wwPDB EM Validation Summary Report

Oct 29, 2024 – 11:24 PM EDT

PDB ID	:	3JAN
EMDB ID	:	EMD-3045
Title	:	Structure of the scanning state of the mammalian SRP-ribosome complex
Authors	:	Voorhees, R.M.; Hegde, R.S.
Deposited on	:	2015-06-17
Resolution	:	3.75 Å(reported)
Based on initial model	:	3JAJ

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 (i) 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 (i)) were used in the production of this report:

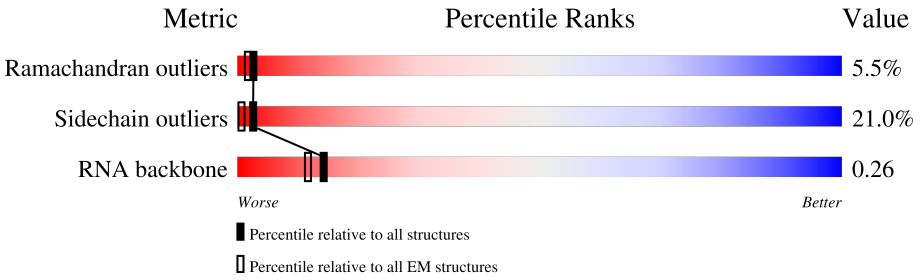
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

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 3.75 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	A	244	74% 20% 5%
2	D	292	70% 24%
3	G	238	74% 22% 5%
4	H	190	78% 15% 6%
5	J	170	72% 24%
6	L	210	74% 20% 6%
7	M	138	75% 23%
8	N	203	70% 23% 6%

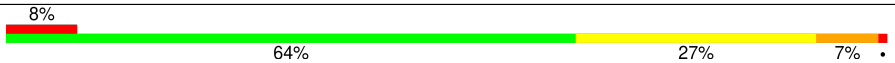
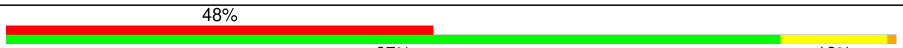
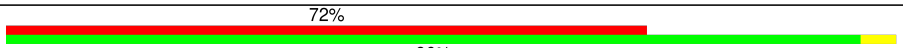
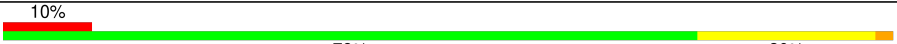
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
9	O	201	80% 15%
10	Q	187	74% 17% 7%
11	R	180	70% 25% 5%
12	S	175	71% 20% 7%
13	T	159	74% 23%
14	U	99	74% 23%
15	V	131	79% 17%
16	X	119	81% 18%
17	Y	134	71% 22% 7%
18	Z	135	79% 16% 5%
19	a	147	78% 20%
20	b	75	8% 75% 19% 5%
21	c	94	74% 22%
22	d	107	64% 28% 8%
23	e	128	77% 22%
24	f	109	76% 19% 5%
25	g	114	79% 17%
26	h	122	84% 11%
27	i	102	76% 20%
28	k	69	6% 75% 25%
29	l	50	78% 20%
30	m	52	71% 25%
31	o	104	72% 21% 6%
32	5	3658	5% 46% 40% 10%
33	7	120	59% 30% 9%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
34	8	156	
35	B	394	
36	C	367	
37	E	236	
38	F	225	
39	I	213	
40	P	153	
41	W	63	
42	j	86	
43	n	23	
44	p	91	
45	r	125	
46	K	163	
47	q	202	
48	z	426	
49	3	76	
50	4	206	
51	9	105	
52	6	179	
53	S2	1742	
54	SA	208	
55	SB	213	
56	SC	218	
57	SE	262	
58	SG	237	

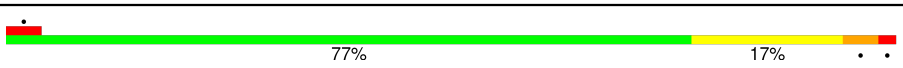
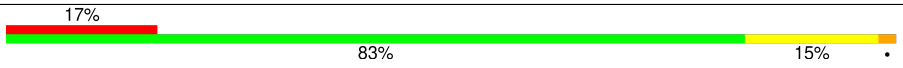
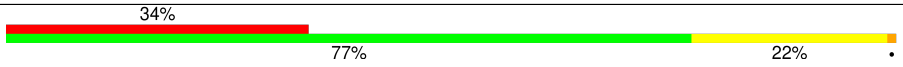
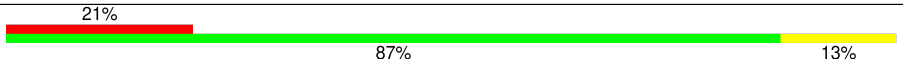
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
59	SH	189	8% 79% 17%
60	SI	206	5% 77% 17% 5%
61	SJ	185	69% 24% 7%
62	SL	152	10% 74% 22%
63	SN	149	77% 19%
64	SO	136	69% 24% 6%
65	SV	82	71% 27%
66	SW	129	76% 22%
67	SX	141	82% 15%
68	SY	126	77% 21%
69	Sa	98	77% 16% 7%
70	Sb	83	5% 73% 25%
71	Se	57	11% 77% 18% 5%
72	SD	227	11% 78% 17%
73	SF	191	14% 73% 25%
74	SK	98	15% 65% 32%
75	SM	124	59% 63% 30% 7%
76	SP	96	16% 70% 24% 5%
77	SQ	141	5% 77% 18% 6%
78	SR	129	85% 14%
79	SS	137	78% 18%
80	ST	141	78% 19%
81	SU	104	8% 82% 18%
82	SZ	75	8% 81% 17%
83	Sc	64	11% 84% 12%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
84	Sd	52	
85	Sf	71	
86	Sg	313	
87	S1	74	
88	S4	76	

2 Entry composition (i)

There are 90 unique types of molecules in this entry. The entry contains 227964 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Ribosomal protein uL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	244	1868	1171	382	309	6	0	0

- Molecule 2 is a protein called Ribosomal protein uL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	D	292	2380	1508	434	426	12	0	0

- Molecule 3 is a protein called Ribosomal protein eL8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	G	238	1912	1218	368	322	4	0	0

- Molecule 4 is a protein called Ribosomal protein uL6.

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

- Molecule 5 is a protein called Ribosomal protein uL5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	J	170	1359	856	256	241	6	0	0

- Molecule 6 is a protein called Ribosomal protein eL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	L	210	1703	1064	354	280	5	0	0

- Molecule 7 is a protein called Ribosomal protein eL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	M	138	Total	C	N	O	S	0	0
			1131	727	216	181	7		

- Molecule 8 is a protein called Ribosomal protein eL15.

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

- Molecule 9 is a protein called Ribosomal protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	O	201	Total	C	N	O	S	0	0
			1651	1063	323	260	5		

- Molecule 10 is a protein called Ribosomal protein eL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Q	187	Total	C	N	O	S	0	0
			1506	941	311	249	5		

- Molecule 11 is a protein called Ribosomal protein eL19.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	R	180	Total	C	N	O	S	0	0
			1508	933	328	238	9		

- Molecule 12 is a protein called Ribosomal protein eL20.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	S	175	Total	C	N	O	S	0	0
			1454	925	284	235	10		

- Molecule 13 is a protein called Ribosomal protein eL21.

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

- Molecule 14 is a protein called Ribosomal protein eL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	U	99	Total	C	N	O	S	0	0
			808	518	141	147	2		

- Molecule 15 is a protein called Ribosomal protein uL14.

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

- Molecule 16 is a protein called Ribosomal protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	X	119	Total	C	N	O	S	0	0
			976	624	183	168	1		

- Molecule 17 is a protein called Ribosomal protein uL24.

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

- Molecule 18 is a protein called Ribosomal protein eL27.

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

- Molecule 19 is a protein called Ribosomal protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	a	147	Total	C	N	O	S	0	0
			1163	735	239	185	4		

- Molecule 20 is a protein called Ribosomal protein eL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	b	75	Total	C	N	O	S	0	0
			610	378	130	99	3		

- Molecule 21 is a protein called Ribosomal protein eL30.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	c	94	Total	C	N	O	S	0	0
			732	465	130	131	6		

- Molecule 22 is a protein called Ribosomal protein eL31.

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

- Molecule 23 is a protein called Ribosomal protein eL32.

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

- Molecule 24 is a protein called Ribosomal protein eL33.

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

- Molecule 25 is a protein called Ribosomal protein eL34.

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

- Molecule 26 is a protein called Ribosomal protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	h	122	Total	C	N	O	S	0	0
			1015	642	205	167	1		

- Molecule 27 is a protein called Ribosomal protein eL36.

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

- Molecule 28 is a protein called Ribosomal protein eL38.

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

- Molecule 29 is a protein called Ribosomal protein eL39.

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

- Molecule 30 is a protein called Ribosomal protein eL40.

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

- Molecule 31 is a protein called Ribosomal protein eL42.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	o	104	Total	C	N	O	S	0	0
			851	533	174	138	6		

- Molecule 32 is a RNA chain called 28S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	5	3658	Total	C	N	O	P	0	0
			78406	34911	14352	25486	3657		

- Molecule 33 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	7	120	Total	C	N	O	P	0	0
			2558	1141	456	842	119		

- Molecule 34 is a RNA chain called 5.8S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	8	156	Total	C	N	O	P	0	0
			3314	1480	585	1094	155		

- Molecule 35 is a protein called Ribosomal protein uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	B	394	Total	C	N	O	S	0	0
			3147	2005	591	538	13		

- Molecule 36 is a protein called Ribosomal protein uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	C	367	Total	C	N	O	S	0	0
			2919	1836	582	486	15		

- Molecule 37 is a protein called Ribosomal protein eL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	E	236	Total	C	N	O	S	0	0
			1904	1219	364	316	5		

- Molecule 38 is a protein called Ribosomal protein uL30.

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

- Molecule 39 is a protein called Ribosomal protein uL16.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	I	213	Total	C	N	O	S	0	0
			1713	1083	331	284	15		

- Molecule 40 is a protein called Ribosomal protein uL22.

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

- Molecule 41 is a protein called Ribosomal protein eL24.

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

- Molecule 42 is a protein called Ribosomal protein eL37.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	j	86	Total	C	N	O	S	0	0
			706	436	155	110	5		

- Molecule 43 is a protein called Ribosomal protein eL41.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	n	23	Total	C	N	O	S	0	0
			222	134	61	25	2		

- Molecule 44 is a protein called Ribosomal protein eL43.

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

- Molecule 45 is a protein called Ribosomal protein eL28.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	r	125	Total	C	N	O	S	0	0
			1001	622	206	168	5		

- Molecule 46 is a protein called Ribosomal protein uL11.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	K	163	Total	C	N	O	S	0	0
			1238	773	230	230	5		

- Molecule 47 is a protein called Ribosomal protein uL10.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	q	202	Total	C	N	O	S	0	0
			1556	989	272	286	9		

- Molecule 48 is a protein called SRP54.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	z	426	Total	C	N	O	S	0	0
			3241	2047	555	615	24		

- Molecule 49 is a RNA chain called Val tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	3	76	Total	C	N	O	P	0	0
			1616	723	290	528	75		

- Molecule 50 is a RNA chain called SRP 7S RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	4	206	Total	C	N	O	P	6	0
			4551	2026	836	1477	212		

- Molecule 51 is a protein called SRP19.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	9	105	Total	C	N	O	S	0	0
			844	534	152	152	6		

- Molecule 52 is a protein called SRP68.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	6	179	Total	C	N	O	S	0	0
			1497	939	280	271	7		

- Molecule 53 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	S2	1742	Total	C	N	O	P	0	0
			36900	16458	6595	12106	1741		

- Molecule 54 is a protein called Ribosomal protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	SA	208	Total	C	N	O	S	0	0
			1642	1045	289	300	8		

- Molecule 55 is a protein called Ribosomal protein eS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	SB	213	Total	C	N	O	S	0	0
			1725	1093	311	308	13		

- Molecule 56 is a protein called Ribosomal protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	SC	218	Total	C	N	O	S	0	0
			1690	1094	289	297	10		

- Molecule 57 is a protein called Ribosomal protein eS4.

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

- Molecule 58 is a protein called Ribosomal protein eS6.

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

- Molecule 59 is a protein called Ribosomal protein eS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	SH	189	Total	C	N	O	S	0	0
			1521	969	280	271	1		

- Molecule 60 is a protein called Ribosomal protein eS8.

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

- Molecule 61 is a protein called Ribosomal protein uS4.

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

- Molecule 62 is a protein called Ribosomal protein uS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	SL	152	Total	C	N	O	S	0	0
			1238	788	232	212	6		

- Molecule 63 is a protein called Ribosomal protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	SN	149	Total	C	N	O	S	0	0
			1202	770	228	203	1		

- Molecule 64 is a protein called Ribosomal protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	SO	136	Total	C	N	O	S	0	0
			1016	621	199	190	6		

- Molecule 65 is a protein called Ribosomal protein eS21.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	SV	82	Total	C	N	O	S	0	0
			625	384	116	120	5		

- Molecule 66 is a protein called Ribosomal protein uS8.

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

- Molecule 67 is a protein called Ribosomal protein uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	SX	141	Total	C	N	O	S	0	0
			1099	694	220	182	3		

- Molecule 68 is a protein called Ribosomal protein eS24.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	SY	126	Total	C	N	O	S	0	0
			1023	646	200	172	5		

- Molecule 69 is a protein called Ribosomal protein eS26.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	Sa	98	Total	C	N	O	S	0	0
			781	486	161	129	5		

- Molecule 70 is a protein called Ribosomal protein eS27.

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

- Molecule 71 is a protein called Ribosomal protein eS30.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	Se	57	Total	C	N	O	S	0	0
			452	279	99	73	1		

- Molecule 72 is a protein called Ribosomal protein uS3.

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

- Molecule 73 is a protein called Ribosomal protein uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	SF	191	Total	C	N	O	S	0	0
			1509	943	286	273	7		

- Molecule 74 is a protein called Ribosomal protein eS10.

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

- Molecule 75 is a protein called Ribosomal protein eS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	SM	124	Total	C	N	O	S	0	0
			960	600	171	181	8		

- Molecule 76 is a protein called Ribosomal protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	SP	96	Total	C	N	O	S	0	0
			805	506	158	135	6		

- Molecule 77 is a protein called Ribosomal protein uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	SQ	141	Total	C	N	O	S	0	0
			1124	715	212	194	3		

- Molecule 78 is a protein called Ribosomal protein eS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	SR	129	Total	C	N	O	S	0	0
			1047	658	193	191	5		

- Molecule 79 is a protein called Ribosomal protein uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	SS	137	Total	C	N	O	S	0	0
			1139	714	231	193	1		

- Molecule 80 is a protein called Ribosomal protein eS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	ST	141	Total	C	N	O	S	0	0
			1101	690	212	196	3		

- Molecule 81 is a protein called Ribosomal protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	SU	104	Total	C	N	O	S	0	0
			818	513	153	148	4		

- Molecule 82 is a protein called Ribosomal protein es25.

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

- Molecule 83 is a protein called Ribosomal protein eS28.

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

- Molecule 84 is a protein called Ribosomal protein uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
84	Sd	52	Total	C	N	O	S	0	0
			434	273	87	69	5		

- Molecule 85 is a protein called Ribosomal protein eS31.

Mol	Chain	Residues	Atoms					AltConf	Trace
85	Sf	71	Total	C	N	O	S	0	0
			581	367	109	98	7		

- Molecule 86 is a protein called Ribosomal protein RACK1.

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

- Molecule 87 is a protein called SRP9.

Mol	Chain	Residues	Atoms					AltConf	Trace
87	S1	74	Total	C	N	O	S	0	0
			608	388	105	110	5		

- Molecule 88 is a protein called SRP14.

Mol	Chain	Residues	Atoms					AltConf	Trace
88	S4	76	Total	C	N	O	S	0	0
			604	382	105	113	4		

- Molecule 89 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
89	D	1	Total	Mg	0
			1	1	
89	V	1	Total	Mg	0
			1	1	
89	g	1	Total	Mg	0
			1	1	
89	5	116	Total	Mg	0
			116	116	
89	7	5	Total	Mg	0
			5	5	
89	8	6	Total	Mg	0
			6	6	

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf
89	S2	36	Total Mg 36 36	0

- Molecule 90 is ZINC ION (three-letter code: ZN) (formula: Zn).

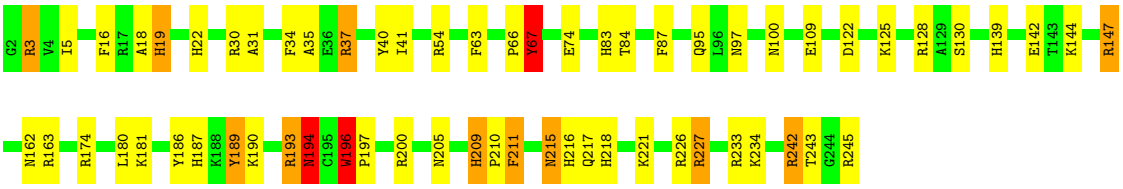
Mol	Chain	Residues	Atoms	AltConf
90	m	1	Total Zn 1 1	0
90	o	1	Total Zn 1 1	0
90	j	1	Total Zn 1 1	0
90	Sa	1	Total Zn 1 1	0

3 Residue-property plots (i)

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

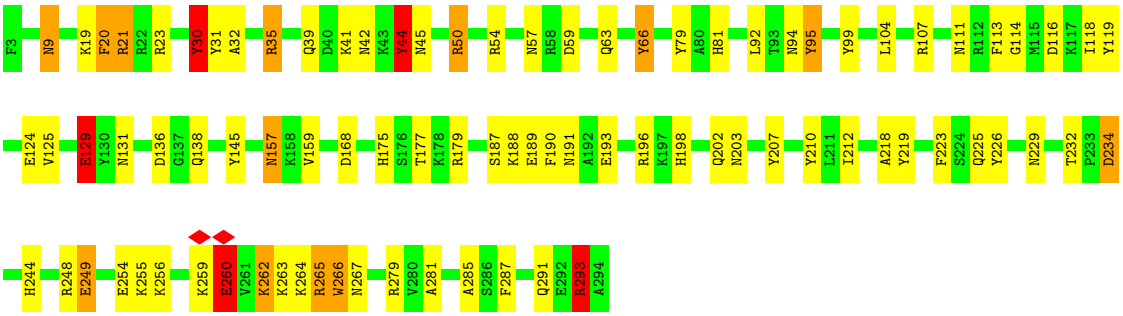
• Molecule 1: Ribosomal protein uL2

Chain A:



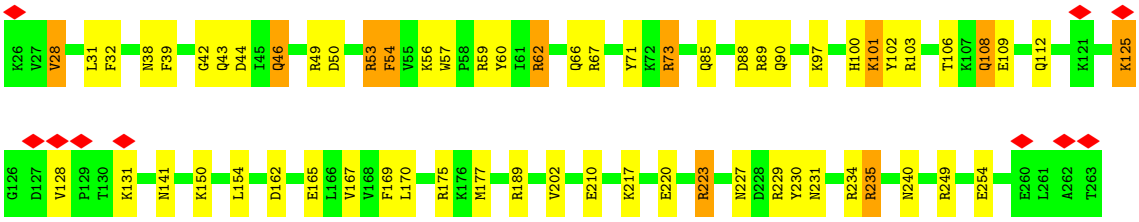
• Molecule 2: Ribosomal protein uL18

Chain D:



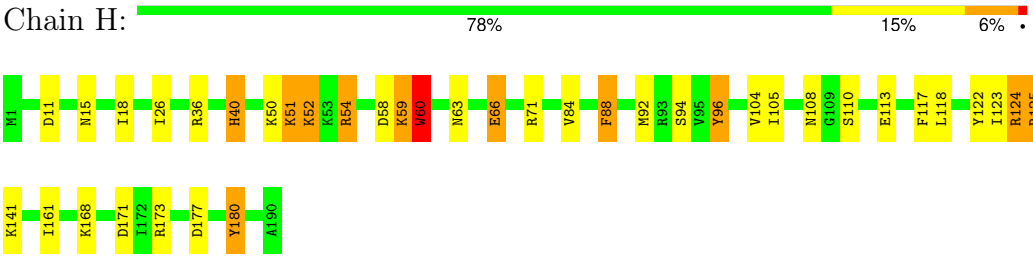
• Molecule 3: Ribosomal protein eL8

Chain G:



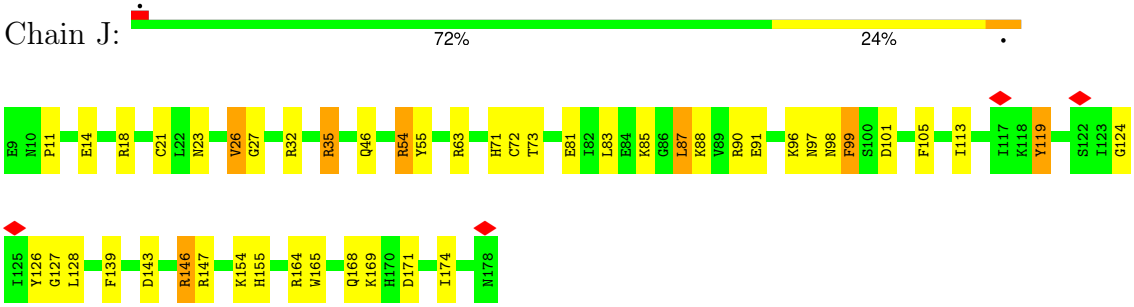
• Molecule 4: Ribosomal protein uL6

Chain H:



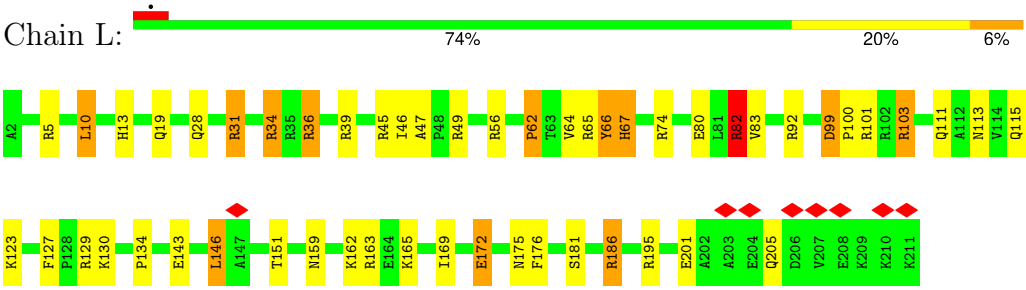
• Molecule 5: Ribosomal protein uL5

Chain J:



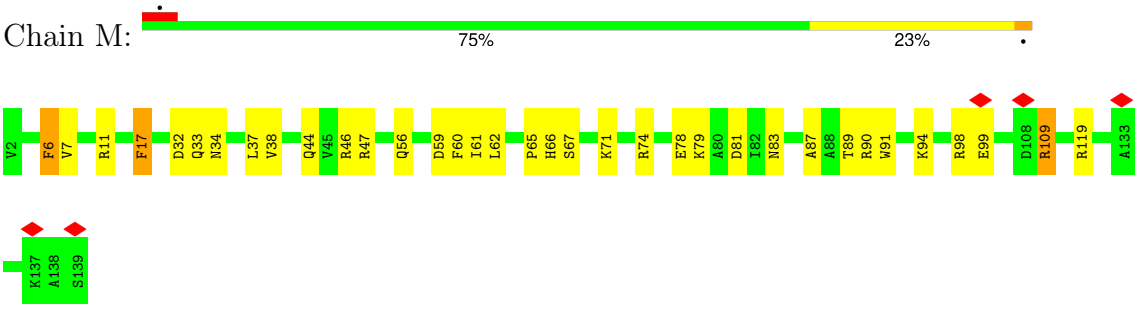
• Molecule 6: Ribosomal protein eL13

Chain L:



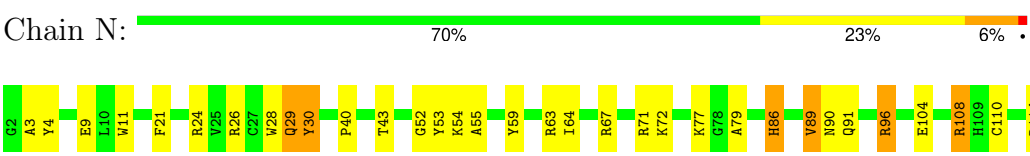
• Molecule 7: Ribosomal protein eL14

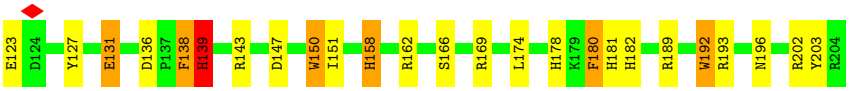
Chain M:



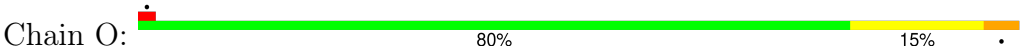
• Molecule 8: Ribosomal protein eL15

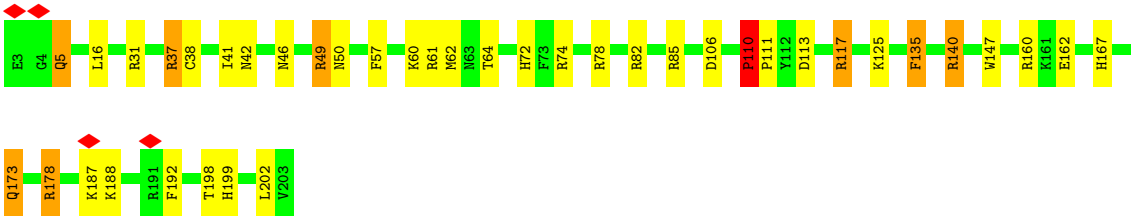
Chain N:



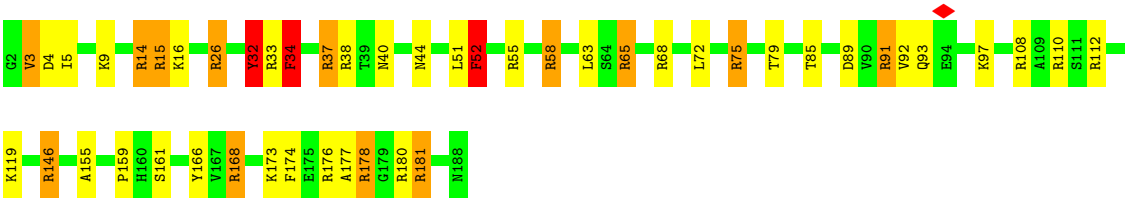


• Molecule 9: Ribosomal protein uL13

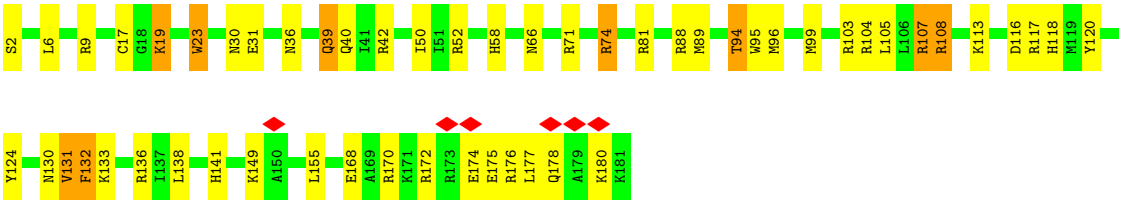




• Molecule 10: Ribosomal protein eL18

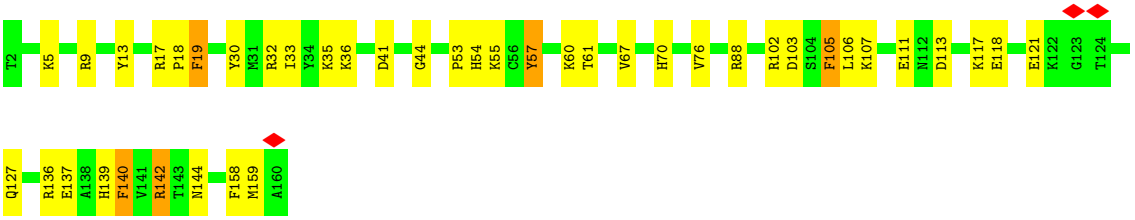


• Molecule 11: Ribosomal protein eL19



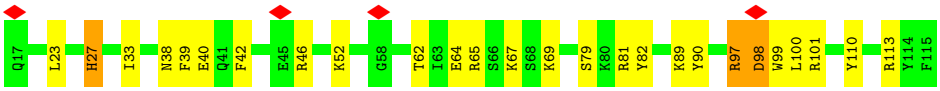
• Molecule 12: Ribosomal protein eL20

• Molecule 13: Ribosomal protein eL21



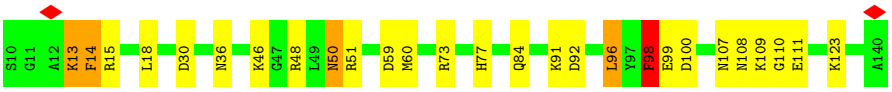
• Molecule 14: Ribosomal protein eL22

Chain U:



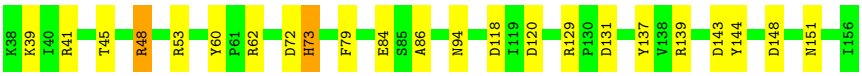
• Molecule 15: Ribosomal protein uL14

Chain V:



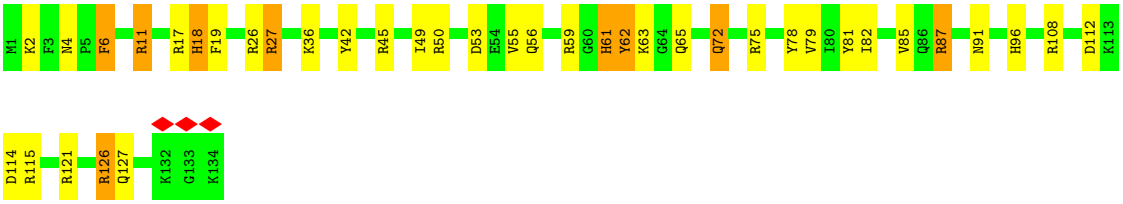
• Molecule 16: Ribosomal protein uL23

Chain X:



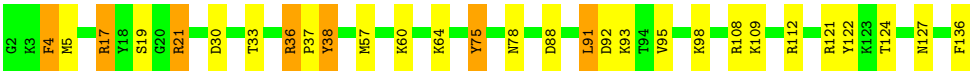
• Molecule 17: Ribosomal protein uL24

Chain Y:



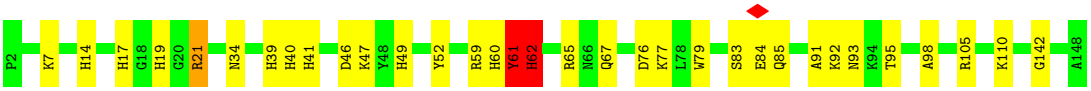
• Molecule 18: Ribosomal protein eL27

Chain Z:



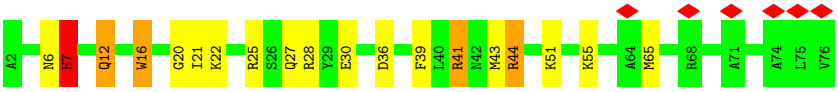
• Molecule 19: Ribosomal protein uL15

Chain a:



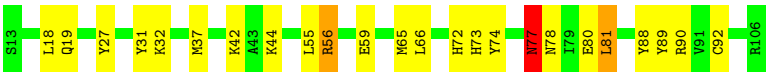
• Molecule 20: Ribosomal protein eL29

Chain b:



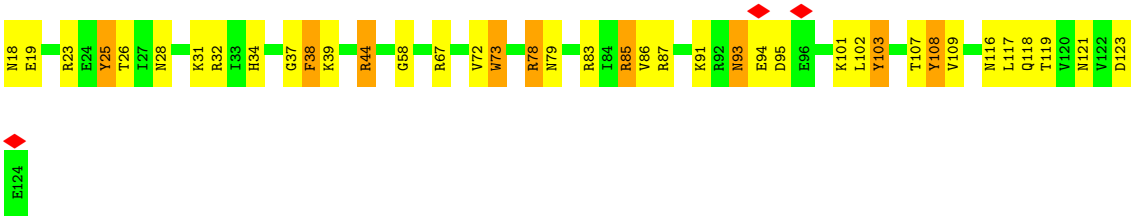
• Molecule 21: Ribosomal protein eL30

Chain c:



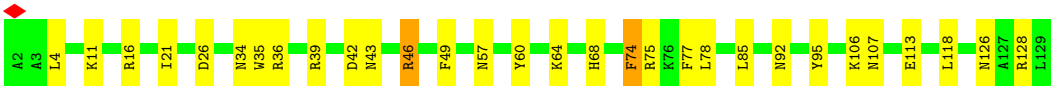
• Molecule 22: Ribosomal protein eL31

Chain d:



• Molecule 23: Ribosomal protein eL32

Chain e:

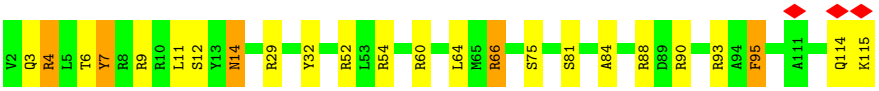


• Molecule 24: Ribosomal protein eL33

Chain f:

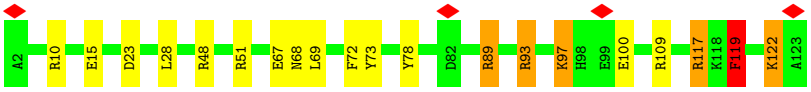
• Molecule 25: Ribosomal protein eL34

Chain g:



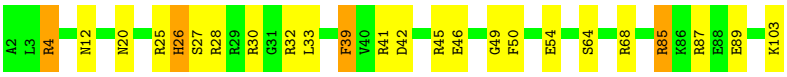
• Molecule 26: Ribosomal protein uL29

Chain h:



• Molecule 27: Ribosomal protein eL36

Chain i:

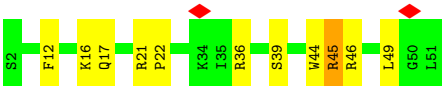


• Molecule 28: Ribosomal protein eL38

Chain k:

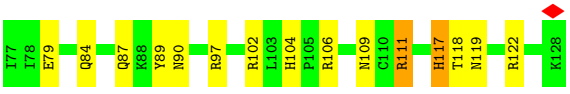
• Molecule 29: Ribosomal protein eL39

Chain l:



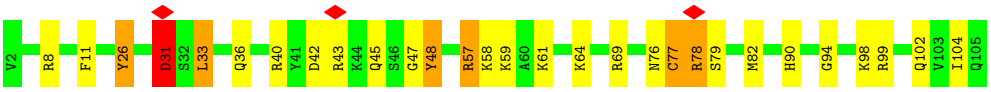
• Molecule 30: Ribosomal protein eL40

Chain m:



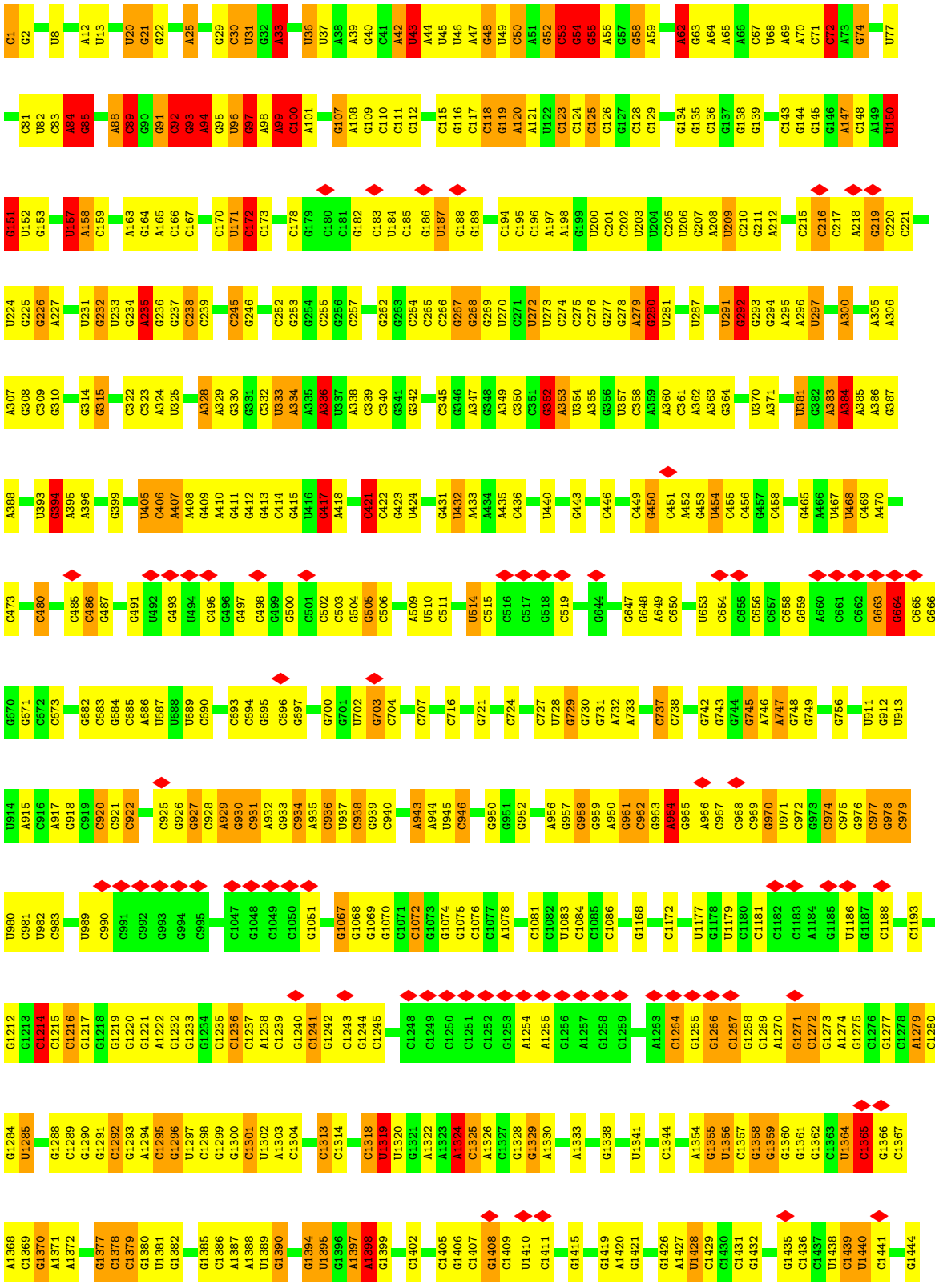
• Molecule 31: Ribosomal protein eL42

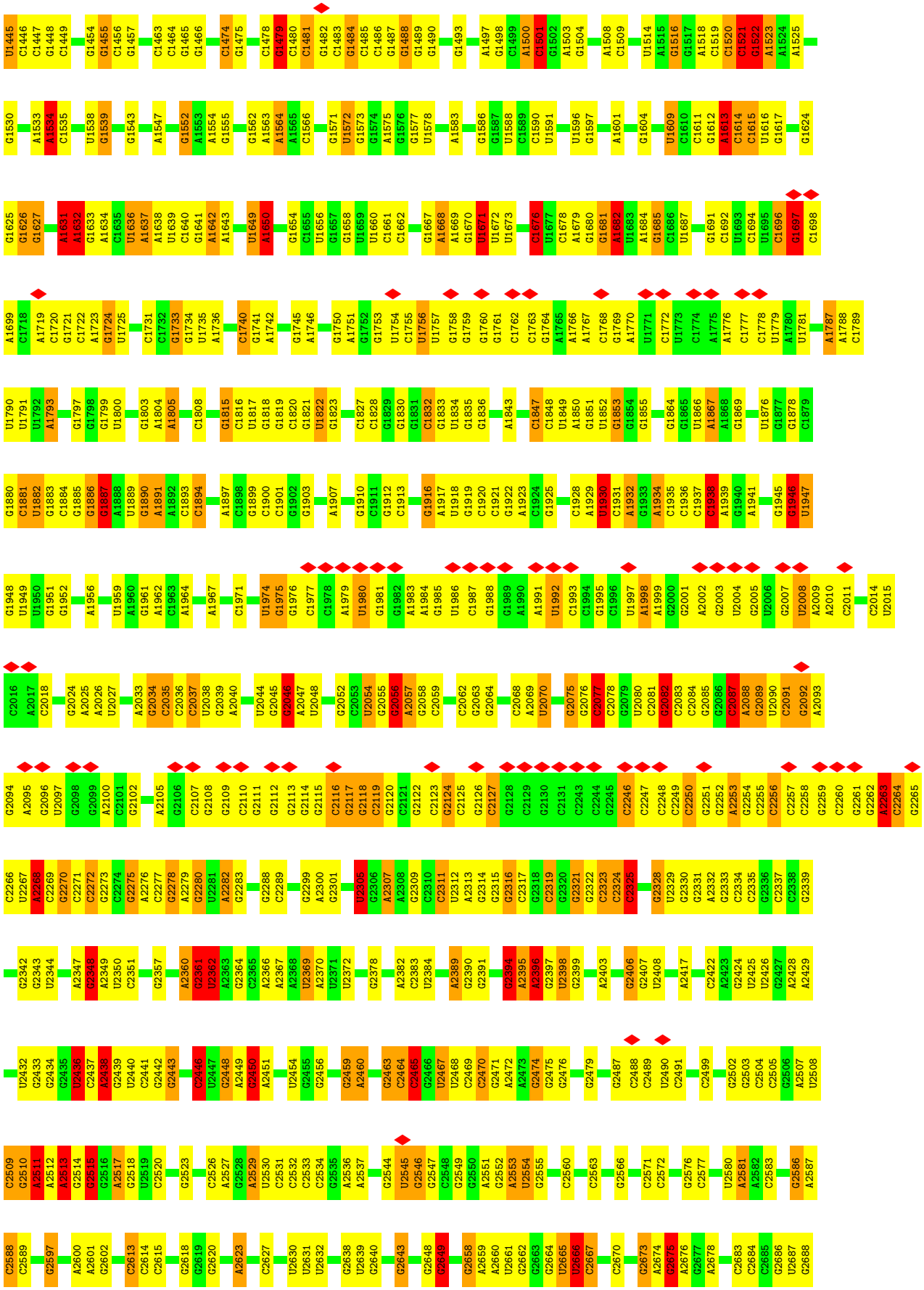
Chain o:

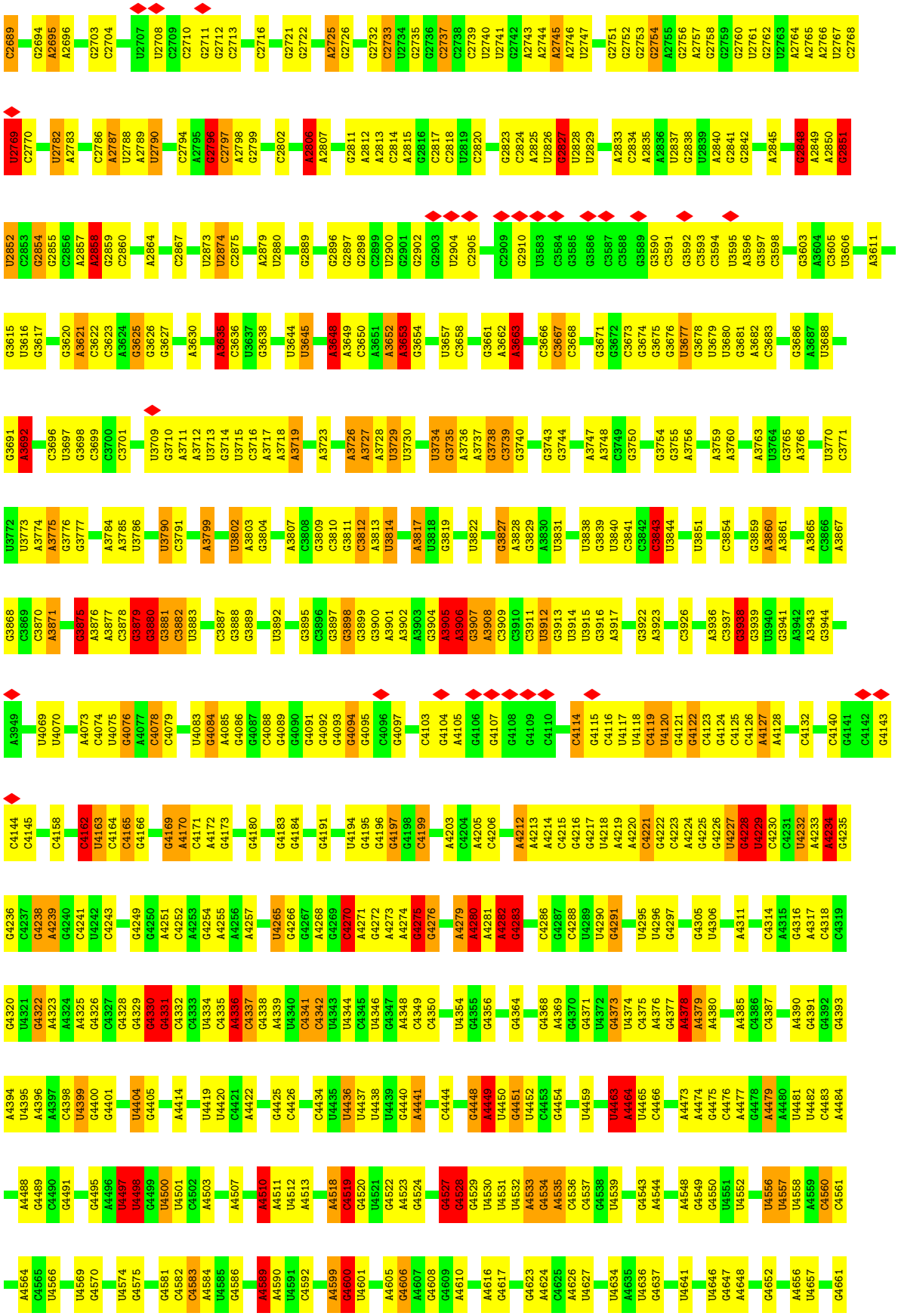


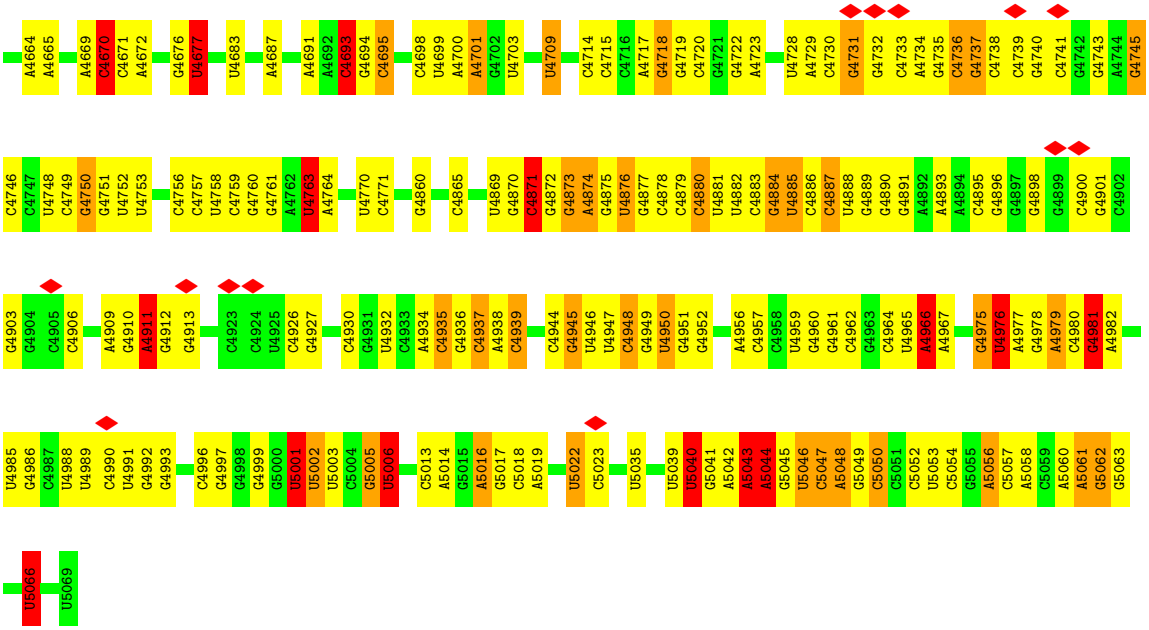
• Molecule 32: 28S ribosomal RNA

Chain 5:



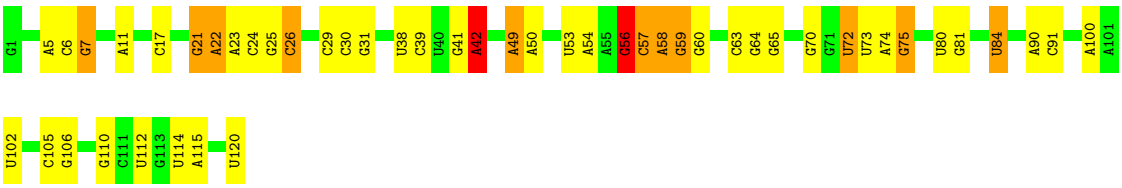






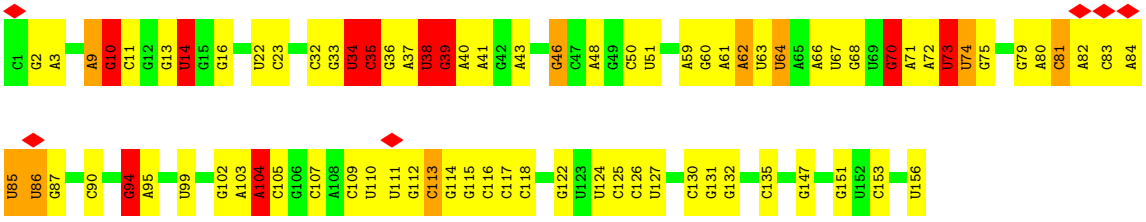
• Molecule 33: 5S ribosomal RNA

Chain 7:



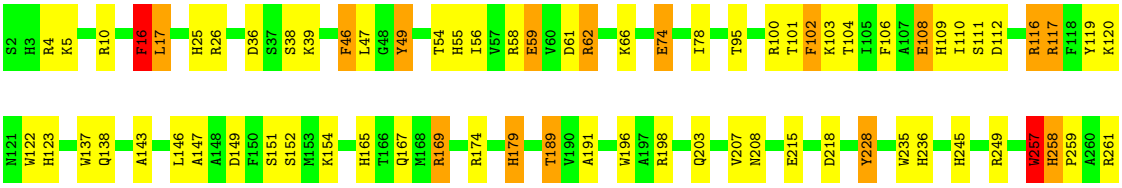
• Molecule 34: 5.8S ribosomal RNA

Chain 8:



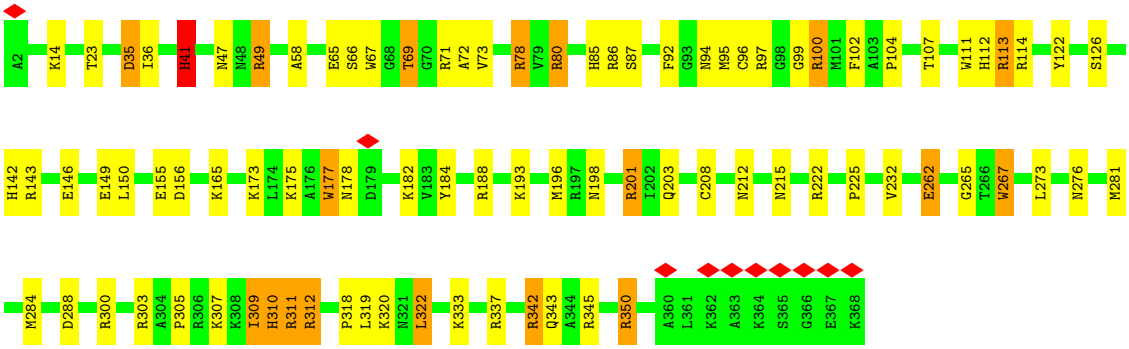
• Molecule 35: Ribosomal protein uL3

Chain B:



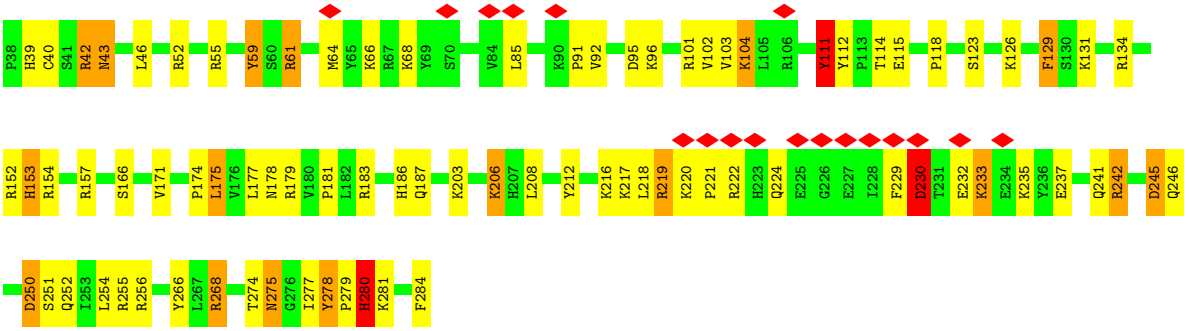
• Molecule 36: Ribosomal protein uL4

Chain C:



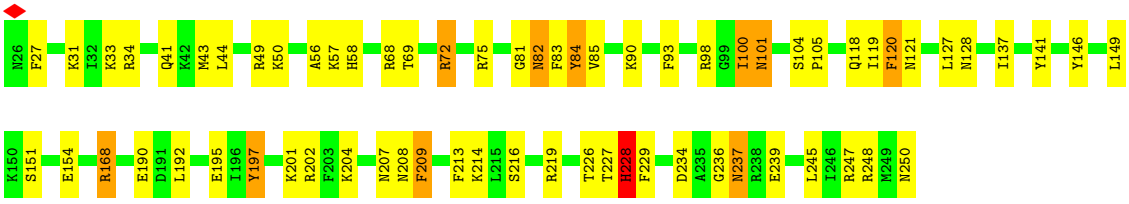
• Molecule 37: Ribosomal protein eL6

Chain E:



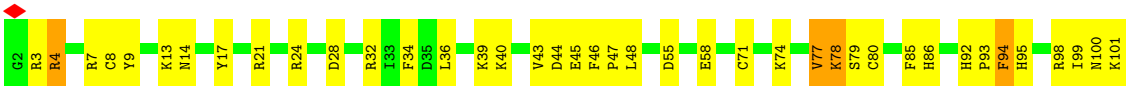
• Molecule 38: Ribosomal protein uL30

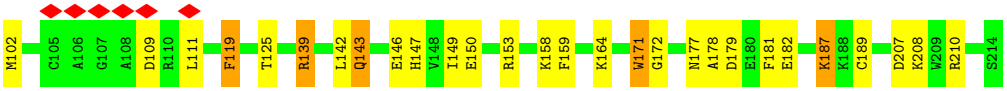
Chain F:



• Molecule 39: Ribosomal protein uL16

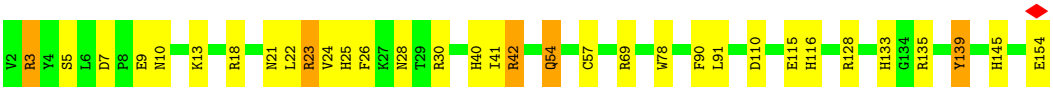
Chain I:





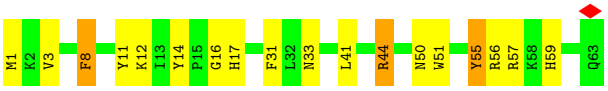
• Molecule 40: Ribosomal protein uL22

Chain P:



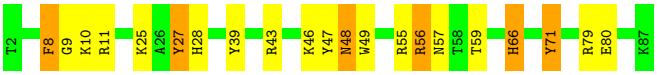
• Molecule 41: Ribosomal protein eL24

Chain W:



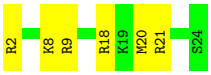
• Molecule 42: Ribosomal protein eL37

Chain j:



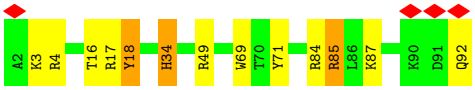
• Molecule 43: Ribosomal protein eL41

Chain n:



• Molecule 44: Ribosomal protein eL43

Chain p:

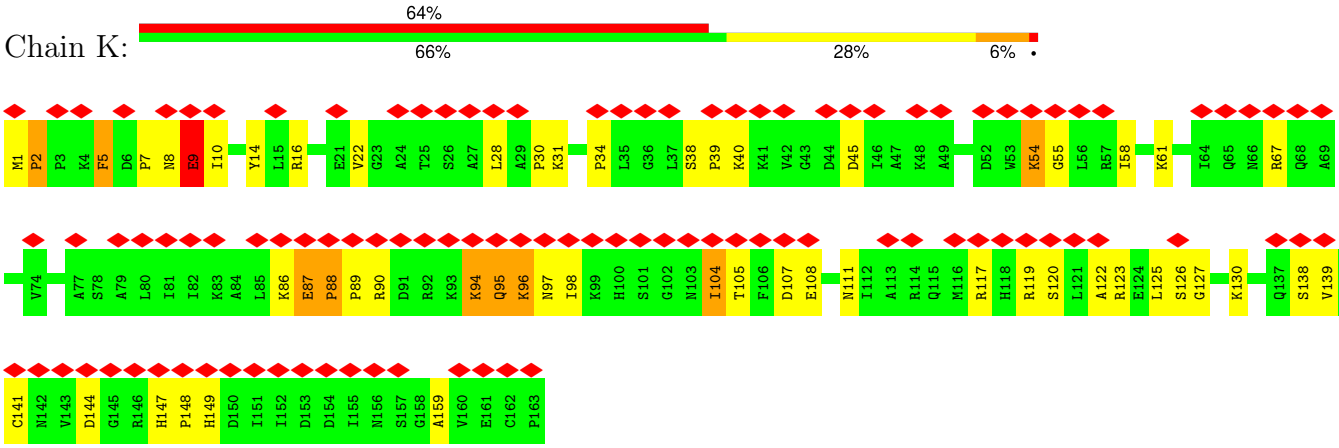


• Molecule 45: Ribosomal protein eL28

Chain r:

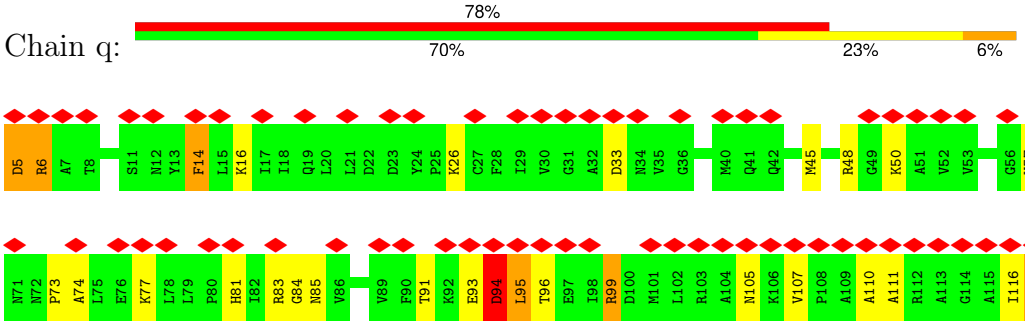
• Molecule 46: Ribosomal protein uL11

Chain K:



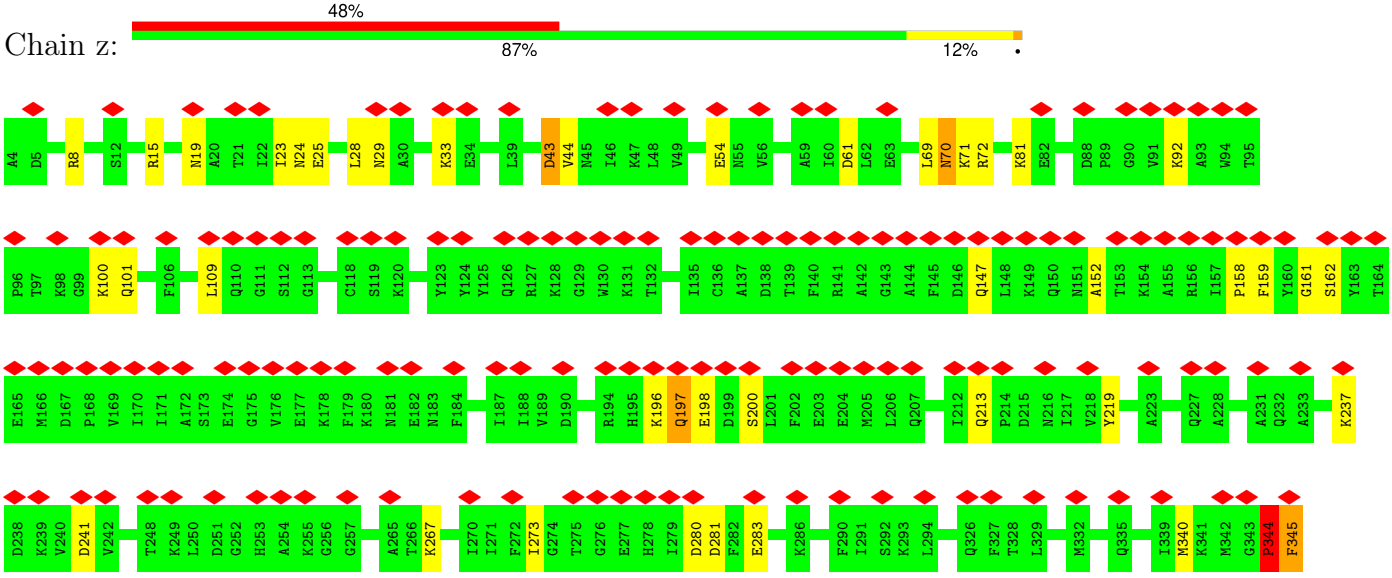
• Molecule 47: Ribosomal protein uL10

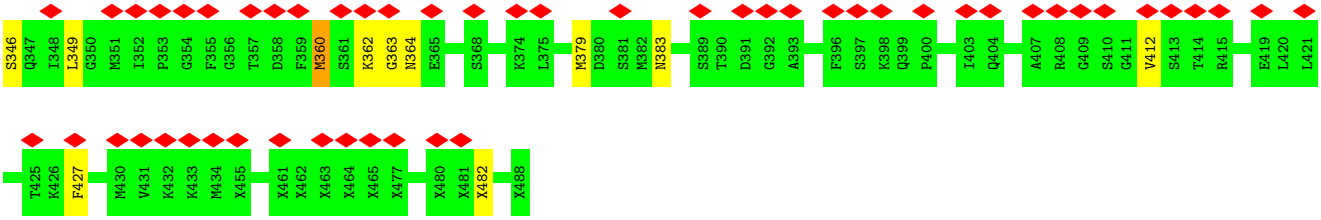
Chain q:



• Molecule 48: SRP54

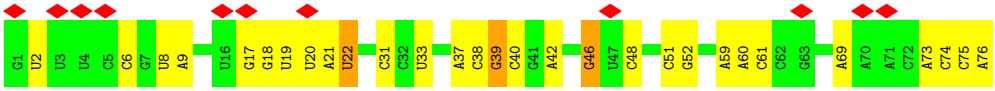
Chain z:





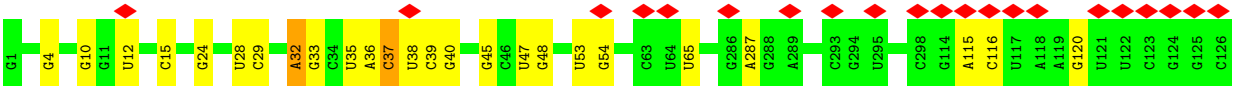
• Molecule 49: Val tRNA

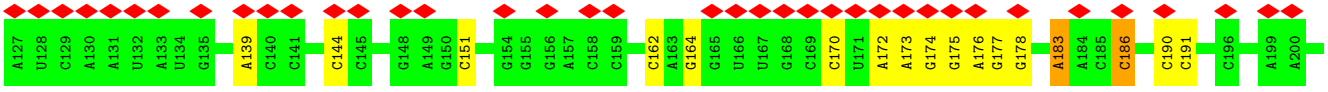
Chain 3:

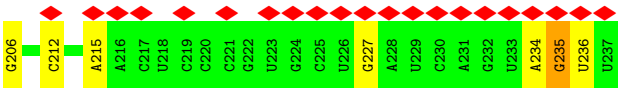


• Molecule 50: SRP 7S RNA

Chain 4:

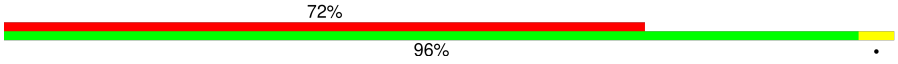


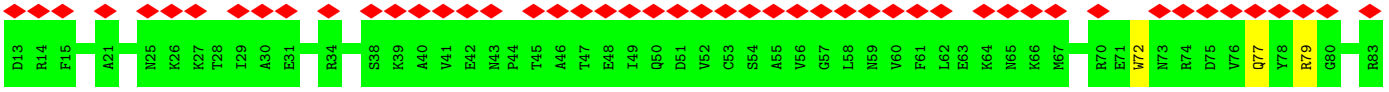


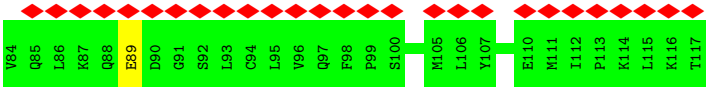


• Molecule 51: SRP19

Chain 9:

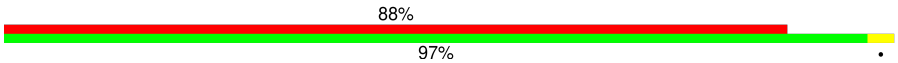


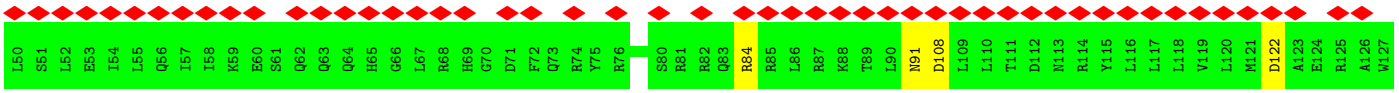




• Molecule 52: SRP68

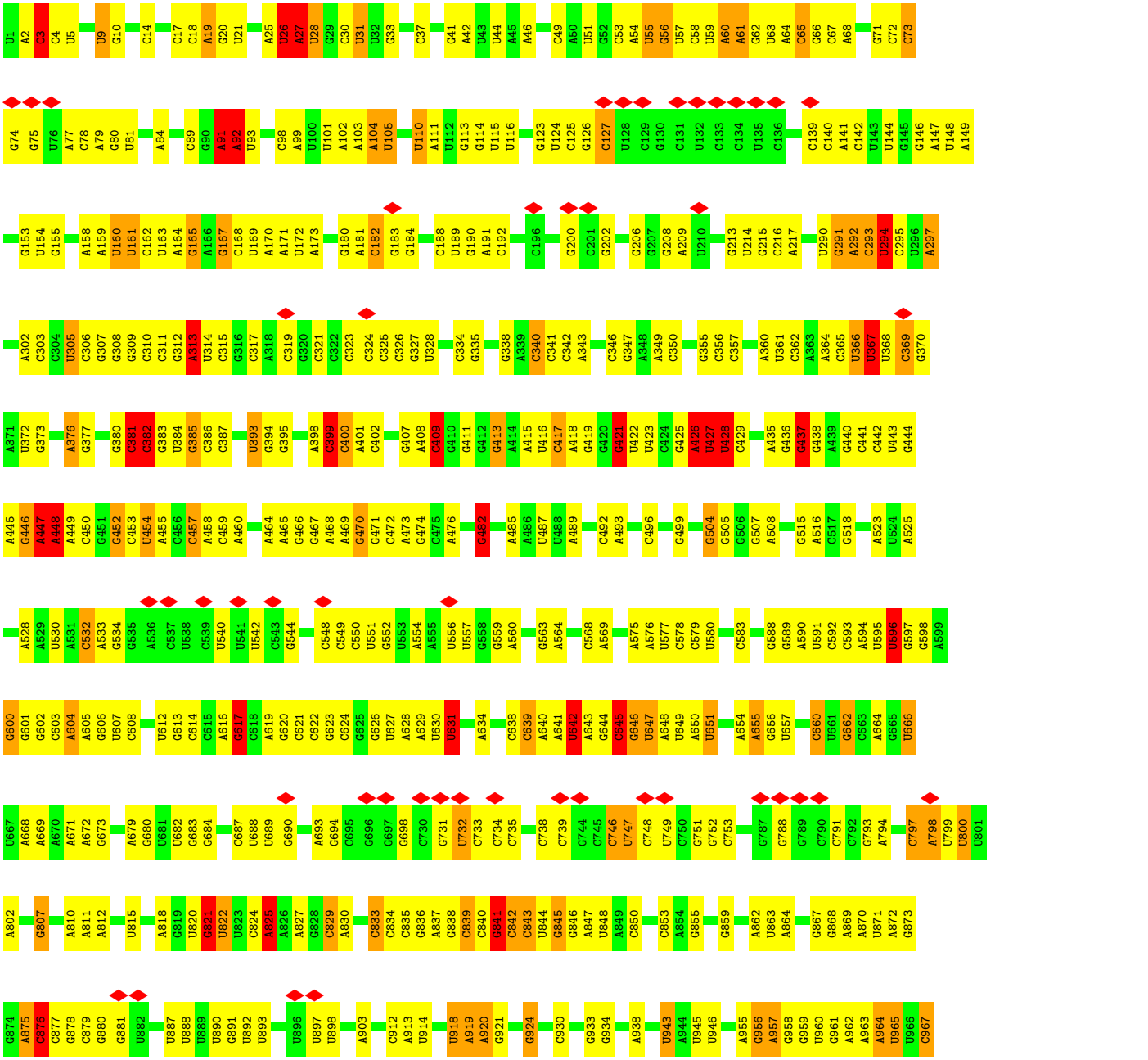
Chain 6:

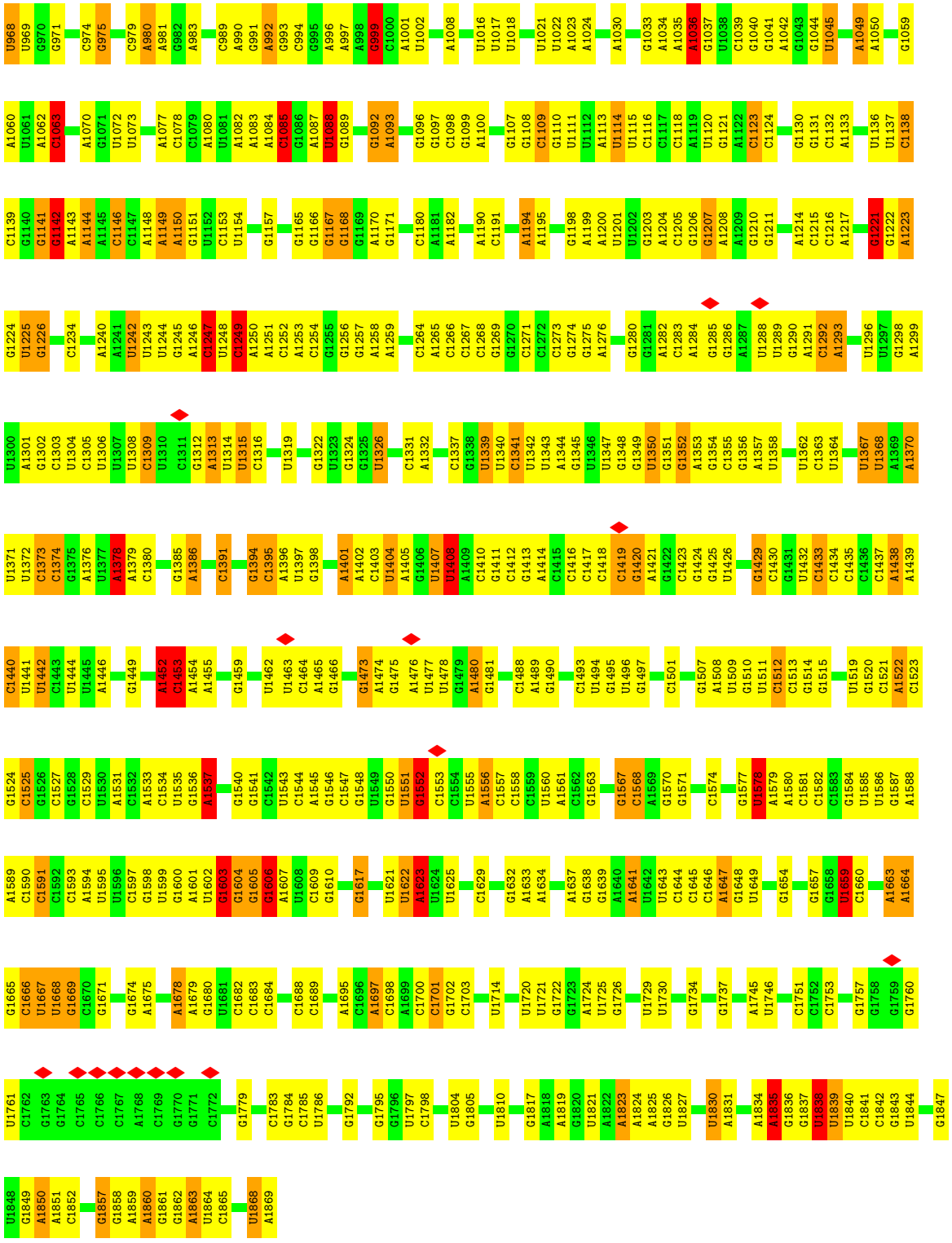




• Molecule 53: 18S ribosomal RNA

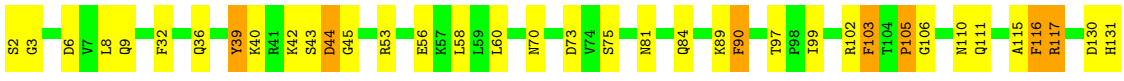
Chain S2:

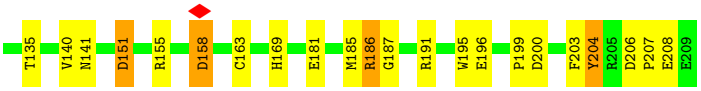




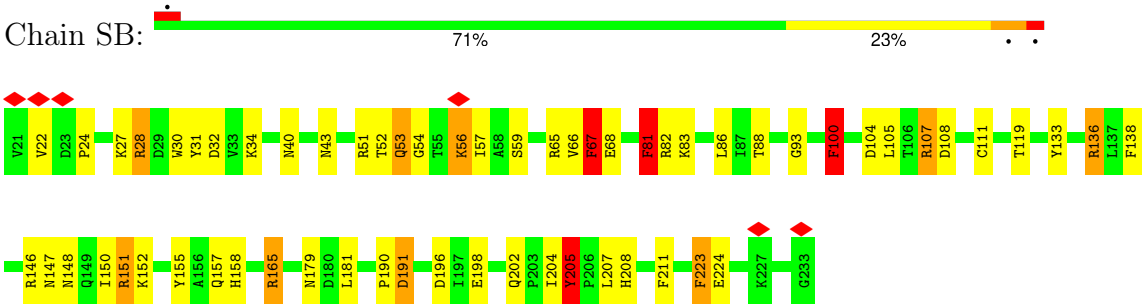
• Molecule 54: Ribosomal protein uS2

Chain SA:

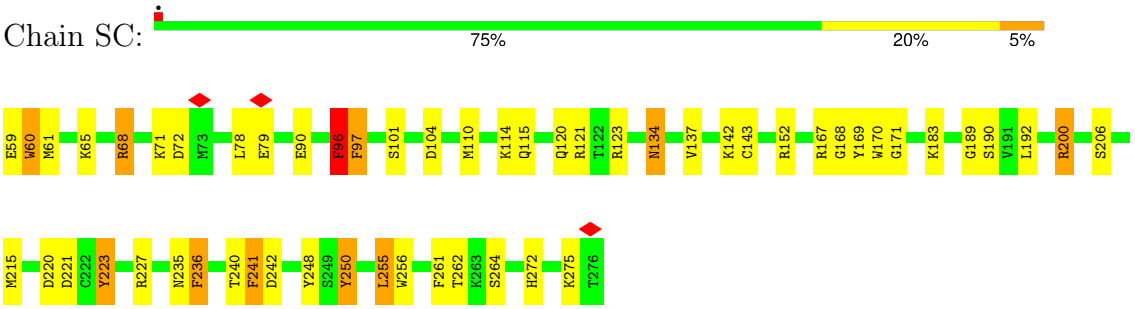




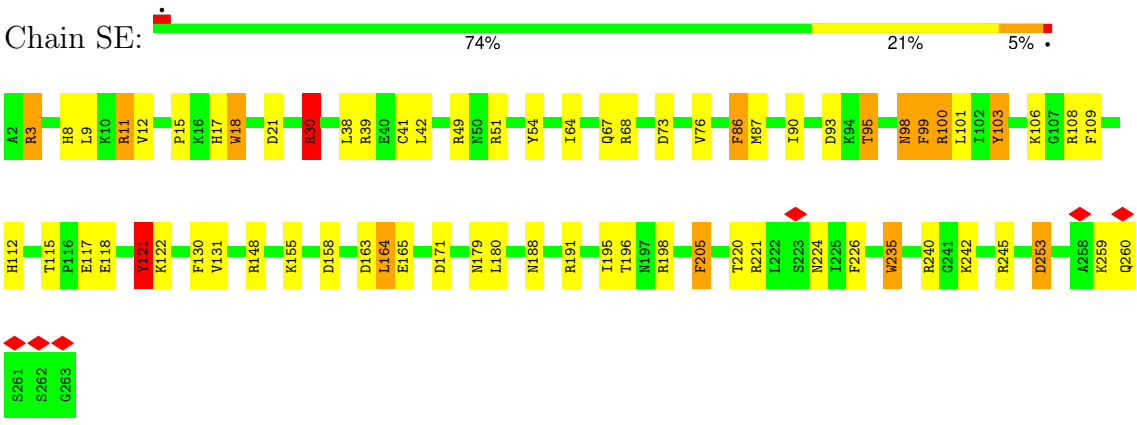
• Molecule 55: Ribosomal protein eS1



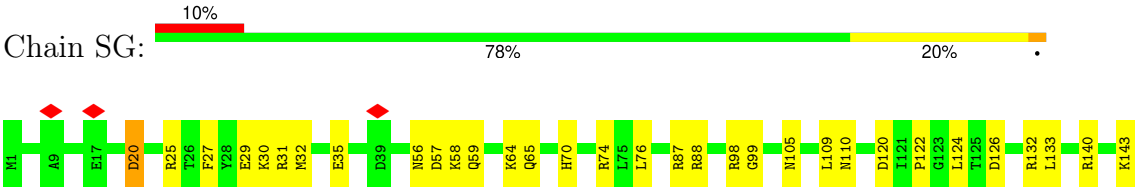
• Molecule 56: Ribosomal protein uS5

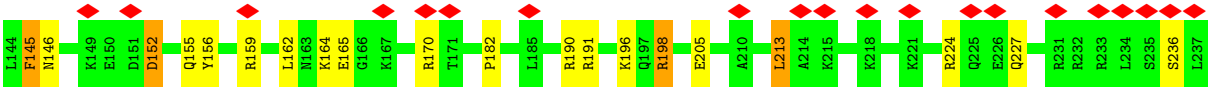


• Molecule 57: Ribosomal protein eS4

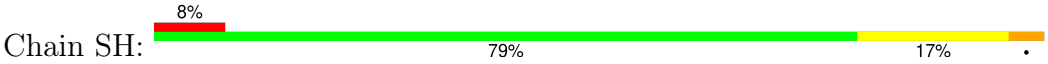


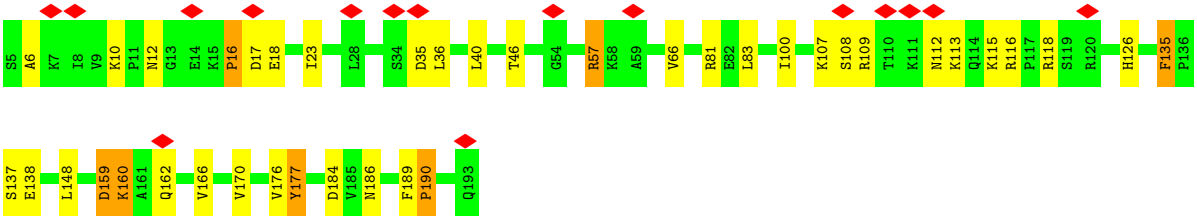
• Molecule 58: Ribosomal protein eS6



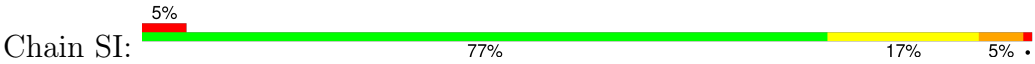


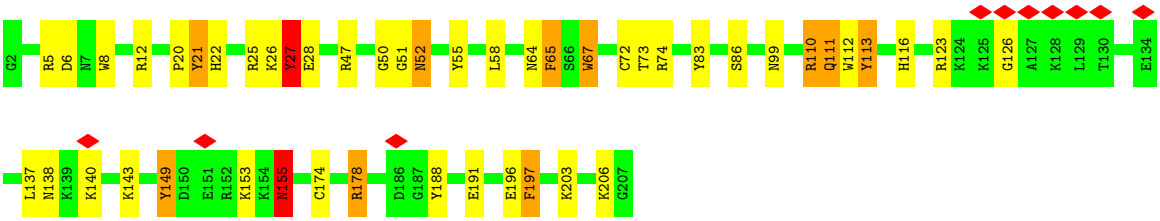
• Molecule 59: Ribosomal protein eS7



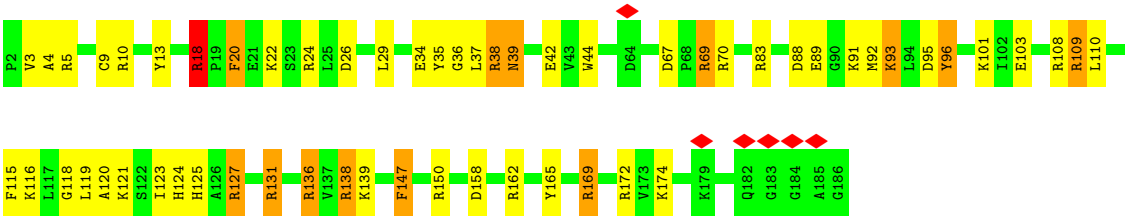


• Molecule 60: Ribosomal protein eS8

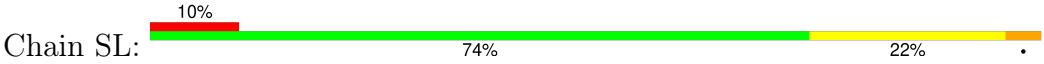


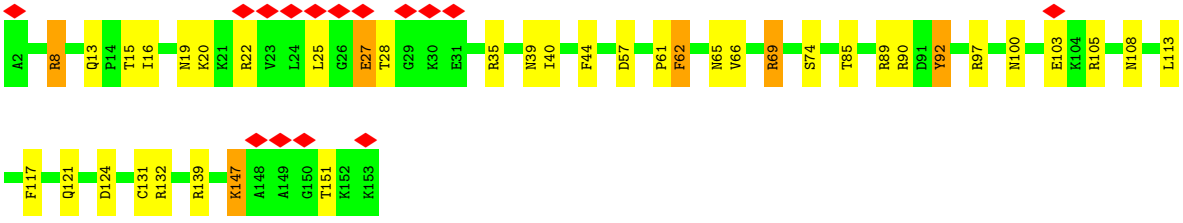


• Molecule 61: Ribosomal protein uS4



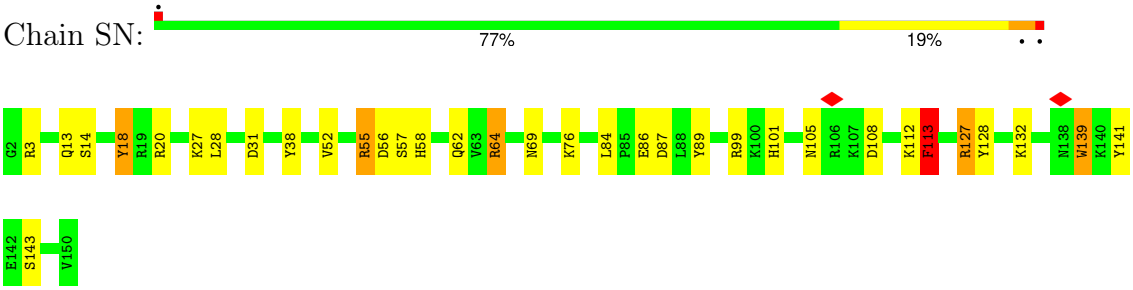
• Molecule 62: Ribosomal protein uS17





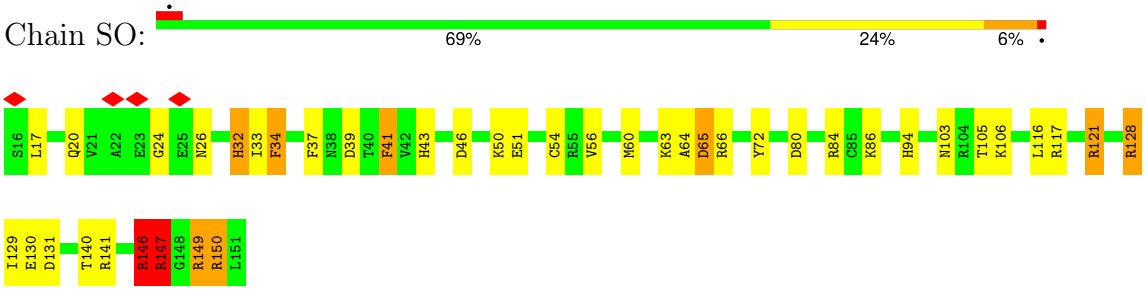
• Molecule 63: Ribosomal protein uS15

Chain SN:



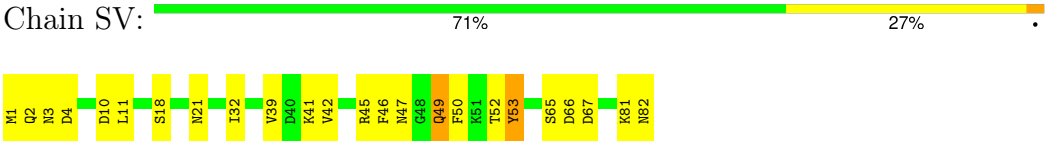
• Molecule 64: Ribosomal protein uS11

Chain SO:



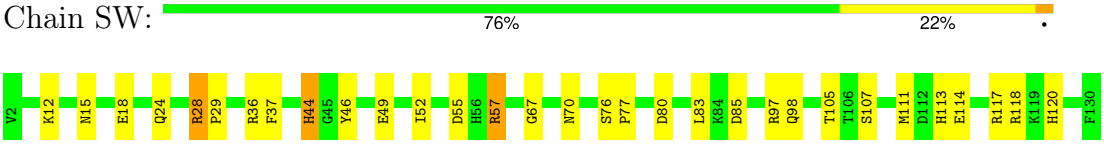
• Molecule 65: Ribosomal protein eS21

Chain SV:



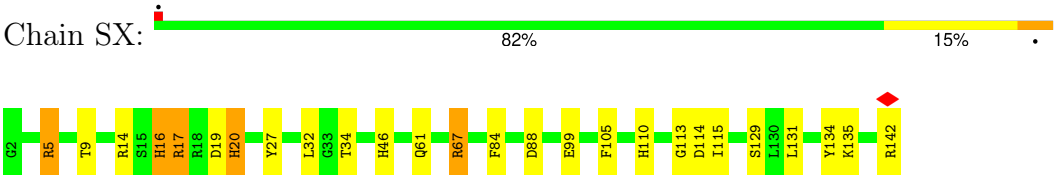
• Molecule 66: Ribosomal protein uS8

Chain SW:



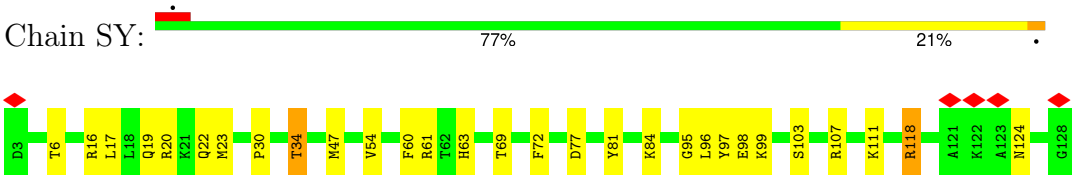
• Molecule 67: Ribosomal protein uS12

Chain SX:



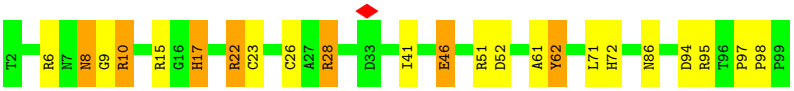
• Molecule 68: Ribosomal protein eS24

Chain SY:



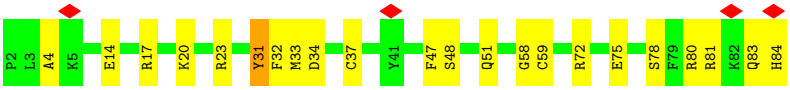
• Molecule 69: Ribosomal protein eS26

Chain Sa:



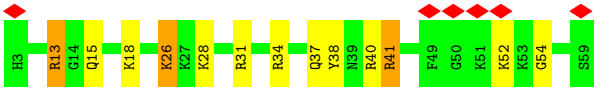
• Molecule 70: Ribosomal protein eS27

Chain Sb:



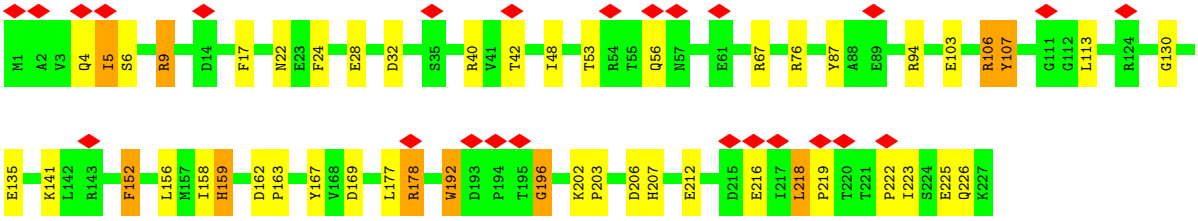
• Molecule 71: Ribosomal protein eS30

Chain Se:



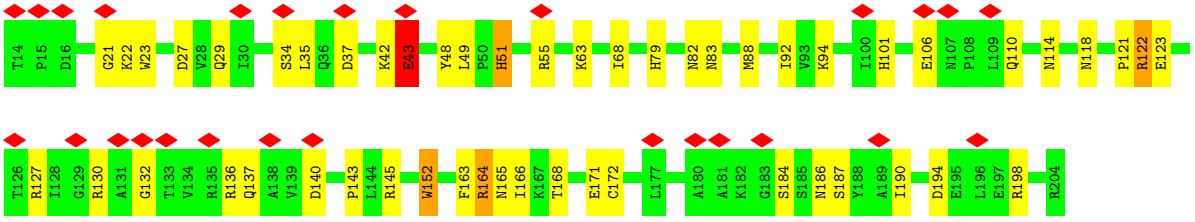
• Molecule 72: Ribosomal protein uS3

Chain SD:



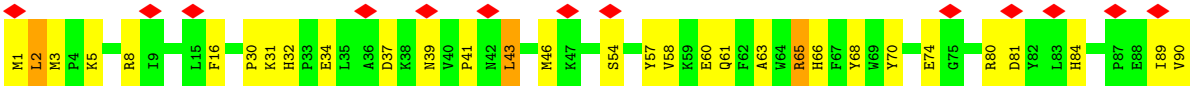
• Molecule 73: Ribosomal protein uS7

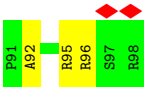
Chain SF:



• Molecule 74: Ribosomal protein eS10

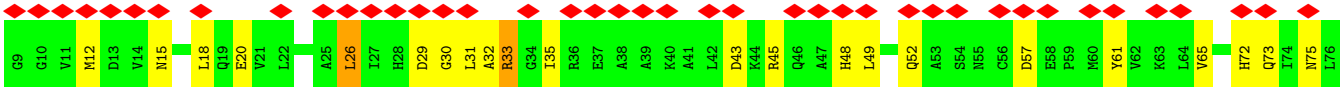
Chain SK:

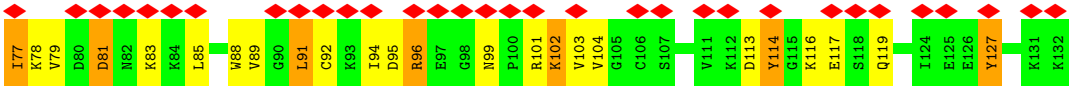




• Molecule 75: Ribosomal protein eS12

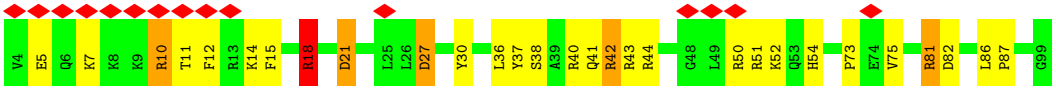
Chain SM:





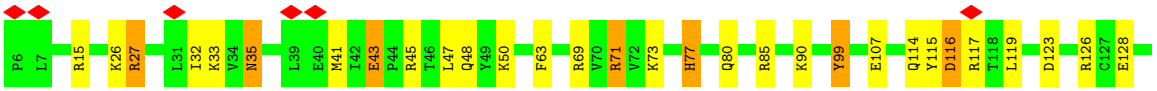
• Molecule 76: Ribosomal protein uS19

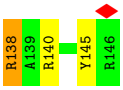
Chain SP:



• Molecule 77: Ribosomal protein uS9

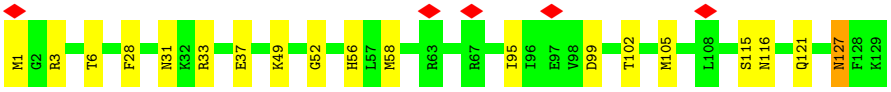
Chain SQ:





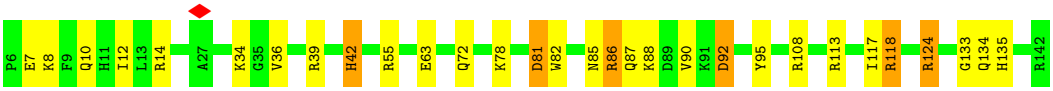
• Molecule 78: Ribosomal protein eS17

Chain SR:



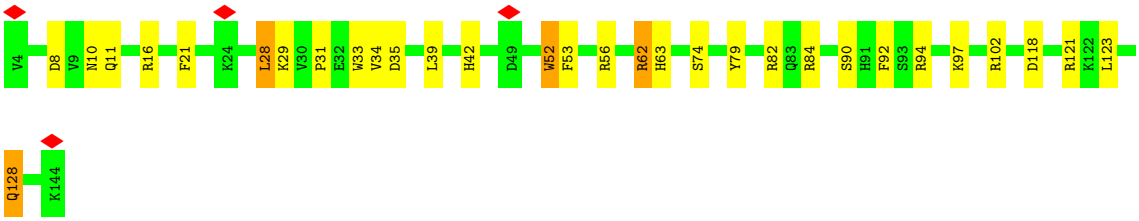
• Molecule 79: Ribosomal protein uS13

Chain SS:



• Molecule 80: Ribosomal protein eS19

Chain ST:

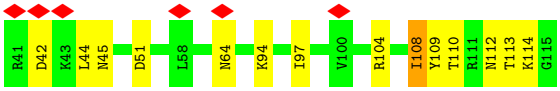


• Molecule 81: Ribosomal protein uS10

Chain SU:

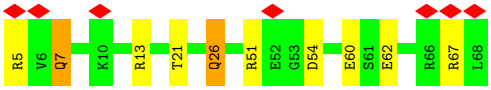
• Molecule 82: Ribosomal protein es25

Chain SZ:



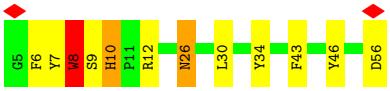
• Molecule 83: Ribosomal protein eS28

Chain Sc:



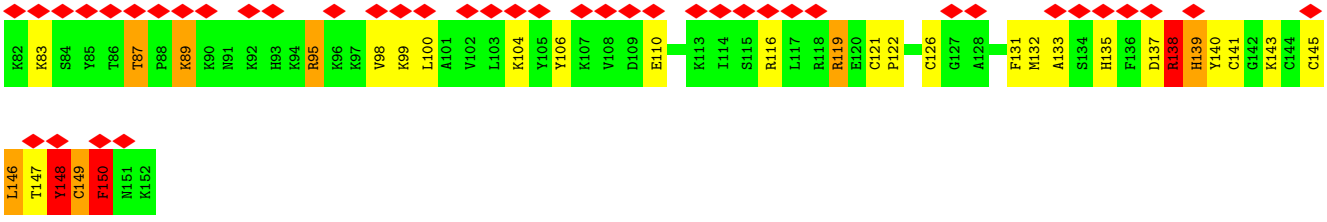
• Molecule 84: Ribosomal protein uS14

Chain Sd:



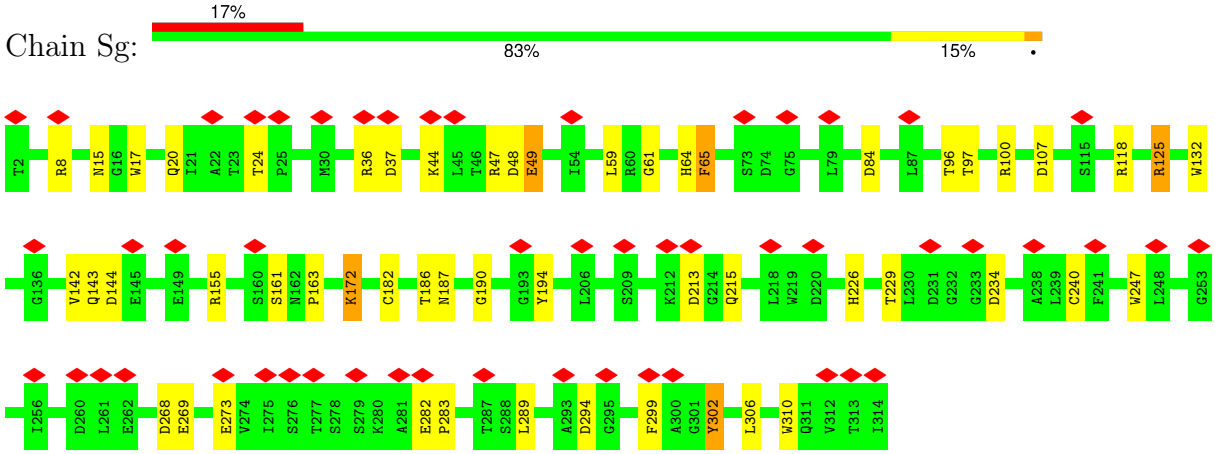
• Molecule 85: Ribosomal protein eS31

Chain Sf:



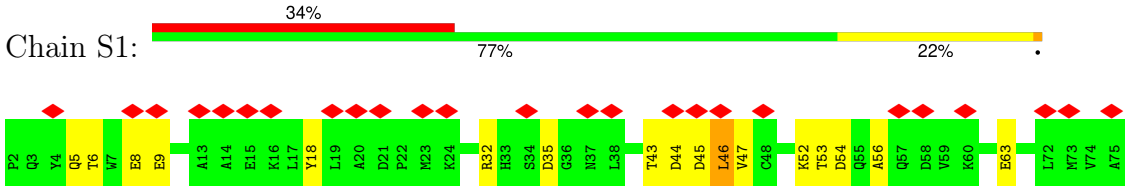
• Molecule 86: Ribosomal protein RACK1

Chain Sg:



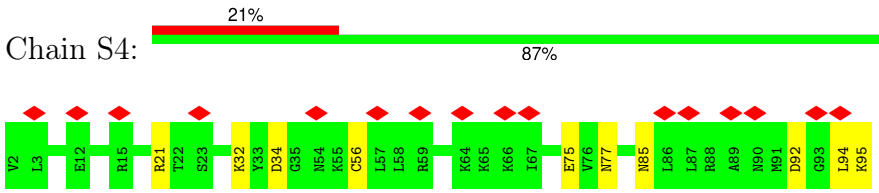
• Molecule 87: SRP9

Chain S1:



• Molecule 88: SRP14

Chain S4:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	27627	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	Each particle	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	27	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	59000	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.577	Depositor
Minimum map value	-0.384	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.018	Depositor
Recommended contour level	0.05	Depositor
Map size (Å)	562.8, 562.8, 562.8	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.3399999, 1.3399999, 1.3399999	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.70	1/1906 (0.1%)	1.25	18/2556 (0.7%)
2	D	0.67	2/2426 (0.1%)	1.17	24/3252 (0.7%)
3	G	0.78	8/1944 (0.4%)	1.10	14/2618 (0.5%)
4	H	0.77	2/1537 (0.1%)	1.10	10/2066 (0.5%)
5	J	0.69	2/1382 (0.1%)	1.09	15/1849 (0.8%)
6	L	0.68	3/1734 (0.2%)	1.05	7/2318 (0.3%)
7	M	0.62	1/1152 (0.1%)	1.10	6/1539 (0.4%)
8	N	0.72	3/1746 (0.2%)	1.25	11/2338 (0.5%)
9	O	0.63	2/1684 (0.1%)	1.08	11/2251 (0.5%)
10	Q	0.68	2/1530 (0.1%)	1.31	32/2041 (1.6%)
11	R	0.81	3/1524 (0.2%)	1.24	19/2013 (0.9%)
12	S	1.07	10/1493 (0.7%)	1.36	28/2002 (1.4%)
13	T	0.62	1/1326 (0.1%)	0.99	5/1770 (0.3%)
14	U	0.61	1/822 (0.1%)	0.99	1/1103 (0.1%)
15	V	0.57	0/993	0.98	2/1332 (0.2%)
16	X	0.56	0/993	0.95	3/1334 (0.2%)
17	Y	0.64	0/1132	1.17	12/1504 (0.8%)
18	Z	0.65	0/1130	1.14	8/1507 (0.5%)
19	a	0.66	0/1192	1.12	6/1591 (0.4%)
20	b	0.75	2/620 (0.3%)	1.17	7/819 (0.9%)
21	c	0.60	0/742	1.11	4/996 (0.4%)
22	d	0.69	1/903 (0.1%)	1.28	10/1216 (0.8%)
23	e	0.73	1/1071 (0.1%)	1.13	7/1429 (0.5%)
24	f	0.83	1/895 (0.1%)	1.28	10/1198 (0.8%)
25	g	0.59	0/916	1.14	8/1220 (0.7%)
26	h	0.55	0/1023	1.17	13/1350 (1.0%)
27	i	0.62	0/843	1.17	8/1115 (0.7%)
28	k	0.51	0/575	0.88	0/761
29	l	0.60	0/454	1.07	1/599 (0.2%)
30	m	0.47	0/435	0.95	1/575 (0.2%)
31	o	0.60	0/864	1.24	7/1140 (0.6%)
32	5	0.59	37/87703 (0.0%)	1.15	802/136805 (0.6%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	7	0.52	0/2858	1.01	19/4455 (0.4%)
34	8	0.60	1/3701 (0.0%)	1.17	39/5766 (0.7%)
35	B	0.76	6/3214 (0.2%)	1.10	13/4308 (0.3%)
36	C	0.68	4/2973 (0.1%)	1.07	14/3990 (0.4%)
37	E	0.68	3/1941 (0.2%)	1.17	15/2601 (0.6%)
38	F	0.68	0/1905	1.17	13/2539 (0.5%)
39	I	0.59	1/1753 (0.1%)	1.05	8/2343 (0.3%)
40	P	0.77	3/1268 (0.2%)	1.15	12/1701 (0.7%)
41	W	0.73	0/541	1.18	3/720 (0.4%)
42	j	0.83	1/721 (0.1%)	1.30	12/953 (1.3%)
43	n	0.72	0/223	1.11	0/284
44	p	0.60	1/718 (0.1%)	1.00	4/953 (0.4%)
45	r	0.57	0/1017	1.05	4/1365 (0.3%)
46	K	0.76	2/1256 (0.2%)	1.17	6/1694 (0.4%)
47	q	0.73	2/1580 (0.1%)	0.93	5/2133 (0.2%)
48	z	0.92	8/3171 (0.3%)	0.95	11/4257 (0.3%)
49	3	1.56	2/1804 (0.1%)	1.07	7/2805 (0.2%)
50	4	0.77	1/5090 (0.0%)	1.05	13/7936 (0.2%)
51	9	0.35	0/858	0.58	0/1156
52	6	0.30	0/1521	0.49	0/2039
53	S2	0.60	27/41241 (0.1%)	1.15	363/64249 (0.6%)
54	SA	0.63	1/1679 (0.1%)	1.05	10/2283 (0.4%)
55	SB	0.74	6/1753 (0.3%)	1.12	14/2350 (0.6%)
56	SC	0.69	1/1726 (0.1%)	1.05	14/2332 (0.6%)
57	SE	0.64	3/2118 (0.1%)	1.09	15/2849 (0.5%)
58	SG	0.69	4/1946 (0.2%)	1.05	8/2590 (0.3%)
59	SH	0.51	0/1544	0.94	5/2068 (0.2%)
60	SI	0.76	3/1715 (0.2%)	1.11	12/2287 (0.5%)
61	SJ	0.59	1/1550 (0.1%)	1.20	12/2069 (0.6%)
62	SL	0.66	1/1259 (0.1%)	1.05	4/1684 (0.2%)
63	SN	0.60	0/1226	1.05	7/1649 (0.4%)
64	SO	0.61	0/1029	1.23	13/1380 (0.9%)
65	SV	0.54	0/631	0.93	0/844
66	SW	0.64	1/1051 (0.1%)	1.03	6/1406 (0.4%)
67	SX	0.60	0/1118	1.06	10/1493 (0.7%)
68	SY	0.55	0/1040	0.94	0/1382
69	Sa	0.71	1/794 (0.1%)	1.16	6/1065 (0.6%)
70	Sb	0.48	0/665	0.90	1/891 (0.1%)
71	Se	0.50	0/458	0.97	3/602 (0.5%)
72	SD	0.60	1/1793 (0.1%)	1.01	5/2414 (0.2%)
73	SF	0.62	2/1531 (0.1%)	1.00	6/2059 (0.3%)
74	SK	0.58	0/851	1.01	5/1147 (0.4%)
75	SM	0.69	0/970	1.05	6/1300 (0.5%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
76	SP	0.88	2/816 (0.2%)	1.19	10/1084 (0.9%)
77	SQ	0.51	0/1142	1.08	12/1528 (0.8%)
78	SR	0.50	0/1060	0.73	0/1421
79	SS	0.46	0/1157	1.00	5/1548 (0.3%)
80	ST	0.61	1/1119 (0.1%)	1.05	3/1499 (0.2%)
81	SU	0.52	0/828	0.91	0/1112
82	SZ	0.47	0/604	0.84	0/810
83	Sc	0.57	2/507 (0.4%)	0.75	0/677
84	Sd	0.66	0/445	1.12	2/589 (0.3%)
85	Sf	0.96	3/593 (0.5%)	1.61	15/786 (1.9%)
86	Sg	0.56	0/2493	0.85	3/3394 (0.1%)
87	S1	1.04	4/619 (0.6%)	0.90	1/832 (0.1%)
88	S4	0.88	2/608 (0.3%)	0.77	0/809
All	All	0.65	184/244482 (0.1%)	1.12	1884/358687 (0.5%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	8
2	D	0	9
3	G	0	4
4	H	0	2
5	J	0	2
6	L	0	4
7	M	0	3
8	N	0	9
9	O	0	4
10	Q	0	5
11	R	0	7
12	S	0	8
13	T	0	2
15	V	0	3
16	X	0	2
17	Y	0	3
18	Z	0	1
19	a	0	6
20	b	0	2
21	c	0	1
22	d	0	5

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
23	e	0	1
24	f	0	2
25	g	0	2
26	h	0	1
27	i	0	3
28	k	0	1
30	m	0	1
31	o	0	3
32	5	0	173
33	7	0	2
34	8	0	11
35	B	0	12
36	C	0	4
37	E	0	16
38	F	0	8
39	I	0	3
40	P	0	4
41	W	0	1
42	j	0	4
44	p	0	1
45	r	0	3
46	K	0	10
47	q	0	8
48	z	0	7
53	S2	0	59
54	SA	0	5
55	SB	0	7
56	SC	0	7
57	SE	0	6
58	SG	0	1
59	SH	0	2
60	SI	0	9
61	SJ	0	3
62	SL	0	3
63	SN	0	5
64	SO	0	1
65	SV	0	3
66	SW	0	3
67	SX	0	2
68	SY	0	1
69	Sa	0	3
70	Sb	0	1

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
72	SD	0	3
73	SF	0	4
74	SK	0	1
75	SM	0	2
76	SP	0	3
77	SQ	0	1
79	SS	0	1
80	ST	0	2
81	SU	0	1
82	SZ	0	1
84	Sd	0	3
85	Sf	0	4
86	Sg	0	3
87	S1	0	4
All	All	0	525

The worst 5 of 184 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
49	3	31	C	O3'-P	-62.25	0.86	1.61
50	4	183	A	O3'-P	-44.21	1.08	1.61
32	5	1823	G	O3'-P	35.64	2.04	1.61
48	z	340	MET	C-N	22.91	1.86	1.34
48	z	345	PHE	C-N	-18.41	0.91	1.34

The worst 5 of 1884 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
49	3	38	C	P-O3'-C3'	-20.62	94.95	119.70
48	z	340	MET	O-C-N	19.47	153.86	122.70
49	3	31	C	O3'-P-O5'	-18.73	68.41	104.00
48	z	340	MET	C-N-CA	-18.61	75.16	121.70
85	Sf	146	LEU	CA-CB-CG	16.38	152.97	115.30

There are no chirality outliers.

5 of 525 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	18	ALA	Peptide
1	A	194	ASN	Peptide
1	A	196	TRP	Peptide

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Group
1	A	66	PRO	Peptide
1	A	67	TYR	Sidechain

5.2 Too-close contacts (i)

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

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	242/244 (99%)	194 (80%)	38 (16%)	10 (4%)	2	21
2	D	290/292 (99%)	228 (79%)	41 (14%)	21 (7%)	1	13
3	G	236/238 (99%)	188 (80%)	41 (17%)	7 (3%)	3	27
4	H	188/190 (99%)	162 (86%)	20 (11%)	6 (3%)	3	26
5	J	168/170 (99%)	126 (75%)	33 (20%)	9 (5%)	1	17
6	L	208/210 (99%)	166 (80%)	29 (14%)	13 (6%)	1	15
7	M	136/138 (99%)	111 (82%)	21 (15%)	4 (3%)	3	27
8	N	201/203 (99%)	159 (79%)	31 (15%)	11 (6%)	1	17
9	O	199/201 (99%)	177 (89%)	19 (10%)	3 (2%)	8	38
10	Q	185/187 (99%)	154 (83%)	24 (13%)	7 (4%)	2	23
11	R	178/180 (99%)	148 (83%)	23 (13%)	7 (4%)	2	22
12	S	173/175 (99%)	139 (80%)	27 (16%)	7 (4%)	2	22
13	T	157/159 (99%)	132 (84%)	20 (13%)	5 (3%)	3	26
14	U	97/99 (98%)	80 (82%)	14 (14%)	3 (3%)	3	27
15	V	129/131 (98%)	110 (85%)	14 (11%)	5 (4%)	2	22
16	X	117/119 (98%)	102 (87%)	12 (10%)	3 (3%)	4	29
17	Y	132/134 (98%)	105 (80%)	21 (16%)	6 (4%)	2	20

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
18	Z	133/135 (98%)	111 (84%)	15 (11%)	7 (5%)	1 18
19	a	145/147 (99%)	114 (79%)	24 (17%)	7 (5%)	2 19
20	b	73/75 (97%)	60 (82%)	10 (14%)	3 (4%)	2 21
21	c	92/94 (98%)	78 (85%)	10 (11%)	4 (4%)	2 20
22	d	105/107 (98%)	85 (81%)	16 (15%)	4 (4%)	2 23
23	e	126/128 (98%)	110 (87%)	14 (11%)	2 (2%)	8 37
24	f	107/109 (98%)	89 (83%)	11 (10%)	7 (6%)	1 15
25	g	112/114 (98%)	100 (89%)	10 (9%)	2 (2%)	7 35
26	h	120/122 (98%)	97 (81%)	21 (18%)	2 (2%)	7 36
27	i	100/102 (98%)	85 (85%)	13 (13%)	2 (2%)	6 34
28	k	67/69 (97%)	53 (79%)	11 (16%)	3 (4%)	2 20
29	l	48/50 (96%)	42 (88%)	5 (10%)	1 (2%)	5 33
30	m	50/52 (96%)	44 (88%)	6 (12%)	0	100 100
31	o	102/104 (98%)	79 (78%)	17 (17%)	6 (6%)	1 16
35	B	392/394 (100%)	309 (79%)	54 (14%)	29 (7%)	1 12
36	C	365/367 (100%)	292 (80%)	55 (15%)	18 (5%)	2 18
37	E	232/236 (98%)	144 (62%)	55 (24%)	33 (14%)	0 3
38	F	223/225 (99%)	180 (81%)	35 (16%)	8 (4%)	3 24
39	I	211/213 (99%)	170 (81%)	28 (13%)	13 (6%)	1 15
40	P	151/153 (99%)	134 (89%)	15 (10%)	2 (1%)	10 41
41	W	61/63 (97%)	57 (93%)	4 (7%)	0	100 100
42	j	84/86 (98%)	64 (76%)	18 (21%)	2 (2%)	5 30
43	n	21/23 (91%)	20 (95%)	1 (5%)	0	100 100
44	p	89/91 (98%)	75 (84%)	14 (16%)	0	100 100
45	r	123/125 (98%)	96 (78%)	20 (16%)	7 (6%)	1 16
46	K	159/163 (98%)	91 (57%)	34 (21%)	34 (21%)	0 1
47	q	200/202 (99%)	141 (70%)	31 (16%)	28 (14%)	0 3
48	z	399/426 (94%)	348 (87%)	30 (8%)	21 (5%)	1 18
51	9	103/105 (98%)	96 (93%)	7 (7%)	0	100 100
52	6	175/179 (98%)	168 (96%)	7 (4%)	0	100 100
54	SA	206/208 (99%)	163 (79%)	29 (14%)	14 (7%)	1 14

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
55	SB	211/213 (99%)	154 (73%)	36 (17%)	21 (10%)	0 7
56	SC	216/218 (99%)	182 (84%)	27 (12%)	7 (3%)	3 26
57	SE	260/262 (99%)	198 (76%)	44 (17%)	18 (7%)	1 13
58	SG	235/237 (99%)	195 (83%)	32 (14%)	8 (3%)	3 25
59	SH	187/189 (99%)	140 (75%)	30 (16%)	17 (9%)	0 8
60	SI	204/206 (99%)	165 (81%)	30 (15%)	9 (4%)	2 20
61	SJ	183/185 (99%)	134 (73%)	34 (19%)	15 (8%)	1 10
62	SL	150/152 (99%)	122 (81%)	22 (15%)	6 (4%)	2 22
63	SN	147/149 (99%)	115 (78%)	28 (19%)	4 (3%)	4 29
64	SO	134/136 (98%)	99 (74%)	21 (16%)	14 (10%)	0 6
65	SV	80/82 (98%)	58 (72%)	15 (19%)	7 (9%)	0 9
66	SW	127/129 (98%)	108 (85%)	16 (13%)	3 (2%)	5 30
67	SX	139/141 (99%)	109 (78%)	26 (19%)	4 (3%)	3 27
68	SY	124/126 (98%)	101 (82%)	16 (13%)	7 (6%)	1 17
69	Sa	96/98 (98%)	69 (72%)	18 (19%)	9 (9%)	0 8
70	Sb	81/83 (98%)	61 (75%)	16 (20%)	4 (5%)	2 18
71	Se	55/57 (96%)	41 (74%)	12 (22%)	2 (4%)	3 24
72	SD	225/227 (99%)	174 (77%)	41 (18%)	10 (4%)	2 20
73	SF	189/191 (99%)	146 (77%)	33 (18%)	10 (5%)	1 18
74	SK	96/98 (98%)	58 (60%)	26 (27%)	12 (12%)	0 4
75	SM	122/124 (98%)	78 (64%)	24 (20%)	20 (16%)	0 2
76	SP	94/96 (98%)	67 (71%)	17 (18%)	10 (11%)	0 6
77	SQ	139/141 (99%)	111 (80%)	20 (14%)	8 (6%)	1 16
78	SR	127/129 (98%)	111 (87%)	11 (9%)	5 (4%)	2 22
79	SS	135/137 (98%)	114 (84%)	12 (9%)	9 (7%)	1 14
80	ST	139/141 (99%)	115 (83%)	18 (13%)	6 (4%)	2 20
81	SU	102/104 (98%)	83 (81%)	13 (13%)	6 (6%)	1 16
82	SZ	73/75 (97%)	59 (81%)	9 (12%)	5 (7%)	1 14
83	Sc	60/64 (94%)	47 (78%)	12 (20%)	1 (2%)	7 36
84	Sd	50/52 (96%)	36 (72%)	11 (22%)	3 (6%)	1 15
85	Sf	69/71 (97%)	42 (61%)	15 (22%)	12 (17%)	0 2

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
86	Sg	311/313 (99%)	240 (77%)	56 (18%)	15 (5%)	2 19
87	S1	72/74 (97%)	61 (85%)	6 (8%)	5 (7%)	1 13
88	S4	72/76 (95%)	68 (94%)	4 (6%)	0	100 100
All	All	12314/12513 (98%)	9837 (80%)	1799 (15%)	678 (6%)	2 17

5 of 678 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	19	HIS
1	A	196	TRP
1	A	197	PRO
2	D	9	ASN
2	D	19	LYS

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
1	A	187/187 (100%)	137 (73%)	50 (27%)	0 3
2	D	246/247 (100%)	183 (74%)	63 (26%)	0 3
3	G	204/206 (99%)	150 (74%)	54 (26%)	0 3
4	H	169/169 (100%)	131 (78%)	38 (22%)	1 5
5	J	143/143 (100%)	108 (76%)	35 (24%)	0 4
6	L	176/176 (100%)	133 (76%)	43 (24%)	0 4
7	M	116/116 (100%)	88 (76%)	28 (24%)	0 4
8	N	171/171 (100%)	126 (74%)	45 (26%)	0 3
9	O	172/172 (100%)	138 (80%)	34 (20%)	1 7
10	Q	163/163 (100%)	126 (77%)	37 (23%)	0 5
11	R	159/159 (100%)	120 (76%)	39 (24%)	0 4
12	S	156/156 (100%)	124 (80%)	32 (20%)	1 6
13	T	139/139 (100%)	105 (76%)	34 (24%)	0 4

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
14	U	89/89 (100%)	65 (73%)	24 (27%)	0 2
15	V	101/101 (100%)	78 (77%)	23 (23%)	0 5
16	X	107/107 (100%)	89 (83%)	18 (17%)	1 11
17	Y	124/124 (100%)	94 (76%)	30 (24%)	0 4
18	Z	117/117 (100%)	93 (80%)	24 (20%)	1 6
19	a	119/119 (100%)	99 (83%)	20 (17%)	1 11
20	b	63/63 (100%)	48 (76%)	15 (24%)	0 4
21	c	79/79 (100%)	59 (75%)	20 (25%)	0 3
22	d	98/98 (100%)	65 (66%)	33 (34%)	0 1
23	e	114/114 (100%)	91 (80%)	23 (20%)	1 6
24	f	88/88 (100%)	73 (83%)	15 (17%)	1 11
25	g	98/98 (100%)	78 (80%)	20 (20%)	1 6
26	h	109/109 (100%)	91 (84%)	18 (16%)	2 12
27	i	86/86 (100%)	69 (80%)	17 (20%)	1 7
28	k	64/64 (100%)	51 (80%)	13 (20%)	1 6
29	l	47/47 (100%)	37 (79%)	10 (21%)	1 6
30	m	48/48 (100%)	33 (69%)	15 (31%)	0 1
31	o	92/92 (100%)	70 (76%)	22 (24%)	0 4
35	B	335/335 (100%)	260 (78%)	75 (22%)	1 5
36	C	305/305 (100%)	233 (76%)	72 (24%)	0 4
37	E	209/209 (100%)	163 (78%)	46 (22%)	1 5
38	F	194/194 (100%)	142 (73%)	52 (27%)	0 2
39	I	180/180 (100%)	126 (70%)	54 (30%)	0 2
40	P	134/134 (100%)	108 (81%)	26 (19%)	1 7
41	W	55/55 (100%)	38 (69%)	17 (31%)	0 1
42	j	73/73 (100%)	60 (82%)	13 (18%)	1 9
43	n	22/22 (100%)	16 (73%)	6 (27%)	0 2
44	p	74/74 (100%)	62 (84%)	12 (16%)	2 12
45	r	109/109 (100%)	83 (76%)	26 (24%)	0 4
46	K	136/136 (100%)	118 (87%)	18 (13%)	3 18
47	q	170/170 (100%)	134 (79%)	36 (21%)	1 6

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
48	z	340/340 (100%)	318 (94%)	22 (6%)	14 41
51	9	92/94 (98%)	88 (96%)	4 (4%)	25 50
52	6	157/157 (100%)	151 (96%)	6 (4%)	28 53
54	SA	174/174 (100%)	132 (76%)	42 (24%)	0 4
55	SB	194/194 (100%)	155 (80%)	39 (20%)	1 7
56	SC	184/184 (100%)	141 (77%)	43 (23%)	0 4
57	SE	224/224 (100%)	172 (77%)	52 (23%)	0 5
58	SG	207/207 (100%)	166 (80%)	41 (20%)	1 7
59	SH	169/169 (100%)	145 (86%)	24 (14%)	2 17
60	SI	178/178 (100%)	144 (81%)	34 (19%)	1 7
61	SJ	161/161 (100%)	117 (73%)	44 (27%)	0 2
62	SL	136/136 (100%)	104 (76%)	32 (24%)	0 4
63	SN	130/130 (100%)	103 (79%)	27 (21%)	1 6
64	SO	106/106 (100%)	74 (70%)	32 (30%)	0 2
65	SV	66/66 (100%)	50 (76%)	16 (24%)	0 4
66	SW	112/112 (100%)	90 (80%)	22 (20%)	1 7
67	SX	113/113 (100%)	95 (84%)	18 (16%)	2 13
68	SY	108/108 (100%)	85 (79%)	23 (21%)	1 6
69	Sa	85/85 (100%)	72 (85%)	13 (15%)	2 14
70	Sb	75/75 (100%)	58 (77%)	17 (23%)	0 5
71	Se	46/46 (100%)	35 (76%)	11 (24%)	0 4
72	SD	190/190 (100%)	149 (78%)	41 (22%)	1 5
73	SF	161/161 (100%)	123 (76%)	38 (24%)	0 4
74	SK	89/89 (100%)	68 (76%)	21 (24%)	0 4
75	SM	104/104 (100%)	74 (71%)	30 (29%)	0 2
76	SP	88/88 (100%)	70 (80%)	18 (20%)	1 6
77	SQ	117/117 (100%)	91 (78%)	26 (22%)	1 5
78	SR	117/117 (100%)	102 (87%)	15 (13%)	3 19
79	SS	119/119 (100%)	96 (81%)	23 (19%)	1 7
80	ST	112/112 (100%)	87 (78%)	25 (22%)	1 5
81	SU	94/94 (100%)	82 (87%)	12 (13%)	3 19

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
82	SZ	66/66 (100%)	57 (86%)	9 (14%)	3 17
83	Sc	57/57 (100%)	47 (82%)	10 (18%)	1 10
84	Sd	45/45 (100%)	36 (80%)	9 (20%)	1 7
85	Sf	64/64 (100%)	45 (70%)	19 (30%)	0 2
86	Sg	272/272 (100%)	235 (86%)	37 (14%)	3 17
87	S1	67/67 (100%)	59 (88%)	8 (12%)	4 20
88	S4	69/69 (100%)	60 (87%)	9 (13%)	3 18
All	All	10728/10733 (100%)	8471 (79%)	2257 (21%)	2 6

5 of 2257 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
68	SY	61	ARG
72	SD	4	GLN
68	SY	47	MET
77	SQ	145	TYR
25	g	3	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 271 such sidechains are listed below:

Mol	Chain	Res	Type
73	SF	203	ASN
75	SM	99	ASN
83	Sc	45	ASN
30	m	87	GLN
26	h	98	HIS

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
32	5	3642/3658 (99%)	1674 (45%)	665 (18%)
33	7	119/120 (99%)	38 (31%)	13 (10%)
34	8	155/156 (99%)	63 (40%)	29 (18%)
49	3	73/76 (96%)	27 (36%)	5 (6%)
50	4	197/206 (95%)	43 (21%)	10 (5%)
53	S2	1714/1742 (98%)	830 (48%)	303 (17%)
All	All	5900/5958 (99%)	2675 (45%)	1025 (17%)

5 of 2675 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
32	5	2	G
32	5	8	U
32	5	12	A
32	5	13	U
32	5	20	U

5 of 1025 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
53	S2	1355	C
53	S2	1452	A
53	S2	1352	G
32	5	2517	A
32	5	2470	C

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 170 ligands modelled in this entry, 170 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
32	5	16
53	S2	6
48	z	5
50	4	3
49	3	3
46	K	2
37	E	1
88	S4	1
52	6	1
83	Sc	1
11	R	1

The worst 5 of 40 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	4	298:C	O3'	114:G	P	141.53
1	z	297:MET	C	326:GLN	N	33.03
1	E	72:ALA	C	84:VAL	N	24.28
1	S2	753:C	O3'	785:C	P	22.70
1	S2	698:G	O3'	730:C	P	20.30

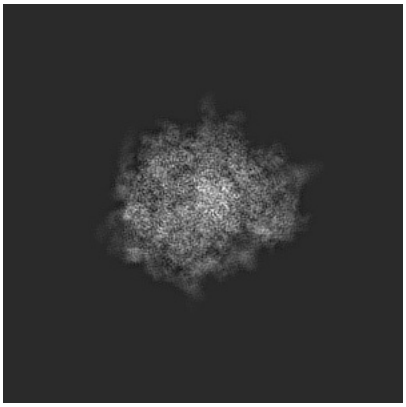
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-3045. These allow visual inspection of the internal detail of the map and identification of artifacts.

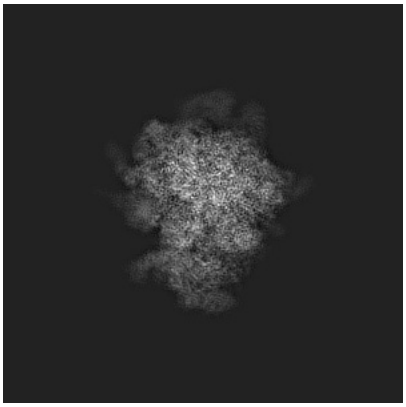
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

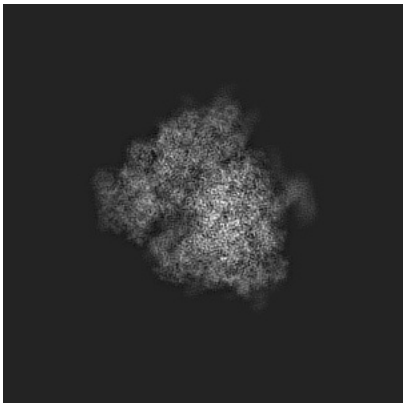
6.1.1 Primary map



X



Y

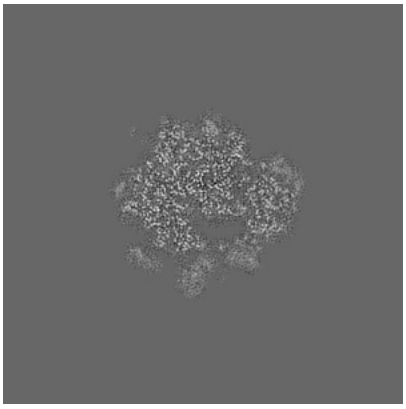


Z

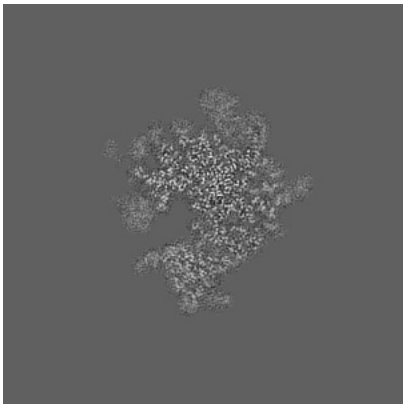
The images above show the map projected in three orthogonal directions.

6.2 Central slices

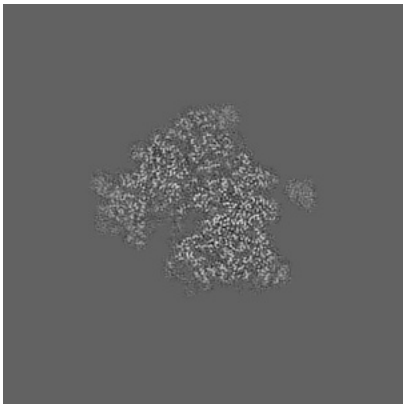
6.2.1 Primary map



X Index: 210



Y Index: 210

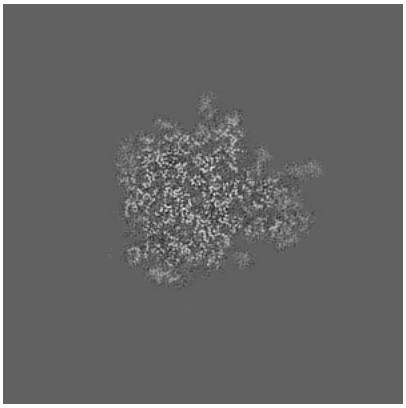


Z Index: 210

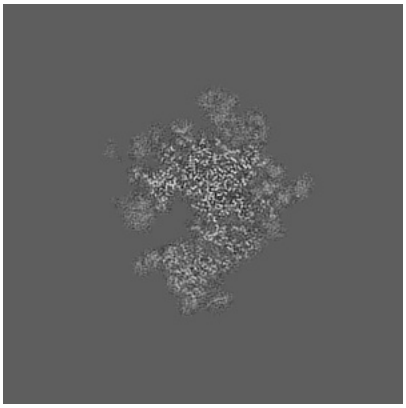
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

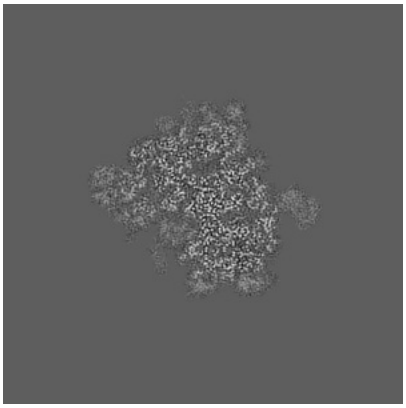
6.3.1 Primary map



X Index: 230



Y Index: 211

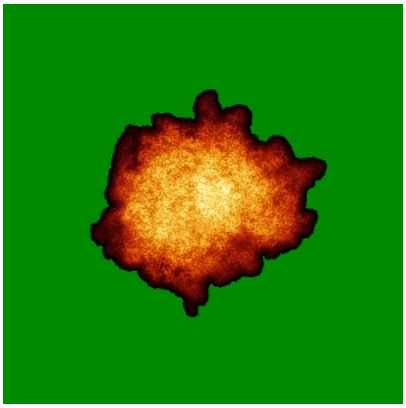


Z Index: 227

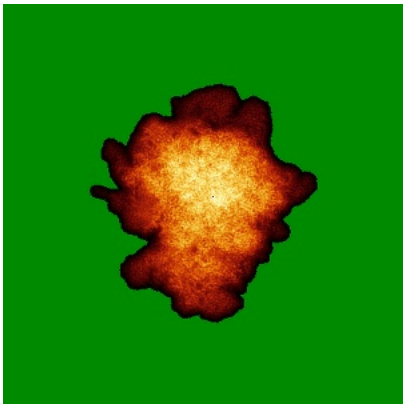
The images above show the largest variance slices of the map in three orthogonal directions.

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

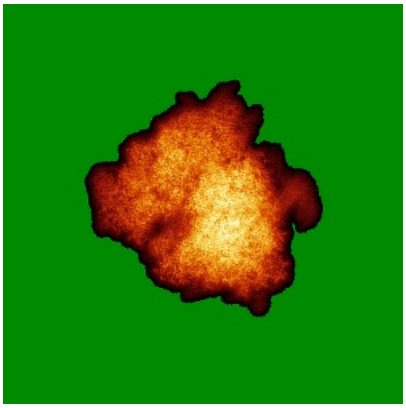
6.4.1 Primary map



X



Y

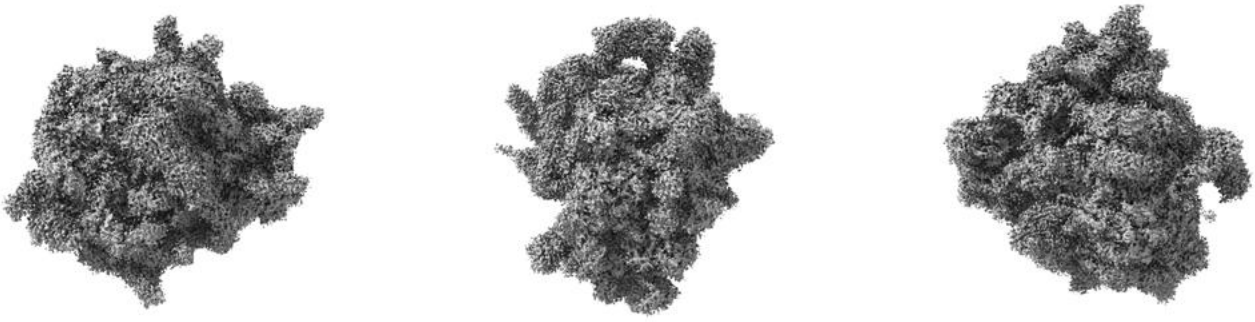


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

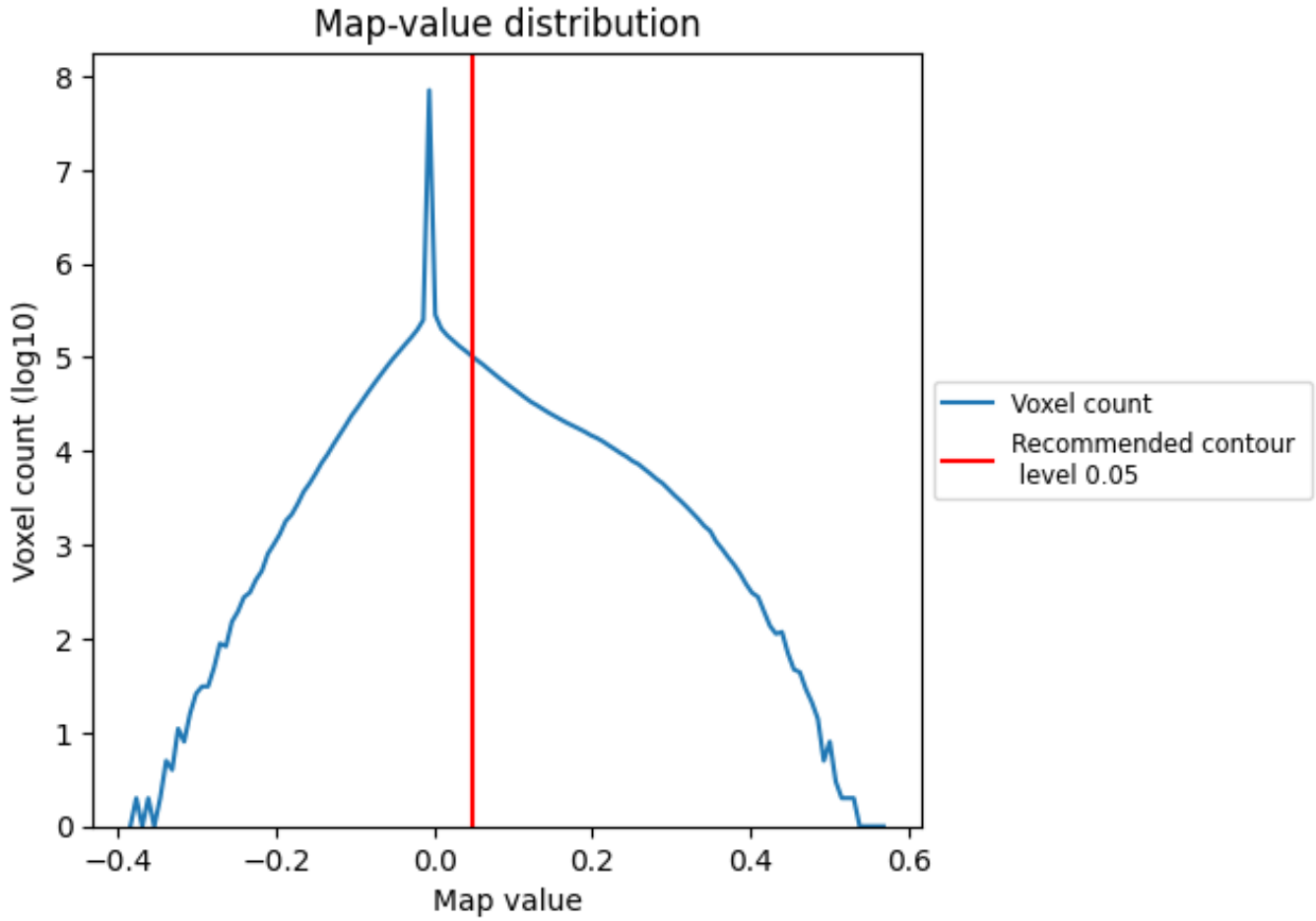
6.6 Mask visualisation (i)

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

7 Map analysis

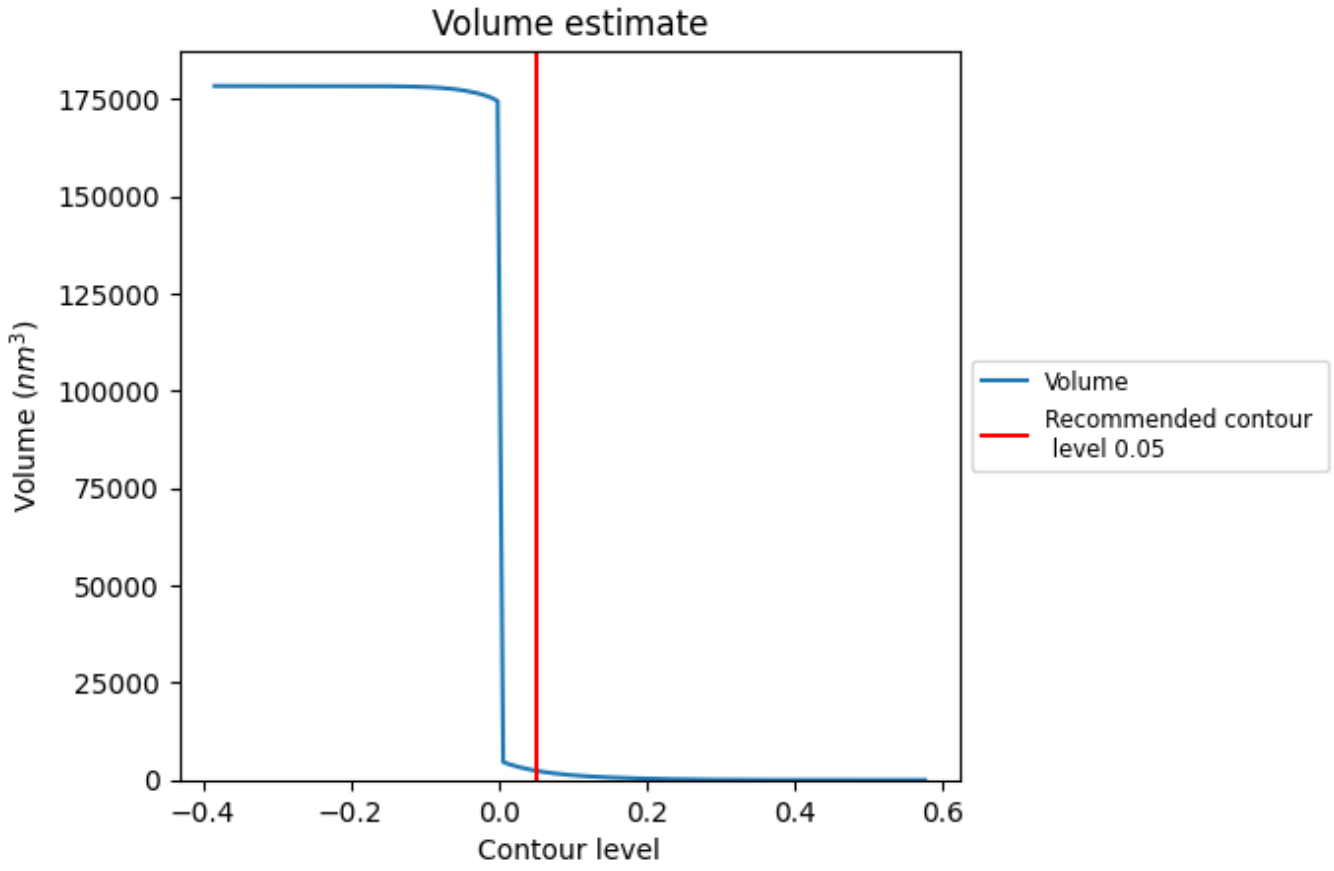
This section contains the results of statistical analysis of the map.

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.

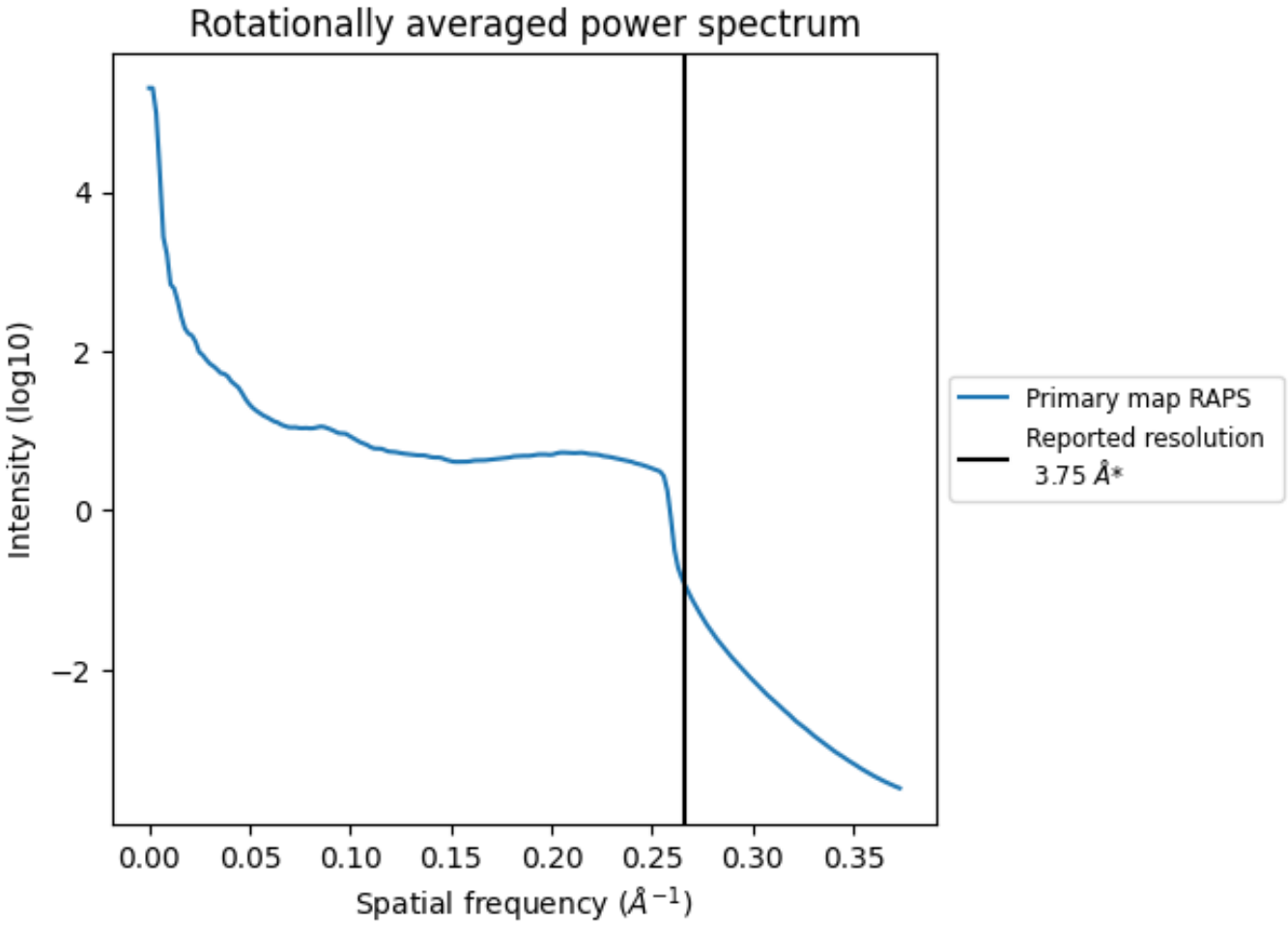
7.2 Volume estimate (i)



The volume at the recommended contour level is 2397 nm^3; this corresponds to an approximate mass of 2166 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 0.267 Å^{-1}

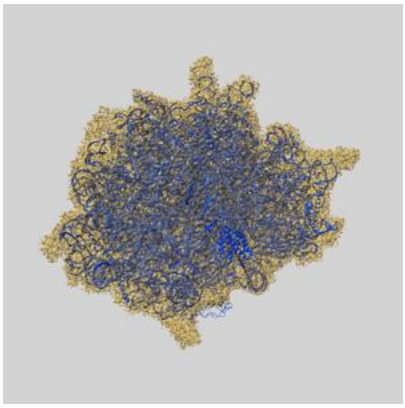
8 Fourier-Shell correlation

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

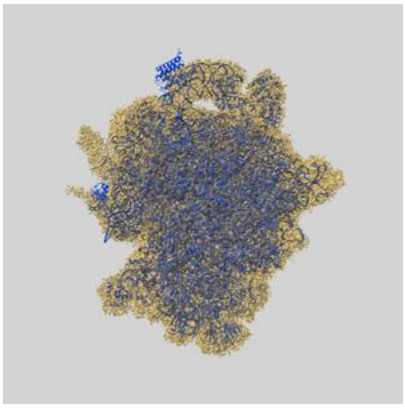
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-3045 and PDB model 3JAN. Per-residue inclusion information can be found in section 3 on page 21.

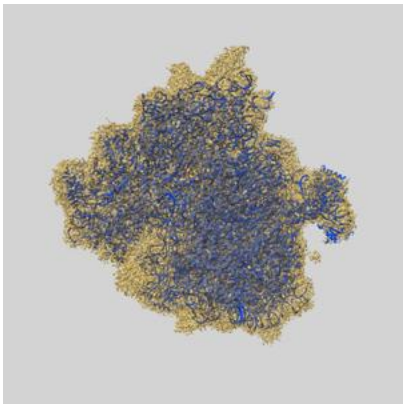
9.1 Map-model overlay



X



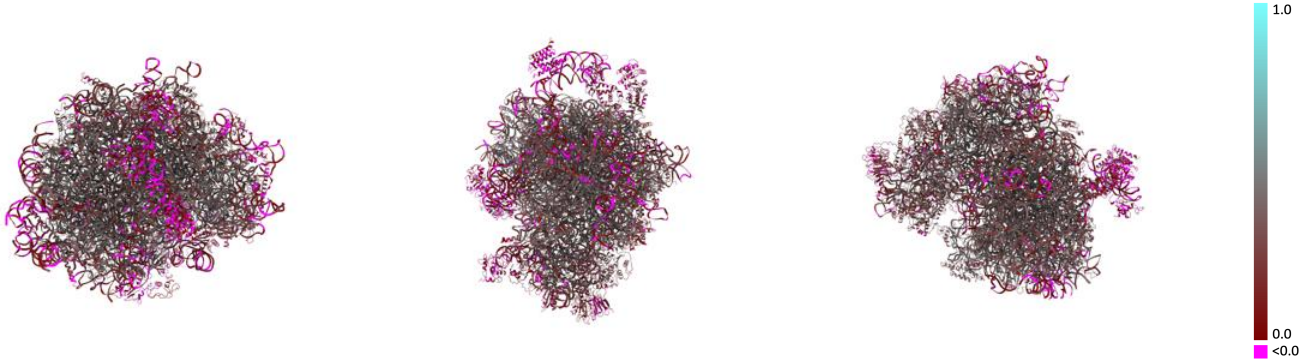
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.05 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.

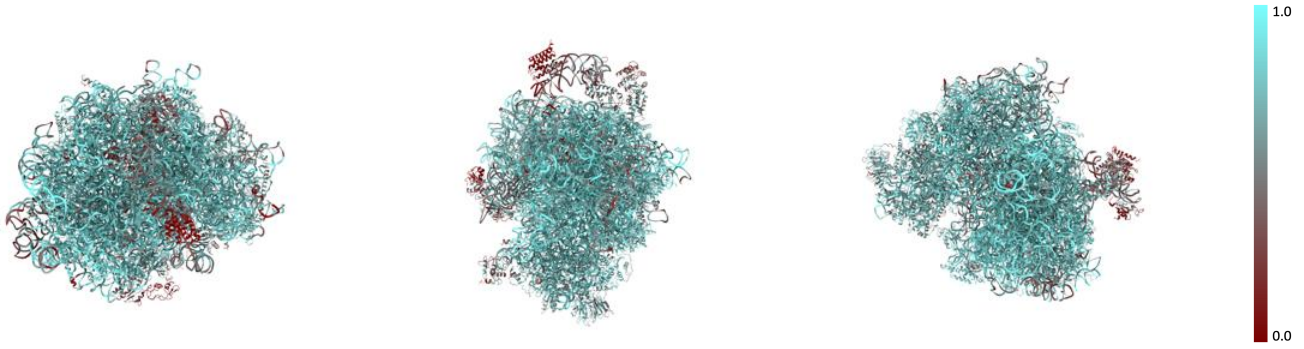
9.2 Q-score mapped to coordinate model



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.

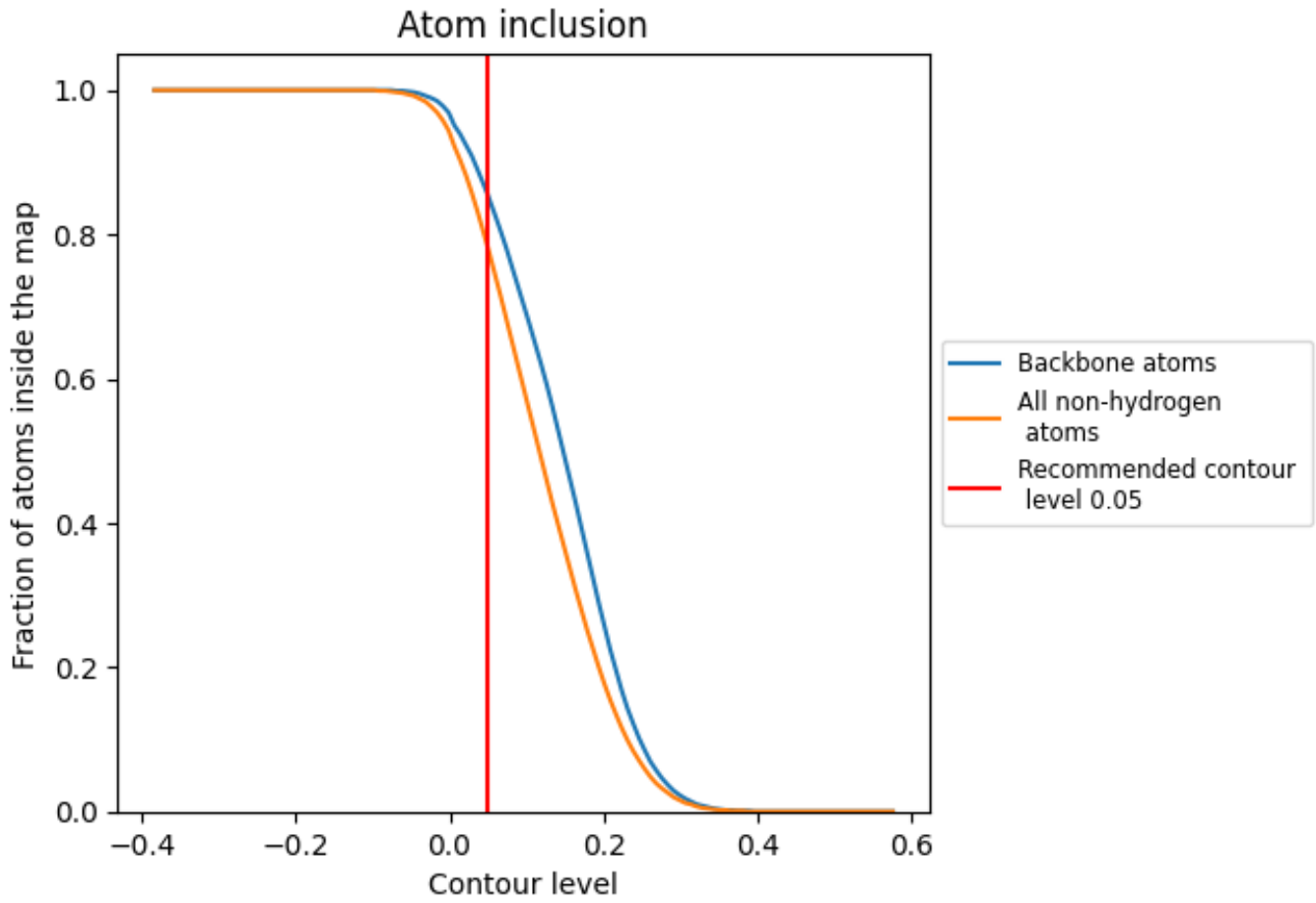
9.3 Atom inclusion mapped to coordinate model



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 (0.05).

9.4 Atom inclusion (i)



At the recommended contour level, 85% of all backbone atoms, 78% 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 (0.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7810	0.3100
3	0.6100	0.2280
4	0.4710	0.0380
5	0.8340	0.3180
6	0.1320	-0.0170
7	0.9190	0.3910
8	0.8530	0.3370
9	0.2290	0.0070
A	0.8070	0.4030
B	0.8300	0.4050
C	0.8150	0.3970
D	0.8160	0.3580
E	0.7530	0.3300
F	0.8200	0.4010
G	0.7650	0.3270
H	0.8110	0.3960
I	0.8110	0.3990
J	0.7920	0.3570
K	0.2840	0.0300
L	0.8020	0.3780
M	0.8110	0.3860
N	0.8240	0.4030
O	0.8200	0.3970
P	0.8080	0.4020
Q	0.8350	0.4290
R	0.7760	0.3180
S	0.8450	0.4160
S1	0.4960	0.1160
S2	0.8390	0.3050
S4	0.5350	0.1840
SA	0.7930	0.3490
SB	0.7830	0.3560
SC	0.8070	0.3740
SD	0.6840	0.2600
SE	0.7960	0.3680

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
SF	0.6790	0.2380
SG	0.6990	0.2550
SH	0.7120	0.2850
SI	0.7650	0.3370
SJ	0.8080	0.3600
SK	0.6520	0.1880
SL	0.7490	0.3590
SM	0.3470	0.0280
SN	0.7970	0.3810
SO	0.7920	0.3700
SP	0.6360	0.1910
SQ	0.7300	0.2920
SR	0.6950	0.2680
SS	0.7380	0.2770
ST	0.7540	0.2710
SU	0.6900	0.2620
SV	0.7900	0.3450
SW	0.8190	0.3930
SX	0.8080	0.4050
SY	0.7460	0.3210
SZ	0.6960	0.2200
Sa	0.8350	0.4050
Sb	0.7780	0.3510
Sc	0.6630	0.2580
Sd	0.7810	0.3360
Se	0.6980	0.2810
Sf	0.3380	0.0080
Sg	0.6310	0.1620
T	0.8100	0.4050
U	0.7390	0.2920
V	0.8040	0.4050
W	0.7900	0.3870
X	0.7810	0.3700
Y	0.7750	0.3520
Z	0.8030	0.3530
a	0.8360	0.4230
b	0.7360	0.3130
c	0.7890	0.3550
d	0.7850	0.3600
e	0.8320	0.4190
f	0.8410	0.4190
g	0.7750	0.3580

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
h	0.7650	0.3490
i	0.8200	0.3780
j	0.8560	0.4180
k	0.7400	0.2830
l	0.7730	0.3740
m	0.8340	0.4170
n	0.7910	0.3390
o	0.8180	0.4060
p	0.7940	0.3960
q	0.2150	0.0080
r	0.8380	0.4080
z	0.4250	0.0860