



wwPDB EM Validation Summary Report ⓘ

Jan 7, 2023 – 10:39 am GMT

PDB ID : 7NWH
EMDB ID : EMD-12632
Title : Mammalian pre-termination 80S ribosome with eRF1 and eRF3 bound by Blasticidin S.
Authors : Powers, K.T.; Yadav, S.K.N.; Bufton, J.C.; Schaffitzel, C.
Deposited on : 2021-03-16
Resolution : 4.10 Å(reported)
Based on initial model : 5LZT

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

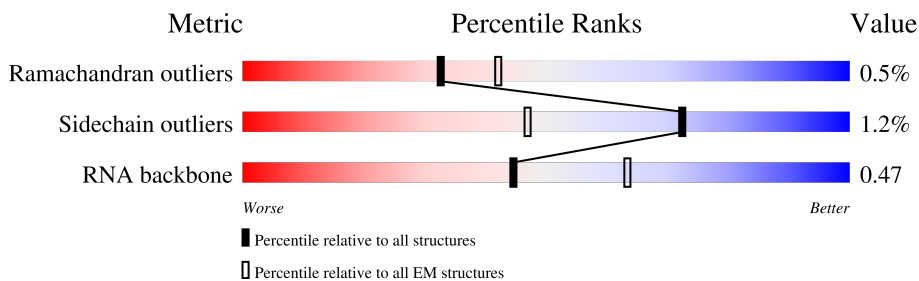
EMDB validation analysis : 0.0.1.dev43
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

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 4.10 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	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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 $\leq 5\%$. 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	A	249	
2	C	378	
3	d	108	
4	DD	281	
5	dd	56	
6	D	296	
7	e	129	
8	EE	263	

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Mol	Chain	Length	Quality of chain
9	ee	133	
10	b	226	
11	E	291	
12	f	110	
13	FF	204	
14	ff	68	
15	F	249	
16	g	126	
17	BB	264	
18	GG	263	
19	gg	314	
20	G	242	
21	h	123	
22	HH	191	
23	hh	15	
24	bb	84	
25	H	190	
26	i	107	
27	II	208	
28	ii	437	
29	I	214	
30	j	97	
31	JJ	194	
32	jj	428	
33	J	176	

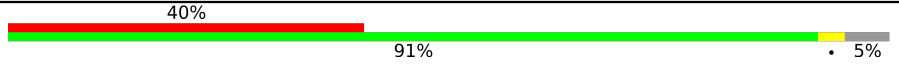
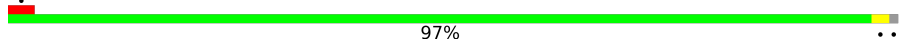
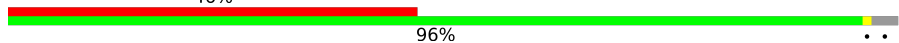


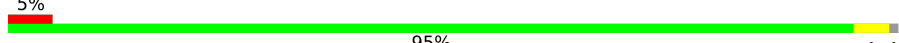
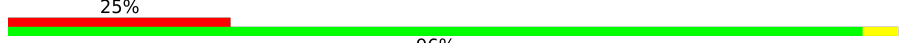

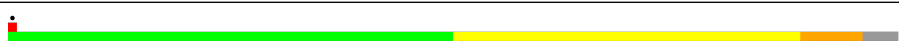

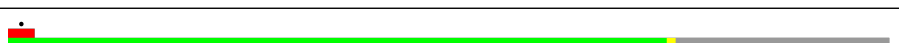


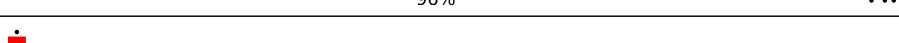
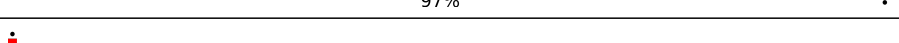
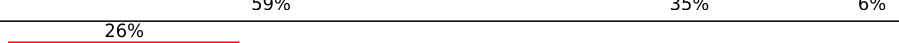
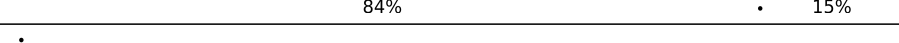
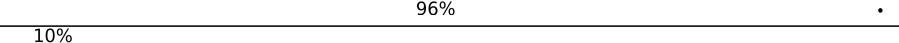
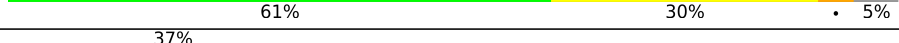

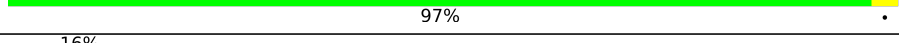


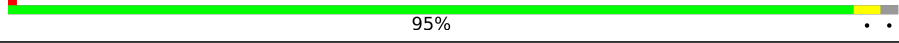

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Mol	Chain	Length	Quality of chain
34	k	70	
35	KK	151	
36	L	211	
37	l	51	
38	LL	158	
39	M	218	
40	m	128	
41	MM	123	
42	N	204	
43	n	25	
44	NN	150	
45	O	203	
46	o	142	
47	OO	156	
48	P	199	
49	p	109	
50	PP	145	
51	Q	188	
52	r	137	
53	QQ	158	
54	R	196	
55	s	318	
56	RR	145	
57	S	176	
58	t	196	


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Mol	Chain	Length	Quality of chain
59	SS	152	
60	T	160	
61	TT	145	
62	U	128	
63	UU	118	
64	V	132	
65	VV	83	
66	W	134	
67	5	3705	
68	WW	139	
69	X	156	
70	7	120	
71	XX	142	
72	Y	134	
73	8	151	
74	YY	146	
75	Z	136	
76	9	1779	
77	ZZ	122	
78	a	147	
79	AA	295	
80	aa	117	
81	B	402	
82	c	115	
83	CC	259	

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Mol	Chain	Length	Quality of chain
84	cc	69	 <p>67% 84% 6% 10%</p>

2 Entry composition [i](#)

There are 88 unique types of molecules in this entry. The entry contains 385116 atoms, of which 165738 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 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
1	A	248	Total	C	H	N	O	S	0	0
			3891	1189	1993	389	314	6		

- Molecule 2 is a protein called uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
2	C	362	Total	C	H	N	O	S	0	0
			5936	1812	3053	577	480	14		

- Molecule 3 is a protein called eL31.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
3	d	107	Total	C	H	N	O	S	0	0
			1818	560	930	171	155	2		

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

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
4	DD	228	Total	C	H	N	O	S	0	0
			3632	1126	1864	318	316	8		

- Molecule 5 is a protein called S29.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
5	dd	55	Total	C	H	N	O	S	0	0
			908	286	449	94	74	5		

- Molecule 6 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
6	D	293	Total	C	H	N	O	S	0	0
			4815	1512	2424	438	427	14		

- Molecule 7 is a protein called Ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace	
7	e	128	Total	C	H	N	O	S	0	0
			2200	667	1147	216	165	5		

- Molecule 8 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace	
8	EE	262	Total	C	H	N	O	S	0	0
			4253	1324	2177	386	358	8		

- Molecule 9 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace	
9	ee	55	Total	C	H	N	O	S	0	0
			935	274	492	97	71	1		

- Molecule 10 is a protein called eL29.

Mol	Chain	Residues	Atoms					AltConf	Trace	
10	b	104	Total	C	H	N	O	S	0	0
			1768	527	920	189	129	3		

- Molecule 11 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace	
11	E	216	Total	C	H	N	O	S	0	0
			3617	1115	1888	329	282	3		

- Molecule 12 is a protein called eL33.

Mol	Chain	Residues	Atoms					AltConf	Trace	
12	f	109	Total	C	H	N	O	S	0	0
			1788	555	912	174	143	4		

- Molecule 13 is a protein called Ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace	
13	FF	185	Total	C	H	N	O	S	0	0
			2993	921	1522	277	266	7		

- Molecule 14 is a protein called 40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace	
14	ff	68	Total	C	H	N	O	S	0	0
			1120	351	565	103	94	7		

- Molecule 15 is a protein called uL30.

Mol	Chain	Residues	Atoms					AltConf	Trace	
15	F	225	Total	C	H	N	O	S	0	0
			3870	1205	1995	358	303	9		

- Molecule 16 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace	
16	g	114	Total	C	H	N	O	S	0	0
			1905	566	999	187	147	6		

- Molecule 17 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace	
17	BB	213	Total	C	H	N	O	S	0	0
			3532	1098	1803	309	308	14		

- Molecule 18 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace	
18	GG	237	Total	C	H	N	O	S	0	0
			4005	1200	2082	387	329	7		

- Molecule 19 is a protein called Epididymis tissue sperm binding protein Li 3a.

Mol	Chain	Residues	Atoms					AltConf	Trace	
19	gg	313	Total	C	H	N	O	S	0	0
			4830	1535	2394	424	465	12		

- Molecule 20 is a protein called L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace	
20	G	233	Total	C	H	N	O	S	0	0
			3906	1199	2027	361	315	4		

- Molecule 21 is a protein called uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
21	h	122	2160	640	1147	204	168	1	0	0

- Molecule 22 is a protein called S7.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
22	HH	185	3070	952	1582	271	264	1	0	0

- Molecule 23 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			P
23	hh	15	478	142	161	54	106	15	0	0

- Molecule 24 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
24	bb	83	1323	408	672	121	115	7	0	0

- Molecule 25 is a protein called L9.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
25	H	190	3113	954	1597	284	272	6	0	0

- Molecule 26 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
26	i	102	1746	520	916	176	129	5	0	0

- Molecule 27 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
27	II	206	3459	1058	1773	332	291	5	0	0

- Molecule 28 is a protein called Eukaryotic peptide chain release factor subunit 1.

Mol	Chain	Residues	Atoms						AltConf	Trace
28	ii	419	Total	C	H	N	O	S	0	0
			6638	2104	3331	562	629	12		

- Molecule 29 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms						AltConf	Trace
29	I	205	Total	C	H	N	O	S	0	0
			3376	1056	1712	321	274	13		

- Molecule 30 is a protein called Ribosomal protein L37.

Mol	Chain	Residues	Atoms						AltConf	Trace
30	j	86	Total	C	H	N	O	S	0	0
			1442	434	737	155	111	5		

- Molecule 31 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms						AltConf	Trace
31	JJ	185	Total	C	H	N	O	S	0	0
			3165	969	1640	306	248	2		

- Molecule 32 is a protein called eRF3a.

Mol	Chain	Residues	Atoms						AltConf	Trace
32	jj	428	Total	C	H	N	O	S	0	0
			6787	2144	3419	580	623	21		

- Molecule 33 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms						AltConf	Trace
33	J	170	Total	C	H	N	O	S	0	0
			2761	861	1399	254	241	6		

- Molecule 34 is a protein called L38.

Mol	Chain	Residues	Atoms						AltConf	Trace
34	k	69	Total	C	H	N	O	S	0	0
			1206	366	637	103	99	1		

- Molecule 35 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
35	KK	96	1646	530	836	143	131	6	0	0

- Molecule 36 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
36	L	210	3522	1065	1820	354	279	4	0	0

- Molecule 37 is a protein called eL39.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
37	1	50	927	286	480	96	64	1	0	0

- Molecule 38 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
38	LL	143	2425	749	1250	222	198	6	0	0

- Molecule 39 is a protein called Ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
39	M	138	2348	727	1211	221	182	7	0	0

- Molecule 40 is a protein called 60S RIBOSOMAL PROTEIN EL40.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
40	m	52	894	266	465	90	67	6	0	0

- Molecule 41 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
41	MM	117	1847	570	939	161	169	8	0	0

- Molecule 42 is a protein called Ribosomal protein L15.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
42	N	203	3451	1072	1750	359	266	4	0	0

- Molecule 43 is a protein called 60s ribosomal protein l41.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
43	n	25	525	145	286	64	27	3	0	0

- Molecule 44 is a protein called ribosomal protein uS15.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
44	NN	149	2491	770	1289	228	203	1	0	0

- Molecule 45 is a protein called 60S RIBOSOMAL PROTEIN UL13.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
45	O	199	3408	1051	1778	319	255	5	0	0

- Molecule 46 is a protein called eL42.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
46	o	104	1771	533	920	174	138	6	0	0

- Molecule 47 is a protein called uS11.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
47	OO	136	2055	621	1039	199	190	6	0	0

- Molecule 48 is a protein called uL22.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
48	P	153	2516	777	1274	241	215	9	0	0

- Molecule 49 is a protein called ribosomal protein eL43.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
49	p	91	1466	445	758	136	120	7	0	0

- Molecule 50 is a protein called 40S ribosomal protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
50	PP	120	2042	635	1045	187	168	7	0	0

- Molecule 51 is a protein called eL18.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
51	Q	187	3149	946	1634	315	250	4	0	0

- Molecule 52 is a protein called eL28.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
52	r	124	2045	616	1051	205	167	6	0	0

- Molecule 53 is a protein called Ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
53	QQ	142	2323	717	1195	213	195	3	0	0

- Molecule 54 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
54	R	180	3172	933	1664	328	238	9	0	0

- Molecule 55 is a protein called 60S acidic ribosomal protein P0.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
55	s	196	3071	959	1564	263	276	9	0	0

- Molecule 56 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
56	RR	132	2189	670	1121	199	195	4	0	0

- Molecule 57 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
57	S	176	2970	930	1508	285	236	11	0	0

- Molecule 58 is a protein called uL12.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
58	t	153	2375	722	1215	218	217	3	0	0

- Molecule 59 is a protein called 40S ribosomal protein uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
59	SS	144	2437	746	1247	241	202	1	0	0

- Molecule 60 is a protein called eL21.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
60	T	159	2665	823	1367	252	217	6	0	0

- Molecule 61 is a protein called eS19.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
61	TT	141	2229	688	1132	211	195	3	0	0

- Molecule 62 is a protein called L22.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
62	U	99	1642	519	833	141	147	2	0	0

- Molecule 63 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
63	UU	100	1657	498	862	152	141	4	0	0

- Molecule 64 is a protein called eL14.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
64	V	131	2018	618	1039	184	172	5	0	0

- Molecule 65 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
65	VV	83	1273	393	637	117	121	5	0	0

- Molecule 66 is a protein called 60S ribosomal protein L24-like protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
66	W	106	1752	538	892	174	144	4	0	0

- Molecule 67 is a RNA chain called 28S Ribosomal RNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	P		
67	5	3543	114361	33833	38389	13910	24686	3543	0	0

- Molecule 68 is a protein called Ribosomal protein S15a.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
68	WW	129	2114	659	1080	193	176	6	0	0

- Molecule 69 is a protein called uL23.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
69	X	118	2007	618	1040	181	167	1	0	0

- Molecule 70 is a RNA chain called 5S Ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			P
70	7	120	3854	1141	1296	456	842	119	0	0

- Molecule 71 is a protein called 40S ribosomal protein uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
71	XX	141	2263	693	1165	219	183	3	0	0

- Molecule 72 is a protein called Ribosomal protein L26.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
72	Y	134	2320	700	1205	226	186	3	0	0

- Molecule 73 is a RNA chain called 5.8S Ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			P
73	8	151	4837	1432	1629	564	1062	150	0	0

- Molecule 74 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
74	YY	124	2094	640	1083	198	168	5	0	0

- Molecule 75 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
75	Z	135	2289	714	1182	208	182	3	0	0

- Molecule 76 is a RNA chain called 18S Ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			P
76	9	1698	54557	16180	18308	6508	11864	1697	0	0

- Molecule 77 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace	
77	ZZ	75	Total	C	H	N	O	S	0	0
			1254	382	656	111	104	1		

- Molecule 78 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace	
78	a	147	Total	C	H	N	O	S	0	0
			2372	734	1210	239	185	4		

- Molecule 79 is a protein called 40S_SA_C domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace	
79	AA	217	Total	C	H	N	O	S	0	0
			3418	1086	1708	300	316	8		

- Molecule 80 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace	
80	aa	101	Total	C	H	N	O	S	0	0
			1678	507	864	170	132	5		

- Molecule 81 is a protein called uL3.

Mol	Chain	Residues	Atoms					AltConf	Trace	
81	B	394	Total	C	H	N	O	S	0	0
			6482	2020	3310	597	542	13		

- Molecule 82 is a protein called eL30.

Mol	Chain	Residues	Atoms					AltConf	Trace	
82	c	98	Total	C	H	N	O	S	0	0
			1555	481	794	134	140	6		

- Molecule 83 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace	
83	CC	221	Total	C	H	N	O	S	0	0
			3522	1111	1806	295	301	9		

- Molecule 84 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
84	cc	62	1002	297	514	97	92	2	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
cc	5	HIS	ARG	conflict	UNP G1TIB4

- Molecule 85 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
85	dd	1	Total	Zn	0
			1	1	
85	ff	1	Total	Zn	0
			1	1	
85	g	1	Total	Zn	0
			1	1	
85	j	1	Total	Zn	0
			1	1	
85	m	1	Total	Zn	0
			1	1	
85	o	1	Total	Zn	0
			1	1	
85	p	1	Total	Zn	0
			1	1	
85	aa	1	Total	Zn	0
			1	1	

- Molecule 86 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

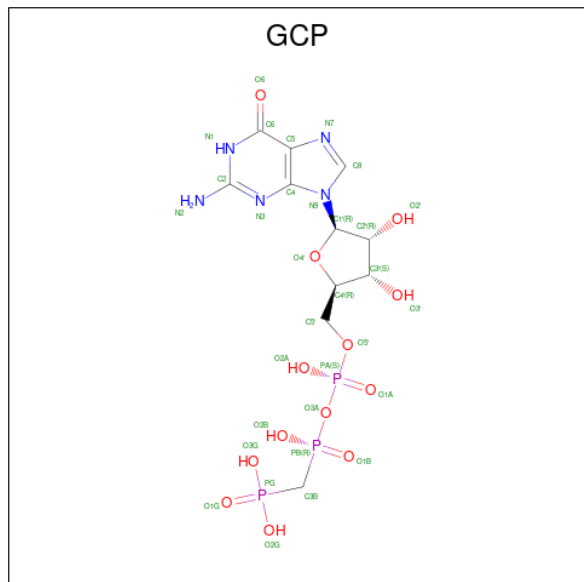
Mol	Chain	Residues	Atoms		AltConf
86	hh	2	Total	Mg	0
			2	2	
86	j	1	Total	Mg	0
			1	1	
86	jj	1	Total	Mg	0
			1	1	
86	o	1	Total	Mg	0
			1	1	
86	P	1	Total	Mg	0
			1	1	
86	V	1	Total	Mg	0
			1	1	

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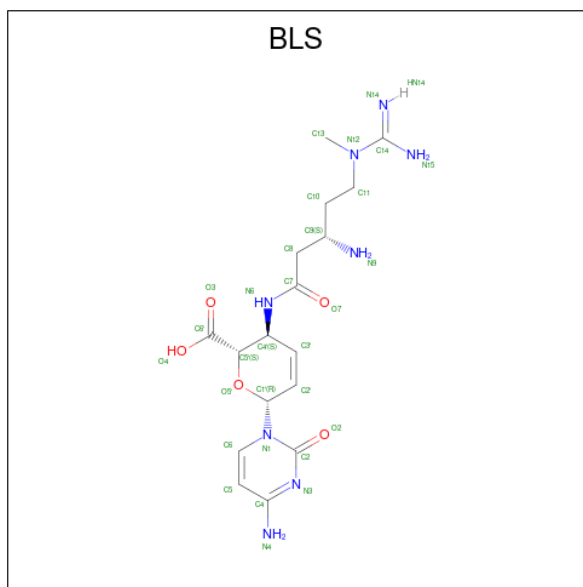
Mol	Chain	Residues	Atoms		AltConf
86	5	189	Total	Mg	0
			189	189	
86	7	4	Total	Mg	0
			4	4	
86	8	10	Total	Mg	0
			10	10	
86	9	70	Total	Mg	0
			70	70	
86	a	1	Total	Mg	0
			1	1	

- Molecule 87 is PHOSPHOMETHYLPHOSPHONIC ACID GUANYLATE ESTER (three-letter code: GCP) (formula: $C_{11}H_{18}N_5O_{13}P_3$).



Mol	Chain	Residues	Atoms					AltConf	
			Total	C	H	N	O		P
87	jj	1	46	11	14	5	13	3	0

- Molecule 88 is BLASTICIDIN S (three-letter code: BLS) (formula: $C_{17}H_{26}N_8O_5$) (labeled as "Ligand of Interest" by depositor).

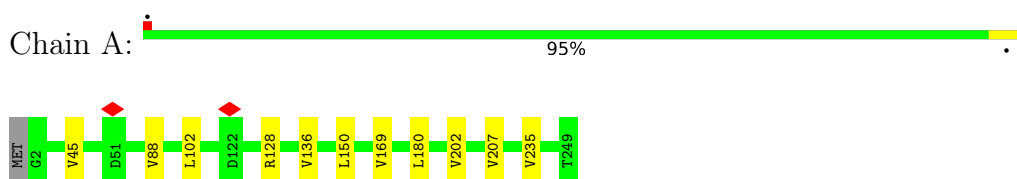


Mol	Chain	Residues	Atoms					AltConf
			Total	C	H	N	O	
88	5	1	55	17	25	8	5	0

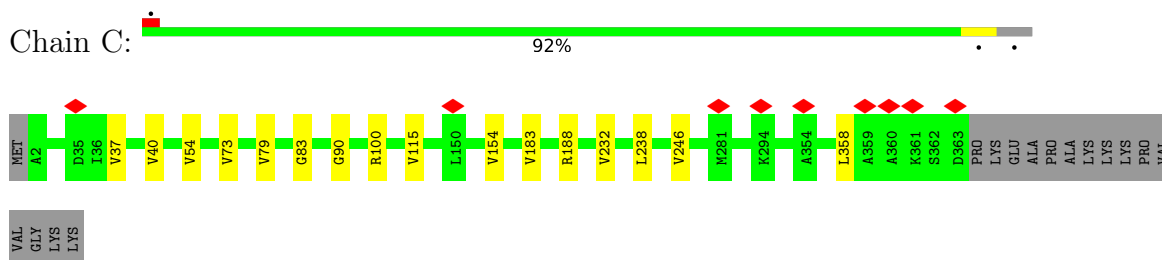
3 Residue-property plots

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.

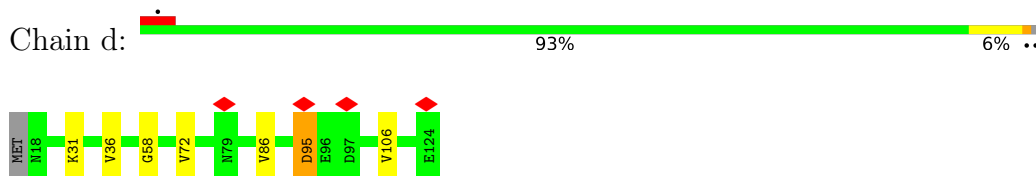
- Molecule 1: 60S ribosomal protein L8



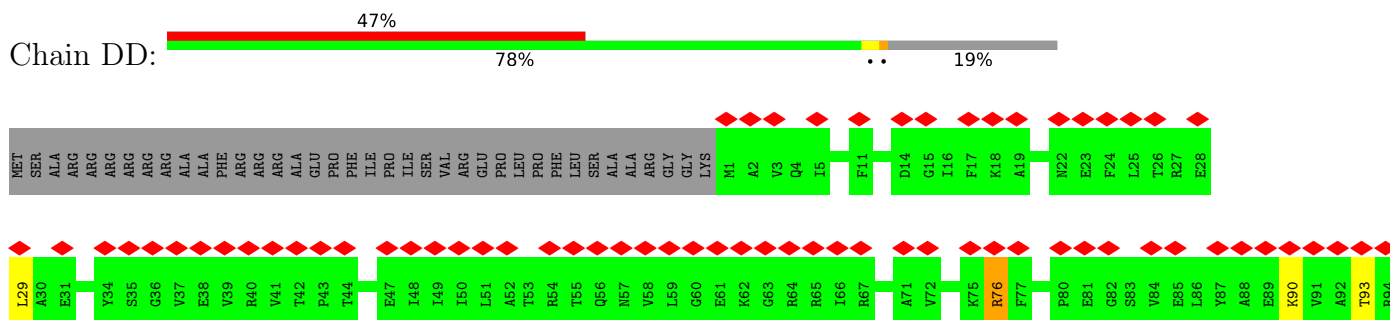
- Molecule 2: uL4

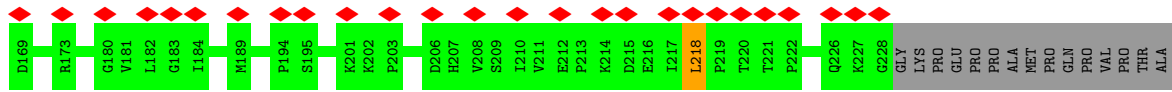
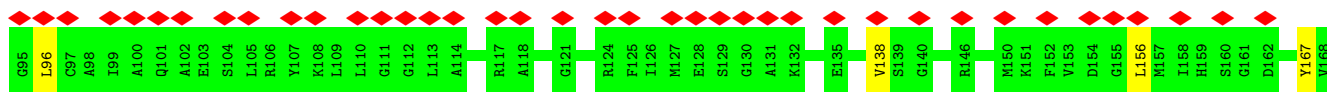


- Molecule 3: eL31

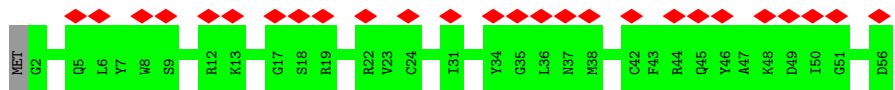


- Molecule 4: 40S ribosomal protein S3

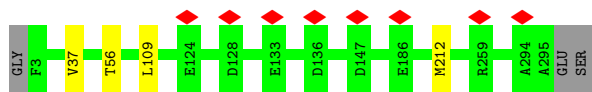




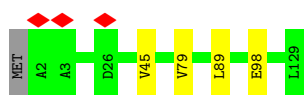
• Molecule 5: S29



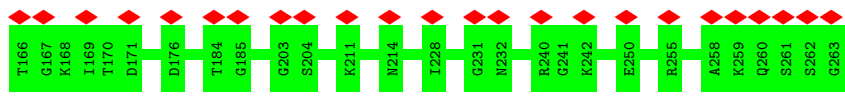
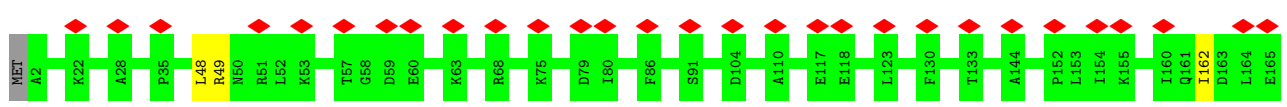
• Molecule 6: 60S ribosomal protein L5



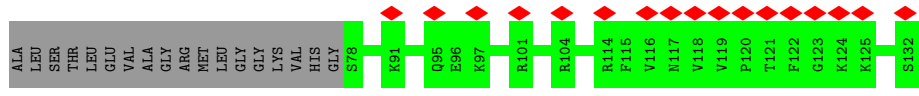
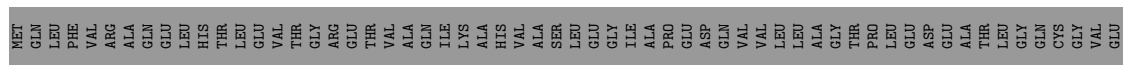
• Molecule 7: Ribosomal protein L32

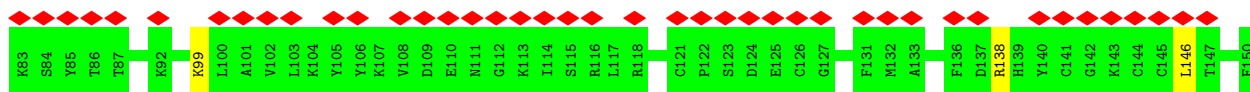


• Molecule 8: 40S ribosomal protein S4

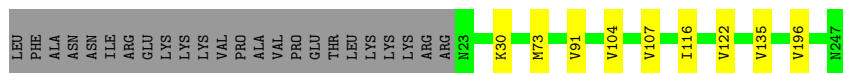
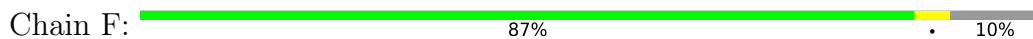


• Molecule 9: 40S ribosomal protein S30

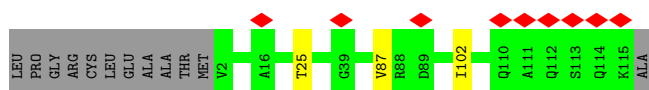
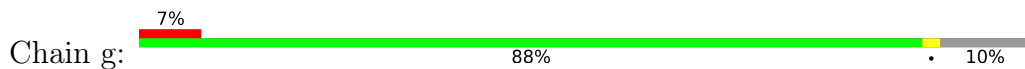




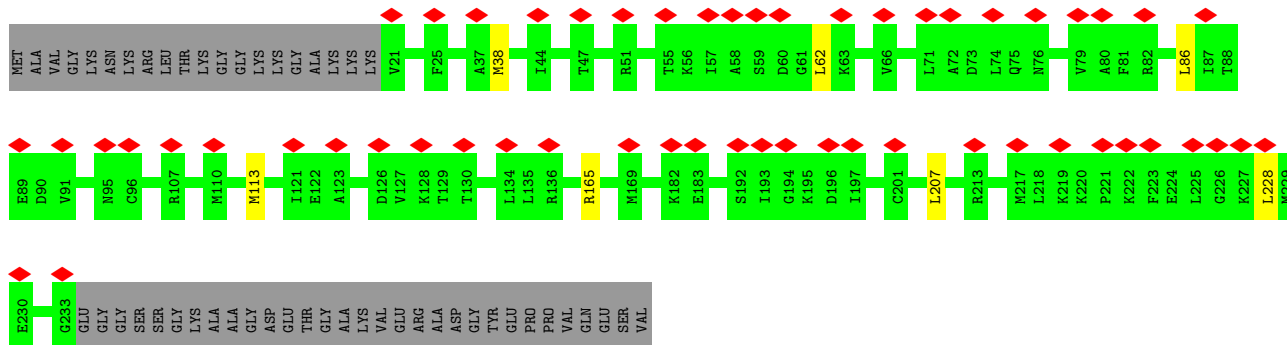
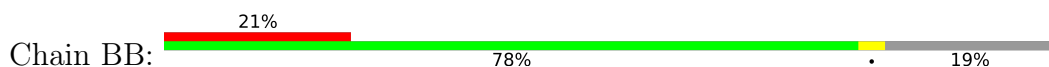
• Molecule 15: uL30



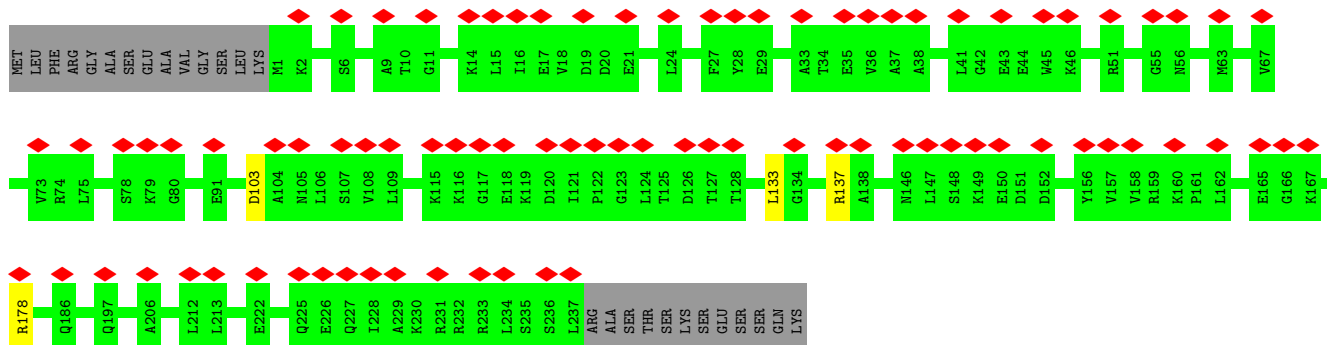
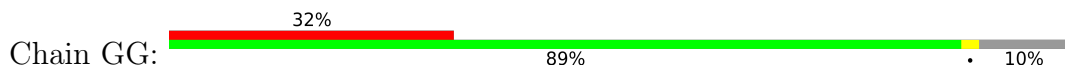
• Molecule 16: 60S ribosomal protein L34



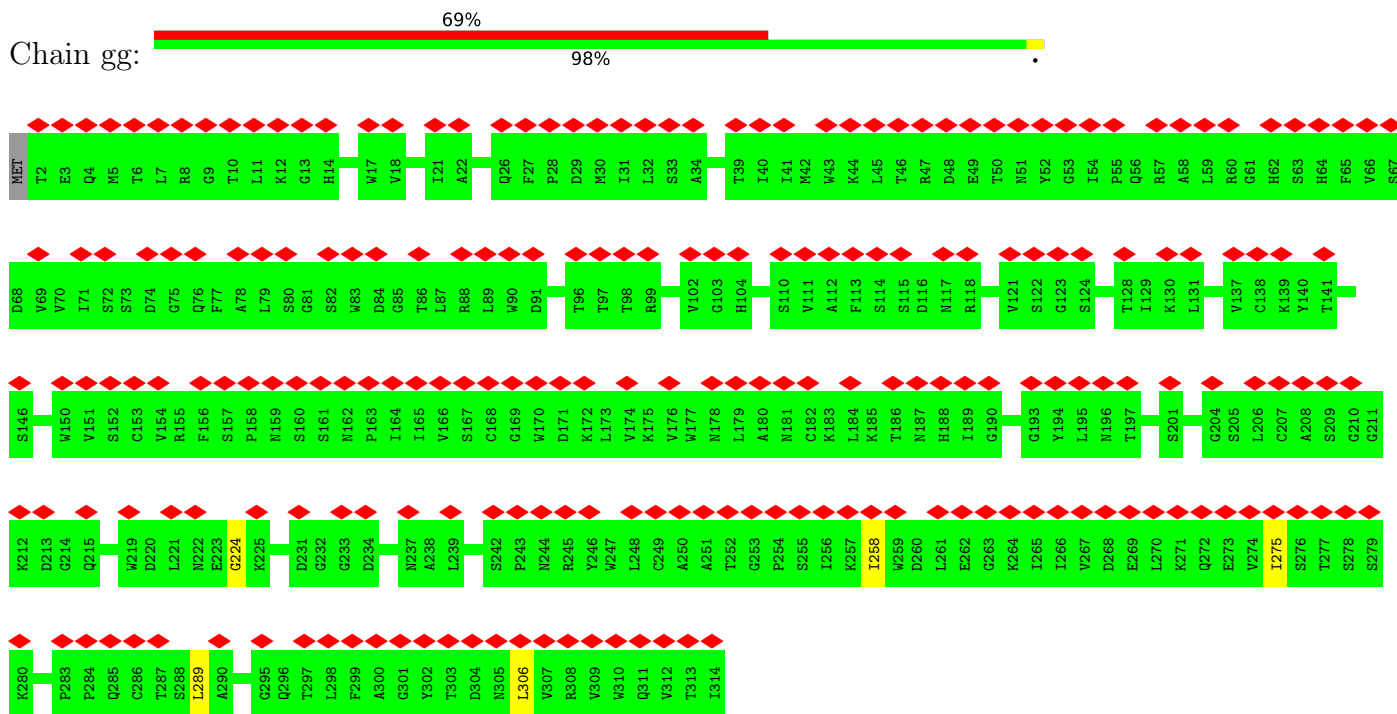
• Molecule 17: 40S ribosomal protein S3a



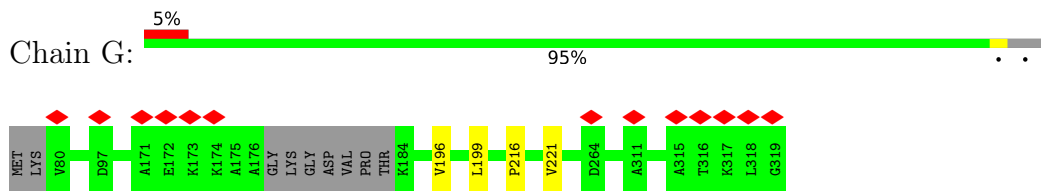
• Molecule 18: 40S ribosomal protein S6



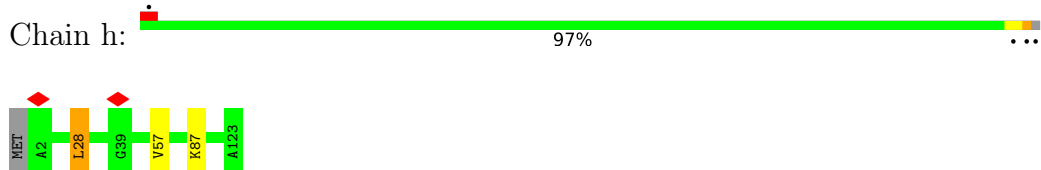
• Molecule 19: Epididymis tissue sperm binding protein Li 3a



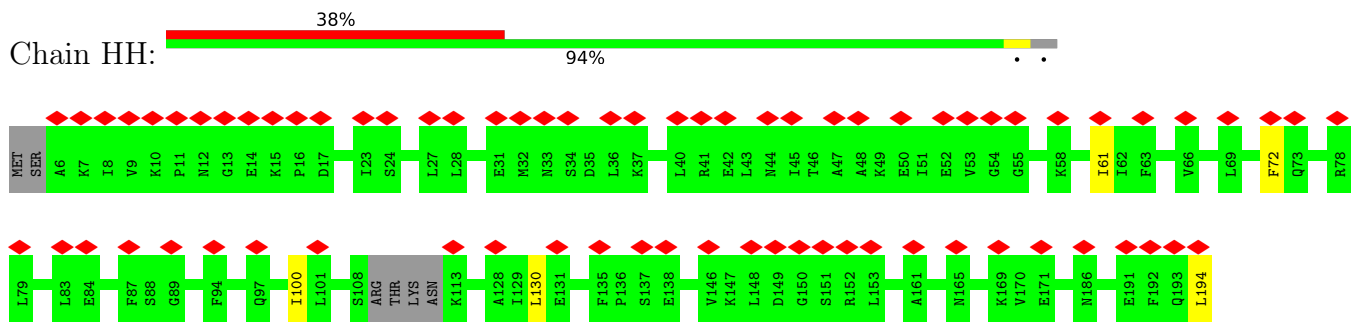
• Molecule 20: L7a



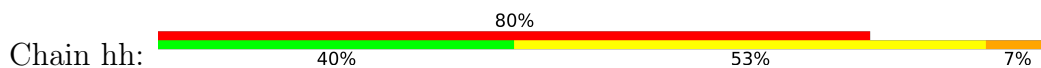
• Molecule 21: uL29

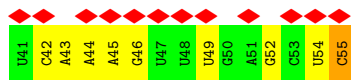


• Molecule 22: S7

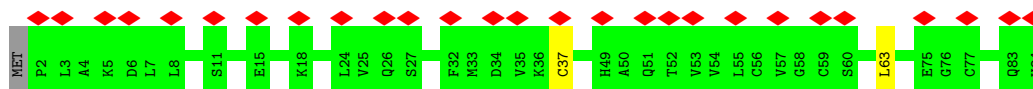


• Molecule 23: mRNA

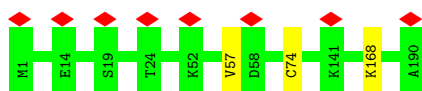




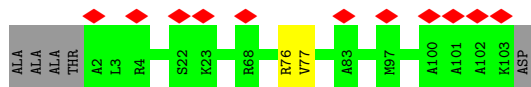
• Molecule 24: 40S ribosomal protein S27



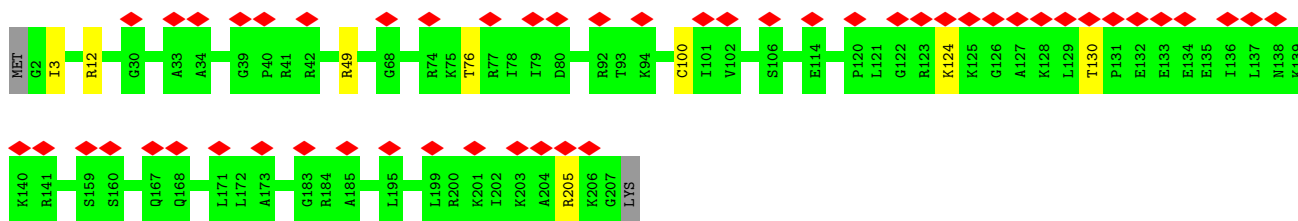
• Molecule 25: L9



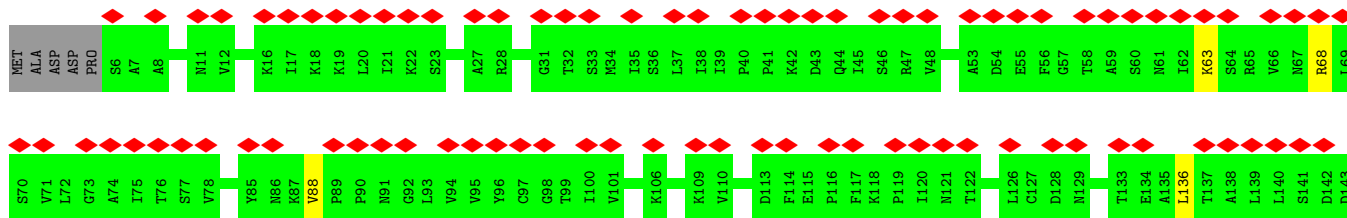
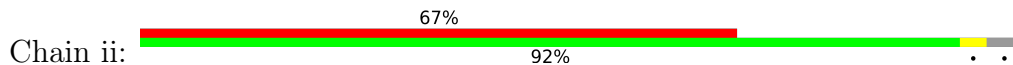
• Molecule 26: 60S ribosomal protein L36



• Molecule 27: 40S ribosomal protein S8

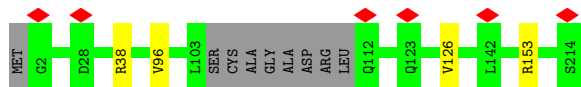


• Molecule 28: Eukaryotic peptide chain release factor subunit 1

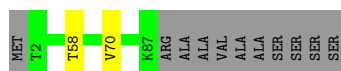
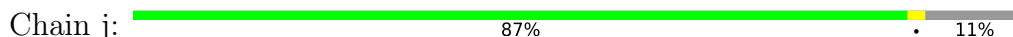




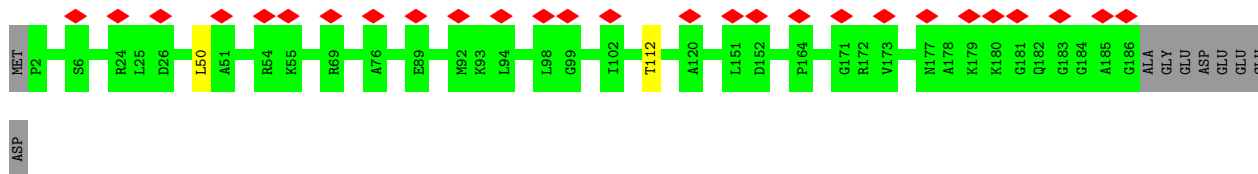
- Molecule 29: 60S ribosomal protein L10



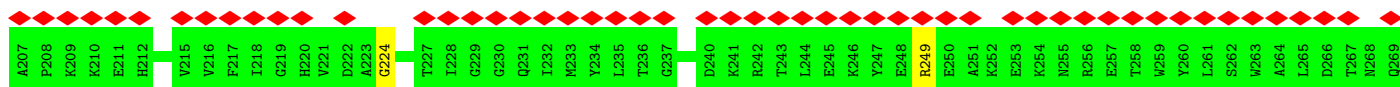
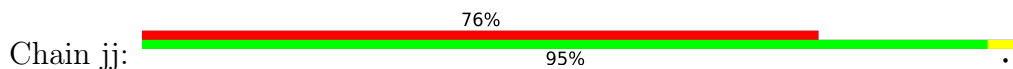
- Molecule 30: Ribosomal protein L37

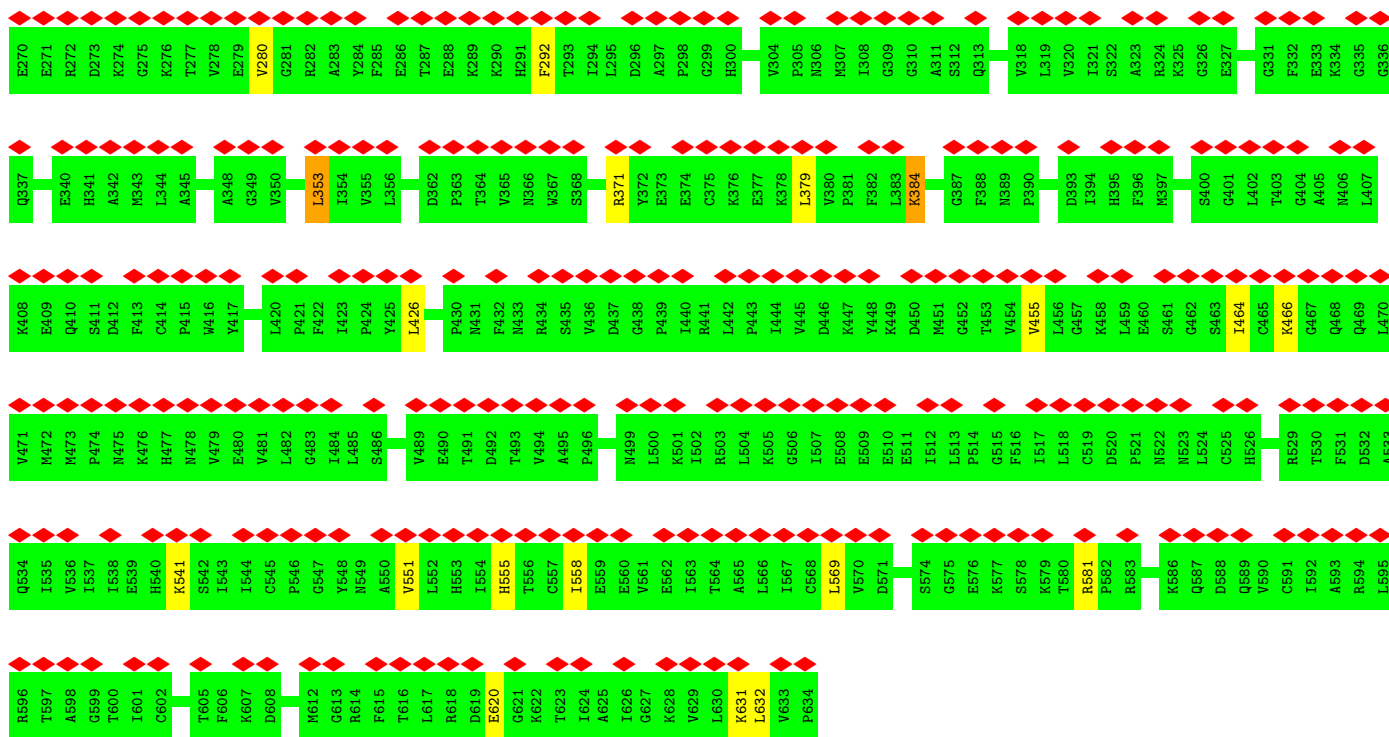


- Molecule 31: 40S ribosomal protein S9

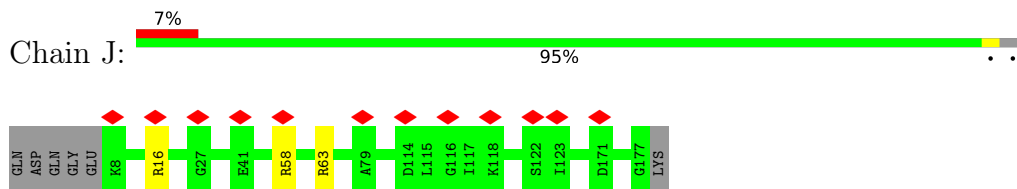


- Molecule 32: eRF3a

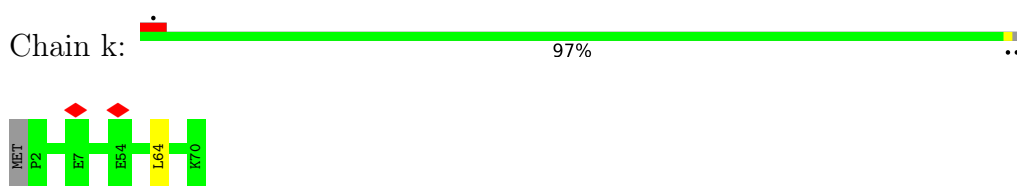




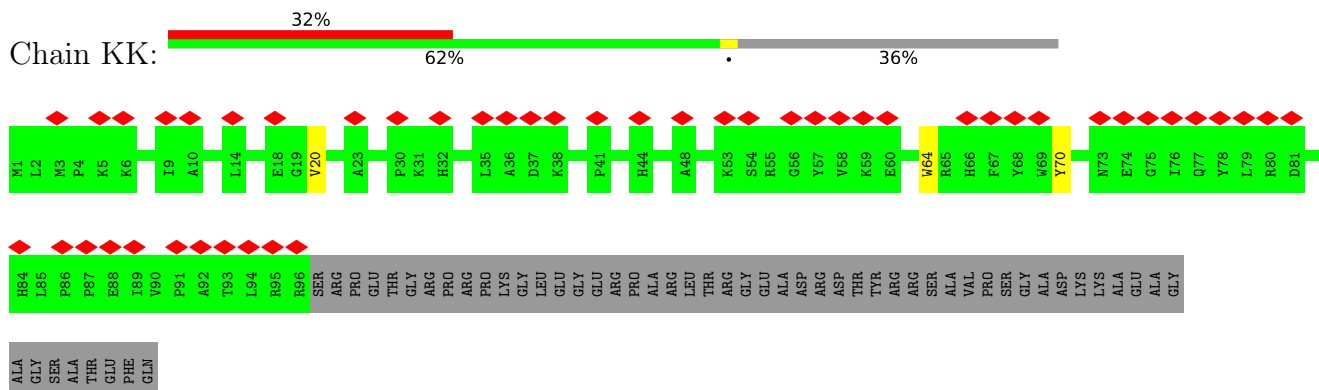
• Molecule 33: 60S ribosomal protein L11



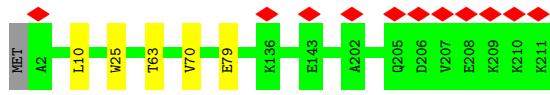
• Molecule 34: L38



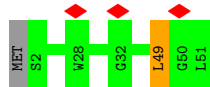
• Molecule 35: 40S ribosomal protein S10



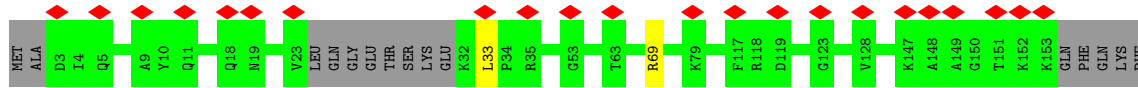
Molecule 36: 60S ribosomal protein L13



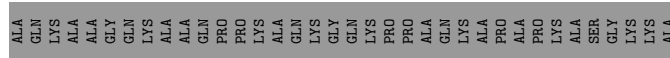
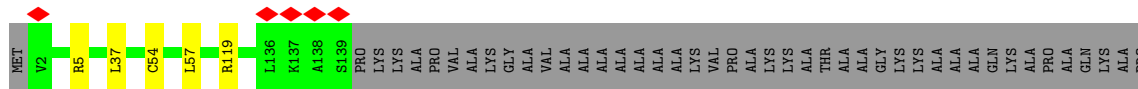
Molecule 37: eL39



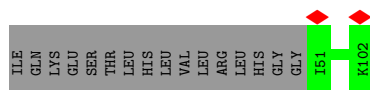
Molecule 38: 40S ribosomal protein S11



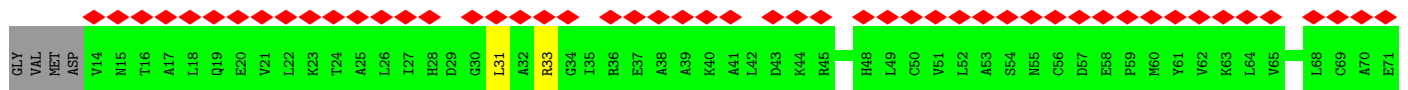
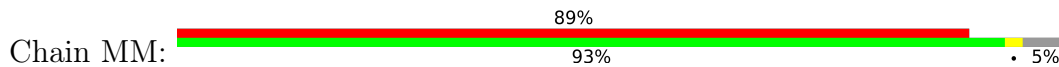
Molecule 39: Ribosomal protein L14

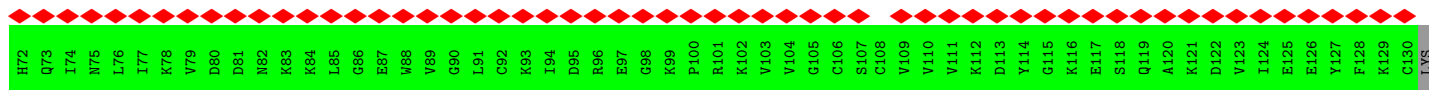


Molecule 40: 60S RIBOSOMAL PROTEIN EL40



Molecule 41: 40S ribosomal protein S12



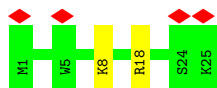


LYS

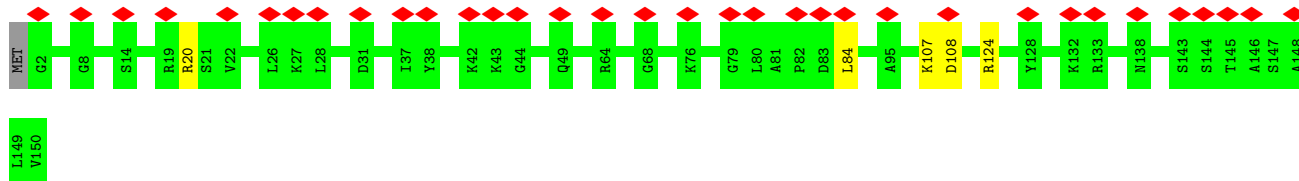
- Molecule 42: Ribosomal protein L15



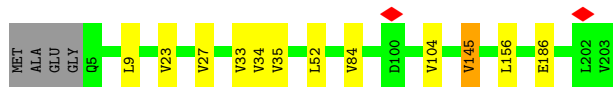
- Molecule 43: 60s ribosomal protein l41



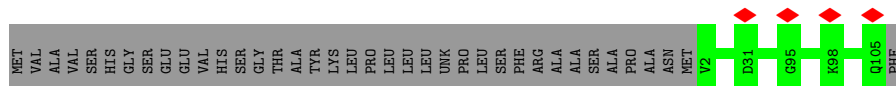
- Molecule 44: ribosomal protein uS15



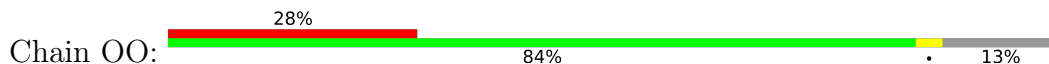
- Molecule 45: 60S RIBOSOMAL PROTEIN UL13

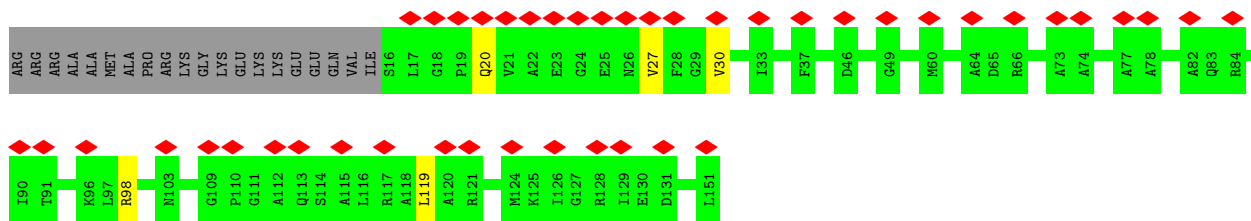


- Molecule 46: eL42

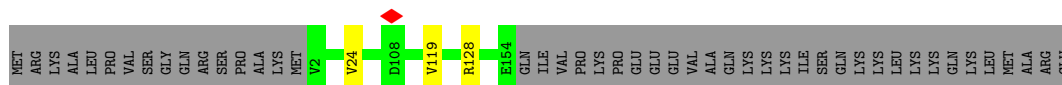
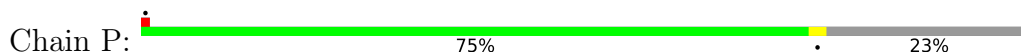


- Molecule 47: uS11

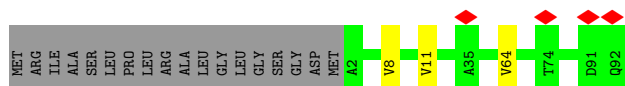
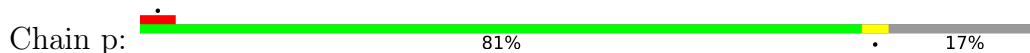




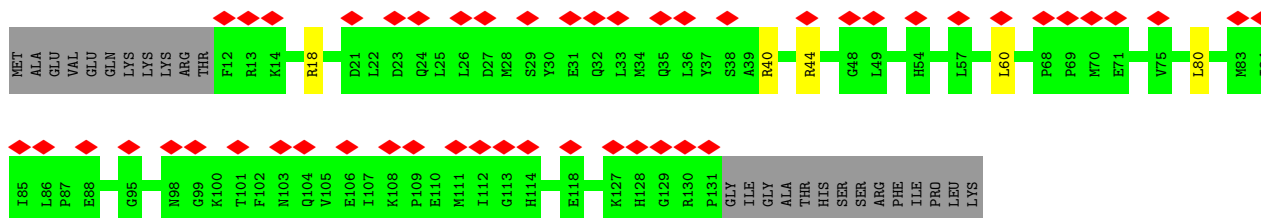
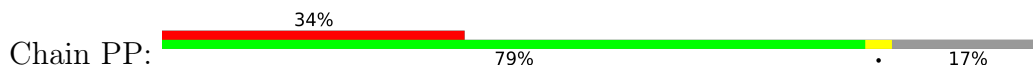
• Molecule 48: uL22



• Molecule 49: ribosomal protein eL43



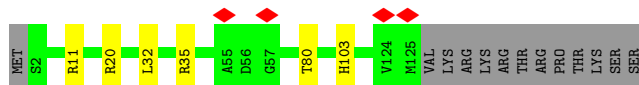
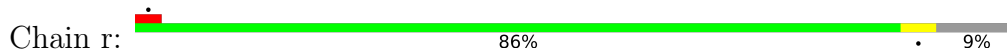
• Molecule 50: 40S ribosomal protein uS19



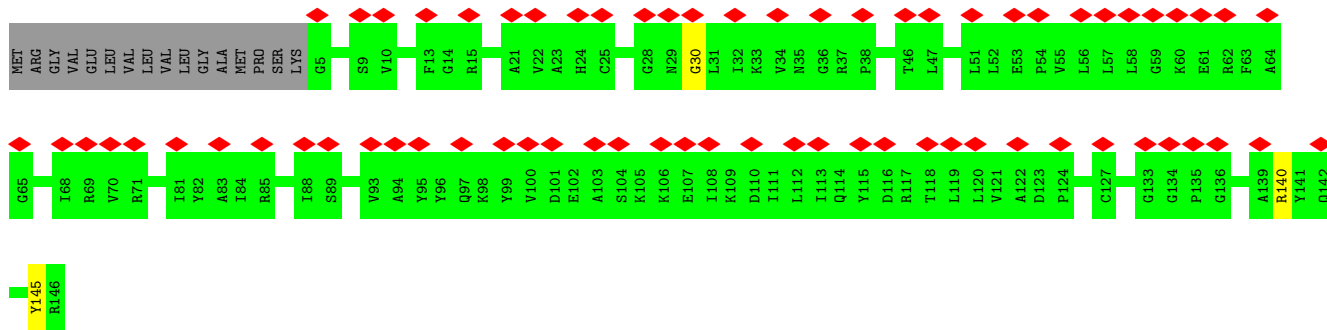
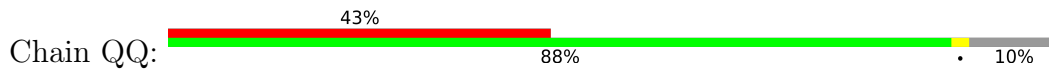
• Molecule 51: eL18



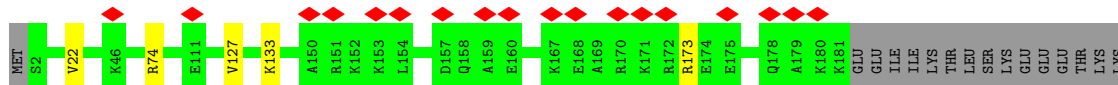
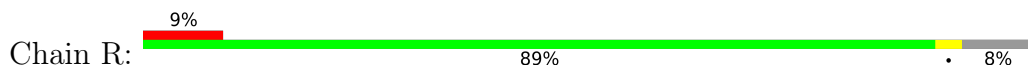
• Molecule 52: eL28



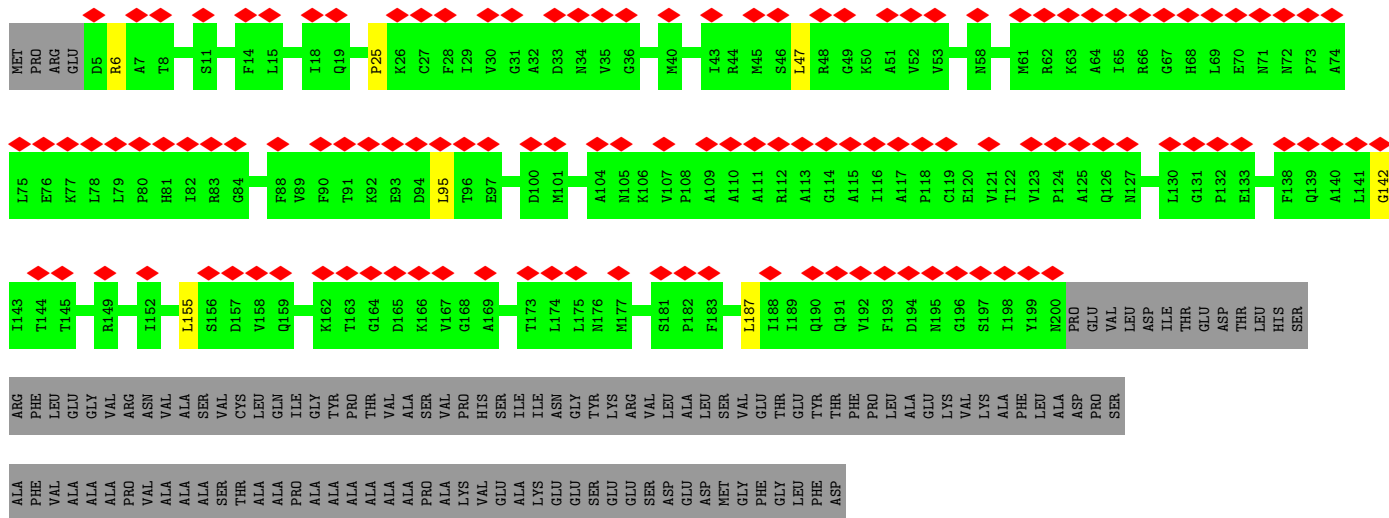
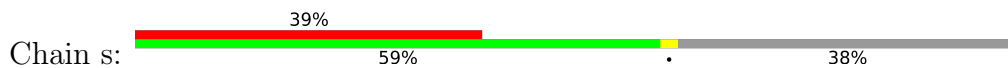
• Molecule 53: Ribosomal protein S16



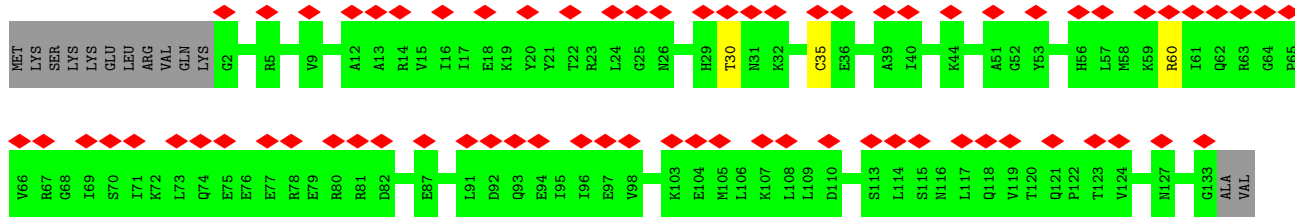
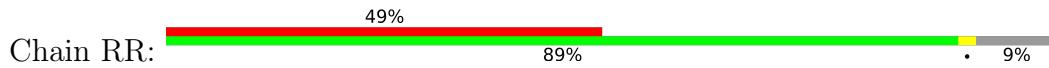
• Molecule 54: 60S ribosomal protein L19



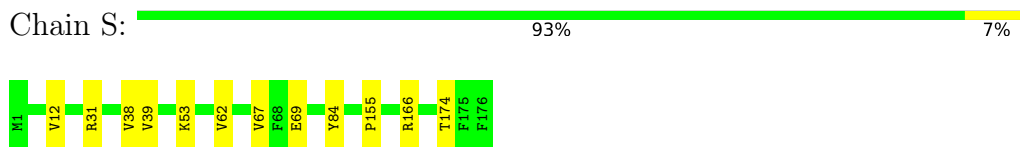
• Molecule 55: 60S acidic ribosomal protein P0



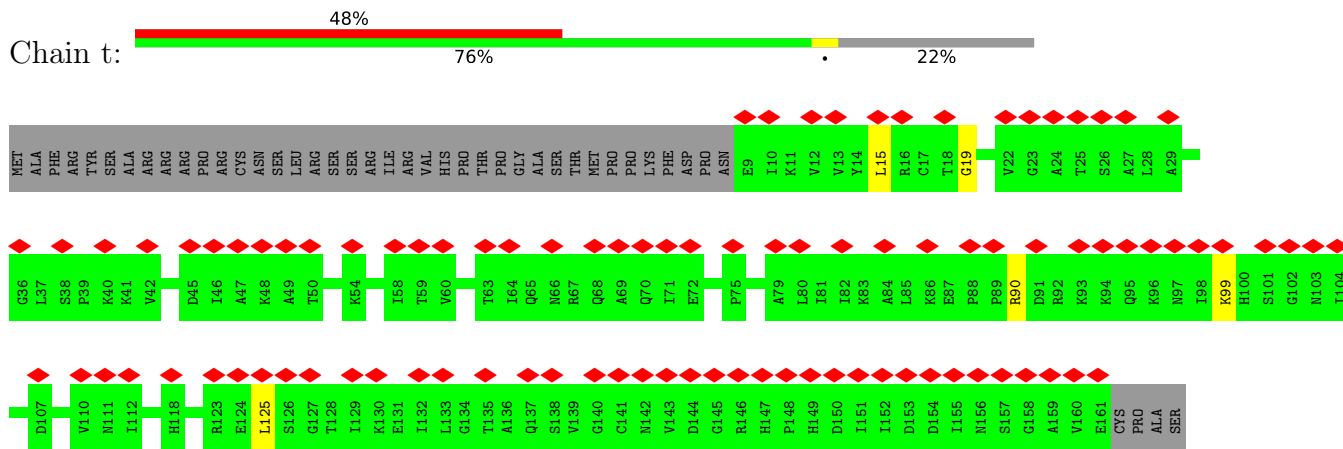
• Molecule 56: 40S ribosomal protein S17



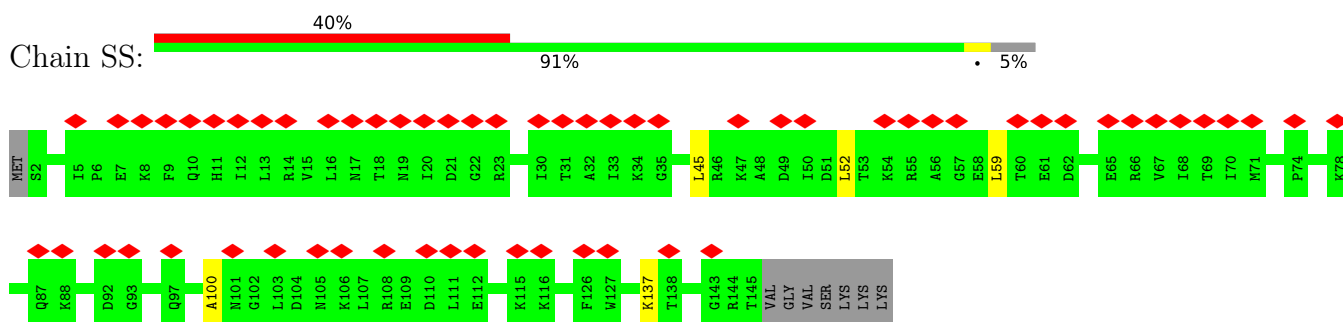
• Molecule 57: 60S ribosomal protein L18a



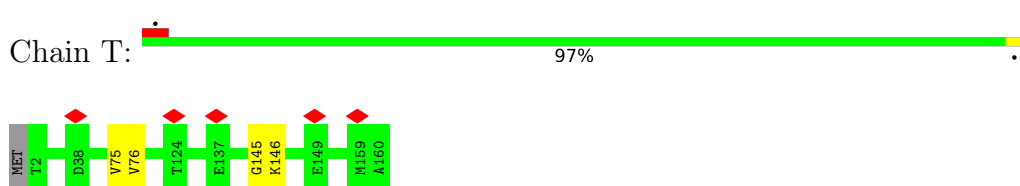
• Molecule 58: uL12



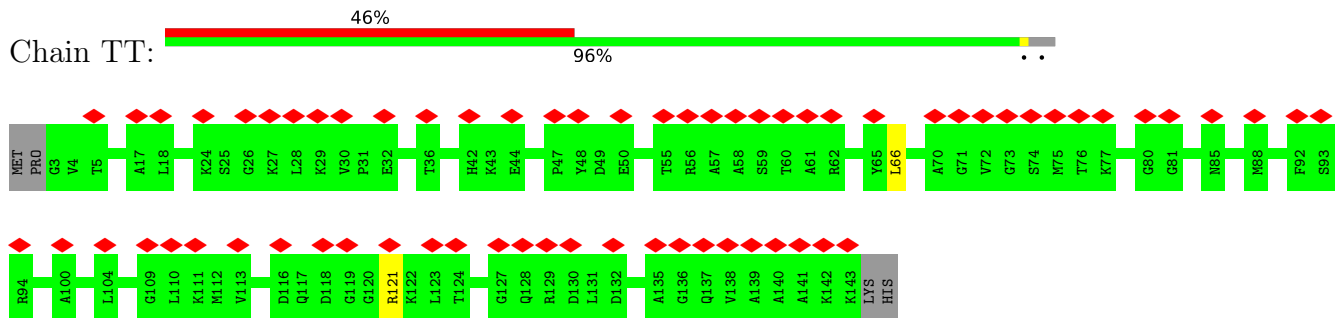
• Molecule 59: 40S ribosomal protein uS13



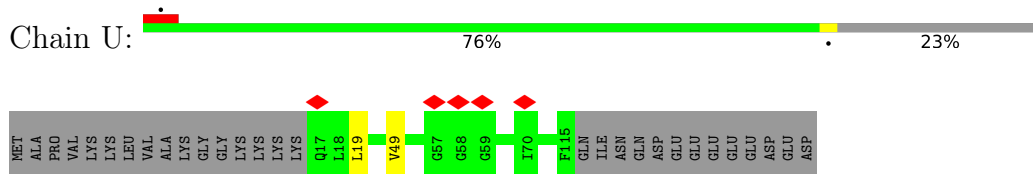
• Molecule 60: eL21



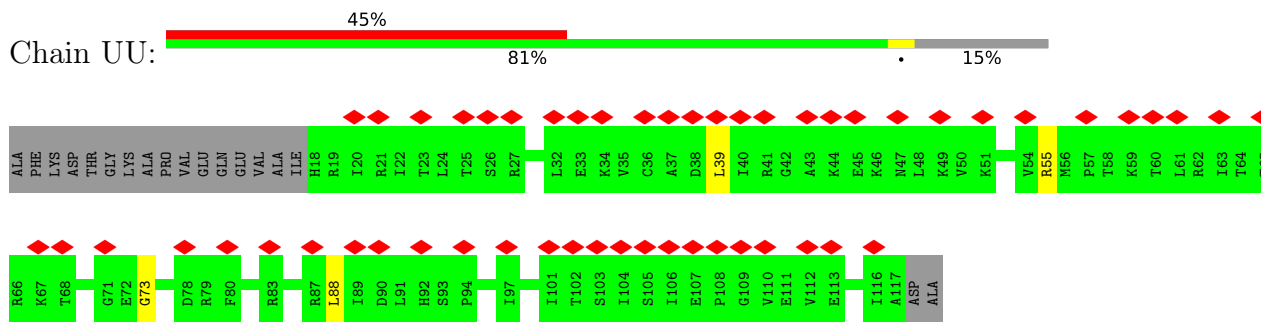
• Molecule 61: eS19



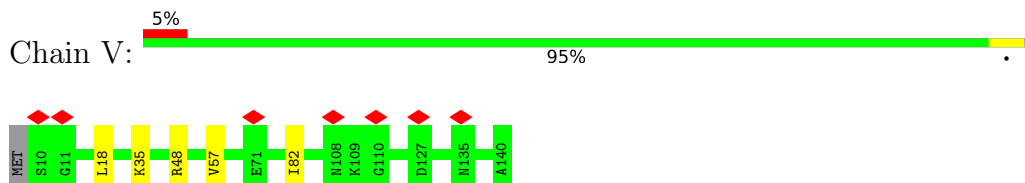
• Molecule 62: L22



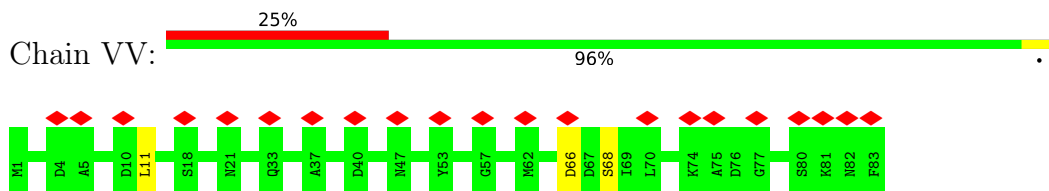
• Molecule 63: 40S ribosomal protein S20



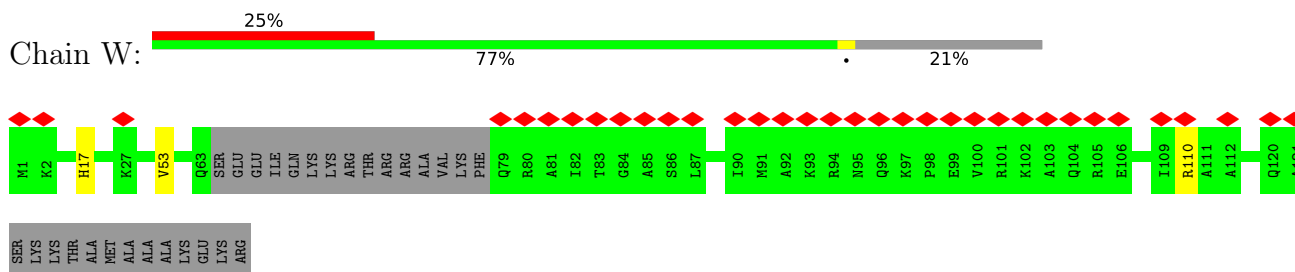
• Molecule 64: eL14



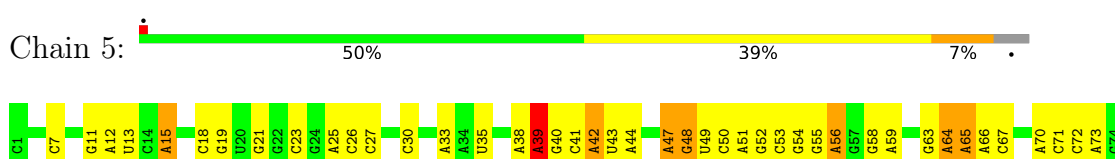
• Molecule 65: 40S ribosomal protein S21



• Molecule 66: 60S ribosomal protein L24-like protein



• Molecule 67: 28S Ribosomal RNA



A1634	A1635	U1636	A1637	C1640	G1641	A1642	A1643	A1644	A1646	U1647	C1648	U1651	U1652	G1653	G1654	C1655	U1656	G1657	C1658	G1659	U1660	U1661	C1662	C1663	U1664	C1665	C1666	A1667	A1668	A1669	U1670	C1674	C1675	C1676	U1677	C1678	G1679	G1680	G1681	A1682	C1686	C1689	A1692	G1693	G1694	G1695	G1696	G1697	G1698	G1699	G1700	G1701	G1702	G1703	G1704	G1705	G1706	G1707	G1708	A7711	C7712	C7713	C7719	G7722	C7727	U7728	G7729	G7730	G7731	C7732	A7733	G7734	C7738
A1553	A1554	G1561	G1562	G1563	A1564	A1565	G1566	G1573	A1574	A1575	G1576	U1577	U1578	C1579	C1580	G1581	G1584	C1585	G1586	G1587	U1588	C1589	C1590	U1591	C1594	G1595	U1596	A1599	G1600	A1601	U1602	C1603	G1607	A1679	G1679	A1682	C1686	C1689	A1692	G1693	G1694	G1695	G1696	G1697	G1698	G1699	G1700	G1701	G1702	G1703	G1704	G1705	G1706	G1707	G1708	A7711	C7712	C7713	C7719	G7722	C7727	U7728	G7729	G7730	G7731	C7732	A7733	G7734	C7738				
C1384	A1387	G1390	G1394	U1395	G1396	A1397	A1398	C1401	G1402	G1403	G1404	G1411C	G1415	G1416	C1417	C	A	G1418	G1419	A1420	G1421	A1427	U1428	C1429	G1435	C1436	C1437	U1438	U1440	C1441	C1442	U1445	C1446	G1451	A1452	G1453	G1454	G1455	C1456	G1457	C1458	G1459	C1460	C1465	C1469	G1475																											
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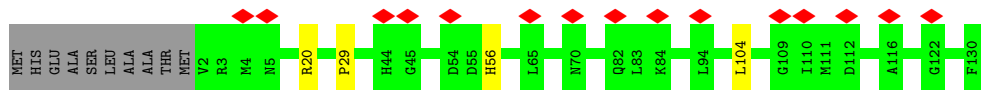


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A	C2824	C2745	U2858	A2745	G2657	G2555	G2471	A2395	G2299	A2300	C2023	G1948	G1879	U1800	C1721	A
C	A2825	U2747	A2659	A2746	G2658	G2555	G2472	A2396	G2300	A2100	G2024	G1952	G1880	A1801	G1723	A
C	U2826	C2748	A2660	U2748	U2661	A2564	G2473	U2397	G2302	A2101	A2025	U1957	U1882	A1803	U1725	C
A	C2827	C2749	G2662	C2749	G2662	A2566	C2474	G2398	A2103	A2104	A2026	U1960	G1883	A1804	U1726	A
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A	U2829	G2751	G2664	C2751	G2664	C2571	G2476	A2401	A2105	U1960	A1963	U1960	G1885	U1728	C1729	A
C	A2830	G2752	C2665	G2752	C2665	C2572	U2483	A2402	A2106	A1960	A1960	U1960	G1886	U1729	A	
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A	G2848	G2773	U2691	U2773	U2691	C2593	C2491	A2429	C	A1967	A1967	U1967	G1900	G1760	A	
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C	U2859	C2789	U2710	U2789	U2710	C2622	G2521	G2443	A	A1967	A1967	U1967	G1855	C1772	A	
A	G2860	U2790	C2711	U2790	C2711	C2622	G2522	G2444	A	A1967	A1967	U1967	G1856	U1773	A	
C	U2861	A2791	G2712	U2791	G2712	C2623	G2523	G2445	A	A1967	A1967	U1967	G1857	C1776	A	
A	A2862	C2792	C2713	U2792	C2713	C2624	G2524	G2446	A	A1967	A1967	U1967	G1858	U1776	A	
C	U2863	U2793	G2714	U2793	G2714	C2625	G2525	C2447	A	A1967	A1967	U1967	G1859	C1777	A	
A	G2864	A2794	C2715	U2794	C2715	C2626	G2526	U2448	A	A1967	A1967	U1967	G1860	U1780	A	
C	U2865	C2795	C2716	U2795	C2716	C2627	G2527	G2449	A	A1967	A1967	U1967	G1861	U1781	A	
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A	G2868	A2798	G2719	U2798	G2719	C2630	U2530	G2452	A	A1967	A1967	U1967	G1864	U1787	A	
C	U2869	C2799	C2720	U2799	C2720	U2630	C2531	G2453	A	A1967	A1967	U1967	G1865	U1788	A	
A	A2870	U2799	G2721	U2799	G2721	U2633	C2532	G2454	A	A1967	A1967	U1967	G1866	C1789	A	
C	U2871	C2800	C2722	U2800	C2722	U2633	C2533	C2455	A	A1967	A1967	U1967	G1867	U1794	A	
A	G2872	U2801	G2723	U2801	G2723	C2638	G2458	G2458	A	A1967	A1967	U1967	G1868	U1795	A	
C	U2873	C2802	C2724	U2802	C2724	U2638	G2459	G2459	A	A1967	A1967	U1967	G1869	U1796	A	
A	A2874	U2803	A2725	U2803	A2725	U2639	G2460	A2460	A	A1967	A1967	U1967	G1870	A1794	A	
C	U2875	C2804	G2726	U2804	G2726	U2639	G2461	G2461	A	A1967	A1967	U1967	G1871	A1795	A	
A	G2876	U2805	C2727	U2805	C2727	C2640	C2462	C2462	A	A1967	A1967	U1967	G1872	C1875	A	
C	U2877	C2806	C2728	U2806	C2728	C2641	C2463	C2463	A	A1967	A1967	U1967	G1873	C1876	A	
A	A2878	U2807	G2729	U2807	G2729	C2641	C2464	C2464	A	A1967	A1967	U1967	G1874	C1877	A	
C	U2879	C2808	C2730	U2808	C2730	C2647	C2465	C2465	A	A1967	A1967	U1967	G1875	C1878	A	
A	G2880	U2809	C2731	U2809	C2731	C2647	C2466	C2466	A	A1967	A1967	U1967	G1876	U1794	A	
C	U2881	C2810	C2732	U2810	C2732	C2654	U2467	U2467	A	A1967	A1967	U1967	G1877	A1794	A	
A	A2882	U2811	G2733	U2811	G2733	C2654	U2468	U2468	A	A1967	A1967	U1967	G1878	A1795	A	
C	U2883	C2812	C2734	U2812	C2734	C2654	U2468	U2468	A	A1967	A1967	U1967	G1879	C1875	A	
A	G2884	U2813	G2735	U2813	G2735	C2654	U2468	U2468	A	A1967	A1967	U1967	G1880	C1876	A	
C	U2885	C2814	C2736	U2814	C2736	C2654	U2468	U2468	A	A1967	A1967	U1967	G1881	C1877	A	
A	A2886	U2815	C2737	U2815	C2737	C2654	U2468	U2468	A	A1967	A1967	U1967	G1882	C1878	A	
C	U2887	C2816	C2738	U2816	C2738	C2654	U2468	U2468	A	A1967	A1967	U1967	G1883	C1879	A	
A	G2888	U2817	G2739	U2817	G2739	C2654	U2468	U2468	A	A1967	A1967	U1967	G1884	C1880	A	
C	U2889	C2818	C2740	U2818	C2740	C2654	U2468	U2468	A	A1967	A1967	U1967	G1885	C1881	A	

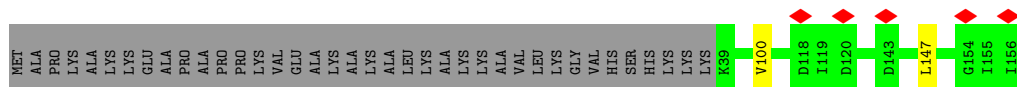
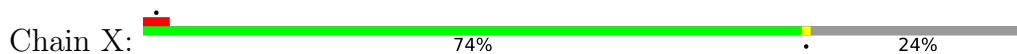
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G3751	C3752	G3753	A3756	G3915	G3916	G3917	G3918	G3919	A3923	C3924	G3927	A3928	G3929	G3933	G3934	G3935	G3936	G3937	G3938	G3939	A3943	A3944	A3945	G3946	A3947	A	C	C	C	C	C	C	A	G4065	G4066	G4067	G4068	G4069	U4070	U4071	U4075	U4076	C4080	G4081	G4082	U4083	G4084	A4085	G4086	G4087	C4088	C3842									
A3845	C3846	C3850	U3851	A3852	U3853	C3854	C3855	G3857	C3858	G3859	A3860	C3864	G3865	C3866	A3867	G3868	C3869	C3870	C3871	A3872	C3873	A3876	C3877	G3878	G3879	C3882	C3887	C3888	G3889	A3890	A3891	U3892	C3893	A3894	C3895	C3896	G3897	G3898	G3899	A3901	A3902	G3903	G3904	A3905	A3906	G3907	G3908	C3909	C3910	C3911	U3912										
G3913	G3914	G3915	G3916	G3917	G3918	G3919	A3923	C3924	U3927	A3928	G3929	G3933	G3934	G3935	G3936	G3937	G3938	G3939	A3943	A3944	A3945	G3946	A3947	A	C	C	C	C	C	C	C	A	G4065	G4066	G4067	G4068	G4069	U4070	U4071	U4075	U4076	C4080	G4081	G4082	U4083	G4084	A4085	G4086	G4087	C4088	C4193										
G4091	G4092	G4097	A4098	G4099	C4100	C4101	A	C	C	C	A	G4115	C4116	U4117	U4118	C4119	U4120	G4121	G4122	C4123	G4124	C4125	C4126	A4127	G4150	C4155	C4158	C4162	U4163	C4164	C4165	G4166	C4169	A4170	C4171	C4176	C4179	G4180	G4183	C4184	G4185	A4186	U4189	U4190	C4191	A4192	C4193														
U4194	G4195	G4196	A4203	C4204	A4205	C4206	C4211	A4212	U4213	A4214	C4215	G4216	G4217	U4218	A4219	C4223	A4224	G4225	G4228	U4229	C4230	C4231	U4232	A4233	G4237	A4239	G4249	G4250	A4251	C4252	A4253	G4254	A4255	A4256	A4257	C4258	C4259	U4265	G4266	G4267	A4268	A4271	G4272	A4273	G4277	C4278	A4279	U4280	A4281												
C4284	U4285	C4286	G4291	A4292	U4293	G4297	A4298	U4299	U4300	A4310	A4313	C4314	A4315	G4316	A4317	C4318	C4319	A4324	A4325	C4326	C4327	G4328	C4329	G4330	G4331	C4332	G4333	U4334	C4335	A4336	C4337	C4338	A4339	C4345	C4349	C4350	U4354	G4355	G4356	A4362	A4363	A4367	G4370	C4373																	
U4374	C4375	A4376	A4377	A4378	A4379	A4380	A4381	G4382	U4383	U4384	A4385	C4386	C4387	C4388	A4389	A4390	G4391	G4392	G4393	A4394	U4395	A4396	C4397	U4398	G4400	G4401	G4407	G4408	C4409	C4412	G4413	A4415	U4419	U4420	C4421	A4422	U4423	A4424	G4427	A4428	C4434	U4435	G4440	C4443	C4444	C4447	G4448	A4449	U4450	C4451											
U4452	C4453	G4454	U4455	C4456	U4457	C4458	C4462	U4463	U4464	U4465	C4466	U4471	G4472	G4475	C4476	A4477	U4478	C4485	U4486	A4487	A4488	G4495	U4496	U4497	U4498	U4500	U4501	C4502	C4503	C4506	A4507	C4508	U4509	A4510	A4511	U4512	A4513	G4516	U4517	A4518	C4519	G4520	U4521	G4522	A4523	C4524	C4525	U4526	G4527	C4528											
G4529	U4530	U4531	U4532	G4533	U4534	A4535	C4536	G4537	G4538	U4541	G4542	G4543	C4547	G4548	G4549	G4550	A4553	U4554	U4555	A4559	C4560	C4561	U4563	U4564	C4565	U4566	A4568	C4570	G4573	U4574	G4575	G4578	U4579	U4580	G4581	C4582	C4583	G4586	A4590	U4591	C4592	C4598	C4603	G4604	C4613																
G4618	A4622	G4623	A4624	C4625	U4626	U4627	G4630	C4631	U4636	C4637	U4638	G4639	C4640	C4645	A4651	U4652	C4653	C4654	A4655	A4656	U4657	G4661	C4662	U4663	C4667	U4668	A4669	C4670	C4671	A4672	U4677	C4678	G4679	C4680	A4681	U4682	A4687	C4688	G4694	C4695	C4696	U4699	A4700	A4701	A4705	G4706															
A4707	U4708	U4709	C4710	C4715	C4716	A4717	G4718	C4719	G4720	U4721	G4722	A4723	A4724	C4725	G4726	U4727	U4728	A4729	A	C	C	A	C	C	G4743	A4744	G4745	C4746	C4749	U4750	G4751	G4754	G4755	C4756	C4757	U4758	C4759	G4761	A4764	G4765	C4766	C4767	C4771	C4772	C4773	C4777															
A	C	A	C	A	C	A	C	C	C	C	C4859	G4862	C4868	U4869	C4870	C4871	C4872	G4873	A4874	C4875	A4876	C4877	C4878	C4879	C4880	U4881	U4882	C4883	C4884	U4885	C4886	C4887	C4889	C4891	C4895	U4896	C4897	G4898	A	C	C4902	A4910	C4911	C4912	G4913	C4914	C4915	G4916	C4917	C4918	C4919	C4920	C4921	U4988	U4989	C4990	U4991	G4992	G4993	C5004	G5005
C4924	U4925	C4926	G4927	C4928	G4931	C4935	G4936	C4937	A4938	G4939	C4940	G4941	C4942	U4943	C4944	G4945	U4946	U4947	C4948	C4949	U4950	G4951	A4956	C4957	C4958	C4959	C4964	U4965	A4966	A4967	G4968	C4969	C4970	A4971	U4976	G4977	C4978	A4979	C4980	G4981	A4982	C4983	C4984	U4985	U4988	U4989	C4990	U4991	G4992	G4993	C5004	G5005									



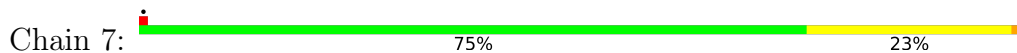
• Molecule 68: Ribosomal protein S15a



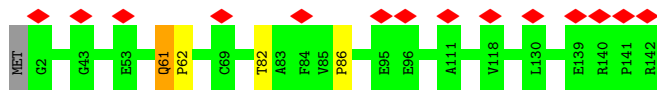
• Molecule 69: uL23



• Molecule 70: 5S Ribosomal RNA



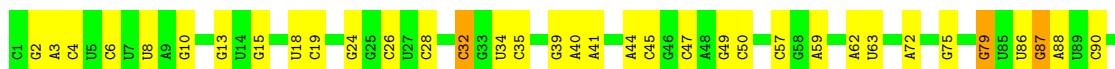
• Molecule 71: 40S ribosomal protein uS12

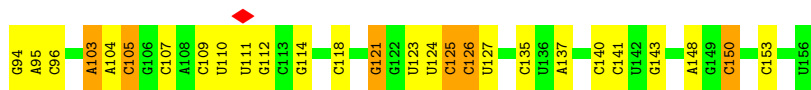


• Molecule 72: Ribosomal protein L26

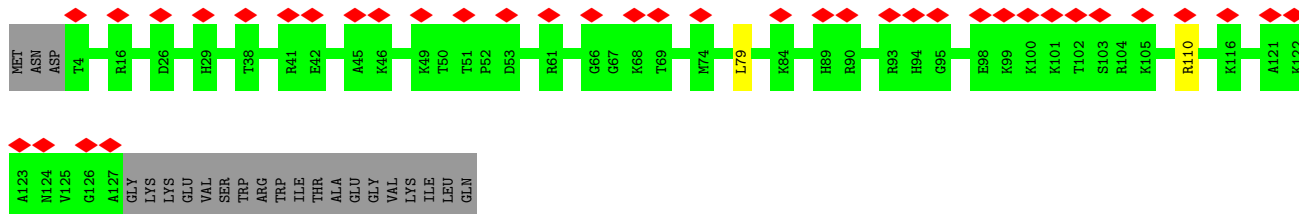
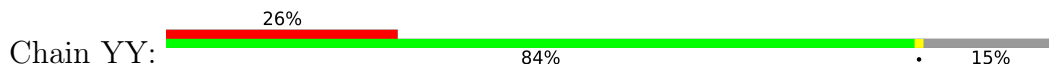


• Molecule 73: 5.8S Ribosomal RNA

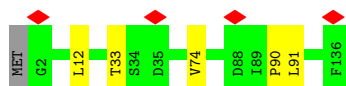




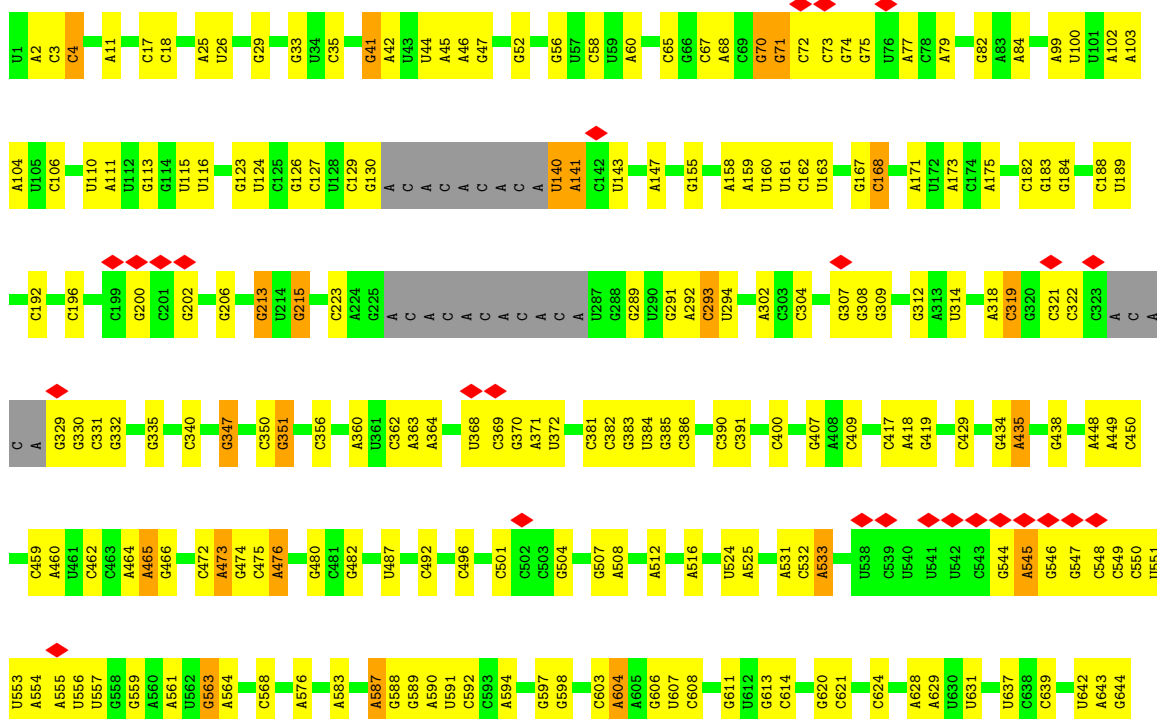
• Molecule 74: 40S ribosomal protein S24

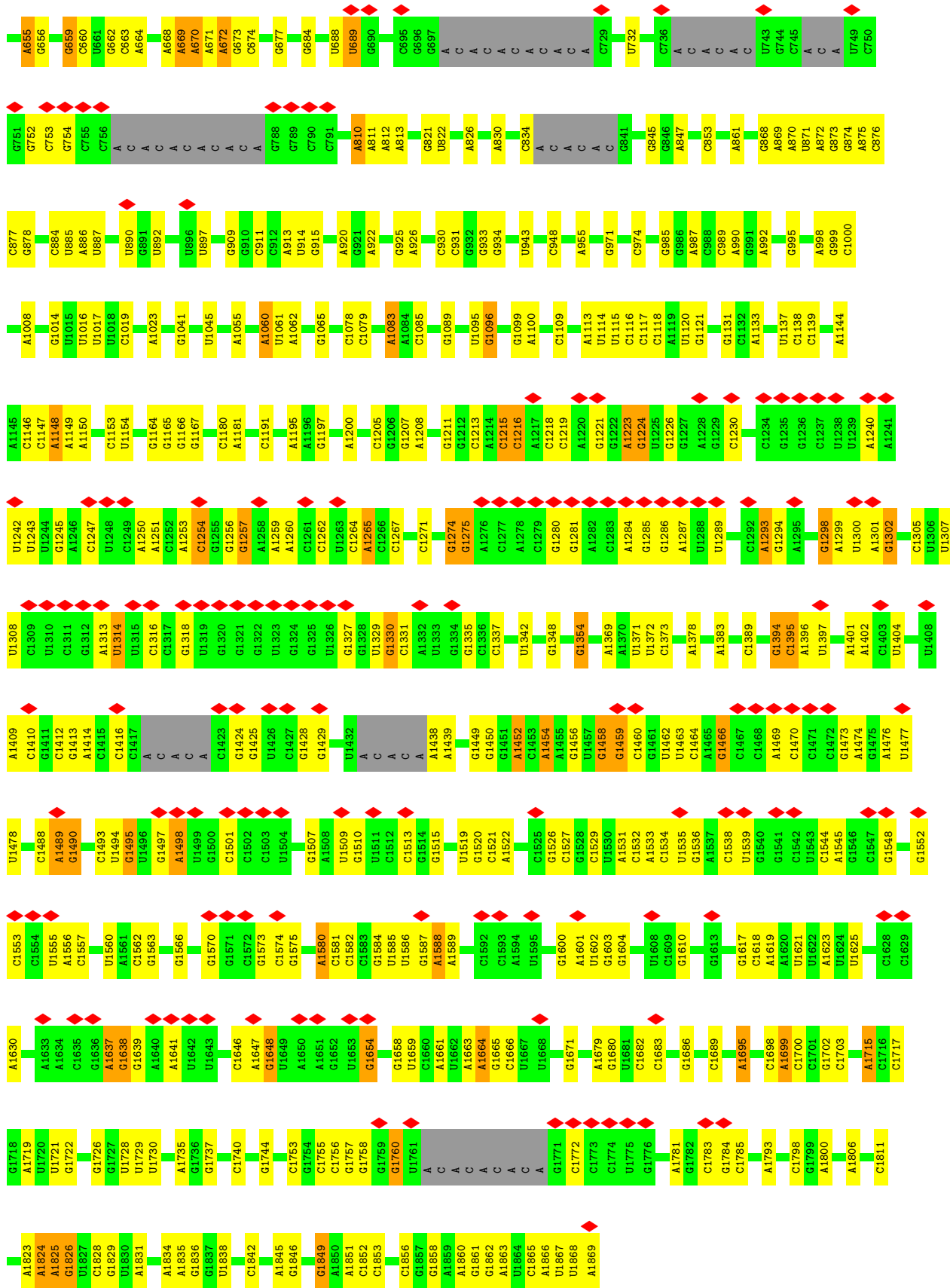


• Molecule 75: 60S ribosomal protein L27

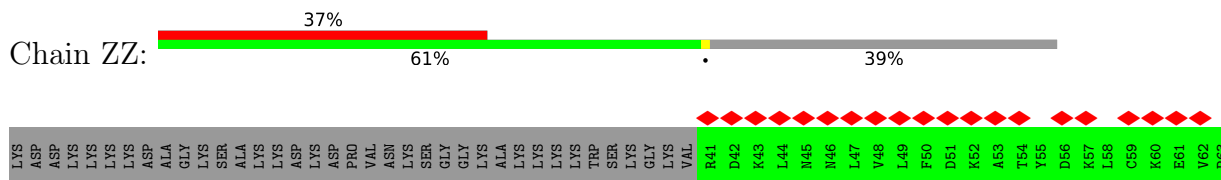


• Molecule 76: 18S Ribosomal RNA

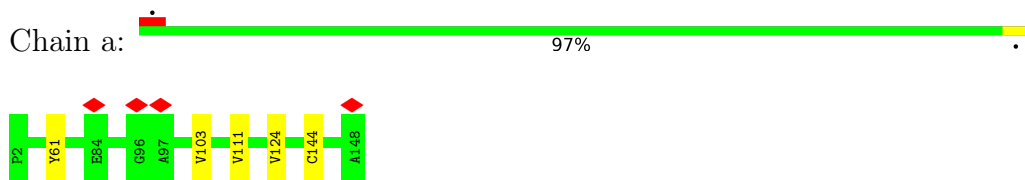




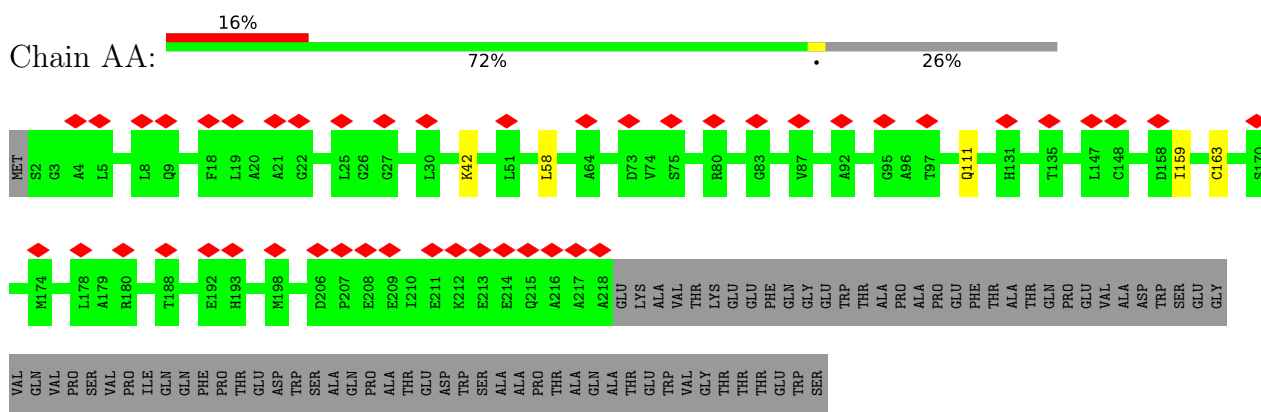
• Molecule 77: 40S ribosomal protein S25



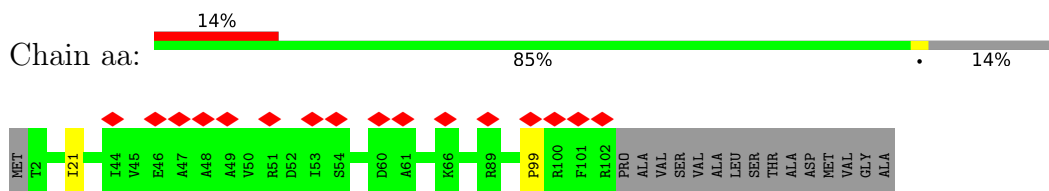
• Molecule 78: 60S ribosomal protein L27a



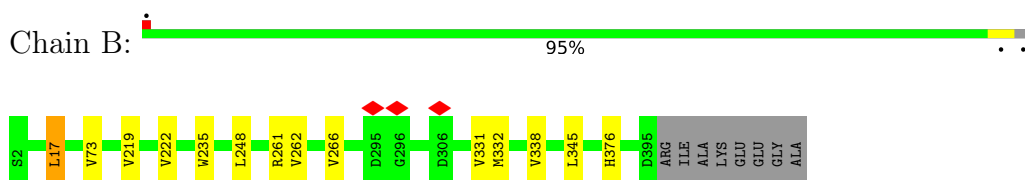
• Molecule 79: 40S_SA_C domain-containing protein



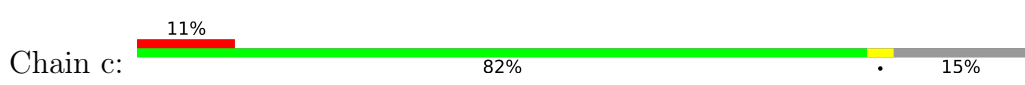
• Molecule 80: 40S ribosomal protein S26



• Molecule 81: uL3

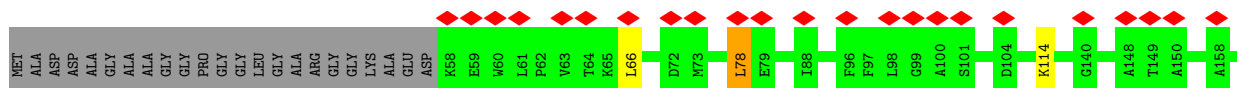
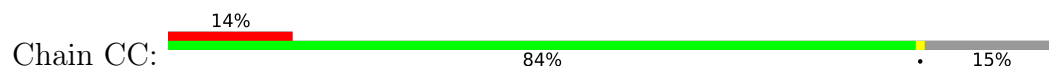


• Molecule 82: eL30

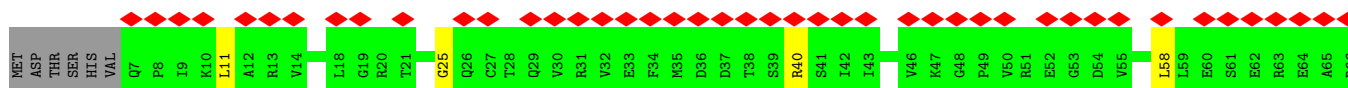
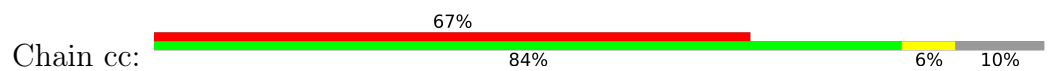




- Molecule 83: 40S ribosomal protein S2



- Molecule 84: 40S ribosomal protein S28



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	18937	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	41.92	Depositor
Minimum defocus (nm)	400	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	79000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.083	Depositor
Minimum map value	-0.050	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.014	Depositor
Map size (Å)	405.0, 405.0, 405.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.35, 1.35, 1.35	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: GCP, MG, ZN, BLS

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	1.11	10/1936 (0.5%)	0.97	2/2596 (0.1%)
2	C	1.10	13/2937 (0.4%)	0.98	4/3946 (0.1%)
3	d	1.02	4/903 (0.4%)	0.95	0/1216
4	DD	0.59	0/1796	1.01	5/2417 (0.2%)
5	dd	0.64	0/470	0.96	0/623
6	D	0.83	0/2437	0.87	2/3264 (0.1%)
7	e	1.18	5/1071 (0.5%)	0.97	0/1429
8	EE	0.59	0/2118	0.90	3/2849 (0.1%)
9	ee	0.67	0/447	0.91	0/587
10	b	0.82	0/861	0.91	0/1138
11	E	0.88	3/1762 (0.2%)	0.93	2/2362 (0.1%)
12	f	1.14	3/895 (0.3%)	0.96	1/1198 (0.1%)
13	FF	0.55	0/1492	0.92	1/2005 (0.0%)
14	ff	0.57	0/567	1.04	1/753 (0.1%)
15	F	1.17	7/1911 (0.4%)	0.96	1/2549 (0.0%)
16	g	0.93	1/916 (0.1%)	0.96	1/1220 (0.1%)
17	BB	0.58	0/1756	0.90	5/2350 (0.2%)
18	GG	0.54	0/1946	0.89	1/2590 (0.0%)
19	gg	0.46	0/2493	0.83	1/3394 (0.0%)
20	G	0.88	1/1910 (0.1%)	0.92	1/2569 (0.0%)
21	h	0.91	1/1021 (0.1%)	0.97	2/1348 (0.1%)
22	HH	0.61	1/1510 (0.1%)	0.88	4/2022 (0.2%)
23	hh	0.67	0/353	1.37	3/547 (0.5%)
24	bb	0.56	0/665	0.84	2/891 (0.2%)
25	H	0.94	1/1535 (0.1%)	0.88	1/2063 (0.0%)
26	i	0.90	2/841 (0.2%)	0.94	0/1112
27	II	0.62	0/1715	0.88	1/2287 (0.0%)
28	ii	0.56	0/3361	0.98	10/4519 (0.2%)
29	I	1.01	3/1702 (0.2%)	0.89	0/2272
30	j	1.05	1/720 (0.1%)	1.00	0/952
31	JJ	0.68	0/1550	0.86	0/2069
32	jj	0.57	0/3435	0.95	8/4633 (0.2%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	J	0.77	0/1385	0.92	1/1852 (0.1%)
34	k	0.85	0/575	0.88	1/761 (0.1%)
35	KK	0.55	0/834	0.90	1/1125 (0.1%)
36	L	0.91	3/1733 (0.2%)	0.96	0/2316
37	l	0.93	0/459	0.92	1/608 (0.2%)
38	LL	0.68	0/1195	0.85	0/1597
39	M	0.94	0/1158	0.92	0/1547
40	m	0.85	0/435	0.85	0/575
41	MM	0.43	0/918	0.75	1/1233 (0.1%)
42	N	1.14	6/1746 (0.3%)	0.97	2/2338 (0.1%)
43	n	0.71	0/240	1.29	2/305 (0.7%)
44	NN	0.63	0/1226	0.88	1/1649 (0.1%)
45	O	1.16	12/1662 (0.7%)	1.01	1/2222 (0.0%)
46	o	0.85	0/864	0.93	0/1140
47	OO	0.61	0/1029	0.94	1/1380 (0.1%)
48	P	1.07	3/1268 (0.2%)	0.91	0/1700
49	p	1.03	2/718 (0.3%)	0.89	0/953
50	PP	0.62	0/1017	1.03	2/1358 (0.1%)
51	Q	1.13	5/1539 (0.3%)	1.00	0/2054
52	r	0.99	0/1010	0.94	1/1354 (0.1%)
53	QQ	0.56	0/1146	0.92	1/1534 (0.1%)
54	R	0.87	3/1524 (0.2%)	1.01	1/2013 (0.0%)
55	s	0.55	0/1530	0.92	3/2064 (0.1%)
56	RR	0.58	0/1082	0.87	1/1452 (0.1%)
57	S	1.08	7/1501 (0.5%)	0.93	2/2012 (0.1%)
58	t	0.52	1/1174 (0.1%)	0.90	2/1582 (0.1%)
59	SS	0.56	0/1208	1.03	2/1618 (0.1%)
60	T	1.03	3/1326 (0.2%)	0.97	1/1770 (0.1%)
61	TT	0.55	0/1115	0.87	1/1493 (0.1%)
62	U	0.80	1/823 (0.1%)	0.91	1/1104 (0.1%)
63	UU	0.62	0/805	0.98	2/1081 (0.2%)
64	V	1.12	1/993 (0.1%)	0.96	0/1332
65	VV	0.60	0/643	0.81	0/860
66	W	0.87	1/873 (0.1%)	0.89	0/1158
67	5	1.40	348/84975 (0.4%)	1.67	1993/132516 (1.5%)
68	WW	0.73	0/1051	0.87	0/1406
69	X	0.95	1/984 (0.1%)	0.95	1/1323 (0.1%)
70	7	1.29	6/2858 (0.2%)	1.49	26/4455 (0.6%)
71	XX	0.73	0/1116	0.88	0/1490
72	Y	1.01	1/1132 (0.1%)	0.98	3/1504 (0.2%)
73	8	1.37	9/3581 (0.3%)	1.65	76/5577 (1.4%)
74	YY	0.53	0/1028	0.82	0/1366
75	Z	0.92	1/1130 (0.1%)	0.93	1/1507 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
76	9	0.91	11/40524 (0.0%)	1.44	428/63134 (0.7%)
77	ZZ	0.50	0/604	0.93	0/810
78	a	1.18	6/1191 (0.5%)	0.94	0/1590
79	AA	0.61	0/1747	0.80	0/2374
80	aa	0.69	0/828	0.86	0/1109
81	B	1.05	11/3240 (0.3%)	0.95	2/4339 (0.0%)
82	c	0.85	0/771	1.09	4/1034 (0.4%)
83	CC	0.73	0/1753	0.92	2/2369 (0.1%)
84	cc	0.61	0/490	1.07	3/656 (0.5%)
All	All	1.10	498/234789 (0.2%)	1.37	2633/343469 (0.8%)

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
3	d	0	1
53	QQ	0	1
67	5	0	7
71	XX	0	1
76	9	0	1
79	AA	0	1
All	All	0	12

The worst 5 of 498 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
67	5	2836	A	N9-C4	-8.41	1.32	1.37
67	5	1637	A	N9-C4	-8.35	1.32	1.37
67	5	1907	A	N9-C4	-8.30	1.32	1.37
48	P	119	VAL	CB-CG1	-7.97	1.36	1.52
67	5	2849	A	N9-C4	-7.93	1.33	1.37

The worst 5 of 2633 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
67	5	3911	C	C6-N1-C2	-12.96	115.12	120.30
67	5	1535	C	C5-C4-N4	-12.52	111.44	120.20
67	5	1081	C	C6-N1-C2	-12.39	115.34	120.30
67	5	4723	A	C6-N1-C2	-12.38	111.17	118.60
67	5	143	C	O4'-C1'-N1	12.29	118.03	108.20

There are no chirality outliers.

5 of 12 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
67	5	1081	C	Sidechain
67	5	39	A	Sidechain
67	5	914	U	Sidechain
53	QQ	140	ARG	Peptide
3	d	95	ASP	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	
1	A	246/249 (99%)	219 (89%)	27 (11%)	0	100	100
2	C	360/378 (95%)	335 (93%)	24 (7%)	1 (0%)	41	75
3	d	105/108 (97%)	90 (86%)	13 (12%)	2 (2%)	8	39
4	DD	226/281 (80%)	212 (94%)	13 (6%)	1 (0%)	34	71
5	dd	53/56 (95%)	46 (87%)	7 (13%)	0	100	100
6	D	291/296 (98%)	273 (94%)	18 (6%)	0	100	100
7	e	126/129 (98%)	121 (96%)	5 (4%)	0	100	100
8	EE	260/263 (99%)	244 (94%)	16 (6%)	0	100	100
9	ee	53/133 (40%)	51 (96%)	2 (4%)	0	100	100
10	b	100/226 (44%)	94 (94%)	5 (5%)	1 (1%)	15	52
11	E	208/291 (72%)	189 (91%)	19 (9%)	0	100	100
12	f	107/110 (97%)	98 (92%)	7 (6%)	2 (2%)	8	39
13	FF	181/204 (89%)	164 (91%)	14 (8%)	3 (2%)	9	42

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
14	ff	66/68 (97%)	62 (94%)	4 (6%)	0	100	100
15	F	223/249 (90%)	213 (96%)	9 (4%)	1 (0%)	34	71
16	g	112/126 (89%)	106 (95%)	6 (5%)	0	100	100
17	BB	211/264 (80%)	193 (92%)	18 (8%)	0	100	100
18	GG	235/263 (89%)	223 (95%)	12 (5%)	0	100	100
19	gg	311/314 (99%)	282 (91%)	27 (9%)	2 (1%)	25	63
20	G	229/242 (95%)	218 (95%)	9 (4%)	2 (1%)	17	54
21	h	120/123 (98%)	118 (98%)	2 (2%)	0	100	100
22	HH	181/191 (95%)	173 (96%)	8 (4%)	0	100	100
24	bb	81/84 (96%)	74 (91%)	7 (9%)	0	100	100
25	H	188/190 (99%)	178 (95%)	10 (5%)	0	100	100
26	i	100/107 (94%)	94 (94%)	6 (6%)	0	100	100
27	II	204/208 (98%)	188 (92%)	14 (7%)	2 (1%)	15	52
28	ii	417/437 (95%)	389 (93%)	24 (6%)	4 (1%)	15	52
29	I	201/214 (94%)	182 (90%)	19 (10%)	0	100	100
30	j	84/97 (87%)	78 (93%)	6 (7%)	0	100	100
31	JJ	183/194 (94%)	177 (97%)	6 (3%)	0	100	100
32	jj	426/428 (100%)	373 (88%)	46 (11%)	7 (2%)	9	43
33	J	168/176 (96%)	160 (95%)	8 (5%)	0	100	100
34	k	67/70 (96%)	63 (94%)	4 (6%)	0	100	100
35	KK	94/151 (62%)	88 (94%)	5 (5%)	1 (1%)	14	50
36	L	208/211 (99%)	192 (92%)	15 (7%)	1 (0%)	29	67
37	l	48/51 (94%)	45 (94%)	3 (6%)	0	100	100
38	LL	139/158 (88%)	133 (96%)	6 (4%)	0	100	100
39	M	136/218 (62%)	123 (90%)	13 (10%)	0	100	100
40	m	50/128 (39%)	46 (92%)	4 (8%)	0	100	100
41	MM	115/123 (94%)	103 (90%)	12 (10%)	0	100	100
42	N	201/204 (98%)	186 (92%)	11 (6%)	4 (2%)	7	39
43	n	23/25 (92%)	22 (96%)	1 (4%)	0	100	100
44	NN	147/150 (98%)	140 (95%)	6 (4%)	1 (1%)	22	60
45	O	197/203 (97%)	189 (96%)	7 (4%)	1 (0%)	29	67

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
46	o	102/142 (72%)	98 (96%)	4 (4%)	0	100	100
47	OO	134/156 (86%)	124 (92%)	8 (6%)	2 (2%)	10	44
48	P	151/199 (76%)	143 (95%)	8 (5%)	0	100	100
49	p	89/109 (82%)	82 (92%)	7 (8%)	0	100	100
50	PP	118/145 (81%)	104 (88%)	12 (10%)	2 (2%)	9	42
51	Q	185/188 (98%)	173 (94%)	11 (6%)	1 (0%)	29	67
52	r	122/137 (89%)	112 (92%)	9 (7%)	1 (1%)	19	58
53	QQ	140/158 (89%)	133 (95%)	6 (4%)	1 (1%)	22	60
54	R	178/196 (91%)	173 (97%)	5 (3%)	0	100	100
55	s	194/318 (61%)	175 (90%)	17 (9%)	2 (1%)	15	52
56	RR	130/145 (90%)	121 (93%)	9 (7%)	0	100	100
57	S	174/176 (99%)	159 (91%)	12 (7%)	3 (2%)	9	42
58	t	151/196 (77%)	134 (89%)	16 (11%)	1 (1%)	22	60
59	SS	142/152 (93%)	137 (96%)	4 (3%)	1 (1%)	22	60
60	T	157/160 (98%)	146 (93%)	11 (7%)	0	100	100
61	TT	139/145 (96%)	131 (94%)	8 (6%)	0	100	100
62	U	97/128 (76%)	89 (92%)	8 (8%)	0	100	100
63	UU	98/118 (83%)	91 (93%)	7 (7%)	0	100	100
64	V	129/132 (98%)	119 (92%)	10 (8%)	0	100	100
65	VV	81/83 (98%)	78 (96%)	3 (4%)	0	100	100
66	W	102/134 (76%)	98 (96%)	4 (4%)	0	100	100
68	WW	127/139 (91%)	118 (93%)	7 (6%)	2 (2%)	9	43
69	X	116/156 (74%)	107 (92%)	9 (8%)	0	100	100
71	XX	139/142 (98%)	125 (90%)	11 (8%)	3 (2%)	6	37
72	Y	132/134 (98%)	121 (92%)	11 (8%)	0	100	100
74	YY	122/146 (84%)	115 (94%)	7 (6%)	0	100	100
75	Z	133/136 (98%)	125 (94%)	6 (4%)	2 (2%)	10	44
77	ZZ	73/122 (60%)	69 (94%)	4 (6%)	0	100	100
78	a	145/147 (99%)	129 (89%)	16 (11%)	0	100	100
79	AA	215/295 (73%)	201 (94%)	13 (6%)	1 (0%)	29	67
80	aa	99/117 (85%)	89 (90%)	9 (9%)	1 (1%)	15	52

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
81	B	392/402 (98%)	355 (91%)	35 (9%)	2 (0%)	29	67
82	c	96/115 (84%)	94 (98%)	2 (2%)	0	100	100
83	CC	219/259 (85%)	205 (94%)	14 (6%)	0	100	100
84	cc	60/69 (87%)	58 (97%)	2 (3%)	0	100	100
All	All	12362/14087 (88%)	11478 (93%)	823 (7%)	61 (0%)	32	67

5 of 61 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	d	95	ASP
28	ii	272	THR
32	jj	466	LYS
32	jj	620	GLU
42	N	76	PRO

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	190/191 (100%)	188 (99%)	2 (1%)	73	84
2	C	302/315 (96%)	301 (100%)	1 (0%)	92	95
3	d	98/99 (99%)	97 (99%)	1 (1%)	76	85
4	DD	190/232 (82%)	185 (97%)	5 (3%)	46	67
5	dd	48/49 (98%)	48 (100%)	0	100	100
6	D	247/249 (99%)	245 (99%)	2 (1%)	81	88
7	e	114/115 (99%)	113 (99%)	1 (1%)	78	87
8	EE	224/225 (100%)	223 (100%)	1 (0%)	91	94
9	ee	46/106 (43%)	46 (100%)	0	100	100
10	b	84/172 (49%)	84 (100%)	0	100	100
11	E	190/251 (76%)	186 (98%)	4 (2%)	53	72
12	f	88/89 (99%)	87 (99%)	1 (1%)	73	84

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
13	FF	158/170 (93%)	157 (99%)	1 (1%)	86	92
14	ff	61/61 (100%)	59 (97%)	2 (3%)	38	62
15	F	196/218 (90%)	195 (100%)	1 (0%)	88	93
16	g	98/106 (92%)	97 (99%)	1 (1%)	76	85
17	BB	194/229 (85%)	192 (99%)	2 (1%)	76	85
18	GG	207/228 (91%)	204 (99%)	3 (1%)	67	80
19	gg	272/273 (100%)	270 (99%)	2 (1%)	84	90
20	G	200/207 (97%)	200 (100%)	0	100	100
21	h	109/110 (99%)	108 (99%)	1 (1%)	78	87
22	HH	165/171 (96%)	164 (99%)	1 (1%)	86	92
24	bb	75/76 (99%)	74 (99%)	1 (1%)	69	81
25	H	169/169 (100%)	168 (99%)	1 (1%)	86	92
26	i	86/88 (98%)	86 (100%)	0	100	100
27	II	178/180 (99%)	173 (97%)	5 (3%)	43	65
28	ii	361/376 (96%)	358 (99%)	3 (1%)	81	88
29	I	175/181 (97%)	174 (99%)	1 (1%)	86	92
30	j	73/80 (91%)	72 (99%)	1 (1%)	67	80
31	JJ	161/168 (96%)	159 (99%)	2 (1%)	71	83
32	jj	372/372 (100%)	363 (98%)	9 (2%)	49	69
33	J	143/148 (97%)	141 (99%)	2 (1%)	67	80
34	k	64/65 (98%)	64 (100%)	0	100	100
35	KK	87/127 (68%)	86 (99%)	1 (1%)	73	84
36	L	175/176 (99%)	174 (99%)	1 (1%)	86	92
37	l	47/48 (98%)	46 (98%)	1 (2%)	53	72
38	LL	130/143 (91%)	128 (98%)	2 (2%)	65	79
39	M	117/161 (73%)	112 (96%)	5 (4%)	29	56
40	m	48/116 (41%)	48 (100%)	0	100	100
41	MM	99/104 (95%)	98 (99%)	1 (1%)	76	85
42	N	171/172 (99%)	168 (98%)	3 (2%)	59	77
43	n	24/24 (100%)	24 (100%)	0	100	100
44	NN	130/131 (99%)	127 (98%)	3 (2%)	50	70

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
45	O	171/173 (99%)	168 (98%)	3 (2%)	59	77
46	o	92/121 (76%)	92 (100%)	0	100	100
47	OO	106/122 (87%)	104 (98%)	2 (2%)	57	75
48	P	134/175 (77%)	133 (99%)	1 (1%)	84	90
49	p	74/87 (85%)	73 (99%)	1 (1%)	67	80
50	PP	109/130 (84%)	108 (99%)	1 (1%)	78	87
51	Q	164/165 (99%)	163 (99%)	1 (1%)	86	92
52	r	108/121 (89%)	104 (96%)	4 (4%)	34	59
53	QQ	117/130 (90%)	117 (100%)	0	100	100
54	R	159/175 (91%)	157 (99%)	2 (1%)	69	81
55	s	164/258 (64%)	162 (99%)	2 (1%)	71	83
56	RR	119/131 (91%)	117 (98%)	2 (2%)	60	78
57	S	157/157 (100%)	155 (99%)	2 (1%)	69	81
58	t	126/164 (77%)	124 (98%)	2 (2%)	62	78
59	SS	125/132 (95%)	123 (98%)	2 (2%)	62	78
60	T	139/140 (99%)	138 (99%)	1 (1%)	84	90
61	TT	111/115 (96%)	110 (99%)	1 (1%)	78	87
62	U	89/114 (78%)	89 (100%)	0	100	100
63	UU	92/105 (88%)	90 (98%)	2 (2%)	52	71
64	V	101/102 (99%)	97 (96%)	4 (4%)	31	57
65	VV	67/67 (100%)	64 (96%)	3 (4%)	27	54
66	W	86/109 (79%)	84 (98%)	2 (2%)	50	70
68	WW	112/119 (94%)	110 (98%)	2 (2%)	59	77
69	X	106/134 (79%)	106 (100%)	0	100	100
71	XX	113/114 (99%)	112 (99%)	1 (1%)	78	87
72	Y	124/124 (100%)	124 (100%)	0	100	100
74	YY	107/126 (85%)	105 (98%)	2 (2%)	57	75
75	Z	117/118 (99%)	116 (99%)	1 (1%)	78	87
77	ZZ	66/100 (66%)	65 (98%)	1 (2%)	65	79
78	a	119/119 (100%)	119 (100%)	0	100	100
79	AA	180/245 (74%)	177 (98%)	3 (2%)	60	78

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
80	aa	88/99 (89%)	87 (99%)	1 (1%)	73	84
81	B	342/347 (99%)	340 (99%)	2 (1%)	86	92
82	c	84/98 (86%)	84 (100%)	0	100	100
83	CC	187/208 (90%)	185 (99%)	2 (1%)	73	84
84	cc	55/62 (89%)	54 (98%)	1 (2%)	59	77
All	All	10776/11977 (90%)	10648 (99%)	128 (1%)	72	83

5 of 128 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
74	YY	79	LEU
79	AA	58	LEU
32	jj	371	ARG
32	jj	353	LEU
79	AA	163	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 157 such sidechains are listed below:

Mol	Chain	Res	Type
55	s	200	ASN
77	ZZ	45	ASN
58	t	100	HIS
61	TT	126	GLN
81	B	3	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
23	hh	14/15 (93%)	8 (57%)	0
67	5	3516/3705 (94%)	857 (24%)	155 (4%)
70	7	119/120 (99%)	14 (11%)	0
73	8	149/151 (98%)	34 (22%)	5 (3%)
76	9	1679/1779 (94%)	420 (25%)	66 (3%)
All	All	5477/5770 (94%)	1333 (24%)	226 (4%)

5 of 1333 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
23	hh	42	C
23	hh	43	A
23	hh	45	A
23	hh	46	G
23	hh	49	U

5 of 226 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
67	5	3625	G
76	9	1744	G
67	5	4699	U
76	9	1679	A
76	9	1253	A

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 291 ligands modelled in this entry, 289 are monoatomic - leaving 2 for Mogul analysis.

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
87	GCP	jj	700	-	27,34,34	4.66	10 (37%)	34,54,54	1.74	8 (23%)
88	BLS	5	5122	67	28,31,31	3.73	14 (50%)	28,43,43	2.06	10 (35%)

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
87	GCP	jj	700	-	-	5/15/38/38	0/3/3/3
88	BLS	5	5122	67	-	8/21/38/38	0/2/2/2

The worst 5 of 24 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
87	jj	700	GCP	O4'-C1'	15.21	1.62	1.41
87	jj	700	GCP	C2'-C1'	-14.43	1.31	1.53
88	5	5122	BLS	O5'-C5'	-11.48	1.24	1.43
88	5	5122	BLS	C3'-C2'	7.36	1.55	1.33
88	5	5122	BLS	C4'-C5'	7.17	1.69	1.53

The worst 5 of 18 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
88	5	5122	BLS	C8-C7-N6	4.97	122.84	116.33
87	jj	700	GCP	N3-C2-N1	-4.76	120.88	127.22
87	jj	700	GCP	C2-N3-C4	4.62	120.63	115.36
88	5	5122	BLS	C4-N3-C2	3.71	120.10	116.34
87	jj	700	GCP	PB-O3A-PA	-3.32	122.04	132.56

There are no chirality outliers.

5 of 13 torsion outliers are listed below:

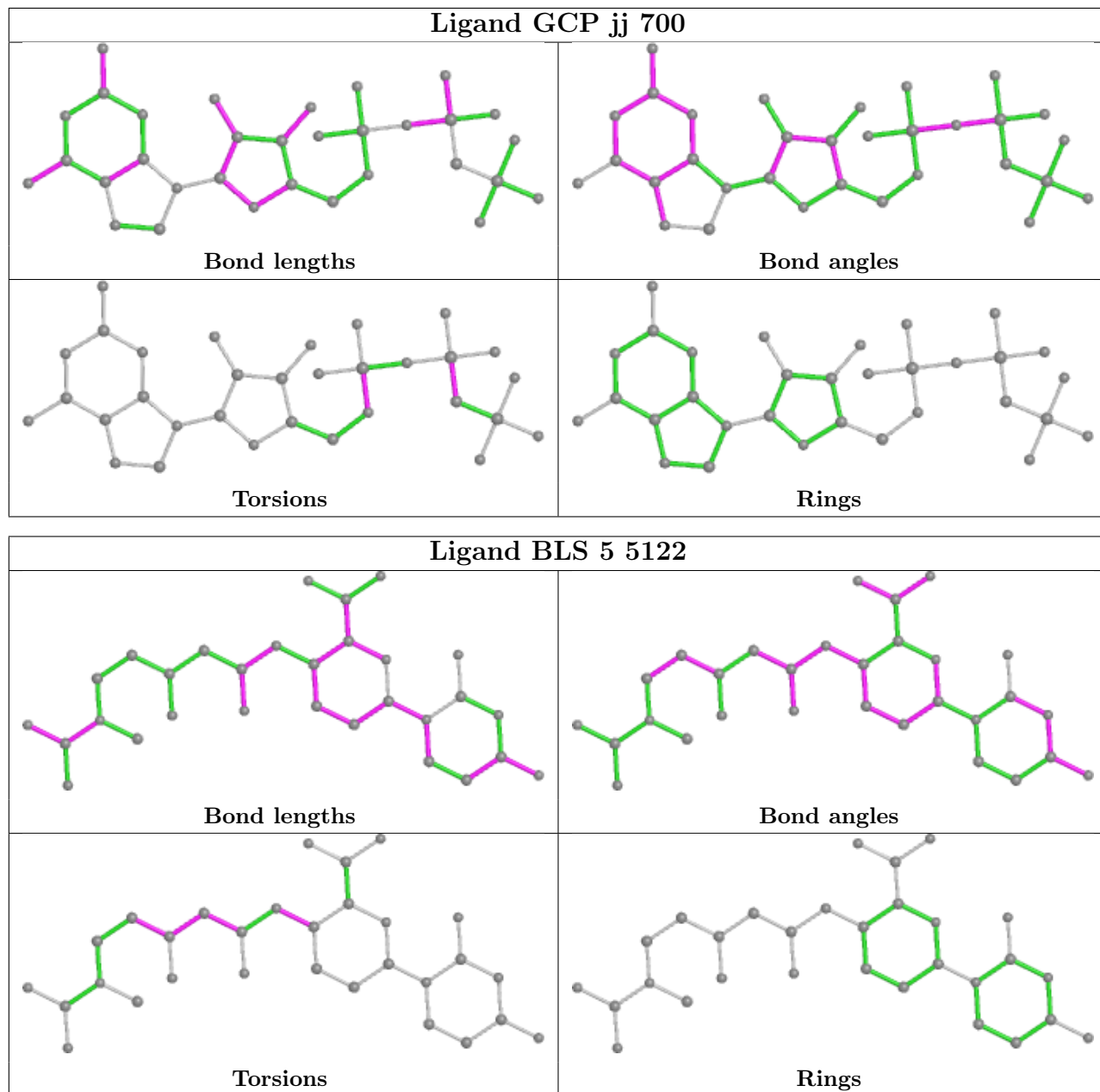
Mol	Chain	Res	Type	Atoms
87	jj	700	GCP	PG-C3B-PB-O1B
87	jj	700	GCP	PG-C3B-PB-O2B
87	jj	700	GCP	PG-C3B-PB-O3A
87	jj	700	GCP	C5'-O5'-PA-O3A
88	5	5122	BLS	C3'-C4'-N6-C7

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier.

Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
67	5	7
76	9	7
73	8	1

The worst 5 of 15 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	5	990:C	O3'	1064:G	P	17.61
1	5	1406(C):G	O3'	1411:C	P	17.48
1	8	79:G	O3'	85:U	P	15.70
1	5	4138:C	O3'	4146:G	P	15.08
1	9	322:C	O3'	323:C	P	9.57

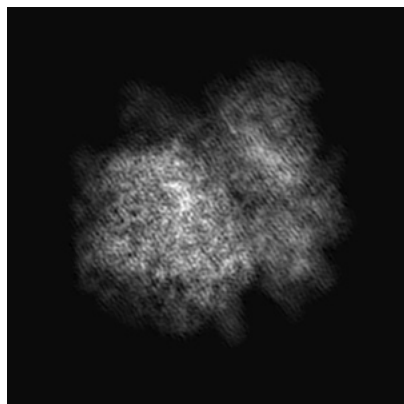
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-12632. These allow visual inspection of the internal detail of the map and identification of artifacts.

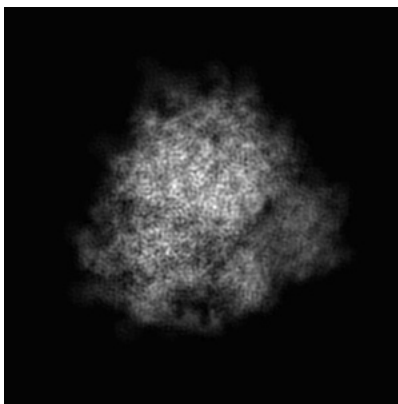
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

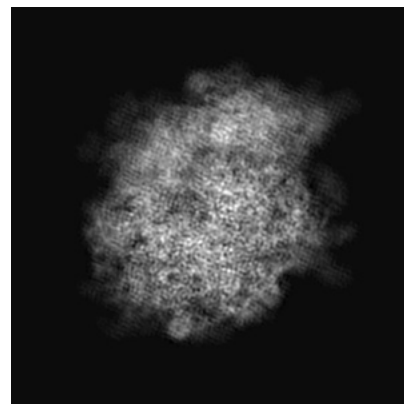
6.1.1 Primary map



X

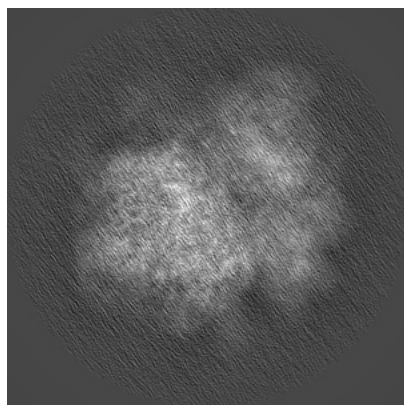


Y

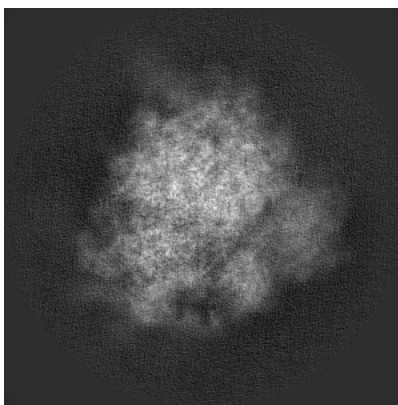


Z

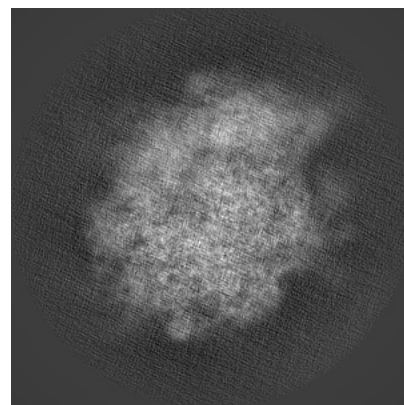
6.1.2 Raw map



X



Y

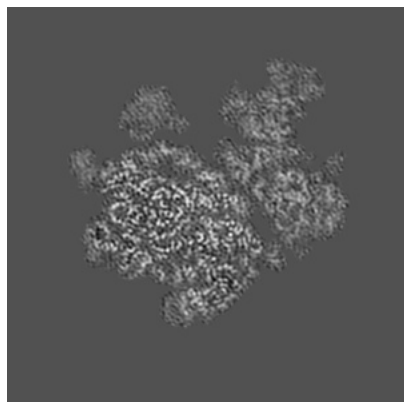


Z

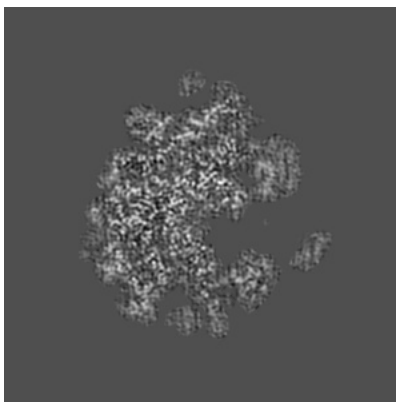
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

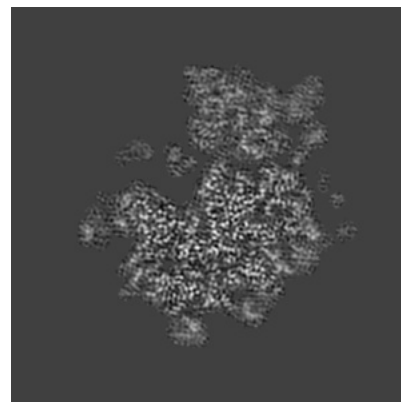
6.2.1 Primary map



X Index: 150

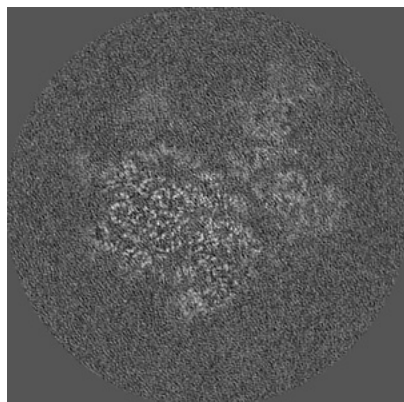


Y Index: 150

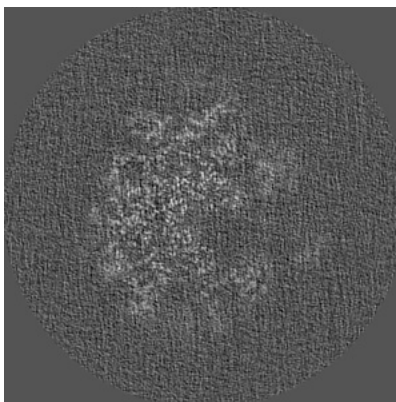


Z Index: 150

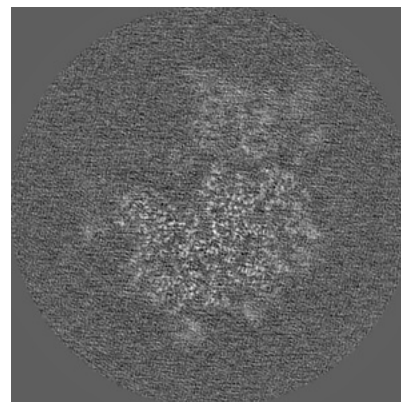
6.2.2 Raw map



X Index: 150



Y Index: 150

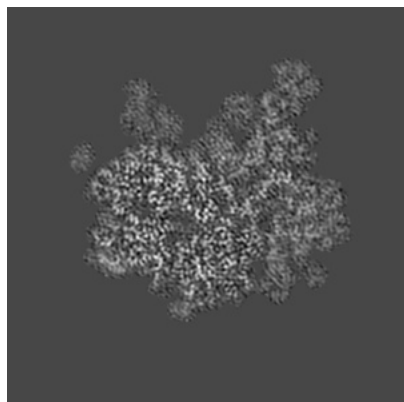


Z Index: 150

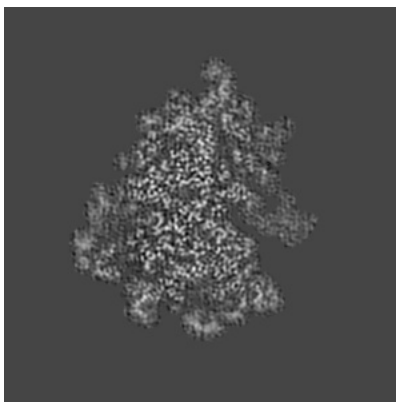
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

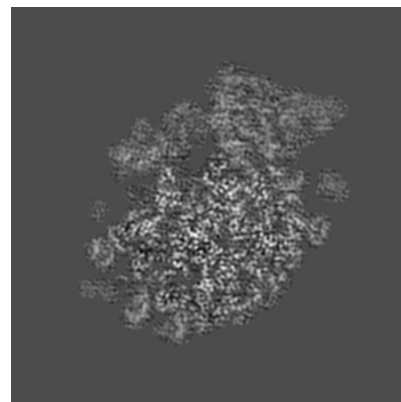
6.3.1 Primary map



X Index: 158

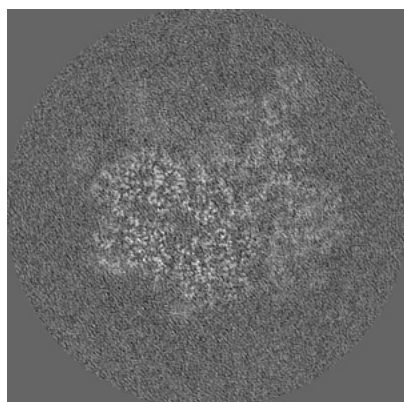


Y Index: 130

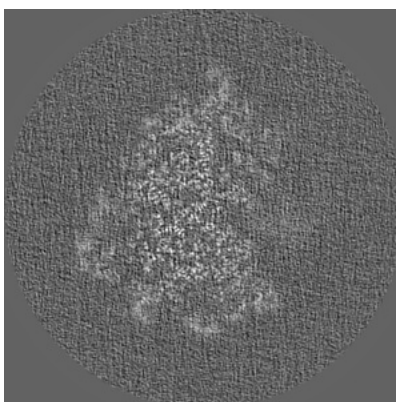


Z Index: 128

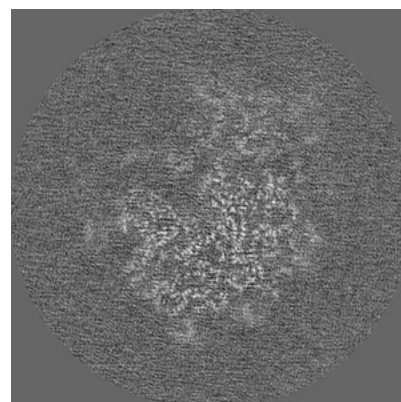
6.3.2 Raw map



X Index: 158



Y Index: 130

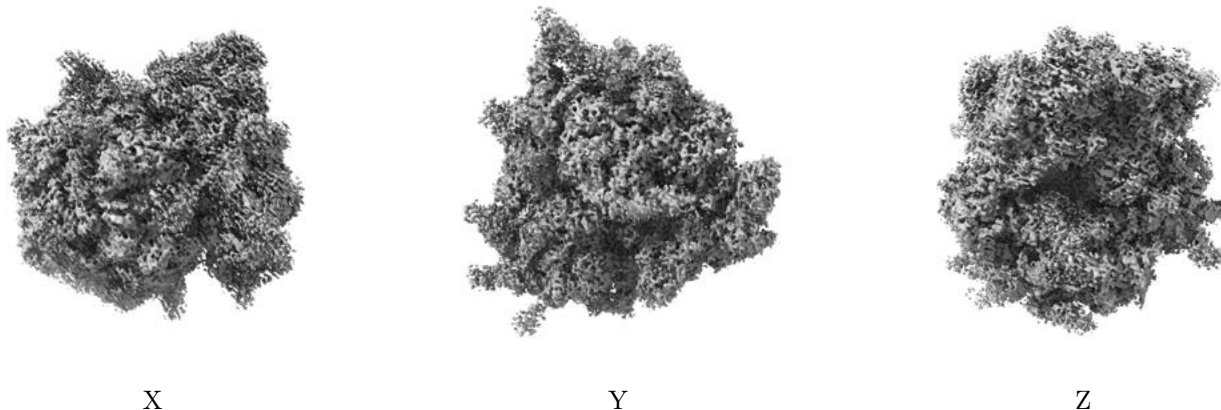


Z Index: 148

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

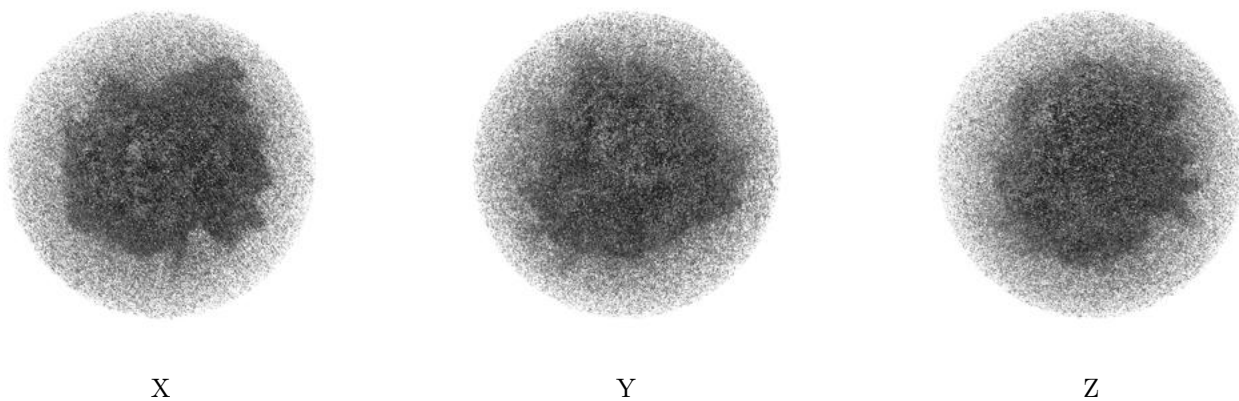
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.014. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



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

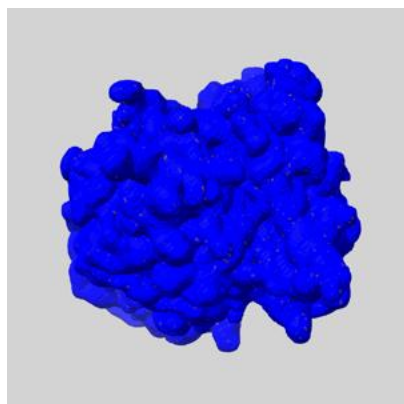
6.5 Mask visualisation [i](#)

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

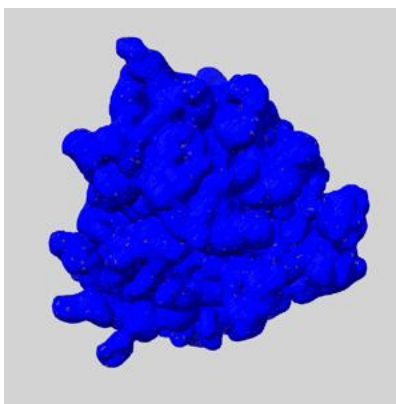
A mask typically either:

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

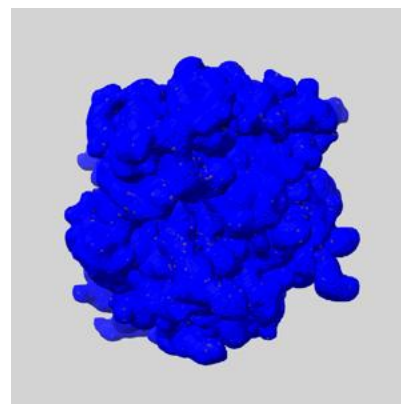
6.5.1 emd_12632_msk_1.map [i](#)



X



Y

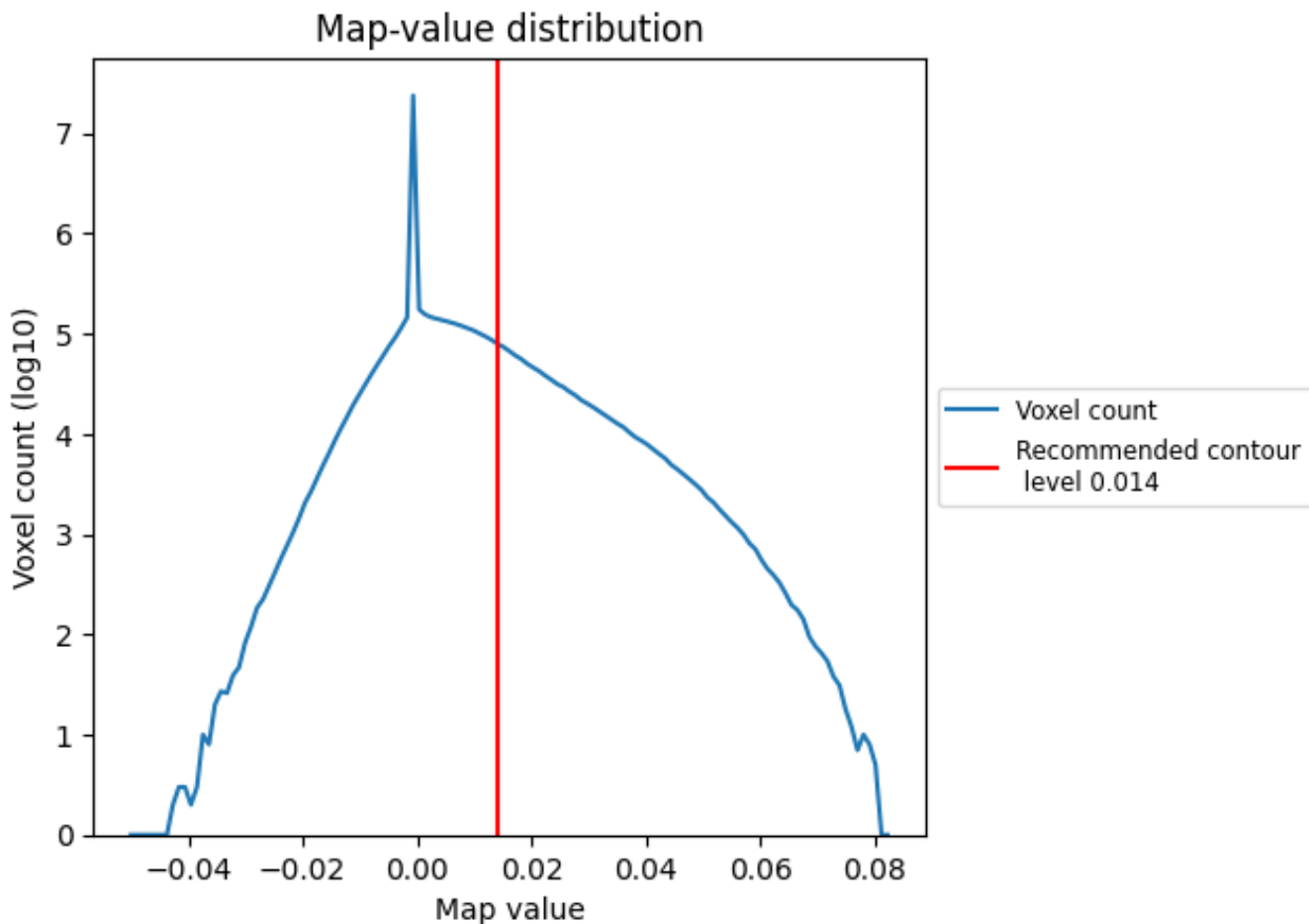


Z

7 Map analysis [i](#)

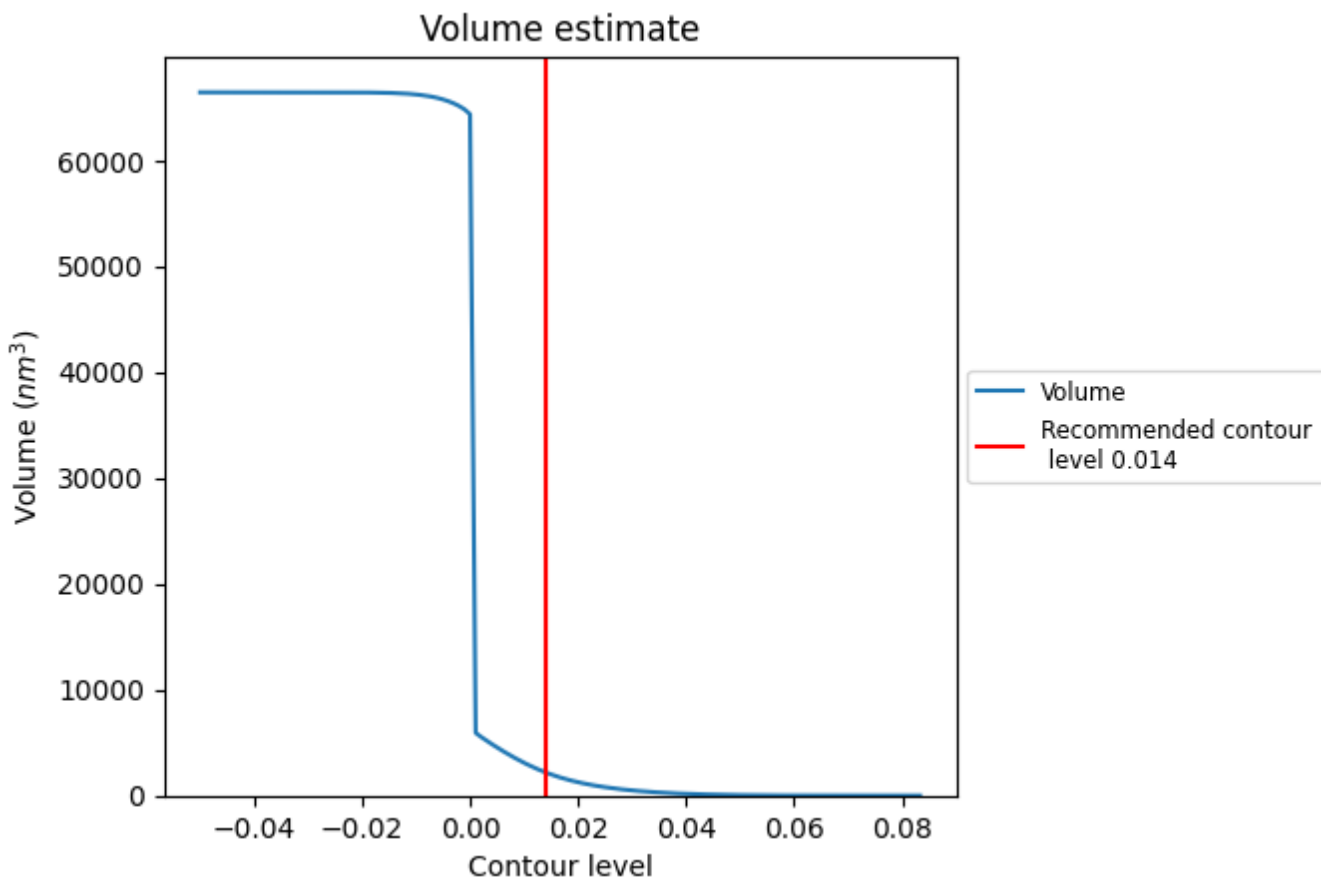
This section contains the results of statistical analysis of the map.

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.

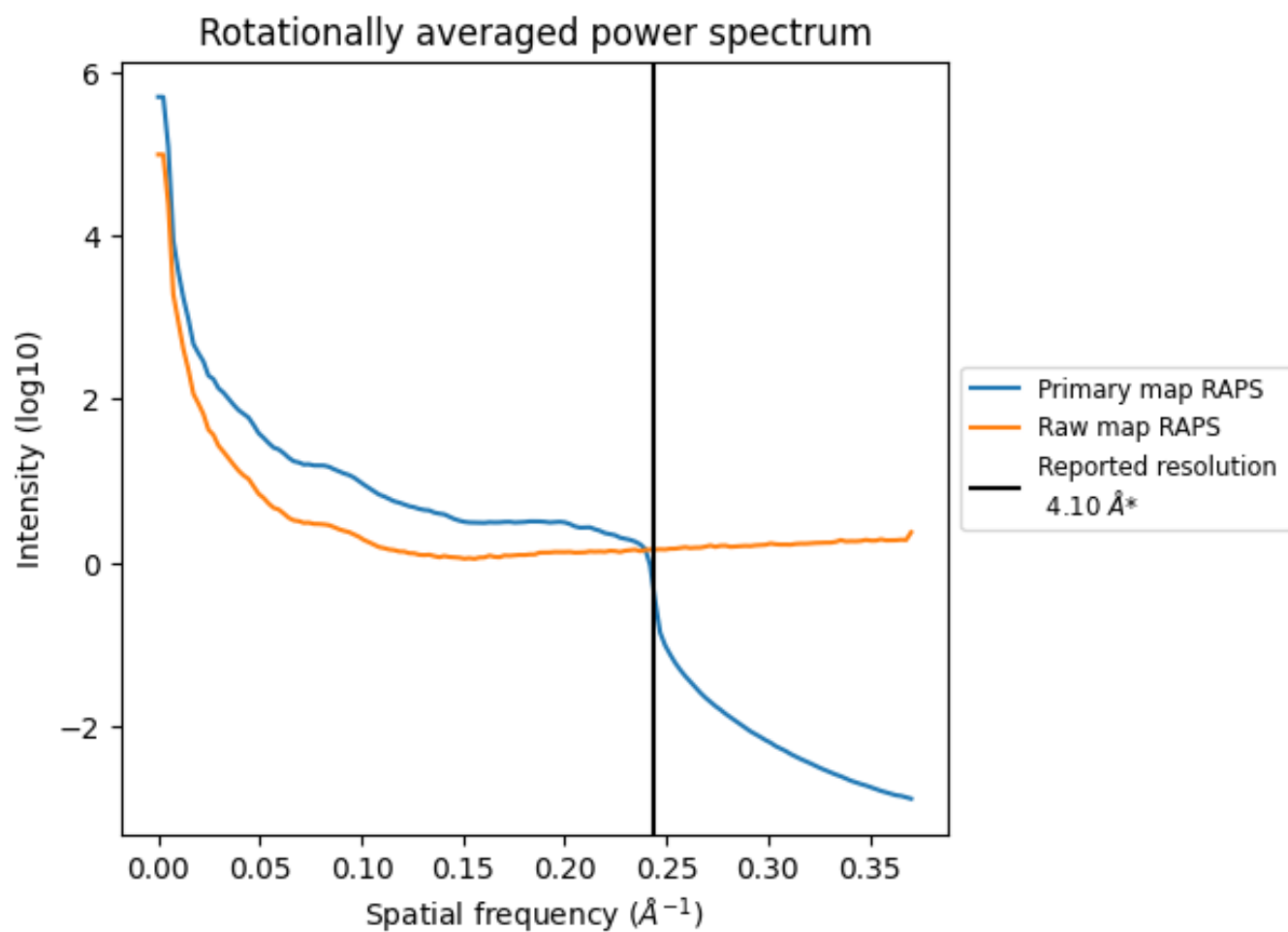
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2180 nm³; this corresponds to an approximate mass of 1970 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

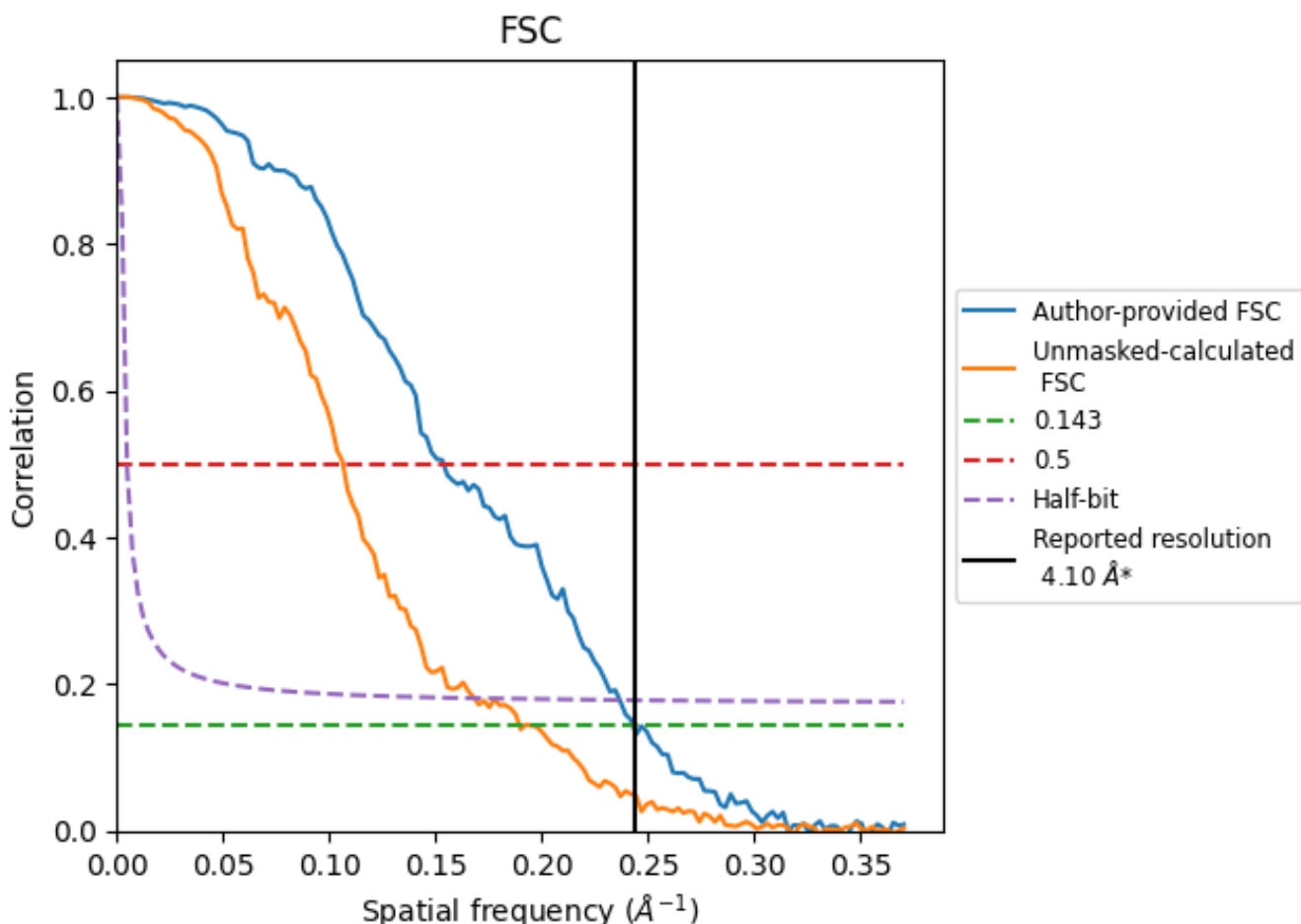


*Reported resolution corresponds to spatial frequency of 0.244 \AA^{-1}

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 0.244 Å⁻¹

8.2 Resolution estimates [i](#)

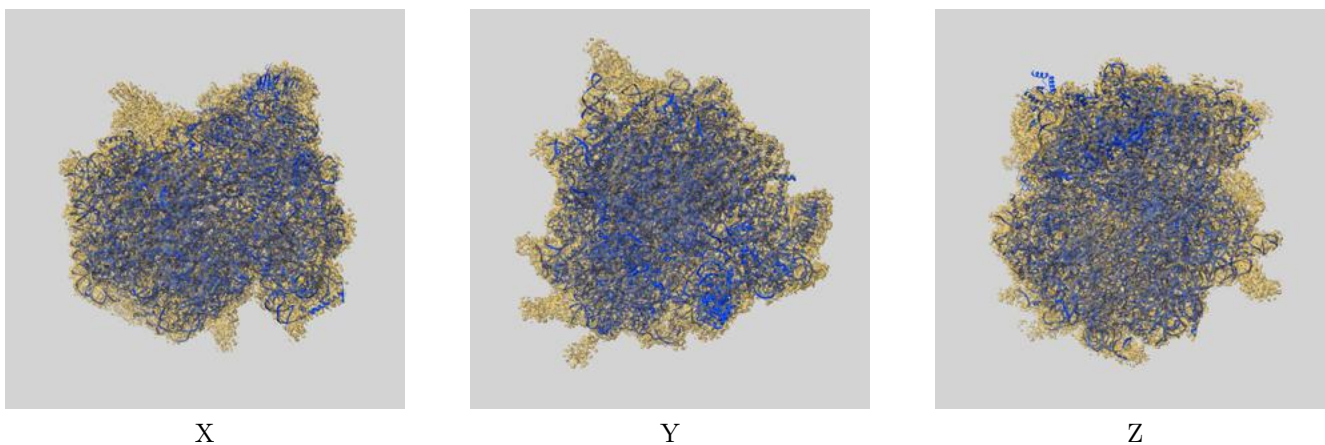
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.10	-	-
Author-provided FSC curve	4.12	6.51	4.22
Unmasked-calculated*	5.28	9.40	5.94

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 5.28 differs from the reported value 4.1 by more than 10 %

9 Map-model fit [i](#)

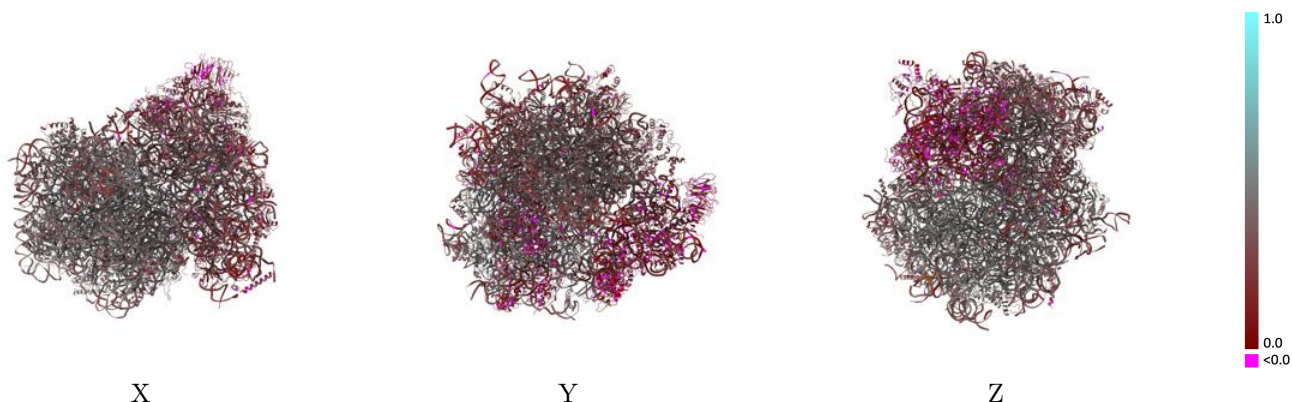
This section contains information regarding the fit between EMDB map EMD-12632 and PDB model 7NWH. Per-residue inclusion information can be found in section 3 on page 22.

9.1 Map-model overlay [i](#)



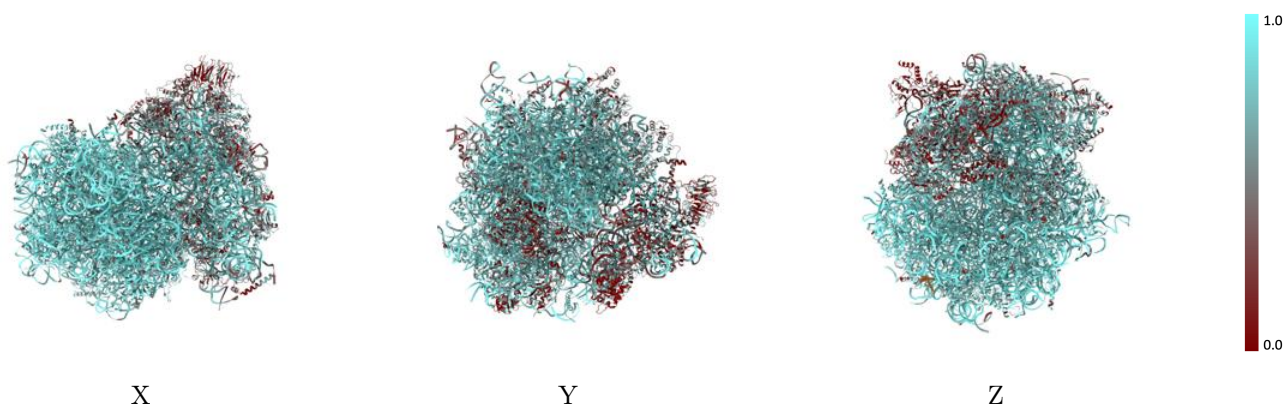
The images above show the 3D surface view of the map at the recommended contour level 0.014 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



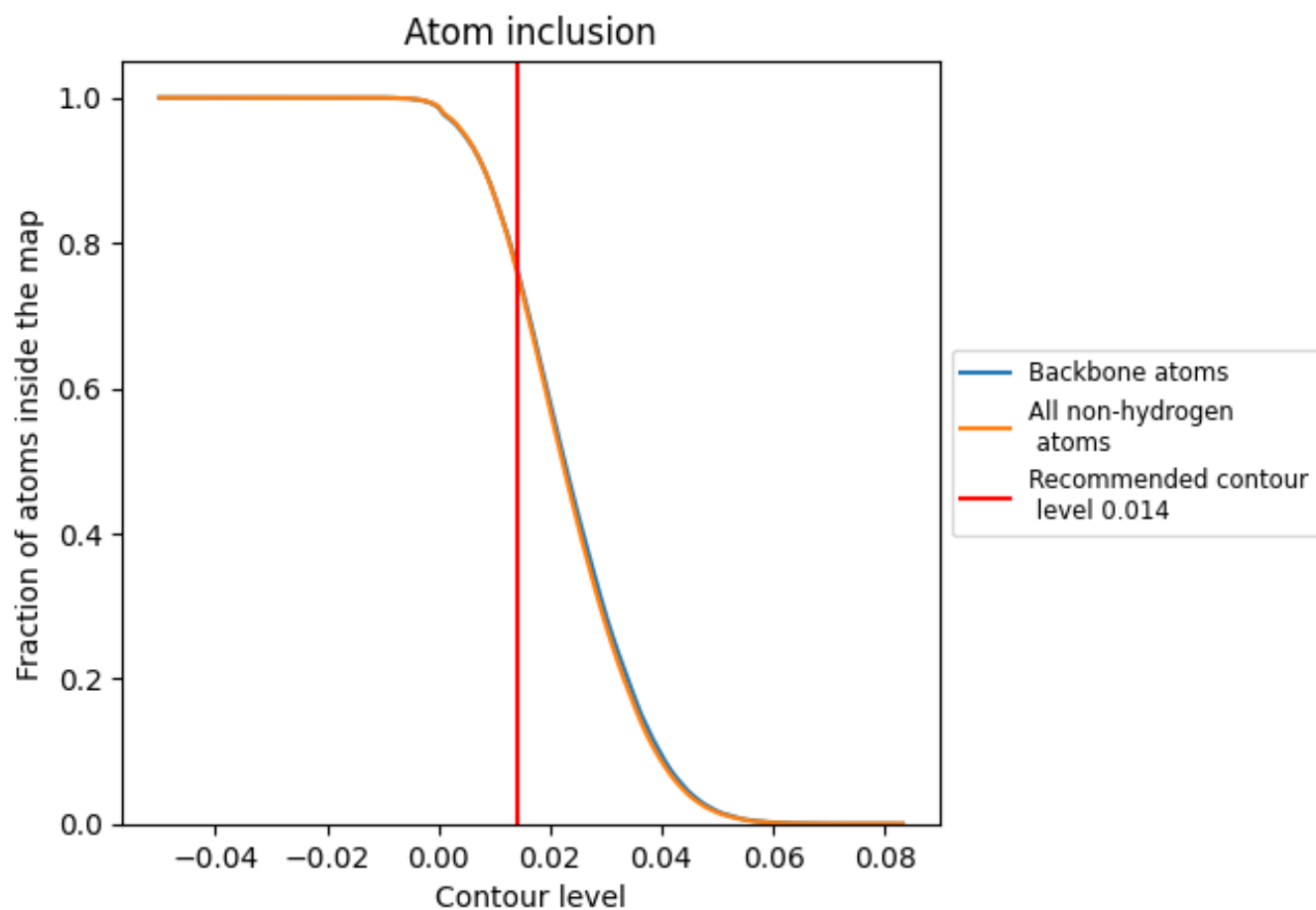
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.014).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 77% of all backbone atoms, 76% 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 (0.014) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7638	 0.3480
5	 0.9284	 0.3970
7	 0.9629	 0.4130
8	 0.9481	 0.4100
9	 0.7792	 0.2790
A	 0.8125	 0.4540
AA	 0.6058	 0.3260
B	 0.8007	 0.4370
BB	 0.5574	 0.2980
C	 0.8136	 0.4440
CC	 0.6568	 0.3580
D	 0.7991	 0.3880
DD	 0.3699	 0.2000
E	 0.8023	 0.4100
EE	 0.6000	 0.3260
F	 0.8010	 0.4240
FF	 0.3401	 0.1590
G	 0.7540	 0.3880
GG	 0.5024	 0.2420
H	 0.7740	 0.4150
HH	 0.4887	 0.2780
I	 0.8055	 0.4320
II	 0.5821	 0.3030
J	 0.7540	 0.3480
JJ	 0.6526	 0.3220
KK	 0.3987	 0.1850
L	 0.7748	 0.4060
LL	 0.6596	 0.3600
M	 0.8089	 0.4130
MM	 0.0805	 0.0870
N	 0.8451	 0.4470
NN	 0.6132	 0.3210
O	 0.8186	 0.4320
OO	 0.5512	 0.2680
P	 0.8260	 0.4440



















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Chain	Atom inclusion	Q-score
PP	0.4933	0.1590
Q	0.8021	0.4370
QQ	0.4359	0.1810
R	0.7495	0.3910
RR	0.3998	0.2170
S	0.8210	0.4420
SS	0.4812	0.1830
T	0.7981	0.4440
TT	0.4499	0.1640
U	0.7383	0.3510
UU	0.4083	0.1710
V	0.7724	0.4530
VV	0.5997	0.3340
W	0.5704	0.3100
WW	0.6485	0.3580
X	0.8064	0.4180
XX	0.7283	0.3910
Y	0.8089	0.4200
YY	0.5403	0.2790
Z	0.7931	0.3830
ZZ	0.3688	0.1690
a	0.8220	0.4490
aa	0.6624	0.3430
b	0.7215	0.3870
bb	0.5540	0.3160
c	0.6935	0.3420
cc	0.2745	0.1690
d	0.7783	0.4200
dd	0.4502	0.1990
e	0.8269	0.4580
ee	0.5915	0.3220
f	0.8468	0.4600
ff	0.3457	0.2120
g	0.7805	0.4170
gg	0.2727	0.1370
h	0.8018	0.3970
hh	0.2132	0.1730
i	0.7714	0.3880
ii	0.2776	0.1660
j	0.8739	0.4480
jj	0.2419	0.1590
k	0.7397	0.3890

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Chain	Atom inclusion	Q-score
l	 0.8361	 0.4370
m	 0.8149	 0.4180
n	 0.6284	 0.3300
o	 0.7787	 0.4390
p	 0.7939	 0.4420
r	 0.8025	 0.4280
s	 0.3246	 0.1490
t	 0.3155	 0.1860