



wwPDB EM Validation Summary Report ⓘ

Sep 23, 2025 – 10:47 am BST

PDB ID : 5LKS / pdb_00005lks
EMDB ID : EMD-4070
Title : Structure-function insights reveal the human ribosome as a cancer target for antibiotics
Authors : Myasnikov, A.G.; Natchiar, S.K.; Nebout, M.; Hazemann, I.; Imbert, V.; Khat-ter, H.; Peyron, J.-F.; Klaholz, B.P.
Deposited on : 2016-07-23
Resolution : 3.60 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

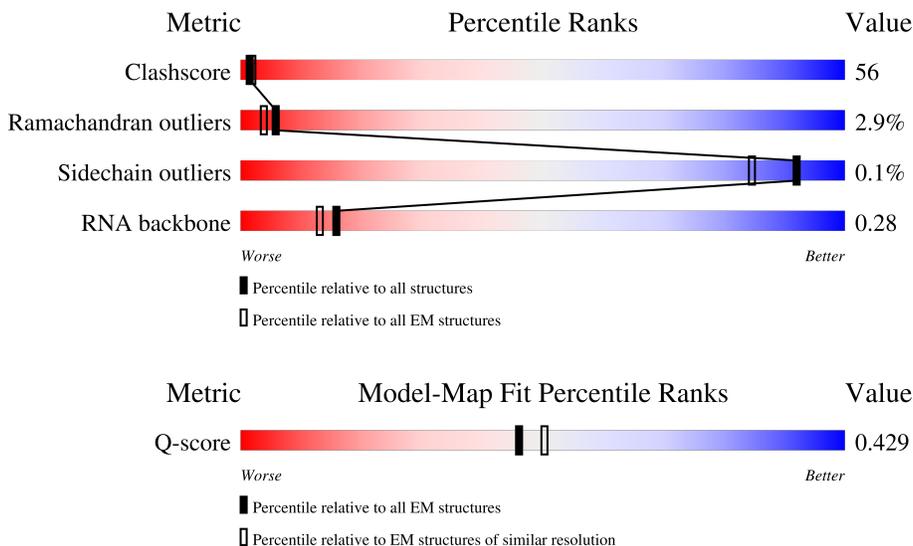
EMDB validation analysis : 0.0.1.dev129
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.46

1 Overall quality at a glance

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

The reported resolution of this entry is 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	12797 (3.10 - 4.10)

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

Mol	Chain	Length	Quality of chain
1	L5	5070	
2	L7	121	
3	L8	157	

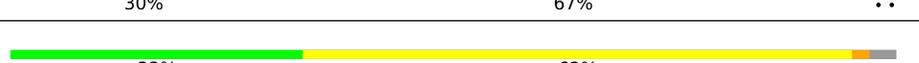
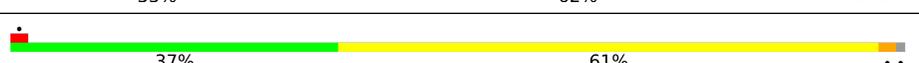
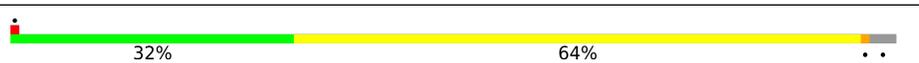
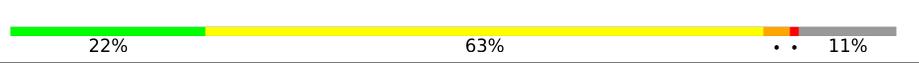
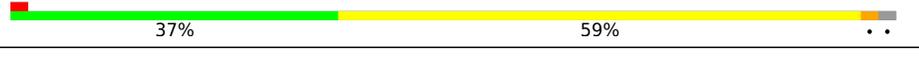
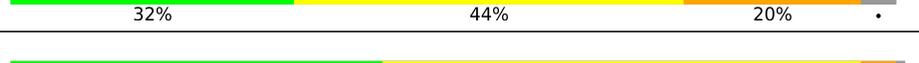
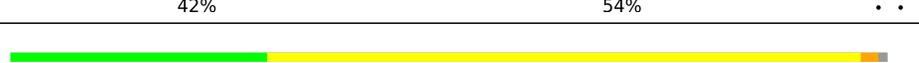
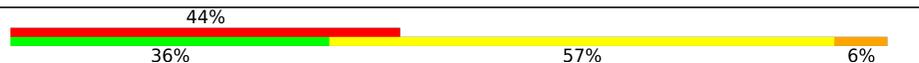
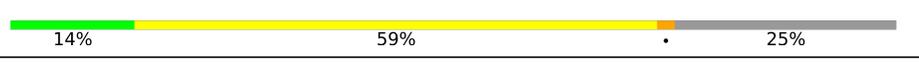
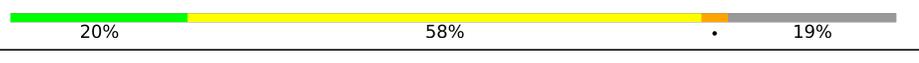
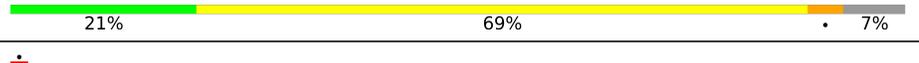
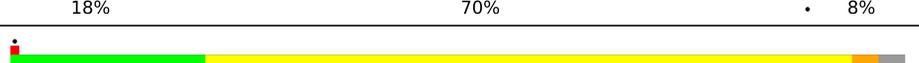
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Mol	Chain	Length	Quality of chain
4	LA	257	34% 59%
5	LB	403	30% 65%
6	LC	427	30% 54% 14%
7	LD	297	29% 65%
8	LE	288	22% 59% 16%
9	LF	248	25% 62% 9%
10	LG	266	28% 58% 5% 9%
11	LH	192	28% 68%
12	LI	214	30% 62% 7%
13	LJ	178	23% 72%
14	LL	211	32% 64%
15	LM	215	21% 41% 35%
16	LN	204	32% 65%
17	LO	203	40% 58%
18	LP	184	29% 51% 17%
19	LQ	188	35% 62%
20	LR	196	38% 56% 5%
21	LS	176	27% 70%
22	LT	160	46% 50%
23	LU	128	23% 55% 21%
24	LV	140	27% 64% 6%
25	LW	157	6% 27% 48% 21%
26	LX	156	32% 42% 24%
27	LY	145	32% 57% 8%
28	LZ	136	30% 68%

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Mol	Chain	Length	Quality of chain
29	La	148	
30	Lb	157	
31	Lc	115	
32	Ld	125	
33	Le	135	
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	SA	295	
49	SB	264	
50	SD	243	
51	SE	263	
52	SF	204	
53	SH	194	

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Mol	Chain	Length	Quality of chain
54	SI	208	31% 65%
55	SK	165	10% 47% 41%
56	SL	158	33% 58% 6%
57	SP	145	12% 50% 33%
58	SQ	146	14% 79% 8%
59	SR	135	21% 71% 6%
60	SS	152	22% 73%
61	ST	145	25% 72%
62	SU	119	20% 63% 13%
63	SV	83	23% 72% 5%
64	SX	143	41% 51% 6%
65	Sa	115	26% 61% 5% 7%
66	Sc	69	17% 70% 6% 7%
67	Sd	56	27% 68% 5%
68	Sg	317	15% 78% 5%
69	SC	293	21% 52% 24%
70	SG	249	21% 71% 5%
71	SJ	194	27% 64% 5%
72	SM	132	8% 21% 65% 6% 8%
73	SN	151	31% 66%
74	SO	151	24% 67% 7%
75	SW	130	32% 65%
76	SY	133	20% 75%
77	SZ	125	5% 15% 42% 40%
78	Sb	84	26% 67% 6%

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Mol	Chain	Length	Quality of chain
79	Se	133	 19% 22% 56%
80	Sf	156	 15% 26% 57%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
81	3HE	L5	5101	-	-	X	-

2 Entry composition [i](#)

There are 84 unique types of molecules in this entry. The entry contains 217138 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

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L5	4941	G	C	conflict	GB 86475748
L5	4942	C	A	conflict	GB 86475748

- 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	368	2927	1840	583	489	15	0	0

- Molecule 7 is a protein called 60S ribosomal protein L5.

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

- Molecule 8 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	LE	243	1967	1263	374	326	4	0	0

- Molecule 9 is a protein called 60S ribosomal protein L7.

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

- Molecule 10 is a protein called 60S ribosomal protein L7a.

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

- Molecule 11 is a protein called 60S ribosomal protein L9.

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

- Molecule 12 is a protein called 60S ribosomal protein L10-like.

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

- 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
			Total	C	N	O	S		
20	LR	187	1566	971	336	250	9	0	0

- Molecule 21 is a protein called 60S ribosomal protein L18a.

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

- Molecule 22 is a protein called 60S ribosomal protein L21.

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

- Molecule 23 is a protein called 60S ribosomal protein L22.

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

- Molecule 24 is a protein called 60S ribosomal protein L23.

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

- Molecule 25 is a protein called 60S ribosomal protein L24.

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

- Molecule 26 is a protein called 60S ribosomal protein L23a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	LX	119	976	625	184	166	1	0	0

- Molecule 27 is a protein called 60S ribosomal protein L26.

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

- Molecule 28 is a protein called 60S ribosomal protein L27.

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

- Molecule 29 is a protein called 60S ribosomal protein L27a.

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

- Molecule 30 is a protein called Ribosomal protein L29, isoform CRA_a.

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

- Molecule 31 is a protein called 60S ribosomal protein L30.

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

- Molecule 32 is a protein called 60S ribosomal protein L31.

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

- Molecule 33 is a protein called 60S ribosomal protein L32.

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

- 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	113	Total	C	N	O	S	0	0
			895	560	183	146	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		

There are 5 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
S2	582	C	U	conflict	GB 36162
S2	583	C	A	conflict	GB 36162
S2	584	G	A	conflict	GB 36162
S2	798	A	G	conflict	GB 36162
S2	1095	U	C	conflict	GB 36162

- Molecule 48 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	SA	221	1741	1106	305	322	8	0	0

- Molecule 49 is a protein called 40S ribosomal protein S3a.

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

- Molecule 50 is a protein called 40S ribosomal protein S3.

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

- Molecule 51 is a protein called 40S ribosomal protein S4, X isoform.

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

- Molecule 52 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
52	SF	187	1479	924	282	266	7	0	0

- Molecule 53 is a protein called 40S ribosomal protein S7.

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

- Molecule 54 is a protein called 40S ribosomal protein S8.

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

- Molecule 55 is a protein called 40S ribosomal protein S10.

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

- Molecule 56 is a protein called 40S ribosomal protein S11.

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

- Molecule 57 is a protein called 40S ribosomal protein S15.

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

- Molecule 58 is a protein called 40S ribosomal protein S16.

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

- Molecule 59 is a protein called 40S ribosomal protein S17.

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

- Molecule 60 is a protein called 40S ribosomal protein S18.

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

- Molecule 61 is a protein called 40S ribosomal protein S19.

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

- Molecule 62 is a protein called 40S ribosomal protein S20.

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

- Molecule 63 is a protein called 40S ribosomal protein S21.

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

- Molecule 64 is a protein called 40S ribosomal protein S23.

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

- Molecule 65 is a protein called 40S ribosomal protein S26.

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

- Molecule 66 is a protein called 40S ribosomal protein S28.

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

- Molecule 67 is a protein called 40S ribosomal protein S29.

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

- Molecule 68 is a protein called Receptor of activated protein C kinase 1.

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

- Molecule 69 is a protein called 40S ribosomal protein S2.

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

- Molecule 70 is a protein called 40S ribosomal protein S6.

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

- Molecule 71 is a protein called 40S ribosomal protein S9.

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

- Molecule 72 is a protein called 40S ribosomal protein S12.

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

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
SM	52	GLN	LEU	conflict	UNP P25398
SM	69	LEU	CYS	conflict	UNP P25398
SM	99	ASN	LYS	conflict	UNP P25398

- Molecule 73 is a protein called 40S ribosomal protein S13.

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

- Molecule 74 is a protein called 40S ribosomal protein S14.

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

- Molecule 75 is a protein called 40S ribosomal protein S15a.

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

- Molecule 76 is a protein called 40S ribosomal protein S24.

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

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

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

- Molecule 78 is a protein called 40S ribosomal protein S27.

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

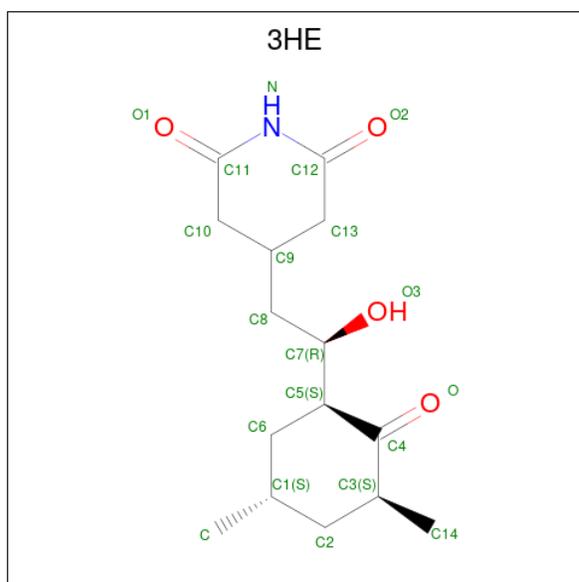
- Molecule 79 is a protein called Ribosomal protein S30.

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

- Molecule 80 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
80	Sf	67	548	346	102	93	7	0	0

- Molecule 81 is 4-{(2R)-2-[(1S,3S,5S)-3,5-dimethyl-2-oxocyclohexyl]-2-hydroxyethyl}piperidine-2,6-dione (CCD ID: 3HE) (formula: C₁₅H₂₃NO₄).



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

- Molecule 82 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
82	L5	160	160	160	0
82	L7	3	3	3	0
82	L8	4	4	4	0
82	LC	1	1	1	0
82	LD	1	1	1	0
82	LI	1	1	1	0
82	LP	1	1	1	0
82	LS	2	2	2	0
82	LV	1	1	1	0
82	Le	1	1	1	0
82	S2	48	48	48	0

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Mol	Chain	Residues	Atoms		AltConf
82	Sa	1	Total 1	Mg 1	0

- Molecule 83 is ZINC ION (CCD ID: ZN) (formula: Zn).

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

- Molecule 84 is water.

Mol	Chain	Residues	Atoms		AltConf
84	L5	13	Total 13	O 13	0
84	L8	1	Total 1	O 1	0
84	LA	1	Total 1	O 1	0
84	LD	1	Total 1	O 1	0
84	LN	1	Total 1	O 1	0
84	LT	1	Total 1	O 1	0
84	Le	1	Total 1	O 1	0
84	Lp	1	Total 1	O 1	0

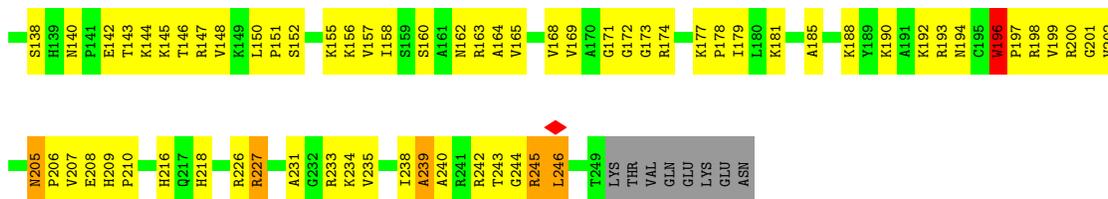
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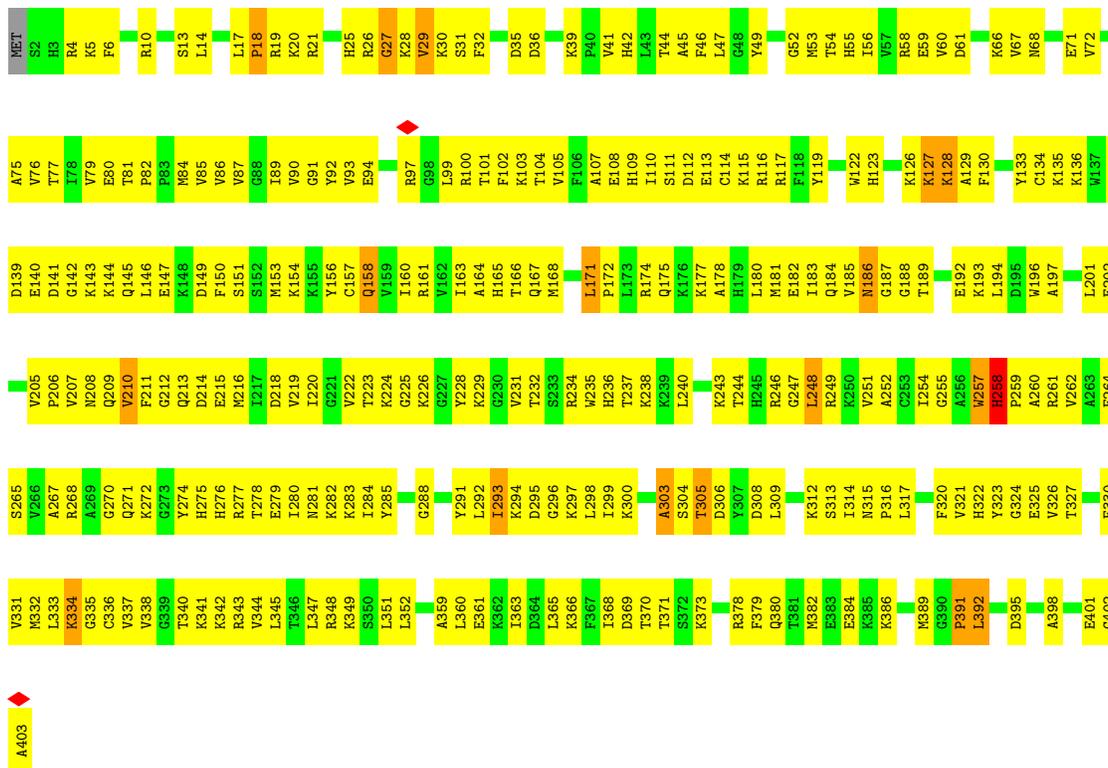
Mol	Chain	Residues	Atoms		AltConf
84	S2	6	Total 6	O 6	0
84	SV	1	Total 1	O 1	0
84	SX	1	Total 1	O 1	0
84	SN	1	Total 1	O 1	0
84	SW	2	Total 2	O 2	0

A	U1639	U1678	G1457	G1396	A1334	G1273	G1213	C1093	C	G973	U913	C	G	A733
C	C1640	C1579	C1458	A1397	G1335	A1274	C1214	G1094	C	C974	U914	C	G	G734
C	A1641	G1580	A1459	A1398	G1336	G1275	C1215	A1095	C	C975	A915	C	G	G735
C	C1642	C1581	C1460	G1399	A1337	C1276	G1216	A1096	C	G976	C916	C	C	C736
A	A1643	G1582	C1461	G1400	G1338	G1277	G1217	C1097	C	C977	A917	G	G	C737
G	C1644	A1583	A1462	C1401	U1339	C1278	G1218	G1098	C	G978	G918	G	G	G738
C	G1645	G1584	C1463	C1402	C1340	A1279	U1219	C1099	C	C979	C919	C	U	G739
C	A1646	G1585	C1464	G1403	U1341	G1280	G1220	U1100	C	U980	C920	C	C	G740
C	G1647	G1526	G1465	G1404	A1342	G1281	A1222	C	G	U981	C921	U	U	C741
C	A1648	A1527	G1466	C1405	A1343	G1282	G	C	C	U982	C922	C	C	G742
A	C1649	U1528	C1467	G1406	C1344	G1283	C	C	C	G983	C923	C	C	G743
C	A1650	G1529	C1468	C1407	A1345	G1284	G	C	C	C984	C924	G	G	G744
C	G1651	C1530	C1469	G1408	G1346	U1285	U	C	C	C985	C925	C	C	G745
C	U1652	U1531	G1470	C1409	G1347	C1286	U	A	C	C986	G926	G	C	A746
C	A1653	G1532	U1471	U1410	G1348	G1287	C1167	C	C	C987	G927	G	C	A747
C	G1654	A1533	C1472	G1349	U1349	G1288	U	C	C	G988	C928	G	C	A748
G	C1655	A1534	U1473	C1350	C1350	C1289	G1169	C	C	U989	A929	G	C	G749
C1718	U1656	C1535	C1474	G1412	G1351	G1290	U	C	C	C990	G930	G	C	U750
A1720	G1657	U1536	G1475	C1414	C1352	G1291	C	U	C	C991	C931	C	C	G751
C1721	G1658	C1476	C1476	G1415	G1353	C1292	G1232	C	G	C992	A932	G	G	G752
C1722	U1659	U1538	C1477	G1416	A1354	G1293	G1233	C	C	G993	G933	G	C	C753
C1723	U1660	G1539	C1478	C1417	C1357	A1294	G1174	U	U	G994	C934	C	C	U754
A1724	C1661	C1540	G1479	C1418	G1358	C1295	A1175	U	C	C995	A935	G	C	C755
G1725	U1662	U1541	C1480	G1419	G1359	G1296	C1176	C	C	G996	C936	G	C	G756
U1726	C1663	U1542	U1481	G1420	G1360	U1297	U1177	C	U	C997	U937	G	C	G757
U1727	U1664	G1543	G1482	G1421	G1366	G1298	A1238	C	C	C	C938	G	C	G
U1728	C1665	G1544	C1483	G1422	G1361	G1299	C1239	C	C	C	G939	G	C	G
U1729	C1666	G1545	G1484	U1423	G1362	G1300	C1240	C	C	A	C940	G	C	G
U1730	U1667	C1546	C1485	C1431	C1363	C1301	C1241	C	C	C	C941	G	C	G
U1731	A1668	A1547	C1486	G1432	U1364	U1302	G1242	C	C	C	G942	G	C	G
U1732	A1669	G1548	G1487	G1433	C1365	A1303	C1243	C	U	C	A943	C	C	G
C1733	U1671	G1549	G1488	U1434	G1366	C1304	C1244	C	C	C	A944	C	C	G
U1734	C1672	U1550	C	G1427	C1367	C1305	G1245	C	C	G1064	A944	G	C	G
U1735	U1673	C1551	A1491	G1429	A1368	C1306	U1246	C	C	G1065	C946	G	C	G
U1736	C1674	G1552	G1492	C1430	C1369	G1307	G1247	C	C	G1066	C946	G	C	G
U1737	C1675	A1553	G1493	C1431	C1370	C1308	C1248	C	C	G1067	C947	G	C	G
U1738	C1676	A1554	U1494	G1432	A1371	C1309	C1249	C	C	G1068	C948	G	C	G
U1739	A1679	G1555	G1495	A1433	A1372	C1310	C1250	C	C	G1069	G949	G	C	G
U1740	G1680	C1556	G1496	G1434	A1373	C1311	C1251	C	C	G1070	G950	G	C	G
U1741	G1681	U1557	A1497	C	G1374	G1312	C1252	C	C	C1071	G951	G	C	G
U1742	A1682	A1558	G1498	C1437	C1375	C1314	G1253	C	A	C1072	A952	G	A	G
U1743	U1683	G1559	C1499	U1438	C1376	C1315	G1254	C	C	G1073	C953	A	C	G
U1744	A1684	A1560	A1500	C1439	C1377	G1316	A1255	C	C	G1074	C954	C	C	G
U1745	G1685	G1561	G1501	U1440	C1378	U1317	G1256	A	C	G1075	G955	C	C	G
U1746	C1686	C1562	G1502	C1441	C1379	C1318	A1257	C	C	C1076	A956	G	C	G
U1747	G1688	A1563	A1503	C1442	G1380	U1319	G1258	C	C	C1077	G957	A	C	G
U1748	G1689	A1564	G1504	A1443	U1381	U1320	G1259	G	C	A1078	G958	A	C	G
U1749	C1690	C1565	C1505	U1444	G1382	G1321	G1260	C	C	C1079	G959	A	C	G
U1750	G1691	G1566	G1506	U1445	G1385	A1322	G1261	C	C	C1080	A960	C	C	G
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U1752	U1693	C1568	A1508	G1447	A1387	A1324	A1263	G	C	U1083	G963	C	C	G
U1753	A1694	U1569	G1509	G1448	A1388	C1325	G1264	C	C	C1084	A964	C	C	G
U1754	C1695	G1570	C1510	C1449	U1389	A1326	G1265	C	C	G1085	G965	G	C	G
U1755	U1696	G1571	U1511	C1450	U1390	C1327	G1266	U	C	C1086	A966	G	C	G
U1756	C1697	A1572	G1512	G1451	G1391	G1328	C1267	C	C	A1087	C967	G	C	G
U1757	G1698	G1573	U1513	A1452	A1391	G1329	G1268	C	C	C1088	C968	G	C	G
U1758	A1699	U1574	U1514	G1453	A1392	A1330	G1269	C	C	G1089	C969	G	C	G
U1759	G	A1575	A1515	C1454	G1393	C1331	A1270	C	C	C1090	G970	G	C	G
U1760	G	U1576	G1516	G1455	G1394	C1332	G1271	C	C	G1091	U971	G	C	G
U1761	G	G1577	G1517	C1456	U1395	A1333	C1272	G	C	G1092	C972	G	C	G

G2614	U2554	U2490	A2429	A2366	U2304	G2124	G2064	G2003	A1943	G1883	G	G1761
G2615	G2555	C2491	C2430	A2367	U2305	C2125	G2065	U2004	A1944	C1884	U	C1762
G2616	G2556	C2492	A2431	A2368	G2306	G2126	G2066	G2005	G1945	A1825	C	C1763
G2617	G2557	G2493	G2432	U2369	A2307	C2127	C2067	U2006	G1946	G1886	C	G1764
G2618	G2558	U2494	G2433	U2370	A2308	G2128	C2068	G2007	G1947	G1887	U	A1765
G2619	G2559	U2495	G2434	U2371	G2311	C2129	C2069	U2008	G1948	A1888	U	A1766
G2620	G2560	G2496	U2435	U2372	C2312	G2130	A2069	A2009	U1949	U1889	U	A1767
A2621	C2497	C2497	U2436	C2373	A2313	G2131	U2070	A2010	U1950	G1890	C	G1768
G2622	C2498	C2498	A2438	A2374	G2314	G	A2071	A1891	G1831	A1891	C	G1769
G2623	C2499	C2499	G2439	A2375	G2315	C	C2072	A1892	C1832	A1892	C	G1770
G2624	G2500	U2500	U2440	A2376	G2316	C	C2073	A2012	G1953	C1893	C	U1771
A2625	G2501	G2501	G2441	C2377	G2317	U	G2074	A2013	U1954	G1894	C	C1772
G2626	G2502	G2502	G2442	G2378	G2318	U	G2075	C2014	G1955	G1895	C	U1773
G2627	G2503	G2503	G2443	A2379	G2319	U	G2076	U2015	A1956	A1896	C	C1774
G2628	G2504	C2504	U2444	G2380	G2320	C	C2077	C2016	U1957	A1897	C	G1775
G2629	G2505	C2505	A2445	A2381	G2321	C	C2078	A2017	A1958	A1898	C	A1776
U2630	U2506	U2506	A2446	A2382	G2322	C	C2079	C2018	U1959	G1899	C	C1777
U2631	U2507	U2507	U2447	U2385	G2323	U	U2080	C2019	A1960	C1900	C	C1778
U2632	U2508	U2508	G2448	U2386	C2324	U	C2081	U2020	G1961	C1901	C	U1779
U2633	U2509	C2509	A2449	U2387	C2325	U	G2082	G2021	A1962	G1902	C	U1780
U2634	G2510	G2510	G2450	G2388	C2326	C	C2083	C2022	G1963	G1903	C	U1781
U2635	G2511	A2511	A2451	A2389	G2327	U	G2084	C2023	A1964	G1904	C	U1782
U2636	G2512	A2512	G2452	A2388	G2328	U	G2085	G2024	G1965	U1905	C	U1783
U2637	A2513	A2513	A2453	G2389	U2267	C	A2086	A2025	C1966	U1906	C	C1785
U2638	G2514	G2514	U2454	G2391	U2268	A	A2087	A2026	A1967	A1907	C	U1786
U2639	G2515	G2515	G2455	C2392	G2269	U	G2088	U2027	G1968	A1908	C	A1787
U2640	G2516	G2516	G2456	G2393	G2270	C	U2090	C2028	G1969	G1909	C	U1788
A2641	G2517	G2517	G2457	A2394	C2271	C	C2091	A2029	A1970	G1910	C	U1789
G2642	G2518	U2518	G2458	A2393	C2272	C	U2092	A2030	C1971	G1911	C	U1790
G2643	G2519	G2519	A2459	A2396	G2273	U	G2093	C2031	G1972	G1912	C	U1791
G2644	G2520	G2520	G2460	G2397	C2274	C	G2094	U2032	G1973	C1913	C	U1792
G2645	G2521	G2521	G2461	U2398	G2275	U	A2095	A2033	U1974	G1914	C	U1793
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G2647	G2523	G2523	G2463	G2400	C2277	C	U2097	G2035	G1976	A1916	C	A1795
G2648	G2524	G2524	G2464	A2401	C2278	C	G2098	C2036	C1977	G1917	C	U1796
G2649	G2525	G2525	G2465	G2402	A2279	C	G2099	C2037	G1978	A1918	C	U1797
G2650	G2526	A2526	G2466	A2403	G2280	U	A2100	U2038	A1979	G1919	C	G1798
G2651	G2527	G2527	U2467	G2404	U2281	C	C2101	G2039	U1980	C1920	C	G1799
G2652	G2528	G2528	U2468	G2405	A2282	C	G2102	A2040	U1860	U1860	C	U1800
G2653	G2529	G2529	G2469	G2406	G2283	U	G2103	A2041	G1981	C1921	C	A1801
G2654	G2530	C2530	C2470	G2407	G2284	U	A2042	A2042	G1982	G1922	C	A1802
G2655	G2531	C2531	G2471	G2408	G2285	C	G2104	A2043	A1863	A1923	C	G1803
G2656	G2532	G2532	G2472	U2409	A2286	C	A2105	U2044	A1984	G1864	C	A1804
G2657	G2533	G2533	A2473	C2410	G2287	C	G2106	G2045	G1985	G1865	C	A1805
G2658	G2534	G2534	G2474	C2411	G2288	C	G2107	G2046	U1986	U1866	C	G1806
G2659	G2535	U2535	G2475	A2412	G2289	C	G2108	A2047	C1987	U1927	C	C1807
G2660	G2536	G2536	G2476	U2413	C2290	C	G2109	U2048	G1988	C1928	C	C1808
G2661	G2537	G2537	A2477	G2414	G2291	C	C2110	G2049	G1989	A1929	C	C1809
G2662	G2538	G2538	G2478	U2415	G2292	A	G2111	G2050	A1990	U1930	C	G1810
G2663	G2539	G2539	G2479	G2416	U2293	C	G2112	C2051	A1991	C1931	C	G1811
G2664	G2540	G2540	G2480	A2417	G2294	C	G2113	G2052	A1992	A1932	C	C1812
G2665	G2541	G2541	G2481	A2418	G2295	C	G2114	C2053	A1873	G1933	C	U1813
G2666	G2542	G2542	G2482	C2419	G2296	C	G2115	U2054	A1874	A1934	C	U1814
G2667	G2543	G2543	G2483	C2420	G2297	C	G2116	U2055	C1993	C1935	C	G1815
G2668	G2544	G2544	U2484	G2421	U2298	C	G2117	G2056	C1994	G1936	C	C1816
G2669	G2545	G2545	A2485	G2422	U2299	C	G2118	G2057	G1995	C1937	C	U1817
G2670	G2546	G2546	G2486	U2425	G2300	U	G2119	A2057	C1996	C1938	C	G1818
G2671	G2547	G2547	G2487	U2426	G2301	U	G2120	C2058	U1997	A1939	C	G1819
G2672	G2548	G2548	G2488	U2427	G2302	C	G2121	C2059	A1998	G1940	C	G1820
G2673	G2549	G2549	G2489	A2428	C2303	C	G2122	G2060	A1999	A1941	C	G1821
G2674	G2550	G2550	G2490	G2429	G2304	C	G2123	U2061	G2000	U1942	C	U1882
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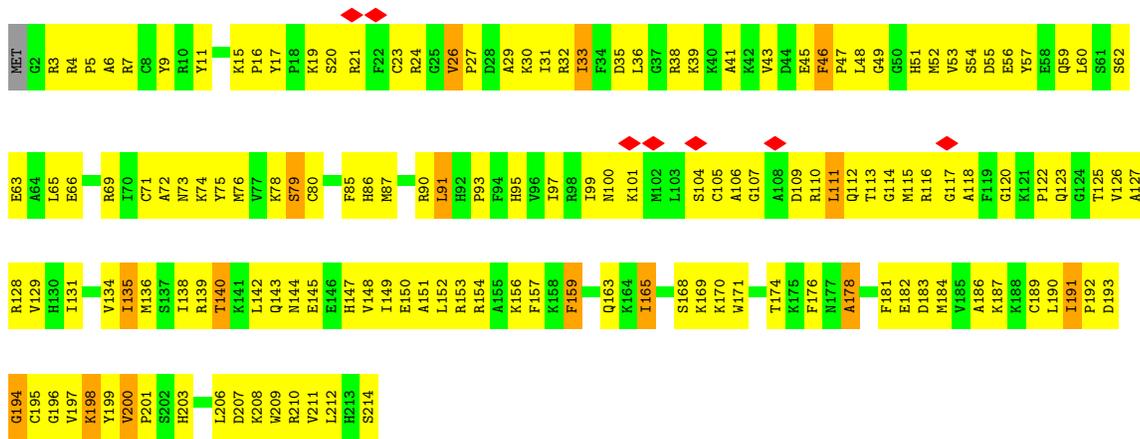


• Molecule 5: 60S ribosomal protein L3

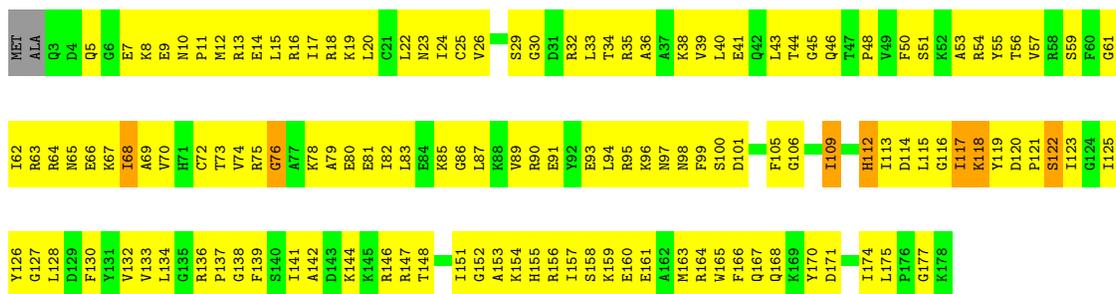


• Molecule 6: 60S ribosomal protein L4





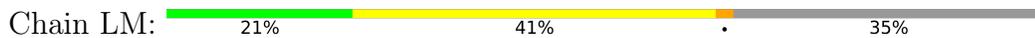
• Molecule 13: 60S ribosomal protein L11

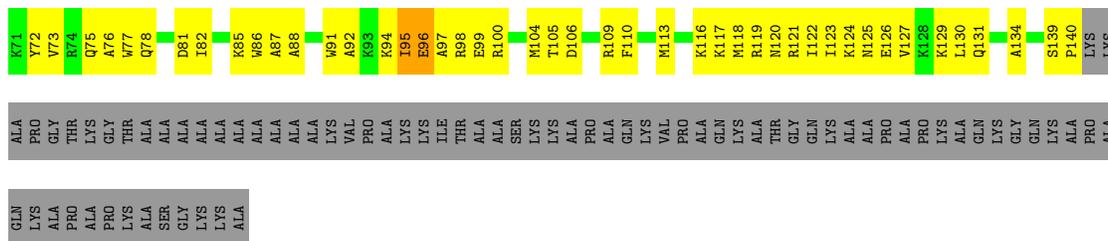


• Molecule 14: 60S ribosomal protein L13



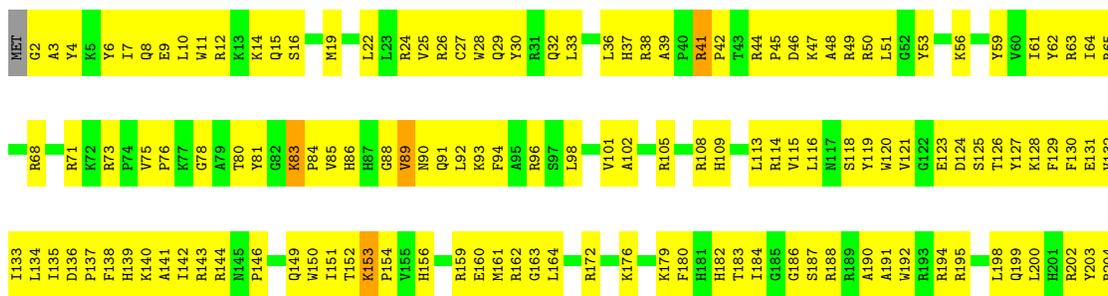
• Molecule 15: 60S ribosomal protein L14





- Molecule 16: 60S ribosomal protein L15

Chain LN: 32% 65%



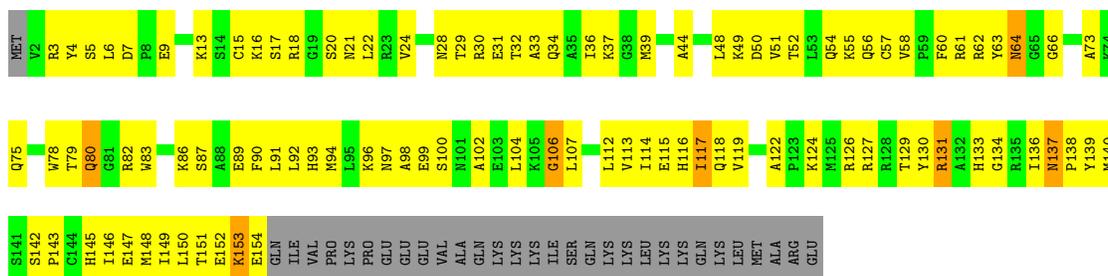
- Molecule 17: 60S ribosomal protein L13a

Chain LO: 40% 58%



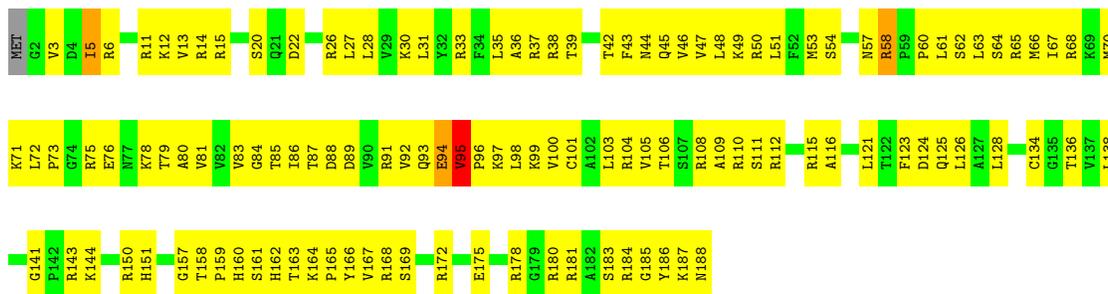
- Molecule 18: 60S ribosomal protein L17

Chain LP: 29% 51% 17%



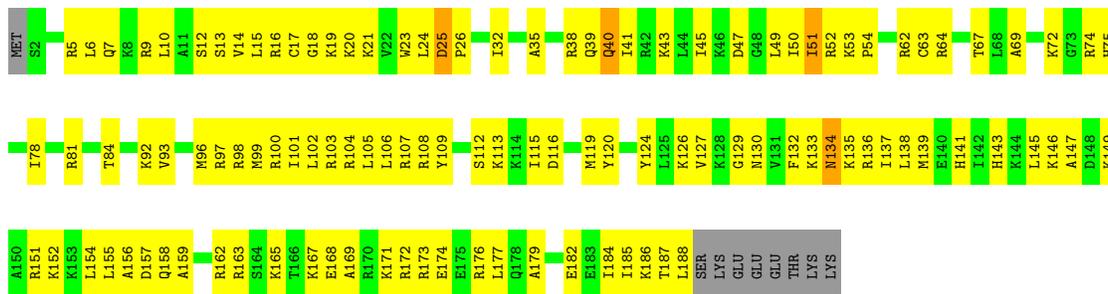
- Molecule 19: 60S ribosomal protein L18

Chain LQ:  35% 62%



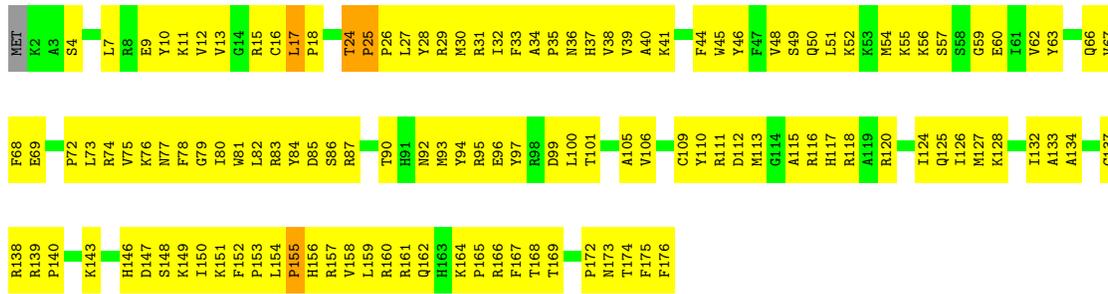
• Molecule 20: 60S ribosomal protein L19

Chain LR:  38% 56% 5%



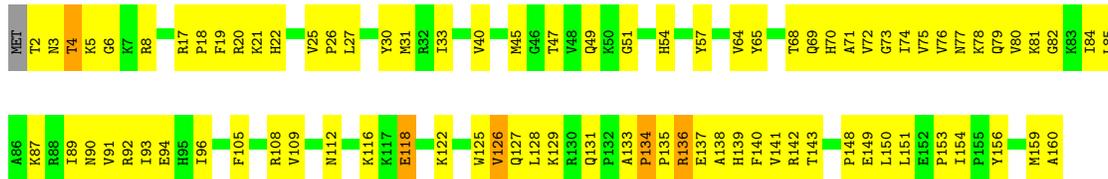
• Molecule 21: 60S ribosomal protein L18a

Chain LS:  27% 70%



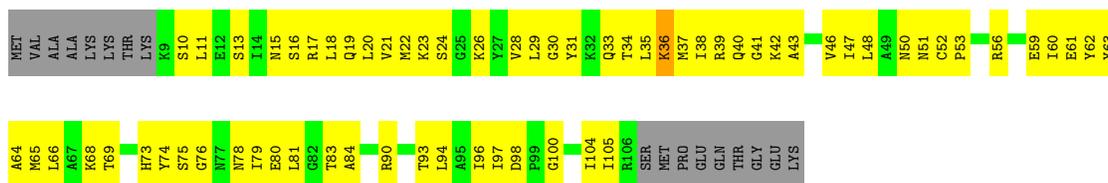
• Molecule 22: 60S ribosomal protein L21

Chain LT:  46% 50%



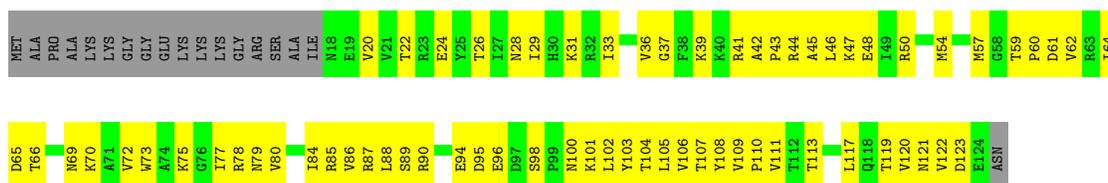
• Molecule 23: 60S ribosomal protein L22

Chain Lc: 28% 57% 15%



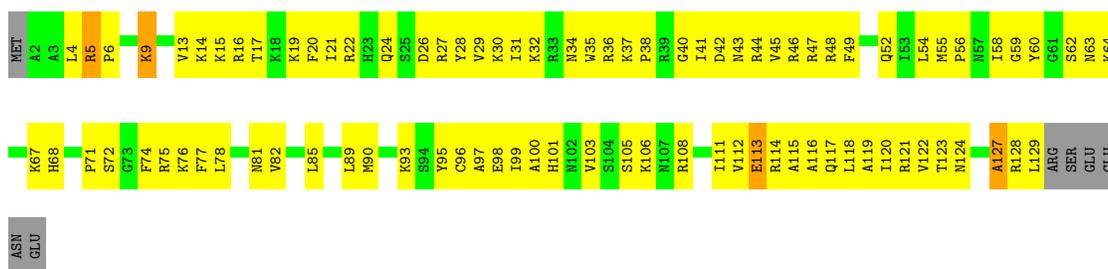
• Molecule 32: 60S ribosomal protein L31

Chain Ld: 31% 54% 14%



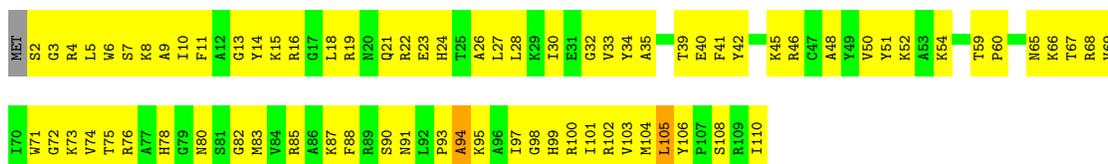
• Molecule 33: 60S ribosomal protein L32

Chain Le: 29% 63% 5%



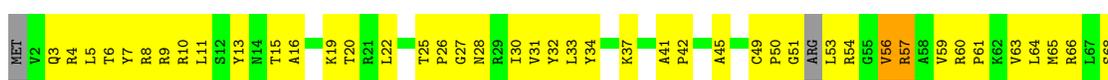
• Molecule 34: 60S ribosomal protein L35a

Chain Lf: 30% 67% 3%



• Molecule 35: 60S ribosomal protein L34

Chain Lg: 33% 62% 5%

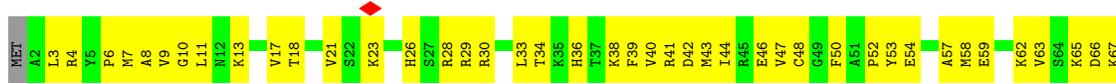




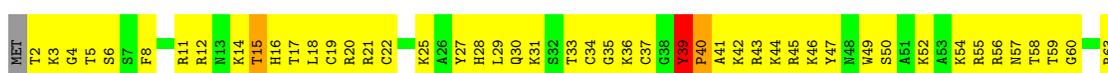
• Molecule 36: 60S ribosomal protein L35



• Molecule 37: 60S ribosomal protein L36



• Molecule 38: 60S ribosomal protein L37

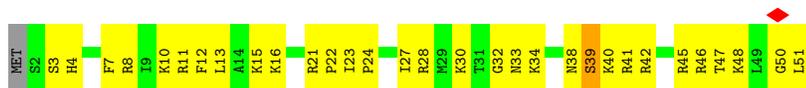


• Molecule 39: 60S ribosomal protein L38

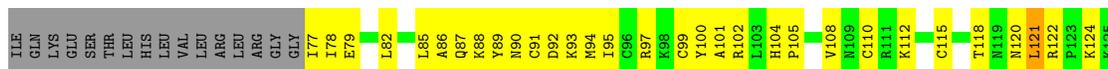


• Molecule 40: 60S ribosomal protein L39





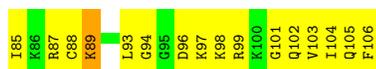
• Molecule 41: Ubiquitin-60S ribosomal protein L40



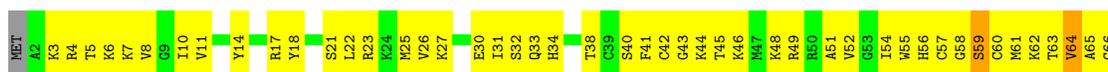
• Molecule 42: 60S ribosomal protein L41



• Molecule 43: 60S ribosomal protein L36a

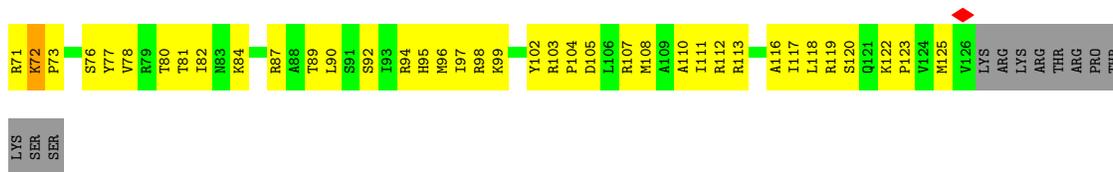


• Molecule 44: 60S ribosomal protein L37a

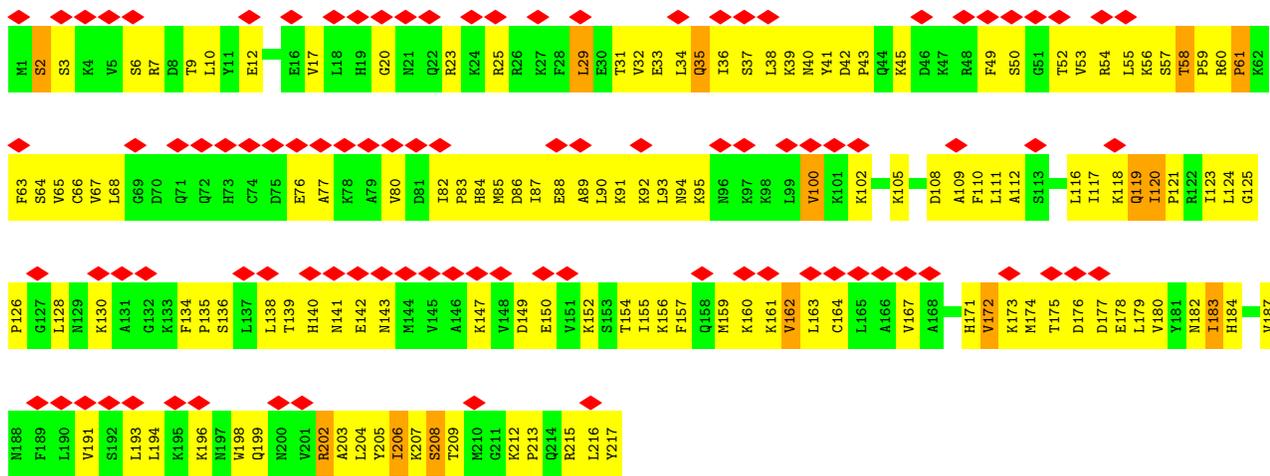


• Molecule 45: 60S ribosomal protein L28

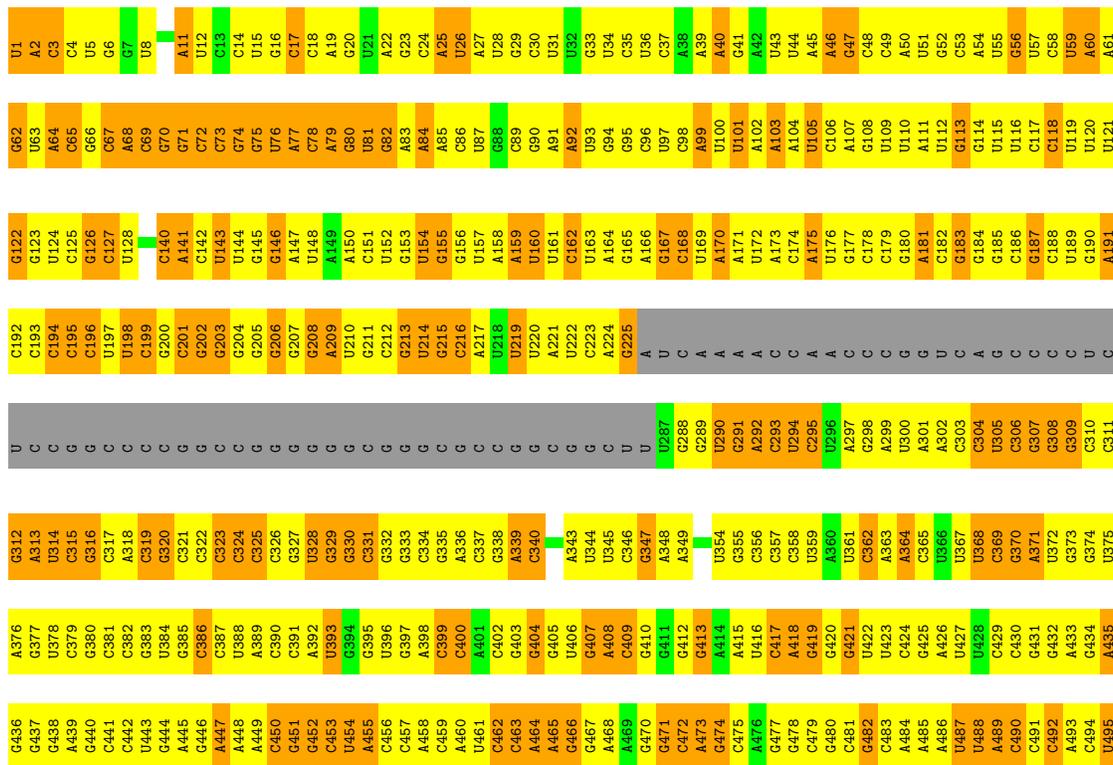




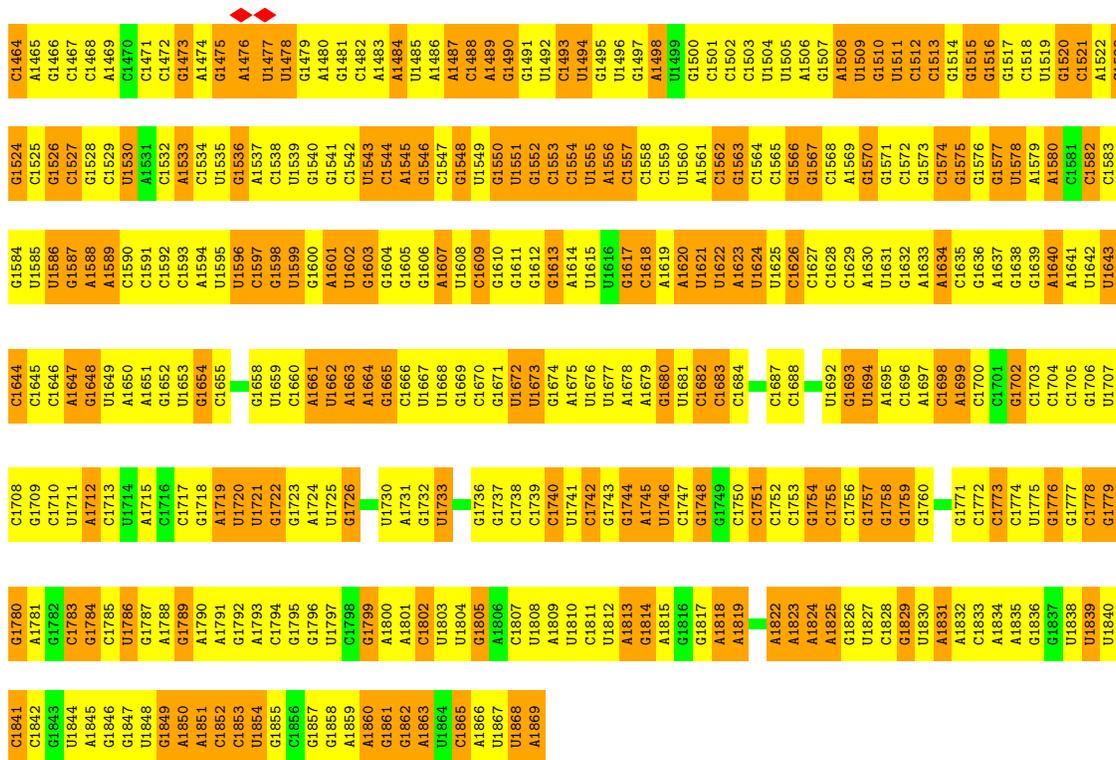
• Molecule 46: 60S ribosomal protein L10a



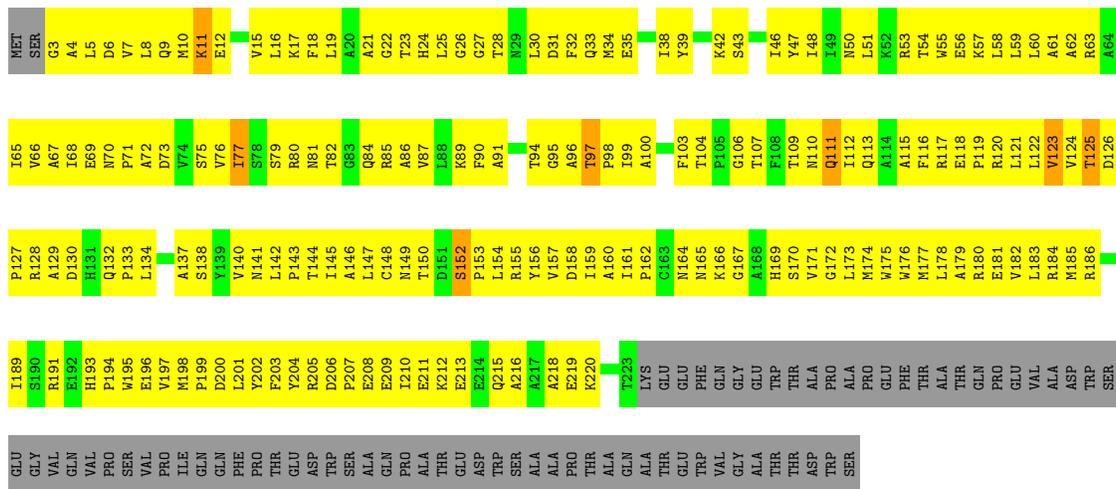
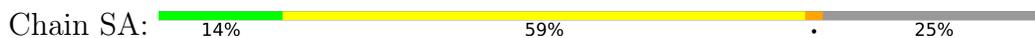
• Molecule 47: 18S ribosomal RNA



U1404	A1405	G1406	U1407	A1408	G1409	C1410	U1411	G1412	A1413	G1414	C1415	U1416	G1417	C1418	A1419	G1420	U1421	G1422	C1423	G1424	U1425	G1426	C1427	U1428	G1429	C1430	U1431	G1432	C1433	U1434	G1435	A1436	C1437	U1438	A1439	C1440	U1441	G1442	C1443	U1444	A1445	G1446	C1447	U1448	G1449	C1450	U1451	A1452	G1453	C1454	U1455	A1456	G1457	C1458	U1459	G1460	A1461	U1462	C1463																																																																																																																																																																																																																																																																								
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C617	U618	A619	U620	C621	U622	A623	C624	U625	A626	C627	U628	A629	C630	U631	A632	C633	U634	A635	C636	U637	A638	C639	U640	A641	C642	U643	A644	C645	U646	A647	C648	U649	A650	C651	U652	A653	C654	U655	A656	C657	U658	A659	C660	U661	A662	C663	U664	A665	C666	U667	A668	C669	U670	A671	C672	U673	A674	C675	U676	A677	C678	U679	A680	C681	U682	A683	C684	U685	A686	C687	U688	A689	C690	U691	A692	C693	U694	A695	C696	U697	A698	C699	U700	A701	C702	U703	A704	C705	U706	A707	C708	U709	A710	C711	U712	A713	C714	U715	A716	C717	U718	A719	C720	U721	A722	C723	U724	A725	C726	U727	A728	C729	U730	A731	C732	U733	A734	C735	U736	A737	C738	U739	A740	C741	U742	A743	C744	U745	A746	C747	U748	A749	C750	U751	A752	C753	U754	A755	C756	U757	A758	C759	U760	A761	C762	U763	A764	C765	U766	A767	C768	U769	A770	C771	U772	A773	C774	U775	A776	C777	U778	A779	C780	U781	A782	C783	U784	A785	C786	U787	A788	C789	U790	A791	C792	U793	A794	C795	U796	A797	C798	U799	A800	C801	U802	A803	C804	U805	A806	C807	U808	A809	C810	U811	A812	C813	U814	A815	C816	U817	A818	C819	U820	A821	C822	U823	A824	C825	U826	A827	C828	U829	A830	C831	U832	A833	C834	U835	C836	A837	U838	C839	U840	A841	C842	U843	A844	C845	U846	A847	U848	C849	U850	A851	C852	U853	A854	C855	U856	A857	C858	U859	A860	C861	U862	A863	C864	U865	A866	C867	U868	A869	C870	U871	A872	C873	U874	A875	C876	U877	A878	C879	U880	A881	C882	U883	A884	C885	U886	A887	C888	U889	A890	C891	U892	A893	C894	U895	A896	C897	U898	A899	C900	U901	A902	C903	U904	A905	C906	U907	A908	C909	U910	A911	C912	U913	A914	C915	U916	A917	C918	U919	A920	C921	U922	A923	C924	U925	A926	C927	U928	A929	C930	U931	A932	C933	U934	A935	C936	U937	A938	C939	U940
C496	U497	G498	U499	A500	C501	U502	A503	C504	U505	A506	C507	U508	A509	C510	U511	A512	C513	U514	A515	C516	U517	A518	C519	U520	A521	C522	U523	A524	C525	U526	A527	C528	U529	A530	C531	U532	A533	C534	U535	A536	C537	U538	A539	C540	U541	A542	C543	U544	A545	C546	U547	A548	C549	U550	A551	C552	U553	A554	C555	U556																																																																																																																																																																																																																																																																							

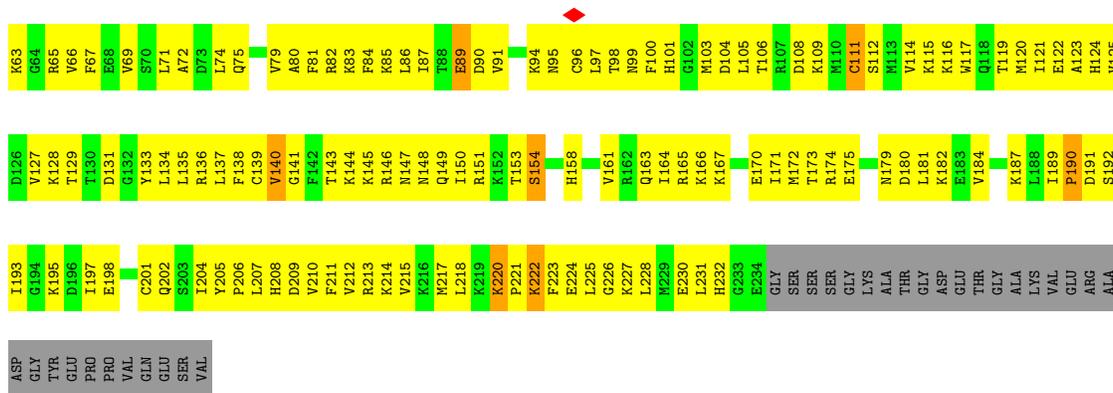


• Molecule 48: 40S ribosomal protein SA



• Molecule 49: 40S ribosomal protein S3a

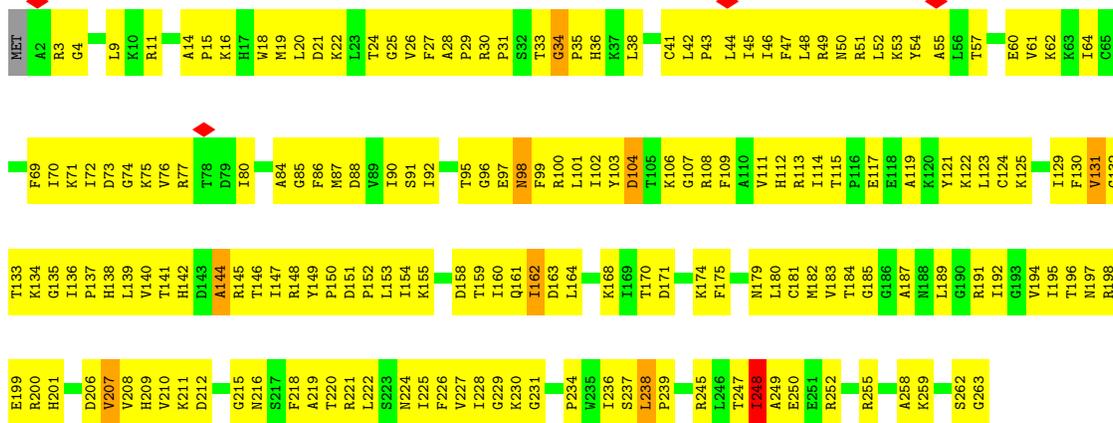




• Molecule 50: 40S ribosomal protein S3



• Molecule 51: 40S ribosomal protein S4, X isoform



• Molecule 52: 40S ribosomal protein S5

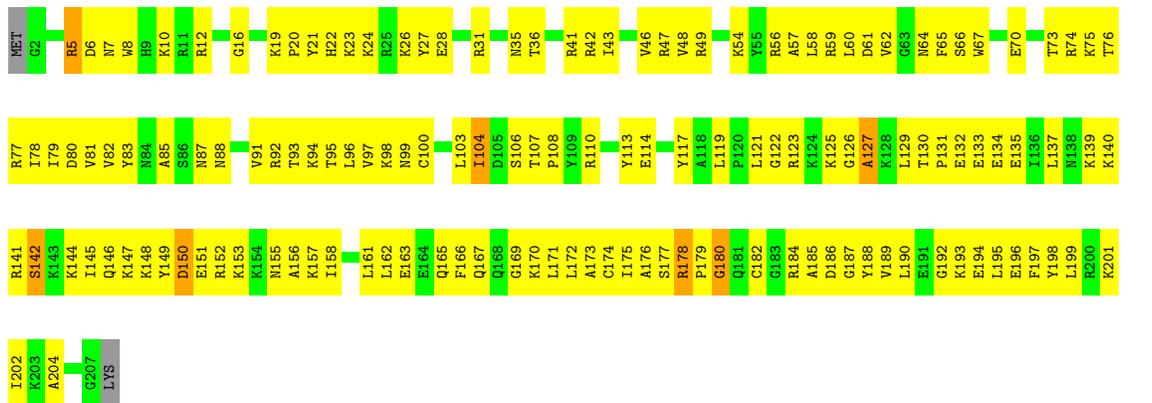




• Molecule 53: 40S ribosomal protein S7



• Molecule 54: 40S ribosomal protein S8

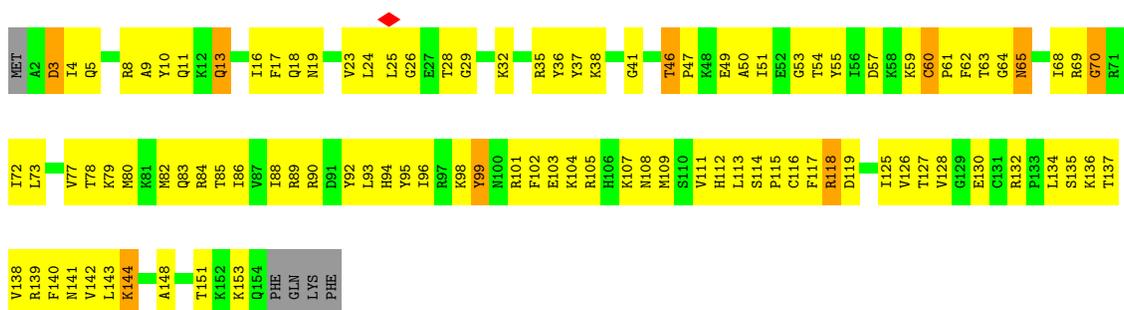


• Molecule 55: 40S ribosomal protein S10

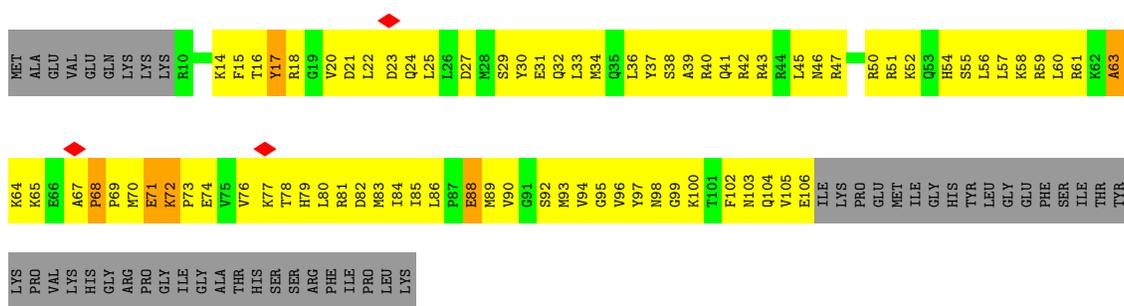
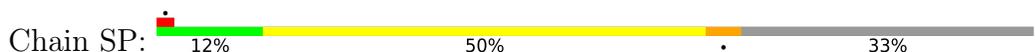




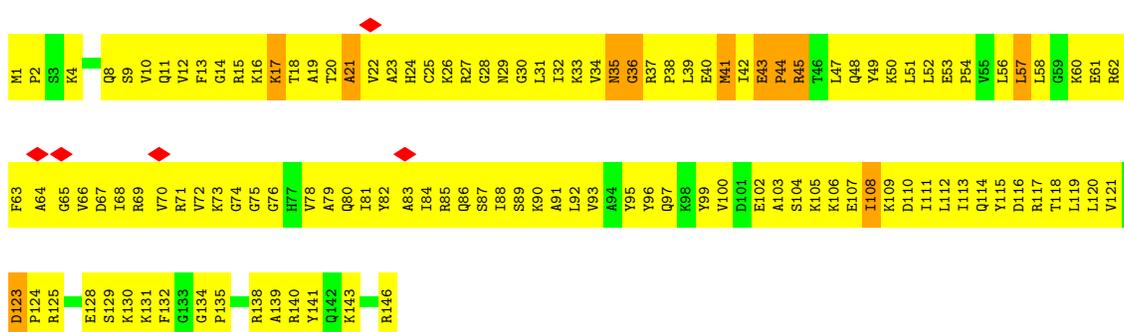
• Molecule 56: 40S ribosomal protein S11



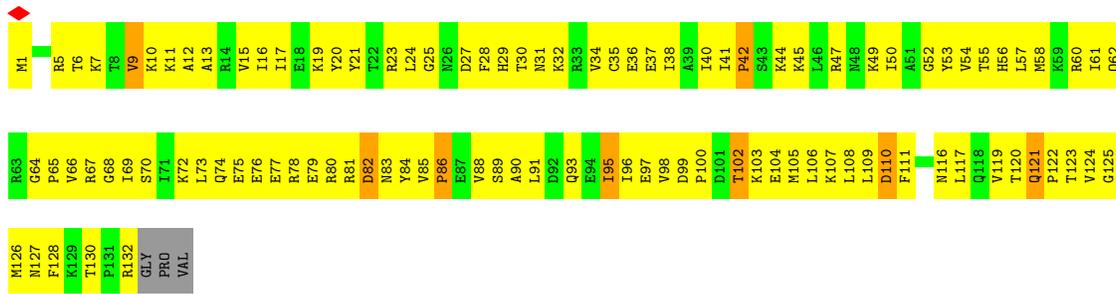
• Molecule 57: 40S ribosomal protein S15



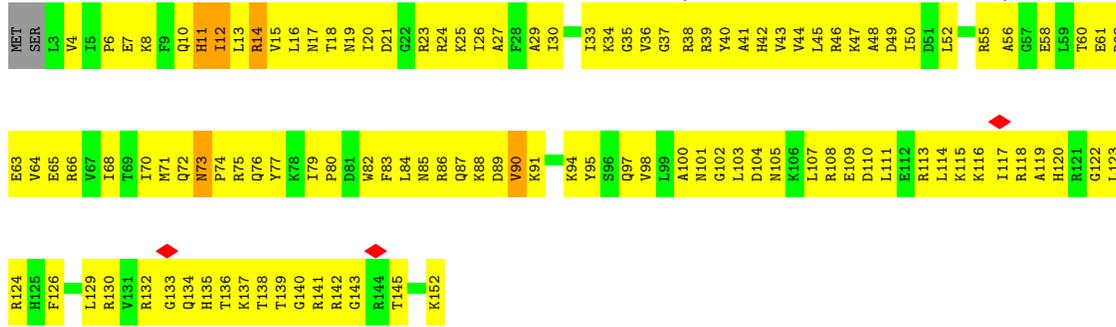
• Molecule 58: 40S ribosomal protein S16



• Molecule 59: 40S ribosomal protein S17



• Molecule 60: 40S ribosomal protein S18



• Molecule 61: 40S ribosomal protein S19



• Molecule 62: 40S ribosomal protein S20





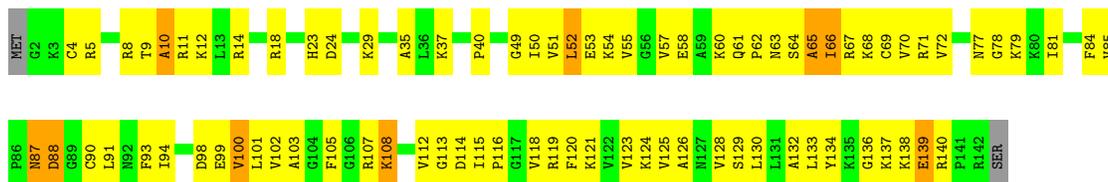
- Molecule 63: 40S ribosomal protein S21

Chain SV: 23% 72% 5%



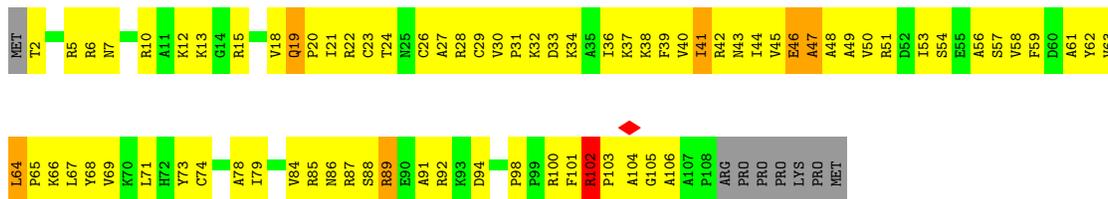
- Molecule 64: 40S ribosomal protein S23

Chain SX: 41% 51% 6%



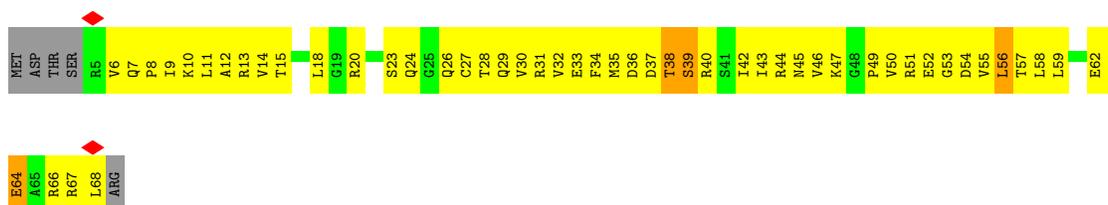
- Molecule 65: 40S ribosomal protein S26

Chain Sa: 26% 61% 5% 7%



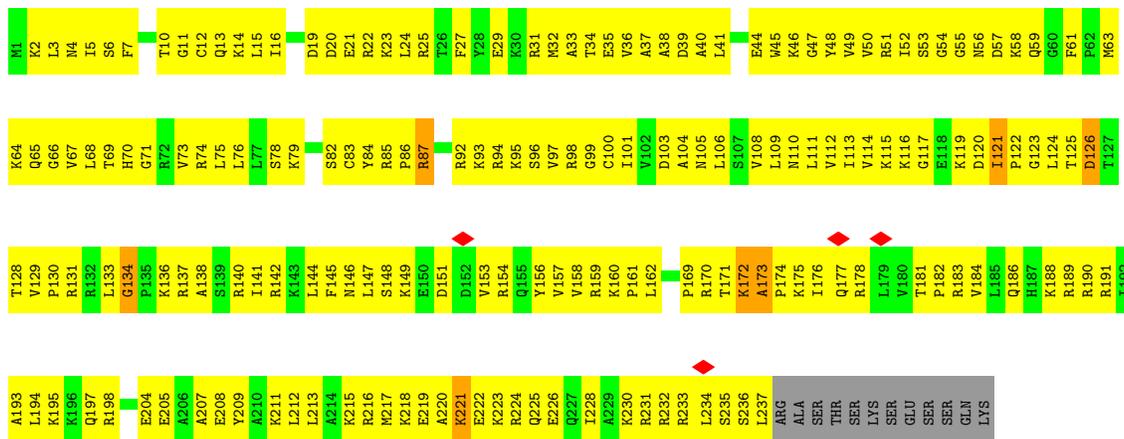
- Molecule 66: 40S ribosomal protein S28

Chain Sc: 17% 70% 6% 7%

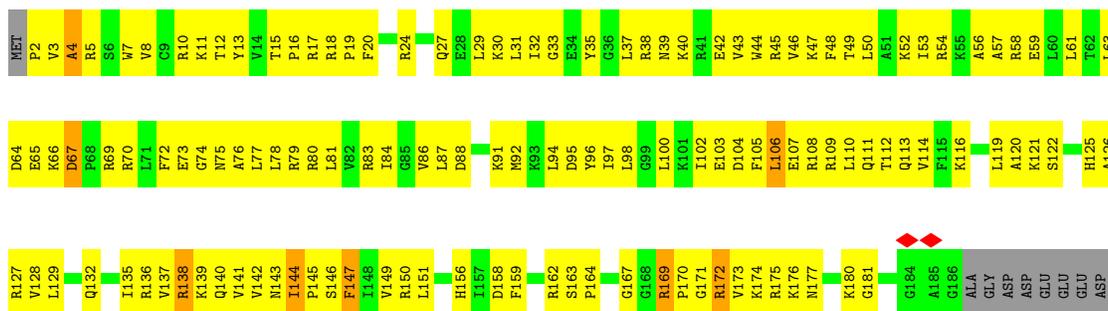


- Molecule 67: 40S ribosomal protein S29

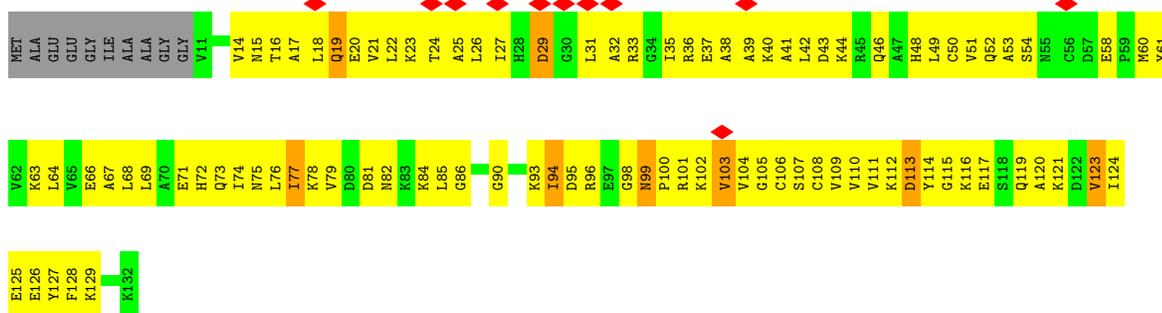
Chain Sd: 27% 68% 5%



• Molecule 71: 40S ribosomal protein S9



• Molecule 72: 40S ribosomal protein S12

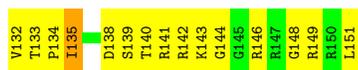
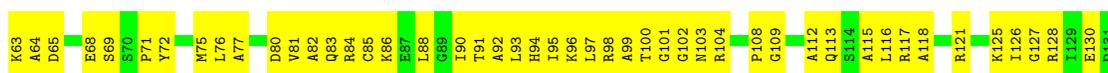
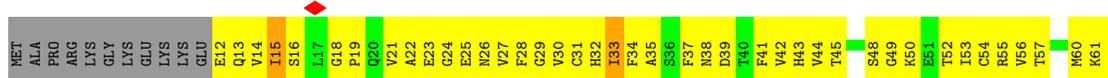


• Molecule 73: 40S ribosomal protein S13

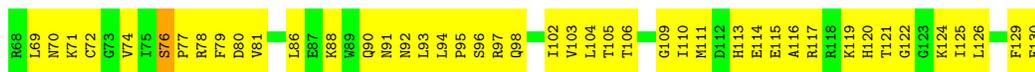




• Molecule 74: 40S ribosomal protein S14



• Molecule 75: 40S ribosomal protein S15a



• Molecule 76: 40S ribosomal protein S24



• Molecule 77: 40S ribosomal protein S25

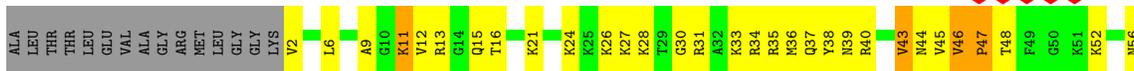
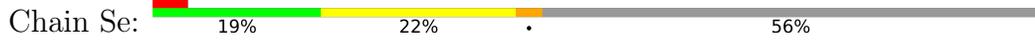




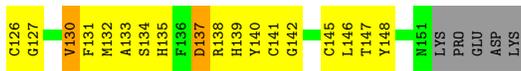
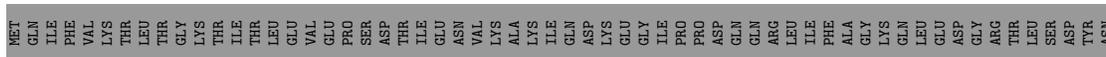
• Molecule 78: 40S ribosomal protein S27



• Molecule 79: Ribosomal protein S30



• Molecule 80: Ubiquitin-40S ribosomal protein S27a



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	19000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION; Relion	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	79000	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.206	Depositor
Minimum map value	-0.165	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.007	Depositor
Map size (\AA)	506.0, 506.0, 506.0	wwPDB
Map dimensions	460, 460, 460	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	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: 3HE, 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	0.34	0/89644	0.35	0/139760
2	L7	0.29	0/2858	0.30	0/4455
3	L8	0.33	0/3701	0.35	0/5766
4	LA	0.70	0/1936	1.00	8/2596 (0.3%)
5	LB	0.59	0/3306	0.95	13/4424 (0.3%)
6	LC	0.59	0/2981	0.97	15/4002 (0.4%)
7	LD	0.49	0/2428	0.92	7/3252 (0.2%)
8	LE	0.48	0/2005	1.03	13/2685 (0.5%)
9	LF	0.61	0/1905	0.91	5/2539 (0.2%)
10	LG	0.54	0/1960	1.03	10/2637 (0.4%)
11	LH	0.51	0/1537	0.89	3/2066 (0.1%)
12	LI	0.50	0/1751	0.98	11/2340 (0.5%)
13	LJ	0.44	0/1433	0.94	6/1915 (0.3%)
14	LL	0.56	0/1732	1.02	11/2315 (0.5%)
15	LM	0.53	0/1161	0.87	0/1554
16	LN	0.63	0/1746	0.96	7/2338 (0.3%)
17	LO	0.62	0/1682	0.96	10/2250 (0.4%)
18	LP	0.62	0/1268	1.03	8/1701 (0.5%)
19	LQ	0.61	0/1537	0.98	4/2052 (0.2%)
20	LR	0.57	0/1582	0.92	6/2091 (0.3%)
21	LS	0.58	0/1493	0.99	6/2003 (0.3%)
22	LT	0.55	0/1326	1.09	10/1770 (0.6%)
23	LU	0.46	0/839	0.88	1/1126 (0.1%)
24	LV	0.63	0/993	1.01	2/1332 (0.2%)
25	LW	0.48	0/1030	0.94	3/1364 (0.2%)
26	LX	0.57	0/992	0.90	2/1330 (0.2%)
27	LY	0.54	0/1132	0.90	3/1504 (0.2%)
28	LZ	0.50	0/1130	0.88	1/1507 (0.1%)
29	La	0.60	0/1191	0.99	7/1591 (0.4%)
30	Lb	0.48	0/620	0.87	0/819
31	Lc	0.54	0/774	0.94	2/1038 (0.2%)
32	Ld	0.59	0/903	0.89	1/1216 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	Le	0.64	0/1071	1.12	6/1429 (0.4%)
34	Lf	0.59	0/895	0.91	0/1198
35	Lg	0.56	0/904	0.88	2/1203 (0.2%)
36	Lh	0.56	0/1023	0.90	3/1351 (0.2%)
37	Li	0.53	0/843	0.94	3/1115 (0.3%)
38	Lj	0.60	0/720	1.13	4/952 (0.4%)
39	Lk	0.45	0/575	0.92	1/761 (0.1%)
40	Ll	0.58	0/454	0.87	0/599
41	Lm	0.51	0/435	1.01	3/575 (0.5%)
42	Ln	0.49	0/231	0.79	0/294
43	Lo	0.53	0/876	1.01	6/1156 (0.5%)
44	Lp	0.62	0/718	0.87	1/953 (0.1%)
45	Lr	0.59	0/1017	0.95	5/1364 (0.4%)
46	Lz	0.33	0/1769	0.85	5/2371 (0.2%)
47	S2	0.27	0/41243	0.33	0/64257
48	SA	0.49	0/1778	0.99	8/2416 (0.3%)
49	SB	0.49	0/1765	0.88	3/2362 (0.1%)
50	SD	0.45	0/1793	0.91	3/2414 (0.1%)
51	SE	0.47	0/2118	0.93	4/2849 (0.1%)
52	SF	0.41	0/1500	0.91	5/2015 (0.2%)
53	SH	0.46	0/1544	0.94	4/2068 (0.2%)
54	SI	0.49	0/1715	0.95	8/2287 (0.3%)
55	SK	0.37	0/851	0.87	1/1147 (0.1%)
56	SL	0.53	0/1268	1.00	8/1696 (0.5%)
57	SP	0.39	0/815	0.94	4/1087 (0.4%)
58	SQ	0.41	0/1177	0.93	4/1575 (0.3%)
59	SR	0.44	0/1086	0.90	3/1457 (0.2%)
60	SS	0.42	0/1253	0.95	5/1676 (0.3%)
61	ST	0.38	0/1131	0.87	3/1515 (0.2%)
62	SU	0.41	0/831	0.90	1/1115 (0.1%)
63	SV	0.50	0/643	0.92	3/860 (0.3%)
64	SX	0.56	0/1116	0.89	4/1490 (0.3%)
65	Sa	0.57	0/863	1.06	8/1159 (0.7%)
66	Sc	0.43	0/508	0.90	1/680 (0.1%)
67	Sd	0.41	0/455	0.81	1/603 (0.2%)
68	Sg	0.38	0/2493	0.90	8/3394 (0.2%)
69	SC	0.53	0/1762	1.03	10/2381 (0.4%)
70	SG	0.41	0/1946	0.95	7/2590 (0.3%)
71	SJ	0.49	0/1550	0.93	8/2069 (0.4%)
72	SM	0.36	0/962	1.00	5/1290 (0.4%)
73	SN	0.55	0/1232	1.02	8/1656 (0.5%)
74	SO	0.55	0/1062	0.98	4/1425 (0.3%)
75	SW	0.57	0/1051	0.89	1/1406 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
76	SY	0.43	0/1083	0.84	0/1438
77	SZ	0.39	0/604	0.92	3/810 (0.4%)
78	Sb	0.44	0/665	0.95	6/891 (0.7%)
79	Se	0.41	0/465	0.92	3/612 (0.5%)
80	Sf	0.35	0/560	0.81	1/745 (0.1%)
All	All	0.41	0/232995	0.64	359/342094 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
4	LA	0	1
5	LB	0	3
15	LM	0	1
38	Lj	0	1
42	Ln	0	1
58	SQ	0	1
All	All	0	8

There are no bond length outliers.

The worst 5 of 359 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
22	LT	133	ALA	CA-C-N	13.40	129.31	119.66
22	LT	133	ALA	C-N-CA	13.40	129.31	119.66
38	Lj	39	TYR	CA-C-N	12.48	135.44	119.84
38	Lj	39	TYR	C-N-CA	12.48	135.44	119.84
48	SA	97	THR	CA-C-N	12.27	132.42	119.78

There are no chirality outliers.

5 of 8 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	LA	227	ARG	Sidechain
5	LB	257	TRP	Peptide
5	LB	258	HIS	Peptide
5	LB	35	ASP	Peptide
15	LM	64	PHE	Peptide

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	L5	80184	0	40393	6017	0
2	L7	2558	0	1296	173	0
3	L8	3314	0	1683	261	0
4	LA	1898	0	1993	239	0
5	LB	3238	0	3376	414	0
6	LC	2927	0	3104	323	0
7	LD	2382	0	2410	300	0
8	LE	1967	0	2138	354	0
9	LF	1870	0	1996	268	0
10	LG	1927	0	2074	263	0
11	LH	1518	0	1601	192	0
12	LI	1711	0	1749	201	0
13	LJ	1410	0	1441	228	0
14	LL	1701	0	1818	234	0
15	LM	1138	0	1204	168	0
16	LN	1701	0	1749	237	0
17	LO	1650	0	1794	165	0
18	LP	1242	0	1269	139	0
19	LQ	1513	0	1628	172	0
20	LR	1566	0	1729	150	0
21	LS	1453	0	1490	194	0
22	LT	1298	0	1366	129	0
23	LU	825	0	850	114	0
24	LV	979	0	1039	124	0
25	LW	1015	0	1079	150	0
26	LX	976	0	1059	100	0
27	LY	1115	0	1205	140	0
28	LZ	1107	0	1182	157	0
29	La	1162	0	1213	180	0
30	Lb	610	0	650	56	0
31	Lc	764	0	804	79	0
32	Ld	888	0	930	108	0
33	Le	1053	0	1147	145	0
34	Lf	876	0	912	113	0
35	Lg	895	0	985	105	0
36	Lh	1015	0	1148	118	0
37	Li	832	0	917	94	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
38	Lj	705	0	740	109	0
39	Lk	569	0	637	76	0
40	Ll	444	0	483	48	0
41	Lm	429	0	466	44	0
42	Ln	230	0	274	18	0
43	Lo	862	0	930	97	0
44	Lp	708	0	755	85	0
45	Lr	1002	0	1068	138	0
46	Lz	1741	0	1854	220	0
47	S2	36900	0	18599	3280	0
48	SA	1741	0	1746	325	0
49	SB	1738	0	1809	259	0
50	SD	1765	0	1865	331	0
51	SE	2076	0	2177	320	0
52	SF	1479	0	1534	292	0
53	SH	1521	0	1616	277	0
54	SI	1686	0	1772	227	0
55	SK	827	0	854	156	0
56	SL	1247	0	1323	155	0
57	SP	804	0	841	143	0
58	SQ	1158	0	1232	319	0
59	SR	1072	0	1130	188	0
60	SS	1235	0	1309	249	0
61	ST	1112	0	1146	243	0
62	SU	821	0	883	196	0
63	SV	636	0	637	106	0
64	SX	1098	0	1167	135	0
65	Sa	847	0	897	103	0
66	Sc	506	0	536	122	0
67	Sd	445	0	439	62	0
68	Sg	2436	0	2393	589	0
69	SC	1725	0	1813	226	0
70	SG	1923	0	2089	406	0
71	SJ	1525	0	1640	221	0
72	SM	952	0	983	205	0
73	SN	1208	0	1294	158	0
74	SO	1049	0	1073	174	0
75	SW	1034	0	1080	145	0
76	SY	1065	0	1142	217	0
77	SZ	598	0	656	113	0
78	Sb	651	0	672	83	0
79	Se	459	0	503	52	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
80	Sf	548	0	554	80	0
81	L5	20	0	23	10	0
82	L5	160	0	0	0	0
82	L7	3	0	0	0	0
82	L8	4	0	0	0	0
82	LC	1	0	0	0	0
82	LD	1	0	0	0	0
82	LI	1	0	0	0	0
82	LP	1	0	0	0	0
82	LS	2	0	0	0	0
82	LV	1	0	0	0	0
82	Le	1	0	0	0	0
82	S2	48	0	0	0	0
82	Sa	1	0	0	0	0
83	Lg	1	0	0	0	0
83	Lj	1	0	0	0	0
83	Lm	1	0	0	0	0
83	Lo	1	0	0	0	0
83	Lp	1	0	0	0	0
83	Sa	1	0	0	0	0
83	Sd	1	0	0	0	0
83	Sf	1	0	0	0	0
84	L5	13	0	0	0	0
84	L8	1	0	0	0	0
84	LA	1	0	0	0	0
84	LD	1	0	0	0	0
84	LN	1	0	0	0	0
84	LT	1	0	0	0	0
84	Le	1	0	0	0	0
84	Lp	1	0	0	0	0
84	S2	6	0	0	1	0
84	SN	1	0	0	0	0
84	SV	1	0	0	0	0
84	SW	2	0	0	0	0
84	SX	1	0	0	0	0
All	All	217138	0	161055	20716	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 56.

The worst 5 of 20716 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:LC:7:LEU:HD21	6:LC:21:ASN:HB3	1.20	1.20
17:LO:102:LEU:HD21	17:LO:104:VAL:HG13	1.25	1.17
5:LB:389:MET:HG2	5:LB:392:LEU:HD11	1.27	1.16
52:SF:100:ILE:HD11	52:SF:174:ALA:HB1	1.24	1.16
13:LJ:48:PRO:HB3	13:LJ:72:CYS:HB2	1.16	1.16

There are no symmetry-related clashes.

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%)	212 (86%)	27 (11%)	7 (3%)	4	27
5	LB	400/403 (99%)	342 (86%)	44 (11%)	14 (4%)	3	24
6	LC	366/427 (86%)	333 (91%)	26 (7%)	7 (2%)	6	35
7	LD	291/297 (98%)	250 (86%)	30 (10%)	11 (4%)	2	22
8	LE	239/288 (83%)	198 (83%)	31 (13%)	10 (4%)	2	20
9	LF	223/248 (90%)	202 (91%)	16 (7%)	5 (2%)	5	32
10	LG	239/266 (90%)	210 (88%)	17 (7%)	12 (5%)	1	17
11	LH	188/192 (98%)	153 (81%)	31 (16%)	4 (2%)	5	33
12	LI	211/214 (99%)	174 (82%)	26 (12%)	11 (5%)	1	16
13	LJ	174/178 (98%)	157 (90%)	12 (7%)	5 (3%)	3	27
14	LL	208/211 (99%)	184 (88%)	15 (7%)	9 (4%)	2	19
15	LM	137/215 (64%)	122 (89%)	11 (8%)	4 (3%)	3	27
16	LN	201/204 (98%)	179 (89%)	19 (10%)	3 (2%)	8	39
17	LO	199/203 (98%)	183 (92%)	16 (8%)	0	100	100
18	LP	151/184 (82%)	132 (87%)	14 (9%)	5 (3%)	3	25
19	LQ	185/188 (98%)	168 (91%)	13 (7%)	4 (2%)	5	32

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
20	LR	185/196 (94%)	171 (92%)	13 (7%)	1 (0%)	25	59
21	LS	173/176 (98%)	148 (86%)	24 (14%)	1 (1%)	22	55
22	LT	157/160 (98%)	136 (87%)	18 (12%)	3 (2%)	6	35
23	LU	99/128 (77%)	81 (82%)	16 (16%)	2 (2%)	6	34
24	LV	129/140 (92%)	109 (84%)	17 (13%)	3 (2%)	5	31
25	LW	122/157 (78%)	104 (85%)	14 (12%)	4 (3%)	3	25
26	LX	115/156 (74%)	99 (86%)	12 (10%)	4 (4%)	3	24
27	LY	132/145 (91%)	119 (90%)	9 (7%)	4 (3%)	3	26
28	LZ	133/136 (98%)	118 (89%)	14 (10%)	1 (1%)	16	51
29	La	145/148 (98%)	119 (82%)	19 (13%)	7 (5%)	2	17
30	Lb	73/157 (46%)	66 (90%)	6 (8%)	1 (1%)	9	40
31	Lc	96/115 (84%)	87 (91%)	9 (9%)	0	100	100
32	Ld	105/125 (84%)	89 (85%)	16 (15%)	0	100	100
33	Le	126/135 (93%)	114 (90%)	10 (8%)	2 (2%)	8	38
34	Lf	107/110 (97%)	93 (87%)	12 (11%)	2 (2%)	6	35
35	Lg	109/117 (93%)	101 (93%)	7 (6%)	1 (1%)	14	48
36	Lh	120/123 (98%)	115 (96%)	4 (3%)	1 (1%)	16	51
37	Li	100/105 (95%)	94 (94%)	6 (6%)	0	100	100
38	Lj	84/97 (87%)	74 (88%)	8 (10%)	2 (2%)	5	30
39	Lk	67/70 (96%)	57 (85%)	7 (10%)	3 (4%)	2	18
40	Ll	48/51 (94%)	41 (85%)	6 (12%)	1 (2%)	5	33
41	Lm	50/128 (39%)	47 (94%)	3 (6%)	0	100	100
42	Ln	22/25 (88%)	20 (91%)	1 (4%)	1 (4%)	2	18
43	Lo	103/106 (97%)	90 (87%)	11 (11%)	2 (2%)	6	35
44	Lp	89/92 (97%)	77 (86%)	11 (12%)	1 (1%)	12	45
45	Lr	123/137 (90%)	108 (88%)	12 (10%)	3 (2%)	5	30
46	Lz	215/217 (99%)	174 (81%)	30 (14%)	11 (5%)	1	16
48	SA	219/295 (74%)	200 (91%)	14 (6%)	5 (2%)	5	31
49	SB	212/264 (80%)	177 (84%)	28 (13%)	7 (3%)	3	25
50	SD	225/243 (93%)	190 (84%)	26 (12%)	9 (4%)	2	21
51	SE	260/263 (99%)	221 (85%)	30 (12%)	9 (4%)	3	24

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
52	SF	185/204 (91%)	158 (85%)	21 (11%)	6 (3%)	3	25
53	SH	187/194 (96%)	154 (82%)	31 (17%)	2 (1%)	12	45
54	SI	204/208 (98%)	173 (85%)	26 (13%)	5 (2%)	4	29
55	SK	96/165 (58%)	80 (83%)	12 (12%)	4 (4%)	2	20
56	SL	151/158 (96%)	127 (84%)	20 (13%)	4 (3%)	4	28
57	SP	95/145 (66%)	77 (81%)	12 (13%)	6 (6%)	1	13
58	SQ	144/146 (99%)	125 (87%)	10 (7%)	9 (6%)	1	13
59	SR	130/135 (96%)	109 (84%)	14 (11%)	7 (5%)	1	15
60	SS	148/152 (97%)	126 (85%)	19 (13%)	3 (2%)	6	34
61	ST	141/145 (97%)	124 (88%)	14 (10%)	3 (2%)	5	33
62	SU	102/119 (86%)	87 (85%)	9 (9%)	6 (6%)	1	14
63	SV	81/83 (98%)	64 (79%)	15 (18%)	2 (2%)	4	29
64	SX	139/143 (97%)	120 (86%)	12 (9%)	7 (5%)	1	17
65	Sa	105/115 (91%)	87 (83%)	11 (10%)	7 (7%)	1	12
66	Sc	62/69 (90%)	52 (84%)	7 (11%)	3 (5%)	2	17
67	Sd	51/56 (91%)	46 (90%)	5 (10%)	0	100	100
68	Sg	311/317 (98%)	253 (81%)	44 (14%)	14 (4%)	2	18
69	SC	220/293 (75%)	194 (88%)	22 (10%)	4 (2%)	7	35
70	SG	235/249 (94%)	196 (83%)	31 (13%)	8 (3%)	3	25
71	SJ	183/194 (94%)	161 (88%)	18 (10%)	4 (2%)	5	32
72	SM	120/132 (91%)	93 (78%)	23 (19%)	4 (3%)	3	25
73	SN	148/151 (98%)	133 (90%)	10 (7%)	5 (3%)	3	25
74	SO	138/151 (91%)	116 (84%)	20 (14%)	2 (1%)	9	40
75	SW	127/130 (98%)	106 (84%)	19 (15%)	2 (2%)	8	38
76	SY	129/133 (97%)	113 (88%)	10 (8%)	6 (5%)	2	18
77	SZ	73/125 (58%)	55 (75%)	16 (22%)	2 (3%)	4	28
78	Sb	81/84 (96%)	65 (80%)	13 (16%)	3 (4%)	2	22
79	Se	56/133 (42%)	47 (84%)	5 (9%)	4 (7%)	1	11
80	Sf	65/156 (42%)	51 (78%)	10 (15%)	4 (6%)	1	13
All	All	11508/12977 (89%)	9930 (86%)	1240 (11%)	338 (3%)	6	27

5 of 338 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	LA	118	GLU
4	LA	130	SER
4	LA	239	ALA
5	LB	334	LYS
6	LC	200	ARG

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%)	190 (100%)	0	100	100
5	LB	348/349 (100%)	348 (100%)	0	100	100
6	LC	306/348 (88%)	306 (100%)	0	100	100
7	LD	246/250 (98%)	246 (100%)	0	100	100
8	LE	216/252 (86%)	216 (100%)	0	100	100
9	LF	194/215 (90%)	193 (100%)	1 (0%)	86	93
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
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

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
24	LV	101/107 (94%)	101 (100%)	0	100	100
25	LW	103/126 (82%)	103 (100%)	0	100	100
26	LX	107/133 (80%)	107 (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%)	119 (99%)	1 (1%)	79	88
30	Lb	63/125 (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	97/100 (97%)	97 (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%)	72 (99%)	1 (1%)	62	79
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%)	17 (74%)	6 (26%)	0	3
43	Lo	93/94 (99%)	92 (99%)	1 (1%)	70	83
44	Lp	74/75 (99%)	74 (100%)	0	100	100
45	Lr	109/121 (90%)	109 (100%)	0	100	100
46	Lz	195/196 (100%)	195 (100%)	0	100	100
48	SA	183/243 (75%)	183 (100%)	0	100	100
49	SB	195/231 (84%)	195 (100%)	0	100	100
50	SD	190/202 (94%)	190 (100%)	0	100	100
51	SE	224/225 (100%)	222 (99%)	2 (1%)	75	87
52	SF	157/170 (92%)	157 (100%)	0	100	100
53	SH	169/174 (97%)	169 (100%)	0	100	100
54	SI	178/180 (99%)	178 (100%)	0	100	100
55	SK	89/136 (65%)	89 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
56	SL	137/142 (96%)	137 (100%)	0	100	100
57	SP	87/130 (67%)	87 (100%)	0	100	100
58	SQ	121/121 (100%)	121 (100%)	0	100	100
59	SR	120/122 (98%)	120 (100%)	0	100	100
60	SS	130/132 (98%)	130 (100%)	0	100	100
61	ST	113/115 (98%)	113 (100%)	0	100	100
62	SU	94/107 (88%)	94 (100%)	0	100	100
63	SV	67/67 (100%)	67 (100%)	0	100	100
64	SX	113/115 (98%)	113 (100%)	0	100	100
65	Sa	90/98 (92%)	90 (100%)	0	100	100
66	Sc	57/62 (92%)	57 (100%)	0	100	100
67	Sd	47/49 (96%)	47 (100%)	0	100	100
68	Sg	272/275 (99%)	271 (100%)	1 (0%)	89	95
69	SC	188/225 (84%)	187 (100%)	1 (0%)	86	93
70	SG	207/218 (95%)	207 (100%)	0	100	100
71	SJ	161/168 (96%)	161 (100%)	0	100	100
72	SM	104/108 (96%)	104 (100%)	0	100	100
73	SN	130/131 (99%)	130 (100%)	0	100	100
74	SO	110/119 (92%)	110 (100%)	0	100	100
75	SW	112/113 (99%)	111 (99%)	1 (1%)	75	87
76	SY	113/115 (98%)	113 (100%)	0	100	100
77	SZ	66/103 (64%)	66 (100%)	0	100	100
78	Sb	75/76 (99%)	75 (100%)	0	100	100
79	Se	47/104 (45%)	47 (100%)	0	100	100
80	Sf	60/140 (43%)	60 (100%)	0	100	100
All	All	10030/11052 (91%)	10015 (100%)	15 (0%)	92	97

5 of 15 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
42	Ln	19	LYS
69	SC	94	ILE
42	Ln	20	MET

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Mol	Chain	Res	Type
75	SW	52	ILE
51	SE	248	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 170 such sidechains are listed below:

Mol	Chain	Res	Type
53	SH	163	GLN
68	Sg	20	GLN
54	SI	44	HIS
59	SR	56	HIS
70	SG	65	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	L5	3706/5070 (73%)	1339 (36%)	102 (2%)
2	L7	119/121 (98%)	33 (27%)	1 (0%)
3	L8	155/157 (98%)	47 (30%)	4 (2%)
47	S2	1715/1869 (91%)	697 (40%)	41 (2%)
All	All	5695/7217 (78%)	2116 (37%)	148 (2%)

5 of 2116 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	L5	2	G
1	L5	3	C
1	L5	13	U
1	L5	17	A
1	L5	18	C

5 of 148 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
47	S2	589	G
47	S2	1664	A
47	S2	659	G
47	S2	1273	C
1	L5	2262	G

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 233 ligands modelled in this entry, 232 are monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
81	3HE	L5	5101	-	21,21,21	3.56	8 (38%)	19,30,30	2.32	8 (42%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
81	3HE	L5	5101	-	-	1/8/36/36	0/2/2/2

The worst 5 of 8 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
81	L5	5101	3HE	C13-C12	-8.46	1.35	1.50
81	L5	5101	3HE	C10-C11	-7.03	1.37	1.50
81	L5	5101	3HE	C5-C4	-6.68	1.42	1.51
81	L5	5101	3HE	C3-C4	-6.27	1.40	1.51
81	L5	5101	3HE	C13-C9	-4.14	1.46	1.53

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
81	L5	5101	3HE	C11-N-C12	-5.06	119.64	125.78
81	L5	5101	3HE	C-C1-C2	-3.78	104.75	111.18
81	L5	5101	3HE	C13-C12-N	3.73	120.52	115.95
81	L5	5101	3HE	C5-C6-C1	-3.60	105.80	113.14
81	L5	5101	3HE	C10-C11-N	3.08	119.72	115.95

There are no chirality outliers.

All (1) torsion outliers are listed below:

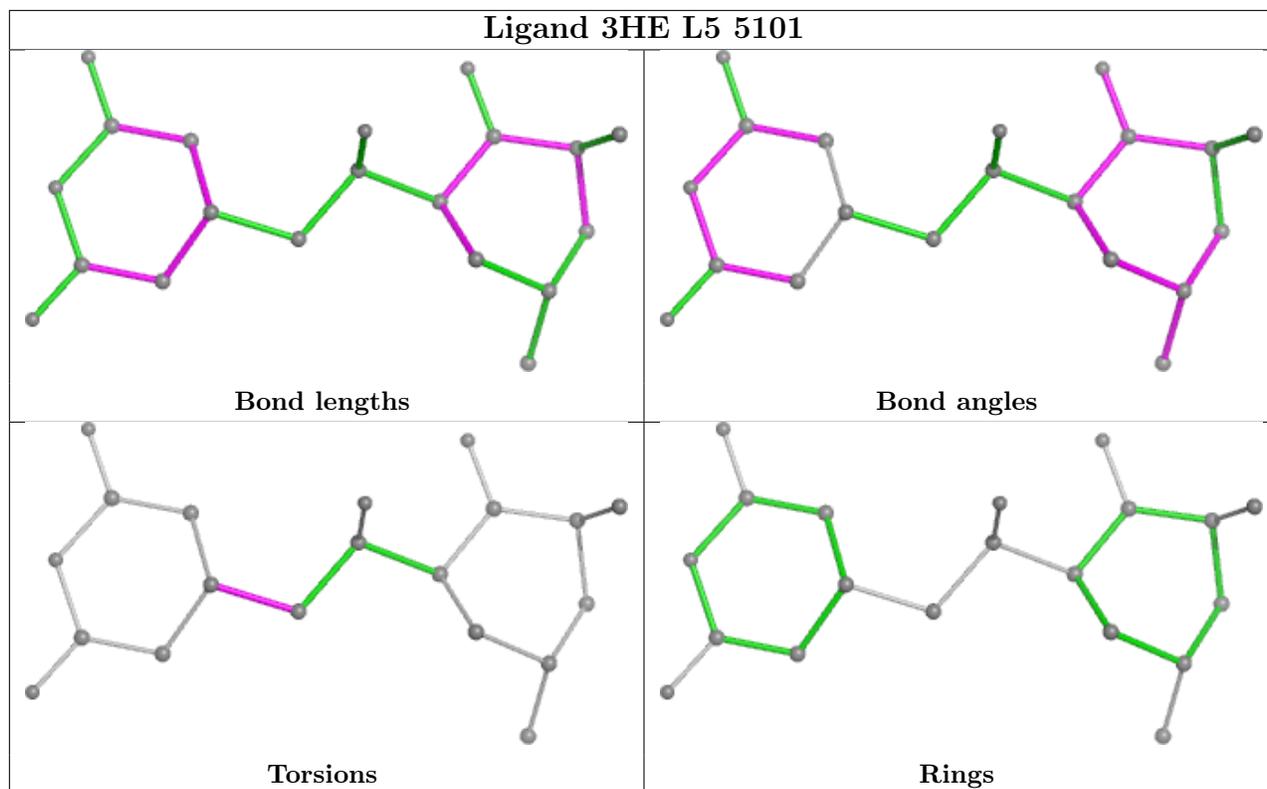
Mol	Chain	Res	Type	Atoms
81	L5	5101	3HE	C7-C8-C9-C13

There are no ring outliers.

1 monomer is involved in 10 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
81	L5	5101	3HE	10	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	L5	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	L5	3983:G	O3'	3984:C	P	10.43

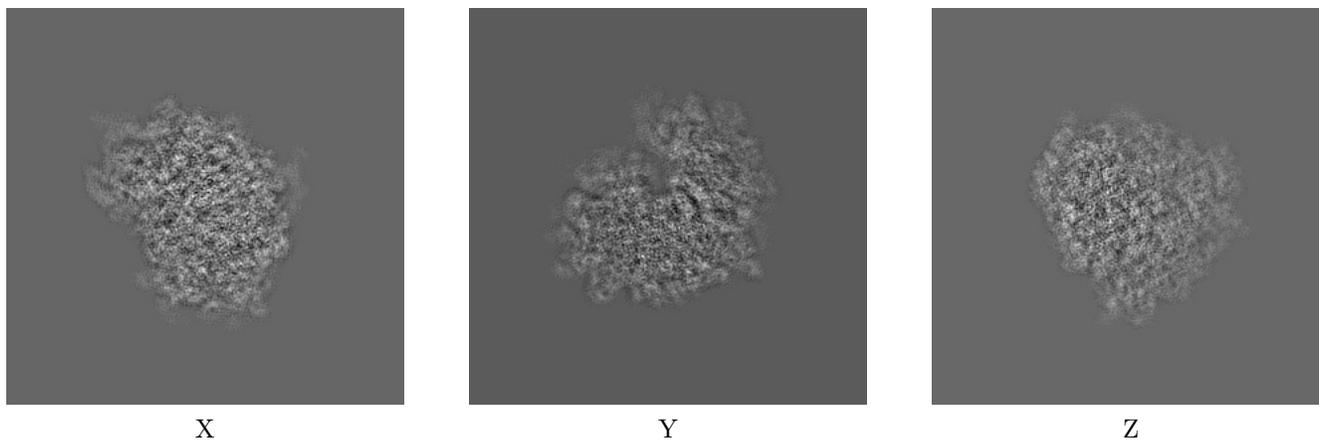
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4070. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

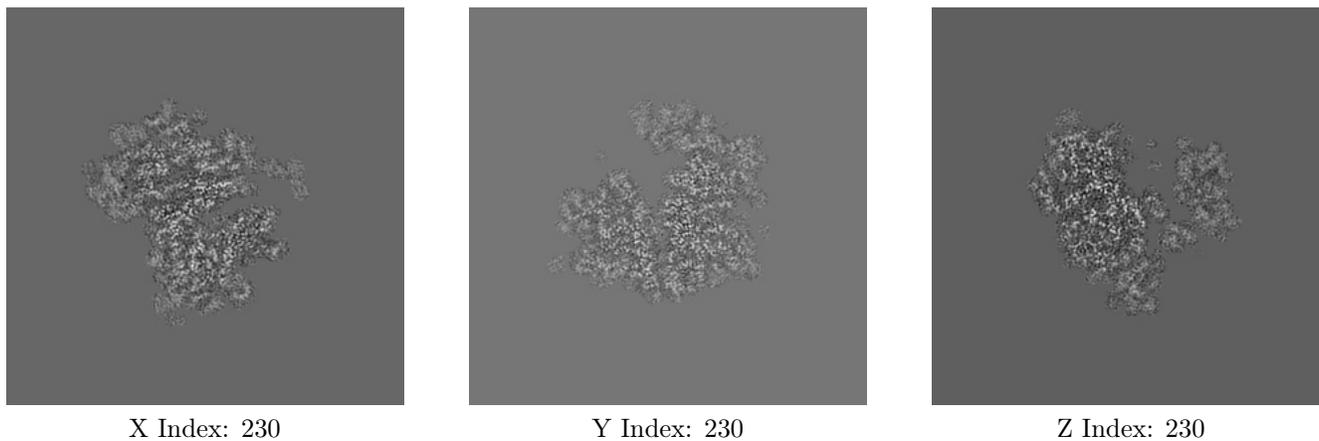
6.1.1 Primary map



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

6.2 Central slices [i](#)

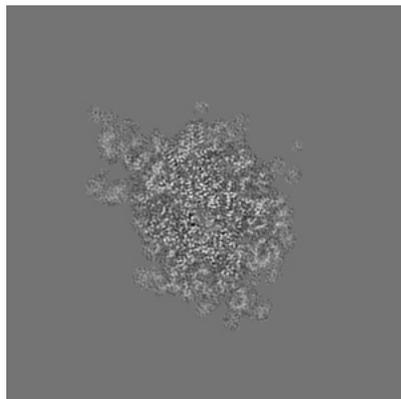
6.2.1 Primary map



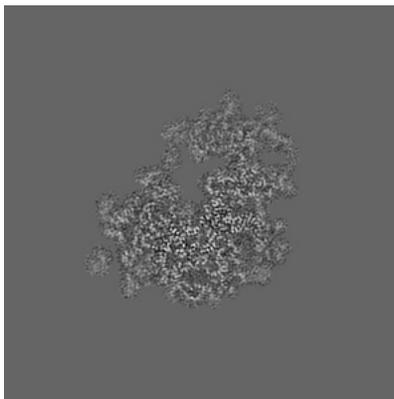
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

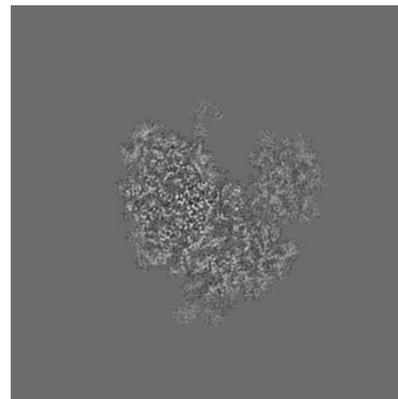
6.3.1 Primary map



X Index: 205



Y Index: 242

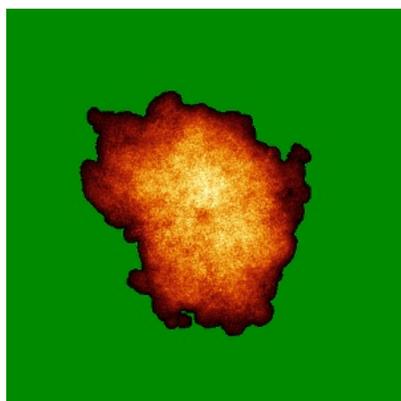


Z Index: 252

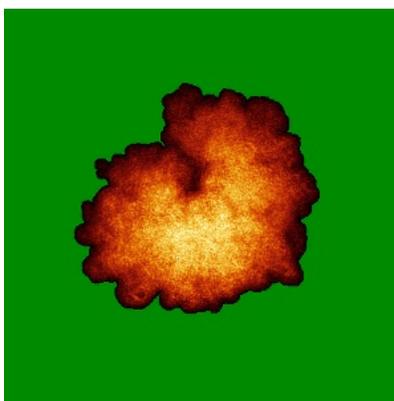
The images above show the largest variance slices of the map in three orthogonal directions.

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

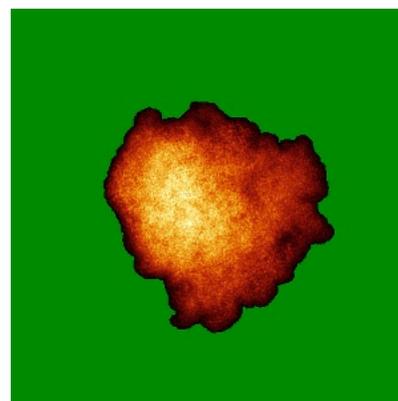
6.4.1 Primary map



X



Y

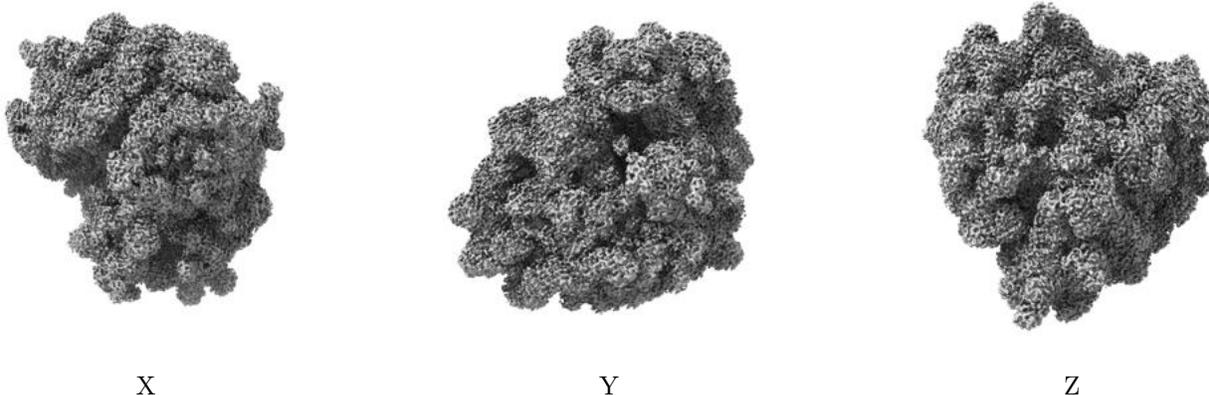


Z

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



The images above show the 3D surface view of the map at the recommended contour level 0.007. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

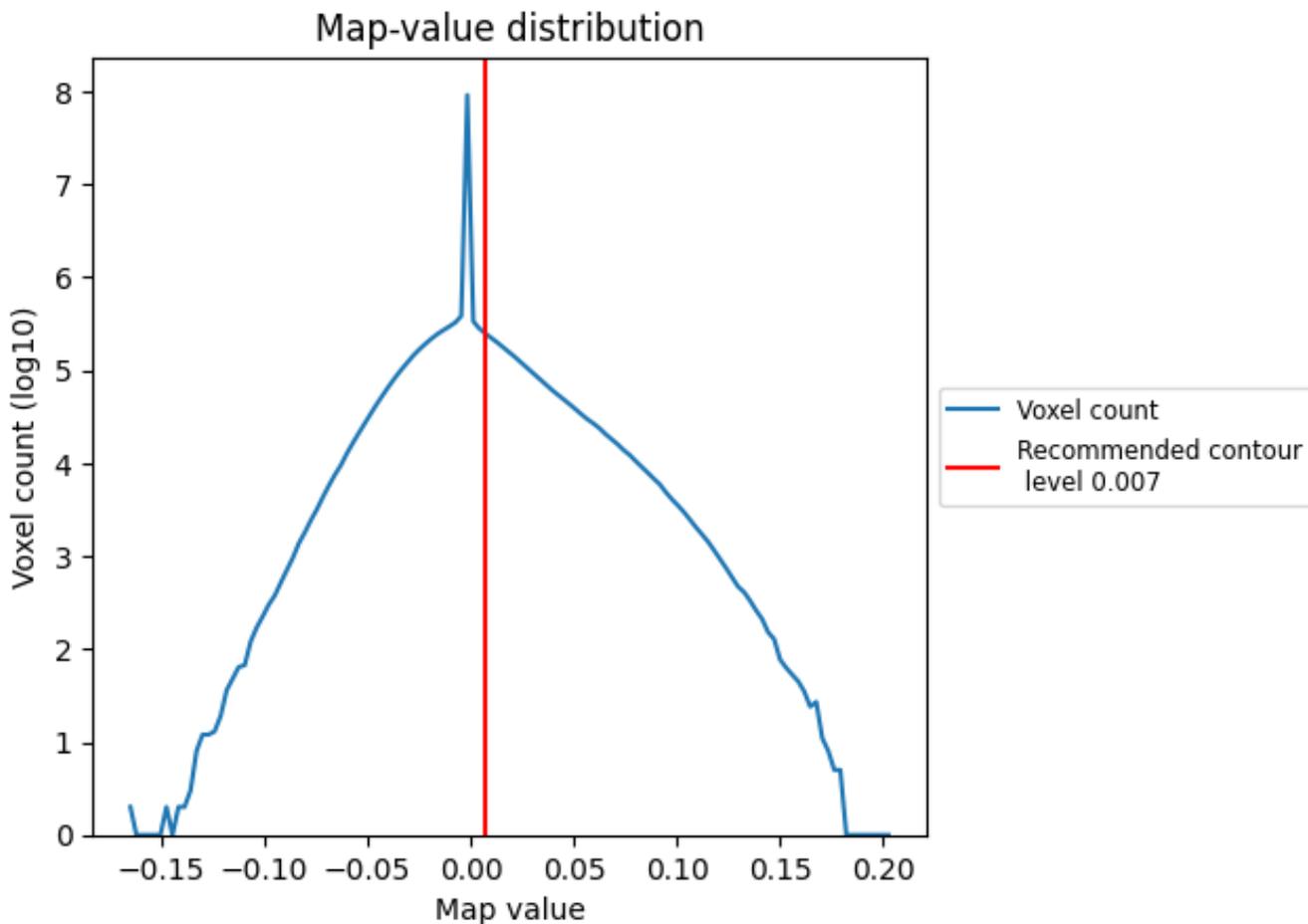
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

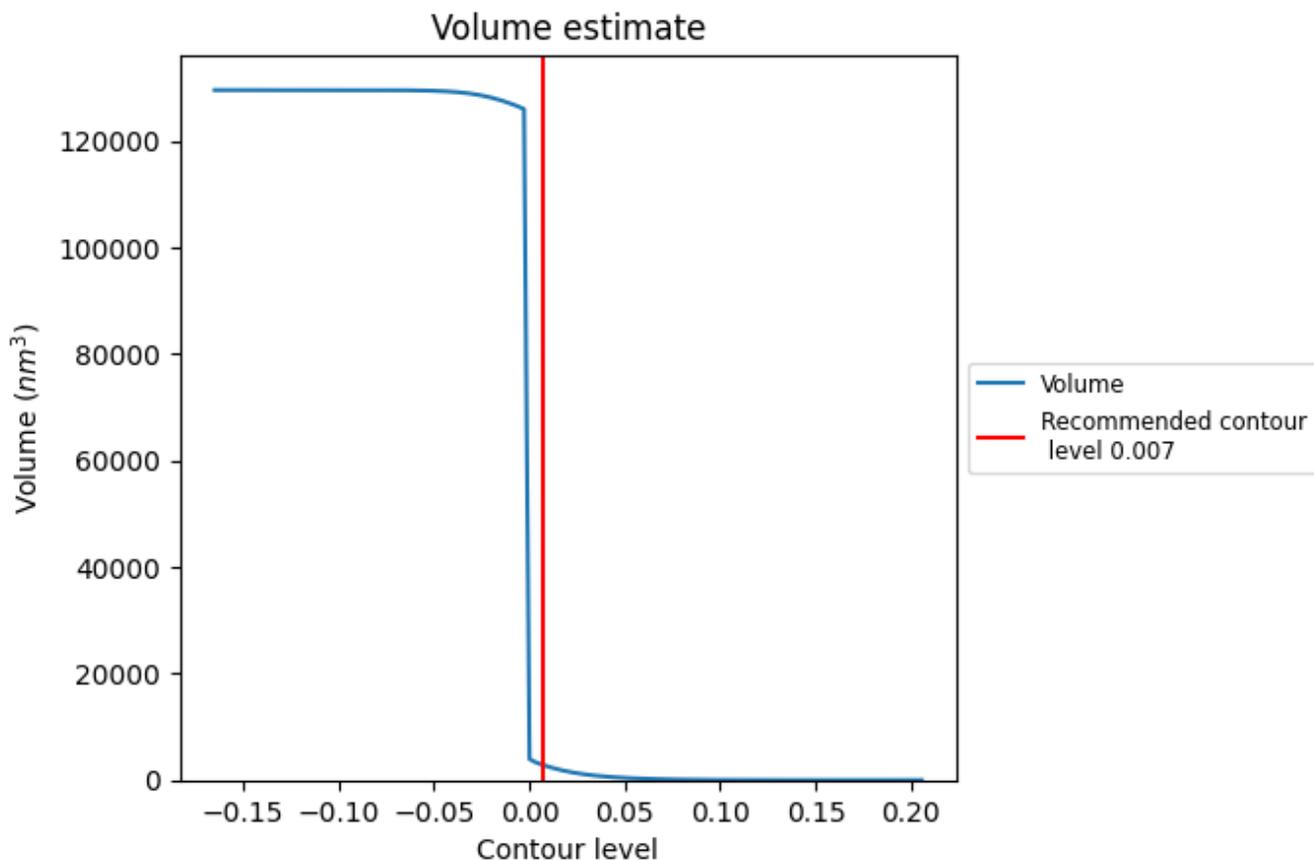
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

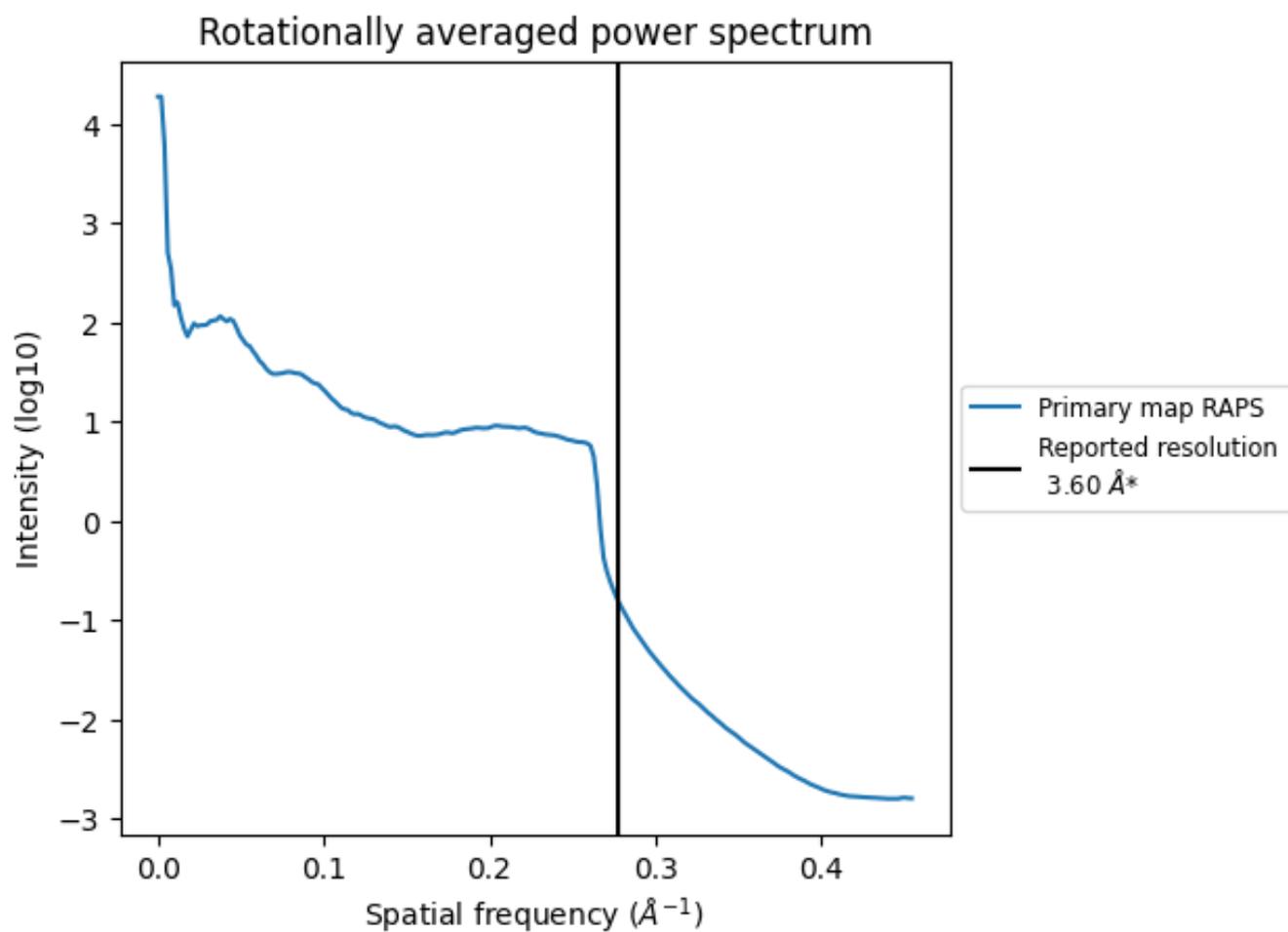
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 2861 nm³; this corresponds to an approximate mass of 2584 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\AA^{-1}

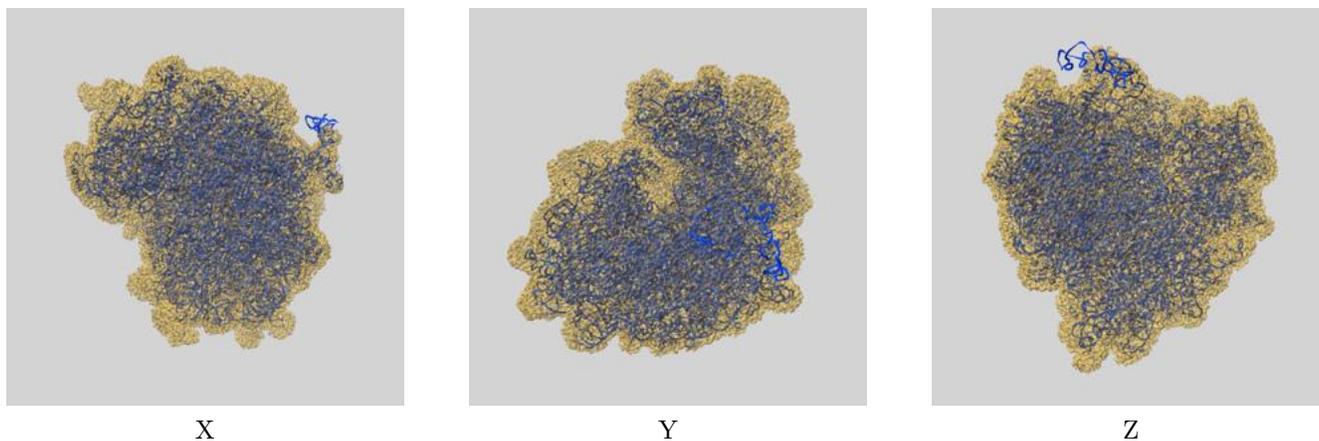
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

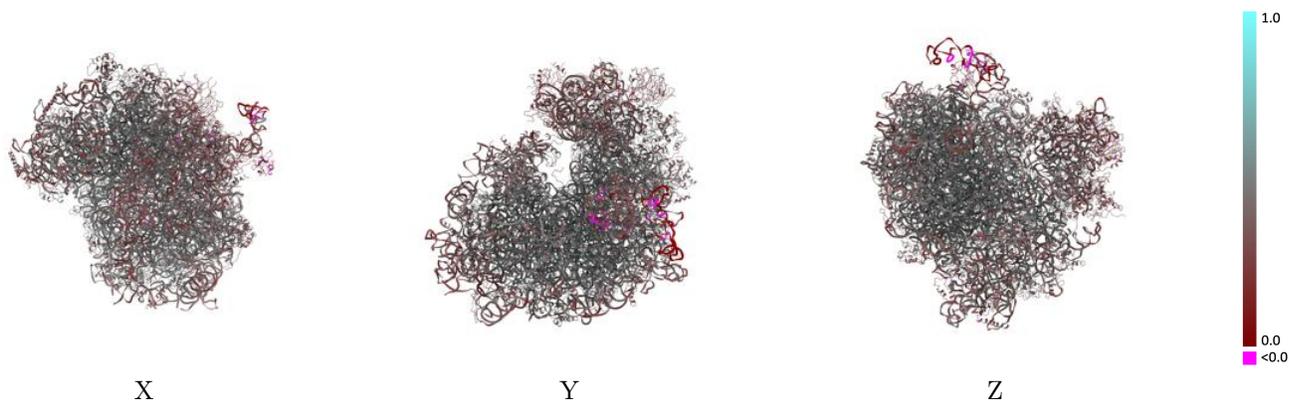
This section contains information regarding the fit between EMDB map EMD-4070 and PDB model 5LKS. Per-residue inclusion information can be found in section 3 on page 22.

9.1 Map-model overlay [i](#)



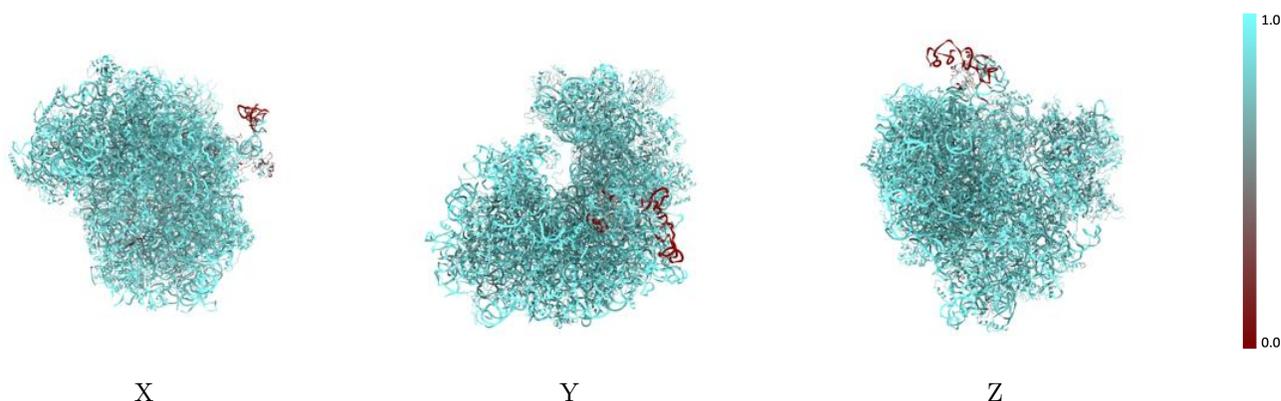
The images above show the 3D surface view of the map at the recommended contour level 0.007 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



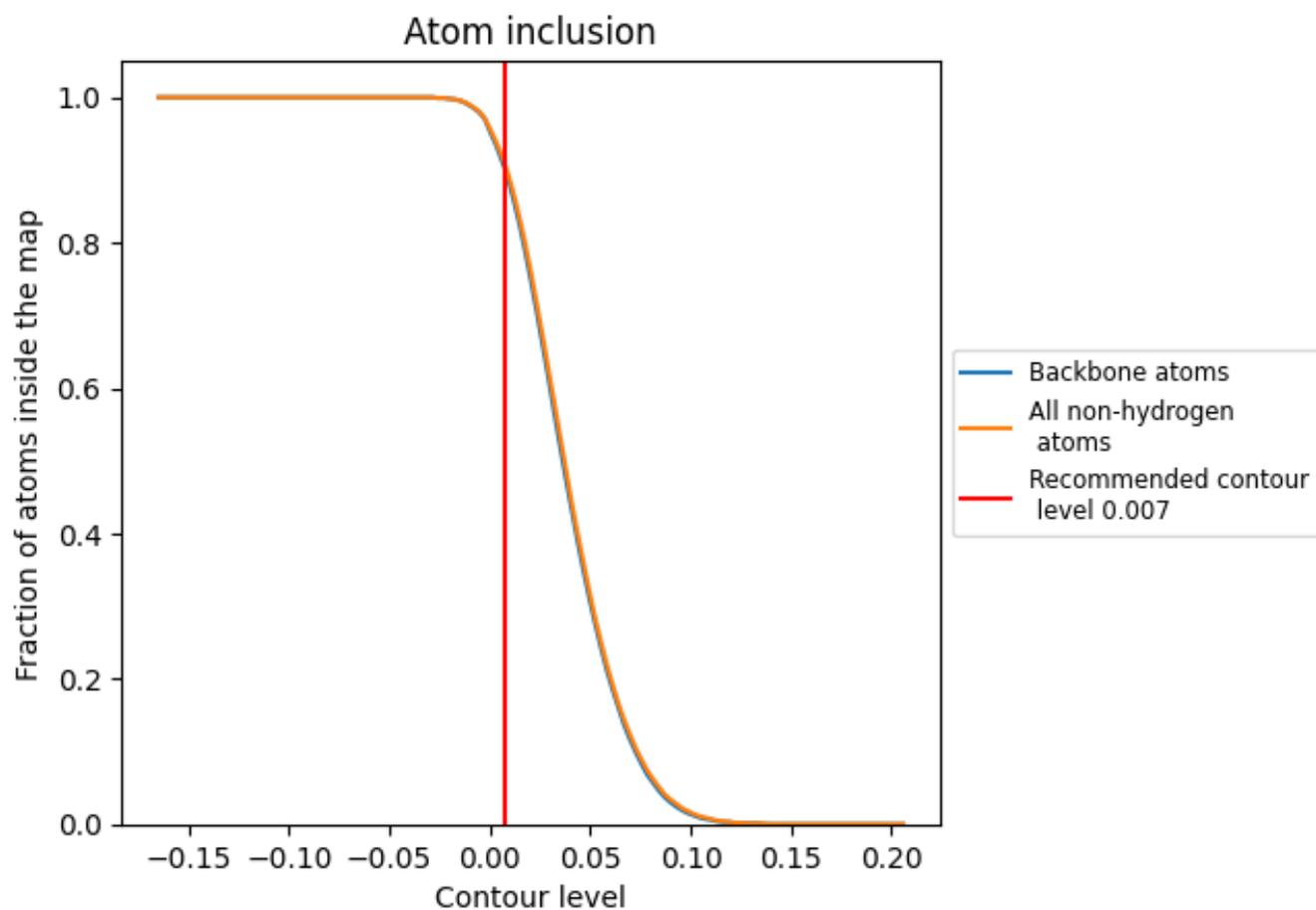
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.007).

9.4 Atom inclusion [i](#)

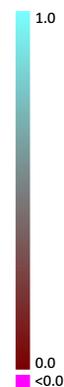


At the recommended contour level, 90% of all backbone atoms, 91% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.007) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9120	 0.4290
L5	 0.9430	 0.4380
L7	 0.9720	 0.4490
L8	 0.9570	 0.4500
LA	 0.9040	 0.4980
LB	 0.9130	 0.4700
LC	 0.9030	 0.4760
LD	 0.9080	 0.4100
LE	 0.8740	 0.4100
LF	 0.8840	 0.4640
LG	 0.8870	 0.4160
LH	 0.9180	 0.4470
LI	 0.8760	 0.4360
LJ	 0.8900	 0.3970
LL	 0.9170	 0.4500
LM	 0.9210	 0.4430
LN	 0.8860	 0.4970
LO	 0.9080	 0.4770
LP	 0.9050	 0.4850
LQ	 0.9080	 0.4850
LR	 0.9180	 0.4560
LS	 0.9320	 0.4810
LT	 0.9120	 0.4800
LU	 0.8980	 0.4010
LV	 0.8990	 0.4830
LW	 0.8160	 0.3870
LX	 0.9120	 0.4650
LY	 0.8940	 0.4530
LZ	 0.9010	 0.4340
La	 0.8990	 0.4840
Lb	 0.8670	 0.4340
Lc	 0.9290	 0.4620
Ld	 0.9190	 0.4700
Le	 0.9170	 0.4930
Lf	 0.8870	 0.4920



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Chain	Atom inclusion	Q-score
Lg	 0.8750	 0.4620
Lh	 0.8870	 0.4420
Li	 0.9170	 0.4450
Lj	 0.9240	 0.5060
Lk	 0.9050	 0.4190
Ll	 0.8860	 0.4820
Lm	 0.9180	 0.4800
Ln	 0.9140	 0.5050
Lo	 0.9150	 0.4560
Lp	 0.9100	 0.4840
Lr	 0.9300	 0.4710
Lz	 0.4760	 0.2120
S2	 0.9410	 0.4220
SA	 0.9000	 0.4180
SB	 0.8930	 0.4190
SC	 0.8930	 0.4390
SD	 0.8330	 0.3540
SE	 0.8740	 0.4240
SF	 0.8140	 0.3470
SG	 0.8790	 0.3770
SH	 0.8910	 0.4000
SI	 0.8830	 0.4340
SJ	 0.8840	 0.4110
SK	 0.8560	 0.3420
SL	 0.8790	 0.4480
SM	 0.7280	 0.2670
SN	 0.8850	 0.4460
SO	 0.8940	 0.4390
SP	 0.8360	 0.3180
SQ	 0.7760	 0.3340
SR	 0.8650	 0.3720
SS	 0.8350	 0.3260
ST	 0.7870	 0.3350
SU	 0.8490	 0.3630
SV	 0.9150	 0.4250
SW	 0.8840	 0.4520
SX	 0.9100	 0.4670
SY	 0.8730	 0.3860
SZ	 0.8040	 0.3340
Sa	 0.9010	 0.4490
Sb	 0.9200	 0.4410
Sc	 0.8440	 0.3580

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Chain	Atom inclusion	Q-score
Sd	 0.8360	 0.3910
Se	 0.8110	 0.3870
Sf	 0.7880	 0.2880
Sg	 0.7960	 0.2980