



## wwPDB EM Validation Summary Report ⓘ

Dec 17, 2022 – 01:48 pm GMT

PDB ID : 6Z6M  
EMDB ID : EMD-11099  
Title : Cryo-EM structure of human 80S ribosomes bound to EBP1, eEF2 and SERBP1  
Authors : Wells, J.N.; Buschauer, R.; Mackens-Kiani, T.; Best, K.; Kratzat, H.; Berninghausen, O.; Becker, T.; Cheng, J.; Beckmann, R.  
Deposited on : 2020-05-28  
Resolution : 3.10 Å (reported)  
Based on initial model : 6EK0

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

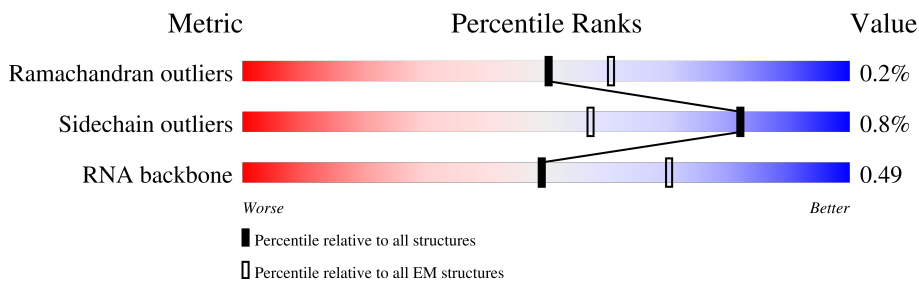
EMDB validation analysis : 0.0.1.dev43  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP)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

# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.10 Å.

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





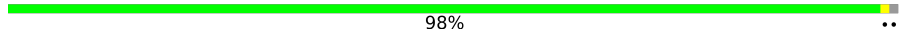
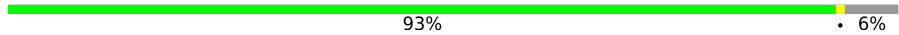
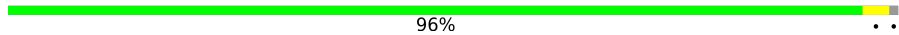
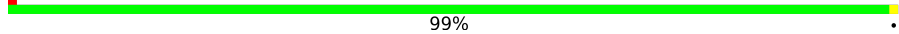

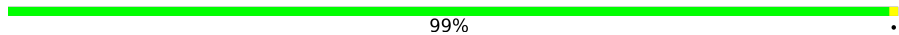
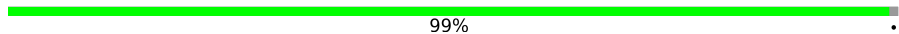

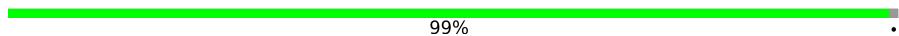
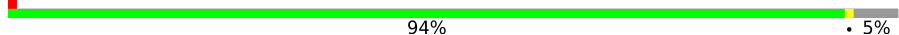



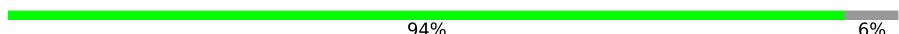


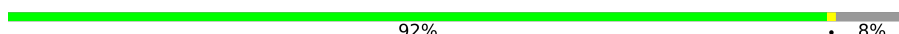
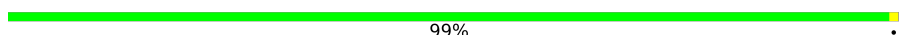
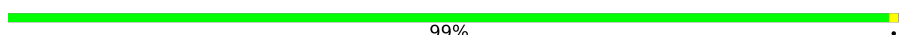




Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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  $\geq 3$ , 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	L5	5070	
2	L7	121	
3	L8	157	
4	LA	257	
5	LB	403	
6	LC	427	
7	LD	297	
8	LE	288	

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Mol	Chain	Length	Quality of chain
9	LF	248	 90% 9%
10	LG	266	 89% 9%
11	LH	192	 98% ..
12	LI	214	 93% 6%
13	LJ	178	 96% ..
14	LL	211	 99% .
15	LM	215	 63% 35%
16	LN	204	 99% .
17	LO	203	 99% .
18	LP	184	 83% 17%
19	LQ	188	 99% .
20	LR	196	 94% 5%
21	LS	176	 99% .
22	LT	160	 98% ..
23	LU	128	 79% 21%
24	LV	140	 94% 6%
25	LW	157	 74% 25%
26	LX	156	 76% 23%
27	LY	145	 92% 8%
28	LZ	136	 99% ..
29	La	148	 99% ..
30	Lb	159	 69% 31%
31	Lc	115	 83% 15%
32	Ld	125	 86% 14%
33	Le	135	 92% 5%

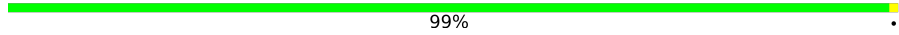
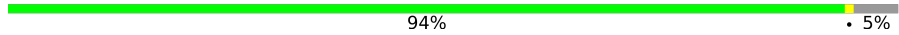
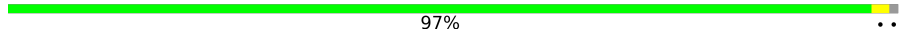

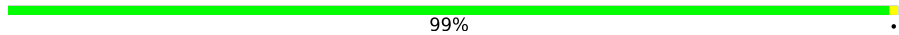
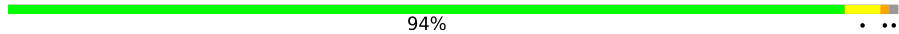

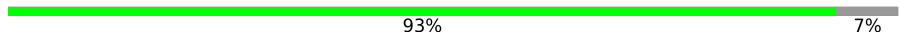
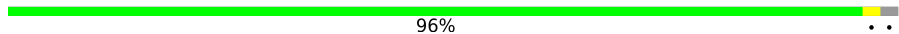
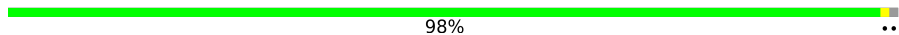

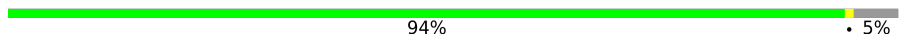




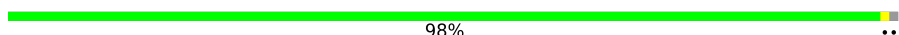
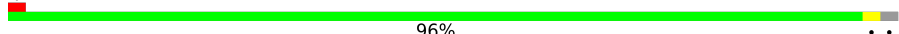

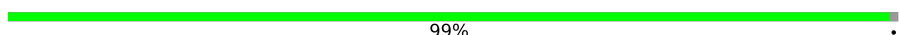
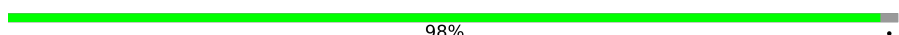


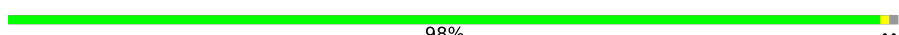

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Mol	Chain	Length	Quality of chain
34	Lf	110	95% 5%
35	Lg	117	97%
36	Lh	123	98%
37	Li	105	97%
38	Lj	97	87% 11%
39	Lk	70	97%
40	Ll	51	98%
41	Lm	128	41% 59%
42	Ln	25	96%
43	Lo	106	98%
44	Lp	92	99%
45	Lr	137	91% 9%
46	Lz	217	13% 96%
47	S2	1869	65% 26% 7%
48	SA	295	75% 25%
49	SB	264	81% 19%
50	SD	243	93% 7%
51	SE	263	99%
52	SF	204	90% 7%
53	SH	194	95%
54	SI	208	98%
55	SK	165	59% 41%
56	SL	158	96%
57	SP	145	82% 17%
58	SQ	146	95%


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Mol	Chain	Length	Quality of chain
59	SR	135	 99%
60	SS	152	 94% 5%
61	ST	145	 97%
62	SU	119	 87% 13%
63	SV	83	 99%
64	SX	143	 94%
65	Sa	115	 86% 11%
66	Sc	69	 93% 7%
67	Sd	56	 96%
68	Sg	317	 98%
69	SC	293	 75% 24%
70	SG	249	 94% 5%
71	SJ	194	 93% 5%
72	SM	132	 91% 8%
73	SN	151	 99%
74	SO	151	 93% 7%
75	SW	130	 98%
76	SY	133	 96%
77	SZ	125	 58% 40%
78	Sb	84	 99%
79	Se	59	 98%
80	Sf	156	 41% 57%
81	CA	394	 89% 10%
82	CB	858	 98%
83	CC	85	 66% 32%

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Mol	Chain	Length	Quality of chain
84	CD	408	 13% 87%

## 2 Entry composition [i](#)

There are 86 unique types of molecules in this entry. The entry contains 228884 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 RNA chain called 28S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	L5	3772	80116	35645	14585	26115	3771	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L5	2113	C	G	conflict	GB 86475748

- Molecule 2 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	L7	120	2561	1141	456	844	120	0	0

- Molecule 3 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	L8	156	3314	1480	585	1094	155	0	0

- Molecule 4 is a protein called 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	LA	248	1898	1189	389	314	6	0	0

- Molecule 5 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	LB	402	3238	2060	608	556	14	0	0

- Molecule 6 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	LC	368	2927	1840	583	489	15	0	0

- Molecule 7 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	LD	293	2382	1507	434	427	14	0	0

- Molecule 8 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	LE	236	1904	1222	361	317	4	0	0

- Molecule 9 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	LF	225	1870	1202	358	301	9	0	0

- Molecule 10 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	LG	241	1927	1228	371	324	4	0	0

- Molecule 11 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	LH	190	1518	956	284	272	6	0	0

- Molecule 12 is a protein called 60S ribosomal protein L10-like.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	LI	202	1634	1037	314	269	14	0	0

- Molecule 13 is a protein called 60S ribosomal protein L11.



Mol	Chain	Residues	Atoms					AltConf	Trace
13	LJ	176	Total	C	N	O	S	0	0
			1410	888	263	253	6		

- Molecule 14 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	LL	210	Total	C	N	O	S	0	0
			1701	1064	352	281	4		

- Molecule 15 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	LM	139	Total	C	N	O	S	0	0
			1138	730	218	183	7		

- Molecule 16 is a protein called 60S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	LN	203	Total	C	N	O	S	0	0
			1701	1072	359	266	4		

- Molecule 17 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	LO	201	Total	C	N	O	S	0	0
			1650	1063	321	261	5		

- Molecule 18 is a protein called 60S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	LP	153	Total	C	N	O	S	0	0
			1242	776	241	216	9		

- Molecule 19 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	LQ	187	Total	C	N	O	S	0	0
			1513	944	314	250	5		

- Molecule 20 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	LR	187	1566	971	336	250	9	0	0

- Molecule 21 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	LS	175	1453	925	283	235	10	0	0

- Molecule 22 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	LT	159	1298	823	252	217	6	0	0

- Molecule 23 is a protein called 60S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	LU	101	825	529	144	150	2	0	0

- Molecule 24 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	LV	131	979	618	184	172	5	0	0

- Molecule 25 is a protein called 60S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	LW	118	965	604	199	158	4	0	0

- Molecule 26 is a protein called 60S ribosomal protein L23a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	LX	120	985	630	185	169	1	0	0

- Molecule 27 is a protein called 60S ribosomal protein L26.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	LY	134	Total	C	N	O	S	0	0
			1115	700	226	186	3		

- Molecule 28 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	LZ	135	Total	C	N	O	S	0	0
			1107	714	208	182	3		

- Molecule 29 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	La	147	Total	C	N	O	S	0	0
			1162	736	237	186	3		

- Molecule 30 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Lb	109	Total	C	N	O	S	0	0
			876	546	189	137	4		

- Molecule 31 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	Lc	98	Total	C	N	O	S	0	0
			764	485	135	138	6		

- Molecule 32 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Ld	107	Total	C	N	O	S	0	0
			888	560	171	155	2		

- Molecule 33 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Le	128	Total	C	N	O	S	0	0
			1053	667	216	165	5		

- Molecule 34 is a protein called 60S ribosomal protein L35a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	Lf	109	876	555	174	144	3	0	0

- Molecule 35 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	Lg	114	906	566	187	147	6	0	0

- Molecule 36 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	Lh	122	1015	641	205	168	1	0	0

- Molecule 37 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	Li	102	832	521	177	129	5	0	0

- Molecule 38 is a protein called 60S ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	Lj	86	705	434	155	111	5	0	0

- Molecule 39 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	Lk	69	569	366	103	99	1	0	0

- Molecule 40 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	Ll	50	444	281	98	64	1	0	0

- Molecule 41 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	Lm	52	Total	C	N	O	S	0	0
			429	266	90	67	6		

- Molecule 42 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	Ln	24	Total	C	N	O	S	0	0
			230	139	62	26	3		

- Molecule 43 is a protein called 60S ribosomal protein L36a.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	Lo	105	Total	C	N	O	S	0	0
			862	542	175	139	6		

- Molecule 44 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	Lp	91	Total	C	N	O	S	0	0
			708	445	136	120	7		

- Molecule 45 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	Lr	125	Total	C	N	O	S	0	0
			1002	622	207	168	5		

- Molecule 46 is a protein called 60S ribosomal protein L10a.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	Lz	217	Total	C	N	O	S	0	0
			1741	1113	312	307	9		

- Molecule 47 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	S2	1740	Total	C	N	O	P	0	0
			36898	16459	6599	12101	1739		

- Molecule 48 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	SA	221	Total	C	N	O	S	0	0
			1741	1106	305	322	8		

- Molecule 49 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	SB	214	Total	C	N	O	S	0	0
			1738	1103	310	311	14		

- Molecule 50 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	SD	227	Total	C	N	O	S	0	0
			1765	1125	317	315	8		

- Molecule 51 is a protein called 40S ribosomal protein S4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	SE	262	Total	C	N	O	S	0	0
			2076	1324	386	358	8		

- Molecule 52 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	SF	189	Total	C	N	O	S	0	0
			1495	934	284	270	7		

- Molecule 53 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	SH	186	Total	C	N	O	S	0	0
			1497	956	274	266	1		

- Molecule 54 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	SI	206	Total	C	N	O	S	0	0
			1686	1058	332	291	5		

- Molecule 55 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
55	SK	98	827	539	148	134	6	0	0

- Molecule 56 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
56	SL	153	1247	793	234	214	6	0	0

- Molecule 57 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
57	SP	121	985	623	185	170	7	0	0

- Molecule 58 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
58	SQ	144	1142	726	216	197	3	0	0

- Molecule 59 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
59	SR	135	1090	685	202	198	5	0	0

- Molecule 60 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
60	SS	145	1198	751	242	203	2	0	0

- Molecule 61 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
61	ST	143	1112	697	214	198	3	0	0

- Molecule 62 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
62	SU	104	821	514	155	148	4	0	0

- Molecule 63 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
63	SV	83	636	393	117	121	5	0	0

- Molecule 64 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
64	SX	141	1098	693	219	183	3	0	0

- Molecule 65 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
65	Sa	102	821	512	171	133	5	0	0

- Molecule 66 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
66	Sc	64	506	308	102	94	2	0	0

- Molecule 67 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
67	Sd	55	459	286	94	74	5	0	0

- Molecule 68 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
68	Sg	313	2436	1535	424	465	12	0	0

- Molecule 69 is a protein called 40S ribosomal protein S2.



Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
69	SC	222	1725	1115	298	302	10	0	0

- Molecule 70 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
70	SG	237	1923	1200	387	329	7	0	0

- Molecule 71 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
71	SJ	185	1525	969	306	248	2	0	0

- Molecule 72 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
72	SM	122	940	590	164	177	9	0	0

- Molecule 73 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
73	SN	150	1208	773	229	205	1	0	0

- Molecule 74 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
74	SO	140	1049	642	204	197	6	0	0

- Molecule 75 is a protein called 40S ribosomal protein S15a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
75	SW	129	1034	659	193	176	6	0	0

- Molecule 76 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	SY	131	Total	C	N	O	S	0	0
			1065	673	209	178	5		

- Molecule 77 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	SZ	75	Total	C	N	O	S	0	0
			598	382	111	104	1		

- Molecule 78 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	Sb	83	Total	C	N	O	S	0	0
			651	408	121	115	7		

- Molecule 79 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	Se	58	Total	C	N	O	S	0	0
			459	284	100	74	1		

- Molecule 80 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	Sf	67	Total	C	N	O	S	0	0
			548	346	102	93	7		

- Molecule 81 is a protein called Proliferation-associated protein 2G4.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	CA	354	Total	C	N	O	S	4	0
			2764	1744	475	528	17		

- Molecule 82 is a protein called Elongation factor 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
82	CB	846	Total	C	N	O	S	0	0
			6605	4193	1136	1232	44		

- Molecule 83 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
83	CC	85	1813	808	322	598	85	0	0

- Molecule 84 is a protein called Plasminogen activator inhibitor 1 RNA-binding protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
84	CD	55	440	263	87	90	0	0

- Molecule 85 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
85	L5	211	Total	Mg	0
			211	211	
85	L7	3	Total	Mg	0
			3	3	
85	L8	5	Total	Mg	0
			5	5	
85	LA	1	Total	Mg	0
			1	1	
85	LI	1	Total	Mg	0
			1	1	
85	LP	1	Total	Mg	0
			1	1	
85	LT	1	Total	Mg	0
			1	1	
85	LV	1	Total	Mg	0
			1	1	
85	Le	1	Total	Mg	0
			1	1	
85	Lg	1	Total	Mg	0
			1	1	
85	S2	29	Total	Mg	0
			29	29	
85	CC	1	Total	Mg	0
			1	1	

- Molecule 86 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
86	Lg	1	Total	Zn	0
			1	1	

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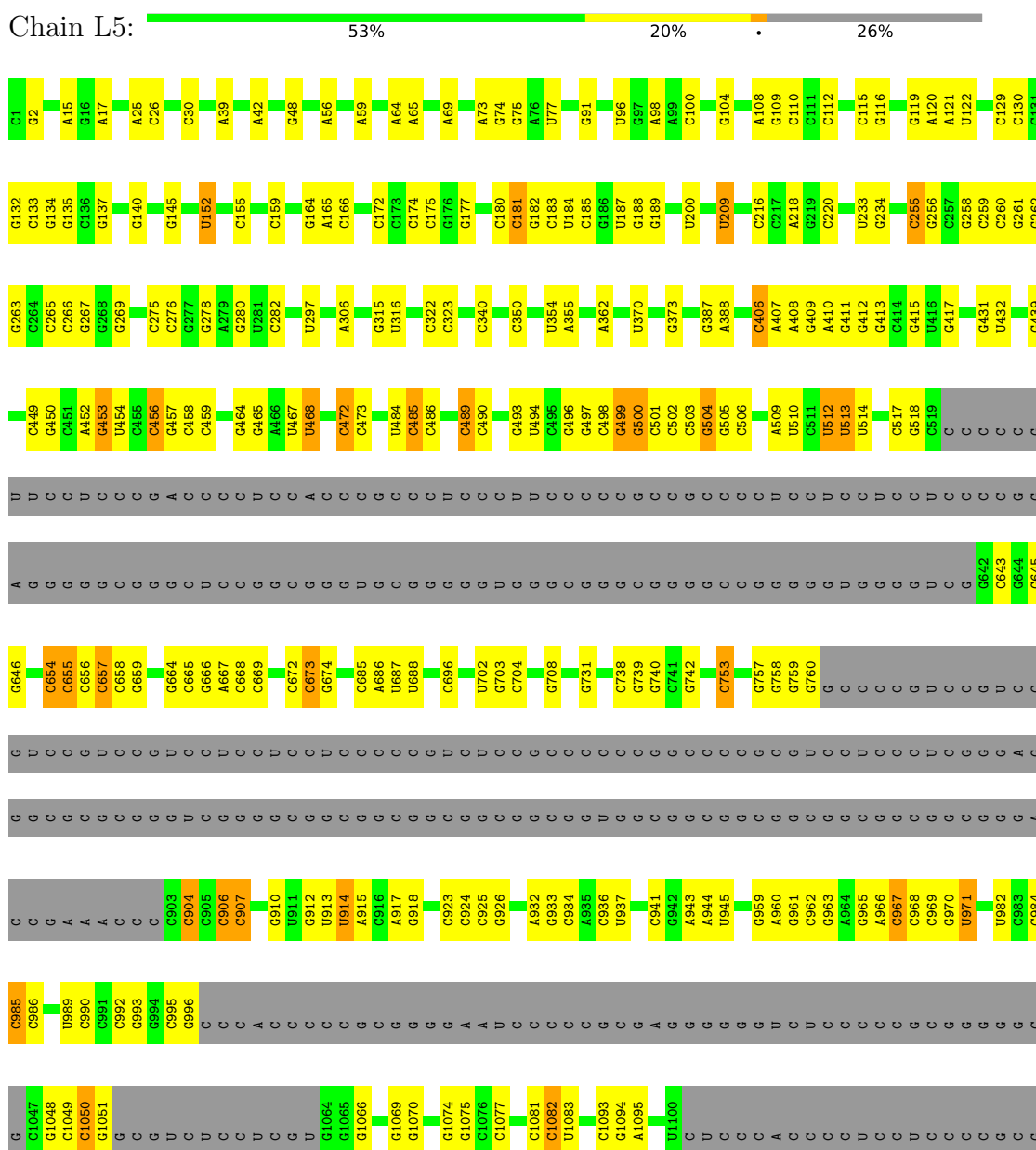
*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>AltConf</b>
86	Lj	1	Total 1	Zn 1	0
86	Lm	1	Total 1	Zn 1	0
86	Lo	1	Total 1	Zn 1	0
86	Lp	1	Total 1	Zn 1	0
86	Sa	1	Total 1	Zn 1	0
86	Sd	1	Total 1	Zn 1	0
86	SM	1	Total 1	Zn 1	0

### 3 Residue-property plots [i](#)

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

- Molecule 1: 28S rRNA







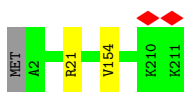






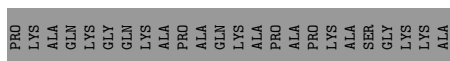
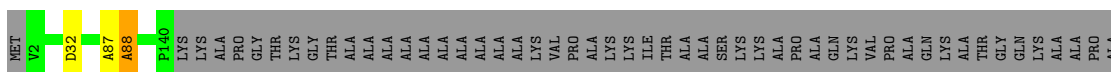
- Molecule 14: 60S ribosomal protein L13

Chain LL:  99%



- Molecule 15: 60S ribosomal protein L14

Chain LM:  63% 35%



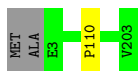
- Molecule 16: 60S ribosomal protein L15

Chain LN:  99%




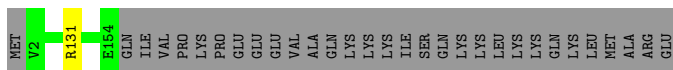
- Molecule 17: 60S ribosomal protein L13a

Chain LO:  99%



- Molecule 18: 60S ribosomal protein L17

Chain LP:  83% 17%



- Molecule 19: 60S ribosomal protein L18

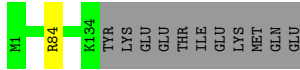
Chain LQ:  99%



- Molecule 20: 60S ribosomal protein L19

Chain LR:  94% 5%





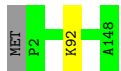
- Molecule 28: 60S ribosomal protein L27

Chain LZ: 99%



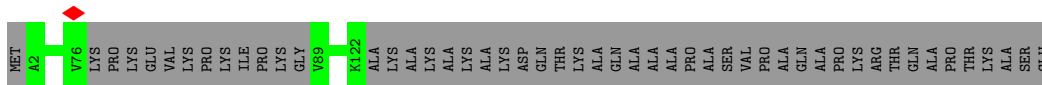
- Molecule 29: 60S ribosomal protein L27a

Chain La: 99%



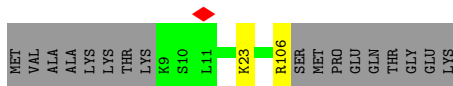
- Molecule 30: 60S ribosomal protein L29

Chain Lb: 69%



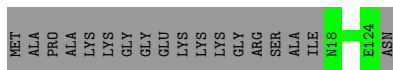
- Molecule 31: 60S ribosomal protein L30

Chain Lc: 83%



- Molecule 32: 60S ribosomal protein L31

Chain Ld: 86%



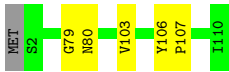
- Molecule 33: 60S ribosomal protein L32

Chain Le: 92%



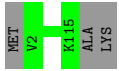
- Molecule 34: 60S ribosomal protein L35a

Chain Lf: 95%



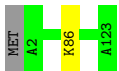
- Molecule 35: 60S ribosomal protein L34

Chain Lg: 97%



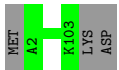
- Molecule 36: 60S ribosomal protein L35

Chain Lh: 98%



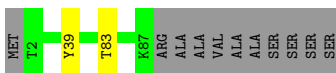
- Molecule 37: 60S ribosomal protein L36

Chain Li: 97%



- Molecule 38: 60S ribosomal protein L37

Chain Lj: 87% 11%



- Molecule 39: 60S ribosomal protein L38

Chain Lk: 97%



- Molecule 40: 60S ribosomal protein L39

Chain Ll: 98%



- Molecule 41: Ubiquitin-60S ribosomal protein L40

Chain Lm: 41% 59%

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

ILE GLN LYS SER THR LEU HIS VAL LEU ARG ILE ARG GLY I77 K128

- Molecule 42: 60S ribosomal protein L41



M1 S24 LYS

- Molecule 43: 60S ribosomal protein L36a



MET V2 K27 I104 Q105 F106

- Molecule 44: 60S ribosomal protein L37a



MET A2 Q92

- Molecule 45: 60S ribosomal protein L28



MET S2 V126 LYS ARG THR LYS ARG ARG ARG ARG THR LYS SER SER

- Molecule 46: 60S ribosomal protein L10a

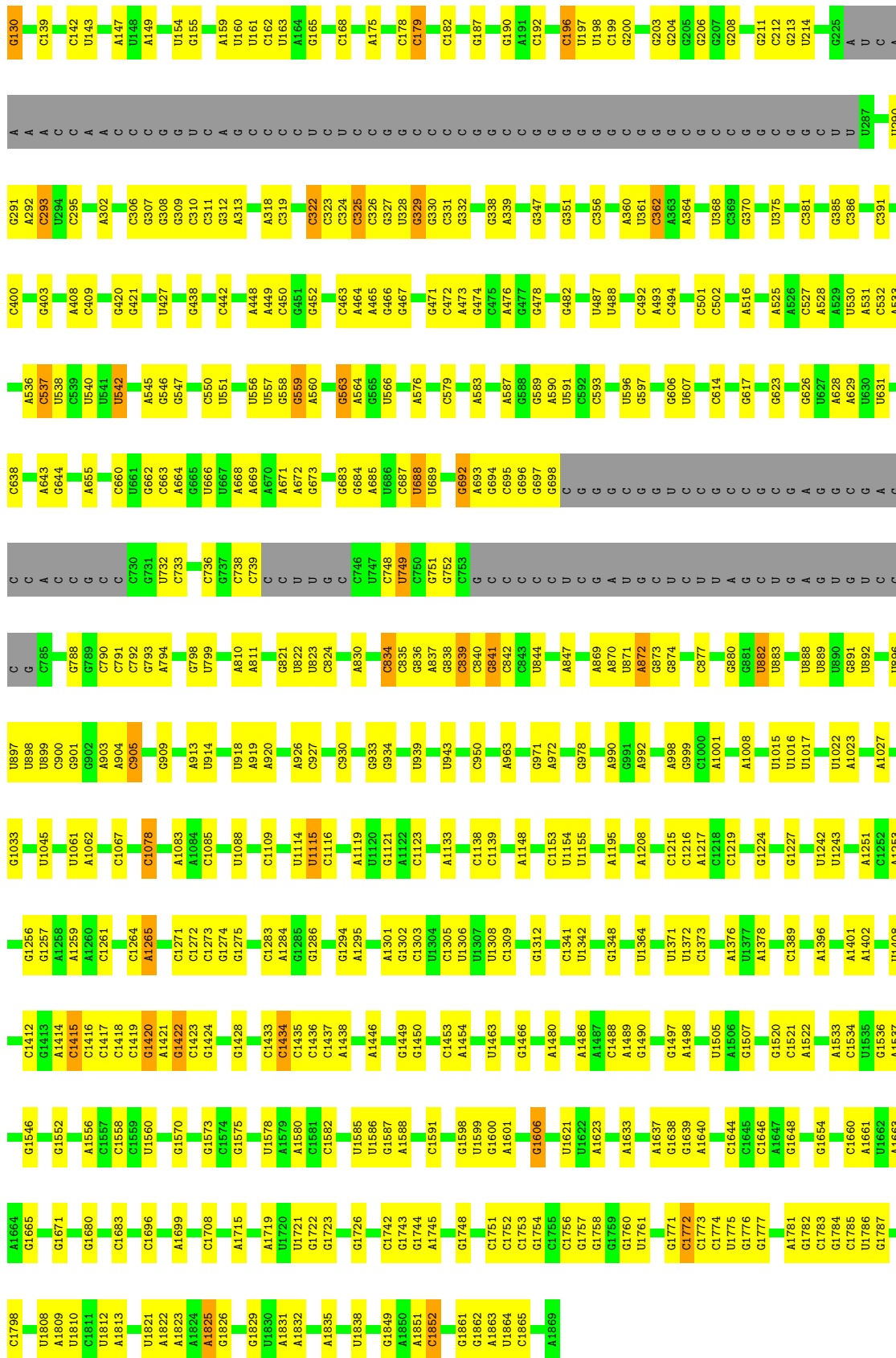


M1 V5 S6 R7 D8 T9 L10 Y11 R15 L18 F49 D75 A79 M85 K92 K98 L99 V100 K101 R122 S136 L137 L138 T139 H140 V145 A146 K147 V148 K161 D177 Y181 M182 I183 M188 F189 L190 V191 S192 L193 L194 K195 Y217


- Molecule 47: 18S rRNA

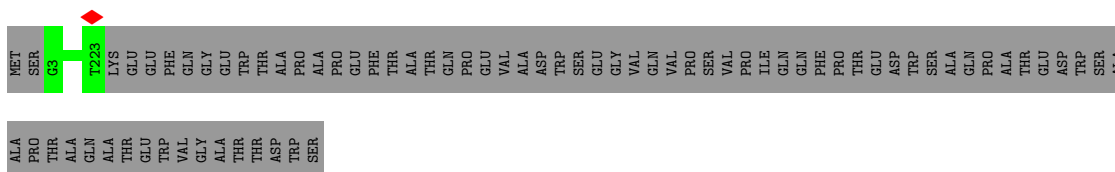


H1 C13 C14 C17 A25 G33 C37 A38 A39 A40 G41 A42 A43 U44 A45 A46 C49 G56 U57 C58 G62 U63 A64 C67 A68 C72 C73 G74 G75 U76 A79 A83 A92 A103 U112 G113 G114 U115 U116 C117 C118 G126 C129




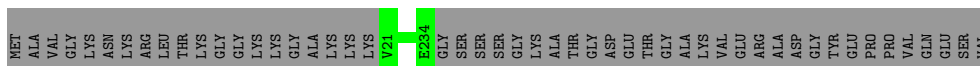
- Molecule 48: 40S ribosomal protein SA

Chain SA:  75% 25%



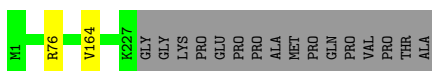
- Molecule 49: 40S ribosomal protein S3a

Chain SB:  81% 19%



- Molecule 50: 40S ribosomal protein S3

Chain SD:  93% 7%



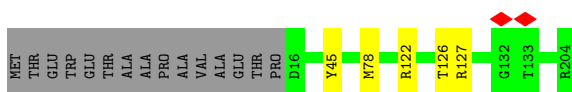
- Molecule 51: 40S ribosomal protein S4, X isoform

Chain SE:  99%



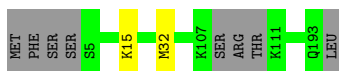
- Molecule 52: 40S ribosomal protein S5

Chain SF:  90% 7%



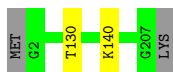
- Molecule 53: 40S ribosomal protein S7

Chain SH:  95%



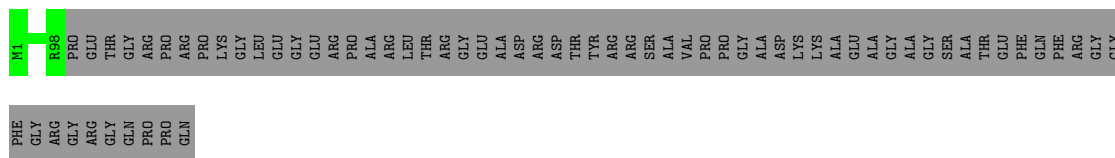
- Molecule 54: 40S ribosomal protein S8

Chain SI:  98%

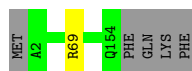




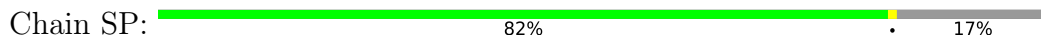
- Molecule 55: 40S ribosomal protein S10



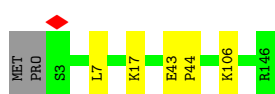
- Molecule 56: 40S ribosomal protein S11



- Molecule 57: 40S ribosomal protein S15



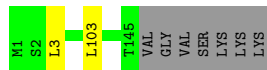
- Molecule 58: 40S ribosomal protein S16



- Molecule 59: 40S ribosomal protein S17

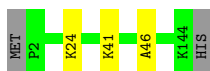


- Molecule 60: 40S ribosomal protein S18

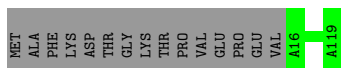
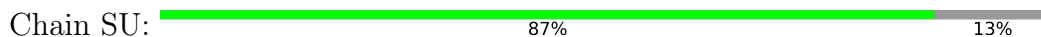


- Molecule 61: 40S ribosomal protein S19





- Molecule 62: 40S ribosomal protein S20



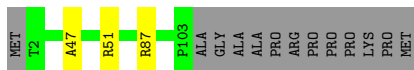
- Molecule 63: 40S ribosomal protein S21



- Molecule 64: 40S ribosomal protein S23



- Molecule 65: 40S ribosomal protein S26



- Molecule 66: 40S ribosomal protein S28

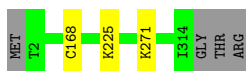


- Molecule 67: 40S ribosomal protein S29

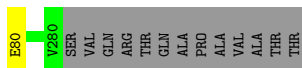
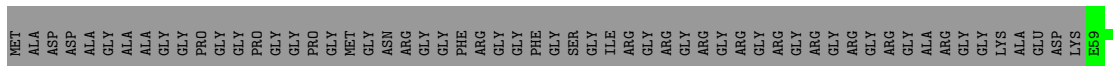
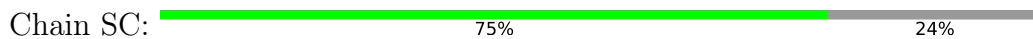


- Molecule 68: Receptor of activated protein C kinase 1

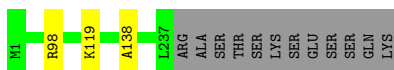




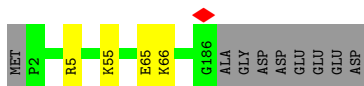
- Molecule 69: 40S ribosomal protein S2



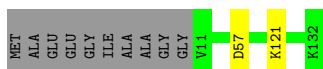
- Molecule 70: 40S ribosomal protein S6



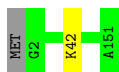
- Molecule 71: 40S ribosomal protein S9



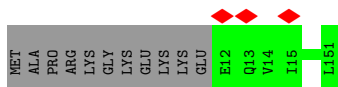
- Molecule 72: 40S ribosomal protein S12



- Molecule 73: 40S ribosomal protein S13



- Molecule 74: 40S ribosomal protein S14



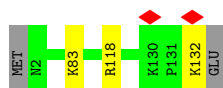
- Molecule 75: 40S ribosomal protein S15a

Chain SW:  98%



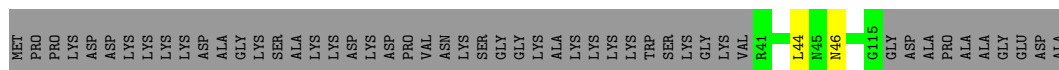
- Molecule 76: 40S ribosomal protein S24

Chain SY:  96%



- Molecule 77: 40S ribosomal protein S25

Chain SZ:  58%



- Molecule 78: 40S ribosomal protein S27

Chain Sb:  99%



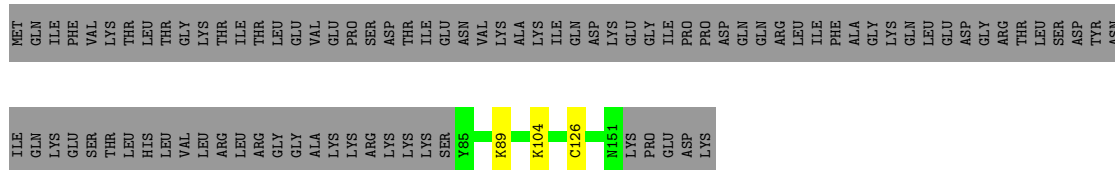
- Molecule 79: 40S ribosomal protein S30

Chain Se:  98%



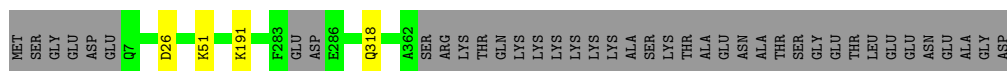
- Molecule 80: Ubiquitin-40S ribosomal protein S27a

Chain Sf:  41%

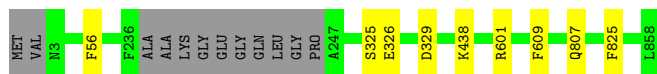


- Molecule 81: Proliferation-associated protein 2G4

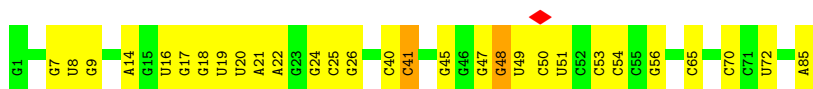
Chain CA:  89%



• Molecule 82: Elongation factor 2



• Molecule 83: tRNA



• Molecule 84: Plasminogen activator inhibitor 1 RNA-binding protein



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	72367	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	28	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.229	Depositor
Minimum map value	-0.083	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.011	Depositor
Recommended contour level	0.005	Depositor
Map size (Å)	424.4, 424.4, 424.4	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.061, 1.061, 1.061	Depositor

## 5 Model quality i

### 5.1 Standard geometry i

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

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	L5	1.13	9/89570 (0.0%)	1.10	469/139647 (0.3%)
2	L7	1.09	0/2861	0.96	3/4459 (0.1%)
3	L8	1.12	0/3701	0.97	4/5766 (0.1%)
4	LA	0.58	0/1936	0.65	2/2596 (0.1%)
5	LB	0.53	0/3306	0.59	1/4424 (0.0%)
6	LC	0.52	0/2981	0.56	0/4002
7	LD	0.47	0/2428	0.53	0/3252
8	LE	0.42	0/1942	0.56	0/2606
9	LF	0.57	0/1905	0.55	0/2539
10	LG	0.44	0/1960	0.54	0/2637
11	LH	0.49	0/1537	0.57	0/2066
12	LI	0.52	0/1673	0.55	0/2233
13	LJ	0.40	0/1433	0.59	0/1915
14	LL	0.45	0/1732	0.54	0/2315
15	LM	0.48	0/1161	0.56	1/1554 (0.1%)
16	LN	0.58	0/1746	0.57	1/2338 (0.0%)
17	LO	0.55	0/1682	0.51	0/2250
18	LP	0.53	0/1268	0.53	0/1701
19	LQ	0.54	0/1537	0.56	0/2052
20	LR	0.44	0/1582	0.53	0/2091
21	LS	0.55	0/1493	0.51	0/2003
22	LT	0.54	0/1326	0.56	0/1770
23	LU	0.42	0/839	0.59	0/1126
24	LV	0.56	0/993	0.61	0/1332
25	LW	0.46	0/979	0.53	0/1295
26	LX	0.48	0/1002	0.52	0/1345
27	LY	0.49	0/1132	0.53	0/1504
28	LZ	0.47	0/1130	0.54	0/1507
29	La	0.54	0/1191	0.56	0/1591
30	Lb	0.41	0/889	0.56	0/1175
31	Lc	0.49	0/774	0.53	0/1038
32	Ld	0.52	0/903	0.54	0/1216

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
33	Le	0.57	1/1071 (0.1%)	0.56	0/1429
34	Lf	0.58	0/895	0.58	0/1198
35	Lg	0.52	0/916	0.57	0/1220
36	Lh	0.43	0/1023	0.51	0/1351
37	Li	0.41	0/843	0.50	0/1115
38	Lj	0.58	0/720	0.58	0/952
39	Lk	0.42	0/575	0.55	0/761
40	Ll	0.51	0/454	0.53	0/599
41	Lm	0.51	0/435	0.53	0/575
42	Ln	0.41	0/231	0.46	0/294
43	Lo	0.53	0/876	0.56	0/1156
44	Lp	0.54	0/718	0.54	0/953
45	Lr	0.50	0/1017	0.53	0/1364
46	Lz	0.29	0/1769	0.63	1/2371 (0.0%)
47	S2	0.79	5/41244 (0.0%)	1.08	215/64263 (0.3%)
48	SA	0.40	0/1778	0.57	0/2416
49	SB	0.37	0/1765	0.55	0/2362
50	SD	0.38	0/1793	0.60	0/2414
51	SE	0.36	0/2118	0.55	0/2849
52	SF	0.32	0/1516	0.55	0/2037
53	SH	0.34	0/1519	0.58	0/2033
54	SI	0.36	0/1715	0.56	0/2287
55	SK	0.37	0/851	0.52	0/1147
56	SL	0.42	0/1268	0.53	0/1696
57	SP	0.35	0/1003	0.58	0/1342
58	SQ	0.35	0/1160	0.60	1/1553 (0.1%)
59	SR	0.33	0/1105	0.57	0/1484
60	SS	0.31	0/1216	0.53	1/1628 (0.1%)
61	ST	0.29	0/1131	0.49	0/1515
62	SU	0.31	0/831	0.55	0/1115
63	SV	0.40	0/643	0.58	0/860
64	SX	0.46	0/1116	0.57	1/1490 (0.1%)
65	Sa	0.41	0/836	0.55	0/1121
66	Sc	0.31	0/508	0.67	0/680
67	Sd	0.42	0/470	0.52	0/623
68	Sg	0.31	0/2493	0.59	0/3394
69	SC	0.44	0/1762	0.60	0/2381
70	SG	0.31	0/1946	0.53	0/2590
71	SJ	0.39	0/1550	0.57	1/2069 (0.0%)
72	SM	0.28	0/950	0.58	1/1275 (0.1%)
73	SN	0.38	0/1232	0.50	0/1656
74	SO	0.34	0/1062	0.56	0/1425
75	SW	0.40	0/1051	0.52	0/1406



Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
76	SY	0.35	0/1083	0.54	0/1438
77	SZ	0.30	0/604	0.64	1/810 (0.1%)
78	Sb	0.35	0/665	0.54	0/891
79	Se	0.34	0/465	0.55	0/612
80	Sf	0.31	0/560	0.60	0/745
81	CA	0.33	0/2810	0.63	1/3780 (0.0%)
82	CB	0.38	0/6734	0.59	0/9094
83	CC	0.52	0/2025	1.18	17/3155 (0.5%)
84	CD	0.33	0/447	0.53	0/592
All	All	0.83	15/245160 (0.0%)	0.92	721/358911 (0.2%)

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
1	L5	0	1
4	LA	0	3
5	LB	0	2
11	LH	0	2
12	LI	0	1
13	LJ	0	1
14	LL	0	1
15	LM	0	2
17	LO	0	1
18	LP	0	1
22	LT	0	1
28	LZ	0	1
33	Le	0	1
34	Lf	0	3
36	Lh	0	1
38	Lj	0	1
46	Lz	0	1
50	SD	0	1
52	SF	0	2
53	SH	0	1
57	SP	0	1
58	SQ	0	2
61	ST	0	1
63	SV	0	1
64	SX	0	3

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Mol	Chain	#Chirality outliers	#Planarity outliers
70	SG	0	1
77	SZ	0	1
82	CB	0	2
All	All	0	40

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
47	S2	403	G	C2-N3	-7.18	1.27	1.32
47	S2	403	G	N3-C4	-7.10	1.30	1.35
1	L5	2465	C	N1-C6	-6.08	1.33	1.37
1	L5	1173	G	N9-C4	-6.05	1.33	1.38
47	S2	926	A	C6-N1	-5.99	1.31	1.35

The worst 5 of 721 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
47	S2	1417	C	N3-C4-N4	-23.44	101.59	118.00
47	S2	1422	G	N1-C6-O6	-19.19	108.39	119.90
47	S2	1417	C	C5-C4-N4	17.57	132.50	120.20
47	S2	403	G	N3-C2-N2	-17.31	107.78	119.90
47	S2	1422	G	C5-C6-O6	16.30	138.38	128.60

There are no chirality outliers.

5 of 40 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	L5	3948	C	Sidechain
4	LA	110	GLY	Peptide
4	LA	13	GLY	Peptide
4	LA	54	ARG	Peptide
5	LB	17	LEU	Peptide

## 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

### 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	
4	LA	246/257 (96%)	221 (90%)	24 (10%)	1 (0%)	34	69
5	LB	400/403 (99%)	371 (93%)	27 (7%)	2 (0%)	29	64
6	LC	366/427 (86%)	335 (92%)	31 (8%)	0	100	100
7	LD	291/297 (98%)	266 (91%)	25 (9%)	0	100	100
8	LE	232/288 (81%)	210 (90%)	21 (9%)	1 (0%)	34	69
9	LF	223/248 (90%)	210 (94%)	13 (6%)	0	100	100
10	LG	239/266 (90%)	218 (91%)	21 (9%)	0	100	100
11	LH	188/192 (98%)	171 (91%)	17 (9%)	0	100	100
12	LI	198/214 (92%)	181 (91%)	17 (9%)	0	100	100
13	LJ	174/178 (98%)	155 (89%)	18 (10%)	1 (1%)	25	59
14	LL	208/211 (99%)	190 (91%)	18 (9%)	0	100	100
15	LM	137/215 (64%)	124 (90%)	12 (9%)	1 (1%)	22	57
16	LN	201/204 (98%)	185 (92%)	15 (8%)	1 (0%)	29	64
17	LO	199/203 (98%)	188 (94%)	11 (6%)	0	100	100
18	LP	151/184 (82%)	140 (93%)	11 (7%)	0	100	100
19	LQ	185/188 (98%)	177 (96%)	8 (4%)	0	100	100
20	LR	185/196 (94%)	180 (97%)	5 (3%)	0	100	100
21	LS	173/176 (98%)	161 (93%)	12 (7%)	0	100	100
22	LT	157/160 (98%)	143 (91%)	14 (9%)	0	100	100
23	LU	99/128 (77%)	83 (84%)	16 (16%)	0	100	100
24	LV	129/140 (92%)	119 (92%)	10 (8%)	0	100	100
25	LW	114/157 (73%)	108 (95%)	6 (5%)	0	100	100
26	LX	118/156 (76%)	110 (93%)	8 (7%)	0	100	100
27	LY	132/145 (91%)	121 (92%)	11 (8%)	0	100	100
28	LZ	133/136 (98%)	119 (90%)	14 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
29	La	145/148 (98%)	137 (94%)	8 (6%)	0	100	100
30	Lb	105/159 (66%)	96 (91%)	9 (9%)	0	100	100
31	Lc	96/115 (84%)	90 (94%)	6 (6%)	0	100	100
32	Ld	105/125 (84%)	96 (91%)	9 (9%)	0	100	100
33	Le	126/135 (93%)	119 (94%)	6 (5%)	1 (1%)	19	54
34	Lf	107/110 (97%)	98 (92%)	7 (6%)	2 (2%)	8	33
35	Lg	112/117 (96%)	109 (97%)	3 (3%)	0	100	100
36	Lh	120/123 (98%)	116 (97%)	4 (3%)	0	100	100
37	Li	100/105 (95%)	95 (95%)	5 (5%)	0	100	100
38	Lj	84/97 (87%)	76 (90%)	8 (10%)	0	100	100
39	Lk	67/70 (96%)	64 (96%)	3 (4%)	0	100	100
40	Ll	48/51 (94%)	46 (96%)	2 (4%)	0	100	100
41	Lm	50/128 (39%)	49 (98%)	1 (2%)	0	100	100
42	Ln	22/25 (88%)	22 (100%)	0	0	100	100
43	Lo	103/106 (97%)	97 (94%)	6 (6%)	0	100	100
44	Lp	89/92 (97%)	85 (96%)	4 (4%)	0	100	100
45	Lr	123/137 (90%)	117 (95%)	6 (5%)	0	100	100
46	Lz	215/217 (99%)	159 (74%)	55 (26%)	1 (0%)	29	64
48	SA	219/295 (74%)	196 (90%)	23 (10%)	0	100	100
49	SB	212/264 (80%)	201 (95%)	11 (5%)	0	100	100
50	SD	225/243 (93%)	204 (91%)	21 (9%)	0	100	100
51	SE	260/263 (99%)	238 (92%)	22 (8%)	0	100	100
52	SF	187/204 (92%)	162 (87%)	25 (13%)	0	100	100
53	SH	182/194 (94%)	155 (85%)	27 (15%)	0	100	100
54	SI	204/208 (98%)	194 (95%)	10 (5%)	0	100	100
55	SK	96/165 (58%)	83 (86%)	13 (14%)	0	100	100
56	SL	151/158 (96%)	141 (93%)	10 (7%)	0	100	100
57	SP	119/145 (82%)	108 (91%)	11 (9%)	0	100	100
58	SQ	142/146 (97%)	125 (88%)	16 (11%)	1 (1%)	22	57
59	SR	133/135 (98%)	121 (91%)	12 (9%)	0	100	100
60	SS	143/152 (94%)	127 (89%)	16 (11%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
61	ST	141/145 (97%)	127 (90%)	13 (9%)	1 (1%)	22	57
62	SU	102/119 (86%)	90 (88%)	12 (12%)	0	100	100
63	SV	81/83 (98%)	74 (91%)	7 (9%)	0	100	100
64	SX	139/143 (97%)	125 (90%)	11 (8%)	3 (2%)	6	29
65	Sa	100/115 (87%)	90 (90%)	9 (9%)	1 (1%)	15	49
66	Sc	62/69 (90%)	48 (77%)	14 (23%)	0	100	100
67	Sd	53/56 (95%)	50 (94%)	2 (4%)	1 (2%)	8	33
68	Sg	311/317 (98%)	265 (85%)	46 (15%)	0	100	100
69	SC	220/293 (75%)	204 (93%)	16 (7%)	0	100	100
70	SG	235/249 (94%)	220 (94%)	15 (6%)	0	100	100
71	SJ	183/194 (94%)	168 (92%)	15 (8%)	0	100	100
72	SM	120/132 (91%)	109 (91%)	11 (9%)	0	100	100
73	SN	148/151 (98%)	140 (95%)	8 (5%)	0	100	100
74	SO	138/151 (91%)	129 (94%)	9 (6%)	0	100	100
75	SW	127/130 (98%)	119 (94%)	8 (6%)	0	100	100
76	SY	129/133 (97%)	120 (93%)	9 (7%)	0	100	100
77	SZ	73/125 (58%)	61 (84%)	12 (16%)	0	100	100
78	Sb	81/84 (96%)	69 (85%)	12 (15%)	0	100	100
79	Se	56/59 (95%)	47 (84%)	9 (16%)	0	100	100
80	Sf	65/156 (42%)	49 (75%)	16 (25%)	0	100	100
81	CA	350/394 (89%)	335 (96%)	15 (4%)	0	100	100
82	CB	842/858 (98%)	780 (93%)	59 (7%)	3 (0%)	34	69
84	CD	51/408 (12%)	47 (92%)	4 (8%)	0	100	100
All	All	12775/14565 (88%)	11678 (91%)	1076 (8%)	21 (0%)	50	79

5 of 21 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
16	LN	124	ASP
64	SX	127	ASN
65	Sa	47	ALA
82	CB	56	PHE
82	CB	326	GLU

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	LA	190/199 (96%)	189 (100%)	1 (0%)	88	94
5	LB	348/349 (100%)	347 (100%)	1 (0%)	92	96
6	LC	306/348 (88%)	301 (98%)	5 (2%)	62	84
7	LD	246/250 (98%)	244 (99%)	2 (1%)	81	92
8	LE	209/252 (83%)	207 (99%)	2 (1%)	76	90
9	LF	194/215 (90%)	193 (100%)	1 (0%)	88	94
10	LG	203/223 (91%)	199 (98%)	4 (2%)	55	80
11	LH	169/171 (99%)	169 (100%)	0	100	100
12	LI	172/181 (95%)	170 (99%)	2 (1%)	71	88
13	LJ	148/149 (99%)	145 (98%)	3 (2%)	55	80
14	LL	176/177 (99%)	175 (99%)	1 (1%)	86	94
15	LM	118/161 (73%)	118 (100%)	0	100	100
16	LN	171/172 (99%)	171 (100%)	0	100	100
17	LO	173/174 (99%)	173 (100%)	0	100	100
18	LP	134/163 (82%)	134 (100%)	0	100	100
19	LQ	164/165 (99%)	164 (100%)	0	100	100
20	LR	166/175 (95%)	164 (99%)	2 (1%)	71	88
21	LS	156/157 (99%)	156 (100%)	0	100	100
22	LT	139/140 (99%)	138 (99%)	1 (1%)	84	93
23	LU	91/115 (79%)	91 (100%)	0	100	100
24	LV	101/107 (94%)	101 (100%)	0	100	100
25	LW	97/126 (77%)	95 (98%)	2 (2%)	53	79
26	LX	108/133 (81%)	107 (99%)	1 (1%)	78	91
27	LY	124/135 (92%)	123 (99%)	1 (1%)	81	92
28	LZ	117/118 (99%)	117 (100%)	0	100	100
29	La	120/121 (99%)	119 (99%)	1 (1%)	81	92

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
30	Lb	88/126 (70%)	88 (100%)	0	100	100
31	Lc	83/97 (86%)	81 (98%)	2 (2%)	49	76
32	Ld	98/110 (89%)	98 (100%)	0	100	100
33	Le	114/121 (94%)	113 (99%)	1 (1%)	78	91
34	Lf	88/89 (99%)	88 (100%)	0	100	100
35	Lg	98/100 (98%)	98 (100%)	0	100	100
36	Lh	109/110 (99%)	109 (100%)	0	100	100
37	Li	86/89 (97%)	86 (100%)	0	100	100
38	Lj	73/80 (91%)	72 (99%)	1 (1%)	67	86
39	Lk	64/65 (98%)	63 (98%)	1 (2%)	62	84
40	Ll	47/48 (98%)	47 (100%)	0	100	100
41	Lm	48/116 (41%)	48 (100%)	0	100	100
42	Ln	23/24 (96%)	23 (100%)	0	100	100
43	Lo	93/94 (99%)	92 (99%)	1 (1%)	73	89
44	Lp	74/75 (99%)	74 (100%)	0	100	100
45	Lr	109/121 (90%)	109 (100%)	0	100	100
46	Lz	195/196 (100%)	190 (97%)	5 (3%)	46	74
48	SA	183/243 (75%)	183 (100%)	0	100	100
49	SB	195/231 (84%)	195 (100%)	0	100	100
50	SD	190/202 (94%)	189 (100%)	1 (0%)	88	94
51	SE	224/225 (100%)	223 (100%)	1 (0%)	91	96
52	SF	159/170 (94%)	156 (98%)	3 (2%)	57	81
53	SH	166/174 (95%)	165 (99%)	1 (1%)	86	94
54	SI	178/180 (99%)	176 (99%)	2 (1%)	73	89
55	SK	89/136 (65%)	89 (100%)	0	100	100
56	SL	137/142 (96%)	136 (99%)	1 (1%)	84	93
57	SP	107/130 (82%)	106 (99%)	1 (1%)	78	91
58	SQ	119/121 (98%)	118 (99%)	1 (1%)	81	92
59	SR	122/122 (100%)	120 (98%)	2 (2%)	62	84
60	SS	126/132 (96%)	125 (99%)	1 (1%)	81	92
61	ST	113/115 (98%)	112 (99%)	1 (1%)	78	91

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
62	SU	94/107 (88%)	94 (100%)	0	100	100
63	SV	67/67 (100%)	67 (100%)	0	100	100
64	SX	113/115 (98%)	112 (99%)	1 (1%)	78	91
65	Sa	89/98 (91%)	87 (98%)	2 (2%)	52	78
66	Sc	57/62 (92%)	57 (100%)	0	100	100
67	Sd	48/49 (98%)	48 (100%)	0	100	100
68	Sg	272/275 (99%)	269 (99%)	3 (1%)	73	89
69	SC	188/225 (84%)	187 (100%)	1 (0%)	88	94
70	SG	207/218 (95%)	205 (99%)	2 (1%)	76	90
71	SJ	161/168 (96%)	158 (98%)	3 (2%)	57	81
72	SM	102/108 (94%)	101 (99%)	1 (1%)	76	90
73	SN	130/131 (99%)	129 (99%)	1 (1%)	81	92
74	SO	110/119 (92%)	110 (100%)	0	100	100
75	SW	112/113 (99%)	111 (99%)	1 (1%)	78	91
76	SY	113/115 (98%)	110 (97%)	3 (3%)	44	74
77	SZ	66/103 (64%)	66 (100%)	0	100	100
78	Sb	75/76 (99%)	75 (100%)	0	100	100
79	Se	47/48 (98%)	47 (100%)	0	100	100
80	Sf	60/140 (43%)	57 (95%)	3 (5%)	24	57
81	CA	303/336 (90%)	300 (99%)	3 (1%)	76	90
82	CB	722/730 (99%)	718 (99%)	4 (1%)	86	94
84	CD	46/328 (14%)	46 (100%)	0	100	100
All	All	11120/12391 (90%)	11036 (99%)	84 (1%)	82	92

5 of 84 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
65	Sa	51	ARG
76	SY	83	LYS
68	Sg	168	CYS
71	SJ	5	ARG
80	Sf	104	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 137 such sidechains are listed below:



Mol	Chain	Res	Type
75	SW	90	GLN
79	Se	58	ASN
82	CB	270	ASN
27	LY	61	HIS
26	LX	125	ASN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	L5	3705/5070 (73%)	971 (26%)	17 (0%)
2	L7	119/121 (98%)	16 (13%)	0
3	L8	155/157 (98%)	29 (18%)	0
47	S2	1717/1869 (91%)	460 (26%)	7 (0%)
83	CC	84/85 (98%)	23 (27%)	2 (2%)
All	All	5780/7302 (79%)	1499 (25%)	26 (0%)

5 of 1499 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	L5	2	G
1	L5	15	A
1	L5	17	A
1	L5	25	A
1	L5	26	C

5 of 26 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	L5	3673	C
47	S2	112	U
83	CC	18	G
1	L5	4913	G
47	S2	291	G

## 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](#)

Of 264 ligands modelled in this entry, 264 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

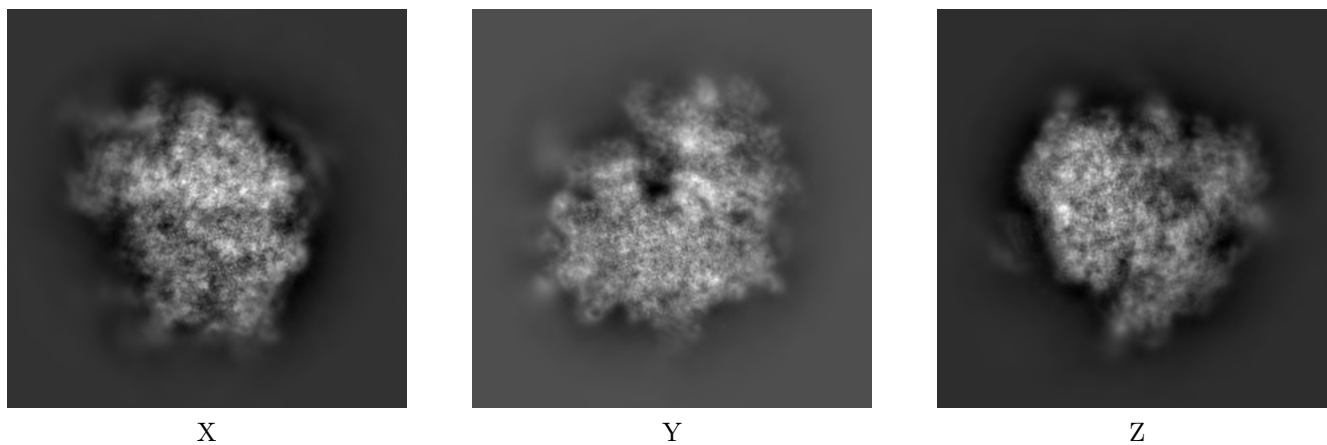
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-11099. 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](#)

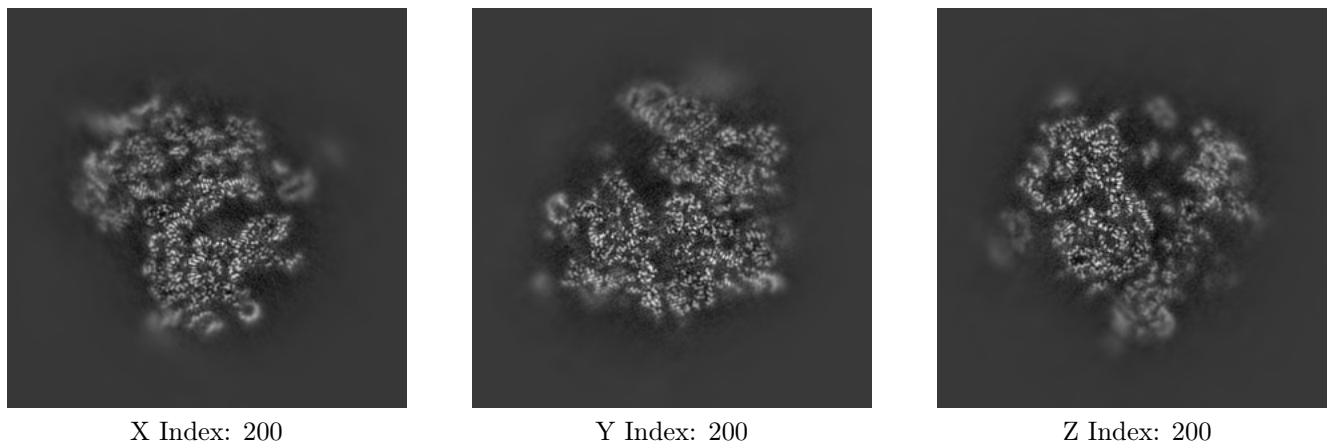
#### 6.1.1 Primary map



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

### 6.2 Central slices [i](#)

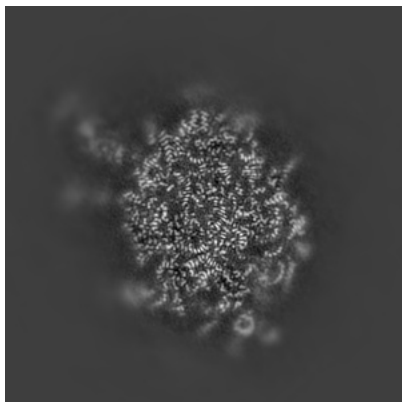
#### 6.2.1 Primary map



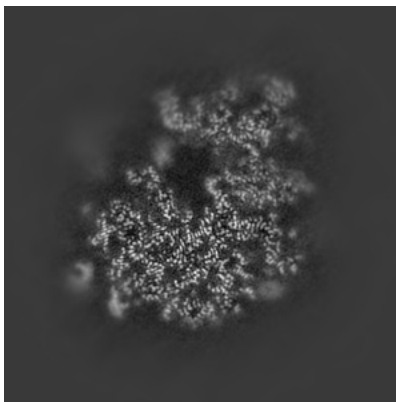
The images above show central slices of the map in three orthogonal directions.

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

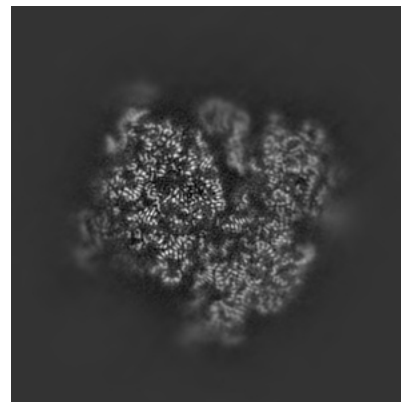
### 6.3.1 Primary map



X Index: 172



Y Index: 216

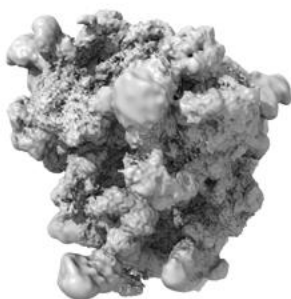


Z Index: 219

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

## 6.4 Orthogonal surface views [i](#)

### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.005. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

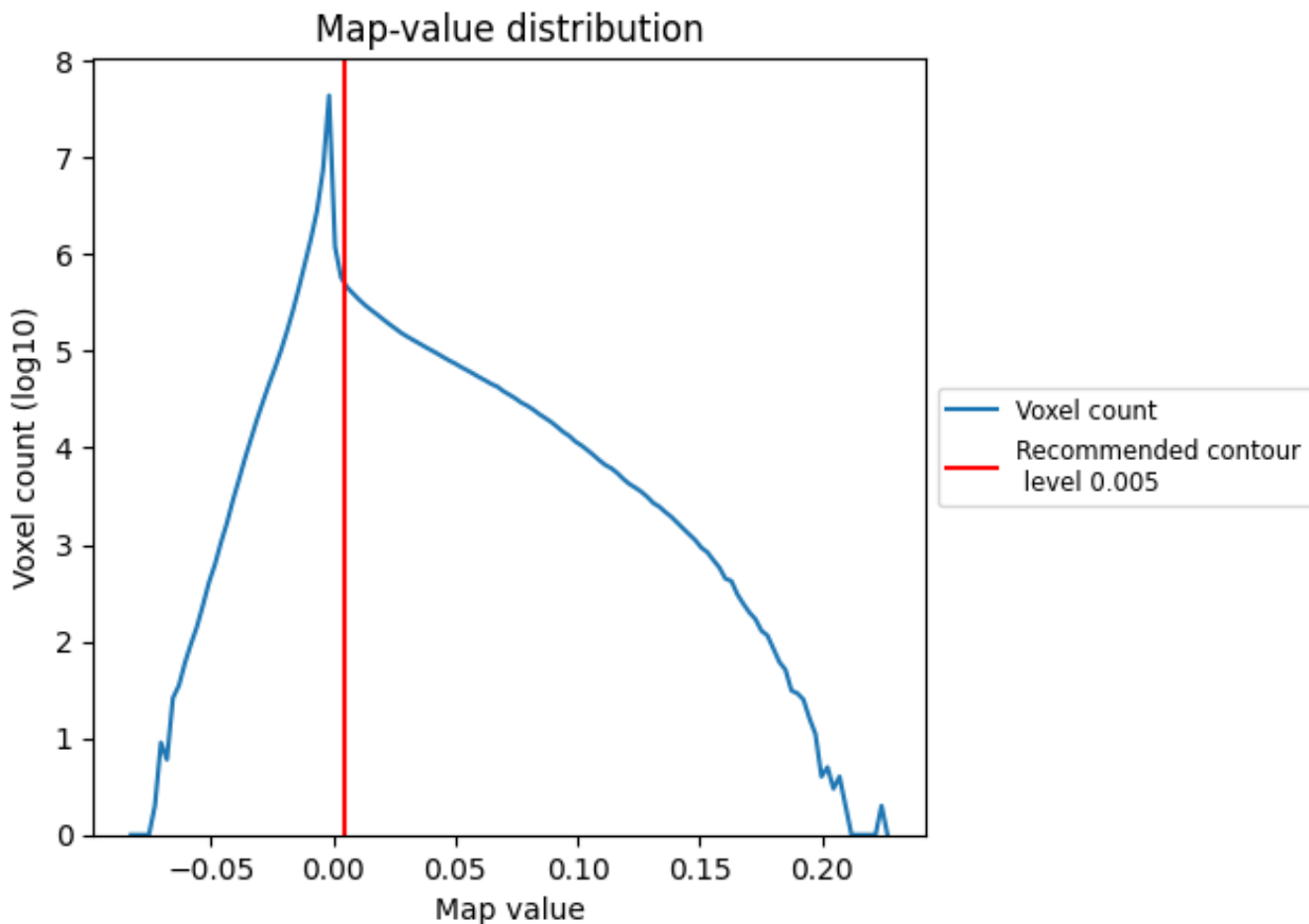
## 6.5 Mask visualisation

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

## 7 Map analysis [i](#)

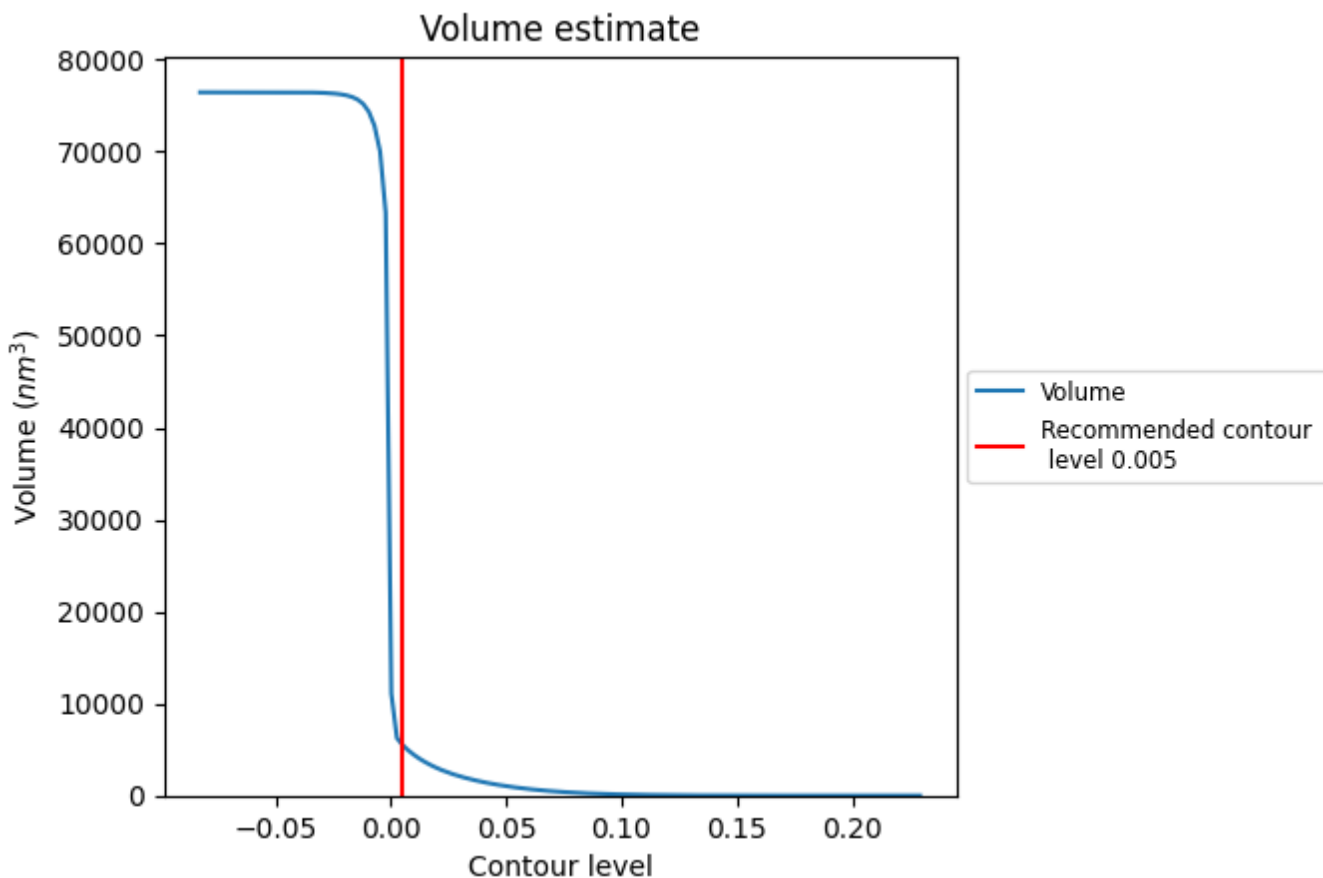
This section contains the results of statistical analysis of the map.

### 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.

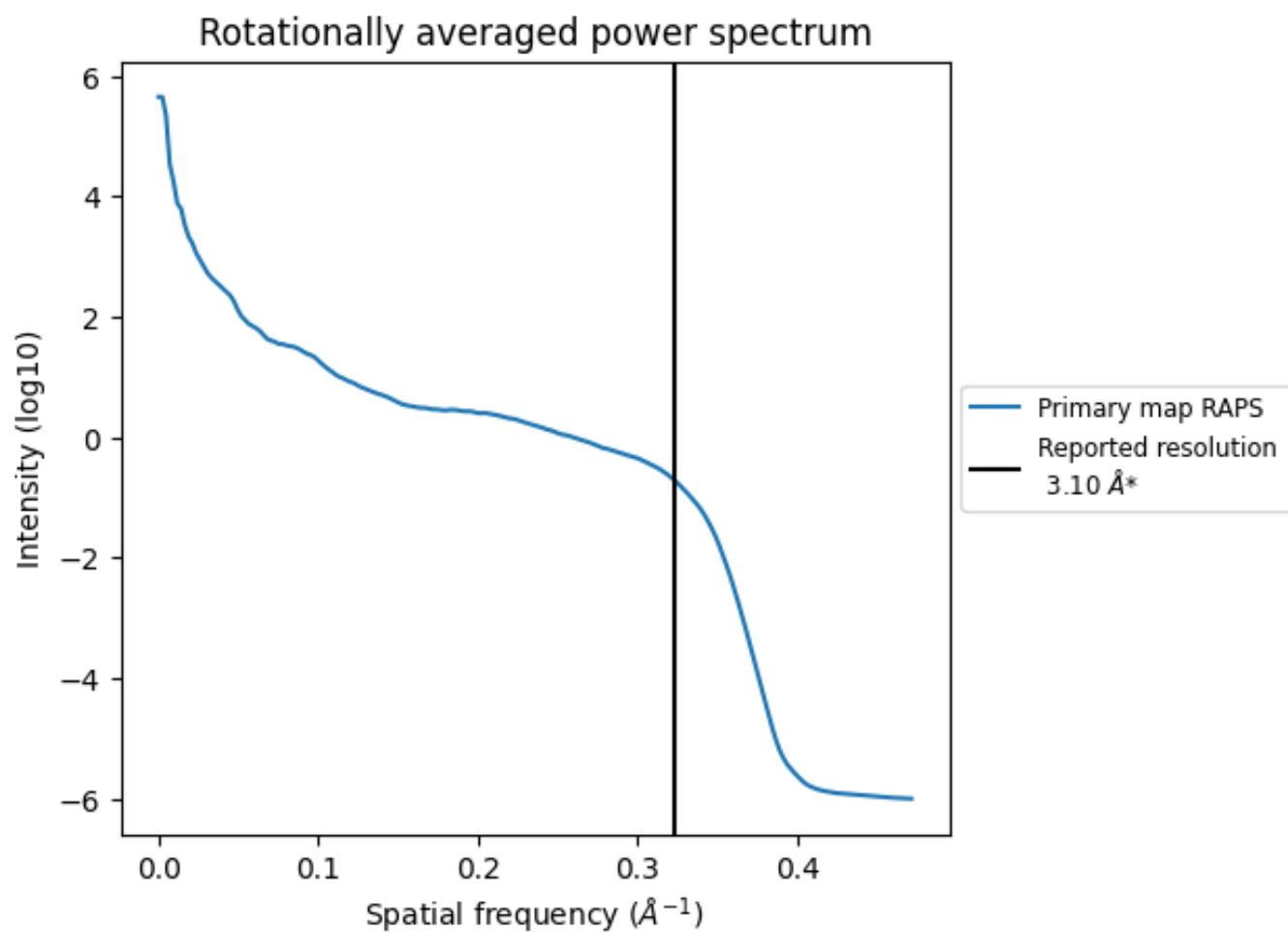
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 5515 nm<sup>3</sup>; this corresponds to an approximate mass of 4981 kDa.

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

### 7.3 Rotationally averaged power spectrum i



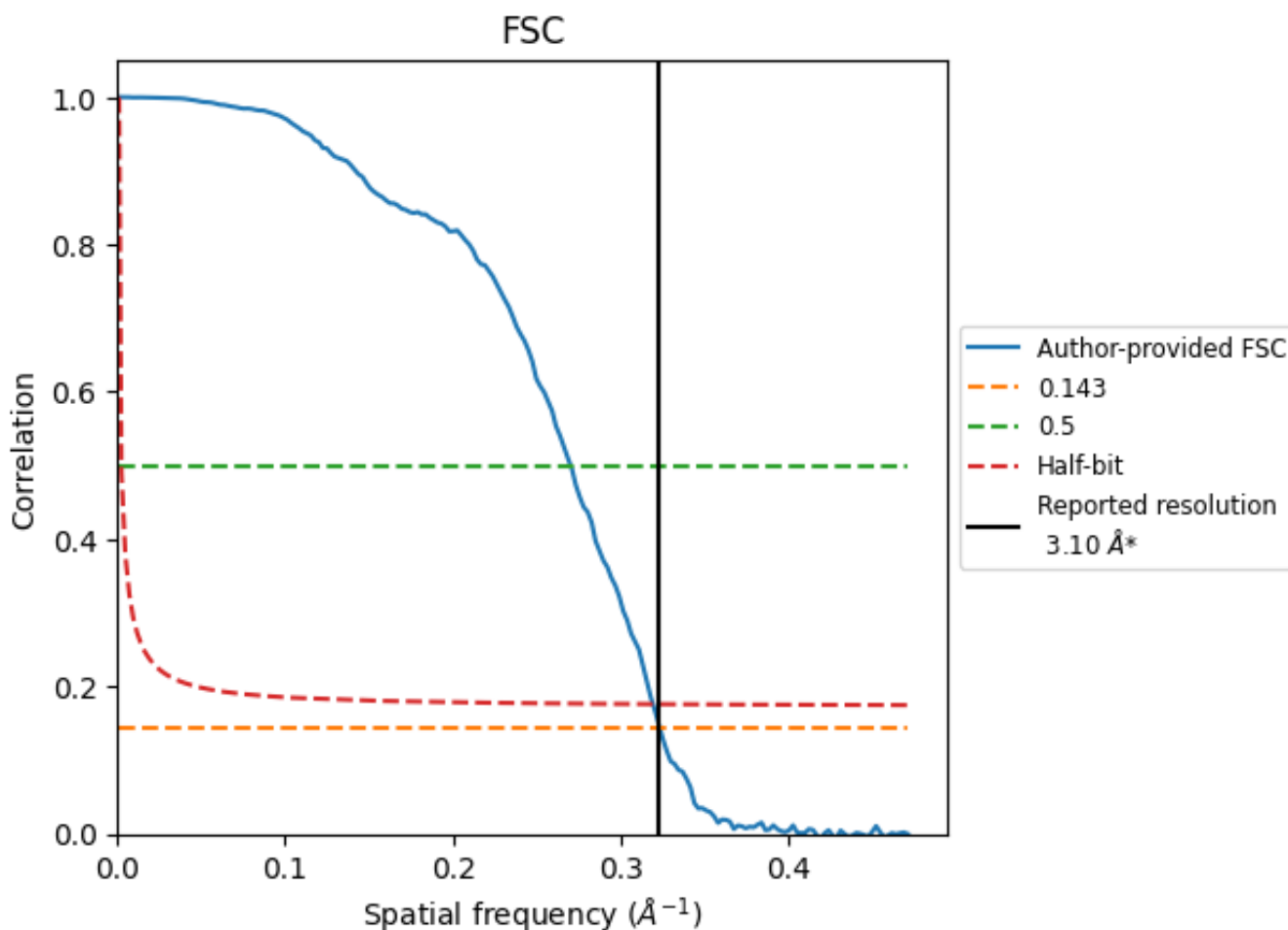
\*Reported resolution corresponds to spatial frequency of 0.323 Å<sup>-1</sup>



## 8 Fourier-Shell correlation [i](#)

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.323 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

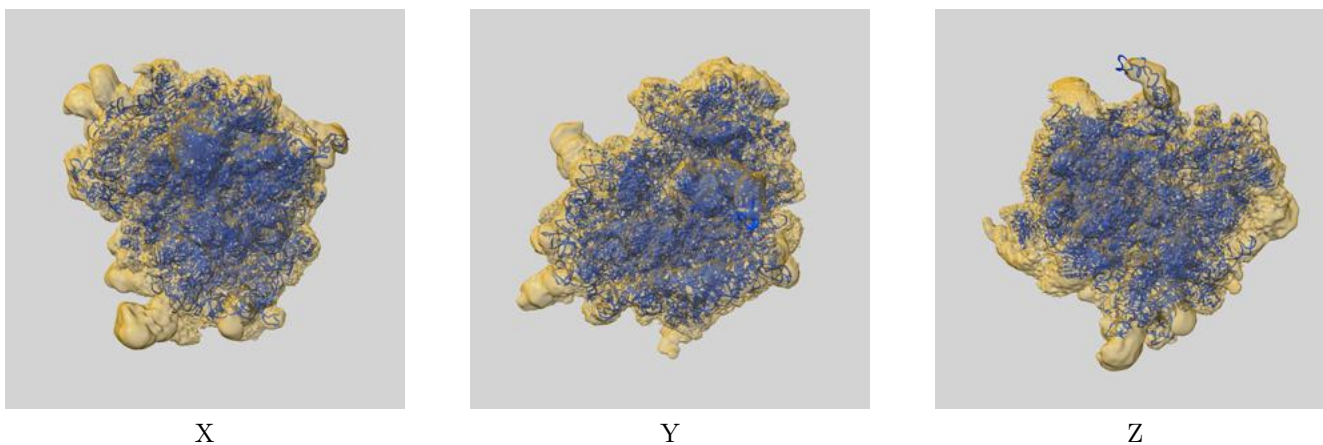
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	3.09	3.70	3.13
Unmasked-calculated*	-	-	-

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

## 9 Map-model fit [i](#)

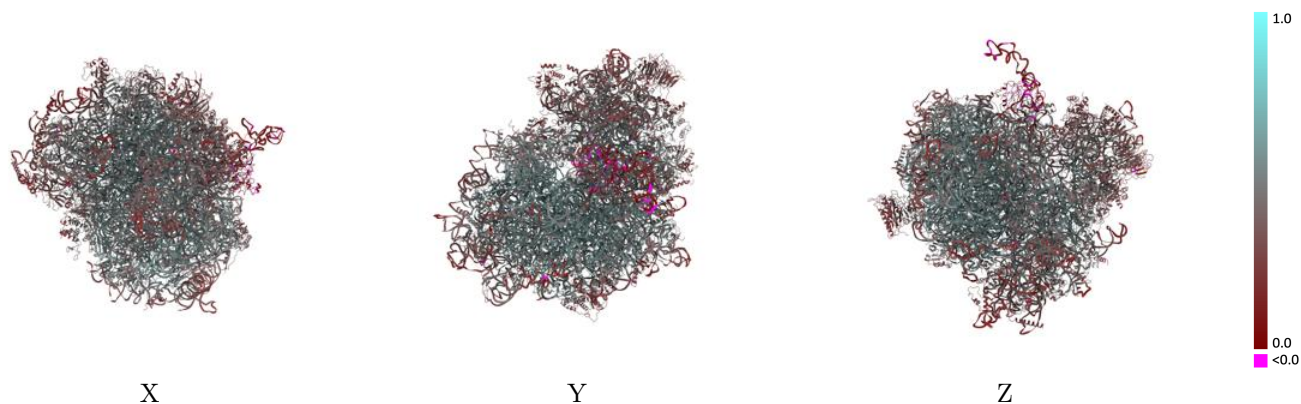
This section contains information regarding the fit between EMDB map EMD-11099 and PDB model 6Z6M. Per-residue inclusion information can be found in section 3 on page 21.

### 9.1 Map-model overlay [i](#)



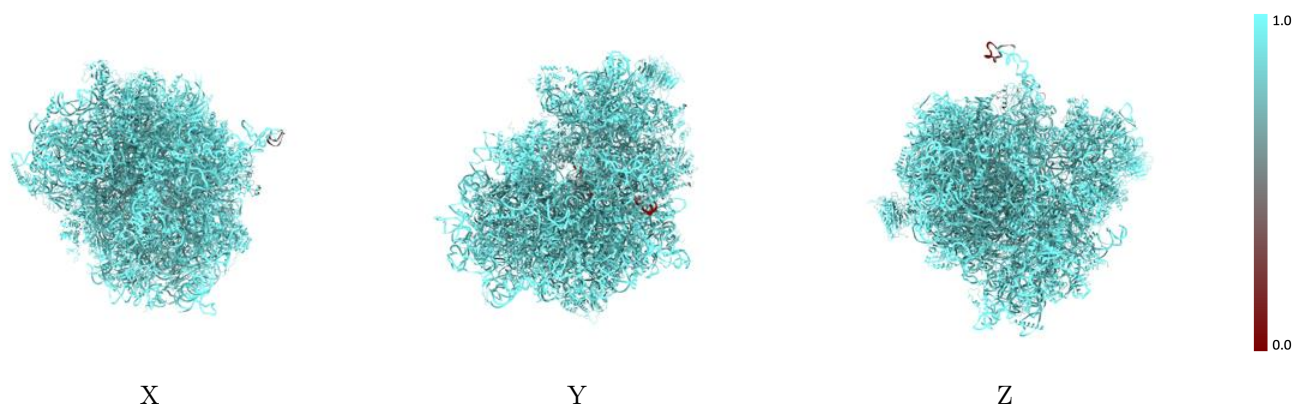
The images above show the 3D surface view of the map at the recommended contour level 0.005 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



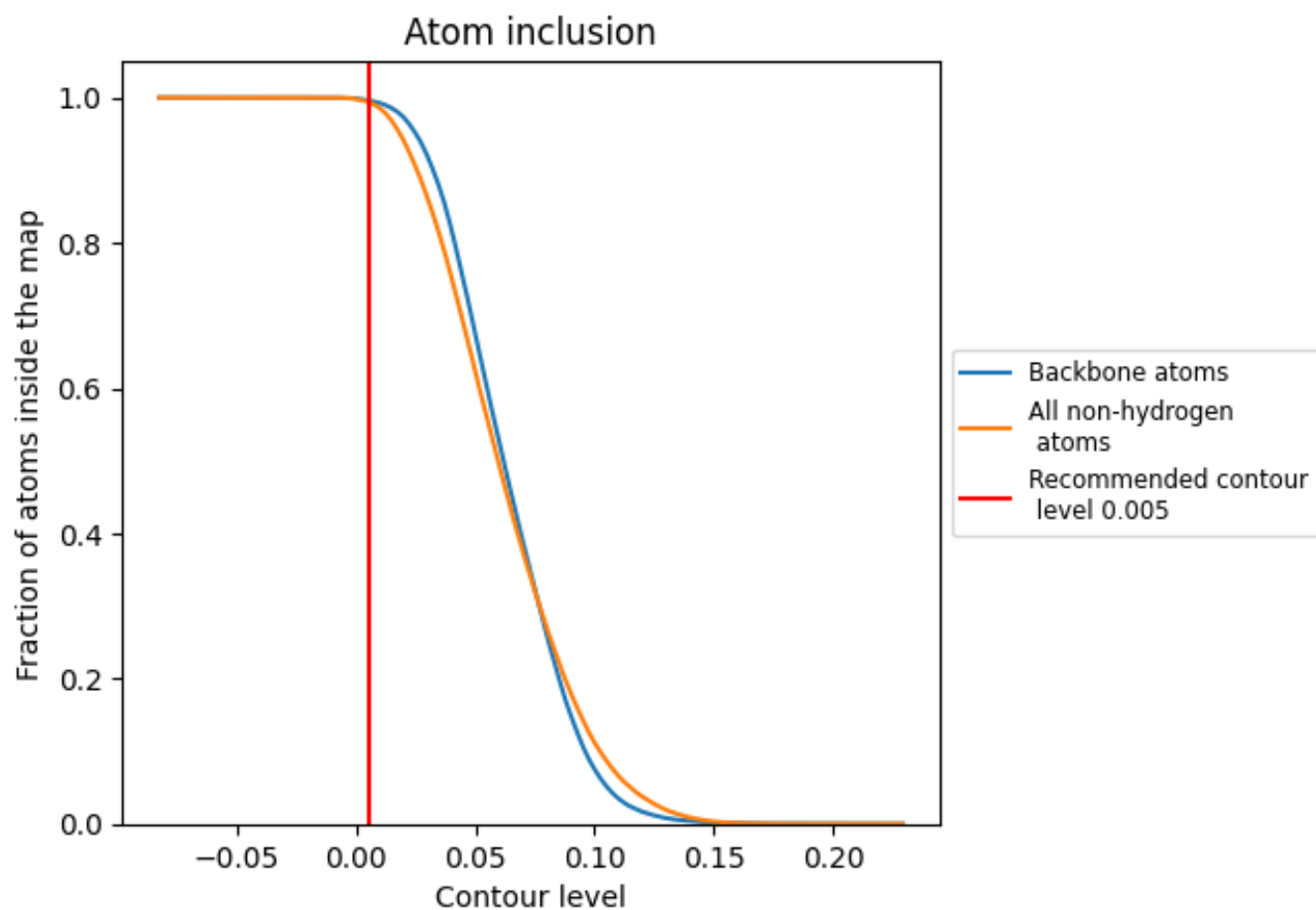
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.005).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 100% of all backbone atoms, 99% 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 (0.005) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9939	 0.4740
CA	 0.9817	 0.3040
CB	 0.9721	 0.4230
CC	 0.9895	 0.3700
CD	 0.9907	 0.4420
L5	 0.9981	 0.5060
L7	 1.0000	 0.5410
L8	 0.9991	 0.5280
LA	 0.9897	 0.5770
LB	 0.9943	 0.5440
LC	 0.9947	 0.5390
LD	 0.9996	 0.4750
LE	 0.9957	 0.4540
LF	 0.9906	 0.5410
LG	 0.9909	 0.4600
LH	 0.9953	 0.5190
LI	 0.9924	 0.5400
LJ	 0.9956	 0.4270
LL	 0.9847	 0.4980
LM	 0.9982	 0.4950
LN	 0.9901	 0.5790
LO	 0.9912	 0.5510
LP	 0.9950	 0.5530
LQ	 0.9917	 0.5670
LR	 0.9840	 0.4820
LS	 0.9943	 0.5600
LT	 0.9905	 0.5310
LU	 0.9963	 0.4140
LV	 0.9843	 0.5580
LW	 0.9978	 0.4060
LX	 0.9927	 0.5250
LY	 0.9981	 0.5140
LZ	 0.9981	 0.4880
La	 0.9982	 0.5650
Lb	 0.9835	 0.4600



















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Chain	Atom inclusion	Q-score
Lc	 0.9772	 0.4810
Ld	 0.9953	 0.5230
Le	 0.9941	 0.5700
Lf	 0.9964	 0.5730
Lg	 0.9966	 0.5410
Lh	 0.9959	 0.4930
Li	 0.9987	 0.4950
Lj	 0.9985	 0.5790
Lk	 0.9964	 0.4510
Ll	 0.9905	 0.5530
Lm	 0.9832	 0.5460
Ln	 0.9904	 0.5700
Lo	 0.9809	 0.5380
Lp	 0.9811	 0.5560
Lr	 0.9938	 0.5320
Lz	 0.8506	 0.0960
S2	 0.9991	 0.4520
SA	 0.9900	 0.4270
SB	 0.9924	 0.4250
SC	 0.9929	 0.4760
SD	 0.9907	 0.4120
SE	 0.9980	 0.4500
SF	 0.9842	 0.3460
SG	 0.9951	 0.3300
SH	 0.9973	 0.3500
SI	 0.9914	 0.4130
SJ	 0.9925	 0.4360
SK	 1.0000	 0.3810
SL	 0.9934	 0.4760
SM	 0.9978	 0.2330
SN	 0.9872	 0.4680
SO	 0.9637	 0.4350
SP	 0.9979	 0.3730
SQ	 0.9910	 0.3900
SR	 0.9953	 0.3850
SS	 0.9965	 0.3450
ST	 1.0000	 0.3590
SU	 0.9988	 0.3690
SV	 0.9936	 0.4440
SW	 0.9901	 0.5080
SX	 0.9935	 0.5290
SY	 0.9749	 0.3840

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Chain	Atom inclusion	Q-score
SZ	 0.9880	 0.2750
Sa	 0.9924	 0.4930
Sb	 0.9953	 0.4290
Sc	 0.9753	 0.3490
Sd	 0.9932	 0.4670
Se	 0.9797	 0.4370
Sf	 1.0000	 0.2810
Sg	 0.9987	 0.3120