wwPDB EM Validation Summary Report ⓘ

Apr 7, 2025 – 01:18 PM EDT

PDB ID	:	8UJC / pdb_00008ujc
EMDB ID	:	EMD-42318
Title	:	In situ human 60S ribosome
Authors	:	Wei, Z.; Yong, X.
Deposited on	:	2023-10-11
Resolution	:	2.87 Å(reported)

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

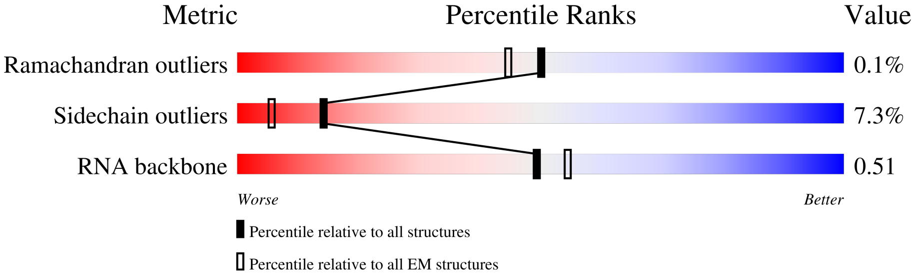
EMDB validation analysis	:	0.0.1.dev117
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.42

1 Overall quality at a glance ⓘ

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

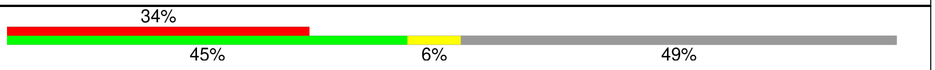
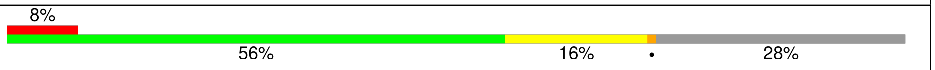
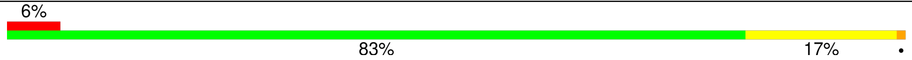
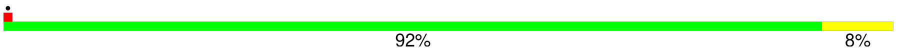
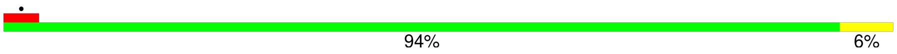
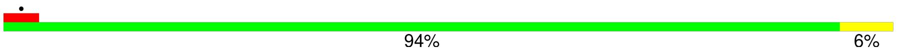
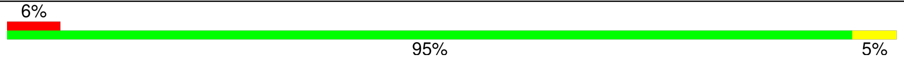
The reported resolution of this entry is 2.87 Å.

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	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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 <=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	LW	124	
2	L5	5070	
3	L7	120	
4	L8	156	
5	LA	248	
6	LB	402	
7	LC	368	
8	LD	293	

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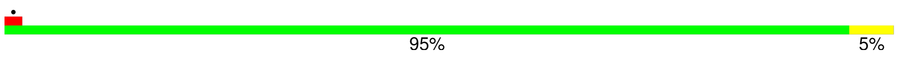
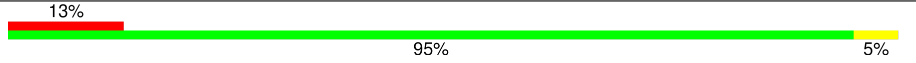
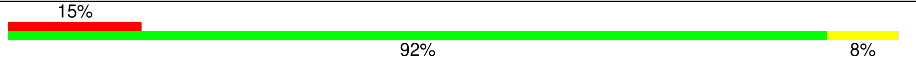
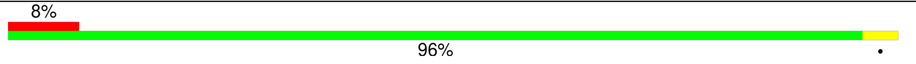
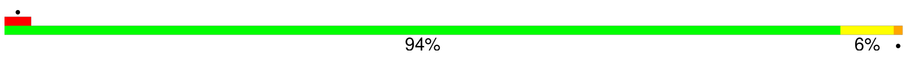
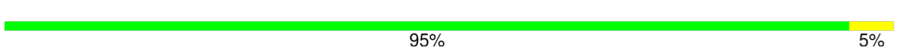
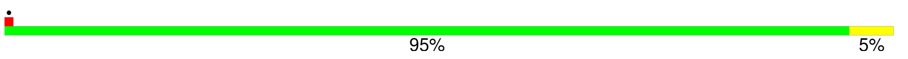
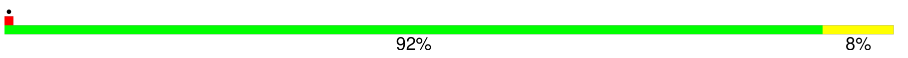
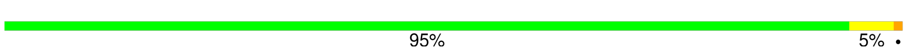
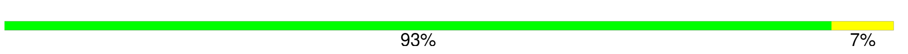
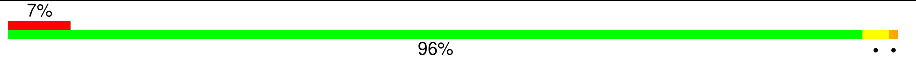
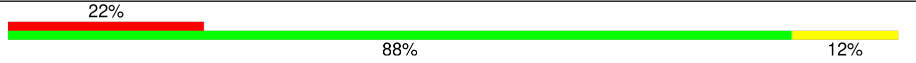
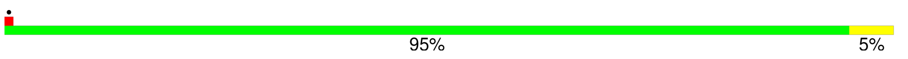
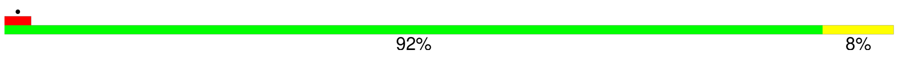
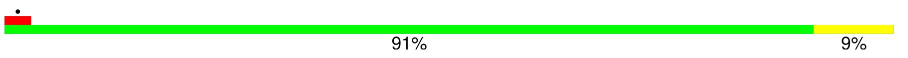
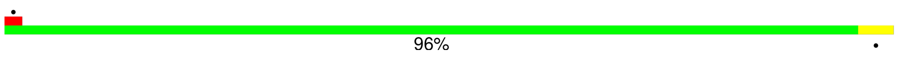
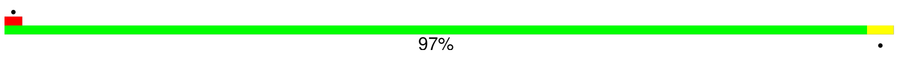
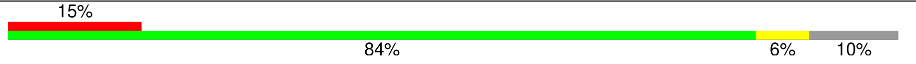
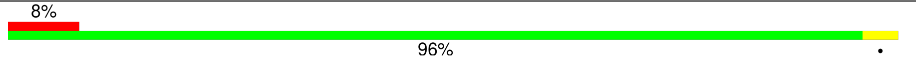
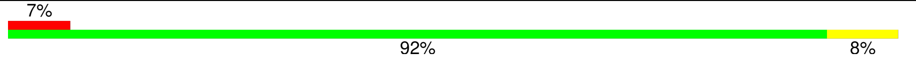
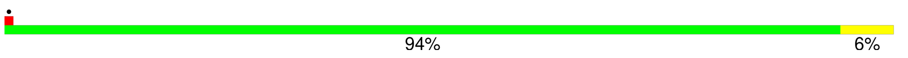
Mol	Chain	Length	Quality of chain
9	LE	247	 13% 88% 7% •
10	LF	225	 • 95% 5%
11	LG	241	 13% 95% 5%
12	LH	190	 • 89% 11% •
13	LI	213	 • 88% 6% 5%
14	LJ	176	 15% 92% 8%
15	LL	210	 8% 96% •
16	LM	139	 • 94% 6% •
17	LN	203	 95% 5%
18	LO	201	 • 95% 5%
19	LP	153	 • 92% 8%
20	LQ	187	 95% 5% •
21	LR	187	 • 77% 5% 18%
22	LS	175	 93% 7%
23	LT	159	 7% 96% • •
24	LU	101	 22% 88% 12%
25	LV	131	 • 95% 5%
26	LX	120	 • 92% 8%
27	LY	134	 • 91% 9%
28	LZ	135	 • 96% •
29	La	147	 • 97% •
30	Lb	121	 15% 84% 6% 10%
31	Lc	98	 8% 96% •
32	Ld	107	 7% 92% 8%
33	Le	128	 • 94% 6%

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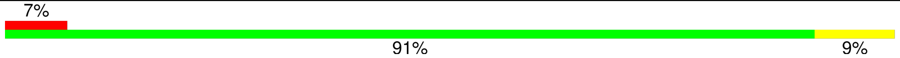
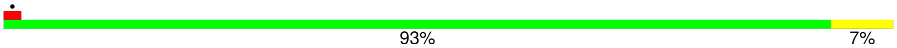
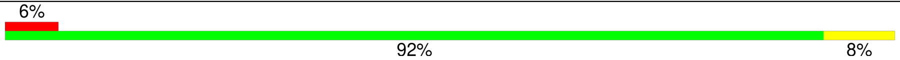
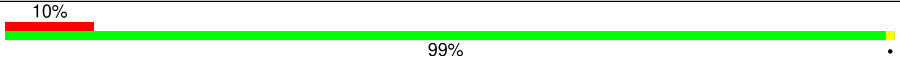
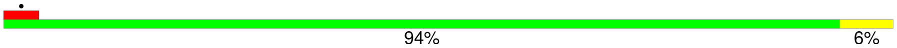
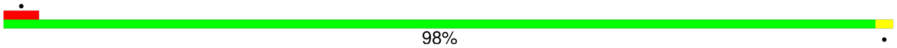
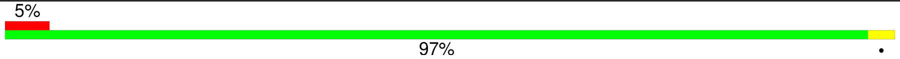
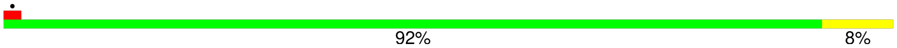
Mol	Chain	Length	Quality of chain
34	Lf	109	
35	Lg	114	
36	Lh	122	
37	Li	102	
38	Lj	86	
39	Lk	69	
40	Ll	50	
41	Lm	52	
42	Lo	105	
43	Lp	91	
44	Lr	125	
45	CA	356	

2 Entry composition ⓘ

There are 47 unique types of molecules in this entry. The entry contains 139414 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 Ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	LW	63	528	337	103	85	3	0	0

- Molecule 2 is a RNA chain called 28S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	L5	3649	78229	34837	14317	25427	3648	0	0

- Molecule 3 is a RNA chain called 5S rRNA [Homo sapiens].

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

- Molecule 4 is a RNA chain called 5.8S rRNA [Homo sapiens].

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

- Molecule 5 is a protein called 60S ribosomal protein L8.

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

- Molecule 6 is a protein called Large ribosomal subunit protein uL3.

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

- Molecule 7 is a protein called 60S ribosomal protein L4.

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

- Molecule 8 is a protein called Large ribosomal subunit protein uL18.

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

- Molecule 9 is a protein called Large ribosomal subunit protein eL6.

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

- Molecule 10 is a protein called 60S ribosomal protein L7.

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

- Molecule 11 is a protein called 60S ribosomal protein L7a.

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

- Molecule 12 is a protein called 60S ribosomal protein L9.

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

- Molecule 13 is a protein called Ribosomal protein uL16-like.

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

- Molecule 14 is a protein called 60S ribosomal protein L11.

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

- Molecule 15 is a protein called Large ribosomal subunit protein eL13.

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

- Molecule 16 is a protein called 60S ribosomal protein L14.

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

- Molecule 17 is a protein called 60S ribosomal protein L15.

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

- Molecule 18 is a protein called 60S ribosomal protein L13a.

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

- Molecule 19 is a protein called 60S ribosomal protein L17.

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

- Molecule 20 is a protein called 60S ribosomal protein L18.

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

- Molecule 21 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	LR	153	Total 1281	C 799	N 276	O 197	S 9	0	0

- Molecule 22 is a protein called 60S ribosomal protein L18a.

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

- Molecule 23 is a protein called 60S ribosomal protein L21.

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

- Molecule 24 is a protein called Heparin-binding protein HBp15.

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

- Molecule 25 is a protein called 60S ribosomal protein L23.

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

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

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

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

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

- 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 Large ribosomal subunit protein eL29.

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
34	Lf	109	Total	C	N	O	S	0	0
			876	555	174	144	3		

- 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 Large ribosomal subunit protein eL40.

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

- Molecule 42 is a protein called 60S ribosomal protein L36a.

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

- Molecule 43 is a protein called 60S ribosomal protein L37a.

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

- Molecule 44 is a protein called 60S ribosomal protein L28.

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

- Molecule 45 is a protein called Proliferation-associated protein 2G4.

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

- Molecule 46 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
46	L5	212	Total 212	Mg 212	0
46	L7	3	Total 3	Mg 3	0
46	L8	4	Total 4	Mg 4	0
46	LA	1	Total 1	Mg 1	0
46	LI	1	Total 1	Mg 1	0
46	LP	1	Total 1	Mg 1	0
46	LV	1	Total 1	Mg 1	0
46	Le	1	Total 1	Mg 1	0
46	Lg	1	Total 1	Mg 1	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
46	Lj	1	Total Mg 1 1	0

- Molecule 47 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

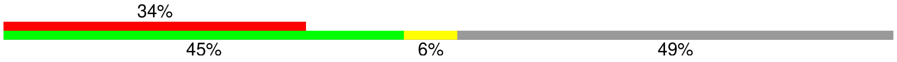
Mol	Chain	Residues	Atoms	AltConf
47	Lg	1	Total Zn 1 1	0
47	Lj	1	Total Zn 1 1	0
47	Lm	1	Total Zn 1 1	0
47	Lo	1	Total Zn 1 1	0
47	Lp	1	Total Zn 1 1	0

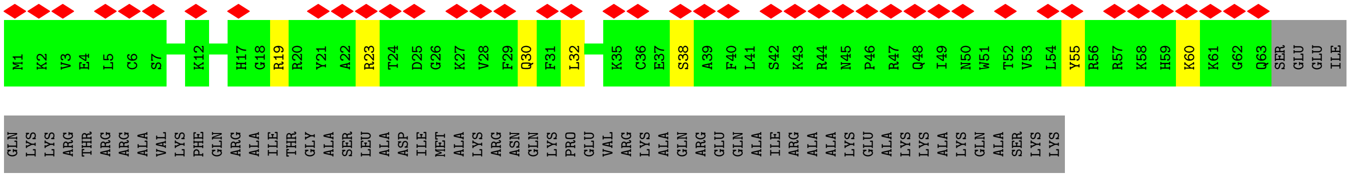
3 Residue-property plots ⓘ

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

- Molecule 1: Ribosomal protein L24

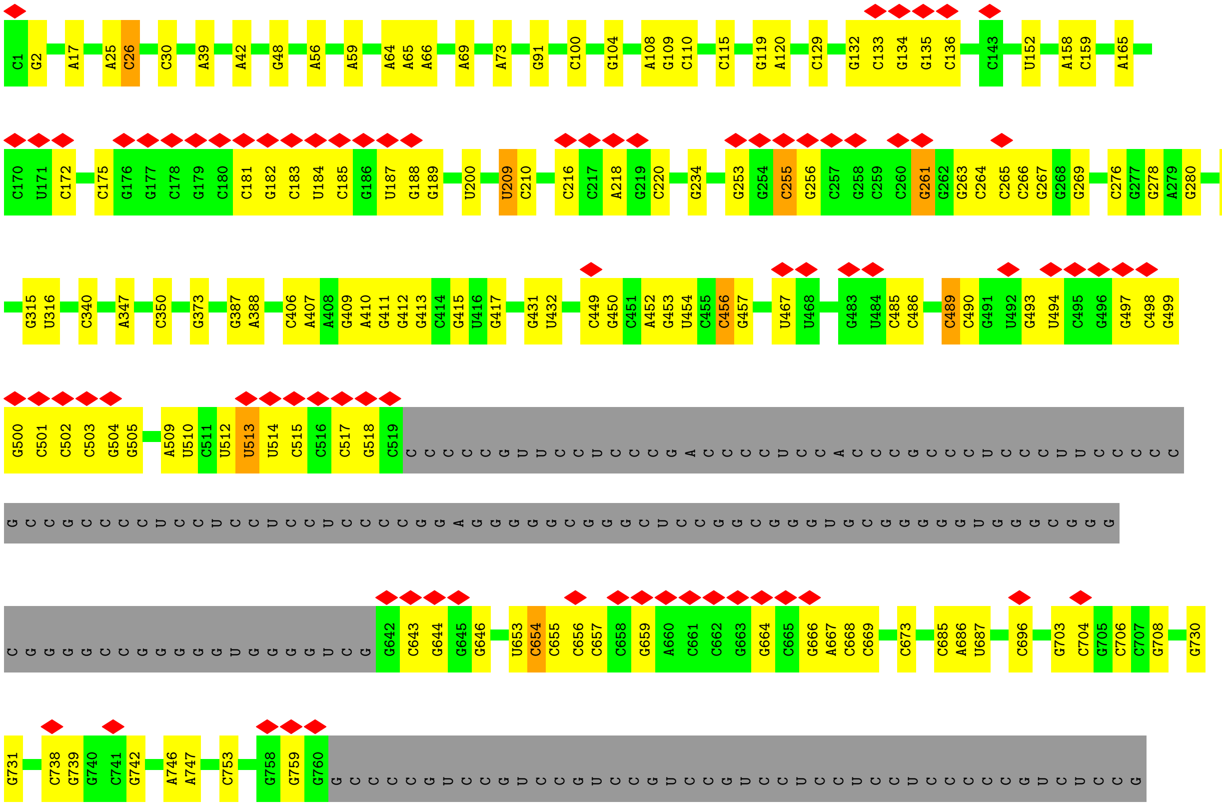
Chain LW:

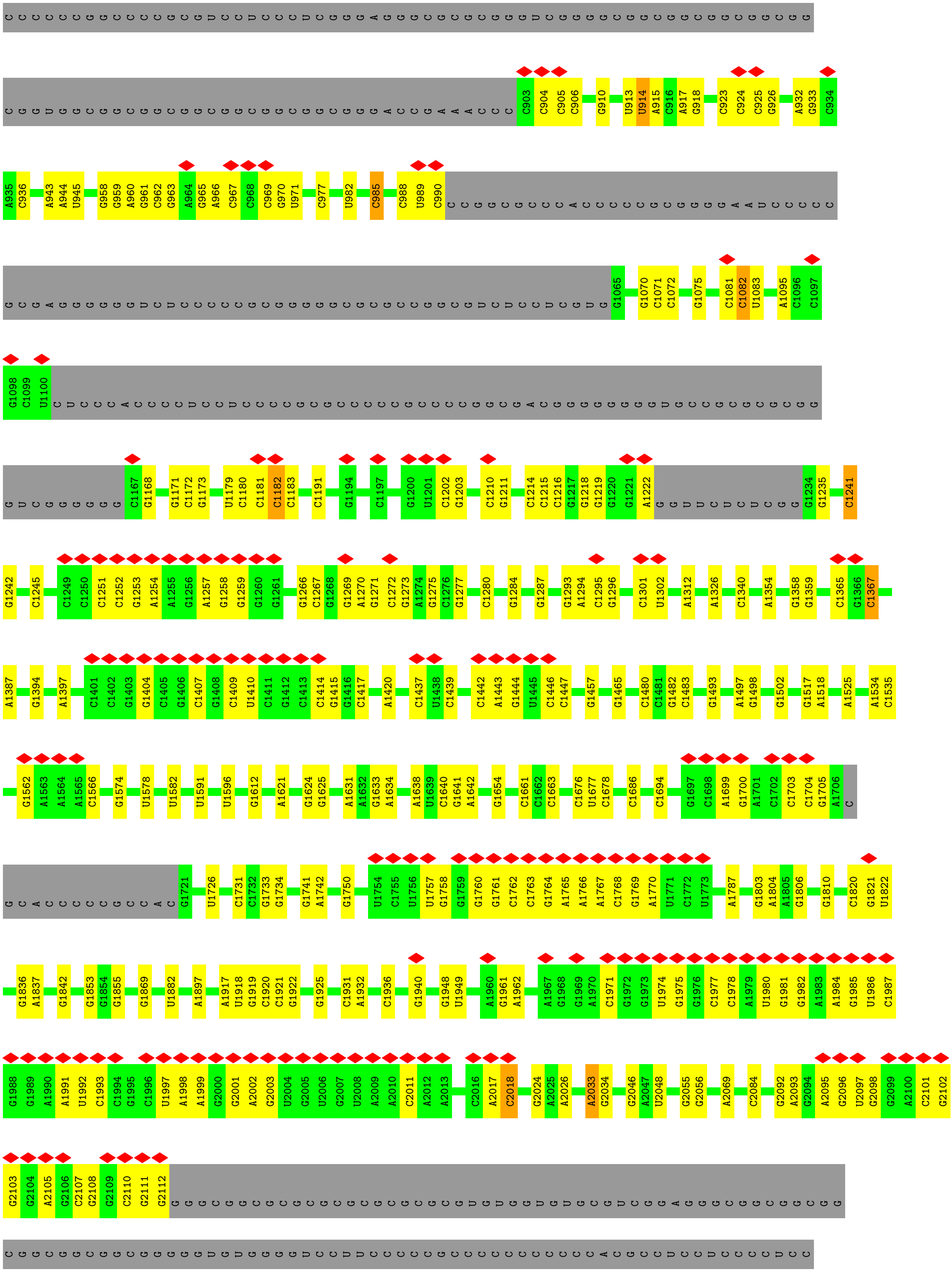




- Molecule 2: 28S rRNA

Chain L5:

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C G G U G G C C G G C G G C G G C C G G C C G G A C C G A A A C C C C903 C904 C905 C906 G910 U913 U914 A915 C916 A917 G918 C923 C924 C925 G926 A932 G933 C934
A935 C936 A943 A944 U945 G958 G959 A960 G961 C962 G963 A964 G965 A966 C967 C968 C969 G970 U971 C977 U982 C985 C988 U989 C990 C C G G C G C C C A C C C C C G C G G G G A A U C C C C C
G C G A G G G G G G U C U C C C C C G C G G G G G C G C G C C G G C G U C U C C U C G U G G1065 G1070 C1071 C1072 G1075 C1081 C1082 U1083 A1095 C1096 C1097
G1098 C1099 U1100 C U C C C A C C C C U C C U C C C C C G C G C C C C C G C C C C C G G C G A C G G G G G G G G G U G C C G C G C G C G G
G U C G G G G G G C1167 G1168 G1171 C1172 G1173 U1179 C1180 C1181 C1182 C1183 C1191 G1194 C1197 G1200 U1201 C1202 G1203 C1210 G1211 C1214 C1215 C1216 G1217 G1218 G1219 G1220 G1221 A1222 G G U U C U C U C G G G1234 G1235 C1241
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G2103 G2104 A2105 G2106 C2107 G2108 G2109 C2110 G2111 G2112 G G C G G C G C G C G C G C G C G C G C G U G U G G U G U G C G U C G G A G G G C G G C G G C G G
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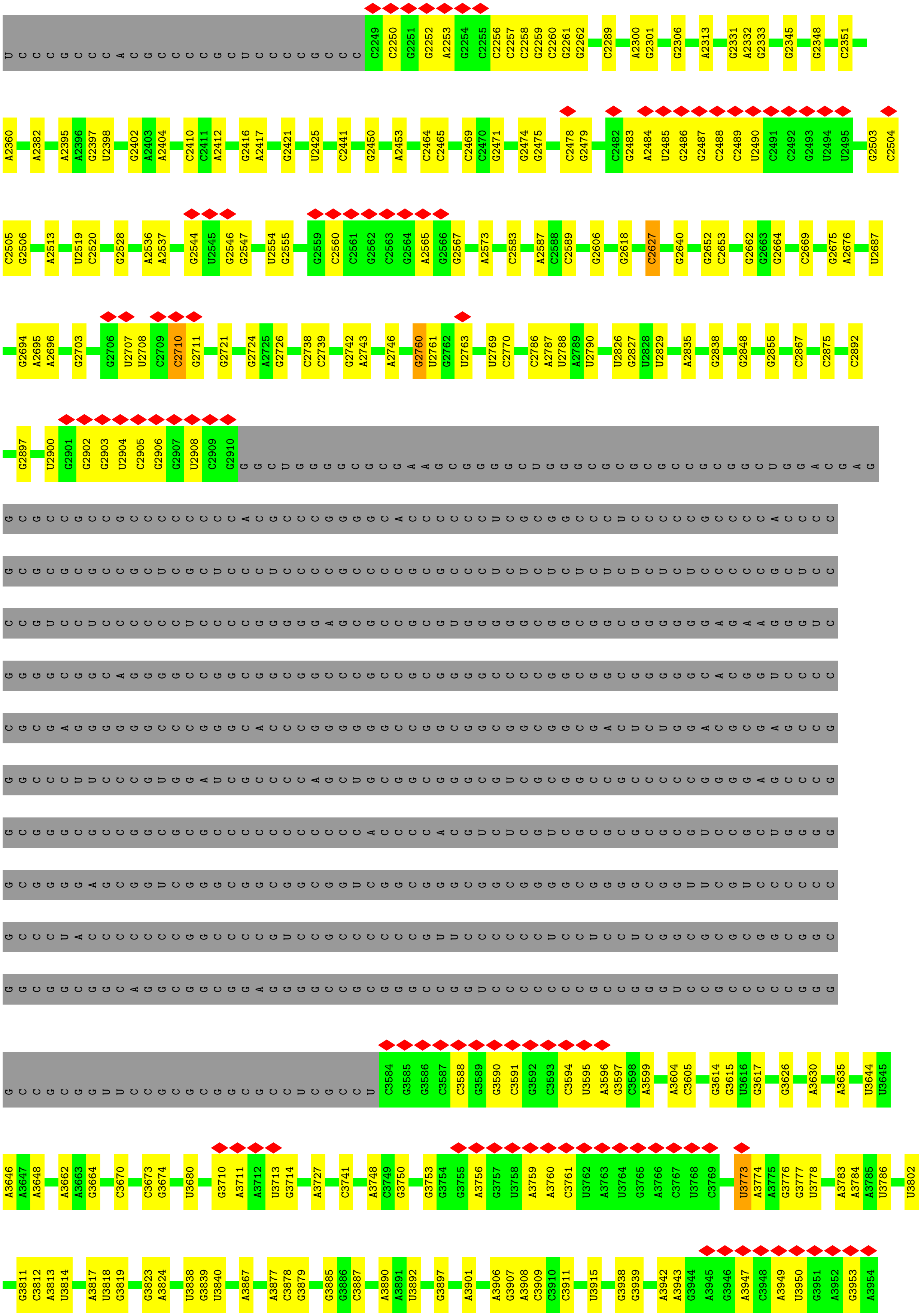
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C2289
A2300
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G2333
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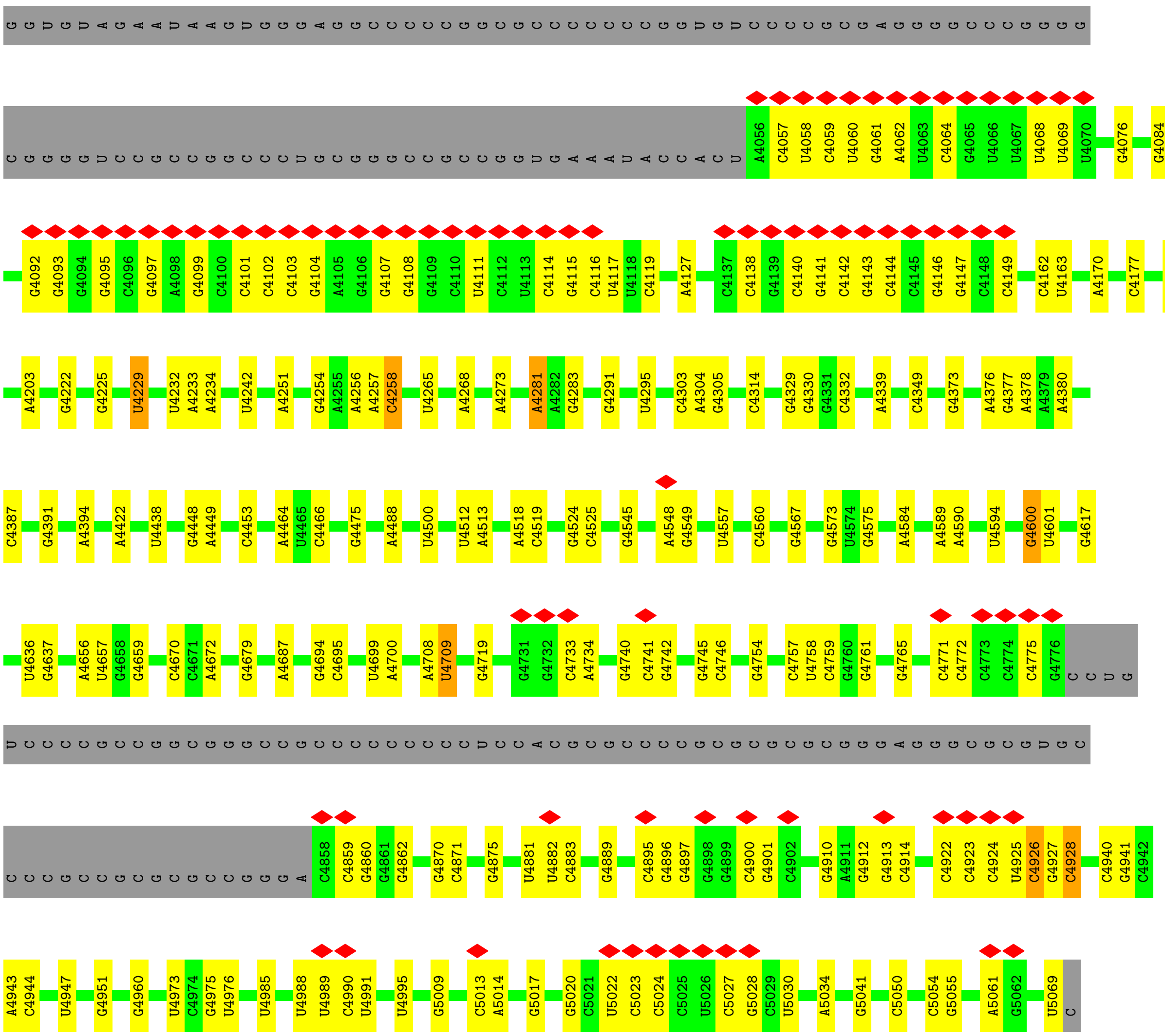
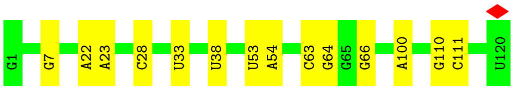


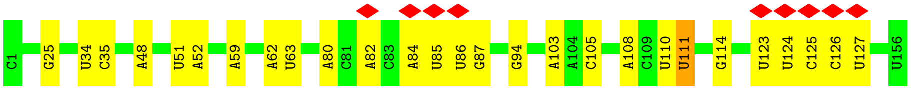
- Molecule 3: 5S rRNA [Homo sapiens]

Chain L7:



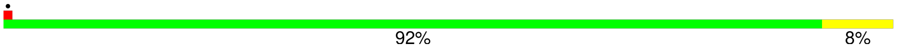
- Molecule 4: 5.8S rRNA [Homo sapiens]

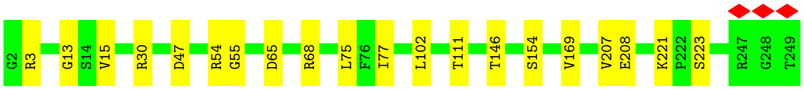
Chain L8:



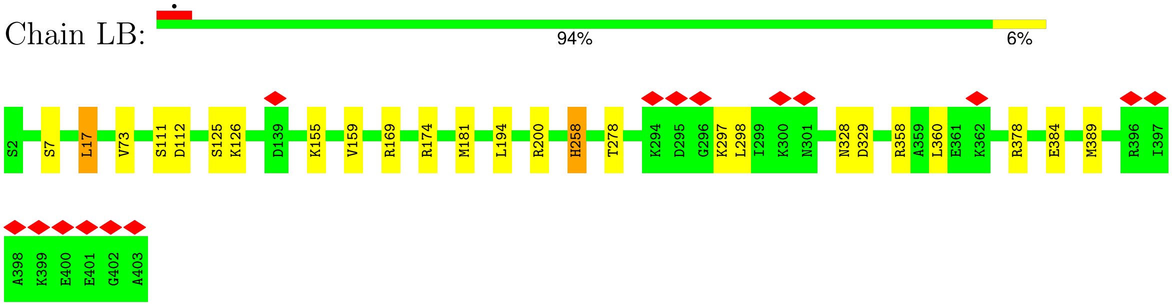
- Molecule 5: 60S ribosomal protein L8

Chain LA:

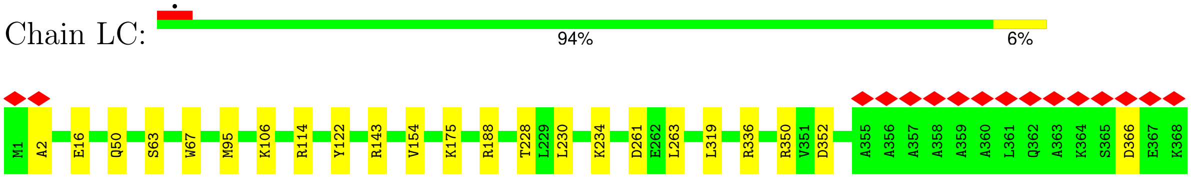




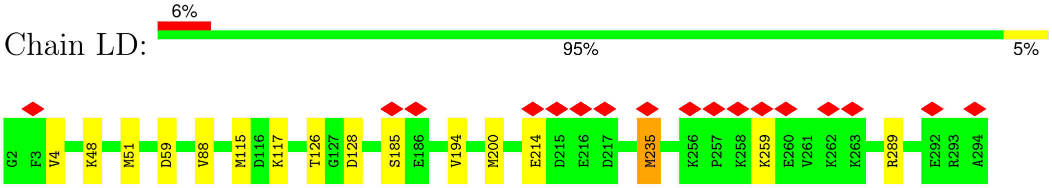
- Molecule 6: Large ribosomal subunit protein uL3



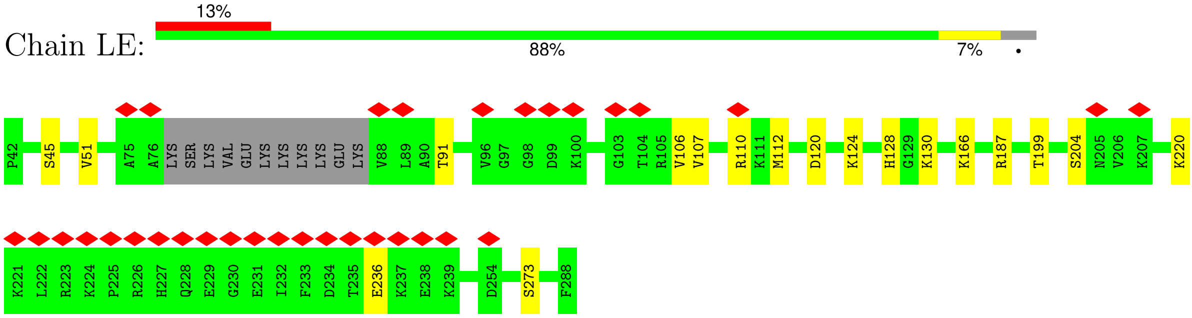
- Molecule 7: 60S ribosomal protein L4



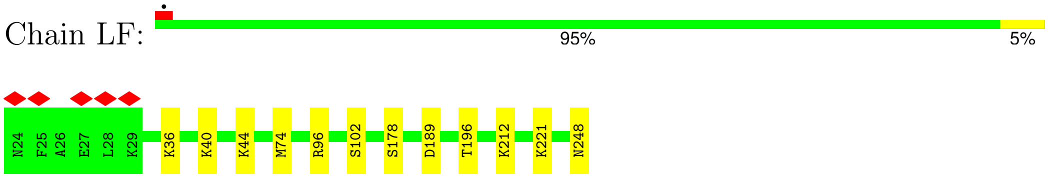
- Molecule 8: Large ribosomal subunit protein uL18



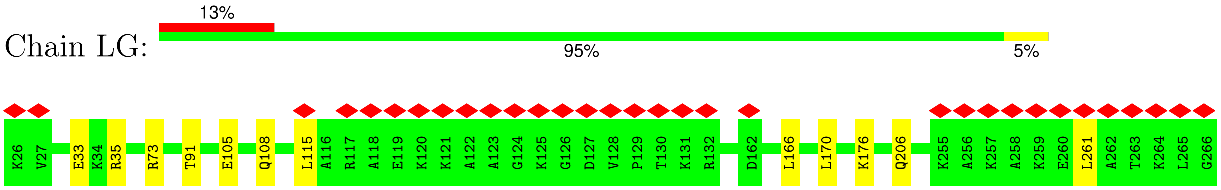
- Molecule 9: Large ribosomal subunit protein eL6



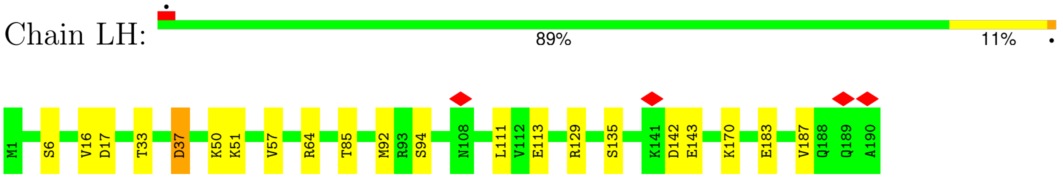
- Molecule 10: 60S ribosomal protein L7



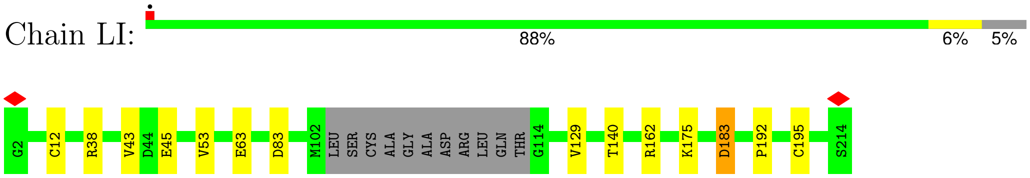
- Molecule 11: 60S ribosomal protein L7a



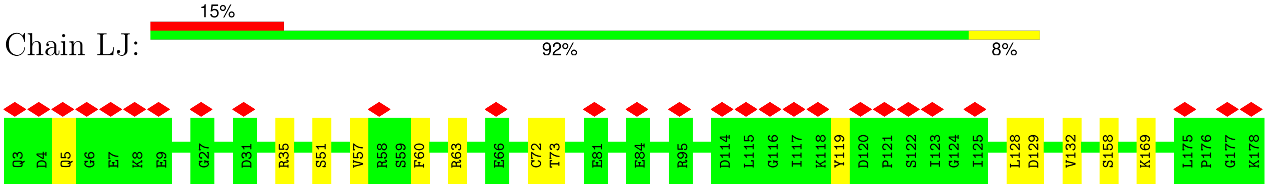
- Molecule 12: 60S ribosomal protein L9



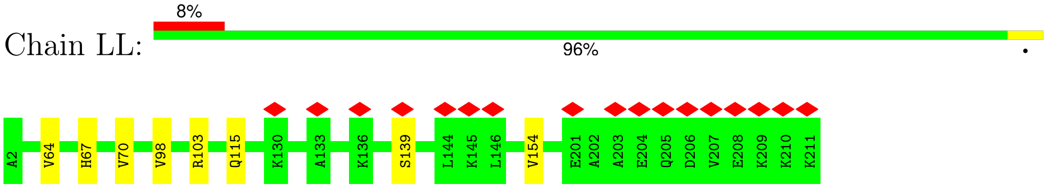
- Molecule 13: Ribosomal protein uL16-like



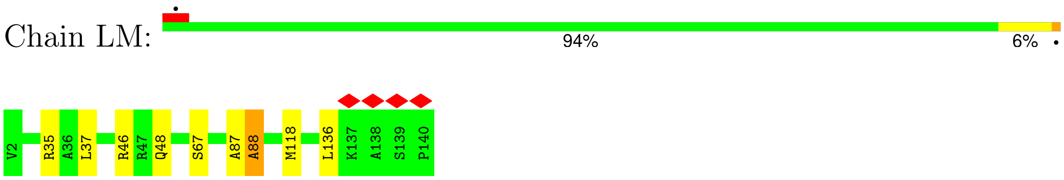
- Molecule 14: 60S ribosomal protein L11



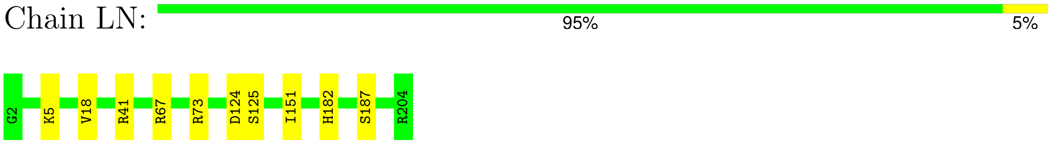
- Molecule 15: Large ribosomal subunit protein eL13



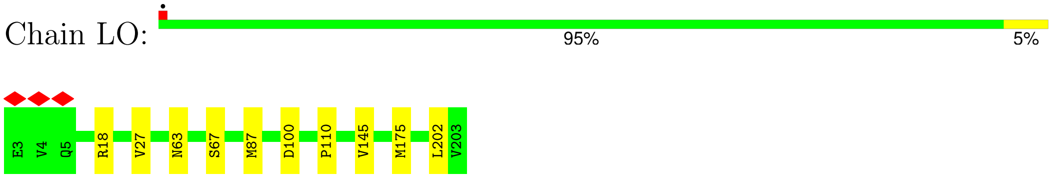
- Molecule 16: 60S ribosomal protein L14



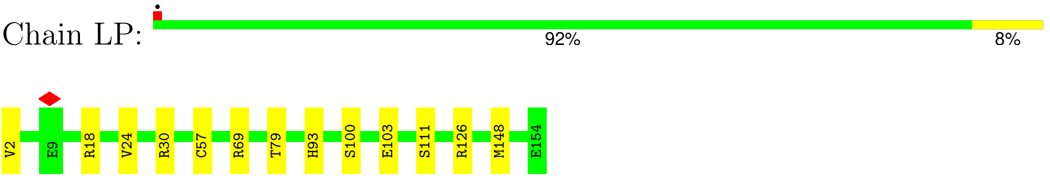
- Molecule 17: 60S ribosomal protein L15



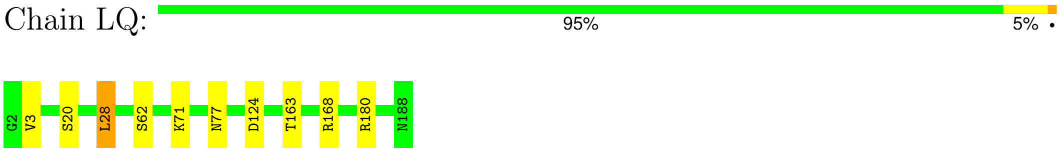
- Molecule 18: 60S ribosomal protein L13a



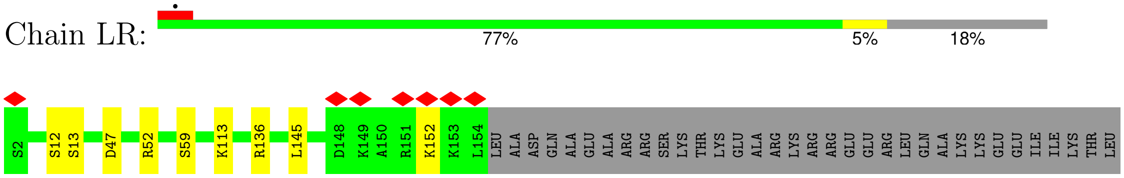
- Molecule 19: 60S ribosomal protein L17



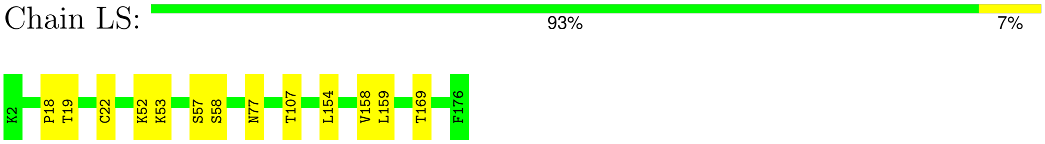
- Molecule 20: 60S ribosomal protein L18



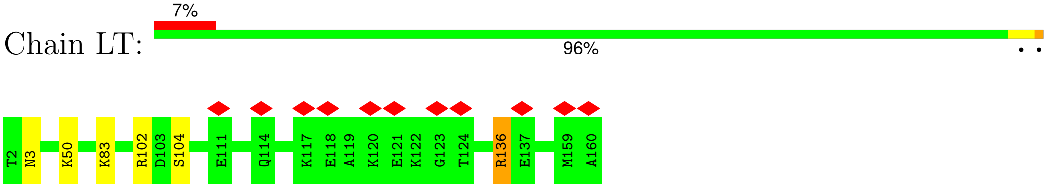
- Molecule 21: 60S ribosomal protein L19



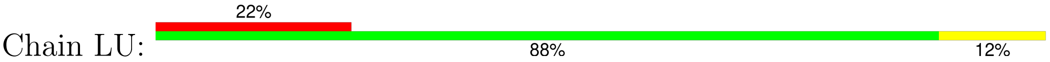
- Molecule 22: 60S ribosomal protein L18a

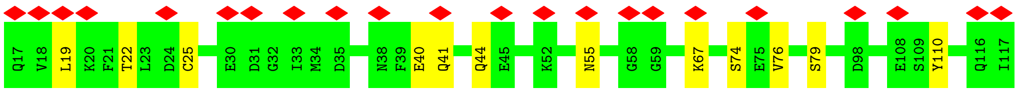


- Molecule 23: 60S ribosomal protein L21



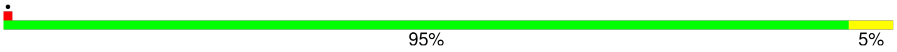
- Molecule 24: Heparin-binding protein HBp15

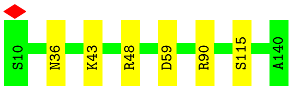




- Molecule 25: 60S ribosomal protein L23

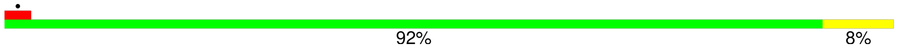
Chain LV:

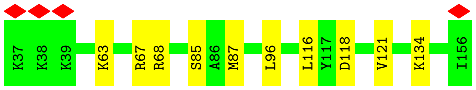




- Molecule 26: 60S ribosomal protein L23a

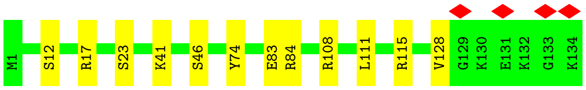
Chain LX:





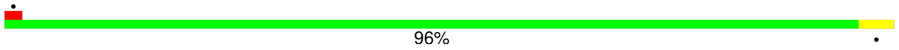
- Molecule 27: 60S ribosomal protein L26

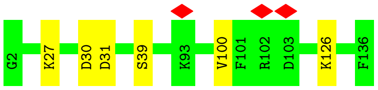
Chain LY:



- Molecule 28: 60S ribosomal protein L27

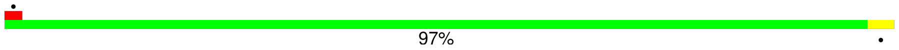
Chain LZ:

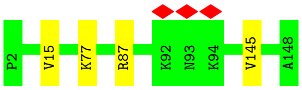




- Molecule 29: 60S ribosomal protein L27a

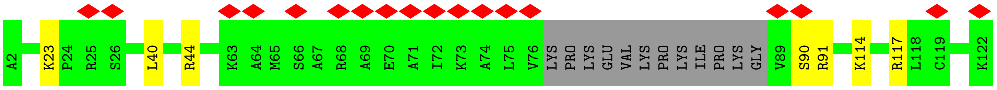
Chain La:





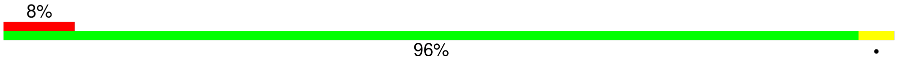
- Molecule 30: Large ribosomal subunit protein eL29

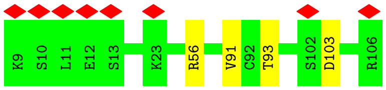
Chain Lb:



- Molecule 31: 60S ribosomal protein L30

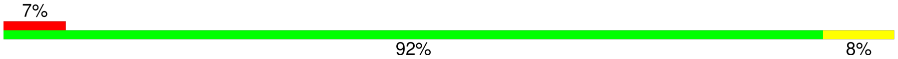
Chain Lc:

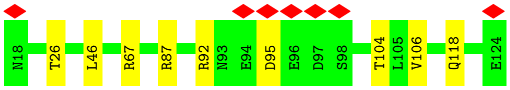




- Molecule 32: 60S ribosomal protein L31

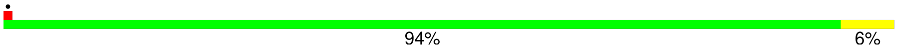
Chain Ld:

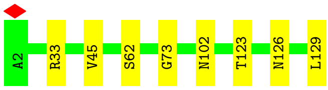




- Molecule 33: 60S ribosomal protein L32

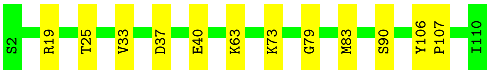
Chain Le:





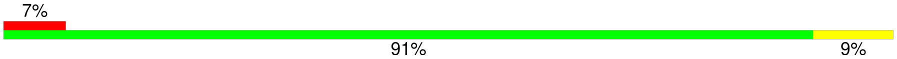
- Molecule 34: 60S ribosomal protein L35a

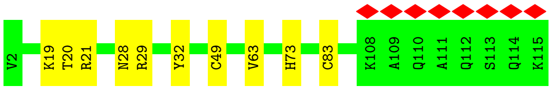
Chain Lf:



- Molecule 35: 60S ribosomal protein L34

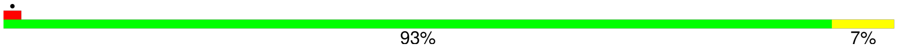
Chain Lg:

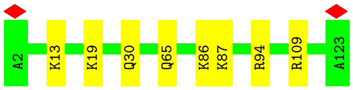




- Molecule 36: 60S ribosomal protein L35

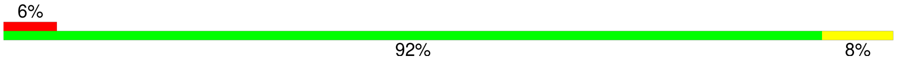
Chain Lh:

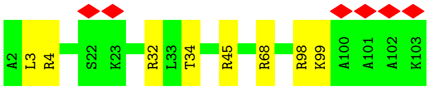




- Molecule 37: 60S ribosomal protein L36

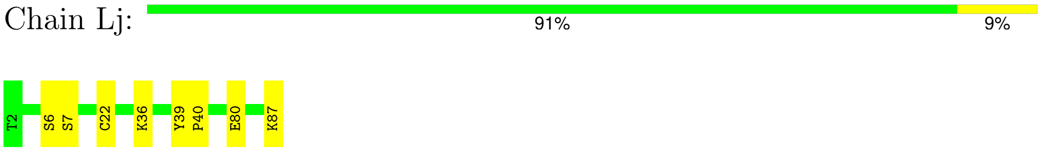
Chain Li:





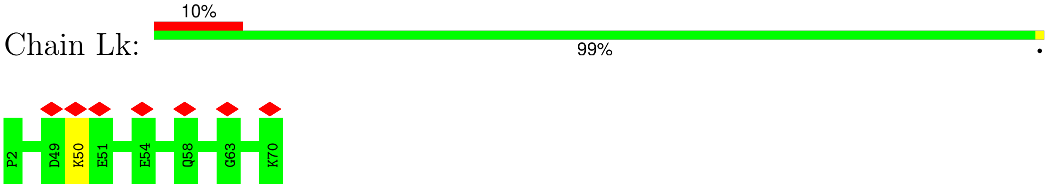
- Molecule 38: 60S ribosomal protein L37

Chain Lj:



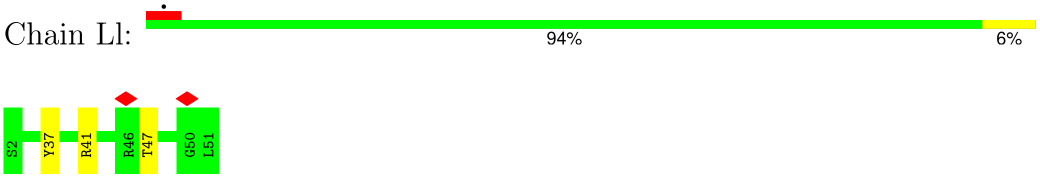
- Molecule 39: 60S ribosomal protein L38

Chain Lk:



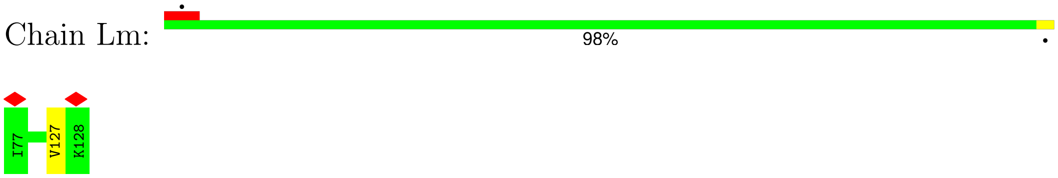
- Molecule 40: 60S ribosomal protein L39

Chain Ll:



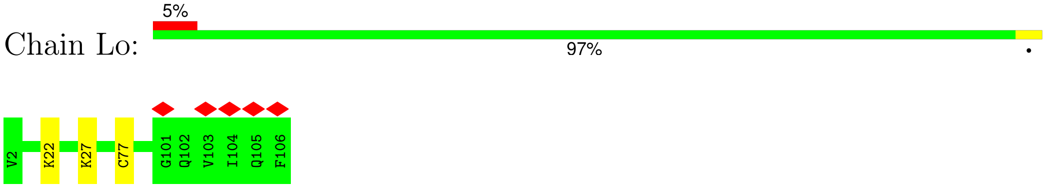
- Molecule 41: Large ribosomal subunit protein eL40

Chain Lm:



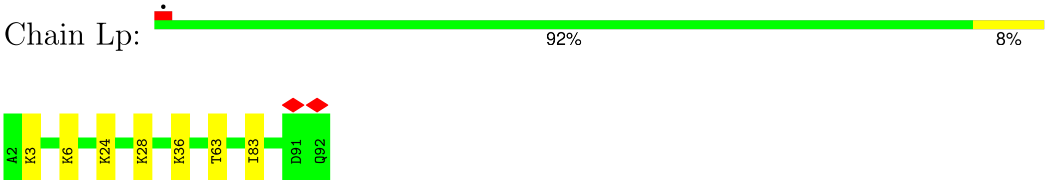
- Molecule 42: 60S ribosomal protein L36a

Chain Lo:



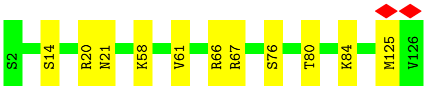
- Molecule 43: 60S ribosomal protein L37a

Chain Lp:



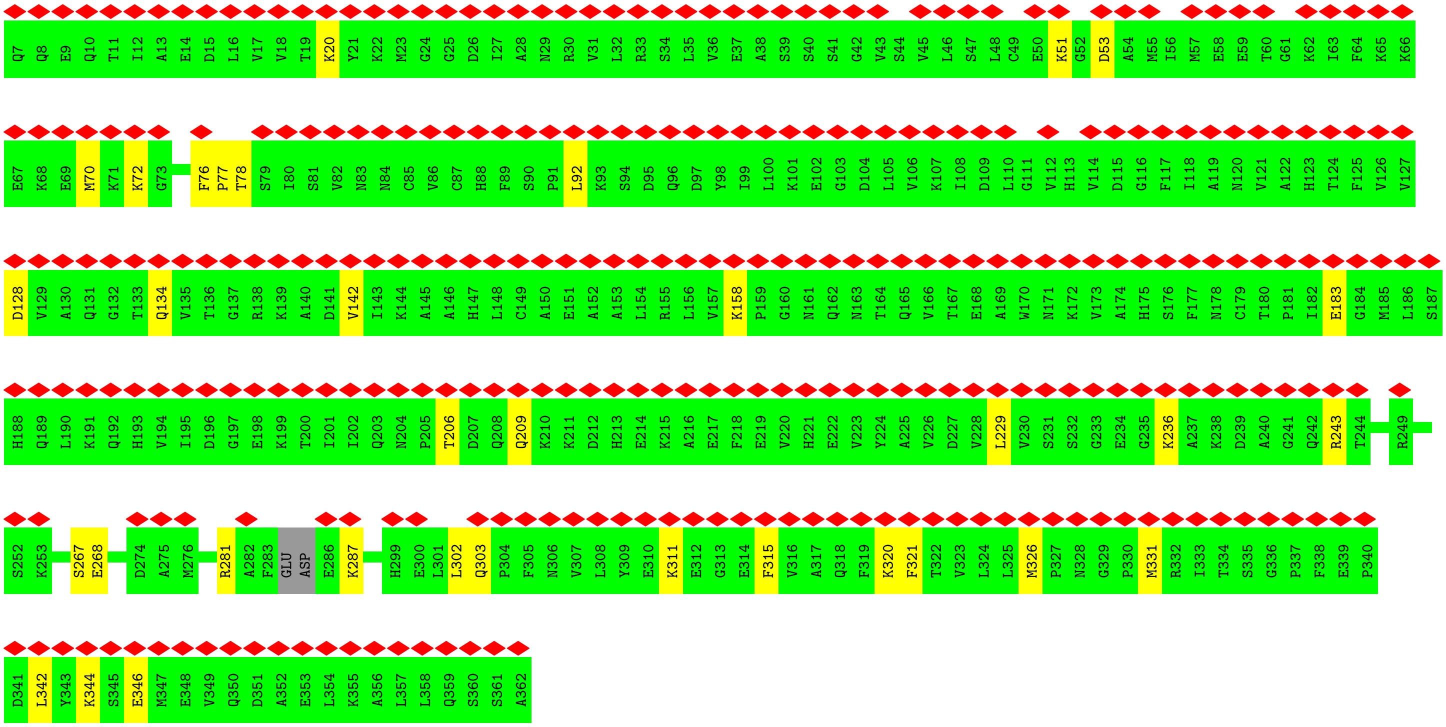
- Molecule 44: 60S ribosomal protein L28

Chain Lr:



- Molecule 45: Proliferation-associated protein 2G4

Chain CA:



4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	220618	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 ($e^-/\text{Å}^2$)	50	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.822	Depositor
Minimum map value	-0.439	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.017	Depositor
Recommended contour level	0.0495	Depositor
Map size (Å)	546.816, 546.816, 546.816	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.068, 1.068, 1.068	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: MG, ZN

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	LW	0.32	0/541	0.61	0/720
2	L5	0.32	0/87512	0.92	117/136518 (0.1%)
3	L7	0.30	0/2861	0.87	1/4459 (0.0%)
4	L8	0.31	0/3701	0.88	4/5766 (0.1%)
5	LA	0.30	0/1936	0.63	0/2596
6	LB	0.29	0/3306	0.60	1/4424 (0.0%)
7	LC	0.29	0/2981	0.59	1/4002 (0.0%)
8	LD	0.29	0/2428	0.57	1/3252 (0.0%)
9	LE	0.28	0/1942	0.59	0/2606
10	LF	0.29	0/1905	0.56	0/2539
11	LG	0.29	0/1960	0.58	1/2637 (0.0%)
12	LH	0.31	0/1537	0.63	2/2066 (0.1%)
13	LI	0.28	0/1673	0.57	1/2233 (0.0%)
14	LJ	0.30	0/1433	0.65	0/1915
15	LL	0.29	0/1732	0.61	0/2315
16	LM	0.28	0/1161	0.57	0/1554
17	LN	0.27	0/1746	0.60	0/2338
18	LO	0.29	0/1682	0.55	0/2250
19	LP	0.28	0/1268	0.54	0/1701
20	LQ	0.28	0/1537	0.61	1/2052 (0.0%)
21	LR	0.28	0/1296	0.60	0/1713
22	LS	0.31	0/1493	0.60	1/2003 (0.0%)
23	LT	0.29	0/1326	0.59	0/1770
24	LU	0.36	0/839	0.66	0/1126
25	LV	0.28	0/993	0.55	0/1332
26	LX	0.28	0/1002	0.63	2/1345 (0.1%)
27	LY	0.28	0/1132	0.56	0/1504
28	LZ	0.30	0/1130	0.60	1/1507 (0.1%)
29	La	0.28	0/1191	0.56	0/1591
30	Lb	0.26	0/889	0.61	0/1175
31	Lc	0.32	0/774	0.58	1/1038 (0.1%)
32	Ld	0.27	0/903	0.59	1/1216 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	Le	0.34	0/1071	0.60	0/1429
34	Lf	0.28	0/895	0.60	0/1198
35	Lg	0.26	0/916	0.57	0/1220
36	Lh	0.27	0/1023	0.57	0/1351
37	Li	0.26	0/843	0.58	0/1115
38	Lj	0.28	0/720	0.63	0/952
39	Lk	0.30	0/575	0.61	0/761
40	Ll	0.25	0/454	0.64	0/599
41	Lm	0.25	0/435	0.55	0/575
42	Lo	0.28	0/876	0.57	0/1156
43	Lp	0.28	0/718	0.59	0/953
44	Lr	0.27	0/1017	0.59	0/1364
45	CA	0.58	3/2810 (0.1%)	0.87	6/3780 (0.2%)
All	All	0.32	3/150163 (0.0%)	0.82	142/221716 (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
5	LA	0	1
6	LB	0	2
15	LL	0	1
16	LM	0	2
18	LO	0	1
23	LT	0	1
34	Lf	0	2
36	Lh	0	1
38	Lj	0	2
All	All	0	13

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
45	CA	77	PRO	CG-CD	-19.24	0.87	1.50
45	CA	77	PRO	CB-CG	13.34	2.16	1.50
45	CA	77	PRO	N-CD	9.43	1.61	1.47

The worst 5 of 142 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
45	CA	77	PRO	CB-CG-CD	-27.30	0.02	106.50
45	CA	77	PRO	N-CA-CB	-17.10	82.78	103.30
45	CA	77	PRO	CA-N-CD	-16.01	89.08	111.50
2	L5	485	C	C2-N1-C1'	11.29	131.22	118.80
2	L5	2710	C	N1-C2-O2	9.79	124.78	118.90

There are no chirality outliers.

5 of 13 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
5	LA	13	GLY	Peptide
6	LB	17	LEU	Peptide
6	LB	258	HIS	Peptide
15	LL	154	VAL	Peptide
16	LM	87	ALA	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	LW	61/124 (49%)	55 (90%)	6 (10%)	0	100	100
5	LA	246/248 (99%)	223 (91%)	22 (9%)	1 (0%)	30	58
6	LB	400/402 (100%)	373 (93%)	27 (7%)	0	100	100
7	LC	366/368 (100%)	342 (93%)	24 (7%)	0	100	100
8	LD	291/293 (99%)	272 (94%)	19 (6%)	0	100	100
9	LE	232/247 (94%)	210 (90%)	22 (10%)	0	100	100
10	LF	223/225 (99%)	214 (96%)	9 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
11	LG	239/241 (99%)	224 (94%)	15 (6%)	0	100	100
12	LH	188/190 (99%)	170 (90%)	18 (10%)	0	100	100
13	LI	198/213 (93%)	188 (95%)	10 (5%)	0	100	100
14	LJ	174/176 (99%)	158 (91%)	16 (9%)	0	100	100
15	LL	208/210 (99%)	191 (92%)	17 (8%)	0	100	100
16	LM	137/139 (99%)	129 (94%)	7 (5%)	1 (1%)	19	46
17	LN	201/203 (99%)	193 (96%)	7 (4%)	1 (0%)	25	53
18	LO	199/201 (99%)	191 (96%)	8 (4%)	0	100	100
19	LP	151/153 (99%)	141 (93%)	10 (7%)	0	100	100
20	LQ	185/187 (99%)	177 (96%)	8 (4%)	0	100	100
21	LR	149/187 (80%)	142 (95%)	7 (5%)	0	100	100
22	LS	173/175 (99%)	162 (94%)	11 (6%)	0	100	100
23	LT	157/159 (99%)	146 (93%)	11 (7%)	0	100	100
24	LU	99/101 (98%)	81 (82%)	18 (18%)	0	100	100
25	LV	129/131 (98%)	123 (95%)	6 (5%)	0	100	100
26	LX	118/120 (98%)	115 (98%)	3 (2%)	0	100	100
27	LY	132/134 (98%)	127 (96%)	5 (4%)	0	100	100
28	LZ	133/135 (98%)	125 (94%)	8 (6%)	0	100	100
29	La	145/147 (99%)	137 (94%)	8 (6%)	0	100	100
30	Lb	105/121 (87%)	94 (90%)	11 (10%)	0	100	100
31	Lc	96/98 (98%)	86 (90%)	10 (10%)	0	100	100
32	Ld	105/107 (98%)	99 (94%)	6 (6%)	0	100	100
33	Le	126/128 (98%)	118 (94%)	7 (6%)	1 (1%)	16	42
34	Lf	107/109 (98%)	98 (92%)	8 (8%)	1 (1%)	14	39
35	Lg	112/114 (98%)	111 (99%)	1 (1%)	0	100	100
36	Lh	120/122 (98%)	119 (99%)	1 (1%)	0	100	100
37	Li	100/102 (98%)	97 (97%)	3 (3%)	0	100	100
38	Lj	84/86 (98%)	79 (94%)	5 (6%)	0	100	100
39	Lk	67/69 (97%)	62 (92%)	5 (8%)	0	100	100
40	Ll	48/50 (96%)	46 (96%)	2 (4%)	0	100	100
41	Lm	50/52 (96%)	50 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
42	Lo	103/105 (98%)	99 (96%)	4 (4%)	0	100	100
43	Lp	89/91 (98%)	84 (94%)	5 (6%)	0	100	100
44	Lr	123/125 (98%)	114 (93%)	9 (7%)	0	100	100
45	CA	350/356 (98%)	328 (94%)	20 (6%)	2 (1%)	22	49
All	All	6719/6944 (97%)	6293 (94%)	419 (6%)	7 (0%)	50	75

5 of 7 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
45	CA	142[A]	VAL
17	LN	124	ASP
45	CA	78	THR
16	LM	88	ALA
34	Lf	107	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	LW	55/103 (53%)	48 (87%)	7 (13%)	3	10
5	LA	190/190 (100%)	172 (90%)	18 (10%)	7	20
6	LB	348/348 (100%)	324 (93%)	24 (7%)	13	34
7	LC	306/306 (100%)	284 (93%)	22 (7%)	12	32
8	LD	246/247 (100%)	230 (94%)	16 (6%)	14	37
9	LE	209/220 (95%)	191 (91%)	18 (9%)	8	25
10	LF	194/194 (100%)	182 (94%)	12 (6%)	15	39
11	LG	203/205 (99%)	192 (95%)	11 (5%)	18	46
12	LH	169/169 (100%)	149 (88%)	20 (12%)	4	12
13	LI	172/180 (96%)	158 (92%)	14 (8%)	9	27
14	LJ	148/148 (100%)	134 (90%)	14 (10%)	7	20
15	LL	176/176 (100%)	169 (96%)	7 (4%)	27	58

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
16	LM	118/118 (100%)	111 (94%)	7 (6%)	16	42
17	LN	171/171 (100%)	162 (95%)	9 (5%)	19	46
18	LO	173/173 (100%)	164 (95%)	9 (5%)	19	47
19	LP	134/134 (100%)	121 (90%)	13 (10%)	6	19
20	LQ	164/164 (100%)	154 (94%)	10 (6%)	15	40
21	LR	137/166 (82%)	128 (93%)	9 (7%)	14	36
22	LS	156/156 (100%)	144 (92%)	12 (8%)	10	29
23	LT	139/139 (100%)	133 (96%)	6 (4%)	25	55
24	LU	91/91 (100%)	79 (87%)	12 (13%)	3	9
25	LV	101/101 (100%)	95 (94%)	6 (6%)	16	42
26	LX	108/108 (100%)	100 (93%)	8 (7%)	11	31
27	LY	124/124 (100%)	112 (90%)	12 (10%)	6	19
28	LZ	117/117 (100%)	112 (96%)	5 (4%)	25	55
29	La	120/120 (100%)	116 (97%)	4 (3%)	33	65
30	Lb	88/101 (87%)	81 (92%)	7 (8%)	10	27
31	Lc	83/83 (100%)	80 (96%)	3 (4%)	30	62
32	Ld	98/98 (100%)	90 (92%)	8 (8%)	9	26
33	Le	114/114 (100%)	107 (94%)	7 (6%)	15	40
34	Lf	88/88 (100%)	79 (90%)	9 (10%)	6	17
35	Lg	98/98 (100%)	88 (90%)	10 (10%)	6	17
36	Lh	109/109 (100%)	102 (94%)	7 (6%)	14	38
37	Li	86/86 (100%)	78 (91%)	8 (9%)	7	21
38	Lj	73/73 (100%)	67 (92%)	6 (8%)	9	26
39	Lk	64/64 (100%)	63 (98%)	1 (2%)	58	82
40	Ll	47/47 (100%)	44 (94%)	3 (6%)	14	38
41	Lm	48/48 (100%)	47 (98%)	1 (2%)	48	76
42	Lo	93/93 (100%)	90 (97%)	3 (3%)	34	66
43	Lp	74/74 (100%)	67 (90%)	7 (10%)	7	20
44	Lr	109/109 (100%)	98 (90%)	11 (10%)	6	18
45	CA	303/305 (99%)	274 (90%)	29 (10%)	7	20
All	All	5844/5958 (98%)	5419 (93%)	425 (7%)	14	32

5 of 425 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
21	LR	12	SER
27	LY	23	SER
45	CA	70	MET
21	LR	145	LEU
24	LU	25	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 7 such sidechains are listed below:

Mol	Chain	Res	Type
17	LN	8	GLN
29	La	93	ASN
45	CA	88	HIS
33	Le	57	ASN
11	LG	206	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	L5	3638/5070 (71%)	785 (21%)	18 (0%)
3	L7	119/120 (99%)	13 (10%)	0
4	L8	155/156 (99%)	26 (16%)	0
All	All	3912/5346 (73%)	824 (21%)	18 (0%)

5 of 824 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	L5	2	G
2	L5	17	A
2	L5	25	A
2	L5	26	C
2	L5	30	C

5 of 18 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	L5	3673	C
2	L5	4913	G
2	L5	4699	U
2	L5	2416	G

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Mol	Chain	Res	Type
2	L5	3614	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 oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 231 ligands modelled in this entry, 231 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)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
21	LR	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	LR	134:ASN	C	135:LYS	N	2.94

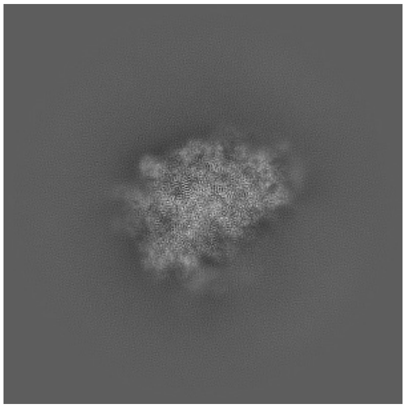
6 Map visualisation ⓘ

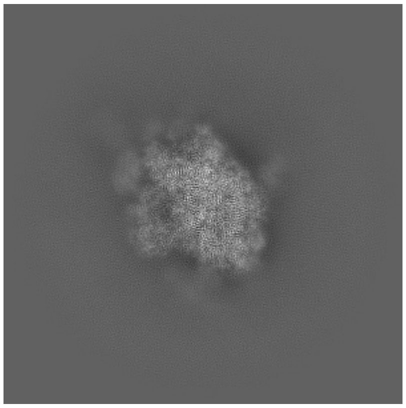
This section contains visualisations of the EMDB entry EMD-42318. These allow visual inspection of the internal detail of the map and identification of artifacts.

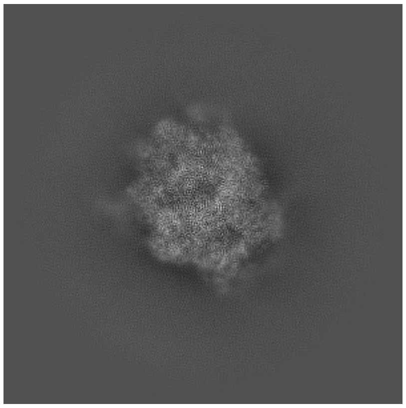
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections ⓘ

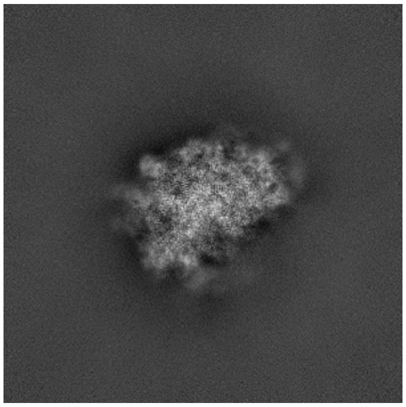
6.1.1 Primary map

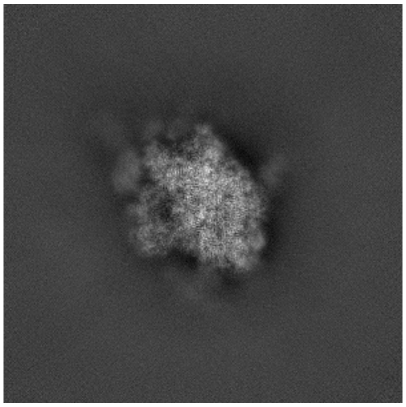

X

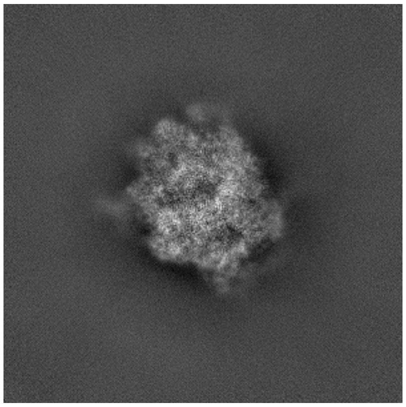

Y


Z

6.1.2 Raw map


X

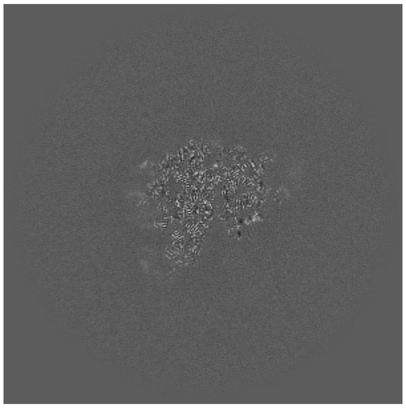

Y


Z

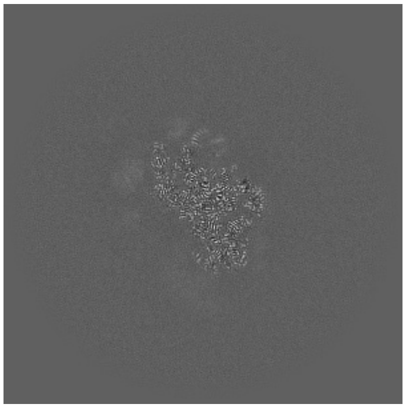
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ

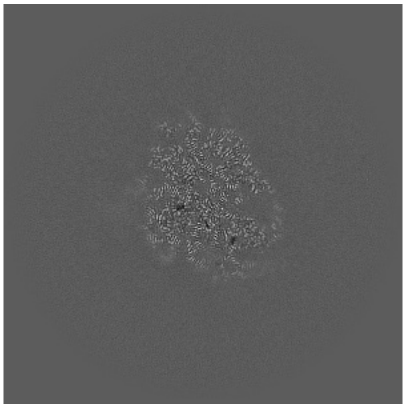
6.2.1 Primary map



X Index: 256

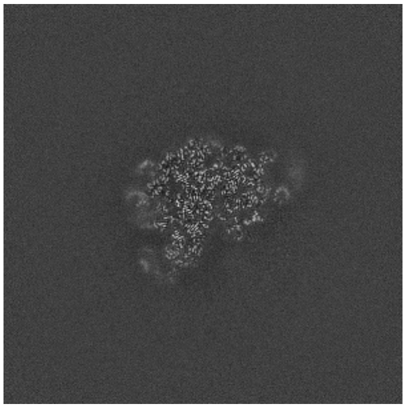


Y Index: 256

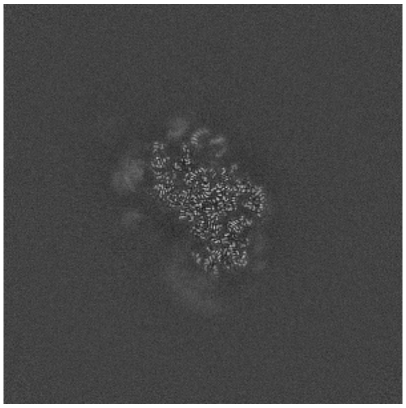


Z Index: 256

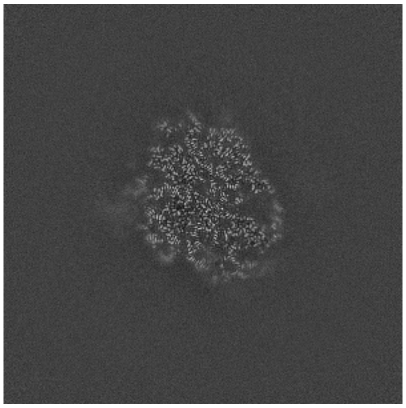
6.2.2 Raw map



X Index: 256



Y Index: 256

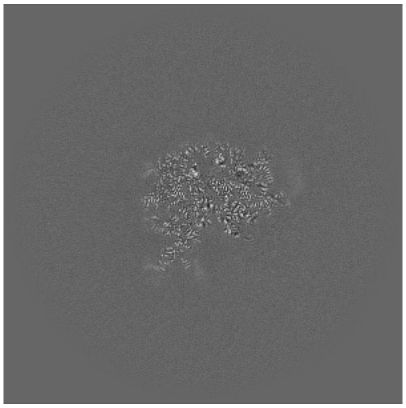


Z Index: 256

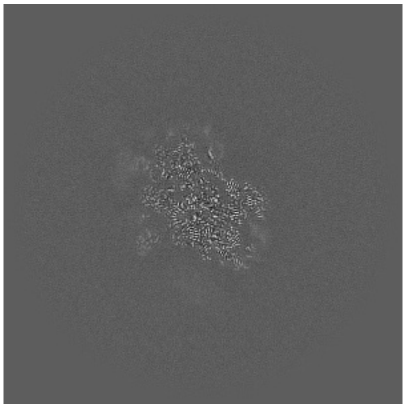
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices

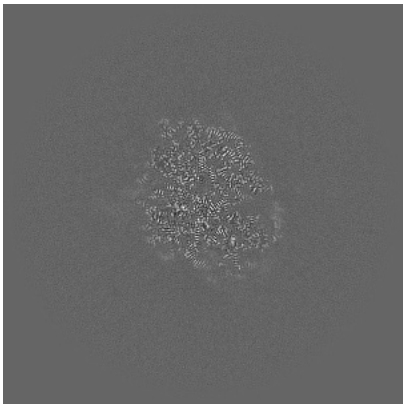
6.3.1 Primary map



X Index: 244

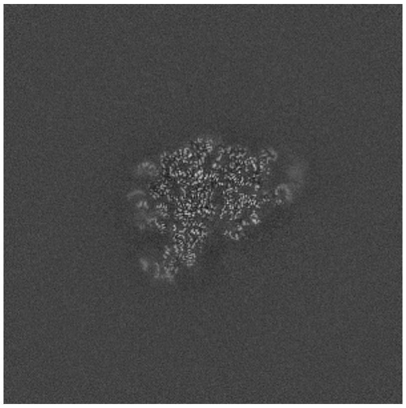


Y Index: 243

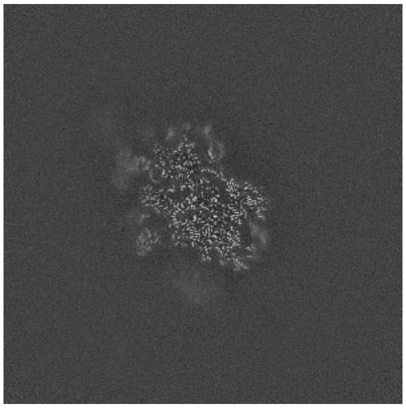


Z Index: 258

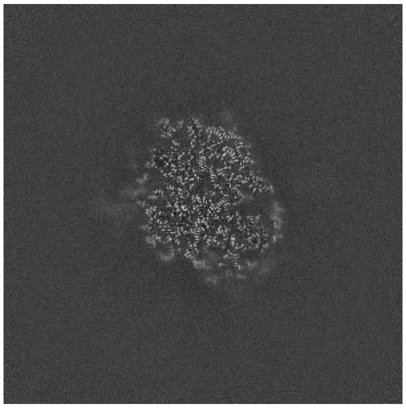
6.3.2 Raw map



X Index: 253



Y Index: 243

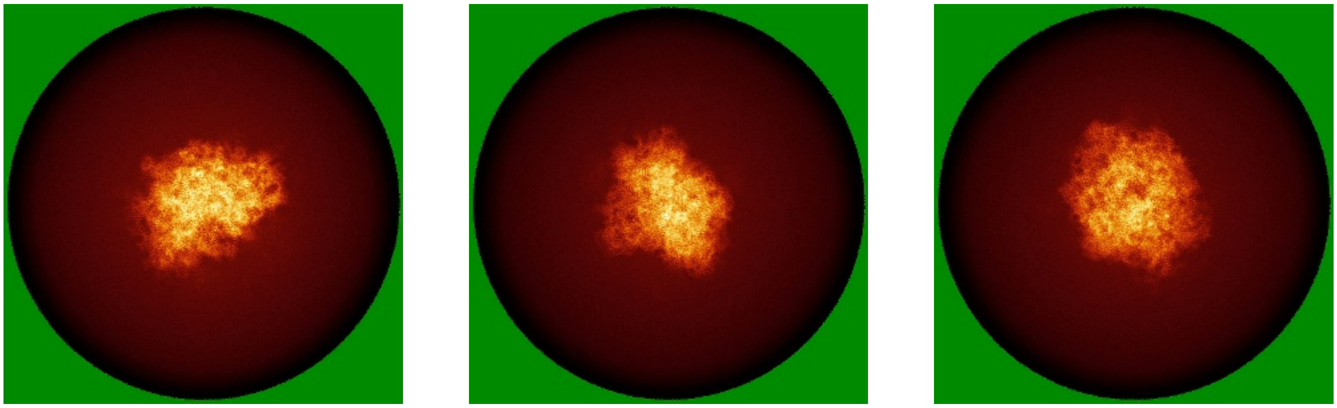


Z Index: 258

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

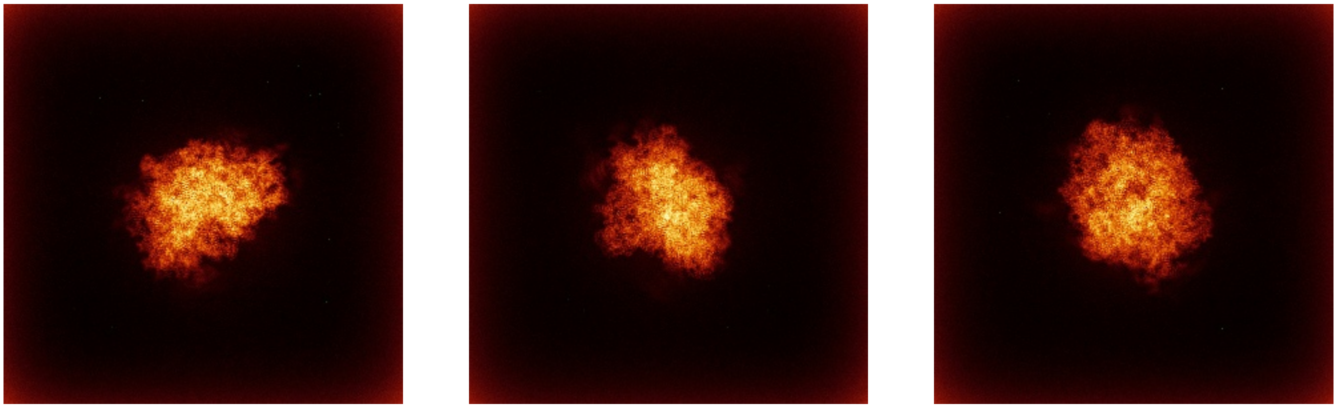
6.4 Orthogonal standard-deviation projections (False-color)

6.4.1 Primary map



X Y Z

6.4.2 Raw map



X Y Z

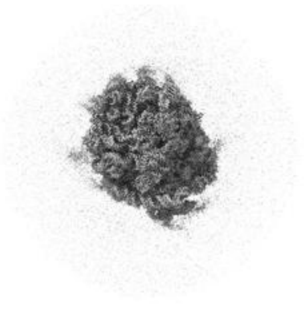
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views

6.5.1 Primary map

X

Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0495. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X

Y

Z

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

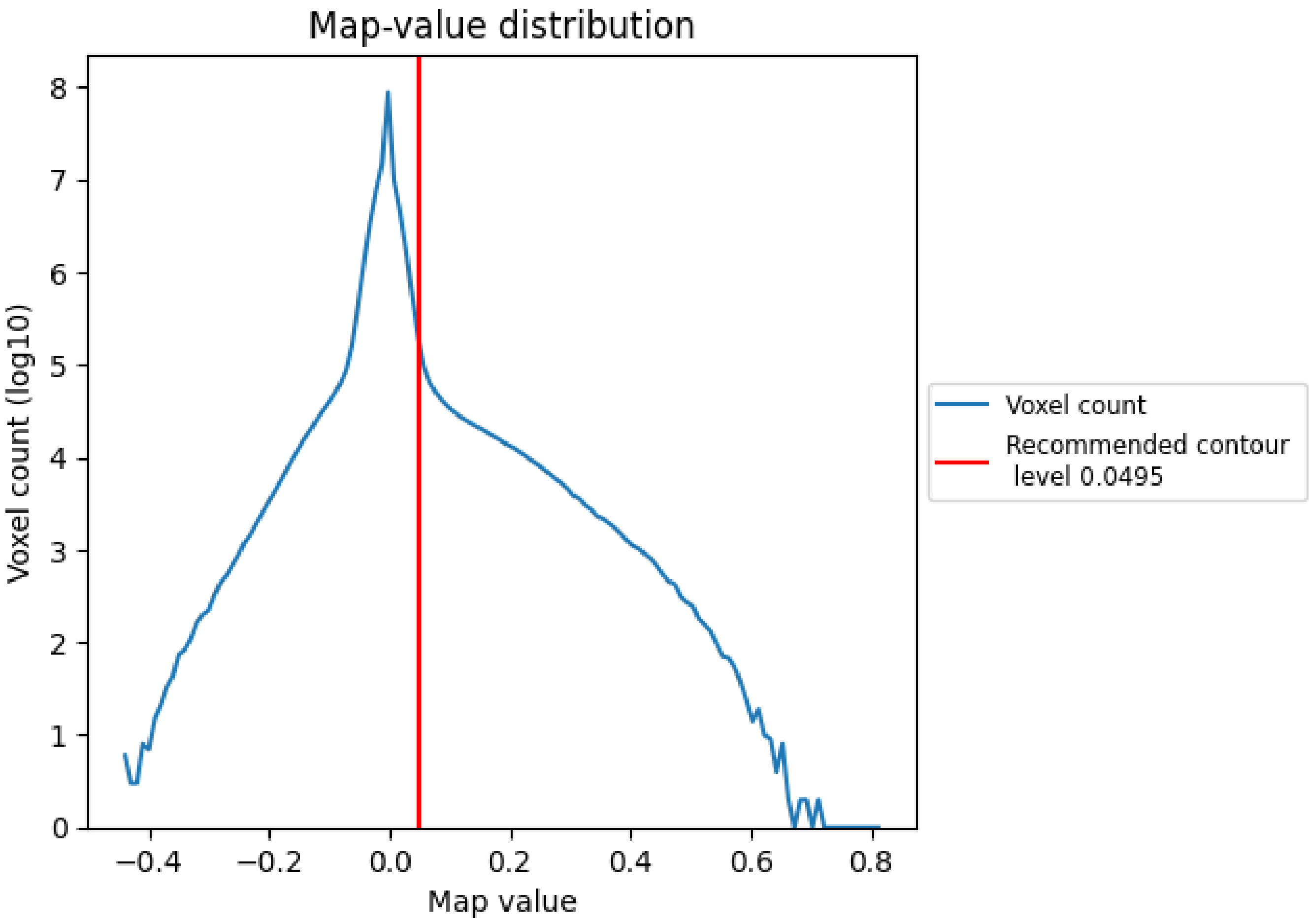
6.6 Mask visualisation

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

7 Map analysis ⓘ

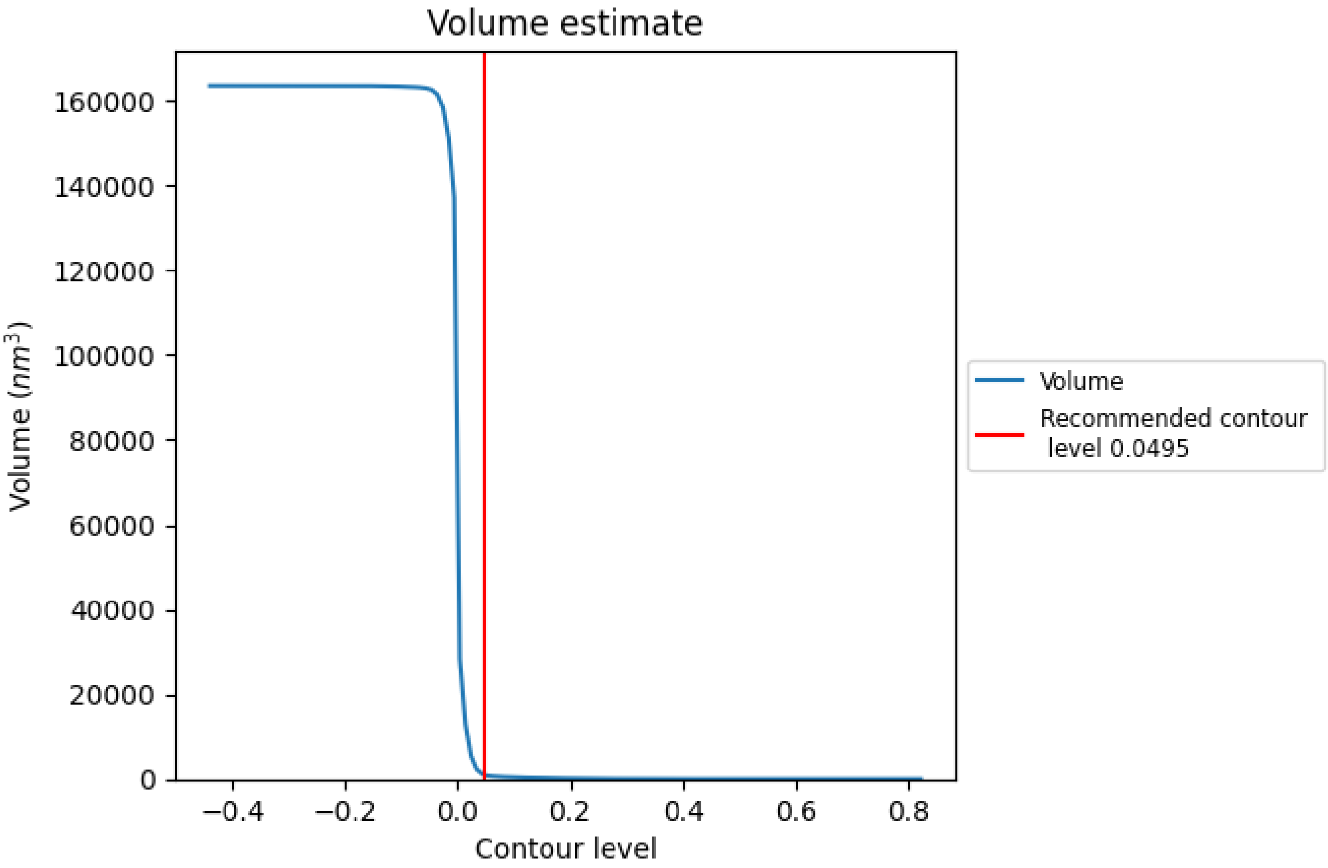
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution ⓘ



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.

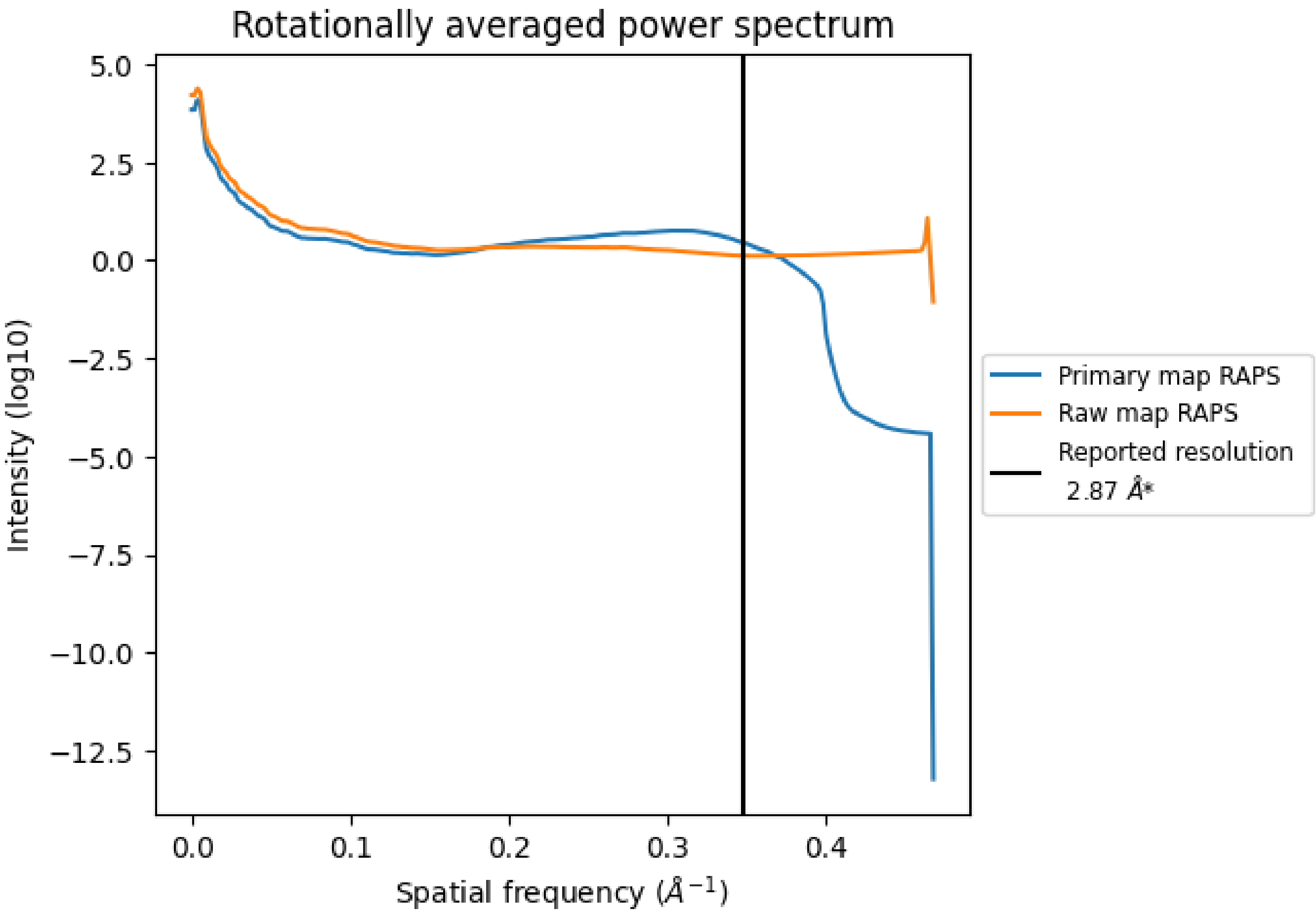
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 954 nm^3; this corresponds to an approximate mass of 862 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 ⓘ

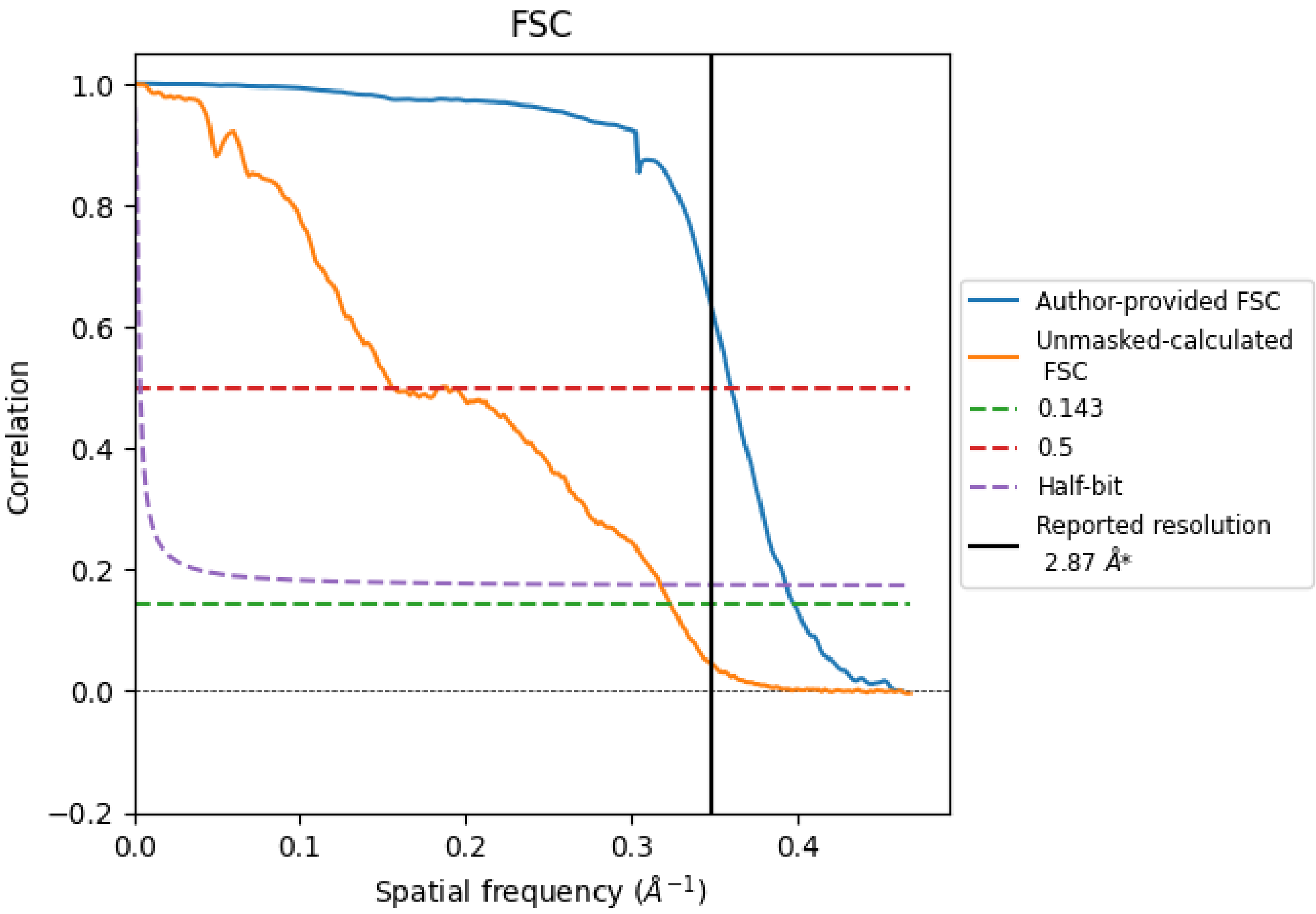


*Reported resolution corresponds to spatial frequency of 0.348 Å^{-1}

8 Fourier-Shell correlation ⓘ

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 ⓘ



*Reported resolution corresponds to spatial frequency of 0.348 Å^{-1}

8.2 Resolution estimates

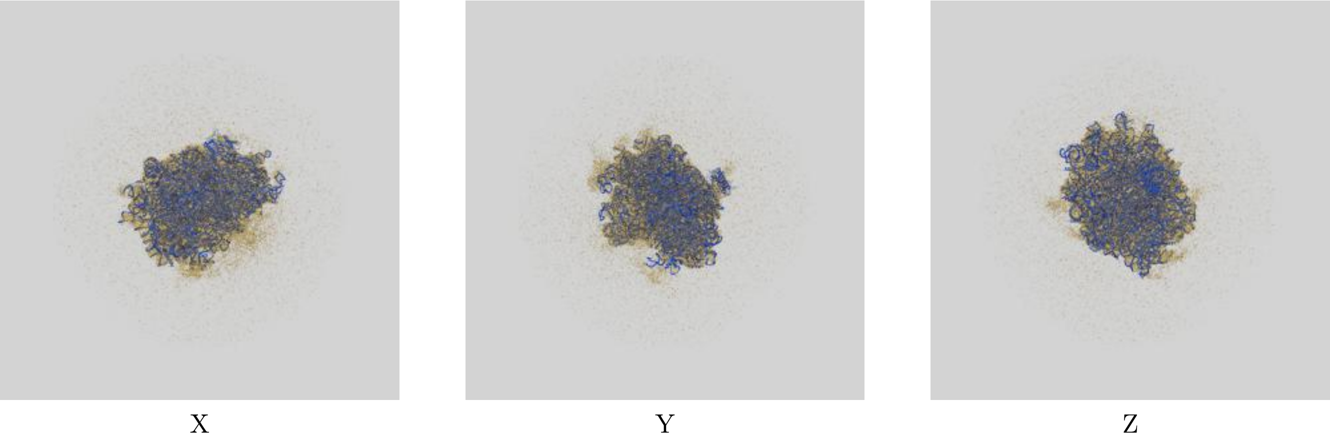
Resolution estimate (Å)	**Estimation criterion (FSC cut-off)**		
	0.143	0.5	Half-bit
Reported by author	2.87	-	-
Author-provided FSC curve	2.51	2.78	2.54
Unmasked-calculated*	3.09	6.44	3.15

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 2.51 differs from the reported value 2.87 by more than 10 %

9 Map-model fit ⓘ

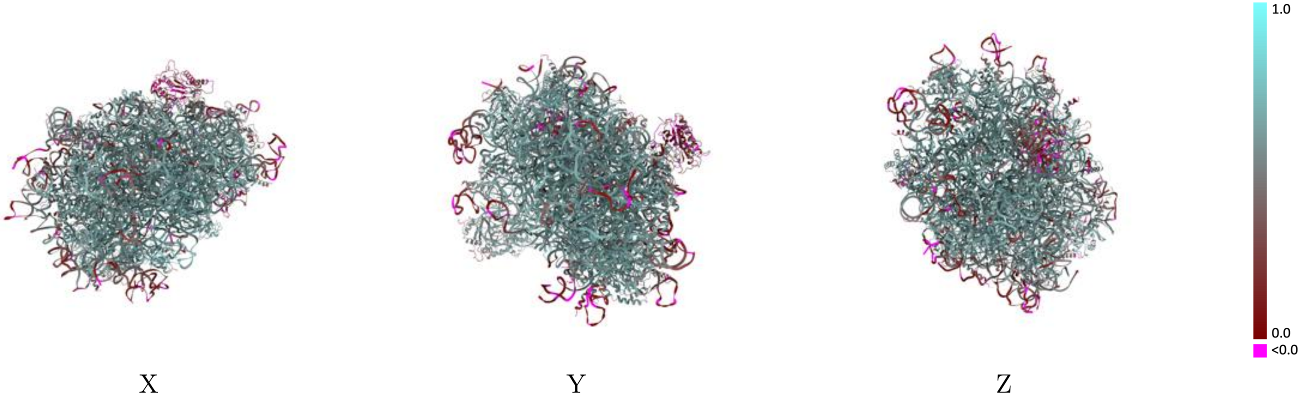
This section contains information regarding the fit between EMDB map EMD-42318 and PDB model 8UJC. Per-residue inclusion information can be found in section 3 on page 13.

9.1 Map-model overlay ⓘ



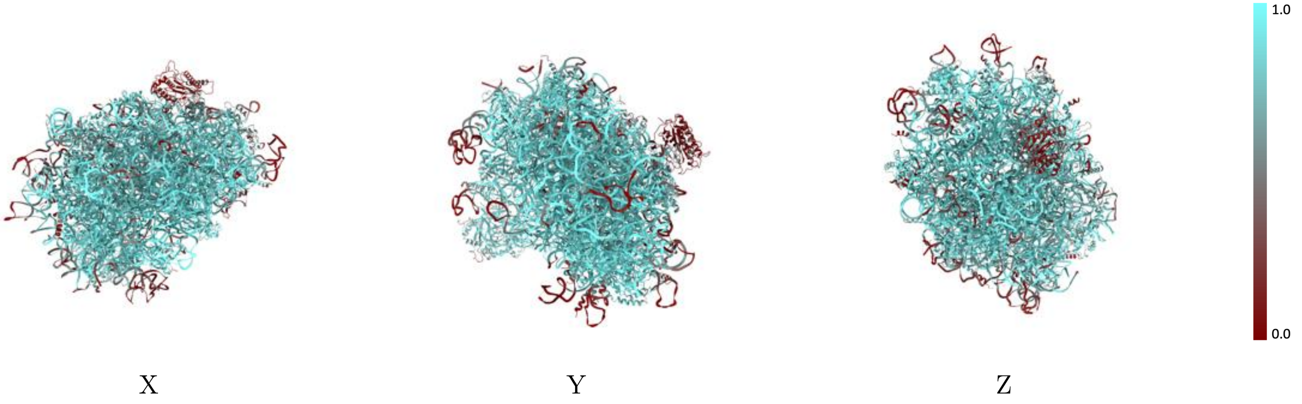
The images above show the 3D surface view of the map at the recommended contour level 0.0495 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ



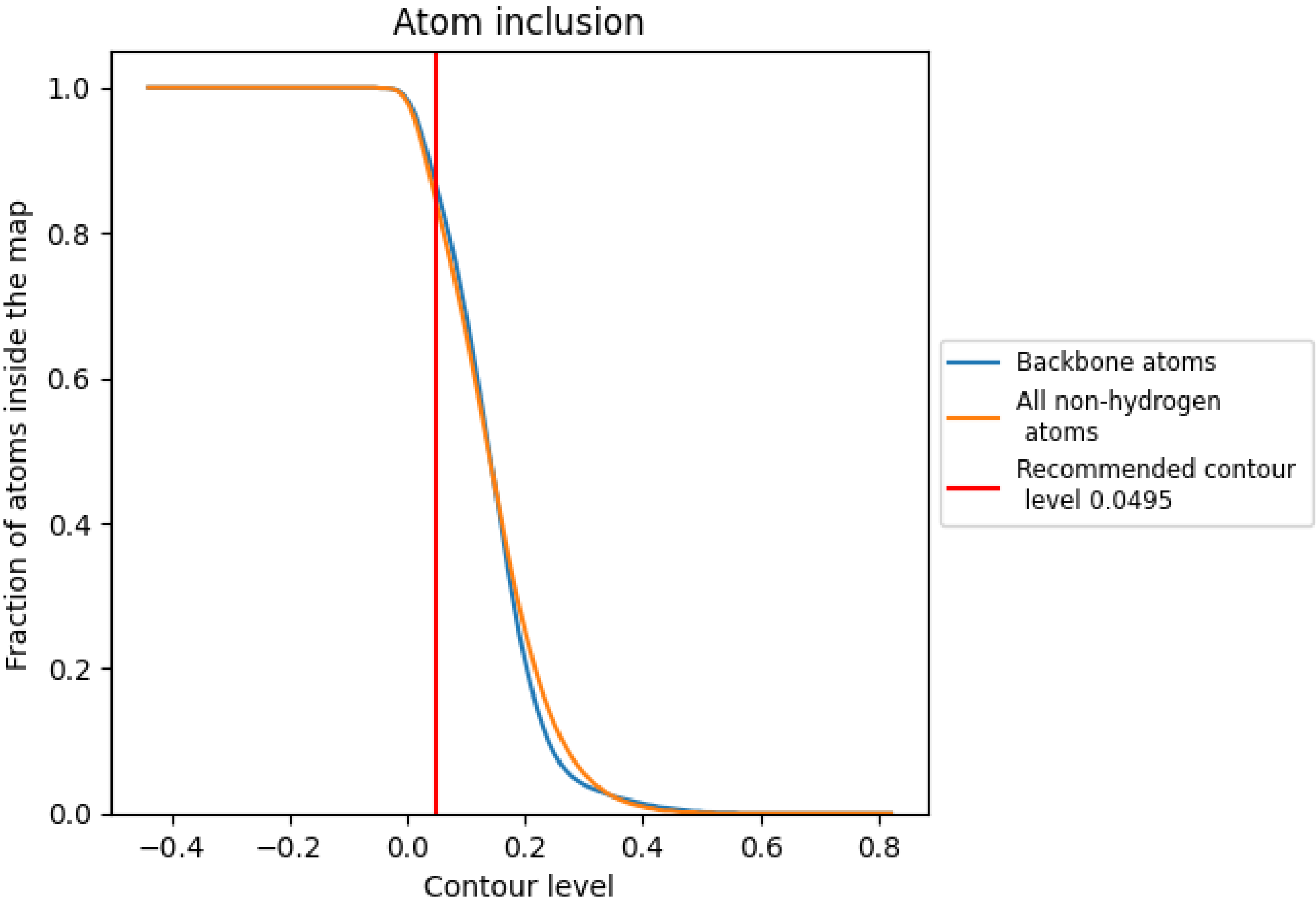
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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



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 (0.0495).

9.4 Atom inclusion ⓘ



At the recommended contour level, 87% of all backbone atoms, 84% 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 (0.0495) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8430	0.5650
CA	0.1730	0.1950
L5	0.8450	0.5560
L7	0.9700	0.6330
L8	0.9060	0.5950
LA	0.9400	0.6320
LB	0.8900	0.6080
LC	0.9010	0.6180
LD	0.8360	0.5710
LE	0.7780	0.5410
LF	0.9250	0.6270
LG	0.7770	0.5410
LH	0.8760	0.5950
LI	0.8850	0.6110
LJ	0.6720	0.4560
LL	0.8320	0.5700
LM	0.8890	0.5990
LN	0.9610	0.6520
LO	0.9180	0.6260
LP	0.9100	0.6300
LQ	0.9320	0.6430
LR	0.8800	0.6010
LS	0.9390	0.6400
LT	0.8540	0.5880
LU	0.6150	0.4380
LV	0.9110	0.6140
LW	0.3200	0.1330
LX	0.8690	0.6030
LY	0.8740	0.6070
LZ	0.8440	0.5850
La	0.9310	0.6410
Lb	0.7500	0.5200
Lc	0.8430	0.5460
Ld	0.8470	0.5800
Le	0.9400	0.6410

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Chain	Atom inclusion	Q-score
Lf	0.9430	0.6380
Lg	0.8790	0.6070
Lh	0.8560	0.5850
Li	0.8370	0.5830
Lj	0.9420	0.6380
Lk	0.7040	0.5130
Ll	0.8910	0.6050
Lm	0.8770	0.6140
Lo	0.8710	0.6010
Lp	0.8970	0.6160
Lr	0.9180	0.6200