



## wwPDB EM Validation Summary Report ⓘ

Nov 4, 2023 – 11:41 PM EDT

PDB ID : 8G6J  
EMDB ID : EMD-29771  
Title : mRNA decoding in human is kinetically and structurally distinct from bacteria (GA state 2)  
Authors : Holm, M.; Natchiar, K.S.; Rundlet, E.J.; Myasnikov, A.G.; Altman, R.B.; Blanchard, S.C.  
Deposited on : 2023-02-15  
Resolution : 2.80 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev70  
Mogul : 1.8.5 (274361), 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) : 2.36

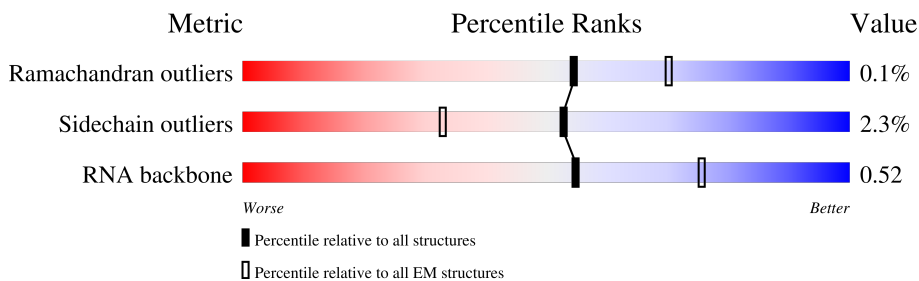
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 2.80 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.



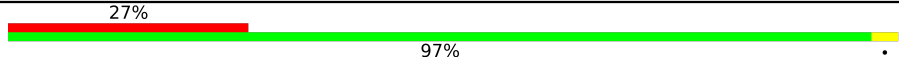
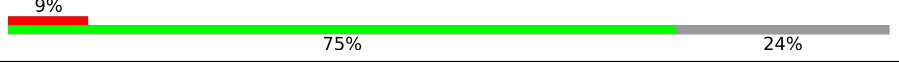
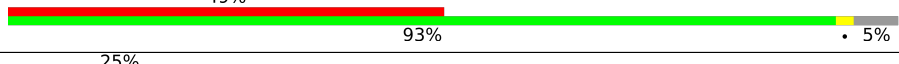
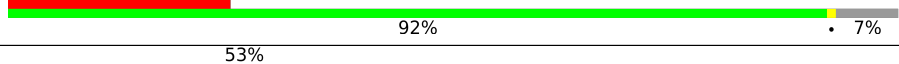
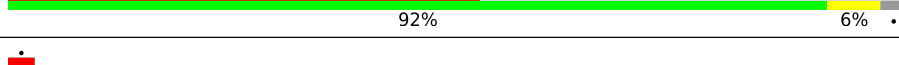
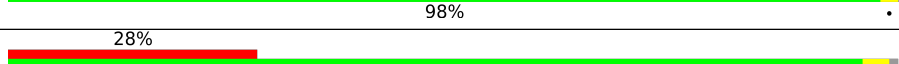
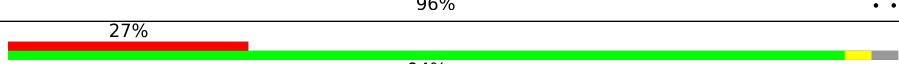
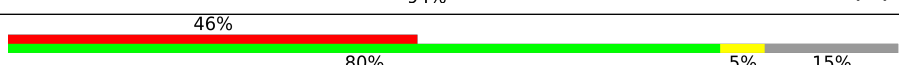
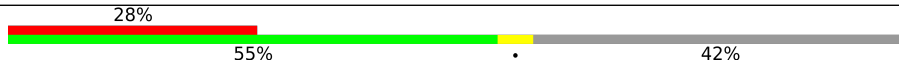

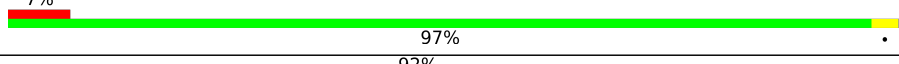

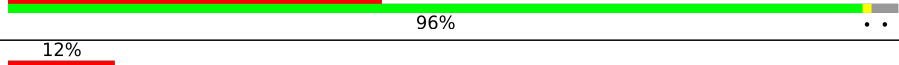
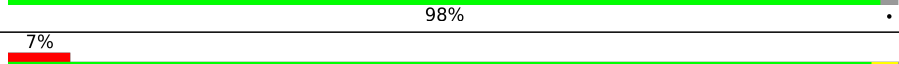
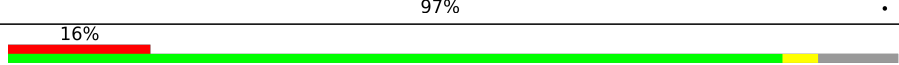
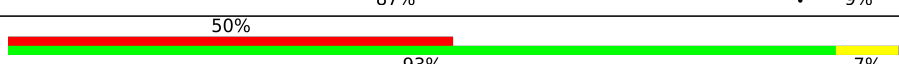
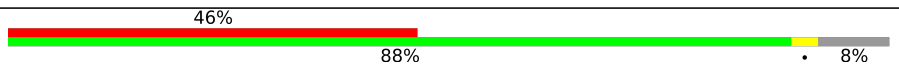
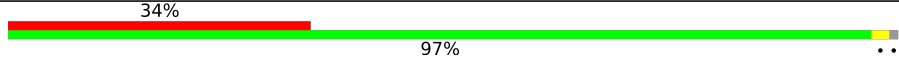
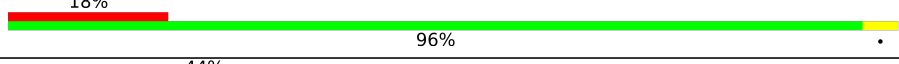
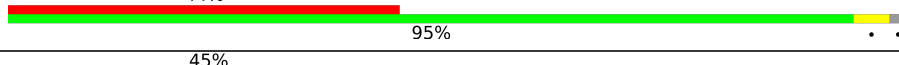


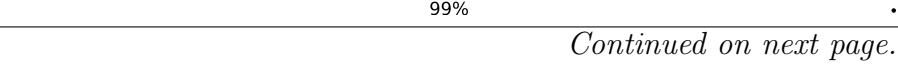


Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	S2	1869	
2	L8	156	
3	L5	5069	
4	L7	120	
5	SB	264	
6	SA	295	
7	SD	243	
8	SJ	194	

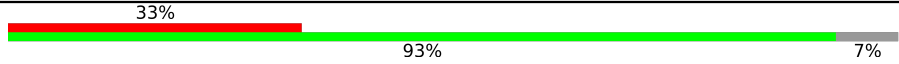


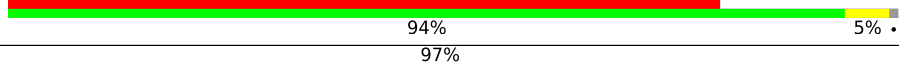
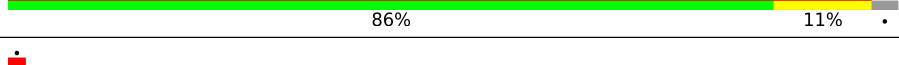
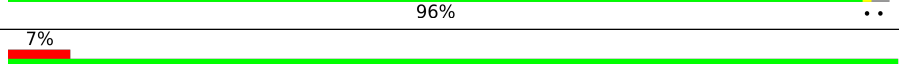
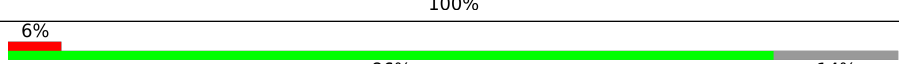
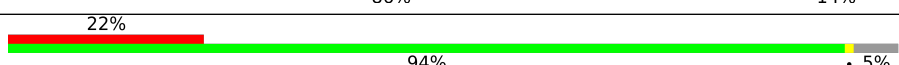
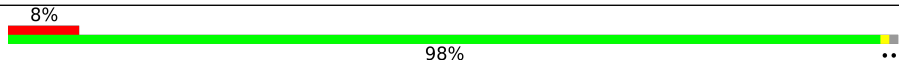


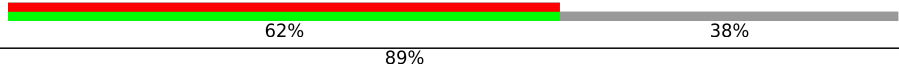
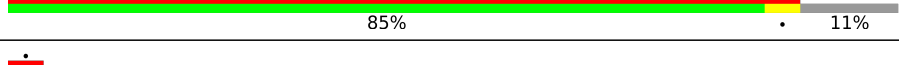
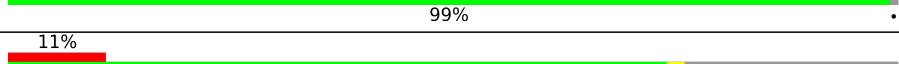
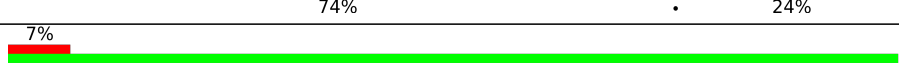
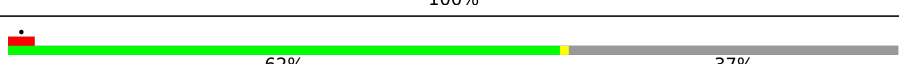
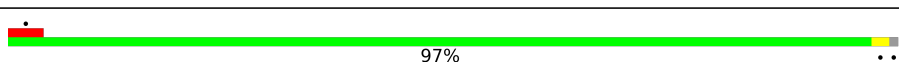
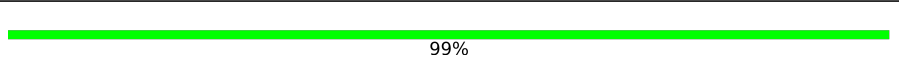
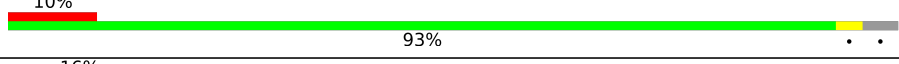
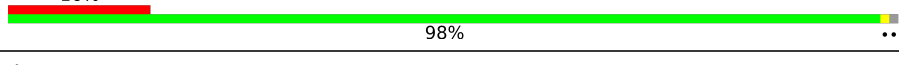
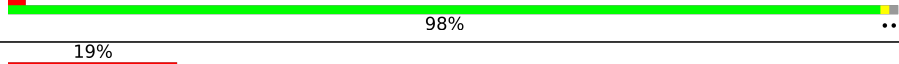
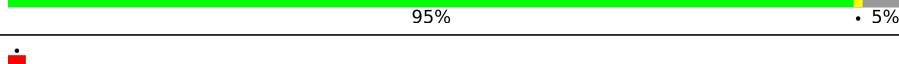
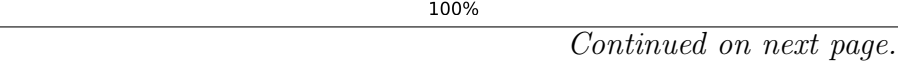


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Mol	Chain	Length	Quality of chain
9	SE	263	
10	SC	293	
11	SG	249	
12	SF	204	
13	SH	194	
14	SW	130	
15	SI	208	
16	SQ	146	
17	SU	119	
18	SK	165	
19	SO	151	
20	SX	143	
21	SM	132	
22	SS	152	
23	Sd	56	
24	SN	151	
25	SL	158	
26	SR	135	
27	SP	145	
28	ST	145	
29	SV	83	
30	SY	133	
31	SZ	125	
32	Sa	115	
33	Sb	84	

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Mol	Chain	Length	Quality of chain
34	Sc	69	
35	Se	133	
36	Sf	156	
37	Sg	317	
38	Lz	217	
39	LA	257	
40	LB	403	
41	LC	427	
42	LJ	178	
43	LH	192	
44	LE	288	
45	LG	266	
46	Lq	317	
47	LK	165	
48	LO	203	
49	LL	270	
50	LV	140	
51	LM	215	
52	La	148	
53	LN	204	
54	LI	214	
55	LD	297	
56	LQ	188	
57	LR	196	
58	LS	176	

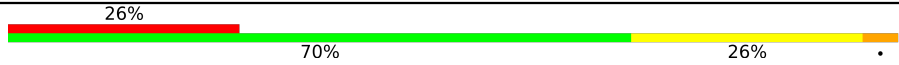

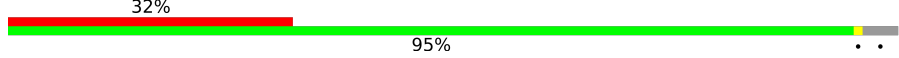
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Mol	Chain	Length	Quality of chain
59	LT	160	13% 98%
60	LP	184	1% 82% 17%
61	LU	128	37% 74% 23%
62	LX	156	5% 74% 24%
63	LY	145	8% 90% 8%
64	LW	157	38% 75% 25%
65	LZ	136	11% 97%
66	Lr	137	7% 89% 9%
67	Lh	123	11% 98%
68	Lb	159	22% 67% 31%
69	LF	248	5% 90% 9%
70	Lc	115	10% 85% 15%
71	Ld	125	13% 85% 14%
72	Le	135	1% 94% 5%
73	Lf	110	1% 99%
74	Lg	117	9% 97%
75	Li	105	16% 95%
76	Lj	97	1% 87% 11%
77	Lk	70	50% 97%
78	Ll	51	6% 98%
79	Lm	128	1% 40% 59%
80	Ln	25	1% 100%
81	Lo	106	8% 97%
82	Lp	92	5% 99%
83	mR	60	7% 15% 82%

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Mol	Chain	Length	Quality of chain
84	At	76	
85	Pt	77	
86	EF	462	

## 2 Entry composition

There are 98 unique types of molecules in this entry. The entry contains 225765 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	S2	1701	36364	16257	6517	11889	1701	0	0

- Molecule 2 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	L8	156	3320	1482	585	1097	156	0	0

- Molecule 3 is a RNA chain called 28S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	L5	3687	79146	35282	14478	25698	3688	1	0

- Molecule 4 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	L7	120	2562	1141	456	845	120	0	0

- Molecule 5 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	SB	223	1806	1145	325	322	14	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	SA	222	1750	1111	306	325	8	0	0

- Molecule 7 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	SD	226	1756	1119	315	314	8	0	0

- Molecule 8 is a protein called 40S ribosomal protein S9.

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

- Molecule 9 is a protein called 40S ribosomal protein S4, X isoform.

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

- Molecule 10 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	SC	222	1725	1115	298	302	10	0	0

- Molecule 11 is a protein called 40S ribosomal protein S6.

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

- Molecule 12 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	SF	189	1494	934	284	269	7	0	0

- Molecule 13 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	SH	189	1517	966	279	271	1	0	0

- Molecule 14 is a protein called 40S ribosomal protein S15a.



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

- Molecule 15 is a protein called 40S ribosomal protein S8.

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

- Molecule 16 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	SQ	141	Total	C	N	O	S	0	0
			1123	715	212	193	3		

- Molecule 17 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	SU	101	Total	C	N	O	S	0	0
			803	504	153	142	4		

- Molecule 18 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	SK	96	Total	C	N	O	S	0	0
			810	530	143	131	6		

- Molecule 19 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	SO	135	Total	C	N	O	S	0	0
			1009	618	198	187	6		

- Molecule 20 is a protein called uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	SX	142	Total	C	N	O	S	0	0
			1105	696	220	186	3		

- Molecule 21 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	SM	122	940	590	164	177	9	0	0

- Molecule 22 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	SS	148	1214	761	245	207	1	0	0

- Molecule 23 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	Sd	55	458	286	94	73	5	0	0

- Molecule 24 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	SN	150	1214	778	231	204	1	1	0

- Molecule 25 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	SL	143	1171	746	221	198	6	0	0

- Molecule 26 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	SR	134	1083	680	201	198	4	0	0

- Molecule 27 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	SP	133	1093	695	206	185	7	0	0

- Molecule 28 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	ST	143	1112	697	214	198	3	0	0

- Molecule 29 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	SV	83	639	395	117	122	5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	SY	131	1065	673	209	178	5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	SZ	84	674	433	126	114	1	0	0

- Molecule 32 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	Sa	99	792	492	165	130	5	0	0

- Molecule 33 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	Sb	83	650	408	121	114	7	0	0

- Molecule 34 is a protein called 40S ribosomal protein S28.

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

- Molecule 35 is a protein called FAU ubiquitin-like and ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	Se	59	Total	C	N	O	S	0	0
			467	290	102	74	1		

- Molecule 36 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	Sf	75	Total	C	N	O	S	0	0
			615	388	118	102	7		

- Molecule 37 is a protein called Receptor of activated protein C kinase 1.

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

- Molecule 38 is a protein called 60S ribosomal protein L10a.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	Lz	211	Total	C	N	O	S	0	0
			1701	1089	307	297	8		

- Molecule 39 is a protein called uL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	LA	251	Total	C	N	O	S	0	0
			1922	1204	393	319	6		

- Molecule 40 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	LB	402	Total	C	N	O	S	0	0
			3239	2061	608	556	14		

- Molecule 41 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	LC	368	Total	C	N	O	S	0	0
			2927	1840	583	489	15		

- Molecule 42 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	LJ	169	1358	859	253	240	6	0	0

- Molecule 43 is a protein called 60S ribosomal protein L9.

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

- Molecule 44 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	LE	223	1793	1155	340	294	4	1	0

- Molecule 45 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	LG	239	1910	1217	368	321	4	0	0

- Molecule 46 is a protein called 60S acidic ribosomal protein P0.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	Lq	196	1506	958	263	276	9	0	0

- Molecule 47 is a protein called 60S ribosomal protein L12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	LK	147	1121	700	211	207	3	0	0

- Molecule 48 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	LO	201	1650	1063	321	261	5	0	0

- Molecule 49 is a protein called eL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	LL	206	Total	C	N	O	S	0	0
			1664	1041	345	274	4		

- Molecule 50 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	LV	140	Total	C	N	O	S	0	0
			1042	653	200	183	6		

- Molecule 51 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	LM	136	Total	C	N	O	S	0	0
			1120	719	215	179	7		

- Molecule 52 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	La	147	Total	C	N	O	S	0	0
			1163	736	237	187	3		

- Molecule 53 is a protein called 60S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	LN	203	Total	C	N	O	S	0	0
			1700	1072	359	265	4		

- Molecule 54 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	LI	205	Total	C	N	O	S	0	0
			1660	1054	319	274	13		

- Molecule 55 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	LD	294	Total	C	N	O	S	0	0
			2391	1513	436	428	14		

- Molecule 56 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
56	LQ	187	1512	944	314	249	5	0	0

- Molecule 57 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
57	LR	187	1566	971	336	250	9	0	0

- Molecule 58 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
58	LS	176	1460	930	284	235	11	0	0

- Molecule 59 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
59	LT	159	1297	823	252	216	6	0	0

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

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

- Molecule 61 is a protein called 60S ribosomal protein L22.

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

- Molecule 62 is a protein called 60S ribosomal protein L23a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
62	LX	118	967	618	181	167	1	0	0

- Molecule 63 is a protein called 60S ribosomal protein L26.

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

- Molecule 64 is a protein called 60S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
64	LW	118	950	595	192	159	4	0	0

- Molecule 65 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
65	LZ	135	1106	714	208	181	3	0	0

- Molecule 66 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
66	Lr	125	1005	624	207	169	5	0	0

- Molecule 67 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
67	Lh	122	1014	641	205	167	1	0	0

- Molecule 68 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
68	Lb	109	885	552	192	137	4	0	0

- Molecule 69 is a protein called 60S ribosomal protein L7.

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

- Molecule 70 is a protein called 60S ribosomal protein L30.



Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
70	Lc	98	764	485	135	138	6	0	0

- Molecule 71 is a protein called 60S ribosomal protein L31.

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

- Molecule 72 is a protein called 60S ribosomal protein L32.

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

- Molecule 73 is a protein called 60S ribosomal protein L35a.

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

- Molecule 74 is a protein called 60S ribosomal protein L34.

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

- Molecule 75 is a protein called 60S ribosomal protein L36.

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

- Molecule 76 is a protein called 60S ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
76	Lj	86	712	439	157	111	5	1	0

- Molecule 77 is a protein called 60S ribosomal protein L38.

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

- Molecule 78 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
78	Ll	50	443	281	98	63	1	0	0

- Molecule 79 is a protein called eL40.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
79	Lm	52	432	269	90	67	6	0	0

- Molecule 80 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
80	Ln	25	239	145	64	27	3	0	0

- Molecule 81 is a protein called 60S ribosomal protein L36a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
81	Lo	105	870	548	177	139	6	1	0

- Molecule 82 is a protein called 60S ribosomal protein L37a.

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

- Molecule 83 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
83	mR	11	252	113	41	86	12	1	0

- Molecule 84 is a RNA chain called A-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
84	At	76	Total	C	N	O	P	S	0	0
			1630	730	290	532	76	2		

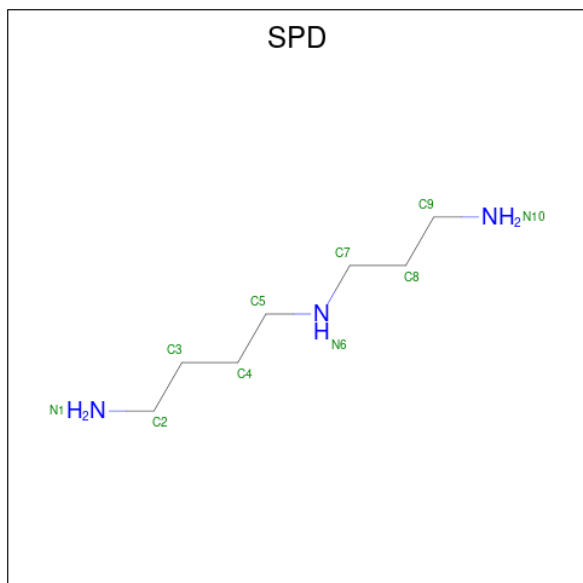
- Molecule 85 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
85	Pt	77	Total	C	N	O	P	S	0	0
			1645	734	298	535	77	1		

- Molecule 86 is a protein called Elongation factor 1-alpha 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
86	EF	444	Total	C	N	O	S	0	0
			3405	2167	585	636	17		

- Molecule 87 is SPERMIDINE (three-letter code: SPD) (formula:  $C_7H_{19}N_3$ ).



Mol	Chain	Residues	Atoms			AltConf
87	S2	1	Total	C	N	0
			10	7	3	
87	L5	1	Total	C	N	0
			10	7	3	
87	L5	1	Total	C	N	0
			10	7	3	
87	L5	1	Total	C	N	0
			10	7	3	

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Mol	Chain	Residues	Atoms			AltConf
			Total	C	N	
87	L5	1	10	7	3	0
87	L5	1	10	7	3	0
87	L5	1	10	7	3	0
87	L5	1	10	7	3	0
87	L5	1	10	7	3	0
87	L5	1	10	7	3	0

- Molecule 88 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		AltConf
			Total	K	
88	S2	6	6	6	0
88	L5	25	25	25	0
88	LA	1	1	1	0
88	Lf	1	1	1	0
88	mR	1	1	1	0

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

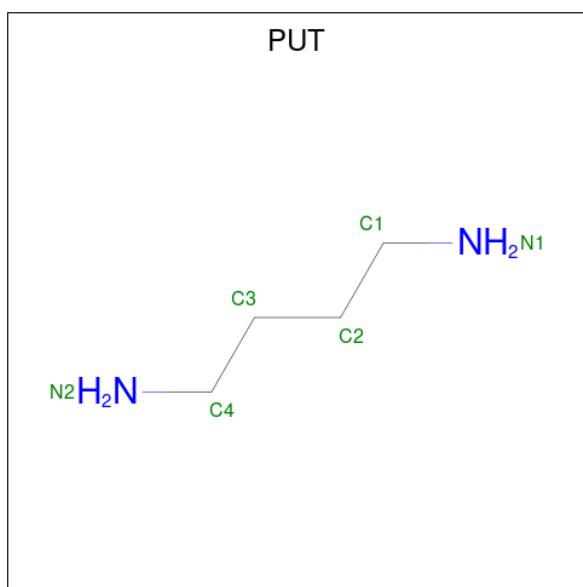
Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
89	S2	83	83	83	0
89	L8	3	3	3	0
89	L5	225	225	225	0
89	L7	5	5	5	0
89	SE	1	1	1	0
89	SO	1	1	1	0

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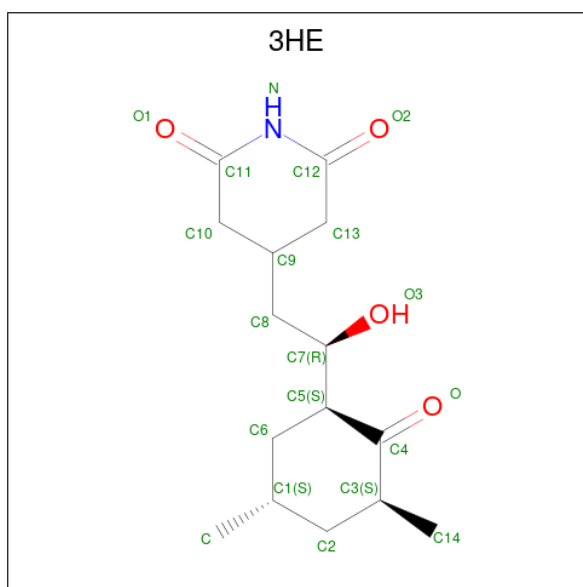
Mol	Chain	Residues	Atoms		AltConf
89	SX	1	Total 1	Mg 1	0
89	Sd	1	Total 1	Mg 1	0
89	ST	1	Total 1	Mg 1	0
89	LA	1	Total 1	Mg 1	0
89	LB	1	Total 1	Mg 1	0
89	LH	1	Total 1	Mg 1	0
89	LV	1	Total 1	Mg 1	0
89	LN	1	Total 1	Mg 1	0
89	LI	2	Total 2	Mg 2	0
89	LS	2	Total 2	Mg 2	0
89	LP	1	Total 1	Mg 1	0
89	Le	1	Total 1	Mg 1	0
89	Lg	1	Total 1	Mg 1	0
89	Lj	1	Total 1	Mg 1	0
89	Pt	1	Total 1	Mg 1	0
89	EF	2	Total 2	Mg 2	0

- Molecule 90 is 1,4-DIAMINOBTUTANE (three-letter code: PUT) (formula: C<sub>4</sub>H<sub>12</sub>N<sub>2</sub>).



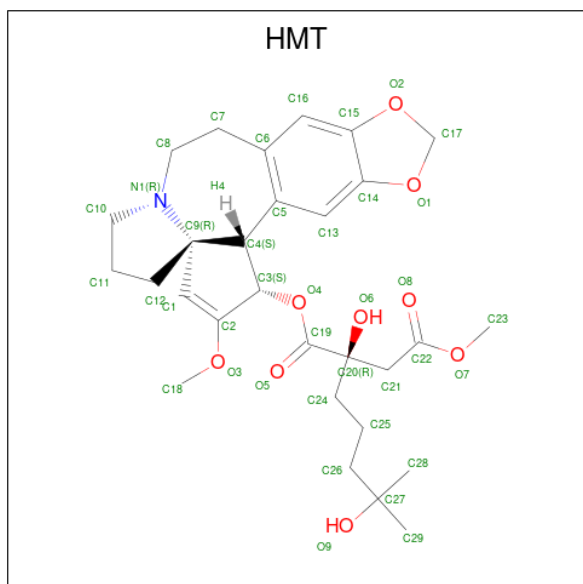
Mol	Chain	Residues	Atoms			AltConf
90	L5	1	Total	C	N	0
			6	4	2	
90	L5	1	Total	C	N	0
			6	4	2	
90	L5	1	Total	C	N	0
			6	4	2	
90	L5	1	Total	C	N	0
			6	4	2	
90	L5	1	Total	C	N	0
			6	4	2	
90	L5	1	Total	C	N	0
			6	4	2	
90	L5	1	Total	C	N	0
			6	4	2	

- Molecule 91 is 4-{(2R)-2-[(1S,3S,5S)-3,5-dimethyl-2-oxocyclohexyl]-2-hydroxyethyl}piperidine-2,6-dione (three-letter code: 3HE) (formula: C<sub>15</sub>H<sub>23</sub>NO<sub>4</sub>).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
91	L5	1	20	15	1	4	0

- Molecule 92 is (3beta)-O 3 -[(2R)-2,6-dihydroxy-2-(2-methoxy-2-oxoethyl)-6-methylheptano yl]cephalotaxine (three-letter code: HMT) (formula: C<sub>29</sub>H<sub>39</sub>NO<sub>9</sub>).

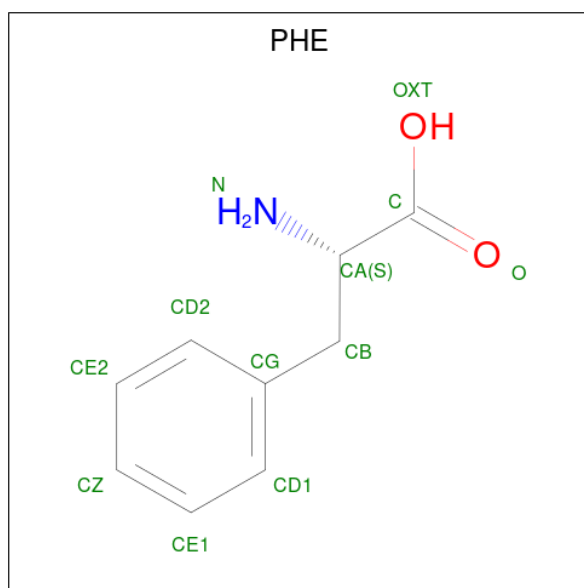


Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
92	L5	1	39	29	1	9	0

- Molecule 93 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
93	Sd	1	Total	Zn	0
			1	1	
93	Sa	1	Total	Zn	0
			1	1	
93	Sf	1	Total	Zn	0
			1	1	
93	Lg	1	Total	Zn	0
			1	1	
93	Lj	1	Total	Zn	0
			1	1	
93	Lm	1	Total	Zn	0
			1	1	
93	Lo	1	Total	Zn	0
			1	1	
93	Lp	1	Total	Zn	0
			1	1	

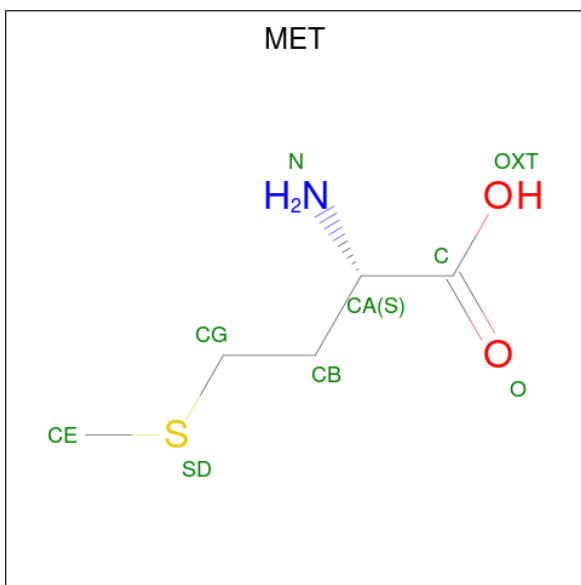
- Molecule 94 is PHENYLALANINE (three-letter code: PHE) (formula:  $C_9H_{11}NO_2$ ).



Mol	Chain	Residues	Atoms				AltConf
94	At	1	Total	C	N	O	0
			11	9	1	1	

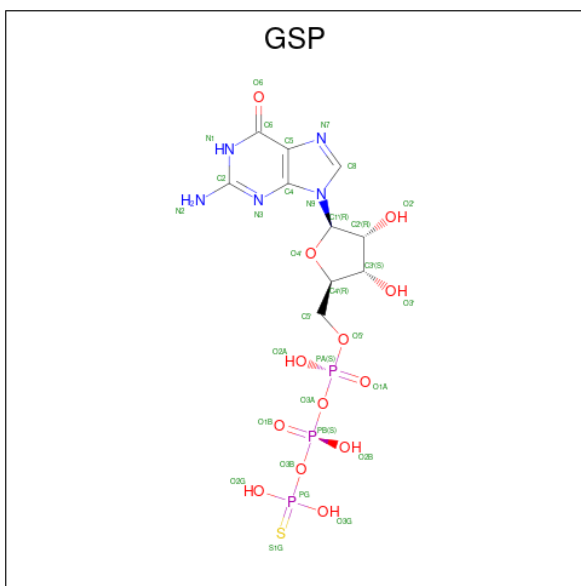
- Molecule 95 is METHIONINE (three-letter code: MET) (formula:  $C_5H_{11}NO_2S$ ).





Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	S	
95	Pt	1	8	5	1	1	1	0

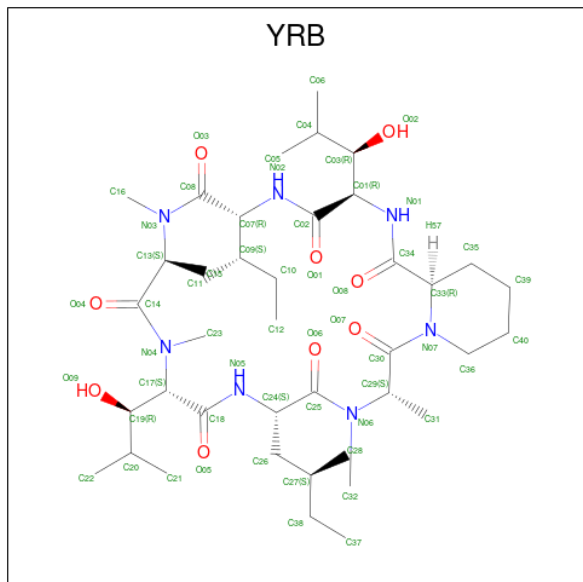
- Molecule 96 is 5'-GUANOSINE-DIPHOSPHATE-MONOTHIOPHOSPHATE (three-letter code: GSP) (formula: C<sub>10</sub>H<sub>16</sub>N<sub>5</sub>O<sub>13</sub>P<sub>3</sub>S).



Mol	Chain	Residues	Atoms					AltConf	
			Total	C	N	O	P		S
96	EF	1	32	10	5	13	3	1	0

- Molecule 97 is (3R,6R,9S,12S,15S,18S,20R,24aR)-6-[(2S)-butan-2-yl]-3,12-bis[(1R)-1-hydroxy-2-methylpropyl]-8,9,11,17,18-pentamethyl-15-[(2S)-2-methylbutyl]hexadecahydropyrido[1,

2-a)[1,4,7,10,13,16,19]heptaazacyclohenicosine-1,4,7,10,13,16,19(21H)-heptone (three-letter code: YRB) (formula:  $C_{40}H_{71}N_7O_9$ ) (labeled as "Ligand of Interest" by depositor).

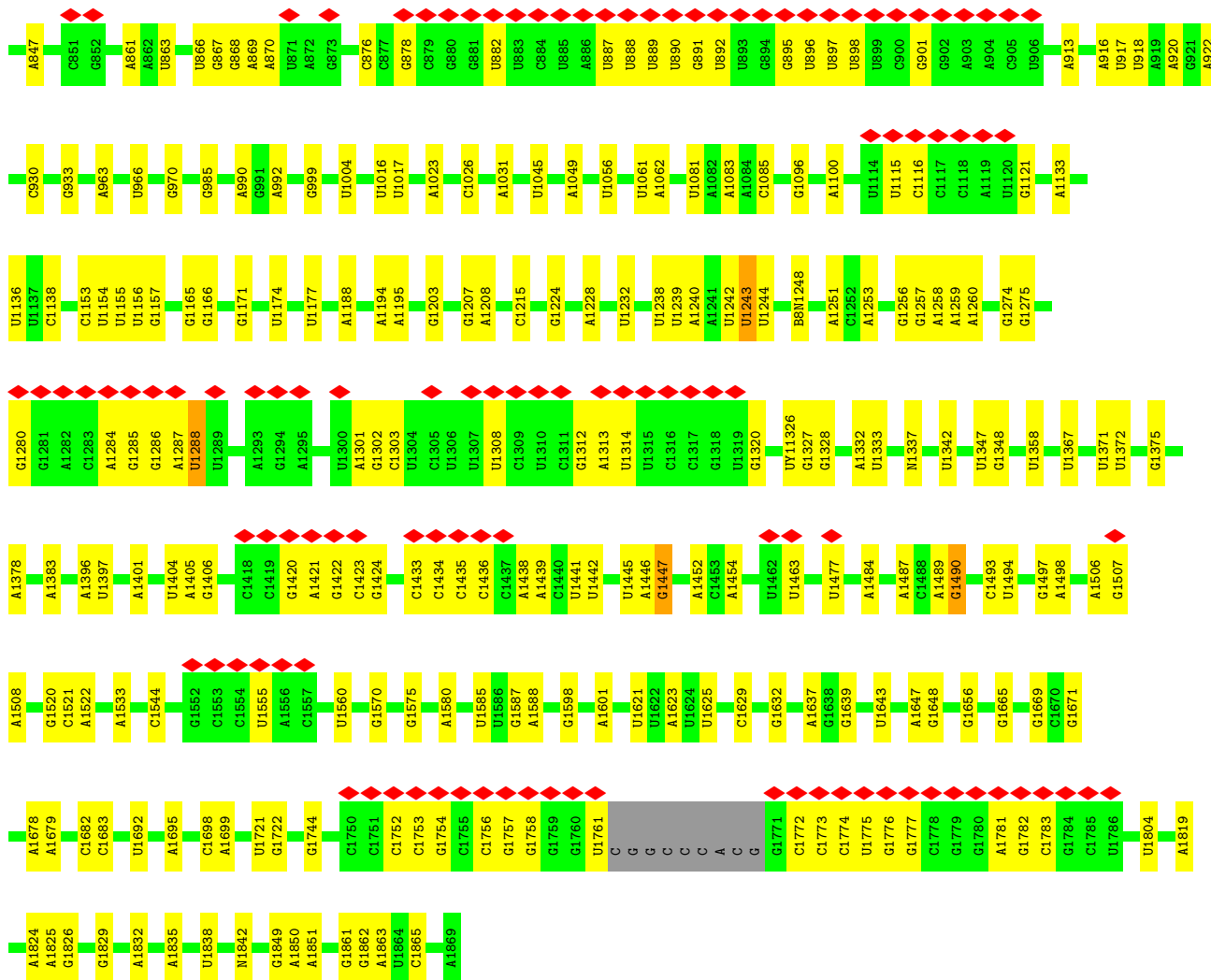


Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
97	EF	1	56	40	7	9	0

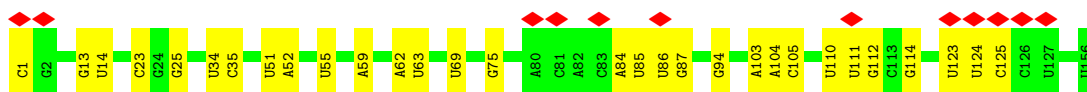
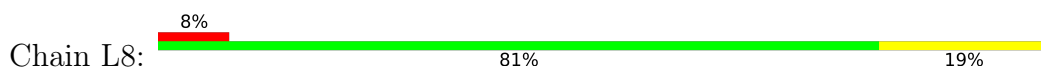
- Molecule 98 is water.

Mol	Chain	Residues	Atoms		AltConf
			Total	O	
98	EF	3	3	3	0

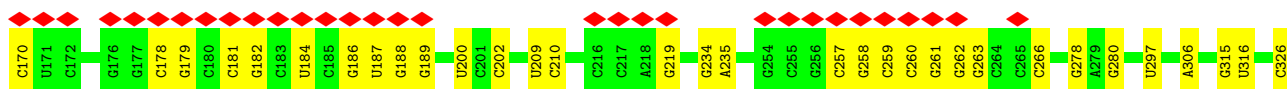
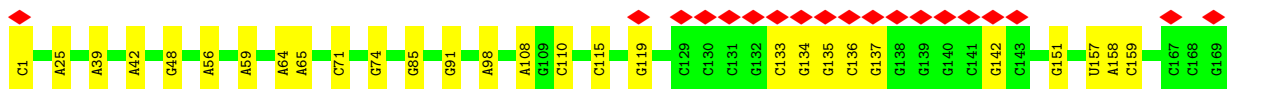


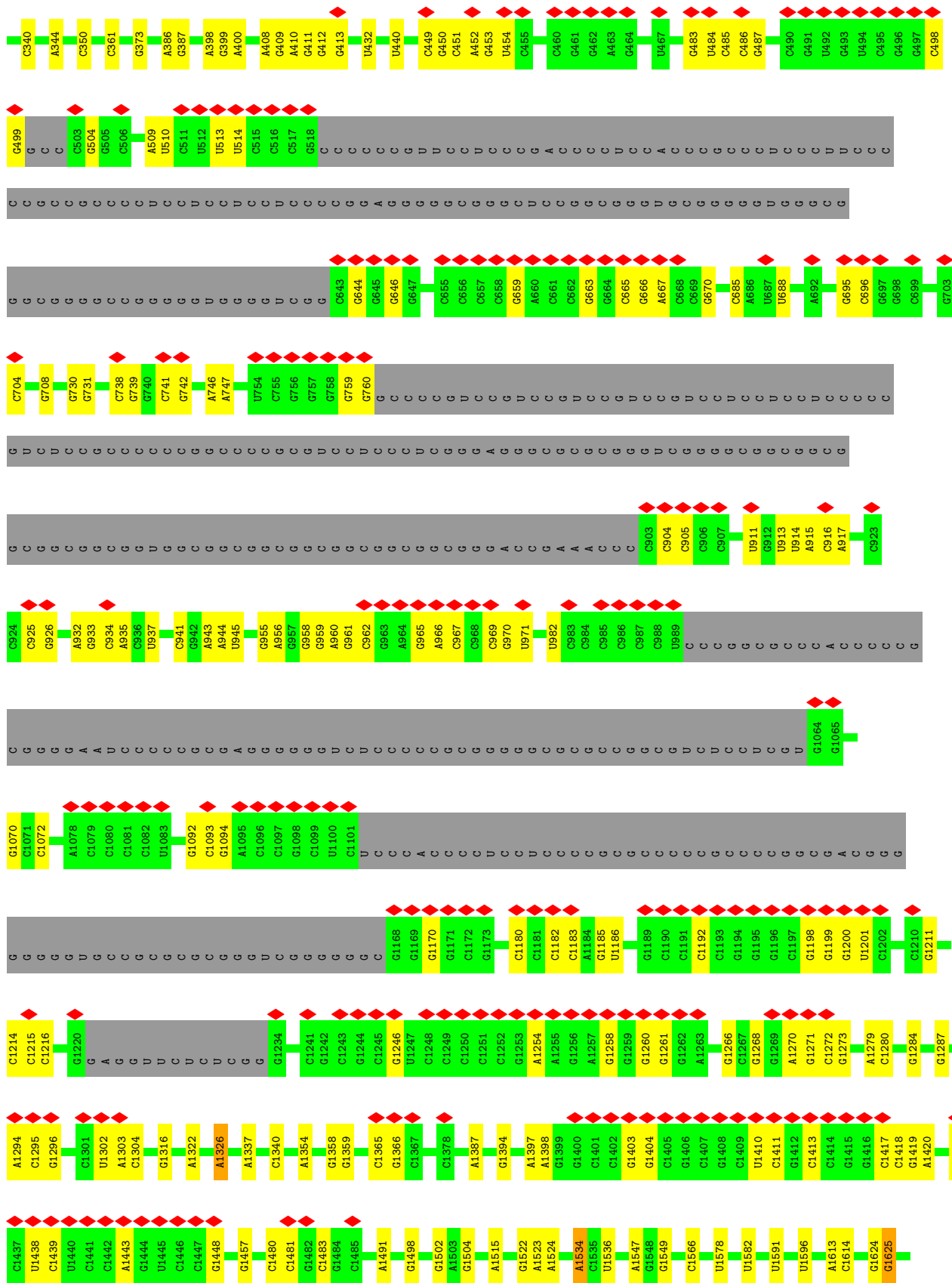


• Molecule 2: 5.8S rRNA

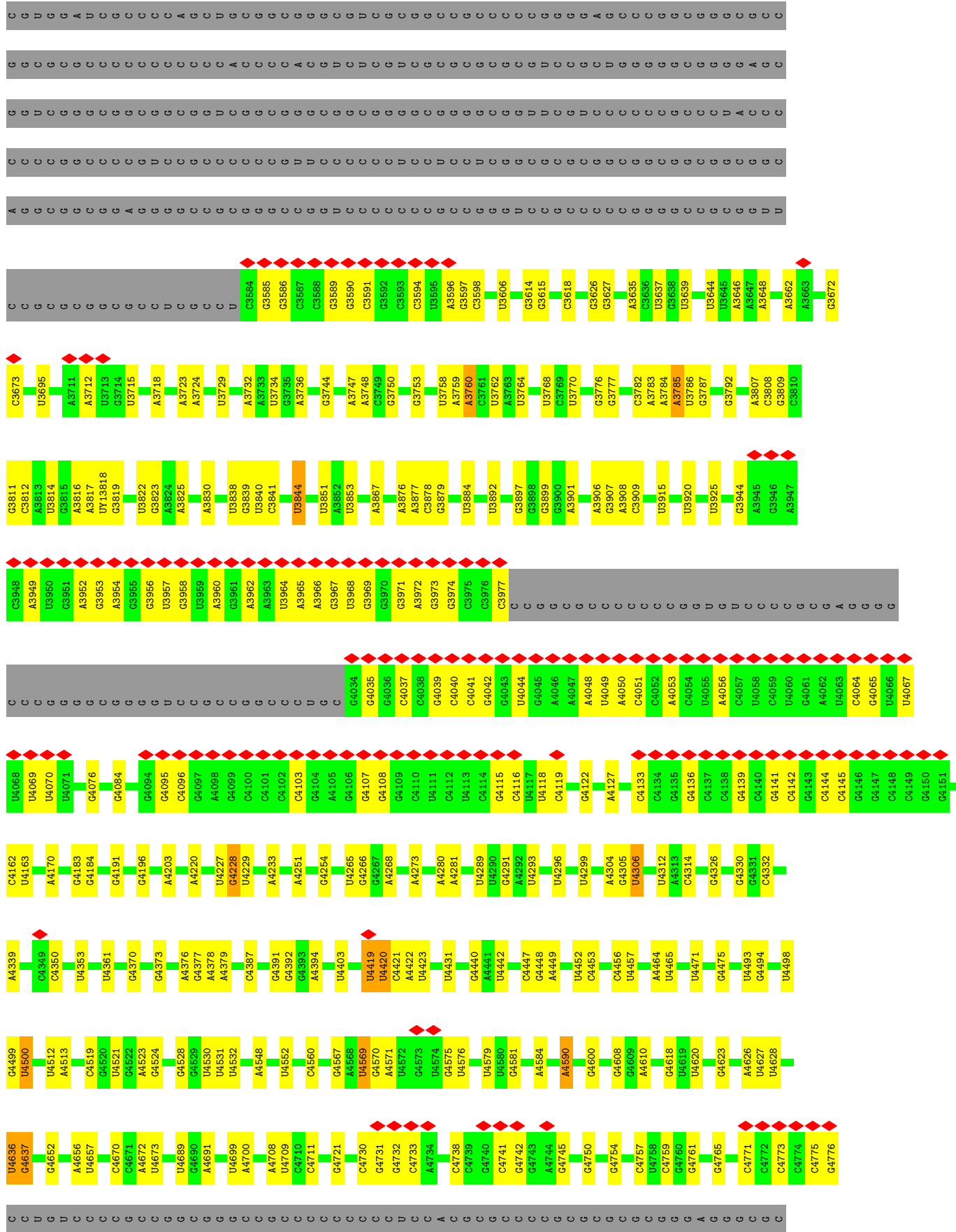


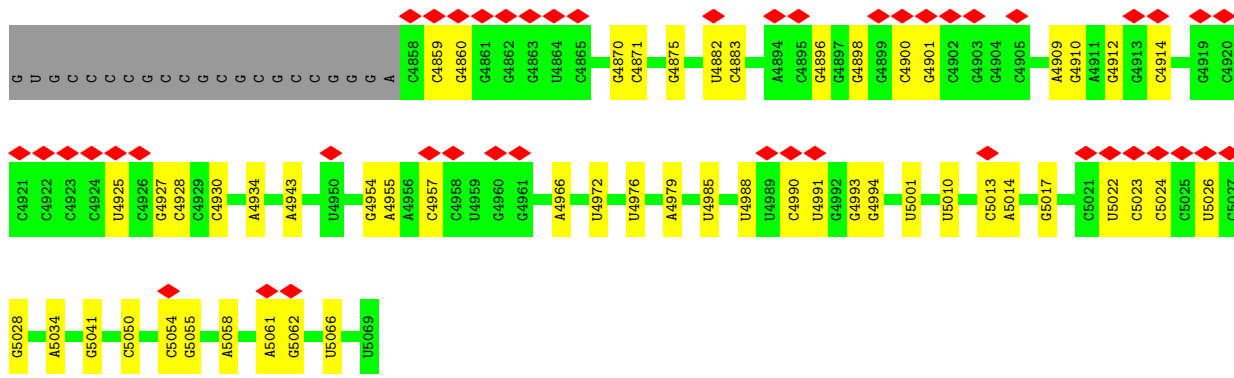
• Molecule 3: 28S rRNA



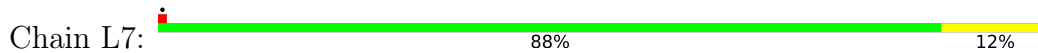




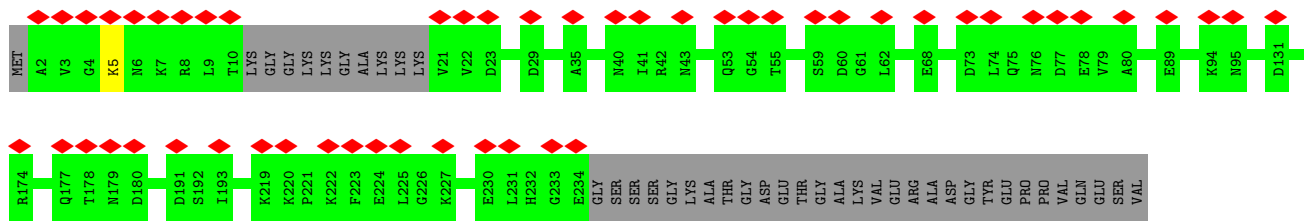
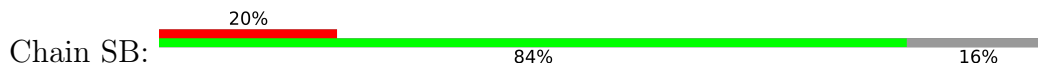




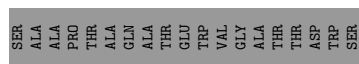
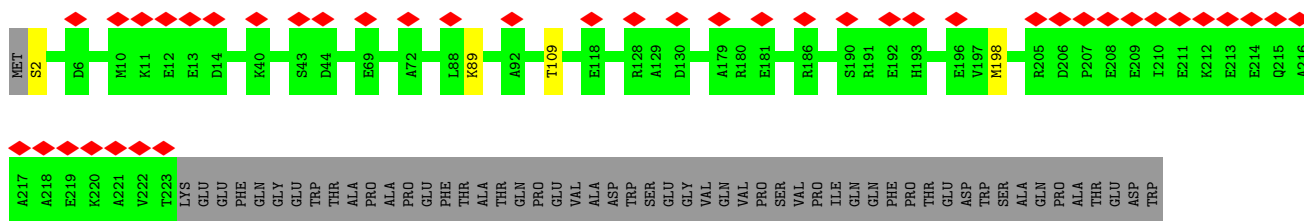
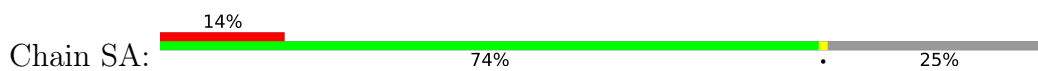
• Molecule 4: 5S rRNA



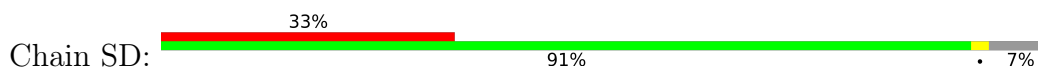
• Molecule 5: 40S ribosomal protein S3a



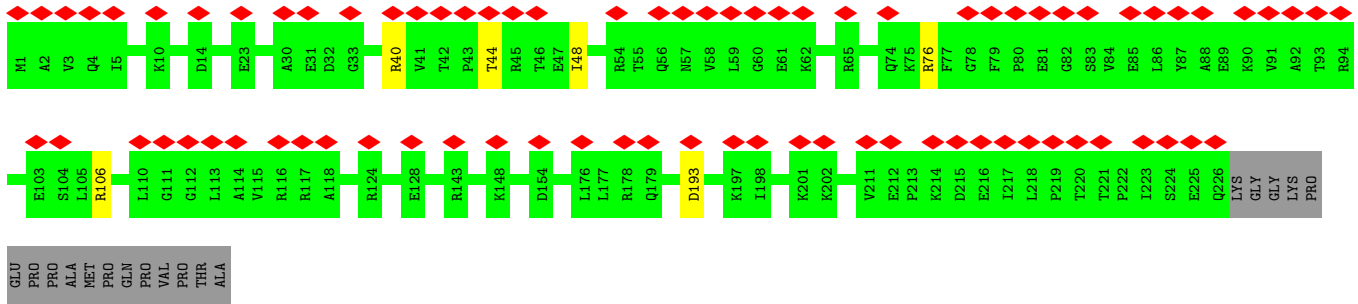
• Molecule 6: 40S ribosomal protein SA



• Molecule 7: 40S ribosomal protein S3

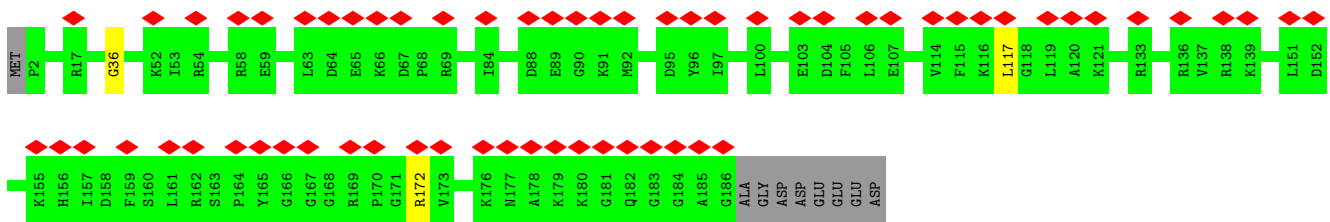






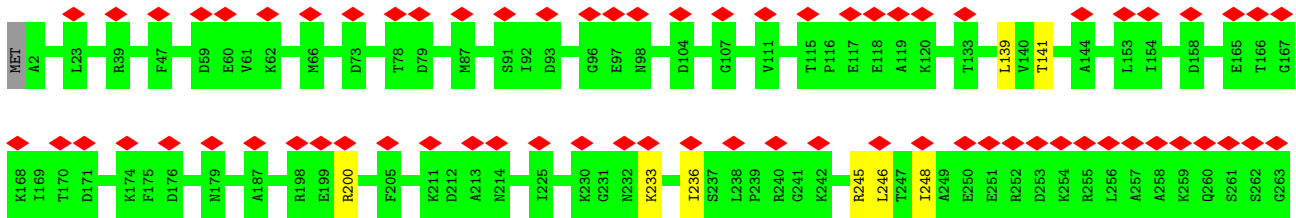
- Molecule 8: 40S ribosomal protein S9

Chain SJ: 32% 94% 5%



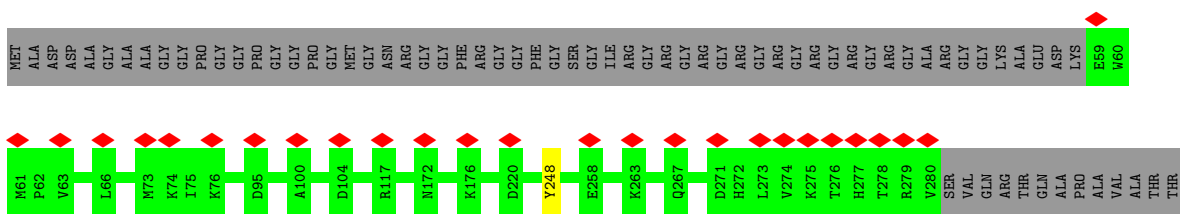
- Molecule 9: 40S ribosomal protein S4, X isoform

Chain SE: 27% 97% 5%



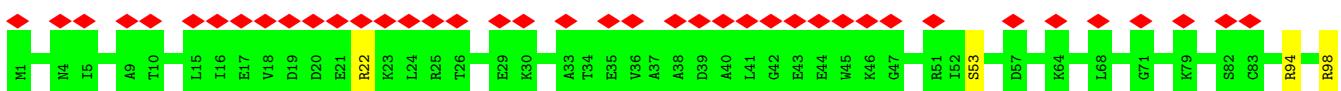
- Molecule 10: 40S ribosomal protein S2

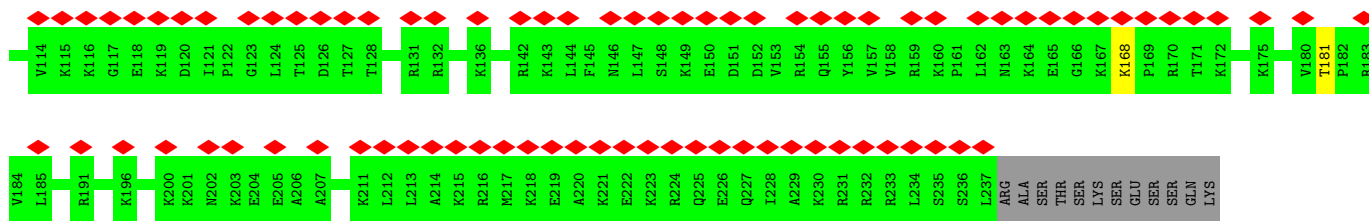
Chain SC: 9% 75% 24%



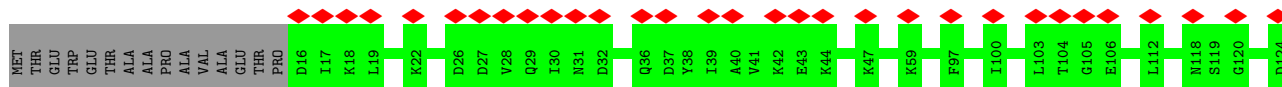
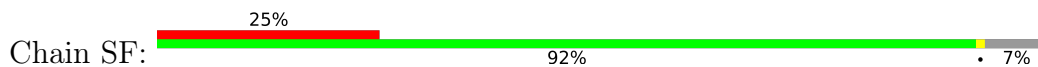
- Molecule 11: 40S ribosomal protein S6

Chain SG: 49% 93% 5%

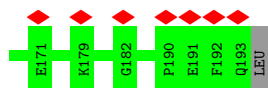
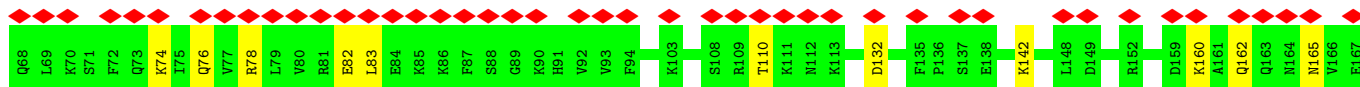
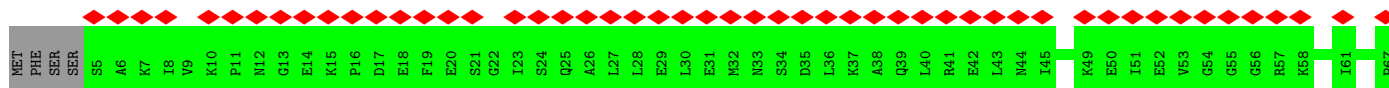
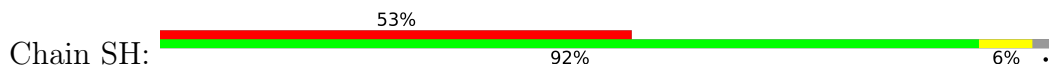




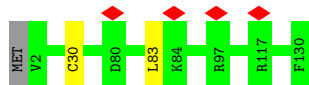
• Molecule 12: 40S ribosomal protein S5



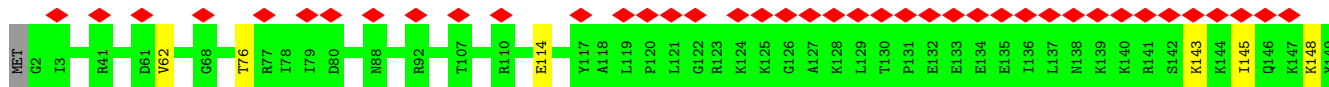
• Molecule 13: 40S ribosomal protein S7

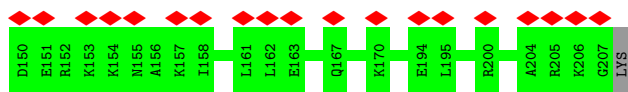


• Molecule 14: 40S ribosomal protein S15a

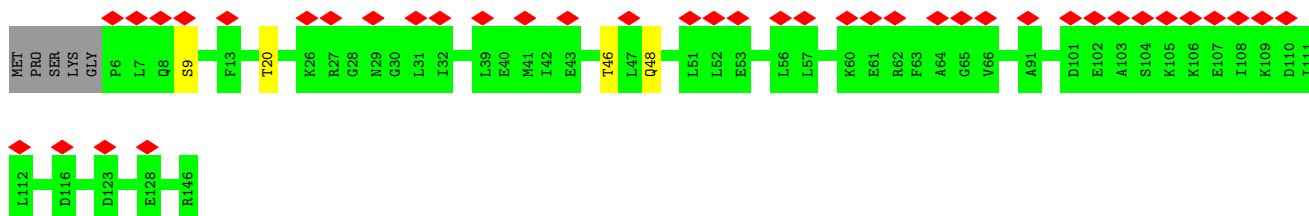


• Molecule 15: 40S ribosomal protein S8

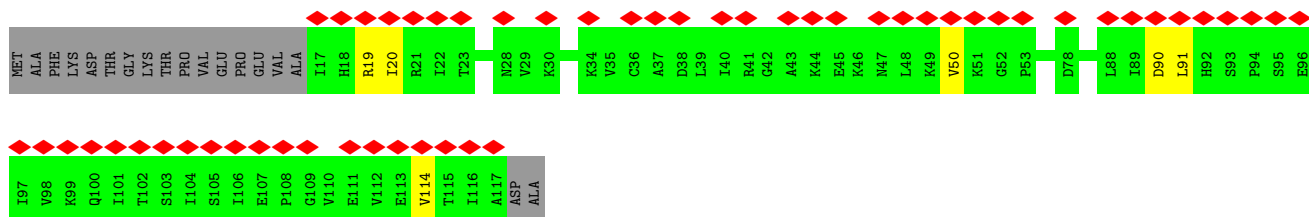
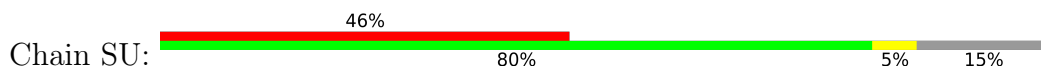




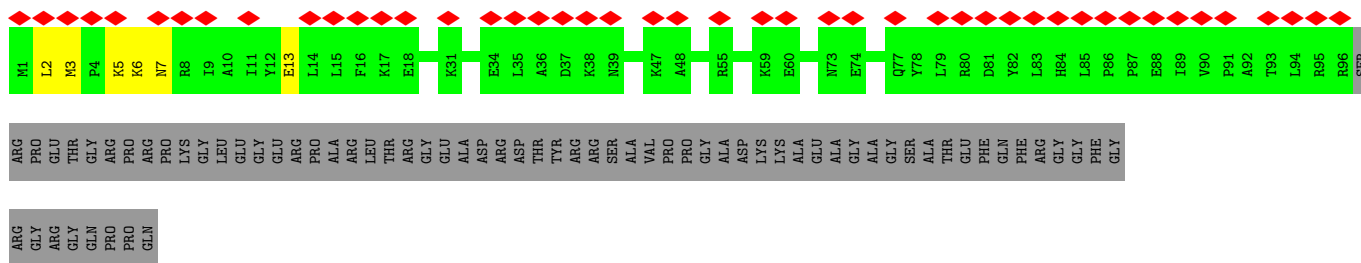
- Molecule 16: 40S ribosomal protein S16



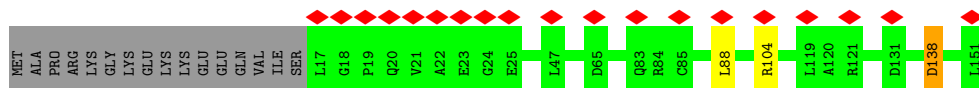
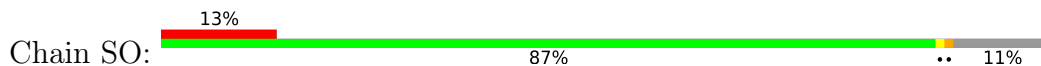
- Molecule 17: 40S ribosomal protein S20



- Molecule 18: 40S ribosomal protein S10

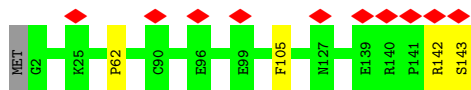


- Molecule 19: 40S ribosomal protein S14

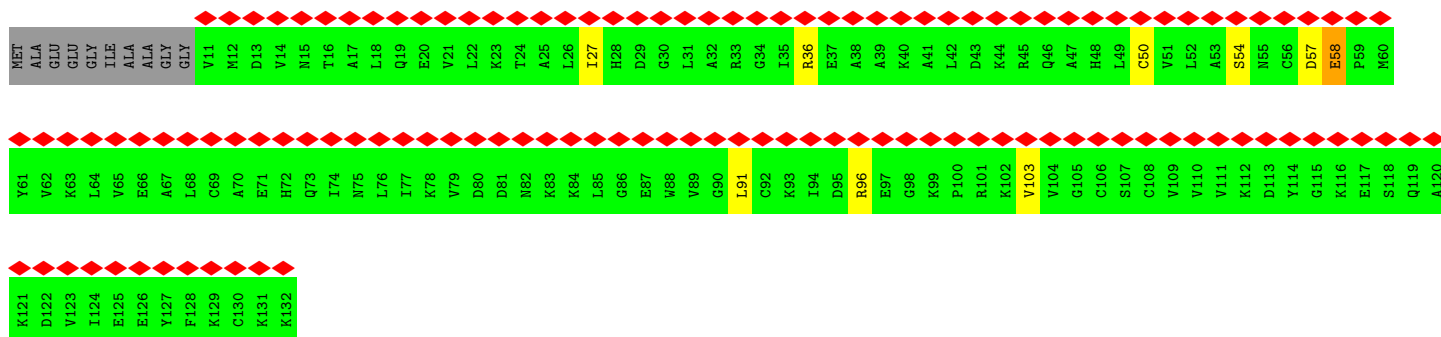
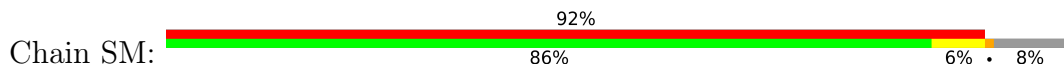


- Molecule 20: uS12

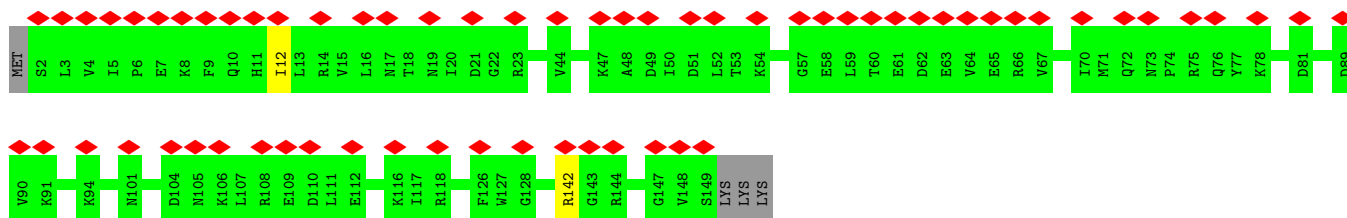
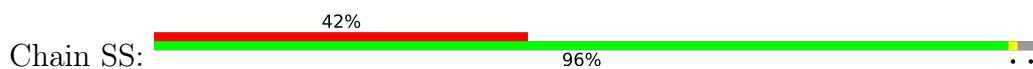




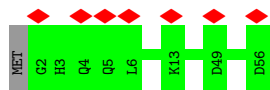
- Molecule 21: 40S ribosomal protein S12



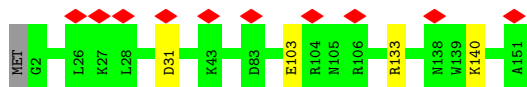
- Molecule 22: 40S ribosomal protein S18



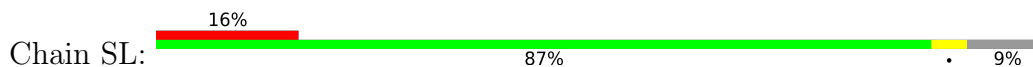
- Molecule 23: 40S ribosomal protein S29

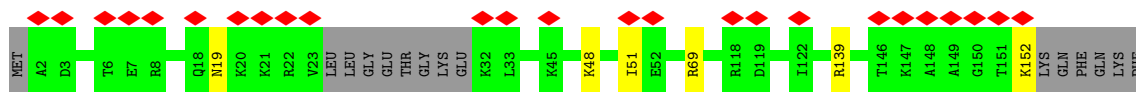


- Molecule 24: 40S ribosomal protein S13

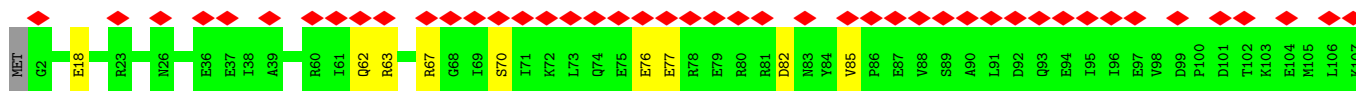


- Molecule 25: 40S ribosomal protein S11

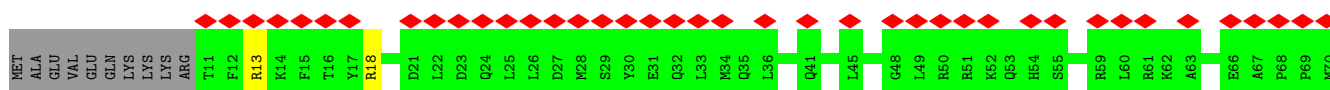
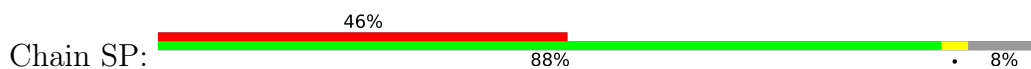




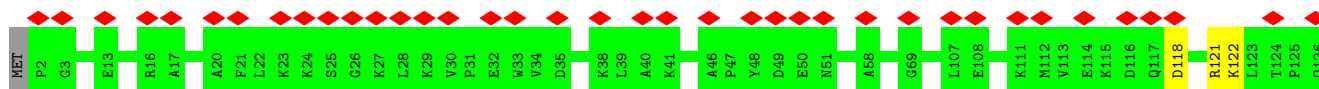
- Molecule 26: 40S ribosomal protein S17



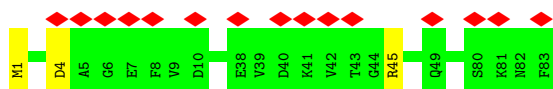
- Molecule 27: 40S ribosomal protein S15



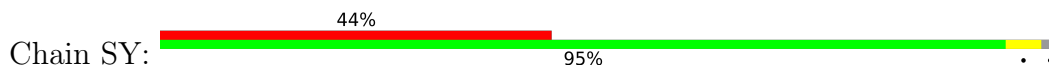
- Molecule 28: 40S ribosomal protein S19

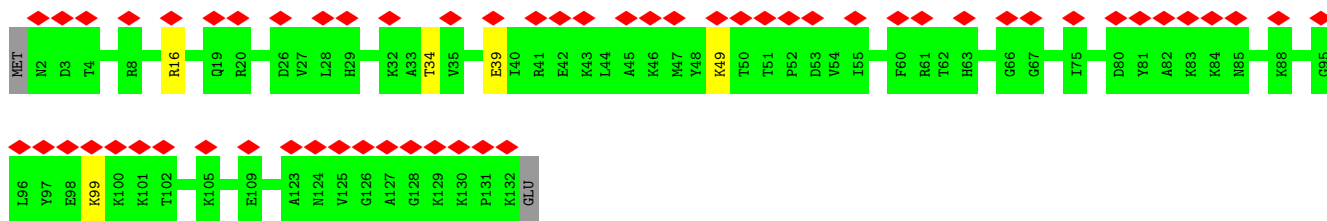


- Molecule 29: 40S ribosomal protein S21

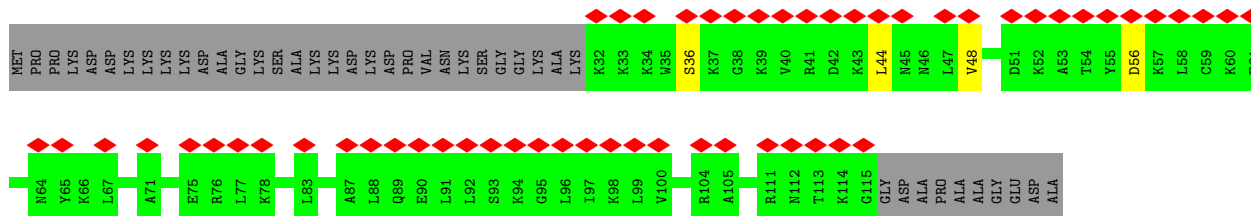


- Molecule 30: 40S ribosomal protein S24

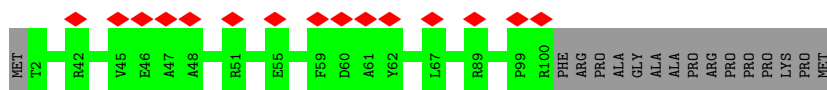
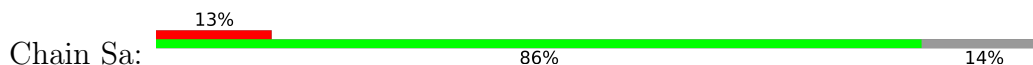




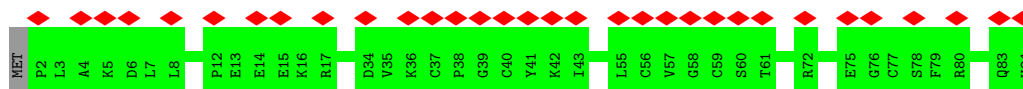
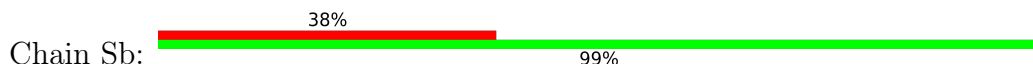
• Molecule 31: 40S ribosomal protein S25



• Molecule 32: 40S ribosomal protein S26



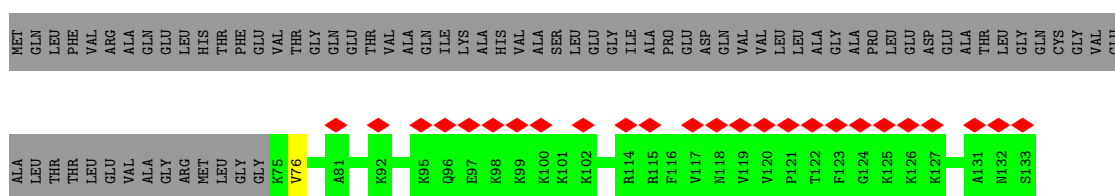
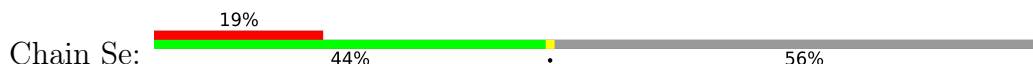
• Molecule 33: 40S ribosomal protein S27



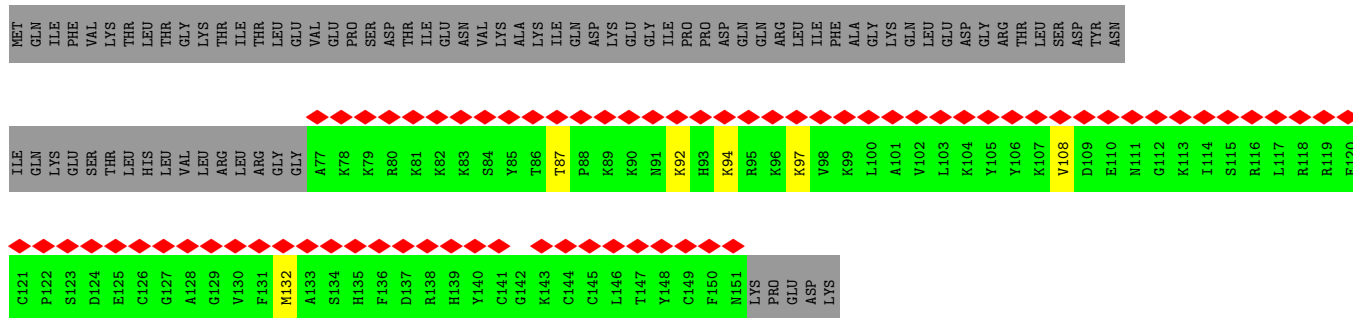
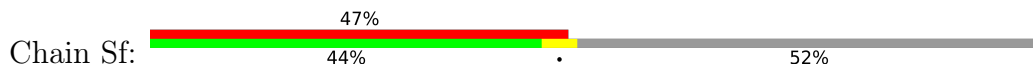
• Molecule 34: 40S ribosomal protein S28



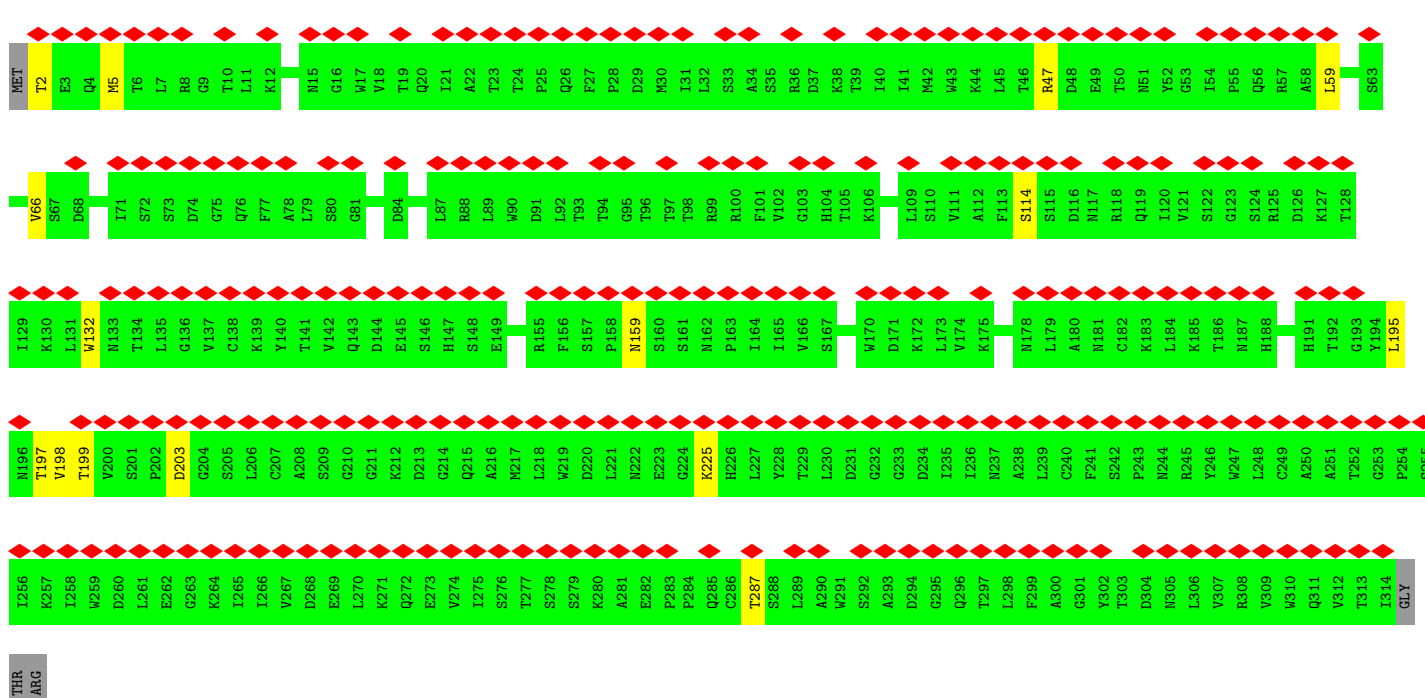
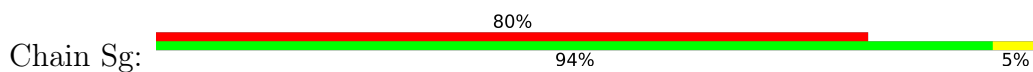
• Molecule 35: FAU ubiquitin-like and ribosomal protein S30



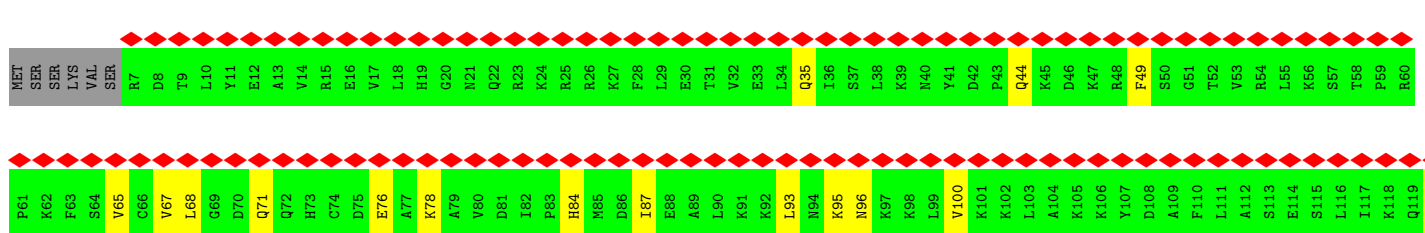
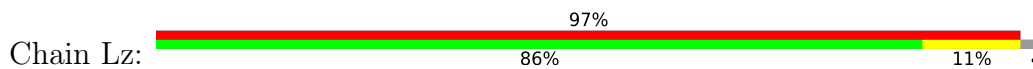
• Molecule 36: Ubiquitin-40S ribosomal protein S27a

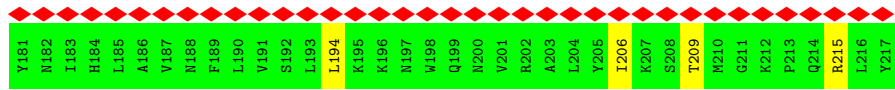


• Molecule 37: Receptor of activated protein C kinase 1

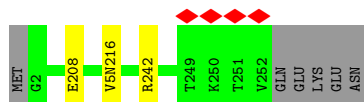


• Molecule 38: 60S ribosomal protein L10a

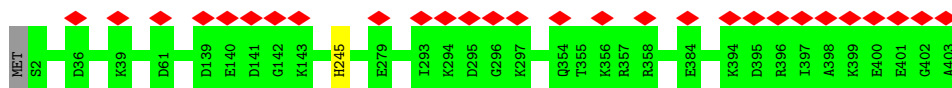




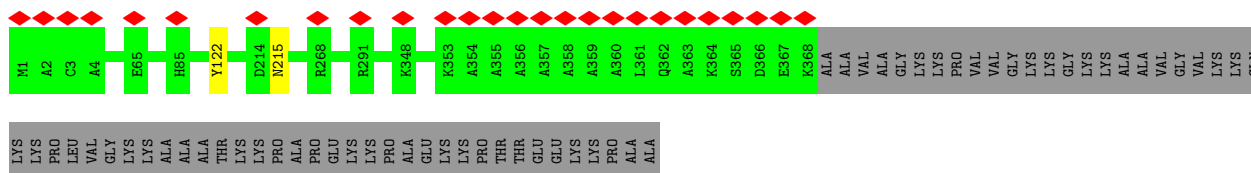
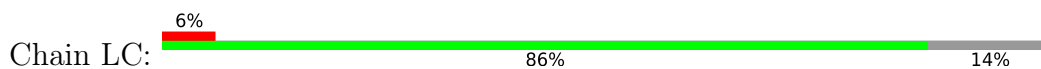
• Molecule 39: uL2



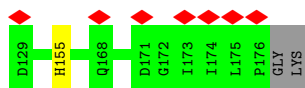
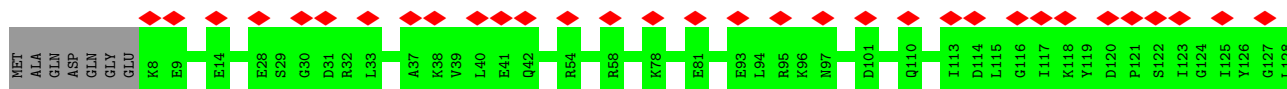
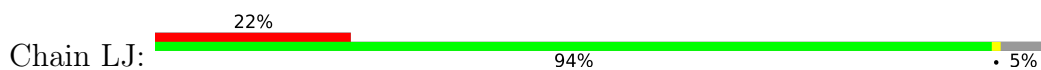
• Molecule 40: 60S ribosomal protein L3



• Molecule 41: 60S ribosomal protein L4



• Molecule 42: 60S ribosomal protein L11

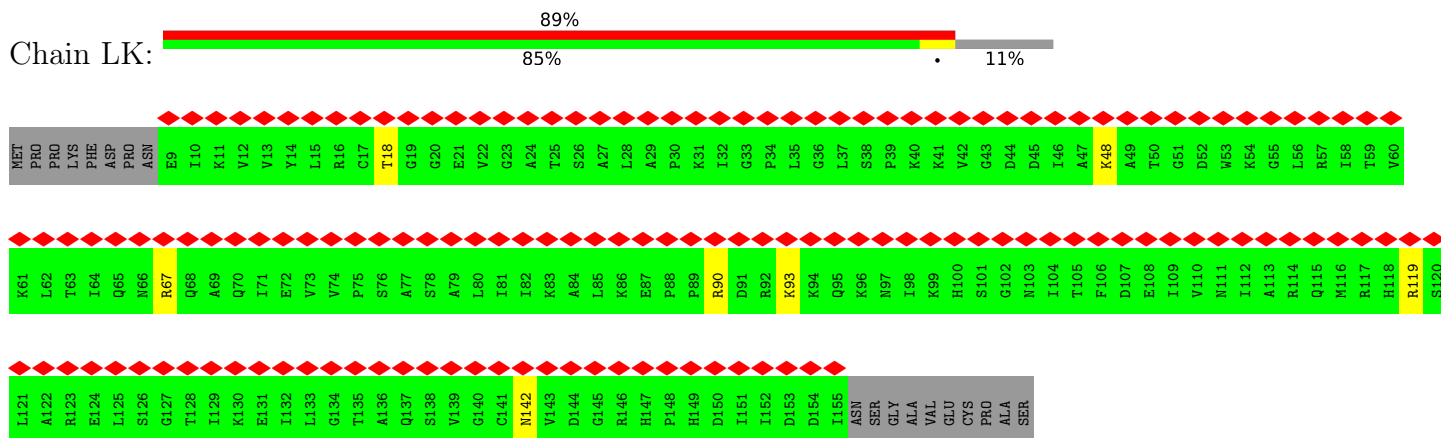


• Molecule 43: 60S ribosomal protein L9

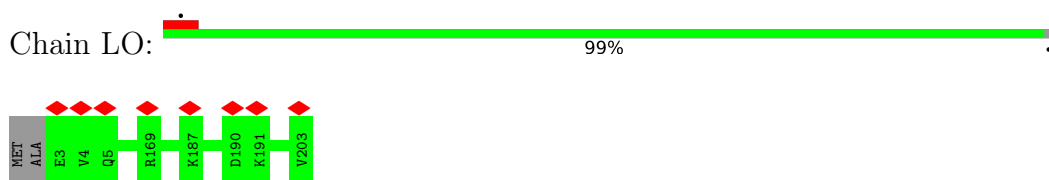




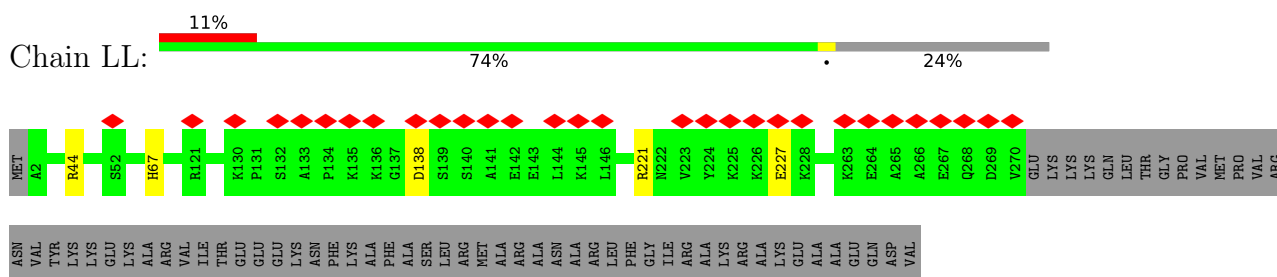




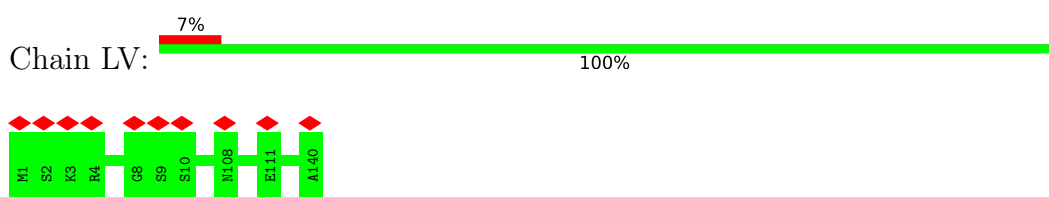
• Molecule 48: 60S ribosomal protein L13a



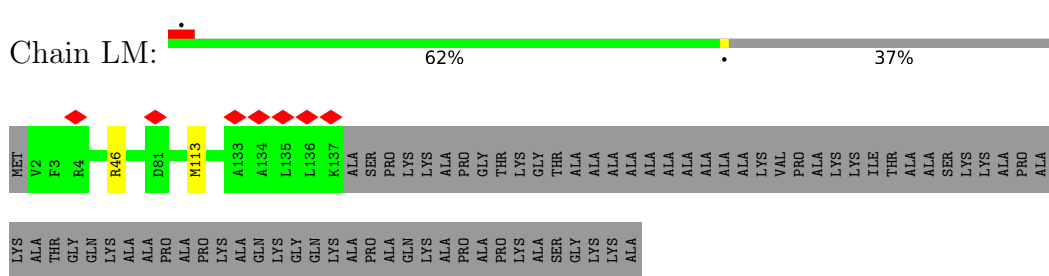
• Molecule 49: eL13



• Molecule 50: 60S ribosomal protein L23

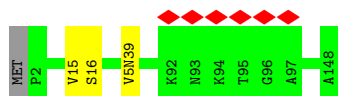


• Molecule 51: 60S ribosomal protein L14



• Molecule 52: 60S ribosomal protein L27a

Chain La:  97%



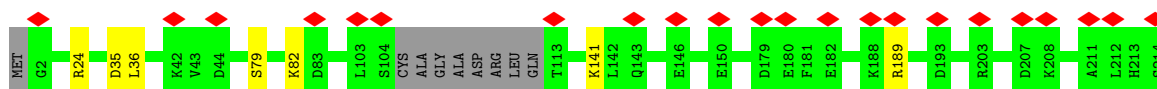
- Molecule 53: 60S ribosomal protein L15

Chain LN:  99%



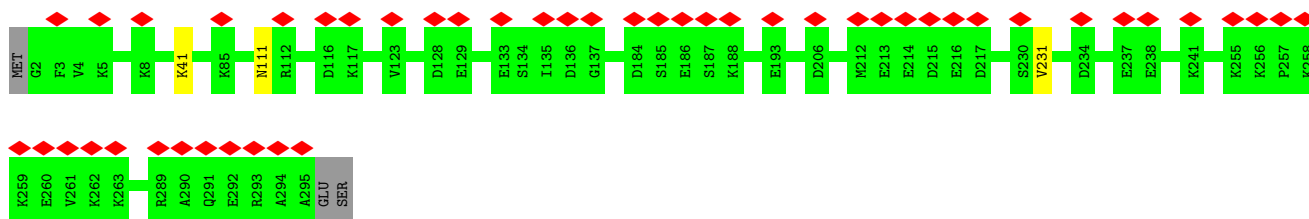
- Molecule 54: 60S ribosomal protein L10

Chain LI:  10% 93%



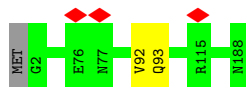
- Molecule 55: 60S ribosomal protein L5

Chain LD:  16% 98%



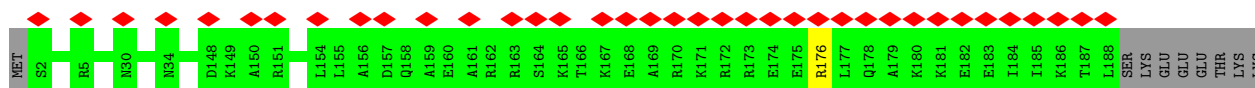
- Molecule 56: 60S ribosomal protein L18

Chain LQ:  98%



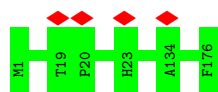
- Molecule 57: 60S ribosomal protein L19

Chain LR:  19% 95% 5%

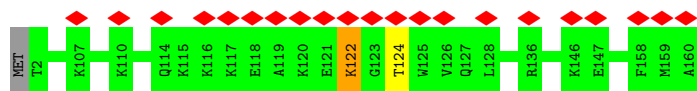


- Molecule 58: 60S ribosomal protein L18a

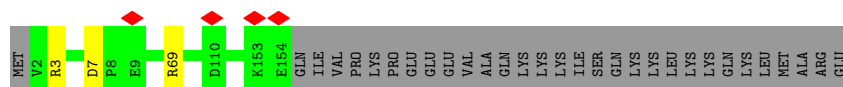
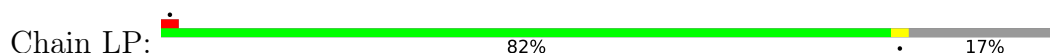
Chain LS:  100%



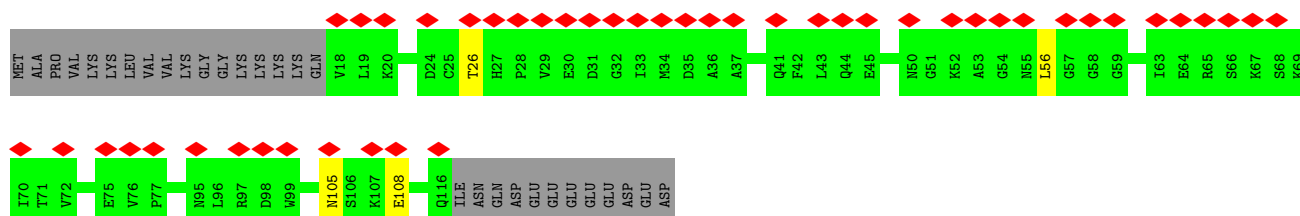
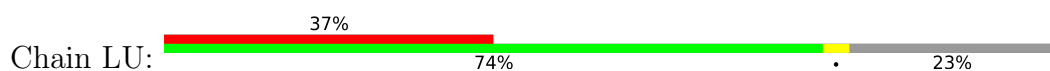
• Molecule 59: 60S ribosomal protein L21



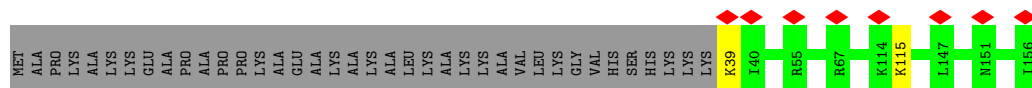
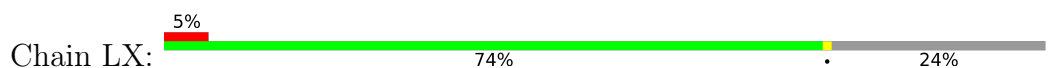
• Molecule 60: 60S ribosomal protein L17



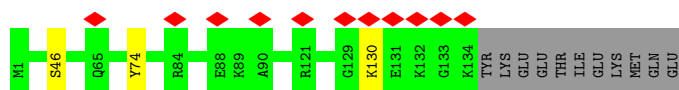
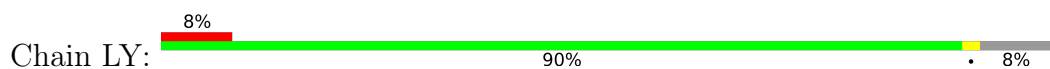
• Molecule 61: 60S ribosomal protein L22



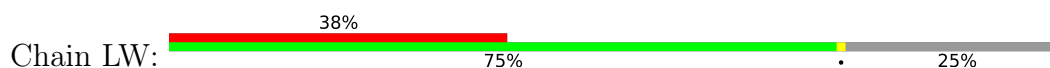
• Molecule 62: 60S ribosomal protein L23a

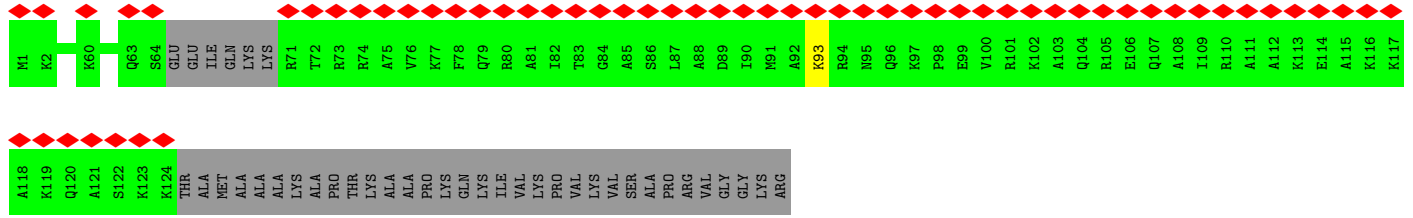


• Molecule 63: 60S ribosomal protein L26

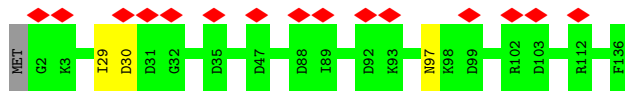


• Molecule 64: 60S ribosomal protein L24

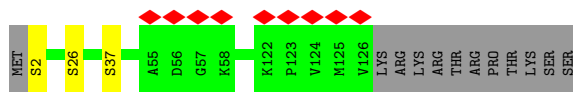
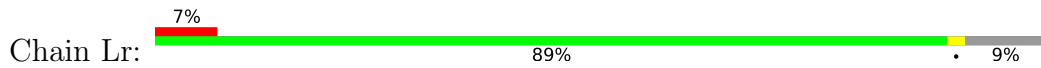




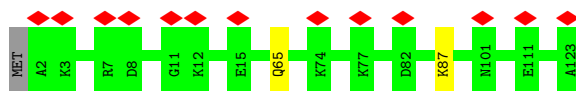
• Molecule 65: 60S ribosomal protein L27



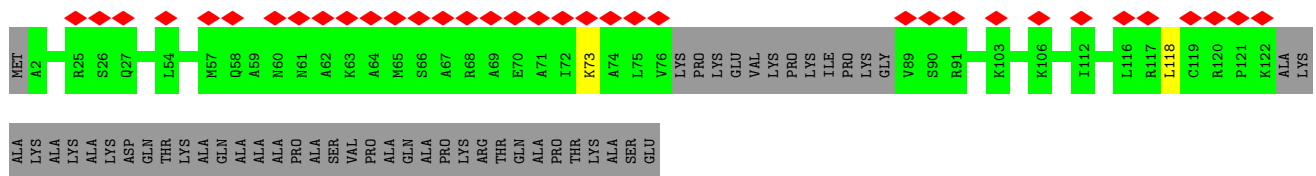
• Molecule 66: 60S ribosomal protein L28



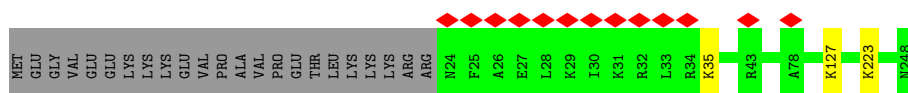
• Molecule 67: 60S ribosomal protein L35



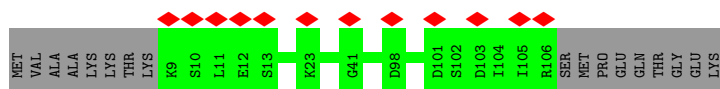
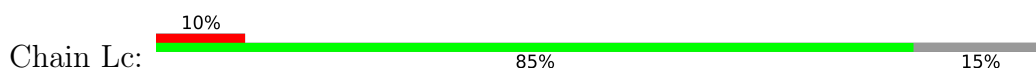
• Molecule 68: 60S ribosomal protein L29



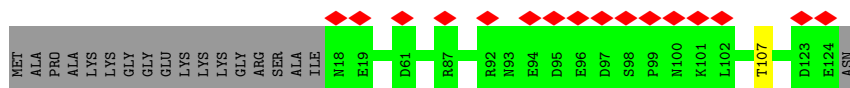
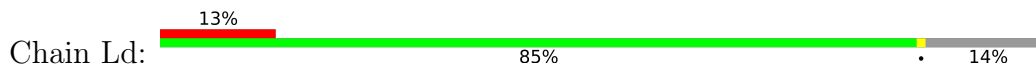
• Molecule 69: 60S ribosomal protein L7



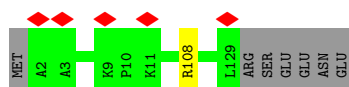
• Molecule 70: 60S ribosomal protein L30



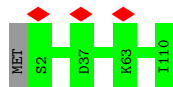
- Molecule 71: 60S ribosomal protein L31



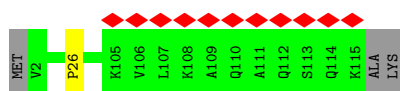
- Molecule 72: 60S ribosomal protein L32



- Molecule 73: 60S ribosomal protein L35a



- Molecule 74: 60S ribosomal protein L34

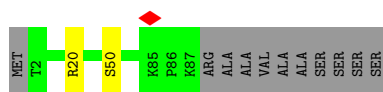


- Molecule 75: 60S ribosomal protein L36



- Molecule 76: 60S ribosomal protein L37

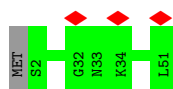




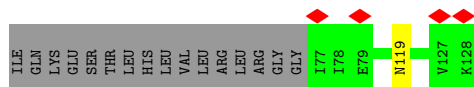
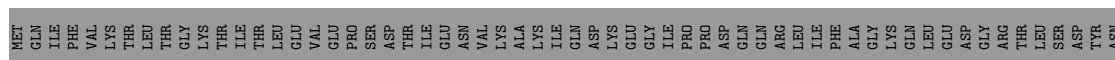
- Molecule 77: 60S ribosomal protein L38



- Molecule 78: 60S ribosomal protein L39



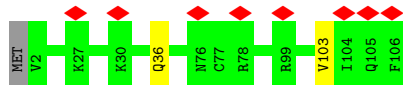
- Molecule 79: eL40



- Molecule 80: 60S ribosomal protein L41

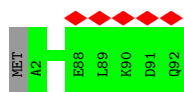


- Molecule 81: 60S ribosomal protein L36a



- Molecule 82: 60S ribosomal protein L37a





• Molecule 83: mRNA



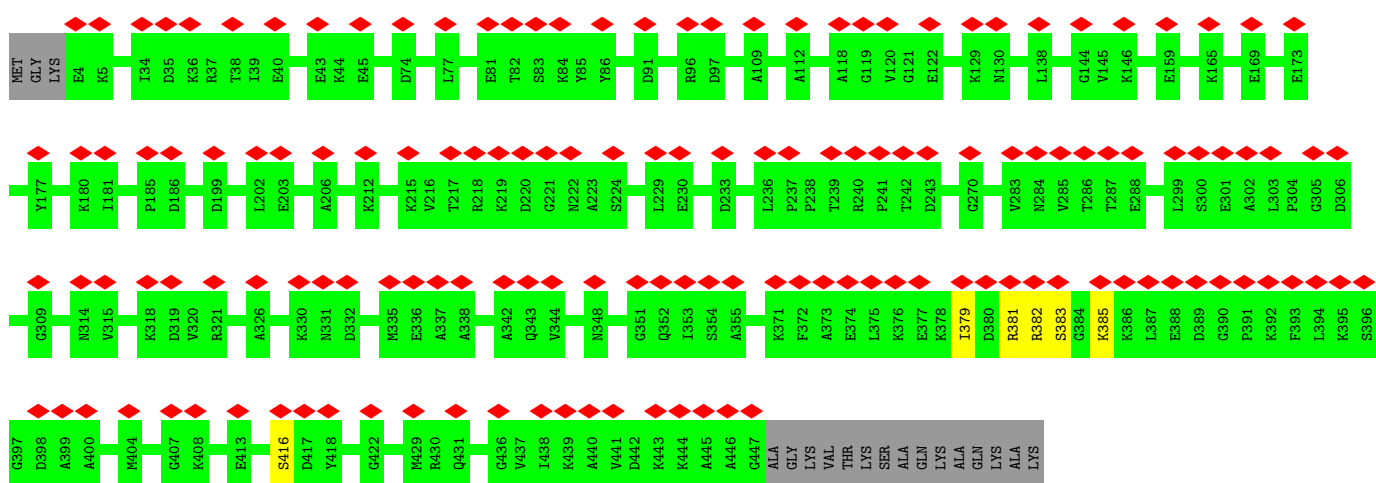
• Molecule 84: A-site tRNA



• Molecule 85: P-site tRNA



• Molecule 86: Elongation factor 1-alpha 1





## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	80708	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	79	Depositor
Minimum defocus (nm)	-500	Depositor
Maximum defocus (nm)	-1500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.038	Depositor
Minimum map value	-0.013	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.006	Depositor
Map size ( $\text{\AA}$ )	579.8912, 579.8912, 579.8912	wwPDB
Map dimensions	896, 896, 896	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	0.6472, 0.6472, 0.6472	Depositor

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: K, 3HE, MLZ, HY3, B8N, SPD, AME, UY1, H2U, 4SU, HIC, YRB, MLY, OMC, V5N, OMU, OMG, PSU, G7M, 5MC, 4AC, PUT, GSP, UR3, A2M, MA6, 6MZ, MG, 1MA, MIA, M3L, HMT, ZN, SAC

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	S2	0.39	1/38635 (0.0%)	0.70	1/60214 (0.0%)
2	L8	0.48	1/3613 (0.0%)	0.70	0/5627
3	L5	0.45	1/85472 (0.0%)	0.72	1/133344 (0.0%)
4	L7	0.51	1/2862 (0.0%)	0.71	0/4459
5	SB	0.33	0/1832	0.51	0/2449
6	SA	0.35	0/1778	0.52	0/2416
7	SD	0.41	0/1784	0.60	0/2403
8	SJ	0.42	0/1550	0.66	0/2069
9	SE	0.40	0/2118	0.64	0/2849
10	SC	0.38	0/1762	0.57	0/2381
11	SG	0.37	0/1946	0.61	0/2590
12	SF	0.37	0/1515	0.57	0/2037
13	SH	0.44	0/1540	0.62	0/2064
14	SW	0.39	0/1051	0.60	0/1406
15	SI	0.34	0/1715	0.60	0/2287
16	SQ	0.47	0/1141	0.63	0/1528
17	SU	0.48	0/813	0.70	0/1092
18	SK	0.40	0/834	0.58	0/1125
19	SO	0.43	0/1022	0.69	1/1372 (0.1%)
20	SX	0.42	0/1113	0.63	0/1483
21	SM	0.48	0/950	0.60	0/1275
22	SS	0.40	0/1232	0.63	0/1651
23	Sd	0.44	0/469	0.62	0/623
24	SN	0.41	0/1242	0.59	0/1671
25	SL	0.40	0/1191	0.60	0/1593
26	SR	0.44	0/1098	0.69	0/1474
27	SP	0.39	0/1116	0.60	0/1493
28	ST	0.42	0/1131	0.61	0/1515
29	SV	0.40	0/635	0.63	0/850
30	SY	0.31	0/1083	0.57	0/1438

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
31	SZ	0.44	0/682	0.68	0/911
32	Sa	0.32	0/805	0.57	0/1079
33	Sb	0.32	0/664	0.54	0/891
34	Sc	0.43	0/508	0.72	0/680
35	Se	0.38	0/473	0.63	0/623
36	Sf	0.53	0/627	0.70	0/829
37	Sg	0.41	0/2493	0.62	0/3394
38	Lz	0.56	0/1729	0.71	0/2320
39	LA	0.41	0/1947	0.63	0/2609
40	LB	0.36	0/3294	0.56	0/4406
41	LC	0.35	0/2981	0.56	0/4002
42	LJ	0.35	0/1381	0.58	0/1847
43	LH	0.36	0/1537	0.58	0/2066
44	LE	0.35	0/1830	0.56	0/2453
45	LG	0.43	0/1943	0.60	0/2616
46	Lq	0.28	0/1529	0.50	0/2063
47	LK	0.36	0/1135	0.58	0/1529
48	LO	0.39	0/1682	0.62	0/2250
49	LL	0.42	0/1695	0.64	0/2270
50	LV	0.41	0/1056	0.58	0/1412
51	LM	0.35	0/1142	0.52	0/1527
52	La	0.37	0/1179	0.59	0/1573
53	LN	0.39	0/1745	0.61	0/2338
54	LI	0.44	0/1698	0.63	0/2266
55	LD	0.38	0/2437	0.56	0/3263
56	LQ	0.37	0/1536	0.62	0/2052
57	LR	0.32	0/1582	0.57	0/2091
58	LS	0.40	0/1500	0.59	0/2013
59	LT	0.36	0/1325	0.55	0/1770
60	LP	0.36	0/1268	0.59	0/1701
61	LU	0.40	0/822	0.60	1/1103 (0.1%)
62	LX	0.32	0/984	0.54	0/1323
63	LY	0.39	0/1132	0.61	0/1504
64	LW	0.43	0/964	0.59	0/1278
65	LZ	0.42	0/1129	0.62	0/1507
66	Lr	0.39	0/1011	0.62	0/1356
67	Lh	0.34	0/1022	0.56	0/1351
68	Lb	0.37	0/887	0.61	0/1171
69	LF	0.36	0/1905	0.56	0/2539
70	Lc	0.33	0/774	0.50	0/1038
71	Ld	0.38	0/903	0.62	0/1216
72	Le	0.43	0/1071	0.61	0/1429
73	Lf	0.36	0/895	0.60	0/1198

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
74	Lg	0.37	0/916	0.61	0/1220
75	Li	0.43	0/843	0.62	0/1115
76	Lj	0.38	0/731	0.66	0/967
77	Lk	0.37	0/575	0.57	0/761
78	Ll	0.47	0/453	0.66	0/599
79	Lm	0.35	0/426	0.67	0/564
80	Ln	0.35	0/240	0.70	0/305
81	Lo	0.36	0/877	0.60	0/1156
82	Lp	0.36	0/718	0.56	0/953
83	mR	0.41	0/280	0.87	2/433 (0.5%)
84	At	0.62	6/1650 (0.4%)	0.98	10/2566 (0.4%)
85	Pt	0.65	6/1721 (0.3%)	0.96	10/2679 (0.4%)
86	EF	0.35	0/3428	0.54	0/4644
All	All	0.42	16/236003 (0.0%)	0.68	26/345597 (0.0%)

The worst 5 of 16 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
84	At	76	A	C5-C4	11.72	1.47	1.38
84	At	1	G	OP3-P	-10.88	1.48	1.61
85	Pt	77	A	C5-C4	10.78	1.46	1.38
4	L7	1	G	OP3-P	-10.72	1.48	1.61
2	L8	1	C	OP3-P	-10.72	1.48	1.61

The worst 5 of 26 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
84	At	76	A	C2-N3-C4	20.74	120.97	110.60
85	Pt	77	A	C2-N3-C4	19.55	120.37	110.60
85	Pt	77	A	N1-C2-N3	-12.04	123.28	129.30
84	At	76	A	N1-C2-N3	-11.60	123.50	129.30
84	At	76	A	N3-C4-C5	-11.09	119.03	126.80

There are no chirality outliers.

There are no planarity outliers.

## 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

### 5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	SB	219/264 (83%)	213 (97%)	6 (3%)	0	100	100
6	SA	220/295 (75%)	210 (96%)	10 (4%)	0	100	100
7	SD	224/243 (92%)	217 (97%)	6 (3%)	1 (0%)	34	66
8	SJ	183/194 (94%)	173 (94%)	8 (4%)	2 (1%)	14	41
9	SE	260/263 (99%)	247 (95%)	13 (5%)	0	100	100
10	SC	220/293 (75%)	212 (96%)	8 (4%)	0	100	100
11	SG	235/249 (94%)	230 (98%)	5 (2%)	0	100	100
12	SF	187/204 (92%)	180 (96%)	7 (4%)	0	100	100
13	SH	187/194 (96%)	182 (97%)	5 (3%)	0	100	100
14	SW	127/130 (98%)	125 (98%)	2 (2%)	0	100	100
15	SI	204/208 (98%)	195 (96%)	9 (4%)	0	100	100
16	SQ	139/146 (95%)	137 (99%)	2 (1%)	0	100	100
17	SU	99/119 (83%)	96 (97%)	3 (3%)	0	100	100
18	SK	94/165 (57%)	89 (95%)	5 (5%)	0	100	100
19	SO	133/151 (88%)	128 (96%)	5 (4%)	0	100	100
20	SX	139/143 (97%)	137 (99%)	2 (1%)	0	100	100
21	SM	120/132 (91%)	112 (93%)	7 (6%)	1 (1%)	19	49
22	SS	146/152 (96%)	140 (96%)	6 (4%)	0	100	100
23	Sd	53/56 (95%)	52 (98%)	1 (2%)	0	100	100
24	SN	149/151 (99%)	145 (97%)	4 (3%)	0	100	100
25	SL	139/158 (88%)	131 (94%)	8 (6%)	0	100	100
26	SR	132/135 (98%)	124 (94%)	8 (6%)	0	100	100
27	SP	131/145 (90%)	126 (96%)	5 (4%)	0	100	100
28	ST	141/145 (97%)	135 (96%)	6 (4%)	0	100	100
29	SV	81/83 (98%)	78 (96%)	3 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
30	SY	129/133 (97%)	124 (96%)	5 (4%)	0	100	100
31	SZ	82/125 (66%)	79 (96%)	3 (4%)	0	100	100
32	Sa	97/115 (84%)	96 (99%)	1 (1%)	0	100	100
33	Sb	81/84 (96%)	78 (96%)	3 (4%)	0	100	100
34	Sc	62/69 (90%)	59 (95%)	3 (5%)	0	100	100
35	Se	57/133 (43%)	56 (98%)	1 (2%)	0	100	100
36	Sf	73/156 (47%)	59 (81%)	14 (19%)	0	100	100
37	Sg	311/317 (98%)	287 (92%)	24 (8%)	0	100	100
38	Lz	209/217 (96%)	181 (87%)	26 (12%)	2 (1%)	15	44
39	LA	248/257 (96%)	241 (97%)	7 (3%)	0	100	100
40	LB	399/403 (99%)	391 (98%)	8 (2%)	0	100	100
41	LC	366/427 (86%)	357 (98%)	9 (2%)	0	100	100
42	LJ	167/178 (94%)	164 (98%)	3 (2%)	0	100	100
43	LH	188/192 (98%)	186 (99%)	2 (1%)	0	100	100
44	LE	218/288 (76%)	207 (95%)	11 (5%)	0	100	100
45	LG	237/266 (89%)	231 (98%)	6 (2%)	0	100	100
46	Lq	194/317 (61%)	184 (95%)	10 (5%)	0	100	100
47	LK	145/165 (88%)	132 (91%)	13 (9%)	0	100	100
48	LO	199/203 (98%)	194 (98%)	5 (2%)	0	100	100
49	LL	204/270 (76%)	200 (98%)	4 (2%)	0	100	100
50	LV	138/140 (99%)	134 (97%)	4 (3%)	0	100	100
51	LM	134/215 (62%)	128 (96%)	6 (4%)	0	100	100
52	La	144/148 (97%)	139 (96%)	4 (3%)	1 (1%)	22	53
53	LN	201/204 (98%)	193 (96%)	8 (4%)	0	100	100
54	LI	201/214 (94%)	193 (96%)	8 (4%)	0	100	100
55	LD	292/297 (98%)	287 (98%)	5 (2%)	0	100	100
56	LQ	185/188 (98%)	181 (98%)	4 (2%)	0	100	100
57	LR	185/196 (94%)	183 (99%)	2 (1%)	0	100	100
58	LS	174/176 (99%)	172 (99%)	2 (1%)	0	100	100
59	LT	157/160 (98%)	152 (97%)	3 (2%)	2 (1%)	12	36
60	LP	151/184 (82%)	143 (95%)	8 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
61	LU	97/128 (76%)	92 (95%)	5 (5%)	0	100	100
62	LX	116/156 (74%)	116 (100%)	0	0	100	100
63	LY	132/145 (91%)	132 (100%)	0	0	100	100
64	LW	114/157 (73%)	109 (96%)	5 (4%)	0	100	100
65	LZ	133/136 (98%)	129 (97%)	4 (3%)	0	100	100
66	Lr	123/137 (90%)	121 (98%)	2 (2%)	0	100	100
67	Lh	120/123 (98%)	117 (98%)	3 (2%)	0	100	100
68	Lb	104/159 (65%)	97 (93%)	7 (7%)	0	100	100
69	LF	223/248 (90%)	216 (97%)	7 (3%)	0	100	100
70	Lc	96/115 (84%)	94 (98%)	2 (2%)	0	100	100
71	Ld	105/125 (84%)	101 (96%)	4 (4%)	0	100	100
72	Le	126/135 (93%)	126 (100%)	0	0	100	100
73	Lf	107/110 (97%)	103 (96%)	4 (4%)	0	100	100
74	Lg	112/117 (96%)	110 (98%)	2 (2%)	0	100	100
75	Li	100/105 (95%)	97 (97%)	3 (3%)	0	100	100
76	Lj	85/97 (88%)	84 (99%)	1 (1%)	0	100	100
77	Lk	67/70 (96%)	67 (100%)	0	0	100	100
78	Ll	48/51 (94%)	45 (94%)	3 (6%)	0	100	100
79	Lm	49/128 (38%)	49 (100%)	0	0	100	100
80	Ln	23/25 (92%)	23 (100%)	0	0	100	100
81	Lo	103/106 (97%)	99 (96%)	4 (4%)	0	100	100
82	Lp	89/92 (97%)	84 (94%)	5 (6%)	0	100	100
86	EF	438/462 (95%)	420 (96%)	18 (4%)	0	100	100
All	All	12300/13982 (88%)	11856 (96%)	435 (4%)	9 (0%)	54	81

5 of 9 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
21	SM	58	GLU
59	LT	122	LYS
59	LT	124	THR
8	SJ	117	LEU
52	La	15	VAL

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	SB	202/231 (87%)	201 (100%)	1 (0%)	88	96
6	SA	183/242 (76%)	180 (98%)	3 (2%)	62	88
7	SD	189/202 (94%)	184 (97%)	5 (3%)	46	79
8	SJ	161/168 (96%)	160 (99%)	1 (1%)	86	96
9	SE	224/225 (100%)	216 (96%)	8 (4%)	35	69
10	SC	188/225 (84%)	187 (100%)	1 (0%)	88	96
11	SG	207/218 (95%)	201 (97%)	6 (3%)	42	76
12	SF	159/170 (94%)	157 (99%)	2 (1%)	69	91
13	SH	168/174 (97%)	157 (94%)	11 (6%)	17	44
14	SW	112/113 (99%)	110 (98%)	2 (2%)	59	86
15	SI	178/180 (99%)	172 (97%)	6 (3%)	37	71
16	SQ	117/121 (97%)	113 (97%)	4 (3%)	37	71
17	SU	93/107 (87%)	87 (94%)	6 (6%)	17	44
18	SK	87/136 (64%)	81 (93%)	6 (7%)	15	41
19	SO	105/119 (88%)	102 (97%)	3 (3%)	42	76
20	SX	113/114 (99%)	110 (97%)	3 (3%)	44	78
21	SM	102/108 (94%)	93 (91%)	9 (9%)	10	29
22	SS	128/132 (97%)	126 (98%)	2 (2%)	62	88
23	Sd	48/49 (98%)	48 (100%)	0	100	100
24	SN	131/131 (100%)	127 (97%)	4 (3%)	40	74
25	SL	129/142 (91%)	123 (95%)	6 (5%)	26	59
26	SR	121/122 (99%)	112 (93%)	9 (7%)	13	37
27	SP	119/130 (92%)	114 (96%)	5 (4%)	30	63
28	ST	113/115 (98%)	110 (97%)	3 (3%)	44	78
29	SV	66/66 (100%)	64 (97%)	2 (3%)	41	75
30	SY	113/115 (98%)	108 (96%)	5 (4%)	28	61

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
31	SZ	74/103 (72%)	70 (95%)	4 (5%)	22	53
32	Sa	86/98 (88%)	86 (100%)	0	100	100
33	Sb	75/76 (99%)	75 (100%)	0	100	100
34	Sc	57/62 (92%)	57 (100%)	0	100	100
35	Se	48/104 (46%)	47 (98%)	1 (2%)	53	84
36	Sf	67/140 (48%)	61 (91%)	6 (9%)	9	28
37	Sg	272/275 (99%)	257 (94%)	15 (6%)	21	52
38	Lz	190/196 (97%)	168 (88%)	22 (12%)	5	17
39	LA	192/198 (97%)	190 (99%)	2 (1%)	76	93
40	LB	347/348 (100%)	347 (100%)	0	100	100
41	LC	306/348 (88%)	304 (99%)	2 (1%)	84	95
42	LJ	143/149 (96%)	142 (99%)	1 (1%)	84	95
43	LH	169/171 (99%)	167 (99%)	2 (1%)	71	92
44	LE	197/252 (78%)	194 (98%)	3 (2%)	65	89
45	LG	201/223 (90%)	194 (96%)	7 (4%)	36	70
46	Lq	164/258 (64%)	163 (99%)	1 (1%)	86	96
47	LK	122/137 (89%)	115 (94%)	7 (6%)	20	50
48	LO	173/174 (99%)	173 (100%)	0	100	100
49	LL	172/224 (77%)	167 (97%)	5 (3%)	42	76
50	LV	107/107 (100%)	107 (100%)	0	100	100
51	LM	116/161 (72%)	114 (98%)	2 (2%)	60	87
52	La	119/120 (99%)	118 (99%)	1 (1%)	81	94
53	LN	171/172 (99%)	170 (99%)	1 (1%)	86	96
54	LI	175/181 (97%)	168 (96%)	7 (4%)	31	65
55	LD	247/250 (99%)	244 (99%)	3 (1%)	71	92
56	LQ	164/165 (99%)	162 (99%)	2 (1%)	71	92
57	LR	166/175 (95%)	165 (99%)	1 (1%)	86	96
58	LS	157/157 (100%)	157 (100%)	0	100	100
59	LT	139/140 (99%)	138 (99%)	1 (1%)	84	95
60	LP	134/163 (82%)	131 (98%)	3 (2%)	52	83
61	LU	89/115 (77%)	86 (97%)	3 (3%)	37	71

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
62	LX	106/133 (80%)	104 (98%)	2 (2%)	57	85
63	LY	124/135 (92%)	121 (98%)	3 (2%)	49	81
64	LW	95/126 (75%)	94 (99%)	1 (1%)	73	92
65	LZ	117/118 (99%)	114 (97%)	3 (3%)	46	79
66	Lr	108/120 (90%)	106 (98%)	2 (2%)	57	85
67	Lh	109/110 (99%)	107 (98%)	2 (2%)	59	86
68	Lb	89/125 (71%)	87 (98%)	2 (2%)	52	83
69	LF	194/215 (90%)	191 (98%)	3 (2%)	65	89
70	Lc	83/97 (86%)	83 (100%)	0	100	100
71	Ld	98/110 (89%)	97 (99%)	1 (1%)	76	93
72	Le	114/121 (94%)	113 (99%)	1 (1%)	78	94
73	Lf	88/89 (99%)	88 (100%)	0	100	100
74	Lg	98/100 (98%)	97 (99%)	1 (1%)	76	93
75	Li	86/89 (97%)	84 (98%)	2 (2%)	50	82
76	Lj	74/80 (92%)	72 (97%)	2 (3%)	44	78
77	Lk	64/65 (98%)	63 (98%)	1 (2%)	62	88
78	Ll	47/48 (98%)	47 (100%)	0	100	100
79	Lm	47/115 (41%)	46 (98%)	1 (2%)	53	84
80	Ln	24/24 (100%)	24 (100%)	0	100	100
81	Lo	93/93 (100%)	91 (98%)	2 (2%)	52	83
82	Lp	74/75 (99%)	74 (100%)	0	100	100
86	EF	363/375 (97%)	357 (98%)	6 (2%)	60	87
All	All	10690/11860 (90%)	10440 (98%)	250 (2%)	53	82

5 of 250 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
31	SZ	48	VAL
65	LZ	29	ILE
38	Lz	68	LEU
63	LY	130	LYS
75	Li	25	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 42 such sidechains are listed below:

Mol	Chain	Res	Type
41	LC	215	ASN
61	LU	105	ASN
45	LG	43	GLN
59	LT	112	ASN
64	LW	95	ASN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	S2	1688/1869 (90%)	357 (21%)	29 (1%)
2	L8	155/156 (99%)	25 (16%)	3 (1%)
3	L5	3671/5069 (72%)	681 (18%)	52 (1%)
4	L7	119/120 (99%)	13 (10%)	0
83	mR	9/60 (15%)	1 (11%)	0
84	At	74/76 (97%)	17 (22%)	0
85	Pt	76/77 (98%)	17 (22%)	0
All	All	5792/7427 (77%)	1111 (19%)	84 (1%)

5 of 1111 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	S2	3	C
1	S2	4	C
1	S2	17	C
1	S2	33	G
1	S2	41	G

5 of 84 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
3	L5	2055	G
3	L5	3952	A
3	L5	2313	A
3	L5	2759	G
3	L5	4464	A

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

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

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and

the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
1	A2M	S2	159	1	18,25,26	0.92	1 (5%)	18,36,39	1.28	2 (11%)
3	OMC	L5	2422	89,3	19,22,23	0.90	0	26,31,34	1.02	2 (7%)
3	OMC	L5	4456	3	19,22,23	0.94	0	26,31,34	1.05	2 (7%)
3	PSU	L5	3715	3	18,21,22	1.51	3 (16%)	22,30,33	1.89	4 (18%)
1	PSU	S2	1004	1	18,21,22	1.39	4 (22%)	22,30,33	1.91	3 (13%)
1	PSU	S2	1243	1	18,21,22	1.41	2 (11%)	22,30,33	1.97	4 (18%)
3	A2M	L5	400	3	18,25,26	0.95	1 (5%)	18,36,39	1.21	2 (11%)
3	A2M	L5	2401	3	18,25,26	0.95	1 (5%)	18,36,39	1.33	2 (11%)
3	OMU	L5	2415	3	19,22,23	1.35	3 (15%)	26,31,34	1.76	5 (19%)
1	OMU	S2	627	1	19,22,23	1.29	3 (15%)	26,31,34	1.86	5 (19%)
3	PSU	L5	3884	3	18,21,22	1.63	5 (27%)	22,30,33	1.94	3 (13%)
3	OMG	L5	3944	3	18,26,27	1.04	1 (5%)	19,38,41	1.04	2 (10%)
3	PSU	L5	4471	3	18,21,22	1.47	3 (16%)	22,30,33	1.82	3 (13%)
3	PSU	L5	5010	3	18,21,22	1.39	3 (16%)	22,30,33	1.93	3 (13%)
3	A2M	L5	3867	3	18,25,26	0.93	1 (5%)	18,36,39	1.32	2 (11%)
3	OMG	L5	4392	3	18,26,27	1.10	1 (5%)	19,38,41	1.09	2 (10%)
1	OMG	S2	436	1	18,26,27	1.06	1 (5%)	19,38,41	1.22	3 (15%)
1	PSU	S2	822	1	18,21,22	1.38	3 (16%)	22,30,33	2.21	4 (18%)
1	OMG	S2	1328	1	18,26,27	1.08	1 (5%)	19,38,41	1.10	2 (10%)
3	OMG	L5	3744	3	18,26,27	1.06	1 (5%)	19,38,41	1.10	2 (10%)
3	OMC	L5	4536	3	19,22,23	0.90	0	26,31,34	0.97	0
1	PSU	S2	1232	1	18,21,22	1.55	4 (22%)	22,30,33	2.02	4 (18%)
1	PSU	S2	966	1	18,21,22	1.43	2 (11%)	22,30,33	1.93	4 (18%)
3	PSU	L5	1779	3	18,21,22	1.38	3 (16%)	22,30,33	1.98	4 (18%)
84	MIA	At	37	84	24,31,32	2.43	4 (16%)	26,44,47	2.68	10 (38%)
3	PSU	L5	4689	3	18,21,22	1.46	3 (16%)	22,30,33	1.92	4 (18%)
1	PSU	S2	406	1	18,21,22	1.54	5 (27%)	22,30,33	1.96	4 (18%)
84	H2U	At	20	84	18,21,22	1.03	2 (11%)	21,30,33	1.41	2 (9%)
1	A2M	S2	99	89,1	18,25,26	0.94	1 (5%)	18,36,39	1.22	1 (5%)
1	OMG	S2	683	1	18,26,27	0.97	1 (5%)	19,38,41	1.05	2 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
1	PSU	S2	1692	1	18,21,22	1.38	4 (22%)	22,30,33	1.90	3 (13%)
3	OMU	L5	4227	3	19,22,23	1.22	3 (15%)	26,31,34	1.72	4 (15%)
3	PSU	L5	4312	3	18,21,22	1.39	4 (22%)	22,30,33	1.94	4 (18%)
85	H2U	Pt	21	85	18,21,22	1.06	2 (11%)	21,30,33	1.83	1 (4%)
1	PSU	S2	1643	89,1	18,21,22	1.38	4 (22%)	22,30,33	2.07	5 (22%)
1	B8N	S2	1248	1	24,29,30	0.97	1 (4%)	29,42,45	1.64	5 (17%)
1	PSU	S2	34	1	18,21,22	1.36	3 (16%)	22,30,33	1.92	4 (18%)
1	OMU	S2	1804	1	19,22,23	1.24	3 (15%)	26,31,34	1.77	5 (19%)
3	A2M	L5	1871	3	18,25,26	0.92	0	18,36,39	1.41	3 (16%)
1	PSU	S2	1625	1	18,21,22	1.41	3 (16%)	22,30,33	2.01	3 (13%)
79	M3L	Lm	98	79	10,11,12	0.37	0	9,14,16	0.10	0
3	PSU	L5	4532	3	18,21,22	1.54	4 (22%)	22,30,33	1.99	4 (18%)
1	OMG	S2	644	1	18,26,27	1.09	1 (5%)	19,38,41	1.14	2 (10%)
1	A2M	S2	1678	1	18,25,26	0.95	1 (5%)	18,36,39	1.24	2 (11%)
3	PSU	L5	4636	3	18,21,22	1.56	4 (22%)	22,30,33	2.27	6 (27%)
3	PSU	L5	1781	3	18,21,22	1.41	4 (22%)	22,30,33	1.88	3 (13%)
3	PSU	L5	3770	3	18,21,22	1.49	4 (22%)	22,30,33	2.07	5 (22%)
1	MA6	S2	1851	1	19,26,27	0.86	1 (5%)	18,38,41	1.27	2 (11%)
3	A2M	L5	3825	3	18,25,26	0.92	1 (5%)	18,36,39	1.39	3 (16%)
3	PSU	L5	4457	3	18,21,22	1.51	4 (22%)	22,30,33	2.12	5 (22%)
3	PSU	L5	4552	3	18,21,22	1.40	3 (16%)	22,30,33	1.96	3 (13%)
1	G7M	S2	1639	85,1	20,26,27	2.68	4 (20%)	17,39,42	1.15	2 (11%)
3	PSU	L5	4500	3	18,21,22	1.40	2 (11%)	22,30,33	1.93	3 (13%)
3	OMC	L5	3887	3	19,22,23	0.84	0	26,31,34	0.81	0
3	OMG	L5	4623	3	18,26,27	1.02	1 (5%)	19,38,41	1.09	2 (10%)
3	OMG	L5	1625	3	18,26,27	0.94	1 (5%)	19,38,41	1.09	3 (15%)
3	OMG	L5	4499	3	18,26,27	0.90	1 (5%)	19,38,41	1.06	2 (10%)
3	A2M	L5	3760	3	18,25,26	1.10	1 (5%)	18,36,39	1.64	5 (27%)
1	PSU	S2	1239	1	18,21,22	1.37	3 (16%)	22,30,33	1.90	3 (13%)
3	PSU	L5	4628	3	18,21,22	1.46	4 (22%)	22,30,33	2.21	4 (18%)
3	1MA	L5	1322	89,3	16,25,26	1.44	3 (18%)	18,37,40	1.22	3 (16%)
1	OMC	S2	462	1	19,22,23	0.88	0	26,31,34	0.91	1 (3%)
3	A2M	L5	4523	89,3	18,25,26	0.94	1 (5%)	18,36,39	1.25	2 (11%)
3	PSU	L5	1792	3	18,21,22	1.55	4 (22%)	22,30,33	1.96	4 (18%)
86	M3L	EF	318	86	10,11,12	0.42	0	9,14,16	0.13	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	OMC	L5	2861	3	19,22,23	0.82	0	26,31,34	0.81	1 (3%)
3	OMG	L5	4228	3	18,26,27	0.89	1 (5%)	19,38,41	1.20	2 (10%)
68	MLZ	Lb	5	68	8,9,10	0.34	0	4,9,11	0.20	0
1	PSU	S2	1177	1	18,21,22	1.39	3 (16%)	22,30,33	1.88	3 (13%)
3	PSU	L5	1862	3	18,21,22	1.51	4 (22%)	22,30,33	2.06	3 (13%)
1	OMU	S2	1442	89,1	19,22,23	1.25	3 (15%)	26,31,34	1.77	4 (15%)
3	OMC	L5	1881	89,3	19,22,23	0.93	0	26,31,34	1.08	2 (7%)
1	PSU	S2	863	1	18,21,22	1.47	4 (22%)	22,30,33	1.93	4 (18%)
1	A2M	S2	27	1	18,25,26	0.95	1 (5%)	18,36,39	1.31	2 (11%)
1	PSU	S2	573	1	18,21,22	1.44	3 (16%)	22,30,33	1.94	3 (13%)
1	OMG	S2	601	1	18,26,27	0.93	1 (5%)	19,38,41	1.09	2 (10%)
85	OMC	Pt	33	85	19,22,23	0.94	1 (5%)	26,31,34	0.96	1 (3%)
3	A2M	L5	1534	89,3	18,25,26	0.98	1 (5%)	18,36,39	1.36	2 (11%)
2	OMG	L8	75	2	18,26,27	0.97	1 (5%)	19,38,41	1.19	3 (15%)
3	PSU	L5	3758	3	18,21,22	1.54	4 (22%)	22,30,33	2.09	4 (18%)
3	OMC	L5	3701	88,3	19,22,23	0.92	0	26,31,34	1.05	0
3	A2M	L5	3718	3	18,25,26	0.88	1 (5%)	18,36,39	1.36	3 (16%)
39	V5N	LA	216	39	4,11,12	0.53	0	5,14,16	1.68	2 (40%)
1	PSU	S2	36	1	18,21,22	1.38	3 (16%)	22,30,33	1.97	4 (18%)
1	OMC	S2	1391	1	19,22,23	0.84	0	26,31,34	0.80	0
86	M3L	EF	79	86	10,11,12	0.53	0	9,14,16	0.51	0
3	PSU	L5	3768	3	18,21,22	1.46	4 (22%)	22,30,33	1.89	3 (13%)
3	OMG	L5	4196	85,3	18,26,27	1.11	1 (5%)	19,38,41	1.12	2 (10%)
3	PSU	L5	1860	3	18,21,22	1.55	4 (22%)	22,30,33	1.93	3 (13%)
3	PSU	L5	4293	3	18,21,22	1.42	4 (22%)	22,30,33	1.96	3 (13%)
3	OMU	L5	4620	3	19,22,23	1.36	3 (15%)	26,31,34	1.88	8 (30%)
1	PSU	S2	1244	1	18,21,22	1.44	3 (16%)	22,30,33	2.01	4 (18%)
3	OMG	L5	1316	3	18,26,27	0.98	1 (5%)	19,38,41	1.17	3 (15%)
3	5MC	L5	3782	89,3	18,22,23	0.97	2 (11%)	26,32,35	1.16	3 (11%)
3	PSU	L5	4299	3	18,21,22	1.38	3 (16%)	22,30,33	1.93	3 (13%)
1	PSU	S2	572	1	18,21,22	1.41	3 (16%)	22,30,33	1.84	4 (18%)
3	OMG	L5	3792	3	18,26,27	0.92	1 (5%)	19,38,41	1.13	3 (15%)
3	OMU	L5	4498	3	19,22,23	1.23	3 (15%)	26,31,34	1.75	5 (19%)
3	A2M	L5	2815	89,3	18,25,26	0.92	1 (5%)	18,36,39	1.14	2 (11%)
1	PSU	S2	296	1	18,21,22	1.46	5 (27%)	22,30,33	2.00	3 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
1	A2M	S2	1383	1	18,25,26	0.93	1 (5%)	18,36,39	1.41	2 (11%)
3	OMG	L5	1522	3	18,26,27	0.93	1 (5%)	19,38,41	1.11	2 (10%)
3	OMG	L5	3899	3	18,26,27	0.96	1 (5%)	19,38,41	1.14	2 (10%)
1	PSU	S2	815	1	18,21,22	1.39	2 (11%)	22,30,33	1.95	3 (13%)
85	4SU	Pt	8	85	18,21,22	1.97	4 (22%)	26,30,33	2.25	4 (15%)
1	6MZ	S2	1832	89,1	18,25,26	0.86	1 (5%)	16,36,39	2.06	3 (18%)
3	PSU	L5	3853	89,3	18,21,22	1.41	4 (22%)	22,30,33	1.83	3 (13%)
3	OMU	L5	4306	3	19,22,23	1.26	3 (15%)	26,31,34	1.68	4 (15%)
1	OMU	S2	354	1	19,22,23	1.42	3 (15%)	26,31,34	1.97	6 (23%)
3	OMC	L5	2824	3	19,22,23	0.82	0	26,31,34	0.81	0
1	PSU	S2	651	1	18,21,22	1.38	3 (16%)	22,30,33	1.90	4 (18%)
1	OMG	S2	1490	89,1	18,26,27	1.05	1 (5%)	19,38,41	1.03	2 (10%)
1	PSU	S2	681	1	18,21,22	1.39	3 (16%)	22,30,33	1.95	4 (18%)
3	OMG	L5	3627	3	18,26,27	0.92	1 (5%)	19,38,41	1.20	2 (10%)
3	PSU	L5	4569	3	18,21,22	1.48	3 (16%)	22,30,33	2.08	5 (22%)
52	V5N	La	39	52	4,11,12	0.51	0	5,14,16	1.70	1 (20%)
3	OMC	L5	2365	89,3	19,22,23	0.82	0	26,31,34	0.75	0
1	A2M	S2	590	1	18,25,26	0.92	1 (5%)	18,36,39	1.22	2 (11%)
3	PSU	L5	3695	3	18,21,22	1.38	3 (16%)	22,30,33	1.88	3 (13%)
3	PSU	L5	4442	3	18,21,22	1.54	5 (27%)	22,30,33	2.15	5 (22%)
3	OMC	L5	2804	3	19,22,23	0.84	0	26,31,34	0.78	0
1	PSU	S2	918	1	18,21,22	1.49	3 (16%)	22,30,33	2.15	5 (22%)
3	OMG	L5	4370	3	18,26,27	0.92	1 (5%)	19,38,41	1.10	2 (10%)
1	A2M	S2	468	1	18,25,26	0.94	1 (5%)	18,36,39	1.39	3 (16%)
3	PSU	L5	4576	3	18,21,22	1.37	3 (16%)	22,30,33	1.95	3 (13%)
66	SAC	Lr	2	66	7,8,9	3.67	2 (28%)	8,9,11	4.44	5 (62%)
40	HIC	LB	245	40	8,11,12	1.58	2 (25%)	6,14,16	1.02	0
3	A2M	L5	1326	3	18,25,26	0.96	0	18,36,39	1.30	2 (11%)
1	OMU	S2	121	1	19,22,23	1.40	3 (15%)	26,31,34	1.77	5 (19%)
1	A2M	S2	166	1	18,25,26	1.04	1 (5%)	18,36,39	1.38	2 (11%)
3	A2M	L5	4590	3	18,25,26	0.92	1 (5%)	18,36,39	1.36	3 (16%)
1	PSU	S2	218	1	18,21,22	1.44	3 (16%)	22,30,33	2.01	4 (18%)
81	MLZ	Lo	53	81	8,9,10	0.77	0	4,9,11	0.66	0
3	PSU	L5	4403	3	18,21,22	1.61	5 (27%)	22,30,33	2.17	5 (22%)
85	PSU	Pt	56	85	18,21,22	1.35	2 (11%)	22,30,33	1.90	3 (13%)



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	PSU	L5	4579	3	18,21,22	1.61	6 (33%)	22,30,33	2.04	4 (18%)
3	OMU	L5	3925	3	19,22,23	1.22	3 (15%)	26,31,34	1.72	5 (19%)
1	PSU	S2	814	1	18,21,22	1.37	3 (16%)	22,30,33	1.96	4 (18%)
1	PSU	S2	1347	1	18,21,22	1.48	4 (22%)	22,30,33	1.96	3 (13%)
3	OMC	L5	3869	3	19,22,23	0.91	0	26,31,34	1.02	0
3	PSU	L5	4296	3	18,21,22	1.36	3 (16%)	22,30,33	1.93	4 (18%)
3	PSU	L5	4361	3	18,21,22	1.59	5 (27%)	22,30,33	2.04	4 (18%)
3	PSU	L5	4673	89,3	18,21,22	1.45	3 (16%)	22,30,33	1.83	4 (18%)
3	PSU	L5	4521	89,3	18,21,22	1.54	5 (27%)	22,30,33	2.26	6 (27%)
3	PSU	L5	3844	3	18,21,22	1.36	3 (16%)	22,30,33	1.96	4 (18%)
3	OMC	L5	3841	3	19,22,23	0.80	0	26,31,34	0.93	2 (7%)
29	AME	SV	1	29	9,10,11	3.27	2 (22%)	9,11,13	4.54	5 (55%)
3	PSU	L5	2843	3	18,21,22	1.37	3 (16%)	22,30,33	1.94	4 (18%)
1	OMC	S2	517	1	19,22,23	0.93	0	26,31,34	0.98	2 (7%)
3	UY1	L5	3818	89,3	19,22,23	1.42	4 (21%)	22,31,34	1.84	4 (18%)
3	PSU	L5	1677	3	18,21,22	1.53	4 (22%)	22,30,33	2.01	5 (22%)
2	PSU	L8	55	2	18,21,22	1.38	3 (16%)	22,30,33	1.93	4 (18%)
1	A2M	S2	576	1	18,25,26	0.91	1 (5%)	18,36,39	1.34	3 (16%)
3	PSU	L5	5001	3	18,21,22	1.39	3 (16%)	22,30,33	1.90	4 (18%)
6	SAC	SA	2	6	7,8,9	3.40	2 (28%)	8,9,11	5.11	6 (75%)
1	PSU	S2	119	1	18,21,22	1.46	4 (22%)	22,30,33	1.98	4 (18%)
1	OMU	S2	172	1	19,22,23	1.30	4 (21%)	26,31,34	1.91	6 (23%)
1	A2M	S2	1031	1	18,25,26	0.95	1 (5%)	18,36,39	1.22	2 (11%)
3	OMG	L5	2876	3	18,26,27	0.99	1 (5%)	19,38,41	1.04	2 (10%)
3	5MC	L5	4447	88,3	18,22,23	1.03	2 (11%)	26,32,35	1.28	3 (11%)
3	A2M	L5	2787	3	18,25,26	0.96	1 (5%)	18,36,39	1.31	2 (11%)
3	OMG	L5	4494	3	18,26,27	1.08	1 (5%)	19,38,41	1.15	2 (10%)
84	G7M	At	46	84	20,26,27	2.43	3 (15%)	17,39,42	0.66	0
3	A2M	L5	3785	3	18,25,26	0.86	1 (5%)	18,36,39	1.44	3 (16%)
1	4AC	S2	1337	1	21,24,25	1.20	2 (9%)	29,34,37	1.21	3 (10%)
1	A2M	S2	484	1	18,25,26	0.96	1 (5%)	18,36,39	1.22	2 (11%)
3	PSU	L5	4353	3	18,21,22	1.52	4 (22%)	22,30,33	2.01	3 (13%)
1	PSU	S2	686	1	18,21,22	1.49	4 (22%)	22,30,33	2.03	3 (13%)
3	A2M	L5	2363	89,3	18,25,26	0.96	1 (5%)	18,36,39	1.18	2 (11%)
3	PSU	L5	3851	3	18,21,22	1.39	4 (22%)	22,30,33	1.92	4 (18%)



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
1	PSU	S2	801	1	18,21,22	1.50	4 (22%)	22,30,33	1.84	4 (18%)
3	PSU	L5	1782	3	18,21,22	1.36	3 (16%)	22,30,33	1.91	3 (13%)
3	A2M	L5	4571	3	18,25,26	0.99	1 (5%)	18,36,39	1.17	2 (11%)
3	OMG	L5	4618	3	18,26,27	1.05	1 (5%)	19,38,41	1.06	2 (10%)
3	PSU	L5	2632	3	18,21,22	1.39	2 (11%)	22,30,33	1.86	5 (22%)
1	PSU	S2	649	1	18,21,22	1.50	4 (22%)	22,30,33	1.95	3 (13%)
3	A2M	L5	1524	3	18,25,26	0.94	1 (5%)	18,36,39	1.19	2 (11%)
3	A2M	L5	3723	3	18,25,26	0.94	1 (5%)	18,36,39	1.29	3 (16%)
3	PSU	L5	4423	3	18,21,22	1.37	2 (11%)	22,30,33	1.89	3 (13%)
3	PSU	L5	4493	88,3	18,21,22	1.41	4 (22%)	22,30,33	1.91	4 (18%)
1	OMG	S2	867	1	18,26,27	1.02	1 (5%)	19,38,41	1.07	2 (10%)
1	OMU	S2	428	1	19,22,23	1.22	3 (15%)	26,31,34	1.82	5 (19%)
86	MLY	EF	55	86	9,10,11	0.51	0	6,11,13	0.89	0
20	HY3	SX	62	20,88	6,8,9	1.52	1 (16%)	5,10,12	1.27	0
3	OMU	L5	2837	3	19,22,23	1.26	3 (15%)	26,31,34	1.81	5 (19%)
1	A2M	S2	512	1	18,25,26	0.94	1 (5%)	18,36,39	1.28	3 (16%)
3	PSU	L5	1582	3	18,21,22	1.51	4 (22%)	22,30,33	1.97	5 (22%)
1	4AC	S2	1842	1	21,24,25	1.01	1 (4%)	29,34,37	1.13	4 (13%)
1	OMC	S2	1703	89,1	19,22,23	0.80	0	26,31,34	0.73	0
3	PSU	L5	3734	3	18,21,22	1.48	4 (22%)	22,30,33	1.90	3 (13%)
3	PSU	L5	3764	89,3	18,21,22	1.56	4 (22%)	22,30,33	1.99	5 (22%)
1	PSU	S2	866	1	18,21,22	1.43	3 (16%)	22,30,33	2.00	3 (13%)
3	PSU	L5	3920	89,3	18,21,22	1.37	3 (16%)	22,30,33	1.97	4 (18%)
3	PSU	L5	2508	3	18,21,22	1.38	3 (16%)	22,30,33	1.94	4 (18%)
3	UR3	L5	4530	3	19,22,23	0.90	0	26,32,35	1.61	3 (11%)
1	PSU	S2	1136	1	18,21,22	1.35	3 (16%)	22,30,33	1.88	3 (13%)
1	OMG	S2	1447	1	18,26,27	1.06	1 (5%)	19,38,41	1.35	3 (15%)
3	PSU	L5	4431	3	18,21,22	1.38	3 (16%)	22,30,33	1.98	4 (18%)
3	6MZ	L5	4220	3	18,25,26	0.81	1 (5%)	16,36,39	2.01	4 (25%)
86	M3L	EF	36	86	10,11,12	0.51	0	9,14,16	0.46	0
2	PSU	L8	69	2	18,21,22	1.60	5 (27%)	22,30,33	2.21	5 (22%)
1	UY1	S2	1326	89,1	19,22,23	1.37	3 (15%)	22,31,34	2.07	4 (18%)
1	PSU	S2	1445	1	18,21,22	1.36	2 (11%)	22,30,33	2.02	4 (18%)
3	OMC	L5	2351	3	19,22,23	0.96	1 (5%)	26,31,34	0.81	0
3	PSU	L5	4420	3	18,21,22	1.35	3 (16%)	22,30,33	1.83	4 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
1	OMU	S2	116	1	19,22,23	1.32	3 (15%)	26,31,34	1.68	5 (19%)
1	PSU	S2	1174	89,1	18,21,22	1.50	3 (16%)	22,30,33	2.03	4 (18%)
3	PSU	L5	1536	3	18,21,22	1.42	4 (22%)	22,30,33	1.90	3 (13%)
3	A2M	L5	3724	3	18,25,26	0.93	1 (5%)	18,36,39	1.28	2 (11%)
3	PSU	L5	4531	3	18,21,22	1.40	3 (16%)	22,30,33	2.03	5 (22%)
1	PSU	S2	1081	1	18,21,22	1.45	4 (22%)	22,30,33	1.91	3 (13%)
3	OMG	L5	4637	88,3	18,26,27	1.08	1 (5%)	19,38,41	1.08	2 (10%)
3	PSU	L5	4972	3	18,21,22	1.36	3 (16%)	22,30,33	1.95	4 (18%)
1	OMU	S2	1288	1	19,22,23	1.28	3 (15%)	26,31,34	1.74	5 (19%)
84	PSU	At	39	84	18,21,22	1.50	4 (22%)	22,30,33	1.93	3 (13%)
3	PSU	L5	3729	3	18,21,22	1.52	5 (27%)	22,30,33	2.03	4 (18%)
1	OMC	S2	174	1	19,22,23	0.87	0	26,31,34	0.95	2 (7%)
2	OMU	L8	14	2,3	19,22,23	1.43	3 (15%)	26,31,34	1.92	5 (19%)
3	PSU	L5	1744	88,3	18,21,22	1.49	5 (27%)	22,30,33	1.95	3 (13%)
3	PSU	L5	3762	3	18,21,22	1.44	4 (22%)	22,30,33	2.04	5 (22%)
3	A2M	L5	398	3	18,25,26	1.11	2 (11%)	18,36,39	1.35	3 (16%)
84	4SU	At	8	84	18,21,22	1.76	4 (22%)	26,30,33	2.26	5 (19%)
3	PSU	L5	3637	89,3	18,21,22	1.50	3 (16%)	22,30,33	2.10	5 (22%)
3	A2M	L5	3830	3	18,25,26	0.96	1 (5%)	18,36,39	1.22	2 (11%)
1	PSU	S2	1238	1	18,21,22	1.36	2 (11%)	22,30,33	1.90	3 (13%)
1	PSU	S2	109	1	18,21,22	1.52	4 (22%)	22,30,33	2.03	3 (13%)
1	PSU	S2	609	1	18,21,22	1.49	4 (22%)	22,30,33	1.82	3 (13%)
3	OMC	L5	1340	3	19,22,23	0.91	1 (5%)	26,31,34	0.81	0
1	PSU	S2	1367	1	18,21,22	1.37	3 (16%)	22,30,33	1.95	3 (13%)
3	OMG	L5	2424	3	18,26,27	1.13	1 (5%)	19,38,41	0.92	1 (5%)
3	PSU	L5	3639	3	18,21,22	1.43	4 (22%)	22,30,33	1.98	4 (18%)
3	PSU	L5	2839	3	18,21,22	1.36	4 (22%)	22,30,33	1.96	3 (13%)
84	PSU	At	32	84	18,21,22	1.47	4 (22%)	22,30,33	2.01	4 (18%)
3	PSU	L5	1683	88,3	18,21,22	1.51	4 (22%)	22,30,33	1.78	3 (13%)
1	OMG	S2	509	1	18,26,27	1.10	1 (5%)	19,38,41	1.10	2 (10%)
3	OMG	L5	2364	3	18,26,27	0.92	1 (5%)	19,38,41	1.12	3 (15%)
84	H2U	At	16	84	18,21,22	0.99	2 (11%)	21,30,33	1.45	2 (9%)
3	OMC	L5	3808	3	19,22,23	0.93	0	26,31,34	1.04	1 (3%)
1	MA6	S2	1850	1	19,26,27	0.90	1 (5%)	18,38,41	1.28	3 (16%)
85	G7M	Pt	47	85	20,26,27	2.41	3 (15%)	17,39,42	0.69	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
1	PSU	S2	93	1	18,21,22	1.54	4 (22%)	22,30,33	2.05	4 (18%)
1	A2M	S2	668	89,1	18,25,26	0.92	1 (5%)	18,36,39	1.39	3 (16%)
1	PSU	S2	1056	1	18,21,22	1.43	3 (16%)	22,30,33	2.07	4 (18%)
1	PSU	S2	105	1	18,21,22	1.54	5 (27%)	22,30,33	2.06	3 (13%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	A2M	S2	159	1	-	0/5/27/28	0/3/3/3
3	OMC	L5	2422	89,3	-	3/9/27/28	0/2/2/2
3	OMC	L5	4456	3	-	1/9/27/28	0/2/2/2
3	PSU	L5	3715	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	1004	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	1243	1	-	2/7/25/26	0/2/2/2
3	A2M	L5	400	3	-	0/5/27/28	0/3/3/3
3	A2M	L5	2401	3	-	0/5/27/28	0/3/3/3
3	OMU	L5	2415	3	-	1/9/27/28	0/2/2/2
1	OMU	S2	627	1	-	5/9/27/28	0/2/2/2
3	PSU	L5	3884	3	-	0/7/25/26	0/2/2/2
3	OMG	L5	3944	3	-	2/5/27/28	0/3/3/3
3	PSU	L5	4471	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	5010	3	-	0/7/25/26	0/2/2/2
3	A2M	L5	3867	3	-	0/5/27/28	0/3/3/3
3	OMG	L5	4392	3	-	0/5/27/28	0/3/3/3
1	OMG	S2	436	1	-	0/5/27/28	0/3/3/3
1	PSU	S2	822	1	-	0/7/25/26	0/2/2/2
1	OMG	S2	1328	1	-	1/5/27/28	0/3/3/3
3	OMG	L5	3744	3	-	0/5/27/28	0/3/3/3
3	OMC	L5	4536	3	-	0/9/27/28	0/2/2/2
1	PSU	S2	1232	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	966	1	-	0/7/25/26	0/2/2/2
3	PSU	L5	1779	3	-	0/7/25/26	0/2/2/2
84	MIA	At	37	84	-	2/11/33/34	0/3/3/3
3	PSU	L5	4689	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	406	1	-	0/7/25/26	0/2/2/2
84	H2U	At	20	84	-	1/7/38/39	0/2/2/2
1	A2M	S2	99	89,1	-	1/5/27/28	0/3/3/3
1	OMG	S2	683	1	-	0/5/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	PSU	S2	1692	1	-	0/7/25/26	0/2/2/2
3	OMU	L5	4227	3	-	0/9/27/28	0/2/2/2
3	PSU	L5	4312	3	-	0/7/25/26	0/2/2/2
85	H2U	Pt	21	85	-	5/7/38/39	0/2/2/2
1	PSU	S2	1643	89,1	-	0/7/25/26	0/2/2/2
1	B8N	S2	1248	1	-	6/16/34/35	0/2/2/2
1	PSU	S2	34	1	-	0/7/25/26	0/2/2/2
1	OMU	S2	1804	1	-	0/9/27/28	0/2/2/2
3	A2M	L5	1871	3	-	0/5/27/28	0/3/3/3
1	PSU	S2	1625	1	-	0/7/25/26	0/2/2/2
79	M3L	Lm	98	79	-	0/9/10/12	-
3	PSU	L5	4532	3	-	0/7/25/26	0/2/2/2
1	OMG	S2	644	1	-	4/5/27/28	0/3/3/3
1	A2M	S2	1678	1	-	1/5/27/28	0/3/3/3
3	PSU	L5	4636	3	-	3/7/25/26	0/2/2/2
3	PSU	L5	1781	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	3770	3	-	0/7/25/26	0/2/2/2
1	MA6	S2	1851	1	-	1/7/29/30	0/3/3/3
3	A2M	L5	3825	3	-	0/5/27/28	0/3/3/3
3	PSU	L5	4457	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4552	3	-	0/7/25/26	0/2/2/2
1	G7M	S2	1639	85,1	-	0/3/25/26	0/3/3/3
3	PSU	L5	4500	3	-	2/7/25/26	0/2/2/2
3	OMC	L5	3887	3	-	1/9/27/28	0/2/2/2
3	OMG	L5	4623	3	-	0/5/27/28	0/3/3/3
3	OMG	L5	1625	3	-	3/5/27/28	0/3/3/3
3	OMG	L5	4499	3	-	0/5/27/28	0/3/3/3
3	A2M	L5	3760	3	-	2/5/27/28	0/3/3/3
1	PSU	S2	1239	1	-	0/7/25/26	0/2/2/2
3	PSU	L5	4628	3	-	0/7/25/26	0/2/2/2
3	1MA	L5	1322	89,3	-	0/3/25/26	0/3/3/3
1	OMC	S2	462	1	-	1/9/27/28	0/2/2/2
3	A2M	L5	4523	89,3	-	1/5/27/28	0/3/3/3
3	PSU	L5	1792	3	-	0/7/25/26	0/2/2/2
86	M3L	EF	318	86	-	0/9/10/12	-
3	OMC	L5	2861	3	-	0/9/27/28	0/2/2/2
3	OMG	L5	4228	3	-	2/5/27/28	0/3/3/3
68	MLZ	Lb	5	68	-	5/7/8/10	-
1	PSU	S2	1177	1	-	0/7/25/26	0/2/2/2
3	PSU	L5	1862	3	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	OMU	S2	1442	89,1	-	0/9/27/28	0/2/2/2
3	OMC	L5	1881	89,3	-	0/9/27/28	0/2/2/2
1	PSU	S2	863	1	-	0/7/25/26	0/2/2/2
1	A2M	S2	27	1	-	1/5/27/28	0/3/3/3
1	PSU	S2	573	1	-	0/7/25/26	0/2/2/2
1	OMG	S2	601	1	-	0/5/27/28	0/3/3/3
85	OMC	Pt	33	85	-	0/9/27/28	0/2/2/2
3	A2M	L5	1534	89,3	-	2/5/27/28	0/3/3/3
2	OMG	L8	75	2	-	1/5/27/28	0/3/3/3
3	PSU	L5	3758	3	-	0/7/25/26	0/2/2/2
3	OMC	L5	3701	88,3	-	4/9/27/28	0/2/2/2
3	A2M	L5	3718	3	-	1/5/27/28	0/3/3/3
39	V5N	LA	216	39	-	1/5/10/12	0/1/1/1
1	PSU	S2	36	1	-	0/7/25/26	0/2/2/2
1	OMC	S2	1391	1	-	0/9/27/28	0/2/2/2
86	M3L	EF	79	86	-	3/9/10/12	-
3	PSU	L5	3768	3	-	0/7/25/26	0/2/2/2
3	OMG	L5	4196	85,3	-	1/5/27/28	0/3/3/3
3	PSU	L5	1860	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4293	3	-	0/7/25/26	0/2/2/2
3	OMU	L5	4620	3	-	1/9/27/28	0/2/2/2
1	PSU	S2	1244	1	-	0/7/25/26	0/2/2/2
3	OMG	L5	1316	3	-	0/5/27/28	0/3/3/3
3	5MC	L5	3782	89,3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4299	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	572	1	-	0/7/25/26	0/2/2/2
3	OMG	L5	3792	3	-	0/5/27/28	0/3/3/3
3	OMU	L5	4498	3	-	0/9/27/28	0/2/2/2
3	A2M	L5	2815	89,3	-	1/5/27/28	0/3/3/3
1	PSU	S2	296	1	-	0/7/25/26	0/2/2/2
1	A2M	S2	1383	1	-	1/5/27/28	0/3/3/3
3	OMG	L5	1522	3	-	0/5/27/28	0/3/3/3
3	OMG	L5	3899	3	-	0/5/27/28	0/3/3/3
1	PSU	S2	815	1	-	0/7/25/26	0/2/2/2
85	4SU	Pt	8	85	-	0/7/25/26	0/2/2/2
1	6MZ	S2	1832	89,1	-	2/5/27/28	0/3/3/3
3	PSU	L5	3853	89,3	-	0/7/25/26	0/2/2/2
3	OMU	L5	4306	3	-	2/9/27/28	0/2/2/2
1	OMU	S2	354	1	-	0/9/27/28	0/2/2/2
3	OMC	L5	2824	3	-	0/9/27/28	0/2/2/2
1	PSU	S2	651	1	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	OMG	S2	1490	89,1	-	2/5/27/28	0/3/3/3
1	PSU	S2	681	1	-	0/7/25/26	0/2/2/2
3	OMG	L5	3627	3	-	0/5/27/28	0/3/3/3
3	PSU	L5	4569	3	-	2/7/25/26	0/2/2/2
52	V5N	La	39	52	-	0/5/10/12	0/1/1/1
3	OMC	L5	2365	89,3	-	0/9/27/28	0/2/2/2
1	A2M	S2	590	1	-	2/5/27/28	0/3/3/3
3	PSU	L5	3695	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4442	3	-	0/7/25/26	0/2/2/2
3	OMC	L5	2804	3	-	0/9/27/28	0/2/2/2
1	PSU	S2	918	1	-	0/7/25/26	0/2/2/2
3	OMG	L5	4370	3	-	0/5/27/28	0/3/3/3
1	A2M	S2	468	1	-	1/5/27/28	0/3/3/3
3	PSU	L5	4576	3	-	0/7/25/26	0/2/2/2
66	SAC	Lr	2	66	-	2/7/8/10	-
40	HIC	LB	245	40	-	0/5/6/8	0/1/1/1
3	A2M	L5	1326	3	-	2/5/27/28	0/3/3/3
1	OMU	S2	121	1	-	1/9/27/28	0/2/2/2
1	A2M	S2	166	1	-	0/5/27/28	0/3/3/3
3	A2M	L5	4590	3	-	1/5/27/28	0/3/3/3
1	PSU	S2	218	1	-	0/7/25/26	0/2/2/2
81	MLZ	Lo	53	81	-	5/7/8/10	-
3	PSU	L5	4403	3	-	0/7/25/26	0/2/2/2
85	PSU	Pt	56	85	-	0/7/25/26	0/2/2/2
3	PSU	L5	4579	3	-	0/7/25/26	0/2/2/2
3	OMU	L5	3925	3	-	1/9/27/28	0/2/2/2
1	PSU	S2	814	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	1347	1	-	0/7/25/26	0/2/2/2
3	OMC	L5	3869	3	-	0/9/27/28	0/2/2/2
3	PSU	L5	4296	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4361	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4673	89,3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4521	89,3	-	2/7/25/26	0/2/2/2
3	PSU	L5	3844	3	-	3/7/25/26	0/2/2/2
3	OMC	L5	3841	3	-	1/9/27/28	0/2/2/2
29	AME	SV	1	29	-	2/9/10/12	-
3	PSU	L5	2843	3	-	0/7/25/26	0/2/2/2
1	OMC	S2	517	1	-	0/9/27/28	0/2/2/2
3	UY1	L5	3818	89,3	-	3/9/27/28	0/2/2/2
3	PSU	L5	1677	3	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PSU	L8	55	2	-	0/7/25/26	0/2/2/2
1	A2M	S2	576	1	-	2/5/27/28	0/3/3/3
3	PSU	L5	5001	3	-	0/7/25/26	0/2/2/2
6	SAC	SA	2	6	-	1/7/8/10	-
1	PSU	S2	119	1	-	0/7/25/26	0/2/2/2
1	OMU	S2	172	1	-	0/9/27/28	0/2/2/2
1	A2M	S2	1031	1	-	0/5/27/28	0/3/3/3
3	OMG	L5	2876	3	-	0/5/27/28	0/3/3/3
3	5MC	L5	4447	88,3	-	4/7/25/26	0/2/2/2
3	A2M	L5	2787	3	-	0/5/27/28	0/3/3/3
3	OMG	L5	4494	3	-	0/5/27/28	0/3/3/3
84	G7M	At	46	84	-	0/3/25/26	0/3/3/3
3	A2M	L5	3785	3	-	2/5/27/28	0/3/3/3
1	4AC	S2	1337	1	-	2/11/29/30	0/2/2/2
1	A2M	S2	484	1	-	1/5/27/28	0/3/3/3
3	PSU	L5	4353	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	686	1	-	0/7/25/26	0/2/2/2
3	A2M	L5	2363	89,3	-	0/5/27/28	0/3/3/3
3	PSU	L5	3851	3	-	1/7/25/26	0/2/2/2
1	PSU	S2	801	1	-	0/7/25/26	0/2/2/2
3	PSU	L5	1782	3	-	0/7/25/26	0/2/2/2
3	A2M	L5	4571	3	-	0/5/27/28	0/3/3/3
3	OMG	L5	4618	3	-	1/5/27/28	0/3/3/3
3	PSU	L5	2632	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	649	1	-	0/7/25/26	0/2/2/2
3	A2M	L5	1524	3	-	0/5/27/28	0/3/3/3
3	A2M	L5	3723	3	-	1/5/27/28	0/3/3/3
3	PSU	L5	4423	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4493	88,3	-	0/7/25/26	0/2/2/2
1	OMG	S2	867	1	-	1/5/27/28	0/3/3/3
1	OMU	S2	428	1	-	4/9/27/28	0/2/2/2
86	MLY	EF	55	86	-	1/8/9/11	-
20	HY3	SX	62	20,88	-	1/1/12/14	0/1/1/1
3	OMU	L5	2837	3	-	0/9/27/28	0/2/2/2
1	A2M	S2	512	1	-	2/5/27/28	0/3/3/3
3	PSU	L5	1582	3	-	0/7/25/26	0/2/2/2
1	4AC	S2	1842	1	-	0/11/29/30	0/2/2/2
1	OMC	S2	1703	89,1	-	0/9/27/28	0/2/2/2
3	PSU	L5	3734	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	3764	89,3	-	0/7/25/26	0/2/2/2
1	PSU	S2	866	1	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PSU	L5	3920	89,3	-	0/7/25/26	0/2/2/2
3	PSU	L5	2508	3	-	0/7/25/26	0/2/2/2
3	UR3	L5	4530	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	1136	1	-	0/7/25/26	0/2/2/2
1	OMG	S2	1447	1	-	1/5/27/28	0/3/3/3
3	PSU	L5	4431	3	-	0/7/25/26	0/2/2/2
3	6MZ	L5	4220	3	-	0/5/27/28	0/3/3/3
86	M3L	EF	36	86	-	0/9/10/12	-
2	PSU	L8	69	2	-	0/7/25/26	0/2/2/2
1	UY1	S2	1326	89,1	-	2/9/27/28	0/2/2/2
1	PSU	S2	1445	1	-	0/7/25/26	0/2/2/2
3	OMC	L5	2351	3	-	1/9/27/28	0/2/2/2
3	PSU	L5	4420	3	-	4/7/25/26	0/2/2/2
1	OMU	S2	116	1	-	0/9/27/28	0/2/2/2
1	PSU	S2	1174	89,1	-	0/7/25/26	0/2/2/2
3	PSU	L5	1536	3	-	0/7/25/26	0/2/2/2
3	A2M	L5	3724	3	-	1/5/27/28	0/3/3/3
3	PSU	L5	4531	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	1081	1	-	1/7/25/26	0/2/2/2
3	OMG	L5	4637	88,3	-	2/5/27/28	0/3/3/3
3	PSU	L5	4972	3	-	0/7/25/26	0/2/2/2
1	OMU	S2	1288	1	-	3/9/27/28	0/2/2/2
84	PSU	At	39	84	-	0/7/25/26	0/2/2/2
3	PSU	L5	3729	3	-	2/7/25/26	0/2/2/2
1	OMC	S2	174	1	-	1/9/27/28	0/2/2/2
2	OMU	L8	14	2,3	-	1/9/27/28	0/2/2/2
3	PSU	L5	1744	88,3	-	0/7/25/26	0/2/2/2
3	PSU	L5	3762	3	-	0/7/25/26	0/2/2/2
3	A2M	L5	398	3	-	3/5/27/28	0/3/3/3
84	4SU	At	8	84	-	0/7/25/26	0/2/2/2
3	PSU	L5	3637	89,3	-	0/7/25/26	0/2/2/2
3	A2M	L5	3830	3	-	1/5/27/28	0/3/3/3
1	PSU	S2	1238	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	109	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	609	1	-	0/7/25/26	0/2/2/2
3	OMC	L5	1340	3	-	1/9/27/28	0/2/2/2
1	PSU	S2	1367	1	-	0/7/25/26	0/2/2/2
3	OMG	L5	2424	3	-	1/5/27/28	0/3/3/3
3	PSU	L5	3639	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	2839	3	-	0/7/25/26	0/2/2/2
84	PSU	At	32	84	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PSU	L5	1683	88,3	-	0/7/25/26	0/2/2/2
1	OMG	S2	509	1	-	1/5/27/28	0/3/3/3
3	OMG	L5	2364	3	-	2/5/27/28	0/3/3/3
84	H2U	At	16	84	-	7/7/38/39	0/2/2/2
3	OMC	L5	3808	3	-	0/9/27/28	0/2/2/2
1	MA6	S2	1850	1	-	0/7/29/30	0/3/3/3
85	G7M	Pt	47	85	-	0/3/25/26	0/3/3/3
1	PSU	S2	93	1	-	0/7/25/26	0/2/2/2
1	A2M	S2	668	89,1	-	2/5/27/28	0/3/3/3
1	PSU	S2	1056	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	105	1	-	0/7/25/26	0/2/2/2

The worst 5 of 553 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
29	SV	1	AME	OT-CT1	8.88	1.43	1.23
66	Lr	2	SAC	OAC-C1A	8.77	1.43	1.23
84	At	37	MIA	C2-S10	-8.39	1.68	1.75
6	SA	2	SAC	OAC-C1A	8.13	1.41	1.23
1	S2	1639	G7M	C8-N9	7.42	1.46	1.33

The worst 5 of 739 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	SA	2	SAC	OAC-C1A-N	-9.74	104.05	121.95
84	At	37	MIA	C12-C13-C14	-7.95	111.68	127.14
85	Pt	21	H2U	C4-N3-C2	-7.78	119.34	125.79
29	SV	1	AME	CA-N-CT1	-7.66	109.02	123.15
66	Lr	2	SAC	OAC-C1A-N	-7.52	108.12	121.95

There are no chirality outliers.

5 of 168 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	L8	14	OMU	C1'-C2'-O2'-CM2
2	L8	75	OMG	C1'-C2'-O2'-CM2
6	SA	2	SAC	OAC-C1A-N-CA
66	Lr	2	SAC	C2A-C1A-N-CA
68	Lb	5	MLZ	N-CA-CB-CG

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 403 ligands modelled in this entry, 379 are monoatomic - leaving 24 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	SPD	L5	5107	-	9,9,9	0.15	0	8,8,8	0.24	0
90	PUT	L5	5114	-	5,5,5	0.11	0	4,4,4	0.16	0
87	SPD	L5	5103	-	9,9,9	0.33	0	8,8,8	0.92	0
90	PUT	L5	5111	-	5,5,5	0.17	0	4,4,4	0.24	0
87	SPD	L5	5101	-	9,9,9	0.32	0	8,8,8	0.89	0
97	YRB	EF	503	-	57,57,57	2.67	14 (24%)	78,82,82	1.28	10 (12%)
91	3HE	L5	5117	-	21,21,21	0.98	2 (9%)	19,30,30	1.21	2 (10%)
87	SPD	L5	5102	-	9,9,9	0.33	0	8,8,8	0.94	0
92	HMT	L5	5118	-	40,43,43	1.54	4 (10%)	41,66,66	1.67	9 (21%)
96	GSP	EF	501	89	26,34,34	2.22	3 (11%)	27,54,54	1.55	6 (22%)
87	SPD	S2	1901	-	9,9,9	0.16	0	8,8,8	0.27	0
94	PHE	At	77	84	10,11,12	0.32	0	10,13,15	0.72	0
90	PUT	L5	5112	-	5,5,5	0.12	0	4,4,4	0.15	0
95	MET	Pt	78	85	6,7,8	0.59	0	2,7,9	2.25	1 (50%)
90	PUT	L5	5115	-	5,5,5	0.16	0	4,4,4	0.20	0
87	SPD	L5	5109	-	9,9,9	0.33	0	8,8,8	0.90	0
90	PUT	L5	5113	-	5,5,5	0.16	0	4,4,4	0.21	0
87	SPD	L5	5105	-	9,9,9	0.31	0	8,8,8	0.90	0
87	SPD	L5	5108	-	9,9,9	0.33	0	8,8,8	0.91	0
90	PUT	L5	5116	-	5,5,5	0.18	0	4,4,4	0.23	0
87	SPD	L5	5106	-	9,9,9	0.17	0	8,8,8	0.41	0
90	PUT	L5	5110	-	5,5,5	0.08	0	4,4,4	0.19	0
90	PUT	L5	5119	-	5,5,5	0.12	0	4,4,4	0.17	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
87	SPD	L5	5104	-	9,9,9	0.32	0	8,8,8	0.94	0

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	SPD	L5	5107	-	-	2/7/7/7	-
90	PUT	L5	5114	-	-	0/3/3/3	-
87	SPD	L5	5103	-	-	3/7/7/7	-
90	PUT	L5	5111	-	-	0/3/3/3	-
87	SPD	L5	5101	-	-	0/7/7/7	-
97	YRB	EF	503	-	-	13/96/107/107	0/1/2/2
91	3HE	L5	5117	-	-	0/8/36/36	0/2/2/2
87	SPD	L5	5102	-	-	4/7/7/7	-
92	HMT	L5	5118	-	-	11/27/74/74	0/5/5/5
96	GSP	EF	501	89	-	2/17/38/38	0/3/3/3
87	SPD	S2	1901	-	-	3/7/7/7	-
94	PHE	At	77	84	-	2/5/6/8	0/1/1/1
90	PUT	L5	5112	-	-	0/3/3/3	-
95	MET	Pt	78	85	-	1/5/6/8	-
90	PUT	L5	5115	-	-	3/3/3/3	-
87	SPD	L5	5109	-	-	2/7/7/7	-
90	PUT	L5	5113	-	-	0/3/3/3	-
87	SPD	L5	5105	-	-	0/7/7/7	-
87	SPD	L5	5108	-	-	1/7/7/7	-
90	PUT	L5	5116	-	-	1/3/3/3	-
87	SPD	L5	5106	-	-	2/7/7/7	-
90	PUT	L5	5110	-	-	1/3/3/3	-
90	PUT	L5	5119	-	-	1/3/3/3	-
87	SPD	L5	5104	-	-	2/7/7/7	-

The worst 5 of 23 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
96	EF	501	GSP	PG-S1G	-9.44	1.70	1.90
97	EF	503	YRB	C30-N07	7.63	1.52	1.34
97	EF	503	YRB	C02-N02	7.30	1.50	1.34
97	EF	503	YRB	C34-N01	7.22	1.49	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
97	EF	503	YRB	C25-N06	6.74	1.51	1.35

The worst 5 of 28 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
92	L5	5118	HMT	O7-C22-C21	5.25	121.03	111.19
97	EF	503	YRB	C30-C29-N06	-3.95	100.42	109.04
92	L5	5118	HMT	O4-C19-C20	3.77	118.26	111.27
96	EF	501	GSP	PA-O3A-PB	-3.40	121.16	132.83
96	EF	501	GSP	C5-C6-N1	3.31	119.80	113.95

There are no chirality outliers.

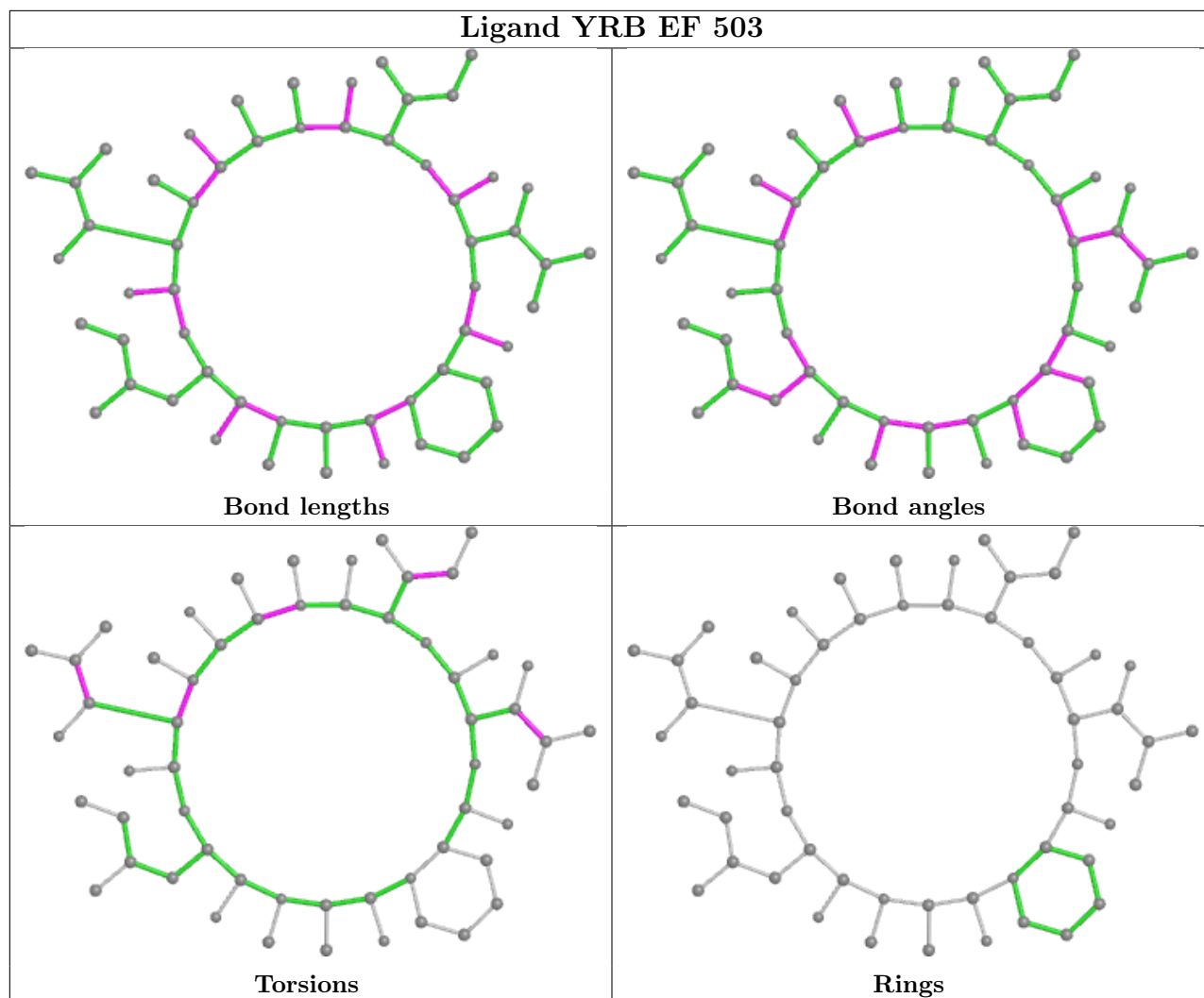
5 of 54 torsion outliers are listed below:

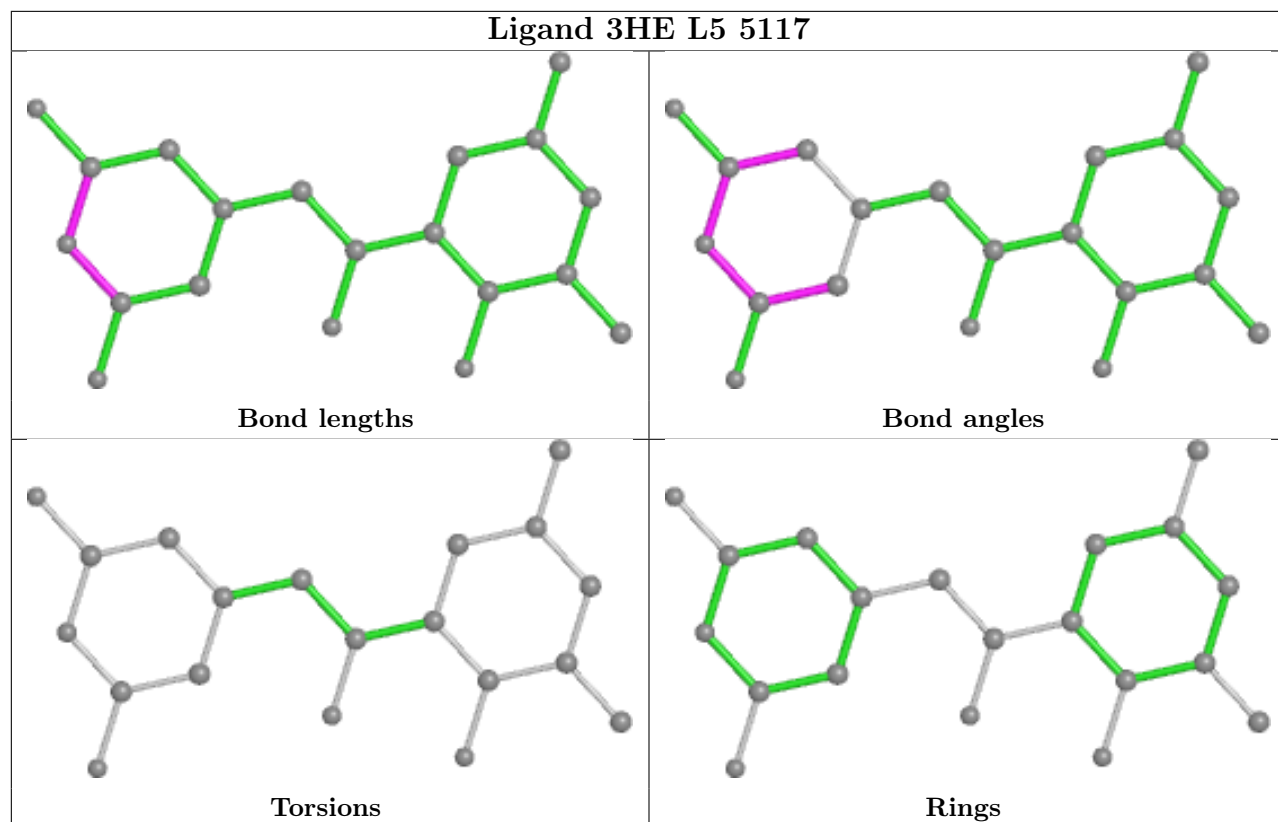
Mol	Chain	Res	Type	Atoms
87	S2	1901	SPD	C4-C5-N6-C7
92	L5	5118	HMT	C1-C2-O3-C18
92	L5	5118	HMT	C3-C2-O3-C18
92	L5	5118	HMT	C21-C20-C24-C25
92	L5	5118	HMT	O6-C20-C24-C25

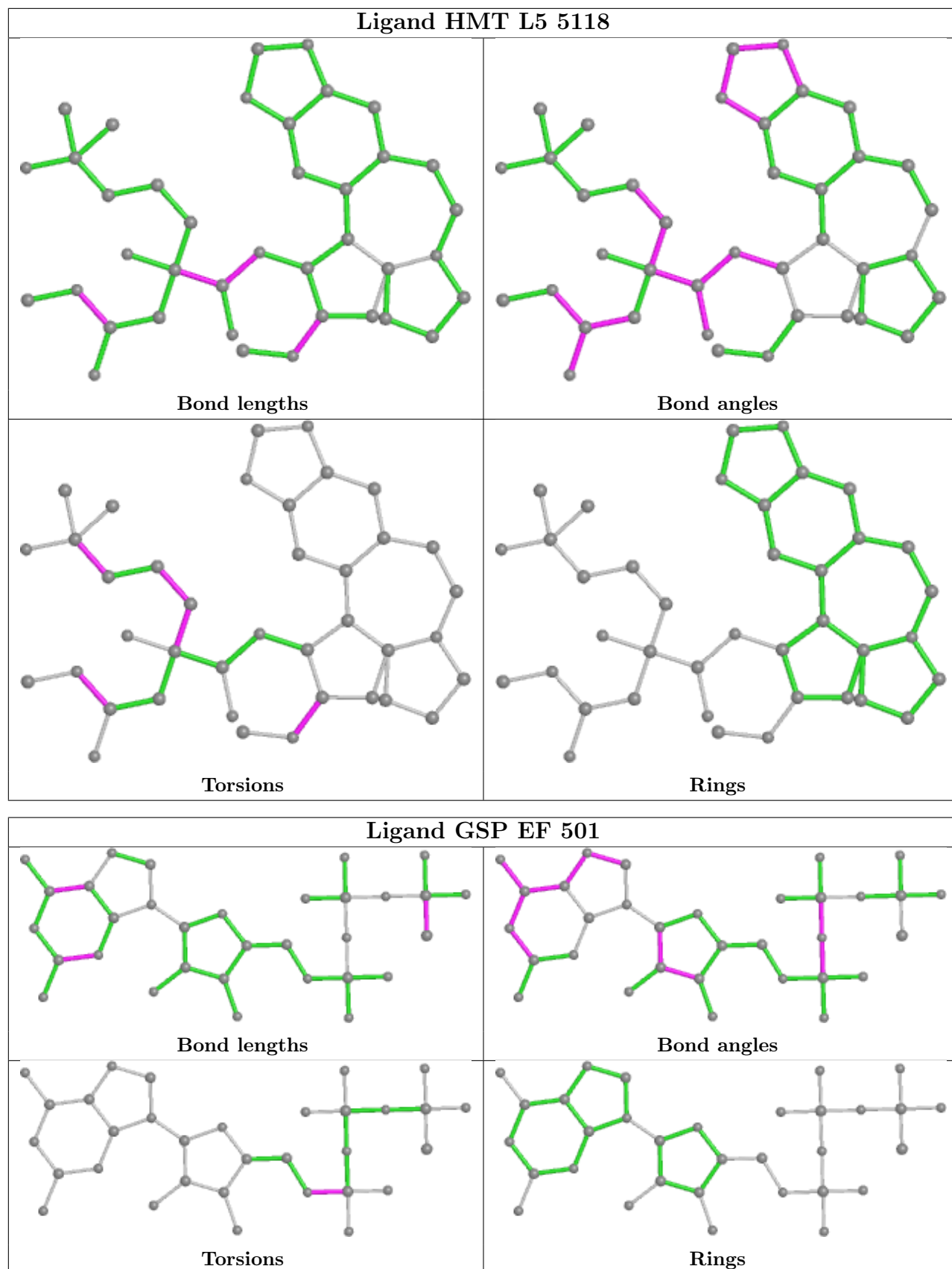
There are no ring outliers.

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 [i](#)

There are no chain breaks in this entry.



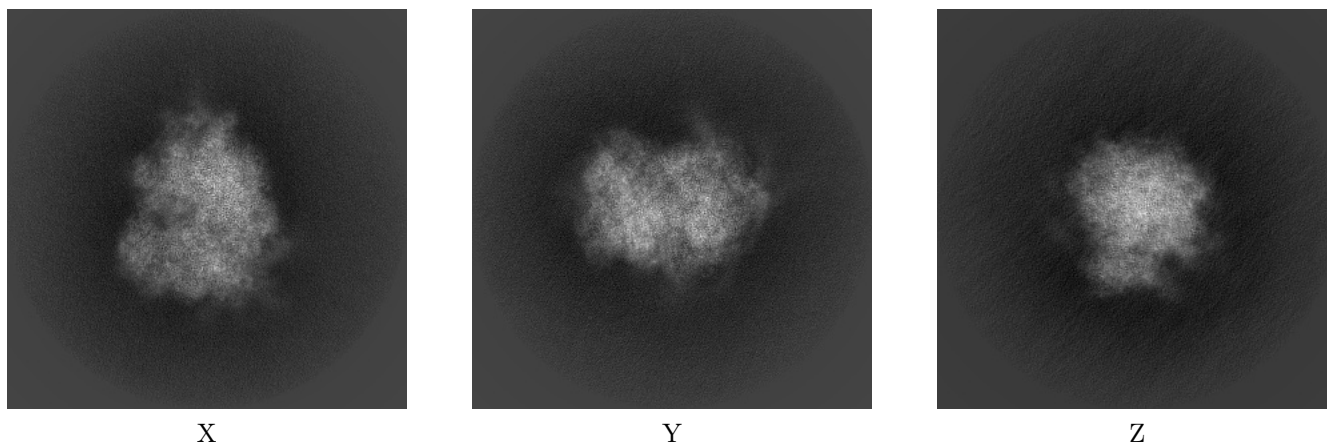
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-29771. These allow visual inspection of the internal detail of the map and identification of artifacts.

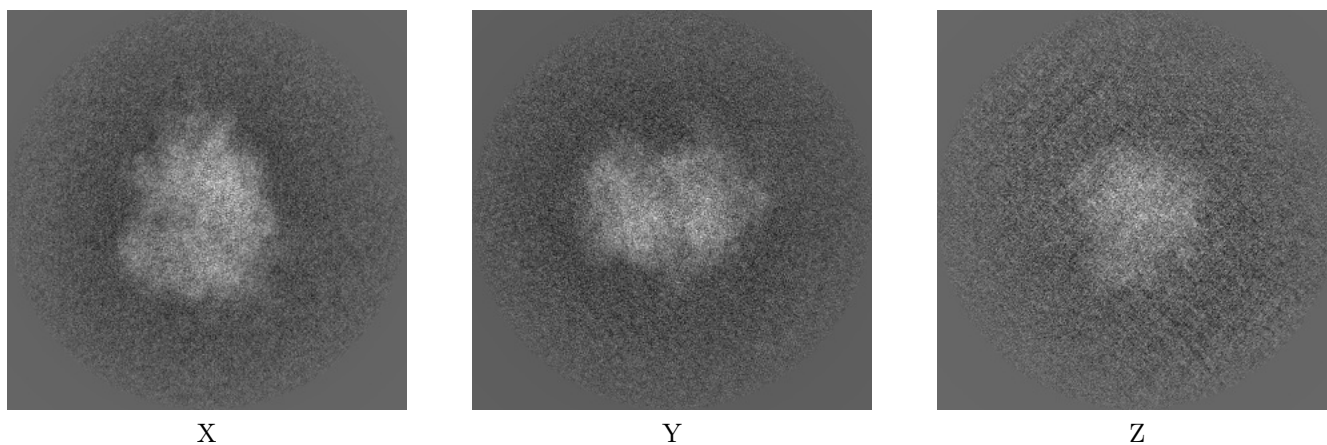
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

#### 6.1.1 Primary map



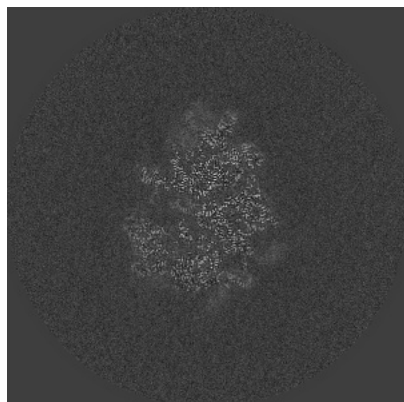
#### 6.1.2 Raw map



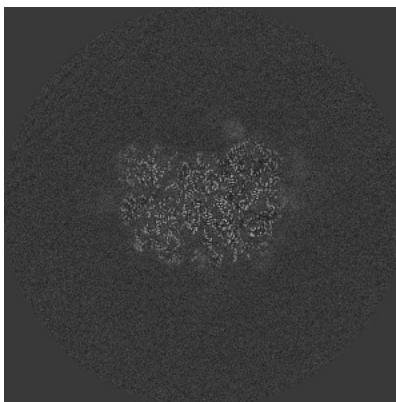
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

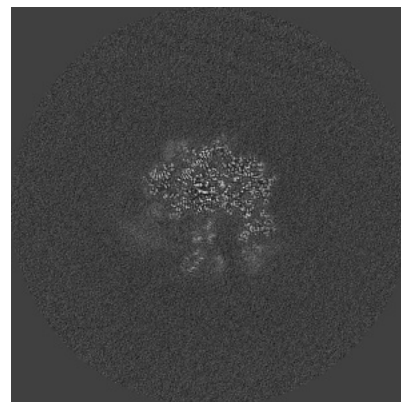
### 6.2.1 Primary map



X Index: 448

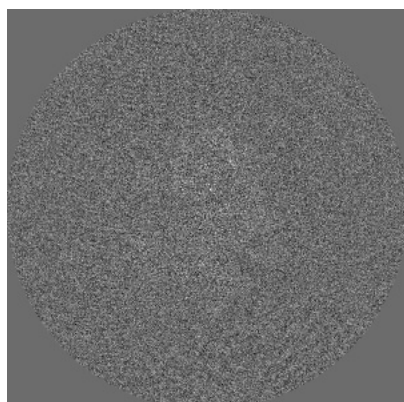


Y Index: 448

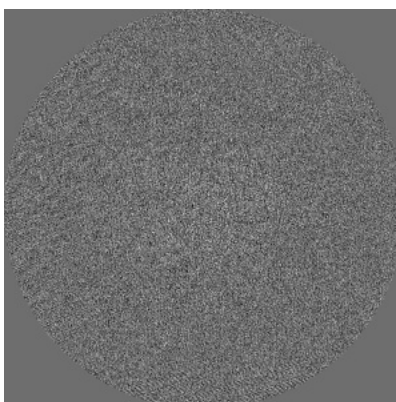


Z Index: 448

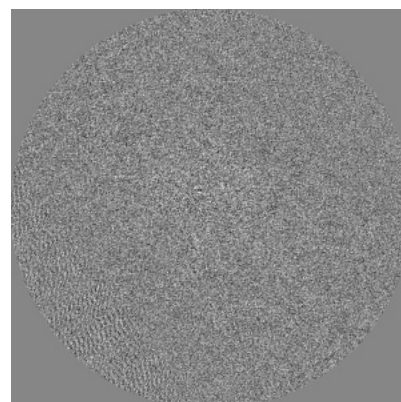
### 6.2.2 Raw map



X Index: 448



Y Index: 448

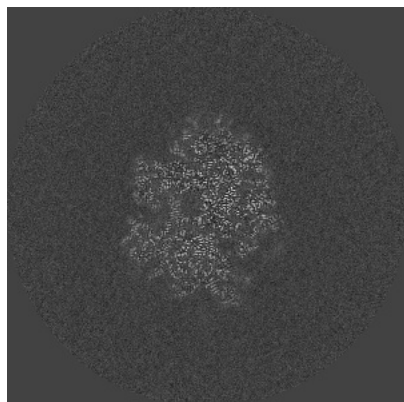


Z Index: 448

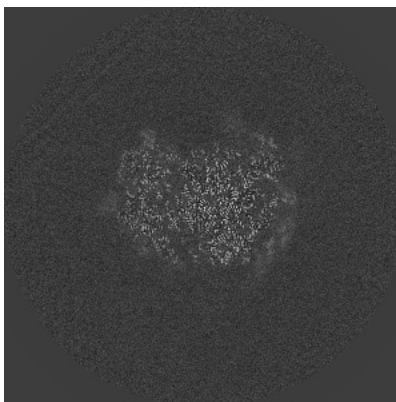
The images above show central slices of the map in three orthogonal directions.

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

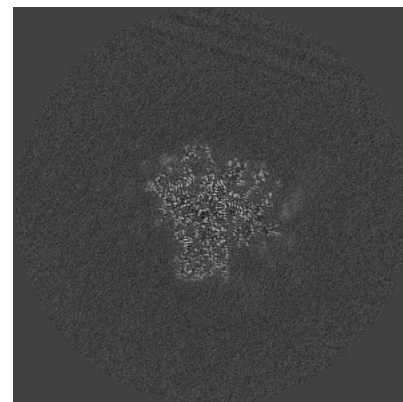
### 6.3.1 Primary map



X Index: 424

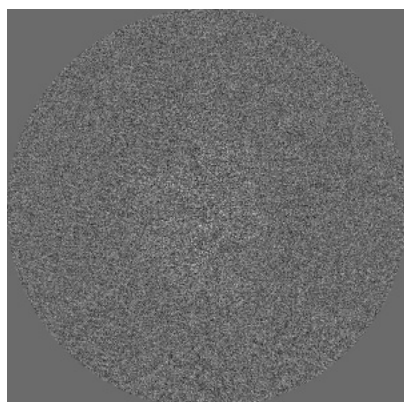


Y Index: 464

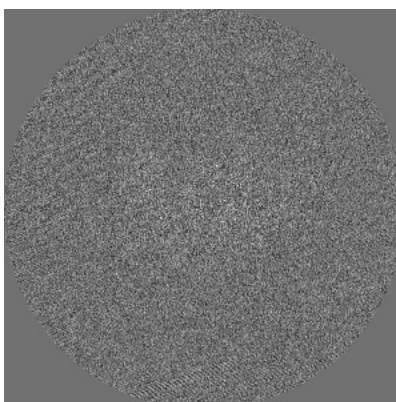


Z Index: 513

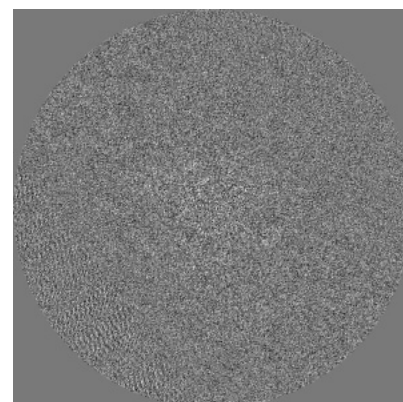
### 6.3.2 Raw map



X Index: 428



Y Index: 438



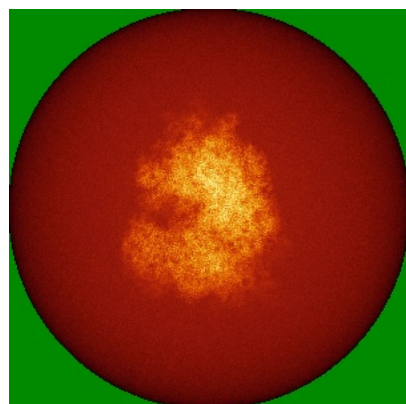
Z Index: 485

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

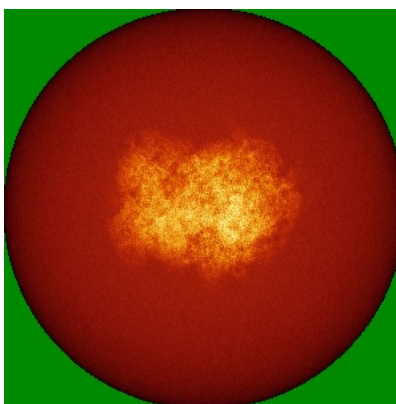


## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

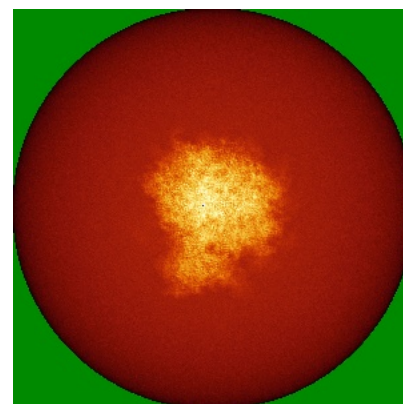
### 6.4.1 Primary map



X

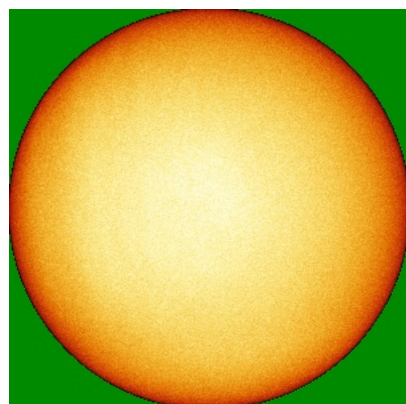


Y

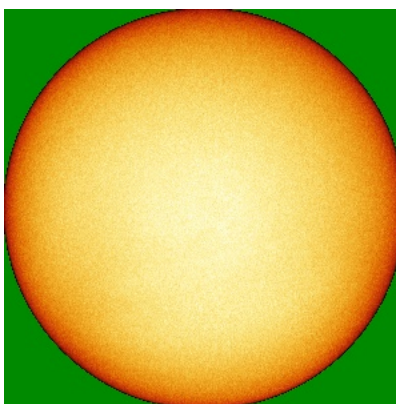


Z

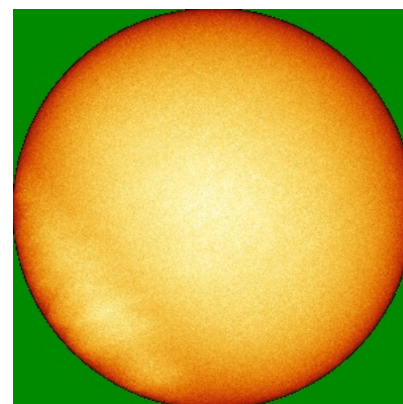
### 6.4.2 Raw map



X



Y

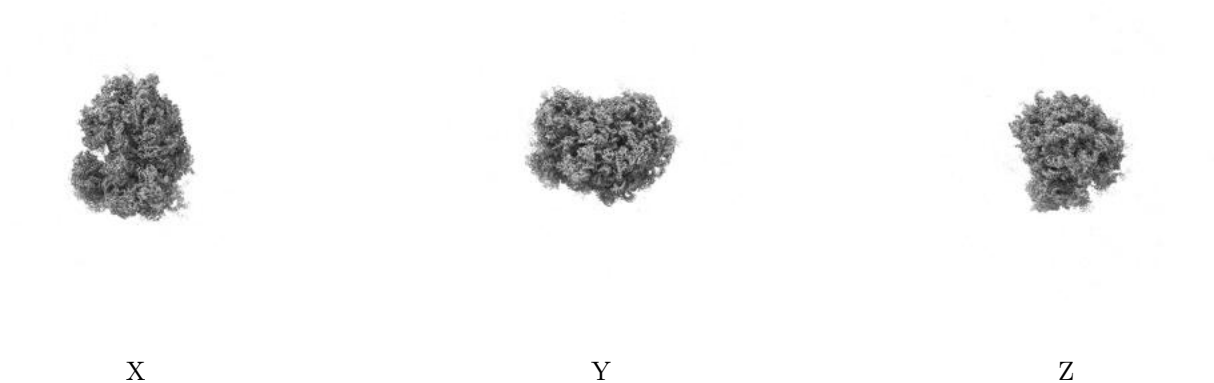


Z

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

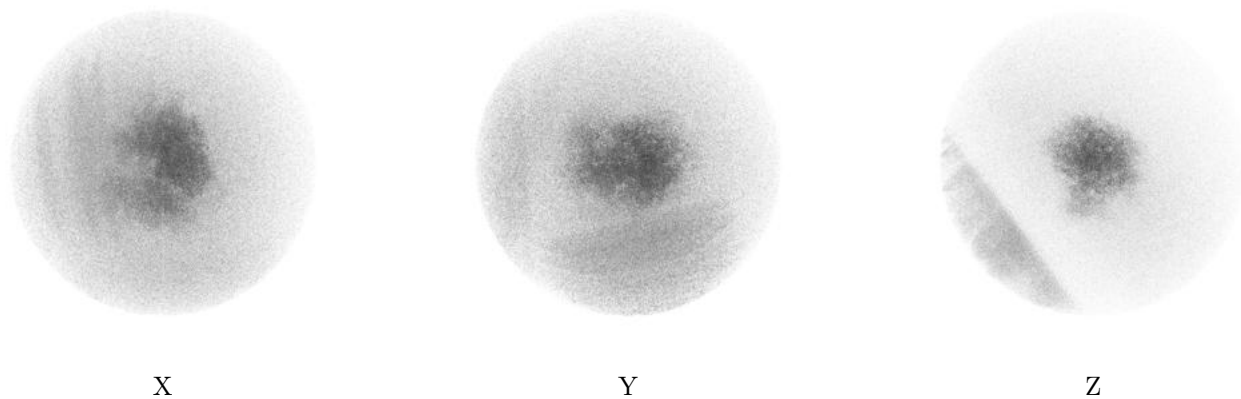
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.006. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



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

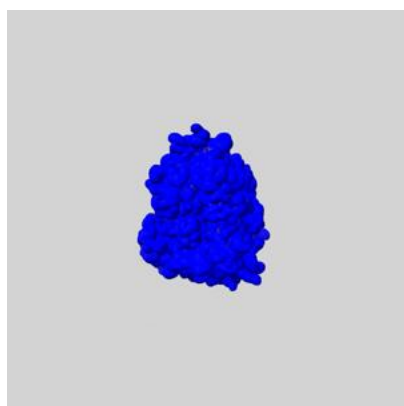
## 6.6 Mask visualisation [i](#)

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

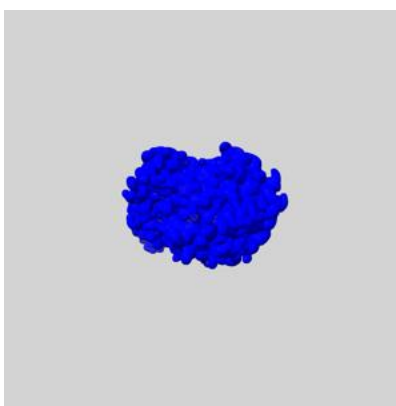
A mask typically either:

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

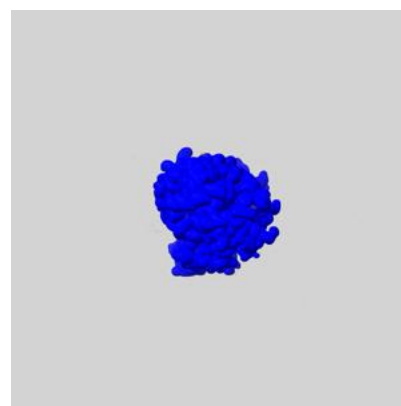
### 6.6.1 emd\_29771\_msk\_1.map [i](#)



X



Y

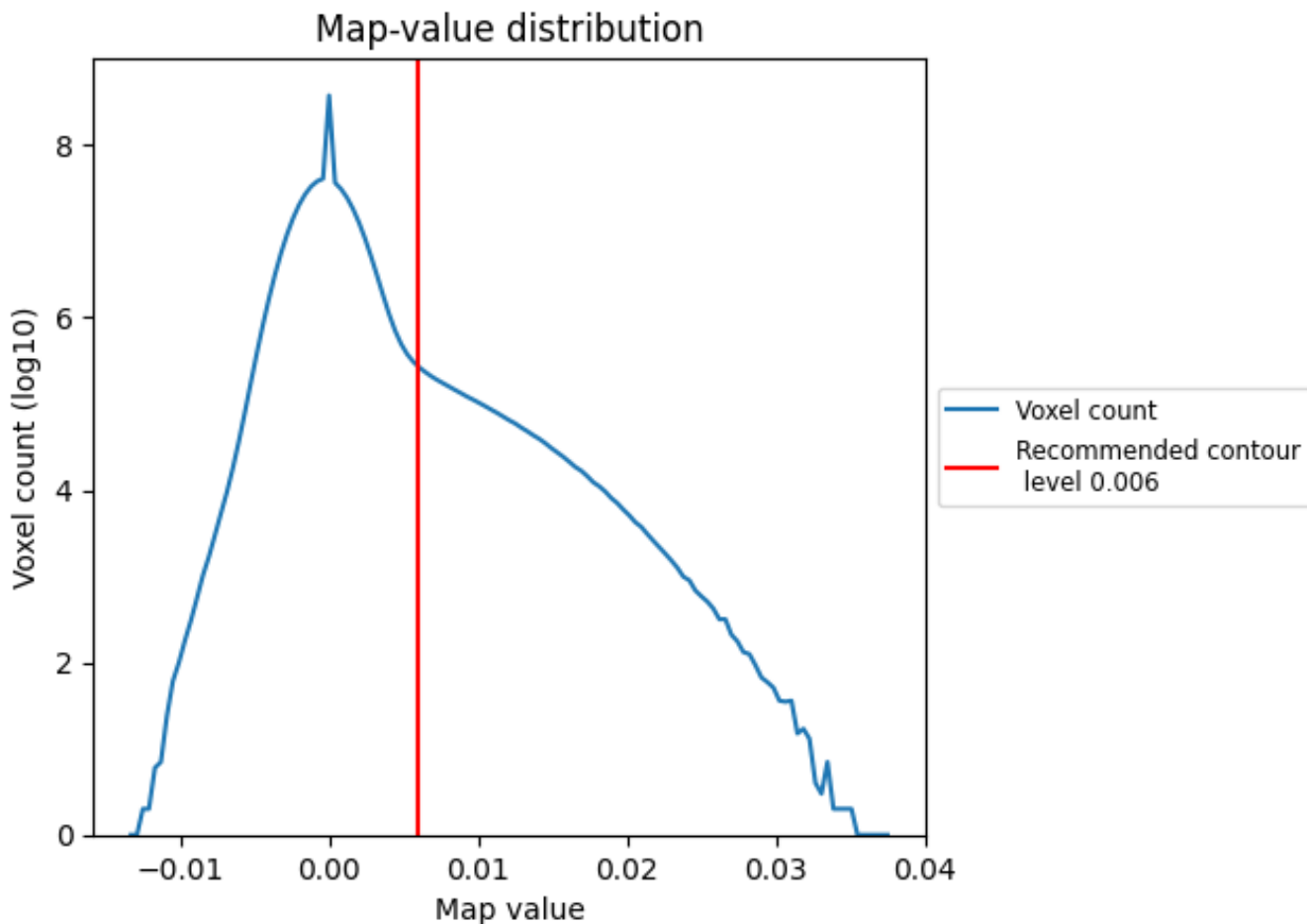


Z

## 7 Map analysis [i](#)

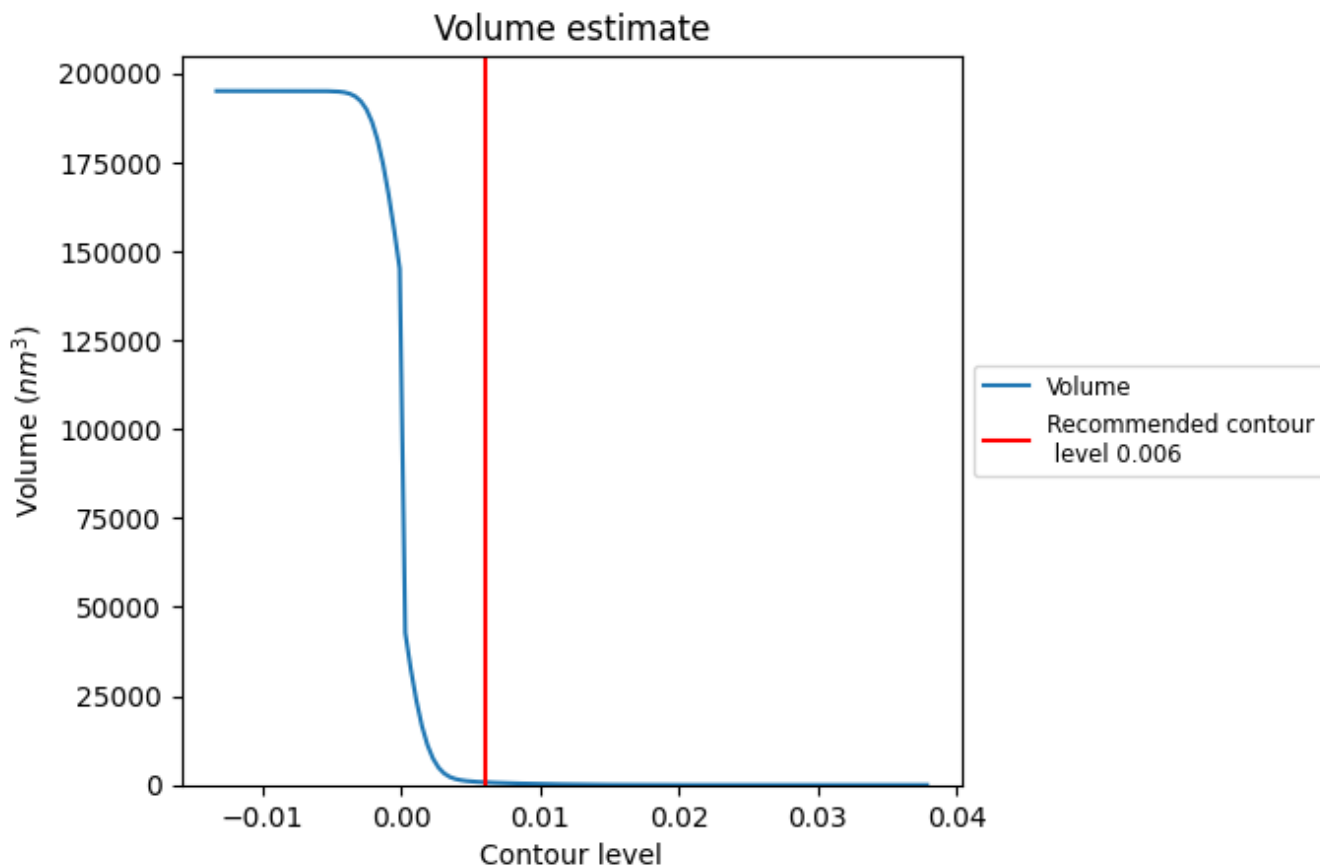
This section contains the results of statistical analysis of the map.

### 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](#)

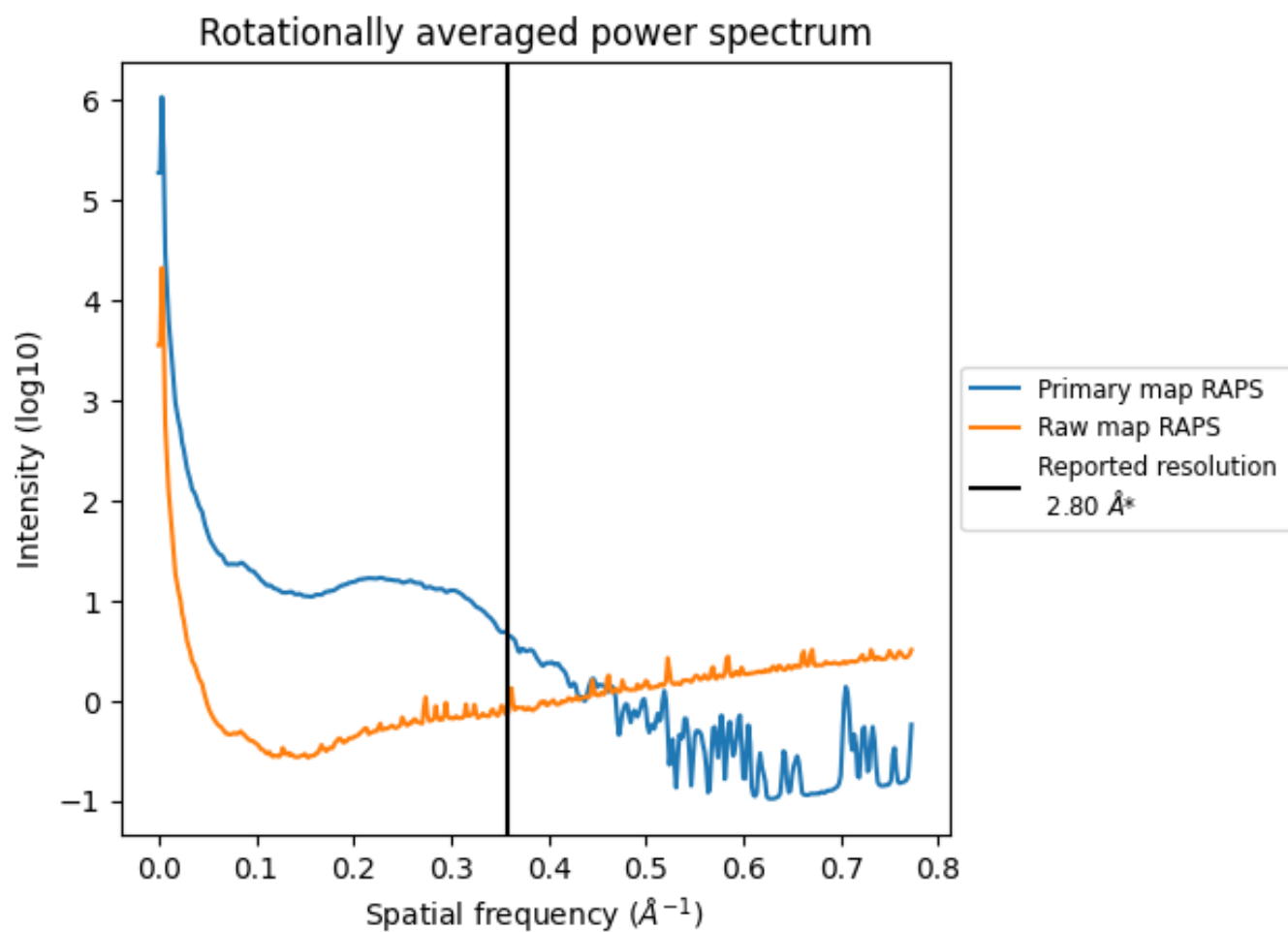


The volume at the recommended contour level is 754  $\text{nm}^3$ ; this corresponds to an approximate mass of 682 kDa.

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 [\(i\)](#)

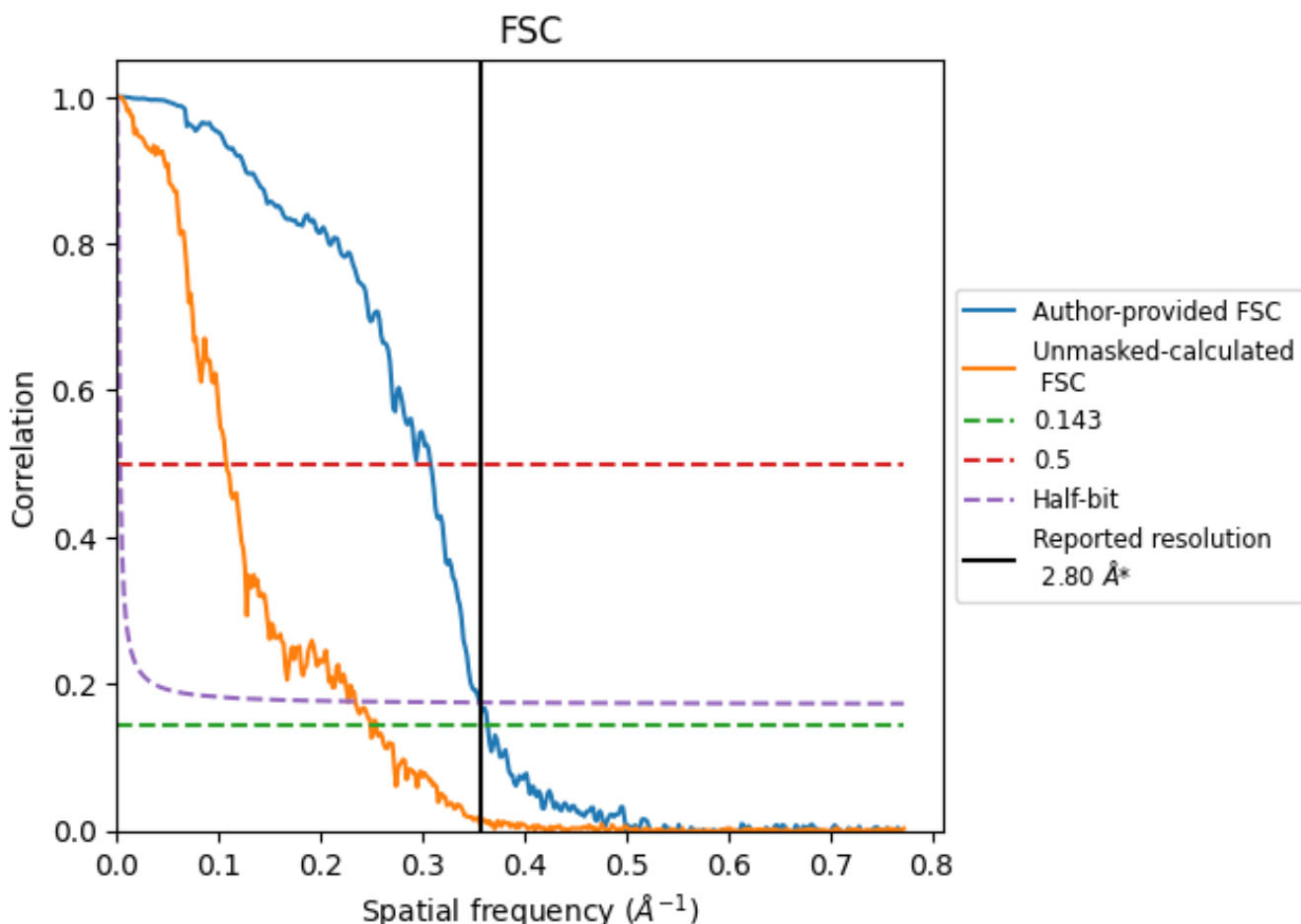


\*Reported resolution corresponds to spatial frequency of  $0.357 \text{\AA}^{-1}$

## 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 0.357 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

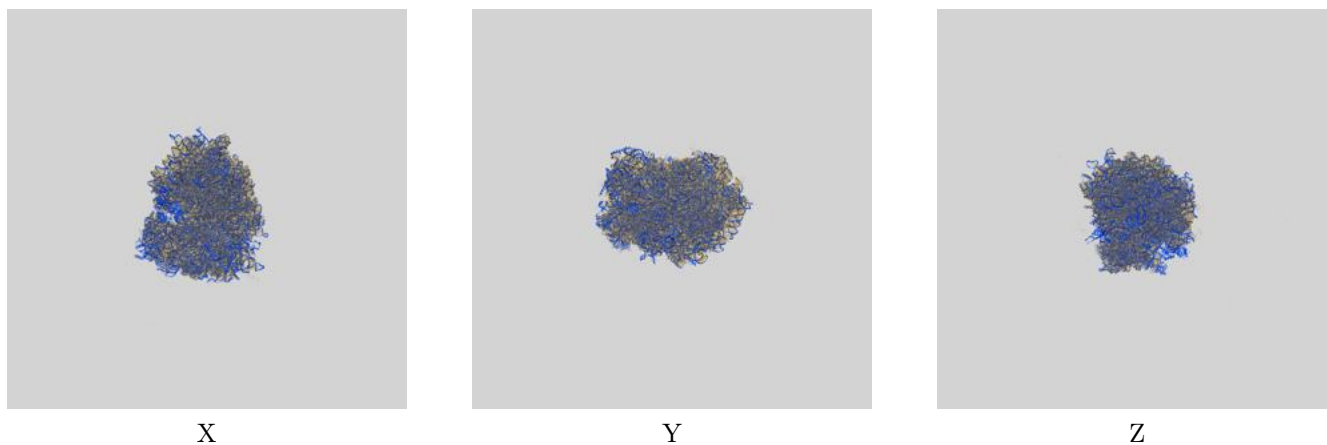
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.80	-	-
Author-provided FSC curve	2.75	3.25	2.81
Unmasked-calculated*	4.02	9.29	4.40

\*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 4.02 differs from the reported value 2.8 by more than 10 %

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

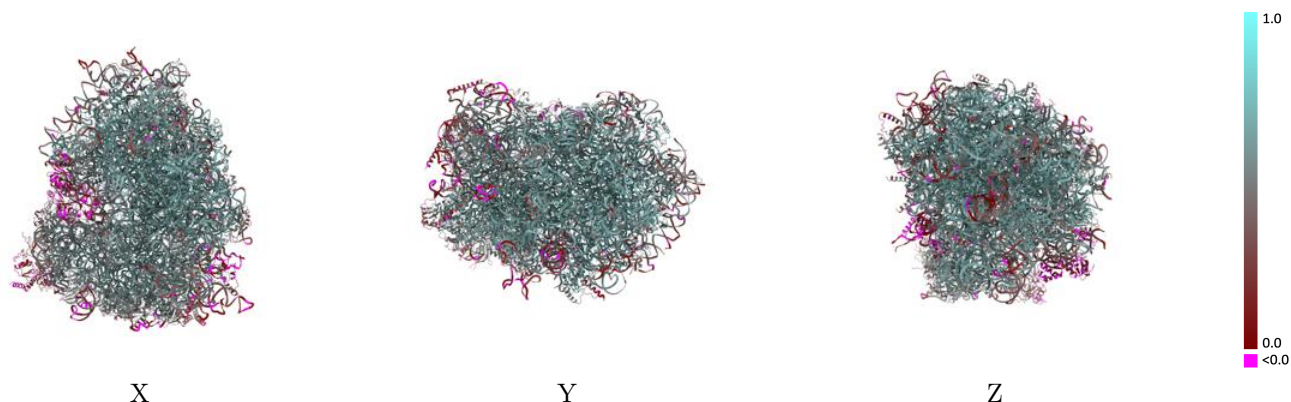
This section contains information regarding the fit between EMDB map EMD-29771 and PDB model 8G6J. Per-residue inclusion information can be found in section [3](#) on page [27](#).

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



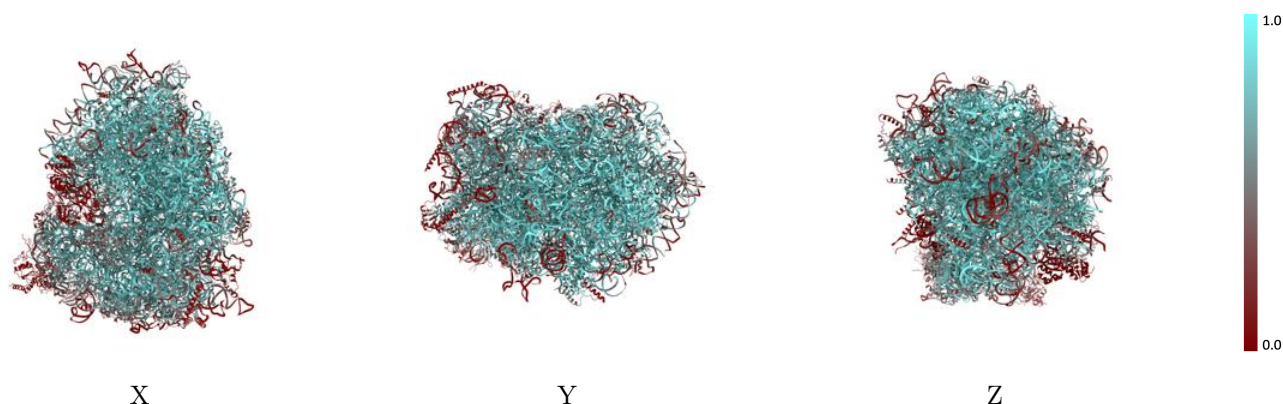
The images above show the 3D surface view of the map at the recommended contour level 0.006 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



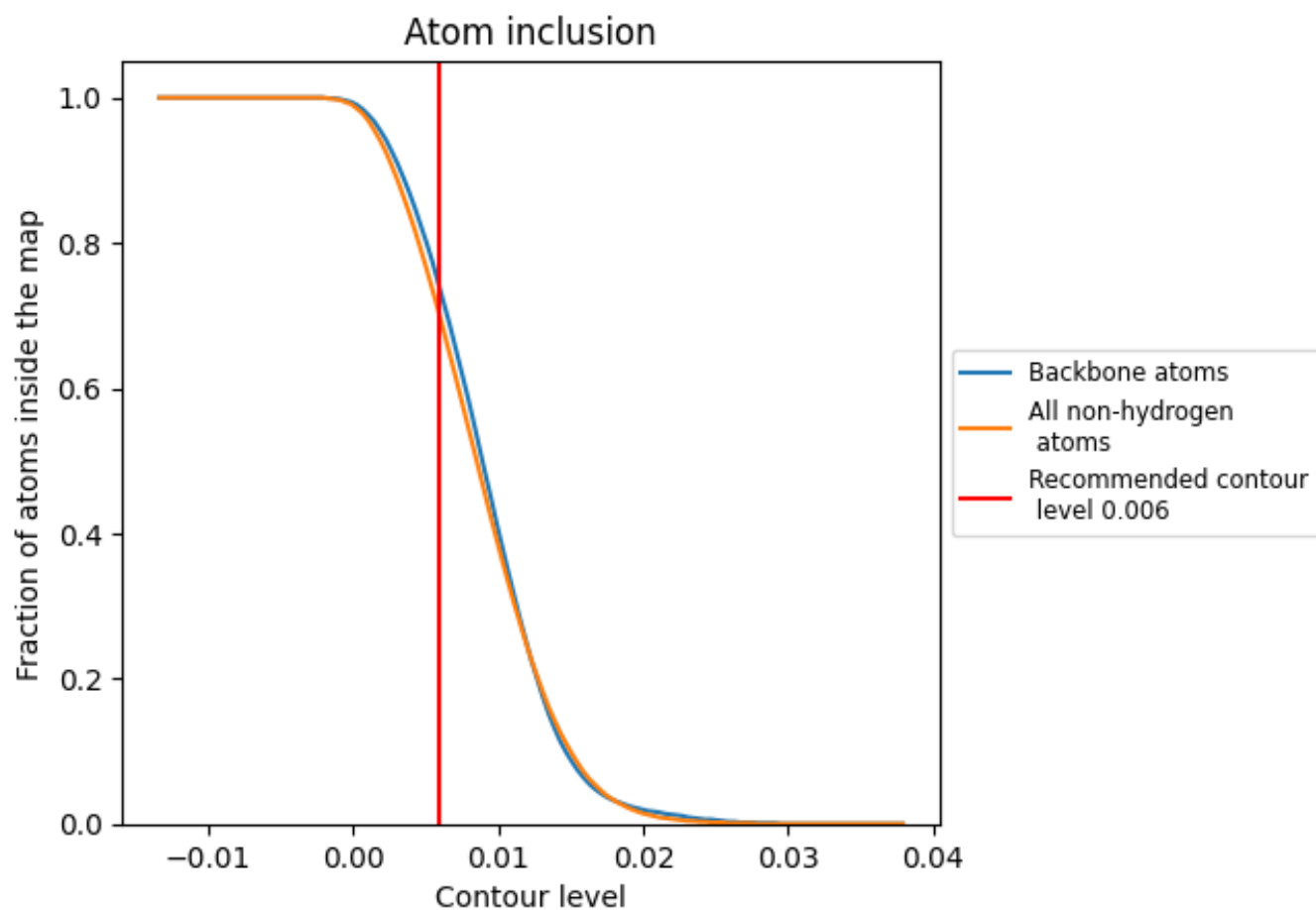
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.006).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 74% of all backbone atoms, 70% 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 (0.006) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6990	 0.5480
At	 0.5340	 0.4730
EF	 0.5090	 0.5250
L5	 0.7730	 0.5680
L7	 0.9160	 0.6390
L8	 0.8520	 0.6090
LA	 0.8660	 0.6610
LB	 0.7950	 0.6310
LC	 0.8070	 0.6290
LD	 0.6740	 0.5660
LE	 0.6720	 0.5790
LF	 0.8420	 0.6420
LG	 0.6000	 0.5220
LH	 0.6980	 0.5930
LI	 0.7340	 0.5940
LJ	 0.5720	 0.5220
LK	 0.0010	 0.0390
LL	 0.7160	 0.5950
LM	 0.7330	 0.5930
LN	 0.9180	 0.6770
LO	 0.8180	 0.6280
LP	 0.8480	 0.6540
LQ	 0.8670	 0.6630
LR	 0.6830	 0.5640
LS	 0.8270	 0.6380
LT	 0.7650	 0.6080
LU	 0.4380	 0.4630
LV	 0.7770	 0.6330
LW	 0.4570	 0.4260
LX	 0.7420	 0.6030
LY	 0.7380	 0.5980
LZ	 0.7220	 0.5930
La	 0.8670	 0.6600
Lb	 0.5890	 0.5050
Lc	 0.7240	 0.5910



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Chain	Atom inclusion	Q-score
Ld	0.7240	0.5760
Le	0.8630	0.6600
Lf	0.8770	0.6590
Lg	0.7880	0.6190
Lh	0.7010	0.5920
Li	0.6550	0.5500
Lj	0.8890	0.6690
Lk	0.4450	0.4770
Ll	0.8220	0.6250
Lm	0.7280	0.6040
Ln	0.7750	0.6050
Lo	0.7360	0.6020
Lp	0.8100	0.6380
Lq	0.0050	0.0560
Lr	0.8120	0.6320
Lz	0.0000	0.0440
Pt	0.6740	0.5340
S2	0.7530	0.5450
SA	0.5970	0.5580
SB	0.5820	0.5410
SC	0.6660	0.5780
SD	0.4700	0.4720
SE	0.5560	0.5130
SF	0.5500	0.5190
SG	0.4000	0.4260
SH	0.3710	0.4300
SI	0.5480	0.5000
SJ	0.5060	0.4710
SK	0.4330	0.4480
SL	0.6760	0.5690
SM	0.0040	0.0910
SN	0.6990	0.5910
SO	0.6820	0.5850
SP	0.4260	0.4330
SQ	0.5640	0.5260
SR	0.4120	0.4620
SS	0.4660	0.4810
ST	0.4980	0.5050
SU	0.3950	0.4280
SV	0.5900	0.5560
SW	0.7440	0.6110
SX	0.7280	0.6040

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Chain	Atom inclusion	Q-score
SY	 0.4230	 0.4350
SZ	 0.3300	 0.4330
Sa	 0.6970	 0.5840
Sb	 0.5340	 0.5240
Sc	 0.4650	 0.4640
Sd	 0.7150	 0.5680
Se	 0.4340	 0.4110
Sf	 0.0250	 0.1680
Sg	 0.2380	 0.4030
mR	 0.6440	 0.5020