Full wwPDB EM Validation Report ⓘ

Oct 28, 2024 – 09:30 am GMT

PDB ID	:	4UG0
EMDB ID	:	EMD-2938
Title	:	STRUCTURE OF THE HUMAN 80S RIBOSOME
Authors	:	Khatter, H.; Myasnikov, A.G.; Natchiar, S.K.; Klaholz, B.P.
Deposited on	:	2015-03-20
Resolution	:	3.60 Å(reported)

This is a Full wwPDB EM Validation 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:

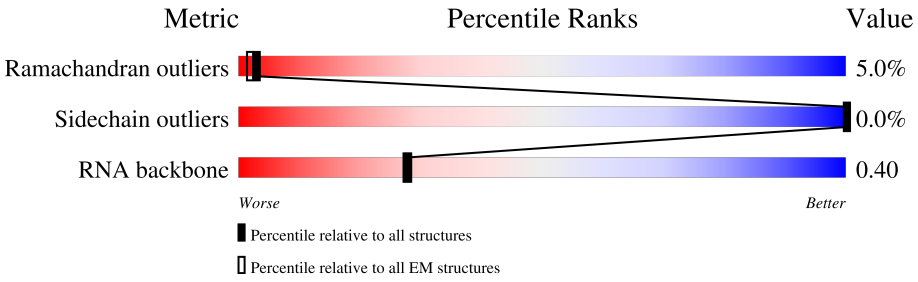
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	: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

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.60 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	L5	5070	48% 26% 26%
2	L7	121	82% 17%
3	L8	157	71% 29%
4	LA	257	90% 6%
5	LB	403	96%
6	LC	427	80% 6% 14%
7	LD	297	95%
8	LE	288	77% 7% 16%

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Mol	Chain	Length	Quality of chain
9	LF	248	89% 9%
10	LG	266	85% 6% 9%
11	LH	192	95%
12	LI	214	96%
13	LJ	178	94%
14	LL	211	94% 5%
15	LM	215	62% 35%
16	LN	204	98%
17	LO	203	97%
18	LP	184	80% 17%
19	LQ	188	97%
20	LR	196	95% 5%
21	LS	176	93% 6%
22	LT	160	96%
23	LU	128	78% 21%
24	LV	140	89% 6%
25	LW	157	76% 21%
26	LX	156	76% 23%
27	LY	145	90% 8%
28	LZ	136	97%
29	La	148	96%
30	Lb	159	46% 53%
31	Lc	115	80% 5% 15%
32	Ld	125	82% 14%
33	Le	135	91% 5%

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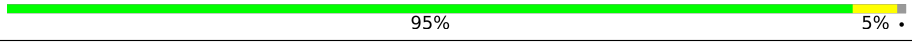
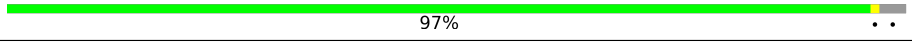
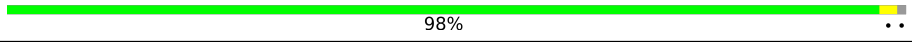
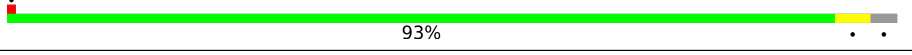
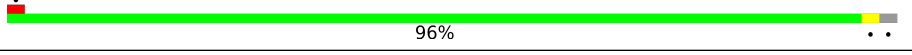
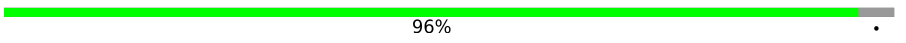
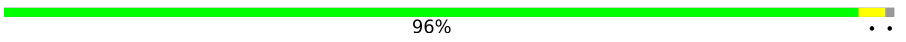
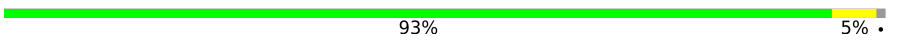
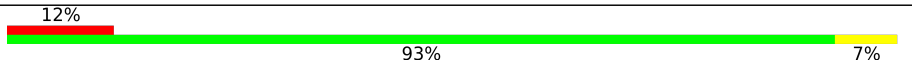
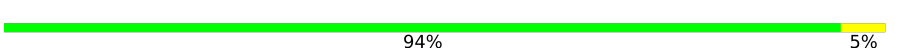
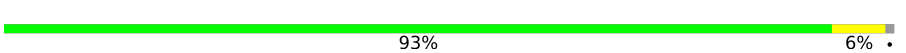
Mol	Chain	Length	Quality of chain
34	Lf	110	
35	Lg	117	
36	Lh	123	
37	Li	105	
38	Lj	97	
39	Lk	70	
40	Ll	51	
41	Lm	128	
42	Ln	25	
43	Lo	106	
44	Lp	92	
45	Lr	137	
46	Lz	217	
47	S2	1869	
48	S6	75	
49	SA	295	
50	SB	264	
51	SD	243	
52	SE	263	
53	SF	204	
54	SH	194	
55	SI	208	
56	SK	165	
57	SL	158	
58	SP	145	

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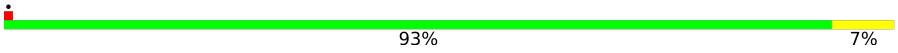
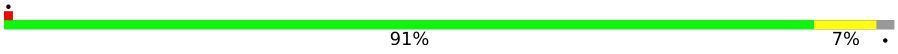
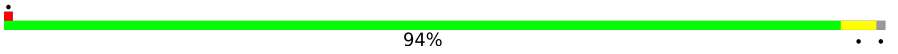
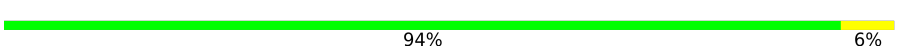
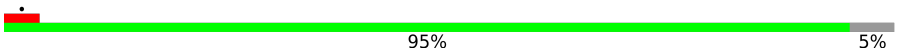
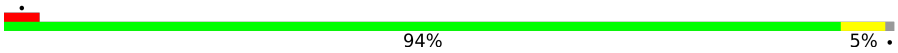
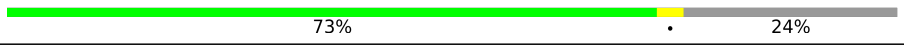
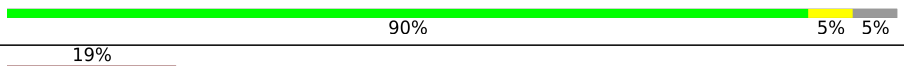
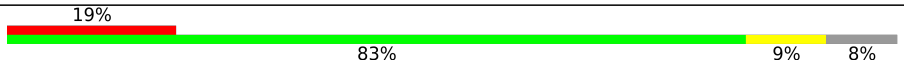
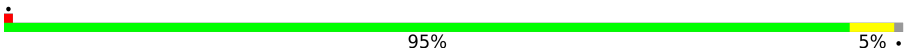
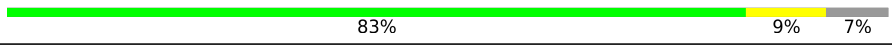
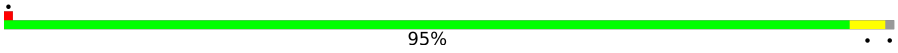
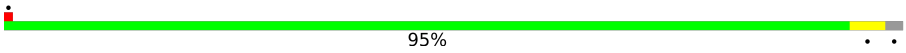
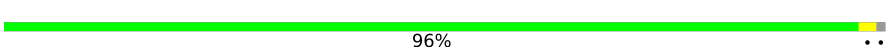
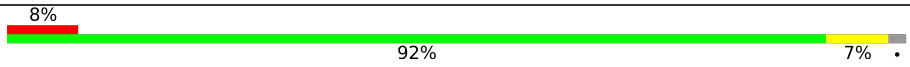
Mol	Chain	Length	Quality of chain
59	SQ	146	
60	SR	135	
61	SS	152	
62	ST	145	
63	SU	119	
64	SV	83	
65	SX	143	
66	Sa	115	
67	Sc	69	
68	Sd	56	
69	Sf	156	
70	Sg	317	
71	SC	293	
72	SG	249	
73	SJ	194	
74	SM	132	
75	SN	151	
76	SO	151	
77	SW	130	
78	SY	133	
79	SZ	125	
80	Sb	84	
81	Se	59	

2 Entry composition (i)

There are 83 unique types of molecules in this entry. The entry contains 218776 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 28S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	L5	3776	80184	35672	14597	26140	3775	0	0

- Molecule 2 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	L7	120	2558	1141	456	842	119	0	0

- Molecule 3 is a RNA chain called 5.8S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	L8	156	3314	1480	585	1094	155	0	0

- Molecule 4 is a protein called 60S RIBOSOMAL PROTEIN L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	LA	248	1898	1189	389	314	6	0	0

- Molecule 5 is a protein called 60S RIBOSOMAL PROTEIN L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	LB	402	3238	2060	608	556	14	0	0

- Molecule 6 is a protein called 60S RIBOSOMAL PROTEIN L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	LC	367	2919	1835	582	488	14	0	0

- Molecule 7 is a protein called 60S RIBOSOMAL PROTEIN L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	LD	293	Total	C	N	O	S	0	0
			2382	1507	434	427	14		

- Molecule 8 is a protein called 60S RIBOSOMAL PROTEIN L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	LE	242	Total	C	N	O	S	0	0
			1958	1257	372	325	4		

- Molecule 9 is a protein called 60S RIBOSOMAL PROTEIN L7.

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

- Molecule 10 is a protein called 60S RIBOSOMAL PROTEIN L7A.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	LG	241	Total	C	N	O	S	0	0
			1927	1228	371	324	4		

- Molecule 11 is a protein called 60S RIBOSOMAL PROTEIN L9.

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

- Molecule 12 is a protein called 60S RIBOSOMAL PROTEIN L10-LIKE.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	LI	213	Total	C	N	O	S	0	0
			1711	1082	329	285	15		

- Molecule 13 is a protein called 60S RIBOSOMAL PROTEIN L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	LJ	176	Total	C	N	O	S	0	0
			1410	888	263	253	6		

- Molecule 14 is a protein called 60S RIBOSOMAL PROTEIN L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	LL	210	Total	C	N	O	S	0	0
			1701	1064	352	281	4		

- Molecule 15 is a protein called 60S RIBOSOMAL PROTEIN L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	LM	139	Total	C	N	O	S	0	0
			1138	730	218	183	7		

- Molecule 16 is a protein called 60S RIBOSOMAL PROTEIN L15.

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

- Molecule 17 is a protein called 60S RIBOSOMAL PROTEIN L13A.

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

- Molecule 18 is a protein called 60S RIBOSOMAL PROTEIN L17.

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

- Molecule 19 is a protein called 60S RIBOSOMAL PROTEIN L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	LQ	187	Total	C	N	O	S	0	0
			1513	944	314	250	5		

- Molecule 20 is a protein called 60S RIBOSOMAL PROTEIN L19.

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

- Molecule 21 is a protein called 60S RIBOSOMAL PROTEIN L18A.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	LS	175	Total	C	N	O	S	0	0
			1453	925	283	235	10		

- Molecule 22 is a protein called 60S RIBOSOMAL PROTEIN L21.

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

- Molecule 23 is a protein called 60S RIBOSOMAL PROTEIN L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	LU	101	Total	C	N	O	S	0	0
			825	529	144	150	2		

- Molecule 24 is a protein called 60S RIBOSOMAL PROTEIN L23.

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

- Molecule 25 is a protein called 60S RIBOSOMAL PROTEIN L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	LW	124	Total	C	N	O	S	0	0
			1015	634	207	170	4		

- Molecule 26 is a protein called 60S RIBOSOMAL PROTEIN L23A.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	LX	120	Total	C	N	O	S	0	0
			985	630	185	169	1		

- Molecule 27 is a protein called 60S RIBOSOMAL PROTEIN L26.

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

- Molecule 28 is a protein called 60S RIBOSOMAL PROTEIN L27.

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

- Molecule 29 is a protein called 60S RIBOSOMAL PROTEIN L27A.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	La	147	Total	C	N	O	S	0	0
			1162	736	237	186	3		

- Molecule 30 is a protein called 60S RIBOSOMAL PROTEIN L29.

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

- Molecule 31 is a protein called 60S RIBOSOMAL PROTEIN L30.

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

- Molecule 32 is a protein called 60S RIBOSOMAL PROTEIN L31.

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

- Molecule 33 is a protein called 60S RIBOSOMAL PROTEIN L32.

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

- Molecule 34 is a protein called 60S RIBOSOMAL PROTEIN L35A.

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

- Molecule 35 is a protein called 60S RIBOSOMAL PROTEIN L34.

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

- Molecule 36 is a protein called 60S RIBOSOMAL PROTEIN L35.

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

- Molecule 37 is a protein called 60S RIBOSOMAL PROTEIN L36.

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

- Molecule 38 is a protein called 60S RIBOSOMAL PROTEIN L37.

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

- Molecule 39 is a protein called 60S RIBOSOMAL PROTEIN L38.

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

- Molecule 40 is a protein called 60S RIBOSOMAL PROTEIN L39.

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

- Molecule 41 is a protein called UBIQUITIN-60S RIBOSOMAL PROTEIN L40.

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

- Molecule 42 is a protein called 60S RIBOSOMAL PROTEIN L41.

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

- Molecule 43 is a protein called 60S RIBOSOMAL PROTEIN L36A.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	Lo	105	Total	C	N	O	S	0	0
			862	542	175	139	6		

- Molecule 44 is a protein called 60S RIBOSOMAL PROTEIN L37A.

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

- Molecule 45 is a protein called 60S RIBOSOMAL PROTEIN L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	Lr	125	Total	C	N	O	S	0	0
			1002	622	207	168	5		

- Molecule 46 is a protein called 60S RIBOSOMAL PROTEIN L10A.

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

- Molecule 47 is a RNA chain called 18S ribosomal RNA.

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

- Molecule 48 is a RNA chain called HUMAN INITIATOR MET-TRNA-I.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	S6	75	Total	C	N	O	P	0	0
			1604	717	298	515	74		

- Molecule 49 is a protein called 40S RIBOSOMAL PROTEIN SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	SA	222	Total	C	N	O	S	0	0
			1747	1109	306	324	8		

- Molecule 50 is a protein called 40S RIBOSOMAL PROTEIN S3A.

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

- Molecule 51 is a protein called 40S RIBOSOMAL PROTEIN S3.

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

- Molecule 52 is a protein called 40S RIBOSOMAL PROTEIN S4, X ISOFORM.

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

- Molecule 53 is a protein called 40S RIBOSOMAL PROTEIN S5.

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

- Molecule 54 is a protein called 40S RIBOSOMAL PROTEIN S7.

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

- Molecule 55 is a protein called 40S RIBOSOMAL PROTEIN S8.

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

- Molecule 56 is a protein called 40S RIBOSOMAL PROTEIN S10.

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

- Molecule 57 is a protein called 40S RIBOSOMAL PROTEIN S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	SL	153	Total	C	N	O	S	0	0
			1247	793	234	214	6		

- Molecule 58 is a protein called 40S RIBOSOMAL PROTEIN S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	SP	97	Total	C	N	O	S	0	0
			804	505	155	138	6		

- Molecule 59 is a protein called 40S RIBOSOMAL PROTEIN S16.

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

- Molecule 60 is a protein called 40S RIBOSOMAL PROTEIN S17-LIKE.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	SR	132	Total	C	N	O	S	0	0
			1072	673	199	195	5		

- Molecule 61 is a protein called 40S RIBOSOMAL PROTEIN S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	SS	150	Total	C	N	O	S	0	0
			1235	776	250	208	1		

- Molecule 62 is a protein called 40S RIBOSOMAL PROTEIN S19.

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

- Molecule 63 is a protein called 40S RIBOSOMAL PROTEIN S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	SU	104	Total	C	N	O	S	0	0
			821	514	155	148	4		

- Molecule 64 is a protein called 40S RIBOSOMAL PROTEIN S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	SV	83	Total	C	N	O	S	0	0
			636	393	117	121	5		

- Molecule 65 is a protein called 40S RIBOSOMAL PROTEIN S23.

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

- Molecule 66 is a protein called 40S RIBOSOMAL PROTEIN S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	Sa	107	Total	C	N	O	S	0	0
			847	528	176	138	5		

- Molecule 67 is a protein called 40S RIBOSOMAL PROTEIN S28.

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

- Molecule 68 is a protein called 40S RIBOSOMAL PROTEIN S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	Sd	53	Total	C	N	O	S	0	0
			445	278	90	72	5		

- Molecule 69 is a protein called UBIQUITIN-40S RIBOSOMAL PROTEIN S27A.

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

- Molecule 70 is a protein called GUANINE NUCLEOTIDE-BINDING PROTEIN SUBUNIT BETA-2-LIKE 1.

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

- Molecule 71 is a protein called 40S RIBOSOMAL PROTEIN S2.

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

- Molecule 72 is a protein called 40S RIBOSOMAL PROTEIN S6.

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

- Molecule 73 is a protein called 40S RIBOSOMAL PROTEIN S9.

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

- Molecule 74 is a protein called 40S RIBOSOMAL PROTEIN.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	SM	122	Total	C	N	O	S	0	0
			952	596	169	179	8		

- Molecule 75 is a protein called 40S RIBOSOMAL PROTEIN S13.

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

- Molecule 76 is a protein called 40S RIBOSOMAL PROTEIN S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	SO	140	Total	C	N	O	S	0	0
			1049	642	204	197	6		

- Molecule 77 is a protein called 40S RIBOSOMAL PROTEIN S15A.

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

- Molecule 78 is a protein called 40S RIBOSOMAL PROTEIN S24.

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

- Molecule 79 is a protein called 40S RIBOSOMAL PROTEIN S25.

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

- Molecule 80 is a protein called 40S RIBOSOMAL PROTEIN S27.

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

- Molecule 81 is a protein called 40S RIBOSOMAL PROTEIN S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	Se	58	Total	C	N	O	S	0	0
			459	284	100	74	1		

- Molecule 82 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
82	L5	149	Total	Mg	0
			149	149	
82	L7	5	Total	Mg	0
			5	5	
82	L8	2	Total	Mg	0
			2	2	
82	LA	1	Total	Mg	0
			1	1	
82	LB	1	Total	Mg	0
			1	1	
82	LH	1	Total	Mg	0
			1	1	

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Mol	Chain	Residues	Atoms	AltConf
82	LJ	1	Total Mg 1 1	0
82	LN	1	Total Mg 1 1	0
82	LP	1	Total Mg 1 1	0
82	LQ	1	Total Mg 1 1	0
82	La	1	Total Mg 1 1	0
82	Le	1	Total Mg 1 1	0
82	Ll	1	Total Mg 1 1	0
82	S2	66	Total Mg 66 66	0
82	S6	7	Total Mg 7 7	0

- Molecule 83 is ZINC ION (three-letter code: ZN) (formula: Zn).

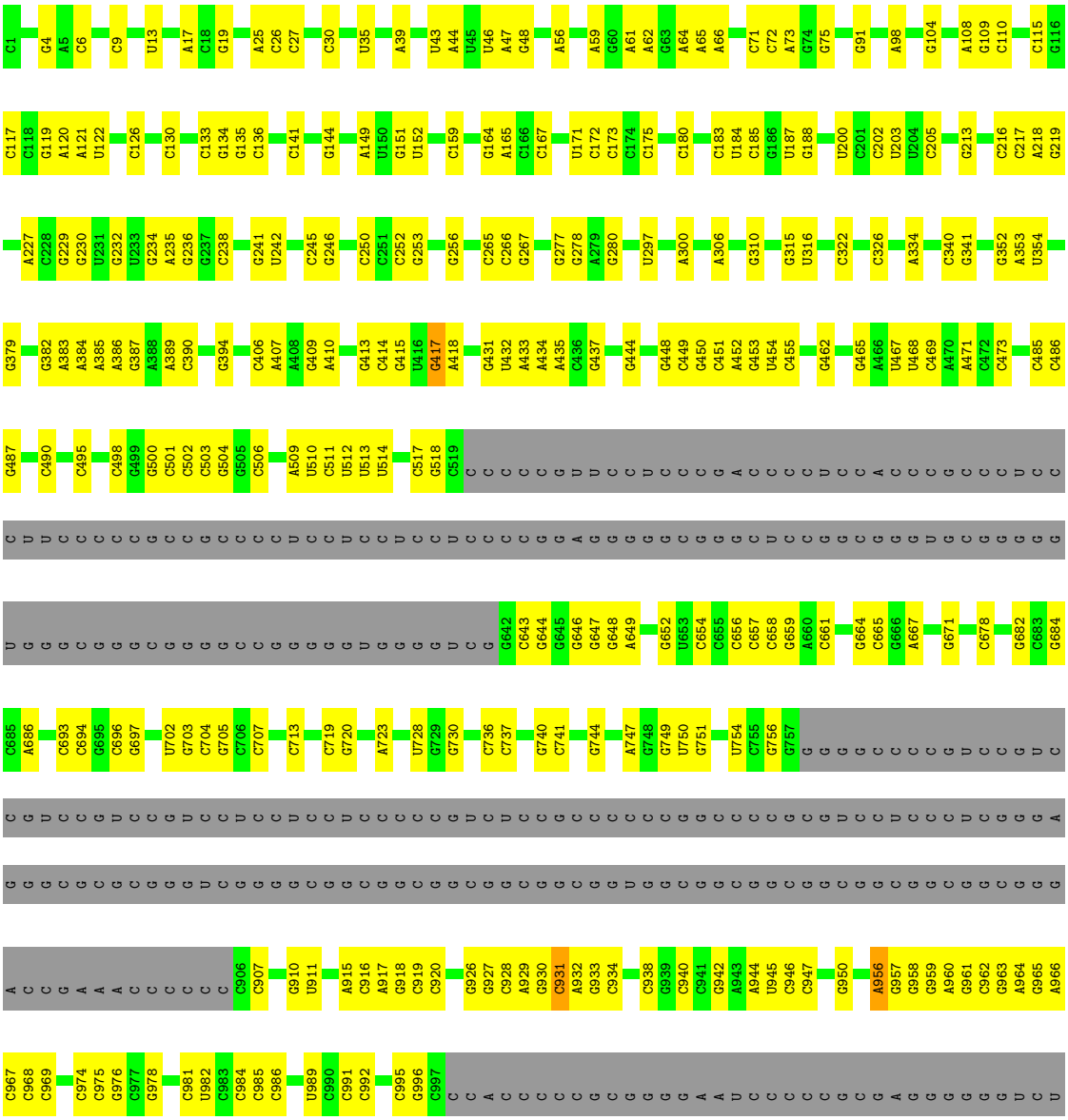
Mol	Chain	Residues	Atoms	AltConf
83	Lg	1	Total Zn 1 1	0
83	Lj	1	Total Zn 1 1	0
83	Lm	1	Total Zn 1 1	0
83	Lo	1	Total Zn 1 1	0
83	Lp	1	Total Zn 1 1	0
83	Sa	1	Total Zn 1 1	0

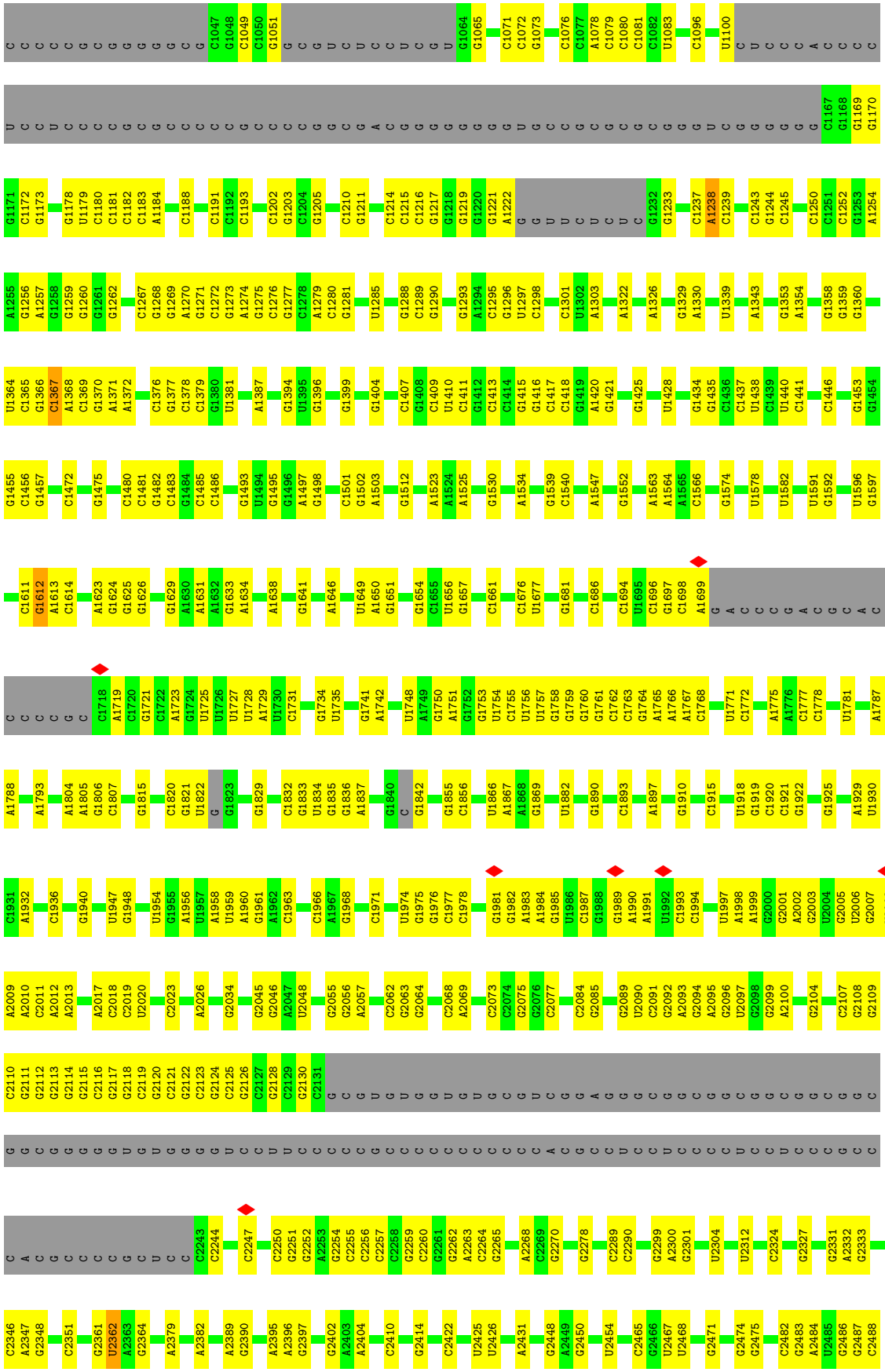
3 Residue-property plots (i)

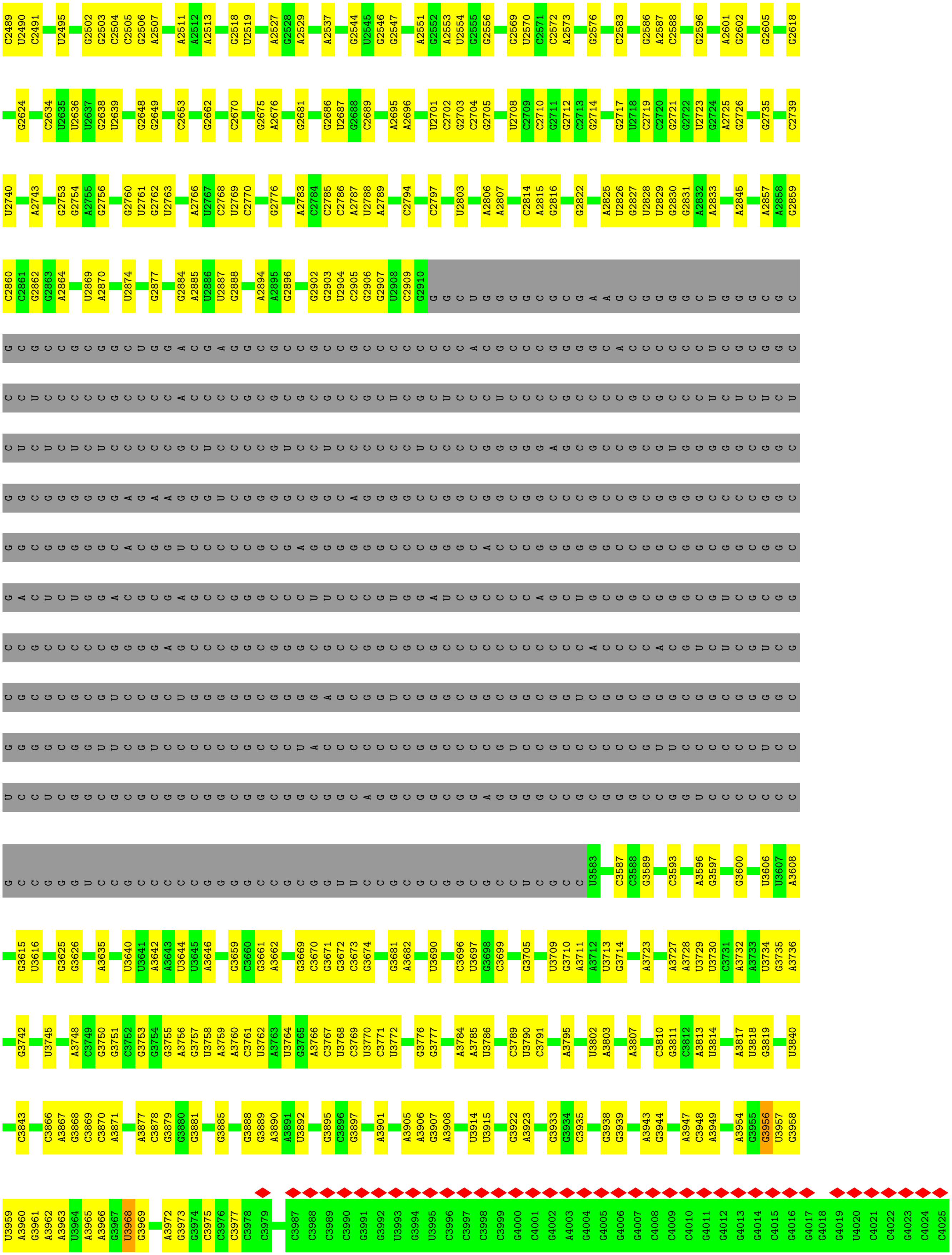
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: 28S ribosomal RNA

Chain L5:



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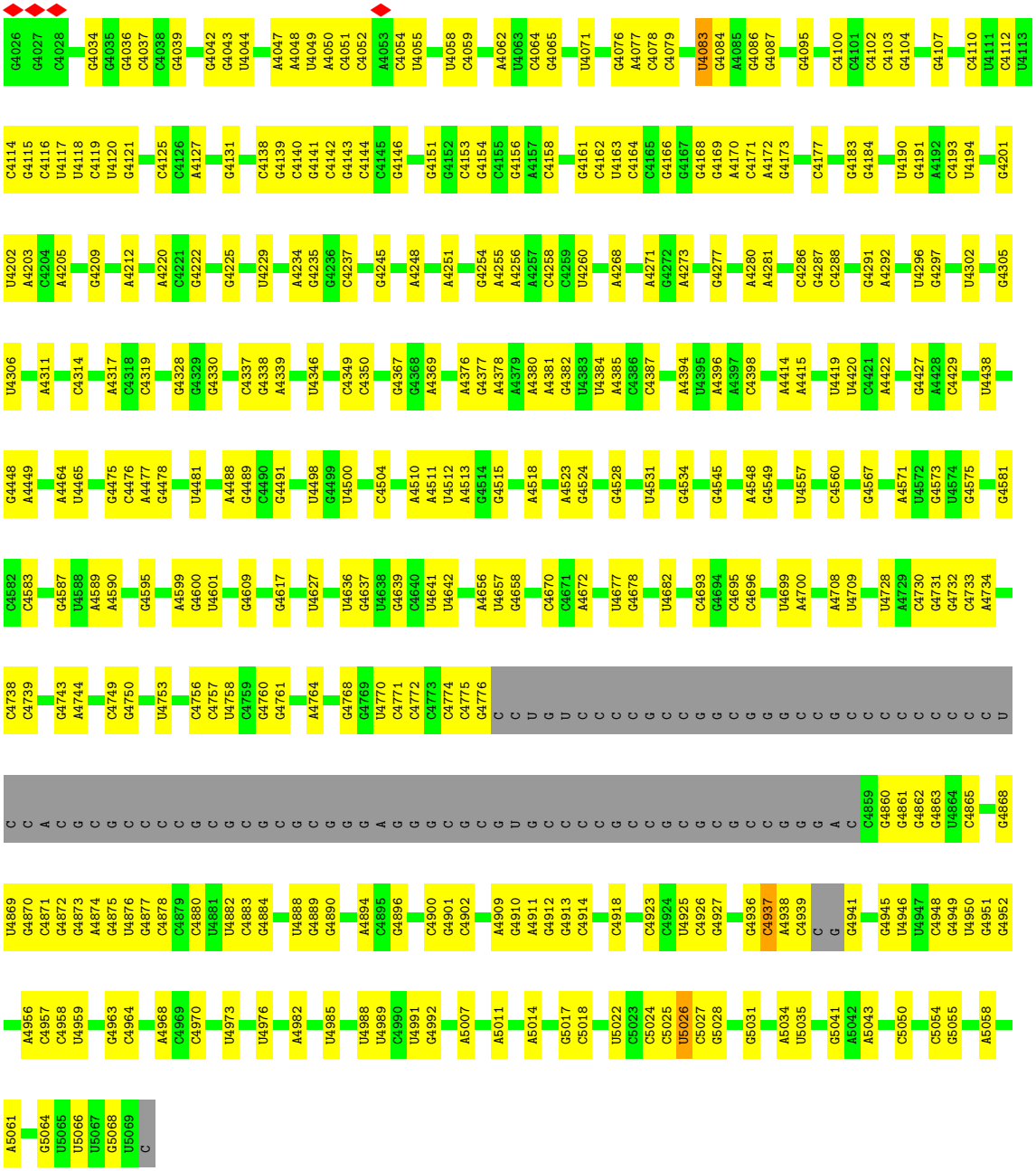
G2624 C2634 U2635 U2636 U2637 G2638 U2639 G2648 G2649 C2653 G2662 C2670 G2675 A2676 G2681 G2686 U2687 G2688 C2689 A2695 A2696 U2701 C2702 G2703 C2704 G2705 U2708 C2709 C2710 G2711 G2712 C2713 G2714 G2717 U2718 C2719 C2720 G2721 G2722 U2723 G2724 A2725 G2726 G2735 C2739
U2740 A2743 G2753 G2754 A2755 G2756 G2760 U2761 G2762 U2763 A2766 U2767 C2768 U2769 C2770 G2776 A2783 C2784 C2785 C2786 A2787 U2788 A2789 C2794 C2797 U2803 A2806 A2807 C2814 A2815 G2816 G2822 A2825 U2826 G2827 U2828 U2829 G2830 G2831 A2832 A2833 A2845 A2857 A2858 G2859
C2860 C2861 G2862 G2863 A2864 U2869 A2870 U2874 G2877 G2884 A2885 U2886 U2887 G2888 A2894 A2895 G2896 G2902 G2903 U2904 C2905 G2906 G2907 U2908 C2909 G2910
U3583 C3587 C3588 G3589 C3593 A3596 G3597 G3600 U3606 U3607 A3608
G3615 U3616 G3625 G3626 A3635 U3640 U3641 A3642 A3643 U3644 U3645 A3646 G3659 C3660 G3661 A3662 G3669 C3670 G3671 C3672 C3673 G3674 G3681 A3682 U3690 C3696 U3697 G3698 C3699 G3705 U3709 G3710 A3711 A3712 U3713 G3714 A3723 A3727 A3728 U3729 U3730 C3731 A3732 A3733 U3734 G3735 A3736
G3742 U3745 A3748 G3749 G3750 G3751 C3752 G3753 G3754 G3755 A3756 G3757 U3758 A3759 A3760 C3761 U3762 A3763 U3764 G3765 A3766 C3767 U3768 C3769 U3770 C3771 U3772 G3776 G3777 A3784 A3785 U3786 C3789 U3790 C3791 A3795 U3802 A3803 A3807 C3810 G3811 G3812 A3813 U3814 A3817 U3818 G3819 U3840
C3843 C3866 A3867 G3868 C3869 C3870 A3871 A3877 C3878 G3879 G3880 G3881 G3885 G3888 G3889 A3890 A3891 U3892 G3895 G3896 G3897 A3901 A3905 A3906 G3907 A3908 U3914 U3915 G3922 A3923 G3933 G3934 C3935 G3938 G3939 A3943 G3944 A3947 C3948 A3949 A3954 G3955 G3956 U3957 G3958
U3959 A3960 G3961 A3962 A3963 U3964 A3965 A3966 G3967 U3968 G3969 A3972 G3973 G3974 C3975 C3976 C3977 C3978 C3979 C3987 C3988 C3989 C3990 G3991 G3992 U3993 G3994 U3995 C3996 C3997 C3998 C3999 G4000 C4001 G4002 A4003 G4004 G4005 G4006 C4007 C4008 C4009 C4010 G4011 G4012 G4013 G4014 C4015 G4016 G4017 G4018 G4019 U4020 C4021 C4022 G4023 C4024 C4025

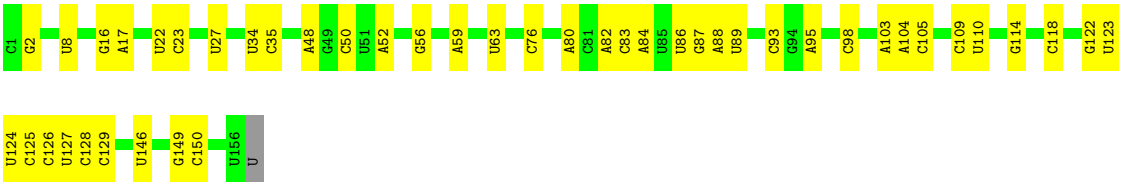


• Molecule 2: 5S ribosomal RNA

Chain L7:

• Molecule 3: 5.8S ribosomal RNA

Chain L8:



• Molecule 4: 60S RIBOSOMAL PROTEIN L8

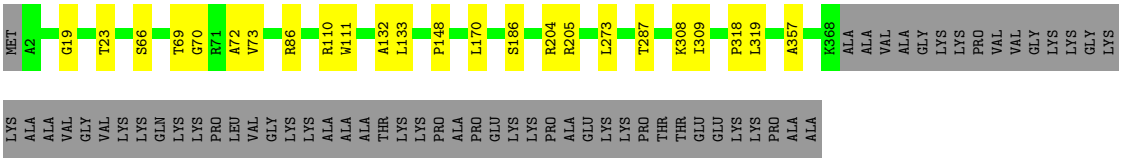
Chain LA:

• Molecule 5: 60S RIBOSOMAL PROTEIN L3

Chain LB:

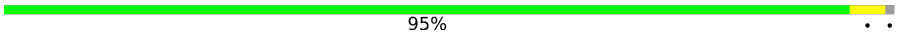
• Molecule 6: 60S RIBOSOMAL PROTEIN L4

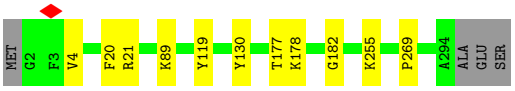
Chain LC:



• Molecule 7: 60S RIBOSOMAL PROTEIN L5

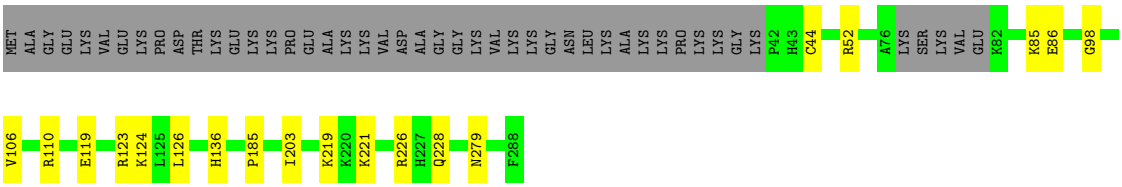
Chain LD:





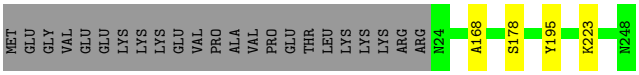
• Molecule 8: 60S RIBOSOMAL PROTEIN L6

Chain LE:



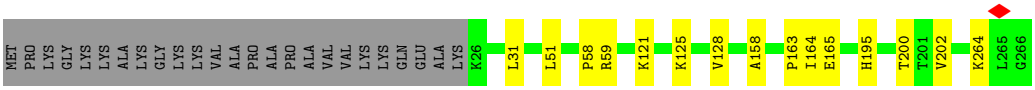
• Molecule 9: 60S RIBOSOMAL PROTEIN L7

Chain LF:



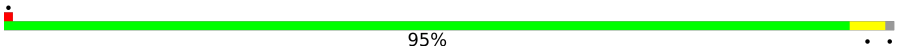
• Molecule 10: 60S RIBOSOMAL PROTEIN L7A

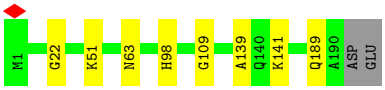
Chain LG:



• Molecule 11: 60S RIBOSOMAL PROTEIN L9

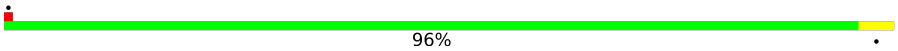
Chain LH:

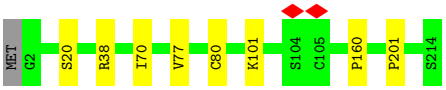




• Molecule 12: 60S RIBOSOMAL PROTEIN L10-LIKE

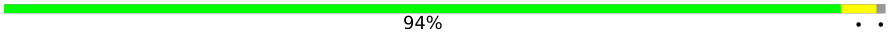
Chain LI:





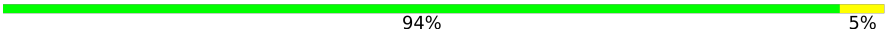
• Molecule 13: 60S RIBOSOMAL PROTEIN L11

Chain LJ:



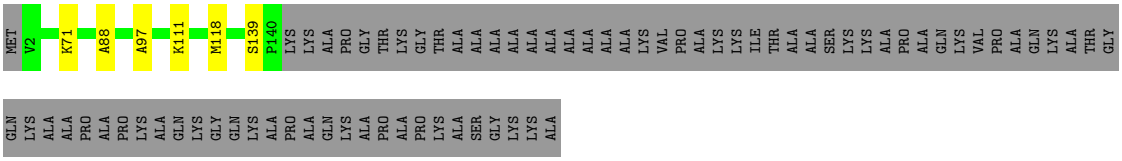
• Molecule 14: 60S RIBOSOMAL PROTEIN L13

Chain LL:



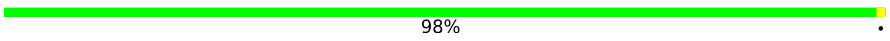
• Molecule 15: 60S RIBOSOMAL PROTEIN L14

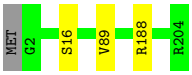
Chain LM:



• Molecule 16: 60S RIBOSOMAL PROTEIN L15

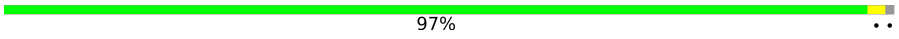
Chain LN:





• Molecule 17: 60S RIBOSOMAL PROTEIN L13A

Chain LO:

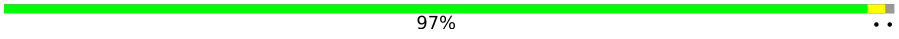


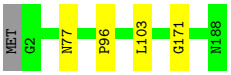
• Molecule 18: 60S RIBOSOMAL PROTEIN L17

Chain LP:

• Molecule 19: 60S RIBOSOMAL PROTEIN L18

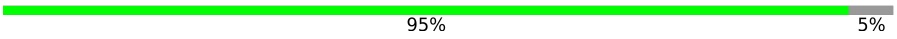
Chain LQ:





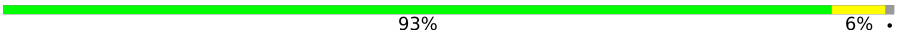
• Molecule 20: 60S RIBOSOMAL PROTEIN L19

Chain LR:



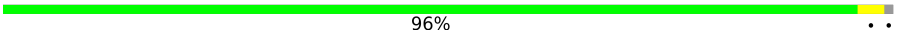
• Molecule 21: 60S RIBOSOMAL PROTEIN L18A

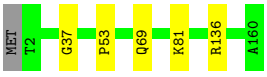
Chain LS:



• Molecule 22: 60S RIBOSOMAL PROTEIN L21

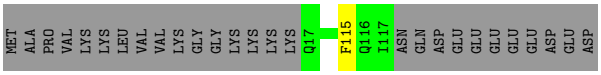
Chain LT:





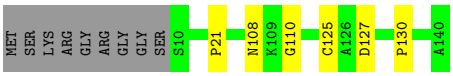
• Molecule 23: 60S RIBOSOMAL PROTEIN L22

Chain LU:



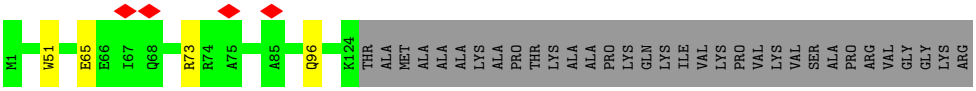
• Molecule 24: 60S RIBOSOMAL PROTEIN L23

Chain LV:



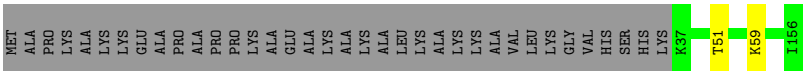
• Molecule 25: 60S RIBOSOMAL PROTEIN L24

Chain LW:



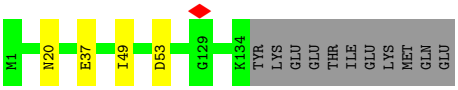
• Molecule 26: 60S RIBOSOMAL PROTEIN L23A

Chain LX:



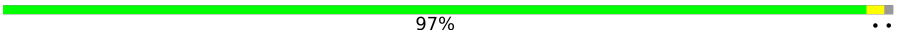
• Molecule 27: 60S RIBOSOMAL PROTEIN L26

Chain LY:



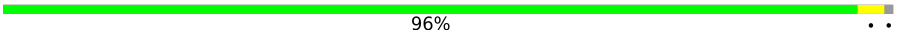
• Molecule 28: 60S RIBOSOMAL PROTEIN L27

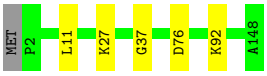
Chain LZ:



• Molecule 29: 60S RIBOSOMAL PROTEIN L27A

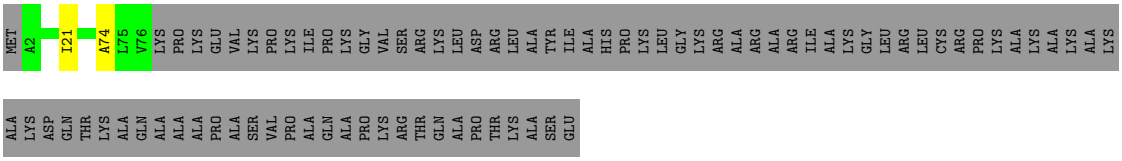
Chain La:





• Molecule 30: 60S RIBOSOMAL PROTEIN L29

Chain Lb:

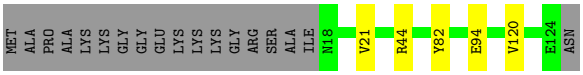


• Molecule 31: 60S RIBOSOMAL PROTEIN L30

Chain Lc:

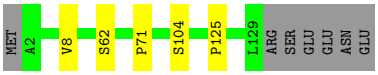
• Molecule 32: 60S RIBOSOMAL PROTEIN L31

Chain Ld:



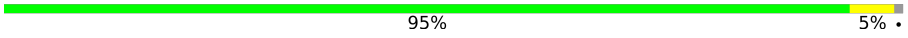
• Molecule 33: 60S RIBOSOMAL PROTEIN L32

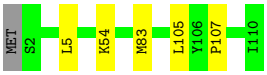
Chain Le:



• Molecule 34: 60S RIBOSOMAL PROTEIN L35A

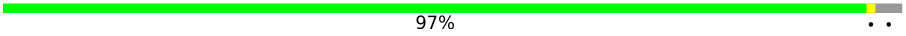
Chain Lf:

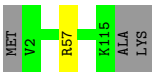




• Molecule 35: 60S RIBOSOMAL PROTEIN L34

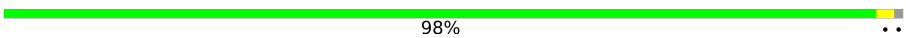
Chain Lg:

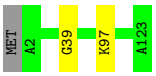




• Molecule 36: 60S RIBOSOMAL PROTEIN L35

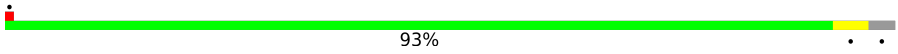
Chain Lh:

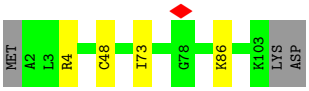




• Molecule 37: 60S RIBOSOMAL PROTEIN L36

Chain Li:





• Molecule 38: 60S RIBOSOMAL PROTEIN L37

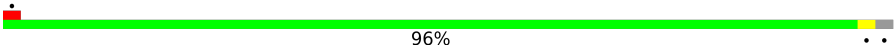
Chain Lj:

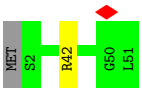
• Molecule 39: 60S RIBOSOMAL PROTEIN L38

Chain Lk:

• Molecule 40: 60S RIBOSOMAL PROTEIN L39

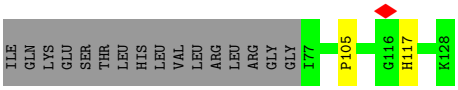
Chain Ll:





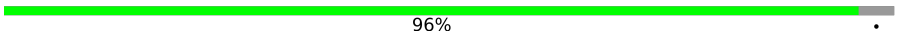
• Molecule 41: UBIQUITIN-60S RIBOSOMAL PROTEIN L40

Chain Lm:



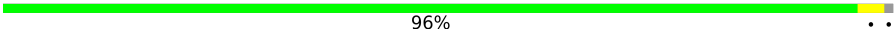
• Molecule 42: 60S RIBOSOMAL PROTEIN L41

Chain Ln:



• Molecule 43: 60S RIBOSOMAL PROTEIN L36A

Chain Lo:

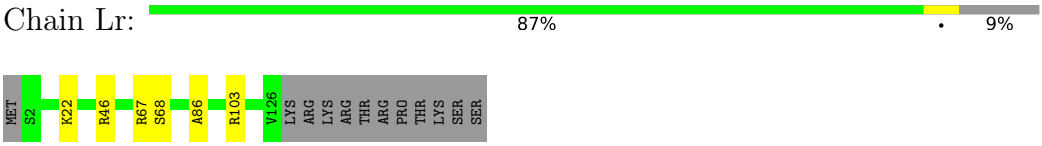


• Molecule 44: 60S RIBOSOMAL PROTEIN L37A

Chain Lp:

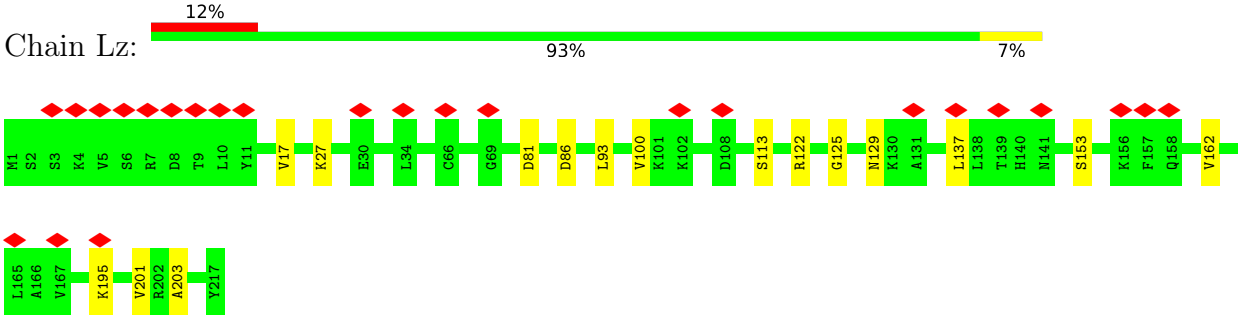
• Molecule 45: 60S RIBOSOMAL PROTEIN L28

Chain Lr:



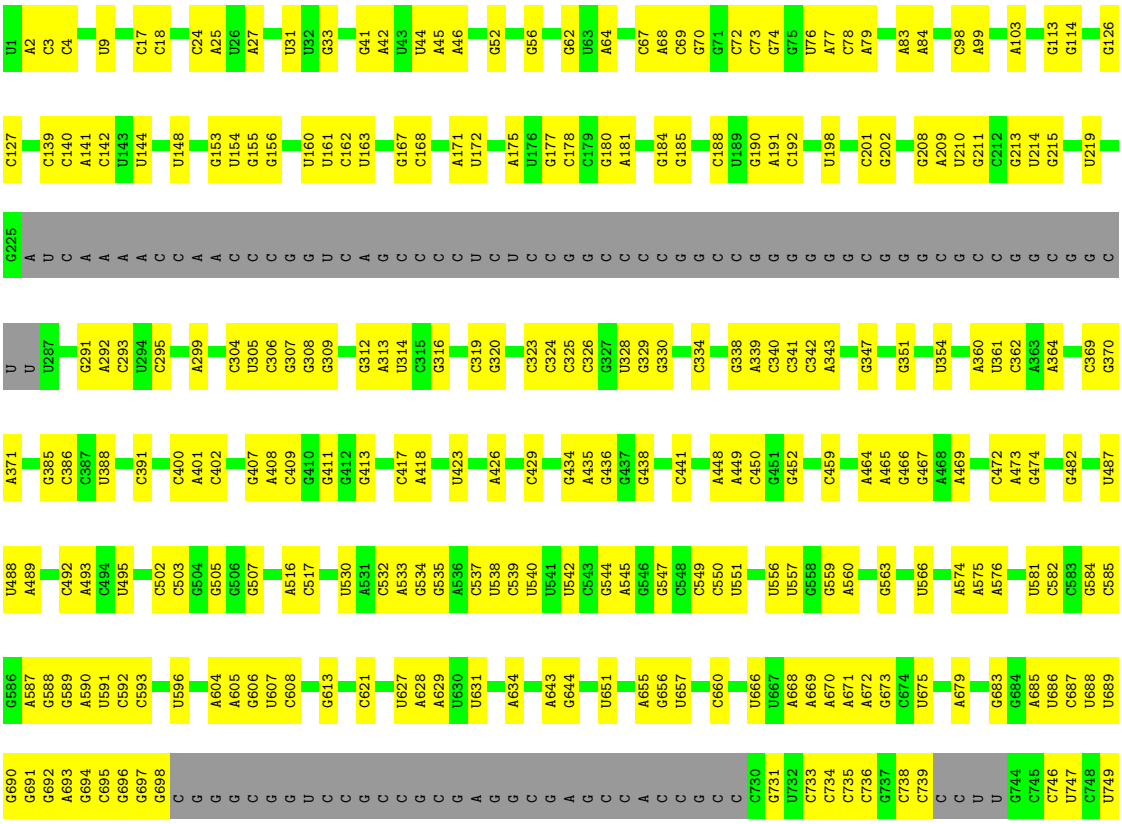
• Molecule 46: 60S RIBOSOMAL PROTEIN L10A

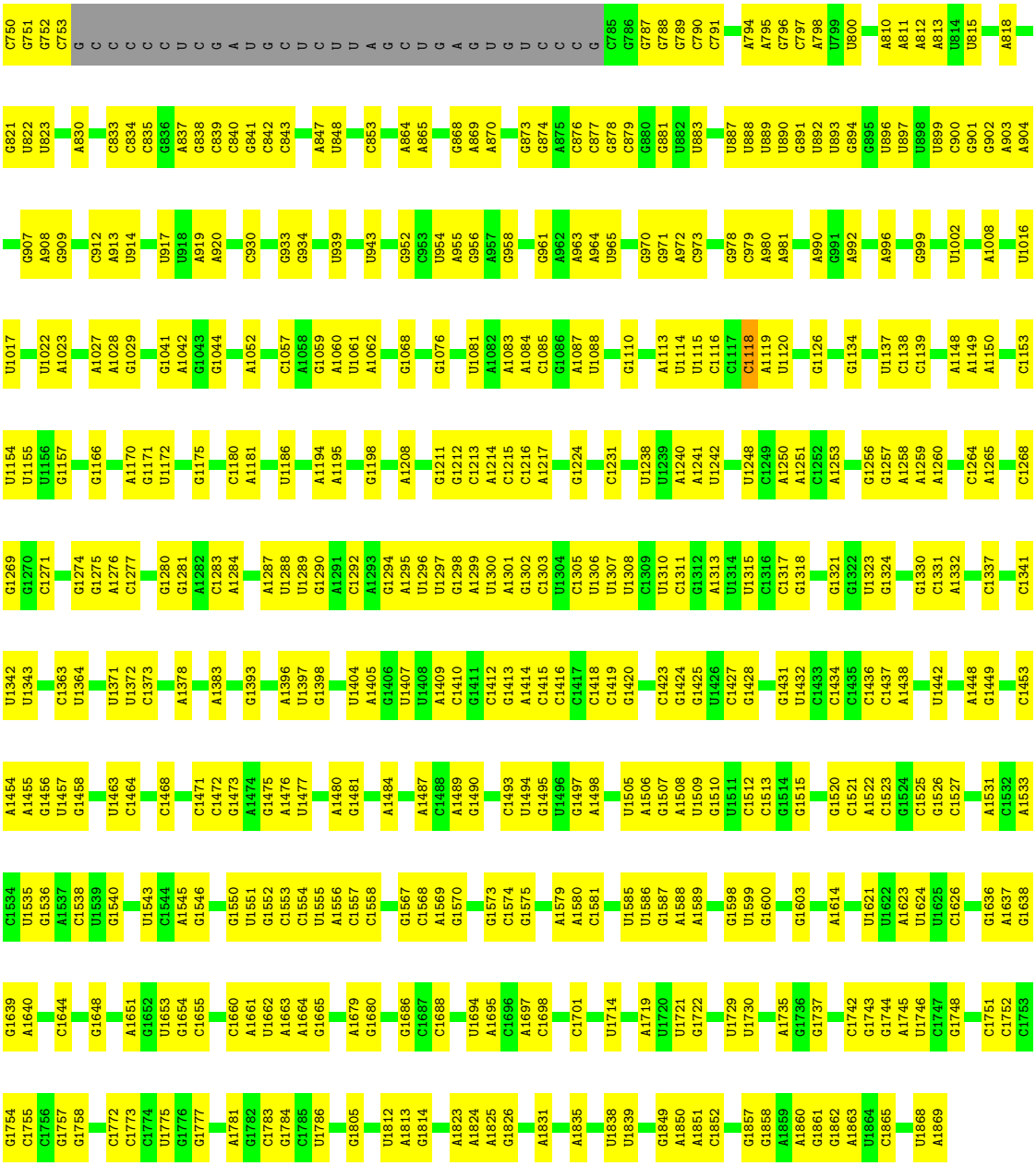
Chain Lz:



• Molecule 47: 18S ribosomal RNA

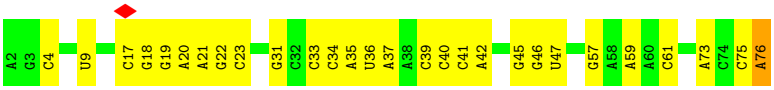
Chain S2:





• Molecule 48: HUMAN INITIATOR MET-TRNA-I

Chain S6:

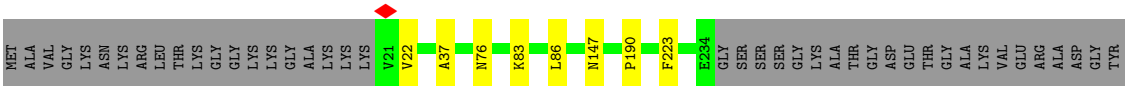


• Molecule 49: 40S RIBOSOMAL PROTEIN SA

Chain SA:

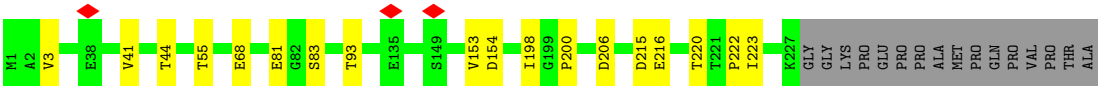
• Molecule 50: 40S RIBOSOMAL PROTEIN S3A

Chain SB:



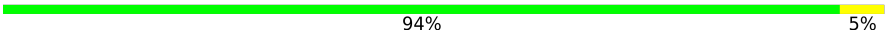
• Molecule 51: 40S RIBOSOMAL PROTEIN S3

Chain SD:



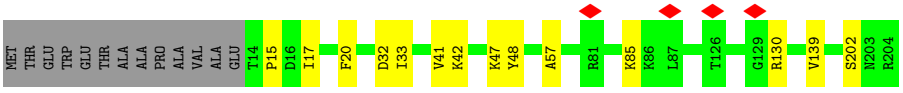
• Molecule 52: 40S RIBOSOMAL PROTEIN S4, X ISOFORM

Chain SE:



• Molecule 53: 40S RIBOSOMAL PROTEIN S5

Chain SF:

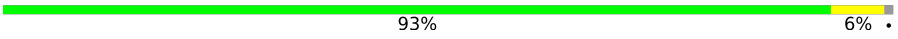


• Molecule 54: 40S RIBOSOMAL PROTEIN S7

Chain SH:

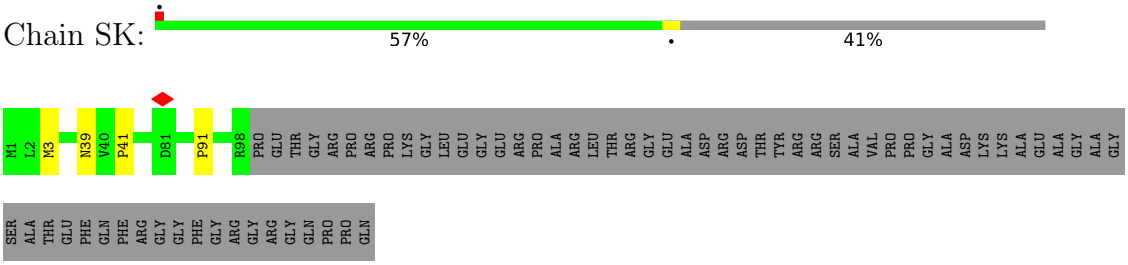
• Molecule 55: 40S RIBOSOMAL PROTEIN S8

Chain SI:



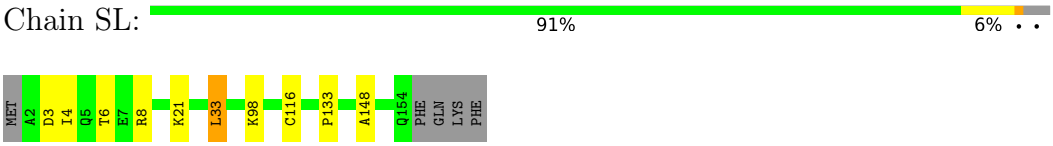
• Molecule 56: 40S RIBOSOMAL PROTEIN S10

Chain SK:



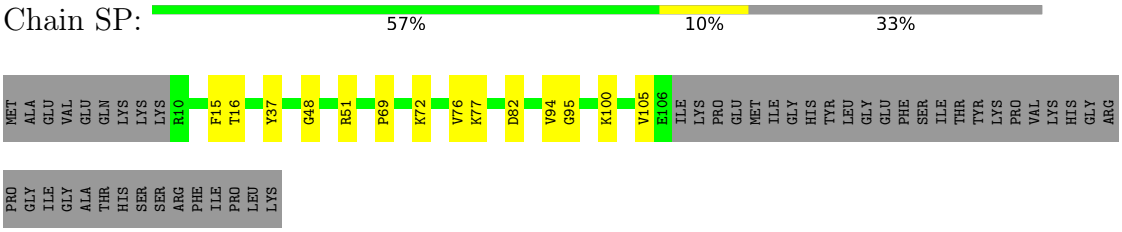
• Molecule 57: 40S RIBOSOMAL PROTEIN S11

Chain SL:



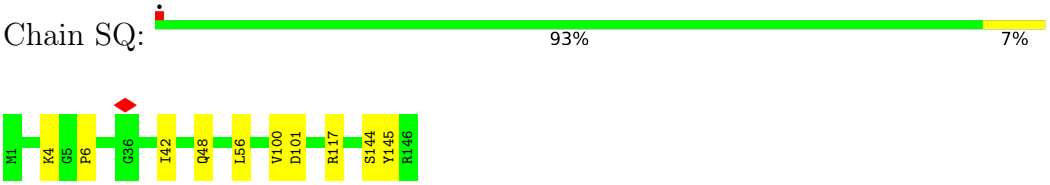
• Molecule 58: 40S RIBOSOMAL PROTEIN S15

Chain SP:



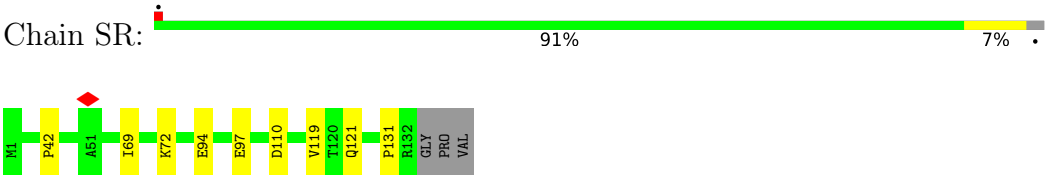
• Molecule 59: 40S RIBOSOMAL PROTEIN S16

Chain SQ:



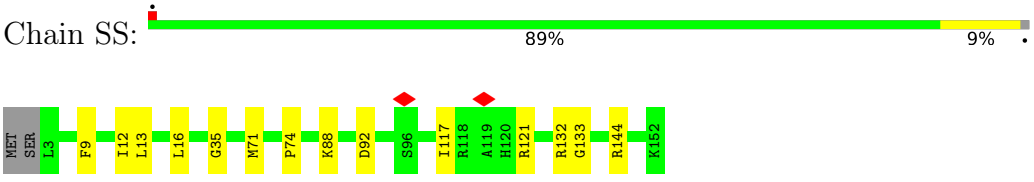
• Molecule 60: 40S RIBOSOMAL PROTEIN S17-LIKE

Chain SR:



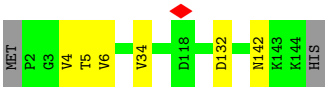
• Molecule 61: 40S RIBOSOMAL PROTEIN S18

Chain SS:



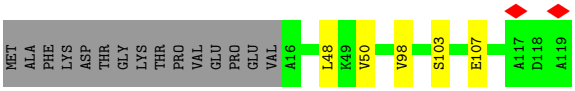
• Molecule 62: 40S RIBOSOMAL PROTEIN S19

Chain ST:



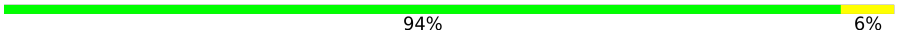
• Molecule 63: 40S RIBOSOMAL PROTEIN S20

Chain SU:



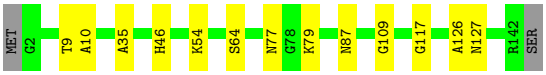
• Molecule 64: 40S RIBOSOMAL PROTEIN S21

Chain SV:



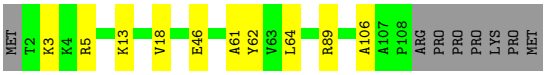
• Molecule 65: 40S RIBOSOMAL PROTEIN S23

Chain SX:



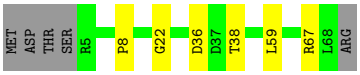
• Molecule 66: 40S RIBOSOMAL PROTEIN S26

Chain Sa:



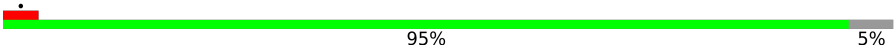
• Molecule 67: 40S RIBOSOMAL PROTEIN S28

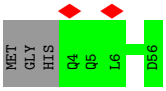
Chain Sc:



• Molecule 68: 40S RIBOSOMAL PROTEIN S29

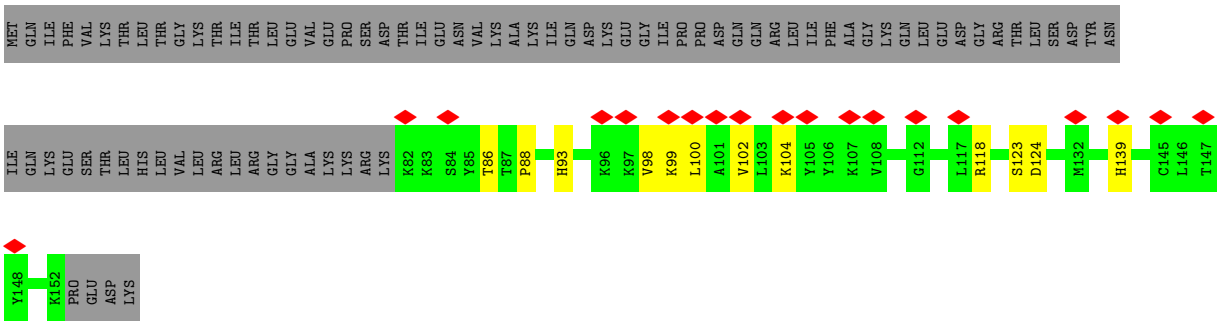
Chain Sd:





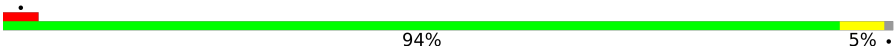
• Molecule 69: UBIQUITIN-40S RIBOSOMAL PROTEIN S27A

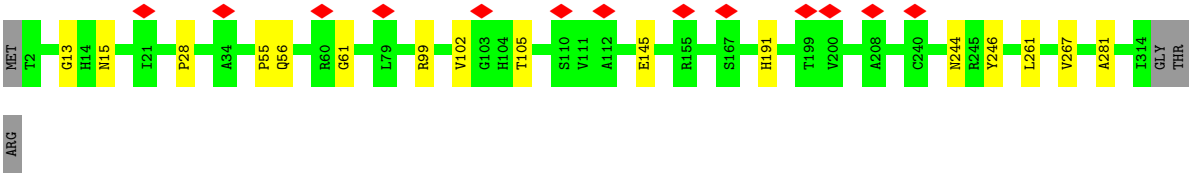
Chain Sf:



• Molecule 70: GUANINE NUCLEOTIDE-BINDING PROTEIN SUBUNIT BETA-2-LIKE 1

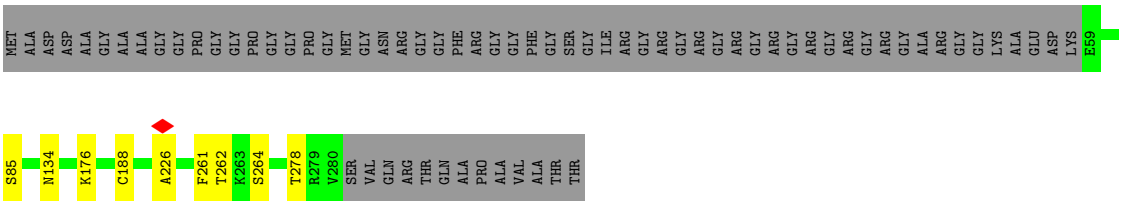
Chain Sg:





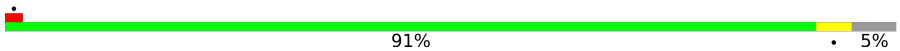
• Molecule 71: 40S RIBOSOMAL PROTEIN S2

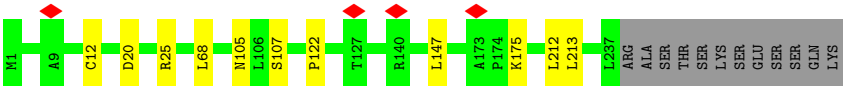
Chain SC:



• Molecule 72: 40S RIBOSOMAL PROTEIN S6

Chain SG:



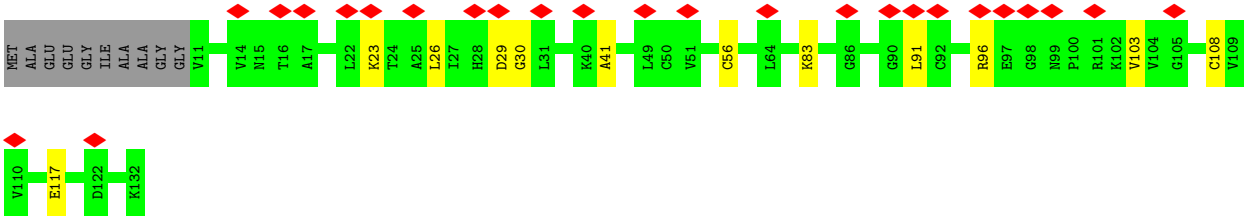


• Molecule 73: 40S RIBOSOMAL PROTEIN S9

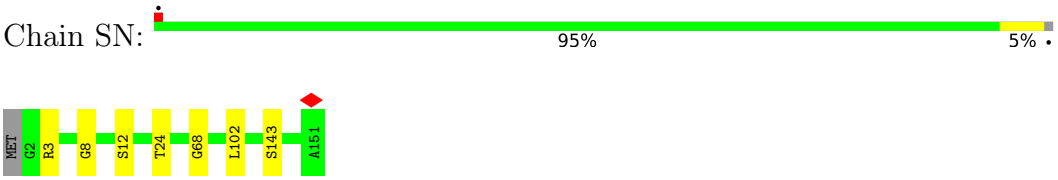
Chain SJ:

• Molecule 74: 40S RIBOSOMAL PROTEIN

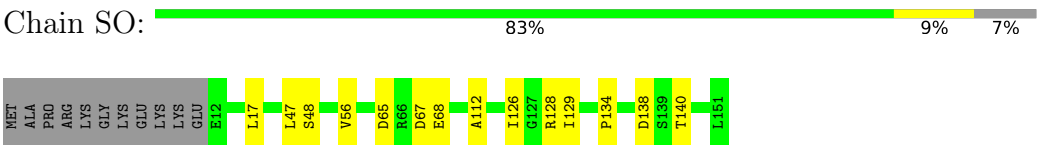
Chain SM:



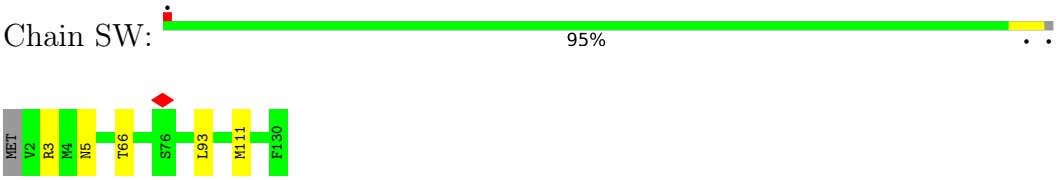
• Molecule 75: 40S RIBOSOMAL PROTEIN S13



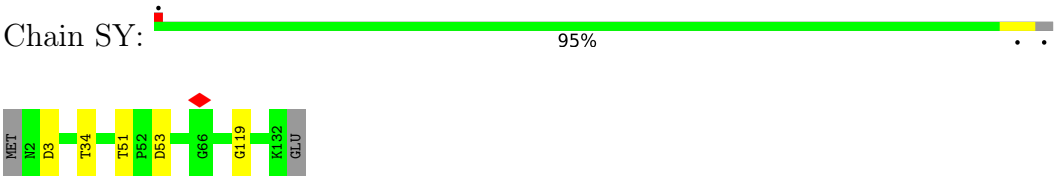
• Molecule 76: 40S RIBOSOMAL PROTEIN S14



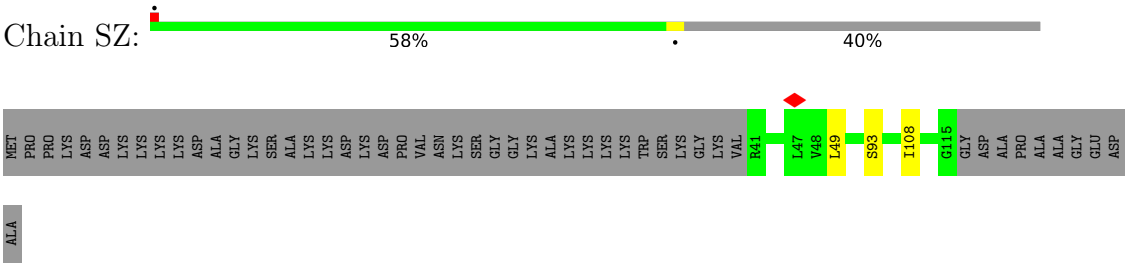
• Molecule 77: 40S RIBOSOMAL PROTEIN S15A



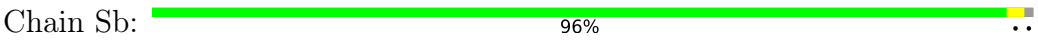
• Molecule 78: 40S RIBOSOMAL PROTEIN S24

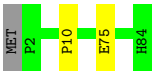


• Molecule 79: 40S RIBOSOMAL PROTEIN S25



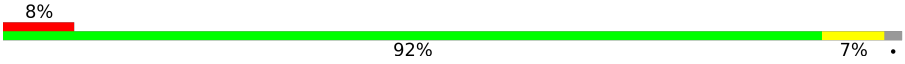
• Molecule 80: 40S RIBOSOMAL PROTEIN S27

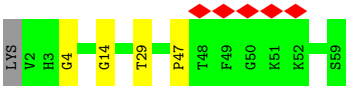




• Molecule 81: 40S RIBOSOMAL PROTEIN S30

Chain Se:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	24000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	Not provided	
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	4500	Depositor
Magnification	59000	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.362	Depositor
Minimum map value	-0.237	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.020	Depositor
Recommended contour level	0.01	Depositor
Map size (Å)	330.0, 330.0, 330.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.1, 1.1, 1.1	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

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	L5	0.42	0/89645	0.79	26/139764 (0.0%)
2	L7	0.37	0/2858	0.73	0/4455
3	L8	0.40	0/3701	0.76	0/5766
4	LA	0.34	0/1936	0.56	1/2596 (0.0%)
5	LB	0.30	0/3306	0.52	1/4424 (0.0%)
6	LC	0.29	0/2973	0.50	0/3992
7	LD	0.29	0/2428	0.47	0/3252
8	LE	0.27	0/1996	0.59	0/2673
9	LF	0.31	0/1905	0.49	0/2539
10	LG	0.27	0/1960	0.50	0/2637
11	LH	0.26	0/1537	0.48	0/2066
12	LI	0.30	0/1751	0.50	0/2340
13	LJ	0.26	0/1433	0.49	0/1915
14	LL	0.30	0/1732	0.53	0/2315
15	LM	0.28	0/1161	0.46	0/1554
16	LN	0.33	0/1746	0.51	0/2338
17	LO	0.31	0/1682	0.47	0/2250
18	LP	0.31	0/1268	0.49	0/1701
19	LQ	0.30	0/1537	0.49	0/2052
20	LR	0.28	0/1582	0.49	0/2091
21	LS	0.31	0/1493	0.48	0/2003
22	LT	0.32	0/1326	0.52	0/1770
23	LU	0.27	0/839	0.47	0/1126
24	LV	0.31	0/993	0.49	0/1332
25	LW	0.29	0/1030	0.57	0/1364
26	LX	0.29	0/1002	0.49	0/1345
27	LY	0.28	0/1132	0.47	0/1504
28	LZ	0.29	0/1130	0.47	0/1507
29	La	0.31	0/1191	0.50	0/1591
30	Lb	0.26	0/620	0.44	0/819
31	Lc	0.29	0/774	0.48	0/1038
32	Ld	0.29	0/903	0.50	0/1216

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	Le	0.33	0/1071	0.53	0/1429
34	Lf	0.30	0/895	0.51	0/1198
35	Lg	0.28	0/916	0.49	0/1220
36	Lh	0.28	0/1023	0.46	0/1351
37	Li	0.28	0/843	0.47	0/1115
38	Lj	0.35	0/720	0.55	0/952
39	Lk	0.28	0/575	0.54	0/761
40	Ll	0.28	0/454	0.48	0/599
41	Lm	0.29	0/435	0.47	0/575
42	Ln	0.29	0/231	0.53	0/294
43	Lo	0.31	0/875	0.49	0/1153
44	Lp	0.36	0/718	0.51	0/953
45	Lr	0.27	0/1017	0.50	0/1364
46	Lz	0.24	0/1769	0.49	0/2371
47	S2	0.35	0/41243	0.77	11/64257 (0.0%)
48	S6	0.32	1/1795 (0.1%)	0.80	1/2798 (0.0%)
49	SA	0.26	0/1784	0.49	0/2424
50	SB	0.28	0/1765	0.52	0/2362
51	SD	0.26	0/1793	0.49	0/2414
52	SE	0.26	0/2118	0.53	1/2849 (0.0%)
53	SF	0.27	0/1531	0.52	0/2059
54	SH	0.26	0/1544	0.50	0/2068
55	SI	0.27	0/1715	0.48	0/2287
56	SK	0.27	0/851	0.50	0/1147
57	SL	0.29	0/1268	0.51	1/1696 (0.1%)
58	SP	0.26	0/815	0.56	0/1087
59	SQ	0.26	0/1177	0.48	0/1575
60	SR	0.27	0/1086	0.57	0/1457
61	SS	0.25	0/1253	0.52	0/1676
62	ST	0.25	0/1131	0.48	0/1515
63	SU	0.26	0/831	0.56	0/1115
64	SV	0.26	0/643	0.44	0/860
65	SX	0.29	0/1116	0.47	0/1490
66	Sa	0.31	0/862	0.52	0/1156
67	Sc	0.25	0/508	0.51	0/680
68	Sd	0.26	0/455	0.42	0/603
69	Sf	0.25	0/593	0.47	0/786
70	Sg	0.24	0/2493	0.50	0/3394
71	SC	0.29	0/1762	0.49	0/2381
72	SG	0.25	0/1946	0.52	0/2590
73	SJ	0.26	0/1550	0.47	0/2069
74	SM	0.23	0/962	0.53	0/1290
75	SN	0.28	0/1232	0.48	0/1656

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
76	SO	0.29	0/1062	0.57	1/1425 (0.1%)
77	SW	0.30	0/1051	0.52	0/1406
78	SY	0.26	0/1083	0.47	0/1438
79	SZ	0.26	0/604	0.57	0/810
80	Sb	0.27	0/665	0.51	0/891
81	Se	0.24	0/465	0.43	0/612
All	All	0.36	1/234864 (0.0%)	0.69	43/344993 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
34	Lf	0	1
58	SP	0	1
All	All	0	2

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
48	S6	76	A	C4'-O4'	-5.87	1.38	1.45

All (43) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
48	S6	76	A	C5'-C4'-O4'	13.26	125.02	109.10
1	L5	4083	U	N1-C2-O2	8.35	128.64	122.80
1	L5	4083	U	C2-N1-C1'	8.04	127.35	117.70
1	L5	4937	C	C2-N1-C1'	7.68	127.25	118.80
1	L5	1367	C	N1-C2-O2	7.38	123.33	118.90
47	S2	1453	C	C2-N1-C1'	7.27	126.80	118.80
47	S2	1016	U	C2-N1-C1'	6.95	126.03	117.70
1	L5	4083	U	N3-C2-O2	-6.89	117.38	122.20
47	S2	1453	C	N1-C2-O2	6.86	123.02	118.90
1	L5	1367	C	C2-N1-C1'	6.84	126.32	118.80
1	L5	4937	C	N1-C2-O2	6.69	122.92	118.90
5	LB	360	LEU	CA-CB-CG	6.22	129.61	115.30
47	S2	1016	U	N1-C2-O2	6.19	127.14	122.80
1	L5	1367	C	N3-C2-O2	-6.10	117.63	121.90
1	L5	3771	C	C6-N1-C2	-6.07	117.87	120.30
1	L5	115	C	C2-N1-C1'	6.05	125.45	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	L5	3771	C	C2-N1-C1'	5.99	125.39	118.80
1	L5	931	C	C2-N1-C1'	5.93	125.33	118.80
4	LA	150	LEU	CA-CB-CG	5.85	128.76	115.30
1	L5	5026	U	C2-N1-C1'	5.83	124.69	117.70
1	L5	3956	G	P-O3'-C3'	5.80	126.66	119.70
1	L5	1238	A	OP1-P-O3'	5.80	117.95	105.20
1	L5	956	A	OP2-P-O3'	5.75	117.86	105.20
1	L5	115	C	N1-C2-O2	5.75	122.35	118.90
1	L5	4083	U	C6-N1-C1'	-5.59	113.38	121.20
57	SL	33	LEU	CA-CB-CG	5.56	128.09	115.30
76	SO	17	LEU	CA-CB-CG	5.47	127.89	115.30
1	L5	4937	C	C6-N1-C1'	-5.43	114.28	120.80
1	L5	2362	U	C2-N1-C1'	5.41	124.19	117.70
47	S2	1016	U	N3-C2-O2	-5.40	118.42	122.20
1	L5	931	C	N1-C2-O2	5.34	122.11	118.90
47	S2	1453	C	C6-N1-C1'	-5.31	114.43	120.80
1	L5	3968	U	C2-N1-C1'	5.28	124.04	117.70
47	S2	1118	C	C2-N1-C1'	5.20	124.52	118.80
1	L5	5026	U	N1-C2-O2	5.17	126.42	122.80
47	S2	1057	C	N1-C2-O2	5.15	121.99	118.90
47	S2	1453	C	N3-C2-O2	-5.10	118.33	121.90
52	SE	164	LEU	CA-CB-CG	5.08	126.98	115.30
1	L5	115	C	N3-C2-O2	-5.06	118.36	121.90
47	S2	1057	C	C2-N1-C1'	5.05	124.35	118.80
1	L5	417	G	P-O3'-C3'	5.01	125.72	119.70
1	L5	1612	G	N3-C4-N9	5.00	129.00	126.00
47	S2	1624	U	C2-N1-C1'	5.00	123.71	117.70

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
34	Lf	105	LEU	Peptide
58	SP	72	LYS	Peptide

5.2 Too-close contacts (i)

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

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
4	LA	246/257 (96%)	207 (84%)	25 (10%)	14 (6%)	1 14
5	LB	400/403 (99%)	344 (86%)	42 (10%)	14 (4%)	3 24
6	LC	365/427 (86%)	311 (85%)	30 (8%)	24 (7%)	1 12
7	LD	291/297 (98%)	258 (89%)	22 (8%)	11 (4%)	2 22
8	LE	238/288 (83%)	182 (76%)	37 (16%)	19 (8%)	1 8
9	LF	223/248 (90%)	201 (90%)	18 (8%)	4 (2%)	7 35
10	LG	239/266 (90%)	205 (86%)	19 (8%)	15 (6%)	1 13
11	LH	188/192 (98%)	162 (86%)	18 (10%)	8 (4%)	2 19
12	LI	211/214 (99%)	177 (84%)	26 (12%)	8 (4%)	2 22
13	LJ	174/178 (98%)	147 (84%)	19 (11%)	8 (5%)	2 18
14	LL	208/211 (99%)	179 (86%)	18 (9%)	11 (5%)	1 15
15	LM	137/215 (64%)	115 (84%)	16 (12%)	6 (4%)	2 19
16	LN	201/204 (98%)	180 (90%)	18 (9%)	3 (2%)	8 39
17	LO	199/203 (98%)	180 (90%)	15 (8%)	4 (2%)	6 34
18	LP	151/184 (82%)	130 (86%)	16 (11%)	5 (3%)	3 25
19	LQ	185/188 (98%)	159 (86%)	22 (12%)	4 (2%)	5 32
20	LR	185/196 (94%)	168 (91%)	17 (9%)	0	100 100
21	LS	173/176 (98%)	141 (82%)	21 (12%)	11 (6%)	1 13
22	LT	157/160 (98%)	134 (85%)	18 (12%)	5 (3%)	3 25
23	LU	99/128 (77%)	81 (82%)	17 (17%)	1 (1%)	13 46
24	LV	129/140 (92%)	105 (81%)	18 (14%)	6 (5%)	2 18
25	LW	122/157 (78%)	96 (79%)	22 (18%)	4 (3%)	3 25
26	LX	118/156 (76%)	103 (87%)	13 (11%)	2 (2%)	7 37
27	LY	132/145 (91%)	118 (89%)	10 (8%)	4 (3%)	3 26
28	LZ	133/136 (98%)	118 (89%)	12 (9%)	3 (2%)	5 31

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
29	La	145/148 (98%)	122 (84%)	18 (12%)	5 (3%)	3 25
30	Lb	73/159 (46%)	62 (85%)	9 (12%)	2 (3%)	4 28
31	Lc	96/115 (84%)	81 (84%)	9 (9%)	6 (6%)	1 13
32	Ld	105/125 (84%)	85 (81%)	15 (14%)	5 (5%)	2 17
33	Le	126/135 (93%)	107 (85%)	14 (11%)	5 (4%)	2 21
34	Lf	107/110 (97%)	87 (81%)	16 (15%)	4 (4%)	2 22
35	Lg	112/117 (96%)	103 (92%)	8 (7%)	1 (1%)	14 48
36	Lh	120/123 (98%)	110 (92%)	8 (7%)	2 (2%)	7 37
37	Li	100/105 (95%)	92 (92%)	4 (4%)	4 (4%)	2 21
38	Lj	84/97 (87%)	67 (80%)	10 (12%)	7 (8%)	0 8
39	Lk	67/70 (96%)	50 (75%)	12 (18%)	5 (8%)	1 9
40	Ll	48/51 (94%)	44 (92%)	3 (6%)	1 (2%)	5 33
41	Lm	50/128 (39%)	43 (86%)	5 (10%)	2 (4%)	2 21
42	Ln	22/25 (88%)	20 (91%)	2 (9%)	0	100 100
43	Lo	102/106 (96%)	85 (83%)	15 (15%)	2 (2%)	6 34
44	Lp	89/92 (97%)	71 (80%)	13 (15%)	5 (6%)	1 15
45	Lr	123/137 (90%)	102 (83%)	15 (12%)	6 (5%)	2 17
46	Lz	215/217 (99%)	168 (78%)	31 (14%)	16 (7%)	1 10
49	SA	220/295 (75%)	187 (85%)	27 (12%)	6 (3%)	4 28
50	SB	212/264 (80%)	174 (82%)	30 (14%)	8 (4%)	2 22
51	SD	225/243 (93%)	183 (81%)	24 (11%)	18 (8%)	1 8
52	SE	260/263 (99%)	215 (83%)	30 (12%)	15 (6%)	1 14
53	SF	189/204 (93%)	144 (76%)	31 (16%)	14 (7%)	1 10
54	SH	187/194 (96%)	145 (78%)	27 (14%)	15 (8%)	1 8
55	SI	204/208 (98%)	168 (82%)	24 (12%)	12 (6%)	1 14
56	SK	96/165 (58%)	76 (79%)	16 (17%)	4 (4%)	2 20
57	SL	151/158 (96%)	130 (86%)	11 (7%)	10 (7%)	1 12
58	SP	95/145 (66%)	61 (64%)	21 (22%)	13 (14%)	0 3
59	SQ	144/146 (99%)	114 (79%)	20 (14%)	10 (7%)	1 11
60	SR	130/135 (96%)	104 (80%)	17 (13%)	9 (7%)	1 11
61	SS	148/152 (97%)	121 (82%)	13 (9%)	14 (10%)	0 6

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
62	ST	141/145 (97%)	119 (84%)	16 (11%)	6 (4%)	2 19
63	SU	102/119 (86%)	86 (84%)	11 (11%)	5 (5%)	2 17
64	SV	81/83 (98%)	65 (80%)	11 (14%)	5 (6%)	1 13
65	SX	139/143 (97%)	114 (82%)	12 (9%)	13 (9%)	0 6
66	Sa	103/115 (90%)	77 (75%)	16 (16%)	10 (10%)	0 6
67	Sc	62/69 (90%)	47 (76%)	9 (14%)	6 (10%)	0 6
68	Sd	51/56 (91%)	44 (86%)	7 (14%)	0	100 100
69	Sf	69/156 (44%)	47 (68%)	10 (14%)	12 (17%)	0 2
70	Sg	311/317 (98%)	237 (76%)	58 (19%)	16 (5%)	1 16
71	SC	220/293 (75%)	188 (86%)	23 (10%)	9 (4%)	2 20
72	SG	235/249 (94%)	198 (84%)	26 (11%)	11 (5%)	2 18
73	SJ	183/194 (94%)	157 (86%)	16 (9%)	10 (6%)	1 15
74	SM	120/132 (91%)	79 (66%)	29 (24%)	12 (10%)	0 6
75	SN	148/151 (98%)	133 (90%)	8 (5%)	7 (5%)	2 18
76	SO	138/151 (91%)	101 (73%)	24 (17%)	13 (9%)	0 6
77	SW	127/130 (98%)	109 (86%)	13 (10%)	5 (4%)	2 21
78	SY	129/133 (97%)	108 (84%)	16 (12%)	5 (4%)	2 21
79	SZ	73/125 (58%)	59 (81%)	11 (15%)	3 (4%)	2 20
80	Sb	81/84 (96%)	67 (83%)	12 (15%)	2 (2%)	4 29
81	Se	56/59 (95%)	41 (73%)	11 (20%)	4 (7%)	1 11
All	All	11518/12905 (89%)	9598 (83%)	1346 (12%)	574 (5%)	3 17

All (574) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	LA	118	GLU
5	LB	360	LEU
6	LC	23	THR
6	LC	148	PRO
6	LC	186	SER
6	LC	204	ARG
7	LD	4	VAL
8	LE	110	ARG
8	LE	123	ARG
8	LE	226	ARG

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Mol	Chain	Res	Type
10	LG	195	HIS
11	LH	139	ALA
11	LH	141	LYS
12	LI	77	VAL
12	LI	101	LYS
12	LI	160	PRO
21	LS	21	LYS
21	LS	127	MET
22	LT	53	PRO
22	LT	81	LYS
23	LU	115	PHE
32	Ld	82	TYR
33	Le	62	SER
33	Le	104	SER
36	Lh	39	GLY
37	Li	73	ILE
45	Lr	46	ARG
46	Lz	17	VAL
46	Lz	122	ARG
49	SA	125	THR
50	SB	147	ASN
51	SD	3	VAL
51	SD	55	THR
51	SD	81	GLU
52	SE	76	VAL
52	SE	164	LEU
53	SF	15	PRO
53	SF	33	ILE
54	SH	66	VAL
54	SH	107	LYS
55	SI	130	THR
56	SK	3	MET
57	SL	8	ARG
57	SL	116	CYS
58	SP	37	TYR
58	SP	76	VAL
59	SQ	42	ILE
59	SQ	117	ARG
60	SR	42	PRO
60	SR	94	GLU
61	SS	117	ILE
62	ST	4	VAL

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Mol	Chain	Res	Type
63	SU	50	VAL
63	SU	103	SER
63	SU	107	GLU
65	SX	35	ALA
66	Sa	3	LYS
66	Sa	18	VAL
66	Sa	106	ALA
67	Sc	67	ARG
69	Sf	93	HIS
70	Sg	55	PRO
70	Sg	99	ARG
70	Sg	102	VAL
70	Sg	281	ALA
71	SC	262	THR
72	SG	107	SER
72	SG	122	PRO
73	SJ	3	VAL
73	SJ	8	VAL
73	SJ	17	ARG
74	SM	108	CYS
74	SM	117	GLU
75	SN	24	THR
77	SW	66	THR
4	LA	172	GLY
4	LA	195	CYS
5	LB	113	GLU
6	LC	69	THR
6	LC	73	VAL
6	LC	86	ARG
6	LC	273	LEU
6	LC	308	LYS
6	LC	319	LEU
6	LC	357	ALA
7	LD	21	ARG
7	LD	89	LYS
7	LD	119	TYR
7	LD	177	THR
8	LE	106	VAL
8	LE	124	LYS
8	LE	185	PRO
8	LE	279	ASN
9	LF	168	ALA

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Mol	Chain	Res	Type
9	LF	178	SER
9	LF	223	LYS
10	LG	200	THR
10	LG	202	VAL
11	LH	63	ASN
11	LH	189	GLN
12	LI	70	ILE
12	LI	80	CYS
13	LJ	11	PRO
13	LJ	28	GLU
14	LL	62	PRO
14	LL	90	VAL
14	LL	100	PRO
14	LL	165	LYS
15	LM	71	LYS
16	LN	16	SER
17	LO	123	ALA
17	LO	143	HIS
18	LP	91	LEU
18	LP	132	ALA
19	LQ	77	ASN
19	LQ	103	LEU
21	LS	110	TYR
22	LT	136	ARG
24	LV	21	PRO
24	LV	125	CYS
24	LV	127	ASP
25	LW	51	TRP
25	LW	96	GLN
26	LX	51	THR
26	LX	59	LYS
27	LY	20	ASN
27	LY	49	ILE
28	LZ	33	THR
29	La	11	LEU
29	La	76	ASP
29	La	92	LYS
31	Lc	23	LYS
31	Lc	51	ASN
31	Lc	54	ALA
31	Lc	101	ASP
32	Ld	44	ARG

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Mol	Chain	Res	Type
32	Ld	94	GLU
33	Le	125	PRO
34	Lf	54	LYS
34	Lf	83	MET
36	Lh	97	LYS
39	Lk	9	LYS
44	Lp	64	VAL
45	Lr	22	LYS
45	Lr	67	ARG
46	Lz	93	LEU
49	SA	13	GLU
49	SA	31	ASP
49	SA	170	SER
50	SB	22	VAL
50	SB	37	ALA
50	SB	83	LYS
50	SB	190	PRO
51	SD	93	THR
51	SD	198	ILE
52	SE	144	ALA
52	SE	214	ASN
53	SF	17	ILE
53	SF	48	TYR
53	SF	57	ALA
53	SF	130	ARG
53	SF	139	VAL
53	SF	202	SER
54	SH	34	SER
54	SH	115	LYS
55	SI	75	LYS
55	SI	122	GLY
55	SI	140	LYS
55	SI	143	LYS
55	SI	155	ASN
55	SI	186	ASP
58	SP	15	PHE
58	SP	94	VAL
58	SP	100	LYS
58	SP	105	VAL
59	SQ	100	VAL
60	SR	72	LYS
60	SR	119	VAL

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Mol	Chain	Res	Type
60	SR	131	PRO
61	SS	12	ILE
61	SS	71	MET
61	SS	74	PRO
61	SS	88	LYS
61	SS	121	ARG
61	SS	133	GLY
62	ST	5	THR
62	ST	132	ASP
64	SV	9	VAL
64	SV	10	ASP
64	SV	78	ILE
65	SX	10	ALA
66	Sa	13	LYS
66	Sa	46	GLU
66	Sa	89	ARG
67	Sc	59	LEU
69	Sf	102	VAL
69	Sf	139	HIS
70	Sg	15	ASN
70	Sg	28	PRO
70	Sg	56	GLN
70	Sg	145	GLU
70	Sg	261	LEU
71	SC	261	PHE
71	SC	278	THR
72	SG	12	CYS
72	SG	20	ASP
72	SG	25	ARG
72	SG	147	LEU
73	SJ	37	LEU
73	SJ	147	PHE
74	SM	41	ALA
74	SM	91	LEU
74	SM	96	ARG
75	SN	3	ARG
75	SN	102	LEU
76	SO	48	SER
76	SO	126	ILE
76	SO	128	ARG
77	SW	5	ASN
78	SY	34	THR

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Mol	Chain	Res	Type
78	SY	119	GLY
79	SZ	93	SER
80	Sb	10	PRO
80	Sb	75	GLU
81	Se	29	THR
81	Se	47	PRO
4	LA	144	LYS
4	LA	180	LEU
4	LA	239	ALA
4	LA	240	ALA
5	LB	291	TYR
5	LB	295	ASP
5	LB	314	ILE
6	LC	110	ARG
6	LC	111	TRP
6	LC	132	ALA
6	LC	170	LEU
6	LC	287	THR
6	LC	309	ILE
6	LC	318	PRO
7	LD	20	PHE
7	LD	130	TYR
7	LD	178	LYS
7	LD	182	GLY
7	LD	255	LYS
8	LE	52	ARG
8	LE	86	GLU
8	LE	136	HIS
8	LE	228	GLN
10	LG	58	PRO
10	LG	264	LYS
11	LH	98	HIS
12	LI	38	ARG
13	LJ	169	LYS
14	LL	91	ALA
15	LM	111	LYS
15	LM	118	MET
17	LO	37	ARG
17	LO	202	LEU
19	LQ	96	PRO
21	LS	7	LEU
21	LS	64	CYS

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Mol	Chain	Res	Type
21	LS	83	ARG
21	LS	146	HIS
22	LT	69	GLN
24	LV	130	PRO
25	LW	65	GLU
25	LW	73	ARG
27	LY	37	GLU
28	LZ	8	GLY
29	La	37	GLY
31	Lc	75	SER
32	Ld	21	VAL
35	Lg	57	ARG
37	Li	48	CYS
38	Lj	21	ARG
38	Lj	63	ARG
39	Lk	38	CYS
39	Lk	68	GLU
41	Lm	117	HIS
44	Lp	71	TYR
45	Lr	68	SER
46	Lz	27	LYS
46	Lz	86	ASP
46	Lz	129	ASN
49	SA	98	PRO
51	SD	44	THR
51	SD	215	ASP
51	SD	216	GLU
52	SE	77	ARG
52	SE	93	ASP
52	SE	196	THR
52	SE	232	ASN
53	SF	42	LYS
53	SF	47	LYS
53	SF	85	LYS
54	SH	112	ASN
54	SH	148	LEU
55	SI	86	SER
55	SI	132	GLU
55	SI	180	GLY
57	SL	3	ASP
57	SL	21	LYS
57	SL	33	LEU

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Mol	Chain	Res	Type
57	SL	133	PRO
57	SL	148	ALA
58	SP	16	THR
58	SP	51	ARG
58	SP	95	GLY
59	SQ	4	LYS
59	SQ	48	GLN
59	SQ	56	LEU
59	SQ	101	ASP
59	SQ	145	TYR
61	SS	16	LEU
61	SS	92	ASP
61	SS	132	ARG
61	SS	144	ARG
62	ST	34	VAL
64	SV	36	VAL
65	SX	46	HIS
65	SX	64	SER
65	SX	77	ASN
65	SX	79	LYS
65	SX	109	GLY
65	SX	126	ALA
66	Sa	5	ARG
66	Sa	61	ALA
67	Sc	36	ASP
69	Sf	99	LYS
69	Sf	100	LEU
69	Sf	104	LYS
69	Sf	118	ARG
69	Sf	124	ASP
70	Sg	105	THR
70	Sg	244	ASN
70	Sg	246	TYR
71	SC	188	CYS
71	SC	226	ALA
72	SG	175	LYS
72	SG	212	LEU
72	SG	213	LEU
73	SJ	119	LEU
73	SJ	122	SER
74	SM	23	LYS
74	SM	29	ASP

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Mol	Chain	Res	Type
74	SM	56	CYS
74	SM	83	LYS
75	SN	12	SER
76	SO	65	ASP
76	SO	67	ASP
76	SO	68	GLU
76	SO	138	ASP
76	SO	140	THR
77	SW	93	LEU
78	SY	3	ASP
4	LA	28	ARG
4	LA	80	GLU
4	LA	115	CYS
5	LB	5	LYS
5	LB	10	ARG
5	LB	294	LYS
5	LB	310	SER
6	LC	66	SER
6	LC	205	ARG
8	LE	219	LYS
8	LE	221	LYS
10	LG	59	ARG
10	LG	121	LYS
10	LG	128	VAL
10	LG	165	GLU
12	LI	20	SER
13	LJ	138	GLY
13	LJ	174	ILE
14	LL	151	THR
14	LL	169	ILE
15	LM	88	ALA
16	LN	188	ARG
21	LS	153	PRO
21	LS	155	PRO
24	LV	108	ASN
24	LV	110	GLY
27	LY	53	ASP
29	La	27	LYS
30	Lb	74	ALA
33	Le	8	VAL
34	Lf	5	LEU
37	Li	4	ARG

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Mol	Chain	Res	Type
38	Lj	15	THR
38	Lj	36	LYS
39	Lk	62	PRO
40	Ll	42	ARG
41	Lm	105	PRO
44	Lp	65	ALA
44	Lp	91	ASP
45	Lr	86	ALA
46	Lz	153	SER
46	Lz	195	LYS
46	Lz	203	ALA
49	SA	4	ALA
50	SB	76	ASN
50	SB	86	LEU
50	SB	223	PHE
51	SD	83	SER
51	SD	153	VAL
51	SD	206	ASP
51	SD	222	PRO
51	SD	223	ILE
52	SE	68	ARG
52	SE	131	VAL
54	SH	12	ASN
54	SH	38	ALA
54	SH	138	GLU
54	SH	162	GLN
56	SK	39	ASN
56	SK	41	PRO
56	SK	91	PRO
57	SL	4	ILE
57	SL	6	THR
59	SQ	144	SER
60	SR	110	ASP
62	ST	6	VAL
63	SU	48	LEU
65	SX	9	THR
65	SX	87	ASN
65	SX	117	GLY
66	Sa	62	TYR
66	Sa	64	LEU
69	Sf	86	THR
69	Sf	88	PRO

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Mol	Chain	Res	Type
69	Sf	98	VAL
70	Sg	191	HIS
71	SC	85	SER
71	SC	134	ASN
71	SC	264	SER
73	SJ	138	ARG
74	SM	26	LEU
75	SN	143	SER
76	SO	47	LEU
76	SO	129	ILE
77	SW	111	MET
78	SY	51	THR
78	SY	53	ASP
79	SZ	49	LEU
4	LA	21	LYS
4	LA	26	ALA
4	LA	177	LYS
5	LB	159	VAL
6	LC	72	ALA
6	LC	133	LEU
8	LE	85	LYS
8	LE	126	LEU
9	LF	195	TYR
10	LG	31	LEU
10	LG	51	LEU
10	LG	158	ALA
11	LH	22	GLY
11	LH	51	LYS
12	LI	201	PRO
13	LJ	145	LYS
14	LL	51	ALA
14	LL	55	ILE
14	LL	60	ARG
15	LM	97	ALA
18	LP	106	GLY
18	LP	123	PRO
21	LS	164	LYS
30	Lb	21	ILE
31	Lc	52	CYS
33	Le	71	PRO
37	Li	86	LYS
38	Lj	14	LYS

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Mol	Chain	Res	Type
38	Lj	27	TYR
39	Lk	32	VAL
43	Lo	99	ARG
44	Lp	20	ALA
46	Lz	81	ASP
46	Lz	113	SER
46	Lz	125	GLY
46	Lz	137	LEU
51	SD	68	GLU
51	SD	220	THR
52	SE	30	ARG
52	SE	69	PHE
52	SE	168	LYS
52	SE	245	ARG
53	SF	20	PHE
53	SF	32	ASP
54	SH	89	GLY
54	SH	99	ARG
54	SH	100	ILE
58	SP	77	LYS
58	SP	82	ASP
60	SR	69	ILE
61	SS	9	PHE
61	SS	35	GLY
63	SU	98	VAL
64	SV	45	ARG
65	SX	54	LYS
65	SX	127	ASN
69	Sf	123	SER
71	SC	176	LYS
72	SG	105	ASN
75	SN	8	GLY
76	SO	56	VAL
76	SO	112	ALA
76	SO	134	PRO
77	SW	3	ARG
79	SZ	108	ILE
81	Se	4	GLY
81	Se	14	GLY
7	LD	269	PRO
8	LE	44	CYS
8	LE	119	GLU

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Mol	Chain	Res	Type
10	LG	125	LYS
10	LG	163	PRO
11	LH	109	GLY
13	LJ	159	LYS
18	LP	82	ARG
21	LS	156	HIS
28	LZ	56	ALA
34	Lf	107	PRO
38	Lj	85	LYS
43	Lo	62	THR
51	SD	154	ASP
53	SF	41	VAL
54	SH	113	LYS
54	SH	190	PRO
55	SI	97	VAL
57	SL	98	LYS
60	SR	97	GLU
61	SS	13	LEU
62	ST	142	ASN
67	Sc	38	THR
72	SG	68	LEU
73	SJ	76	ALA
74	SM	30	GLY
5	LB	375	GLY
16	LN	89	VAL
58	SP	48	GLY
67	Sc	8	PRO
70	Sg	13	GLY
73	SJ	171	GLY
75	SN	68	GLY
14	LL	48	PRO
45	Lr	103	ARG
51	SD	41	VAL
52	SE	15	PRO
59	SQ	6	PRO
5	LB	18	PRO
5	LB	299	ILE
10	LG	164	ILE
13	LJ	176	PRO
46	Lz	201	VAL
51	SD	200	PRO
55	SI	102	VAL

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Mol	Chain	Res	Type
60	SR	121	GLN
70	Sg	61	GLY
70	Sg	267	VAL
4	LA	43	GLY
5	LB	110	ILE
6	LC	19	GLY
6	LC	70	GLY
8	LE	203	ILE
22	LT	37	GLY
32	Ld	120	VAL
46	Lz	100	VAL
46	Lz	162	VAL
58	SP	69	PRO
8	LE	98	GLY
15	LM	139	SER
19	LQ	171	GLY
67	Sc	22	GLY
74	SM	103	VAL

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
4	LA	190/199 (96%)	189 (100%)	1 (0%)	86 93
5	LB	348/349 (100%)	348 (100%)	0	100 100
6	LC	305/348 (88%)	305 (100%)	0	100 100
7	LD	246/250 (98%)	246 (100%)	0	100 100
8	LE	215/252 (85%)	215 (100%)	0	100 100
9	LF	194/215 (90%)	194 (100%)	0	100 100
10	LG	203/223 (91%)	203 (100%)	0	100 100
11	LH	169/171 (99%)	169 (100%)	0	100 100
12	LI	180/181 (99%)	180 (100%)	0	100 100
13	LJ	148/149 (99%)	148 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
14	LL	176/177 (99%)	176 (100%)	0	100	100
15	LM	118/161 (73%)	118 (100%)	0	100	100
16	LN	171/172 (99%)	171 (100%)	0	100	100
17	LO	173/174 (99%)	173 (100%)	0	100	100
18	LP	134/163 (82%)	134 (100%)	0	100	100
19	LQ	164/165 (99%)	164 (100%)	0	100	100
20	LR	166/175 (95%)	166 (100%)	0	100	100
21	LS	156/157 (99%)	156 (100%)	0	100	100
22	LT	139/140 (99%)	139 (100%)	0	100	100
23	LU	91/115 (79%)	91 (100%)	0	100	100
24	LV	101/107 (94%)	101 (100%)	0	100	100
25	LW	103/126 (82%)	103 (100%)	0	100	100
26	LX	108/133 (81%)	108 (100%)	0	100	100
27	LY	124/135 (92%)	124 (100%)	0	100	100
28	LZ	117/118 (99%)	117 (100%)	0	100	100
29	La	120/121 (99%)	120 (100%)	0	100	100
30	Lb	63/126 (50%)	63 (100%)	0	100	100
31	Lc	83/97 (86%)	83 (100%)	0	100	100
32	Ld	98/110 (89%)	98 (100%)	0	100	100
33	Le	114/121 (94%)	114 (100%)	0	100	100
34	Lf	88/89 (99%)	88 (100%)	0	100	100
35	Lg	98/100 (98%)	98 (100%)	0	100	100
36	Lh	109/110 (99%)	109 (100%)	0	100	100
37	Li	86/89 (97%)	86 (100%)	0	100	100
38	Lj	73/80 (91%)	73 (100%)	0	100	100
39	Lk	64/65 (98%)	64 (100%)	0	100	100
40	Ll	47/48 (98%)	47 (100%)	0	100	100
41	Lm	48/116 (41%)	48 (100%)	0	100	100
42	Ln	23/24 (96%)	23 (100%)	0	100	100
43	Lo	93/94 (99%)	92 (99%)	1 (1%)	70	83
44	Lp	74/75 (99%)	74 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
45	Lr	109/121 (90%)	109 (100%)	0	100	100
46	Lz	195/196 (100%)	195 (100%)	0	100	100
49	SA	184/243 (76%)	184 (100%)	0	100	100
50	SB	195/231 (84%)	195 (100%)	0	100	100
51	SD	190/202 (94%)	190 (100%)	0	100	100
52	SE	224/225 (100%)	224 (100%)	0	100	100
53	SF	161/170 (95%)	161 (100%)	0	100	100
54	SH	169/174 (97%)	169 (100%)	0	100	100
55	SI	178/180 (99%)	178 (100%)	0	100	100
56	SK	89/136 (65%)	89 (100%)	0	100	100
57	SL	137/142 (96%)	137 (100%)	0	100	100
58	SP	87/130 (67%)	87 (100%)	0	100	100
59	SQ	121/121 (100%)	121 (100%)	0	100	100
60	SR	120/122 (98%)	120 (100%)	0	100	100
61	SS	130/132 (98%)	130 (100%)	0	100	100
62	ST	113/115 (98%)	113 (100%)	0	100	100
63	SU	94/107 (88%)	94 (100%)	0	100	100
64	SV	67/67 (100%)	67 (100%)	0	100	100
65	SX	113/115 (98%)	113 (100%)	0	100	100
66	Sa	90/98 (92%)	90 (100%)	0	100	100
67	Sc	57/62 (92%)	57 (100%)	0	100	100
68	Sd	47/49 (96%)	47 (100%)	0	100	100
69	Sf	64/140 (46%)	64 (100%)	0	100	100
70	Sg	272/275 (99%)	272 (100%)	0	100	100
71	SC	188/225 (84%)	188 (100%)	0	100	100
72	SG	207/218 (95%)	207 (100%)	0	100	100
73	SJ	161/168 (96%)	161 (100%)	0	100	100
74	SM	104/108 (96%)	104 (100%)	0	100	100
75	SN	130/131 (99%)	130 (100%)	0	100	100
76	SO	110/119 (92%)	110 (100%)	0	100	100
77	SW	112/113 (99%)	112 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
78	SY	113/115 (98%)	113 (100%)	0	100	100
79	SZ	66/103 (64%)	66 (100%)	0	100	100
80	Sb	75/76 (99%)	75 (100%)	0	100	100
81	Se	47/48 (98%)	47 (100%)	0	100	100
All	All	10039/10997 (91%)	10037 (100%)	2 (0%)	100	100

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	LA	215	ASN
43	Lo	31	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (95) such sidechains are listed below:

Mol	Chain	Res	Type
4	LA	22	HIS
4	LA	215	ASN
5	LB	11	HIS
5	LB	175	GLN
5	LB	179	HIS
5	LB	258	HIS
5	LB	354	GLN
6	LC	47	ASN
6	LC	119	GLN
6	LC	142	HIS
6	LC	215	ASN
6	LC	317	ASN
7	LD	111	ASN
8	LE	101	ASN
8	LE	191	GLN
8	LE	228	GLN
8	LE	284	HIS
9	LF	116	GLN
9	LF	119	ASN
9	LF	239	GLN
10	LG	100	HIS
11	LH	79	ASN
11	LH	149	ASN
11	LH	188	GLN
12	LI	213	HIS

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Mol	Chain	Res	Type
13	LJ	98	ASN
14	LL	15	HIS
14	LL	113	ASN
15	LM	20	HIS
15	LM	131	GLN
17	LO	26	GLN
17	LO	150	GLN
17	LO	184	ASN
18	LP	80	GLN
18	LP	116	HIS
18	LP	137	ASN
19	LQ	7	HIS
21	LS	117	HIS
21	LS	146	HIS
25	LW	17	HIS
25	LW	63	GLN
25	LW	68	GLN
25	LW	96	GLN
27	LY	24	HIS
29	La	41	HIS
29	La	44	ASN
29	La	85	GLN
30	Lb	60	ASN
33	Le	117	GLN
35	Lg	112	GLN
36	Lh	68	ASN
40	Ll	17	GLN
44	Lp	56	HIS
45	Lr	6	GLN
45	Lr	70	GLN
45	Lr	100	ASN
46	Lz	35	GLN
46	Lz	143	ASN
49	SA	36	GLN
50	SB	202	GLN
51	SD	57	ASN
51	SD	226	GLN
52	SE	67	GLN
53	SF	83	ASN
53	SF	118	ASN
54	SH	33	ASN
54	SH	76	GLN

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Mol	Chain	Res	Type
54	SH	163	GLN
55	SI	88	ASN
56	SK	50	GLN
56	SK	73	ASN
57	SL	13	GLN
57	SL	141	ASN
59	SQ	8	GLN
59	SQ	35	ASN
63	SU	81	GLN
65	SX	63	ASN
65	SX	110	HIS
69	Sf	151	ASN
70	Sg	62	HIS
70	Sg	187	ASN
70	Sg	188	HIS
70	Sg	285	GLN
71	SC	115	GLN
72	SG	4	ASN
73	SJ	156	HIS
74	SM	52	GLN
75	SN	58	HIS
75	SN	105	ASN
76	SO	13	GLN
76	SO	26	ASN
76	SO	103	ASN
77	SW	15	ASN
79	SZ	89	GLN
81	Se	44	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	L5	3707/5070 (73%)	1303 (35%)	56 (1%)
2	L7	119/121 (98%)	21 (17%)	0
3	L8	155/157 (98%)	44 (28%)	2 (1%)
47	S2	1716/1869 (91%)	677 (39%)	22 (1%)
48	S6	74/75 (98%)	28 (37%)	2 (2%)
All	All	5771/7292 (79%)	2073 (35%)	82 (1%)

All (2073) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	L5	4	G
1	L5	6	C
1	L5	9	C
1	L5	13	U
1	L5	17	A
1	L5	19	G
1	L5	25	A
1	L5	26	C
1	L5	27	C
1	L5	30	C
1	L5	35	U
1	L5	39	A
1	L5	43	U
1	L5	44	A
1	L5	46	U
1	L5	47	A
1	L5	48	G
1	L5	56	A
1	L5	59	A
1	L5	61	A
1	L5	62	A
1	L5	64	A
1	L5	65	A
1	L5	66	A
1	L5	71	C
1	L5	72	C
1	L5	73	A
1	L5	75	G
1	L5	91	G
1	L5	98	A
1	L5	104	G
1	L5	108	A
1	L5	109	G
1	L5	110	C
1	L5	117	C
1	L5	119	G
1	L5	120	A
1	L5	121	A
1	L5	122	U
1	L5	126	C
1	L5	130	C
1	L5	133	C
1	L5	134	G

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Mol	Chain	Res	Type
1	L5	135	G
1	L5	136	C
1	L5	141	C
1	L5	144	G
1	L5	149	A
1	L5	151	G
1	L5	152	U
1	L5	159	C
1	L5	164	G
1	L5	165	A
1	L5	167	C
1	L5	171	U
1	L5	172	C
1	L5	173	C
1	L5	175	C
1	L5	180	C
1	L5	183	C
1	L5	184	U
1	L5	185	C
1	L5	187	U
1	L5	188	G
1	L5	200	U
1	L5	202	C
1	L5	203	U
1	L5	205	C
1	L5	213	G
1	L5	216	C
1	L5	217	C
1	L5	218	A
1	L5	219	G
1	L5	227	A
1	L5	229	G
1	L5	230	G
1	L5	232	G
1	L5	234	G
1	L5	235	A
1	L5	236	G
1	L5	238	C
1	L5	241	G
1	L5	242	U
1	L5	245	C
1	L5	246	G

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Mol	Chain	Res	Type
1	L5	250	C
1	L5	252	C
1	L5	253	G
1	L5	256	G
1	L5	265	C
1	L5	266	C
1	L5	267	G
1	L5	277	G
1	L5	278	G
1	L5	280	G
1	L5	297	U
1	L5	300	A
1	L5	306	A
1	L5	310	G
1	L5	315	G
1	L5	316	U
1	L5	322	C
1	L5	326	C
1	L5	334	A
1	L5	340	C
1	L5	341	G
1	L5	352	G
1	L5	353	A
1	L5	354	U
1	L5	379	G
1	L5	382	G
1	L5	383	A
1	L5	384	A
1	L5	386	A
1	L5	387	G
1	L5	389	A
1	L5	390	C
1	L5	394	G
1	L5	406	C
1	L5	407	A
1	L5	409	G
1	L5	410	A
1	L5	413	G
1	L5	414	C
1	L5	415	G
1	L5	418	A
1	L5	431	G

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Mol	Chain	Res	Type
1	L5	432	U
1	L5	433	A
1	L5	434	A
1	L5	435	A
1	L5	437	G
1	L5	444	G
1	L5	448	G
1	L5	449	C
1	L5	450	G
1	L5	451	C
1	L5	452	A
1	L5	453	G
1	L5	454	U
1	L5	455	C
1	L5	462	G
1	L5	465	G
1	L5	467	U
1	L5	468	U
1	L5	469	C
1	L5	471	A
1	L5	473	C
1	L5	485	C
1	L5	486	C
1	L5	487	G
1	L5	490	C
1	L5	495	C
1	L5	498	C
1	L5	500	G
1	L5	501	C
1	L5	502	C
1	L5	503	C
1	L5	504	G
1	L5	506	C
1	L5	509	A
1	L5	510	U
1	L5	511	C
1	L5	512	U
1	L5	513	U
1	L5	514	U
1	L5	517	C
1	L5	518	G
1	L5	643	C

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Mol	Chain	Res	Type
1	L5	644	G
1	L5	646	G
1	L5	647	G
1	L5	648	G
1	L5	649	A
1	L5	652	G
1	L5	654	C
1	L5	656	C
1	L5	657	C
1	L5	658	C
1	L5	659	G
1	L5	661	C
1	L5	664	G
1	L5	665	C
1	L5	667	A
1	L5	671	G
1	L5	678	C
1	L5	682	G
1	L5	684	G
1	L5	686	A
1	L5	694	C
1	L5	696	C
1	L5	697	G
1	L5	702	U
1	L5	703	G
1	L5	704	C
1	L5	705	G
1	L5	707	C
1	L5	713	C
1	L5	719	C
1	L5	720	G
1	L5	723	A
1	L5	728	U
1	L5	730	G
1	L5	736	C
1	L5	737	C
1	L5	740	G
1	L5	741	C
1	L5	744	G
1	L5	747	A
1	L5	749	G
1	L5	750	U

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Mol	Chain	Res	Type
1	L5	751	G
1	L5	754	U
1	L5	756	G
1	L5	907	C
1	L5	910	G
1	L5	911	U
1	L5	915	A
1	L5	916	C
1	L5	917	A
1	L5	918	G
1	L5	919	C
1	L5	920	C
1	L5	926	G
1	L5	927	G
1	L5	928	C
1	L5	929	A
1	L5	930	G
1	L5	931	C
1	L5	932	A
1	L5	933	G
1	L5	934	C
1	L5	938	C
1	L5	940	C
1	L5	942	G
1	L5	944	A
1	L5	945	U
1	L5	946	C
1	L5	947	C
1	L5	950	G
1	L5	956	A
1	L5	957	G
1	L5	958	G
1	L5	959	G
1	L5	960	A
1	L5	961	G
1	L5	962	C
1	L5	963	G
1	L5	964	A
1	L5	965	G
1	L5	966	A
1	L5	967	C
1	L5	968	C

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Mol	Chain	Res	Type
1	L5	969	C
1	L5	975	C
1	L5	976	G
1	L5	978	G
1	L5	981	C
1	L5	982	U
1	L5	984	C
1	L5	985	C
1	L5	986	C
1	L5	989	U
1	L5	991	C
1	L5	992	C
1	L5	995	C
1	L5	996	G
1	L5	1049	C
1	L5	1051	G
1	L5	1065	G
1	L5	1071	C
1	L5	1072	C
1	L5	1073	G
1	L5	1076	C
1	L5	1078	A
1	L5	1079	C
1	L5	1080	C
1	L5	1081	C
1	L5	1083	U
1	L5	1096	C
1	L5	1100	U
1	L5	1169	G
1	L5	1170	G
1	L5	1172	C
1	L5	1173	G
1	L5	1178	G
1	L5	1179	U
1	L5	1180	C
1	L5	1181	C
1	L5	1182	C
1	L5	1183	C
1	L5	1184	A
1	L5	1188	C
1	L5	1191	C
1	L5	1193	C

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Mol	Chain	Res	Type
1	L5	1202	C
1	L5	1203	G
1	L5	1205	G
1	L5	1210	C
1	L5	1211	G
1	L5	1214	C
1	L5	1215	C
1	L5	1216	C
1	L5	1217	G
1	L5	1219	G
1	L5	1221	G
1	L5	1222	A
1	L5	1233	G
1	L5	1237	C
1	L5	1238	A
1	L5	1239	C
1	L5	1243	C
1	L5	1244	G
1	L5	1245	C
1	L5	1250	C
1	L5	1252	C
1	L5	1254	A
1	L5	1256	G
1	L5	1257	A
1	L5	1259	G
1	L5	1260	G
1	L5	1262	G
1	L5	1267	C
1	L5	1268	G
1	L5	1269	G
1	L5	1270	A
1	L5	1271	G
1	L5	1272	C
1	L5	1273	G
1	L5	1274	A
1	L5	1275	G
1	L5	1276	C
1	L5	1277	G
1	L5	1279	A
1	L5	1280	C
1	L5	1281	G
1	L5	1285	U

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Mol	Chain	Res	Type
1	L5	1288	G
1	L5	1289	C
1	L5	1290	G
1	L5	1293	G
1	L5	1295	C
1	L5	1296	G
1	L5	1297	U
1	L5	1298	C
1	L5	1301	C
1	L5	1303	A
1	L5	1322	A
1	L5	1326	A
1	L5	1330	A
1	L5	1339	U
1	L5	1343	A
1	L5	1353	G
1	L5	1354	A
1	L5	1358	G
1	L5	1359	G
1	L5	1360	G
1	L5	1364	U
1	L5	1365	C
1	L5	1366	G
1	L5	1367	C
1	L5	1368	A
1	L5	1369	C
1	L5	1370	G
1	L5	1371	A
1	L5	1372	A
1	L5	1376	C
1	L5	1377	G
1	L5	1378	C
1	L5	1379	C
1	L5	1381	U
1	L5	1387	A
1	L5	1394	G
1	L5	1396	G
1	L5	1399	G
1	L5	1404	G
1	L5	1407	C
1	L5	1409	C
1	L5	1410	U

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Mol	Chain	Res	Type
1	L5	1411	C
1	L5	1413	C
1	L5	1415	G
1	L5	1416	G
1	L5	1417	C
1	L5	1418	C
1	L5	1420	A
1	L5	1421	G
1	L5	1425	G
1	L5	1428	U
1	L5	1434	G
1	L5	1435	G
1	L5	1437	C
1	L5	1438	U
1	L5	1440	U
1	L5	1441	C
1	L5	1446	C
1	L5	1453	G
1	L5	1456	C
1	L5	1457	G
1	L5	1472	C
1	L5	1475	G
1	L5	1480	C
1	L5	1481	C
1	L5	1482	G
1	L5	1483	C
1	L5	1485	C
1	L5	1486	C
1	L5	1493	G
1	L5	1495	G
1	L5	1497	A
1	L5	1498	G
1	L5	1501	C
1	L5	1502	G
1	L5	1503	A
1	L5	1512	G
1	L5	1523	A
1	L5	1525	A
1	L5	1530	G
1	L5	1534	A
1	L5	1539	G
1	L5	1540	C

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Mol	Chain	Res	Type
1	L5	1547	A
1	L5	1552	G
1	L5	1563	A
1	L5	1564	A
1	L5	1566	C
1	L5	1574	G
1	L5	1578	U
1	L5	1582	U
1	L5	1591	U
1	L5	1592	G
1	L5	1596	U
1	L5	1597	G
1	L5	1611	C
1	L5	1612	G
1	L5	1613	A
1	L5	1614	C
1	L5	1623	A
1	L5	1624	G
1	L5	1625	G
1	L5	1626	G
1	L5	1629	G
1	L5	1631	A
1	L5	1633	G
1	L5	1634	A
1	L5	1638	A
1	L5	1641	G
1	L5	1646	A
1	L5	1650	A
1	L5	1651	G
1	L5	1654	G
1	L5	1656	U
1	L5	1657	G
1	L5	1661	C
1	L5	1676	C
1	L5	1677	U
1	L5	1681	G
1	L5	1686	C
1	L5	1694	C
1	L5	1696	C
1	L5	1697	G
1	L5	1698	C
1	L5	1699	A

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Mol	Chain	Res	Type
1	L5	1719	A
1	L5	1721	G
1	L5	1723	A
1	L5	1725	U
1	L5	1727	U
1	L5	1728	U
1	L5	1729	A
1	L5	1731	C
1	L5	1734	G
1	L5	1735	U
1	L5	1741	G
1	L5	1742	A
1	L5	1748	U
1	L5	1750	G
1	L5	1751	A
1	L5	1753	G
1	L5	1754	U
1	L5	1755	C
1	L5	1756	U
1	L5	1757	U
1	L5	1758	G
1	L5	1759	G
1	L5	1760	G
1	L5	1761	G
1	L5	1762	C
1	L5	1763	C
1	L5	1764	G
1	L5	1765	A
1	L5	1766	A
1	L5	1767	A
1	L5	1768	C
1	L5	1771	U
1	L5	1772	C
1	L5	1775	A
1	L5	1777	C
1	L5	1778	C
1	L5	1781	U
1	L5	1787	A
1	L5	1788	A
1	L5	1793	A
1	L5	1804	A
1	L5	1805	A

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Mol	Chain	Res	Type
1	L5	1806	G
1	L5	1807	C
1	L5	1815	G
1	L5	1820	C
1	L5	1821	G
1	L5	1822	U
1	L5	1829	G
1	L5	1832	C
1	L5	1833	G
1	L5	1834	U
1	L5	1835	G
1	L5	1836	G
1	L5	1837	A
1	L5	1842	G
1	L5	1855	G
1	L5	1856	C
1	L5	1866	U
1	L5	1867	A
1	L5	1869	G
1	L5	1882	U
1	L5	1890	G
1	L5	1893	C
1	L5	1897	A
1	L5	1910	G
1	L5	1915	C
1	L5	1918	U
1	L5	1919	G
1	L5	1920	C
1	L5	1921	C
1	L5	1922	G
1	L5	1925	G
1	L5	1929	A
1	L5	1930	U
1	L5	1932	A
1	L5	1936	C
1	L5	1940	G
1	L5	1948	G
1	L5	1954	U
1	L5	1956	A
1	L5	1958	A
1	L5	1959	U
1	L5	1960	A

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Mol	Chain	Res	Type
1	L5	1961	G
1	L5	1963	C
1	L5	1966	C
1	L5	1968	G
1	L5	1971	C
1	L5	1974	U
1	L5	1975	G
1	L5	1976	G
1	L5	1977	C
1	L5	1978	C
1	L5	1981	G
1	L5	1982	G
1	L5	1983	A
1	L5	1984	A
1	L5	1985	G
1	L5	1987	C
1	L5	1989	G
1	L5	1990	A
1	L5	1991	A
1	L5	1993	C
1	L5	1994	C
1	L5	1997	U
1	L5	1998	A
1	L5	1999	A
1	L5	2001	G
1	L5	2002	A
1	L5	2003	G
1	L5	2005	G
1	L5	2006	U
1	L5	2007	G
1	L5	2008	U
1	L5	2009	A
1	L5	2010	A
1	L5	2011	C
1	L5	2012	A
1	L5	2013	A
1	L5	2017	A
1	L5	2018	C
1	L5	2020	U
1	L5	2023	C
1	L5	2026	A
1	L5	2034	G

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Mol	Chain	Res	Type
1	L5	2045	G
1	L5	2046	G
1	L5	2048	U
1	L5	2055	G
1	L5	2056	G
1	L5	2057	A
1	L5	2062	C
1	L5	2063	G
1	L5	2064	G
1	L5	2068	C
1	L5	2069	A
1	L5	2073	C
1	L5	2075	G
1	L5	2077	C
1	L5	2084	C
1	L5	2085	G
1	L5	2089	G
1	L5	2090	U
1	L5	2091	C
1	L5	2092	G
1	L5	2093	A
1	L5	2094	G
1	L5	2095	A
1	L5	2097	U
1	L5	2099	G
1	L5	2100	A
1	L5	2104	G
1	L5	2107	C
1	L5	2108	G
1	L5	2109	G
1	L5	2110	C
1	L5	2111	G
1	L5	2112	G
1	L5	2113	G
1	L5	2114	G
1	L5	2115	G
1	L5	2116	C
1	L5	2117	G
1	L5	2118	G
1	L5	2119	C
1	L5	2120	G
1	L5	2121	C

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Mol	Chain	Res	Type
1	L5	2122	G
1	L5	2123	C
1	L5	2124	G
1	L5	2125	C
1	L5	2126	G
1	L5	2128	G
1	L5	2130	G
1	L5	2244	C
1	L5	2247	C
1	L5	2250	C
1	L5	2251	G
1	L5	2252	G
1	L5	2254	G
1	L5	2255	C
1	L5	2256	C
1	L5	2257	C
1	L5	2259	G
1	L5	2260	C
1	L5	2262	G
1	L5	2263	A
1	L5	2264	C
1	L5	2265	G
1	L5	2268	A
1	L5	2270	G
1	L5	2278	G
1	L5	2289	C
1	L5	2290	C
1	L5	2299	G
1	L5	2300	A
1	L5	2301	G
1	L5	2304	U
1	L5	2312	U
1	L5	2324	C
1	L5	2327	G
1	L5	2331	G
1	L5	2332	A
1	L5	2333	G
1	L5	2346	C
1	L5	2347	A
1	L5	2348	G
1	L5	2351	C
1	L5	2361	G

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Mol	Chain	Res	Type
1	L5	2362	U
1	L5	2364	G
1	L5	2379	A
1	L5	2382	A
1	L5	2390	G
1	L5	2395	A
1	L5	2396	A
1	L5	2397	G
1	L5	2402	G
1	L5	2404	A
1	L5	2410	C
1	L5	2414	G
1	L5	2422	C
1	L5	2425	U
1	L5	2426	U
1	L5	2431	A
1	L5	2448	G
1	L5	2450	G
1	L5	2454	U
1	L5	2465	C
1	L5	2468	U
1	L5	2471	G
1	L5	2474	G
1	L5	2475	G
1	L5	2482	C
1	L5	2483	G
1	L5	2484	A
1	L5	2486	G
1	L5	2487	G
1	L5	2488	C
1	L5	2489	C
1	L5	2490	U
1	L5	2491	C
1	L5	2495	U
1	L5	2502	G
1	L5	2503	G
1	L5	2504	C
1	L5	2505	C
1	L5	2506	G
1	L5	2507	A
1	L5	2511	A
1	L5	2513	A

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Mol	Chain	Res	Type
1	L5	2518	G
1	L5	2519	U
1	L5	2527	A
1	L5	2529	A
1	L5	2537	A
1	L5	2544	G
1	L5	2546	G
1	L5	2547	G
1	L5	2551	A
1	L5	2553	A
1	L5	2554	U
1	L5	2556	G
1	L5	2569	G
1	L5	2570	U
1	L5	2572	C
1	L5	2573	A
1	L5	2576	G
1	L5	2583	C
1	L5	2586	G
1	L5	2587	A
1	L5	2588	C
1	L5	2596	G
1	L5	2601	A
1	L5	2602	G
1	L5	2605	G
1	L5	2618	G
1	L5	2624	G
1	L5	2634	C
1	L5	2636	U
1	L5	2638	G
1	L5	2639	U
1	L5	2648	G
1	L5	2649	G
1	L5	2653	C
1	L5	2662	G
1	L5	2670	C
1	L5	2675	G
1	L5	2676	A
1	L5	2681	G
1	L5	2686	G
1	L5	2687	U
1	L5	2689	C

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Mol	Chain	Res	Type
1	L5	2695	A
1	L5	2696	A
1	L5	2701	U
1	L5	2702	C
1	L5	2703	G
1	L5	2704	C
1	L5	2705	G
1	L5	2708	U
1	L5	2710	C
1	L5	2712	G
1	L5	2714	G
1	L5	2717	G
1	L5	2719	C
1	L5	2721	G
1	L5	2723	U
1	L5	2725	A
1	L5	2726	G
1	L5	2735	G
1	L5	2739	C
1	L5	2740	U
1	L5	2743	A
1	L5	2753	G
1	L5	2754	G
1	L5	2756	G
1	L5	2760	G
1	L5	2761	U
1	L5	2762	G
1	L5	2763	U
1	L5	2766	A
1	L5	2768	C
1	L5	2769	U
1	L5	2770	C
1	L5	2776	G
1	L5	2783	A
1	L5	2786	C
1	L5	2787	A
1	L5	2788	U
1	L5	2789	A
1	L5	2794	C
1	L5	2797	C
1	L5	2803	U
1	L5	2807	A

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Mol	Chain	Res	Type
1	L5	2814	C
1	L5	2815	A
1	L5	2816	G
1	L5	2822	G
1	L5	2825	A
1	L5	2826	U
1	L5	2827	G
1	L5	2828	U
1	L5	2829	U
1	L5	2830	G
1	L5	2831	G
1	L5	2833	A
1	L5	2845	A
1	L5	2857	A
1	L5	2859	G
1	L5	2860	C
1	L5	2862	G
1	L5	2864	A
1	L5	2869	U
1	L5	2870	A
1	L5	2874	U
1	L5	2877	G
1	L5	2884	G
1	L5	2885	A
1	L5	2887	U
1	L5	2888	G
1	L5	2894	A
1	L5	2896	G
1	L5	2902	G
1	L5	2903	G
1	L5	2904	U
1	L5	2905	C
1	L5	2906	G
1	L5	2907	G
1	L5	2909	C
1	L5	3587	C
1	L5	3589	G
1	L5	3593	C
1	L5	3596	A
1	L5	3597	G
1	L5	3600	G
1	L5	3606	U

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Mol	Chain	Res	Type
1	L5	3608	A
1	L5	3615	G
1	L5	3616	U
1	L5	3625	G
1	L5	3626	G
1	L5	3635	A
1	L5	3640	U
1	L5	3642	A
1	L5	3644	U
1	L5	3646	A
1	L5	3659	G
1	L5	3661	G
1	L5	3662	A
1	L5	3669	G
1	L5	3670	C
1	L5	3671	G
1	L5	3672	G
1	L5	3673	C
1	L5	3674	G
1	L5	3681	G
1	L5	3682	A
1	L5	3690	U
1	L5	3696	C
1	L5	3697	U
1	L5	3699	C
1	L5	3705	G
1	L5	3709	U
1	L5	3710	G
1	L5	3711	A
1	L5	3713	U
1	L5	3714	G
1	L5	3723	A
1	L5	3727	A
1	L5	3728	A
1	L5	3729	U
1	L5	3730	U
1	L5	3732	A
1	L5	3734	U
1	L5	3735	G
1	L5	3736	A
1	L5	3742	G
1	L5	3745	U

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Mol	Chain	Res	Type
1	L5	3748	A
1	L5	3750	G
1	L5	3751	G
1	L5	3753	G
1	L5	3755	G
1	L5	3756	A
1	L5	3757	G
1	L5	3758	U
1	L5	3759	A
1	L5	3760	A
1	L5	3761	C
1	L5	3762	U
1	L5	3764	U
1	L5	3766	A
1	L5	3767	C
1	L5	3768	U
1	L5	3769	C
1	L5	3770	U
1	L5	3772	U
1	L5	3776	G
1	L5	3777	G
1	L5	3785	A
1	L5	3786	U
1	L5	3789	C
1	L5	3790	U
1	L5	3791	C
1	L5	3795	A
1	L5	3802	U
1	L5	3803	A
1	L5	3807	A
1	L5	3811	G
1	L5	3813	A
1	L5	3814	U
1	L5	3817	A
1	L5	3818	U
1	L5	3819	G
1	L5	3840	U
1	L5	3843	C
1	L5	3866	C
1	L5	3867	A
1	L5	3868	G
1	L5	3869	C

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Mol	Chain	Res	Type
1	L5	3870	C
1	L5	3871	A
1	L5	3877	A
1	L5	3878	C
1	L5	3879	G
1	L5	3881	G
1	L5	3885	G
1	L5	3888	G
1	L5	3889	G
1	L5	3890	A
1	L5	3892	U
1	L5	3895	G
1	L5	3897	G
1	L5	3901	A
1	L5	3905	A
1	L5	3906	A
1	L5	3907	G
1	L5	3908	A
1	L5	3914	U
1	L5	3915	U
1	L5	3922	G
1	L5	3923	A
1	L5	3933	G
1	L5	3935	C
1	L5	3938	G
1	L5	3939	G
1	L5	3943	A
1	L5	3944	G
1	L5	3947	A
1	L5	3948	C
1	L5	3949	A
1	L5	3954	A
1	L5	3956	G
1	L5	3957	U
1	L5	3958	G
1	L5	3959	U
1	L5	3960	A
1	L5	3961	G
1	L5	3962	A
1	L5	3963	A
1	L5	3965	A
1	L5	3966	A

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Mol	Chain	Res	Type
1	L5	3968	U
1	L5	3969	G
1	L5	3972	A
1	L5	3973	G
1	L5	3975	C
1	L5	3977	C
1	L5	4034	G
1	L5	4036	G
1	L5	4037	C
1	L5	4039	G
1	L5	4042	G
1	L5	4043	G
1	L5	4044	U
1	L5	4047	A
1	L5	4048	A
1	L5	4049	U
1	L5	4050	A
1	L5	4051	C
1	L5	4052	C
1	L5	4054	C
1	L5	4055	U
1	L5	4058	U
1	L5	4059	C
1	L5	4062	A
1	L5	4064	C
1	L5	4065	G
1	L5	4071	U
1	L5	4076	G
1	L5	4077	A
1	L5	4078	C
1	L5	4079	C
1	L5	4083	U
1	L5	4084	G
1	L5	4086	G
1	L5	4087	G
1	L5	4095	G
1	L5	4100	C
1	L5	4102	C
1	L5	4103	C
1	L5	4104	G
1	L5	4107	G
1	L5	4110	C

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Mol	Chain	Res	Type
1	L5	4112	C
1	L5	4114	C
1	L5	4115	G
1	L5	4116	C
1	L5	4117	U
1	L5	4118	U
1	L5	4119	C
1	L5	4120	U
1	L5	4121	G
1	L5	4125	C
1	L5	4127	A
1	L5	4131	G
1	L5	4138	C
1	L5	4139	G
1	L5	4140	C
1	L5	4141	G
1	L5	4142	C
1	L5	4143	G
1	L5	4144	C
1	L5	4146	G
1	L5	4151	G
1	L5	4153	C
1	L5	4154	G
1	L5	4156	G
1	L5	4158	C
1	L5	4161	G
1	L5	4162	C
1	L5	4163	U
1	L5	4164	C
1	L5	4166	G
1	L5	4168	G
1	L5	4169	G
1	L5	4170	A
1	L5	4171	C
1	L5	4172	A
1	L5	4173	G
1	L5	4177	C
1	L5	4183	G
1	L5	4184	G
1	L5	4190	U
1	L5	4191	G
1	L5	4193	C

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Mol	Chain	Res	Type
1	L5	4194	U
1	L5	4201	G
1	L5	4202	U
1	L5	4203	A
1	L5	4205	A
1	L5	4209	G
1	L5	4212	A
1	L5	4220	A
1	L5	4222	G
1	L5	4225	G
1	L5	4229	U
1	L5	4234	A
1	L5	4235	G
1	L5	4237	C
1	L5	4245	G
1	L5	4248	A
1	L5	4251	A
1	L5	4254	G
1	L5	4255	A
1	L5	4256	A
1	L5	4258	C
1	L5	4260	U
1	L5	4268	A
1	L5	4271	A
1	L5	4273	A
1	L5	4277	G
1	L5	4280	A
1	L5	4281	A
1	L5	4286	C
1	L5	4287	G
1	L5	4288	C
1	L5	4291	G
1	L5	4292	A
1	L5	4296	U
1	L5	4297	G
1	L5	4302	U
1	L5	4305	G
1	L5	4306	U
1	L5	4311	A
1	L5	4314	C
1	L5	4317	A
1	L5	4319	C

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Mol	Chain	Res	Type
1	L5	4328	G
1	L5	4330	G
1	L5	4337	C
1	L5	4338	G
1	L5	4339	A
1	L5	4346	U
1	L5	4349	C
1	L5	4350	C
1	L5	4367	G
1	L5	4369	A
1	L5	4376	A
1	L5	4377	G
1	L5	4378	A
1	L5	4380	A
1	L5	4381	A
1	L5	4382	G
1	L5	4384	U
1	L5	4385	A
1	L5	4387	C
1	L5	4394	A
1	L5	4396	A
1	L5	4398	C
1	L5	4414	A
1	L5	4415	A
1	L5	4419	U
1	L5	4420	U
1	L5	4422	A
1	L5	4427	G
1	L5	4429	C
1	L5	4438	U
1	L5	4448	G
1	L5	4449	A
1	L5	4464	A
1	L5	4465	U
1	L5	4475	G
1	L5	4476	C
1	L5	4477	A
1	L5	4478	G
1	L5	4481	U
1	L5	4488	A
1	L5	4489	G
1	L5	4491	G

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Mol	Chain	Res	Type
1	L5	4498	U
1	L5	4500	U
1	L5	4504	C
1	L5	4510	A
1	L5	4511	A
1	L5	4512	U
1	L5	4513	A
1	L5	4515	G
1	L5	4518	A
1	L5	4523	A
1	L5	4524	G
1	L5	4528	G
1	L5	4531	U
1	L5	4534	G
1	L5	4545	G
1	L5	4548	A
1	L5	4549	G
1	L5	4557	U
1	L5	4560	C
1	L5	4567	G
1	L5	4571	A
1	L5	4573	G
1	L5	4575	G
1	L5	4581	G
1	L5	4583	C
1	L5	4587	G
1	L5	4589	A
1	L5	4590	A
1	L5	4595	G
1	L5	4599	A
1	L5	4600	G
1	L5	4601	U
1	L5	4609	G
1	L5	4617	G
1	L5	4627	U
1	L5	4636	U
1	L5	4637	G
1	L5	4639	G
1	L5	4641	U
1	L5	4642	U
1	L5	4656	A
1	L5	4657	U

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Mol	Chain	Res	Type
1	L5	4658	G
1	L5	4670	C
1	L5	4672	A
1	L5	4677	U
1	L5	4678	G
1	L5	4682	U
1	L5	4693	C
1	L5	4695	C
1	L5	4696	C
1	L5	4699	U
1	L5	4700	A
1	L5	4708	A
1	L5	4709	U
1	L5	4728	U
1	L5	4730	C
1	L5	4731	G
1	L5	4732	G
1	L5	4733	C
1	L5	4734	A
1	L5	4738	C
1	L5	4739	C
1	L5	4743	G
1	L5	4744	A
1	L5	4749	C
1	L5	4750	G
1	L5	4753	U
1	L5	4756	C
1	L5	4757	C
1	L5	4758	U
1	L5	4760	G
1	L5	4761	G
1	L5	4764	A
1	L5	4768	G
1	L5	4770	U
1	L5	4771	C
1	L5	4772	C
1	L5	4774	C
1	L5	4775	C
1	L5	4776	G
1	L5	4860	G
1	L5	4861	G
1	L5	4862	G

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Mol	Chain	Res	Type
1	L5	4863	G
1	L5	4865	C
1	L5	4868	G
1	L5	4869	U
1	L5	4870	G
1	L5	4871	C
1	L5	4872	G
1	L5	4873	G
1	L5	4874	A
1	L5	4875	G
1	L5	4876	U
1	L5	4877	G
1	L5	4878	C
1	L5	4880	C
1	L5	4882	U
1	L5	4883	C
1	L5	4884	G
1	L5	4888	U
1	L5	4890	G
1	L5	4894	A
1	L5	4896	G
1	L5	4900	C
1	L5	4901	G
1	L5	4902	C
1	L5	4910	G
1	L5	4911	A
1	L5	4912	G
1	L5	4913	G
1	L5	4914	C
1	L5	4918	C
1	L5	4923	C
1	L5	4925	U
1	L5	4926	C
1	L5	4927	G
1	L5	4936	G
1	L5	4938	A
1	L5	4939	C
1	L5	4941	G
1	L5	4945	G
1	L5	4946	U
1	L5	4949	G
1	L5	4950	U

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Mol	Chain	Res	Type
1	L5	4951	G
1	L5	4952	G
1	L5	4956	A
1	L5	4957	C
1	L5	4958	C
1	L5	4959	U
1	L5	4963	G
1	L5	4964	C
1	L5	4968	A
1	L5	4970	C
1	L5	4973	U
1	L5	4976	U
1	L5	4982	A
1	L5	4985	U
1	L5	4988	U
1	L5	4989	U
1	L5	4991	U
1	L5	4992	G
1	L5	5007	A
1	L5	5011	A
1	L5	5014	A
1	L5	5017	G
1	L5	5018	C
1	L5	5022	U
1	L5	5024	C
1	L5	5025	C
1	L5	5026	U
1	L5	5027	C
1	L5	5028	G
1	L5	5031	G
1	L5	5034	A
1	L5	5035	U
1	L5	5041	G
1	L5	5043	A
1	L5	5050	C
1	L5	5054	C
1	L5	5055	G
1	L5	5058	A
1	L5	5061	A
1	L5	5064	G
1	L5	5066	U
1	L5	5068	G

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Mol	Chain	Res	Type
2	L7	7	G
2	L7	20	U
2	L7	22	A
2	L7	24	C
2	L7	25	G
2	L7	26	C
2	L7	36	C
2	L7	40	U
2	L7	49	A
2	L7	54	A
2	L7	60	G
2	L7	63	C
2	L7	64	G
2	L7	73	U
2	L7	84	U
2	L7	97	G
2	L7	100	A
2	L7	109	U
2	L7	110	G
2	L7	111	C
2	L7	120	U
3	L8	2	G
3	L8	8	U
3	L8	17	A
3	L8	22	U
3	L8	23	C
3	L8	27	U
3	L8	34	U
3	L8	35	C
3	L8	48	A
3	L8	50	C
3	L8	52	A
3	L8	56	G
3	L8	59	A
3	L8	63	U
3	L8	76	C
3	L8	80	A
3	L8	82	A
3	L8	83	C
3	L8	84	A
3	L8	86	U
3	L8	87	G

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Mol	Chain	Res	Type
3	L8	88	A
3	L8	89	U
3	L8	93	C
3	L8	95	A
3	L8	98	C
3	L8	103	A
3	L8	104	A
3	L8	105	C
3	L8	109	C
3	L8	110	U
3	L8	114	G
3	L8	118	C
3	L8	122	G
3	L8	123	U
3	L8	124	U
3	L8	125	C
3	L8	126	C
3	L8	127	U
3	L8	128	C
3	L8	129	C
3	L8	146	U
3	L8	149	G
3	L8	150	C
47	S2	2	A
47	S2	3	C
47	S2	4	C
47	S2	9	U
47	S2	17	C
47	S2	18	C
47	S2	25	A
47	S2	27	A
47	S2	31	U
47	S2	33	G
47	S2	41	G
47	S2	42	A
47	S2	44	U
47	S2	45	A
47	S2	46	A
47	S2	52	G
47	S2	56	G
47	S2	62	G
47	S2	64	A

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Mol	Chain	Res	Type
47	S2	67	C
47	S2	68	A
47	S2	69	C
47	S2	70	G
47	S2	72	C
47	S2	73	C
47	S2	74	G
47	S2	76	U
47	S2	77	A
47	S2	78	C
47	S2	79	A
47	S2	83	A
47	S2	84	A
47	S2	98	C
47	S2	99	A
47	S2	103	A
47	S2	113	G
47	S2	114	G
47	S2	126	G
47	S2	127	C
47	S2	139	C
47	S2	140	C
47	S2	141	A
47	S2	142	C
47	S2	144	U
47	S2	148	U
47	S2	153	G
47	S2	154	U
47	S2	155	G
47	S2	156	G
47	S2	160	U
47	S2	161	U
47	S2	162	C
47	S2	163	U
47	S2	167	G
47	S2	168	C
47	S2	171	A
47	S2	172	U
47	S2	175	A
47	S2	177	G
47	S2	178	C
47	S2	180	G

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Mol	Chain	Res	Type
47	S2	181	A
47	S2	184	G
47	S2	185	G
47	S2	188	C
47	S2	190	G
47	S2	191	A
47	S2	192	C
47	S2	198	U
47	S2	201	C
47	S2	202	G
47	S2	208	G
47	S2	209	A
47	S2	210	U
47	S2	211	G
47	S2	214	U
47	S2	215	G
47	S2	219	U
47	S2	291	G
47	S2	292	A
47	S2	293	C
47	S2	295	C
47	S2	299	A
47	S2	304	C
47	S2	305	U
47	S2	306	C
47	S2	307	G
47	S2	308	G
47	S2	309	G
47	S2	312	G
47	S2	313	A
47	S2	314	U
47	S2	316	G
47	S2	319	C
47	S2	320	G
47	S2	323	C
47	S2	324	C
47	S2	325	C
47	S2	326	C
47	S2	328	U
47	S2	329	G
47	S2	330	G
47	S2	334	C

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Mol	Chain	Res	Type
47	S2	338	G
47	S2	339	A
47	S2	340	C
47	S2	341	C
47	S2	342	C
47	S2	343	A
47	S2	347	G
47	S2	351	G
47	S2	354	U
47	S2	360	A
47	S2	361	U
47	S2	362	C
47	S2	364	A
47	S2	369	C
47	S2	370	G
47	S2	371	A
47	S2	385	G
47	S2	386	C
47	S2	388	U
47	S2	391	C
47	S2	400	C
47	S2	401	A
47	S2	402	C
47	S2	407	G
47	S2	408	A
47	S2	409	C
47	S2	411	G
47	S2	413	G
47	S2	417	C
47	S2	418	A
47	S2	423	U
47	S2	426	A
47	S2	429	C
47	S2	434	G
47	S2	435	A
47	S2	436	G
47	S2	438	G
47	S2	441	C
47	S2	448	A
47	S2	449	A
47	S2	450	C
47	S2	452	G

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Mol	Chain	Res	Type
47	S2	459	C
47	S2	464	A
47	S2	465	A
47	S2	466	G
47	S2	467	G
47	S2	469	A
47	S2	472	C
47	S2	473	A
47	S2	474	G
47	S2	482	G
47	S2	487	U
47	S2	488	U
47	S2	489	A
47	S2	492	C
47	S2	493	A
47	S2	495	U
47	S2	502	C
47	S2	503	C
47	S2	505	G
47	S2	507	G
47	S2	516	A
47	S2	517	C
47	S2	530	U
47	S2	532	C
47	S2	533	A
47	S2	534	G
47	S2	535	G
47	S2	537	C
47	S2	538	U
47	S2	539	C
47	S2	540	U
47	S2	542	U
47	S2	544	G
47	S2	545	A
47	S2	547	G
47	S2	549	C
47	S2	550	C
47	S2	551	U
47	S2	556	U
47	S2	557	U
47	S2	559	G
47	S2	560	A

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Mol	Chain	Res	Type
47	S2	563	G
47	S2	566	U
47	S2	574	A
47	S2	575	A
47	S2	576	A
47	S2	581	U
47	S2	582	C
47	S2	584	G
47	S2	585	C
47	S2	587	A
47	S2	588	G
47	S2	589	G
47	S2	590	A
47	S2	591	U
47	S2	592	C
47	S2	593	C
47	S2	596	U
47	S2	604	A
47	S2	605	A
47	S2	606	G
47	S2	607	U
47	S2	608	C
47	S2	613	G
47	S2	621	C
47	S2	627	U
47	S2	628	A
47	S2	629	A
47	S2	631	U
47	S2	634	A
47	S2	643	A
47	S2	644	G
47	S2	651	U
47	S2	655	A
47	S2	656	G
47	S2	657	U
47	S2	660	C
47	S2	666	U
47	S2	669	A
47	S2	670	A
47	S2	671	A
47	S2	672	A
47	S2	673	G

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Mol	Chain	Res	Type
47	S2	675	U
47	S2	679	A
47	S2	683	G
47	S2	685	A
47	S2	686	U
47	S2	687	C
47	S2	688	U
47	S2	689	U
47	S2	690	G
47	S2	691	G
47	S2	692	G
47	S2	693	A
47	S2	694	G
47	S2	695	C
47	S2	696	G
47	S2	697	G
47	S2	698	G
47	S2	731	G
47	S2	733	C
47	S2	734	C
47	S2	735	C
47	S2	736	C
47	S2	738	C
47	S2	739	C
47	S2	746	C
47	S2	747	U
47	S2	749	U
47	S2	750	C
47	S2	751	G
47	S2	752	G
47	S2	753	C
47	S2	787	G
47	S2	788	G
47	S2	789	G
47	S2	790	C
47	S2	791	C
47	S2	794	A
47	S2	795	A
47	S2	796	G
47	S2	797	C
47	S2	798	A
47	S2	800	U

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Mol	Chain	Res	Type
47	S2	810	A
47	S2	811	A
47	S2	812	A
47	S2	813	A
47	S2	815	U
47	S2	818	A
47	S2	821	G
47	S2	822	U
47	S2	823	U
47	S2	830	A
47	S2	834	C
47	S2	835	C
47	S2	837	A
47	S2	838	G
47	S2	839	C
47	S2	840	C
47	S2	841	G
47	S2	842	C
47	S2	843	C
47	S2	847	A
47	S2	848	U
47	S2	853	C
47	S2	864	A
47	S2	865	A
47	S2	869	A
47	S2	870	A
47	S2	873	G
47	S2	874	G
47	S2	876	C
47	S2	877	C
47	S2	878	G
47	S2	879	C
47	S2	881	G
47	S2	883	U
47	S2	887	U
47	S2	888	U
47	S2	889	U
47	S2	890	U
47	S2	891	G
47	S2	892	U
47	S2	893	U
47	S2	894	G

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Mol	Chain	Res	Type
47	S2	896	U
47	S2	897	U
47	S2	899	U
47	S2	900	C
47	S2	901	G
47	S2	902	G
47	S2	903	A
47	S2	904	A
47	S2	907	G
47	S2	908	A
47	S2	909	G
47	S2	913	A
47	S2	914	U
47	S2	917	U
47	S2	919	A
47	S2	920	A
47	S2	930	C
47	S2	933	G
47	S2	934	G
47	S2	939	U
47	S2	943	U
47	S2	952	G
47	S2	954	U
47	S2	955	A
47	S2	956	G
47	S2	958	G
47	S2	961	G
47	S2	963	A
47	S2	964	A
47	S2	965	U
47	S2	970	G
47	S2	971	G
47	S2	972	A
47	S2	973	C
47	S2	978	G
47	S2	979	C
47	S2	981	A
47	S2	990	A
47	S2	992	A
47	S2	996	A
47	S2	999	G
47	S2	1002	U

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Mol	Chain	Res	Type
47	S2	1008	A
47	S2	1017	U
47	S2	1022	U
47	S2	1023	A
47	S2	1027	A
47	S2	1028	A
47	S2	1029	G
47	S2	1041	G
47	S2	1042	A
47	S2	1044	G
47	S2	1052	A
47	S2	1059	G
47	S2	1060	A
47	S2	1061	U
47	S2	1062	A
47	S2	1068	G
47	S2	1076	G
47	S2	1081	U
47	S2	1083	A
47	S2	1084	A
47	S2	1085	C
47	S2	1087	A
47	S2	1088	U
47	S2	1110	G
47	S2	1113	A
47	S2	1114	U
47	S2	1115	U
47	S2	1116	C
47	S2	1118	C
47	S2	1119	A
47	S2	1120	U
47	S2	1126	G
47	S2	1134	G
47	S2	1138	C
47	S2	1139	C
47	S2	1148	A
47	S2	1149	A
47	S2	1150	A
47	S2	1153	C
47	S2	1154	U
47	S2	1155	U
47	S2	1157	G

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Mol	Chain	Res	Type
47	S2	1166	G
47	S2	1170	A
47	S2	1171	G
47	S2	1172	U
47	S2	1175	G
47	S2	1180	C
47	S2	1181	A
47	S2	1186	U
47	S2	1194	A
47	S2	1195	A
47	S2	1198	G
47	S2	1208	A
47	S2	1211	G
47	S2	1212	G
47	S2	1213	C
47	S2	1214	A
47	S2	1215	C
47	S2	1216	C
47	S2	1217	A
47	S2	1224	G
47	S2	1231	C
47	S2	1238	U
47	S2	1240	A
47	S2	1241	A
47	S2	1242	U
47	S2	1248	U
47	S2	1250	A
47	S2	1251	A
47	S2	1253	A
47	S2	1256	G
47	S2	1257	G
47	S2	1258	A
47	S2	1259	A
47	S2	1260	A
47	S2	1264	C
47	S2	1265	A
47	S2	1268	C
47	S2	1269	G
47	S2	1271	C
47	S2	1274	G
47	S2	1275	G
47	S2	1276	A

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Mol	Chain	Res	Type
47	S2	1277	C
47	S2	1280	G
47	S2	1281	G
47	S2	1283	C
47	S2	1284	A
47	S2	1287	A
47	S2	1288	U
47	S2	1289	U
47	S2	1290	G
47	S2	1292	C
47	S2	1294	G
47	S2	1295	A
47	S2	1296	U
47	S2	1297	U
47	S2	1298	G
47	S2	1299	A
47	S2	1300	U
47	S2	1301	A
47	S2	1302	G
47	S2	1303	C
47	S2	1305	C
47	S2	1306	U
47	S2	1307	U
47	S2	1308	U
47	S2	1310	U
47	S2	1311	C
47	S2	1313	A
47	S2	1315	U
47	S2	1317	C
47	S2	1318	G
47	S2	1321	G
47	S2	1323	U
47	S2	1324	G
47	S2	1330	G
47	S2	1331	C
47	S2	1332	A
47	S2	1337	C
47	S2	1341	C
47	S2	1342	U
47	S2	1343	U
47	S2	1363	C
47	S2	1364	U

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Mol	Chain	Res	Type
47	S2	1371	U
47	S2	1372	U
47	S2	1373	C
47	S2	1378	A
47	S2	1383	A
47	S2	1393	G
47	S2	1396	A
47	S2	1397	U
47	S2	1398	G
47	S2	1404	U
47	S2	1405	A
47	S2	1407	U
47	S2	1409	A
47	S2	1410	C
47	S2	1412	C
47	S2	1413	G
47	S2	1414	A
47	S2	1415	C
47	S2	1416	C
47	S2	1418	C
47	S2	1419	C
47	S2	1420	G
47	S2	1423	C
47	S2	1424	G
47	S2	1425	G
47	S2	1427	C
47	S2	1428	G
47	S2	1431	G
47	S2	1432	U
47	S2	1434	C
47	S2	1436	C
47	S2	1437	C
47	S2	1438	A
47	S2	1442	U
47	S2	1448	A
47	S2	1449	G
47	S2	1454	A
47	S2	1455	A
47	S2	1456	G
47	S2	1457	U
47	S2	1458	G
47	S2	1463	U

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Mol	Chain	Res	Type
47	S2	1464	C
47	S2	1468	C
47	S2	1471	C
47	S2	1472	C
47	S2	1473	G
47	S2	1475	G
47	S2	1476	A
47	S2	1477	U
47	S2	1480	A
47	S2	1481	G
47	S2	1484	A
47	S2	1487	A
47	S2	1489	A
47	S2	1490	G
47	S2	1493	C
47	S2	1494	U
47	S2	1495	G
47	S2	1497	G
47	S2	1498	A
47	S2	1505	U
47	S2	1506	A
47	S2	1507	G
47	S2	1508	A
47	S2	1509	U
47	S2	1510	G
47	S2	1512	C
47	S2	1513	C
47	S2	1515	G
47	S2	1520	G
47	S2	1521	C
47	S2	1522	A
47	S2	1523	C
47	S2	1525	C
47	S2	1526	G
47	S2	1527	C
47	S2	1531	A
47	S2	1533	A
47	S2	1535	U
47	S2	1536	G
47	S2	1538	C
47	S2	1540	G
47	S2	1543	U

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Mol	Chain	Res	Type
47	S2	1545	A
47	S2	1546	G
47	S2	1550	G
47	S2	1551	U
47	S2	1552	G
47	S2	1553	C
47	S2	1554	C
47	S2	1555	U
47	S2	1556	A
47	S2	1557	C
47	S2	1558	C
47	S2	1567	G
47	S2	1568	C
47	S2	1569	A
47	S2	1570	G
47	S2	1573	G
47	S2	1574	C
47	S2	1575	G
47	S2	1579	A
47	S2	1580	A
47	S2	1581	C
47	S2	1585	U
47	S2	1586	U
47	S2	1587	G
47	S2	1588	A
47	S2	1589	A
47	S2	1598	G
47	S2	1599	U
47	S2	1600	G
47	S2	1603	G
47	S2	1614	A
47	S2	1621	U
47	S2	1623	A
47	S2	1626	C
47	S2	1636	G
47	S2	1637	A
47	S2	1638	G
47	S2	1639	G
47	S2	1640	A
47	S2	1644	C
47	S2	1648	G
47	S2	1651	A

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Mol	Chain	Res	Type
47	S2	1653	U
47	S2	1654	G
47	S2	1655	C
47	S2	1660	C
47	S2	1661	A
47	S2	1662	U
47	S2	1663	A
47	S2	1664	A
47	S2	1665	G
47	S2	1679	A
47	S2	1680	G
47	S2	1686	G
47	S2	1688	C
47	S2	1694	U
47	S2	1695	A
47	S2	1697	A
47	S2	1698	C
47	S2	1701	C
47	S2	1714	U
47	S2	1719	A
47	S2	1721	U
47	S2	1722	G
47	S2	1729	U
47	S2	1730	U
47	S2	1735	A
47	S2	1737	G
47	S2	1742	C
47	S2	1743	G
47	S2	1744	G
47	S2	1745	A
47	S2	1746	U
47	S2	1748	G
47	S2	1751	C
47	S2	1752	C
47	S2	1754	G
47	S2	1755	C
47	S2	1757	G
47	S2	1758	G
47	S2	1772	C
47	S2	1773	C
47	S2	1775	U
47	S2	1777	G

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Mol	Chain	Res	Type
47	S2	1781	A
47	S2	1783	C
47	S2	1784	G
47	S2	1786	U
47	S2	1805	G
47	S2	1812	U
47	S2	1813	A
47	S2	1814	G
47	S2	1823	A
47	S2	1824	A
47	S2	1825	A
47	S2	1826	G
47	S2	1831	A
47	S2	1835	A
47	S2	1838	U
47	S2	1839	U
47	S2	1849	G
47	S2	1850	A
47	S2	1851	A
47	S2	1852	C
47	S2	1857	G
47	S2	1858	G
47	S2	1861	G
47	S2	1862	G
47	S2	1863	A
47	S2	1865	C
47	S2	1868	U
47	S2	1869	A
48	S6	4	C
48	S6	9	U
48	S6	17	C
48	S6	18	G
48	S6	19	G
48	S6	20	A
48	S6	21	A
48	S6	22	G
48	S6	23	C
48	S6	31	G
48	S6	33	C
48	S6	34	C
48	S6	35	A
48	S6	36	U

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Mol	Chain	Res	Type
48	S6	37	A
48	S6	39	C
48	S6	40	C
48	S6	41	C
48	S6	42	A
48	S6	45	G
48	S6	46	G
48	S6	47	U
48	S6	57	G
48	S6	59	A
48	S6	61	C
48	S6	73	A
48	S6	75	C
48	S6	76	A

All (82) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	L5	172	C
1	L5	385	A
1	L5	406	C
1	L5	417	G
1	L5	648	G
1	L5	693	C
1	L5	918	G
1	L5	930	G
1	L5	931	C
1	L5	956	A
1	L5	958	G
1	L5	974	C
1	L5	1072	C
1	L5	1238	A
1	L5	1329	G
1	L5	1359	G
1	L5	1410	U
1	L5	1455	G
1	L5	1633	G
1	L5	1649	U
1	L5	1821	G
1	L5	1947	U
1	L5	2019	C
1	L5	2068	C

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Mol	Chain	Res	Type
1	L5	2096	G
1	L5	2116	C
1	L5	2119	C
1	L5	2120	G
1	L5	2124	G
1	L5	2256	C
1	L5	2389	A
1	L5	2467	U
1	L5	2505	C
1	L5	2695	A
1	L5	2785	C
1	L5	2806	A
1	L5	2828	U
1	L5	3625	G
1	L5	3673	C
1	L5	3713	U
1	L5	3767	C
1	L5	3784	A
1	L5	3810	C
1	L5	3888	G
1	L5	3956	G
1	L5	4600	G
1	L5	4730	C
1	L5	4731	G
1	L5	4889	G
1	L5	4909	A
1	L5	4913	G
1	L5	4937	C
1	L5	4948	C
1	L5	4958	C
1	L5	4991	U
1	L5	5027	C
3	L8	16	G
3	L8	87	G
47	S2	24	C
47	S2	213	G
47	S2	339	A
47	S2	370	G
47	S2	417	C
47	S2	465	A
47	S2	604	A
47	S2	606	G

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Mol	Chain	Res	Type
47	S2	668	A
47	S2	688	U
47	S2	795	A
47	S2	833	C
47	S2	868	G
47	S2	912	C
47	S2	980	A
47	S2	1061	U
47	S2	1137	U
47	S2	1404	U
47	S2	1419	C
47	S2	1664	A
47	S2	1823	A
47	S2	1860	A
48	S6	33	C
48	S6	34	C

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 245 ligands modelled in this entry, 245 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
43	Lo	1
66	Sa	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	Lo	105:GLN	C	106:PHE	N	3.21
1	Sa	99:PRO	C	100:ARG	N	3.14

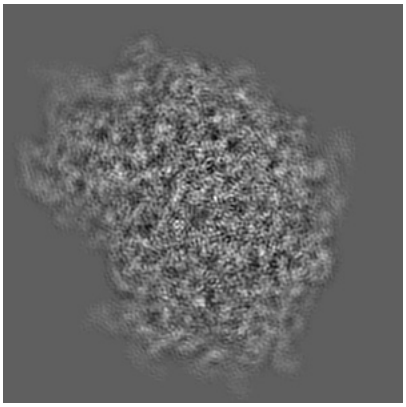
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-2938. These allow visual inspection of the internal detail of the map and identification of artifacts.

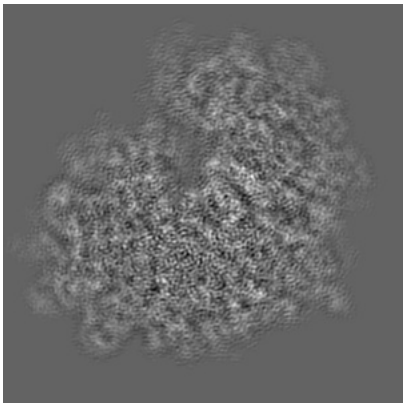
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

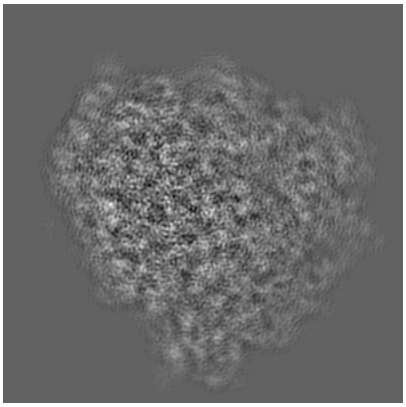
6.1.1 Primary map



X



Y

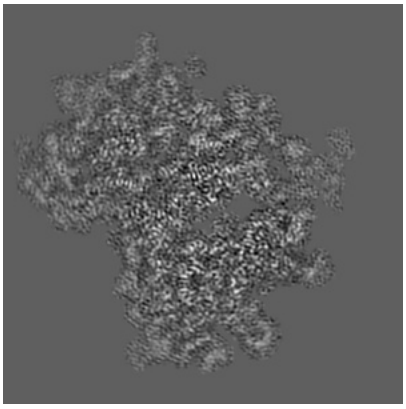


Z

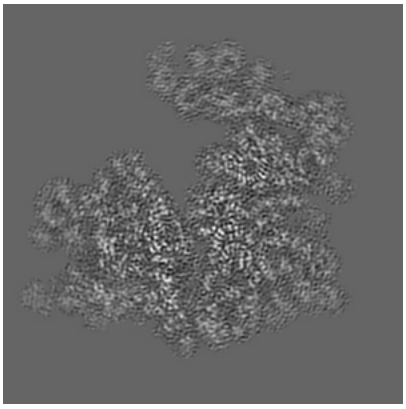
The images above show the map projected in three orthogonal directions.

6.2 Central slices

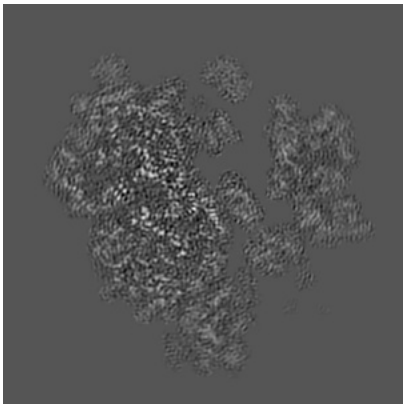
6.2.1 Primary map



X Index: 150



Y Index: 150

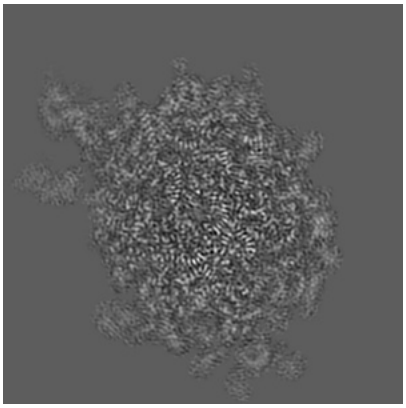


Z Index: 150

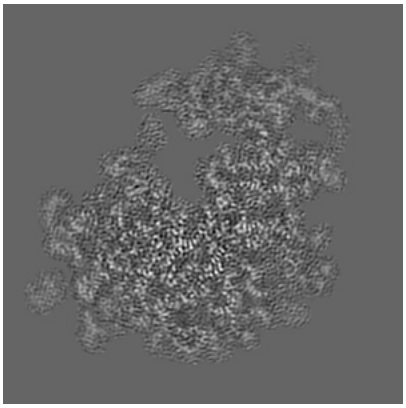
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

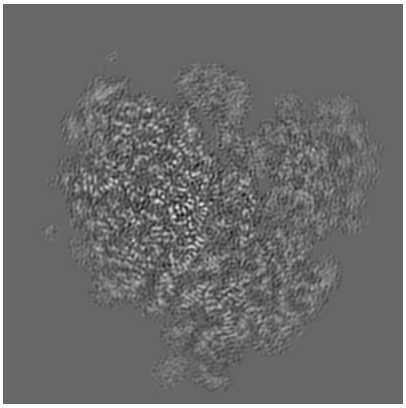
6.3.1 Primary map



X Index: 123



Y Index: 162

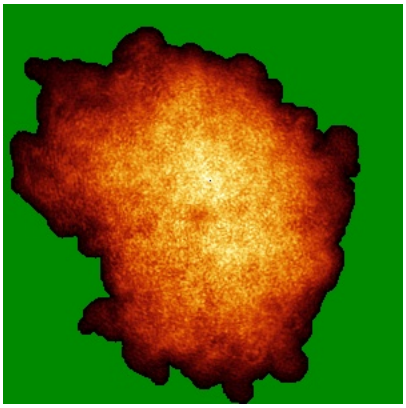


Z Index: 172

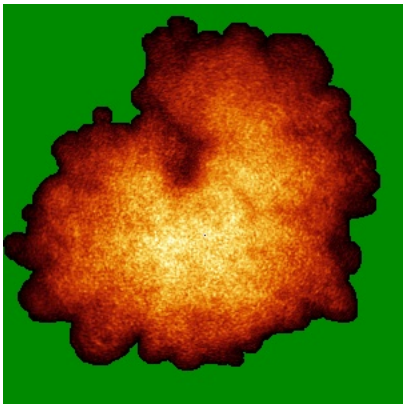
The images above show the largest variance slices of the map in three orthogonal directions.

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

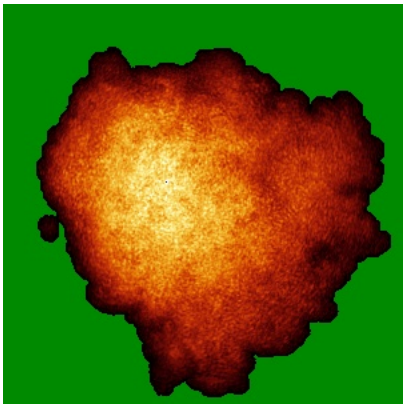
6.4.1 Primary map



X



Y

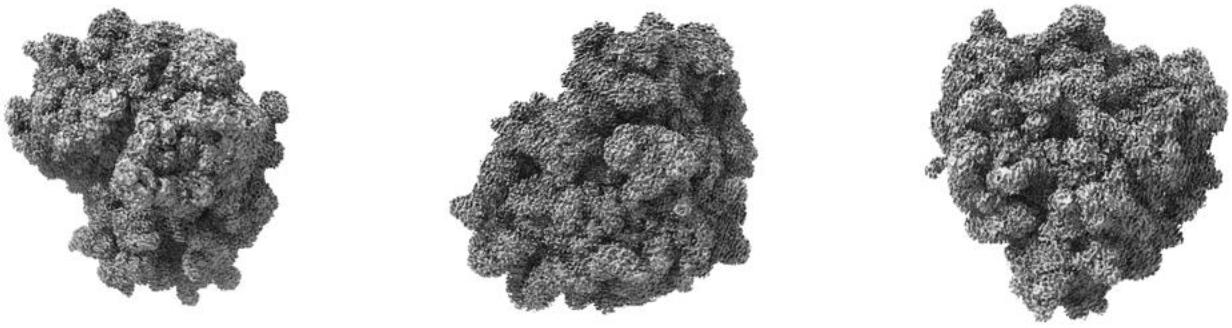


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.01. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

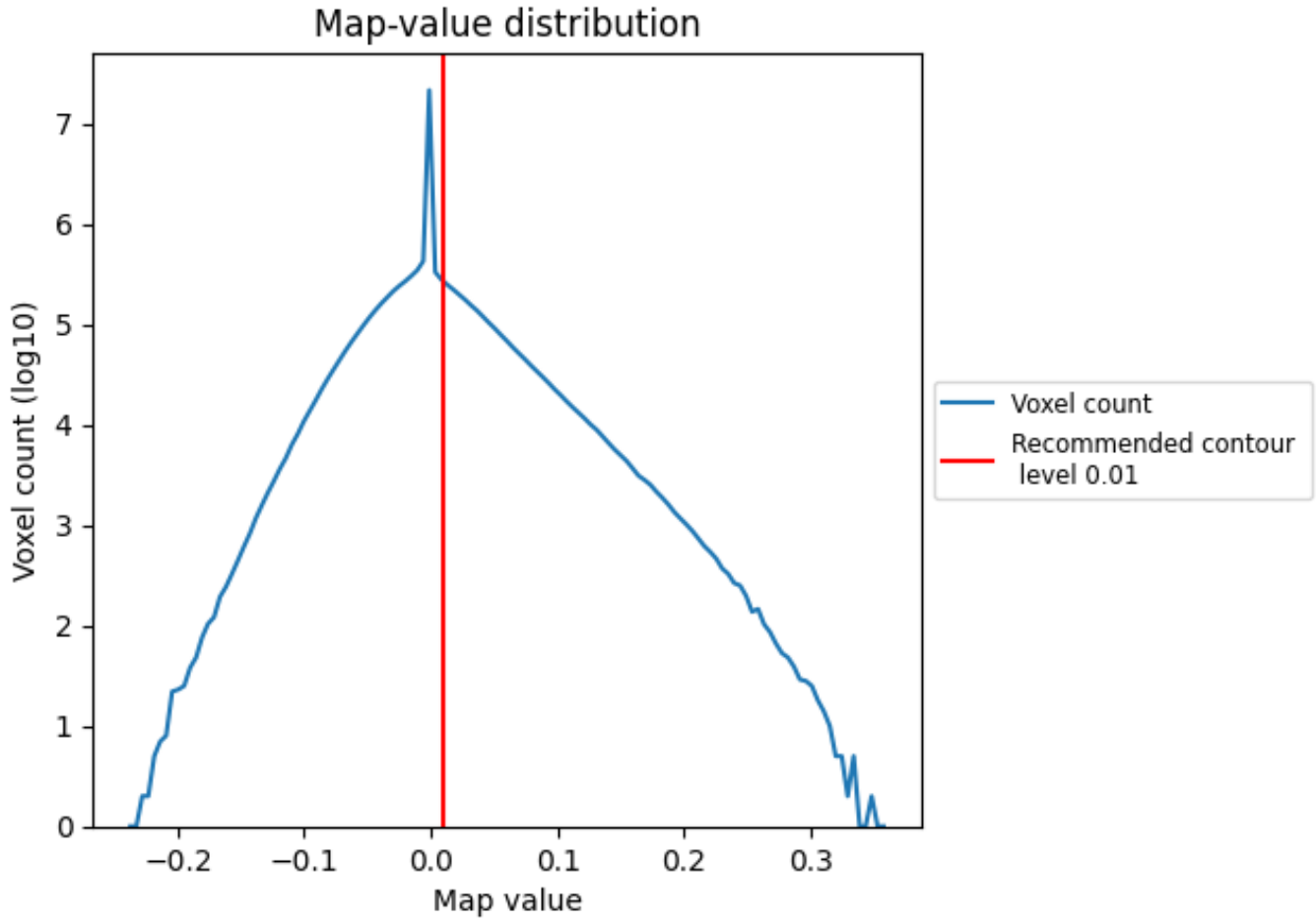
6.6 Mask visualisation (i)

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

7 Map analysis

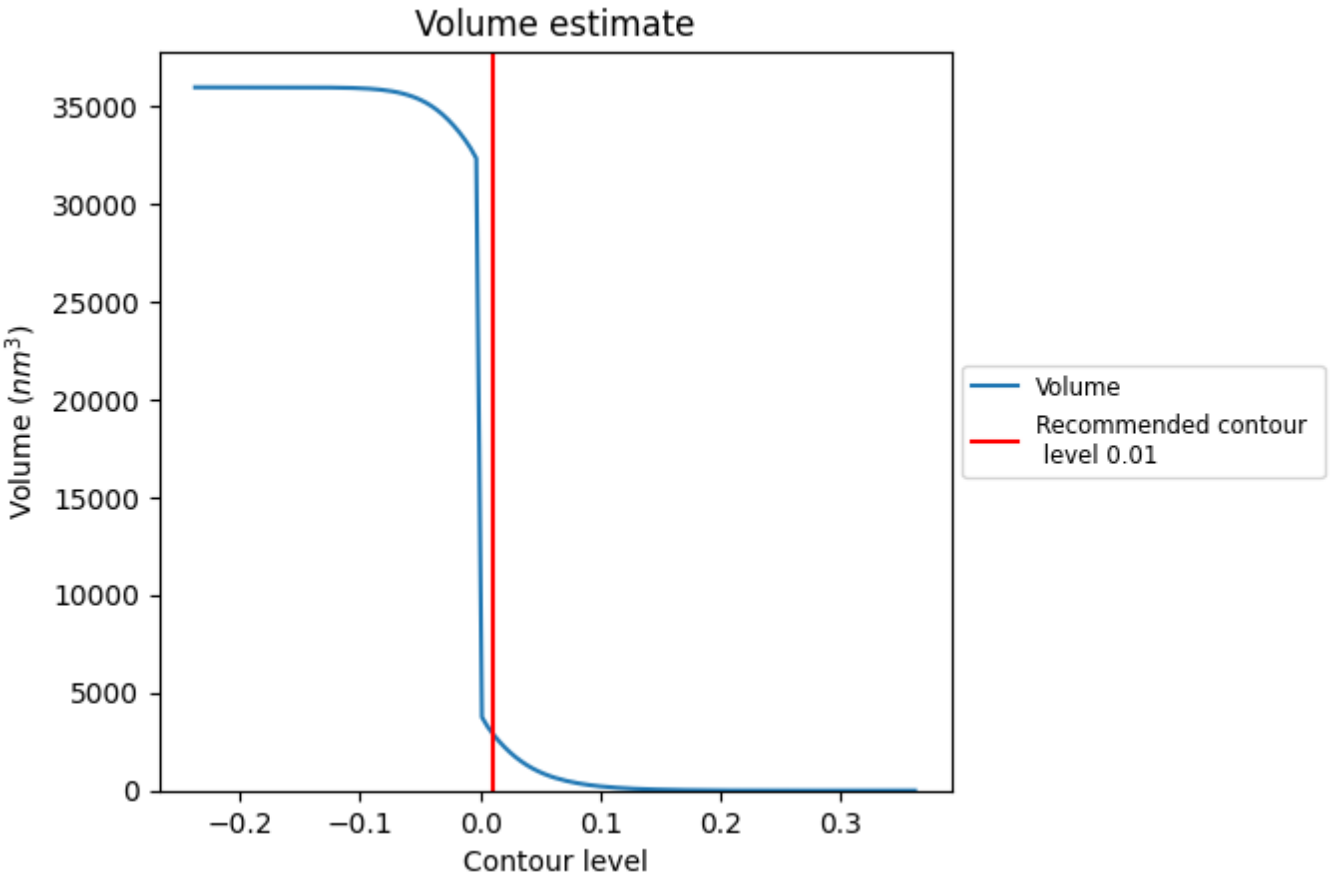
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

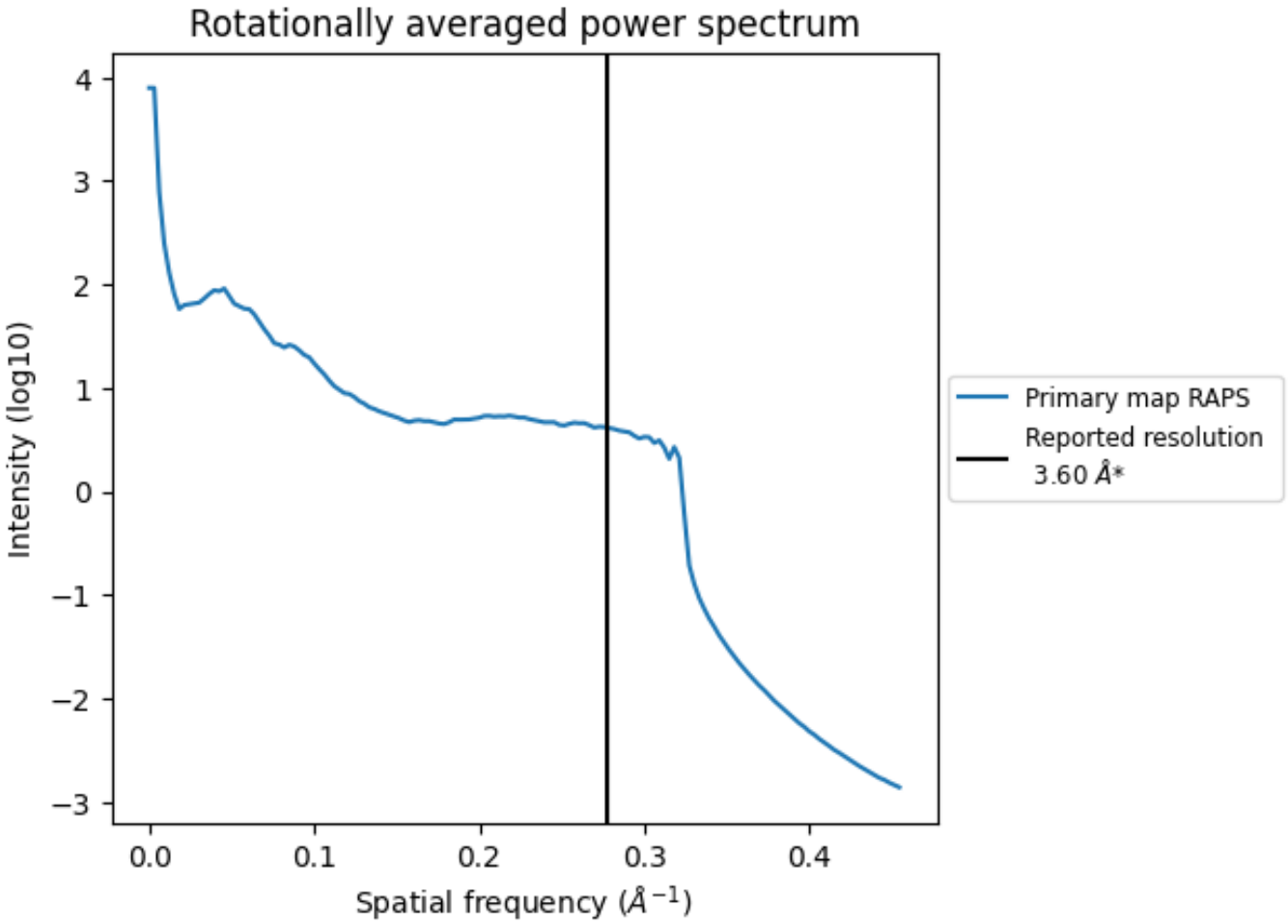
7.2 Volume estimate



The volume at the recommended contour level is 2951 nm^3; this corresponds to an approximate mass of 2666 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 0.278 Å^{-1}

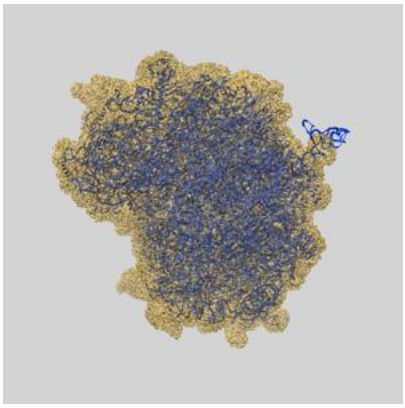
8 Fourier-Shell correlation

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

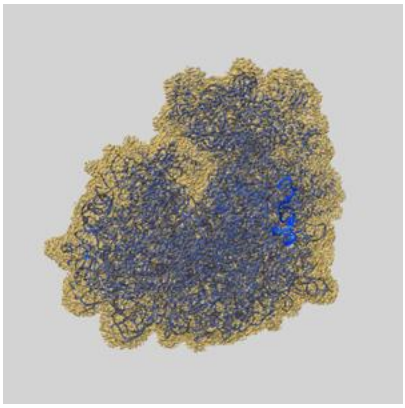
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-2938 and PDB model 4UG0. Per-residue inclusion information can be found in section 3 on page 19.

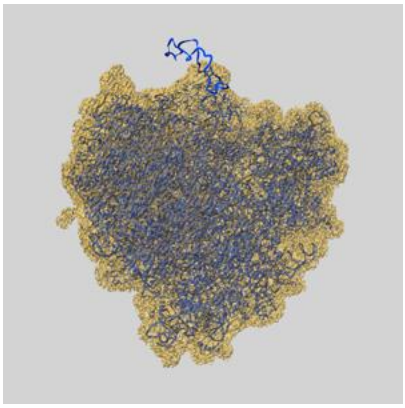
9.1 Map-model overlay



X



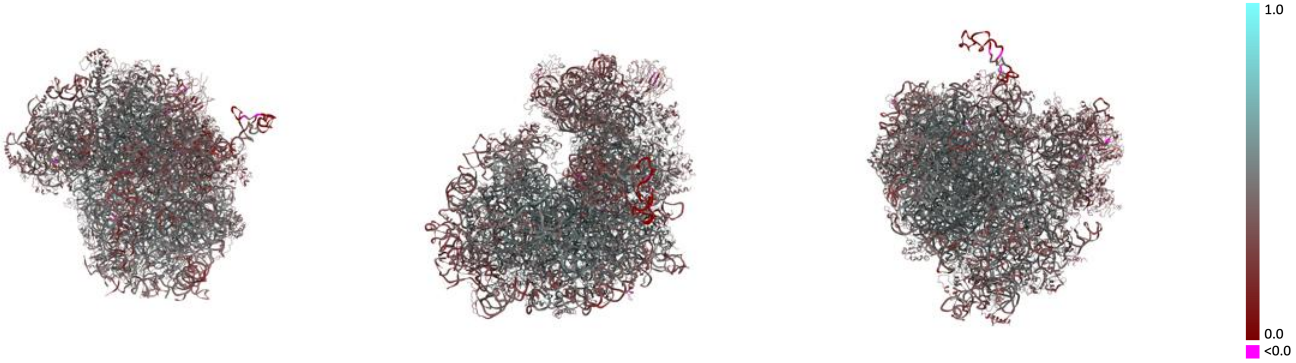
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.01 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

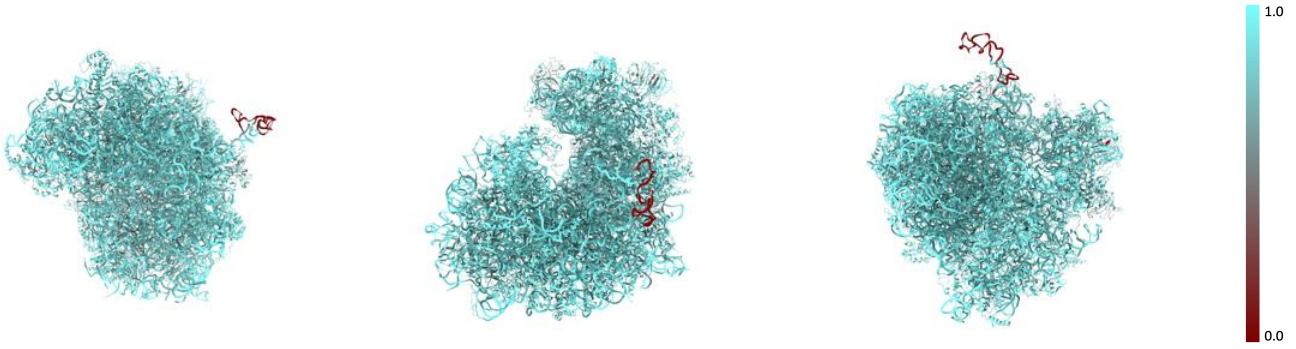
9.2 Q-score mapped to coordinate model



X Y Z

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

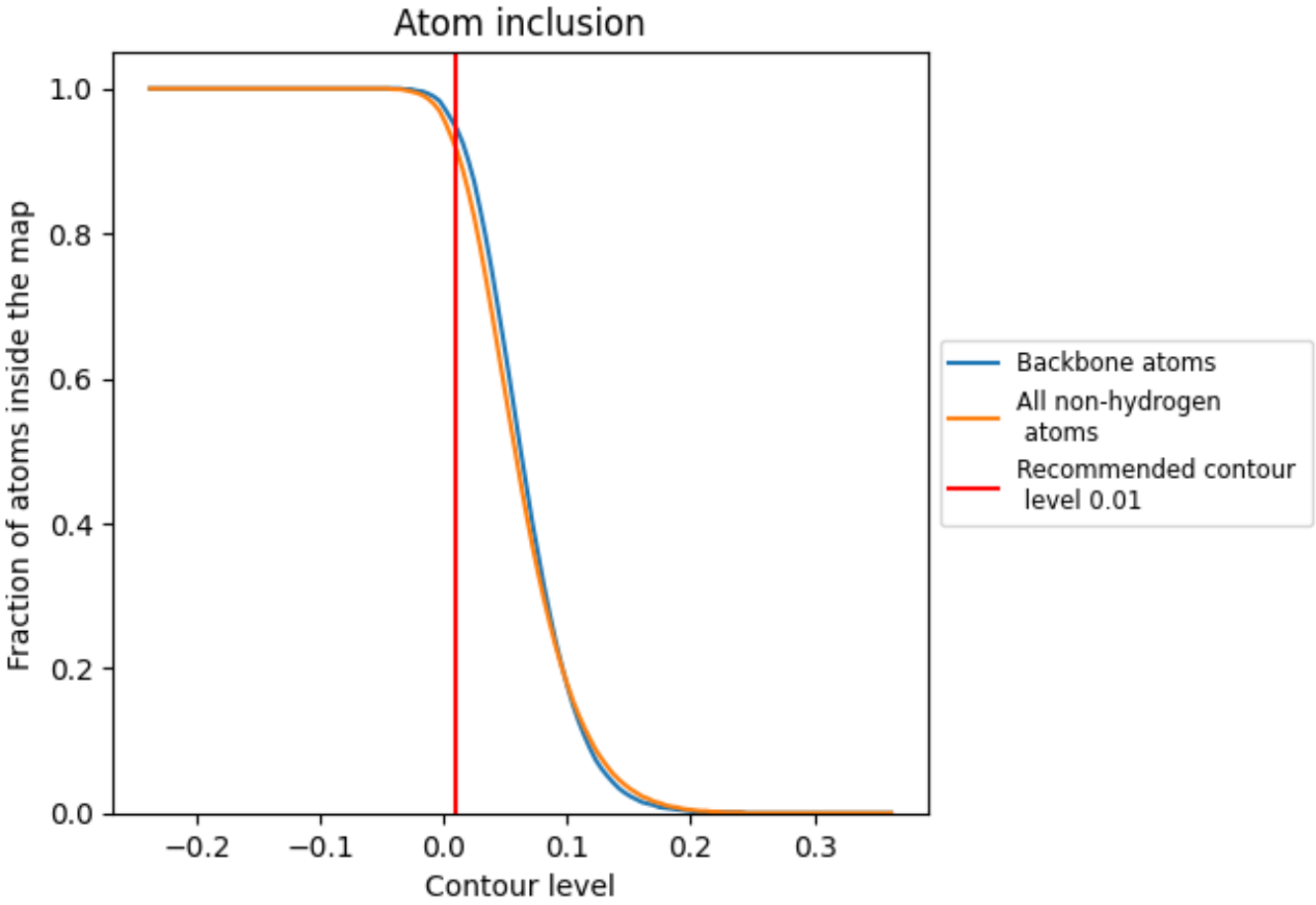
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.01).

9.4 Atom inclusion (i)



At the recommended contour level, 95% of all backbone atoms, 92% 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 (0.01) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9180	0.4400
L5	0.9450	0.4620
L7	0.9730	0.4890
L8	0.9590	0.4900
LA	0.9160	0.5040
LB	0.9120	0.4670
LC	0.9040	0.4700
LD	0.8970	0.4170
LE	0.8790	0.4070
LF	0.8920	0.4770
LG	0.8960	0.4090
LH	0.9030	0.4300
LI	0.8930	0.4370
LJ	0.8880	0.3890
LL	0.9250	0.4550
LM	0.9090	0.4410
LN	0.8950	0.5010
LO	0.9180	0.4750
LP	0.9070	0.4790
LQ	0.9000	0.4750
LR	0.9110	0.4530
LS	0.9130	0.4730
LT	0.9090	0.4680
LU	0.9110	0.4010
LV	0.9250	0.4790
LW	0.8720	0.3930
LX	0.8910	0.4510
LY	0.9130	0.4350
LZ	0.9020	0.4380
La	0.9190	0.4960
Lb	0.8800	0.4310
Lc	0.9140	0.4480
Ld	0.9220	0.4620
Le	0.9050	0.4980
Lf	0.9240	0.5010

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Chain	Atom inclusion	Q-score
Lg	0.9000	0.4660
Lh	0.9030	0.4350
Li	0.9060	0.4380
Lj	0.9150	0.4900
Lk	0.9140	0.4010
Ll	0.9010	0.4850
Lm	0.9090	0.4620
Ln	0.9330	0.5140
Lo	0.9200	0.4800
Lp	0.9240	0.4920
Lr	0.9210	0.4730
Lz	0.7030	0.2650
S2	0.9430	0.4350
S6	0.8860	0.3390
SA	0.8920	0.4110
SB	0.9040	0.4260
SC	0.8890	0.4200
SD	0.8440	0.3480
SE	0.8780	0.4290
SF	0.8400	0.3670
SG	0.8730	0.3710
SH	0.8900	0.3800
SI	0.8870	0.4320
SJ	0.8800	0.4030
SK	0.8210	0.3020
SL	0.8940	0.4650
SM	0.6630	0.2750
SN	0.8920	0.4370
SO	0.8870	0.4430
SP	0.8590	0.3280
SQ	0.8210	0.3530
SR	0.8620	0.3650
SS	0.8560	0.3290
ST	0.8360	0.3470
SU	0.8340	0.3320
SV	0.9020	0.4270
SW	0.8770	0.4560
SX	0.8890	0.4620
SY	0.8820	0.3870
SZ	0.8830	0.3340
Sa	0.9070	0.4620
Sb	0.9220	0.4170

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Chain	Atom inclusion	Q-score
Sc	0.8750	0.3650
Sd	0.7940	0.3770
Se	0.8060	0.3550
Sf	0.5800	0.2200
Sg	0.8160	0.3010