wwPDB EM Validation Summary Report ⓘ

Jul 3, 2025 – 10:58 AM EDT

PDB ID	:	8UZ3 / pdb_00008uz3
EMDB ID	:	EMD-42832
Title	:	E. coli 70S ribosome with unmodified e*/E-tRNAPro(GGG) bound to slippery P-site CCC-C codon
Authors	:	Kimbrough, E.M.; Dunham, C.M.; Nguyen, H.A.
Deposited on	:	2023-11-14
Resolution	:	3.20 Å(reported)

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

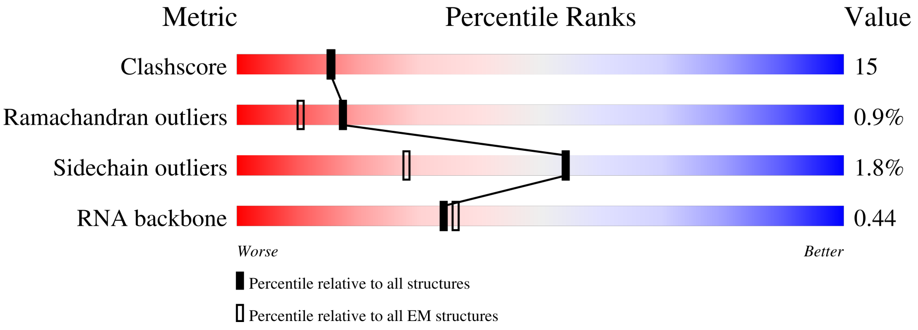
EMDB validation analysis	:	0.0.1.dev118
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

1 Overall quality at a glance ⓘ

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

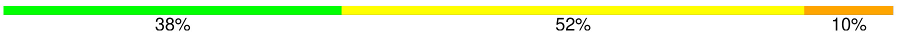
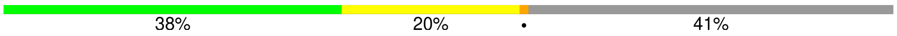
The reported resolution of this entry is 3.20 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
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	1	2904	
2	2	1540	
3	3	120	
4	4	18	
5	5	77	
6	A	229	
7	B	273	

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Mol	Chain	Length	Quality of chain
8	C	209	76% 23% •
9	D	201	73% 26%
10	E	179	61% 38% •
11	F	177	70% 27% • •
12	G	149	5% 80% 18% •
13	J	142	69% 29% •
14	K	123	61% 34% • •
15	L	144	71% 28% ••
16	M	136	72% 28%
17	N	127	64% 31% 6%
18	O	117	74% 25% •
19	P	115	75% 22% • •
20	Q	118	75% 22% • •
21	R	103	75% 23% •
22	S	110	79% 20% •
23	T	100	67% 26% 7%
24	U	104	78% 20% •
25	V	94	70% 29% •
26	W	84	73% 17% 11%
27	X	78	63% 36% •
28	Y	63	83% 16% •
29	Z	59	68% 31% •
30	b	57	74% 23% • •
31	c	55	60% 31% 9%
32	d	46	74% 26%

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Mol	Chain	Length	Quality of chain
33	e	65	57% 37% 5% •
34	f	38	71% 29%
35	h	206	80% 19% •
36	i	206	68% 31% •
37	j	167	65% 28% • 6%
38	k	135	52% 19% • • 26%
39	l	179	• 60% 22% • 16%
40	m	130	72% 26% ••
41	n	130	• 60% 36% • •
42	o	103	55% 38% • 5%
43	p	129	61% 26% • • 10%
44	q	124	69% 27% • •
45	r	118	• 56% 38% • • •
46	s	101	76% 23% •
47	t	89	70% 28% ••
48	u	82	• 73% 24% ••
49	v	84	50% 45% 5%
50	w	75	67% 20% 13%
51	x	92	59% 25% • 14%
52	y	87	• 70% 26% • •
53	z	71	65% 24% •• 8%

2 Entry composition

There are 55 unique types of molecules in this entry. The entry contains 144496 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 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	2903	Total	C	N	O	P	0	0
			62317	27801	11468	20146	2902		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	747	C	U	conflict	GB 1109114233

- Molecule 2 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	2	1539	Total	C	N	O	P	0	0
			33012	14725	6052	10697	1538		

- Molecule 3 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	3	120	Total	C	N	O	P	0	0
			2568	1145	471	833	119		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
3	120	A	U	conflict	GB 1370526515

- Molecule 4 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	4	4	Total	C	N	O	P	0	0
			80	36	12	28	4		

- Molecule 5 is a RNA chain called tRNA ProL(GGG).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	5	76	1628	724	294	534	76	0	0

- Molecule 6 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	A	134	1026	645	186	193	2	0	0

- Molecule 7 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	B	271	2082	1288	423	364	7	0	0

- Molecule 8 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	C	209	1565	979	288	294	4	0	0

- Molecule 9 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	D	201	1552	974	283	290	5	0	0

- Molecule 10 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	E	177	1410	899	249	256	6	0	0

- Molecule 11 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	F	176	1323	832	243	246	2	0	0

- Molecule 12 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	G	149	Total	C	N	O	S	0	0
			1111	699	197	214	1		

- Molecule 13 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	J	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

- Molecule 14 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	K	122	Total	C	N	O	S	0	0
			938	587	180	165	6		

- Molecule 15 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	L	143	Total	C	N	O	S	0	0
			1045	649	206	189	1		

- Molecule 16 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	M	136	Total	C	N	O	S	0	0
			1074	686	205	177	6		

- Molecule 17 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	N	120	Total	C	N	O	S	0	0
			960	593	196	166	5		

- Molecule 18 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	O	116	Total	C	N	O	0	0
			892	552	178	162		

- Molecule 19 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	P	114	917	574	179	163	1	0	0

- Molecule 20 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
20	Q	117	947	604	192	151	0	0

- Molecule 21 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	R	103	816	516	153	145	2	0	0

- Molecule 22 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	S	110	857	532	166	156	3	0	0

- Molecule 23 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	T	93	738	466	139	131	2	0	0

- Molecule 24 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
24	U	102	779	492	146	141	0	0

- Molecule 25 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	V	94	753	479	137	134	3	0	0

- Molecule 26 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	W	75	575	356	116	102	1	0	0

- Molecule 27 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	X	77	625	388	129	106	2	0	0

- Molecule 28 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	Y	63	509	313	99	95	2	0	0

- Molecule 29 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	Z	58	449	281	87	79	2	0	0

- Molecule 30 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	b	56	444	269	94	80	1	0	0

- Molecule 31 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
31	c	50	409	263	75	71	0	0

- Molecule 32 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	d	46	377	228	90	57	2	0	0

- Molecule 33 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	e	64	504	323	105	74	2	0	0

- Molecule 34 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	f	38	302	185	65	48	4	0	0

- Molecule 35 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	h	206	1625	1028	305	289	3	0	0

- Molecule 36 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	i	205	1643	1026	315	298	4	0	0

- Molecule 37 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	j	157	1156	719	218	213	6	0	0

- Molecule 38 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	k	100	817	515	148	148	6	0	0

- Molecule 39 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	l	151	1181	735	227	215	4	0	0

- Molecule 40 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	m	129	979	616	173	184	6	0	0

- Molecule 41 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	n	127	1022	634	206	179	3	0	0

- Molecule 42 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	o	98	786	493	150	142	1	0	0

- Molecule 43 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	p	116	869	535	173	158	3	0	0

- Molecule 44 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	q	123	955	590	196	165	4	0	0

- Molecule 45 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	r	114	883	546	178	156	3	0	0

- Molecule 46 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	s	100	805	499	164	139	3	0	0

- Molecule 47 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	t	88	714	439	144	130	1	0	0

- Molecule 48 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	u	82	649	406	128	114	1	0	0

- Molecule 49 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
49	v	80	648	411	121	113	3	0	0

- Molecule 50 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
50	w	65	535	339	100	95	1	0	0

- Molecule 51 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
51	x	79	637	408	120	107	2	0	0

- Molecule 52 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
52	y	85	665	411	137	114	3	0	0

- Molecule 53 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
53	z	65	544	335	117	91	1	0	0

- Molecule 54 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
54	1	306	Total Mg 306 306	0
54	2	78	Total Mg 78 78	0
54	3	7	Total Mg 7 7	0
54	4	1	Total Mg 1 1	0
54	5	1	Total Mg 1 1	0
54	B	2	Total Mg 2 2	0
54	D	1	Total Mg 1 1	0
54	E	1	Total Mg 1 1	0
54	J	1	Total Mg 1 1	0
54	K	1	Total Mg 1 1	0
54	L	1	Total Mg 1 1	0
54	M	1	Total Mg 1 1	0
54	N	1	Total Mg 1 1	0
54	Q	1	Total Mg 1 1	0
54	R	1	Total Mg 1 1	0
54	S	3	Total Mg 3 3	0
54	W	1	Total Mg 1 1	0
54	Z	1	Total Mg 1 1	0
54	b	1	Total Mg 1 1	0
54	m	1	Total Mg 1 1	0
54	p	1	Total Mg 1 1	0
54	q	1	Total Mg 1 1	0

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Mol	Chain	Residues	Atoms	AltConf
54	r	1	Total Mg 1 1	0
54	w	1	Total Mg 1 1	0

- Molecule 55 is water.

Mol	Chain	Residues	Atoms	AltConf
55	1	812	Total O 812 812	0
55	2	288	Total O 288 288	0
55	3	13	Total O 13 13	0
55	4	1	Total O 1 1	0
55	5	5	Total O 5 5	0
55	A	5	Total O 5 5	0
55	B	1	Total O 1 1	0
55	C	2	Total O 2 2	0
55	E	2	Total O 2 2	0
55	F	4	Total O 4 4	0
55	G	8	Total O 8 8	0
55	J	11	Total O 11 11	0
55	K	3	Total O 3 3	0
55	M	6	Total O 6 6	0
55	N	1	Total O 1 1	0
55	O	3	Total O 3 3	0
55	P	2	Total O 2 2	0

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Mol	Chain	Residues	Atoms	AltConf
55	Q	1	Total O 1 1	0
55	R	1	Total O 1 1	0
55	T	5	Total O 5 5	0
55	U	4	Total O 4 4	0
55	V	3	Total O 3 3	0
55	W	3	Total O 3 3	0
55	X	3	Total O 3 3	0
55	Y	1	Total O 1 1	0
55	Z	5	Total O 5 5	0
55	c	6	Total O 6 6	0
55	d	1	Total O 1 1	0
55	h	9	Total O 9 9	0
55	i	1	Total O 1 1	0
55	j	4	Total O 4 4	0
55	k	4	Total O 4 4	0
55	l	4	Total O 4 4	0
55	m	1	Total O 1 1	0
55	o	1	Total O 1 1	0
55	p	11	Total O 11 11	0
55	r	1	Total O 1 1	0
55	t	7	Total O 7 7	0

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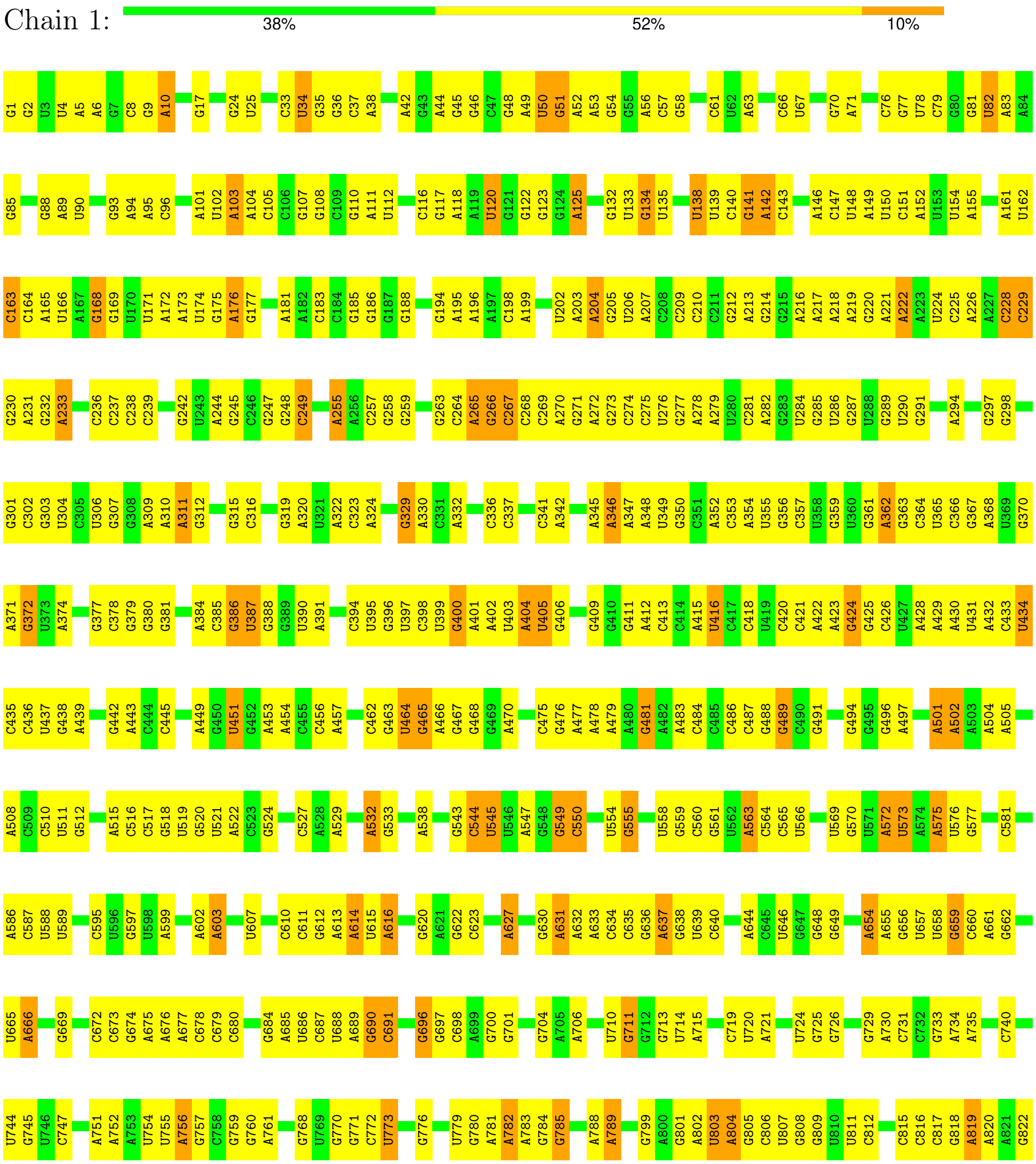
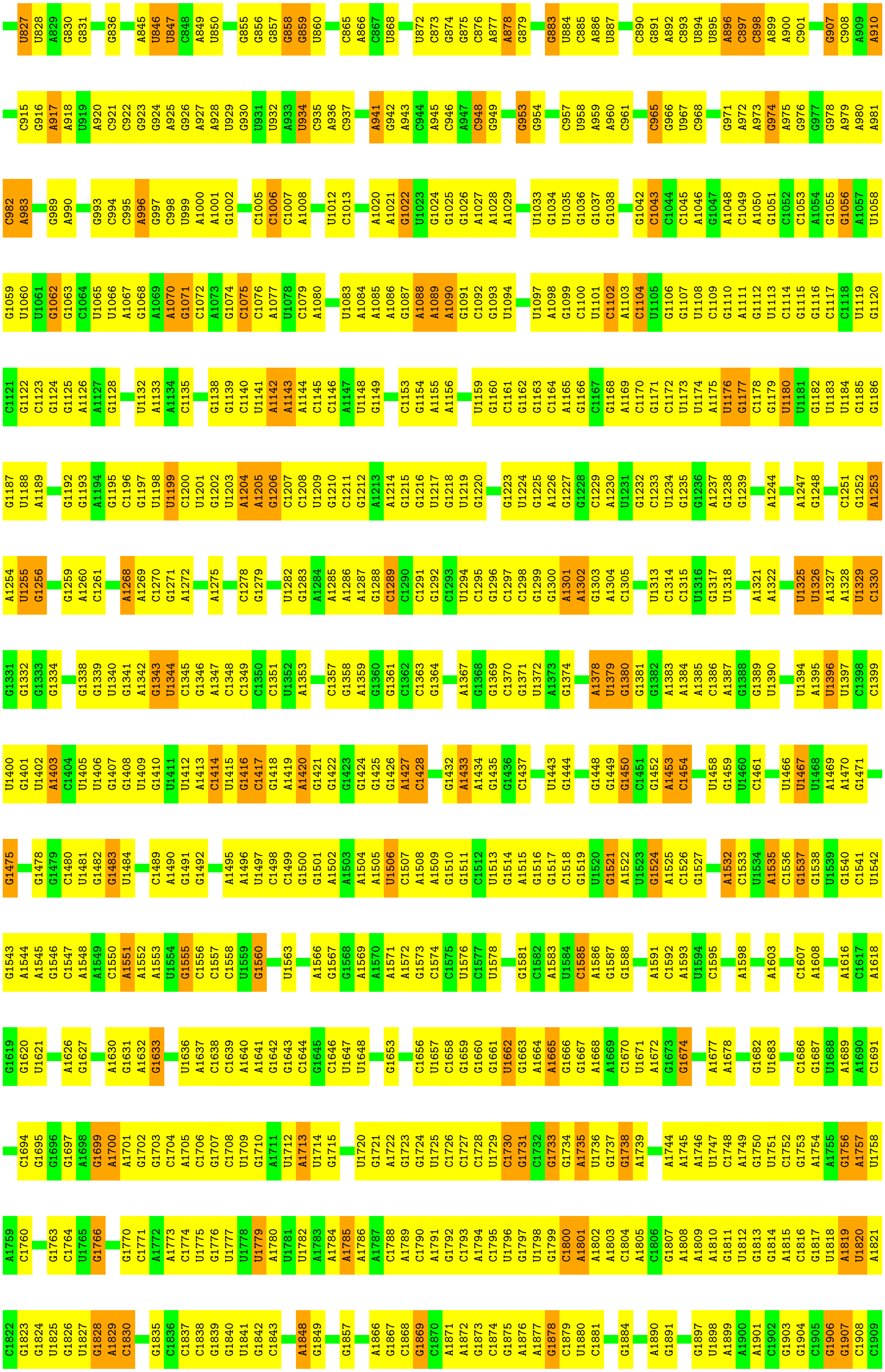
Mol	Chain	Residues	Atoms	AltConf
55	w	4	Total O 4 4	0
55	z	8	Total O 8 8	0

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: 23S ribosomal RNA




U827 U828 A829 G830 G831 G836 A845 U846 U847 C848 A849 U850 G855 G856 G857 G858 G859 U860 C865 A866 C867 U868 U872 C873 G874 G875 C876 A877 A878 G879 G883 U884 C885 A886 U887 C890 G891 A892 C893 U894 U895 A896 C897 C898 A899 A900 C901 G907 C908 A909 A910
C915 G916 A917 A918 U919 A920 C921 C922 G923 G924 A925 G926 A927 A928 U929 G930 U931 U932 A933 U934 C935 A936 C937 A941 G942 A943 C944 A945 C946 A947 C948 G949 G953 G954 C957 U958 A959 A960 C961 C965 G966 U967 C968 G971 A972 A973 G974 A975 G976 G977 G978 A979 A980 A981
C982 A983 G989 A990 G993 C994 C995 A996 G997 C998 U999 A1000 A1001 G1002 C1005 C1006 C1007 A1008 U1012 C1013 A1020 A1021 G1022 U1023 G1024 G1025 G1026 A1027 A1028 A1029 U1033 G1034 U1035 G1036 G1037 G1038 G1042 C1043 C1044 C1045 A1046 G1047 A1048 C1049 A1050 G1051 C1052 C1053 A1054 G1055 G1056 A1057 U1058
G1059 U1060 U1061 G1062 G1063 C1064 U1065 U1066 A1067 G1068 A1069 A1070 G1071 C1072 A1073 G1074 C1075 C1076 A1077 U1078 C1079 A1080 U1083 A1084 A1085 A1086 G1087 A1088 A1089 A1090 G1091 C1092 G1093 U1094 U1097 A1098 G1099 C1100 U1101 C1102 A1103 C1104 U1105 G1106 G1107 U1108 C1109 G1110 A1111 G1112 U1113 C1114 G1115 G1116 C1117 C1118 U1119 G1120
C1121 G1122 C1123 G1124 G1125 A1126 A1127 G1128 U1132 A1133 A1134 C1135 G1138 G1139 C1140 U1141 A1142 A1143 A1144 C1145 C1146 A1147 U1148 G1149 C1153 G1154 A1155 A1156 U1159 G1160 C1161 G1162 G1163 C1164 A1165 G1166 C1167 G1168 A1169 C1170 G1171 C1172 U1173 U1174 A1175 U1176 G1177 C1178 G1179 U1180 U1181 G1182 U1183 U1184 G1185 G1186
G1187 U1188 A1189 G1192 G1193 A1194 G1195 C1196 G1197 U1198 U1199 C1200 U1201 G1202 U1203 A1204 A1205 G1206 C1207 C1208 U1209 G1210 C1211 G1212 A1213 A1214 G1215 G1216 U1217 G1218 U1219 C1220 G1223 U1224 G1225 A1226 G1227 G1228 C1229 A1230 U1231 G1232 C1233 U1234 G1235 G1236 A1237 G1238 G1239 A1244 A1247 G1248 C1251 G1252 A1253
A1254 U1255 G1256 G1259 A1260 C1261 A1268 A1269 C1270 G1271 A1272 A1275 C1278 G1279 U1282 G1283 A1284 A1285 A1286 A1287 G1288 C1289 C1290 C1291 G1292 C1293 U1294 C1295 G1296 C1297 C1298 G1299 G1300 A1301 A1302 G1303 A1304 C1305 U1313 C1314 C1315 U1316 G1317 U1318 A1321 A1322 U1325 U1326 A1327 A1328 U1329 C1330
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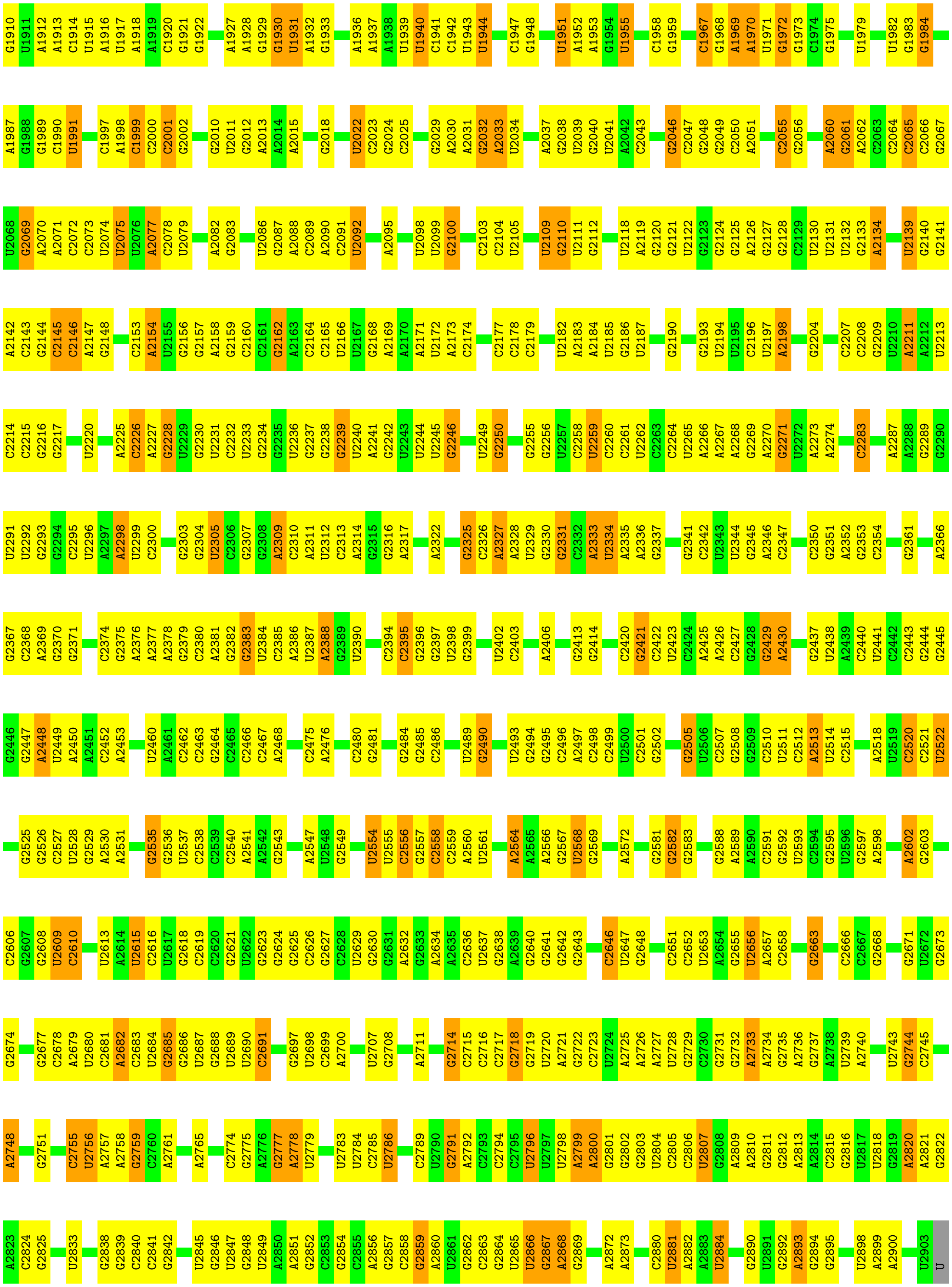
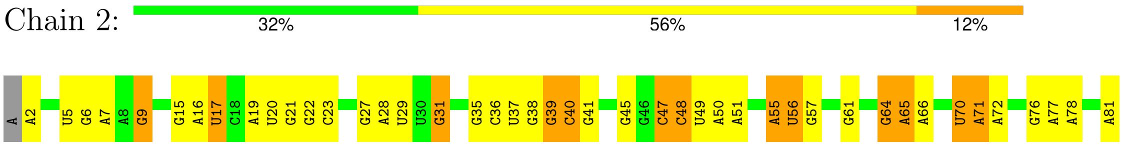
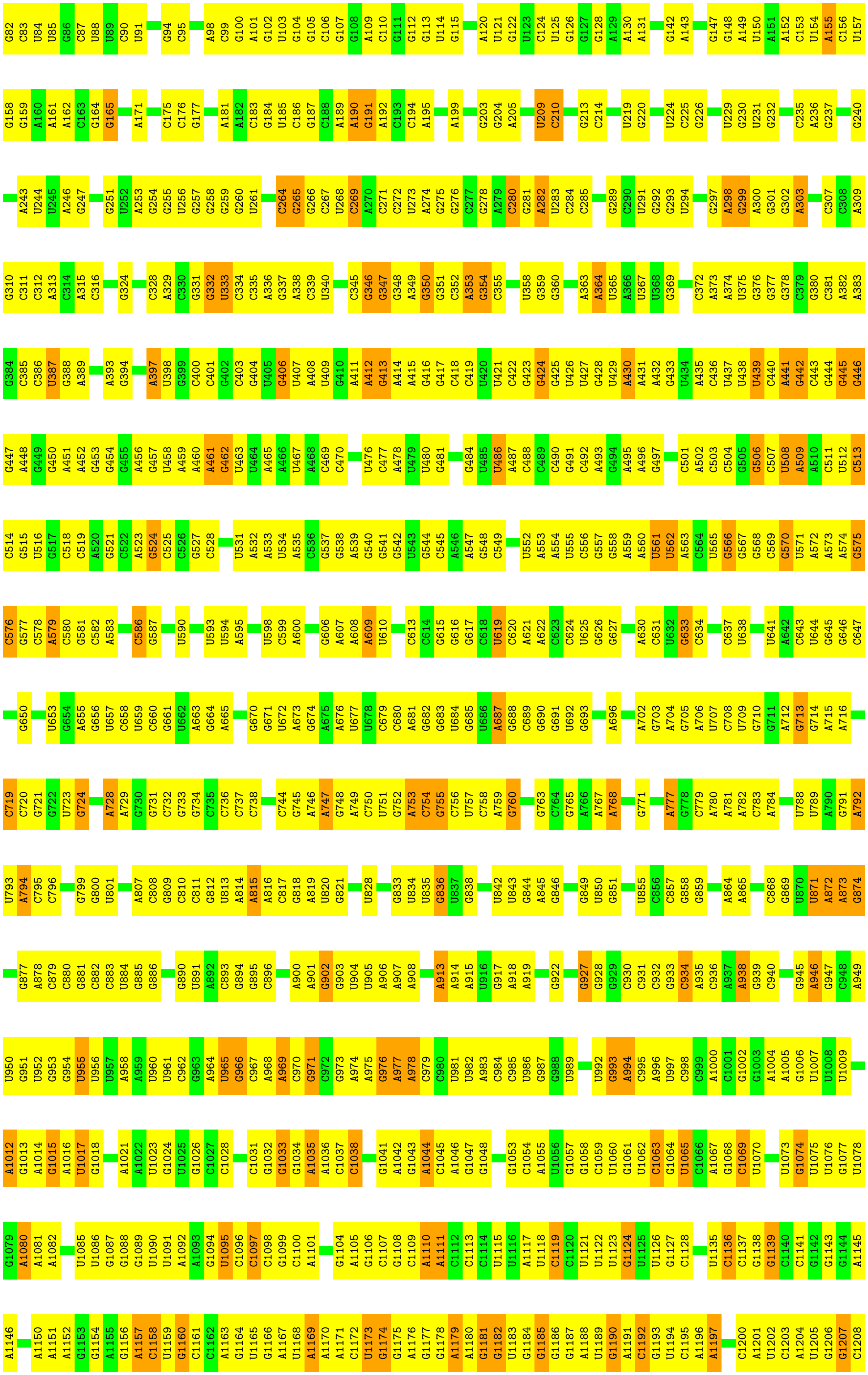


- Molecule 2: 16S ribosomal RNA

Chain 2:

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A243 U244 U245 A246 G247 G251 U252 A253 G254 G255 U256 G257 G258 G259 G260 U261 C264 G265 G266 C267 U268 C269 A270 C271 C272 U273 A274 G275 G276 C277 G278 A279 C280 G281 A282 U283 C284 C285 G289 C290 U291 G292 G293 U294 G297 A298 G299 A300 G301 G302 A303 C307 C308 A309
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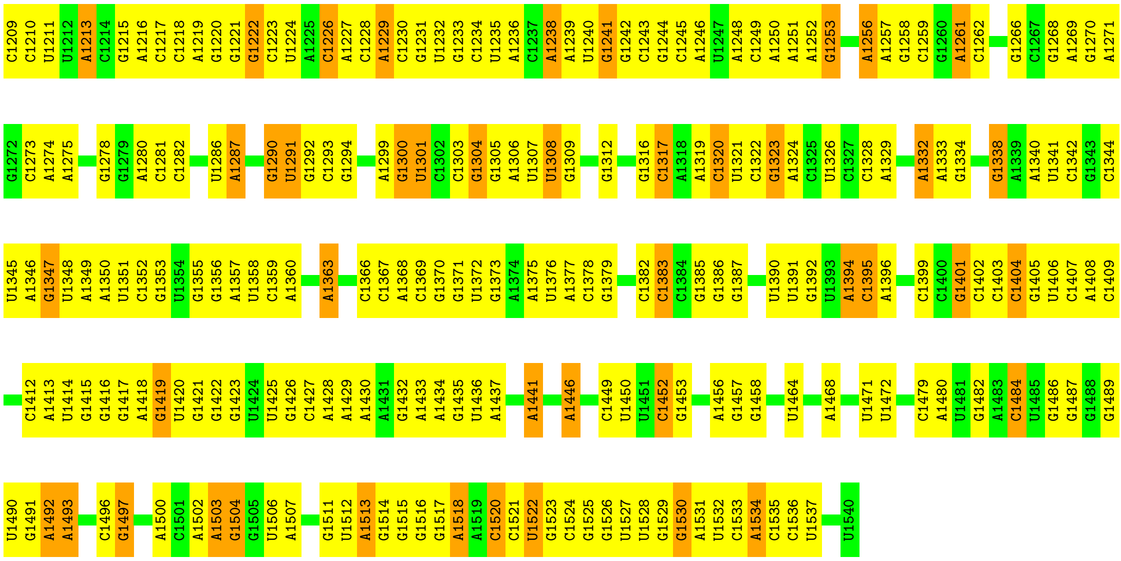
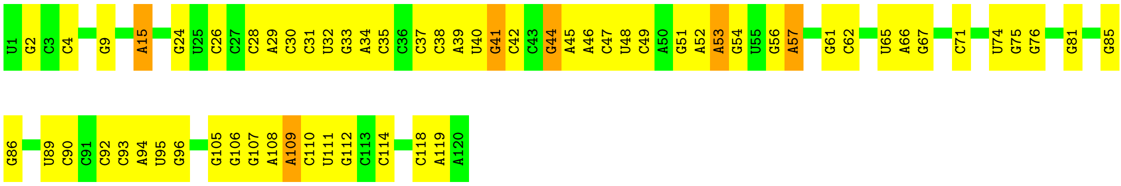


- Molecule 3: 5S ribosomal RNA

Chain 3:

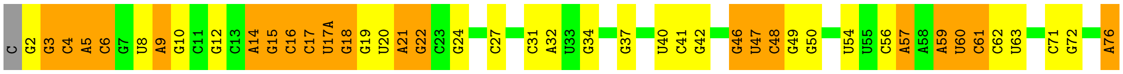


- Molecule 4: mRNA

Chain 4:

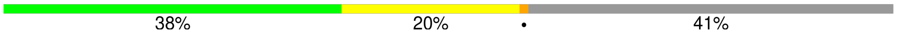
- Molecule 5: tRNA ProL(GGG)

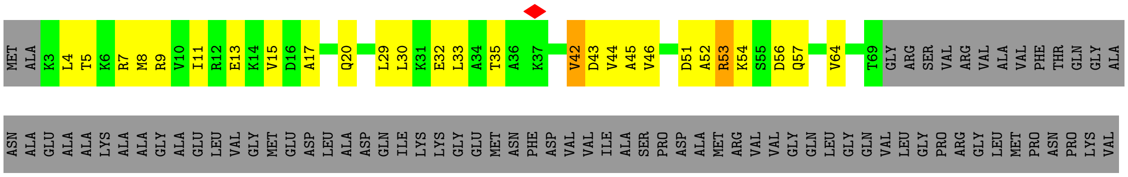
Chain 5:



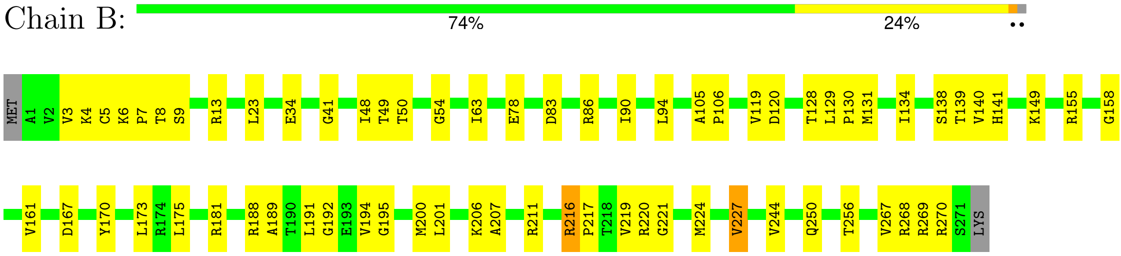
- Molecule 6: 50S ribosomal protein L1

Chain A:

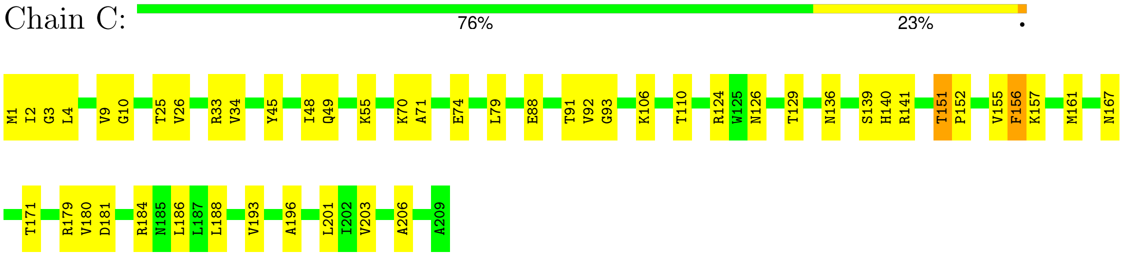




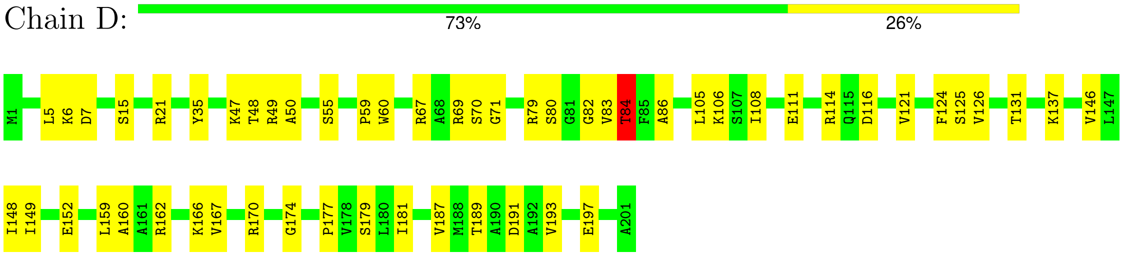
- Molecule 7: 50S ribosomal protein L2



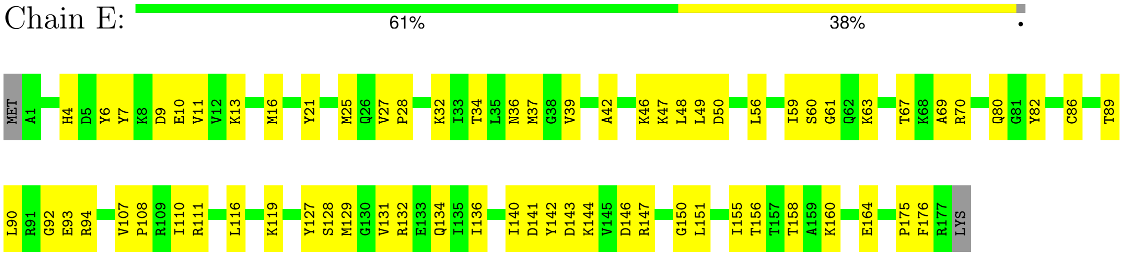
- Molecule 8: 50S ribosomal protein L3



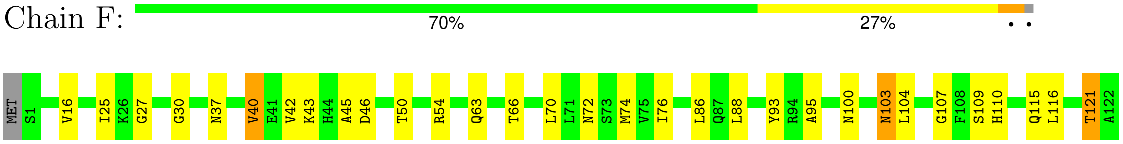
- Molecule 9: 50S ribosomal protein L4



- Molecule 10: 50S ribosomal protein L5

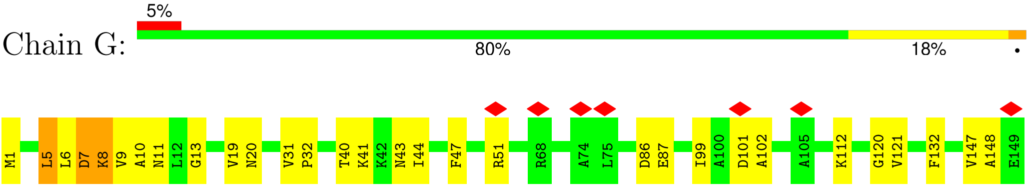


- Molecule 11: 50S ribosomal protein L6



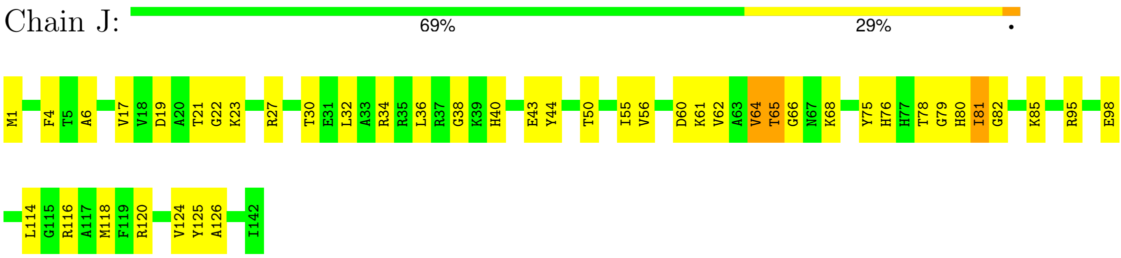
- Molecule 12: 50S ribosomal protein L9

Chain G:



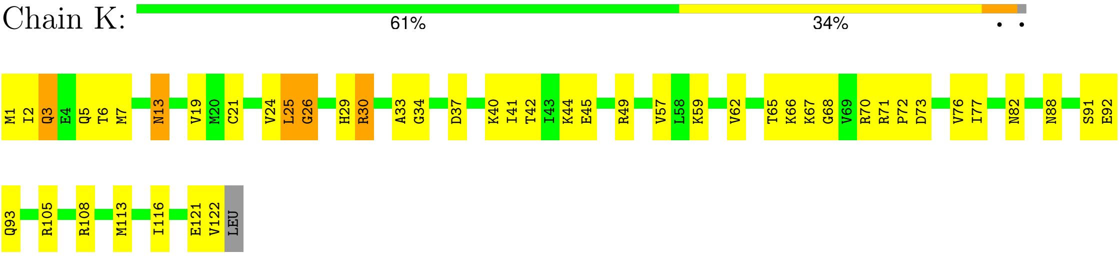
- Molecule 13: 50S ribosomal protein L13

Chain J:



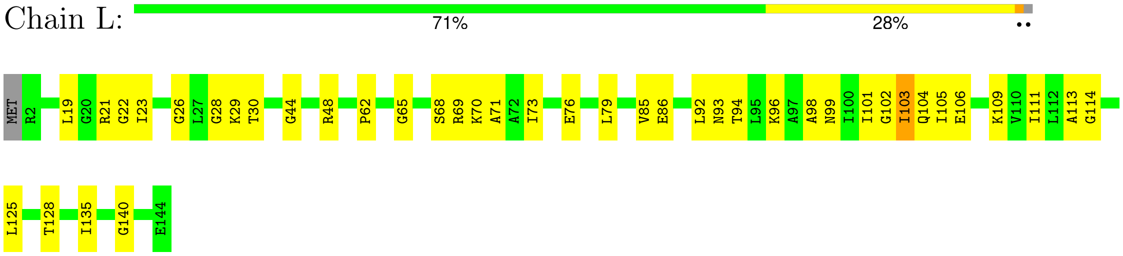
- Molecule 14: 50S ribosomal protein L14

Chain K:



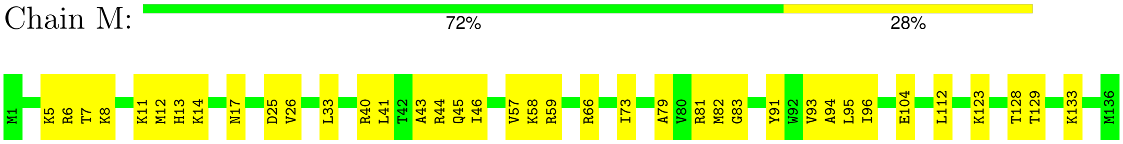
- Molecule 15: 50S ribosomal protein L15

Chain L:

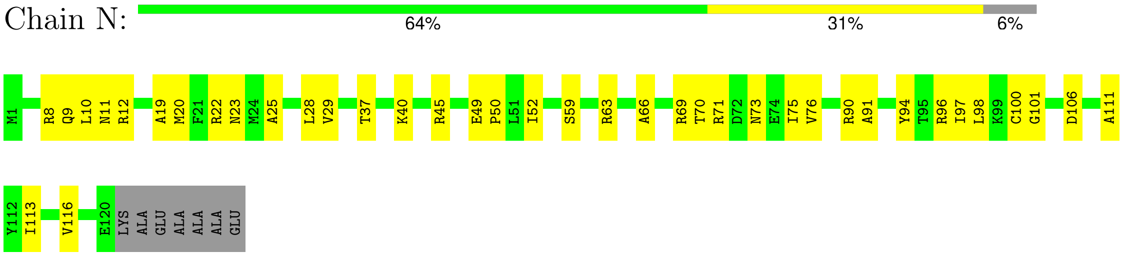


- Molecule 16: 50S ribosomal protein L16

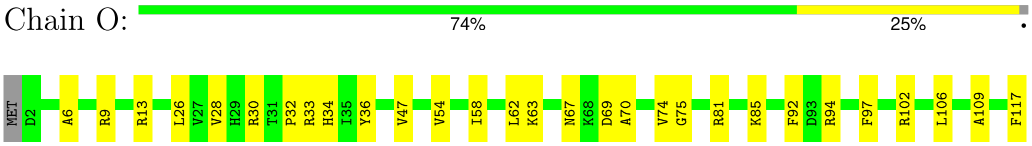
Chain M:



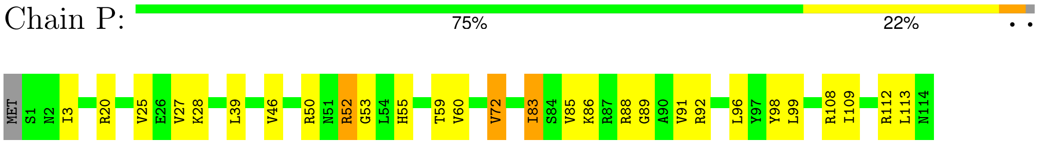
- Molecule 17: 50S ribosomal protein L17



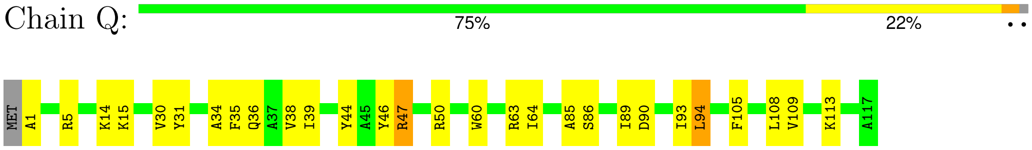
- Molecule 18: 50S ribosomal protein L18



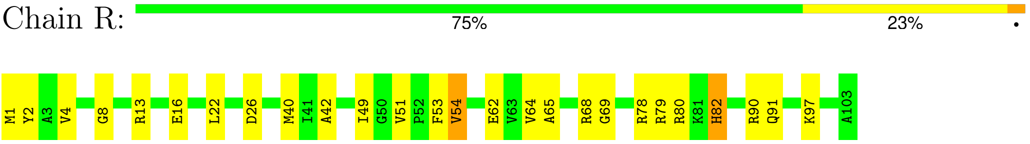
- Molecule 19: 50S ribosomal protein L19



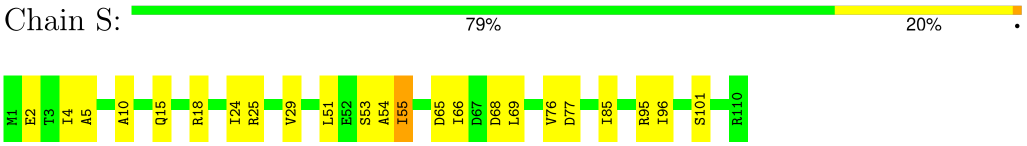
- Molecule 20: 50S ribosomal protein L20



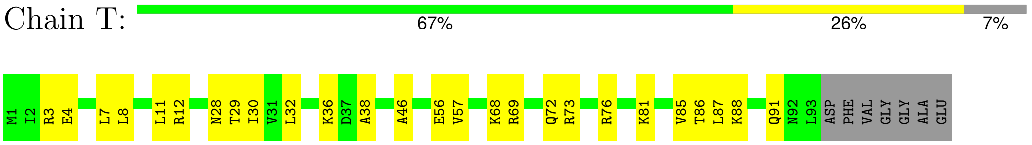
- Molecule 21: 50S ribosomal protein L21



- Molecule 22: 50S ribosomal protein L22

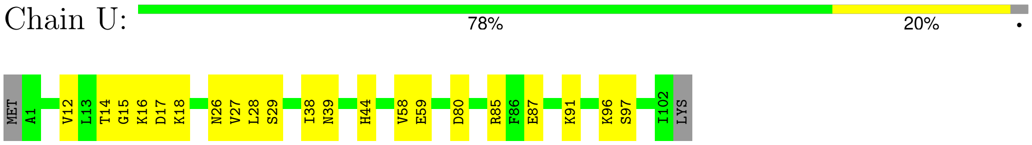


- Molecule 23: 50S ribosomal protein L23



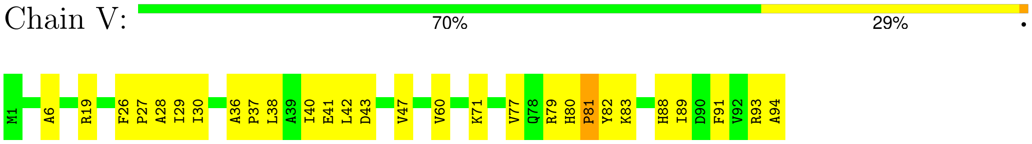
- Molecule 24: 50S ribosomal protein L24

Chain U:



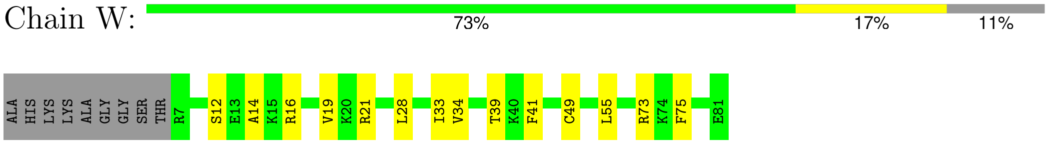
- Molecule 25: 50S ribosomal protein L25

Chain V:



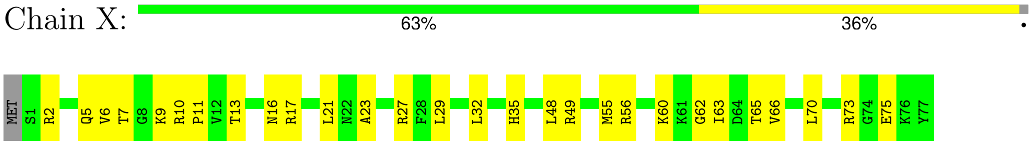
- Molecule 26: 50S ribosomal protein L27

Chain W:



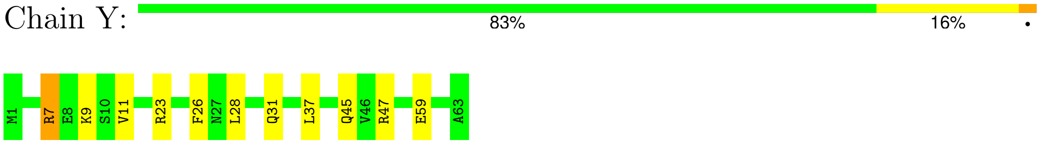
- Molecule 27: 50S ribosomal protein L28

Chain X:



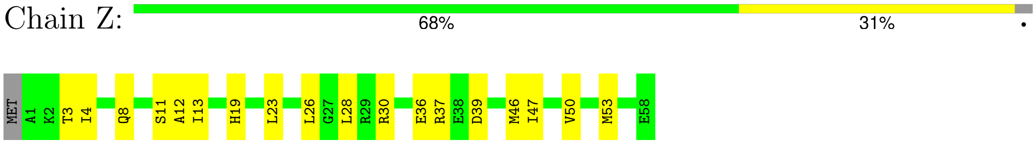
- Molecule 28: 50S ribosomal protein L29

Chain Y:



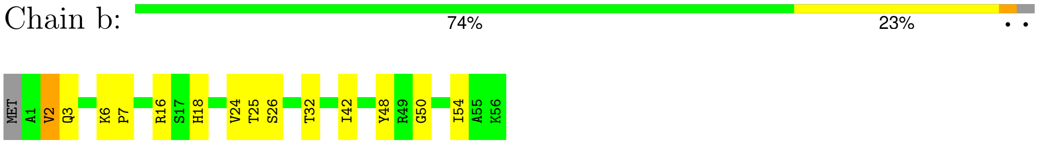
- Molecule 29: 50S ribosomal protein L30

Chain Z:



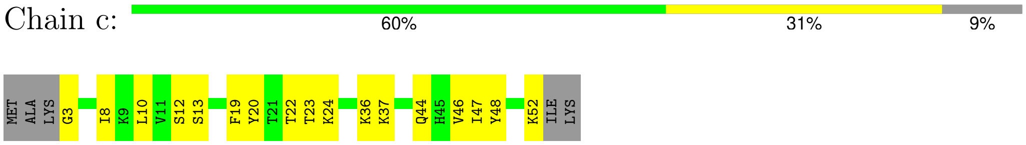
- Molecule 30: 50S ribosomal protein L32

Chain b:



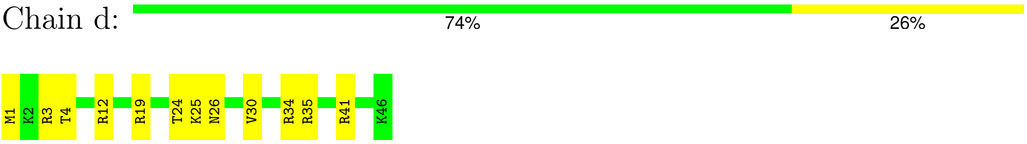
- Molecule 31: 50S ribosomal protein L33

Chain c:



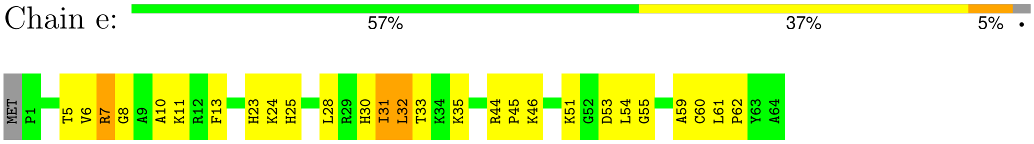
- Molecule 32: 50S ribosomal protein L34

Chain d:



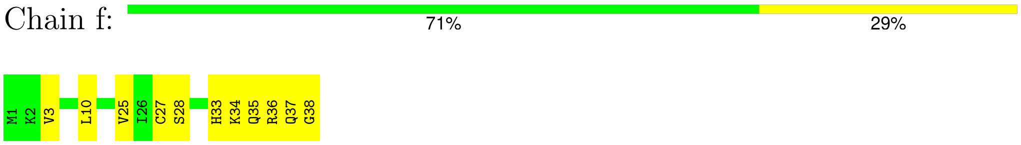
- Molecule 33: 50S ribosomal protein L35

Chain e:



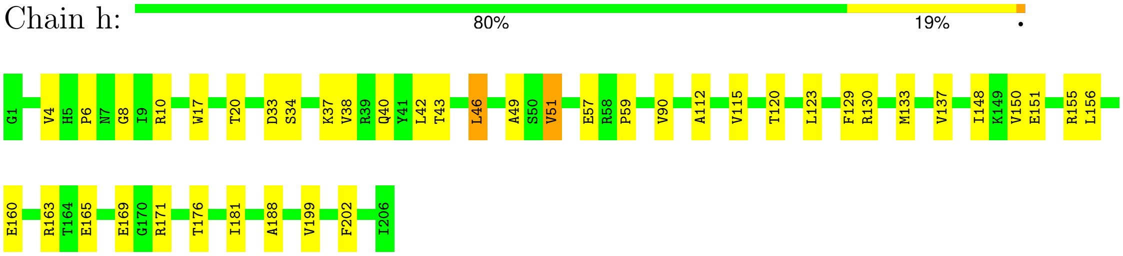
- Molecule 34: 50S ribosomal protein L36

Chain f:



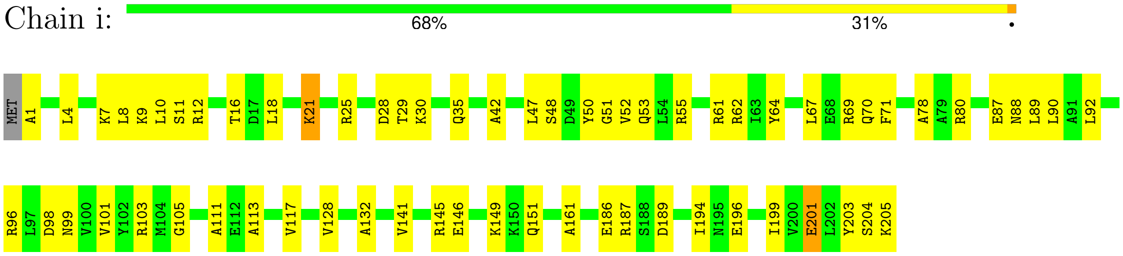
- Molecule 35: 30S ribosomal protein S3

Chain h:



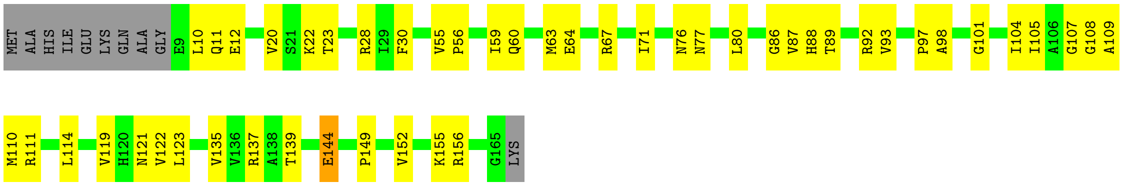
- Molecule 36: 30S ribosomal protein S4

Chain i:



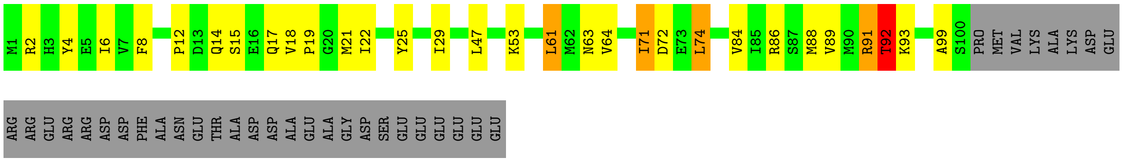
- Molecule 37: 30S ribosomal protein S5

Chain j:



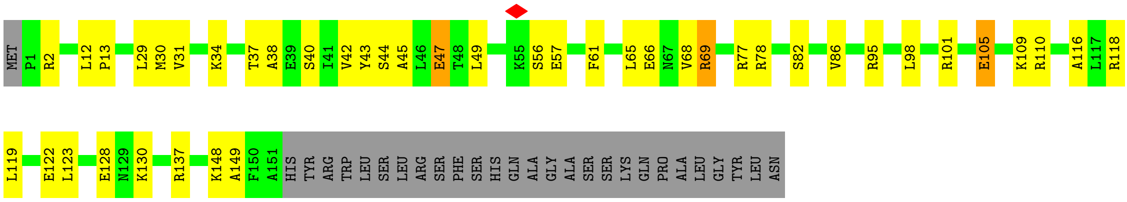
- Molecule 38: 30S ribosomal protein S6

Chain k:

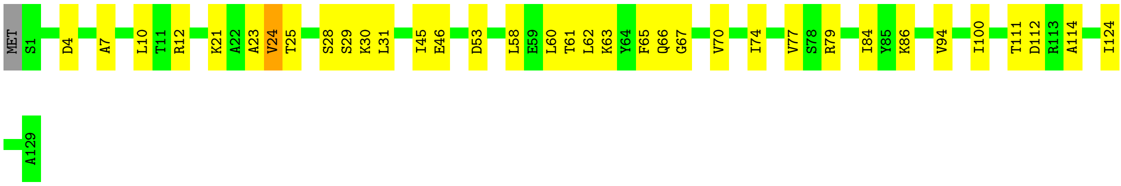
- Molecule 39: 30S ribosomal protein S7

Chain l:

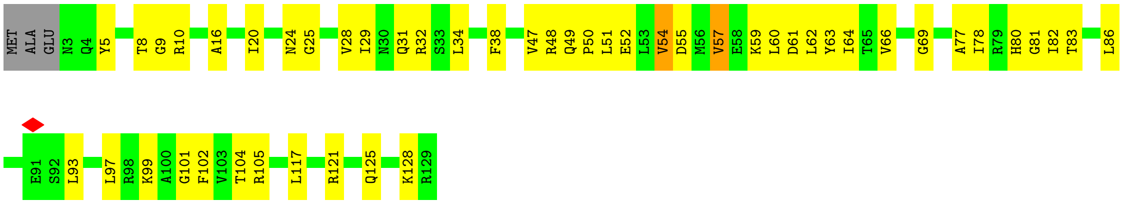
- Molecule 40: 30S ribosomal protein S8

Chain m:

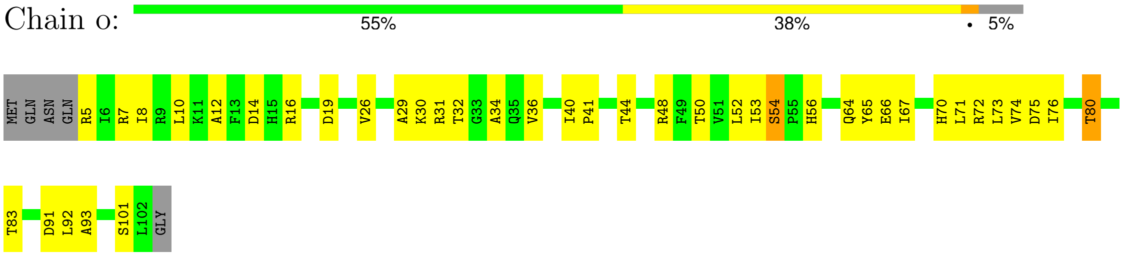
- Molecule 41: 30S ribosomal protein S9

Chain n:

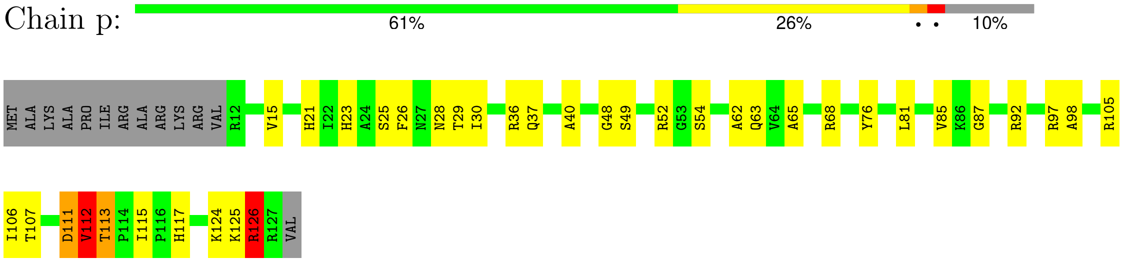
- Molecule 42: 30S ribosomal protein S10

Chain o:



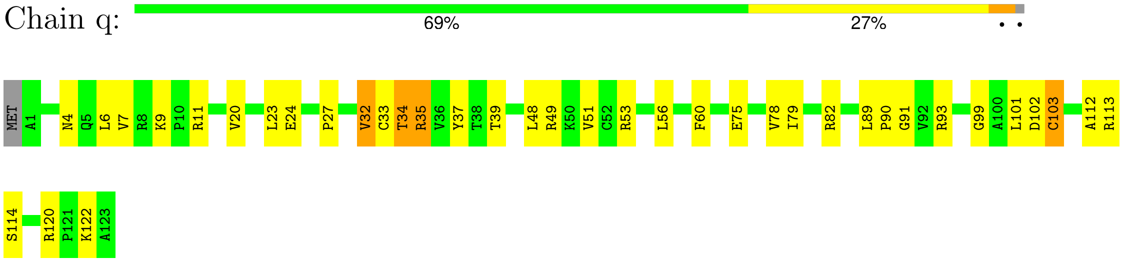
- Molecule 43: 30S ribosomal protein S11

Chain p:



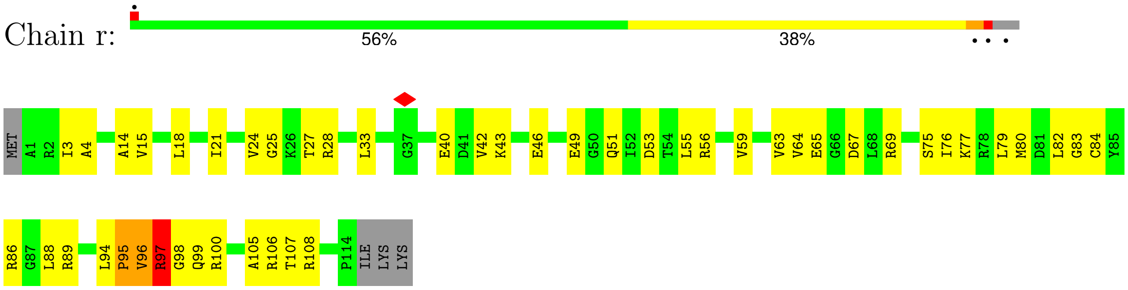
- Molecule 44: 30S ribosomal protein S12

Chain q:



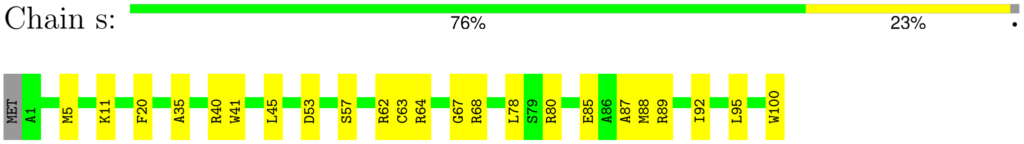
- Molecule 45: 30S ribosomal protein S13

Chain r:



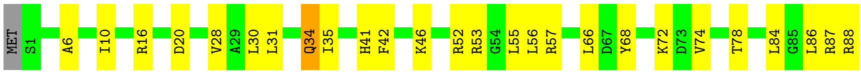
- Molecule 46: 30S ribosomal protein S14

Chain s:



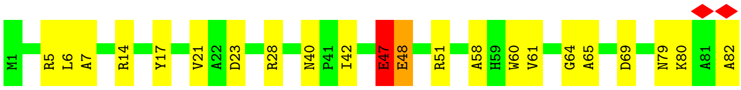
- Molecule 47: 30S ribosomal protein S15

Chain t:



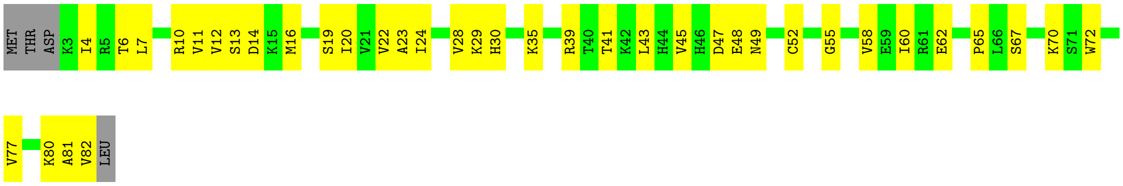
- Molecule 48: 30S ribosomal protein S16

Chain u:



- Molecule 49: 30S ribosomal protein S17

Chain v:

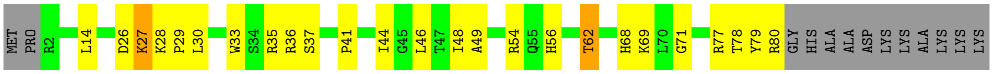


- Molecule 50: 30S ribosomal protein S18

Chain w:

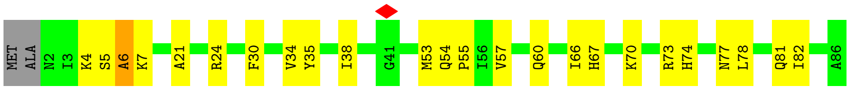
- Molecule 51: 30S ribosomal protein S19

Chain x:



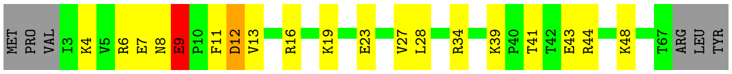
- Molecule 52: 30S ribosomal protein S20

Chain y:



- Molecule 53: 30S ribosomal protein S21

Chain z:



4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	65321	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\mathring{A}^2$)	61.23	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2700	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.090	Depositor
Minimum map value	-0.012	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.0126	Depositor
Map size (Å)	427.64, 427.64, 427.64	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0691, 1.0691, 1.0691	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: 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	1	0.23	0/69796	0.36	0/108888
2	2	0.20	0/36963	0.37	1/57662 (0.0%)
3	3	0.21	0/2872	0.33	0/4479
4	4	0.49	0/87	0.50	0/132
5	5	0.21	0/1819	0.39	0/2836
6	A	0.20	0/1033	0.44	0/1387
7	B	0.32	0/2121	0.53	1/2852 (0.0%)
8	C	0.30	0/1586	0.50	0/2134
9	D	0.29	0/1571	0.56	2/2113 (0.1%)
10	E	0.23	0/1434	0.47	0/1926
11	F	0.31	0/1343	0.53	1/1816 (0.1%)
12	G	0.22	0/1122	0.43	1/1515 (0.1%)
13	J	0.30	0/1152	0.48	0/1551
14	K	0.39	0/947	0.63	0/1268
15	L	0.34	0/1054	0.73	2/1403 (0.1%)
16	M	0.31	0/1093	0.50	1/1460 (0.1%)
17	N	0.35	0/973	0.51	0/1301
18	O	0.24	0/902	0.45	1/1209 (0.1%)
19	P	0.39	0/929	0.59	0/1242
20	Q	0.38	0/960	0.54	0/1278
21	R	0.40	0/829	0.53	0/1107
22	S	0.35	0/864	0.71	3/1156 (0.3%)
23	T	0.35	0/744	0.48	0/994
24	U	0.29	0/787	0.50	0/1051
25	V	0.27	0/766	0.44	0/1025
26	W	0.33	0/582	0.54	0/769
27	X	0.27	0/635	0.45	0/848
28	Y	0.49	0/510	0.71	0/677
29	Z	0.29	0/453	0.54	0/605
30	b	0.32	0/450	0.51	0/599
31	c	0.38	0/416	0.48	0/554
32	d	0.30	0/380	0.50	0/498

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	e	0.52	0/513	0.82	1/676 (0.1%)
34	f	0.28	0/303	0.56	0/397
35	h	0.24	0/1652	0.46	1/2225 (0.0%)
36	i	0.25	0/1665	0.53	1/2227 (0.0%)
37	j	0.28	0/1169	0.52	0/1573
38	k	0.36	0/835	0.66	3/1128 (0.3%)
39	l	0.31	0/1195	0.53	1/1602 (0.1%)
40	m	0.30	0/989	0.55	1/1326 (0.1%)
41	n	0.24	0/1034	0.59	1/1375 (0.1%)
42	o	0.23	0/796	0.59	2/1077 (0.2%)
43	p	0.38	0/885	0.65	2/1195 (0.2%)
44	q	0.25	0/969	0.56	1/1300 (0.1%)
45	r	0.30	0/892	0.59	1/1193 (0.1%)
46	s	0.21	0/817	0.44	0/1088
47	t	0.24	0/722	0.43	0/964
48	u	0.30	0/659	0.59	0/884
49	v	0.21	0/657	0.52	0/881
50	w	0.23	0/544	0.42	0/731
51	x	0.17	0/652	0.43	0/877
52	y	0.27	0/671	0.55	1/888 (0.1%)
53	z	0.35	0/550	0.74	1/728 (0.1%)
All	All	0.25	0/155342	0.42	30/232670 (0.0%)

There are no bond length outliers.

The worst 5 of 30 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
22	S	24	ILE	N-CA-C	14.17	125.61	112.29
15	L	22	GLY	N-CA-C	13.45	128.75	112.48
41	n	57	VAL	N-CA-C	11.51	122.36	110.62
45	r	96	VAL	N-CA-C	8.99	128.05	109.34
42	o	53	ILE	N-CA-C	-8.88	101.88	112.98

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	62317	0	31343	1438	0
2	2	33012	0	16618	874	0
3	3	2568	0	1303	53	0
4	4	80	0	45	1	0
5	5	1628	0	823	40	0
6	A	1026	0	1092	38	0
7	B	2082	0	2157	49	0
8	C	1565	0	1616	38	0
9	D	1552	0	1619	36	0
10	E	1410	0	1447	54	0
11	F	1323	0	1374	34	0
12	G	1111	0	1148	24	0
13	J	1129	0	1161	49	0
14	K	938	0	1012	37	0
15	L	1045	0	1117	33	0
16	M	1074	0	1157	26	0
17	N	960	0	1000	29	0
18	O	892	0	923	24	0
19	P	917	0	965	21	0
20	Q	947	0	1022	23	0
21	R	816	0	839	25	0
22	S	857	0	922	12	0
23	T	738	0	807	21	0
24	U	779	0	834	19	0
25	V	753	0	780	25	0
26	W	575	0	592	11	0
27	X	625	0	655	30	0
28	Y	509	0	543	9	0
29	Z	449	0	491	12	0
30	b	444	0	461	11	0
31	c	409	0	440	14	0
32	d	377	0	418	9	0
33	e	504	0	574	23	0
34	f	302	0	343	6	0
35	h	1625	0	1699	34	0
36	i	1643	0	1710	47	0
37	j	1156	0	1199	42	0
38	k	817	0	808	25	0
39	l	1181	0	1240	34	0
40	m	979	0	1034	24	0
41	n	1022	0	1070	39	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
42	o	786	0	828	31	0
43	p	869	0	878	43	0
44	q	955	0	1019	31	0
45	r	883	0	944	46	0
46	s	805	0	847	18	0
47	t	714	0	737	24	0
48	u	649	0	666	16	0
49	v	648	0	691	31	0
50	w	535	0	552	16	0
51	x	637	0	665	22	0
52	y	665	0	714	15	0
53	z	544	0	579	23	0
54	1	306	0	0	0	0
54	2	78	0	0	0	0
54	3	7	0	0	0	0
54	4	1	0	0	0	0
54	5	1	0	0	0	0
54	B	2	0	0	0	0
54	D	1	0	0	0	0
54	E	1	0	0	0	0
54	J	1	0	0	0	0
54	K	1	0	0	0	0
54	L	1	0	0	0	0
54	M	1	0	0	0	0
54	N	1	0	0	0	0
54	Q	1	0	0	0	0
54	R	1	0	0	0	0
54	S	3	0	0	0	0
54	W	1	0	0	0	0
54	Z	1	0	0	0	0
54	b	1	0	0	0	0
54	m	1	0	0	0	0
54	p	1	0	0	0	0
54	q	1	0	0	0	0
54	r	1	0	0	0	0
54	w	1	0	0	0	0
55	1	812	0	0	85	0
55	2	288	0	0	33	0
55	3	13	0	0	5	0
55	4	1	0	0	0	0
55	5	5	0	0	1	0
55	A	5	0	0	5	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
55	B	1	0	0	0	0
55	C	2	0	0	2	0
55	E	2	0	0	0	0
55	F	4	0	0	1	0
55	G	8	0	0	7	0
55	J	11	0	0	14	0
55	K	3	0	0	0	0
55	M	6	0	0	2	0
55	N	1	0	0	0	0
55	O	3	0	0	2	0
55	P	2	0	0	2	0
55	Q	1	0	0	0	0
55	R	1	0	0	3	0
55	T	5	0	0	4	0
55	U	4	0	0	0	0
55	V	3	0	0	0	0
55	W	3	0	0	4	0
55	X	3	0	0	5	0
55	Y	1	0	0	1	0
55	Z	5	0	0	0	0
55	c	6	0	0	2	0
55	d	1	0	0	0	0
55	h	9	0	0	4	0
55	i	1	0	0	0	0
55	j	4	0	0	4	0
55	k	4	0	0	3	0
55	l	4	0	0	3	0
55	m	1	0	0	2	0
55	o	1	0	0	0	0
55	p	11	0	0	12	0
55	r	1	0	0	1	0
55	t	7	0	0	6	0
55	w	4	0	0	4	0
55	z	8	0	0	7	0
All	All	144496	0	95521	3421	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 15.

The worst 5 of 3421 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:t:34:GLN:HG3	55:t:106:HOH:O	1.26	1.25
26:W:73:ARG:HG3	55:W:202:HOH:O	1.37	1.19
43:p:54:SER:HB2	55:p:310:HOH:O	1.40	1.18
2:2:209:U:H3’	55:2:1725:HOH:O	1.45	1.16
5:5:27:C:H5”	55:5:202:HOH:O	1.44	1.13

There are no symmetry-related clashes.

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	
6	A	130/229 (57%)	118 (91%)	11 (8%)	1 (1%)	16	51
7	B	269/273 (98%)	235 (87%)	33 (12%)	1 (0%)	30	64
8	C	207/209 (99%)	178 (86%)	28 (14%)	1 (0%)	25	60
9	D	199/201 (99%)	175 (88%)	23 (12%)	1 (0%)	25	60
10	E	175/179 (98%)	153 (87%)	22 (13%)	0	100	100
11	F	174/177 (98%)	156 (90%)	17 (10%)	1 (1%)	22	57
12	G	147/149 (99%)	138 (94%)	8 (5%)	1 (1%)	19	54
13	J	140/142 (99%)	124 (89%)	14 (10%)	2 (1%)	9	40
14	K	120/123 (98%)	96 (80%)	19 (16%)	5 (4%)	2	17
15	L	141/144 (98%)	112 (79%)	25 (18%)	4 (3%)	4	25
16	M	134/136 (98%)	116 (87%)	17 (13%)	1 (1%)	19	54
17	N	118/127 (93%)	96 (81%)	21 (18%)	1 (1%)	16	51
18	O	114/117 (97%)	107 (94%)	7 (6%)	0	100	100
19	P	112/115 (97%)	99 (88%)	13 (12%)	0	100	100
20	Q	115/118 (98%)	110 (96%)	5 (4%)	0	100	100
21	R	101/103 (98%)	90 (89%)	11 (11%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
22	S	108/110 (98%)	102 (94%)	6 (6%)	0	100	100
23	T	91/100 (91%)	83 (91%)	8 (9%)	0	100	100
24	U	100/104 (96%)	92 (92%)	7 (7%)	1 (1%)	13	47
25	V	92/94 (98%)	83 (90%)	8 (9%)	1 (1%)	12	44
26	W	73/84 (87%)	64 (88%)	9 (12%)	0	100	100
27	X	75/78 (96%)	68 (91%)	7 (9%)	0	100	100
28	Y	61/63 (97%)	59 (97%)	1 (2%)	1 (2%)	8	37
29	Z	56/59 (95%)	53 (95%)	3 (5%)	0	100	100
30	b	54/57 (95%)	46 (85%)	8 (15%)	0	100	100
31	c	48/55 (87%)	46 (96%)	2 (4%)	0	100	100
32	d	44/46 (96%)	41 (93%)	3 (7%)	0	100	100
33	e	62/65 (95%)	54 (87%)	4 (6%)	4 (6%)	1	8
34	f	36/38 (95%)	30 (83%)	5 (14%)	1 (3%)	4	25
35	h	204/206 (99%)	191 (94%)	13 (6%)	0	100	100
36	i	203/206 (98%)	183 (90%)	19 (9%)	1 (0%)	25	60
37	j	155/167 (93%)	134 (86%)	21 (14%)	0	100	100
38	k	98/135 (73%)	89 (91%)	7 (7%)	2 (2%)	6	32
39	l	149/179 (83%)	141 (95%)	8 (5%)	0	100	100
40	m	127/130 (98%)	115 (91%)	11 (9%)	1 (1%)	16	51
41	n	125/130 (96%)	110 (88%)	14 (11%)	1 (1%)	16	51
42	o	96/103 (93%)	82 (85%)	13 (14%)	1 (1%)	13	47
43	p	114/129 (88%)	105 (92%)	8 (7%)	1 (1%)	14	49
44	q	121/124 (98%)	96 (79%)	23 (19%)	2 (2%)	7	36
45	r	112/118 (95%)	97 (87%)	13 (12%)	2 (2%)	7	35
46	s	98/101 (97%)	87 (89%)	10 (10%)	1 (1%)	13	47
47	t	86/89 (97%)	81 (94%)	5 (6%)	0	100	100
48	u	80/82 (98%)	69 (86%)	9 (11%)	2 (2%)	4	28
49	v	78/84 (93%)	61 (78%)	17 (22%)	0	100	100
50	w	63/75 (84%)	59 (94%)	3 (5%)	1 (2%)	8	37
51	x	77/92 (84%)	66 (86%)	10 (13%)	1 (1%)	10	41
52	y	83/87 (95%)	79 (95%)	3 (4%)	1 (1%)	11	43

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
53	z	63/71 (89%)	49 (78%)	11 (18%)	3 (5%)	2	14
All	All	5428/5803 (94%)	4818 (89%)	563 (10%)	47 (1%)	17	49

5 of 47 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
13	J	81	ILE
38	k	92	THR
43	p	126	ARG
44	q	35	ARG
52	y	6	ALA

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	
6	A	110/177 (62%)	108 (98%)	2 (2%)	54	77
7	B	216/218 (99%)	214 (99%)	2 (1%)	75	89
8	C	164/164 (100%)	161 (98%)	3 (2%)	54	77
9	D	165/165 (100%)	159 (96%)	6 (4%)	30	62
10	E	148/150 (99%)	148 (100%)	0	100	100
11	F	137/138 (99%)	133 (97%)	4 (3%)	37	67
12	G	114/114 (100%)	110 (96%)	4 (4%)	31	63
13	J	116/116 (100%)	112 (97%)	4 (3%)	32	63
14	K	103/104 (99%)	97 (94%)	6 (6%)	17	49
15	L	102/103 (99%)	102 (100%)	0	100	100
16	M	109/109 (100%)	109 (100%)	0	100	100
17	N	100/103 (97%)	100 (100%)	0	100	100
18	O	86/87 (99%)	85 (99%)	1 (1%)	67	85
19	P	99/100 (99%)	96 (97%)	3 (3%)	36	66
20	Q	89/90 (99%)	87 (98%)	2 (2%)	47	73

Continued on next page...

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
21	R	84/84 (100%)	81 (96%)	3 (4%)	30	62
22	S	93/93 (100%)	89 (96%)	4 (4%)	25	57
23	T	80/84 (95%)	80 (100%)	0	100	100
24	U	83/85 (98%)	82 (99%)	1 (1%)	67	85
25	V	78/78 (100%)	78 (100%)	0	100	100
26	W	57/62 (92%)	56 (98%)	1 (2%)	54	77
27	X	67/68 (98%)	67 (100%)	0	100	100
28	Y	55/55 (100%)	54 (98%)	1 (2%)	54	77
29	Z	48/49 (98%)	47 (98%)	1 (2%)	48	74
30	b	47/48 (98%)	46 (98%)	1 (2%)	48	74
31	c	45/49 (92%)	44 (98%)	1 (2%)	47	73
32	d	38/38 (100%)	38 (100%)	0	100	100
33	e	51/52 (98%)	50 (98%)	1 (2%)	50	75
34	f	34/34 (100%)	34 (100%)	0	100	100
35	h	170/170 (100%)	169 (99%)	1 (1%)	84	92
36	i	172/173 (99%)	170 (99%)	2 (1%)	67	85
37	j	119/126 (94%)	118 (99%)	1 (1%)	79	90
38	k	87/116 (75%)	82 (94%)	5 (6%)	17	50
39	l	124/147 (84%)	121 (98%)	3 (2%)	44	71
40	m	104/105 (99%)	103 (99%)	1 (1%)	73	87
41	n	105/107 (98%)	104 (99%)	1 (1%)	73	87
42	o	86/90 (96%)	85 (99%)	1 (1%)	67	85
43	p	89/99 (90%)	86 (97%)	3 (3%)	32	63
44	q	103/104 (99%)	102 (99%)	1 (1%)	73	87
45	r	92/96 (96%)	90 (98%)	2 (2%)	47	73
46	s	83/84 (99%)	83 (100%)	0	100	100
47	t	76/77 (99%)	75 (99%)	1 (1%)	65	83
48	u	65/65 (100%)	63 (97%)	2 (3%)	35	66
49	v	74/78 (95%)	74 (100%)	0	100	100
50	w	56/65 (86%)	56 (100%)	0	100	100
51	x	70/79 (89%)	69 (99%)	1 (1%)	62	82

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
52	y	65/66 (98%)	63 (97%)	2 (3%)	35	66
53	z	55/61 (90%)	54 (98%)	1 (2%)	54	77
All	All	4513/4725 (96%)	4434 (98%)	79 (2%)	54	77

5 of 79 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
38	k	71	ILE
45	r	97	ARG
38	k	92	THR
42	o	80	THR
51	x	62	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 51 such sidechains are listed below:

Mol	Chain	Res	Type
29	Z	8	GLN
36	i	35	GLN
50	w	30	ASN
30	b	18	HIS
32	d	29	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2902/2904 (99%)	568 (19%)	9 (0%)
2	2	1538/1540 (99%)	334 (21%)	8 (0%)
3	3	119/120 (99%)	16 (13%)	0
4	4	3/18 (16%)	0	0
5	5	76/77 (98%)	25 (32%)	3 (3%)
All	All	4638/4659 (99%)	943 (20%)	20 (0%)

5 of 943 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	8	C
1	1	10	A
1	1	34	U
1	1	42	A

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Mol	Chain	Res	Type
1	1	46	G

5 of 20 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	2	1069	C
5	5	2	G
5	5	59	A
5	5	47	U
1	1	1828	G

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 415 ligands modelled in this entry, 415 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 ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

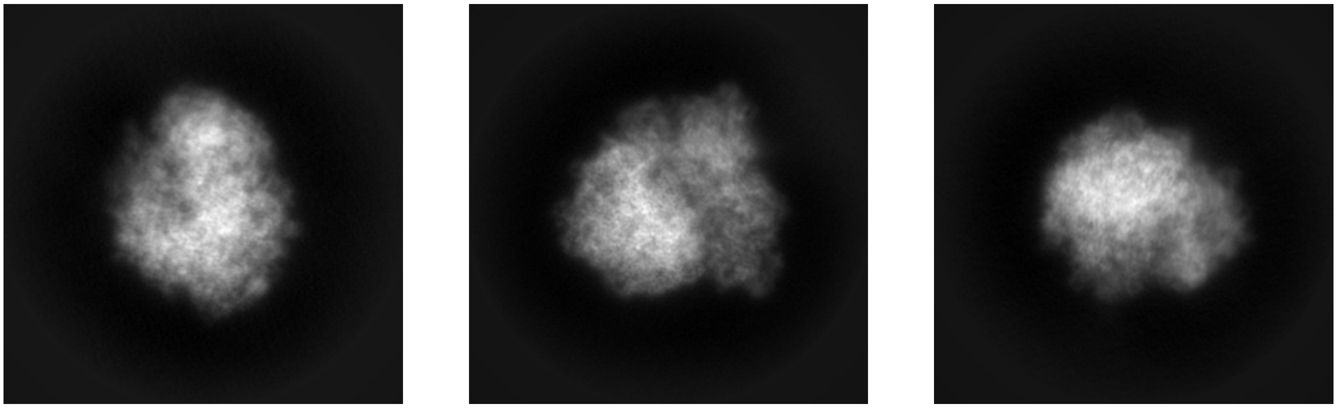
6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-42832. 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.

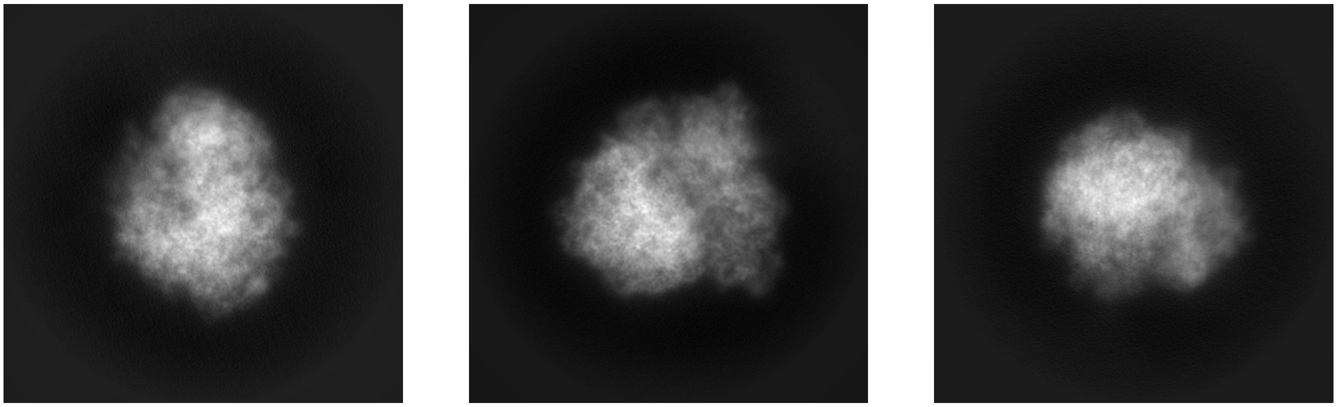
6.1 Orthogonal projections ⓘ

6.1.1 Primary map



X Y Z

6.1.2 Raw map

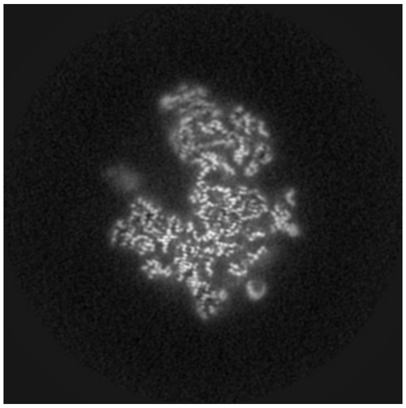


X Y Z

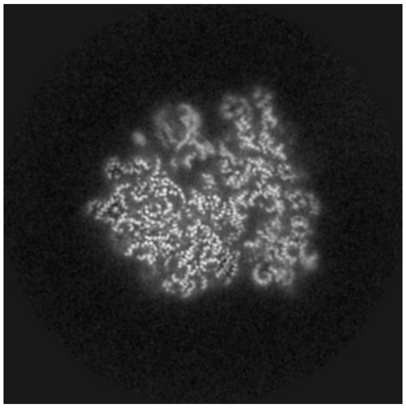
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ

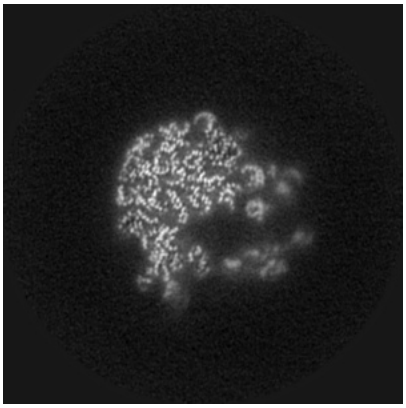
6.2.1 Primary map



X Index: 200

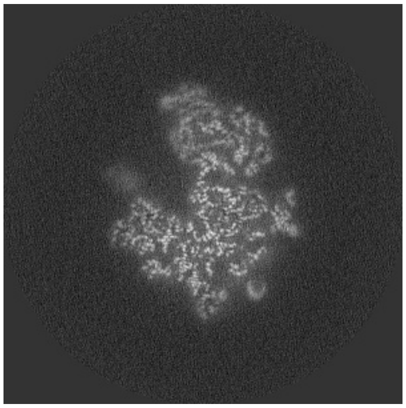


Y Index: 200

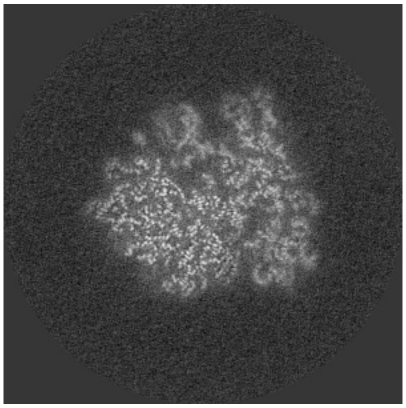


Z Index: 200

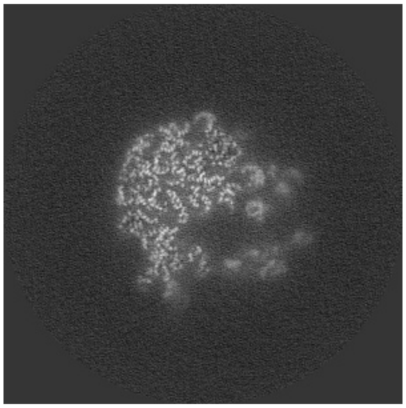
6.2.2 Raw map



X Index: 200



Y Index: 200

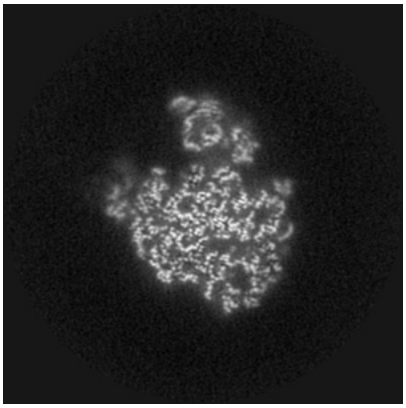


Z Index: 200

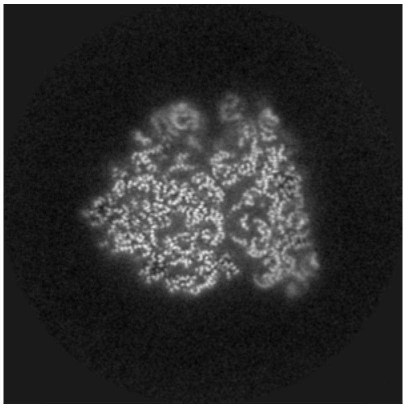
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices ⓘ

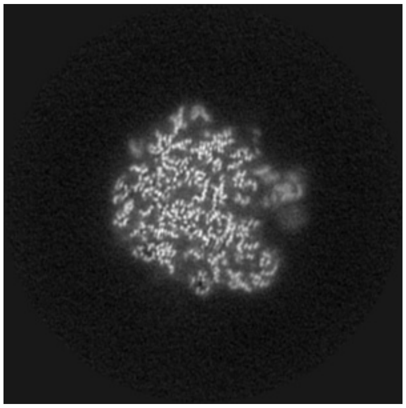
6.3.1 Primary map



X Index: 169

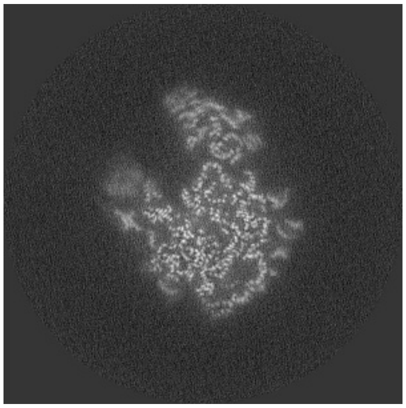


Y Index: 208

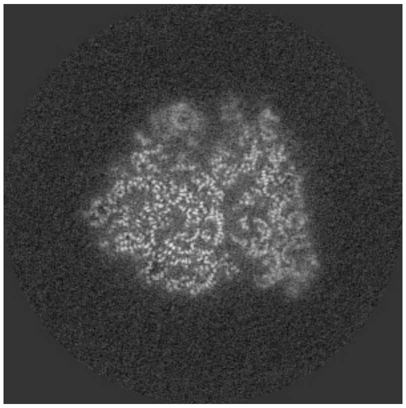


Z Index: 170

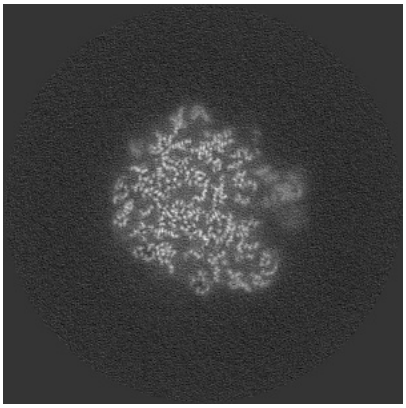
6.3.2 Raw map



X Index: 182



Y Index: 209

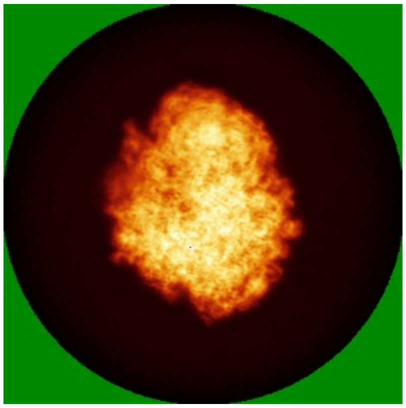


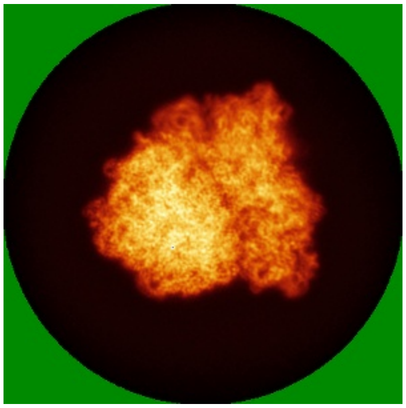
Z Index: 170

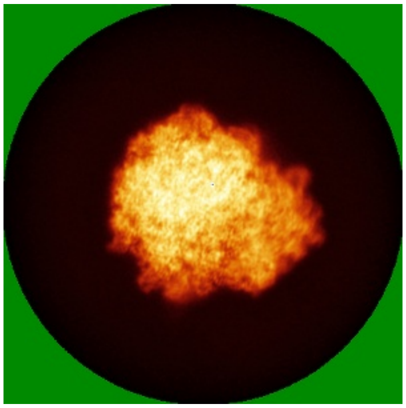
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color)

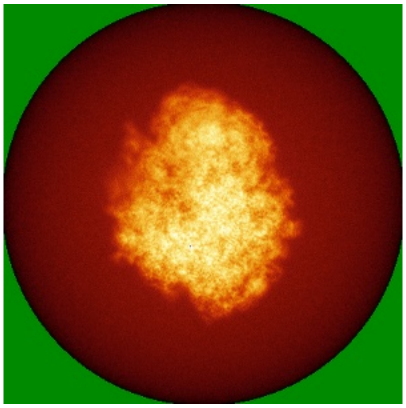
6.4.1 Primary map

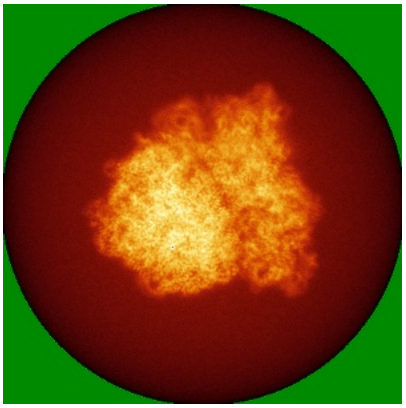

X

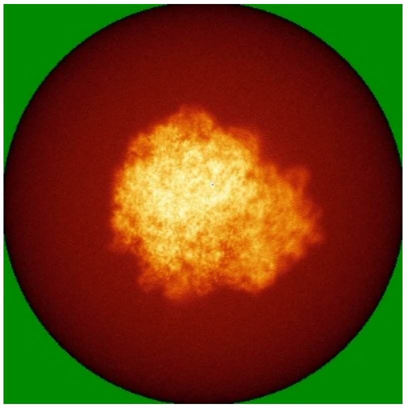

Y


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

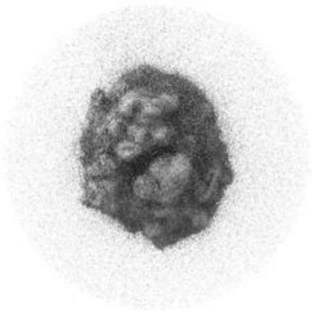
X

Y

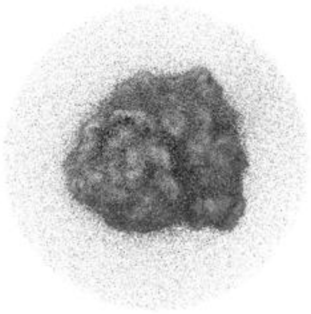
Z

The images above show the 3D surface view of the map at the recommended contour level 0.0126. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

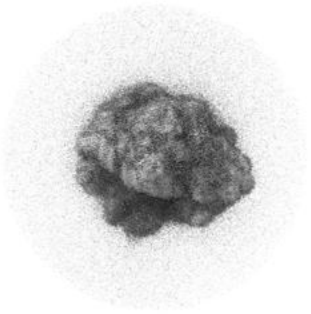
6.5.2 Raw map



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.

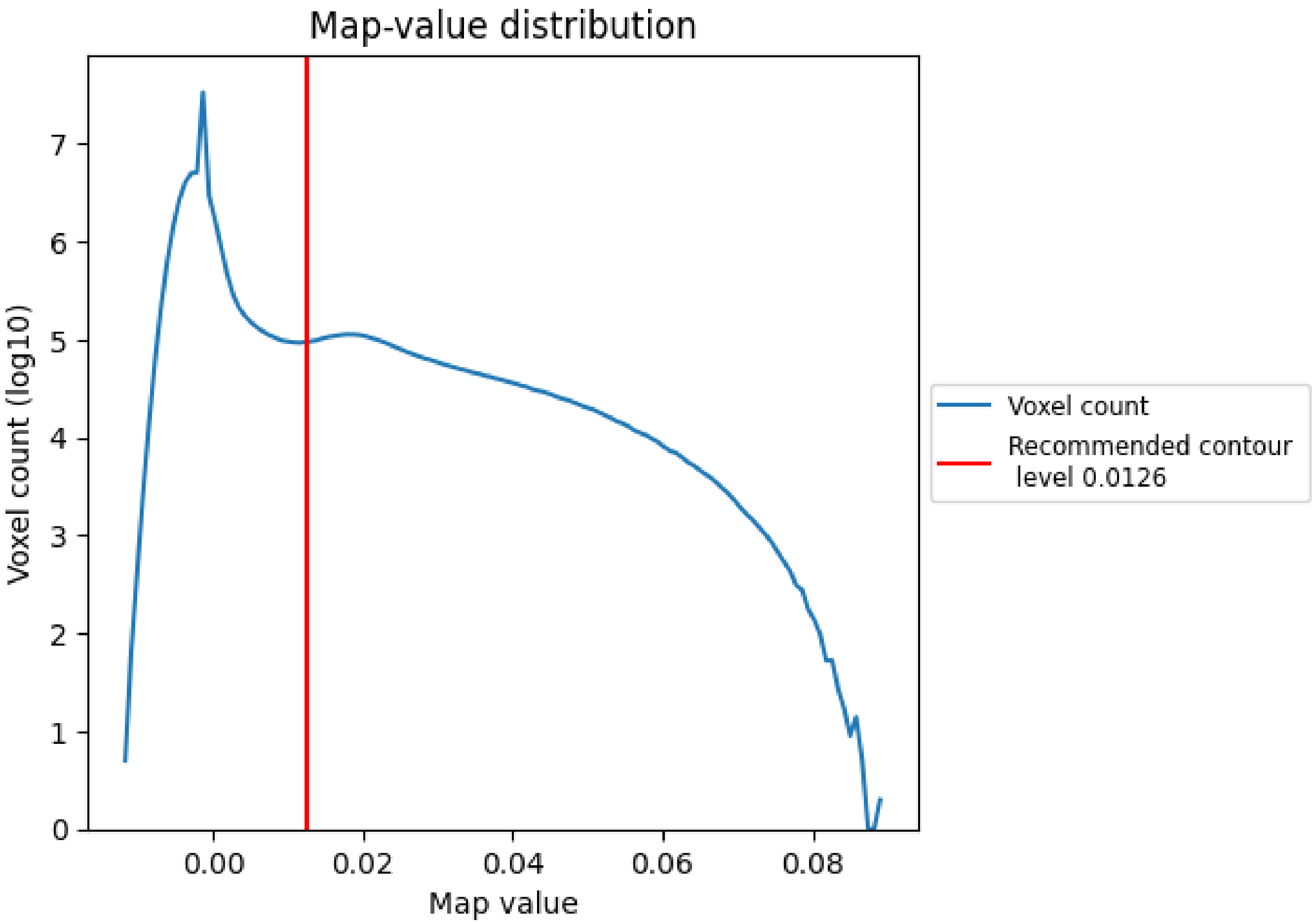
6.6 Mask visualisation

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

7 Map analysis (i)

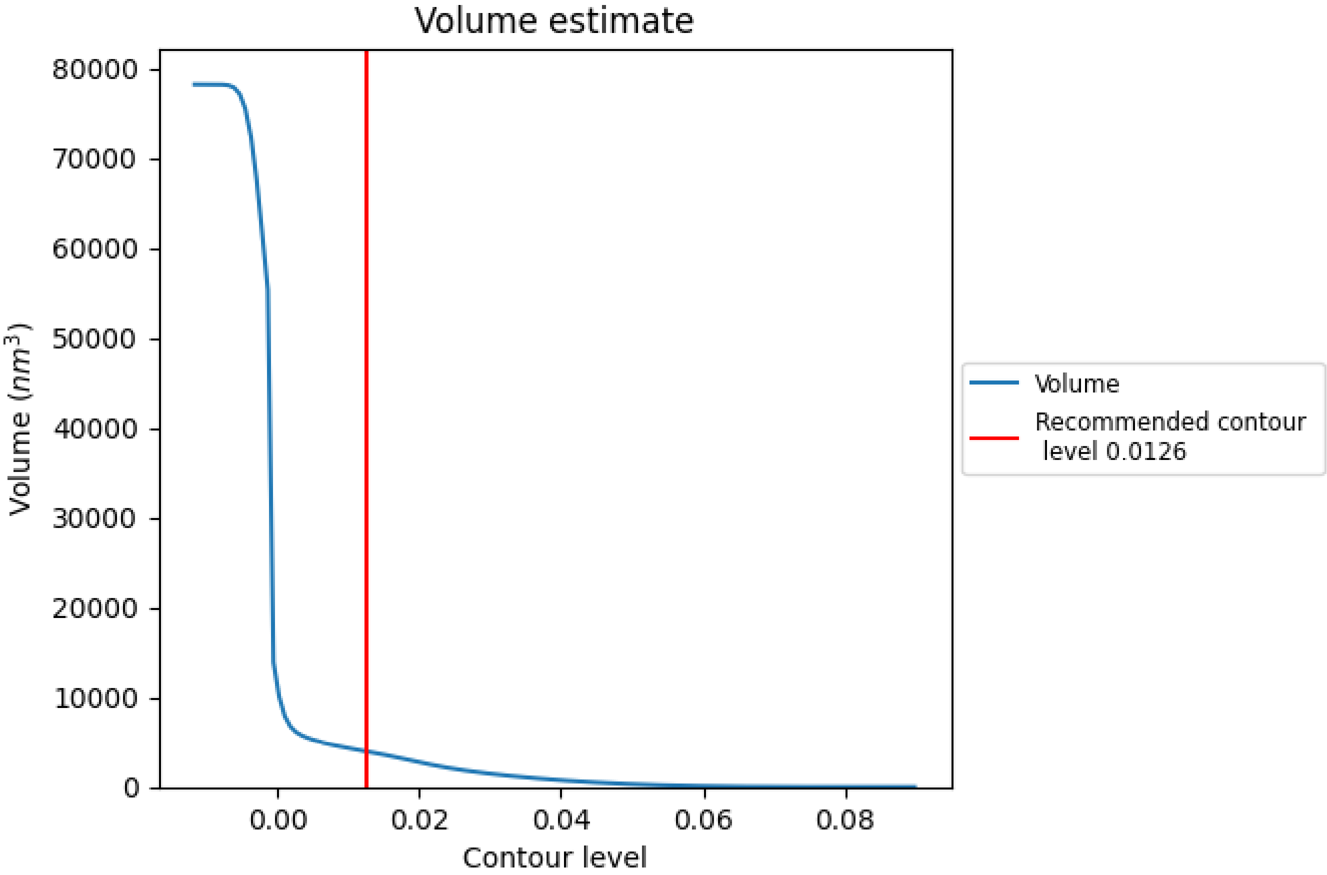
This section contains the results of statistical analysis of the map.

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.

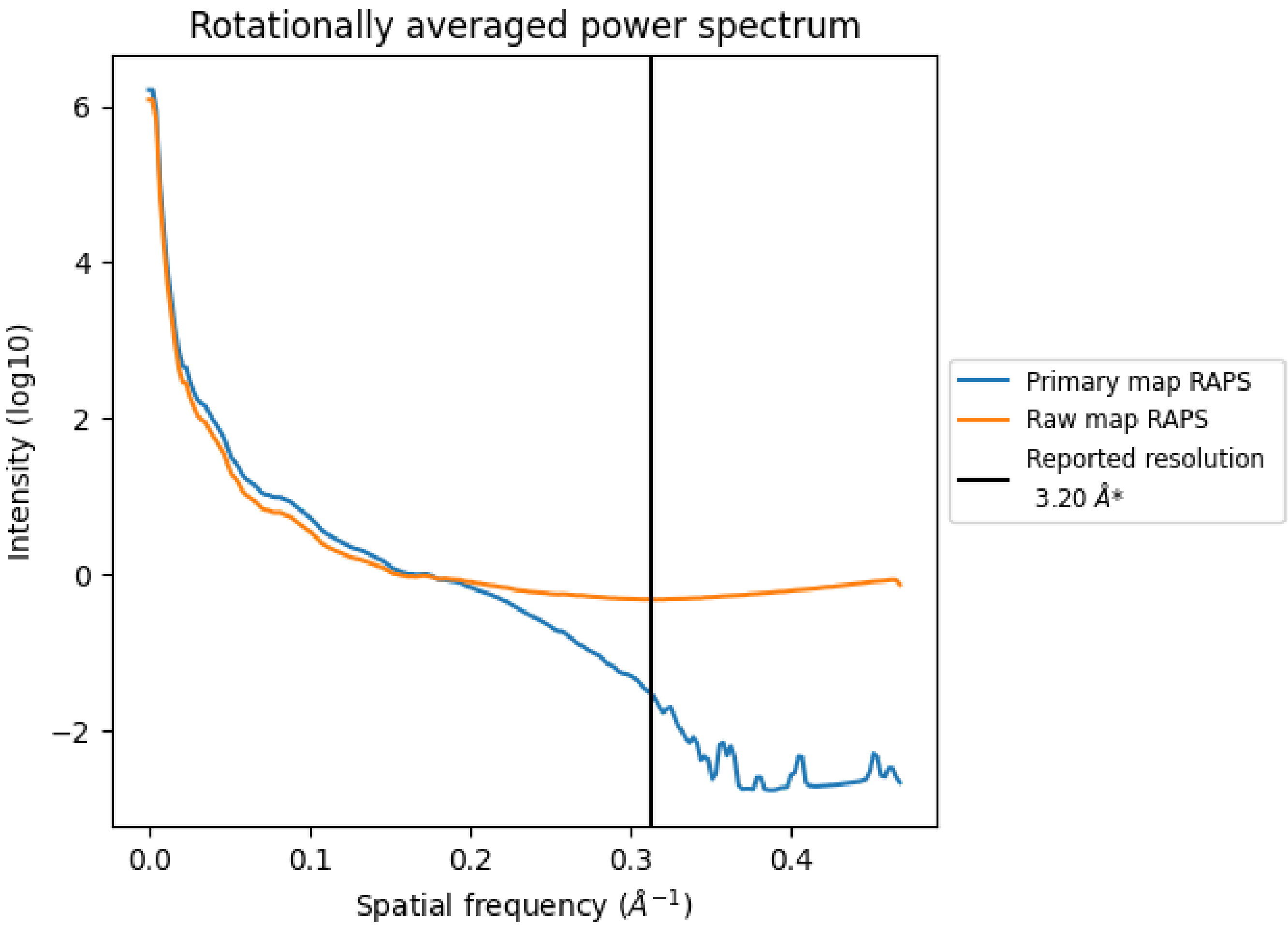
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 3966 nm^3; this corresponds to an approximate mass of 3583 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 ⓘ

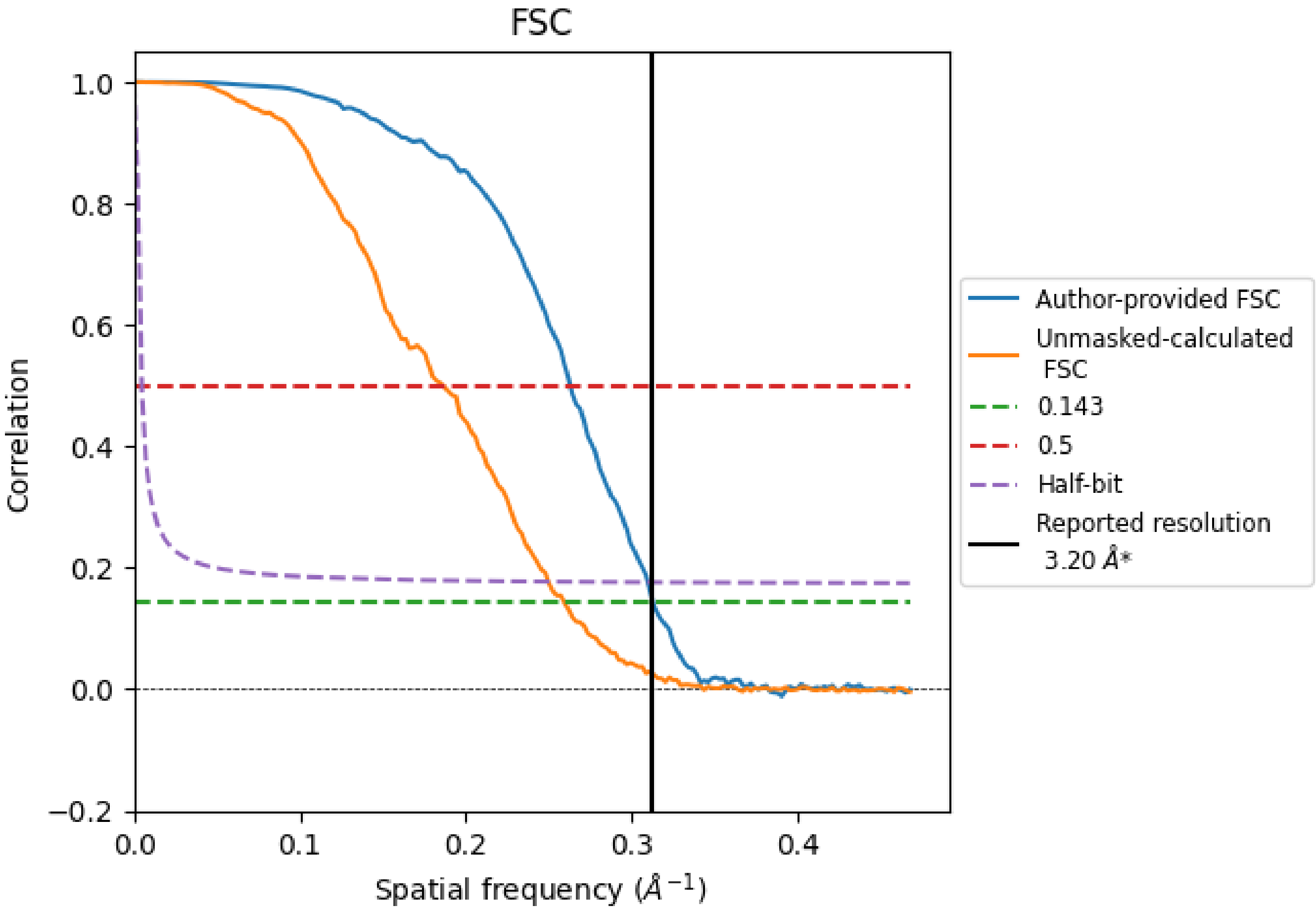


*Reported resolution corresponds to spatial frequency of 0.312 Å^{-1}

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 0.312 Å^{-1}

8.2 Resolution estimates ⓘ

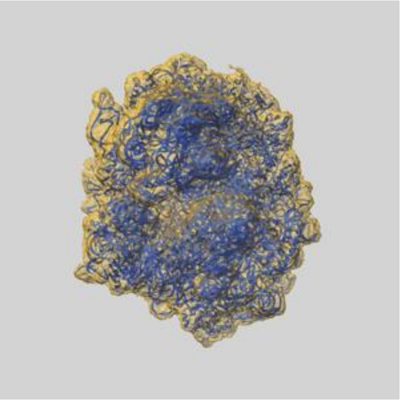
Resolution estimate (Å)	**Estimation criterion (FSC cut-off)**		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	3.20	3.80	3.23
Unmasked-calculated*	3.86	5.37	4.00

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.86 differs from the reported value 3.2 by more than 10 %

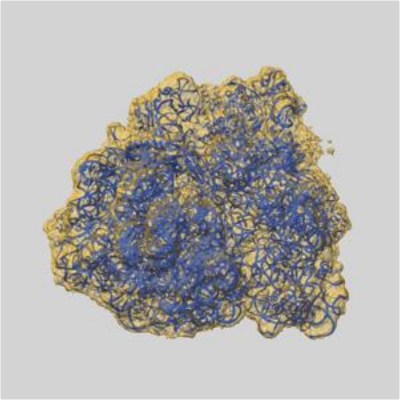
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-42832 and PDB model 8UZ3. Per-residue inclusion information can be found in section 3 on page 17.

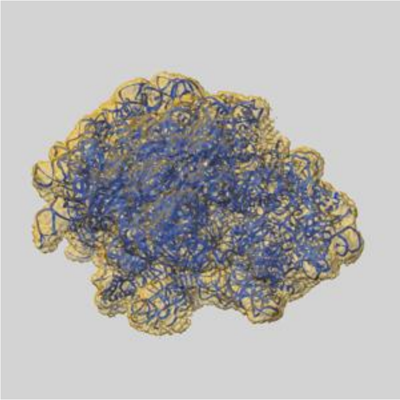
9.1 Map-model overlay



X



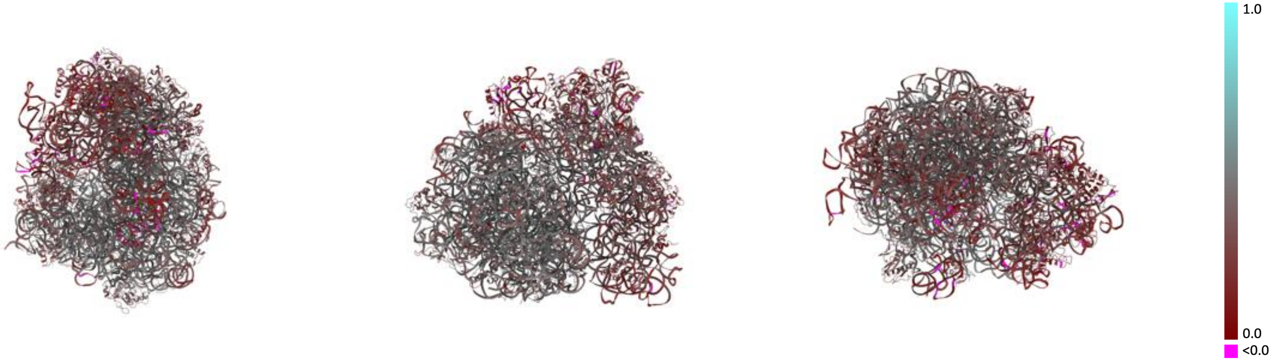
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0126 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.

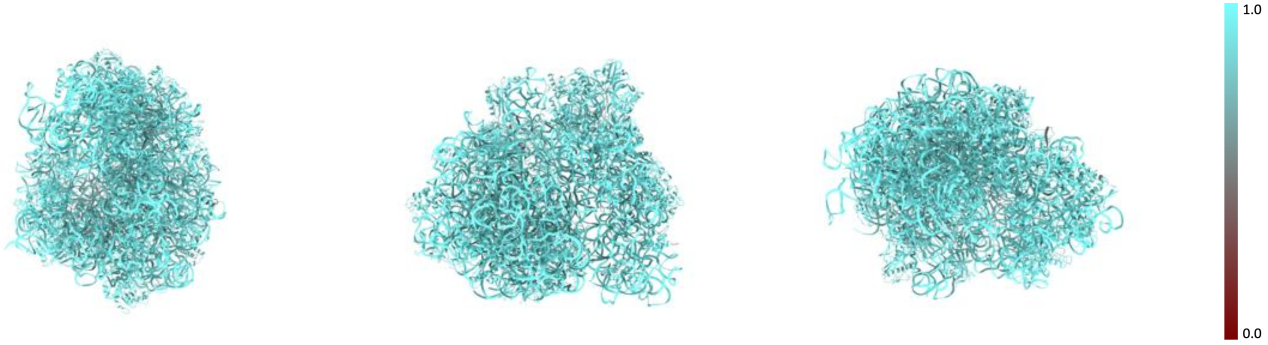
9.2 Q-score mapped to coordinate model



X Y Z

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.

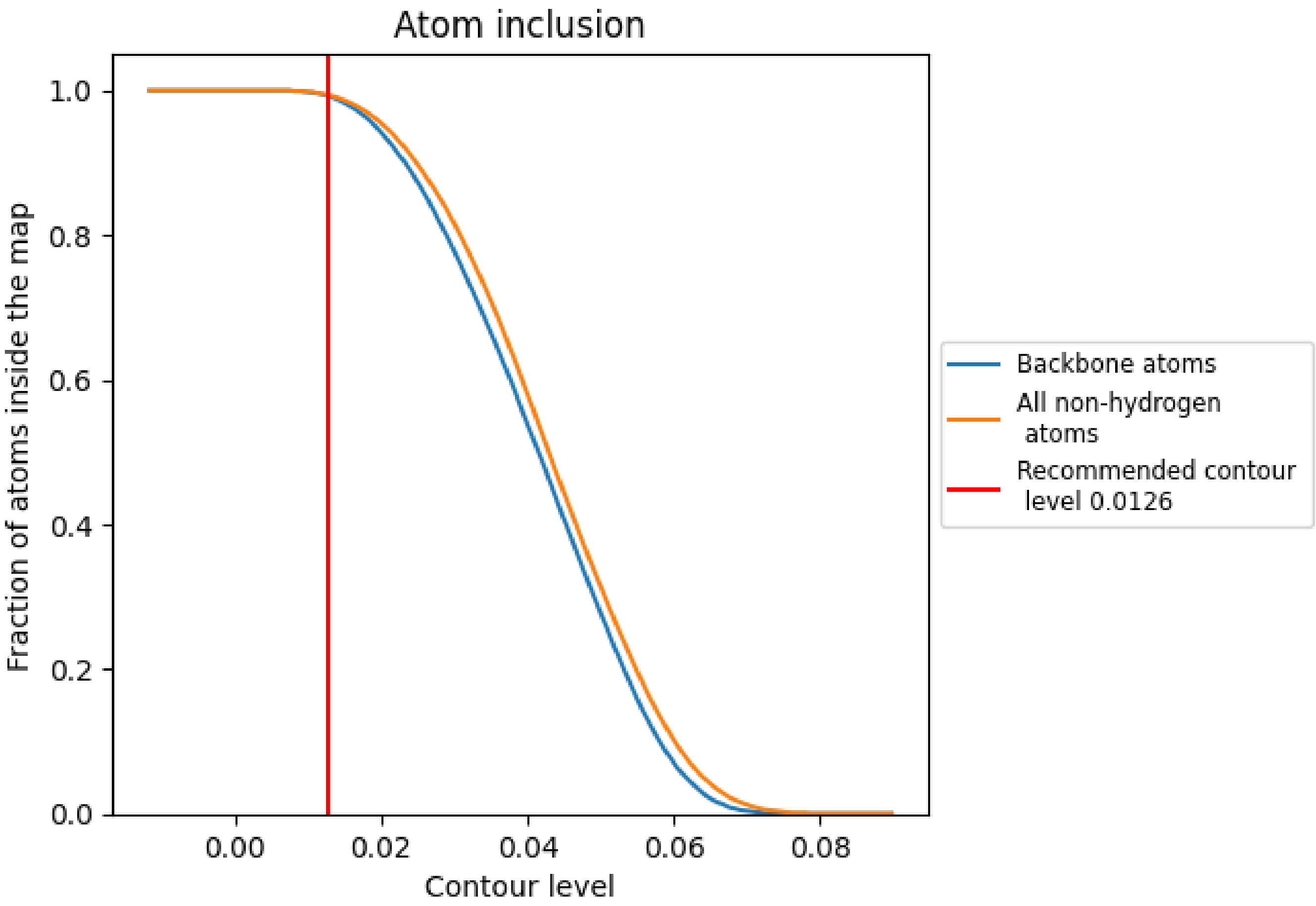
9.3 Atom inclusion mapped to coordinate model



X Y Z

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 (0.0126).

9.4 Atom inclusion (i)



At the recommended contour level, 99% 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 (0.0126) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9940	0.3710
1	0.9980	0.4300
2	0.9960	0.3240
3	1.0000	0.4080
4	1.0000	0.3990
5	1.0000	0.3860
A	0.9560	0.1150
B	0.9990	0.4340
C	0.9950	0.4030
D	0.9880	0.3860
E	0.9910	0.2560
F	0.9880	0.3210
G	0.8490	0.2430
J	1.0000	0.4110
K	1.0000	0.3950
L	0.9890	0.4160
M	1.0000	0.3860
N	0.9970	0.4240
O	0.9900	0.3590
P	0.9980	0.3860
Q	0.9960	0.4320
R	0.9950	0.4210
S	0.9990	0.4110
T	0.9960	0.3780
U	0.9870	0.3730
V	0.9910	0.3880
W	1.0000	0.4240
X	1.0000	0.3890
Y	0.9820	0.3200
Z	0.9910	0.4040
b	0.9950	0.4130
c	0.9950	0.3650
d	1.0000	0.4410
e	1.0000	0.4330
f	1.0000	0.3720

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Chain	Atom inclusion	Q-score
h	🟦 0.9920	🟥 0.2520
i	🟦 0.9810	🟥 0.1940
j	🟦 0.9940	🟥 0.2950
k	🟦 0.9820	🟥 0.3090
l	🟦 0.9690	🟥 0.1680
m	🟦 0.9910	🟥 0.3140
n	🟦 0.9730	🟥 0.1960
o	🟦 0.9750	🟥 0.2010
p	🟦 1.0000	🟥 0.3230
q	🟦 0.9950	🟥 0.2060
r	🟦 0.9680	🟥 0.1840
s	🟦 0.9990	🟥 0.2040
t	🟦 0.9860	🟥 0.2980
u	🟦 0.9750	🟥 0.2630
v	🟦 0.9840	🟥 0.2620
w	🟦 0.9920	🟥 0.2990
x	🟦 0.9890	🟥 0.1970
y	🟦 0.9660	🟥 0.2160
z	🟦 0.9830	🟥 0.2120