY	O-C-N	6.31	132.79	122.70
6	E	1136	TRP	CB-CA-C	-6.31	97.78	110.40
9	G	225	LEU	N-CA-C	-6.30	93.99	111.00
12	A	288	THR	O-C-N	-6.21	112.77	122.70
2	b	569	CYS	O-C-N	-6.20	112.78	122.70
1	J	611	SER	CB-CA-C	-6.13	98.46	110.10
12	A	298	ALA	O-C-N	-6.12	112.91	122.70
1	P	611	SER	CB-CA-C	-6.08	98.56	110.10
7	K	1159	THR	N-CA-C	-6.07	94.62	111.00
12	A	80	THR	O-C-N	-6.05	113.02	122.70
12	A	1629	ILE	CB-CA-C	-6.02	99.56	111.60
12	A	1731	SER	O-C-N	-6.01	113.09	122.70
1	j	611	SER	CB-CA-C	-5.97	98.75	110.10
1	p	611	SER	CB-CA-C	-5.95	98.80	110.10
6	E	1267	GLN	N-CA-C	-5.91	95.05	111.00
6	E	1274	THR	N-CA-C	5.90	126.92	111.00
12	A	867	SER	O-C-N	-5.89	113.28	122.70
1	P	898	LEU	N-CA-CB	-5.85	98.69	110.40
10	I	289	TRP	N-CA-C	5.85	126.80	111.00
1	J	898	LEU	N-CA-CB	-5.83	98.73	110.40
10	I	285	LYS	N-CA-C	5.83	126.73	111.00
7	K	1155	GLN	N-CA-C	-5.77	95.43	111.00
6	E	1234	LEU	N-CA-C	5.70	126.39	111.00
12	A	581	PRO	C-N-CA	5.69	145.90	122.00
9	g	248	GLY	N-CA-C	-5.69	98.89	113.10
12	A	1781	PHE	O-C-N	-5.68	113.62	122.70
9	g	501	GLU	CB-CA-C	5.67	121.74	110.40
4	f	273	PRO	N-CA-C	-5.65	97.41	112.10
3	c	129	ALA	C-N-CA	5.64	145.69	122.00
12	A	776	GLN	C-N-CA	5.62	145.62	122.00
9	G	501	GLU	CB-CA-C	5.62	121.64	110.40
12	A	500	ASP	O-C-N	-5.60	113.75	122.70
12	A	904	ASN	C-N-CA	-5.59	107.73	121.70
3	c	187	ASN	CA-C-N	5.58	129.48	117.20
6	e	1316	LEU	C-N-CA	5.55	145.33	122.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	g	246	PHE	CA-C-N	-5.50	105.11	117.20
6	E	1141	VAL	CB-CA-C	-5.49	100.97	111.40
12	A	636	PRO	C-N-CA	5.48	145.02	122.00
12	A	547	GLY	O-C-N	-5.48	113.94	122.70
6	E	1268	LEU	CB-CA-C	-5.47	99.81	110.20
6	e	1195	ASN	O-C-N	-5.45	110.74	121.10
6	e	1174	GLU	CA-C-O	5.44	131.51	120.10
1	j	909	LEU	N-CA-CB	5.44	121.27	110.40
6	E	872	PHE	CB-CA-C	5.43	121.26	110.40
10	i	254	LEU	N-CA-C	-5.41	96.39	111.00
1	p	909	LEU	N-CA-CB	5.41	121.21	110.40
12	A	897	ALA	CB-CA-C	-5.40	102.00	110.10
6	E	1315	PRO	N-CA-C	-5.38	98.10	112.10
1	P	611	SER	N-CA-CB	5.36	118.54	110.50
6	E	1136	TRP	N-CA-CB	-5.35	100.96	110.60
6	E	1275	LYS	N-CA-C	5.35	125.44	111.00
1	J	611	SER	N-CA-CB	5.34	118.50	110.50
6	E	1338	LYS	CB-CA-C	-5.27	99.86	110.40
12	A	715	SER	N-CA-C	-5.24	96.86	111.00
12	A	1519	GLY	O-C-N	-5.24	114.32	122.70
6	E	1076	TYR	C-N-CA	-5.21	108.69	121.70
9	g	387	TRP	N-CA-C	-5.17	97.04	111.00
9	G	387	TRP	N-CA-C	-5.16	97.07	111.00
1	j	611	SER	N-CA-CB	5.16	118.24	110.50
6	e	1196	PRO	N-CA-C	5.14	125.47	112.10
1	p	611	SER	N-CA-CB	5.14	118.21	110.50
6	E	1030	ARG	CA-C-O	-5.14	109.31	120.10
12	A	1385	ALA	CA-C-N	5.14	126.48	116.20
10	i	706	ILE	N-CA-C	-5.10	97.22	111.00
6	e	1128	ARG	CB-CA-C	5.10	120.60	110.40
6	e	109	ALA	CB-CA-C	5.10	117.75	110.10
12	A	800	PHE	N-CA-C	-5.07	97.31	111.00
12	A	716	PHE	N-CA-C	-5.06	97.33	111.00
9	g	739	ARG	O-C-N	-5.06	114.61	122.70
6	E	1286	LEU	N-CA-CB	5.06	120.51	110.40
12	A	1723	GLY	C-N-CA	5.02	134.25	121.70
10	I	285	LYS	CB-CA-C	-5.01	100.37	110.40

There are no chirality outliers.

All (121) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
12	A	1048	VAL	Mainchain
12	A	1053	THR	Peptide
12	A	1071	ALA	Peptide
12	A	1175	LYS	Mainchain
12	A	1176	VAL	Mainchain
12	A	1353	LYS	Mainchain
12	A	1354	GLN	Mainchain
12	A	1355	PRO	Peptide,Mainchain
12	A	1384	SER	Mainchain
12	A	1385	ALA	Mainchain
12	A	158	PHE	Mainchain
12	A	163	SER	Peptide
12	A	1684	LEU	Mainchain
12	A	1695	LEU	Peptide
12	A	1732	LEU	Mainchain
12	A	1973	SER	Peptide
12	A	1975	GLN	Peptide
12	A	257	THR	Peptide
12	A	286	GLN	Mainchain
12	A	288	THR	Mainchain
12	A	289	ASP	Mainchain
12	A	298	ALA	Mainchain
12	A	303	ASP	Mainchain
12	A	317	THR	Peptide
12	A	321	LYS	Peptide
12	A	485	PRO	Mainchain
12	A	547	GLY	Mainchain
12	A	548	SER	Mainchain
12	A	55	LYS	Peptide
12	A	653	SER	Peptide
12	A	715	SER	Peptide
12	A	73	GLU	Mainchain
12	A	76	PRO	Mainchain
12	A	80	THR	Mainchain
12	A	805	HIS	Mainchain
12	A	81	GLN	Mainchain
12	A	82	ARG	Mainchain
12	A	83	THR	Mainchain
12	A	869	LEU	Mainchain
12	A	996	ALA	Peptide
2	B	39	TYR	Peptide
2	B	394	ALA	Mainchain
2	B	569	CYS	Mainchain

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Mol	Chain	Res	Type	Group
5	D	184	VAL	Mainchain
5	D	218	VAL	Mainchain
6	E	1132	PRO	Peptide
6	E	1202	ALA	Mainchain
6	E	1265	ALA	Mainchain
6	E	1271	VAL	Peptide
6	E	1431	LYS	Peptide
6	E	1432	PRO	Peptide
6	E	1434	ARG	Peptide
6	E	57	SER	Peptide
6	E	865	LEU	Mainchain
6	E	871	ASN	Mainchain
9	G	347	ALA	Peptide
9	G	386	LEU	Mainchain
9	G	388	GLY	Peptide
9	G	395	ALA	Peptide
9	G	434	PRO	Peptide
9	G	512	THR	Peptide
9	G	577	TYR	Mainchain
9	G	607	LEU	Mainchain
9	G	609	SER	Peptide
9	G	644	LEU	Mainchain
9	G	682	PRO	Mainchain
9	G	701	VAL	Peptide
9	G	737	GLY	Peptide
9	G	818	ASP	Mainchain
10	I	155	LEU	Mainchain
10	I	231	MET	Peptide
10	I	290	GLU	Peptide
10	I	550	THR	Mainchain
7	K	1106	ILE	Peptide
7	K	1163	SER	Peptide
7	K	1341	TYR	Mainchain
10	M	155	LEU	Mainchain
10	M	231	MET	Peptide
10	M	250	GLN	Peptide
10	M	273	VAL	Peptide
10	M	290	GLU	Peptide
10	M	391	GLY	Mainchain
10	M	550	THR	Mainchain
10	M	706	ILE	Peptide
13	N	1011	GLU	Peptide

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Mol	Chain	Res	Type	Group
2	b	39	TYR	Peptide
3	c	168	ASP	Mainchain
3	c	194	LEU	Mainchain
5	d	184	VAL	Mainchain
5	d	218	VAL	Mainchain
6	e	1195	ASN	Mainchain
6	e	1431	LYS	Peptide
6	e	1432	PRO	Peptide
6	e	1434	ARG	Peptide
6	e	57	SER	Peptide
6	e	744	ASP	Mainchain
6	e	751	GLY	Mainchain
6	e	865	LEU	Mainchain
9	g	246	PHE	Mainchain
9	g	386	LEU	Mainchain
9	g	388	GLY	Peptide
9	g	395	ALA	Peptide
9	g	434	PRO	Peptide
9	g	457	ALA	Mainchain
9	g	512	THR	Peptide
9	g	577	TYR	Mainchain
9	g	607	LEU	Mainchain
9	g	609	SER	Peptide
9	g	682	PRO	Mainchain
9	g	701	VAL	Peptide
9	g	737	GLY	Peptide
9	g	739	ARG	Mainchain
10	i	155	LEU	Mainchain
10	i	231	MET	Peptide
10	i	273	VAL	Peptide
10	i	290	GLU	Peptide
10	i	391	GLY	Mainchain
10	i	550	THR	Mainchain
13	n	1011	GLU	Peptide
13	n	979	CYS	Peptide

5.2 Too-close contacts

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

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	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
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

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
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

All (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
1	J	609	ARG
1	J	851	CYS
1	J	1066	GLU
2	B	39	TYR
2	B	40	GLN
2	B	51	CYS
2	B	585	GLN
2	B	622	ASP
4	F	253	ARG
2	b	39	TYR
2	b	40	GLN
2	b	610	LEU
3	c	130	PRO
6	E	866	TRP
6	E	867	PRO
6	E	883	GLN
6	E	968	VAL
6	E	1052	ASN
6	E	1053	LEU
6	E	1068	VAL
6	E	1108	ARG
6	E	1130	ILE
6	E	1137	ILE
6	E	1138	VAL
6	E	1140	PRO
6	E	1141	VAL
6	E	1174	GLU
6	E	1176	ARG
6	E	1177	ASP

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Mol	Chain	Res	Type
6	E	1219	LEU
6	E	1233	ALA
6	E	1268	LEU
6	E	1269	ALA
6	E	1271	VAL
6	E	1281	ASP
6	E	1331	GLU
6	E	1369	PRO
6	E	1432	PRO
6	e	866	TRP
6	e	867	PRO
6	e	986	SER
6	e	1131	ARG
6	e	1132	PRO
6	e	1174	GLU
6	e	1315	PRO
6	e	1432	PRO
4	f	253	ARG
4	f	273	PRO
7	K	1107	SER
7	K	1335	PRO
9	G	350	ALA
9	G	372	VAL
9	G	473	VAL
9	G	476	GLN
9	G	626	PRO
9	g	226	VAL
9	g	348	GLY
9	g	500	GLU
9	g	578	LEU
9	g	626	PRO
9	g	739	ARG
9	g	817	GLN
9	g	818	ASP
9	g	873	PRO
9	g	880	SER
9	g	881	SER
10	I	156	GLU
10	I	160	SER
10	I	232	PHE
10	I	289	TRP
10	I	589	GLN

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Mol	Chain	Res	Type
10	I	650	ALA
10	i	232	PHE
10	i	288	TYR
10	i	650	ALA
12	A	183	THR
12	A	184	ASN
12	A	287	GLY
12	A	289	ASP
12	A	322	SER
12	A	484	PRO
12	A	582	PRO
12	A	637	PRO
12	A	715	SER
12	A	727	PRO
12	A	777	PRO
12	A	898	ARG
12	A	1128	ARG
12	A	1176	VAL
12	A	1291	ILE
12	A	1355	PRO
12	A	1696	ASN
12	A	1772	PRO
12	A	1991	ARG
10	M	232	PHE
10	M	288	TYR
10	M	589	GLN
10	M	650	ALA
10	M	707	PRO
1	p	538	GLU
1	p	561	SER
1	p	567	GLU
1	p	574	ALA
1	p	606	LEU
1	p	609	ARG
1	p	1066	GLU
1	j	538	GLU
1	j	561	SER
1	j	567	GLU
1	j	574	ALA
1	j	606	LEU
1	j	609	ARG
1	j	1066	GLU

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Mol	Chain	Res	Type
1	P	252	THR
1	P	538	GLU
1	P	561	SER
1	P	567	GLU
1	P	575	GLY
1	P	609	ARG
1	P	851	CYS
1	P	1066	GLU
13	n	337	THR
13	N	337	THR
1	J	575	GLY
2	B	38	LEU
2	B	91	GLY
2	B	149	ILE
2	B	150	LEU
2	B	335	ALA
2	B	390	LEU
3	C	53	PHE
5	d	103	TRP
5	d	265	LYS
2	b	38	LEU
2	b	91	GLY
2	b	149	ILE
2	b	150	LEU
2	b	414	LEU
2	b	548	GLN
3	c	53	PHE
6	E	688	ALA
6	E	967	ASP
6	E	1031	GLN
6	E	1040	SER
6	E	1084	ILE
6	E	1205	SER
6	E	1231	LYS
6	E	1274	THR
6	E	1277	SER
6	E	1332	LEU
6	e	1143	GLY
7	K	1164	HIS
9	G	227	PRO
9	G	460	SER
9	G	511	GLY

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Mol	Chain	Res	Type
9	G	625	THR
9	G	671	TRP
9	G	739	ARG
9	g	511	GLY
9	g	625	THR
9	g	671	TRP
9	g	886	PRO
10	i	156	GLU
10	i	557	GLU
11	L	772	LEU
12	A	724	LEU
12	A	744	TYR
12	A	870	SER
12	A	922	CYS
12	A	995	LYS
12	A	1620	LEU
12	A	1911	LEU
5	D	103	TRP
5	D	265	LYS
10	M	156	GLU
10	M	228	GLU
10	M	557	GLU
1	p	575	GLY
1	p	904	SER
1	j	575	GLY
1	j	904	SER
1	P	574	ALA
1	J	198	SER
1	J	560	ALA
1	J	571	GLU
1	J	742	ILE
1	J	751	THR
1	J	852	ASP
2	B	49	ALA
2	b	49	ALA
2	b	64	TYR
2	b	549	GLU
6	E	60	ASN
6	E	844	LEU
6	E	1085	TYR
6	E	1109	THR
6	E	1135	ALA

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Mol	Chain	Res	Type
6	E	1144	ALA
6	E	1196	PRO
6	E	1197	SER
6	E	1290	TYR
6	E	1318	ASN
6	E	1395	GLU
6	e	41	ASN
6	e	277	GLY
6	e	844	LEU
6	e	1052	ASN
6	e	1105	ARG
6	e	1140	PRO
6	e	1253	GLU
7	K	1151	GLN
7	K	1157	THR
8	H	55	GLY
9	G	303	LYS
9	G	594	SER
9	G	719	CYS
8	h	55	GLY
9	g	227	PRO
9	g	303	LYS
9	g	317	GLU
9	g	594	SER
9	g	632	ARG
9	g	752	TRP
9	g	753	ASN
9	g	819	GLU
9	g	869	SER
10	i	228	GLU
12	A	119	GLN
12	A	127	ARG
12	A	425	GLY
12	A	457	ALA
12	A	577	HIS
12	A	725	ARG
12	A	830	TYR
12	A	1036	ILE
12	A	1474	THR
12	A	1539	LEU
12	A	1975	GLN
1	p	198	SER

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Mol	Chain	Res	Type
1	p	560	ALA
1	p	571	GLU
1	p	608	SER
1	p	742	ILE
1	p	751	THR
1	j	198	SER
1	j	560	ALA
1	j	571	GLU
1	j	608	SER
1	j	742	ILE
1	j	751	THR
1	P	198	SER
1	P	560	ALA
1	P	571	GLU
1	P	742	ILE
1	P	751	THR
1	P	852	ASP
13	n	342	GLY
13	n	570	GLU
13	N	342	GLY
13	N	570	GLU
2	B	148	GLU
2	B	300	THR
3	C	11	SER
3	C	78	VAL
2	b	148	GLU
2	b	622	ASP
3	c	188	SER
6	E	807	VAL
6	E	809	LYS
6	E	1175	LEU
6	E	1330	ALA
6	E	1397	ASN
6	e	60	ASN
6	e	1071	MET
6	e	1135	ALA
6	e	1207	ALA
6	e	1267	GLN
7	K	1108	LEU
7	K	1128	MET
9	G	645	ASN
9	g	646	TYR

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Mol	Chain	Res	Type
9	g	797	THR
9	g	898	PRO
9	g	902	ASP
10	I	470	PRO
10	I	620	GLY
10	i	470	PRO
10	i	620	GLY
11	L	427	GLU
12	A	719	ASN
12	A	775	PRO
12	A	997	PRO
12	A	1230	LEU
12	A	1685	PRO
5	D	280	GLN
10	M	470	PRO
10	M	620	GLY
1	J	355	PRO
1	J	570	PRO
2	B	45	SER
5	d	10	ASP
5	d	280	GLN
2	b	45	SER
2	b	383	GLN
2	b	430	ARG
6	E	1048	PHE
6	E	1172	ILE
6	E	1230	PHE
6	E	1267	GLN
6	E	1329	ALA
6	e	491	ASP
6	e	744	ASP
6	e	1103	LEU
6	e	1279	ALA
7	K	1192	PRO
8	H	46	GLY
8	H	172	SER
9	G	230	LYS
9	G	310	SER
9	G	589	PRO
9	G	646	TYR
8	h	46	GLY
9	g	310	SER

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Mol	Chain	Res	Type
9	g	350	ALA
9	g	589	PRO
10	I	556	LYS
10	I	590	GLU
10	i	462	SER
12	A	58	PRO
12	A	189	LEU
12	A	521	PRO
12	A	967	ALA
12	A	1846	PRO
10	M	462	SER
1	p	301	ASP
1	p	355	PRO
1	p	570	PRO
1	j	301	ASP
1	j	355	PRO
1	j	570	PRO
1	P	355	PRO
1	P	570	PRO
1	J	301	ASP
1	J	536	ASP
1	J	1103	LEU
2	B	580	LEU
6	E	277	GLY
6	E	841	ALA
6	E	1301	TYR
6	e	841	ALA
7	K	1260	PRO
8	H	5	ILE
9	G	448	GLY
9	G	600	VAL
9	G	754	PRO
9	g	221	ARG
9	g	448	GLY
9	g	600	VAL
9	g	845	TYR
10	I	462	SER
10	i	291	ASN
12	A	190	ILE
10	M	291	ASN
1	p	1103	LEU
1	j	1103	LEU

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Mol	Chain	Res	Type
1	P	301	ASP
1	P	536	ASP
1	P	1103	LEU
13	n	341	ARG
13	N	341	ARG
1	J	604	VAL
7	K	1106	ILE
1	P	604	VAL
6	E	1218	GLY
6	e	1130	ILE
9	G	512	THR
9	G	872	GLN
9	g	512	THR
4	F	298	VAL
6	e	1317	PRO
4	f	298	VAL
9	g	801	VAL
12	A	57	PRO
12	A	340	ILE
5	d	45	VAL
6	E	1314	VAL
9	g	373	VAL
12	A	520	GLY
5	D	45	VAL

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.

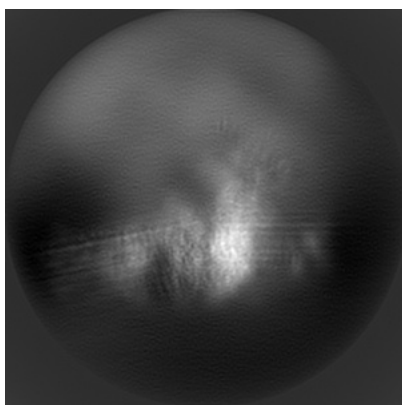
6 Map visualisation [i](#)

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.

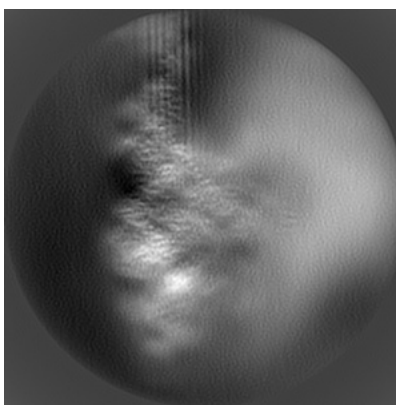
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

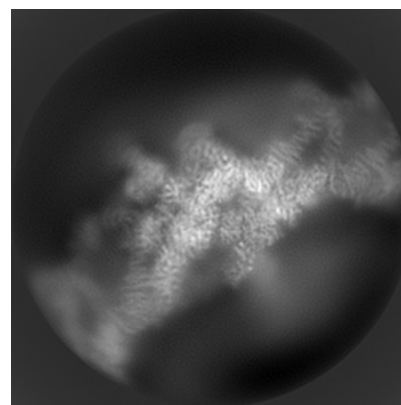
6.1.1 Primary map



X



Y

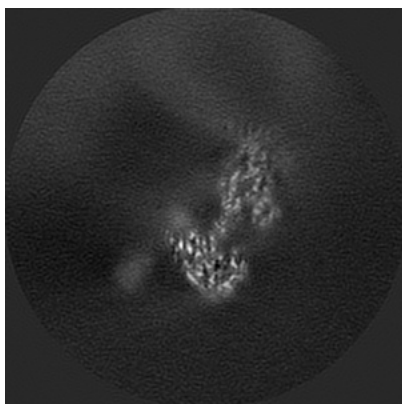


Z

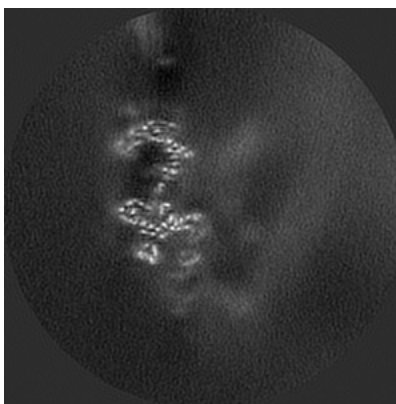
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

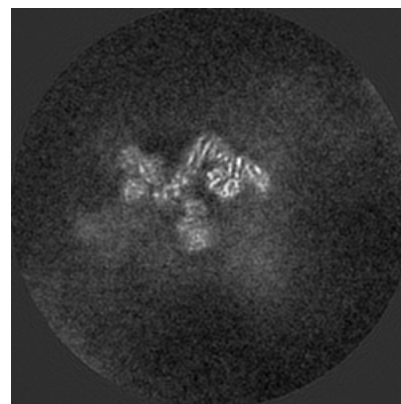
6.2.1 Primary map



X Index: 100



Y Index: 100

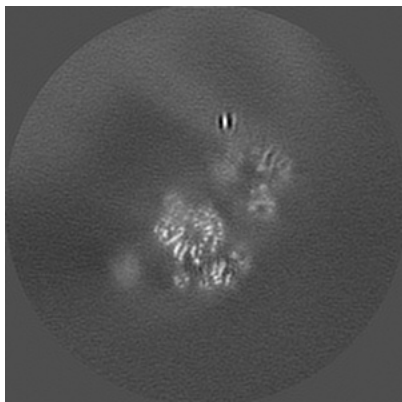


Z Index: 100

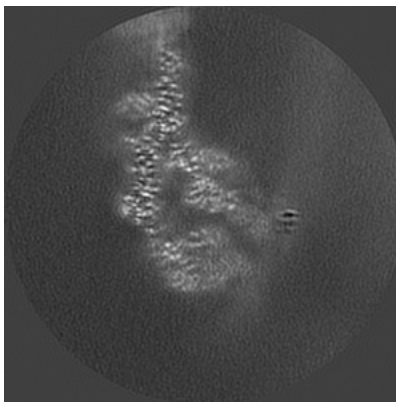
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

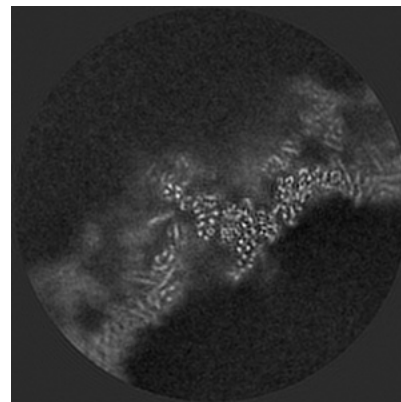
6.3.1 Primary map



X Index: 94



Y Index: 113

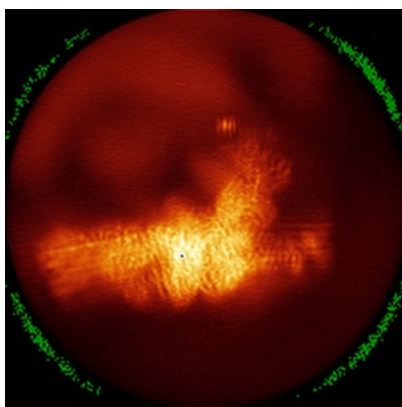


Z Index: 79

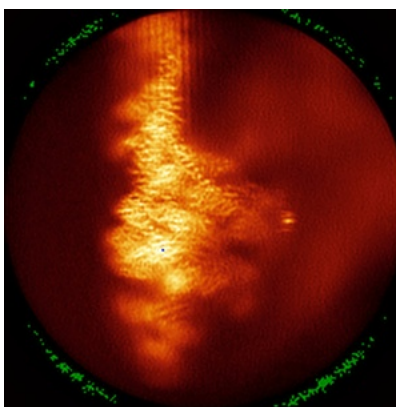
The images above show the largest variance slices of the map in three orthogonal directions.

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

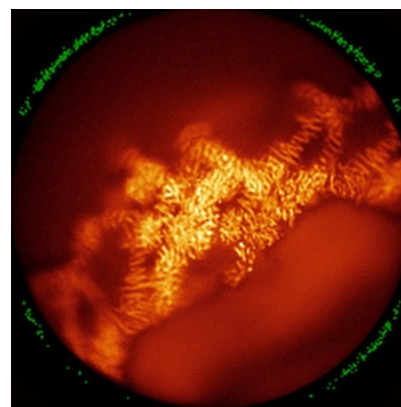
6.4.1 Primary map



X



Y

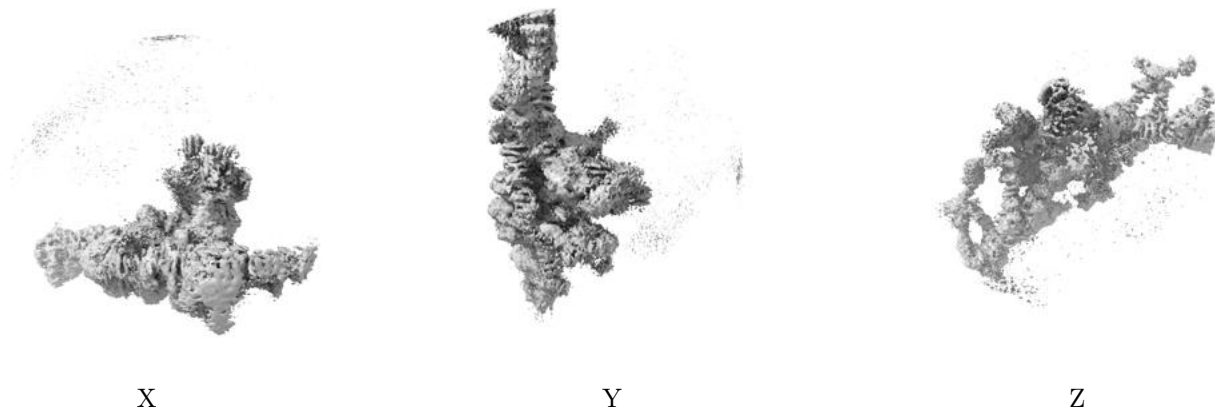


Z

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.

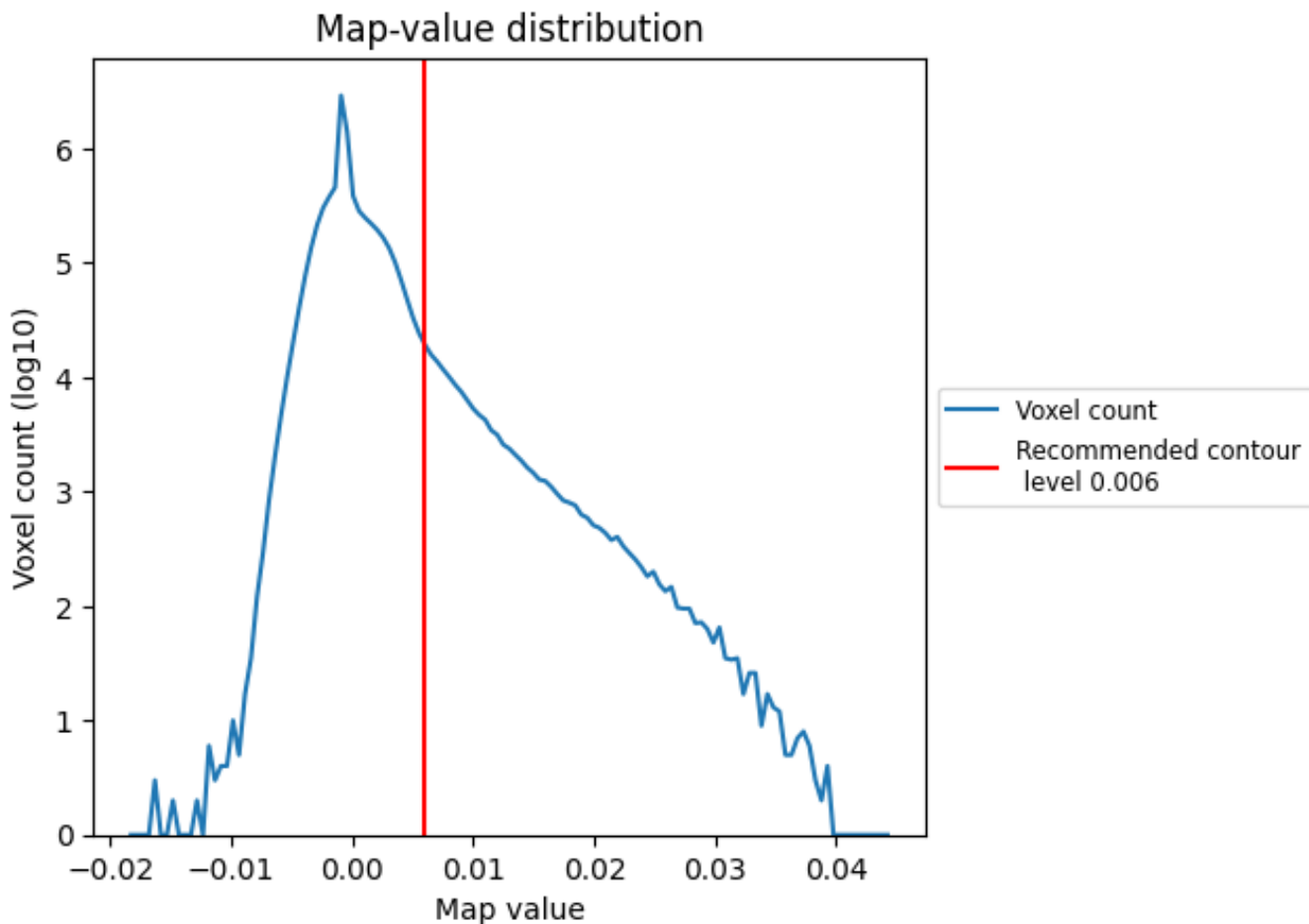
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

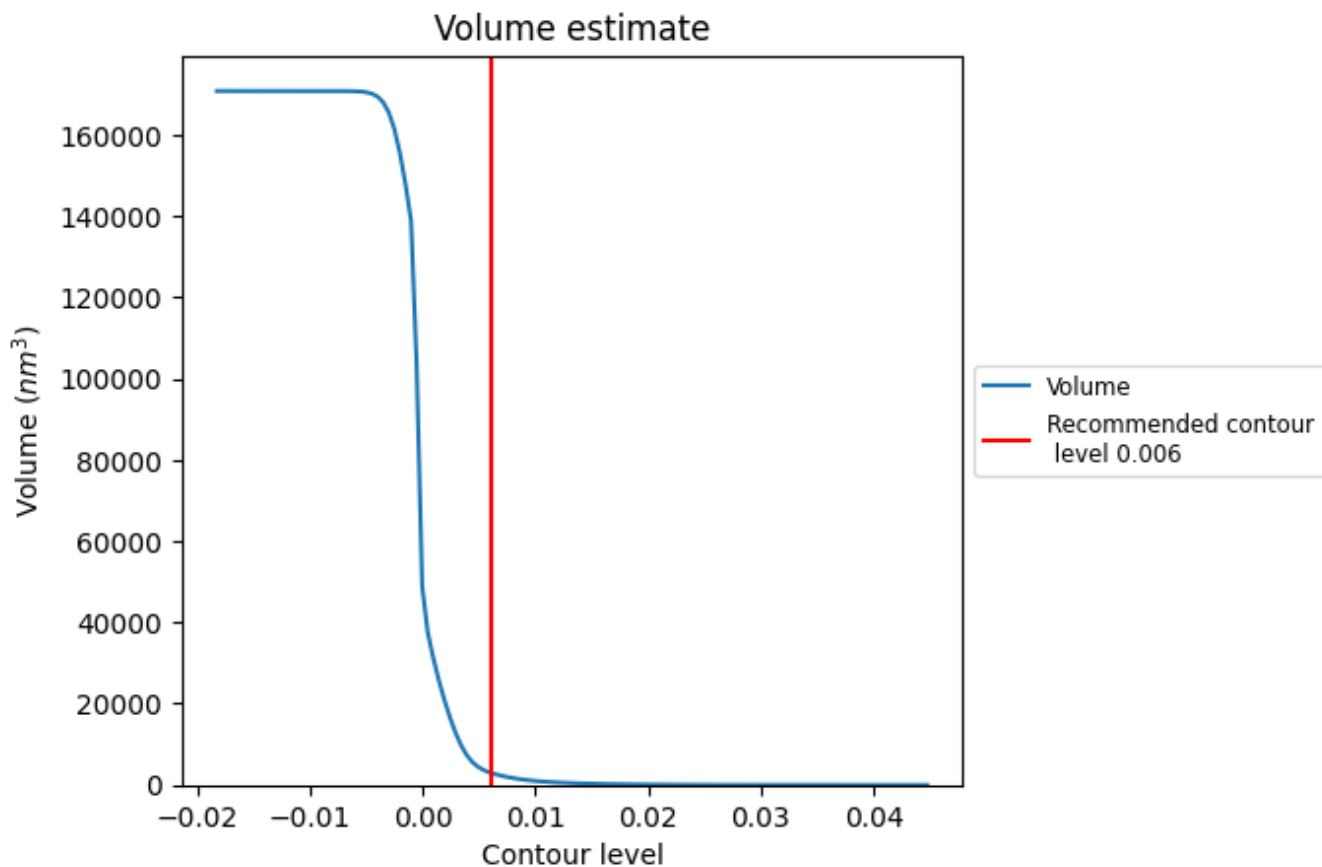
This section contains the results of statistical analysis of the map.

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.

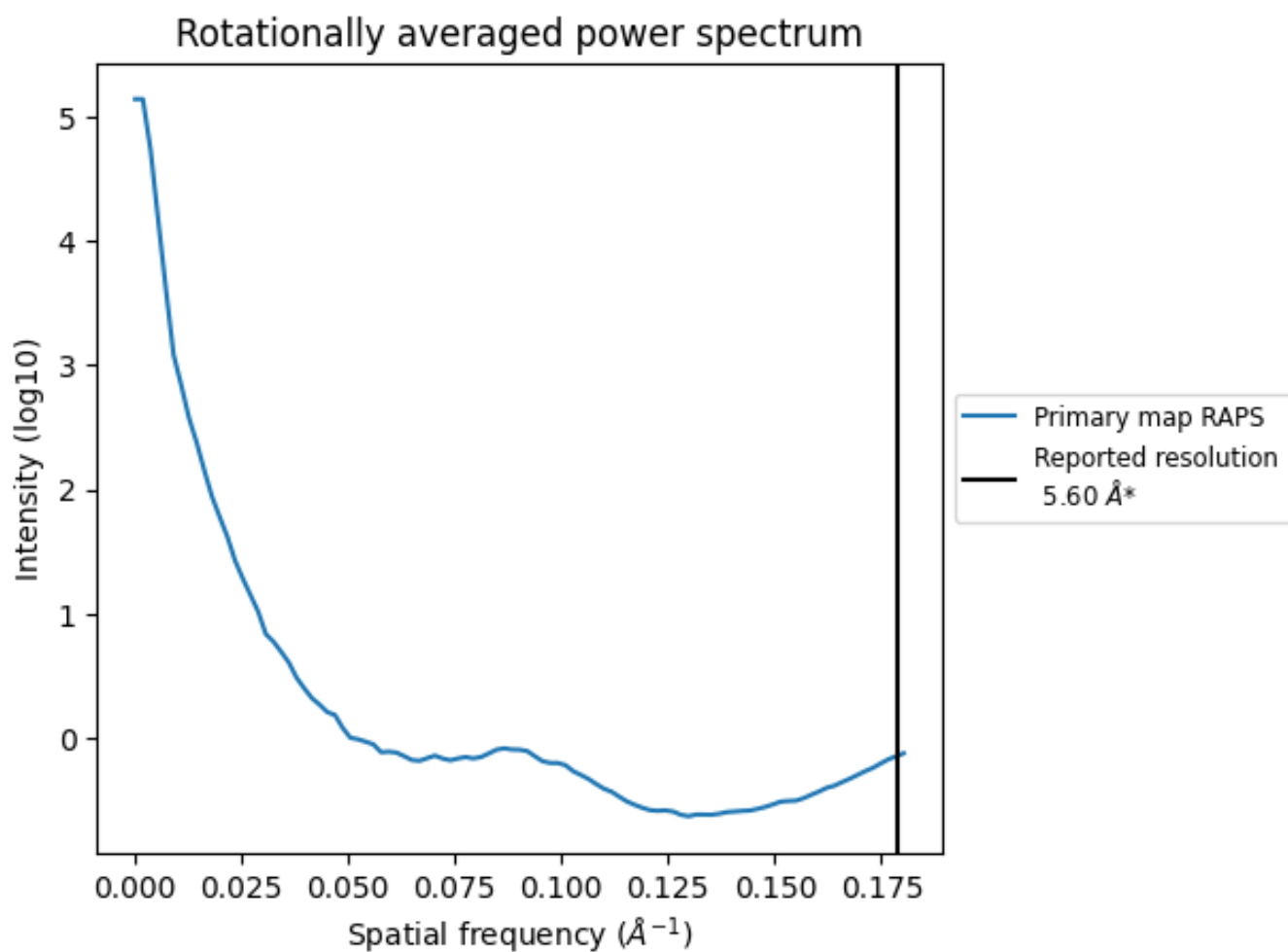
7.2 Volume estimate [i](#)



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

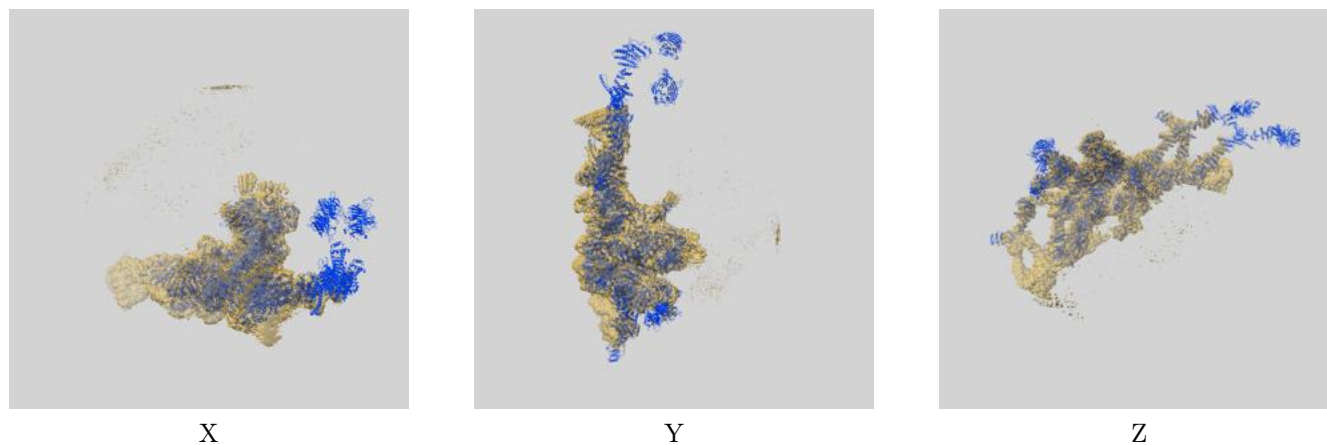
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

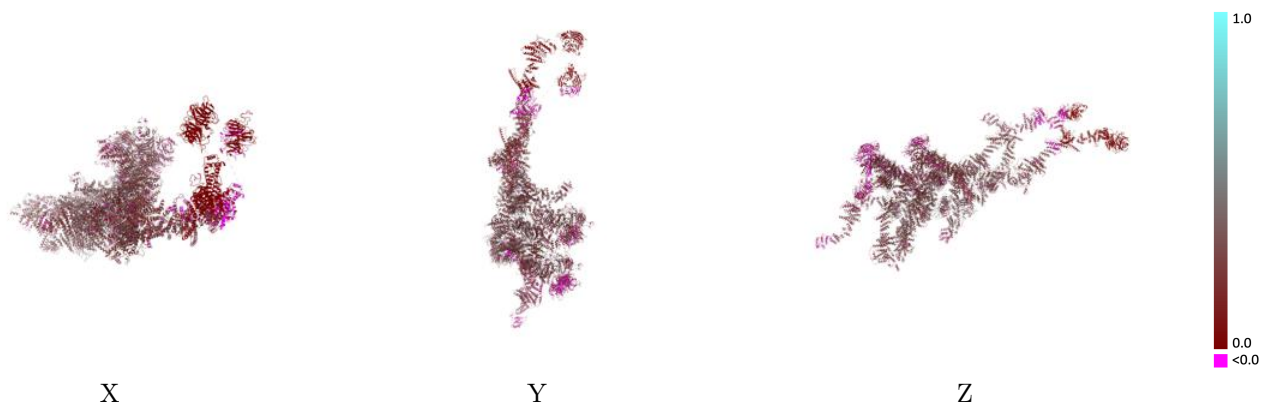
This section contains information regarding the fit between EMDB map EMD-32394 and PDB model 7WB4. Per-residue inclusion information can be found in section [3](#) on page [7](#).

9.1 Map-model overlay [i](#)



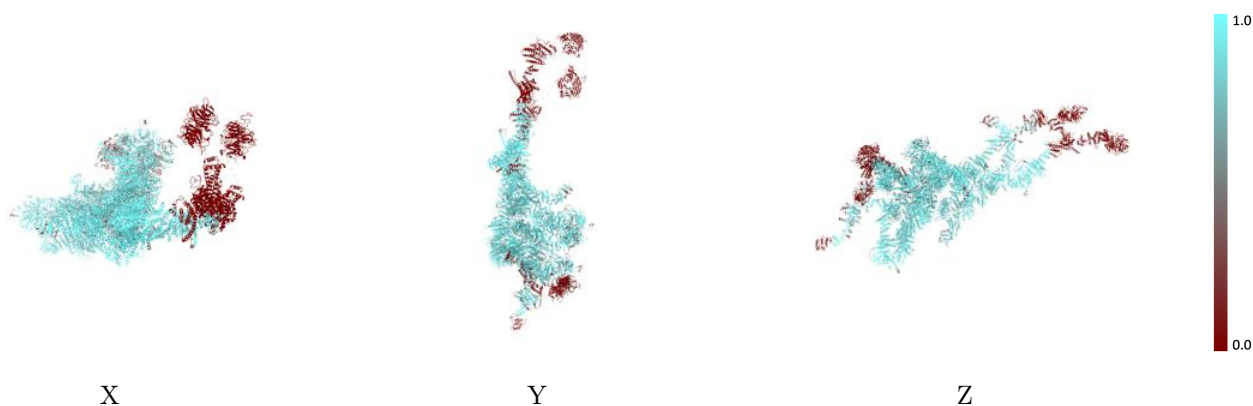
The images above show the 3D surface view of the map at the recommended contour level 0.006 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



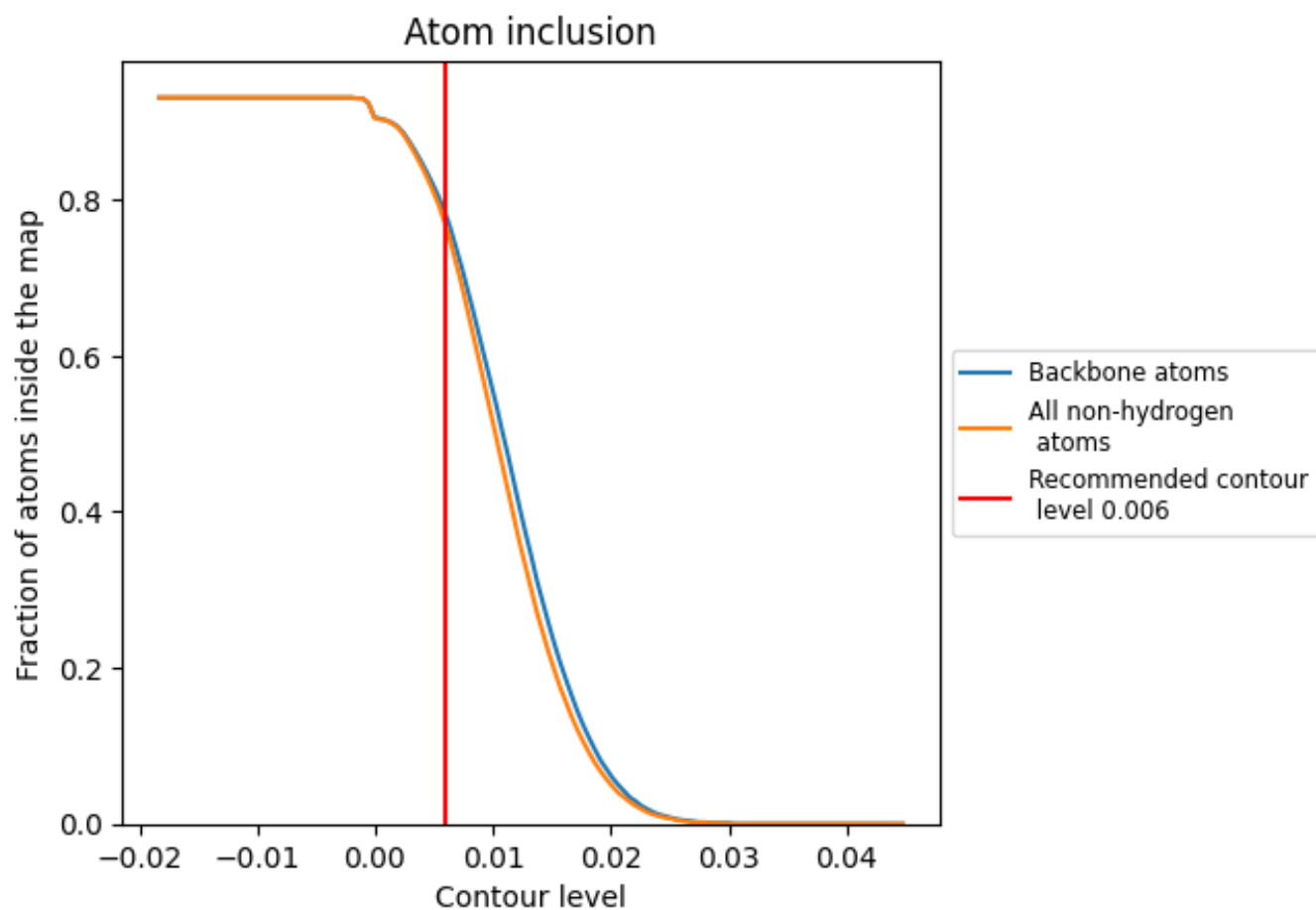
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

