wwPDB EM Validation Summary Report

Dec 2, 2024 – 09:12 PM JST

PDB ID	:	8XU8
EMDB ID	:	EMD-38660
Title	:	State 2c(S2c) of yeast 80S ribosome bound to compact eEF2 and 2 tRNAs during peptidyl transferation
Authors	:	Cheng, J.; Wu, C.L.; Li, J.X.; Zhang, X.Z.
Deposited on	:	2024-01-12
Resolution	:	3.40 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

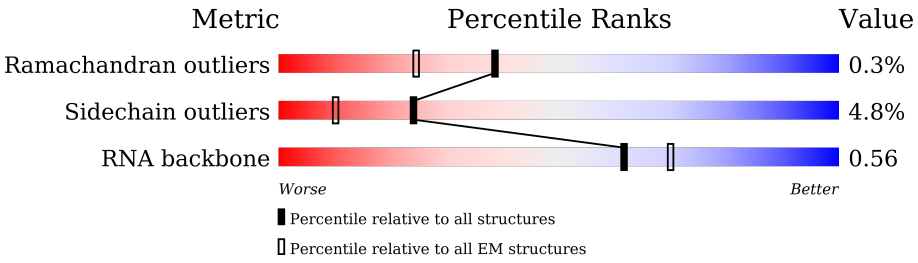
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.40 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	2	1799	7% 70% 28%
2	A	3394	78% 16% 6%
3	B	121	89% 11%
4	C	158	79% 21%
5	D	251	98%
6	E	386	5% 96%
7	F	361	98%
8	G	294	96%

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Mol	Chain	Length	Quality of chain
9	H	175	8% 91% 5%
10	I	222	96%
11	J	233	5% 99%
12	K	191	5% 96%
13	L	218	7% 94% 6%
14	M	169	15% 95% 5%
15	N	193	98%
16	O	136	94% 6%
17	P	203	96%
18	Q	197	95% 5%
19	R	183	7% 97%
20	S	185	97%
21	T	188	7% 97%
22	U	171	97%
23	V	159	5% 96%
24	W	100	5% 92% 8%
25	X	136	7% 99%
26	Y	126	14% 98%
27	Z	121	98%
28	a	125	98%
29	b	135	99%
30	c	148	99%
31	d	58	10% 97%
32	e	96	96%
33	f	109	10% 98%

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Mol	Chain	Length	Quality of chain
34	g	127	97%
35	h	106	95% 5%
36	i	112	98%
37	j	119	97%
38	k	99	99%
39	l	81	86% 10%
40	m	77	99%
41	n	50	98%
42	o	52	8% 88% 12%
43	p	25	96%
44	q	103	5% 97%
45	r	91	5% 92% 8%
46	s	75	5% 81% 19%
46	t	75	23% 81% 19%
47	x	842	43% 95% 5%
48	SD	121	70% 95% 5%
49	SZ	127	12% 95% 5%
50	Se	94	12% 89% 10%
51	SC	92	24% 89% 11%
52	SE	117	36% 92% 8%
53	SA	222	21% 94% 6%
54	SI	143	21% 94% 5%
55	SJ	100	23% 95% 5%
56	SL	63	27% 98%
57	SM	53	6% 91% 9%

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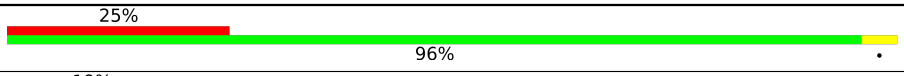
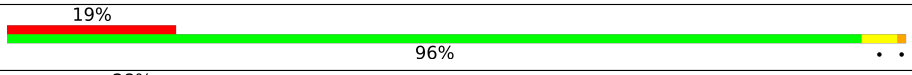
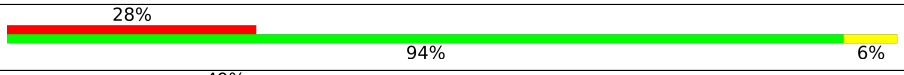
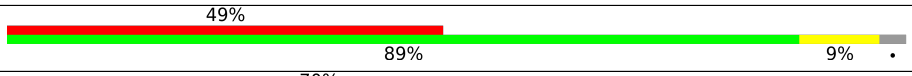
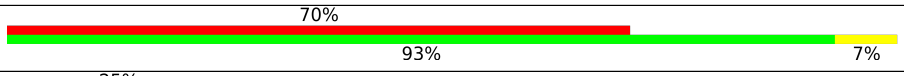
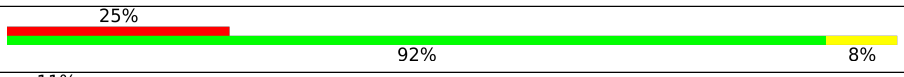
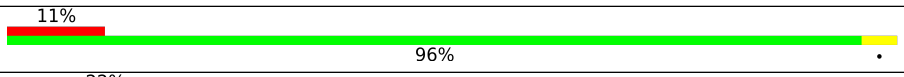
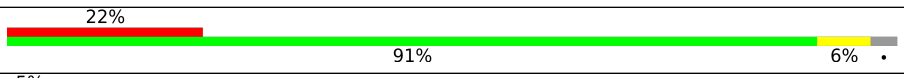
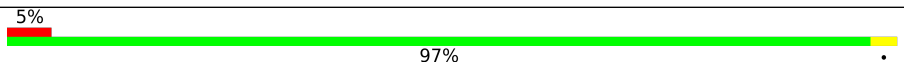
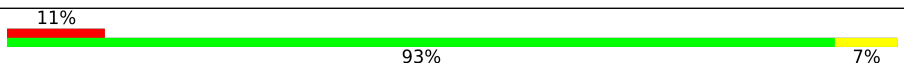
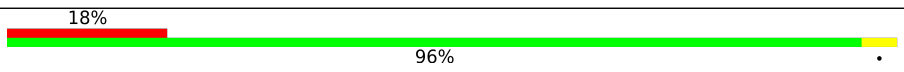
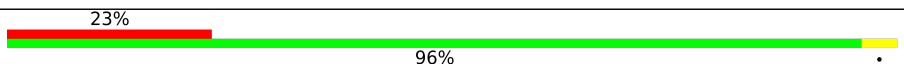
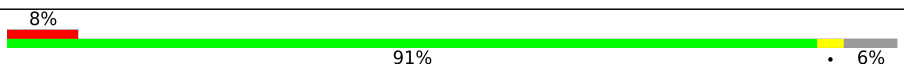
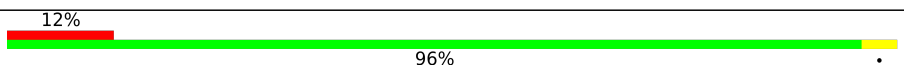
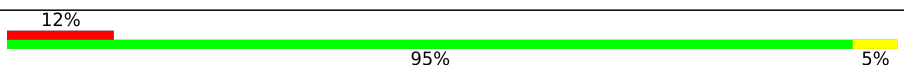
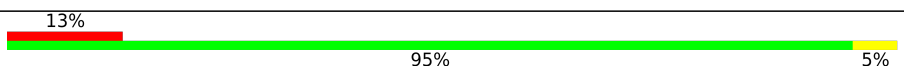
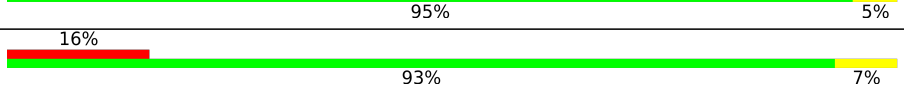
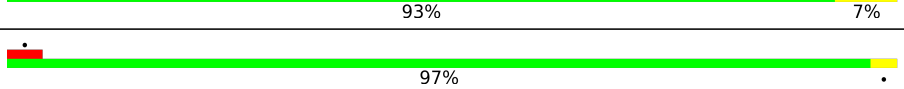
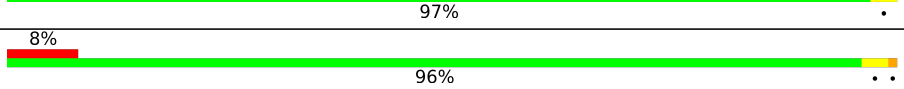
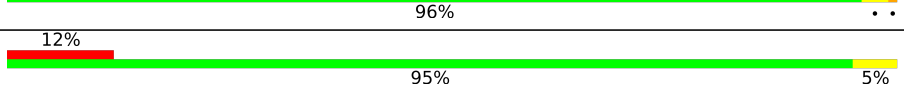
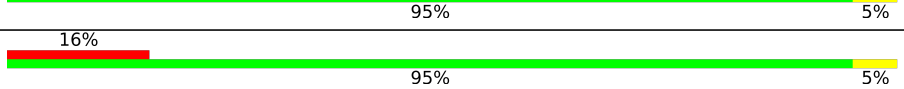
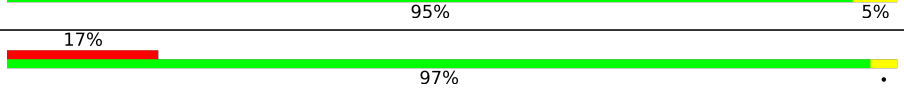
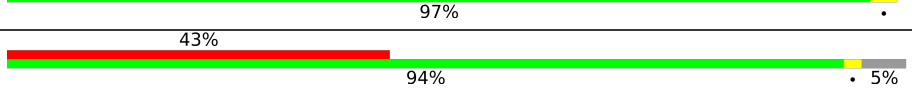
Mol	Chain	Length	Quality of chain
58	SB	206	
59	SF	141	
60	SH	145	
61	SO	312	
62	SN	73	
63	SG	121	
64	SP	206	
65	SQ	232	
66	SR	216	
67	SS	258	
68	ST	228	
69	SU	184	
70	SV	198	
71	SW	184	
72	SX	142	
73	SY	150	
74	Sa	87	
75	Sb	129	
76	Sc	144	
77	Sd	134	
78	Sf	81	
79	Sg	60	
80	SK	108	

2 Entry composition (i)

There are 80 unique types of molecules in this entry. The entry contains 209284 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 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	2	1767	37653	16834	6668	12384	1767	0	0

- Molecule 2 is a RNA chain called 25S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	A	3189	68216	30470	12302	22255	3189	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	B	121	2579	1152	461	845	121	0	0

- Molecule 4 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	C	158	3353	1500	586	1109	158	0	0

- Molecule 5 is a protein called Large ribosomal subunit protein uL2A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	D	251	1899	1182	385	331	1	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	E	386	3075	1950	584	533	8	0	0

- Molecule 7 is a protein called Large ribosomal subunit protein uL4A.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	F	361	Total	C	N	O	S	0	0
			2748	1729	522	494	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
8	G	294	Total	C	N	O	S	0	0
			2351	1484	410	455	2		

- Molecule 9 is a protein called Large ribosomal subunit protein eL6B.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	H	167	Total	C	N	O	0	0
			1307	843	234	230		

- Molecule 10 is a protein called Large ribosomal subunit protein uL30A.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	I	222	Total	C	N	O	S	0	0
			1784	1151	324	308	1		

- Molecule 11 is a protein called Large ribosomal subunit protein eL8A.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	J	233	Total	C	N	O	S	0	0
			1804	1151	323	327	3		

- Molecule 12 is a protein called Large ribosomal subunit protein uL6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	K	191	Total	C	N	O	S	0	0
			1508	957	274	273	4		

- Molecule 13 is a protein called Large ribosomal subunit protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	L	218	Total	C	N	O	S	0	0
			1764	1117	334	306	7		

- Molecule 14 is a protein called Large ribosomal subunit protein uL5B.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	M	169	Total	C	N	O	S	0	0
			1346	843	252	247	4		

- Molecule 15 is a protein called Large ribosomal subunit protein eL13A.

Mol	Chain	Residues	Atoms				AltConf	Trace
15	N	193	Total	C	N	O	0	0
			1543	962	315	266		

- Molecule 16 is a protein called Large ribosomal subunit protein eL14A.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	O	136	Total	C	N	O	S	0	0
			1053	675	199	177	2		

- Molecule 17 is a protein called Large ribosomal subunit protein eL15A.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	P	203	Total	C	N	O	S	0	0
			1720	1077	361	281	1		

- Molecule 18 is a protein called Large ribosomal subunit protein uL13A.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Q	197	Total	C	N	O	S	197	0
			1555	1003	289	262	1		

- Molecule 19 is a protein called Large ribosomal subunit protein uL22A.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	R	183	Total	C	N	O	0	0
			1416	879	284	253		

- Molecule 20 is a protein called Large ribosomal subunit protein eL18A.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	S	185	Total	C	N	O	S	0	0
			1441	908	290	241	2		

- Molecule 21 is a protein called Large ribosomal subunit protein eL19A.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	T	188	Total	C	N	O	0	0
			1515	932	323	260		

- Molecule 22 is a protein called Large ribosomal subunit protein eL20A.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	U	171	Total	C	N	O	S	0	0
			1437	925	266	243	3		

- Molecule 23 is a protein called Large ribosomal subunit protein eL21A.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	V	159	Total	C	N	O	S	0	0
			1272	802	245	221	4		

- Molecule 24 is a protein called Large ribosomal subunit protein eL22A.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	W	100	Total	C	N	O	0	0
			796	516	131	149		

- Molecule 25 is a protein called Large ribosomal subunit protein uL14A.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	X	136	Total	C	N	O	S	0	0
			1003	628	189	179	7		

- Molecule 26 is a protein called Large ribosomal subunit protein eL24A.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Y	126	Total	C	N	O	S	0	0
			836	525	165	145	1		

- Molecule 27 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Z	121	Total	C	N	O	S	0	0
			964	620	169	173	2		

- Molecule 28 is a protein called Large ribosomal subunit protein uL24A.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	a	125	Total 984	C 620	N 191	O 173	0	0

- Molecule 29 is a protein called Large ribosomal subunit protein eL27A.

Mol	Chain	Residues	Atoms				AltConf	Trace
29	b	135	Total 1080	C 701	N 199	O 180	0	0

- Molecule 30 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	c	148	Total 1169	C 747	N 231	O 188	S 3	0	0

- Molecule 31 is a protein called Large ribosomal subunit protein eL29.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	d	58	Total 462	C 289	N 100	O 73	0	0

- Molecule 32 is a protein called Large ribosomal subunit protein eL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	e	96	Total 737	C 476	N 123	O 137	S 1	0	0

- Molecule 33 is a protein called Large ribosomal subunit protein eL31A.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	f	109	Total 876	C 556	N 167	O 152	S 1	0	0

- Molecule 34 is a protein called Large ribosomal subunit protein eL32.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	g	127	Total 1013	C 642	N 205	O 165	S 1	0	0

- Molecule 35 is a protein called Large ribosomal subunit protein eL33A.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	h	106	Total 850	C 540	N 165	O 144	S 1	0	0

- Molecule 36 is a protein called Large ribosomal subunit protein eL34A.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	i	112	Total 880	C 545	N 179	O 152	S 4	0	0

- Molecule 37 is a protein called Large ribosomal subunit protein uL29A.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	j	119	Total 969	C 615	N 186	O 167	S 1	0	0

- Molecule 38 is a protein called Large ribosomal subunit protein eL36A.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	k	99	Total 766	C 478	N 154	O 132	S 2	0	0

- Molecule 39 is a protein called Large ribosomal subunit protein eL37A.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	l	81	Total 645	C 393	N 141	O 106	S 5	0	0

- Molecule 40 is a protein called Large ribosomal subunit protein eL38.

Mol	Chain	Residues	Atoms				AltConf	Trace
40	m	77	Total 612	C 391	N 115	O 106	0	0

- Molecule 41 is a protein called Large ribosomal subunit protein eL39.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	n	50	Total 436	C 272	N 97	O 65	S 2	0	0

- Molecule 42 is a protein called Large ribosomal subunit protein eL40A.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	o	52	Total	C	N	O	S	0	0
			410	254	86	65	5		

- Molecule 43 is a protein called Large ribosomal subunit protein eL41A.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	p	25	Total	C	N	O	S	0	0
			229	139	62	27	1		

- Molecule 44 is a protein called Large ribosomal subunit protein eL42A.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	q	103	Total	C	N	O	S	0	0
			824	517	167	135	5		

- Molecule 45 is a protein called Large ribosomal subunit protein eL43A.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	r	91	Total	C	N	O	S	0	0
			694	429	138	121	6		

- Molecule 46 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	s	75	Total	C	N	O	P	0	0
			1605	716	297	517	75		
46	t	75	Total	C	N	O	P	0	0
			1606	716	297	518	75		

- Molecule 47 is a protein called Elongation factor 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	x	842	Total	C	N	O	S	0	0
			6559	4166	1124	1238	31		

- Molecule 48 is a protein called Small ribosomal subunit protein eS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	SD	121	Total	C	N	O	S	0	0
			875	551	153	169	2		

- Molecule 49 is a protein called Small ribosomal subunit protein uS11B.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	SZ	127	Total	C	N	O	S	0	0
			891	545	182	163	1		

- Molecule 50 is a protein called Small ribosomal subunit protein eS26A.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	Se	94	Total	C	N	O	S	0	0
			750	462	157	126	5		

- Molecule 51 is a protein called Small ribosomal subunit protein eS10A.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	SC	92	Total	C	N	O	S	0	0
			752	487	122	141	2		

- Molecule 52 is a protein called Small ribosomal subunit protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	SE	117	Total	C	N	O	S	0	0
			916	583	171	155	7		

- Molecule 53 is a protein called Small ribosomal subunit protein uS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	SA	222	Total	C	N	O	S	0	0
			1729	1098	312	313	6		

- Molecule 54 is a protein called Small ribosomal subunit protein eS19A.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	SI	143	Total	C	N	O	S	0	0
			1112	694	208	208	2		

- Molecule 55 is a protein called Small ribosomal subunit protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	SJ	100	Total	C	N	O	S	0	0
			797	506	144	146	1		

- Molecule 56 is a protein called Small ribosomal subunit protein eS28A.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	SL	63	Total	C	N	O	S	0	0
			491	303	96	91	1		

- Molecule 57 is a protein called Small ribosomal subunit protein uS14A.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	SM	53	Total	C	N	O	S	0	0
			442	274	92	72	4		

- Molecule 58 is a protein called Small ribosomal subunit protein uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	SB	206	Total	C	N	O	S	0	0
			1605	1005	299	298	3		

- Molecule 59 is a protein called Small ribosomal subunit protein uS9A.

Mol	Chain	Residues	Atoms				AltConf	Trace
59	SF	141	Total	C	N	O	0	0
			1105	708	203	194		

- Molecule 60 is a protein called Small ribosomal subunit protein uS13A.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	SH	145	Total	C	N	O	S	0	0
			1188	741	237	208	2		

- Molecule 61 is a protein called Small ribosomal subunit protein RACK1.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	SO	304	Total	C	N	O	S	0	0
			2326	1477	401	440	8		

- Molecule 62 is a protein called Small ribosomal subunit protein eS31.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	SN	73	Total	C	N	O	S	0	0
			560	355	106	95	4		

- Molecule 63 is a protein called Small ribosomal subunit protein eS17A.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	SG	121	Total	C	N	O	S	0	0
			961	599	182	178	2		

- Molecule 64 is a protein called Small ribosomal subunit protein uS2A.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	SP	206	Total	C	N	O	S	0	0
			1603	1030	284	287	2		

- Molecule 65 is a protein called Small ribosomal subunit protein eS1A.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	SQ	226	Total	C	N	O	S	0	0
			1798	1139	330	325	4		

- Molecule 66 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	SR	216	Total	C	N	O	S	0	0
			1626	1042	287	295	2		

- Molecule 67 is a protein called Small ribosomal subunit protein eS4A.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	SS	258	Total	C	N	O	S	0	0
			2056	1308	387	358	3		

- Molecule 68 is a protein called Small ribosomal subunit protein eS6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	ST	228	Total	C	N	O	S	0	0
			1815	1138	351	323	3		

- Molecule 69 is a protein called Small ribosomal subunit protein eS7A.

Mol	Chain	Residues	Atoms				AltConf	Trace
69	SU	184	Total	C	N	O	0	0
			1473	946	263	264		

- Molecule 70 is a protein called Small ribosomal subunit protein eS8A.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	SV	187	Total	C	N	O	S	0	0
			1476	916	295	263	2		

- Molecule 71 is a protein called Small ribosomal subunit protein uS4A.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	SW	184	Total	C	N	O	S	0	0
			1479	935	285	258	1		

- Molecule 72 is a protein called Small ribosomal subunit protein uS17A.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	SX	142	Total	C	N	O	S	0	0
			1142	733	217	189	3		

- Molecule 73 is a protein called Small ribosomal subunit protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	SY	150	Total	C	N	O	S	0	0
			1192	759	224	207	2		

- Molecule 74 is a protein called Small ribosomal subunit protein eS21A.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	Sa	87	Total	C	N	O	S	0	0
			673	415	125	131	2		

- Molecule 75 is a protein called Small ribosomal subunit protein uS8A.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	Sb	129	Total	C	N	O	S	0	0
			1021	650	188	180	3		

- Molecule 76 is a protein called Small ribosomal subunit protein uS12A.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	Sc	144	Total	C	N	O	S	0	0
			1121	708	220	191	2		

- Molecule 77 is a protein called Small ribosomal subunit protein eS24A.

Mol	Chain	Residues	Atoms				AltConf	Trace
77	Sd	134	Total	C	N	O	0	0
			1073	676	208	189		

- Molecule 78 is a protein called Small ribosomal subunit protein eS27A.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	Sf	81	Total	C	N	O	S	0	0
			610	382	110	113	5		

- Molecule 79 is a protein called Small ribosomal subunit protein eS30A.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	Sg	60	Total	C	N	O	S	0	0
			472	298	97	76	1		

- Molecule 80 is a protein called Small ribosomal subunit protein eS25A.

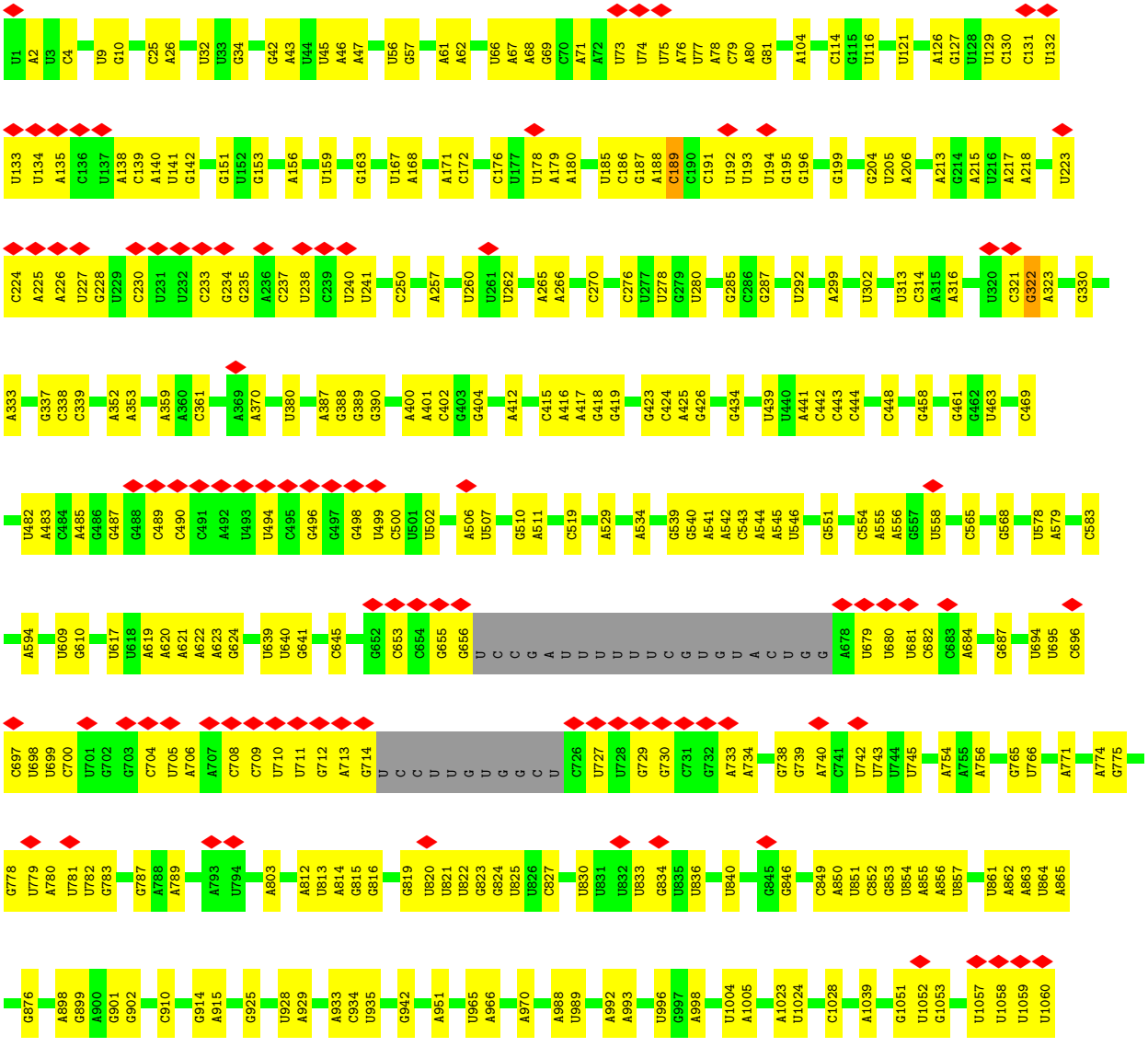
Mol	Chain	Residues	Atoms					AltConf	Trace
80	SK	103	Total	C	N	O	S	0	0
			810	514	151	143	2		

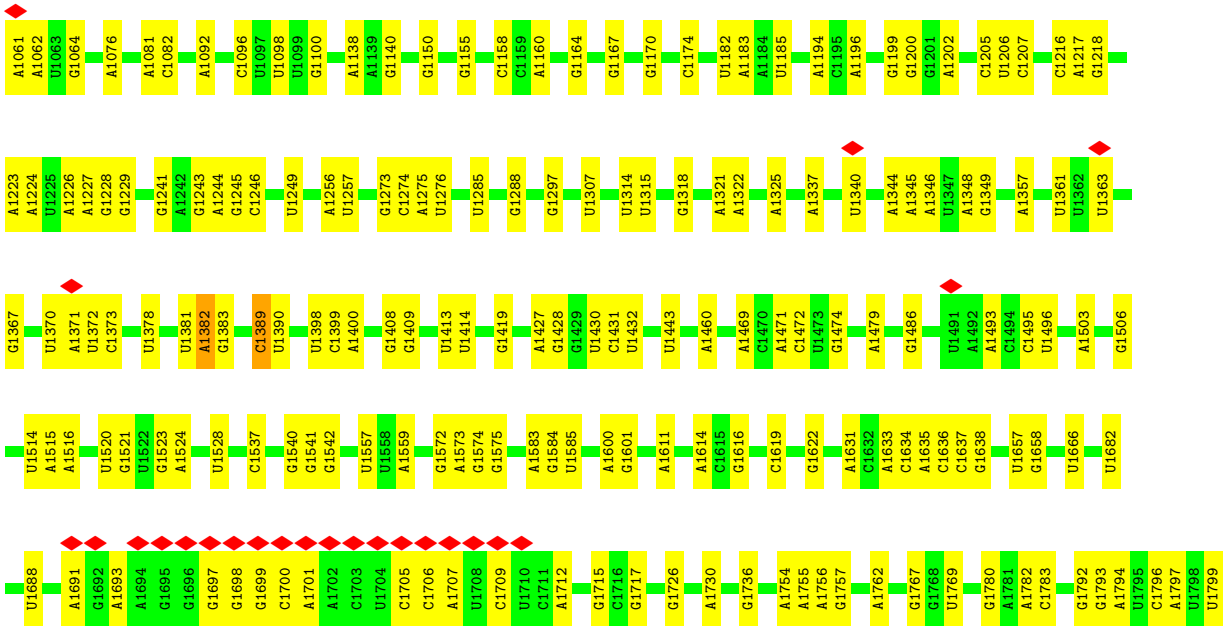
3 Residue-property plots (i)

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

- Molecule 1: 18S rRNA

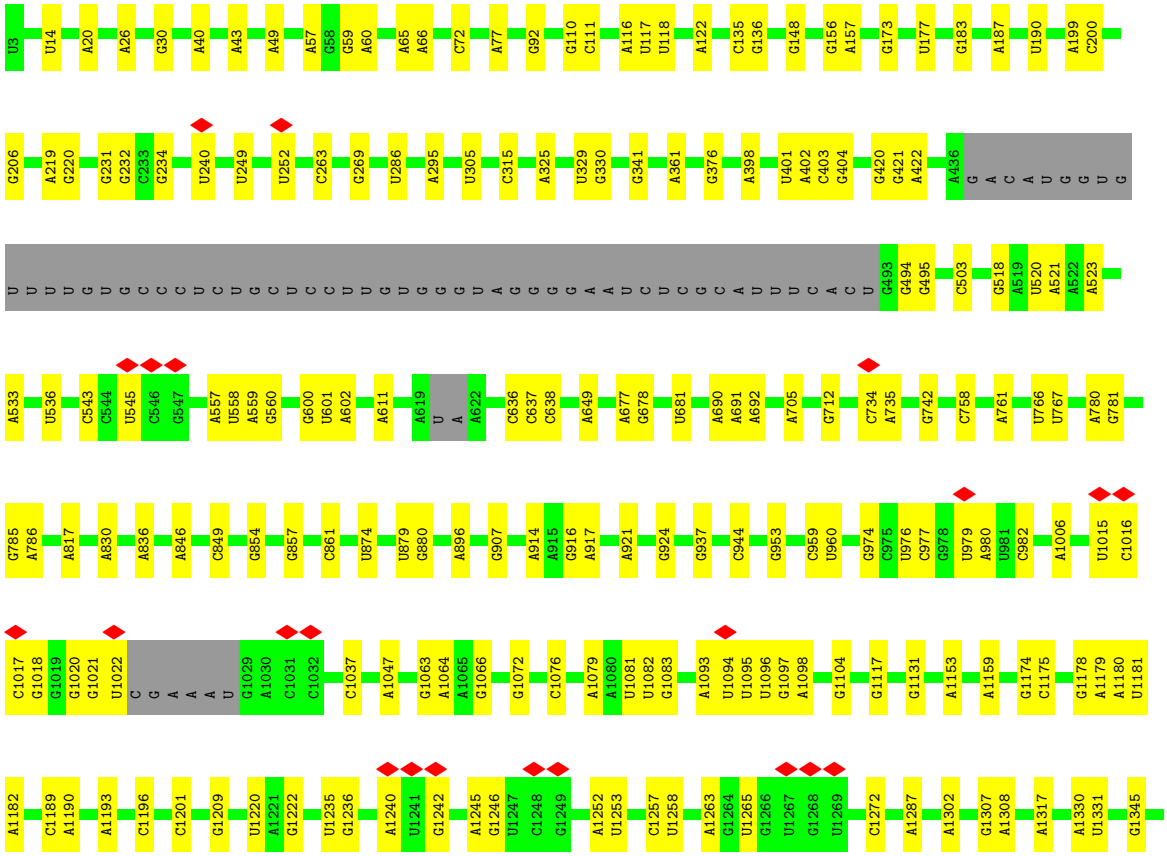
Chain 2:

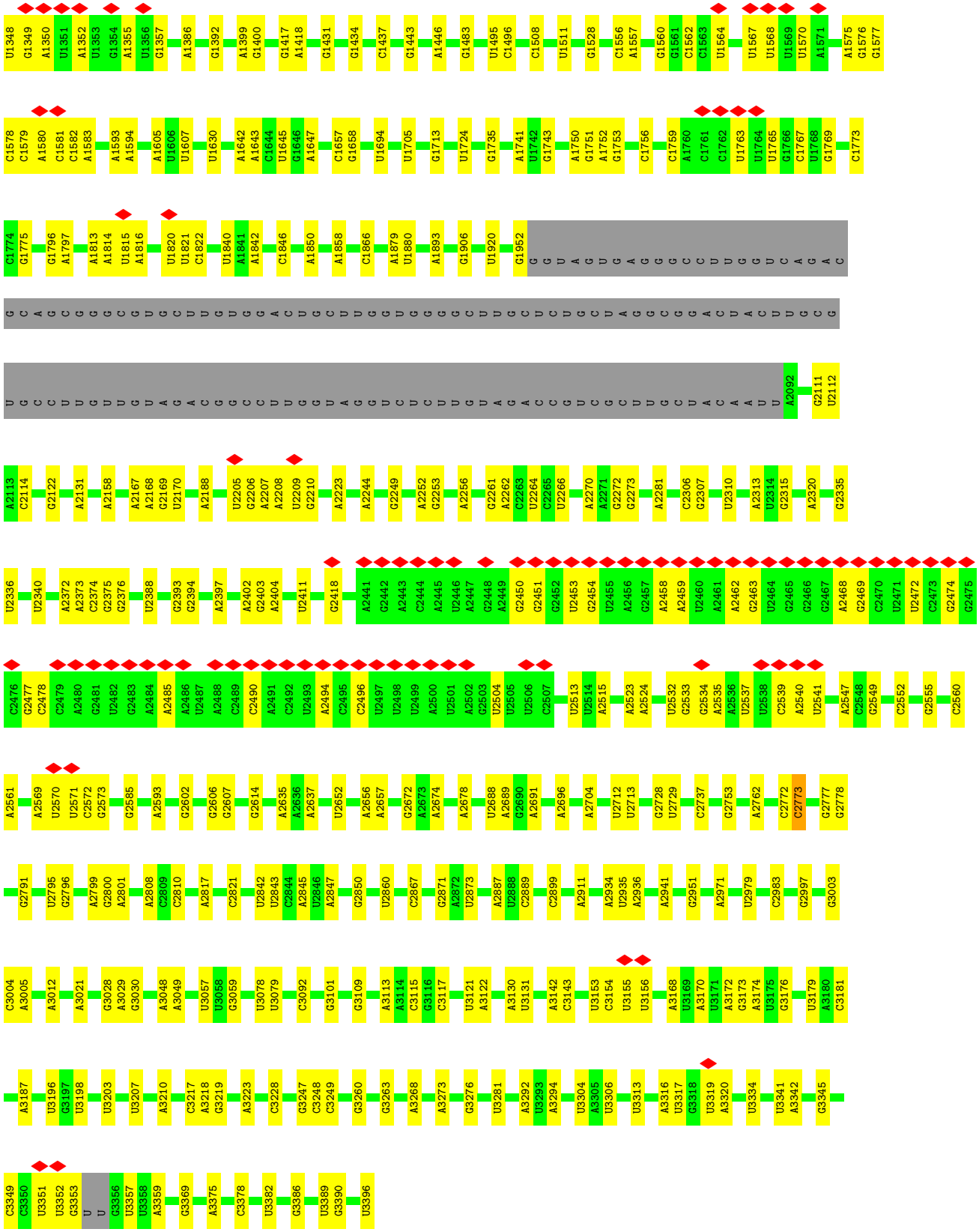




• Molecule 2: 25S rRNA

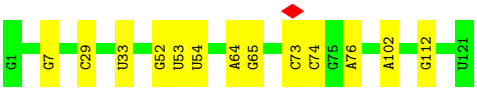
Chain A:





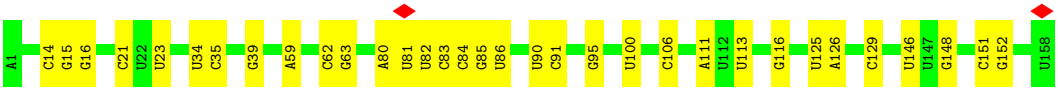
• Molecule 3: 5S rRNA

Chain B:



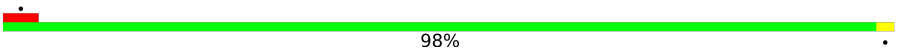
• Molecule 4: 5.8S rRNA

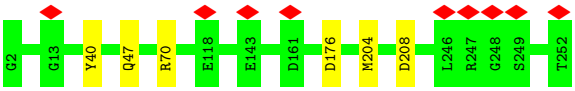
Chain C:



• Molecule 5: Large ribosomal subunit protein uL2A

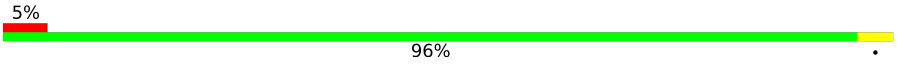
Chain D:





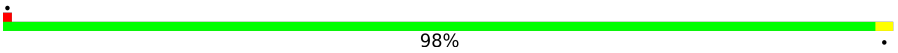
• Molecule 6: Large ribosomal subunit protein uL3

Chain E:



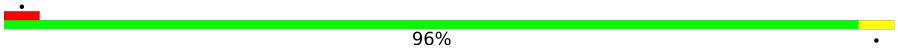
• Molecule 7: Large ribosomal subunit protein uL4A

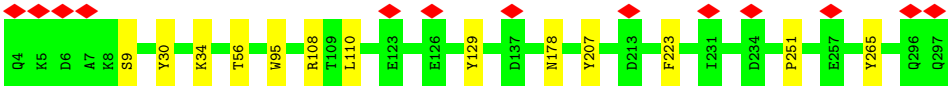
Chain F:



• Molecule 8: Large ribosomal subunit protein uL18

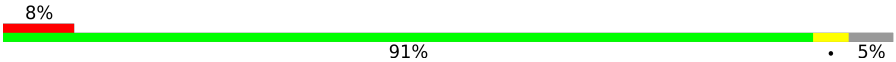
Chain G:

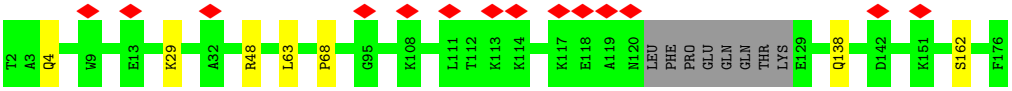




• Molecule 9: Large ribosomal subunit protein eL6B

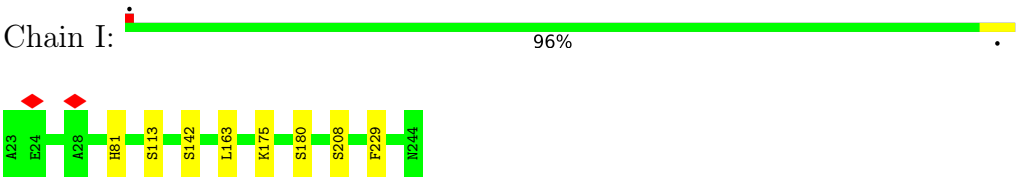
Chain H:





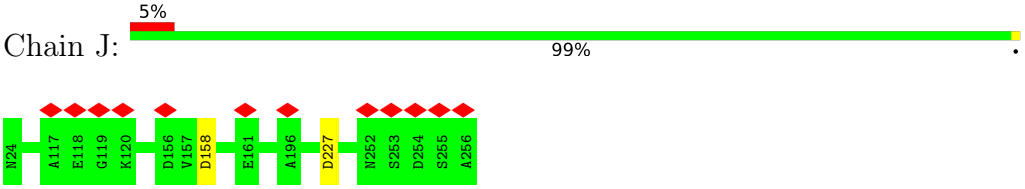
• Molecule 10: Large ribosomal subunit protein uL30A

Chain I:



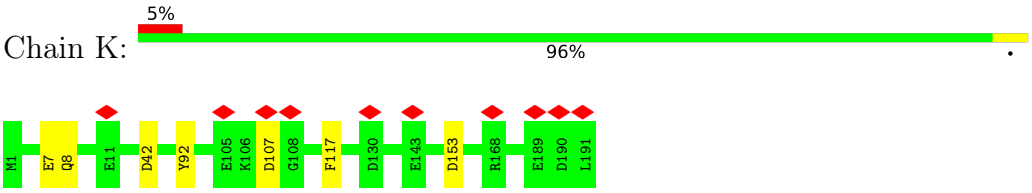
• Molecule 11: Large ribosomal subunit protein eL8A

Chain J:



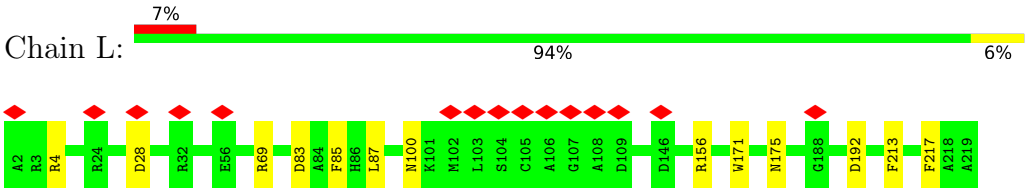
• Molecule 12: Large ribosomal subunit protein uL6A

Chain K:



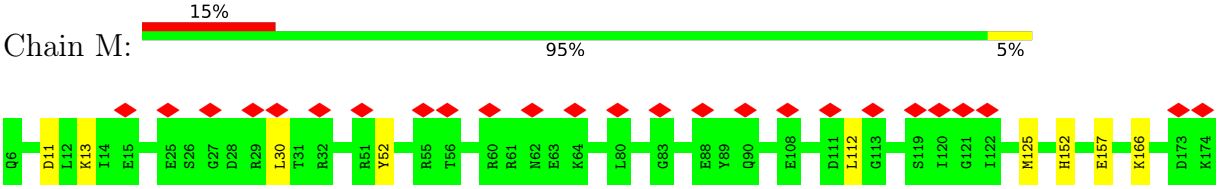
• Molecule 13: Large ribosomal subunit protein uL16

Chain L:



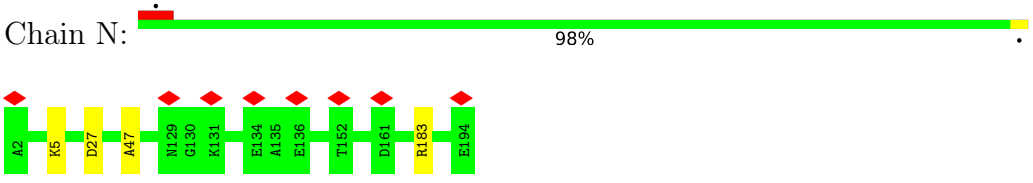
• Molecule 14: Large ribosomal subunit protein uL5B

Chain M:



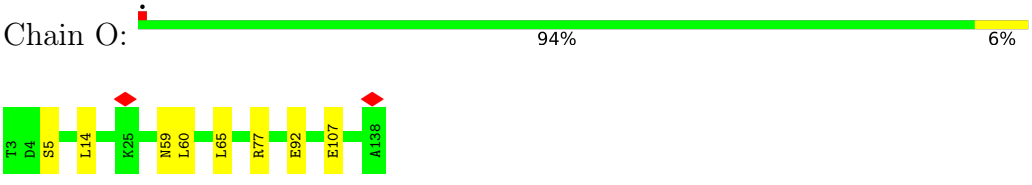
• Molecule 15: Large ribosomal subunit protein eL13A

Chain N:



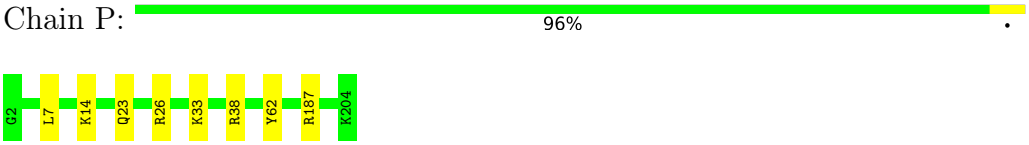
• Molecule 16: Large ribosomal subunit protein eL14A

Chain O:



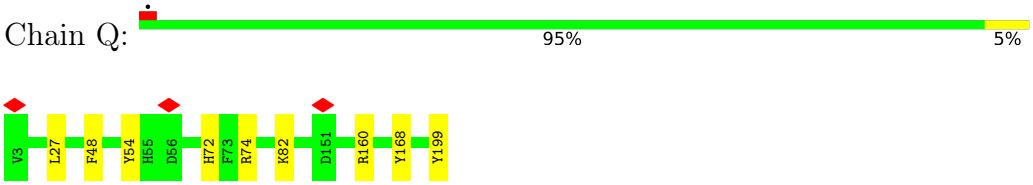
• Molecule 17: Large ribosomal subunit protein eL15A

Chain P:



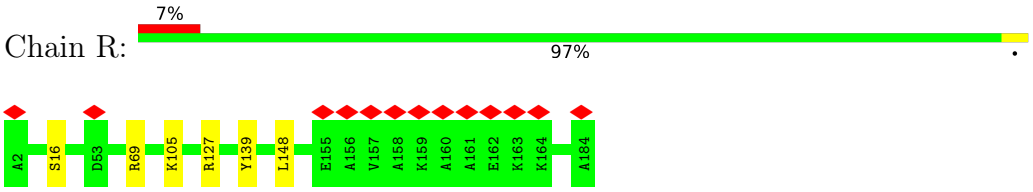
• Molecule 18: Large ribosomal subunit protein uL13A

Chain Q:



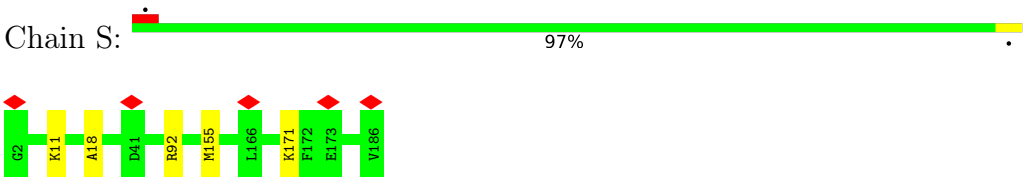
• Molecule 19: Large ribosomal subunit protein uL22A

Chain R:



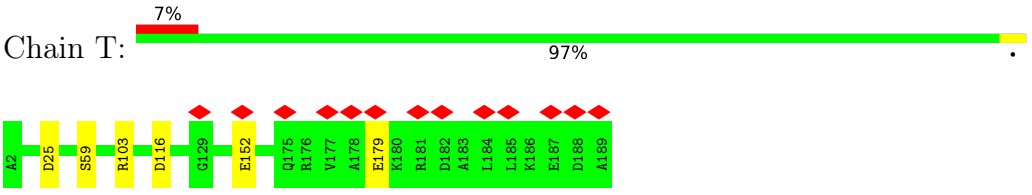
• Molecule 20: Large ribosomal subunit protein eL18A

Chain S:



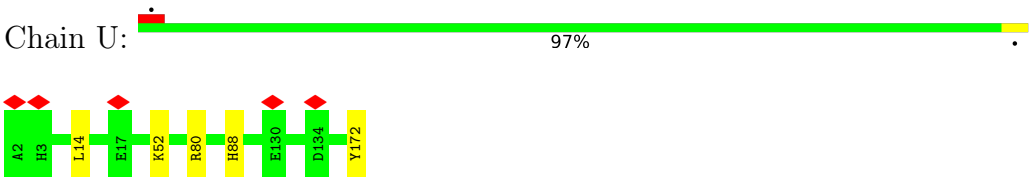
• Molecule 21: Large ribosomal subunit protein eL19A

Chain T:



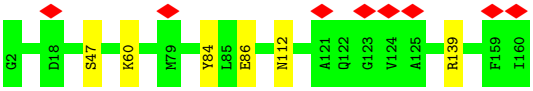
• Molecule 22: Large ribosomal subunit protein eL20A

Chain U:



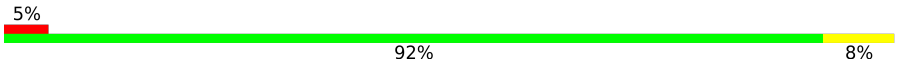
• Molecule 23: Large ribosomal subunit protein eL21A

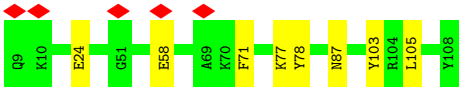
Chain V:



• Molecule 24: Large ribosomal subunit protein eL22A

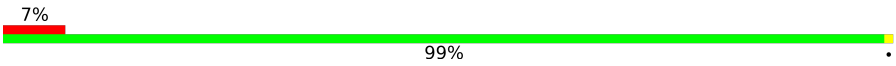
Chain W:

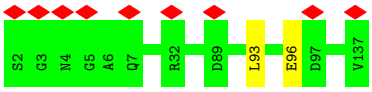




• Molecule 25: Large ribosomal subunit protein uL14A

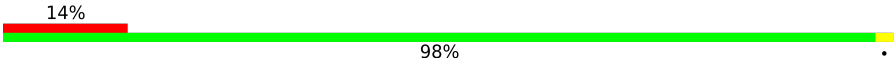
Chain X:

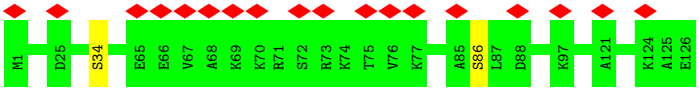




• Molecule 26: Large ribosomal subunit protein eL24A

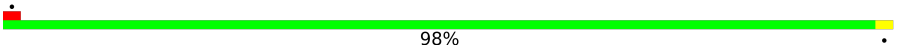
Chain Y:





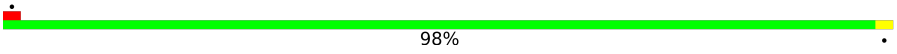
• Molecule 27: Large ribosomal subunit protein uL23

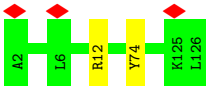
Chain Z:



• Molecule 28: Large ribosomal subunit protein uL24A

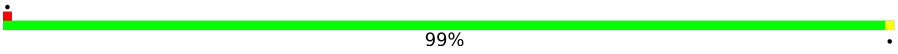
Chain a:

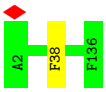




• Molecule 29: Large ribosomal subunit protein eL27A

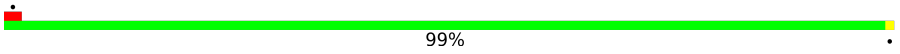
Chain b:

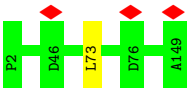




• Molecule 30: Large ribosomal subunit protein uL15

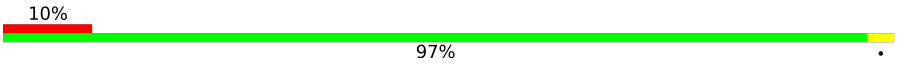
Chain c:

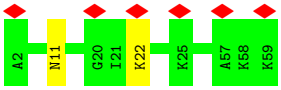




• Molecule 31: Large ribosomal subunit protein eL29

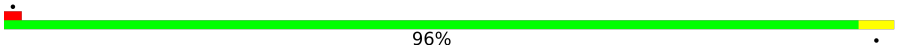
Chain d:

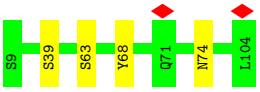




• Molecule 32: Large ribosomal subunit protein eL30

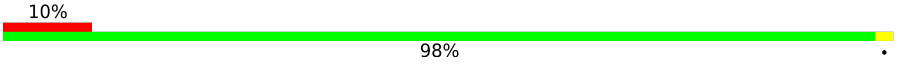
Chain e:

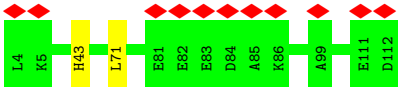




• Molecule 33: Large ribosomal subunit protein eL31A

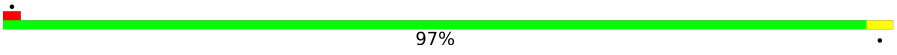
Chain f:

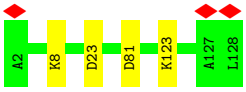




• Molecule 34: Large ribosomal subunit protein eL32

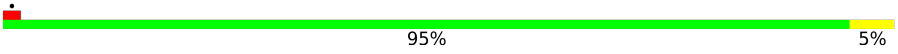
Chain g:

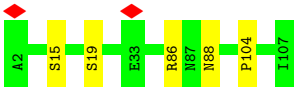




• Molecule 35: Large ribosomal subunit protein eL33A

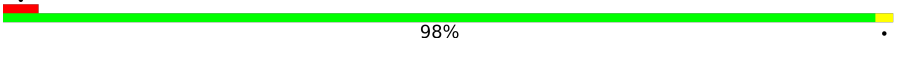
Chain h:

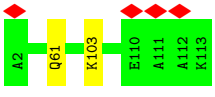




• Molecule 36: Large ribosomal subunit protein eL34A

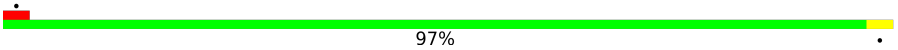
Chain i:

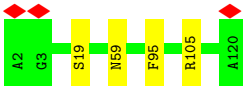




• Molecule 37: Large ribosomal subunit protein uL29A

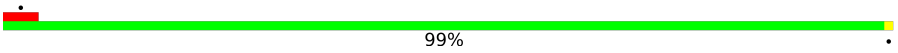
Chain j:

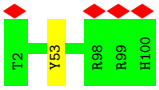




• Molecule 38: Large ribosomal subunit protein eL36A

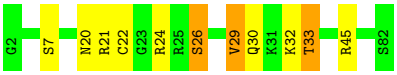
Chain k:





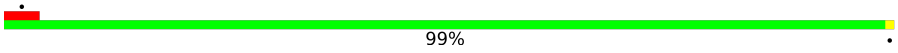
• Molecule 39: Large ribosomal subunit protein eL37A

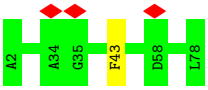
Chain l:



• Molecule 40: Large ribosomal subunit protein eL38

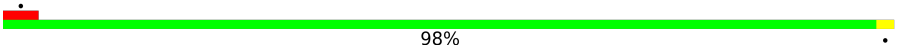
Chain m:

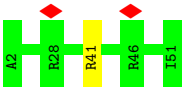




• Molecule 41: Large ribosomal subunit protein eL39

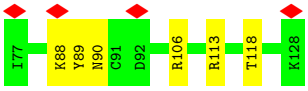
Chain n:





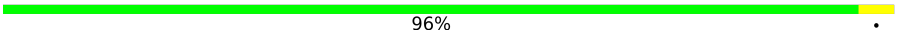
• Molecule 42: Large ribosomal subunit protein eL40A

Chain o:



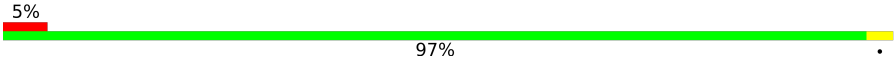
• Molecule 43: Large ribosomal subunit protein eL41A

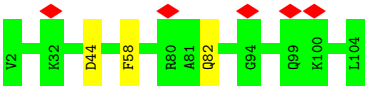
Chain p:



• Molecule 44: Large ribosomal subunit protein eL42A

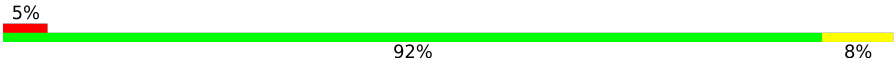
Chain q:





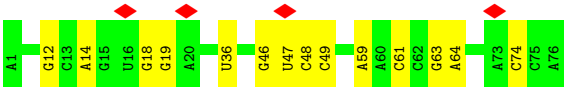
• Molecule 45: Large ribosomal subunit protein eL43A

Chain r:



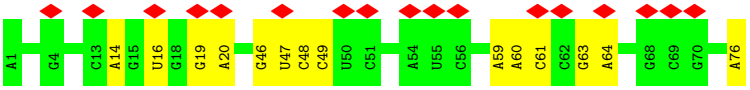
• Molecule 46: tRNA

Chain s:



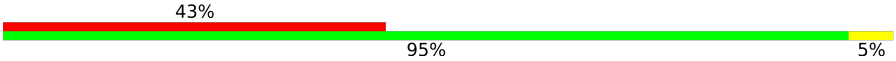
• Molecule 46: tRNA

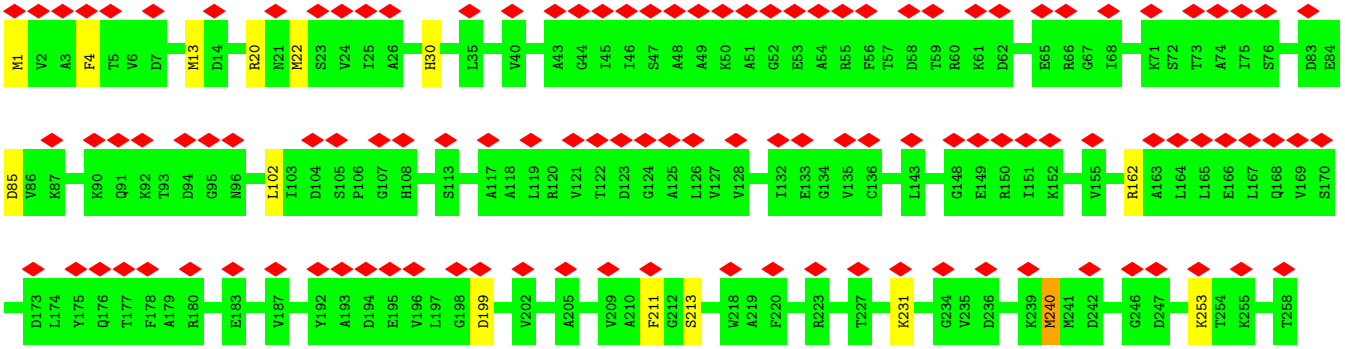
Chain t:

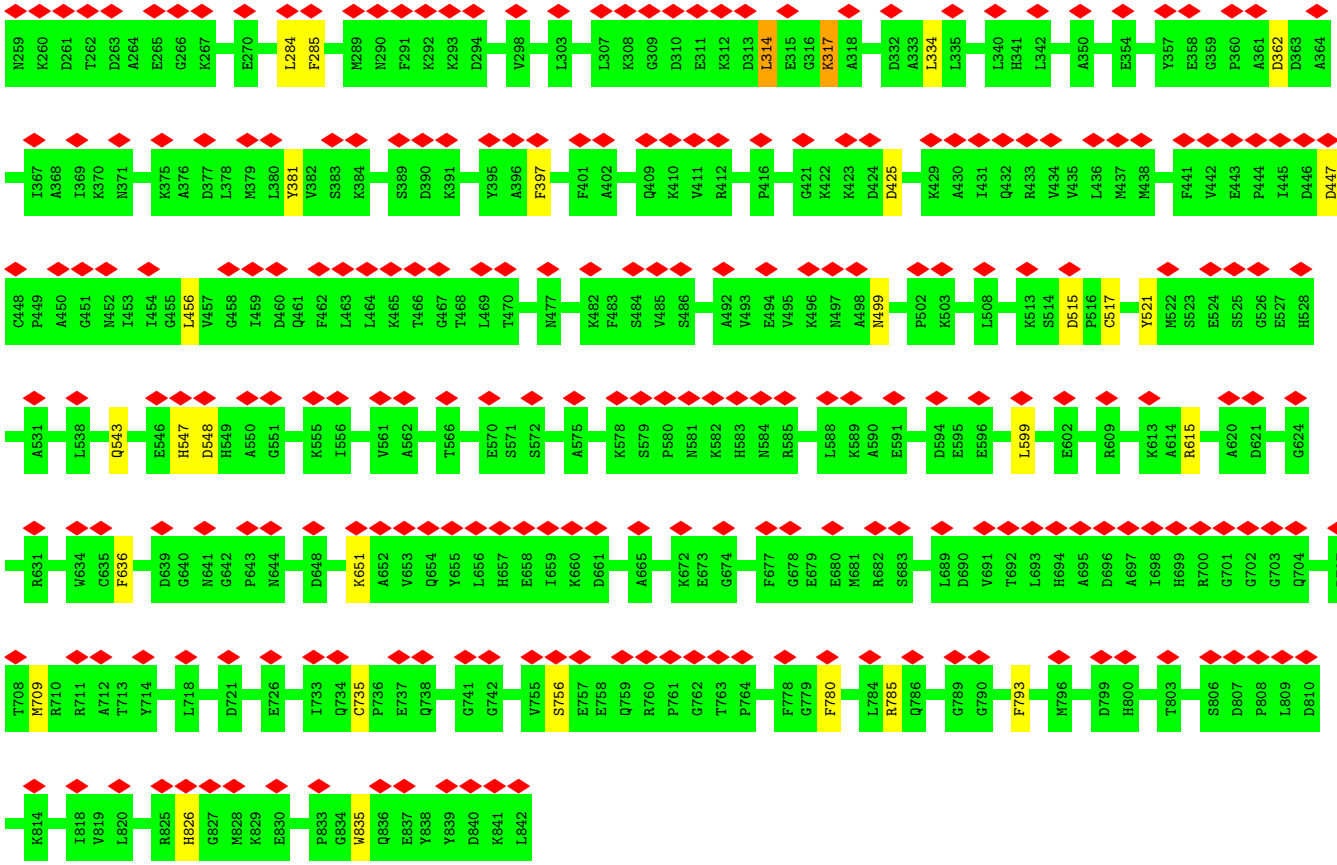


• Molecule 47: Elongation factor 2

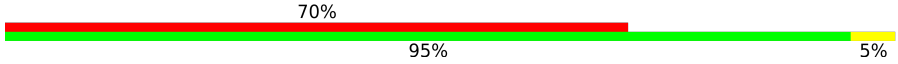
Chain x:

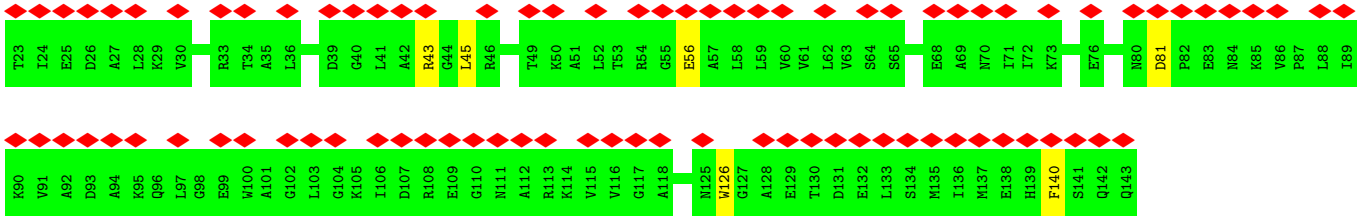




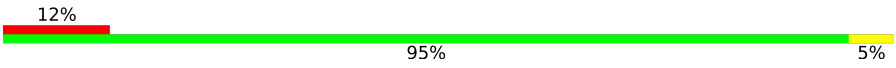


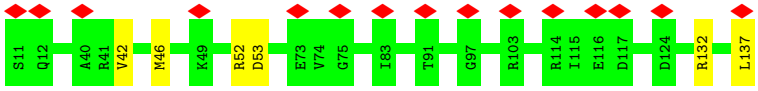
• Molecule 48: Small ribosomal subunit protein eS12



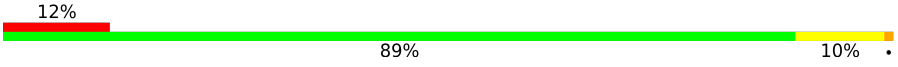


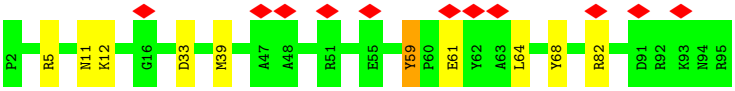
• Molecule 49: Small ribosomal subunit protein uS11B



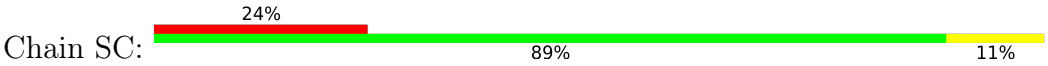


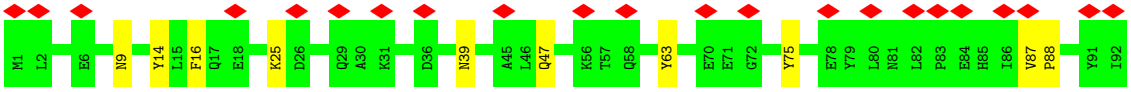
• Molecule 50: Small ribosomal subunit protein eS26A



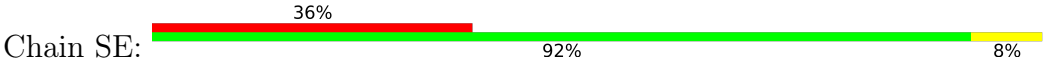


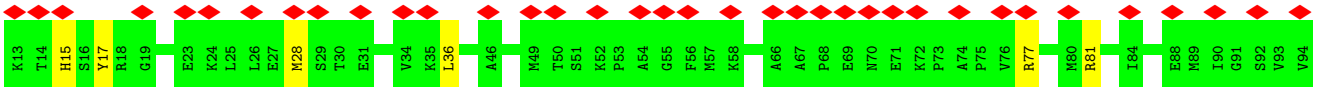
• Molecule 51: Small ribosomal subunit protein eS10A

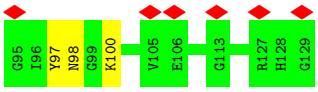




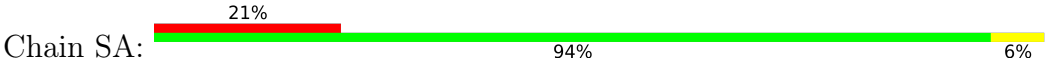
• Molecule 52: Small ribosomal subunit protein uS19

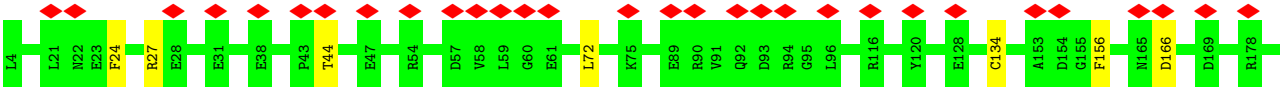


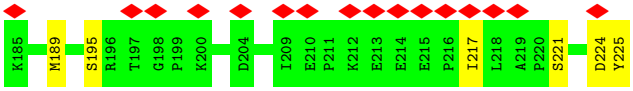




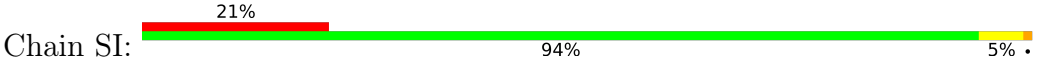
• Molecule 53: Small ribosomal subunit protein uS3

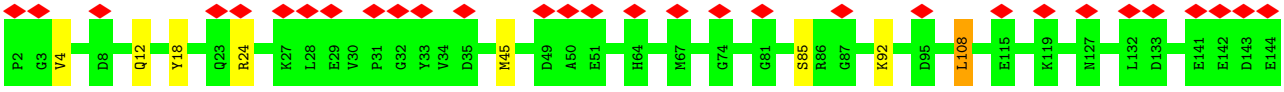




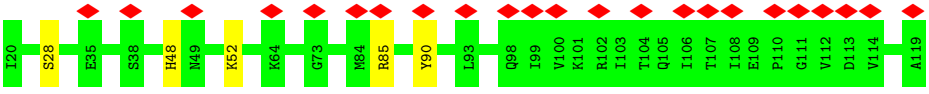


• Molecule 54: Small ribosomal subunit protein eS19A



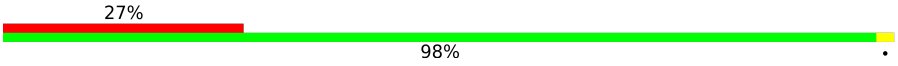


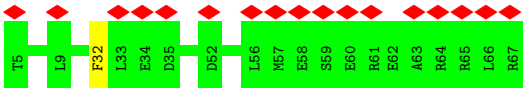
• Molecule 55: Small ribosomal subunit protein uS10



• Molecule 56: Small ribosomal subunit protein eS28A

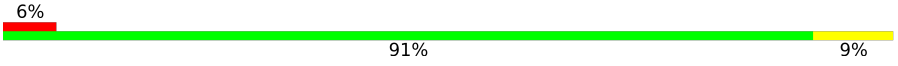
Chain SL:

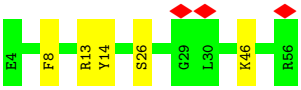




• Molecule 57: Small ribosomal subunit protein uS14A

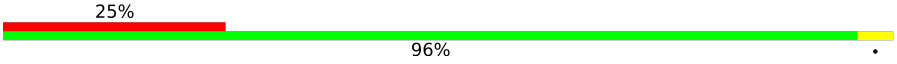
Chain SM:

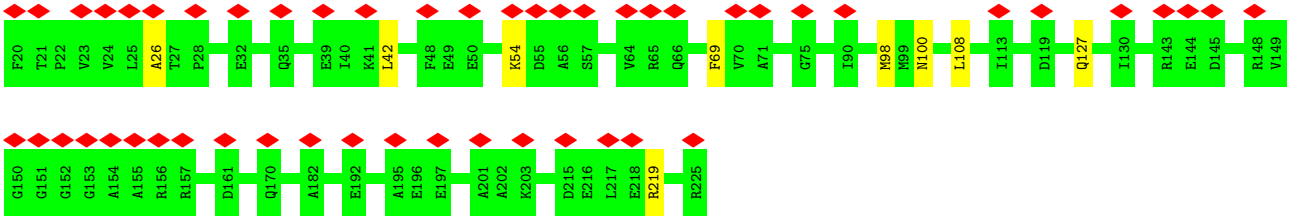




• Molecule 58: Small ribosomal subunit protein uS7

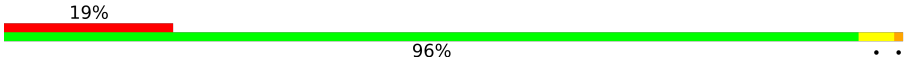
Chain SB:

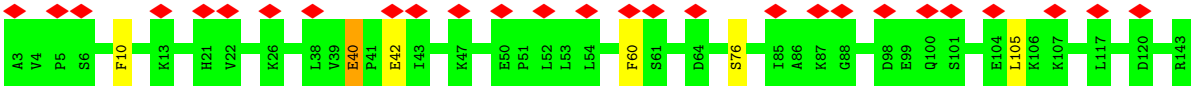




• Molecule 59: Small ribosomal subunit protein uS9A

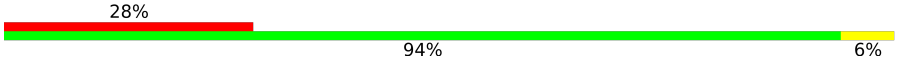
Chain SF:

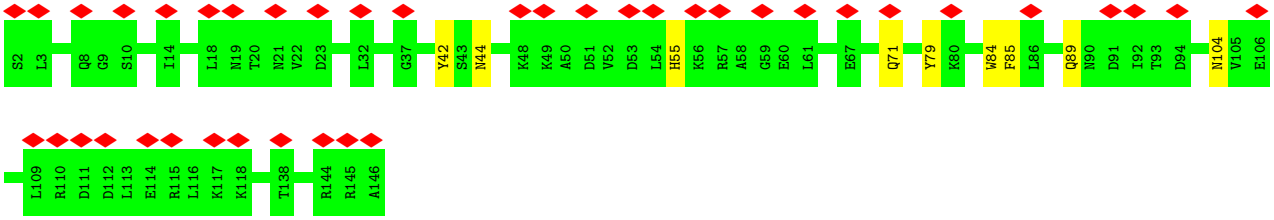




• Molecule 60: Small ribosomal subunit protein uS13A

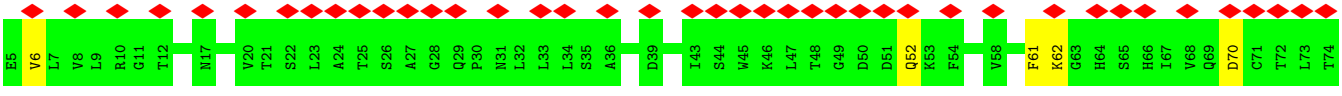
Chain SH:

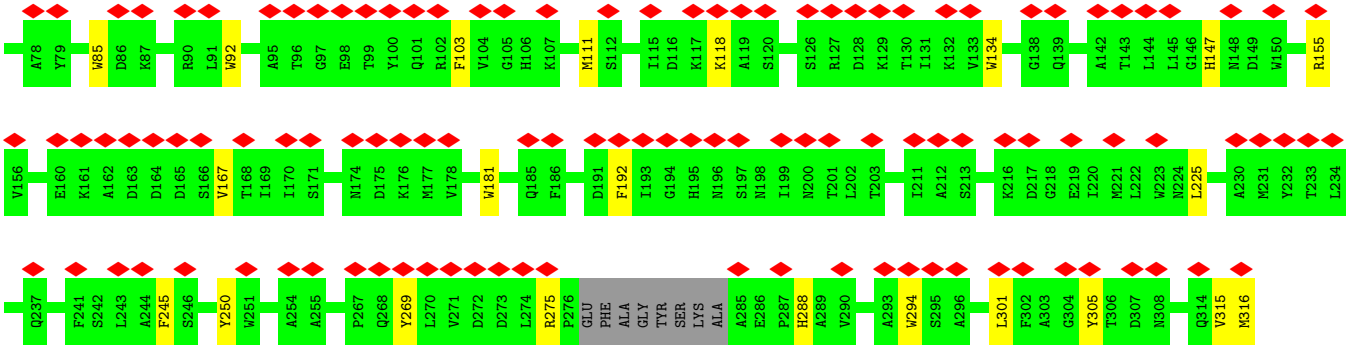




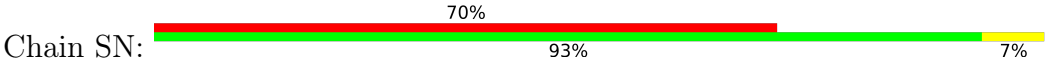
• Molecule 61: Small ribosomal subunit protein RACK1

Chain SO:

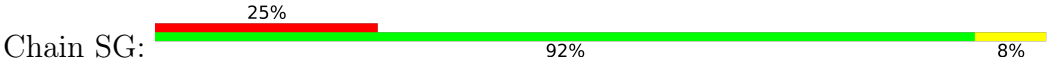


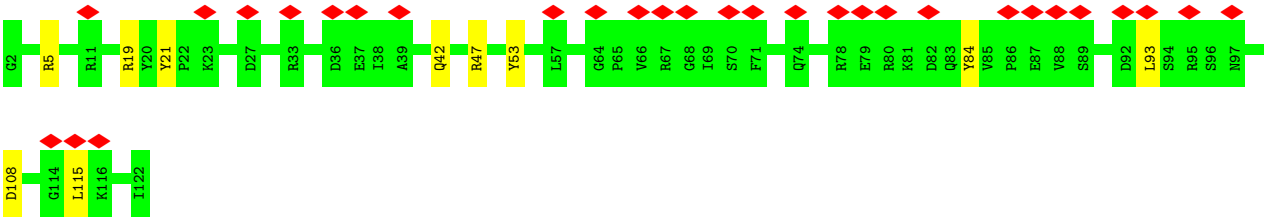


• Molecule 62: Small ribosomal subunit protein eS31

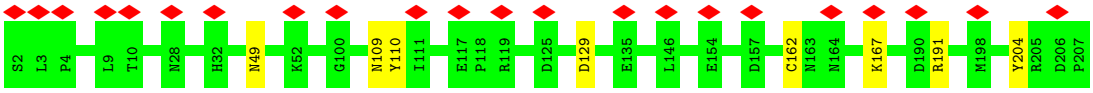


• Molecule 63: Small ribosomal subunit protein eS17A

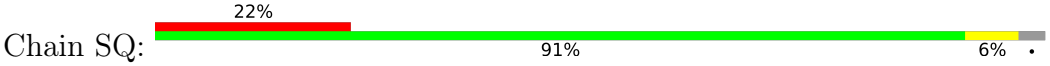


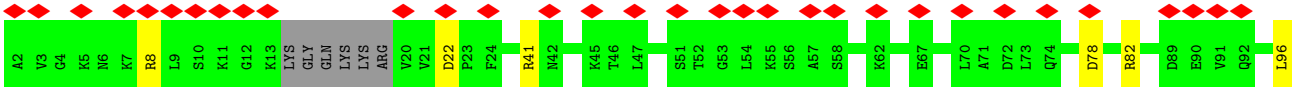


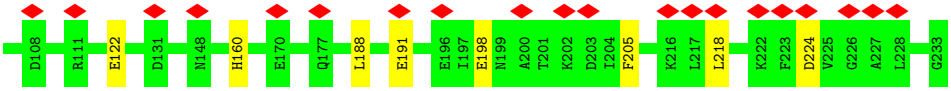
• Molecule 64: Small ribosomal subunit protein uS2A



• Molecule 65: Small ribosomal subunit protein eS1A

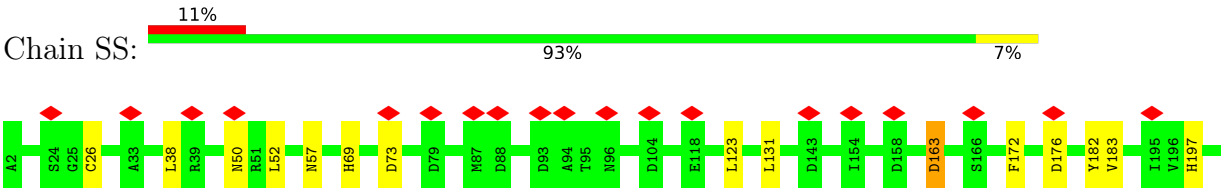




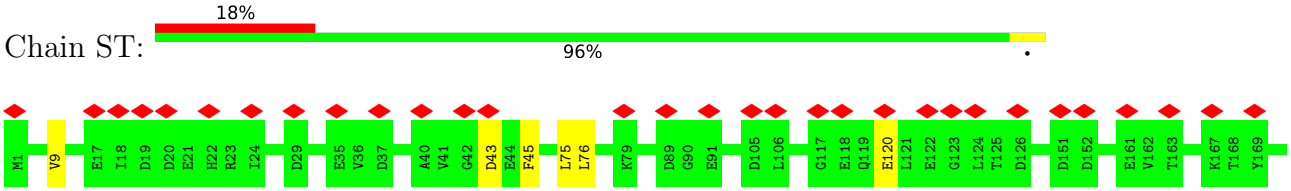


• Molecule 66: Small ribosomal subunit protein uS5

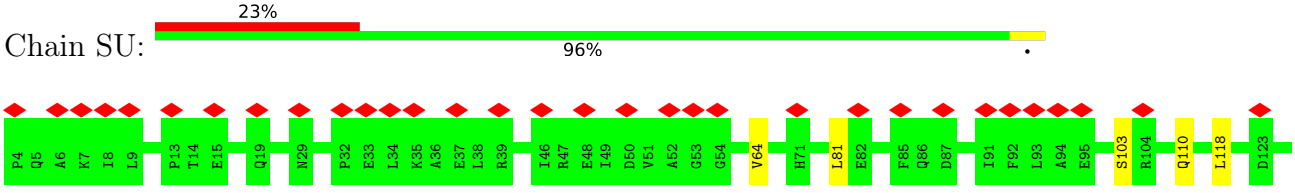
• Molecule 67: Small ribosomal subunit protein eS4A



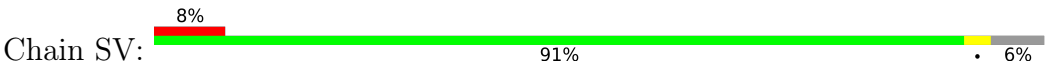
• Molecule 68: Small ribosomal subunit protein eS6A

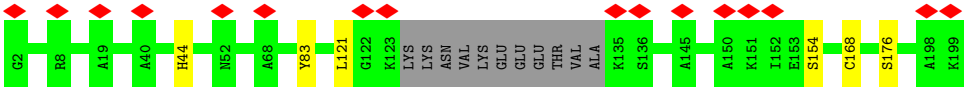


• Molecule 69: Small ribosomal subunit protein eS7A

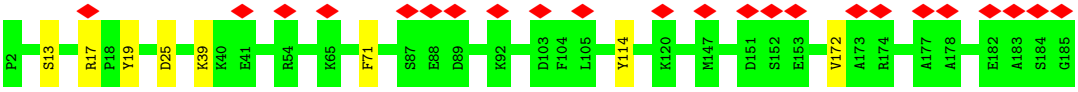


• Molecule 70: Small ribosomal subunit protein eS8A

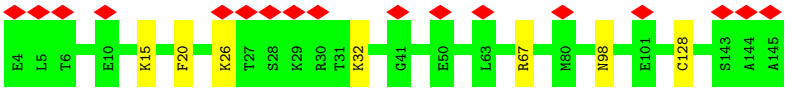




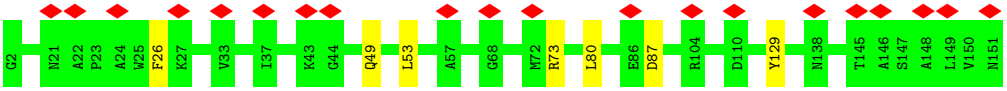
• Molecule 71: Small ribosomal subunit protein uS4A



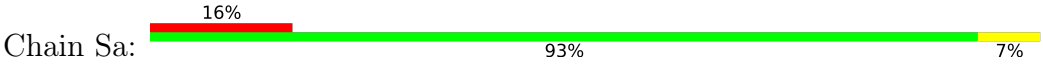
• Molecule 72: Small ribosomal subunit protein uS17A

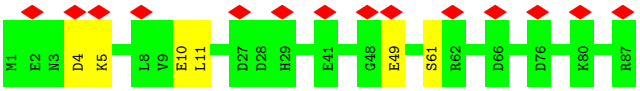


• Molecule 73: Small ribosomal subunit protein uS15

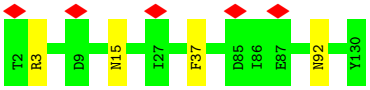


• Molecule 74: Small ribosomal subunit protein eS21A

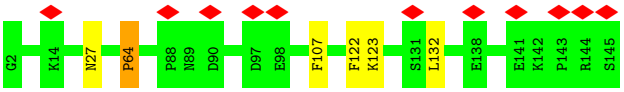




• Molecule 75: Small ribosomal subunit protein uS8A

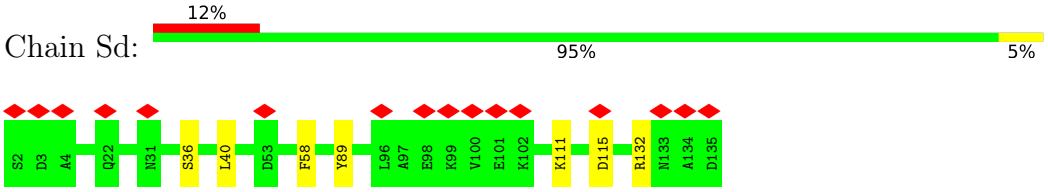


• Molecule 76: Small ribosomal subunit protein uS12A



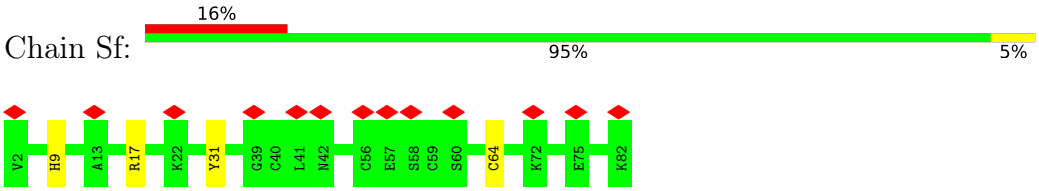
• Molecule 77: Small ribosomal subunit protein eS24A

Chain Sd:



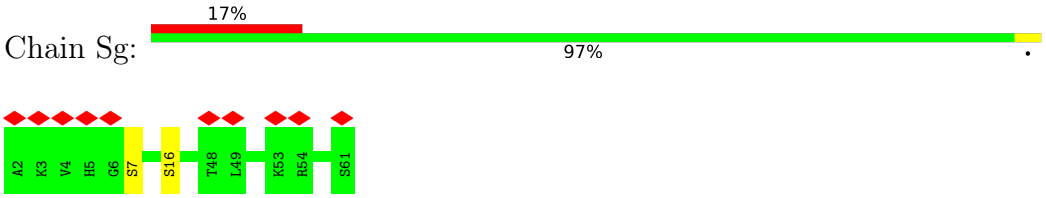
• Molecule 78: Small ribosomal subunit protein eS27A

Chain Sf:



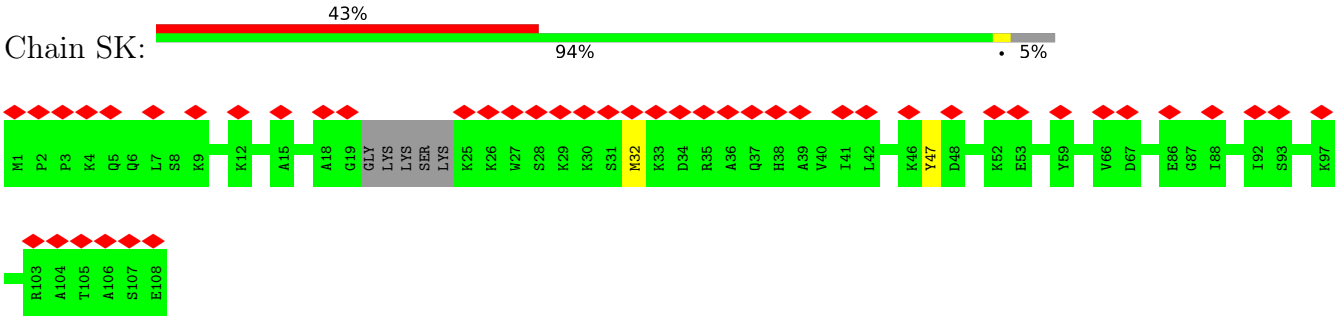
• Molecule 79: Small ribosomal subunit protein eS30A

Chain Sg:



• Molecule 80: Small ribosomal subunit protein eS25A

Chain SK:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	39857	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 ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	1.933	Depositor
Minimum map value	-0.938	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.086	Depositor
Recommended contour level	0.295	Depositor
Map size (Å)	528.0, 528.0, 528.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.32, 1.32, 1.32	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	2	0.17	0/42115	0.76	7/65623 (0.0%)
2	A	0.15	0/76357	0.74	5/119043 (0.0%)
3	B	0.15	0/2883	0.73	0/4491
4	C	0.16	0/3746	0.76	3/5832 (0.1%)
5	D	0.26	0/1933	0.55	0/2598
6	E	0.24	0/3146	0.52	0/4228
7	F	0.27	1/2800 (0.0%)	0.50	0/3790
8	G	0.26	0/2400	0.53	2/3239 (0.1%)
9	H	0.27	0/1329	0.53	0/1794
10	I	0.29	0/1821	0.52	0/2451
11	J	0.25	0/1836	0.48	0/2481
12	K	0.26	0/1529	0.50	0/2060
13	L	0.27	0/1801	0.57	0/2416
14	M	0.25	0/1367	0.56	0/1834
15	N	0.25	0/1568	0.57	1/2106 (0.0%)
16	O	0.27	0/1068	0.56	1/1438 (0.1%)
17	P	0.24	0/1757	0.55	0/2354
18	Q	0.27	0/1585	0.50	0/2128
19	R	0.25	0/1439	0.53	0/1938
20	S	0.28	0/1465	0.55	0/1965
21	T	0.26	0/1532	0.56	0/2043
22	U	0.25	0/1473	0.52	0/1980
23	V	0.29	0/1296	0.52	0/1739
24	W	0.29	0/812	0.50	0/1099
25	X	0.25	0/1018	0.50	0/1369
26	Y	0.25	0/850	0.48	0/1152
27	Z	0.26	0/979	0.50	0/1321
28	a	0.24	0/995	0.51	0/1329
29	b	0.29	0/1106	0.53	0/1485
30	c	0.24	0/1200	0.50	0/1607
31	d	0.25	0/473	0.50	0/629
32	e	0.28	0/745	0.53	0/1001
33	f	0.25	0/890	0.55	0/1196
34	g	0.24	0/1034	0.48	0/1385

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
35	h	0.28	0/868	0.57	0/1168
36	i	0.25	0/890	0.54	0/1189
37	j	0.27	0/978	0.52	0/1301
38	k	0.26	0/772	0.58	0/1026
39	l	0.48	0/660	0.62	0/875
40	m	0.26	0/618	0.60	0/826
41	n	0.23	0/443	0.57	0/588
42	o	0.24	0/416	0.55	0/553
43	p	0.22	0/230	0.69	0/296
44	q	0.26	0/836	0.54	0/1104
45	r	0.25	0/701	0.58	0/934
46	s	0.15	0/1795	0.73	0/2797
46	t	0.14	0/1796	0.73	0/2799
47	x	0.27	0/6685	0.58	3/9050 (0.0%)
48	SD	0.26	0/883	0.58	0/1199
49	SZ	0.26	0/901	0.63	0/1217
50	Se	0.27	0/761	0.63	0/1016
51	SC	0.35	0/769	0.56	0/1039
52	SE	0.29	0/936	0.63	0/1259
53	SA	0.28	0/1754	0.59	1/2361 (0.0%)
54	SI	0.33	0/1130	0.61	1/1517 (0.1%)
55	SJ	0.26	0/807	0.55	0/1091
56	SL	0.25	0/493	0.63	0/663
57	SM	0.27	0/452	0.55	0/600
58	SB	0.26	0/1625	0.57	1/2197 (0.0%)
59	SF	0.30	0/1125	0.59	0/1510
60	SH	0.28	0/1207	0.63	0/1623
61	SO	0.28	0/2376	0.59	0/3235
62	SN	0.24	0/571	0.55	0/768
63	SG	0.27	0/971	0.65	2/1303 (0.2%)
64	SP	0.25	0/1644	0.54	0/2249
65	SQ	0.26	0/1823	0.58	2/2447 (0.1%)
66	SR	0.27	0/1656	0.54	1/2251 (0.0%)
67	SS	0.28	0/2097	0.59	1/2823 (0.0%)
68	ST	0.25	0/1839	0.55	0/2460
69	SU	0.28	0/1498	0.57	0/2019
70	SV	0.25	0/1501	0.57	0/2006
71	SW	0.25	0/1504	0.55	0/2016
72	SX	0.25	0/1168	0.56	0/1575
73	SY	0.26	0/1215	0.54	0/1638
74	Sa	0.27	0/682	0.58	0/921
75	Sb	0.27	0/1038	0.57	0/1395
76	Sc	0.26	0/1139	0.56	0/1518

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
77	Sd	0.27	0/1087	0.57	0/1449
78	Sf	0.24	0/620	0.53	0/838
79	Sg	0.25	0/480	0.53	0/639
80	SK	0.25	0/821	0.54	0/1096
All	All	0.21	1/224609 (0.0%)	0.68	31/329588 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	F	148	ILE	C-N	5.26	1.44	1.34

The worst 5 of 31 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
65	SQ	188	LEU	CA-CB-CG	5.99	129.08	115.30
54	SI	108	LEU	CA-CB-CG	5.97	129.02	115.30
1	2	1706	C	N3-C2-O2	-5.87	117.79	121.90
1	2	1382	A	P-O3'-C3'	5.83	126.70	119.70
16	O	60	LEU	CB-CG-CD2	-5.82	101.10	111.00

There are no chirality outliers.

There are no planarity outliers.

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	
5	D	249/251 (99%)	236 (95%)	13 (5%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
6	E	384/386 (100%)	363 (94%)	20 (5%)	1 (0%)	37 66
7	F	359/361 (99%)	350 (98%)	9 (2%)	0	100 100
8	G	292/294 (99%)	280 (96%)	12 (4%)	0	100 100
9	H	163/175 (93%)	155 (95%)	7 (4%)	1 (1%)	22 50
10	I	220/222 (99%)	216 (98%)	4 (2%)	0	100 100
11	J	231/233 (99%)	223 (96%)	7 (3%)	1 (0%)	30 60
12	K	189/191 (99%)	178 (94%)	11 (6%)	0	100 100
13	L	216/218 (99%)	208 (96%)	8 (4%)	0	100 100
14	M	167/169 (99%)	162 (97%)	5 (3%)	0	100 100
15	N	191/193 (99%)	180 (94%)	10 (5%)	1 (0%)	25 54
16	O	134/136 (98%)	131 (98%)	3 (2%)	0	100 100
17	P	201/203 (99%)	200 (100%)	1 (0%)	0	100 100
18	Q	195/197 (99%)	190 (97%)	5 (3%)	0	100 100
19	R	181/183 (99%)	176 (97%)	5 (3%)	0	100 100
20	S	183/185 (99%)	178 (97%)	4 (2%)	1 (0%)	25 54
21	T	186/188 (99%)	184 (99%)	2 (1%)	0	100 100
22	U	169/171 (99%)	166 (98%)	3 (2%)	0	100 100
23	V	157/159 (99%)	150 (96%)	7 (4%)	0	100 100
24	W	98/100 (98%)	92 (94%)	6 (6%)	0	100 100
25	X	134/136 (98%)	134 (100%)	0	0	100 100
26	Y	124/126 (98%)	121 (98%)	2 (2%)	1 (1%)	16 44
27	Z	119/121 (98%)	114 (96%)	5 (4%)	0	100 100
28	a	123/125 (98%)	121 (98%)	2 (2%)	0	100 100
29	b	133/135 (98%)	128 (96%)	5 (4%)	0	100 100
30	c	146/148 (99%)	141 (97%)	5 (3%)	0	100 100
31	d	56/58 (97%)	53 (95%)	3 (5%)	0	100 100
32	e	94/96 (98%)	93 (99%)	1 (1%)	0	100 100
33	f	107/109 (98%)	104 (97%)	3 (3%)	0	100 100
34	g	125/127 (98%)	123 (98%)	2 (2%)	0	100 100
35	h	104/106 (98%)	97 (93%)	6 (6%)	1 (1%)	13 39
36	i	110/112 (98%)	106 (96%)	4 (4%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
37	j	117/119 (98%)	115 (98%)	2 (2%)	0	100 100
38	k	97/99 (98%)	94 (97%)	3 (3%)	0	100 100
39	l	79/81 (98%)	68 (86%)	6 (8%)	5 (6%)	1 7
40	m	75/77 (97%)	74 (99%)	1 (1%)	0	100 100
41	n	48/50 (96%)	47 (98%)	1 (2%)	0	100 100
42	o	50/52 (96%)	47 (94%)	3 (6%)	0	100 100
43	p	23/25 (92%)	23 (100%)	0	0	100 100
44	q	101/103 (98%)	96 (95%)	5 (5%)	0	100 100
45	r	89/91 (98%)	87 (98%)	2 (2%)	0	100 100
47	x	840/842 (100%)	755 (90%)	84 (10%)	1 (0%)	48 78
48	SD	119/121 (98%)	95 (80%)	24 (20%)	0	100 100
49	SZ	125/127 (98%)	101 (81%)	23 (18%)	1 (1%)	16 44
50	Se	92/94 (98%)	81 (88%)	9 (10%)	2 (2%)	5 24
51	SC	90/92 (98%)	78 (87%)	10 (11%)	2 (2%)	5 24
52	SE	115/117 (98%)	96 (84%)	18 (16%)	1 (1%)	14 41
53	SA	220/222 (99%)	206 (94%)	11 (5%)	3 (1%)	9 31
54	SI	141/143 (99%)	132 (94%)	8 (6%)	1 (1%)	19 47
55	SJ	98/100 (98%)	91 (93%)	7 (7%)	0	100 100
56	SL	61/63 (97%)	59 (97%)	2 (3%)	0	100 100
57	SM	51/53 (96%)	47 (92%)	4 (8%)	0	100 100
58	SB	204/206 (99%)	182 (89%)	21 (10%)	1 (0%)	25 54
59	SF	139/141 (99%)	131 (94%)	6 (4%)	2 (1%)	9 31
60	SH	143/145 (99%)	123 (86%)	20 (14%)	0	100 100
61	SO	300/312 (96%)	238 (79%)	57 (19%)	5 (2%)	7 28
62	SN	71/73 (97%)	52 (73%)	19 (27%)	0	100 100
63	SG	119/121 (98%)	106 (89%)	13 (11%)	0	100 100
64	SP	204/206 (99%)	191 (94%)	13 (6%)	0	100 100
65	SQ	222/232 (96%)	201 (90%)	21 (10%)	0	100 100
66	SR	214/216 (99%)	205 (96%)	9 (4%)	0	100 100
67	SS	256/258 (99%)	226 (88%)	29 (11%)	1 (0%)	30 60
68	ST	226/228 (99%)	213 (94%)	12 (5%)	1 (0%)	30 60

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
69	SU	182/184 (99%)	174 (96%)	7 (4%)	1 (0%)	25 54
70	SV	183/198 (92%)	171 (93%)	12 (7%)	0	100 100
71	SW	182/184 (99%)	166 (91%)	15 (8%)	1 (0%)	25 54
72	SX	140/142 (99%)	132 (94%)	8 (6%)	0	100 100
73	SY	148/150 (99%)	144 (97%)	4 (3%)	0	100 100
74	Sa	85/87 (98%)	80 (94%)	4 (5%)	1 (1%)	11 35
75	Sb	127/129 (98%)	123 (97%)	4 (3%)	0	100 100
76	Sc	142/144 (99%)	127 (89%)	13 (9%)	2 (1%)	9 31
77	Sd	132/134 (98%)	129 (98%)	3 (2%)	0	100 100
78	Sf	79/81 (98%)	79 (100%)	0	0	100 100
79	Sg	58/60 (97%)	56 (97%)	2 (3%)	0	100 100
80	SK	99/108 (92%)	98 (99%)	1 (1%)	0	100 100
All	All	11826/12024 (98%)	11092 (94%)	696 (6%)	38 (0%)	38 66

5 of 38 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	E	362	ALA
9	H	68	PRO
35	h	104	PRO
49	SZ	42	VAL
51	SC	87	VAL

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
5	D	190/193 (98%)	184 (97%)	6 (3%)	34 59
6	E	319/322 (99%)	306 (96%)	13 (4%)	26 51
7	F	288/288 (100%)	280 (97%)	8 (3%)	38 62
8	G	241/243 (99%)	230 (95%)	11 (5%)	23 49

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
9	H	139/154 (90%)	133 (96%)	6 (4%)	25 50
10	I	186/186 (100%)	178 (96%)	8 (4%)	25 50
11	J	187/191 (98%)	186 (100%)	1 (0%)	86 91
12	K	168/171 (98%)	161 (96%)	7 (4%)	25 51
13	L	185/185 (100%)	172 (93%)	13 (7%)	12 37
14	M	145/147 (99%)	136 (94%)	9 (6%)	15 40
15	N	154/154 (100%)	152 (99%)	2 (1%)	65 78
16	O	107/107 (100%)	100 (94%)	7 (6%)	14 39
17	P	175/175 (100%)	167 (95%)	8 (5%)	23 49
18	Q	160/160 (100%)	151 (94%)	9 (6%)	17 43
19	R	138/145 (95%)	132 (96%)	6 (4%)	25 50
20	S	150/150 (100%)	146 (97%)	4 (3%)	40 63
21	T	152/153 (99%)	146 (96%)	6 (4%)	27 53
22	U	155/155 (100%)	150 (97%)	5 (3%)	34 59
23	V	135/136 (99%)	129 (96%)	6 (4%)	24 50
24	W	87/87 (100%)	79 (91%)	8 (9%)	7 26
25	X	104/104 (100%)	102 (98%)	2 (2%)	52 71
26	Y	56/108 (52%)	55 (98%)	1 (2%)	54 73
27	Z	104/105 (99%)	101 (97%)	3 (3%)	37 61
28	a	108/108 (100%)	106 (98%)	2 (2%)	52 71
29	b	112/115 (97%)	111 (99%)	1 (1%)	75 86
30	c	117/118 (99%)	116 (99%)	1 (1%)	75 86
31	d	46/46 (100%)	44 (96%)	2 (4%)	25 50
32	e	81/81 (100%)	77 (95%)	4 (5%)	21 48
33	f	92/96 (96%)	90 (98%)	2 (2%)	47 68
34	g	107/109 (98%)	103 (96%)	4 (4%)	29 54
35	h	90/90 (100%)	86 (96%)	4 (4%)	24 50
36	i	95/95 (100%)	93 (98%)	2 (2%)	48 69
37	j	104/104 (100%)	100 (96%)	4 (4%)	28 54
38	k	80/81 (99%)	79 (99%)	1 (1%)	65 78
39	l	67/67 (100%)	58 (87%)	9 (13%)	3 12

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
40	m	68/68 (100%)	67 (98%)	1 (2%)	60 76
41	n	45/45 (100%)	44 (98%)	1 (2%)	47 68
42	o	45/47 (96%)	39 (87%)	6 (13%)	3 12
43	p	22/23 (96%)	21 (96%)	1 (4%)	23 50
44	q	87/88 (99%)	84 (97%)	3 (3%)	32 57
45	r	71/71 (100%)	64 (90%)	7 (10%)	6 23
47	x	715/715 (100%)	671 (94%)	44 (6%)	15 40
48	SD	88/98 (90%)	82 (93%)	6 (7%)	13 38
49	SZ	81/96 (84%)	76 (94%)	5 (6%)	15 40
50	Se	81/81 (100%)	72 (89%)	9 (11%)	5 18
51	SC	77/85 (91%)	69 (90%)	8 (10%)	5 21
52	SE	95/98 (97%)	87 (92%)	8 (8%)	9 29
53	SA	182/182 (100%)	173 (95%)	9 (5%)	21 48
54	SI	115/115 (100%)	108 (94%)	7 (6%)	15 40
55	SJ	93/93 (100%)	88 (95%)	5 (5%)	18 44
56	SL	55/56 (98%)	54 (98%)	1 (2%)	54 73
57	SM	47/47 (100%)	42 (89%)	5 (11%)	5 20
58	SB	172/173 (99%)	165 (96%)	7 (4%)	26 51
59	SF	117/117 (100%)	112 (96%)	5 (4%)	25 50
60	SH	127/128 (99%)	118 (93%)	9 (7%)	12 37
61	SO	246/257 (96%)	224 (91%)	22 (9%)	8 27
62	SN	57/64 (89%)	52 (91%)	5 (9%)	8 28
63	SG	105/110 (96%)	97 (92%)	8 (8%)	11 34
64	SP	170/173 (98%)	162 (95%)	8 (5%)	22 49
65	SQ	200/205 (98%)	188 (94%)	12 (6%)	16 41
66	SR	175/175 (100%)	169 (97%)	6 (3%)	32 57
67	SS	220/220 (100%)	203 (92%)	17 (8%)	10 33
68	ST	189/195 (97%)	182 (96%)	7 (4%)	29 54
69	SU	163/165 (99%)	157 (96%)	6 (4%)	29 54
70	SV	148/159 (93%)	142 (96%)	6 (4%)	26 51
71	SW	156/157 (99%)	149 (96%)	7 (4%)	23 50

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
72	SX	126/127 (99%)	119 (94%)	7 (6%)	17 43
73	SY	127/127 (100%)	120 (94%)	7 (6%)	18 44
74	Sa	71/74 (96%)	66 (93%)	5 (7%)	12 37
75	Sb	110/110 (100%)	106 (96%)	4 (4%)	30 56
76	Sc	119/119 (100%)	114 (96%)	5 (4%)	25 51
77	Sd	112/112 (100%)	105 (94%)	7 (6%)	15 40
78	Sf	70/70 (100%)	66 (94%)	4 (6%)	17 43
79	Sg	50/51 (98%)	48 (96%)	2 (4%)	27 52
80	SK	85/89 (96%)	83 (98%)	2 (2%)	44 66
All	All	9906/10114 (98%)	9427 (95%)	479 (5%)	24 48

5 of 479 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
47	x	517	CYS
73	SY	26	PHE
53	SA	134	CYS
72	SX	26	LYS
78	Sf	31	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 35 such sidechains are listed below:

Mol	Chain	Res	Type
65	SQ	153	HIS
67	SS	157	ASN
72	SX	138	ASN
39	l	76	ASN
39	l	30	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1764/1799 (98%)	501 (28%)	32 (1%)
2	A	3183/3394 (93%)	526 (16%)	12 (0%)
3	B	120/121 (99%)	12 (10%)	1 (0%)
4	C	157/158 (99%)	30 (19%)	1 (0%)
46	s	74/75 (98%)	14 (18%)	0

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
46	t	74/75 (98%)	14 (18%)	0
All	All	5372/5622 (95%)	1097 (20%)	46 (0%)

5 of 1097 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	2	A
1	2	4	C
1	2	9	U
1	2	10	G
1	2	25	C

5 of 46 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	2	1584	G
2	A	1814	A
1	2	1633	A
2	A	601	U
2	A	2450	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)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

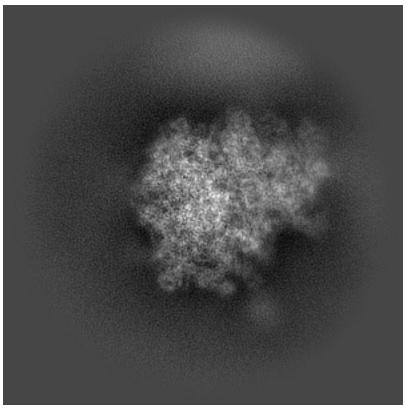
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-38660. These allow visual inspection of the internal detail of the map and identification of artifacts.

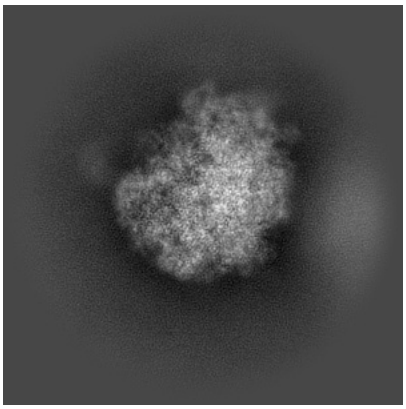
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

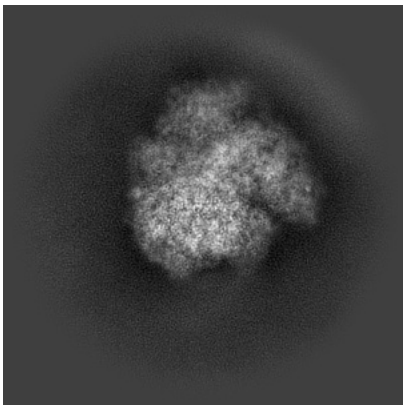
6.1.1 Primary map



X

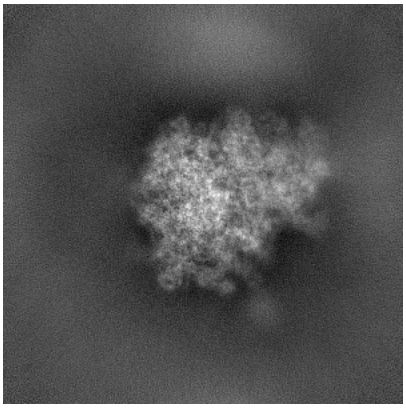


Y

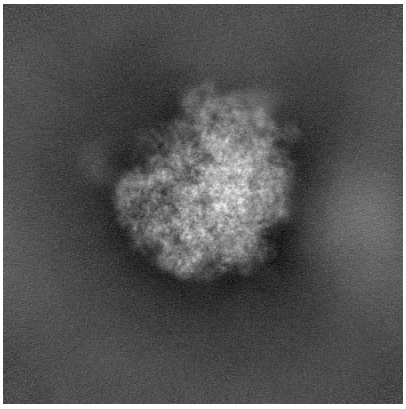


Z

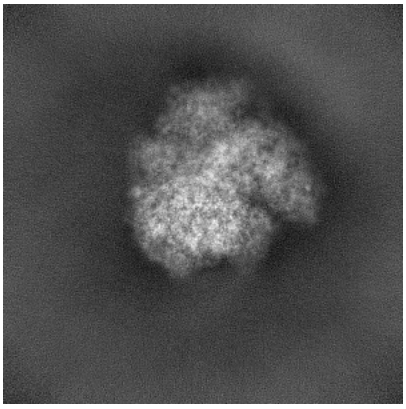
6.1.2 Raw map



X



Y

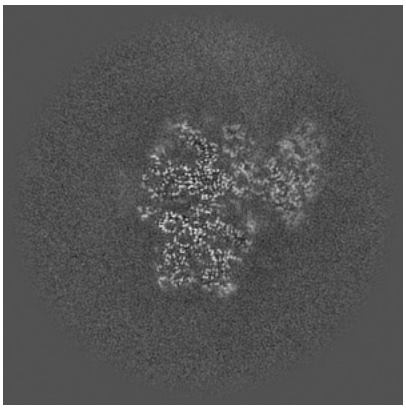


Z

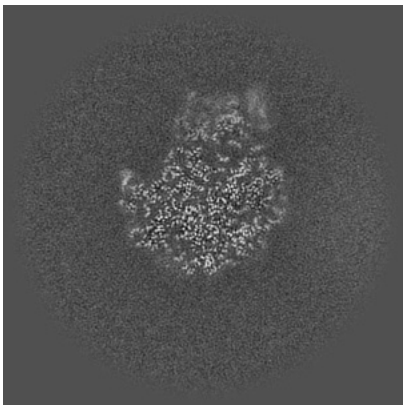
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

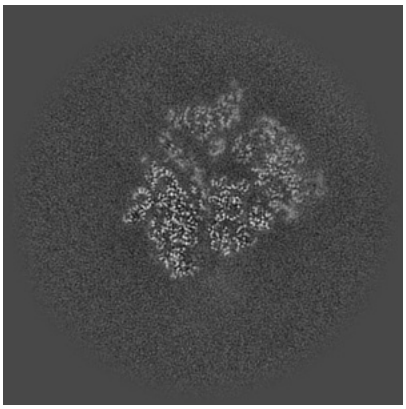
6.2.1 Primary map



X Index: 200

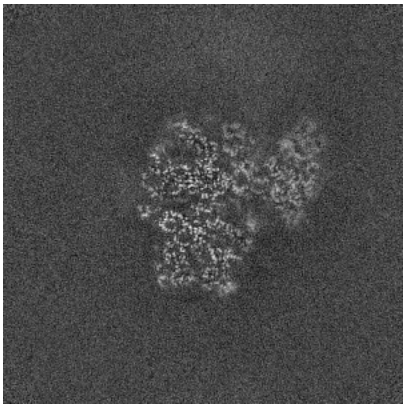


Y Index: 200

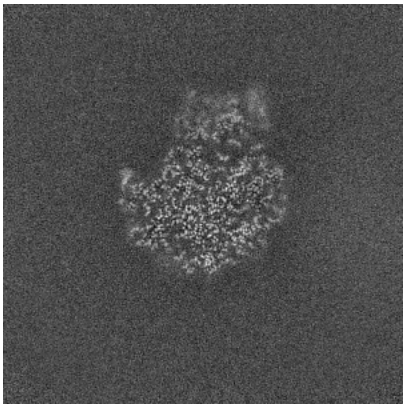


Z Index: 200

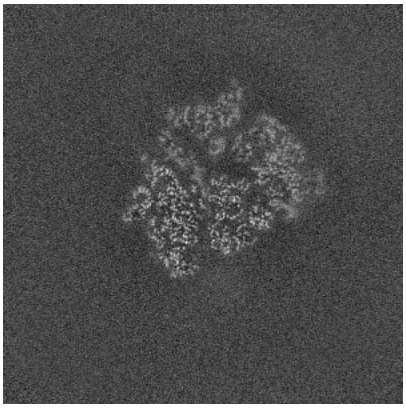
6.2.2 Raw map



X Index: 200



Y Index: 200

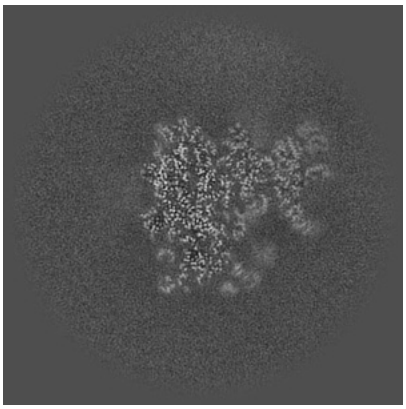


Z Index: 200

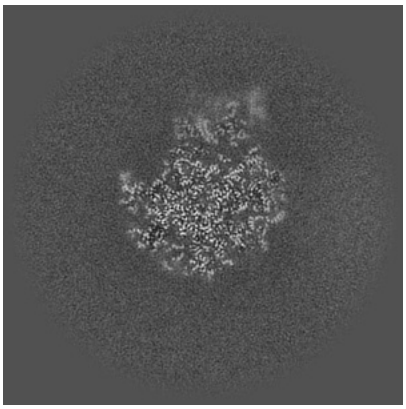
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

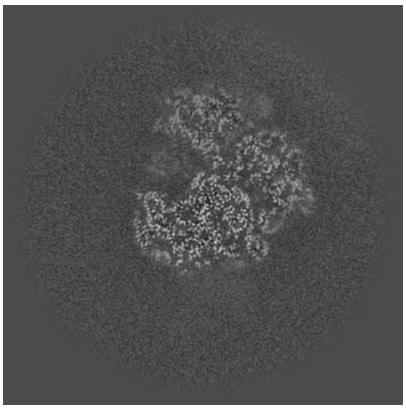
6.3.1 Primary map



X Index: 212

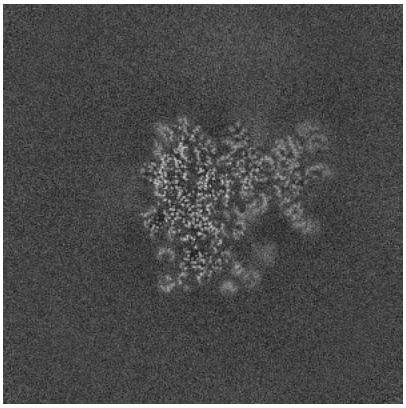


Y Index: 198

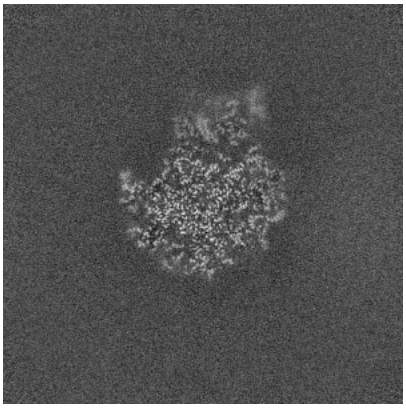


Z Index: 222

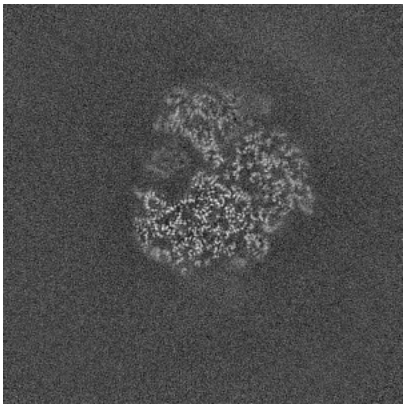
6.3.2 Raw map



X Index: 212



Y Index: 198

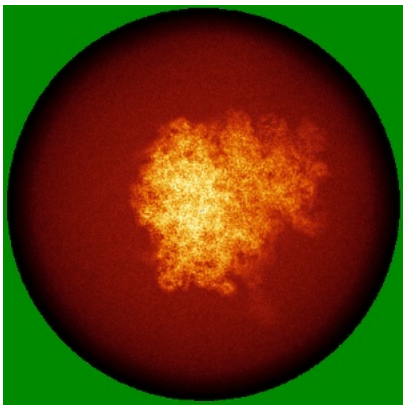


Z Index: 223

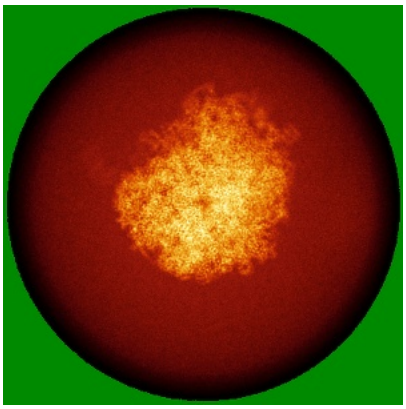
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

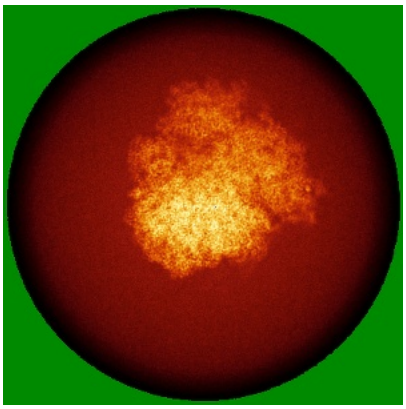
6.4.1 Primary map



X

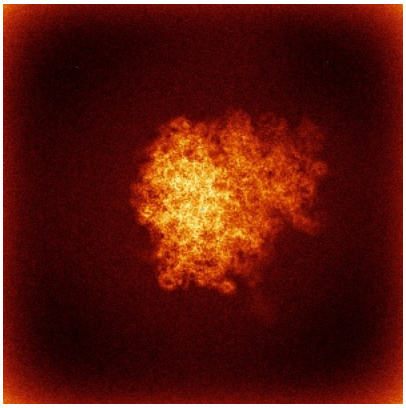


Y

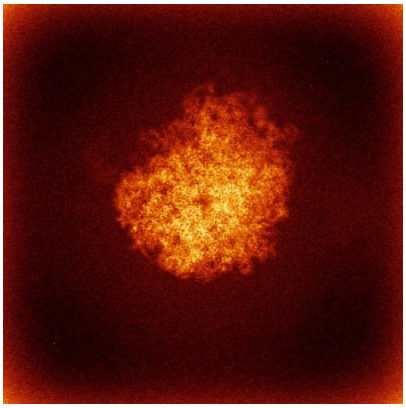


Z

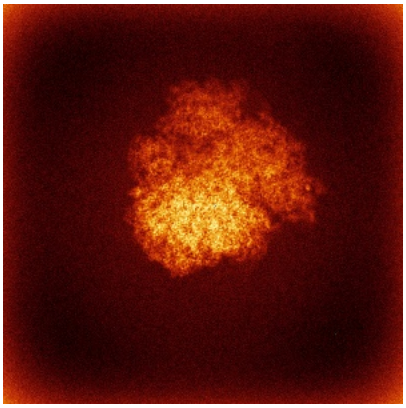
6.4.2 Raw map



X



Y

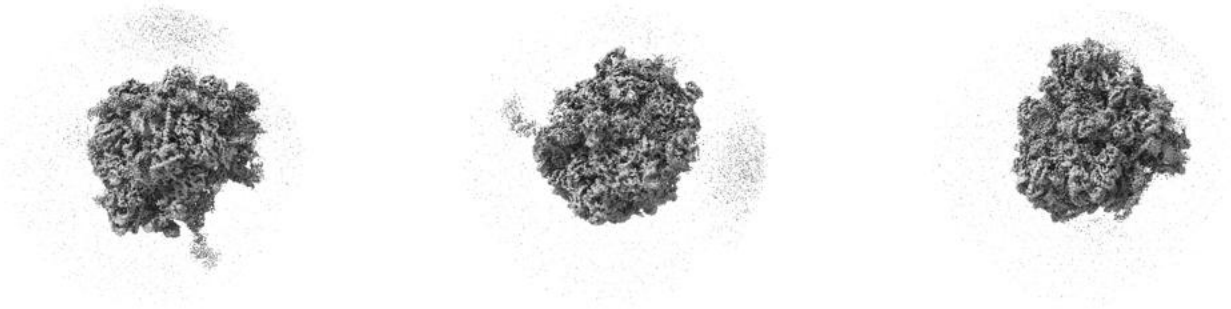


Z

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 (i)

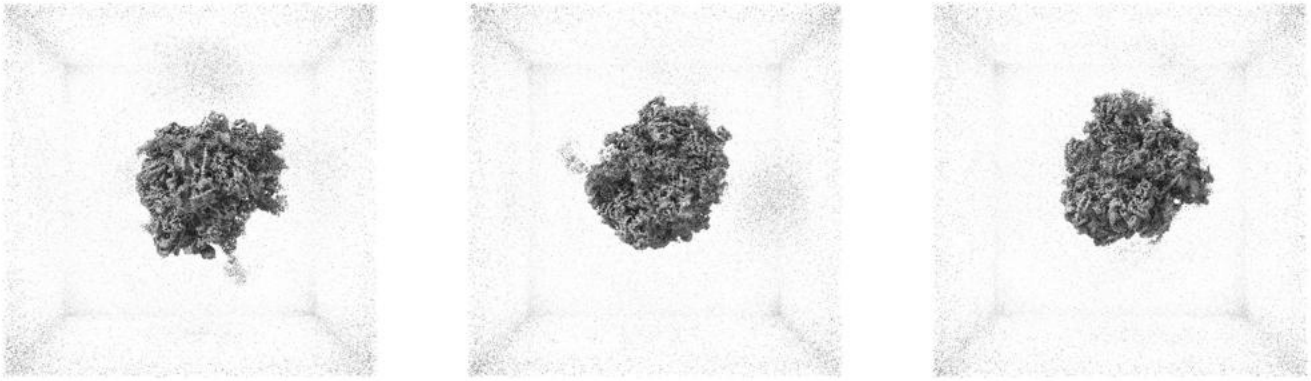
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.295. 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.

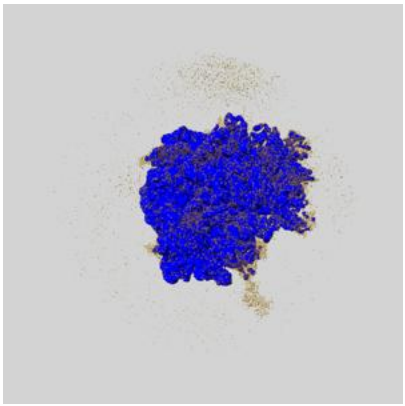
6.6 Mask visualisation (i)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

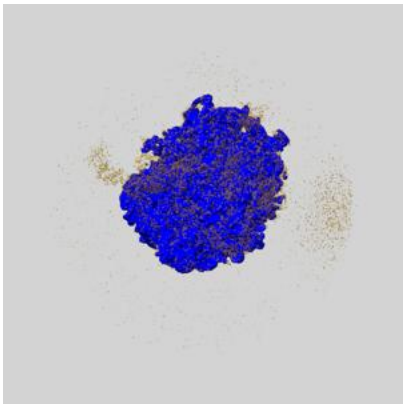
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

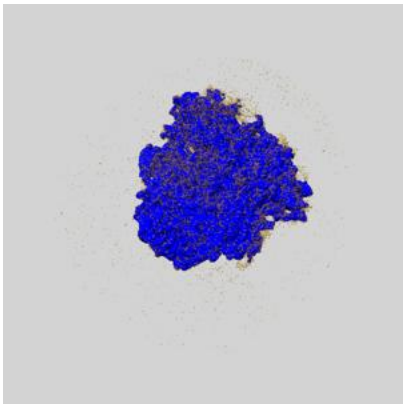
6.6.1 emd_38660_msk_1.map (i)



X



Y

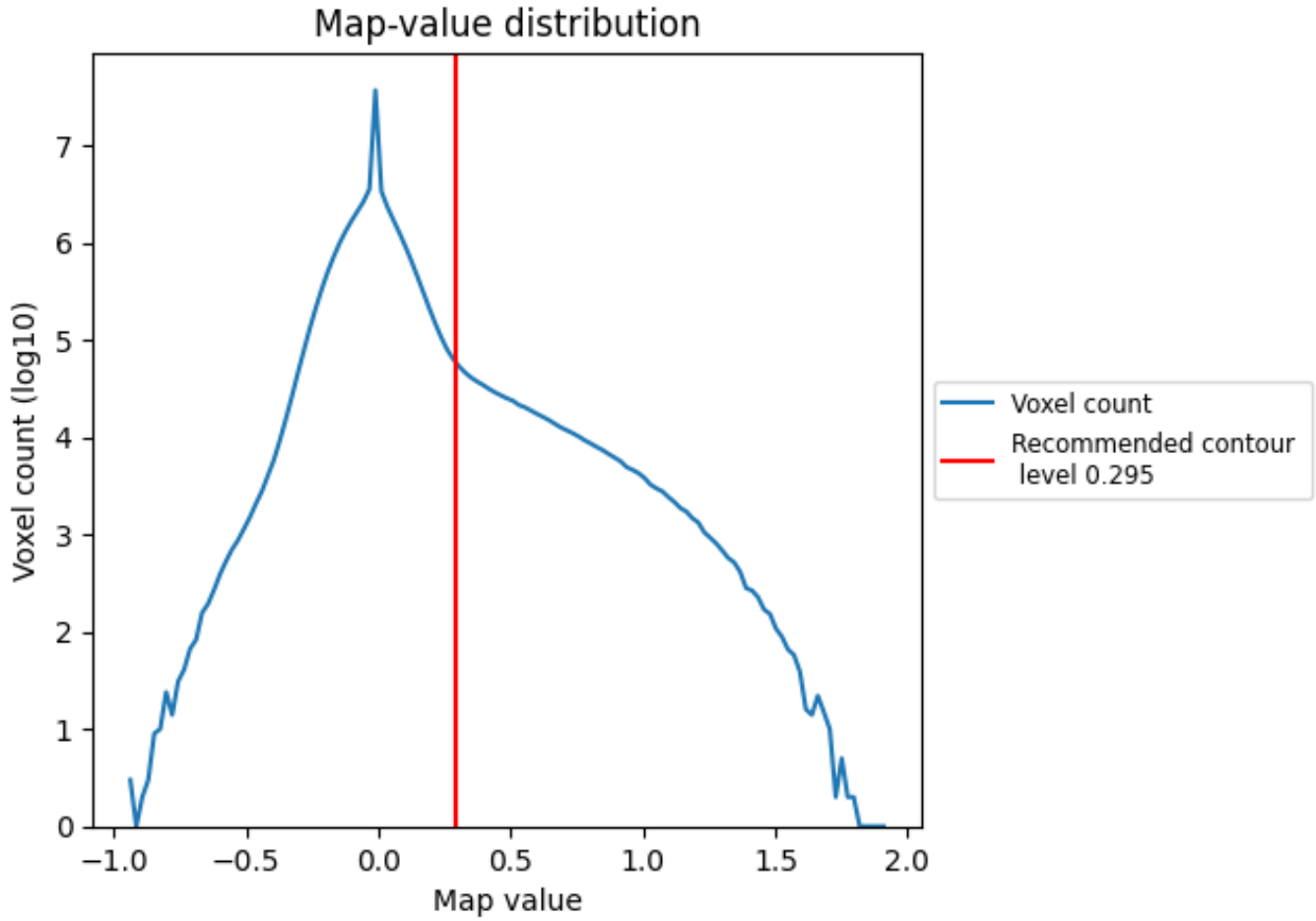


Z

7 Map analysis

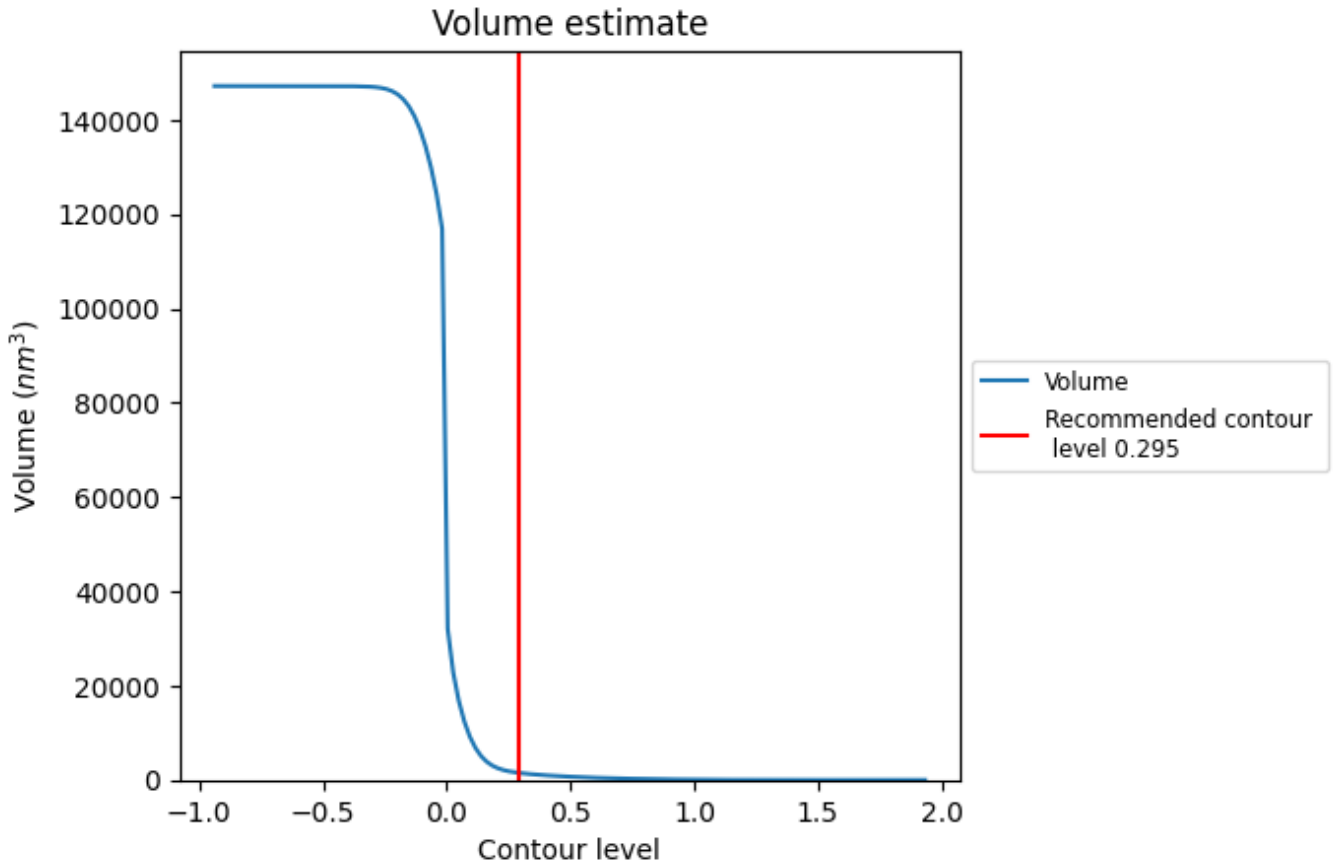
This section contains the results of statistical analysis of the map.

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.

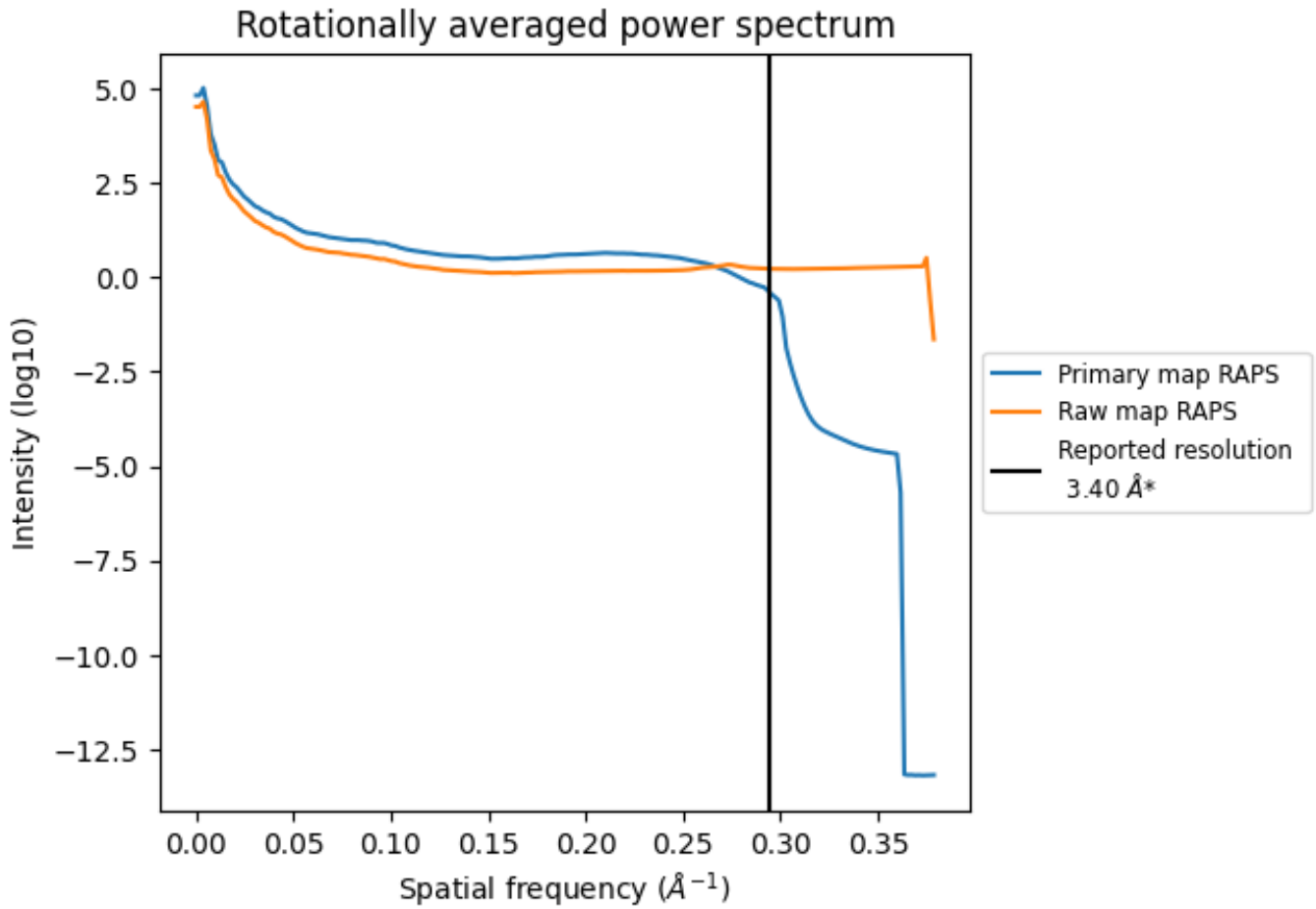
7.2 Volume estimate (i)



The volume at the recommended contour level is 1478 nm^3; this corresponds to an approximate mass of 1335 kDa.

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

7.3 Rotationally averaged power spectrum (i)

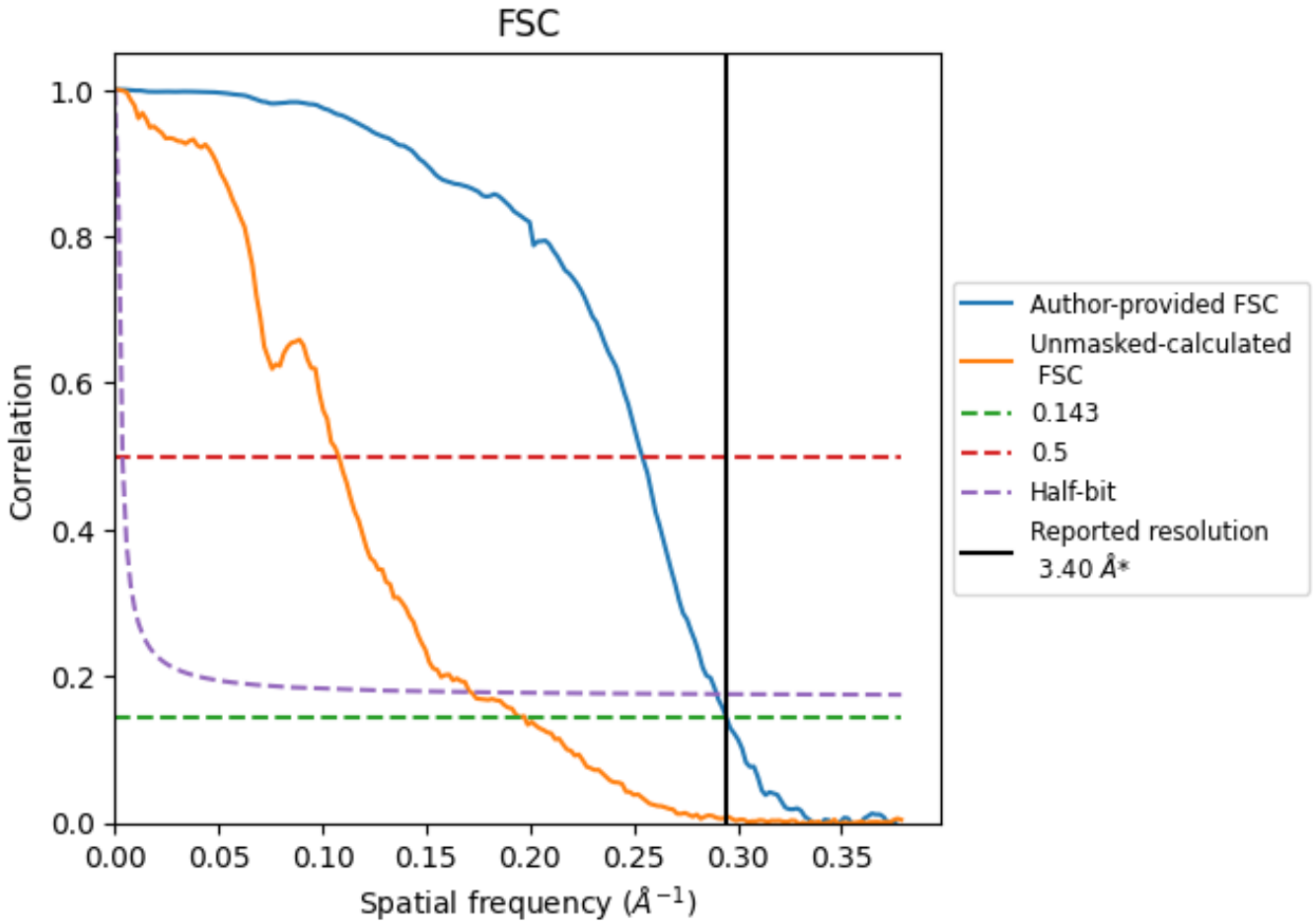


*Reported resolution corresponds to spatial frequency of 0.294 Å^{-1}

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 0.294 Å^{-1}

8.2 Resolution estimates (i)

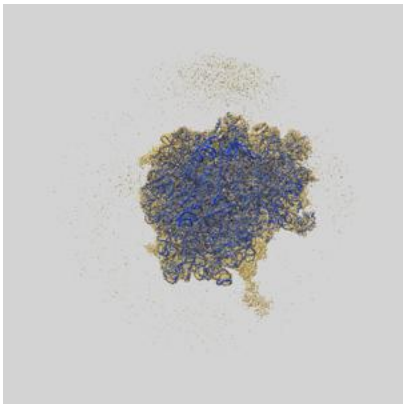
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.40	-	-
Author-provided FSC curve	3.39	3.94	3.45
Unmasked-calculated*	5.07	9.29	5.83

*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 5.07 differs from the reported value 3.4 by more than 10 %

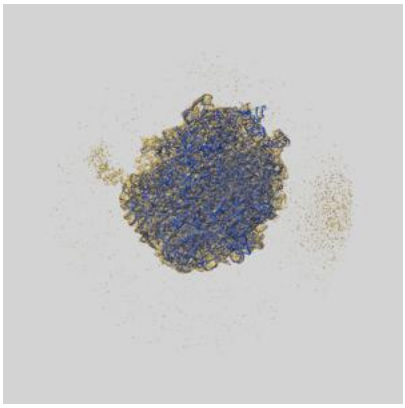
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-38660 and PDB model 8XU8. Per-residue inclusion information can be found in section 3 on page 18.

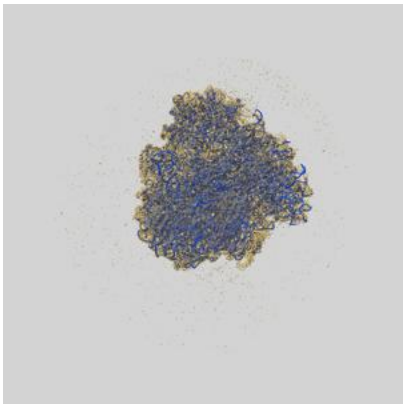
9.1 Map-model overlay



X



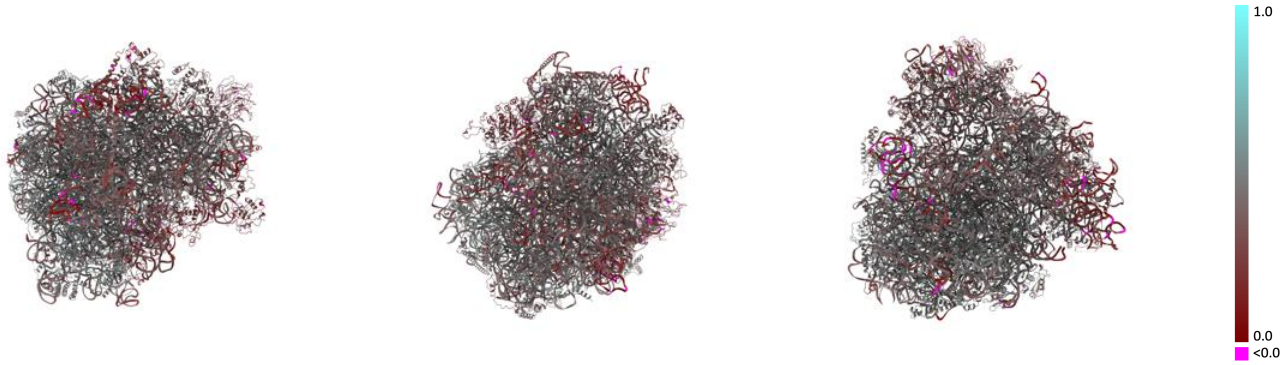
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.295 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

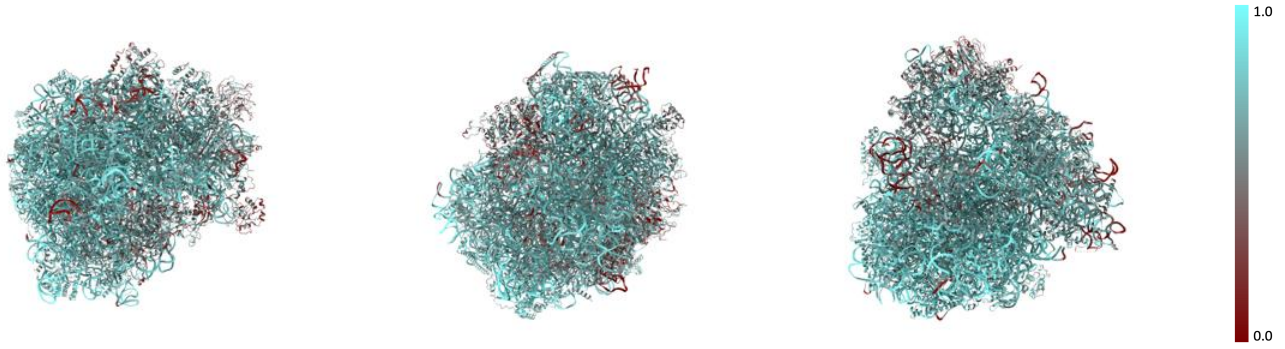
9.2 Q-score mapped to coordinate model (i)



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.

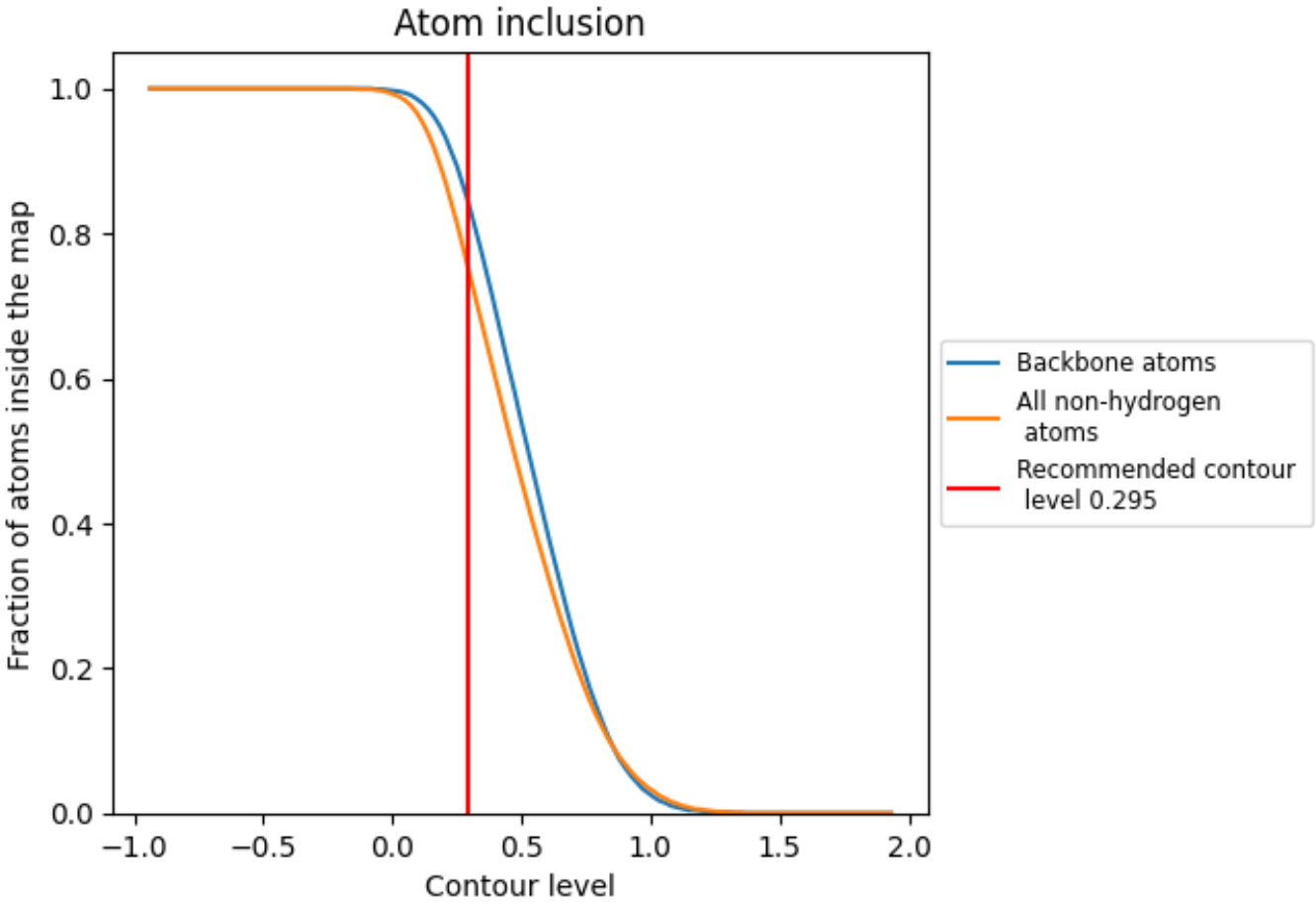
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.295).

9.4 Atom inclusion (i)



At the recommended contour level, 84% of all backbone atoms, 75% 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 (0.295) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7500	0.4140
2	0.7930	0.3750
A	0.8510	0.4220
B	0.8930	0.4220
C	0.8730	0.4380
D	0.7310	0.5010
E	0.7570	0.4770
F	0.7650	0.4880
G	0.7330	0.4310
H	0.7220	0.4460
I	0.7620	0.4740
J	0.7270	0.4500
K	0.7240	0.4610
L	0.6960	0.4560
M	0.6140	0.3900
N	0.7610	0.4880
O	0.7620	0.4670
P	0.7800	0.5040
Q	0.7510	0.4770
R	0.7540	0.4960
S	0.7570	0.4980
SA	0.5610	0.4110
SB	0.5240	0.3680
SC	0.5770	0.3500
SD	0.3090	0.2760
SE	0.5070	0.3480
SF	0.5710	0.3770
SG	0.5640	0.3770
SH	0.5420	0.3580
SI	0.5780	0.3640
SJ	0.5260	0.3810
SK	0.4300	0.3110
SL	0.5070	0.3940
SM	0.7090	0.4250
SN	0.3090	0.1940

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Chain	Atom inclusion	Q-score
SO	0.4070	0.2720
SP	0.6190	0.3890
SQ	0.5420	0.3890
SR	0.6570	0.4430
SS	0.6430	0.4290
ST	0.5980	0.3940
SU	0.5550	0.3530
SV	0.6820	0.4410
SW	0.6450	0.4070
SX	0.6630	0.4660
SY	0.6490	0.4340
SZ	0.6350	0.4260
Sa	0.6200	0.4120
Sb	0.6820	0.4530
Sc	0.6460	0.4650
Sd	0.6460	0.4080
Se	0.6570	0.4400
Sf	0.6060	0.4050
Sg	0.6140	0.4140
T	0.7050	0.4540
U	0.7600	0.4940
V	0.7340	0.4830
W	0.6960	0.4330
X	0.6970	0.4970
Y	0.6900	0.4240
Z	0.7400	0.4910
a	0.7670	0.4920
b	0.7560	0.4740
c	0.7920	0.4980
d	0.7190	0.4710
e	0.7030	0.4510
f	0.7190	0.4780
g	0.7480	0.5070
h	0.7710	0.4970
i	0.7200	0.4870
j	0.7300	0.4680
k	0.7100	0.4490
l	0.8300	0.5260
m	0.7250	0.4490
n	0.7280	0.4890
o	0.7500	0.4930
p	0.7500	0.5070

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Chain	Atom inclusion	Q-score
q	0.7290	0.4970
r	0.7090	0.4810
s	0.7250	0.3220
t	0.5790	0.2830
x	0.4480	0.2750