



## wwPDB EM Validation Summary Report ⓘ

Oct 13, 2024 – 06:28 am BST

PDB ID : 7QGG  
EMDB ID : EMD-13954  
Title : Neuronal RNA granules are ribosome complexes stalled at the pre-translocation state  
Authors : Pulk, A.; Kipper, K.; Mansour, A.  
Deposited on : 2021-12-08  
Resolution : 2.86 Å(reported)  
Based on initial model : 6OLE

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev113  
Mogul : 1.8.4, CSD as541be (2020)  
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

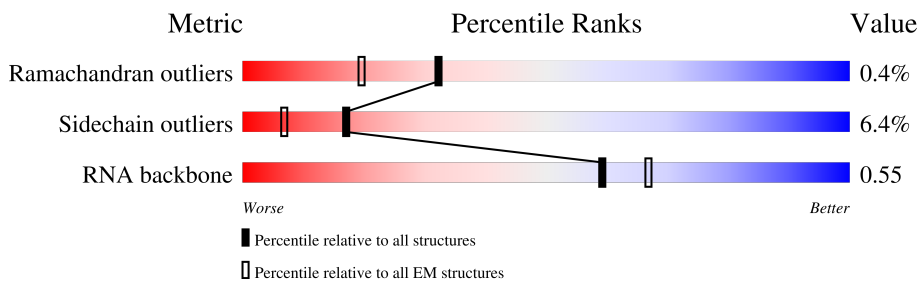
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 2.86 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.



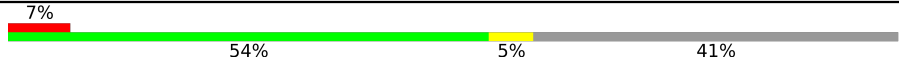
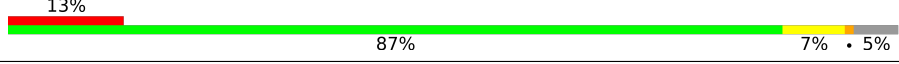
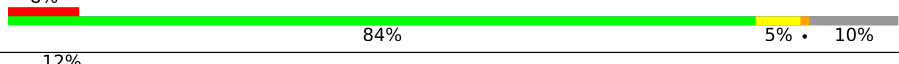
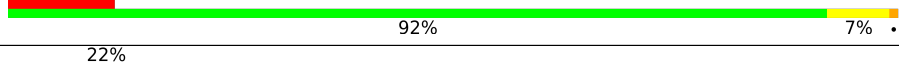
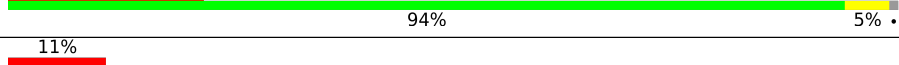
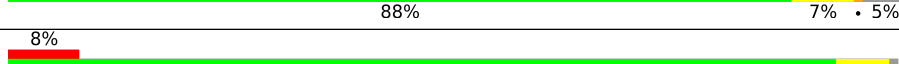
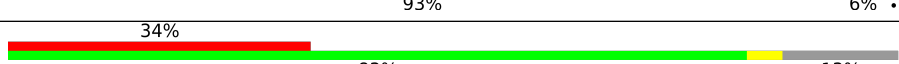
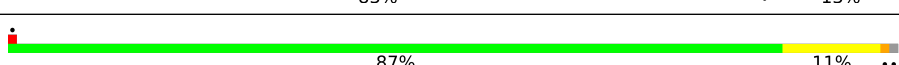
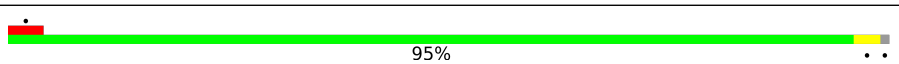


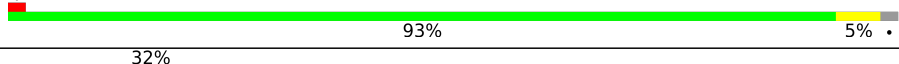
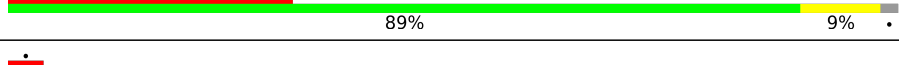

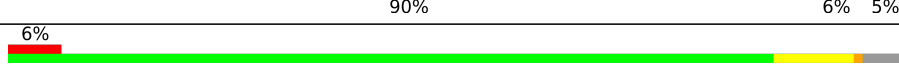

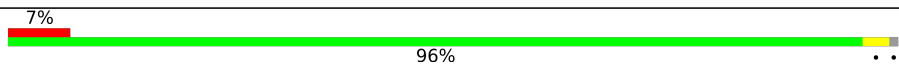

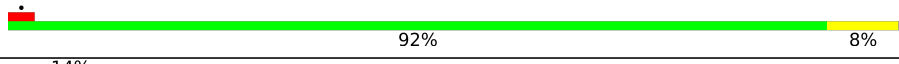
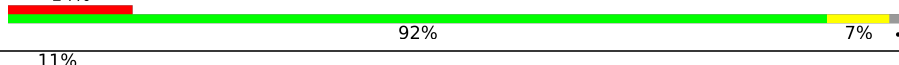

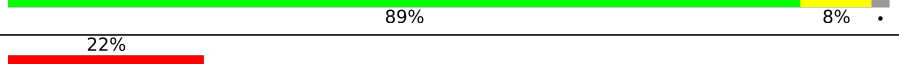



Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	S2	1872	
2	SA	295	
3	SB	264	
4	SD	243	
5	SE	263	
6	SF	204	
7	SH	194	
8	SI	208	

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Mol	Chain	Length	Quality of chain
9	SK	165	
10	SL	158	
11	SP	145	
12	SQ	146	
13	SR	135	
14	SS	152	
15	ST	145	
16	SU	119	
17	SV	83	
18	SX	143	
19	Sa	115	
20	Sc	69	
21	Sd	56	
22	Sg	317	
23	SC	293	
24	SG	249	
25	SJ	194	
26	SM	132	
27	SN	151	
28	SO	151	
29	SW	130	
30	SY	133	
31	SZ	125	
32	Sb	84	
33	Se	59	

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Mol	Chain	Length	Quality of chain
34	Sf	156	
35	A	257	
36	B	403	
37	C	421	
38	D	157	
39	E	121	
40	F	297	
41	G	298	
42	H	260	
43	I	266	
44	J	192	
45	K	214	
46	L	178	
47	M	211	
48	N	214	
49	O	204	
50	P	203	
51	Q	184	
52	R	188	
53	S	196	
54	T	176	
55	U	160	
56	V	128	
57	W	140	
58	X	157	


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Mol	Chain	Length	Quality of chain
59	Y	156	74% 23%
60	Z	145	86% 7% 8%
61	a	136	90% 8%
62	b	148	98%
63	c	156	57% 39%
64	d	115	81% 7% 12% 5%
65	e	125	81% 15%
66	f	135	91%
67	g	110	95%
68	h	117	97%
69	i	123	93% 6%
70	j	105	97%
71	k	97	84% 5% 11%
72	l	70	93% 6%
73	m	51	92% 6%
74	n	128	38% 61%
75	o	25	96%
76	p	106	94% 5%
77	q	92	89% 10%
78	r	137	91%
79	t	4803	61% 15% 23%
80	u	76	36% 70% 29%
81	v	76	25% 61% 36%
82	w	20	45% 55% 45%
83	Cz	217	93% 88% 11%

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Mol	Chain	Length	Quality of chain
84	y	4	 A horizontal bar chart representing the quality of the chain. The bar is divided into two segments: a red segment on the left and a green segment on the right. The red segment is labeled '50%' and the green segment is labeled '100%'. The total length of the bar represents the full chain length.

## 2 Entry composition [i](#)

There are 87 unique types of molecules in this entry. The entry contains 218574 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 RNA (1872-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	S2	1714	36502	16306	6533	11950	1713	0	0

- Molecule 2 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	SA	214	1693	1076	297	312	8	0	0

- Molecule 3 is a protein called 40S ribosomal protein S3a.

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

- Molecule 4 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	SD	226	1756	1119	316	314	7	0	0

- Molecule 5 is a protein called 40S ribosomal protein S4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	SE	259	2059	1316	383	352	8	0	0

- Molecule 6 is a protein called 40S ribosomal protein S5.

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

- Molecule 7 is a protein called 40S ribosomal protein S7.

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

- Molecule 8 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	SI	204	1673	1050	329	289	5	0	0

- Molecule 9 is a protein called 40S ribosomal protein S10.

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

- Molecule 10 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	SL	150	1220	776	228	210	6	0	0

- Molecule 11 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	SP	130	1073	681	205	180	7	0	0

- Molecule 12 is a protein called Rps16 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	SQ	146	1158	736	218	200	4	0	0

- Molecule 13 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	SR	134	1079	676	201	198	4	0	0

- Molecule 14 is a protein called 40S ribosomal protein S18.



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

- Molecule 15 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	ST	143	1115	698	217	198	2	0	0

- Molecule 16 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	SU	104	822	514	156	148	4	0	0

- Molecule 17 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	SV	82	626	382	118	121	5	0	0

- Molecule 18 is a protein called 40S ribosomal protein S23.

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

- Molecule 19 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	Sa	103	826	515	172	134	5	0	0

- Molecule 20 is a protein called 40S ribosomal protein S28.

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

- Molecule 21 is a protein called 40S ribosomal protein S29.

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

- Molecule 22 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	Sg	312	Total	C	N	O	S	0	0
			2429	1531	423	463	12		

- Molecule 23 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	SC	225	Total	C	N	O	S	1	0
			1755	1134	303	309	9		

- Molecule 24 is a protein called 40S ribosomal protein S6.

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

- Molecule 25 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	SJ	185	Total	C	N	O	S	1	0
			1533	974	309	248	2		

- Molecule 26 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	SM	118	Total	C	N	O	S	0	0
			912	574	160	171	7		

- Molecule 27 is a protein called 40S ribosomal protein S13.

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

- Molecule 28 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	SO	137	1024	627	200	191	6	0	0

- Molecule 29 is a protein called 40S ribosomal protein S15a.

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

- Molecule 30 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	SY	131	1073	678	212	178	5	1	0

- Molecule 31 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	SZ	73	579	372	106	100	1	0	0

- Molecule 32 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	Sb	82	640	402	118	113	7	0	0

- Molecule 33 is a protein called Ubiquitin-like domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	Se	57	452	281	99	71	1	0	0

- Molecule 34 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	Sf	67	547	345	102	93	7	0	0

- Molecule 35 is a protein called 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	A	252	1930	1209	395	320	6	0	0

- Molecule 36 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	B	397	3204	2041	603	546	14	0	0

- Molecule 37 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	C	363	2889	1817	575	481	16	0	0

- Molecule 38 is a RNA chain called RNA (157-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
38	D	157	3337	1489	587	1104	157	0	0

- Molecule 39 is a RNA chain called RNA (121-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
39	E	119	2541	1132	454	836	119	0	0

- Molecule 40 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	F	294	2399	1511	442	432	14	0	0

- Molecule 41 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	G	243	1960	1251	375	330	4	0	0

- Molecule 42 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	H	225	1865	1199	357	301	8	0	0

- Molecule 43 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	I	241	1935	1232	372	327	4	0	0

- Molecule 44 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	J	191	1528	961	285	276	6	0	0

- Molecule 45 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	K	208	1692	1074	327	278	13	0	0

- Molecule 46 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	L	170	1362	861	254	241	6	0	0

- Molecule 47 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	M	205	1659	1036	342	276	5	0	0

- Molecule 48 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	N	139	1142	732	221	182	7	0	0

- Molecule 49 is a protein called Ribosomal protein L15.

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

- Molecule 50 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
50	P	197	1611	1038	316	252	5	0	0

- Molecule 51 is a protein called 60S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
51	Q	158	1282	804	248	221	9	0	0

- Molecule 52 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
52	R	187	1516	949	314	249	4	0	0

- Molecule 53 is a protein called Ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
53	S	188	1572	974	337	252	9	0	0

- Molecule 54 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
54	T	176	1458	929	284	234	11	0	0

- Molecule 55 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
55	U	158	1293	821	251	215	6	0	0

- Molecule 56 is a protein called 60S ribosomal protein L22.

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

- Molecule 57 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
57	W	134	993	625	187	176	5	0	0

- Molecule 58 is a protein called 60S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
58	X	61	511	327	100	82	2	0	0

- Molecule 59 is a protein called 60S ribosomal protein L23a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
59	Y	120	984	630	185	168	1	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
60	Z	134	1116	700	227	186	3	0	0

- Molecule 61 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
61	a	134	1103	712	207	181	3	0	0

- Molecule 62 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
62	b	147	1165	736	240	185	4	0	0

- Molecule 63 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	c	95	Total	C	N	O	S	0	0
			781	487	171	120	3		

- Molecule 64 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	d	101	Total	C	N	O	S	0	0
			785	498	138	142	7		

- Molecule 65 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	e	106	Total	C	N	O	S	0	0
			879	555	170	152	2		

- Molecule 66 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	f	129	Total	C	N	O	S	0	0
			1064	673	220	166	5		

- Molecule 67 is a protein called 60S ribosomal protein L35a.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	g	109	Total	C	N	O	S	0	0
			876	555	174	143	4		

- Molecule 68 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	h	116	Total	C	N	O	S	0	0
			920	575	190	149	6		

- Molecule 69 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	i	122	Total	C	N	O	S	0	0
			1015	643	204	167	1		

- Molecule 70 is a protein called 60S ribosomal protein L36.



Mol	Chain	Residues	Atoms					AltConf	Trace
70	j	104	Total	C	N	O	S	0	0
			849	531	180	133	5		

- Molecule 71 is a protein called Ribosomal protein L37.

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

- Molecule 72 is a protein called 60S ribosomal protein L38.

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

- Molecule 73 is a protein called 60S ribosomal protein L39.

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

- Molecule 74 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	n	50	Total	C	N	O	S	0	0
			411	254	87	64	6		

- Molecule 75 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	o	25	Total	C	N	O	S	0	0
			240	145	64	28	3		

- Molecule 76 is a protein called Ribosomal protein L36a.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	p	105	Total	C	N	O	S	0	0
			863	542	175	140	6		

- Molecule 77 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
77	q	91	708	444	135	122	7	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
q	87	GLU	LYS	conflict	UNP A0A6J2LF66

- Molecule 78 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
78	r	131	1059	655	224	175	5	0	0

- Molecule 79 is a RNA chain called RNA (4803-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
79	t	3679	78855	35119	14410	25647	3679	0	0

- Molecule 80 is a RNA chain called RNA (76-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
80	u	76	1613	720	283	535	75	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
u	34	C	G	conflict	GB 1851728667
u	35	C	A	conflict	GB 1851728667
u	36	G	A	conflict	GB 1851728667
u	37	U	A	conflict	GB 1851728667

- Molecule 81 is a RNA chain called RNA (76-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
81	v	76	1618	721	287	534	76	0	0

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
v	?	-	A	deletion	GB 1879656365
v	12	C	U	conflict	GB 1879656365
v	14	C	A	conflict	GB 1879656365
v	16	A	U	conflict	GB 1879656365
v	34	C	G	conflict	GB 1879656365
v	35	C	A	conflict	GB 1879656365
v	36	G	A	conflict	GB 1879656365

- Molecule 82 is a RNA chain called RNA (5'-D(P\*( )P\*( )P\*( )P\*( ))-R(P\*UP\*UP\*AP\*CP\*G P\*GP\*CP\*GP\*GP\*UP\*( )P\*( )P\*( )P\*( )P\*( ))-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
82	w	20	423	189	72	142	20	0	0

- Molecule 83 is a protein called 60S ribosomal protein L10a.

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

- Molecule 84 is a protein called ALA-ALA-LYS-ALA.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
84	y	4	24	15	5	4	0	0

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

Mol	Chain	Residues	Atoms		AltConf
85	S2	3	Total	Mg	0
			3	3	
85	B	1	Total	Mg	0
			1	1	
85	D	6	Total	Mg	0
			6	6	
85	E	9	Total	Mg	0
			9	9	
85	Z	1	Total	Mg	0
			1	1	
85	t	13	Total	Mg	0
			13	13	

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

Mol	Chain	Residues	Atoms		AltConf
86	S2	1	Total 1	Zn 1	0
86	Sa	1	Total 1	Zn 1	0
86	Sf	1	Total 1	Zn 1	0
86	k	1	Total 1	Zn 1	0
86	p	1	Total 1	Zn 1	0
86	q	1	Total 1	Zn 1	0

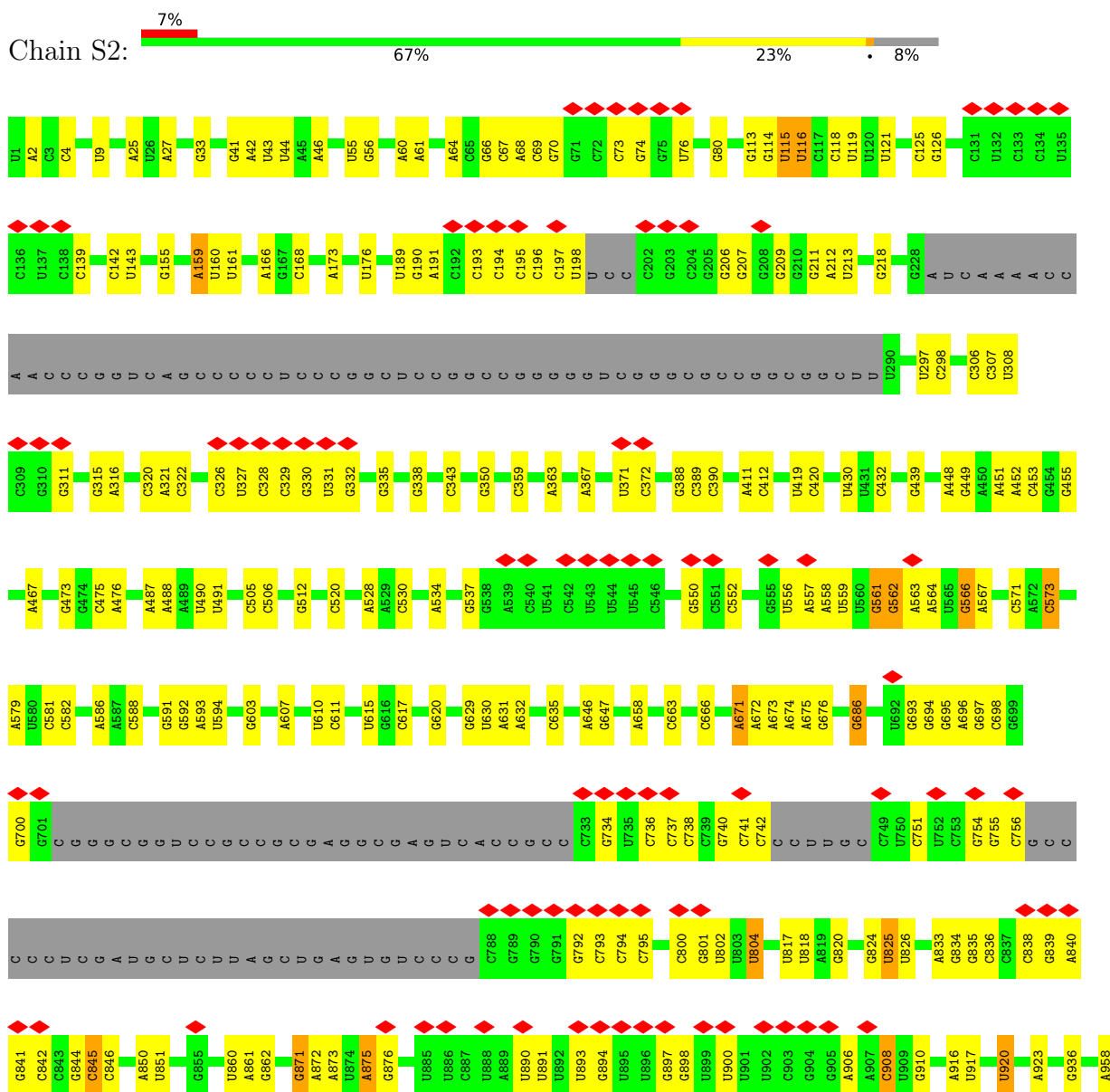
- Molecule 87 is water.

Mol	Chain	Residues	Atoms		AltConf
87	S2	5	Total 5	O 5	0
87	SS	1	Total 1	O 1	0
87	Sf	1	Total 1	O 1	0
87	u	1	Total 1	O 1	0

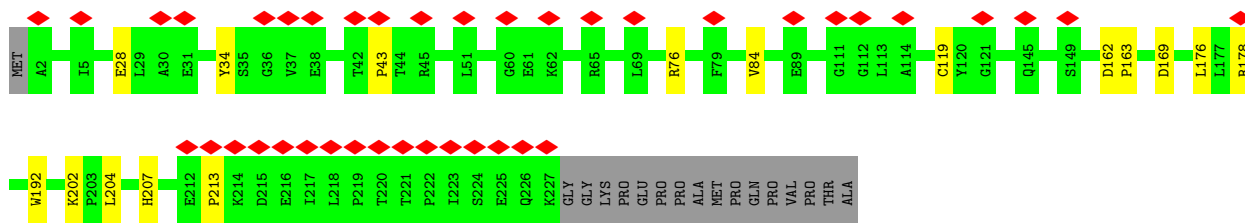
### 3 Residue-property plots

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

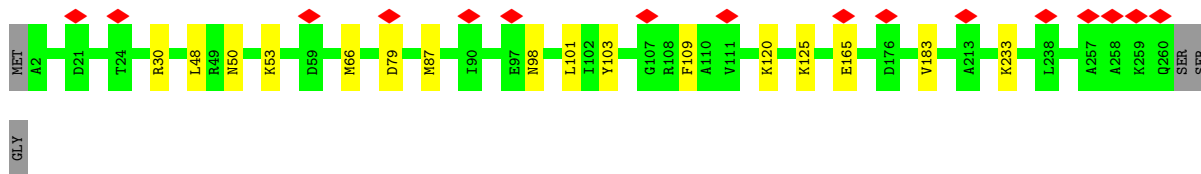
- Molecule 1: RNA (1872-MER)



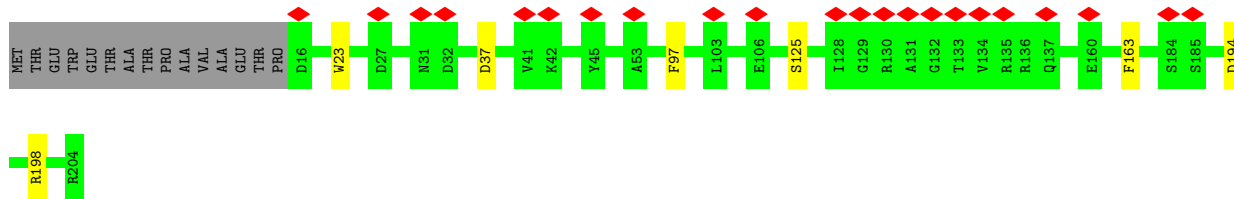
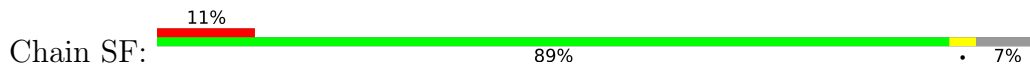




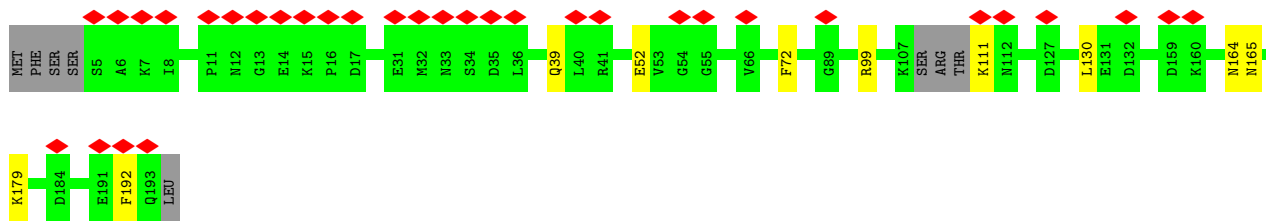
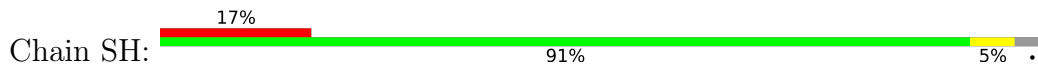
• Molecule 5: 40S ribosomal protein S4, X isoform



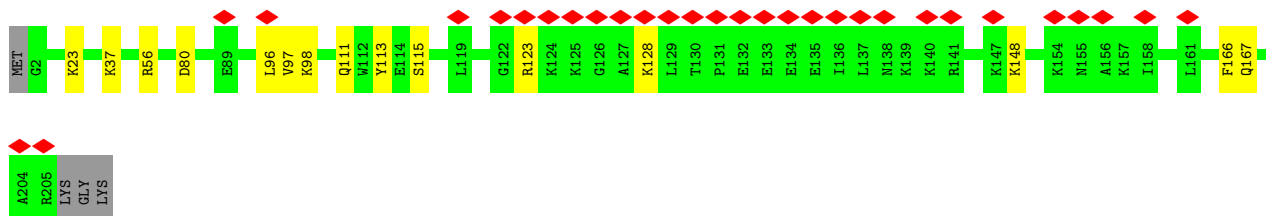
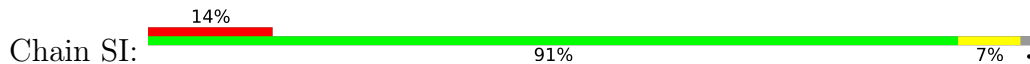
• Molecule 6: 40S ribosomal protein S5



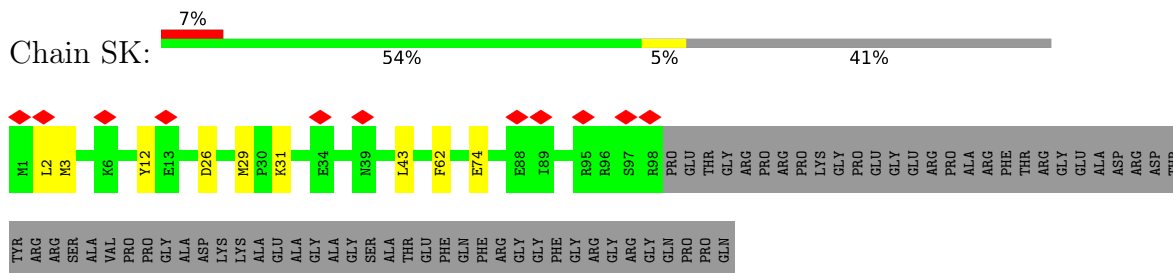
• Molecule 7: 40S ribosomal protein S7



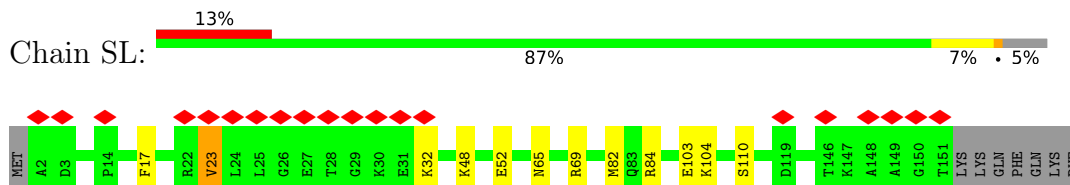
• Molecule 8: 40S ribosomal protein S8



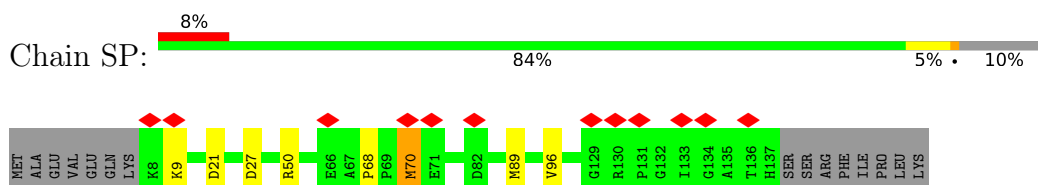
• Molecule 9: 40S ribosomal protein S10



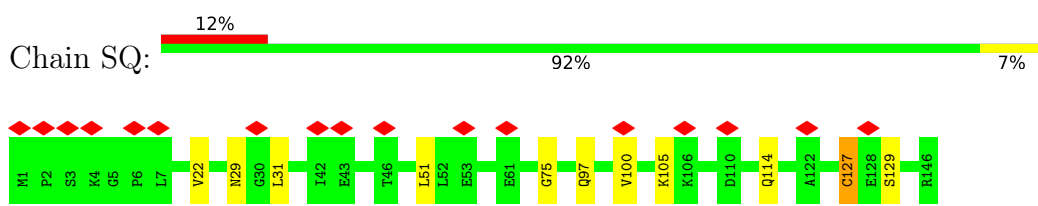
• Molecule 10: 40S ribosomal protein S11



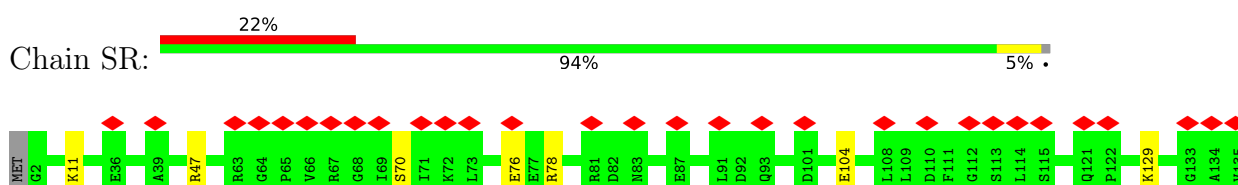
• Molecule 11: 40S ribosomal protein S15



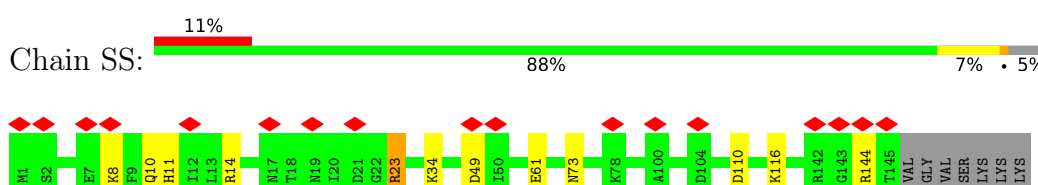
• Molecule 12: Rps16 protein



• Molecule 13: 40S ribosomal protein S17

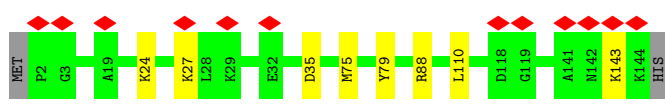


• Molecule 14: 40S ribosomal protein S18

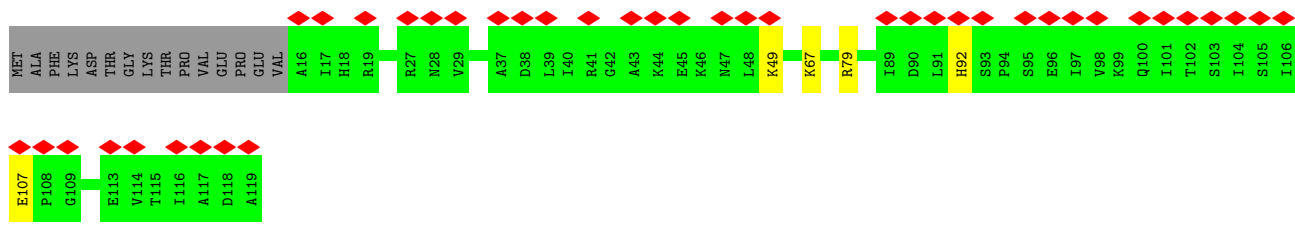
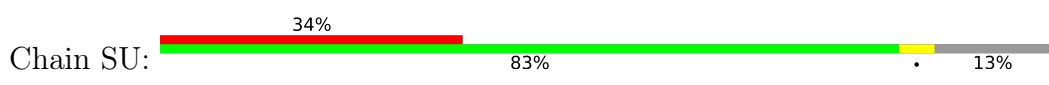


• Molecule 15: 40S ribosomal protein S19

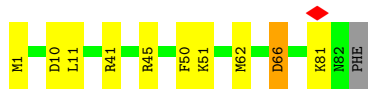
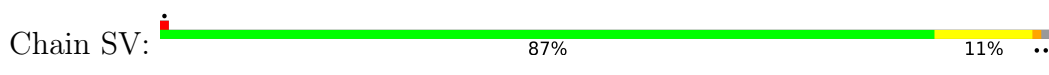




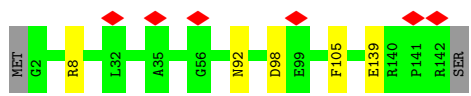
• Molecule 16: 40S ribosomal protein S20



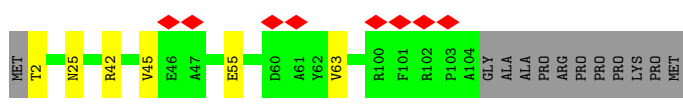
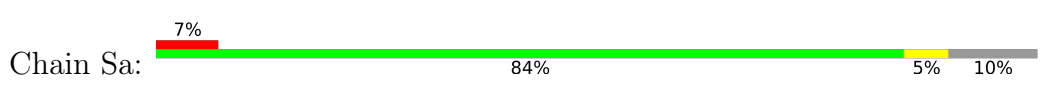
• Molecule 17: 40S ribosomal protein S21



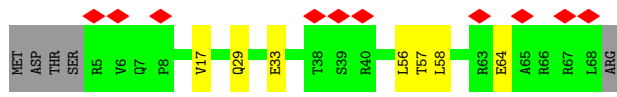
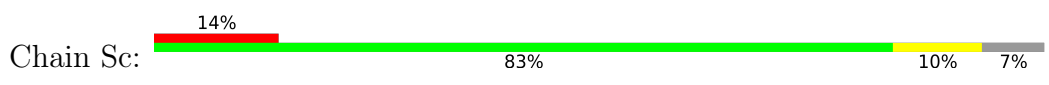
• Molecule 18: 40S ribosomal protein S23



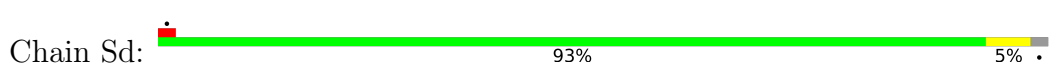
• Molecule 19: 40S ribosomal protein S26



• Molecule 20: 40S ribosomal protein S28

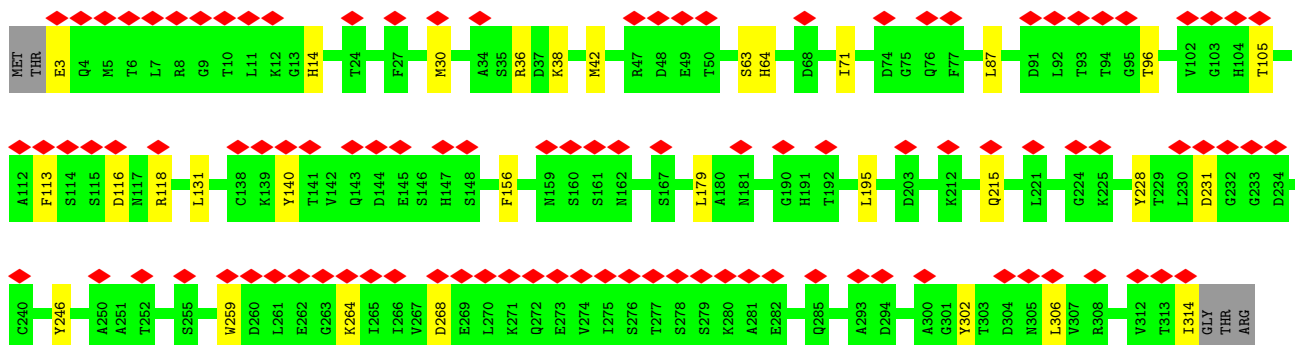
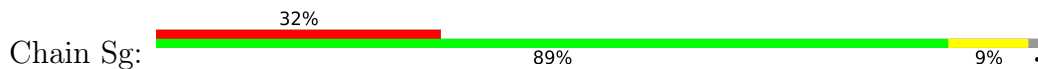


• Molecule 21: 40S ribosomal protein S29

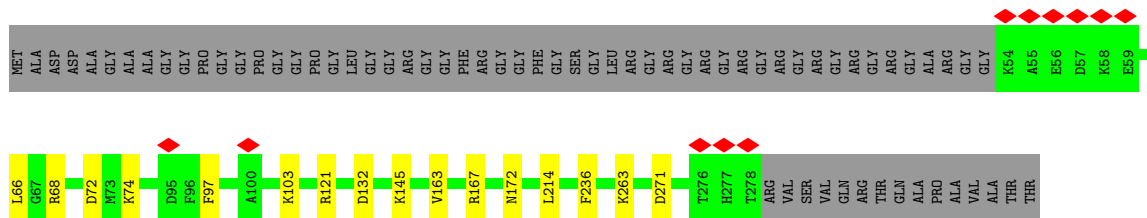




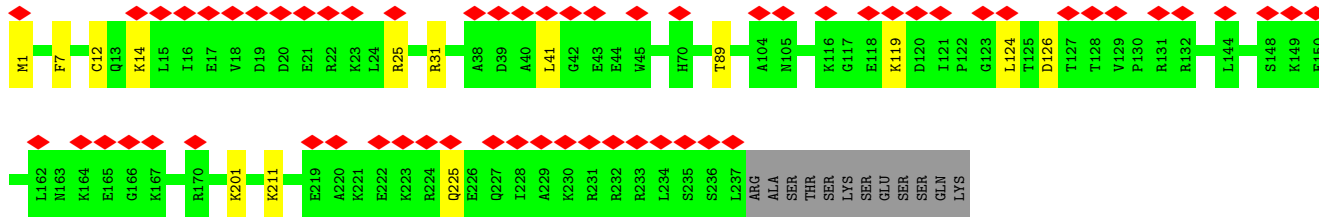
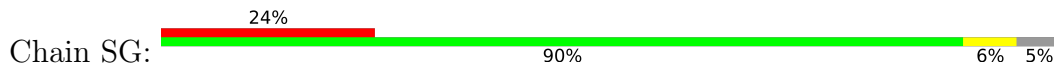
- Molecule 22: Receptor of activated protein C kinase 1



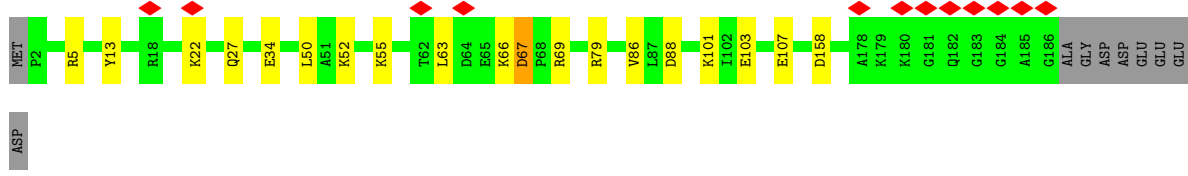
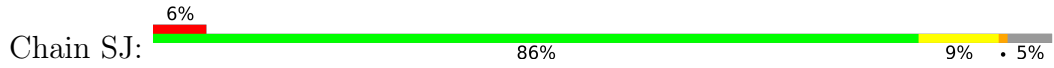
- Molecule 23: 40S ribosomal protein S2



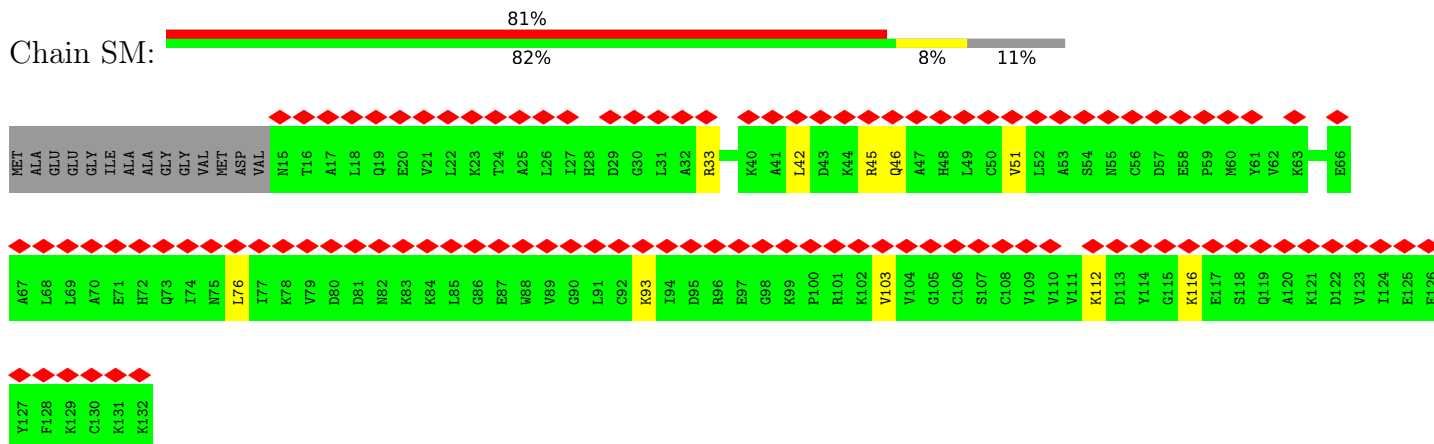
- Molecule 24: 40S ribosomal protein S6



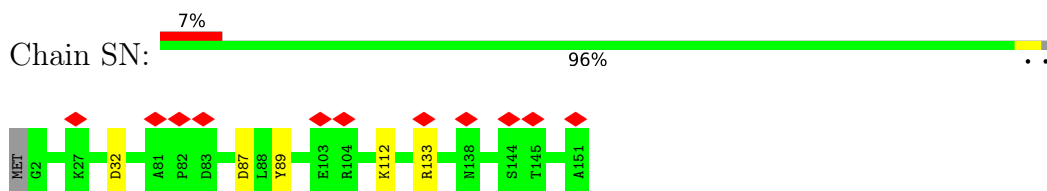
- Molecule 25: 40S ribosomal protein S9



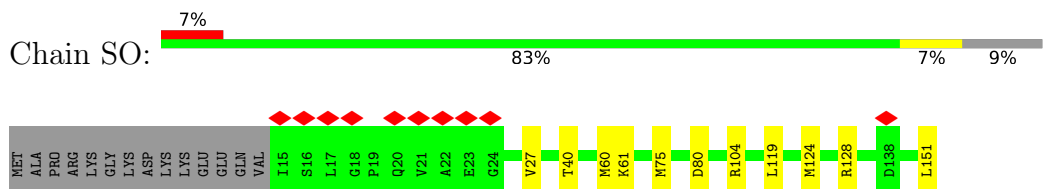
• Molecule 26: 40S ribosomal protein S12



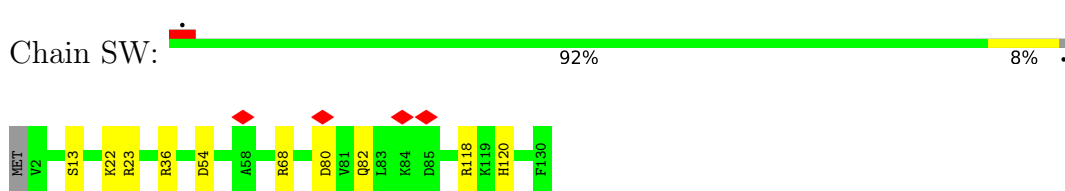
• Molecule 27: 40S ribosomal protein S13



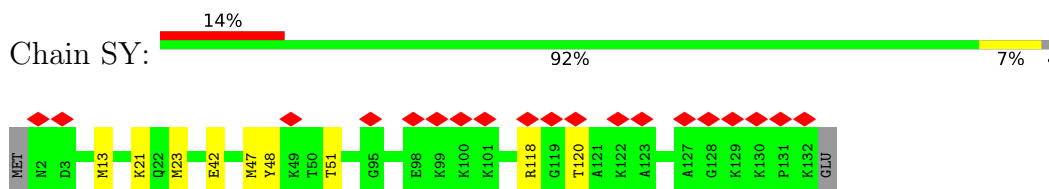
• Molecule 28: 40S ribosomal protein S14



• Molecule 29: 40S ribosomal protein S15a

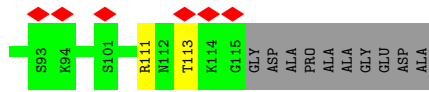
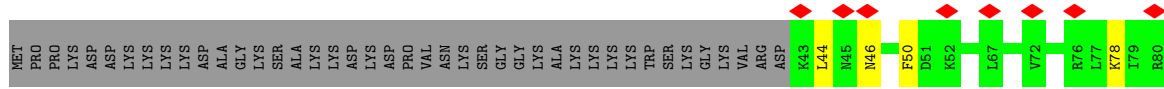


• Molecule 30: 40S ribosomal protein S24

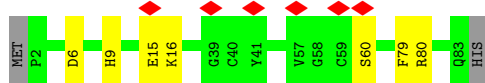
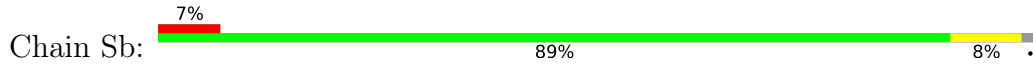


• Molecule 31: 40S ribosomal protein S25

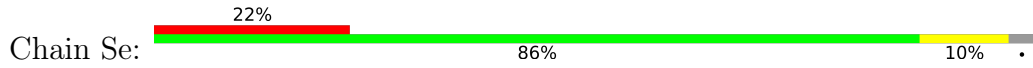




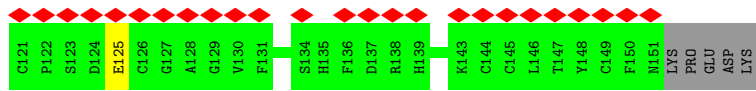
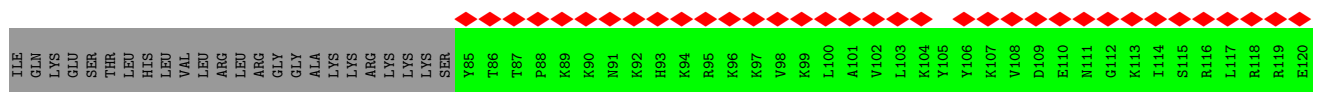
• Molecule 32: 40S ribosomal protein S27



• Molecule 33: Ubiquitin-like domain-containing protein



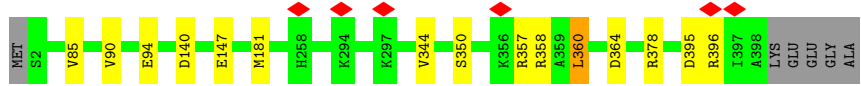
• Molecule 34: Ubiquitin-40S ribosomal protein S27a



• Molecule 35: 60S ribosomal protein L8



• Molecule 36: 60S ribosomal protein L3



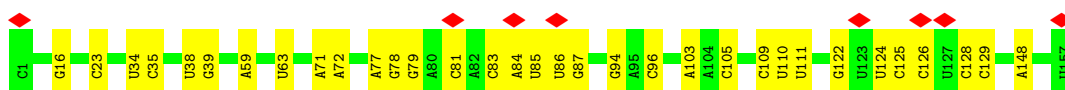
- Molecule 37: 60S ribosomal protein L4

Chain C: 80% 6% 14%



- Molecule 38: RNA (157-MER)

Chain D: 5% 79% 21%



- Molecule 39: RNA (121-MER)

Chain E: 88% 10% ..



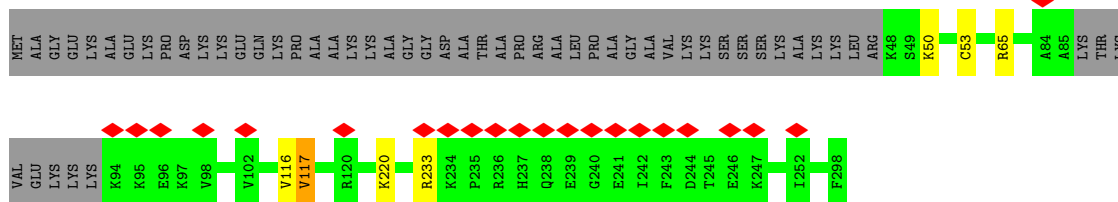
- Molecule 40: 60S ribosomal protein L5

Chain F: 95% ..



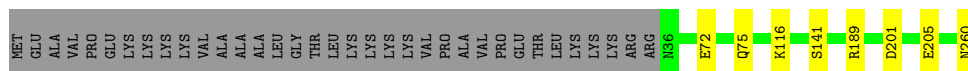
- Molecule 41: 60S ribosomal protein L6

Chain G: 7% 79% 18%

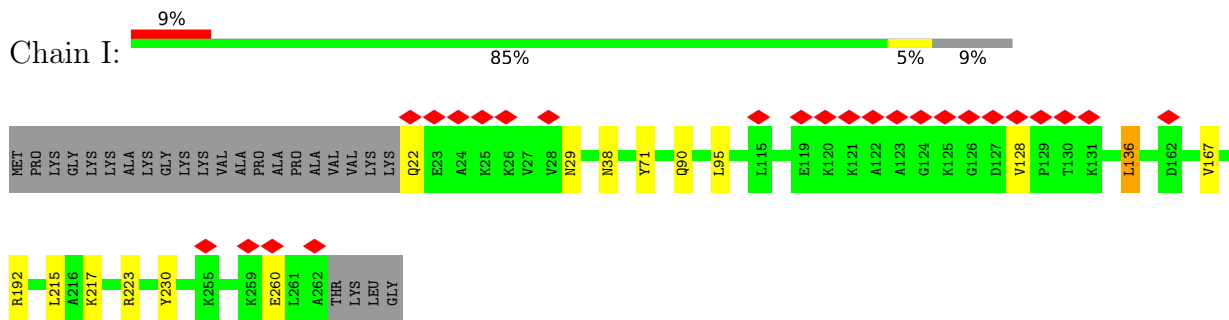


- Molecule 42: 60S ribosomal protein L7

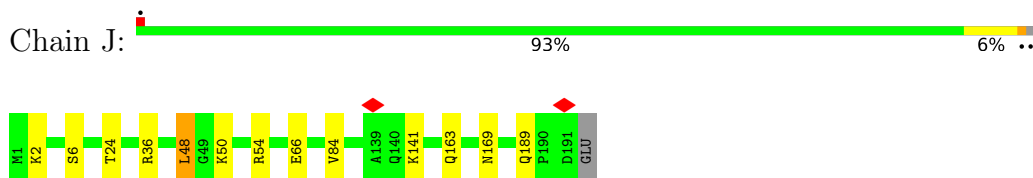
Chain H: 83% 13%



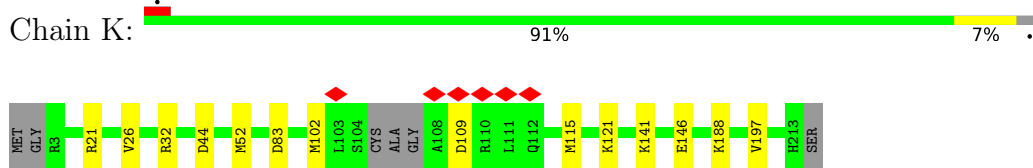
• Molecule 43: 60S ribosomal protein L7a



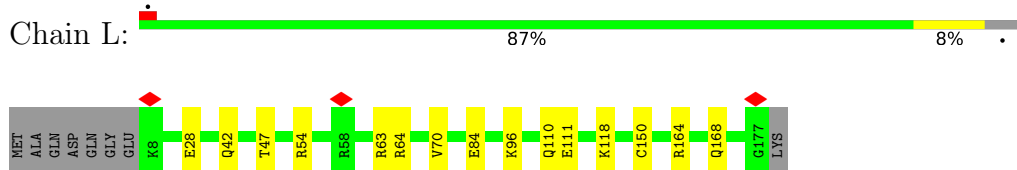
• Molecule 44: 60S ribosomal protein L9



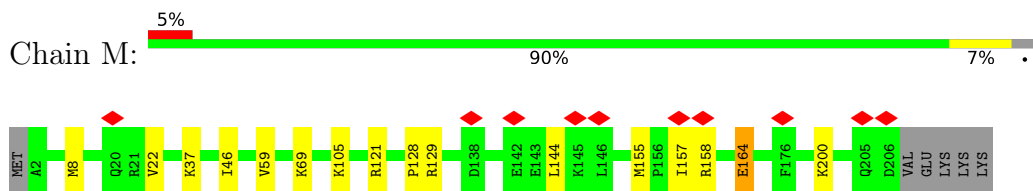
• Molecule 45: 60S ribosomal protein L10



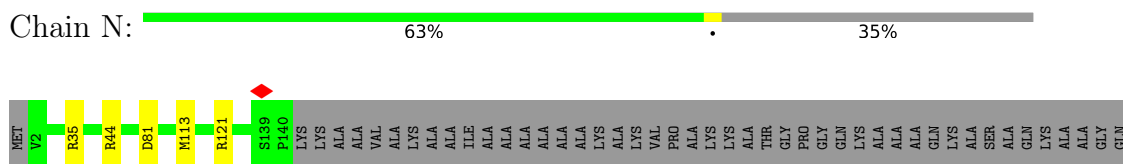
• Molecule 46: 60S ribosomal protein L11



• Molecule 47: 60S ribosomal protein L13



• Molecule 48: 60S ribosomal protein L14




LYS  
ALA  
ALA  
PRO  
PRO  
ALA  
LYS  
GLY  
GLN  
LYS  
GLY  
GLN  
LYS  
THR  
PRO  
ALA  
GLN  
LYS  
ALA  
PRO  
ALA  
LYS  
ALA  
ALA  
GLY  
LYS  
LYS  
ALA

- Molecule 49: Ribosomal protein L15

Chain O:  95% 5%


MET  
G2  
K5  
R20  
R24  
R44  
K47  
V75  
S125  
R144  
M45  
R189  
R204

- Molecule 50: 60S ribosomal protein L13a

Chain P:  91% 6%

MET  
ALA  
GLU  
GLY  
Q5  
R31  
N65  
K103  
R117  
F135  
L441  
G146  
Q173  
K183  
N184  
V185  
E186  
K187  
L201  
LEU  
VAL

- Molecule 51: 60S ribosomal protein L17

Chain Q:  82% 14%

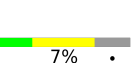
MET  
V2  
L6  
E9  
M10  
S20  
V24  
N28  
S87  
D110  
S111  
Q155  
I156  
V157  
P158  
K159  
PRO  
GLU  
GLU  
VAL  
ALA  
GLN  
LYS  
LYS  
ILE  
SER  
GLN  
LYS  
LYS  
LEU  
LYS  
LYS  
GLN  
LYS  
LEU  
MET  
ALA  
ARG  
GLU

- Molecule 52: 60S ribosomal protein L18

Chain R:  95% 5%

MET  
G2  
R9  
R14  
E17  
S20  
M40  
L98  
L103  
K115  
S183  
M188

- Molecule 53: Ribosomal protein L19

Chain S:  7% 89% 7%

MET  
S2  
S12  
M23  
N30  
S37  
C63  
N96  
R108  
D116  
S122  
K133  
K152  
K153  
L154  
L155  
Q158  
R170  
L177  
Q178  
A179  
K180  
K181  
E182  
E183  
I184  
I185  
K186  
T187  
L188  
S189  
LYS  
GLU  
GLU  
GLU  
THR  
LYS  
LYS

- Molecule 54: 60S ribosomal protein L18a

Chain T:  96%

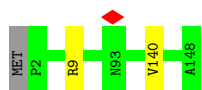
M1  
C16  
K21  
R31  
L82  
D85  
R98  
L159  
H163  
F176

- Molecule 55: 60S ribosomal protein L21

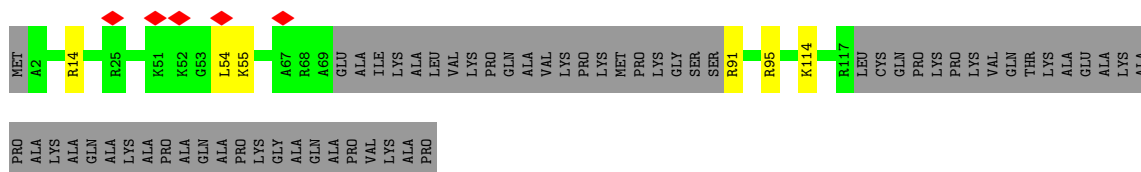
Chain U:  90% 8%



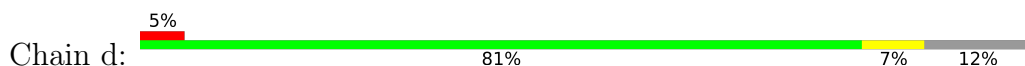




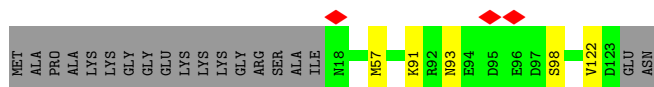
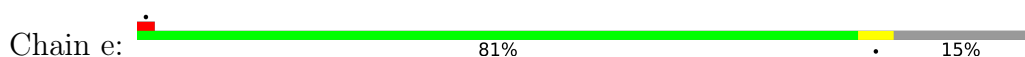
• Molecule 63: 60S ribosomal protein L29



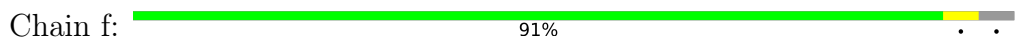
• Molecule 64: 60S ribosomal protein L30



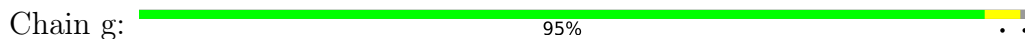
• Molecule 65: 60S ribosomal protein L31



• Molecule 66: 60S ribosomal protein L32

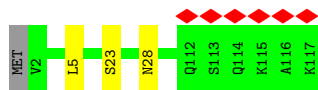


• Molecule 67: 60S ribosomal protein L35a

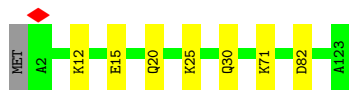
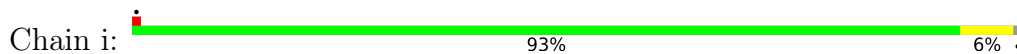


• Molecule 68: 60S ribosomal protein L34

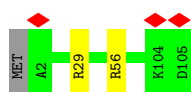




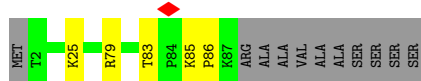
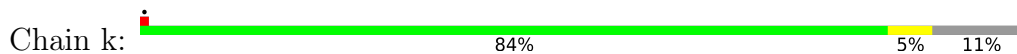
• Molecule 69: 60S ribosomal protein L35



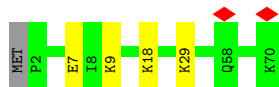
• Molecule 70: 60S ribosomal protein L36



• Molecule 71: Ribosomal protein L37



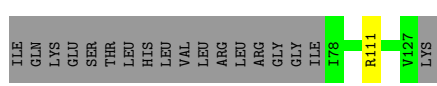
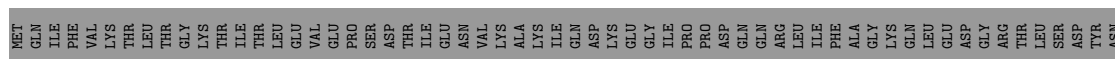
• Molecule 72: 60S ribosomal protein L38



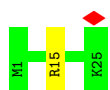
• Molecule 73: 60S ribosomal protein L39



• Molecule 74: Ubiquitin-60S ribosomal protein L40



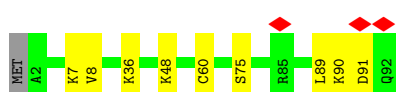
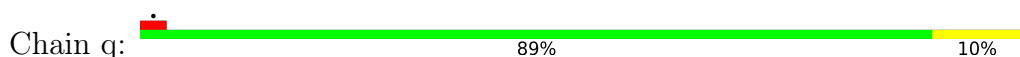
- Molecule 75: 60S ribosomal protein L41



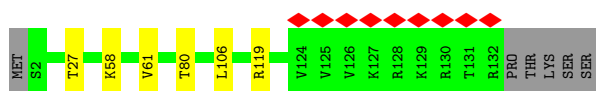
- Molecule 76: Ribosomal protein L36a



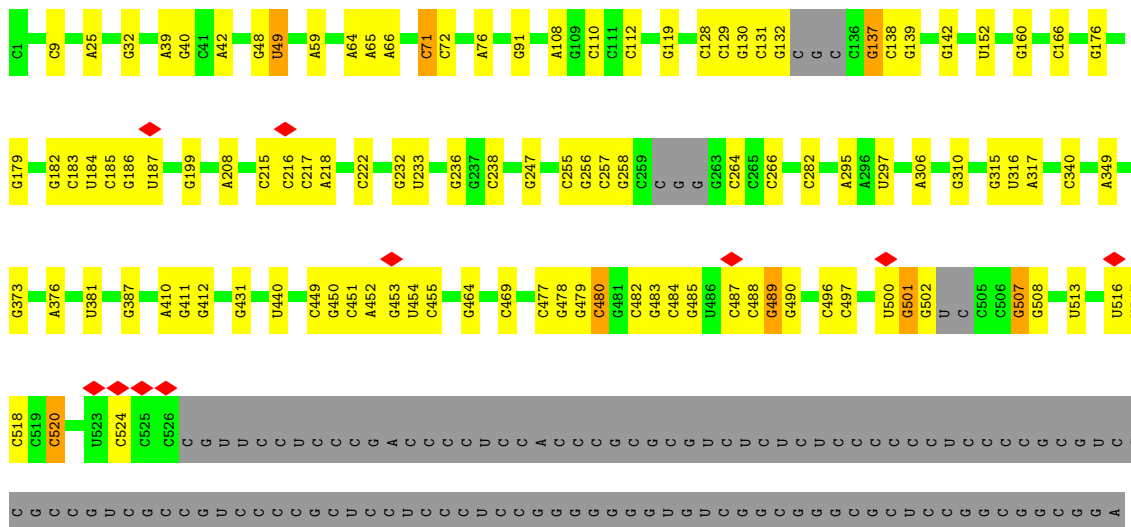
- Molecule 77: 60S ribosomal protein L37a

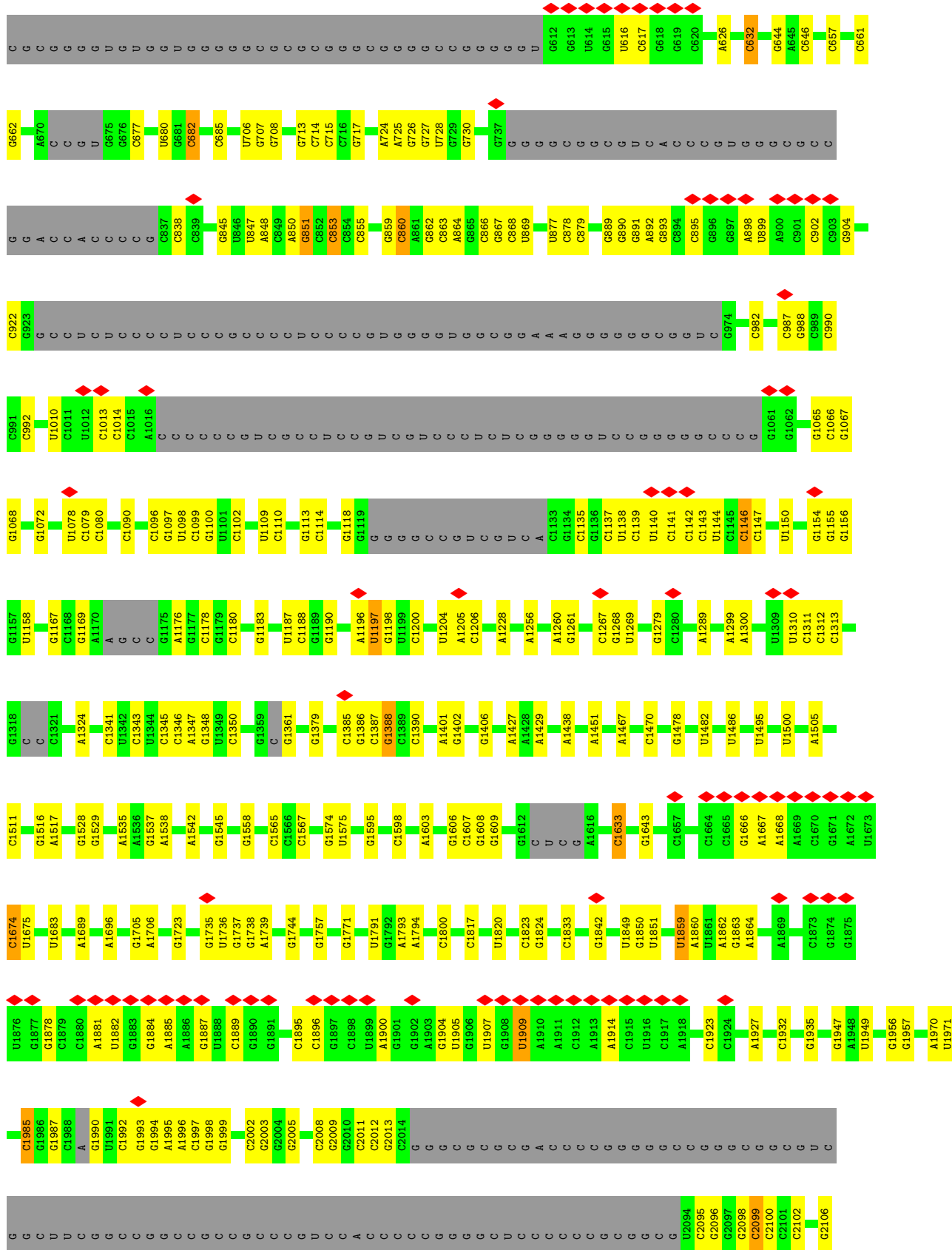


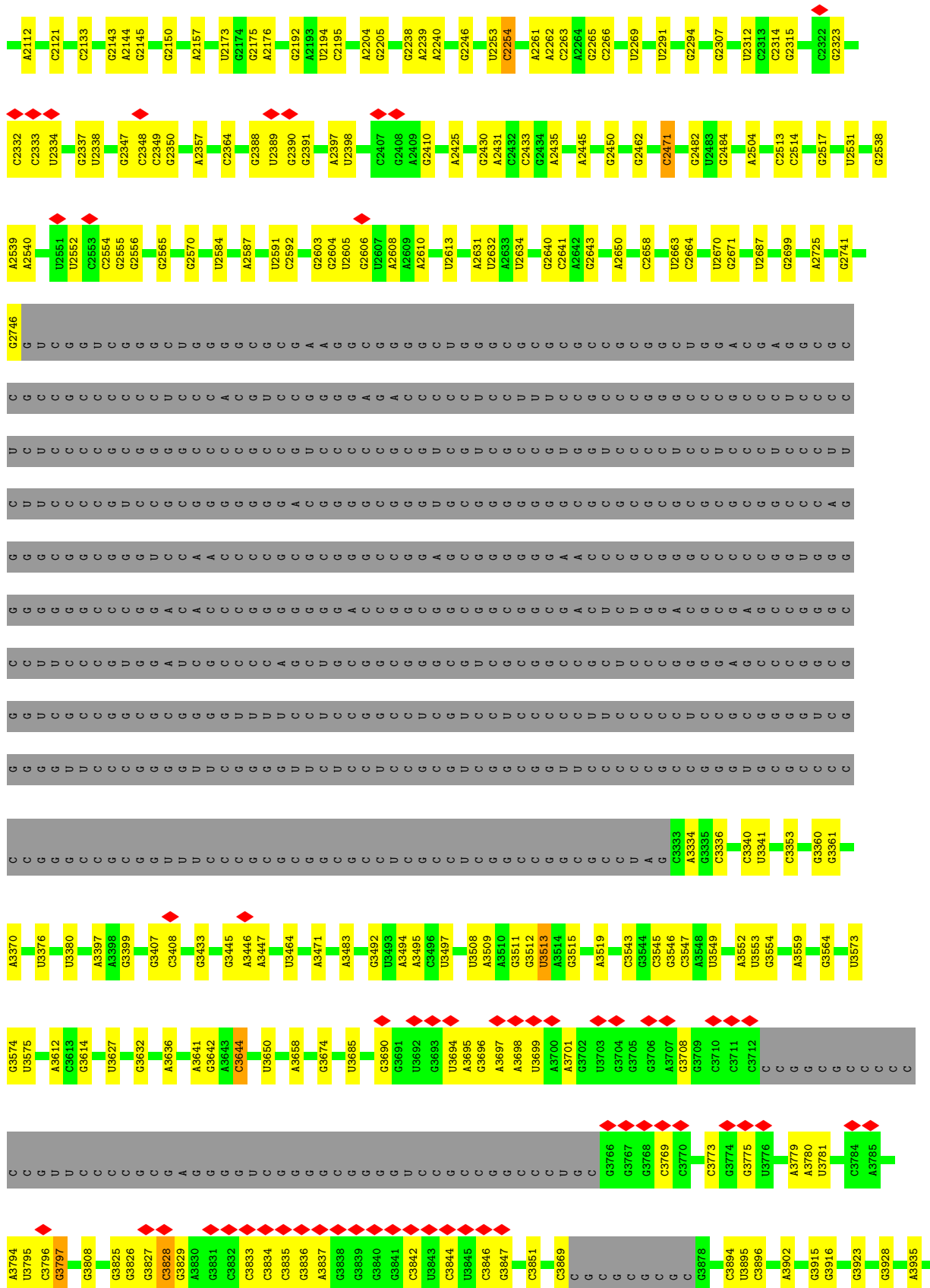
- Molecule 78: 60S ribosomal protein L28

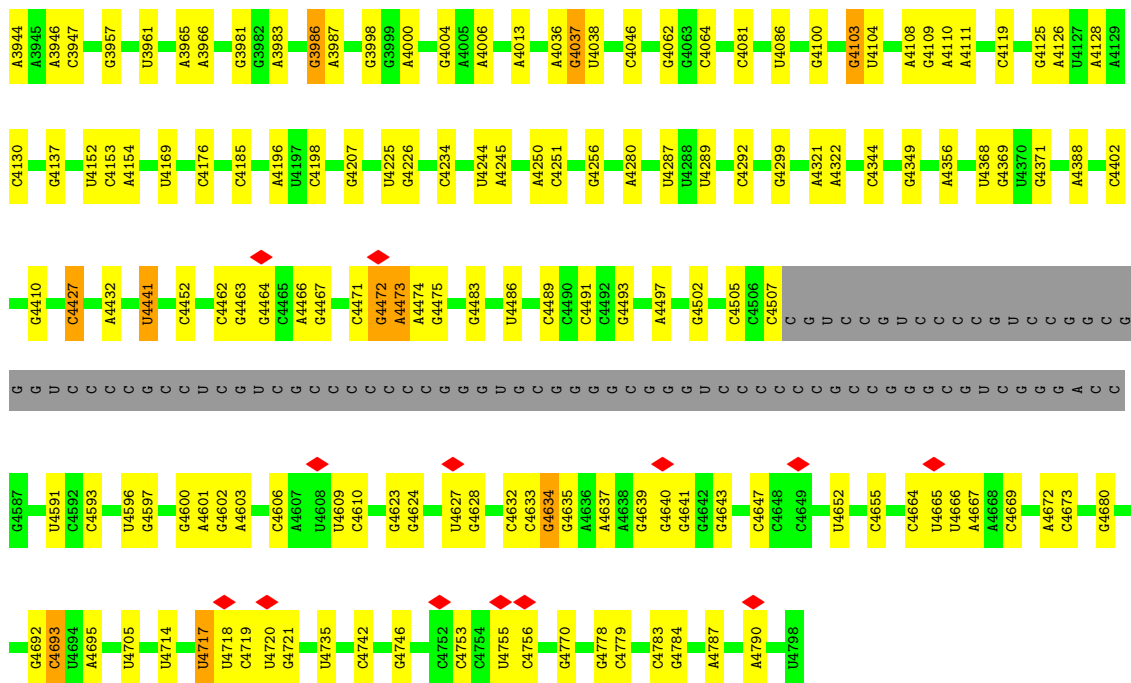


- Molecule 79: RNA (4803-MER)

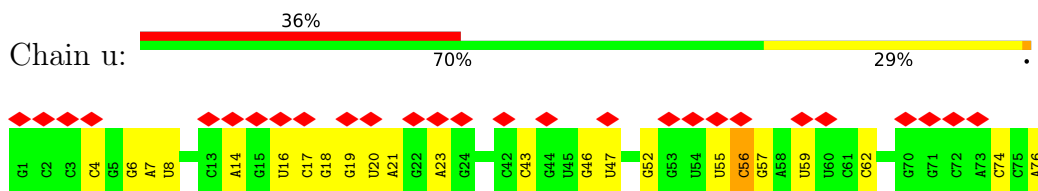




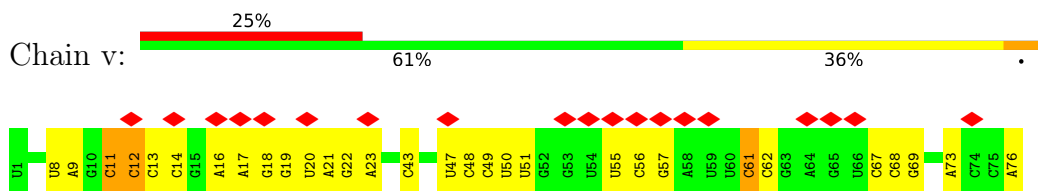




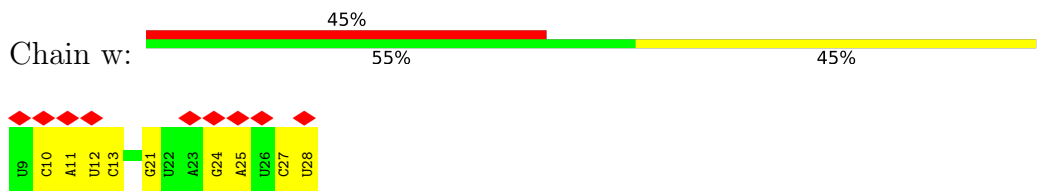
• Molecule 80: RNA (76-MER)



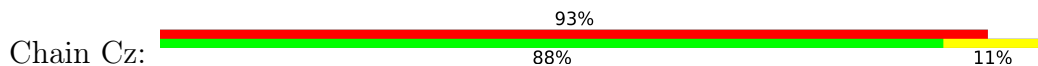
• Molecule 81: RNA (76-MER)

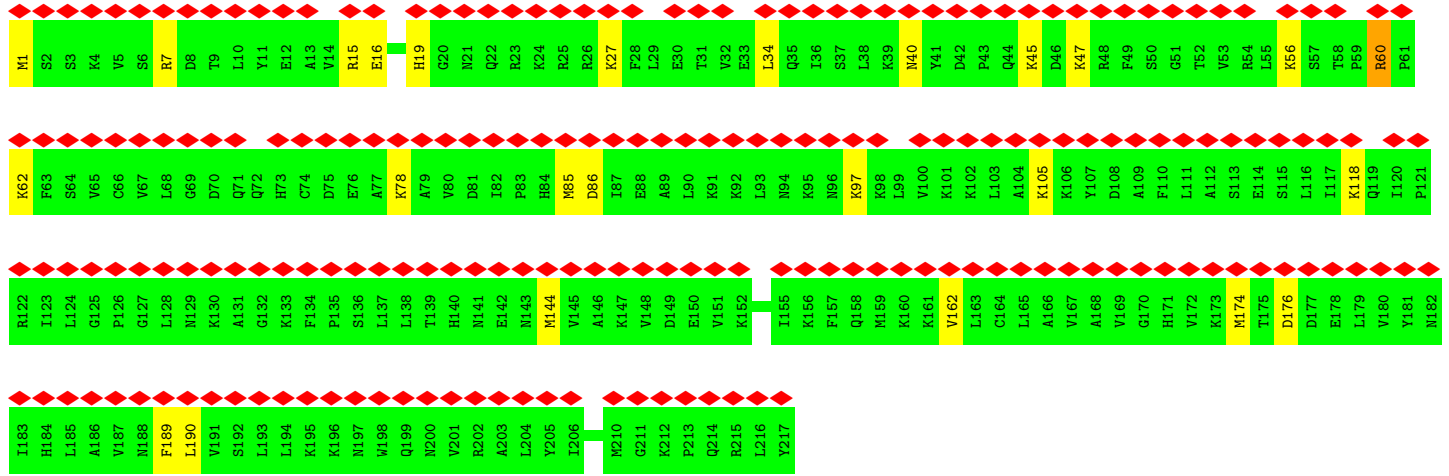


• Molecule 82: RNA (5'-D(P\*( )P\*( )P\*( )P\*( ))-R(P\*UP\*UP\*AP\*CP\*GP\*GP\*CP\*GP\*GP\*UP\*( )P\*( )P\*( )P\*( )P\*( ))-3')



• Molecule 83: 60S ribosomal protein L10a





• Molecule 84: ALA-ALA-LYS-ALA



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	62369	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	30	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	59000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.703	Depositor
Minimum map value	-0.357	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.024	Depositor
Recommended contour level	0.0475	Depositor
Map size ( $\text{\AA}$ )	420.18, 420.18, 420.18	wwPDB
Map dimensions	298, 298, 298	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.41, 1.41, 1.41	Depositor



## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: UR3, 5MC, 4AC, PSU, M7A, OMU, 6MZ, B8N, OMG, ZN, OMC, A2M, MMX, MG, 5MU, MA6

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	S2	0.24	2/39984 (0.0%)	0.91	101/62292 (0.2%)
2	SA	0.28	0/1730	0.57	0/2350
3	SB	0.31	0/1765	0.61	1/2362 (0.0%)
4	SD	0.41	1/1784 (0.1%)	0.66	2/2402 (0.1%)
5	SE	0.33	1/2101 (0.0%)	0.61	0/2828
6	SF	0.30	0/1516	0.61	0/2037
7	SH	0.32	0/1519	0.59	0/2033
8	SI	0.30	0/1702	0.61	1/2271 (0.0%)
9	SK	0.28	0/851	0.57	0/1147
10	SL	0.32	0/1241	0.62	0/1662
11	SP	0.38	0/1094	0.69	2/1460 (0.1%)
12	SQ	0.38	0/1177	0.70	0/1575
13	SR	0.39	0/1093	0.70	0/1469
14	SS	0.34	0/1216	0.70	1/1628 (0.1%)
15	ST	0.28	0/1134	0.58	1/1519 (0.1%)
16	SU	0.31	0/832	0.62	0/1117
17	SV	0.32	0/632	0.75	2/845 (0.2%)
18	SX	0.31	0/1116	0.66	0/1490
19	Sa	0.28	0/841	0.62	0/1128
20	Sc	0.27	0/508	0.75	1/680 (0.1%)
21	Sd	0.26	0/470	0.58	0/623
22	Sg	0.28	0/2486	0.62	0/3384
23	SC	0.31	0/1795	0.59	1/2424 (0.0%)
24	SG	0.27	0/1946	0.64	1/2590 (0.0%)
25	SJ	0.28	0/1561	0.66	1/2083 (0.0%)
26	SM	0.24	0/922	0.52	0/1237
27	SN	0.24	0/1232	0.53	0/1656
28	SO	0.25	0/1037	0.61	0/1391
29	SW	0.28	0/1051	0.61	0/1406
30	SY	0.27	0/1094	0.59	0/1452
31	SZ	0.33	0/585	0.68	0/785
32	Sb	0.29	0/653	0.59	0/876

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
33	Se	0.29	0/458	0.61	0/604
34	Sf	0.27	0/559	0.54	0/743
35	A	0.28	0/1968	0.57	0/2639
36	B	0.26	0/3272	0.59	3/4380 (0.1%)
37	C	0.31	0/2943	0.60	1/3951 (0.0%)
38	D	0.23	0/3726	0.87	1/5804 (0.0%)
39	E	0.24	0/2839	0.94	7/4425 (0.2%)
40	F	0.26	0/2444	0.53	0/3272
41	G	0.27	0/1998	0.58	0/2676
42	H	0.26	0/1900	0.53	0/2534
43	I	0.26	0/1968	0.58	2/2649 (0.1%)
44	J	0.31	0/1547	0.61	1/2080 (0.0%)
45	K	0.26	0/1730	0.60	2/2311 (0.1%)
46	L	0.29	0/1385	0.63	0/1852
47	M	0.27	0/1690	0.64	1/2261 (0.0%)
48	N	0.29	0/1164	0.64	1/1556 (0.1%)
49	O	0.24	0/1746	0.59	0/2338
50	P	0.29	0/1641	0.59	1/2195 (0.0%)
51	Q	0.24	0/1309	0.54	0/1756
52	R	0.26	0/1540	0.62	0/2054
53	S	0.28	0/1588	0.68	1/2099 (0.0%)
54	T	0.26	0/1498	0.62	1/2010 (0.0%)
55	U	0.28	0/1321	0.59	0/1764
56	V	0.34	0/822	0.69	1/1103 (0.1%)
57	W	0.27	0/1007	0.61	1/1350 (0.1%)
58	X	0.31	0/524	0.60	0/698
59	Y	0.26	0/1001	0.58	0/1345
60	Z	0.29	0/1132	0.63	1/1503 (0.1%)
61	a	0.29	0/1126	0.66	3/1502 (0.2%)
62	b	0.24	0/1194	0.55	0/1594
63	c	0.24	0/794	0.55	0/1045
64	d	0.25	0/796	0.54	0/1068
65	e	0.26	0/894	0.57	0/1204
66	f	0.26	0/1082	0.61	1/1443 (0.1%)
67	g	0.26	0/895	0.60	0/1198
68	h	0.25	0/930	0.59	0/1238
69	i	0.26	0/1023	0.56	0/1350
70	j	0.25	0/860	0.63	0/1137
71	k	0.25	0/720	0.60	0/952
72	l	0.30	0/575	0.60	0/761
73	m	0.24	0/454	0.59	0/599
74	n	0.26	0/417	0.58	0/553
75	o	0.27	0/241	0.79	0/305

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
76	p	0.30	0/877	0.63	0/1156
77	q	0.25	0/718	0.60	1/954 (0.1%)
78	r	0.25	0/1074	0.65	1/1437 (0.1%)
79	t	0.28	15/88201 (0.0%)	0.94	185/137564 (0.1%)
80	u	0.26	0/1800	1.03	7/2804 (0.2%)
81	v	0.26	0/1806	1.00	12/2813 (0.4%)
82	w	0.19	0/471	0.88	1/731 (0.1%)
83	Cz	0.27	0/1769	0.57	0/2371
84	y	0.20	0/23	0.42	0/29
All	All	0.27	19/234128 (0.0%)	0.83	351/343962 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
12	SQ	0	1

The worst 5 of 19 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
79	t	479	G	O3'-P	-11.60	1.47	1.61
1	S2	1833	UR3	O3'-P	-10.51	1.48	1.61
4	SD	163	PRO	C-N	9.23	1.55	1.34
79	t	490	G	O3'-P	7.26	1.69	1.61
79	t	1990	G	O5'-C5'	-6.66	1.32	1.42

The worst 5 of 351 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
79	t	4473	A	O5'-P-OP1	-59.17	39.70	110.70
79	t	3797	G	O5'-P-OP2	-45.67	55.89	110.70
79	t	3797	G	O5'-P-OP1	-34.01	69.89	110.70
79	t	4473	A	O5'-P-OP2	24.62	140.25	110.70
1	S2	115	U	C2-N3-C4	19.48	138.69	127.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
12	SQ	75	GLY	Peptide

## 5.2 Too-close contacts [i](#)

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

## 5.3 Torsion angles [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	
2	SA	212/295 (72%)	196 (92%)	16 (8%)	0	100	100
3	SB	212/264 (80%)	201 (95%)	9 (4%)	2 (1%)	14	29
4	SD	224/243 (92%)	197 (88%)	23 (10%)	4 (2%)	7	16
5	SE	257/263 (98%)	238 (93%)	16 (6%)	3 (1%)	11	23
6	SF	187/204 (92%)	172 (92%)	15 (8%)	0	100	100
7	SH	182/194 (94%)	169 (93%)	12 (7%)	1 (0%)	25	43
8	SI	202/208 (97%)	183 (91%)	17 (8%)	2 (1%)	13	26
9	SK	96/165 (58%)	87 (91%)	9 (9%)	0	100	100
10	SL	148/158 (94%)	140 (95%)	6 (4%)	2 (1%)	9	20
11	SP	128/145 (88%)	121 (94%)	7 (6%)	0	100	100
12	SQ	144/146 (99%)	133 (92%)	9 (6%)	2 (1%)	9	20
13	SR	132/135 (98%)	115 (87%)	16 (12%)	1 (1%)	16	32
14	SS	143/152 (94%)	127 (89%)	15 (10%)	1 (1%)	19	36
15	ST	141/145 (97%)	134 (95%)	7 (5%)	0	100	100
16	SU	102/119 (86%)	95 (93%)	6 (6%)	1 (1%)	13	26
17	SV	80/83 (96%)	75 (94%)	5 (6%)	0	100	100
18	SX	139/143 (97%)	123 (88%)	16 (12%)	0	100	100
19	Sa	101/115 (88%)	95 (94%)	6 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
20	Sc	62/69 (90%)	51 (82%)	11 (18%)	0	100	100
21	Sd	53/56 (95%)	50 (94%)	3 (6%)	0	100	100
22	Sg	310/317 (98%)	273 (88%)	37 (12%)	0	100	100
23	SC	224/293 (76%)	208 (93%)	16 (7%)	0	100	100
24	SG	235/249 (94%)	217 (92%)	18 (8%)	0	100	100
25	SJ	184/194 (95%)	169 (92%)	14 (8%)	1 (0%)	25	43
26	SM	116/132 (88%)	101 (87%)	15 (13%)	0	100	100
27	SN	148/151 (98%)	145 (98%)	3 (2%)	0	100	100
28	SO	135/151 (89%)	120 (89%)	15 (11%)	0	100	100
29	SW	127/130 (98%)	123 (97%)	4 (3%)	0	100	100
30	SY	130/133 (98%)	118 (91%)	12 (9%)	0	100	100
31	SZ	71/125 (57%)	62 (87%)	9 (13%)	0	100	100
32	Sb	80/84 (95%)	75 (94%)	5 (6%)	0	100	100
33	Se	55/59 (93%)	48 (87%)	7 (13%)	0	100	100
34	Sf	65/156 (42%)	51 (78%)	14 (22%)	0	100	100
35	A	250/257 (97%)	231 (92%)	19 (8%)	0	100	100
36	B	395/403 (98%)	367 (93%)	28 (7%)	0	100	100
37	C	361/421 (86%)	333 (92%)	21 (6%)	7 (2%)	6	15
40	F	292/297 (98%)	275 (94%)	15 (5%)	2 (1%)	19	36
41	G	239/298 (80%)	209 (87%)	28 (12%)	2 (1%)	16	32
42	H	223/260 (86%)	210 (94%)	13 (6%)	0	100	100
43	I	239/266 (90%)	222 (93%)	17 (7%)	0	100	100
44	J	189/192 (98%)	176 (93%)	12 (6%)	1 (0%)	25	43
45	K	204/214 (95%)	193 (95%)	11 (5%)	0	100	100
46	L	168/178 (94%)	159 (95%)	8 (5%)	1 (1%)	22	40
47	M	203/211 (96%)	175 (86%)	25 (12%)	3 (2%)	8	19
48	N	137/214 (64%)	132 (96%)	5 (4%)	0	100	100
49	O	201/204 (98%)	191 (95%)	9 (4%)	1 (0%)	25	43
50	P	195/203 (96%)	189 (97%)	5 (3%)	1 (0%)	25	43
51	Q	156/184 (85%)	151 (97%)	5 (3%)	0	100	100
52	R	185/188 (98%)	172 (93%)	13 (7%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
53	S	186/196 (95%)	180 (97%)	6 (3%)	0	100	100
54	T	174/176 (99%)	160 (92%)	14 (8%)	0	100	100
55	U	156/160 (98%)	149 (96%)	6 (4%)	1 (1%)	22	40
56	V	97/128 (76%)	94 (97%)	3 (3%)	0	100	100
57	W	132/140 (94%)	126 (96%)	6 (4%)	0	100	100
58	X	59/157 (38%)	56 (95%)	3 (5%)	0	100	100
59	Y	118/156 (76%)	114 (97%)	4 (3%)	0	100	100
60	Z	132/145 (91%)	124 (94%)	8 (6%)	0	100	100
61	a	132/136 (97%)	122 (92%)	10 (8%)	0	100	100
62	b	145/148 (98%)	133 (92%)	12 (8%)	0	100	100
63	c	91/156 (58%)	86 (94%)	5 (6%)	0	100	100
64	d	99/115 (86%)	93 (94%)	6 (6%)	0	100	100
65	e	104/125 (83%)	99 (95%)	5 (5%)	0	100	100
66	f	127/135 (94%)	118 (93%)	8 (6%)	1 (1%)	16	32
67	g	107/110 (97%)	102 (95%)	5 (5%)	0	100	100
68	h	114/117 (97%)	106 (93%)	8 (7%)	0	100	100
69	i	120/123 (98%)	113 (94%)	7 (6%)	0	100	100
70	j	102/105 (97%)	95 (93%)	7 (7%)	0	100	100
71	k	84/97 (87%)	79 (94%)	3 (4%)	2 (2%)	5	11
72	l	67/70 (96%)	66 (98%)	1 (2%)	0	100	100
73	m	48/51 (94%)	45 (94%)	3 (6%)	0	100	100
74	n	48/128 (38%)	46 (96%)	2 (4%)	0	100	100
75	o	23/25 (92%)	22 (96%)	1 (4%)	0	100	100
76	p	103/106 (97%)	93 (90%)	9 (9%)	1 (1%)	13	26
77	q	89/92 (97%)	83 (93%)	6 (7%)	0	100	100
78	r	129/137 (94%)	114 (88%)	15 (12%)	0	100	100
83	Cz	215/217 (99%)	183 (85%)	31 (14%)	1 (0%)	25	43
84	y	2/4 (50%)	2 (100%)	0	0	100	100
All	All	11465/12921 (89%)	10600 (92%)	821 (7%)	44 (0%)	32	49

5 of 44 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	SB	191	ASP
5	SE	165	GLU
10	SL	82	MET
37	C	55	SER
37	C	58	ALA

### 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	
2	SA	179/242 (74%)	170 (95%)	9 (5%)	20	40
3	SB	195/231 (84%)	189 (97%)	6 (3%)	35	61
4	SD	189/202 (94%)	179 (95%)	10 (5%)	19	38
5	SE	222/225 (99%)	210 (95%)	12 (5%)	18	37
6	SF	159/171 (93%)	152 (96%)	7 (4%)	24	46
7	SH	166/174 (95%)	157 (95%)	9 (5%)	18	37
8	SI	177/180 (98%)	165 (93%)	12 (7%)	13	27
9	SK	89/136 (65%)	80 (90%)	9 (10%)	6	12
10	SL	134/142 (94%)	123 (92%)	11 (8%)	9	20
11	SP	116/130 (89%)	109 (94%)	7 (6%)	16	32
12	SQ	121/121 (100%)	112 (93%)	9 (7%)	11	24
13	SR	120/121 (99%)	114 (95%)	6 (5%)	20	40
14	SS	126/132 (96%)	115 (91%)	11 (9%)	8	17
15	ST	113/115 (98%)	106 (94%)	7 (6%)	15	30
16	SU	94/107 (88%)	90 (96%)	4 (4%)	25	47
17	SV	66/67 (98%)	57 (86%)	9 (14%)	3	5
18	SX	113/115 (98%)	108 (96%)	5 (4%)	24	46
19	Sa	89/98 (91%)	83 (93%)	6 (7%)	13	27
20	Sc	57/62 (92%)	51 (90%)	6 (10%)	5	11
21	Sd	48/49 (98%)	45 (94%)	3 (6%)	15	30

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
22	Sg	271/275 (98%)	241 (89%)	30 (11%)	5	9
23	SC	191/224 (85%)	176 (92%)	15 (8%)	10	21
24	SG	207/218 (95%)	194 (94%)	13 (6%)	15	30
25	SJ	162/168 (96%)	144 (89%)	18 (11%)	5	9
26	SM	98/108 (91%)	88 (90%)	10 (10%)	6	11
27	SN	130/131 (99%)	125 (96%)	5 (4%)	28	54
28	SO	107/119 (90%)	96 (90%)	11 (10%)	6	11
29	SW	112/113 (99%)	102 (91%)	10 (9%)	8	16
30	SY	114/115 (99%)	105 (92%)	9 (8%)	10	21
31	SZ	64/103 (62%)	58 (91%)	6 (9%)	7	14
32	Sb	74/76 (97%)	67 (90%)	7 (10%)	7	14
33	Se	46/48 (96%)	40 (87%)	6 (13%)	3	6
34	Sf	60/140 (43%)	59 (98%)	1 (2%)	56	78
35	A	194/199 (98%)	183 (94%)	11 (6%)	17	34
36	B	345/349 (99%)	332 (96%)	13 (4%)	28	54
37	C	304/349 (87%)	286 (94%)	18 (6%)	16	33
40	F	248/250 (99%)	238 (96%)	10 (4%)	27	51
41	G	216/256 (84%)	210 (97%)	6 (3%)	38	64
42	H	195/224 (87%)	187 (96%)	8 (4%)	26	50
43	I	205/223 (92%)	191 (93%)	14 (7%)	13	27
44	J	171/172 (99%)	159 (93%)	12 (7%)	12	26
45	K	178/181 (98%)	166 (93%)	12 (7%)	13	27
46	L	143/149 (96%)	129 (90%)	14 (10%)	6	13
47	M	171/177 (97%)	158 (92%)	13 (8%)	11	23
48	N	118/157 (75%)	114 (97%)	4 (3%)	32	57
49	O	171/172 (99%)	162 (95%)	9 (5%)	19	38
50	P	169/173 (98%)	159 (94%)	10 (6%)	16	33
51	Q	139/163 (85%)	131 (94%)	8 (6%)	17	34
52	R	164/165 (99%)	155 (94%)	9 (6%)	18	37
53	S	167/175 (95%)	154 (92%)	13 (8%)	10	22
54	T	156/156 (100%)	150 (96%)	6 (4%)	28	54

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
55	U	139/140 (99%)	125 (90%)	14 (10%)	6	12
56	V	89/114 (78%)	76 (85%)	13 (15%)	2	4
57	W	102/107 (95%)	96 (94%)	6 (6%)	16	33
58	X	53/126 (42%)	50 (94%)	3 (6%)	17	34
59	Y	108/133 (81%)	103 (95%)	5 (5%)	23	44
60	Z	124/135 (92%)	115 (93%)	9 (7%)	11	24
61	a	117/118 (99%)	109 (93%)	8 (7%)	13	27
62	b	120/121 (99%)	118 (98%)	2 (2%)	56	78
63	c	80/124 (64%)	74 (92%)	6 (8%)	11	24
64	d	86/97 (89%)	78 (91%)	8 (9%)	7	14
65	e	97/110 (88%)	92 (95%)	5 (5%)	19	38
66	f	115/121 (95%)	111 (96%)	4 (4%)	31	57
67	g	88/89 (99%)	84 (96%)	4 (4%)	23	45
68	h	99/100 (99%)	96 (97%)	3 (3%)	36	62
69	i	109/110 (99%)	102 (94%)	7 (6%)	14	29
70	j	88/89 (99%)	86 (98%)	2 (2%)	45	70
71	k	73/80 (91%)	70 (96%)	3 (4%)	26	50
72	l	64/65 (98%)	60 (94%)	4 (6%)	15	30
73	m	47/48 (98%)	44 (94%)	3 (6%)	14	29
74	n	46/116 (40%)	45 (98%)	1 (2%)	47	71
75	o	24/24 (100%)	23 (96%)	1 (4%)	25	48
76	p	93/94 (99%)	89 (96%)	4 (4%)	25	47
77	q	74/75 (99%)	66 (89%)	8 (11%)	5	10
78	r	115/121 (95%)	110 (96%)	5 (4%)	25	47
83	Cz	195/196 (100%)	170 (87%)	25 (13%)	3	6
84	y	1/1 (100%)	1 (100%)	0	100	100
All	All	10009/11002 (91%)	9367 (94%)	642 (6%)	17	29

5 of 642 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
52	R	17	GLU
67	g	95	LYS

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Mol	Chain	Res	Type
53	S	108	ARG
52	R	14	ARG
57	W	123	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 76 such sidechains are listed below:

Mol	Chain	Res	Type
59	Y	93	ASN
78	r	23	GLN
61	a	132	GLN
66	f	107	ASN
83	Cz	158	GLN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	S2	1690/1872 (90%)	391 (23%)	19 (1%)
38	D	156/157 (99%)	32 (20%)	1 (0%)
39	E	118/121 (97%)	11 (9%)	0
79	t	3659/4803 (76%)	687 (18%)	0
80	u	75/76 (98%)	20 (26%)	0
81	v	75/76 (98%)	26 (34%)	0
82	w	19/20 (95%)	8 (42%)	0
All	All	5792/7125 (81%)	1175 (20%)	20 (0%)

5 of 1175 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	S2	2	A
1	S2	9	U
1	S2	25	A
1	S2	33	G
1	S2	41	G

5 of 20 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	S2	1575	C
1	S2	1818	A
38	D	86	U

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Mol	Chain	Res	Type
1	S2	1827	A
1	S2	561	G

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

33 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z  > 2$	Counts	RMSZ	# $ Z  > 2$
1	OMC	S2	1713	1	19,22,23	0.51	0	26,31,34	0.67	0
1	A2M	S2	1681	1	18,25,26	3.56	8 (44%)	18,36,39	3.34	4 (22%)
1	5MC	S2	1377	1	18,22,23	0.53	0	26,32,35	0.75	0
1	PSU	S2	1246	1	18,21,22	1.08	1 (5%)	22,30,33	1.72	4 (18%)
1	OMC	S2	520	1	19,22,23	0.52	0	26,31,34	0.77	0
1	PSU	S2	825	1	18,21,22	1.10	1 (5%)	22,30,33	1.70	4 (18%)
1	B8N	S2	1251	1	24,29,30	3.06	5 (20%)	29,42,45	1.74	5 (17%)
1	6MZ	S2	1835	1	18,25,26	5.58	13 (72%)	16,36,39	5.12	11 (68%)
1	MA6	S2	1854	1	18,26,27	1.03	2 (11%)	19,38,41	3.36	2 (10%)
1	A2M	S2	487	1	18,25,26	3.63	8 (44%)	18,36,39	3.41	3 (16%)
1	OMG	S2	686	1	18,26,27	1.10	2 (11%)	19,38,41	0.85	1 (5%)
1	M7A	S2	1809	1	20,25,26	2.07	3 (15%)	28,37,40	4.10	8 (28%)
1	PSU	S2	1084	1	18,21,22	1.06	1 (5%)	22,30,33	1.71	4 (18%)
1	UR3	S2	1833	1	19,22,23	3.00	7 (36%)	26,32,35	1.65	4 (15%)
1	OMG	S2	512	1	18,26,27	1.11	2 (11%)	19,38,41	0.85	1 (5%)
1	A2M	S2	671	1	18,25,26	3.61	8 (44%)	18,36,39	3.47	6 (33%)
1	PSU	S2	615	1	18,21,22	1.02	1 (5%)	22,30,33	1.66	4 (18%)
1	MMX	S2	571	1	19,23,24	4.00	4 (21%)	22,33,36	2.83	6 (27%)
1	PSU	S2	826	1	18,21,22	1.08	1 (5%)	22,30,33	1.66	5 (22%)
1	A2M	S2	166	1	18,25,26	3.58	8 (44%)	18,36,39	3.36	3 (16%)
1	5MU	S2	817	1	19,22,23	0.40	0	28,32,35	0.91	2 (7%)
1	MA6	S2	1853	1	18,26,27	1.04	2 (11%)	19,38,41	3.32	2 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
1	OMC	S2	1706	1	19,22,23	0.50	0	26,31,34	0.66	0
1	OMC	S2	174	1	19,22,23	0.51	0	26,31,34	0.67	0
1	OMU	S2	121	1	19,22,23	1.39	3 (15%)	26,31,34	1.96	7 (26%)
1	OMG	S2	647	1	18,26,27	1.11	2 (11%)	19,38,41	0.85	1 (5%)
1	4AC	S2	1845	1	21,24,25	3.56	10 (47%)	29,34,37	1.13	3 (10%)
1	A2M	S2	1034	1	18,25,26	3.58	8 (44%)	18,36,39	3.36	4 (22%)
1	A2M	S2	159	1	18,25,26	3.61	8 (44%)	18,36,39	3.44	5 (27%)
1	A2M	S2	27	1	18,25,26	3.59	8 (44%)	18,36,39	3.32	4 (22%)
1	4AC	S2	1340	1	21,24,25	3.56	10 (47%)	29,34,37	1.12	3 (10%)
1	OMU	S2	116	1	19,22,23	3.10	8 (42%)	26,31,34	1.69	5 (19%)
1	PSU	S2	119	1	18,21,22	1.10	1 (5%)	22,30,33	1.71	4 (18%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	OMC	S2	1713	1	-	0/9/27/28	0/2/2/2
1	A2M	S2	1681	1	-	2/5/27/28	0/3/3/3
1	5MC	S2	1377	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	1246	1	-	2/7/25/26	0/2/2/2
1	OMC	S2	520	1	-	2/9/27/28	0/2/2/2
1	PSU	S2	825	1	-	0/7/25/26	0/2/2/2
1	B8N	S2	1251	1	-	2/16/34/35	0/2/2/2
1	6MZ	S2	1835	1	-	1/5/27/28	0/3/3/3
1	MA6	S2	1854	1	-	6/7/29/30	0/3/3/3
1	A2M	S2	487	1	-	0/5/27/28	0/3/3/3
1	OMG	S2	686	1	-	2/5/27/28	0/3/3/3
1	M7A	S2	1809	1	-	1/7/37/38	0/3/3/3
1	PSU	S2	1084	1	-	0/7/25/26	0/2/2/2
1	UR3	S2	1833	1	-	2/7/25/26	0/2/2/2
1	OMG	S2	512	1	-	0/5/27/28	0/3/3/3
1	A2M	S2	671	1	-	1/5/27/28	0/3/3/3
1	PSU	S2	615	1	-	0/7/25/26	0/2/2/2
1	MMX	S2	571	1	-	4/9/44/45	0/2/2/2
1	PSU	S2	826	1	-	2/7/25/26	0/2/2/2
1	A2M	S2	166	1	-	0/5/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	5MU	S2	817	1	-	0/7/25/26	0/2/2/2
1	MA6	S2	1853	1	-	5/7/29/30	0/3/3/3
1	OMC	S2	1706	1	-	0/9/27/28	0/2/2/2
1	OMC	S2	174	1	-	0/9/27/28	0/2/2/2
1	OMU	S2	121	1	-	1/9/27/28	0/2/2/2
1	OMG	S2	647	1	-	2/5/27/28	0/3/3/3
1	4AC	S2	1845	1	-	0/11/29/30	0/2/2/2
1	A2M	S2	1034	1	-	0/5/27/28	0/3/3/3
1	A2M	S2	159	1	-	1/5/27/28	0/3/3/3
1	A2M	S2	27	1	-	2/5/27/28	0/3/3/3
1	4AC	S2	1340	1	-	0/11/29/30	0/2/2/2
1	OMU	S2	116	1	-	2/9/27/28	0/2/2/2
1	PSU	S2	119	1	-	0/7/25/26	0/2/2/2

The worst 5 of 135 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	S2	1835	6MZ	O3'-C3'	11.94	1.71	1.43
1	S2	1835	6MZ	O4'-C1'	-11.56	1.24	1.41
1	S2	571	MMX	C2-N1	10.18	1.50	1.37
1	S2	571	MMX	C4-N3	9.93	1.53	1.45
1	S2	1835	6MZ	C3'-C4'	-8.85	1.30	1.53

The worst 5 of 115 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	S2	1809	M7A	C5-C6-N6	13.86	147.41	123.74
1	S2	1854	MA6	N1-C6-N6	-13.27	103.09	117.06
1	S2	1853	MA6	N1-C6-N6	-13.16	103.21	117.06
1	S2	1809	M7A	N6-C6-N1	-11.78	92.55	118.35
1	S2	671	A2M	C5-C6-N6	10.59	136.44	120.35

There are no chirality outliers.

5 of 40 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	S2	27	A2M	C3'-C4'-C5'-O5'
1	S2	116	OMU	C3'-C4'-C5'-O5'
1	S2	116	OMU	O4'-C4'-C5'-O5'
1	S2	121	OMU	C1'-C2'-O2'-CM2
1	S2	520	OMC	O4'-C4'-C5'-O5'

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 39 ligands modelled in this entry, 39 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

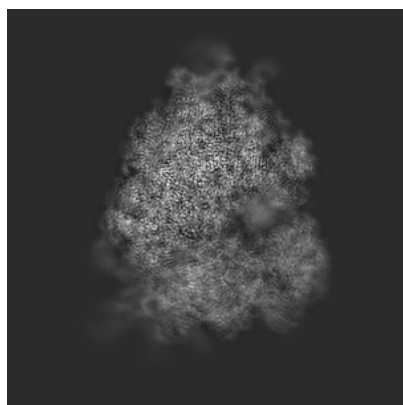
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13954. These allow visual inspection of the internal detail of the map and identification of artifacts.

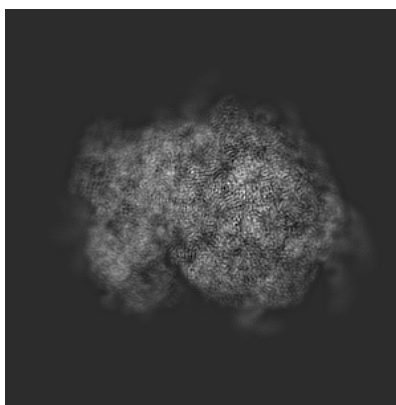
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

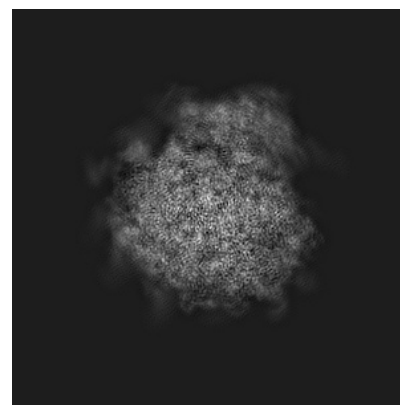
#### 6.1.1 Primary map



X



Y

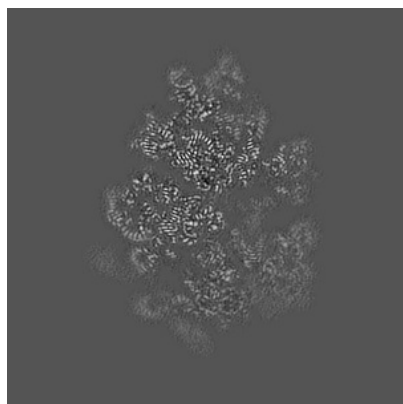


Z

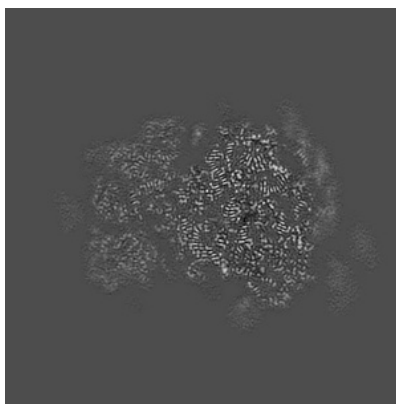
The images above show the map projected in three orthogonal directions.

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

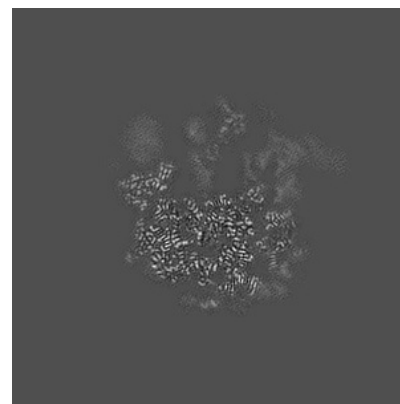
#### 6.2.1 Primary map



X Index: 149



Y Index: 149

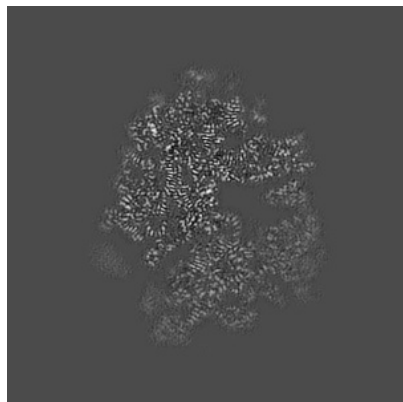


Z Index: 149

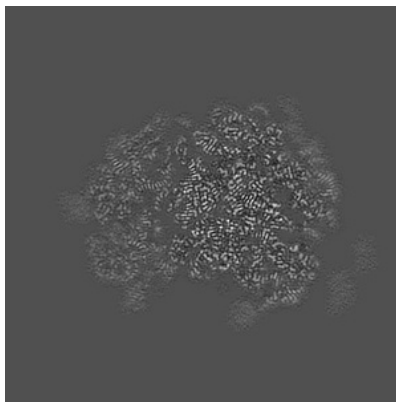
The images above show central slices of the map in three orthogonal directions.

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

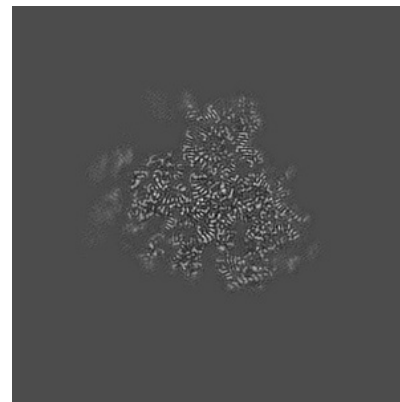
### 6.3.1 Primary map



X Index: 162



Y Index: 141

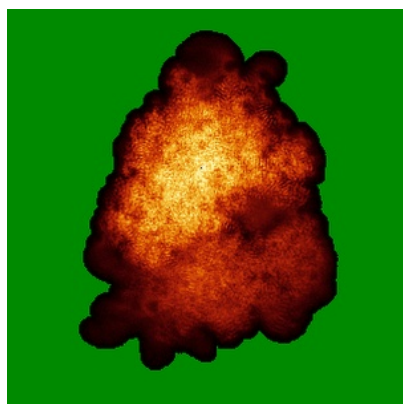


Z Index: 183

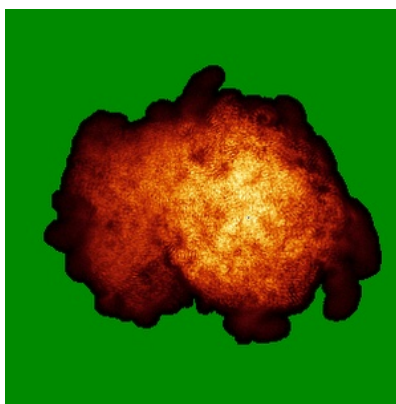
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) [\(i\)](#)

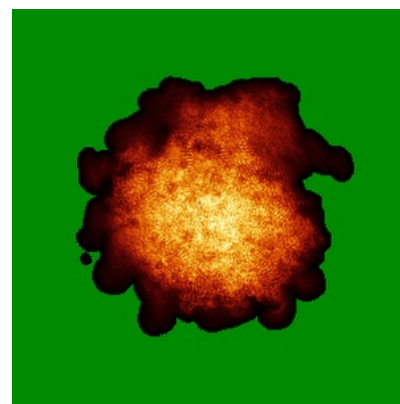
### 6.4.1 Primary map



X



Y



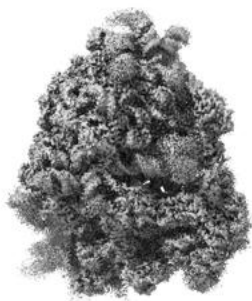
Z

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 0.0475. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

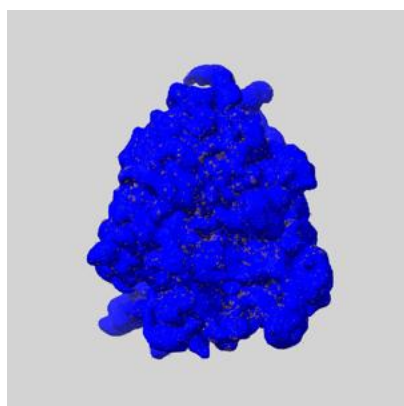
## 6.6 Mask visualisation [i](#)

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

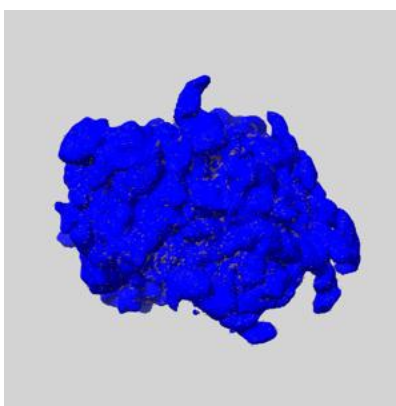
A mask typically either:

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

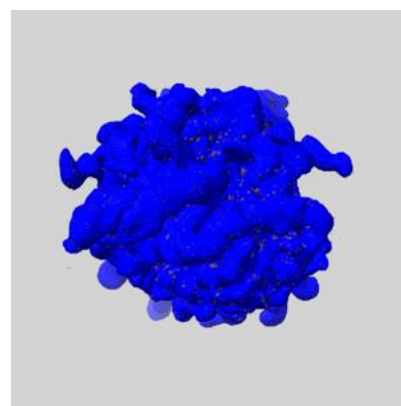
### 6.6.1 emd\_13954\_msk\_1.map [i](#)



X



Y

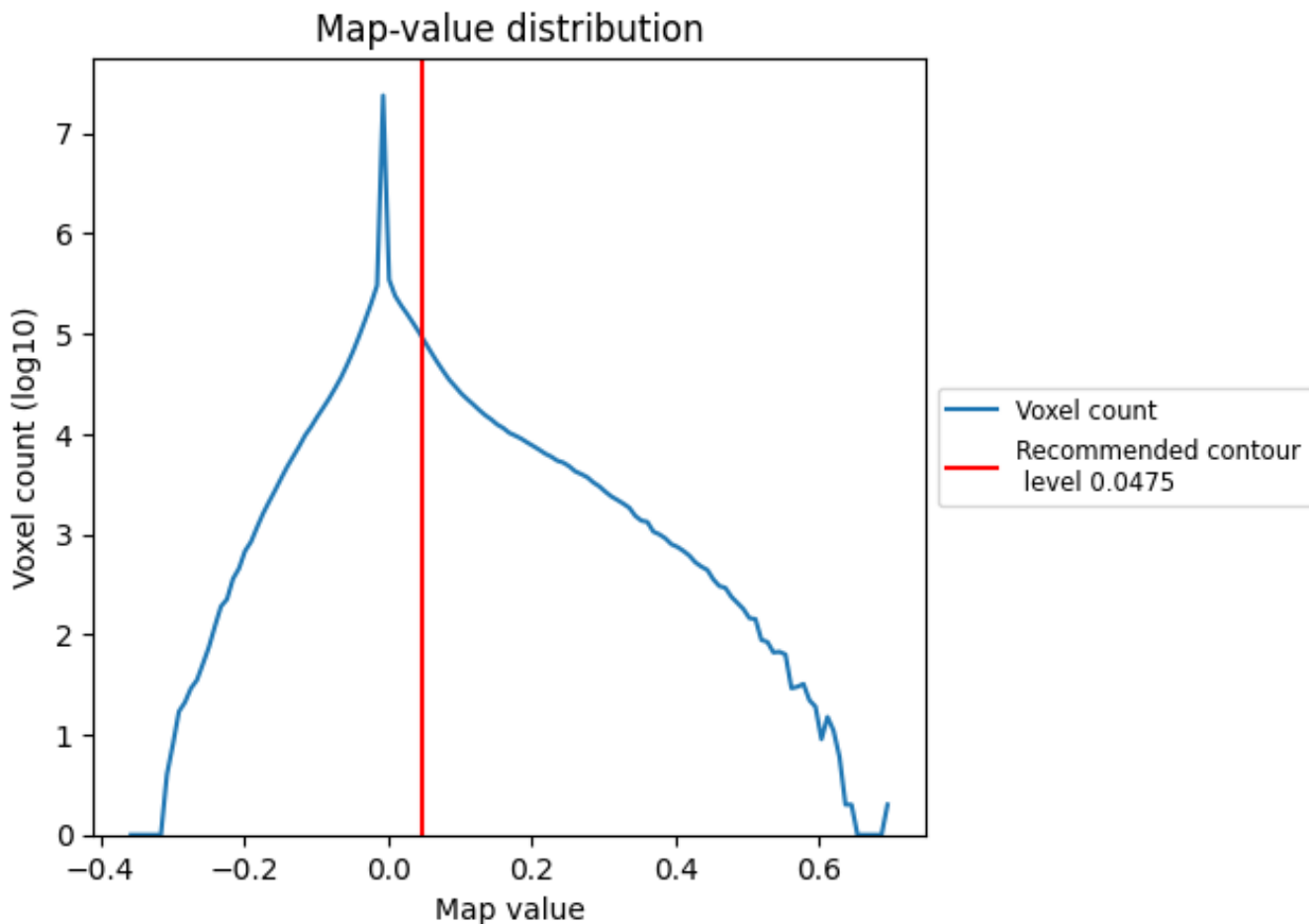


Z

## 7 Map analysis [i](#)

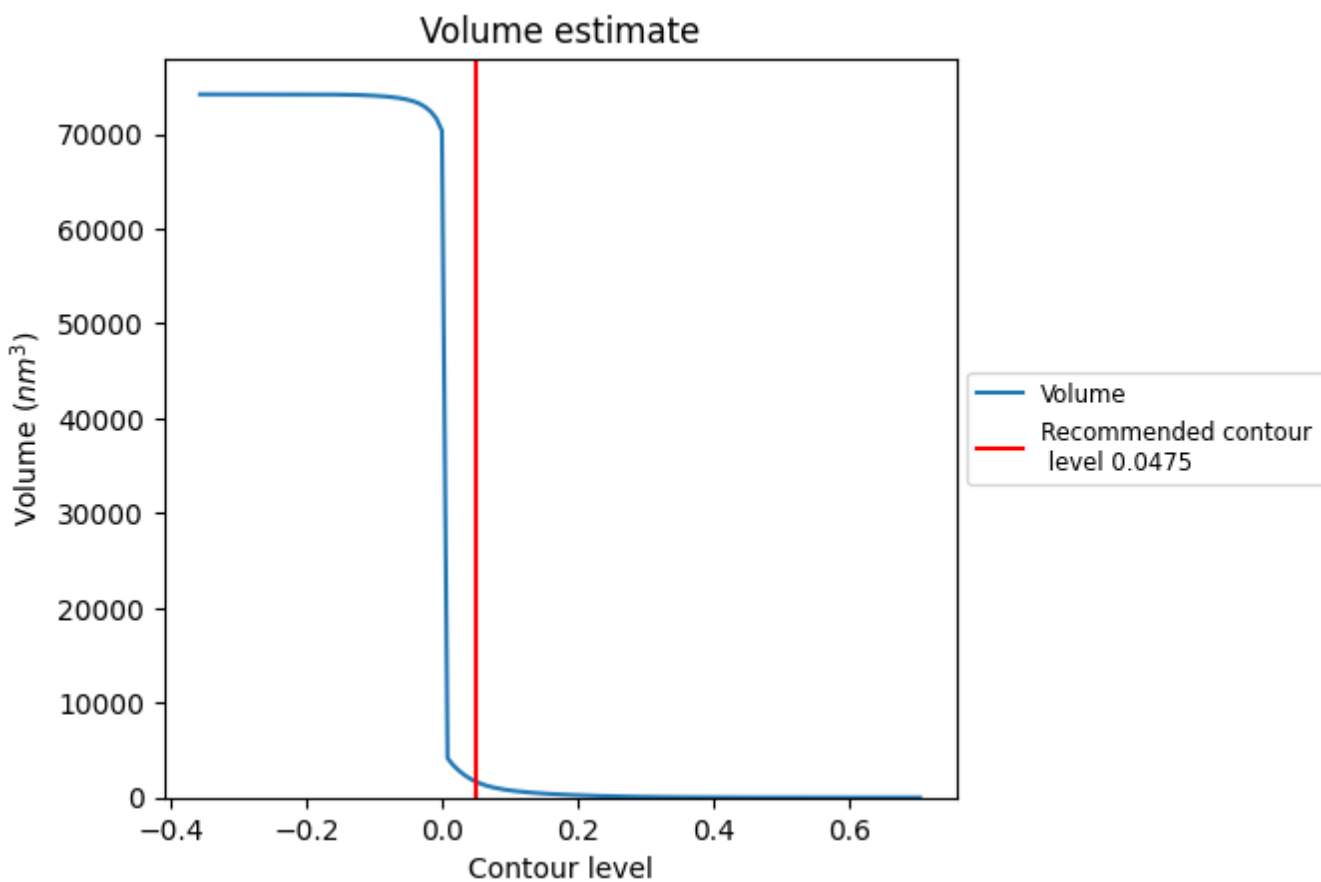
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

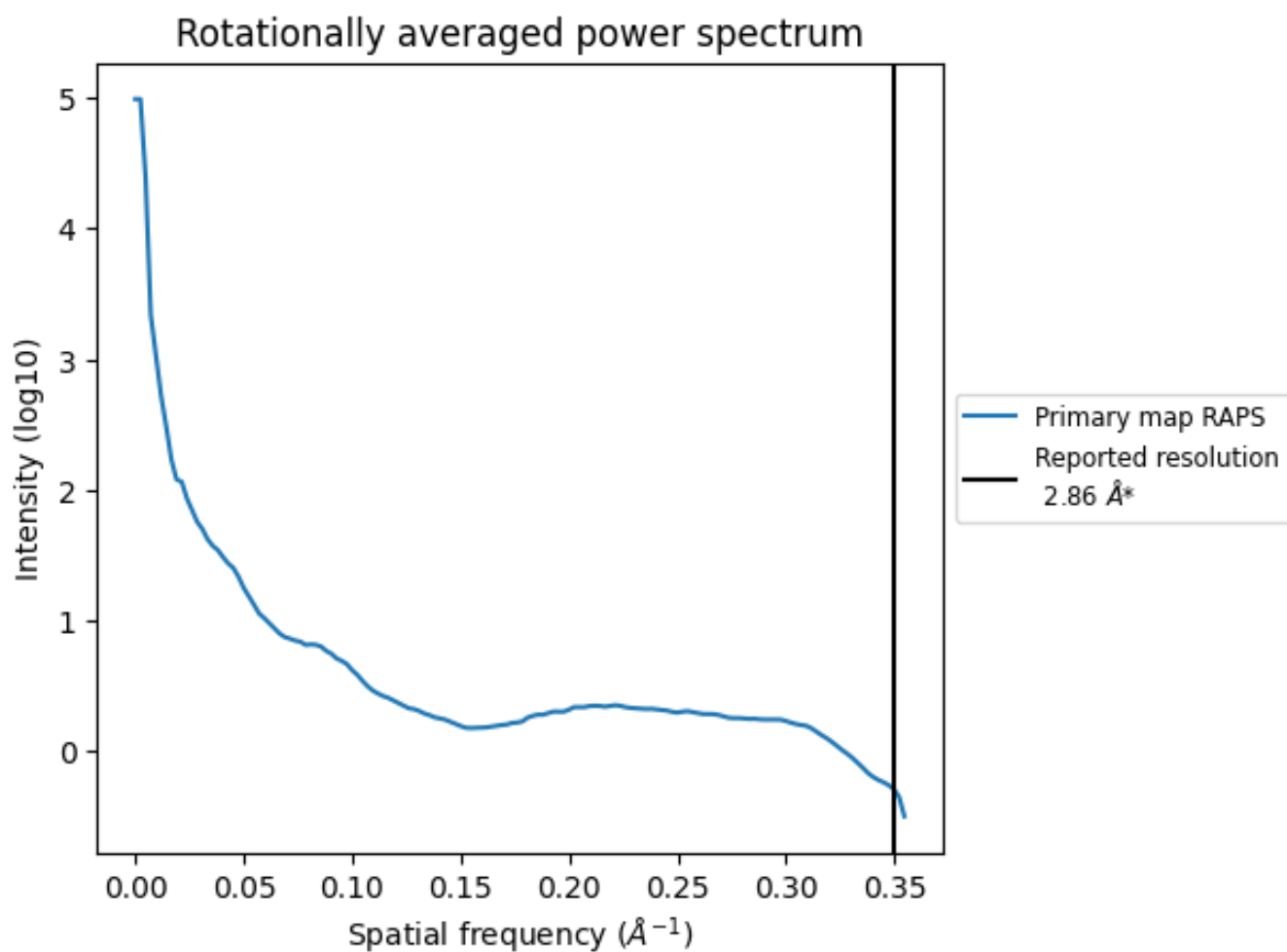
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1728  $\text{nm}^3$ ; this corresponds to an approximate mass of 1561 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 [\(i\)](#)

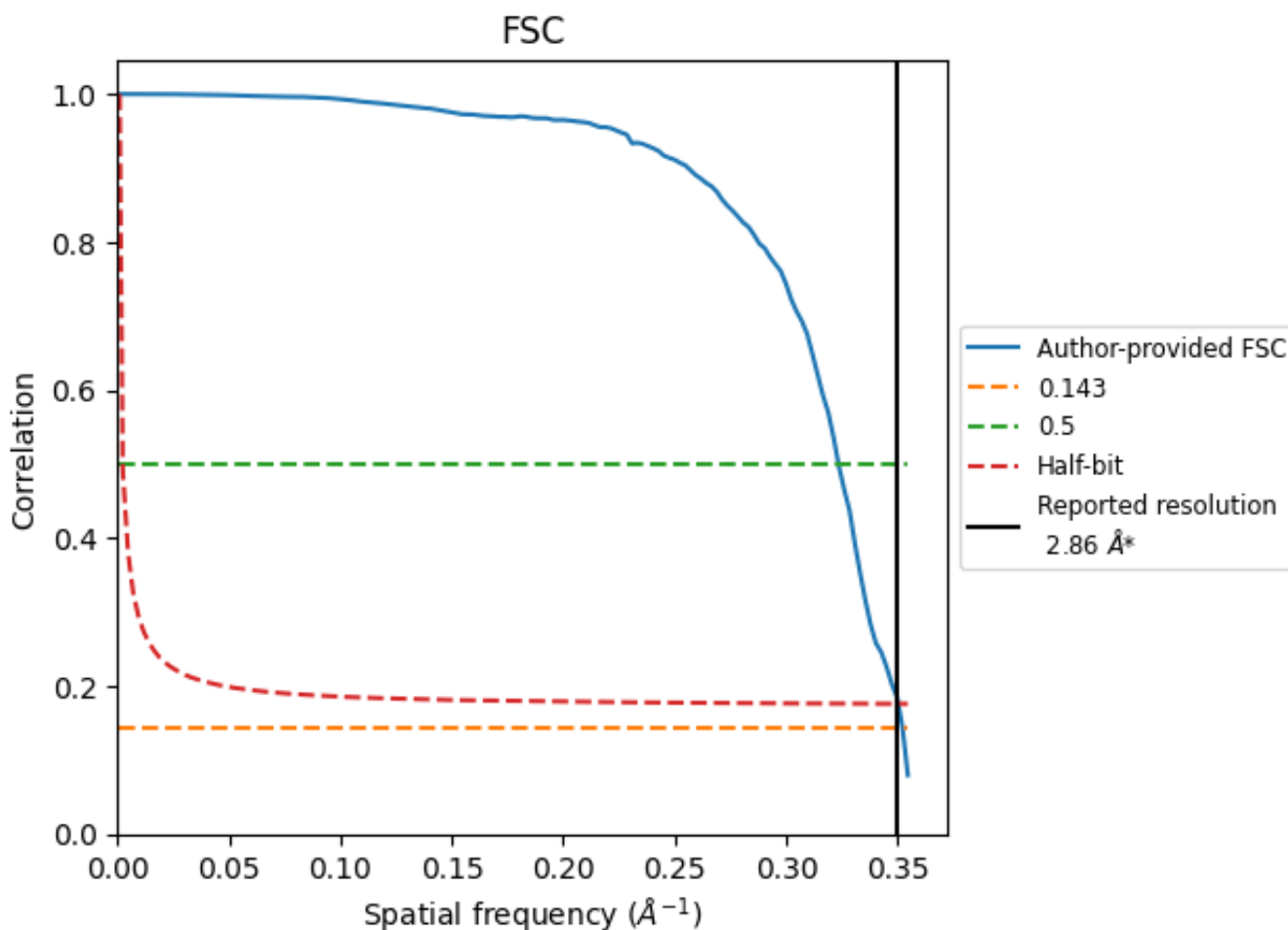


\*Reported resolution corresponds to spatial frequency of 0.350 Å<sup>-1</sup>

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

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.350 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

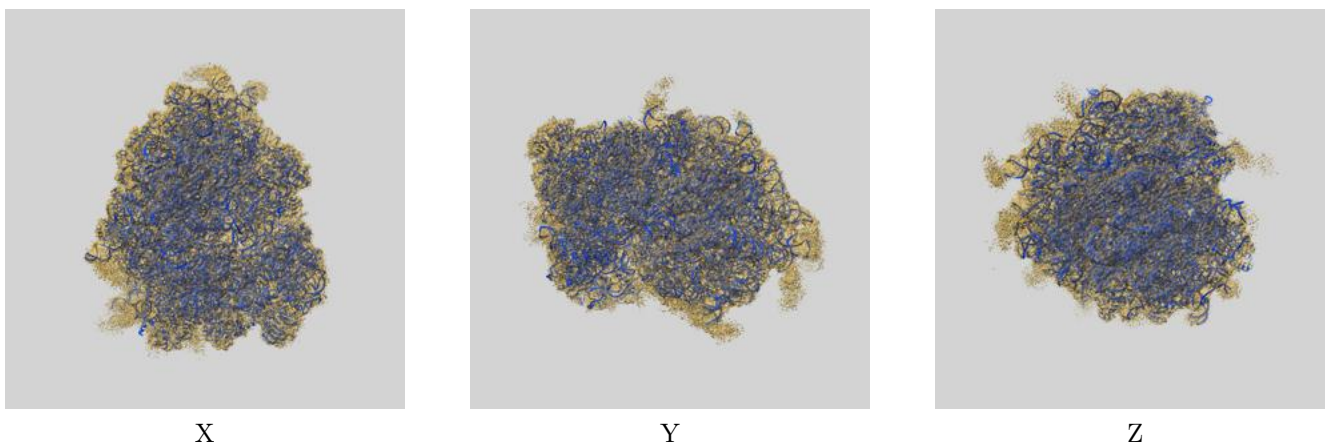
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.86	-	-
Author-provided FSC curve	2.84	3.09	2.85
Unmasked-calculated*	-	-	-

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

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

This section contains information regarding the fit between EMDB map EMD-13954 and PDB model 7QGG. Per-residue inclusion information can be found in section [3](#) on page [21](#).

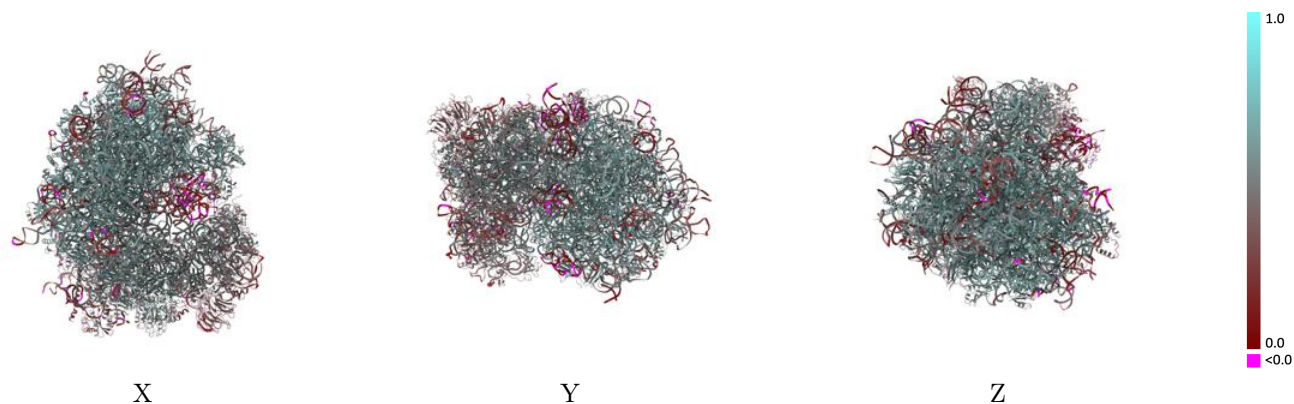
### 9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.0475 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

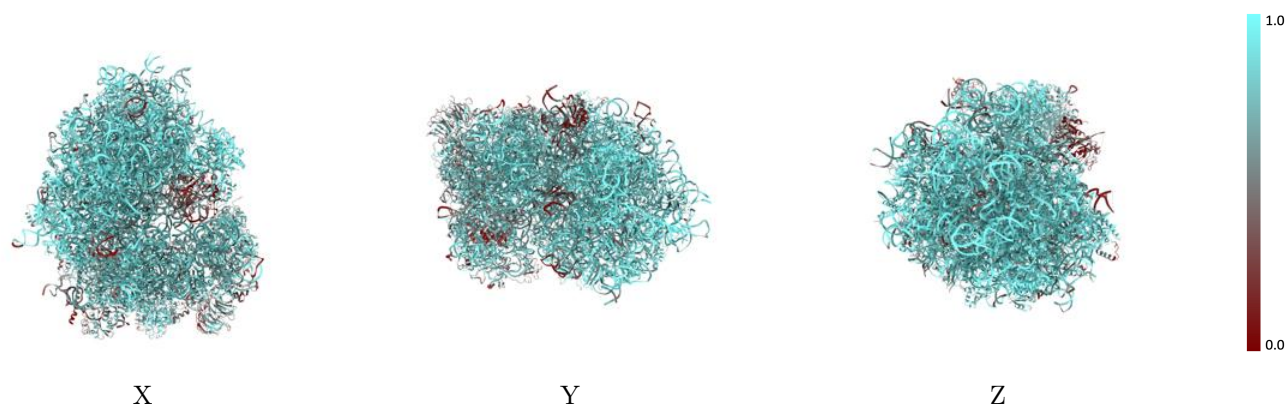


## 9.2 Q-score mapped to coordinate model [i](#)



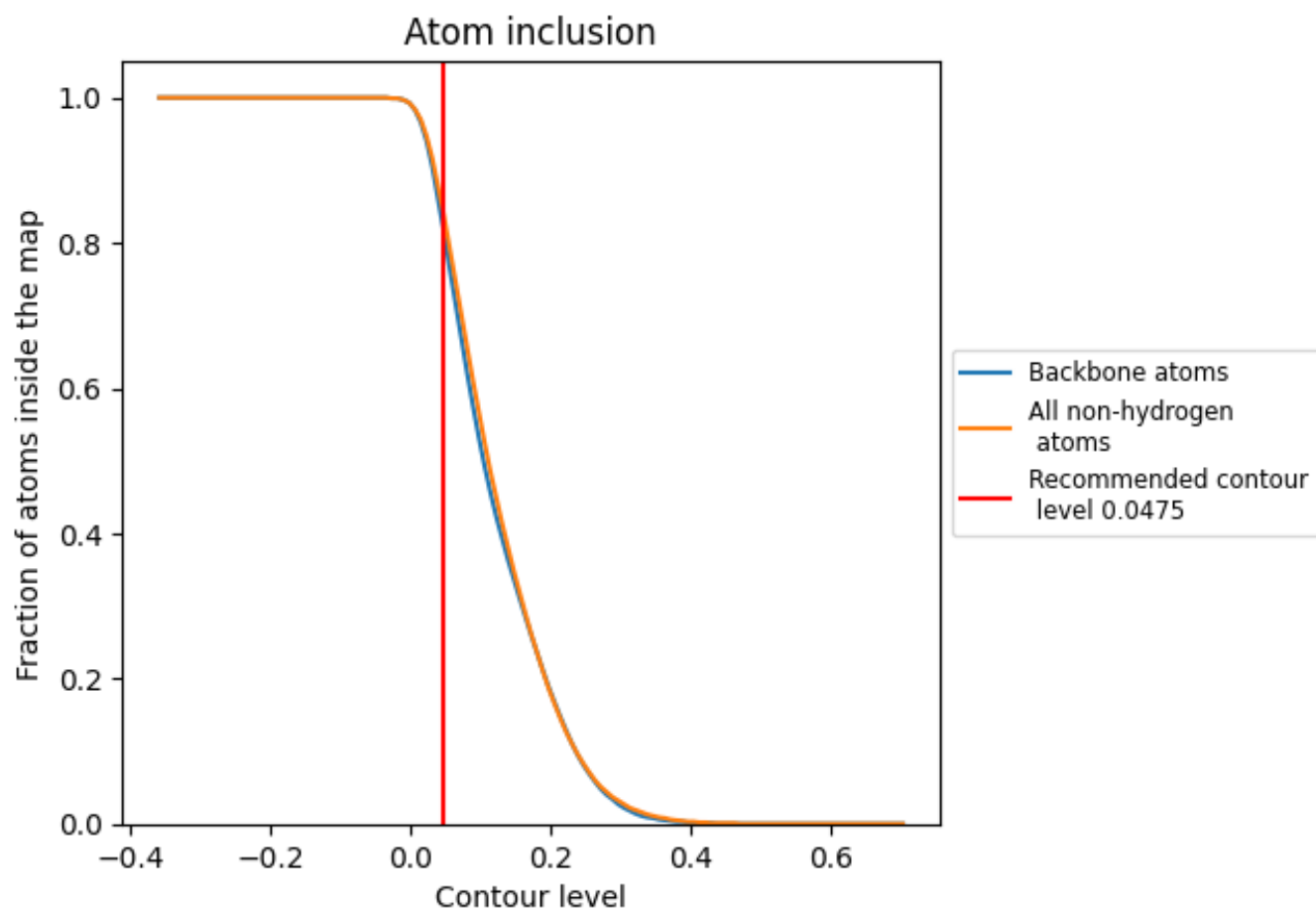
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0475).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 82% of all backbone atoms, 84% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.0475) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8420	 0.5000
A	 0.9150	 0.6060
B	 0.9330	 0.5960
C	 0.9360	 0.5990
Cz	 0.1280	 0.1170
D	 0.9130	 0.5300
E	 0.9860	 0.5870
F	 0.9260	 0.5610
G	 0.8330	 0.5180
H	 0.9470	 0.6150
I	 0.8110	 0.5150
J	 0.9190	 0.5800
K	 0.8980	 0.5820
L	 0.8630	 0.5240
M	 0.8610	 0.5390
N	 0.9340	 0.5880
O	 0.9640	 0.6240
P	 0.9300	 0.5940
Q	 0.9250	 0.5960
R	 0.9300	 0.6150
S	 0.8290	 0.5400
S2	 0.8380	 0.4570
SA	 0.7690	 0.4890
SB	 0.7510	 0.4850
SC	 0.7840	 0.5210
SD	 0.6230	 0.4060
SE	 0.7740	 0.4790
SF	 0.6770	 0.4500
SG	 0.6170	 0.3890
SH	 0.6220	 0.3970
SI	 0.7000	 0.4390
SJ	 0.7850	 0.4560
SK	 0.6840	 0.3910
SL	 0.7170	 0.4950
SM	 0.1180	 0.1860



















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Chain	Atom inclusion	Q-score
SN	0.7680	0.5080
SO	0.7890	0.5040
SP	0.7560	0.4500
SQ	0.7110	0.4330
SR	0.6250	0.4020
SS	0.7270	0.4630
ST	0.7430	0.4590
SU	0.5020	0.3760
SV	0.7870	0.4980
SW	0.8580	0.5550
SX	0.8030	0.5330
SY	0.7040	0.4200
SZ	0.5950	0.3790
Sa	0.8220	0.5210
Sb	0.7370	0.4730
Sc	0.6280	0.4060
Sd	0.8120	0.4640
Se	0.6220	0.4270
Sf	0.1460	0.2010
Sg	0.5340	0.3160
T	0.9330	0.5910
U	0.9170	0.5790
V	0.8730	0.5120
W	0.8990	0.5960
X	0.9230	0.5950
Y	0.9100	0.5880
Z	0.9230	0.5890
a	0.9200	0.5730
b	0.9520	0.6140
c	0.8700	0.5450
d	0.8700	0.5460
e	0.9200	0.5860
f	0.9280	0.6010
g	0.9550	0.6230
h	0.8750	0.5660
i	0.9090	0.5820
j	0.8920	0.5700
k	0.9390	0.5960
l	0.8280	0.5250
m	0.9170	0.6110
n	0.9600	0.5870
o	0.8080	0.5540

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Chain	Atom inclusion	Q-score
p	 0.8900	 0.5700
q	 0.8870	 0.5890
r	 0.8950	 0.5690
t	 0.9050	 0.5110
u	 0.5060	 0.3080
v	 0.6020	 0.3140
w	 0.5650	 0.3760
y	 0.4580	 0.3900