



wwPDB EM Validation Summary Report ⓘ

Nov 4, 2023 – 05:33 PM EDT

PDB ID : 8G61
EMDB ID : EMD-29760
Title : mRNA decoding in human is kinetically and structurally distinct from bacteria (AC state)
Authors : Holm, M.; Natchiar, K.S.; Rundlet, E.J.; Myasnikov, A.G.; Altman, R.B.; Blanchard, S.C.
Deposited on : 2023-02-14
Resolution : 2.94 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

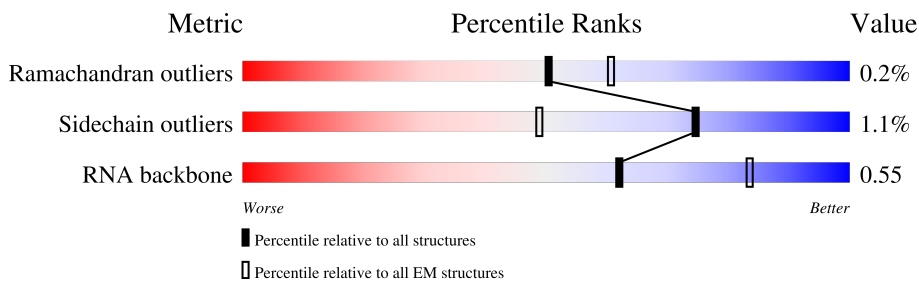
EMDB validation analysis : 0.0.1.dev70
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (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 2.94 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

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

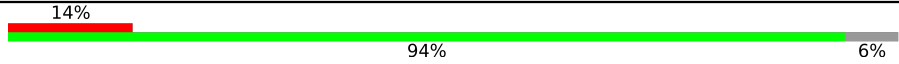

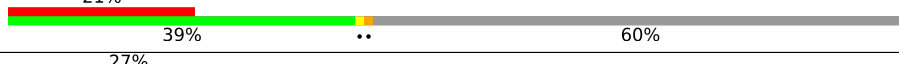
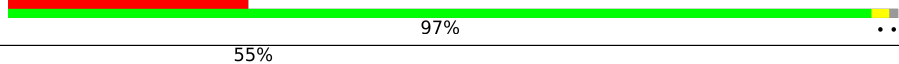
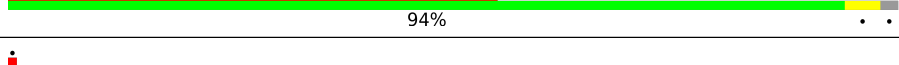
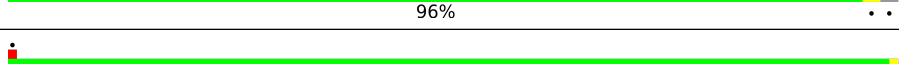
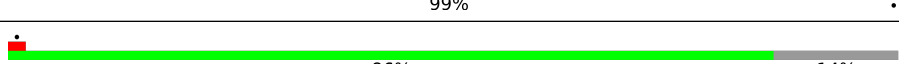
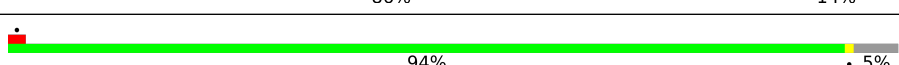
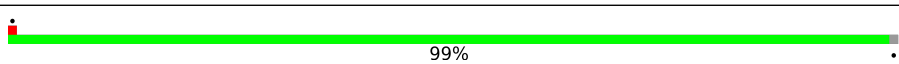

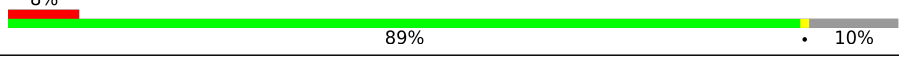
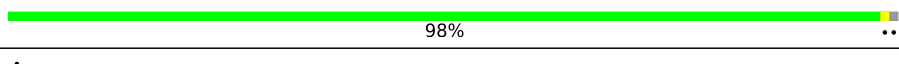
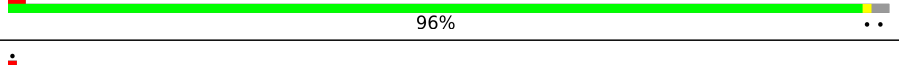
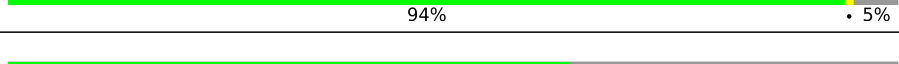
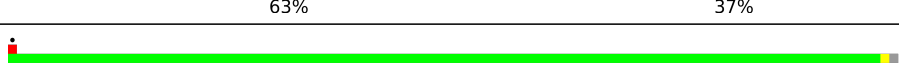
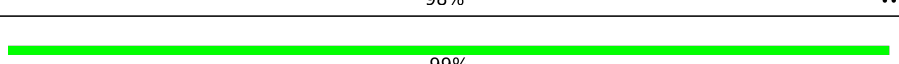
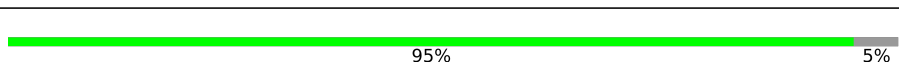
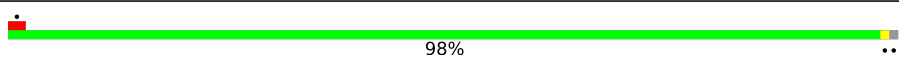
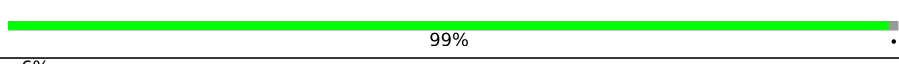
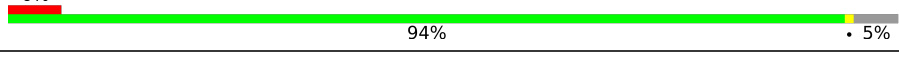
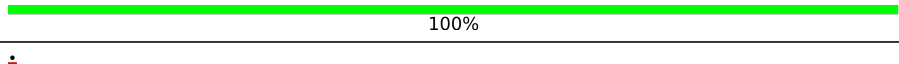
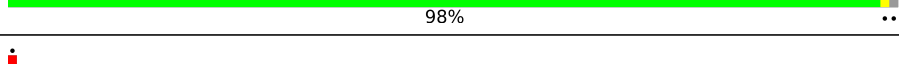



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Mol	Chain	Length	Quality of chain
9	SE	263	98%
10	SC	293	74% 24%
11	SG	249	94% 5%
12	SF	204	93% 7%
13	SH	194	96%
14	SW	130	98%
15	SI	208	98%
16	SQ	146	95%
17	SU	119	85% 15%
18	SK	165	53% 5% 42%
19	SO	151	87% 11%
20	SX	143	97%
21	SM	132	89% 8%
22	SS	152	96%
23	Sd	56	96%
24	SN	151	99%
25	SL	158	91% 8%
26	SR	135	99%
27	SP	145	92% 7%
28	ST	145	98%
29	SV	83	99%
30	SY	133	95%
31	SZ	125	69% 31%
32	Sa	115	86% 14%
33	Sb	84	99%

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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	LO	203	
47	LL	211	
48	LV	140	
49	LM	215	
50	La	148	
51	LN	204	
52	LI	214	
53	LD	297	
54	LQ	188	
55	LR	196	
56	LS	176	
57	LT	160	
58	LP	184	


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Mol	Chain	Length	Quality of chain
59	LU	128	77% 23%
60	LX	156	76% 24%
61	LY	145	91% 8%
62	LW	157	15% 71% 25%
63	LZ	136	98%
64	Lr	137	90% 9%
65	Lh	123	99%
66	Lb	159	8% 67% 31%
67	LF	248	90% 9%
68	Lc	115	85% 15%
69	Ld	125	86% 14%
70	Le	135	92% 5%
71	Lf	110	99%
72	Lg	117	6% 97%
73	Li	105	95%
74	Lj	97	87% 11%
75	Lk	70	99%
76	Ll	51	96%
77	Lm	128	41% 59%
78	Ln	25	96%
79	Lo	106	97%
80	Lp	92	99%
81	5A	154	23% 92% 5%
82	mR	60	17% 83%
83	At	76	11% 75% 21%

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Mol	Chain	Length	Quality of chain
84	Pt	77	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
6	SAC	SA	2	-	X	-	-

2 Entry composition

There are 92 unique types of molecules in this entry. The entry contains 219329 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	1682	35978	16086	6447	11762	1683	1	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	3657	78479	34987	14355	25480	3657	0	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	214	1738	1103	310	311	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
			Total	C	N	O	S		
14	SW	129	1034	659	193	176	6	0	0

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

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

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

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

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

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

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

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

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

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

- Molecule 20 is a protein called uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	SX	140	1088	687	215	183	3	0	0

- 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	54	454	284	93	72	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	145	1189	757	225	201	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	135	1110	707	209	187	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	86	688	442	129	116	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	65	517	314	106	95	2	0	0

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
36	Sf	63	Total	C	N	O	S	0	0
			515	324	98	86	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	213	Total	C	N	O	S	0	0
			1714	1097	309	300	8		

- Molecule 39 is a protein called uL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	LA	251	Total	C	N	O	S	1	0
			1930	1209	396	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
			3240	2061	608	557	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	1787	1150	339	294	4	0	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	1913	1218	368	323	4	0	0

- Molecule 46 is a protein called 60S ribosomal protein L13a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	LO	200	1641	1058	320	258	5	0	0

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

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

- Molecule 48 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	LV	133	988	623	186	174	5	0	0

- Molecule 49 is a protein called 60S ribosomal protein L14.

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

- Molecule 50 is a protein called 60S ribosomal protein L27a.

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

- Molecule 51 is a protein called 60S ribosomal protein L15.

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

- Molecule 52 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
52	LI	203	1646	1045	317	271	13	0	0

- Molecule 53 is a protein called 60S ribosomal protein L5.

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

- Molecule 54 is a protein called 60S ribosomal protein L18.

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

- Molecule 55 is a protein called 60S ribosomal protein L19.

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

- Molecule 56 is a protein called 60S ribosomal protein L18a.

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

- Molecule 57 is a protein called 60S ribosomal protein L21.

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

- Molecule 58 is a protein called 60S ribosomal protein L17.

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

- Molecule 59 is a protein called 60S ribosomal protein L22.

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

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

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

- Molecule 61 is a protein called 60S ribosomal protein L26.

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

- Molecule 62 is a protein called 60S ribosomal protein L24.

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

- Molecule 63 is a protein called 60S ribosomal protein L27.

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

- Molecule 64 is a protein called 60S ribosomal protein L28.

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

- Molecule 65 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	Lh	122	Total	C	N	O	S	0	0
			1015	641	205	168	1		

- Molecule 66 is a protein called 60S ribosomal protein L29.

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

- Molecule 67 is a protein called 60S ribosomal protein L7.

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

- Molecule 68 is a protein called 60S ribosomal protein L30.

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

- Molecule 69 is a protein called 60S ribosomal protein L31.

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

- Molecule 70 is a protein called 60S ribosomal protein L32.

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

- Molecule 71 is a protein called 60S ribosomal protein L35a.

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

- Molecule 72 is a protein called 60S ribosomal protein L34.

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

- Molecule 73 is a protein called 60S ribosomal protein L36.

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

- Molecule 74 is a protein called 60S ribosomal protein L37.

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

- Molecule 75 is a protein called 60S ribosomal protein L38.

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

- Molecule 76 is a protein called 60S ribosomal protein L39.

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

- Molecule 77 is a protein called eL40.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	Lm	52	Total	C	N	O	S	0	0
			431	269	90	66	6		

- Molecule 78 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	Ln	24	Total	C	N	O	S	0	0
			230	139	62	26	3		

- Molecule 79 is a protein called 60S ribosomal protein L36a.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	Lo	104	Total	C	N	O	S	0	0
			852	534	174	138	6		

- Molecule 80 is a protein called 60S ribosomal protein L37a.

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

- Molecule 81 is a protein called eIF5A1.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	5A	150	Total	C	N	O	S	0	0
			1144	716	194	225	9		

- Molecule 82 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
82	mR	10	Total	C	N	O	P	0	0
			210	94	34	72	10		

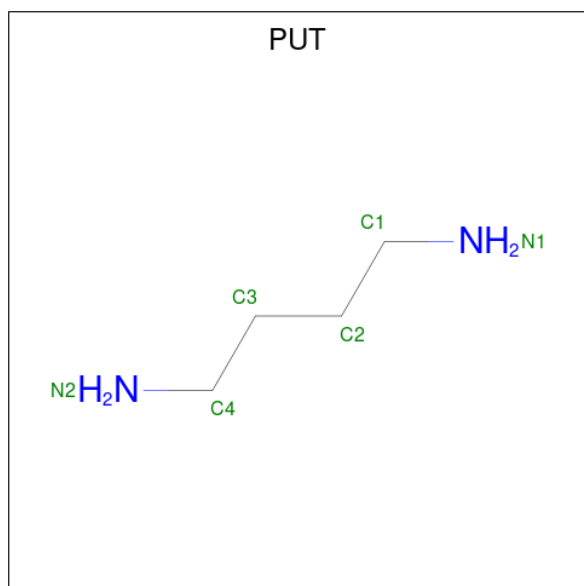
- Molecule 83 is a RNA chain called A-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
83	At	76	Total	C	N	O	P	S	0	0
			1624	724	290	533	76	1		

- Molecule 84 is a RNA chain called RNA (77-MER).

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

- Molecule 85 is 1,4-DIAMINOBTUTANE (three-letter code: PUT) (formula: C₄H₁₂N₂).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	N	
85	S2	1	6	4	2	0
85	L5	1	6	4	2	0
85	L5	1	6	4	2	0
85	L5	1	6	4	2	0

- Molecule 86 is POTASSIUM ION (three-letter code: K) (formula: K).

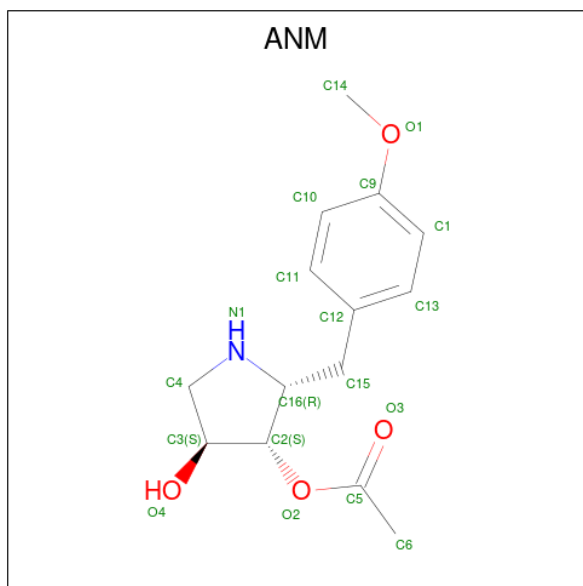
Mol	Chain	Residues	Atoms		AltConf
			Total	K	
86	S2	1	1	1	0
86	L5	13	13	13	0
86	LA	1	1	1	0
86	Lf	1	1	1	0

- Molecule 87 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
87	S2	67	67	67	0
87	L8	6	6	6	0
87	L5	231	231	231	0
87	L7	4	4	4	0
87	SC	1	1	1	0
87	SS	1	1	1	0
87	SN	1	1	1	0
87	Sa	1	1	1	0
87	LA	1	1	1	0
87	LB	1	1	1	0
87	LV	1	1	1	0
87	LN	2	2	2	0
87	LP	1	1	1	0
87	Le	1	1	1	0
87	Lg	1	1	1	0
87	Ln	1	1	1	0
87	Lo	1	1	1	0
87	5A	1	1	1	0
87	At	1	1	1	0
87	Pt	2	2	2	0

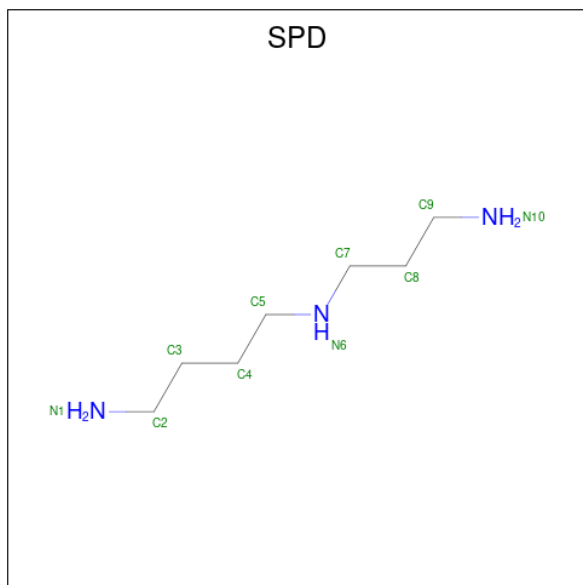
- Molecule 88 is ANISOMYCIN (three-letter code: ANM) (formula: C₁₄H₁₉NO₄) (labeled as

"Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf	
			Total	C	N		O
88	L5	1	19	14	1	4	0

- Molecule 89 is SPERMIDINE (three-letter code: SPD) (formula: $C_7H_{19}N_3$).



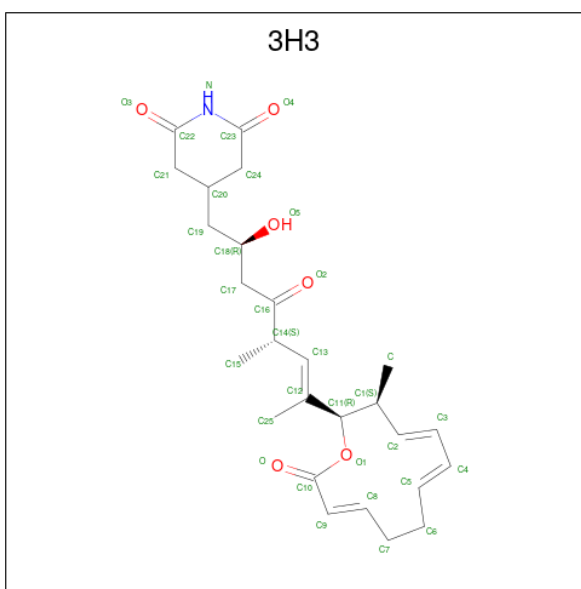
Mol	Chain	Residues	Atoms			AltConf
			Total	C	N	
89	L5	1	10	7	3	0
89	L5	1	10	7	3	0

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

- Molecule 90 is 4-[(2R,5S,6E)-2-hydroxy-5-methyl-7-[(2R,3S,4E,6Z,10E)-3-methyl-12-oxooxacyclododeca-4,6,10-trien-2-yl]-4-oxooct-6-en-1-yl]piperidine-2,6-dione (three-letter code: 3H3) (formula: C₂₆H₃₅NO₆) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
90	L5	1	33	26	1	6	0

- Molecule 91 is ZINC ION (three-letter code: ZN) (formula: Zn).

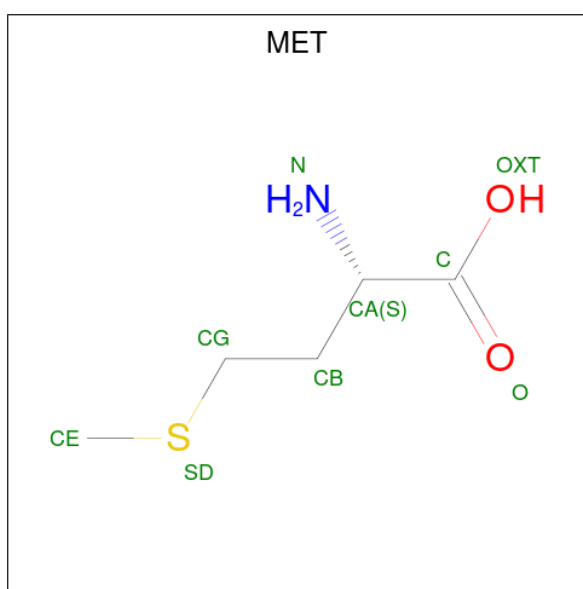
Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
91	Sd	1	1	1	0
91	Sa	1	1	1	0
91	Sf	1	1	1	0
91	Lg	1	1	1	0

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Mol	Chain	Residues	Atoms		AltConf
91	Lj	1	Total	Zn	0
			1	1	
91	Lm	1	Total	Zn	0
			1	1	
91	Lo	1	Total	Zn	0
			1	1	
91	Lp	1	Total	Zn	0
			1	1	

- Molecule 92 is METHIONINE (three-letter code: MET) (formula: C₅H₁₁NO₂S).



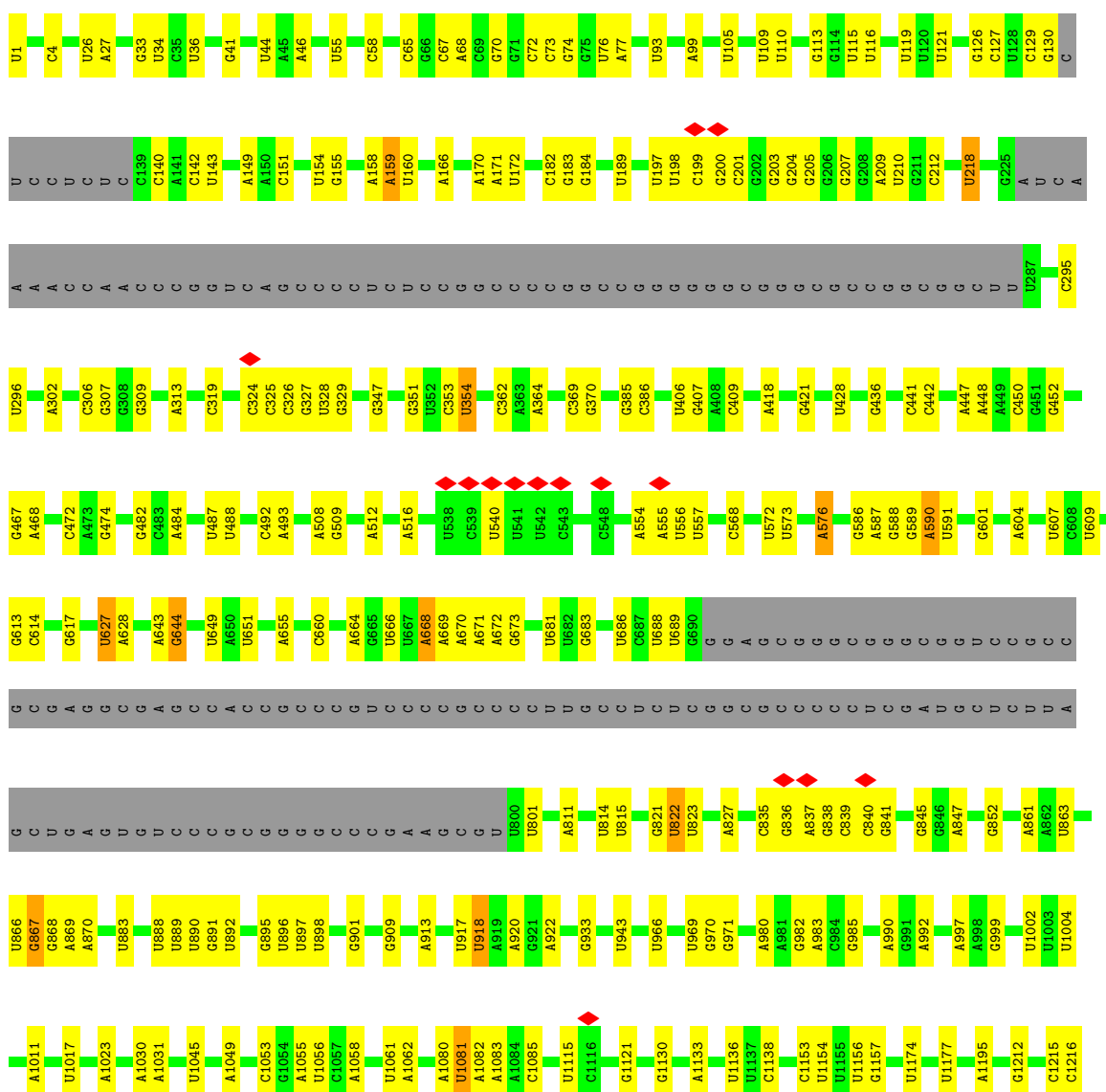
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	S	
92	Pt	1	8	5	1	1	1	0

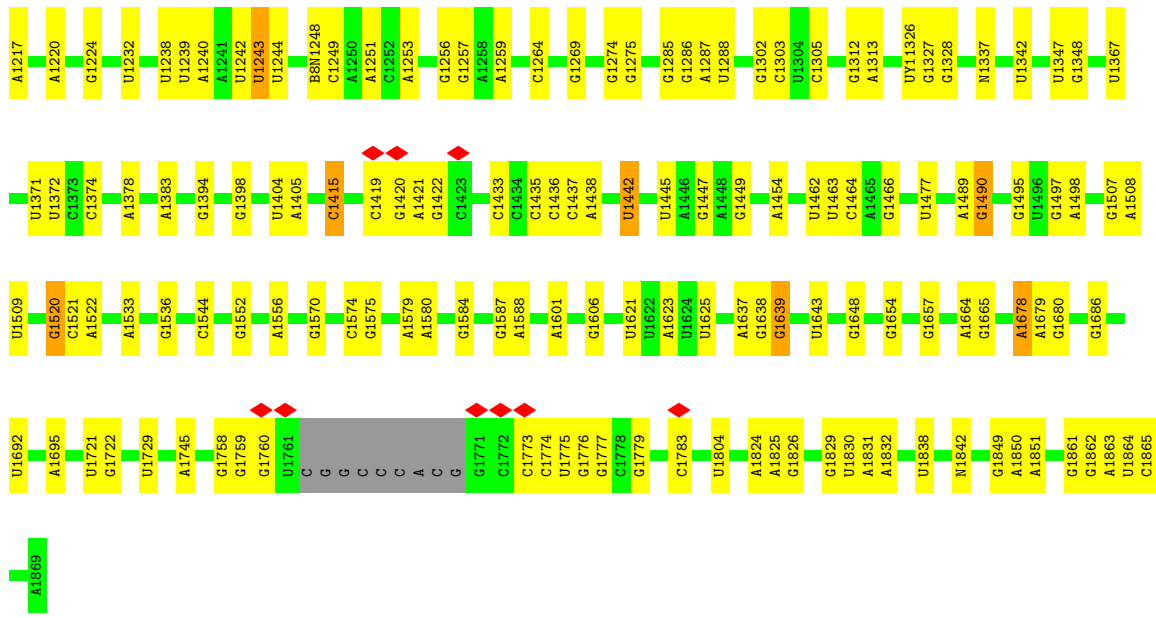
3 Residue-property plots [i](#)

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

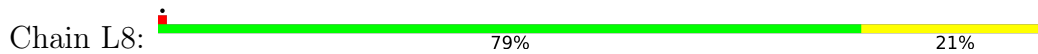
• Molecule 1: 18S rRNA

Chain S2:  69% 20% 10%

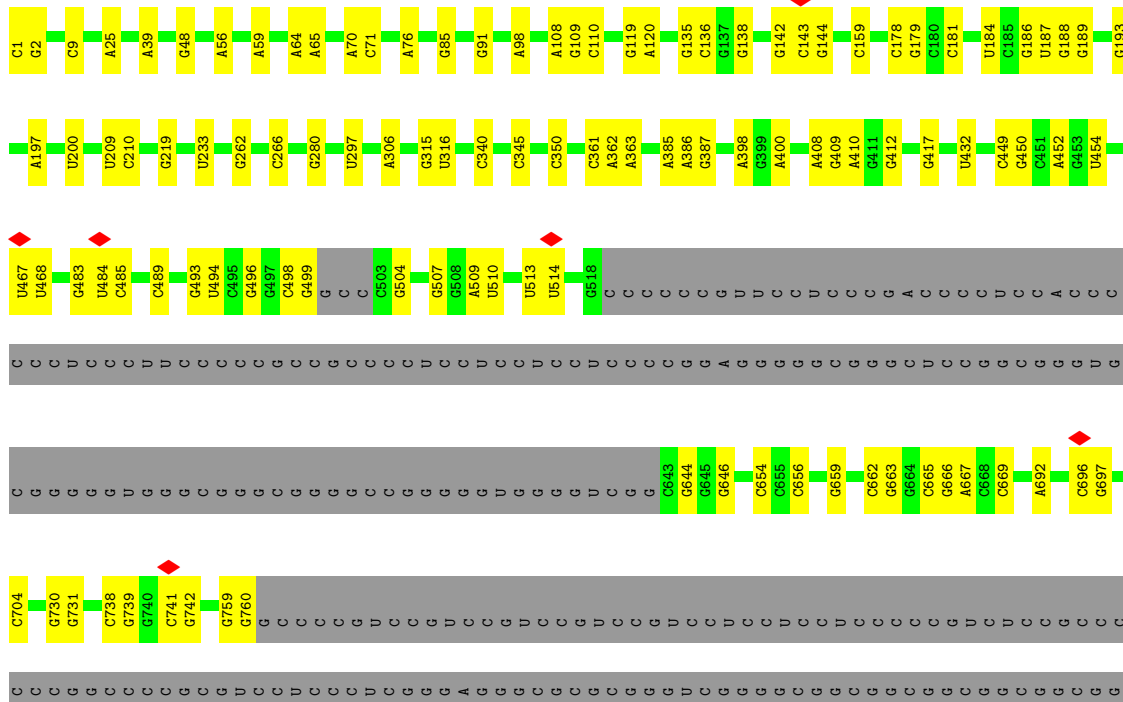


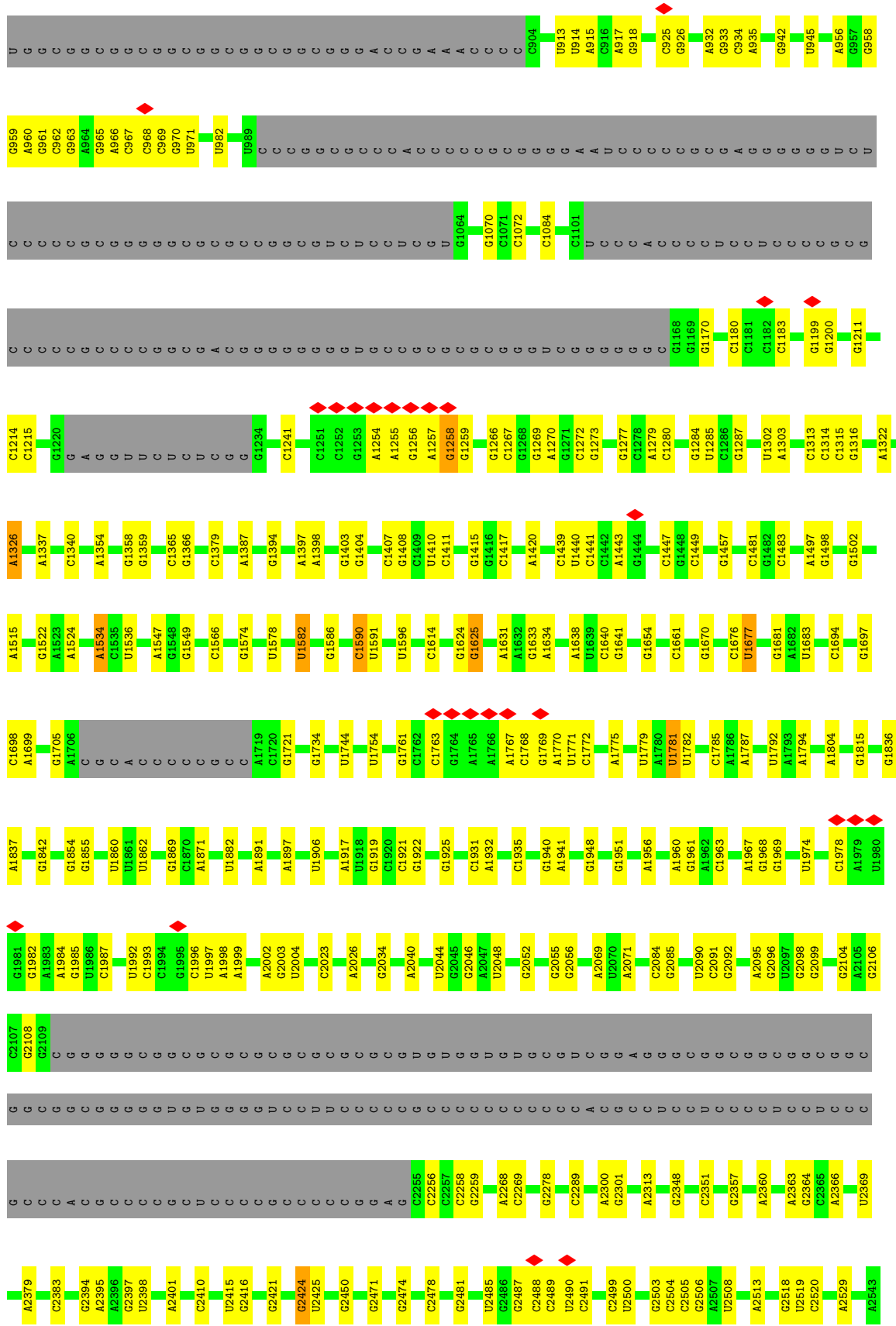


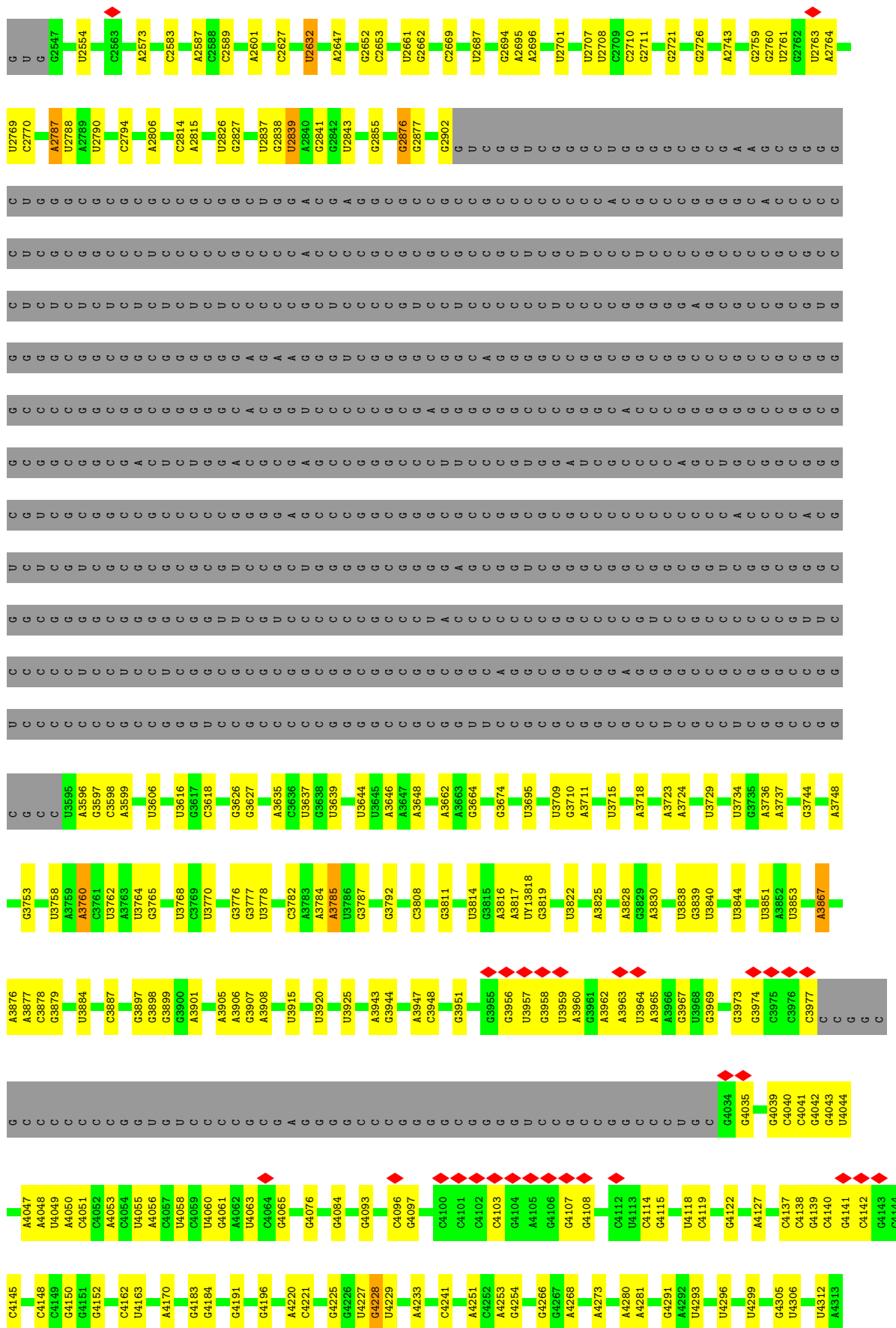
• Molecule 2: 5.8S rRNA

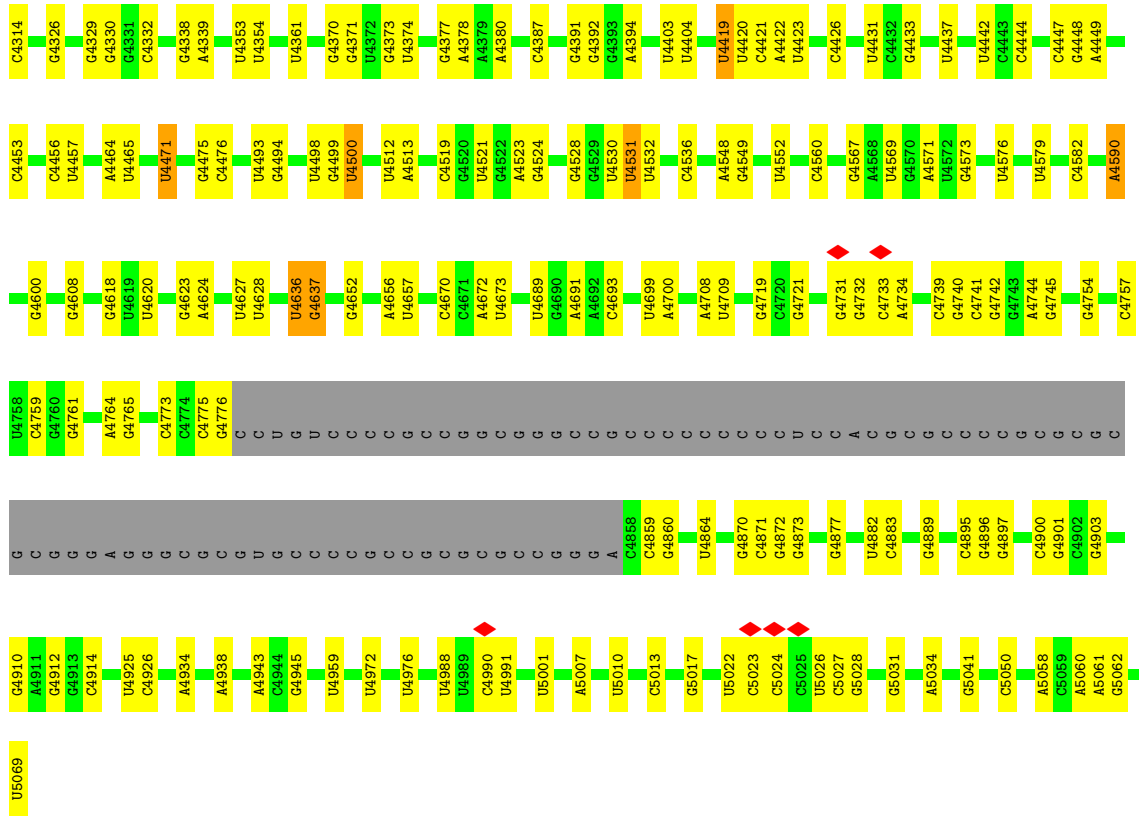


• Molecule 3: 28S rRNA

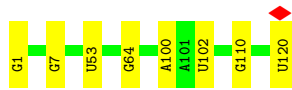




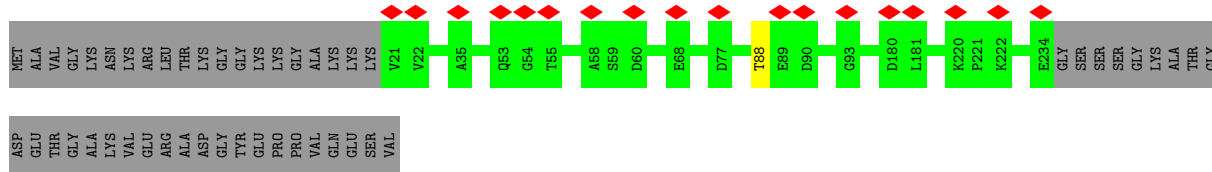
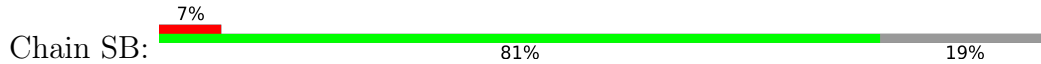




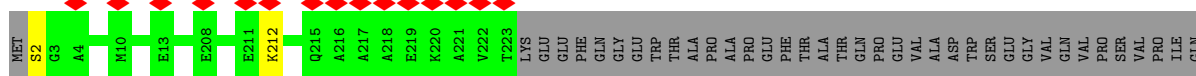
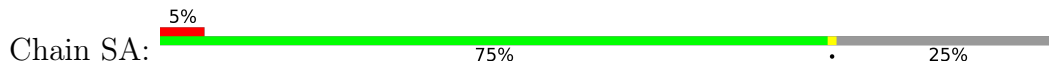
• Molecule 4: 5S rRNA



• Molecule 5: 40S ribosomal protein S3a

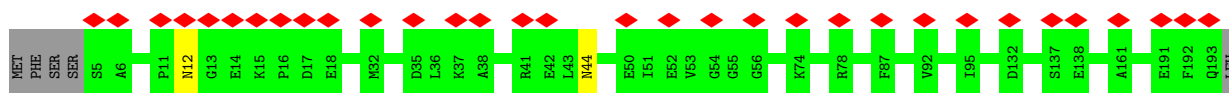


• Molecule 6: 40S ribosomal protein SA

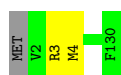




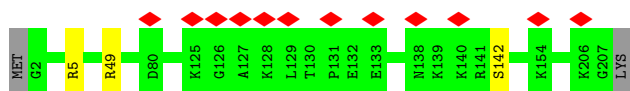
- Molecule 13: 40S ribosomal protein S7



- Molecule 14: 40S ribosomal protein S15a



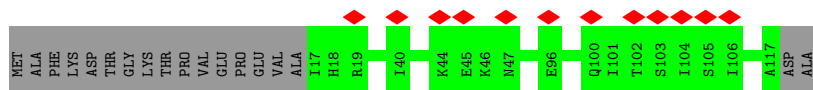
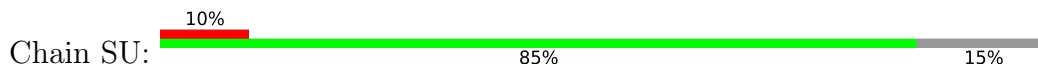
- Molecule 15: 40S ribosomal protein S8



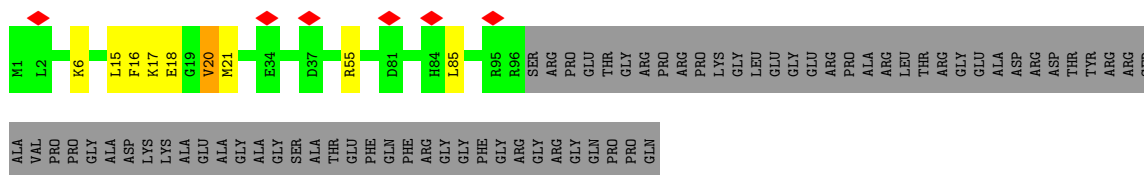
- Molecule 16: 40S ribosomal protein S16



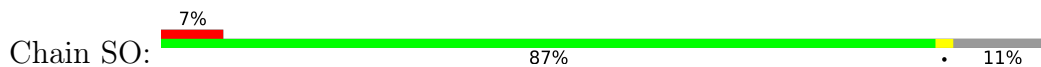
- Molecule 17: 40S ribosomal protein S20



- Molecule 18: 40S ribosomal protein S10



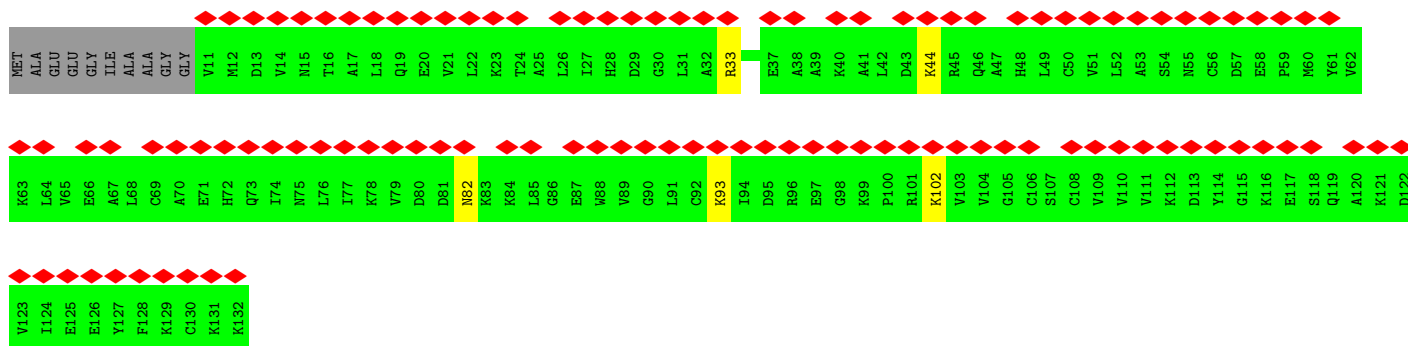
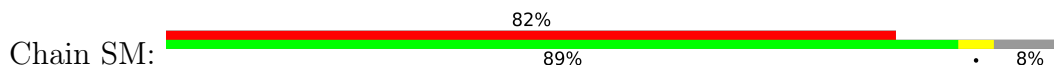
• Molecule 19: 40S ribosomal protein S14



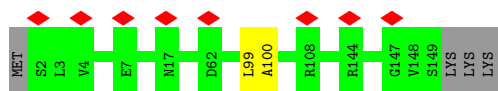
• Molecule 20: uS12



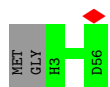
• Molecule 21: 40S ribosomal protein S12



• Molecule 22: 40S ribosomal protein S18

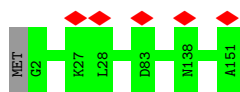


• Molecule 23: 40S ribosomal protein S29

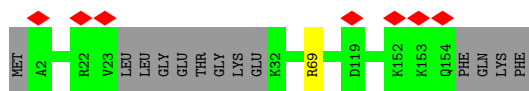
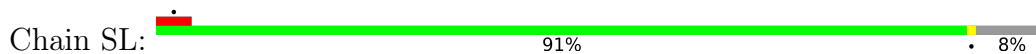


• Molecule 24: 40S ribosomal protein S13

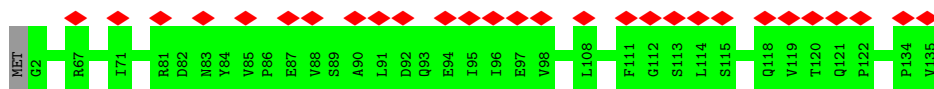




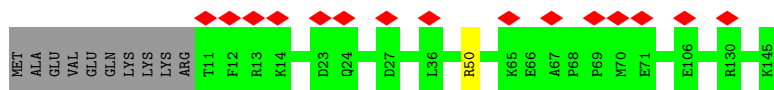
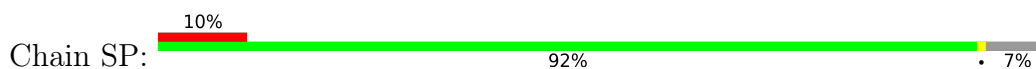
- Molecule 25: 40S ribosomal protein S11



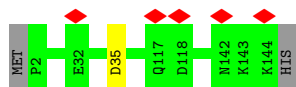
- Molecule 26: 40S ribosomal protein S17



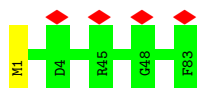
- Molecule 27: 40S ribosomal protein S15



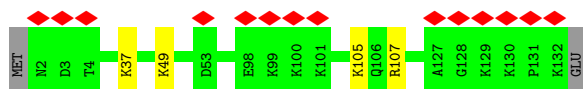
- Molecule 28: 40S ribosomal protein S19



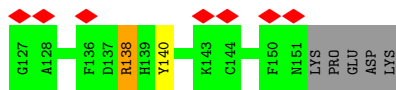
- Molecule 29: 40S ribosomal protein S21



- Molecule 30: 40S ribosomal protein S24

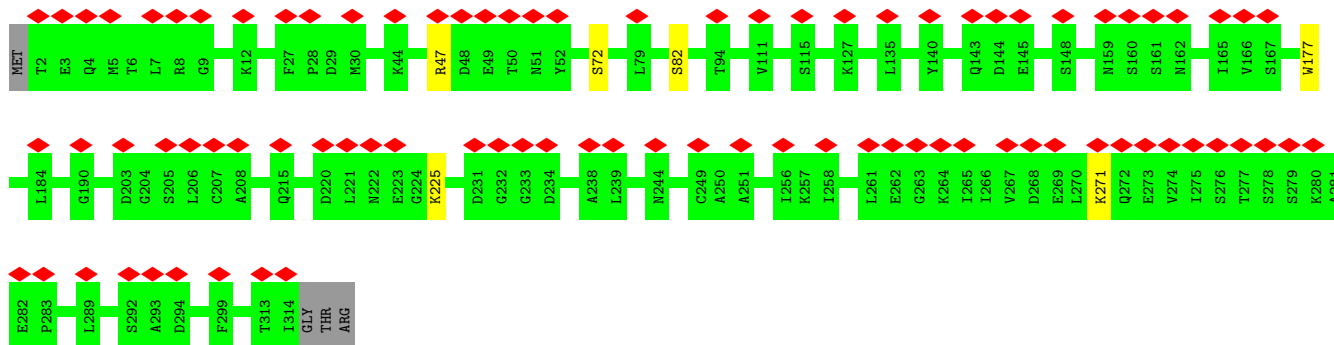


- Molecule 31: 40S ribosomal protein S25



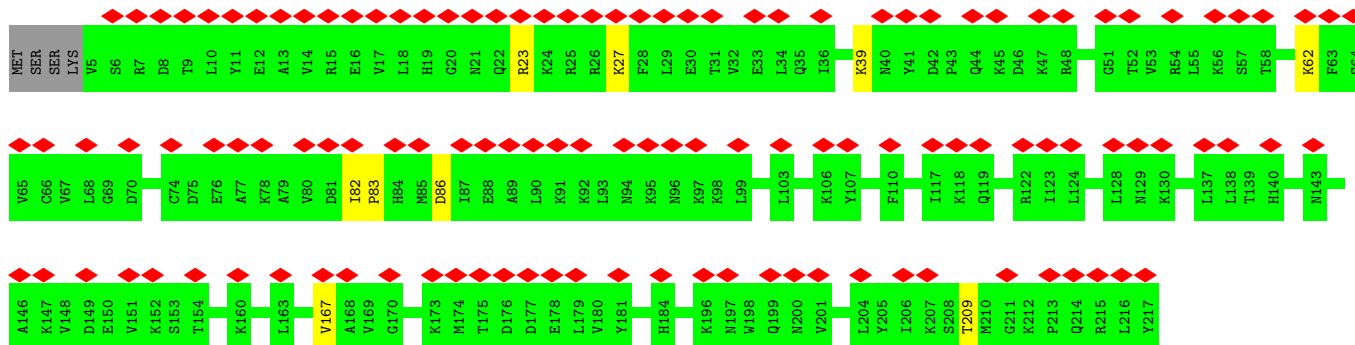
- Molecule 37: Receptor of activated protein C kinase 1

Chain Sg: 27% 97%



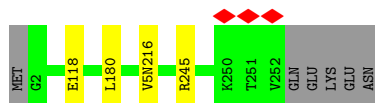
- Molecule 38: 60S ribosomal protein L10a

Chain Lz: 55% 94%



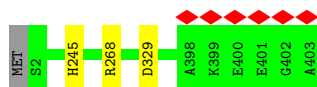
- Molecule 39: uL2

Chain LA: 96%

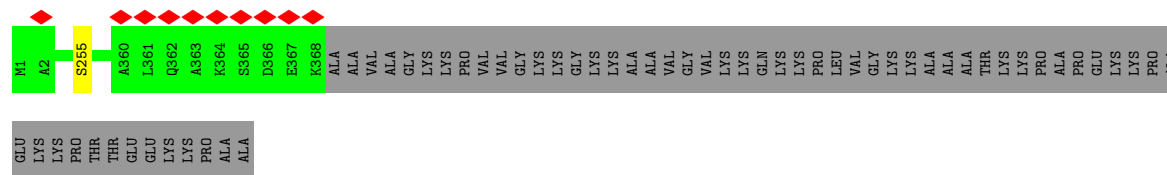
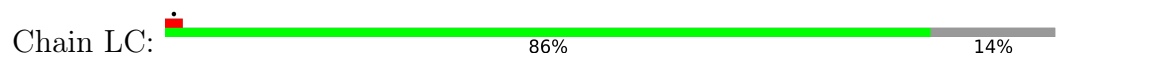


- Molecule 40: 60S ribosomal protein L3

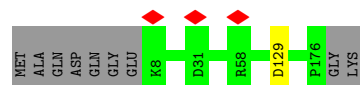
Chain LB: 99%



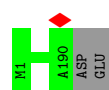
- Molecule 41: 60S ribosomal protein L4



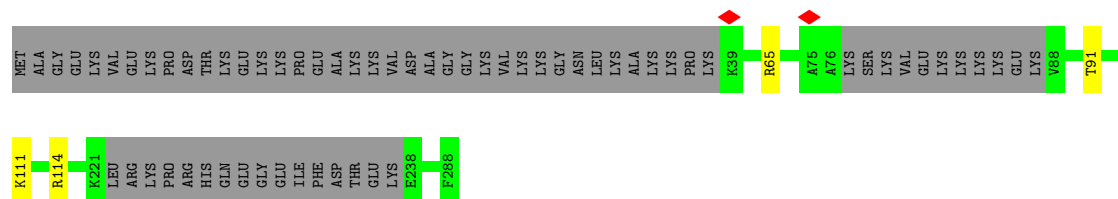
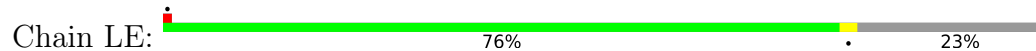
- Molecule 42: 60S ribosomal protein L11



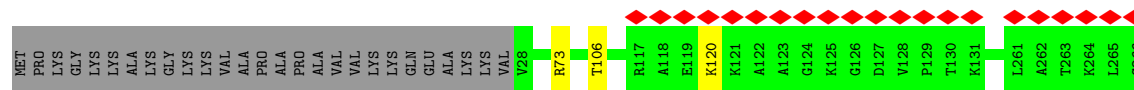
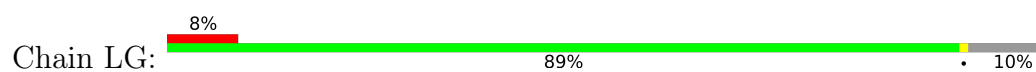
- Molecule 43: 60S ribosomal protein L9



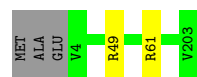
- Molecule 44: 60S ribosomal protein L6



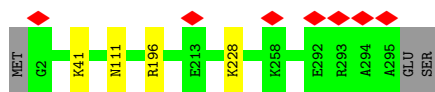
- Molecule 45: 60S ribosomal protein L7a



- Molecule 46: 60S ribosomal protein L13a



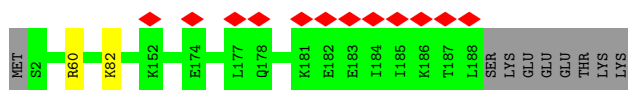
- Molecule 47: 60S ribosomal protein L13



- Molecule 54: 60S ribosomal protein L18



- Molecule 55: 60S ribosomal protein L19

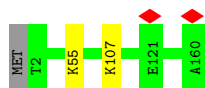


- Molecule 56: 60S ribosomal protein L18a

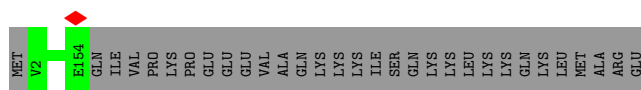
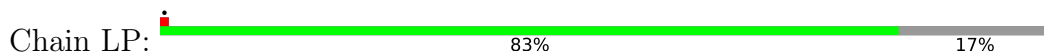


There are no outlier residues recorded for this chain.

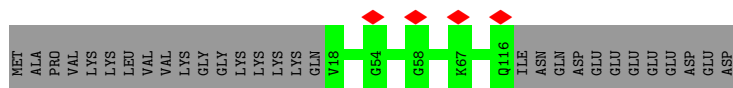
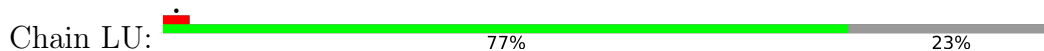
- Molecule 57: 60S ribosomal protein L21



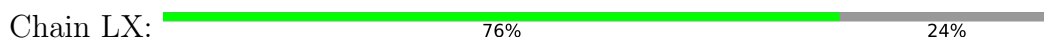
- Molecule 58: 60S ribosomal protein L17

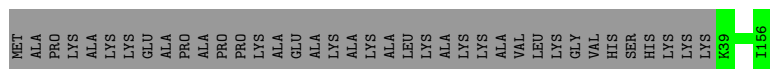


- Molecule 59: 60S ribosomal protein L22



- Molecule 60: 60S ribosomal protein L23a

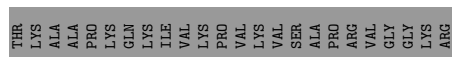
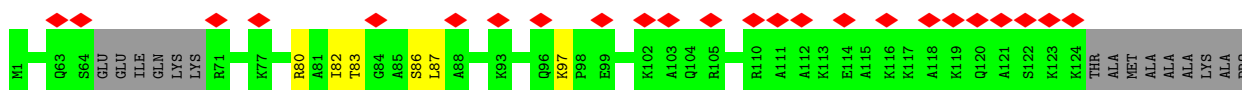
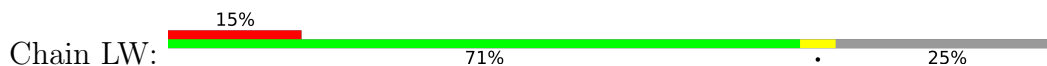




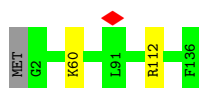
• Molecule 61: 60S ribosomal protein L26



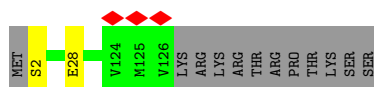
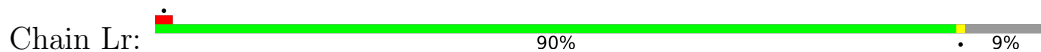
• Molecule 62: 60S ribosomal protein L24



• Molecule 63: 60S ribosomal protein L27



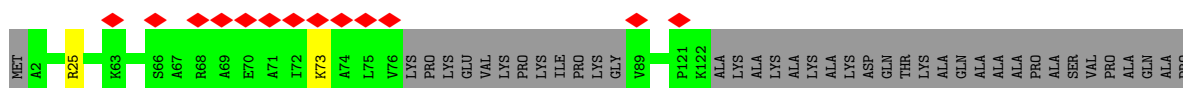
• Molecule 64: 60S ribosomal protein L28



• Molecule 65: 60S ribosomal protein L35

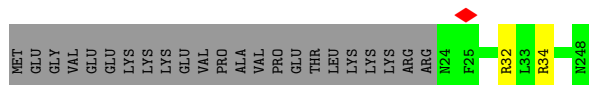


• Molecule 66: 60S ribosomal protein L29

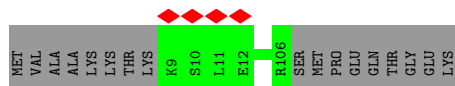
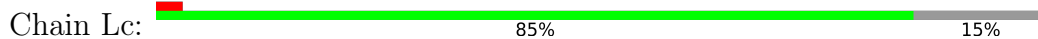


LYS
ARG
THR
GLN
ALA
PRO
THR
LYS
ALA
SER
GLU

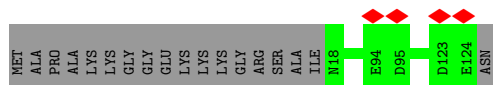
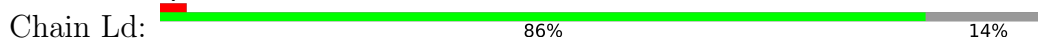
- Molecule 67: 60S ribosomal protein L7



- Molecule 68: 60S ribosomal protein L30



- Molecule 69: 60S ribosomal protein L31



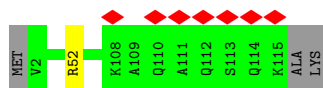
- Molecule 70: 60S ribosomal protein L32



- Molecule 71: 60S ribosomal protein L35a



- Molecule 72: 60S ribosomal protein L34



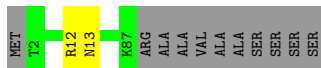
- Molecule 73: 60S ribosomal protein L36





- Molecule 74: 60S ribosomal protein L37

Chain Lj: 87% 11%



- Molecule 75: 60S ribosomal protein L38

Chain Lk: 99%



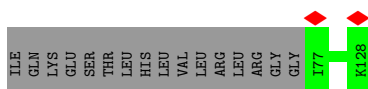
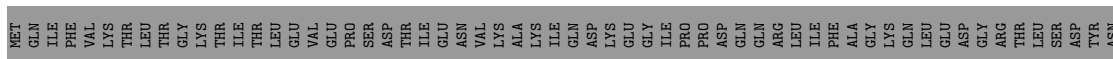
- Molecule 76: 60S ribosomal protein L39

Chain Ll: 96%



- Molecule 77: eL40

Chain Lm: 41% 59%



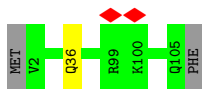
- Molecule 78: 60S ribosomal protein L41

Chain Ln: 96%

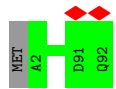


- Molecule 79: 60S ribosomal protein L36a

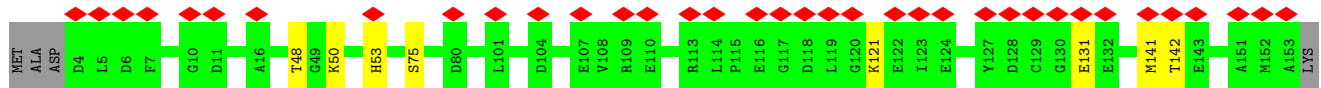
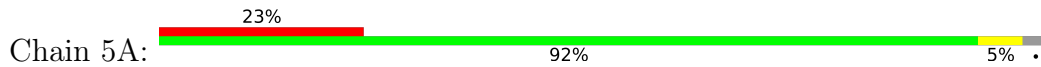
Chain Lo: 97%



- Molecule 80: 60S ribosomal protein L37a



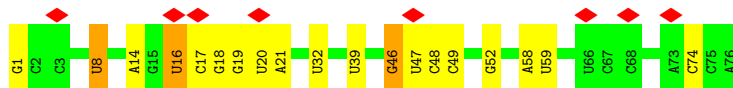
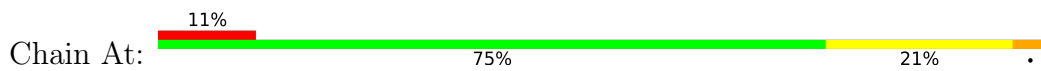
- Molecule 81: eIF5A1



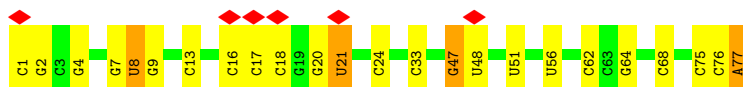
- Molecule 82: mRNA



- Molecule 83: A-site tRNA



- Molecule 84: RNA (77-MER)



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	9750	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	0.030	Depositor
Minimum map value	-0.008	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.004	Depositor
Map size (\AA)	528.64, 528.64, 528.64	wwPDB
Map dimensions	640, 640, 640	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.82600003, 0.82600003, 0.82600003	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, 4AC, PUT, 3H3, HY3, 7MG, V5N, OMG, 6MZ, ANM, SAC, UY1, MA6, OMC, MLZ, PSU, UR3, A2M, MG, 5CT, 1MA, K, HIC, M3L, G7M, OMU, AME, 4SU, H2U, B8N, 5MC, SPD

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	0.33	1/38205 (0.0%)	0.76	3/59545 (0.0%)
2	L8	0.51	1/3613 (0.0%)	0.76	0/5627
3	L5	0.50	1/84727 (0.0%)	0.80	8/132180 (0.0%)
4	L7	0.48	1/2862 (0.0%)	0.77	0/4459
5	SB	0.27	0/1765	0.52	0/2362
6	SA	0.28	0/1778	0.53	0/2416
7	SD	0.28	0/1784	0.53	0/2403
8	SJ	0.28	0/1550	0.57	0/2069
9	SE	0.30	0/2118	0.54	0/2849
10	SC	0.29	0/1762	0.51	0/2381
11	SG	0.30	0/1946	0.59	0/2590
12	SF	0.27	0/1515	0.54	0/2037
13	SH	0.27	0/1540	0.53	0/2064
14	SW	0.30	0/1051	0.54	0/1406
15	SI	0.30	0/1715	0.56	0/2287
16	SQ	0.30	0/1141	0.57	0/1528
17	SU	0.25	0/813	0.57	0/1092
18	SK	0.39	0/834	0.57	0/1125
19	SO	0.33	0/1022	0.61	0/1372
20	SX	0.28	0/1096	0.53	0/1461
21	SM	0.26	0/950	0.52	0/1275
22	SS	0.28	0/1232	0.61	0/1651
23	Sd	0.30	0/465	0.55	0/618
24	SN	0.27	0/1242	0.52	0/1671
25	SL	0.29	0/1209	0.54	0/1616
26	SR	0.27	0/1098	0.57	0/1474
27	SP	0.28	0/1133	0.56	0/1515
28	ST	0.28	0/1131	0.51	0/1515
29	SV	0.27	0/635	0.53	0/850
30	SY	0.30	0/1083	0.60	0/1438
31	SZ	0.27	0/696	0.56	0/929

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	Sa	0.27	0/805	0.57	0/1079
33	Sb	0.25	0/664	0.50	0/891
34	Sc	0.26	0/519	0.61	0/694
35	Se	0.30	0/458	0.57	0/604
36	Sf	0.32	0/525	0.55	0/695
37	Sg	0.28	0/2493	0.53	0/3394
38	Lz	0.29	0/1742	0.56	0/2338
39	LA	0.37	0/1958	0.62	0/2623
40	LB	0.33	0/3295	0.55	0/4406
41	LC	0.33	0/2981	0.56	0/4002
42	LJ	0.29	0/1381	0.56	0/1847
43	LH	0.29	0/1537	0.56	0/2066
44	LE	0.30	0/1821	0.52	0/2442
45	LG	0.28	0/1946	0.52	0/2620
46	LO	0.34	0/1673	0.55	0/2238
47	LL	0.32	0/1695	0.59	0/2270
48	LV	0.32	0/1002	0.56	0/1345
49	LM	0.30	0/1142	0.53	0/1527
50	La	0.33	0/1179	0.55	0/1573
51	LN	0.36	0/1745	0.61	0/2338
52	LI	0.32	0/1684	0.54	0/2247
53	LD	0.30	0/2437	0.52	0/3263
54	LQ	0.35	0/1536	0.61	0/2052
55	LR	0.29	0/1582	0.56	0/2091
56	LS	0.35	0/1500	0.57	0/2013
57	LT	0.33	0/1325	0.55	0/1770
58	LP	0.34	0/1268	0.54	0/1701
59	LU	0.29	0/822	0.55	0/1103
60	LX	0.31	0/984	0.54	0/1323
61	LY	0.33	0/1132	0.57	0/1504
62	LW	0.33	0/964	0.55	0/1278
63	LZ	0.33	0/1129	0.52	0/1507
64	Lr	0.33	0/1011	0.57	0/1356
65	Lh	0.28	0/1023	0.54	0/1351
66	Lb	0.29	0/887	0.54	0/1171
67	LF	0.33	0/1905	0.55	0/2539
68	Lc	0.30	0/774	0.51	0/1038
69	Ld	0.31	0/903	0.56	0/1216
70	Le	0.35	0/1071	0.56	0/1429
71	Lf	0.35	0/895	0.60	0/1198
72	Lg	0.32	0/916	0.59	0/1220
73	Li	0.29	0/843	0.58	0/1115
74	Lj	0.38	0/720	0.62	0/952

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
75	Lk	0.28	0/575	0.52	0/761
76	Ll	0.32	0/454	0.60	0/599
77	Lm	0.35	0/425	0.59	0/564
78	Ln	0.32	0/231	0.71	0/294
79	Lo	0.35	0/854	0.55	0/1125
80	Lp	0.33	0/718	0.53	0/953
81	5A	0.31	0/1144	0.56	0/1539
82	mR	0.33	0/233	0.78	0/360
83	At	0.34	1/1677 (0.1%)	0.76	0/2612
84	Pt	0.61	6/1721 (0.3%)	1.01	8/2679 (0.3%)
All	All	0.40	11/229615 (0.0%)	0.71	19/336720 (0.0%)

The worst 5 of 11 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
84	Pt	77	A	C5-C4	13.22	1.48	1.38
84	Pt	1	C	OP3-P	-10.71	1.48	1.61
1	S2	1	U	OP3-P	-10.70	1.48	1.61
2	L8	1	C	OP3-P	-10.67	1.48	1.61
4	L7	1	G	OP3-P	-10.61	1.48	1.61

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
84	Pt	77	A	C2-N3-C4	21.89	121.55	110.60
84	Pt	77	A	N3-C4-C5	-12.48	118.06	126.80
84	Pt	77	A	N1-C2-N3	-11.22	123.69	129.30
84	Pt	77	A	N3-C4-N9	9.94	135.35	127.40
84	Pt	77	A	C4-C5-N7	-8.36	106.52	110.70

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	212/264 (80%)	204 (96%)	8 (4%)	0	100	100
6	SA	220/295 (75%)	213 (97%)	7 (3%)	0	100	100
7	SD	224/243 (92%)	221 (99%)	3 (1%)	0	100	100
8	SJ	183/194 (94%)	174 (95%)	9 (5%)	0	100	100
9	SE	260/263 (99%)	251 (96%)	8 (3%)	1 (0%)	34	64
10	SC	220/293 (75%)	215 (98%)	4 (2%)	1 (0%)	29	60
11	SG	235/249 (94%)	221 (94%)	13 (6%)	1 (0%)	34	64
12	SF	187/204 (92%)	169 (90%)	18 (10%)	0	100	100
13	SH	187/194 (96%)	178 (95%)	8 (4%)	1 (0%)	29	60
14	SW	127/130 (98%)	122 (96%)	5 (4%)	0	100	100
15	SI	204/208 (98%)	194 (95%)	9 (4%)	1 (0%)	29	60
16	SQ	139/146 (95%)	135 (97%)	4 (3%)	0	100	100
17	SU	99/119 (83%)	97 (98%)	2 (2%)	0	100	100
18	SK	94/165 (57%)	82 (87%)	8 (8%)	4 (4%)	2	9
19	SO	133/151 (88%)	122 (92%)	9 (7%)	2 (2%)	10	32
20	SX	137/143 (96%)	131 (96%)	6 (4%)	0	100	100
21	SM	120/132 (91%)	113 (94%)	5 (4%)	2 (2%)	9	29
22	SS	146/152 (96%)	136 (93%)	9 (6%)	1 (1%)	22	52
23	Sd	52/56 (93%)	49 (94%)	3 (6%)	0	100	100
24	SN	149/151 (99%)	145 (97%)	4 (3%)	0	100	100
25	SL	141/158 (89%)	134 (95%)	7 (5%)	0	100	100
26	SR	132/135 (98%)	124 (94%)	8 (6%)	0	100	100
27	SP	133/145 (92%)	125 (94%)	8 (6%)	0	100	100
28	ST	141/145 (97%)	136 (96%)	5 (4%)	0	100	100
29	SV	81/83 (98%)	81 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
30	SY	129/133 (97%)	123 (95%)	6 (5%)	0	100	100
31	SZ	84/125 (67%)	79 (94%)	5 (6%)	0	100	100
32	Sa	97/115 (84%)	93 (96%)	4 (4%)	0	100	100
33	Sb	81/84 (96%)	79 (98%)	2 (2%)	0	100	100
34	Sc	63/69 (91%)	60 (95%)	3 (5%)	0	100	100
35	Se	55/133 (41%)	51 (93%)	4 (7%)	0	100	100
36	Sf	61/156 (39%)	53 (87%)	7 (12%)	1 (2%)	9	30
37	Sg	311/317 (98%)	285 (92%)	25 (8%)	1 (0%)	41	69
38	Lz	211/217 (97%)	170 (81%)	36 (17%)	5 (2%)	6	21
39	LA	249/257 (97%)	240 (96%)	8 (3%)	1 (0%)	34	64
40	LB	399/403 (99%)	386 (97%)	13 (3%)	0	100	100
41	LC	366/427 (86%)	358 (98%)	8 (2%)	0	100	100
42	LJ	167/178 (94%)	163 (98%)	4 (2%)	0	100	100
43	LH	188/192 (98%)	181 (96%)	7 (4%)	0	100	100
44	LE	217/288 (75%)	207 (95%)	10 (5%)	0	100	100
45	LG	237/266 (89%)	223 (94%)	13 (6%)	1 (0%)	34	64
46	LO	198/203 (98%)	192 (97%)	6 (3%)	0	100	100
47	LL	204/211 (97%)	192 (94%)	12 (6%)	0	100	100
48	LV	131/140 (94%)	125 (95%)	6 (5%)	0	100	100
49	LM	134/215 (62%)	131 (98%)	3 (2%)	0	100	100
50	La	144/148 (97%)	138 (96%)	5 (4%)	1 (1%)	22	52
51	LN	201/204 (98%)	193 (96%)	8 (4%)	0	100	100
52	LI	199/214 (93%)	192 (96%)	7 (4%)	0	100	100
53	LD	292/297 (98%)	285 (98%)	7 (2%)	0	100	100
54	LQ	185/188 (98%)	182 (98%)	3 (2%)	0	100	100
55	LR	185/196 (94%)	184 (100%)	1 (0%)	0	100	100
56	LS	174/176 (99%)	170 (98%)	4 (2%)	0	100	100
57	LT	157/160 (98%)	155 (99%)	2 (1%)	0	100	100
58	LP	151/184 (82%)	149 (99%)	2 (1%)	0	100	100
59	LU	97/128 (76%)	91 (94%)	6 (6%)	0	100	100
60	LX	116/156 (74%)	113 (97%)	3 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
61	LY	132/145 (91%)	127 (96%)	5 (4%)	0	100	100
62	LW	114/157 (73%)	107 (94%)	6 (5%)	1 (1%)	17	46
63	LZ	133/136 (98%)	128 (96%)	5 (4%)	0	100	100
64	Lr	123/137 (90%)	120 (98%)	3 (2%)	0	100	100
65	Lh	120/123 (98%)	119 (99%)	1 (1%)	0	100	100
66	Lb	104/159 (65%)	100 (96%)	4 (4%)	0	100	100
67	LF	223/248 (90%)	212 (95%)	11 (5%)	0	100	100
68	Lc	96/115 (84%)	92 (96%)	4 (4%)	0	100	100
69	Ld	105/125 (84%)	101 (96%)	4 (4%)	0	100	100
70	Le	126/135 (93%)	121 (96%)	5 (4%)	0	100	100
71	Lf	107/110 (97%)	104 (97%)	3 (3%)	0	100	100
72	Lg	112/117 (96%)	110 (98%)	2 (2%)	0	100	100
73	Li	100/105 (95%)	99 (99%)	1 (1%)	0	100	100
74	Lj	84/97 (87%)	82 (98%)	2 (2%)	0	100	100
75	Lk	67/70 (96%)	67 (100%)	0	0	100	100
76	Ll	48/51 (94%)	45 (94%)	3 (6%)	0	100	100
77	Lm	49/128 (38%)	47 (96%)	2 (4%)	0	100	100
78	Ln	22/25 (88%)	21 (96%)	1 (4%)	0	100	100
79	Lo	101/106 (95%)	96 (95%)	5 (5%)	0	100	100
80	Lp	89/92 (97%)	84 (94%)	5 (6%)	0	100	100
81	5A	147/154 (96%)	130 (88%)	14 (10%)	3 (2%)	7	25
All	All	11641/13133 (89%)	11127 (96%)	486 (4%)	28 (0%)	50	76

5 of 28 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
21	SM	82	ASN
38	Lz	82	ILE
38	Lz	86	ASP
81	5A	75	SER
81	5A	131	GLU

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	195/231 (84%)	194 (100%)	1 (0%)	88	96
6	SA	183/242 (76%)	182 (100%)	1 (0%)	88	96
7	SD	189/202 (94%)	189 (100%)	0	100	100
8	SJ	161/168 (96%)	161 (100%)	0	100	100
9	SE	224/225 (100%)	221 (99%)	3 (1%)	69	88
10	SC	188/225 (84%)	185 (98%)	3 (2%)	62	84
11	SG	207/218 (95%)	204 (99%)	3 (1%)	67	86
12	SF	159/170 (94%)	159 (100%)	0	100	100
13	SH	168/174 (97%)	167 (99%)	1 (1%)	86	95
14	SW	112/113 (99%)	110 (98%)	2 (2%)	59	82
15	SI	178/180 (99%)	176 (99%)	2 (1%)	73	90
16	SQ	117/121 (97%)	114 (97%)	3 (3%)	46	75
17	SU	93/107 (87%)	93 (100%)	0	100	100
18	SK	87/136 (64%)	81 (93%)	6 (7%)	15	40
19	SO	105/119 (88%)	104 (99%)	1 (1%)	76	91
20	SX	111/114 (97%)	110 (99%)	1 (1%)	78	92
21	SM	102/108 (94%)	99 (97%)	3 (3%)	42	73
22	SS	128/132 (97%)	127 (99%)	1 (1%)	81	93
23	Sd	48/49 (98%)	48 (100%)	0	100	100
24	SN	131/131 (100%)	131 (100%)	0	100	100
25	SL	131/142 (92%)	130 (99%)	1 (1%)	81	93
26	SR	121/122 (99%)	121 (100%)	0	100	100
27	SP	121/130 (93%)	120 (99%)	1 (1%)	81	93
28	ST	113/115 (98%)	112 (99%)	1 (1%)	78	92
29	SV	66/66 (100%)	66 (100%)	0	100	100
30	SY	113/115 (98%)	109 (96%)	4 (4%)	36	67

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
31	SZ	75/103 (73%)	75 (100%)	0	100	100
32	Sa	86/98 (88%)	86 (100%)	0	100	100
33	Sb	75/76 (99%)	75 (100%)	0	100	100
34	Sc	58/62 (94%)	58 (100%)	0	100	100
35	Se	46/104 (44%)	46 (100%)	0	100	100
36	Sf	56/140 (40%)	54 (96%)	2 (4%)	35	66
37	Sg	272/275 (99%)	267 (98%)	5 (2%)	59	82
38	Lz	192/196 (98%)	188 (98%)	4 (2%)	53	79
39	LA	193/198 (98%)	190 (98%)	3 (2%)	62	84
40	LB	347/348 (100%)	345 (99%)	2 (1%)	86	95
41	LC	306/348 (88%)	305 (100%)	1 (0%)	92	97
42	LJ	143/149 (96%)	142 (99%)	1 (1%)	84	94
43	LH	169/171 (99%)	169 (100%)	0	100	100
44	LE	196/252 (78%)	191 (97%)	5 (3%)	46	75
45	LG	202/223 (91%)	200 (99%)	2 (1%)	76	91
46	LO	172/174 (99%)	170 (99%)	2 (1%)	71	89
47	LL	172/177 (97%)	169 (98%)	3 (2%)	60	83
48	LV	102/107 (95%)	101 (99%)	1 (1%)	76	91
49	LM	116/161 (72%)	115 (99%)	1 (1%)	78	92
50	La	119/120 (99%)	119 (100%)	0	100	100
51	LN	171/172 (99%)	170 (99%)	1 (1%)	86	95
52	LI	173/181 (96%)	173 (100%)	0	100	100
53	LD	247/250 (99%)	243 (98%)	4 (2%)	62	84
54	LQ	164/165 (99%)	164 (100%)	0	100	100
55	LR	166/175 (95%)	164 (99%)	2 (1%)	71	89
56	LS	157/157 (100%)	157 (100%)	0	100	100
57	LT	139/140 (99%)	137 (99%)	2 (1%)	67	86
58	LP	134/163 (82%)	134 (100%)	0	100	100
59	LU	89/115 (77%)	89 (100%)	0	100	100
60	LX	106/133 (80%)	106 (100%)	0	100	100
61	LY	124/135 (92%)	122 (98%)	2 (2%)	62	84

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
62	LW	95/126 (75%)	90 (95%)	5 (5%)	22	52
63	LZ	117/118 (99%)	115 (98%)	2 (2%)	60	83
64	Lr	108/120 (90%)	107 (99%)	1 (1%)	78	92
65	Lh	109/110 (99%)	109 (100%)	0	100	100
66	Lb	89/125 (71%)	87 (98%)	2 (2%)	52	78
67	LF	194/215 (90%)	192 (99%)	2 (1%)	76	91
68	Lc	83/97 (86%)	83 (100%)	0	100	100
69	Ld	98/110 (89%)	98 (100%)	0	100	100
70	Le	114/121 (94%)	110 (96%)	4 (4%)	36	67
71	Lf	88/89 (99%)	88 (100%)	0	100	100
72	Lg	98/100 (98%)	97 (99%)	1 (1%)	76	91
73	Li	86/89 (97%)	84 (98%)	2 (2%)	50	78
74	Lj	73/80 (91%)	71 (97%)	2 (3%)	44	74
75	Lk	64/65 (98%)	64 (100%)	0	100	100
76	Ll	47/48 (98%)	46 (98%)	1 (2%)	53	79
77	Lm	47/115 (41%)	47 (100%)	0	100	100
78	Ln	23/24 (96%)	23 (100%)	0	100	100
79	Lo	91/93 (98%)	90 (99%)	1 (1%)	73	90
80	Lp	74/75 (99%)	74 (100%)	0	100	100
81	5A	122/127 (96%)	118 (97%)	4 (3%)	38	69
All	All	10138/11170 (91%)	10030 (99%)	108 (1%)	74	90

5 of 108 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
44	LE	91	THR
53	LD	41	LYS
73	Li	76	ARG
44	LE	111	LYS
47	LL	136	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 34 such sidechains are listed below:

Mol	Chain	Res	Type
58	LP	137	ASN
63	LZ	28	ASN
68	Lc	15	ASN
30	SY	15	ASN
20	SX	73	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	S2	1669/1869 (89%)	324 (19%)	11 (0%)
2	L8	155/156 (99%)	27 (17%)	0
3	L5	3642/5069 (71%)	676 (18%)	21 (0%)
4	L7	119/120 (99%)	7 (5%)	0
82	mR	9/60 (15%)	0	0
83	At	75/76 (98%)	15 (20%)	0
84	Pt	76/77 (98%)	21 (27%)	0
All	All	5745/7427 (77%)	1070 (18%)	32 (0%)

5 of 1070 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	S2	4	C
1	S2	26	U
1	S2	33	G
1	S2	41	G
1	S2	44	U

5 of 32 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
3	L5	4872	G
3	L5	4925	U
3	L5	408	A
3	L5	385	A
3	L5	5027	C

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

240 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
3	OMG	L5	3627	3	18,26,27	0.95	1 (5%)	19,38,41	1.19	2 (10%)
1	A2M	S2	668	87,1	18,25,26	0.94	1 (5%)	18,36,39	1.25	2 (11%)
3	PSU	L5	1744	3,86	18,21,22	1.39	3 (16%)	22,30,33	1.93	4 (18%)
3	PSU	L5	3758	3	18,21,22	1.56	4 (22%)	22,30,33	2.00	5 (22%)
3	PSU	L5	3764	3	18,21,22	1.49	4 (22%)	22,30,33	2.17	5 (22%)
3	A2M	L5	4523	87,3	18,25,26	0.90	1 (5%)	18,36,39	1.27	2 (11%)
3	PSU	L5	1792	3	18,21,22	1.41	3 (16%)	22,30,33	1.89	3 (13%)
3	OMC	L5	1881	87,3	19,22,23	0.80	0	26,31,34	0.76	0
3	OMC	L5	3808	3	19,22,23	0.82	0	26,31,34	0.88	1 (3%)
3	PSU	L5	4361	3	18,21,22	1.41	3 (16%)	22,30,33	1.92	3 (13%)
3	PSU	L5	4689	3	18,21,22	1.42	4 (22%)	22,30,33	1.93	3 (13%)
83	PSU	At	39	83	18,21,22	1.34	2 (11%)	22,30,33	1.92	3 (13%)
3	A2M	L5	3718	3	18,25,26	1.02	2 (11%)	18,36,39	1.11	2 (11%)
3	PSU	L5	4531	3	18,21,22	1.44	2 (11%)	22,30,33	2.10	4 (18%)
1	PSU	S2	1177	1	18,21,22	1.40	3 (16%)	22,30,33	1.92	3 (13%)
29	AME	SV	1	29	9,10,11	3.35	2 (22%)	9,11,13	4.51	5 (55%)
3	OMG	L5	3899	3	18,26,27	0.95	1 (5%)	19,38,41	1.14	2 (10%)
1	PSU	S2	296	1	18,21,22	1.34	2 (11%)	22,30,33	1.88	3 (13%)
3	PSU	L5	2508	3	18,21,22	1.42	3 (16%)	22,30,33	1.96	4 (18%)
3	OMC	L5	3701	3,86	19,22,23	0.79	0	26,31,34	0.73	0
3	PSU	L5	2839	3	18,21,22	1.31	2 (11%)	22,30,33	1.96	3 (13%)
1	4AC	S2	1337	1	21,24,25	1.22	2 (9%)	29,34,37	1.11	3 (10%)
1	OMU	S2	1442	87,1	19,22,23	1.20	2 (10%)	26,31,34	1.71	4 (15%)
1	PSU	S2	93	1	18,21,22	1.36	2 (11%)	22,30,33	1.88	3 (13%)
84	G7M	Pt	47	84	20,26,27	2.41	3 (15%)	17,39,42	0.63	0
3	PSU	L5	4420	3	18,21,22	1.39	3 (16%)	22,30,33	1.83	5 (22%)
1	PSU	S2	866	1	18,21,22	1.35	2 (11%)	22,30,33	1.92	3 (13%)
3	A2M	L5	3825	3	18,25,26	0.95	1 (5%)	18,36,39	1.22	2 (11%)
1	PSU	S2	814	1	18,21,22	1.37	3 (16%)	22,30,33	1.89	4 (18%)
3	A2M	L5	2787	3	18,25,26	1.01	2 (11%)	18,36,39	1.41	3 (16%)
3	PSU	L5	4423	87,3	18,21,22	1.38	3 (16%)	22,30,33	1.93	4 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	OMG	L5	4494	3	18,26,27	0.95	1 (5%)	19,38,41	1.06	2 (10%)
1	OMG	S2	436	1	18,26,27	0.92	1 (5%)	19,38,41	1.09	2 (10%)
3	OMG	L5	2424	3	18,26,27	0.98	1 (5%)	19,38,41	0.99	2 (10%)
3	OMC	L5	4456	3	19,22,23	0.82	0	26,31,34	0.82	1 (3%)
3	PSU	L5	5010	3	18,21,22	1.37	2 (11%)	22,30,33	1.91	3 (13%)
3	PSU	L5	3770	3	18,21,22	1.34	2 (11%)	22,30,33	1.86	3 (13%)
1	PSU	S2	863	1	18,21,22	1.38	2 (11%)	22,30,33	1.89	3 (13%)
3	PSU	L5	4576	3	18,21,22	1.40	3 (16%)	22,30,33	1.86	3 (13%)
6	SAC	SA	2	6	7,8,9	3.74	2 (28%)	8,9,11	4.49	5 (62%)
40	HIC	LB	245	40	8,11,12	1.58	2 (25%)	6,14,16	1.30	0
1	PSU	S2	681	1	18,21,22	1.42	3 (16%)	22,30,33	1.96	4 (18%)
3	A2M	L5	1524	3	18,25,26	0.96	1 (5%)	18,36,39	1.25	3 (16%)
3	PSU	L5	1582	3	18,21,22	1.46	3 (16%)	22,30,33	2.05	5 (22%)
1	OMU	S2	627	1	19,22,23	1.20	2 (10%)	26,31,34	1.69	5 (19%)
1	PSU	S2	1238	1	18,21,22	1.34	2 (11%)	22,30,33	1.87	3 (13%)
1	PSU	S2	1445	1	18,21,22	1.32	2 (11%)	22,30,33	1.89	4 (18%)
3	PSU	L5	4296	3	18,21,22	1.39	3 (16%)	22,30,33	1.95	4 (18%)
3	PSU	L5	3762	3	18,21,22	1.37	2 (11%)	22,30,33	1.91	3 (13%)
1	A2M	S2	576	1	18,25,26	0.96	1 (5%)	18,36,39	1.23	2 (11%)
1	A2M	S2	99	87,1	18,25,26	1.03	1 (5%)	18,36,39	1.26	2 (11%)
1	PSU	S2	109	1	18,21,22	1.55	5 (27%)	22,30,33	2.10	4 (18%)
3	6MZ	L5	4220	3	18,25,26	0.83	1 (5%)	16,36,39	2.20	4 (25%)
1	OMC	S2	462	1	19,22,23	0.81	0	26,31,34	0.82	0
1	PSU	S2	1347	1	18,21,22	1.34	3 (16%)	22,30,33	1.86	4 (18%)
3	PSU	L5	4569	3	18,21,22	1.43	3 (16%)	22,30,33	1.95	3 (13%)
3	OMU	L5	4306	3	19,22,23	1.27	3 (15%)	26,31,34	1.71	5 (19%)
3	PSU	L5	3853	87,3	18,21,22	1.42	4 (22%)	22,30,33	1.95	4 (18%)
3	OMG	L5	3944	3	18,26,27	0.92	1 (5%)	19,38,41	1.10	2 (10%)
1	PSU	S2	822	1	18,21,22	1.33	2 (11%)	22,30,33	2.07	5 (22%)
3	OMG	L5	4618	3	18,26,27	1.03	1 (5%)	19,38,41	1.16	2 (10%)
3	OMG	L5	1625	87,3	18,26,27	1.00	1 (5%)	19,38,41	1.08	2 (10%)
3	PSU	L5	5001	3	18,21,22	1.40	3 (16%)	22,30,33	1.95	4 (18%)
1	A2M	S2	484	1	18,25,26	0.97	1 (5%)	18,36,39	1.24	2 (11%)
1	PSU	S2	1081	1	18,21,22	1.48	4 (22%)	22,30,33	2.06	5 (22%)
83	7MG	At	46	83	22,26,27	1.35	3 (13%)	29,39,42	2.67	9 (31%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PSU	L5	1860	3	18,21,22	1.43	4 (22%)	22,30,33	1.94	3 (13%)
39	V5N	LA	216	39	4,11,12	0.74	0	5,14,16	1.81	3 (60%)
3	OMG	L5	4623	3	18,26,27	0.95	1 (5%)	19,38,41	1.12	2 (10%)
1	PSU	S2	1643	87,1	18,21,22	1.34	2 (11%)	22,30,33	1.87	4 (18%)
3	OMG	L5	4228	3	18,26,27	0.86	1 (5%)	19,38,41	1.10	2 (10%)
3	A2M	L5	4590	3	18,25,26	0.98	1 (5%)	18,36,39	1.23	2 (11%)
3	OMG	L5	4370	3	18,26,27	0.97	1 (5%)	19,38,41	1.05	2 (10%)
3	A2M	L5	2401	3	18,25,26	0.97	1 (5%)	18,36,39	1.40	3 (16%)
3	PSU	L5	3695	3	18,21,22	1.40	3 (16%)	22,30,33	1.93	4 (18%)
3	OMC	L5	3869	3	19,22,23	0.83	0	26,31,34	0.82	0
3	A2M	L5	4571	3	18,25,26	1.00	1 (5%)	18,36,39	1.20	2 (11%)
3	OMG	L5	2364	3	18,26,27	0.88	1 (5%)	19,38,41	1.16	2 (10%)
3	OMC	L5	3841	3	19,22,23	0.82	0	26,31,34	0.82	0
3	PSU	L5	4521	87,3	18,21,22	1.44	3 (16%)	22,30,33	1.93	5 (22%)
3	A2M	L5	1534	87,3	18,25,26	0.99	1 (5%)	18,36,39	1.48	3 (16%)
1	A2M	S2	1383	1	18,25,26	1.02	1 (5%)	18,36,39	1.24	2 (11%)
1	A2M	S2	1678	1	18,25,26	0.96	1 (5%)	18,36,39	1.41	2 (11%)
3	UY1	L5	3818	87,3	19,22,23	1.41	4 (21%)	22,31,34	1.96	4 (18%)
1	OMG	S2	1328	1	18,26,27	0.95	1 (5%)	19,38,41	1.05	2 (10%)
1	A2M	S2	1031	1	18,25,26	0.98	1 (5%)	18,36,39	1.20	2 (11%)
1	PSU	S2	34	1	18,21,22	1.34	2 (11%)	22,30,33	1.94	3 (13%)
1	PSU	S2	105	1	18,21,22	1.34	2 (11%)	22,30,33	1.90	4 (18%)
64	SAC	Lr	2	64	7,8,9	3.74	2 (28%)	8,9,11	4.55	4 (50%)
1	A2M	S2	590	1	18,25,26	1.04	1 (5%)	18,36,39	1.20	2 (11%)
3	PSU	L5	4500	83,3	18,21,22	1.37	2 (11%)	22,30,33	1.94	3 (13%)
3	OMG	L5	1316	3	18,26,27	1.02	1 (5%)	19,38,41	1.01	2 (10%)
1	A2M	S2	27	1	18,25,26	0.99	1 (5%)	18,36,39	1.22	2 (11%)
3	A2M	L5	2363	87,3	18,25,26	0.96	1 (5%)	18,36,39	1.15	2 (11%)
1	PSU	S2	1244	1	18,21,22	1.35	2 (11%)	22,30,33	1.92	4 (18%)
3	A2M	L5	3760	87,3	18,25,26	1.01	1 (5%)	18,36,39	1.45	2 (11%)
1	OMU	S2	121	1	19,22,23	1.23	3 (15%)	26,31,34	1.66	4 (15%)
84	PSU	Pt	56	84	18,21,22	1.34	2 (11%)	22,30,33	1.86	3 (13%)
1	PSU	S2	649	1	18,21,22	1.38	2 (11%)	22,30,33	1.92	3 (13%)
2	PSU	L8	69	2	18,21,22	1.41	3 (16%)	22,30,33	1.95	4 (18%)
3	5MC	L5	4447	3,86	18,22,23	1.01	2 (11%)	26,32,35	1.33	4 (15%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PSU	L5	4471	3	18,21,22	1.37	3 (16%)	22,30,33	1.85	4 (18%)
1	PSU	S2	406	1	18,21,22	1.35	2 (11%)	22,30,33	1.88	3 (13%)
3	PSU	L5	3637	3	18,21,22	1.45	3 (16%)	22,30,33	1.92	5 (22%)
2	OMG	L8	75	2	18,26,27	0.90	1 (5%)	19,38,41	1.16	2 (10%)
83	H2U	At	20	83	18,21,22	0.96	2 (11%)	21,30,33	1.33	2 (9%)
1	PSU	S2	609	1	18,21,22	1.35	2 (11%)	22,30,33	1.90	3 (13%)
83	H2U	At	16	83	18,21,22	1.02	2 (11%)	21,30,33	1.56	3 (14%)
3	OMU	L5	2415	3	19,22,23	1.31	3 (15%)	26,31,34	1.81	5 (19%)
3	PSU	L5	4431	3	18,21,22	1.34	2 (11%)	22,30,33	1.94	3 (13%)
1	OMU	S2	172	1	19,22,23	1.34	4 (21%)	26,31,34	1.88	6 (23%)
1	PSU	S2	1056	1	18,21,22	1.33	2 (11%)	22,30,33	1.91	3 (13%)
1	A2M	S2	159	1	18,25,26	1.01	1 (5%)	18,36,39	1.30	2 (11%)
3	A2M	L5	3785	87,3	18,25,26	0.91	0	18,36,39	1.43	3 (16%)
3	A2M	L5	1326	3	18,25,26	0.95	1 (5%)	18,36,39	1.20	2 (11%)
3	PSU	L5	4493	3	18,21,22	1.40	3 (16%)	22,30,33	1.83	3 (13%)
1	PSU	S2	651	1	18,21,22	1.38	2 (11%)	22,30,33	1.96	4 (18%)
1	UY1	S2	1326	87,1	19,22,23	1.31	2 (10%)	22,31,34	1.91	4 (18%)
1	MA6	S2	1851	1	19,26,27	0.92	1 (5%)	18,38,41	1.24	3 (16%)
1	OMC	S2	1391	1	19,22,23	0.82	0	26,31,34	0.83	0
1	OMC	S2	517	1	19,22,23	0.81	0	26,31,34	0.82	0
3	OMU	L5	4227	3	19,22,23	1.25	3 (15%)	26,31,34	1.72	5 (19%)
1	PSU	S2	1136	1	18,21,22	1.34	2 (11%)	22,30,33	1.89	3 (13%)
3	PSU	L5	4403	3	18,21,22	1.45	4 (22%)	22,30,33	1.98	4 (18%)
3	PSU	L5	4552	3	18,21,22	1.42	4 (22%)	22,30,33	2.00	3 (13%)
3	OMC	L5	3887	3	19,22,23	0.77	0	26,31,34	0.81	0
1	B8N	S2	1248	1	24,29,30	1.03	2 (8%)	29,42,45	1.62	6 (20%)
3	OMG	L5	2876	3	18,26,27	1.01	1 (5%)	19,38,41	1.21	2 (10%)
1	OMG	S2	867	1	18,26,27	1.00	1 (5%)	19,38,41	1.22	2 (10%)
1	PSU	S2	918	1	18,21,22	1.37	2 (11%)	22,30,33	2.18	4 (18%)
1	PSU	S2	686	1	18,21,22	1.38	2 (11%)	22,30,33	1.88	3 (13%)
3	OMU	L5	4620	3	19,22,23	1.30	3 (15%)	26,31,34	1.79	4 (15%)
1	PSU	S2	1367	1	18,21,22	1.35	2 (11%)	22,30,33	1.91	3 (13%)
20	HY3	SX	62	20	6,8,9	1.54	1 (16%)	5,10,12	1.27	0
3	PSU	L5	4353	3	18,21,22	1.40	3 (16%)	22,30,33	1.92	3 (13%)
3	PSU	L5	1782	3	18,21,22	1.39	3 (16%)	22,30,33	1.92	3 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	OMC	L5	2804	3	19,22,23	0.81	0	26,31,34	0.84	0
1	PSU	S2	1692	1	18,21,22	1.53	4 (22%)	22,30,33	2.06	4 (18%)
3	OMU	L5	3925	3	19,22,23	1.22	2 (10%)	26,31,34	1.83	5 (19%)
1	G7M	S2	1639	84,1	20,26,27	2.59	4 (20%)	17,39,42	1.36	2 (11%)
3	A2M	L5	3724	3	18,25,26	1.01	1 (5%)	18,36,39	1.17	2 (11%)
3	A2M	L5	3867	3	18,25,26	0.97	1 (5%)	18,36,39	1.15	2 (11%)
3	PSU	L5	4532	3	18,21,22	1.49	3 (16%)	22,30,33	1.91	4 (18%)
83	PSU	At	32	83	18,21,22	1.34	2 (11%)	22,30,33	1.83	3 (13%)
3	PSU	L5	4628	3	18,21,22	1.41	2 (11%)	22,30,33	1.92	3 (13%)
3	PSU	L5	2632	3	18,21,22	1.40	4 (22%)	22,30,33	1.80	3 (13%)
1	OMG	S2	644	1	18,26,27	0.95	1 (5%)	19,38,41	1.07	2 (10%)
1	PSU	S2	119	1	18,21,22	1.32	2 (11%)	22,30,33	1.76	4 (18%)
84	OMC	Pt	33	84	19,22,23	0.85	0	26,31,34	1.02	2 (7%)
1	PSU	S2	1239	1	18,21,22	1.36	2 (11%)	22,30,33	1.89	3 (13%)
1	PSU	S2	1625	1	18,21,22	1.34	2 (11%)	22,30,33	1.86	3 (13%)
3	PSU	L5	1683	3	18,21,22	1.49	4 (22%)	22,30,33	1.84	3 (13%)
1	OMG	S2	1447	1	18,26,27	0.93	1 (5%)	19,38,41	1.04	2 (10%)
1	OMG	S2	1490	87,1	18,26,27	0.93	1 (5%)	19,38,41	1.10	2 (10%)
3	PSU	L5	3734	3	18,21,22	1.33	2 (11%)	22,30,33	1.91	3 (13%)
3	OMC	L5	4536	3	19,22,23	0.86	0	26,31,34	0.79	1 (3%)
1	A2M	S2	512	1	18,25,26	1.01	1 (5%)	18,36,39	1.26	2 (11%)
1	A2M	S2	166	1	18,25,26	0.98	1 (5%)	18,36,39	1.27	2 (11%)
3	PSU	L5	4299	3	18,21,22	1.44	3 (16%)	22,30,33	1.92	4 (18%)
3	OMC	L5	1340	3	19,22,23	0.88	1 (5%)	26,31,34	0.81	0
3	PSU	L5	4972	3	18,21,22	1.35	3 (16%)	22,30,33	1.83	3 (13%)
1	PSU	S2	572	1	18,21,22	1.41	2 (11%)	22,30,33	2.01	5 (22%)
1	A2M	S2	468	1	18,25,26	1.00	1 (5%)	18,36,39	1.17	2 (11%)
3	OMG	L5	4392	3	18,26,27	0.90	1 (5%)	19,38,41	1.01	2 (10%)
3	PSU	L5	3715	3	18,21,22	1.37	3 (16%)	22,30,33	1.88	3 (13%)
3	OMC	L5	2824	3	19,22,23	0.78	0	26,31,34	0.78	0
3	PSU	L5	4579	3	18,21,22	1.38	3 (16%)	22,30,33	1.96	4 (18%)
3	A2M	L5	3723	3	18,25,26	1.04	1 (5%)	18,36,39	1.22	2 (11%)
3	PSU	L5	3884	3	18,21,22	1.44	4 (22%)	22,30,33	1.95	3 (13%)
3	PSU	L5	1677	3	18,21,22	1.53	4 (22%)	22,30,33	1.97	3 (13%)
3	PSU	L5	3729	3	18,21,22	1.35	2 (11%)	22,30,33	1.88	3 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	1MA	L5	1322	87,3	16,25,26	1.38	2 (12%)	18,37,40	1.06	2 (11%)
3	PSU	L5	3844	3	18,21,22	1.45	3 (16%)	22,30,33	1.87	3 (13%)
3	A2M	L5	2815	87,3	18,25,26	0.99	1 (5%)	18,36,39	1.23	2 (11%)
1	OMG	S2	509	87,1	18,26,27	0.92	1 (5%)	19,38,41	1.08	2 (10%)
3	PSU	L5	4293	3	18,21,22	1.43	3 (16%)	22,30,33	1.84	3 (13%)
1	OMC	S2	1703	1	19,22,23	0.81	0	26,31,34	0.69	0
3	PSU	L5	2843	3	18,21,22	1.43	3 (16%)	22,30,33	1.98	4 (18%)
1	OMC	S2	174	1	19,22,23	0.81	0	26,31,34	0.78	0
77	M3L	Lm	98	77	10,11,12	0.46	0	9,14,16	0.10	0
1	OMU	S2	354	1	19,22,23	1.27	3 (15%)	26,31,34	1.80	5 (19%)
1	PSU	S2	218	1	18,21,22	1.33	2 (11%)	22,30,33	1.85	4 (18%)
84	H2U	Pt	21	84	18,21,22	0.96	2 (11%)	21,30,33	1.35	2 (9%)
3	UR3	L5	4530	3	19,22,23	0.94	0	26,32,35	1.44	2 (7%)
3	PSU	L5	4636	3	18,21,22	1.50	4 (22%)	22,30,33	2.21	6 (27%)
1	6MZ	S2	1832	87,1	18,25,26	0.83	1 (5%)	16,36,39	2.09	3 (18%)
3	OMU	L5	2837	3	19,22,23	1.27	2 (10%)	26,31,34	1.78	4 (15%)
3	OMU	L5	4498	3	19,22,23	1.21	3 (15%)	26,31,34	1.77	5 (19%)
3	5MC	L5	3782	87,3	18,22,23	0.94	2 (11%)	26,32,35	1.15	3 (11%)
3	PSU	L5	4442	3	18,21,22	1.50	4 (22%)	22,30,33	2.17	5 (22%)
1	PSU	S2	1243	1	18,21,22	1.37	2 (11%)	22,30,33	1.88	3 (13%)
3	OMG	L5	4499	83,3	18,26,27	0.90	1 (5%)	19,38,41	1.06	2 (10%)
1	OMU	S2	116	1	19,22,23	1.23	3 (15%)	26,31,34	1.68	6 (23%)
3	OMG	L5	3744	3	18,26,27	0.95	1 (5%)	19,38,41	1.09	2 (10%)
1	PSU	S2	36	1	18,21,22	1.36	2 (11%)	22,30,33	1.87	3 (13%)
3	OMG	L5	4196	84,3	18,26,27	1.04	1 (5%)	19,38,41	1.16	3 (15%)
3	PSU	L5	1536	3	18,21,22	1.48	3 (16%)	22,30,33	1.85	4 (18%)
1	OMU	S2	1288	1	19,22,23	1.19	2 (10%)	26,31,34	1.66	4 (15%)
3	OMC	L5	2861	3	19,22,23	0.79	0	26,31,34	0.70	0
3	A2M	L5	1871	3	18,25,26	0.97	1 (5%)	18,36,39	1.35	2 (11%)
1	OMG	S2	601	1	18,26,27	0.89	1 (5%)	19,38,41	1.08	2 (10%)
3	PSU	L5	3768	3	18,21,22	1.49	4 (22%)	22,30,33	2.07	5 (22%)
3	A2M	L5	3830	3	18,25,26	0.92	1 (5%)	18,36,39	1.21	2 (11%)
1	PSU	S2	1174	87,1	18,21,22	1.37	4 (22%)	22,30,33	1.87	3 (13%)
1	OMG	S2	683	1	18,26,27	0.94	1 (5%)	19,38,41	1.08	2 (10%)
3	OMG	L5	4637	3	18,26,27	1.06	1 (5%)	19,38,41	1.15	2 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PSU	L5	4457	3	18,21,22	1.42	3 (16%)	22,30,33	1.92	4 (18%)
3	PSU	L5	1779	3	18,21,22	1.37	2 (11%)	22,30,33	1.91	3 (13%)
1	PSU	S2	966	1	18,21,22	1.34	2 (11%)	22,30,33	1.95	4 (18%)
1	PSU	S2	801	1	18,21,22	1.35	2 (11%)	22,30,33	1.93	3 (13%)
3	OMC	L5	2351	3	19,22,23	0.84	0	26,31,34	0.75	0
3	PSU	L5	1781	3	18,21,22	1.44	3 (16%)	22,30,33	1.87	3 (13%)
2	PSU	L8	55	2	18,21,22	1.40	3 (16%)	22,30,33	1.90	4 (18%)
3	PSU	L5	4312	3	18,21,22	1.39	4 (22%)	22,30,33	1.96	3 (13%)
1	4AC	S2	1842	1	21,24,25	1.03	1 (4%)	29,34,37	1.09	4 (13%)
1	OMU	S2	428	1	19,22,23	1.20	3 (15%)	26,31,34	1.75	5 (19%)
3	OMC	L5	2365	3	19,22,23	0.81	0	26,31,34	0.76	0
3	PSU	L5	3920	87,3	18,21,22	1.41	3 (16%)	22,30,33	2.00	4 (18%)
50	V5N	La	39	50	4,11,12	0.62	0	5,14,16	1.91	2 (40%)
79	MLZ	Lo	53	79	8,9,10	0.78	0	4,9,11	0.60	0
66	MLZ	Lb	5	66	8,9,10	0.79	0	4,9,11	0.69	0
3	OMC	L5	2422	87,3	19,22,23	0.83	0	26,31,34	0.84	0
1	PSU	S2	1232	1	18,21,22	1.35	2 (11%)	22,30,33	1.96	3 (13%)
3	OMG	L5	3792	3	18,26,27	0.91	1 (5%)	19,38,41	1.07	3 (15%)
3	PSU	L5	4673	3	18,21,22	1.57	4 (22%)	22,30,33	2.01	4 (18%)
83	4SU	At	8	83	18,21,22	1.78	4 (22%)	26,30,33	2.24	5 (19%)
1	PSU	S2	1004	1	18,21,22	1.46	3 (16%)	22,30,33	2.06	5 (22%)
1	PSU	S2	815	1	18,21,22	1.36	2 (11%)	22,30,33	1.91	4 (18%)
1	PSU	S2	573	1	18,21,22	1.36	2 (11%)	22,30,33	1.88	3 (13%)
3	A2M	L5	400	3	18,25,26	0.98	1 (5%)	18,36,39	1.21	2 (11%)
3	PSU	L5	3851	3	18,21,22	1.41	4 (22%)	22,30,33	1.90	4 (18%)
3	PSU	L5	3639	3	18,21,22	1.47	4 (22%)	22,30,33	1.93	4 (18%)
1	OMU	S2	1804	1	19,22,23	1.26	2 (10%)	26,31,34	1.68	4 (15%)
3	OMG	L5	1522	3	18,26,27	0.96	1 (5%)	19,38,41	1.18	3 (15%)
3	A2M	L5	398	3	18,25,26	0.96	1 (5%)	18,36,39	1.25	2 (11%)
84	4SU	Pt	8	84	18,21,22	1.73	4 (22%)	26,30,33	2.19	4 (15%)
2	OMU	L8	14	2,3	19,22,23	1.26	3 (15%)	26,31,34	1.71	4 (15%)
1	MA6	S2	1850	1	19,26,27	0.92	1 (5%)	18,38,41	1.24	2 (11%)
81	5CT	5A	50	81	13,14,15	0.75	1 (7%)	9,15,17	2.37	4 (44%)
3	PSU	L5	1862	3	18,21,22	1.43	3 (16%)	22,30,33	2.06	4 (18%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral

centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	OMG	L5	3627	3	-	0/5/27/28	0/3/3/3
1	A2M	S2	668	87,1	-	3/5/27/28	0/3/3/3
3	PSU	L5	1744	3,86	-	0/7/25/26	0/2/2/2
3	PSU	L5	3758	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	3764	3	-	0/7/25/26	0/2/2/2
3	A2M	L5	4523	87,3	-	1/5/27/28	0/3/3/3
3	PSU	L5	1792	3	-	0/7/25/26	0/2/2/2
3	OMC	L5	1881	87,3	-	0/9/27/28	0/2/2/2
3	OMC	L5	3808	3	-	0/9/27/28	0/2/2/2
3	PSU	L5	4361	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4689	3	-	0/7/25/26	0/2/2/2
83	PSU	At	39	83	-	0/7/25/26	0/2/2/2
3	A2M	L5	3718	3	-	0/5/27/28	0/3/3/3
3	PSU	L5	4531	3	-	2/7/25/26	0/2/2/2
1	PSU	S2	1177	1	-	0/7/25/26	0/2/2/2
29	AME	SV	1	29	-	2/9/10/12	-
3	OMG	L5	3899	3	-	0/5/27/28	0/3/3/3
1	PSU	S2	296	1	-	0/7/25/26	0/2/2/2
3	PSU	L5	2508	3	-	0/7/25/26	0/2/2/2
3	OMC	L5	3701	3,86	-	4/9/27/28	0/2/2/2
3	PSU	L5	2839	3	-	2/7/25/26	0/2/2/2
1	4AC	S2	1337	1	-	2/11/29/30	0/2/2/2
1	OMU	S2	1442	87,1	-	1/9/27/28	0/2/2/2
1	PSU	S2	93	1	-	0/7/25/26	0/2/2/2
84	G7M	Pt	47	84	-	2/3/25/26	0/3/3/3
3	PSU	L5	4420	3	-	4/7/25/26	0/2/2/2
1	PSU	S2	866	1	-	0/7/25/26	0/2/2/2
3	A2M	L5	3825	3	-	0/5/27/28	0/3/3/3
1	PSU	S2	814	1	-	0/7/25/26	0/2/2/2
3	A2M	L5	2787	3	-	0/5/27/28	0/3/3/3
3	PSU	L5	4423	87,3	-	0/7/25/26	0/2/2/2
3	OMG	L5	4494	3	-	0/5/27/28	0/3/3/3
1	OMG	S2	436	1	-	0/5/27/28	0/3/3/3
3	OMG	L5	2424	3	-	3/5/27/28	0/3/3/3
3	OMC	L5	4456	3	-	0/9/27/28	0/2/2/2
3	PSU	L5	5010	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	3770	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	863	1	-	2/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PSU	L5	4576	3	-	0/7/25/26	0/2/2/2
6	SAC	SA	2	6	-	5/7/8/10	-
40	HIC	LB	245	40	-	3/5/6/8	0/1/1/1
1	PSU	S2	681	1	-	0/7/25/26	0/2/2/2
3	A2M	L5	1524	3	-	0/5/27/28	0/3/3/3
3	PSU	L5	1582	3	-	2/7/25/26	0/2/2/2
1	OMU	S2	627	1	-	1/9/27/28	0/2/2/2
1	PSU	S2	1238	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	1445	1	-	0/7/25/26	0/2/2/2
3	PSU	L5	4296	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	3762	3	-	0/7/25/26	0/2/2/2
1	A2M	S2	576	1	-	2/5/27/28	0/3/3/3
1	A2M	S2	99	87,1	-	0/5/27/28	0/3/3/3
1	PSU	S2	109	1	-	0/7/25/26	0/2/2/2
3	6MZ	L5	4220	3	-	0/5/27/28	0/3/3/3
1	OMC	S2	462	1	-	1/9/27/28	0/2/2/2
1	PSU	S2	1347	1	-	0/7/25/26	0/2/2/2
3	PSU	L5	4569	3	-	0/7/25/26	0/2/2/2
3	OMU	L5	4306	3	-	0/9/27/28	0/2/2/2
3	PSU	L5	3853	87,3	-	0/7/25/26	0/2/2/2
3	OMG	L5	3944	3	-	0/5/27/28	0/3/3/3
1	PSU	S2	822	1	-	1/7/25/26	0/2/2/2
3	OMG	L5	4618	3	-	1/5/27/28	0/3/3/3
3	OMG	L5	1625	87,3	-	1/5/27/28	0/3/3/3
3	PSU	L5	5001	3	-	0/7/25/26	0/2/2/2
1	A2M	S2	484	1	-	0/5/27/28	0/3/3/3
1	PSU	S2	1081	1	-	1/7/25/26	0/2/2/2
83	7MG	At	46	83	-	3/7/37/38	0/3/3/3
3	PSU	L5	1860	3	-	0/7/25/26	0/2/2/2
39	V5N	LA	216	39	-	1/5/10/12	0/1/1/1
3	OMG	L5	4623	3	-	0/5/27/28	0/3/3/3
1	PSU	S2	1643	87,1	-	0/7/25/26	0/2/2/2
3	OMG	L5	4228	3	-	2/5/27/28	0/3/3/3
3	A2M	L5	4590	3	-	1/5/27/28	0/3/3/3
3	OMG	L5	4370	3	-	0/5/27/28	0/3/3/3
3	A2M	L5	2401	3	-	0/5/27/28	0/3/3/3
3	PSU	L5	3695	3	-	0/7/25/26	0/2/2/2
3	OMC	L5	3869	3	-	0/9/27/28	0/2/2/2
3	A2M	L5	4571	3	-	1/5/27/28	0/3/3/3
3	OMG	L5	2364	3	-	3/5/27/28	0/3/3/3
3	OMC	L5	3841	3	-	0/9/27/28	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PSU	L5	4521	87,3	-	0/7/25/26	0/2/2/2
3	A2M	L5	1534	87,3	-	2/5/27/28	0/3/3/3
1	A2M	S2	1383	1	-	1/5/27/28	0/3/3/3
1	A2M	S2	1678	1	-	3/5/27/28	0/3/3/3
3	UY1	L5	3818	87,3	-	4/9/27/28	0/2/2/2
1	OMG	S2	1328	1	-	0/5/27/28	0/3/3/3
1	A2M	S2	1031	1	-	0/5/27/28	0/3/3/3
1	PSU	S2	34	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	105	1	-	0/7/25/26	0/2/2/2
64	SAC	Lr	2	64	-	1/7/8/10	-
1	A2M	S2	590	1	-	1/5/27/28	0/3/3/3
3	PSU	L5	4500	83,3	-	1/7/25/26	0/2/2/2
3	OMG	L5	1316	3	-	0/5/27/28	0/3/3/3
1	A2M	S2	27	1	-	1/5/27/28	0/3/3/3
3	A2M	L5	2363	87,3	-	0/5/27/28	0/3/3/3
1	PSU	S2	1244	1	-	0/7/25/26	0/2/2/2
3	A2M	L5	3760	87,3	-	0/5/27/28	0/3/3/3
1	OMU	S2	121	1	-	1/9/27/28	0/2/2/2
84	PSU	Pt	56	84	-	0/7/25/26	0/2/2/2
1	PSU	S2	649	1	-	0/7/25/26	0/2/2/2
2	PSU	L8	69	2	-	0/7/25/26	0/2/2/2
3	5MC	L5	4447	3,86	-	4/7/25/26	0/2/2/2
3	PSU	L5	4471	3	-	2/7/25/26	0/2/2/2
1	PSU	S2	406	1	-	0/7/25/26	0/2/2/2
3	PSU	L5	3637	3	-	0/7/25/26	0/2/2/2
2	OMG	L8	75	2	-	0/5/27/28	0/3/3/3
83	H2U	At	20	83	-	0/7/38/39	0/2/2/2
1	PSU	S2	609	1	-	0/7/25/26	0/2/2/2
83	H2U	At	16	83	-	1/7/38/39	0/2/2/2
3	OMU	L5	2415	3	-	1/9/27/28	0/2/2/2
3	PSU	L5	4431	3	-	0/7/25/26	0/2/2/2
1	OMU	S2	172	1	-	0/9/27/28	0/2/2/2
1	PSU	S2	1056	1	-	0/7/25/26	0/2/2/2
1	A2M	S2	159	1	-	3/5/27/28	0/3/3/3
3	A2M	L5	3785	87,3	-	3/5/27/28	0/3/3/3
3	A2M	L5	1326	3	-	3/5/27/28	0/3/3/3
3	PSU	L5	4493	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	651	1	-	0/7/25/26	0/2/2/2
1	UY1	S2	1326	87,1	-	1/9/27/28	0/2/2/2
1	MA6	S2	1851	1	-	2/7/29/30	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	OMC	S2	1391	1	-	1/9/27/28	0/2/2/2
1	OMC	S2	517	1	-	0/9/27/28	0/2/2/2
3	OMU	L5	4227	3	-	1/9/27/28	0/2/2/2
1	PSU	S2	1136	1	-	0/7/25/26	0/2/2/2
3	PSU	L5	4403	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4552	3	-	0/7/25/26	0/2/2/2
3	OMC	L5	3887	3	-	2/9/27/28	0/2/2/2
1	B8N	S2	1248	1	-	3/16/34/35	0/2/2/2
3	OMG	L5	2876	3	-	0/5/27/28	0/3/3/3
1	OMG	S2	867	1	-	3/5/27/28	0/3/3/3
1	PSU	S2	918	1	-	2/7/25/26	0/2/2/2
1	PSU	S2	686	1	-	0/7/25/26	0/2/2/2
3	OMU	L5	4620	3	-	1/9/27/28	0/2/2/2
1	PSU	S2	1367	1	-	0/7/25/26	0/2/2/2
20	HY3	SX	62	20	-	1/1/12/14	0/1/1/1
3	PSU	L5	4353	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	1782	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	1692	1	-	0/7/25/26	0/2/2/2
3	OMU	L5	3925	3	-	0/9/27/28	0/2/2/2
1	G7M	S2	1639	84,1	-	2/3/25/26	0/3/3/3
3	A2M	L5	3724	3	-	1/5/27/28	0/3/3/3
3	A2M	L5	3867	3	-	3/5/27/28	0/3/3/3
3	PSU	L5	4532	3	-	0/7/25/26	0/2/2/2
83	PSU	At	32	83	-	0/7/25/26	0/2/2/2
3	PSU	L5	4628	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	2632	3	-	3/7/25/26	0/2/2/2
1	OMG	S2	644	1	-	4/5/27/28	0/3/3/3
1	PSU	S2	119	1	-	0/7/25/26	0/2/2/2
84	OMC	Pt	33	84	-	3/9/27/28	0/2/2/2
1	PSU	S2	1239	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	1625	1	-	0/7/25/26	0/2/2/2
3	PSU	L5	1683	3	-	0/7/25/26	0/2/2/2
1	OMG	S2	1447	1	-	2/5/27/28	0/3/3/3
1	OMG	S2	1490	87,1	-	1/5/27/28	0/3/3/3
3	PSU	L5	3734	3	-	0/7/25/26	0/2/2/2
3	OMC	L5	4536	3	-	0/9/27/28	0/2/2/2
1	A2M	S2	512	1	-	1/5/27/28	0/3/3/3
1	A2M	S2	166	1	-	1/5/27/28	0/3/3/3
3	PSU	L5	4299	3	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	OMC	L5	1340	3	-	1/9/27/28	0/2/2/2
3	PSU	L5	4972	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	572	1	-	0/7/25/26	0/2/2/2
1	A2M	S2	468	1	-	1/5/27/28	0/3/3/3
3	OMG	L5	4392	3	-	0/5/27/28	0/3/3/3
3	PSU	L5	3715	3	-	0/7/25/26	0/2/2/2
3	OMC	L5	2824	3	-	0/9/27/28	0/2/2/2
3	PSU	L5	4579	3	-	0/7/25/26	0/2/2/2
3	A2M	L5	3723	3	-	1/5/27/28	0/3/3/3
3	PSU	L5	3884	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	1677	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	3729	3	-	2/7/25/26	0/2/2/2
3	1MA	L5	1322	87,3	-	0/3/25/26	0/3/3/3
3	PSU	L5	3844	3	-	1/7/25/26	0/2/2/2
3	A2M	L5	2815	87,3	-	1/5/27/28	0/3/3/3
1	OMG	S2	509	87,1	-	0/5/27/28	0/3/3/3
3	PSU	L5	4293	3	-	0/7/25/26	0/2/2/2
1	OMC	S2	1703	1	-	0/9/27/28	0/2/2/2
3	PSU	L5	2843	3	-	0/7/25/26	0/2/2/2
1	OMC	S2	174	1	-	0/9/27/28	0/2/2/2
77	M3L	Lm	98	77	-	4/9/10/12	-
1	OMU	S2	354	1	-	2/9/27/28	0/2/2/2
1	PSU	S2	218	1	-	3/7/25/26	0/2/2/2
84	H2U	Pt	21	84	-	6/7/38/39	0/2/2/2
3	UR3	L5	4530	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	4636	3	-	3/7/25/26	0/2/2/2
1	6MZ	S2	1832	87,1	-	2/5/27/28	0/3/3/3
3	OMU	L5	2837	3	-	0/9/27/28	0/2/2/2
3	OMU	L5	4498	3	-	0/9/27/28	0/2/2/2
3	5MC	L5	3782	87,3	-	2/7/25/26	0/2/2/2
3	PSU	L5	4442	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	1243	1	-	2/7/25/26	0/2/2/2
3	OMG	L5	4499	83,3	-	0/5/27/28	0/3/3/3
1	OMU	S2	116	1	-	1/9/27/28	0/2/2/2
3	OMG	L5	3744	3	-	1/5/27/28	0/3/3/3
1	PSU	S2	36	1	-	0/7/25/26	0/2/2/2
3	OMG	L5	4196	84,3	-	1/5/27/28	0/3/3/3
3	PSU	L5	1536	3	-	0/7/25/26	0/2/2/2
1	OMU	S2	1288	1	-	1/9/27/28	0/2/2/2
3	OMC	L5	2861	3	-	0/9/27/28	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	A2M	L5	1871	3	-	0/5/27/28	0/3/3/3
1	OMG	S2	601	1	-	0/5/27/28	0/3/3/3
3	PSU	L5	3768	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	1174	87,1	-	0/7/25/26	0/2/2/2
1	OMG	S2	683	1	-	3/5/27/28	0/3/3/3
3	OMG	L5	4637	3	-	3/5/27/28	0/3/3/3
3	PSU	L5	4457	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	1779	3	-	0/7/25/26	0/2/2/2
1	PSU	S2	966	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	801	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	1781	3	-	2/7/25/26	0/2/2/2
2	PSU	L8	55	2	-	0/7/25/26	0/2/2/2
3	PSU	L5	4312	3	-	0/7/25/26	0/2/2/2
1	4AC	S2	1842	1	-	2/11/29/30	0/2/2/2
1	OMU	S2	428	1	-	6/9/27/28	0/2/2/2
3	OMC	L5	2365	3	-	0/9/27/28	0/2/2/2
3	PSU	L5	3920	87,3	-	0/7/25/26	0/2/2/2
50	V5N	La	39	50	-	0/5/10/12	0/1/1/1
79	MLZ	Lo	53	79	-	1/7/8/10	-
66	MLZ	Lb	5	66	-	3/7/8/10	-
3	OMC	L5	2422	87,3	-	3/9/27/28	0/2/2/2
1	PSU	S2	1232	1	-	0/7/25/26	0/2/2/2
3	OMG	L5	3792	3	-	0/5/27/28	0/3/3/3
3	PSU	L5	4673	3	-	0/7/25/26	0/2/2/2
83	4SU	At	8	83	-	0/7/25/26	0/2/2/2
1	PSU	S2	1004	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	815	1	-	0/7/25/26	0/2/2/2
1	PSU	S2	573	1	-	0/7/25/26	0/2/2/2
3	A2M	L5	400	3	-	1/5/27/28	0/3/3/3
3	PSU	L5	3851	3	-	0/7/25/26	0/2/2/2
3	PSU	L5	3639	3	-	0/7/25/26	0/2/2/2
1	OMU	S2	1804	1	-	1/9/27/28	0/2/2/2
3	OMG	L5	1522	3	-	0/5/27/28	0/3/3/3
3	A2M	L5	398	3	-	1/5/27/28	0/3/3/3
84	4SU	Pt	8	84	-	0/7/25/26	0/2/2/2
2	OMU	L8	14	2,3	-	1/9/27/28	0/2/2/2
1	MA6	S2	1850	1	-	0/7/29/30	0/3/3/3
81	5CT	5A	50	81	-	8/13/14/16	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PSU	L5	1862	3	-	0/7/25/26	0/2/2/2

The worst 5 of 462 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
29	SV	1	AME	OT-CT1	9.02	1.43	1.23
6	SA	2	SAC	OAC-C1A	8.92	1.43	1.23
64	Lr	2	SAC	OAC-C1A	8.90	1.43	1.23
1	S2	1639	G7M	C8-N9	7.28	1.46	1.33
84	Pt	47	G7M	C8-N9	7.28	1.46	1.33

The worst 5 of 698 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
83	At	46	7MG	N9-C4-N3	9.01	138.95	125.47
29	SV	1	AME	CA-N-CT1	-7.69	108.96	123.15
64	Lr	2	SAC	CA-N-C1A	-7.33	109.64	123.15
6	SA	2	SAC	OAC-C1A-C2A	-7.10	108.86	122.06
29	SV	1	AME	OT-CT1-N	-7.05	108.98	121.95

There are no chirality outliers.

5 of 199 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	L8	14	OMU	C1'-C2'-O2'-CM2
6	SA	2	SAC	C-CA-N-C1A
6	SA	2	SAC	C-CA-CB-OG
29	SV	1	AME	OT-CT1-N-CA
40	LB	245	HIC	CA-CB-CG-ND1

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 362 ligands modelled in this entry, 350 are monoatomic - leaving 12 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
89	SPD	L5	5307	-	9,9,9	0.32	0	8,8,8	0.66	0
85	PUT	L5	5305	-	5,5,5	0.12	0	4,4,4	0.15	0
89	SPD	L5	5303	-	9,9,9	0.39	0	8,8,8	0.87	0
85	PUT	L5	5308	-	5,5,5	0.16	0	4,4,4	0.22	0
85	PUT	S2	1901	-	5,5,5	0.11	0	4,4,4	0.14	0
88	ANM	L5	5301	86	20,20,20	1.13	1 (5%)	22,27,27	1.50	4 (18%)
89	SPD	L5	5302	-	9,9,9	0.37	0	8,8,8	0.90	0
92	MET	Pt	78	84	6,7,8	0.52	0	2,7,9	2.25	1 (50%)
89	SPD	L5	5306	-	9,9,9	0.16	0	8,8,8	0.24	0
90	3H3	L5	5310	-	33,34,34	3.43	12 (36%)	34,45,45	4.07	16 (47%)
89	SPD	L5	5304	-	9,9,9	0.20	0	8,8,8	0.22	0
85	PUT	L5	5309	-	5,5,5	0.17	0	4,4,4	0.21	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
89	SPD	L5	5307	-	-	0/7/7/7	-
85	PUT	L5	5305	-	-	1/3/3/3	-
89	SPD	L5	5303	-	-	3/7/7/7	-
85	PUT	L5	5308	-	-	1/3/3/3	-
85	PUT	S2	1901	-	-	1/3/3/3	-
88	ANM	L5	5301	86	-	4/10/23/23	0/2/2/2
89	SPD	L5	5302	-	-	0/7/7/7	-
92	MET	Pt	78	84	-	1/5/6/8	-
89	SPD	L5	5306	-	-	1/7/7/7	-
90	3H3	L5	5310	-	-	17/39/51/51	0/1/2/2
89	SPD	L5	5304	-	-	5/7/7/7	-
85	PUT	L5	5309	-	-	3/3/3/3	-

The worst 5 of 13 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
90	L5	5310	3H3	C13-C12	9.48	1.53	1.33
90	L5	5310	3H3	O3-C22	7.98	1.39	1.23
90	L5	5310	3H3	O4-C23	7.51	1.38	1.23
90	L5	5310	3H3	C23-N	6.64	1.48	1.37
90	L5	5310	3H3	C22-N	6.41	1.48	1.37

The worst 5 of 21 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
90	L5	5310	3H3	C22-N-C23	-11.50	111.83	125.78
90	L5	5310	3H3	O4-C23-N	-8.54	106.75	120.28
90	L5	5310	3H3	O3-C22-N	-7.61	108.22	120.28
90	L5	5310	3H3	O3-C22-C21	-7.02	108.95	122.62
90	L5	5310	3H3	O4-C23-C24	-6.86	109.26	122.62

There are no chirality outliers.

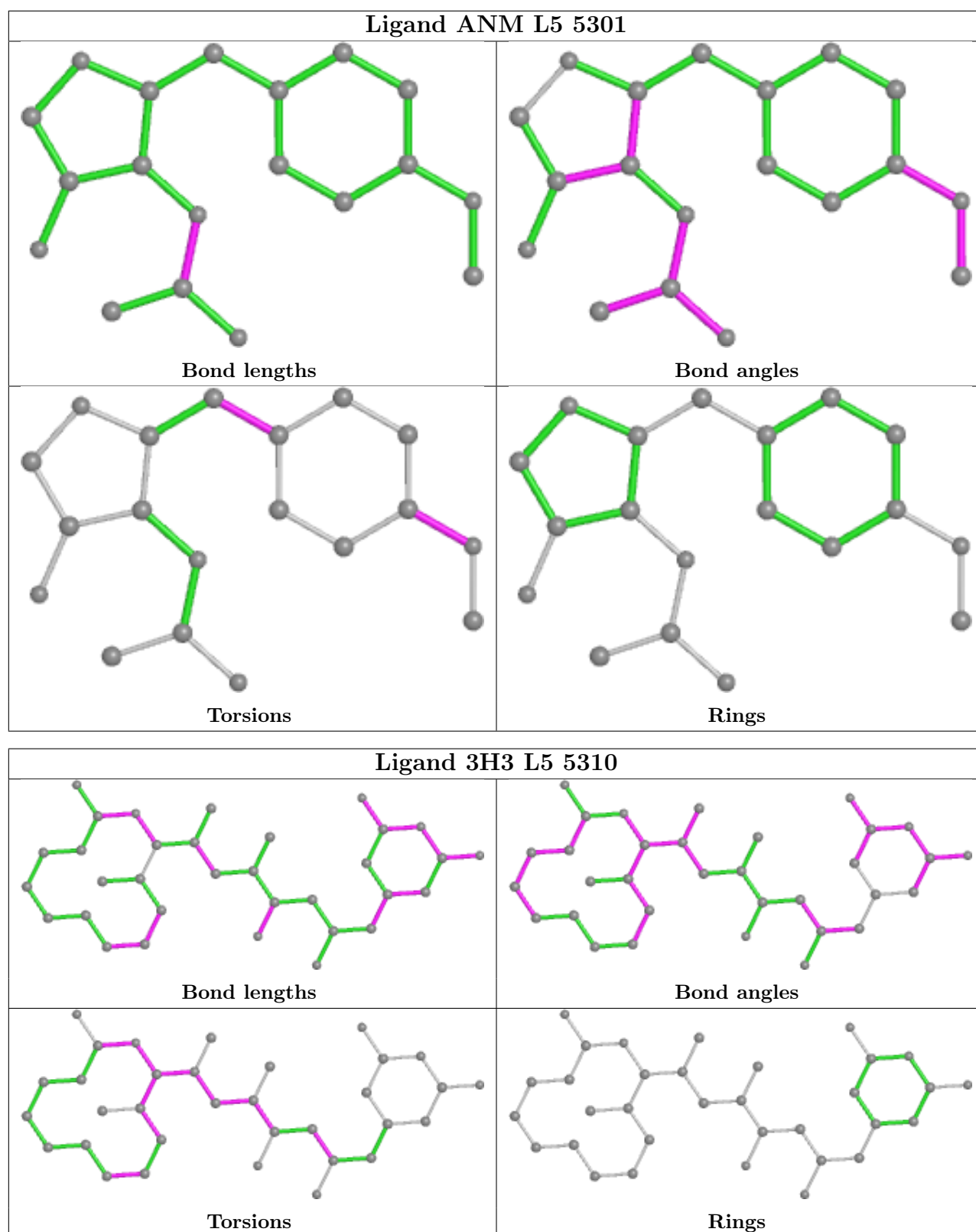
5 of 37 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
90	L5	5310	3H3	C2-C1-C11-O1
90	L5	5310	3H3	C2-C1-C11-C12
90	L5	5310	3H3	C-C1-C11-O1
90	L5	5310	3H3	C-C1-C11-C12
90	L5	5310	3H3	C9-C10-O1-C11

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

There are no chain breaks in this entry.

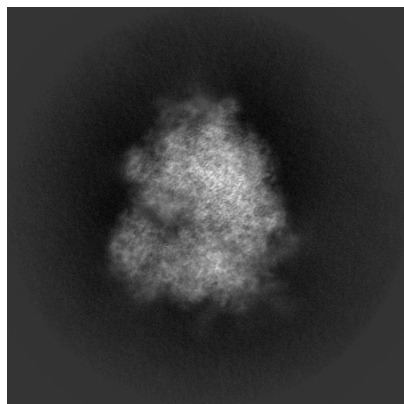
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-29760. These allow visual inspection of the internal detail of the map and identification of artifacts.

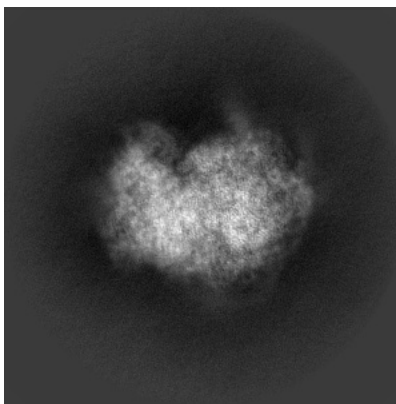
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

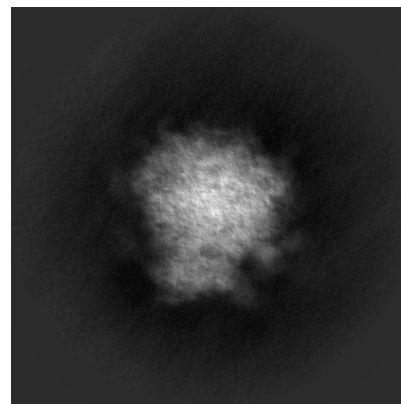
6.1.1 Primary map



X

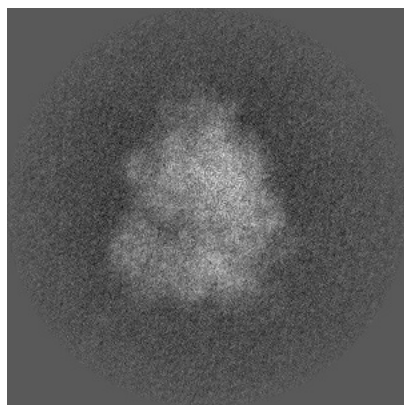


Y

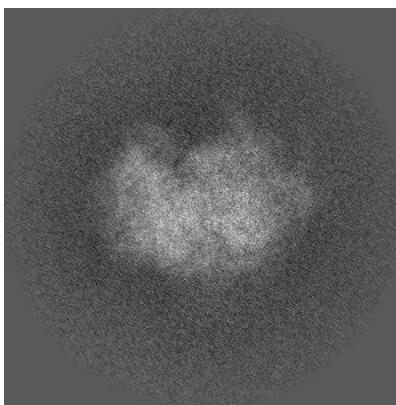


Z

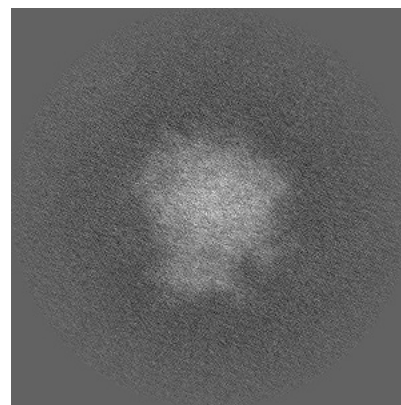
6.1.2 Raw map



X



Y

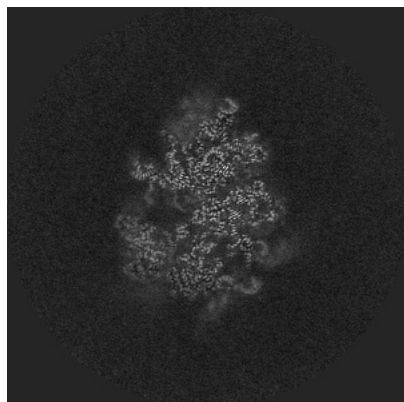


Z

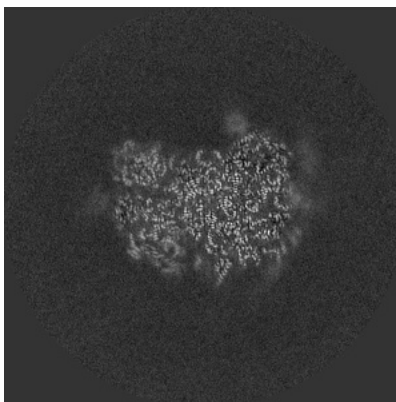
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

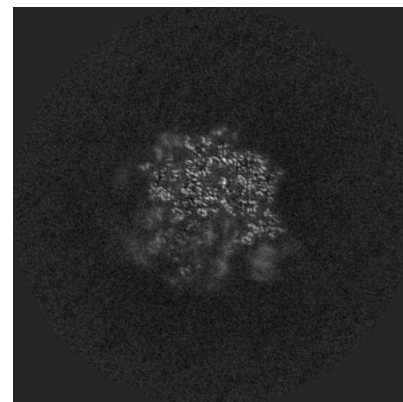
6.2.1 Primary map



X Index: 320

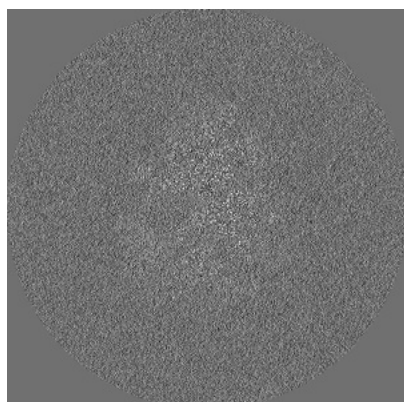


Y Index: 320

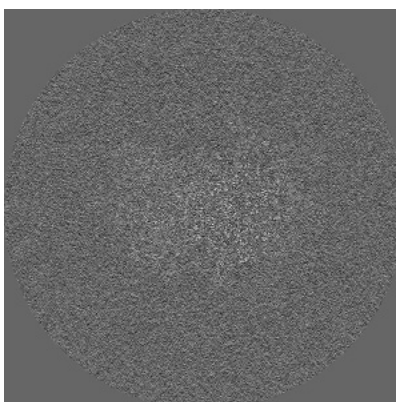


Z Index: 320

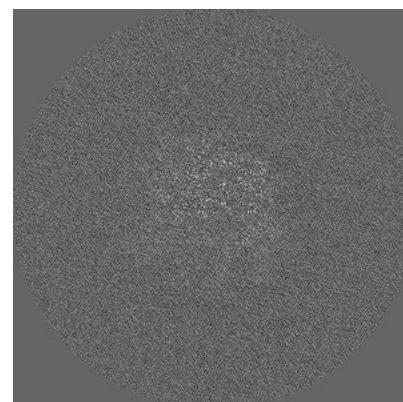
6.2.2 Raw map



X Index: 320



Y Index: 320

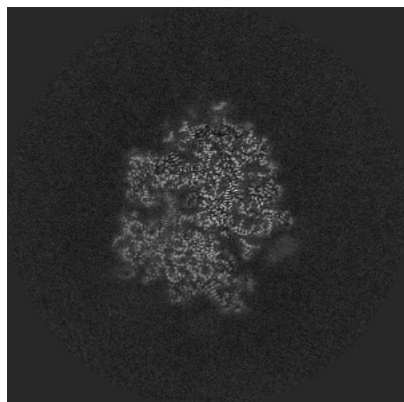


Z Index: 320

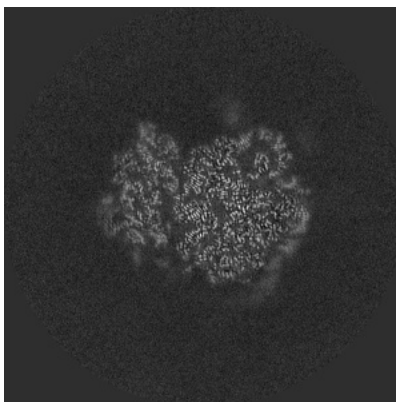
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

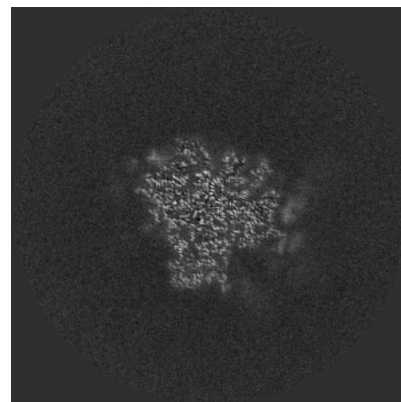
6.3.1 Primary map



X Index: 298

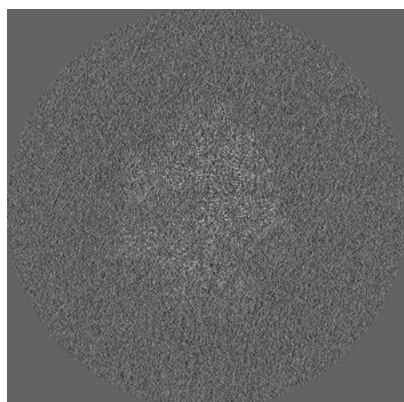


Y Index: 341

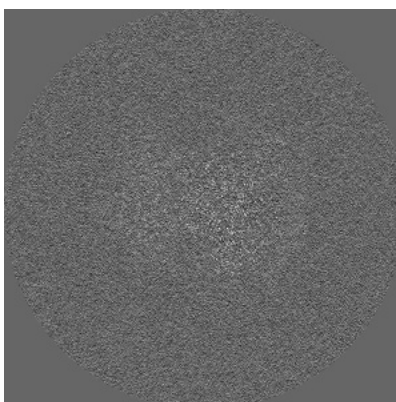


Z Index: 376

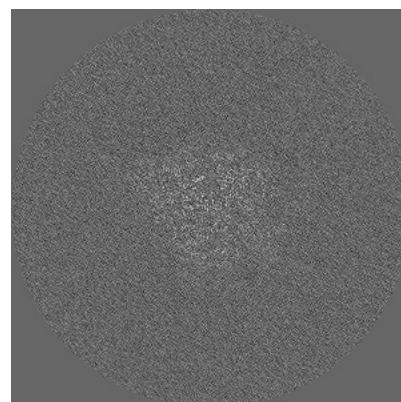
6.3.2 Raw map



X Index: 304



Y Index: 332

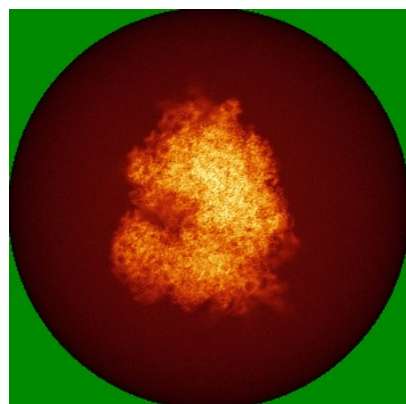


Z Index: 355

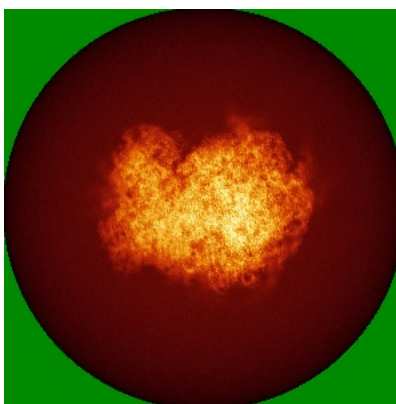
The images above show the largest variance slices of the map in three orthogonal directions.

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

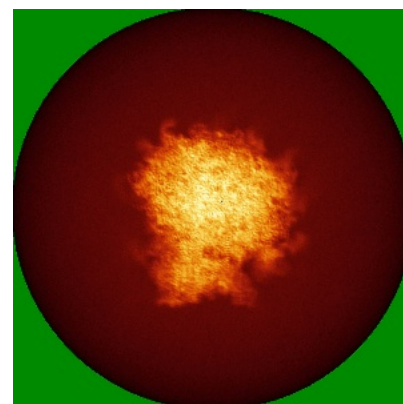
6.4.1 Primary map



X

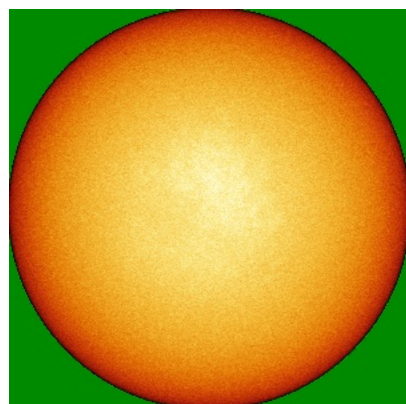


Y

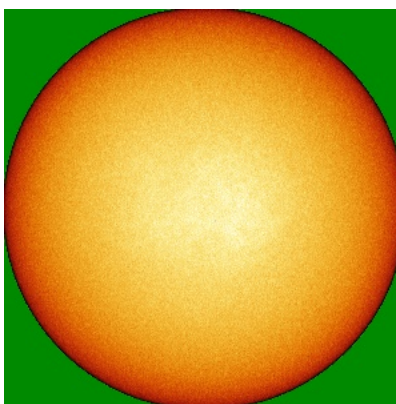


Z

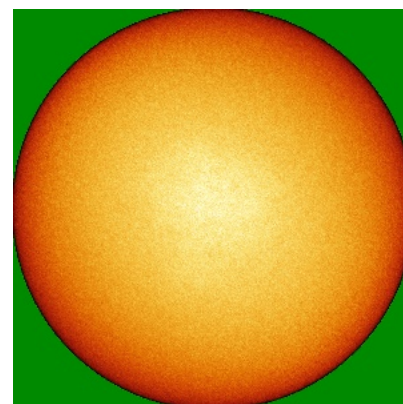
6.4.2 Raw map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



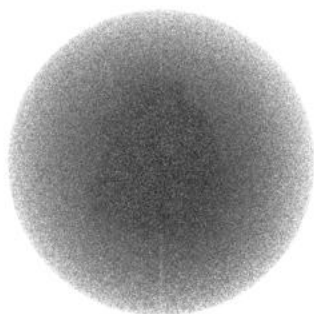
Y



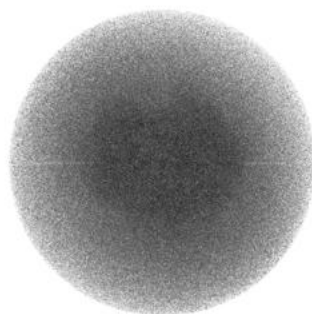
Z

The images above show the 3D surface view of the map at the recommended contour level 0.004. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

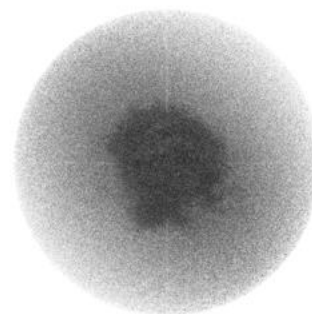
6.5.2 Raw map



X



Y



Z

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

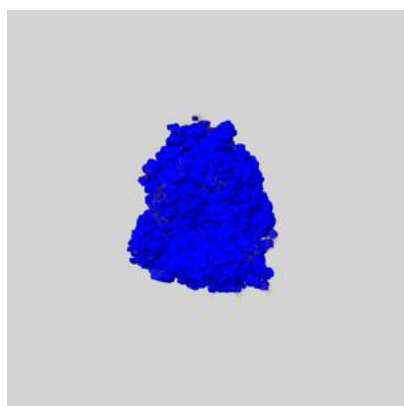
6.6 Mask visualisation [i](#)

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

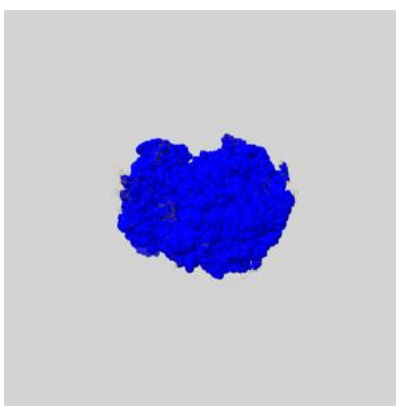
A mask typically either:

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

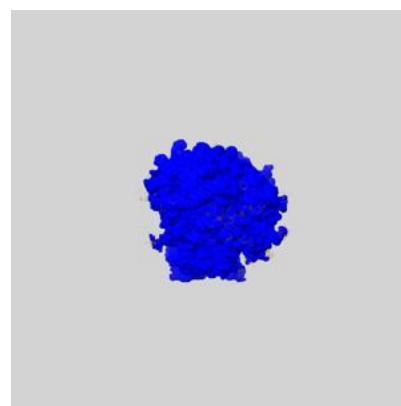
6.6.1 emd_29760_msk_1.map [i](#)



X



Y

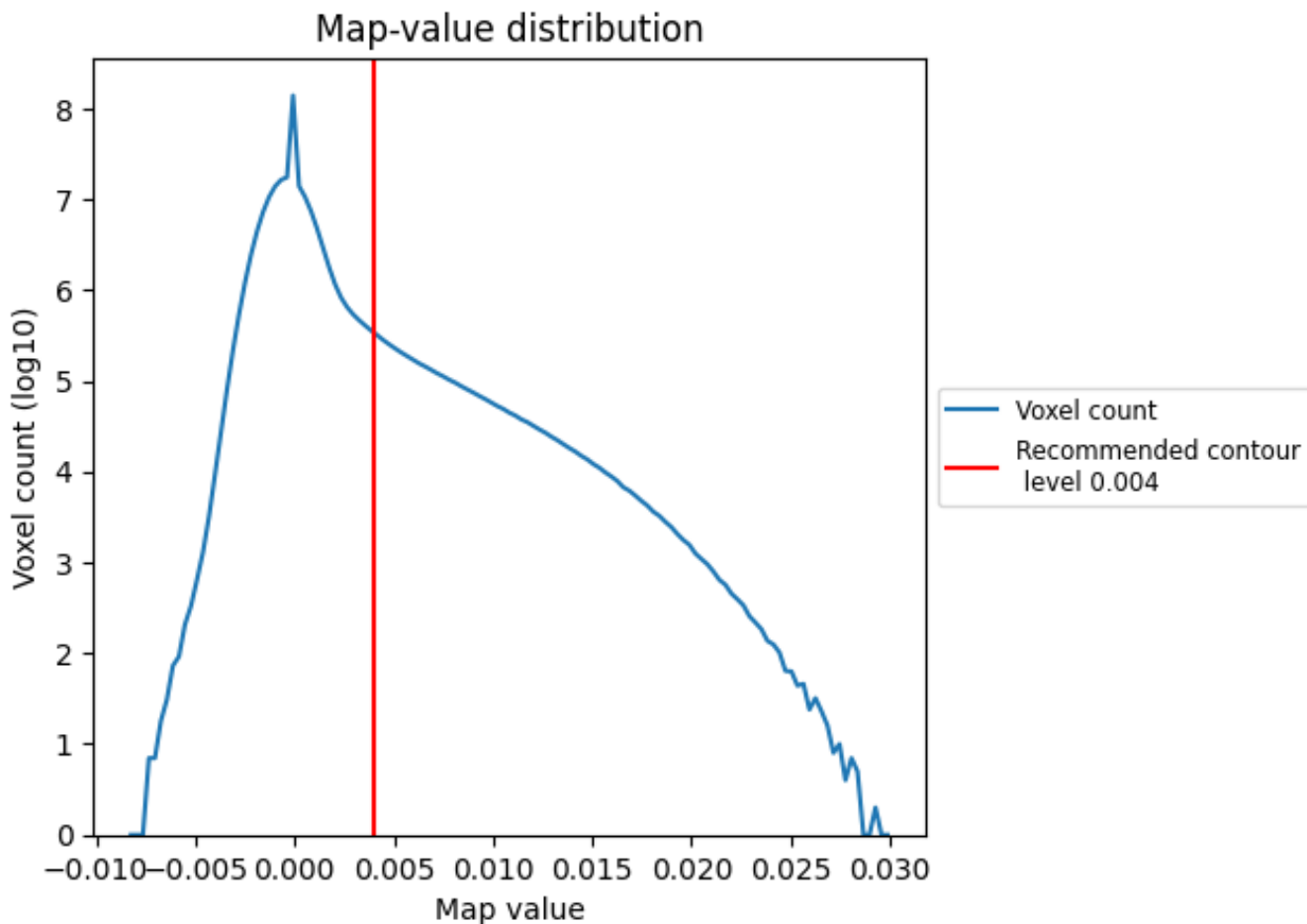


Z

7 Map analysis [i](#)

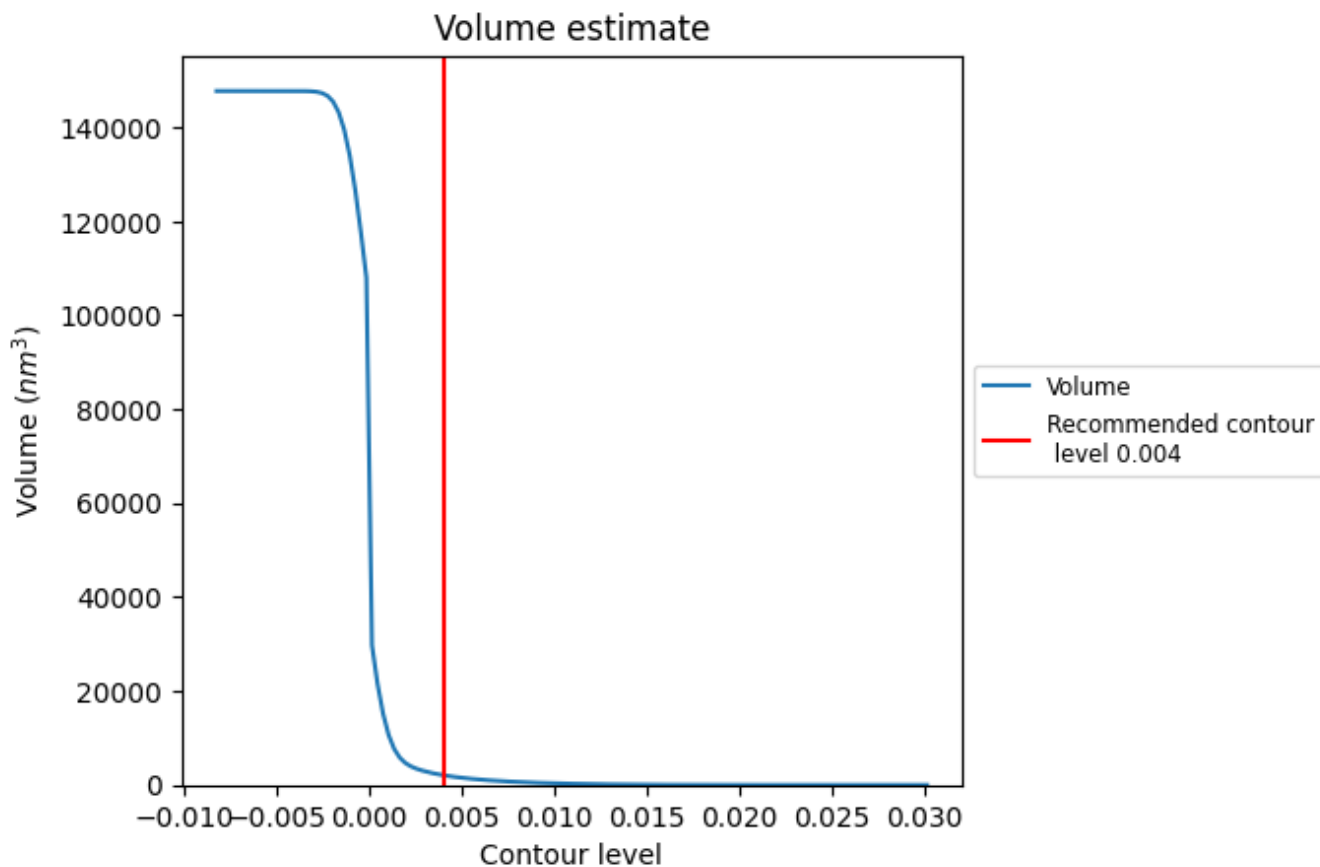
This section contains the results of statistical analysis of the map.

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.

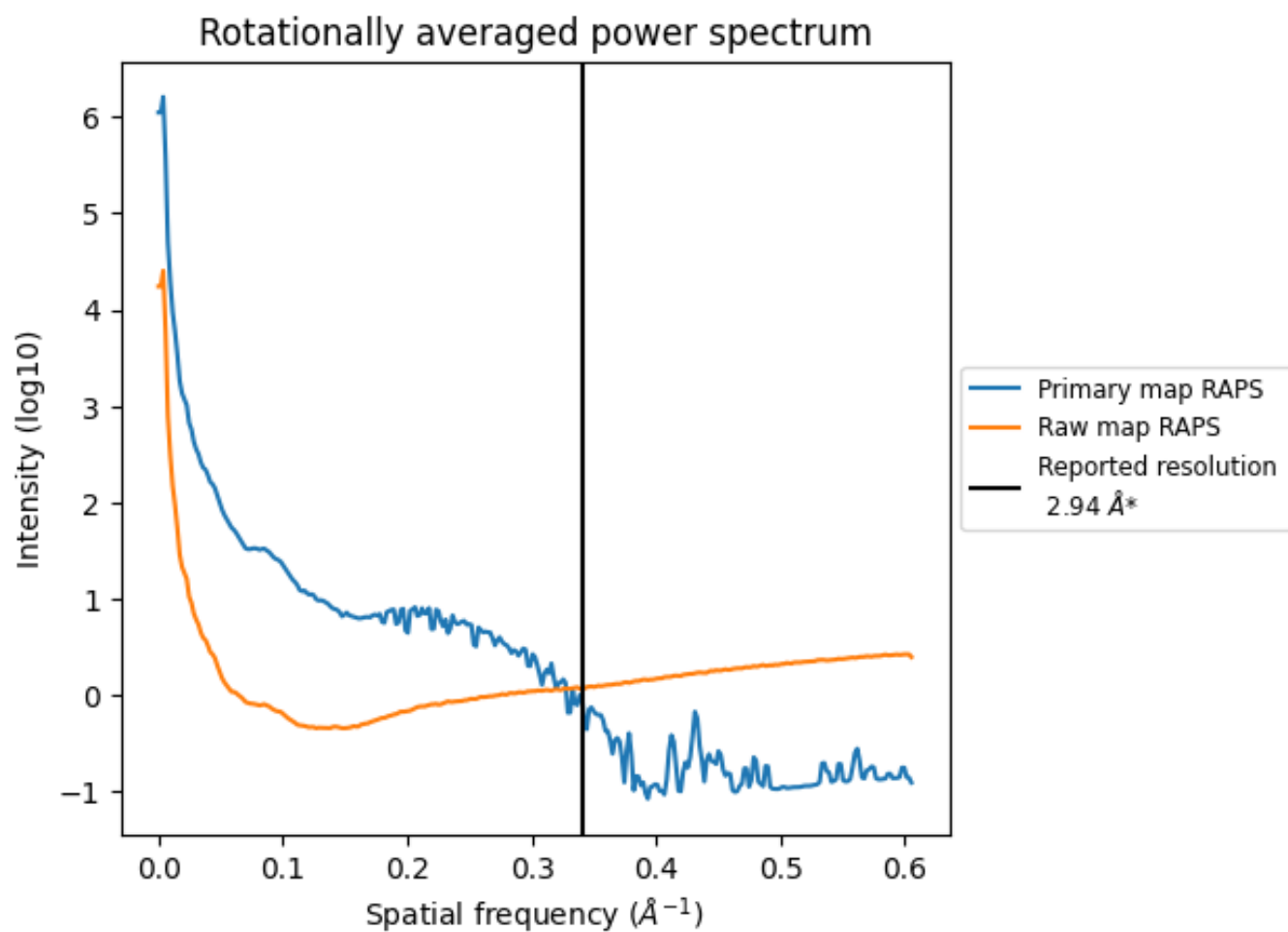
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 2088 nm^3 ; this corresponds to an approximate mass of 1886 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](#)

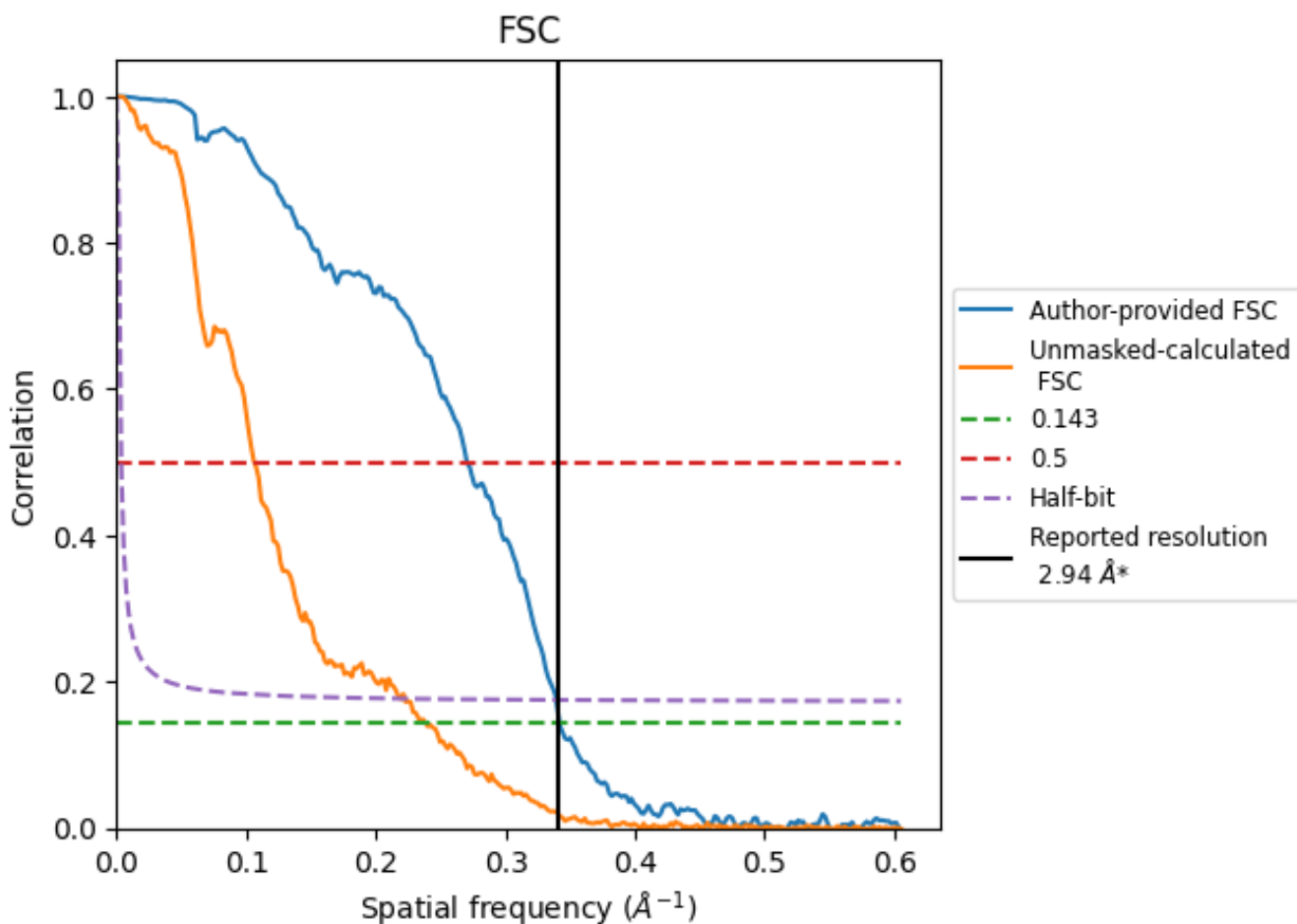


*Reported resolution corresponds to spatial frequency of 0.340 Å⁻¹

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 0.340\AA^{-1}

8.2 Resolution estimates

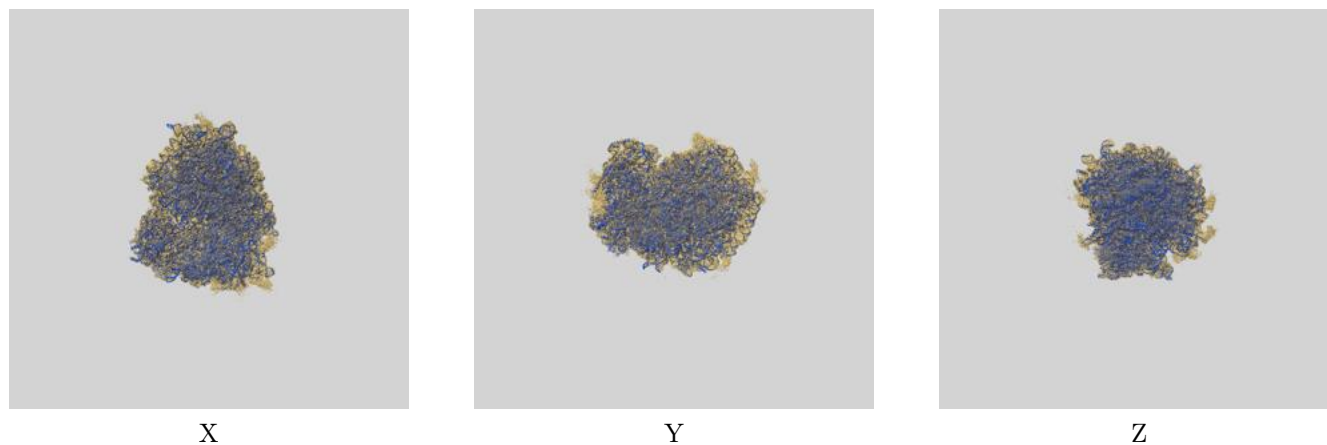
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.94	-	-
Author-provided FSC curve	2.92	3.70	2.95
Unmasked-calculated*	4.19	9.40	4.56

*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 4.19 differs from the reported value 2.94 by more than 10 %

9 Map-model fit [i](#)

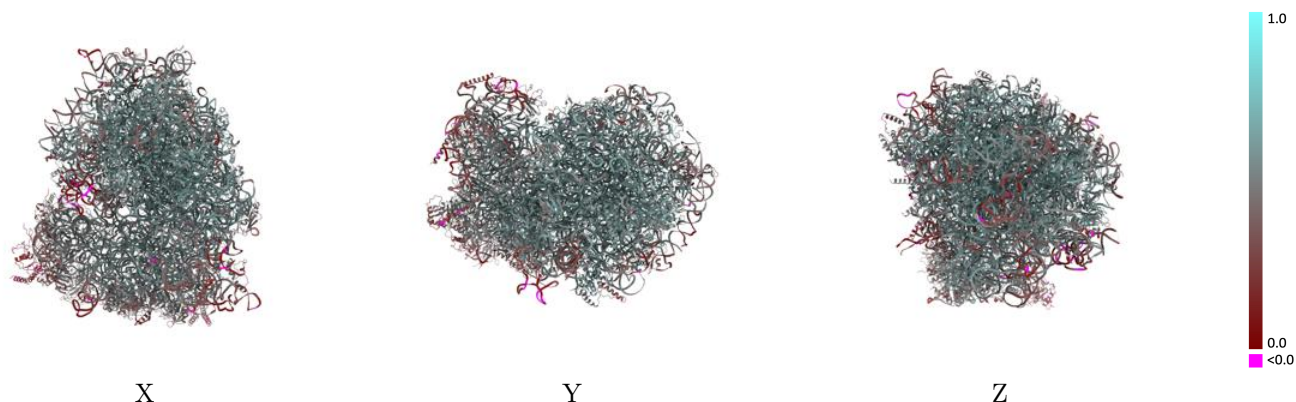
This section contains information regarding the fit between EMDB map EMD-29760 and PDB model 8G61. Per-residue inclusion information can be found in section [3](#) on page [24](#).

9.1 Map-model overlay [i](#)



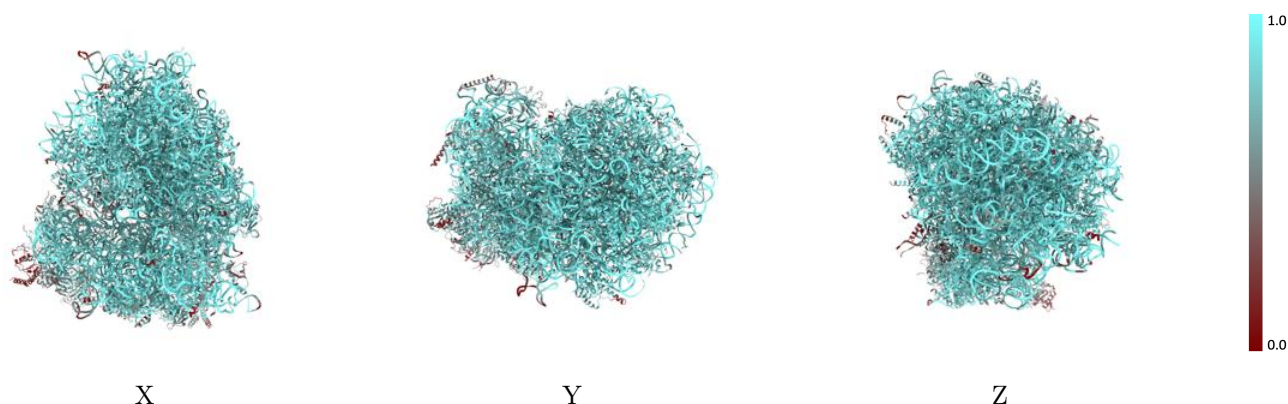
The images above show the 3D surface view of the map at the recommended contour level 0.004 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



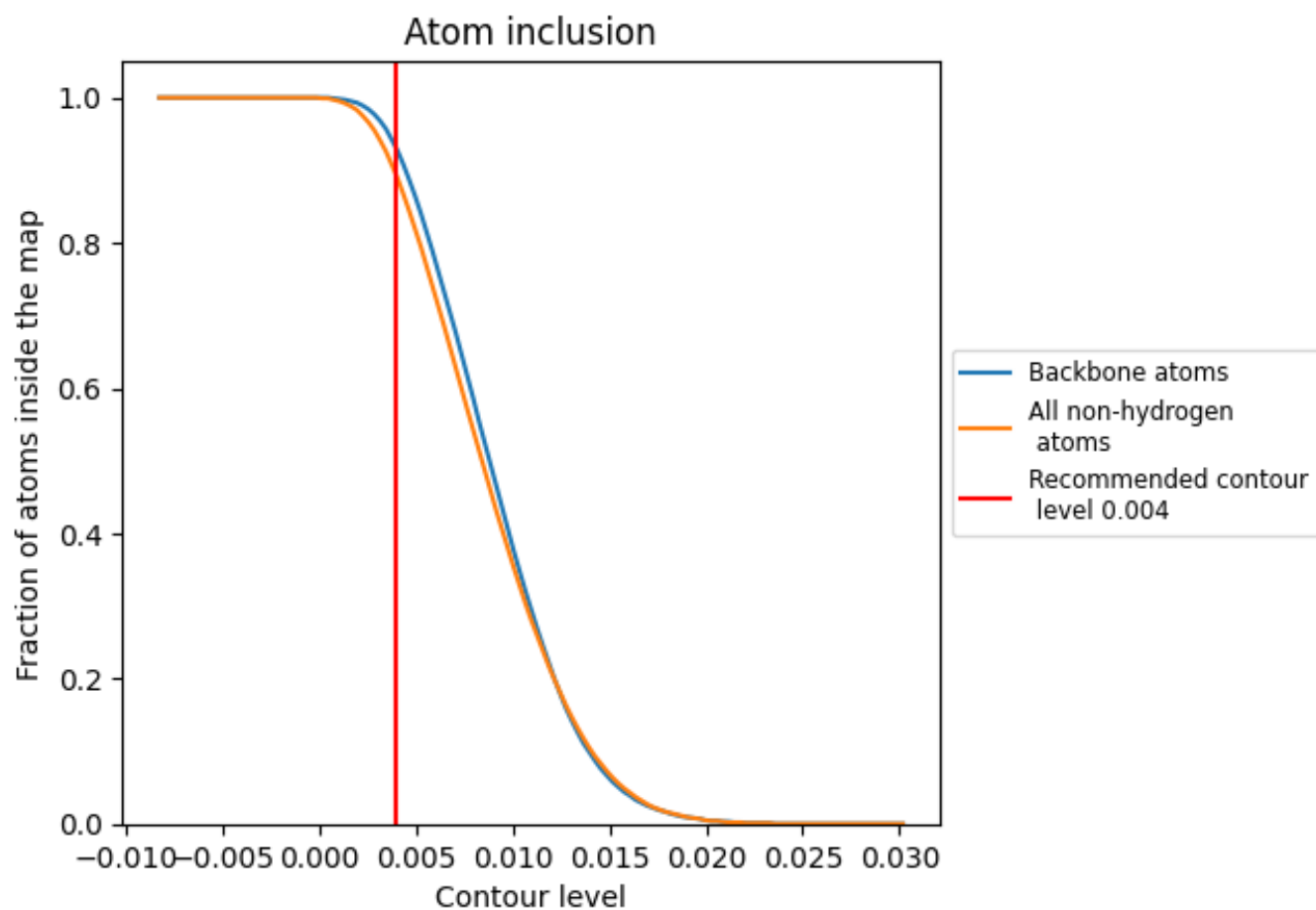
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.004).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 89% 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 (0.004) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8930	 0.5100
5A	 0.5460	 0.4450
At	 0.7180	 0.4270
L5	 0.9520	 0.5290
L7	 0.9880	 0.5760
L8	 0.9810	 0.5630
LA	 0.9410	 0.6010
LB	 0.9020	 0.5770
LC	 0.9140	 0.5770
LD	 0.8790	 0.5230
LE	 0.8720	 0.5410
LF	 0.9250	 0.5730
LG	 0.8020	 0.5020
LH	 0.8690	 0.5390
LI	 0.9030	 0.5570
LJ	 0.8250	 0.4720
LL	 0.8800	 0.5470
LM	 0.9020	 0.5500
LN	 0.9780	 0.6100
LO	 0.9230	 0.5770
LP	 0.9300	 0.5920
LQ	 0.9490	 0.6050
LR	 0.8470	 0.5160
LS	 0.9470	 0.5870
LT	 0.9130	 0.5760
LU	 0.8020	 0.4820
LV	 0.9250	 0.5810
LW	 0.6940	 0.4220
LX	 0.9190	 0.5650
LY	 0.9030	 0.5590
LZ	 0.8770	 0.5340
La	 0.9510	 0.6000
Lb	 0.8060	 0.4950
Lc	 0.8410	 0.5400
Ld	 0.8890	 0.5550



















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Chain	Atom inclusion	Q-score
Le	 0.9630	 0.6070
Lf	 0.9530	 0.6030
Lg	 0.8900	 0.5680
Lh	 0.8860	 0.5450
Li	 0.8860	 0.5270
Lj	 0.9670	 0.6080
Lk	 0.8060	 0.5110
Ll	 0.9310	 0.5630
Lm	 0.8990	 0.5580
Ln	 0.9380	 0.5690
Lo	 0.9010	 0.5670
Lp	 0.9000	 0.5740
Lr	 0.9190	 0.5810
Lz	 0.3610	 0.3050
Pt	 0.8110	 0.4480
S2	 0.9560	 0.4870
SA	 0.7540	 0.4380
SB	 0.7030	 0.3990
SC	 0.8190	 0.4990
SD	 0.7200	 0.4450
SE	 0.8250	 0.4810
SF	 0.7770	 0.4490
SG	 0.7270	 0.4140
SH	 0.6270	 0.3820
SI	 0.8160	 0.4800
SJ	 0.7940	 0.4410
SK	 0.7110	 0.4050
SL	 0.8550	 0.5270
SM	 0.1570	 0.1880
SN	 0.8120	 0.4880
SO	 0.7690	 0.4310
SP	 0.7300	 0.3990
SQ	 0.8200	 0.4540
SR	 0.6540	 0.3790
SS	 0.7660	 0.4380
ST	 0.8360	 0.4680
SU	 0.7440	 0.4190
SV	 0.7760	 0.4720
SW	 0.8770	 0.5250
SX	 0.9010	 0.5380
SY	 0.7510	 0.4040
SZ	 0.6240	 0.4100

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Chain	Atom inclusion	Q-score
Sa	 0.8520	 0.4810
Sb	 0.7210	 0.4450
Sc	 0.7030	 0.4220
Sd	 0.9220	 0.5000
Se	 0.7780	 0.4480
Sf	 0.4000	 0.2380
Sg	 0.5670	 0.3550
mR	 0.9710	 0.5440