



wwPDB EM Validation Summary Report ⓘ

Feb 27, 2022 – 07:26 am GMT

PDB ID : 7P48
EMDB ID : EMD-13191
Title : Staphylococcus aureus ribosome in complex with Sal(B)
Authors : Nicholson, D.; Ranson, N.A.; O'Neill, A.J.
Deposited on : 2021-07-09
Resolution : 2.90 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

EMDB validation analysis : 0.0.0.dev97
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.27

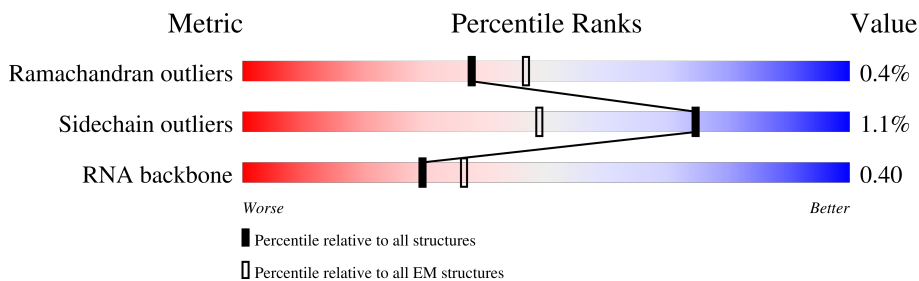
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.90 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	1	49	
2	2	45	
3	3	66	
4	4	37	
5	5	73	
6	6	565	
7	7	3	
8	A	2921	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
9	B	115	82% 17%
10	C	276	99%
11	D	220	98%
12	E	207	99% 9%
13	F	179	97% 57%
14	G	178	97% 36%
15	H	145	100%
16	I	122	98%
17	J	146	99% 5%
18	K	144	92% 5%
19	L	122	98%
20	M	119	99% 18%
21	N	116	97%
22	O	118	97%
23	P	102	100% 7%
24	Q	117	95%
25	R	91	97% 5%
26	S	105	95% 19% 5%
27	T	219	42% 10% 57%
28	U	94	80% 18%
29	V	62	92% 9% 6%
30	W	69	93% 9% 6%
31	X	59	97%
32	Y	125	52% 51% 44%
33	Z	57	81% 16%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
34	a	1548	11% 48% 38% 10% .
35	b	232	69% 78% 18% ..
36	c	217	24% 84% 9% 7%
37	d	200	56% 57% 41% .
38	e	166	11% 48% 44% . 6%
39	f	98	70% 65% 32% .
40	g	156	12% 90% 10% .
41	h	132	26% 48% 50% ..
42	i	130	26% 92% 6% .
43	j	102	46% 94% . 5%
44	k	129	14% 65% 22% . 12%
45	l	149	8% 45% 42% . 9%
46	m	121	36% 95% . .
47	n	61	. 90% 7% ..
48	o	89	39% 57% 39% ..
49	p	91	48% 47% 47% . .
50	q	87	34% 49% 41% . 8%
51	r	80	29% 48% 32% 20%
52	s	108	21% 74% . 24%
53	t	83	35% 59% 37% ..

2 Entry composition

There are 56 unique types of molecules in this entry. The entry contains 138850 atoms, of which 24 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	1	47	394	240	78	72	4	0	0

- Molecule 2 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	2	43	367	225	89	52	1	0	0

- Molecule 3 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	3	64	521	324	113	82	2	0	0

- Molecule 4 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	4	37	295	186	60	44	5	0	0

- Molecule 5 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	5	73	1560	695	281	511	73	0	0

- Molecule 6 is a protein called ABC-F type ribosomal protection protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	6	510	4190	2659	706	808	17	0	0

There are 34 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
6	33	LEU	ILE	conflict	UNP A0A7D7YNB9
6	39	ILE	VAL	conflict	UNP A0A7D7YNB9
6	66	HIS	TYR	conflict	UNP A0A7D7YNB9
6	84	GLU	GLY	conflict	UNP A0A7D7YNB9
6	156	GLN	GLU	conflict	UNP A0A7D7YNB9
6	253	ARG	SER	conflict	UNP A0A7D7YNB9
6	406	MET	THR	conflict	UNP A0A7D7YNB9
6	456	GLN	GLU	conflict	UNP A0A7D7YNB9
6	464	SER	GLY	conflict	UNP A0A7D7YNB9
6	518	ALA	THR	conflict	UNP A0A7D7YNB9
6	542	GLY	-	expression tag	UNP A0A7D7YNB9
6	543	GLY	-	expression tag	UNP A0A7D7YNB9
6	544	ASP	-	expression tag	UNP A0A7D7YNB9
6	545	TYR	-	expression tag	UNP A0A7D7YNB9
6	546	LYS	-	expression tag	UNP A0A7D7YNB9
6	547	ASP	-	expression tag	UNP A0A7D7YNB9
6	548	HIS	-	expression tag	UNP A0A7D7YNB9
6	549	ASP	-	expression tag	UNP A0A7D7YNB9
6	550	GLY	-	expression tag	UNP A0A7D7YNB9
6	551	ASP	-	expression tag	UNP A0A7D7YNB9
6	552	TYR	-	expression tag	UNP A0A7D7YNB9
6	553	LYS	-	expression tag	UNP A0A7D7YNB9
6	554	ASP	-	expression tag	UNP A0A7D7YNB9
6	555	HIS	-	expression tag	UNP A0A7D7YNB9
6	556	ASP	-	expression tag	UNP A0A7D7YNB9
6	557	ILE	-	expression tag	UNP A0A7D7YNB9
6	558	ASP	-	expression tag	UNP A0A7D7YNB9
6	559	TYR	-	expression tag	UNP A0A7D7YNB9
6	560	LYS	-	expression tag	UNP A0A7D7YNB9
6	561	ASP	-	expression tag	UNP A0A7D7YNB9
6	562	ASP	-	expression tag	UNP A0A7D7YNB9
6	563	ASP	-	expression tag	UNP A0A7D7YNB9
6	564	ASP	-	expression tag	UNP A0A7D7YNB9
6	565	LYS	-	expression tag	UNP A0A7D7YNB9

- Molecule 7 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms				AltConf	Trace	
			Total	C	N	O			P
7	7	3	65	29	12	21	3	0	0

- Molecule 8 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
8	A	2661	57062	25475	10455	18471	2661	0	0

- Molecule 9 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
9	B	113	2408	1076	431	788	113	0	0

- Molecule 10 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	C	274	2094	1303	415	371	5	0	0

- Molecule 11 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	D	215	1628	1018	299	306	5	0	0

- Molecule 12 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	E	206	1572	986	288	296	2	0	0

- Molecule 13 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
13	F	173	853	507	173	173	0	0

- Molecule 14 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	G	173	1180	728	223	227	2	0	0

- Molecule 15 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	H	145	Total	C	N	O	S	0	0
			1150	717	211	219	3		

- Molecule 16 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	I	122	Total	C	N	O	S	0	0
			918	572	174	168	4		

- Molecule 17 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	J	146	Total	C	N	O	S	0	0
			1097	680	215	201	1		

- Molecule 18 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	K	137	Total	C	N	O	S	0	0
			1096	704	207	181	4		

- Molecule 19 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	L	120	Total	C	N	O	S	0	0
			950	584	182	183	1		

- Molecule 20 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	M	118	Total	C	N	O	0	0
			913	569	173	171		

- Molecule 21 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	N	114	Total	C	N	O	0	0
			921	580	185	156		

- Molecule 22 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	O	116	Total	C	N	O	S	0	0
			943	593	189	157	4		

- Molecule 23 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	P	102	Total	C	N	O	S	0	0
			797	506	142	148	1		

- Molecule 24 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	Q	112	Total	C	N	O	S	0	0
			861	537	164	157	3		

- Molecule 25 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	R	89	Total	C	N	O	S	0	0
			724	457	130	133	4		

- Molecule 26 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	S	100	Total	C	N	O	S	0	0
			739	464	137	136	2		

- Molecule 27 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	T	94	Total	C	N	O	S	0	0
			735	469	131	134	1		

- Molecule 28 is a protein called LSU ribosomal protein L27P.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	U	77	Total	C	N	O	0	0
			590	364	115	111		

- Molecule 29 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	V	58	Total	C	N	O	S	0	0
			458	285	98	74	1		

- Molecule 30 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	W	65	Total	C	N	O	0	0
			535	330	101	104		

- Molecule 31 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	X	58	Total	C	N	O	0	0
			449	280	85	84		

- Molecule 32 is a protein called 50S ribosomal protein L31 type B.

Mol	Chain	Residues	Atoms				AltConf	Trace
32	Y	70	Total	C	N	O	0	0
			390	238	79	73		

- Molecule 33 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Z	48	Total	C	N	O	S	0	0
			385	235	80	65	5		

- Molecule 34 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	a	1479	Total	C	N	O	P	0	0
			31706	14154	5809	10264	1479		

- Molecule 35 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	b	224	Total	C	N	O	S	0	0
			1802	1149	314	332	7		

- Molecule 36 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	c	202	1596	1005	300	289	2	0	0

- Molecule 37 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	d	199	1616	1020	302	292	2	0	0

- Molecule 38 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	e	156	1160	731	212	215	2	0	0

- Molecule 39 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	f	95	789	498	138	150	3	0	0

- Molecule 40 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	g	155	1242	775	239	224	4	0	0

- Molecule 41 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	h	131	1031	652	183	192	4	0	0

- Molecule 42 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	i	127	1007	624	201	181	1	0	0

- Molecule 43 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	j	97	Total	C	N	O	S	0	0
			773	488	141	143	1		

- Molecule 44 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	k	114	Total	C	N	O	S	0	0
			844	520	160	161	3		

- Molecule 45 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	l	135	Total	C	N	O	S	0	0
			1058	658	214	184	2		

- Molecule 46 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	m	116	Total	C	N	O	S	0	0
			922	566	183	172	1		

- Molecule 47 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	n	60	Total	C	N	O	S	0	0
			501	317	100	79	5		

- Molecule 48 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	o	87	Total	C	N	O	S	0	0
			726	448	149	128	1		

- Molecule 49 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	p	87	Total	C	N	O	S	0	0
			688	433	127	127	1		

- Molecule 50 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	q	80	Total	C	N	O	S	0	0
			657	416	117	123	1		

- Molecule 51 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	r	64	Total	C	N	O	S	0	0
			525	336	98	88	3		

- Molecule 52 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	s	82	Total	C	N	O	S	0	0
			665	427	121	115	2		

- Molecule 53 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	t	81	Total	C	N	O	S	0	0
			611	370	120	119	2		

- Molecule 54 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
54	4	1	Total	Zn	0
			1	1	
54	Z	1	Total	Zn	0
			1	1	
54	n	1	Total	Zn	0
			1	1	

- Molecule 55 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃).



Mol	Chain	Residues	Atoms					AltConf	
			Total	C	H	N	O		P
55	6	1	86	20	24	10	26	6	0
55	6	1	86	20	24	10	26	6	0

- Molecule 56 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

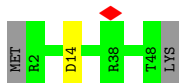
Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
56	6	2	2	2	0

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: 50S ribosomal protein L33

Chain 1:  94%



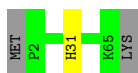
- Molecule 2: 50S ribosomal protein L34

Chain 2:  93%



- Molecule 3: 50S ribosomal protein L35

Chain 3:  95%




- Molecule 4: 50S ribosomal protein L36

Chain 4:  100%

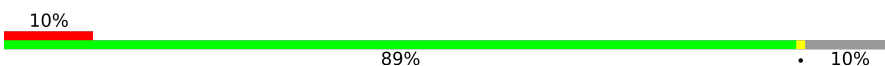
There are no outlier residues recorded for this chain.

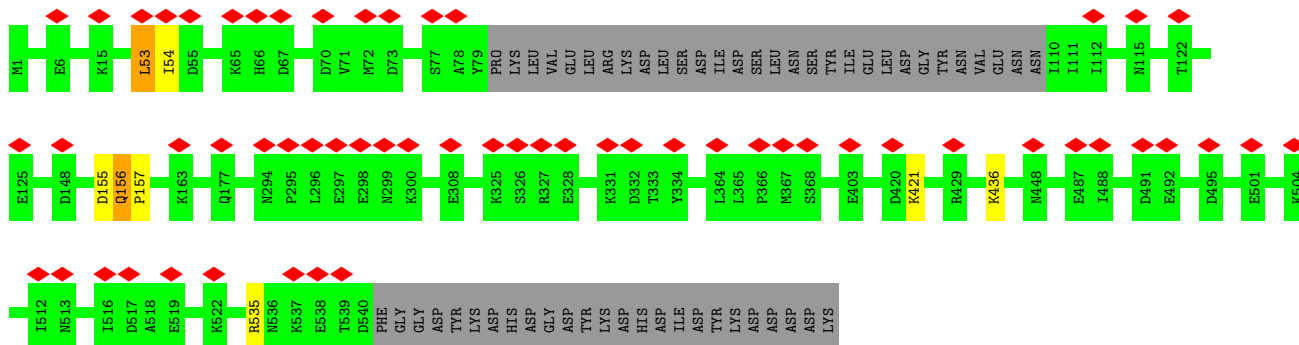
- Molecule 5: P-site tRNA

Chain 5:  81% 19%



- Molecule 6: ABC-F type ribosomal protection protein

Chain 6:  10% 89% 10%

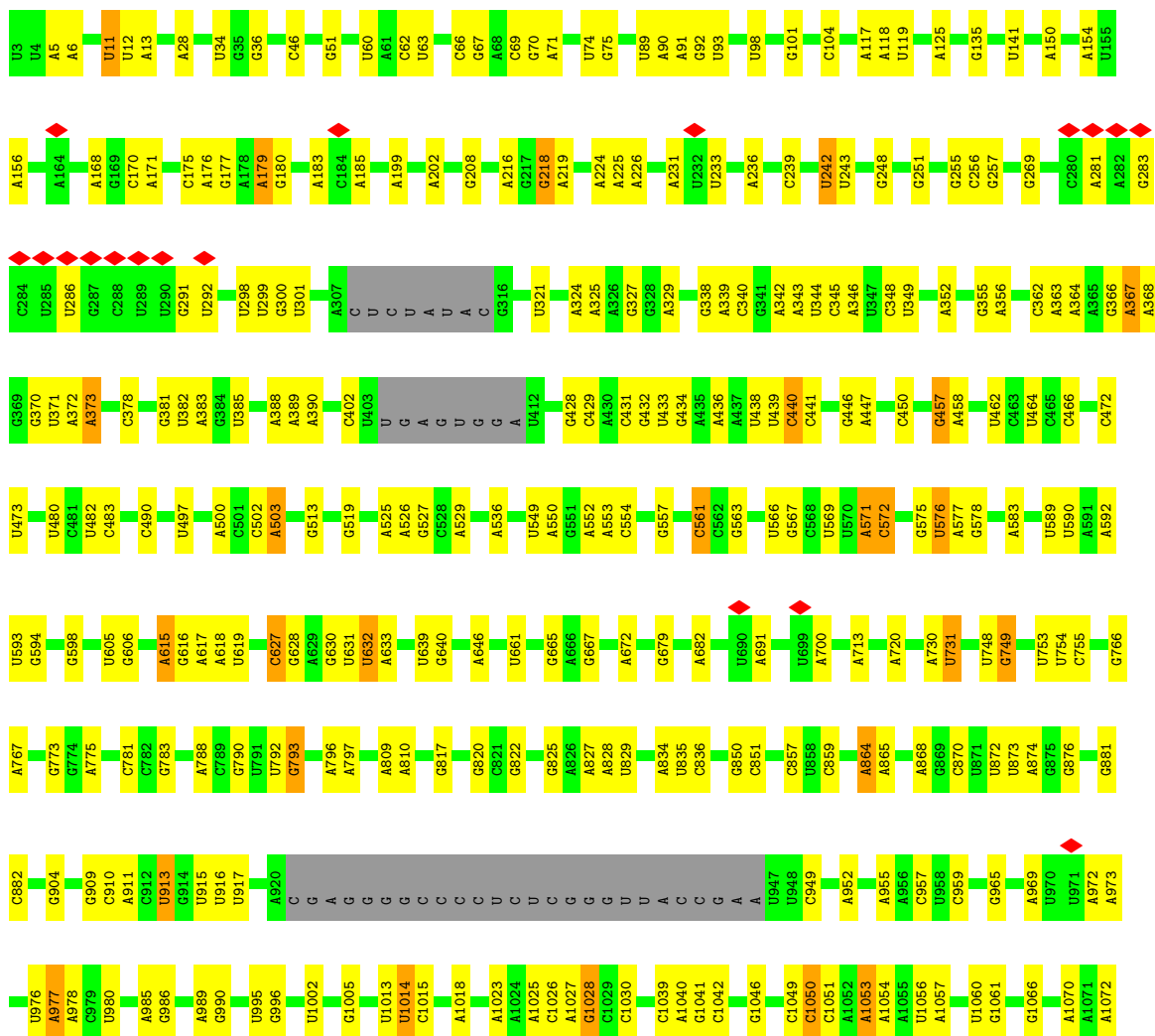


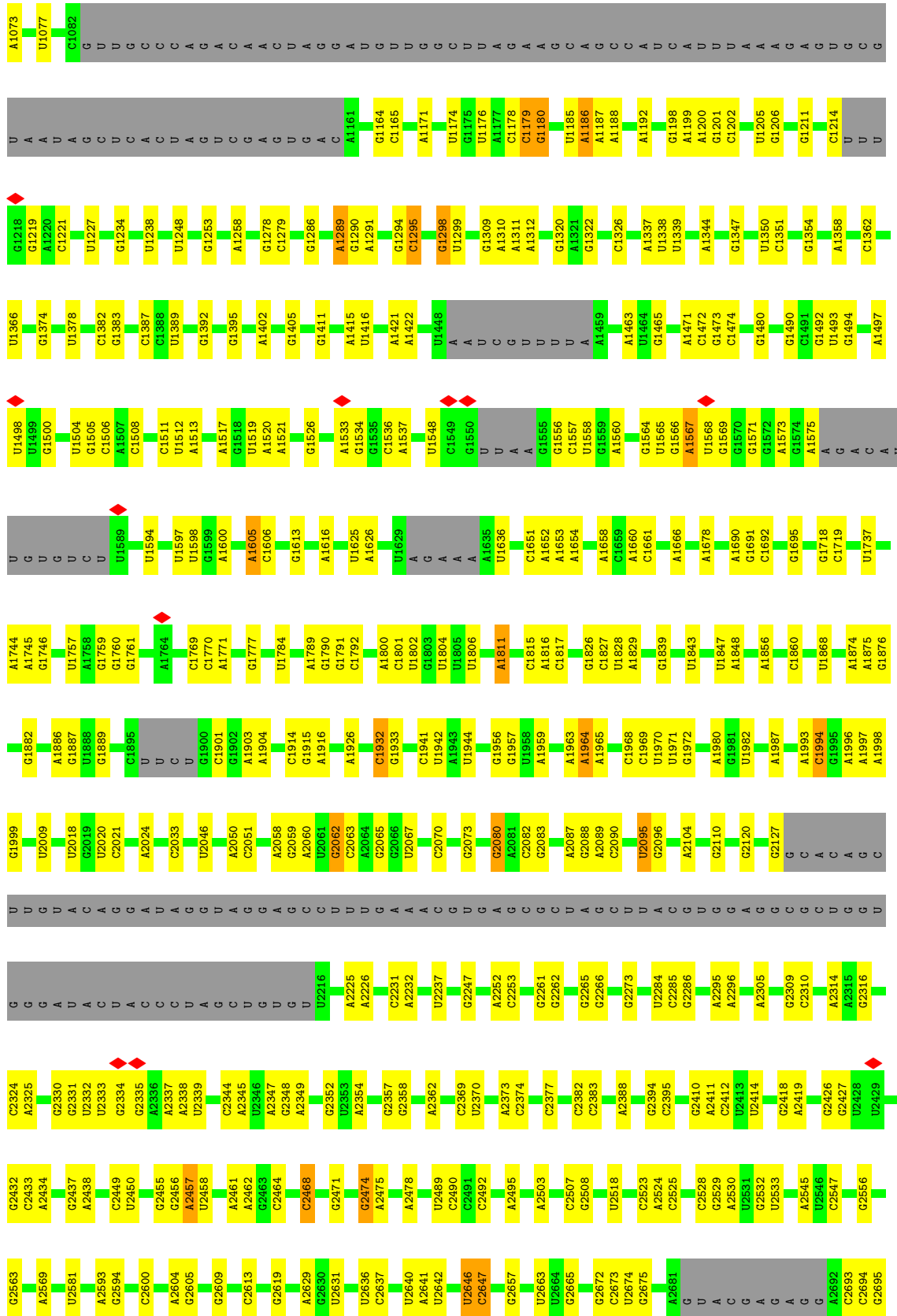
• Molecule 7: mRNA

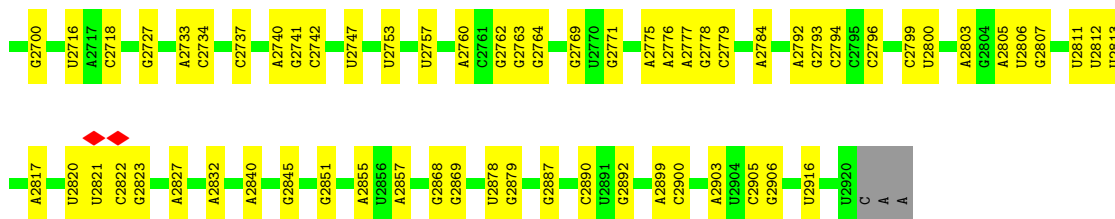


There are no outlier residues recorded for this chain.

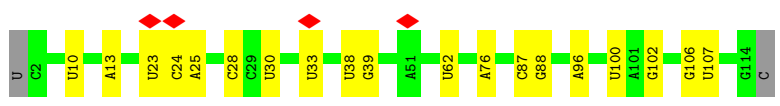
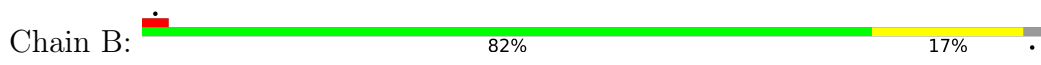
• Molecule 8: 23S rRNA



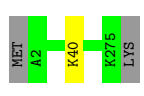




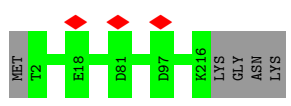
• Molecule 9: 5S rRNA



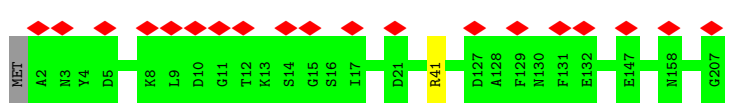
• Molecule 10: 50S ribosomal protein L2



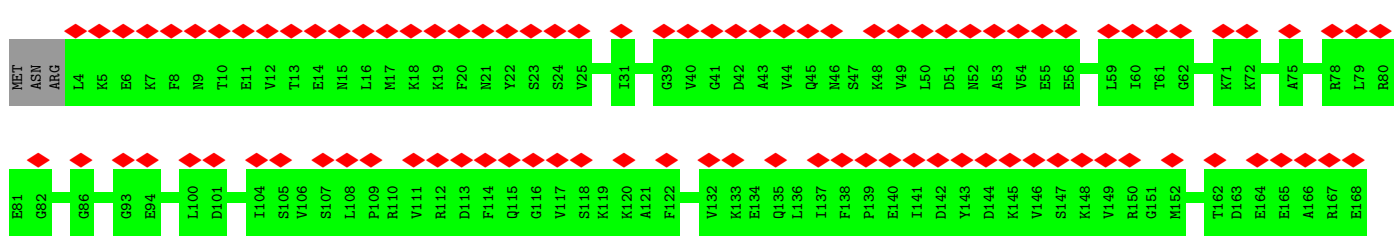
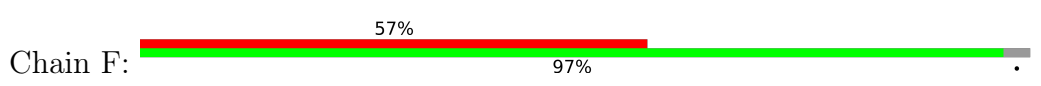
• Molecule 11: 50S ribosomal protein L3

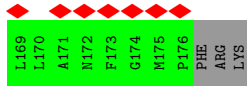


• Molecule 12: 50S ribosomal protein L4



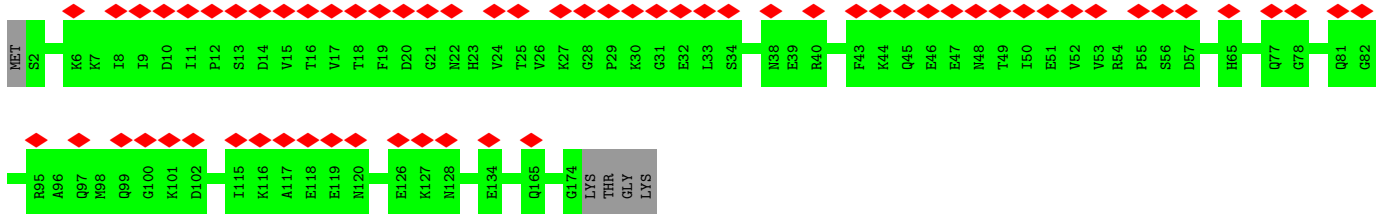
• Molecule 13: 50S ribosomal protein L5





- Molecule 14: 50S ribosomal protein L6

Chain G: 36% 97%



- Molecule 15: 50S ribosomal protein L13

Chain H: 100%



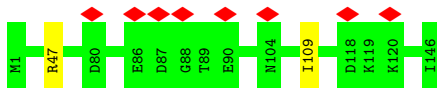
- Molecule 16: 50S ribosomal protein L14

Chain I: 98%



- Molecule 17: 50S ribosomal protein L15

Chain J: 5% 99%



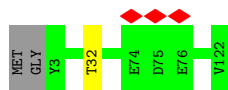
- Molecule 18: 50S ribosomal protein L16

Chain K: 92% 5%

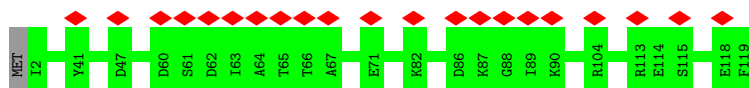


- Molecule 19: 50S ribosomal protein L17

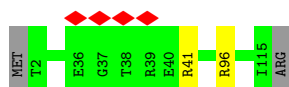
Chain L: 98%



- Molecule 20: 50S ribosomal protein L18



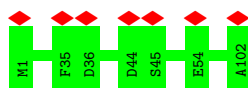
- Molecule 21: 50S ribosomal protein L19



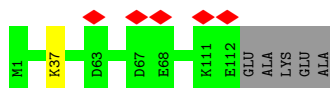
- Molecule 22: 50S ribosomal protein L20



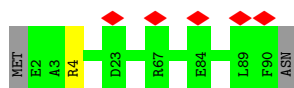
- Molecule 23: 50S ribosomal protein L21



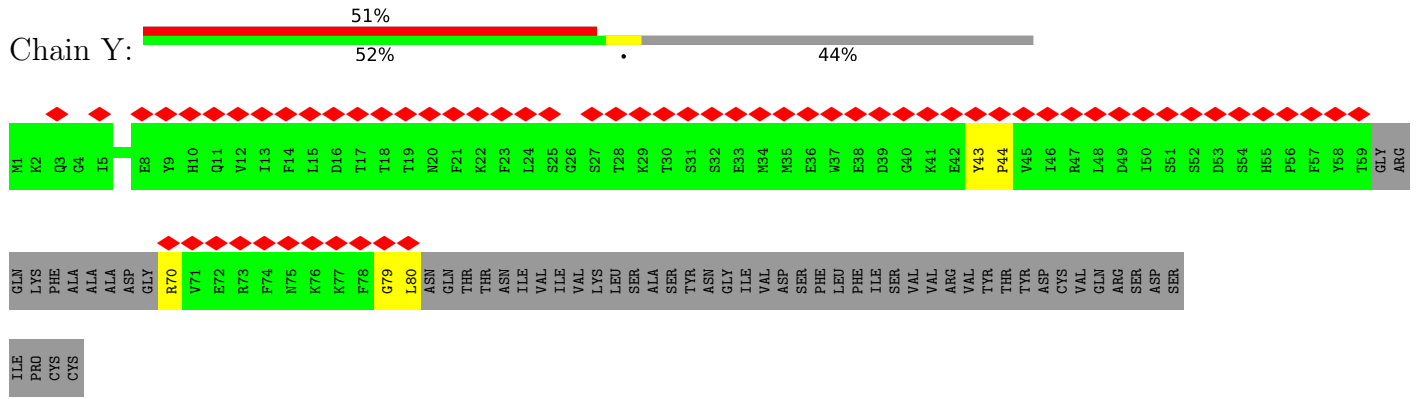
- Molecule 24: 50S ribosomal protein L22



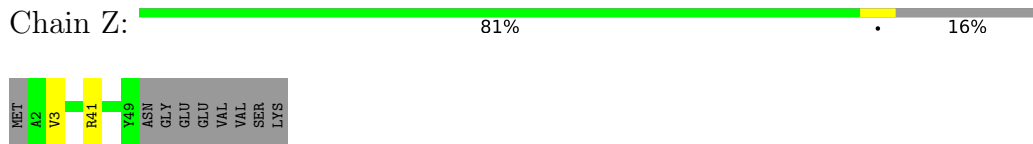
- Molecule 25: 50S ribosomal protein L23



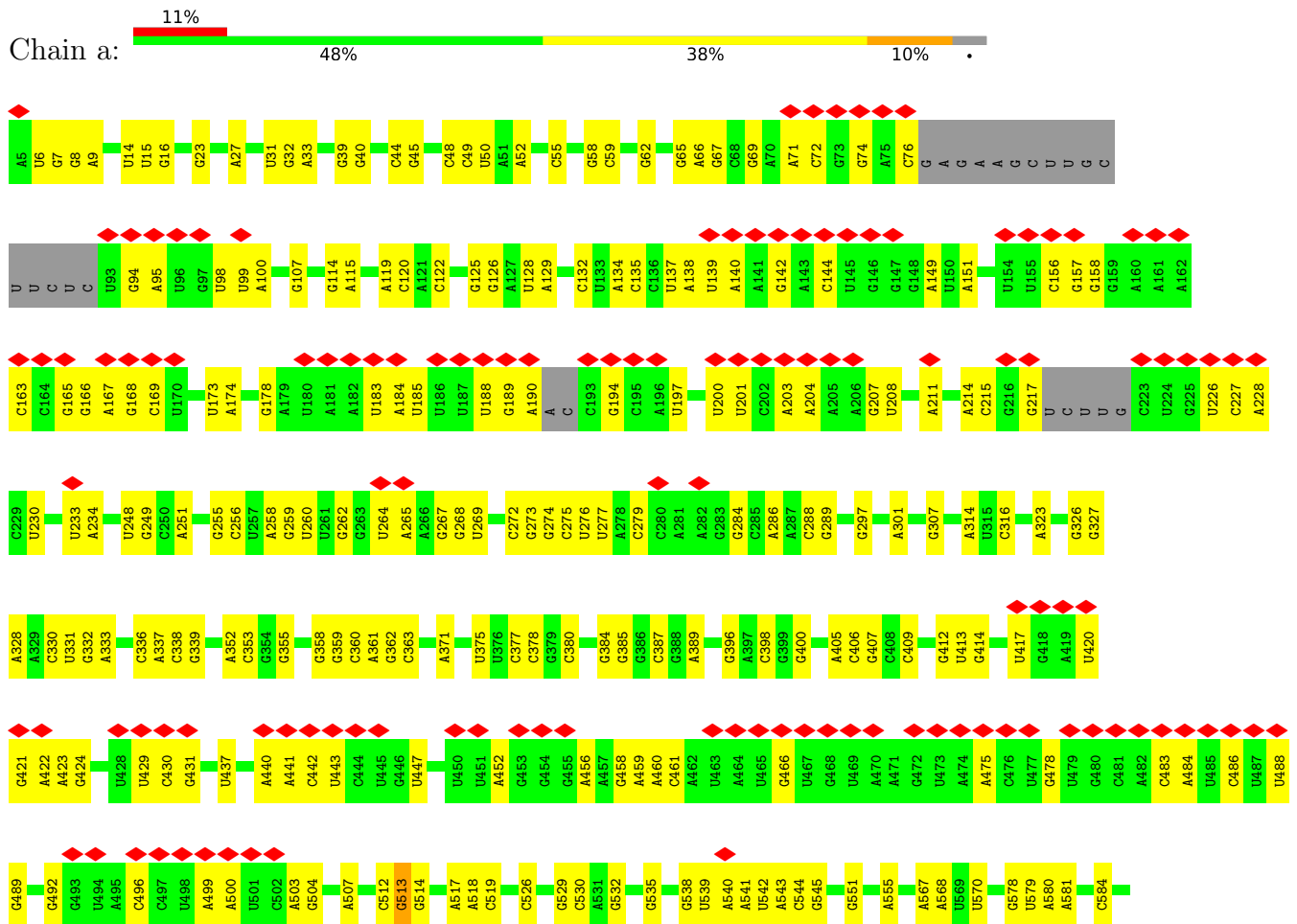
- Molecule 26: 50S ribosomal protein L24

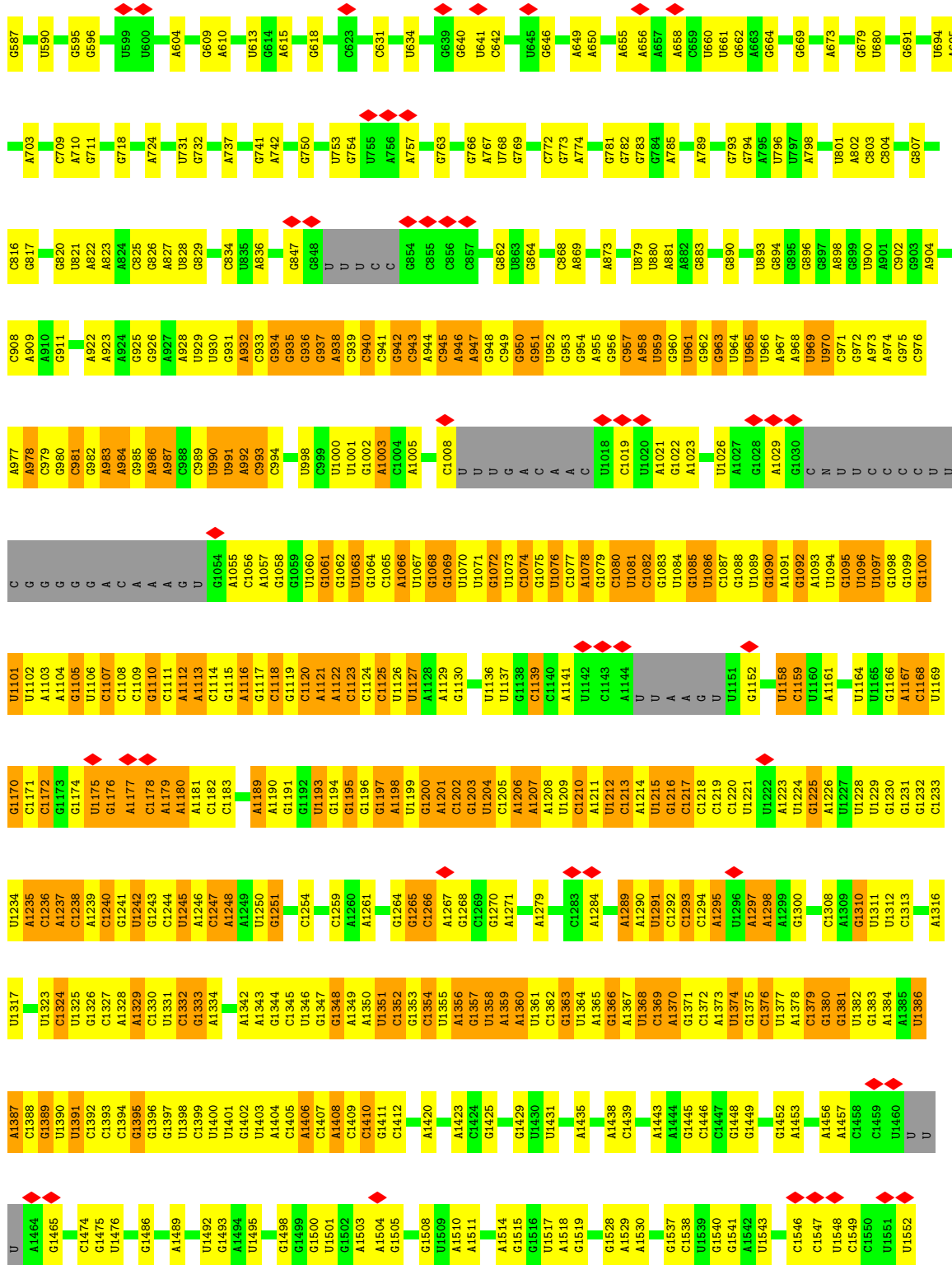


- Molecule 33: 50S ribosomal protein L32

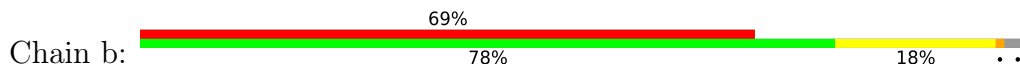


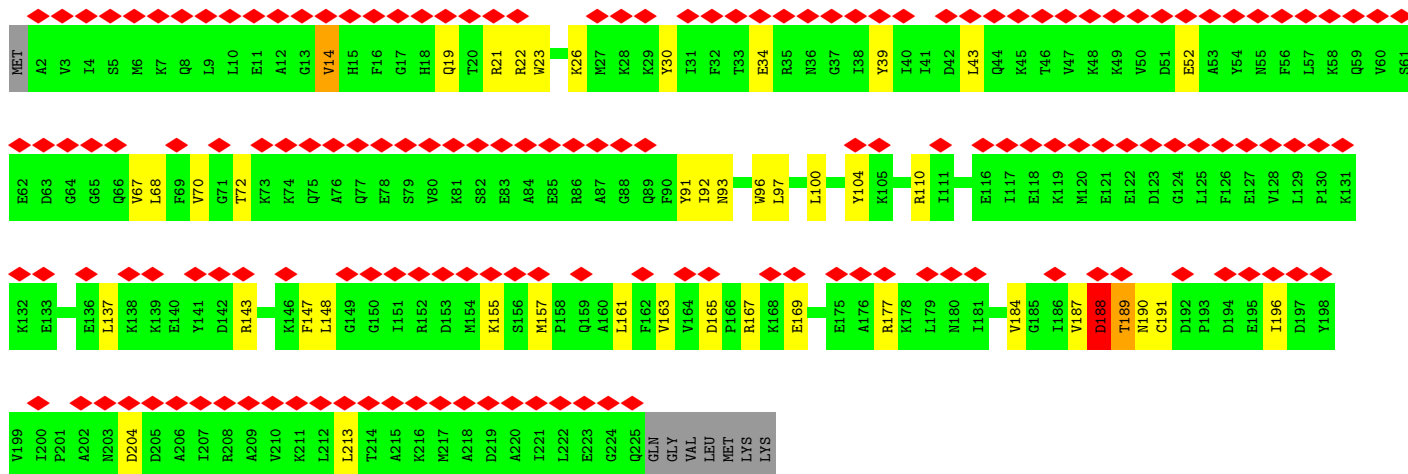
- Molecule 34: 16S rRNA



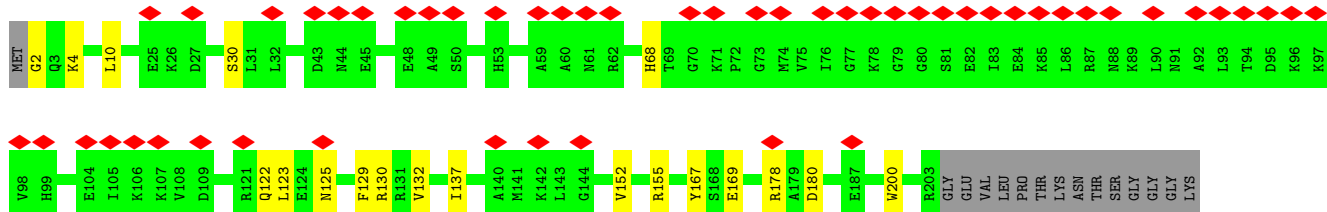
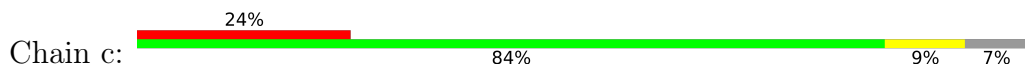


• Molecule 35: 30S ribosomal protein S2

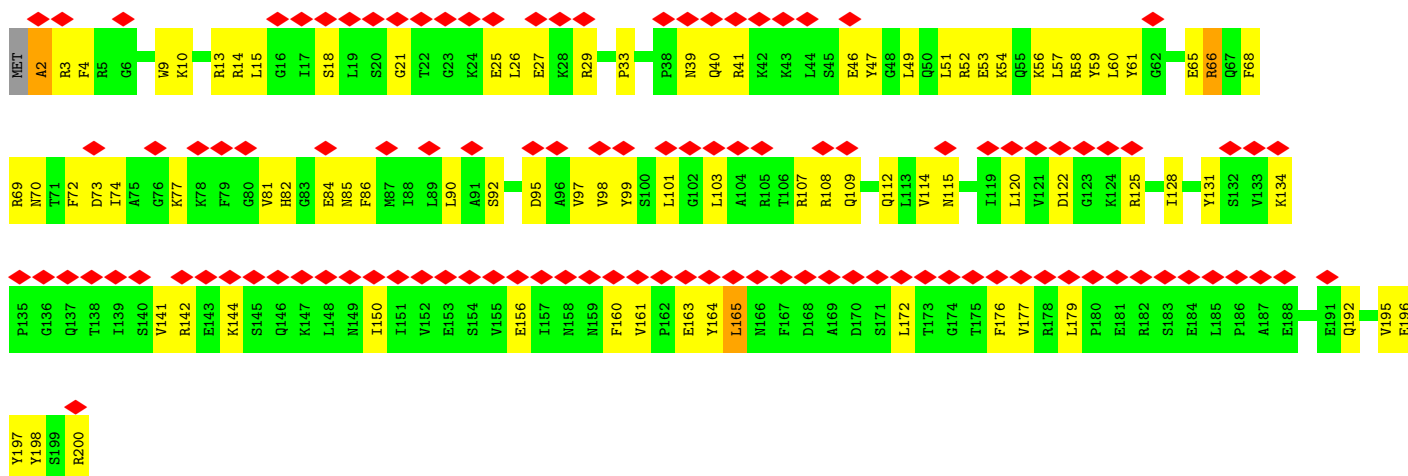




• Molecule 36: 30S ribosomal protein S3

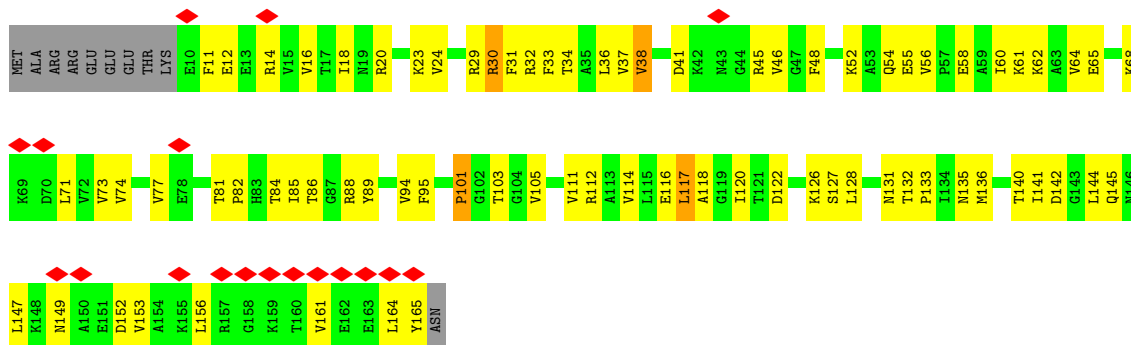


• Molecule 37: 30S ribosomal protein S4

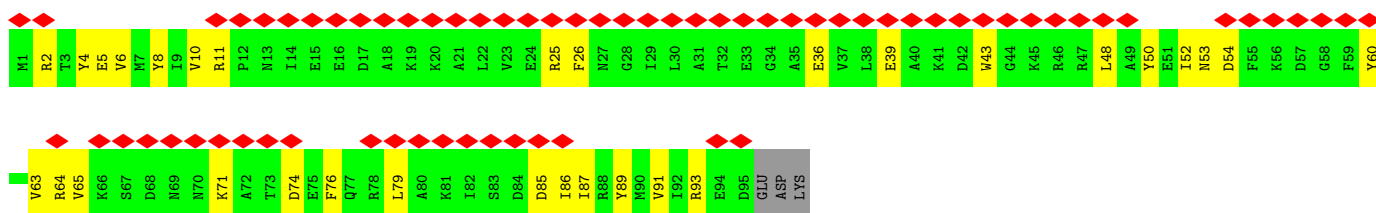


• Molecule 38: 30S ribosomal protein S5

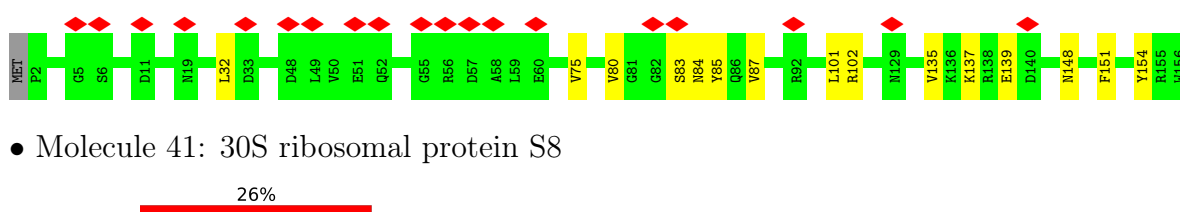
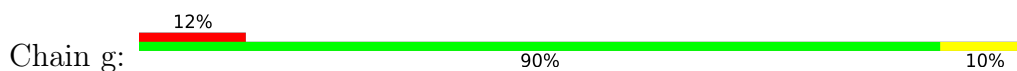




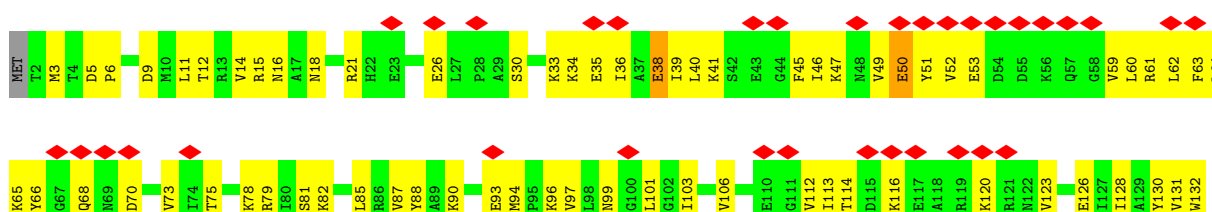
• Molecule 39: 30S ribosomal protein S6



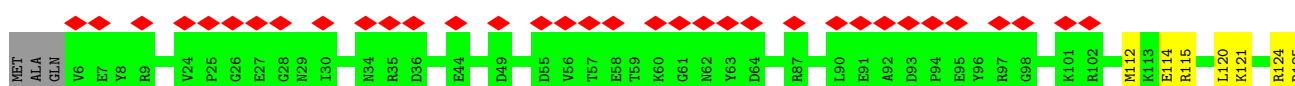
• Molecule 40: 30S ribosomal protein S7



• Molecule 41: 30S ribosomal protein S8

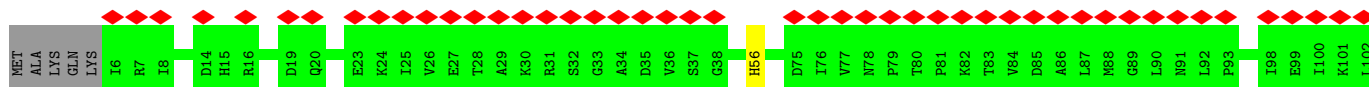
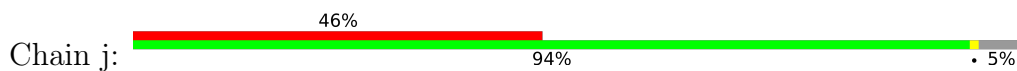


• Molecule 42: 30S ribosomal protein S9

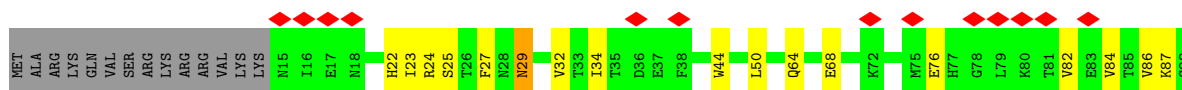


R132

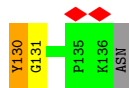
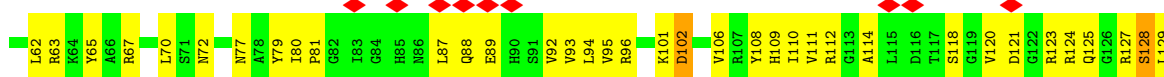
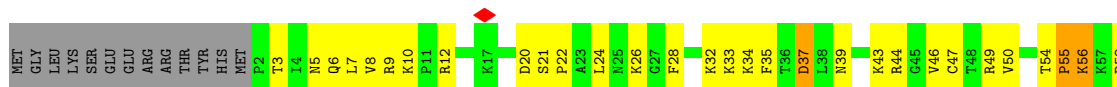
- Molecule 43: 30S ribosomal protein S10



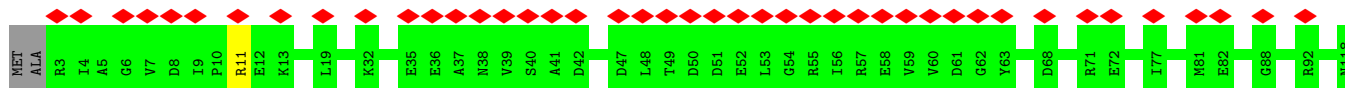
- Molecule 44: 30S ribosomal protein S11



- Molecule 45: 30S ribosomal protein S12

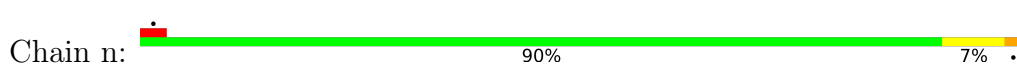


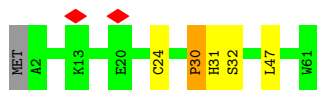
- Molecule 46: 30S ribosomal protein S13



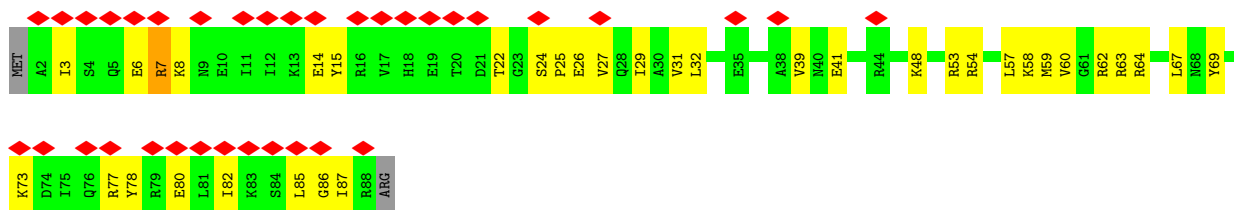
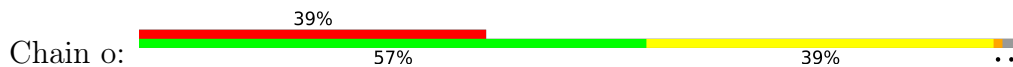
LYS
LYS
LYS

- Molecule 47: 30S ribosomal protein S14 type Z

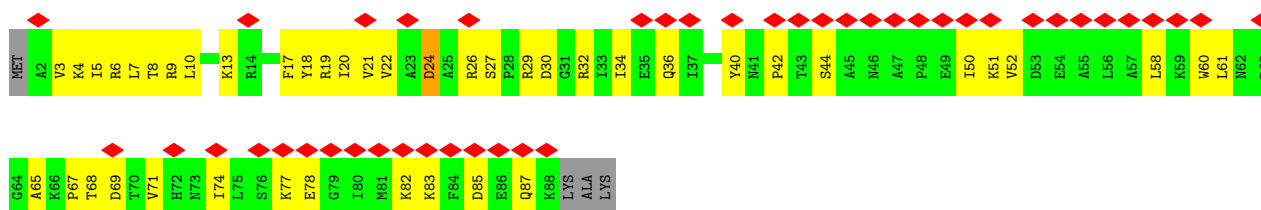




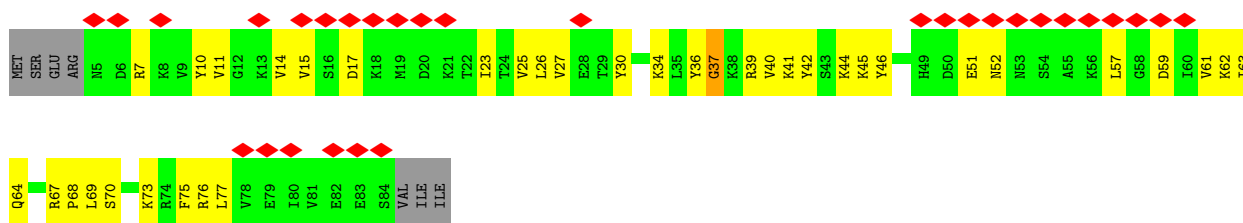
• Molecule 48: 30S ribosomal protein S15



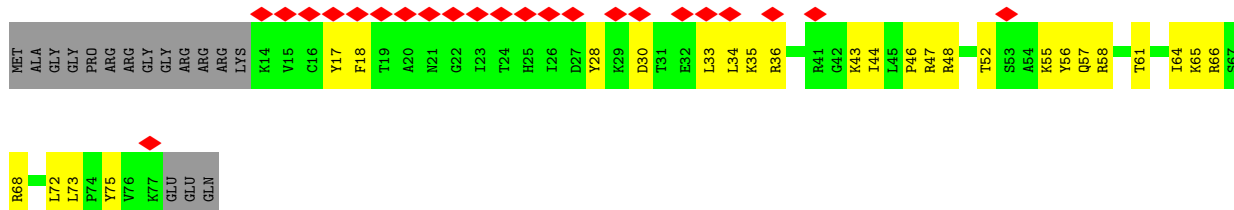
• Molecule 49: 30S ribosomal protein S16



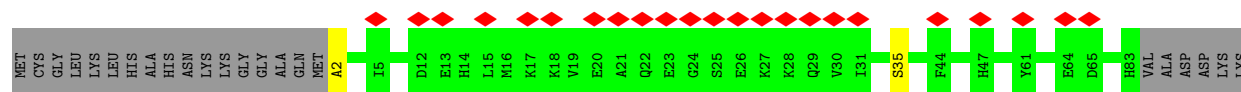
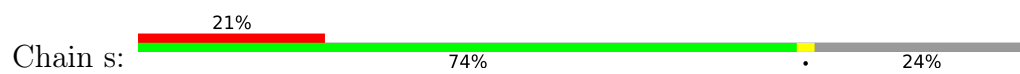
• Molecule 50: 30S ribosomal protein S17



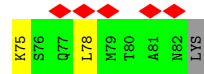
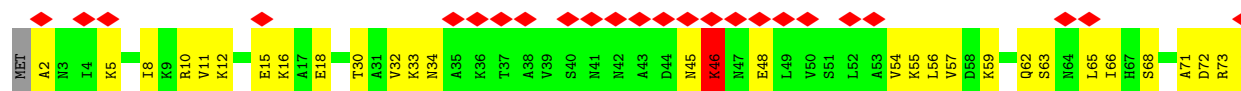
• Molecule 51: 30S ribosomal protein S18



• Molecule 52: 30S ribosomal protein S19



• Molecule 53: 30S ribosomal protein S20



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	59889	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.935	Depositor
Minimum map value	-0.478	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.017	Depositor
Recommended contour level	0.065	Depositor
Map size (Å)	445.12003, 445.12003, 445.12003	wwPDB
Map dimensions	416, 416, 416	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	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: MG, ATP, ZN

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	1	0.40	0/399	0.58	0/535
2	2	0.52	0/371	0.68	0/484
3	3	0.46	0/526	0.64	0/690
4	4	0.43	0/298	0.51	0/392
5	5	0.65	0/1743	0.76	0/2716
6	6	0.35	0/4264	0.52	1/5725 (0.0%)
7	7	1.00	0/72	0.73	0/110
8	A	1.09	16/63900 (0.0%)	1.04	179/99638 (0.2%)
9	B	0.61	0/2692	0.78	1/4193 (0.0%)
10	C	0.44	0/2129	0.57	0/2858
11	D	0.45	0/1652	0.59	0/2216
12	E	0.41	0/1595	0.58	0/2154
13	F	0.24	0/852	0.43	0/1184
14	G	0.31	0/1192	0.47	0/1617
15	H	0.47	0/1172	0.55	0/1578
16	I	0.41	0/925	0.55	0/1242
17	J	0.46	0/1111	0.57	0/1480
18	K	0.45	0/1120	0.55	0/1502
19	L	0.43	0/954	0.60	0/1276
20	M	0.32	0/922	0.52	0/1234
21	N	0.41	0/933	0.53	0/1247
22	O	0.46	0/955	0.57	0/1265
23	P	0.48	0/807	0.60	0/1079
24	Q	0.41	0/869	0.57	0/1170
25	R	0.43	0/732	0.56	0/977
26	S	0.34	0/746	0.51	0/997
27	T	0.36	0/743	0.51	0/997
28	U	0.44	0/596	0.55	0/792
29	V	0.37	0/464	0.60	0/619
30	W	0.31	0/536	0.45	0/713
31	X	0.36	0/451	0.53	0/606
32	Y	0.54	1/390 (0.3%)	0.59	0/532

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	Z	0.46	0/392	0.61	0/521
34	a	1.94	1095/35498 (3.1%)	1.89	1572/55345 (2.8%)
35	b	1.63	35/1829 (1.9%)	1.24	12/2455 (0.5%)
36	c	1.12	14/1618 (0.9%)	1.04	8/2173 (0.4%)
37	d	2.55	122/1646 (7.4%)	1.69	50/2211 (2.3%)
38	e	2.75	105/1174 (8.9%)	1.75	30/1584 (1.9%)
39	f	2.33	47/800 (5.9%)	1.50	14/1073 (1.3%)
40	g	1.08	11/1262 (0.9%)	1.00	3/1698 (0.2%)
41	h	2.79	96/1043 (9.2%)	1.68	26/1401 (1.9%)
42	i	0.78	2/1023 (0.2%)	1.05	8/1374 (0.6%)
43	j	0.70	0/785	0.82	0/1060
44	k	1.96	28/859 (3.3%)	1.37	10/1161 (0.9%)
45	l	2.75	78/1075 (7.3%)	1.93	42/1439 (2.9%)
46	m	0.57	0/929	0.81	0/1246
47	n	1.06	1/511 (0.2%)	1.03	3/678 (0.4%)
48	o	2.38	41/735 (5.6%)	1.61	13/982 (1.3%)
49	p	2.71	61/699 (8.7%)	1.93	20/942 (2.1%)
50	q	2.44	53/665 (8.0%)	1.67	19/889 (2.1%)
51	r	2.64	46/534 (8.6%)	1.67	14/715 (2.0%)
52	s	0.57	0/683	0.74	0/916
53	t	2.35	35/611 (5.7%)	1.80	15/817 (1.8%)
All	All	1.39	1887/150482 (1.3%)	1.28	2040/224498 (0.9%)

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
1	1	0	1
6	6	0	3
10	C	0	1
16	I	0	1
17	J	0	1
22	O	0	1
28	U	0	1
32	Y	0	1
34	a	0	1
35	b	0	2
36	c	0	4
37	d	0	5
38	e	0	3

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
40	g	0	4
41	h	0	2
43	j	0	1
44	k	0	2
45	l	0	5
47	n	0	2
48	o	0	1
49	p	0	2
50	q	0	2
52	s	0	1
53	t	0	3
All	All	0	50

The worst 5 of 1887 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	a	1088	G	C5-C4	-28.02	1.18	1.38
34	a	930	U	C2-N3	-25.96	1.19	1.37
34	a	1400	U	C2-N3	-25.79	1.19	1.37
34	a	1411	G	N7-C5	-23.75	1.25	1.39
34	a	1401	U	C2-N3	-23.25	1.21	1.37

The worst 5 of 2040 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	a	1088	G	C5-C6-O6	-38.04	105.78	128.60
34	a	930	U	O5'-P-OP1	-37.34	65.89	110.70
34	a	1095	G	OP1-P-OP2	-36.63	64.65	119.60
34	a	1409	C	O5'-P-OP2	-30.20	74.46	110.70
34	a	1088	G	C5-C6-N1	28.26	125.63	111.50

There are no chirality outliers.

5 of 50 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	1	14	ASP	Peptide
6	6	156	GLN	Peptide
6	6	436	LYS	Peptide
6	6	53	LEU	Peptide
10	C	40	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	
1	1	45/49 (92%)	39 (87%)	6 (13%)	0	100	100
2	2	41/45 (91%)	39 (95%)	2 (5%)	0	100	100
3	3	62/66 (94%)	55 (89%)	7 (11%)	0	100	100
4	4	35/37 (95%)	34 (97%)	1 (3%)	0	100	100
6	6	506/565 (90%)	422 (83%)	80 (16%)	4 (1%)	19	51
10	C	272/276 (99%)	253 (93%)	19 (7%)	0	100	100
11	D	213/220 (97%)	186 (87%)	27 (13%)	0	100	100
12	E	204/207 (99%)	185 (91%)	19 (9%)	0	100	100
13	F	171/179 (96%)	137 (80%)	34 (20%)	0	100	100
14	G	171/178 (96%)	149 (87%)	22 (13%)	0	100	100
15	H	143/145 (99%)	130 (91%)	13 (9%)	0	100	100
16	I	120/122 (98%)	108 (90%)	12 (10%)	0	100	100
17	J	144/146 (99%)	130 (90%)	14 (10%)	0	100	100
18	K	135/144 (94%)	124 (92%)	10 (7%)	1 (1%)	22	54
19	L	118/122 (97%)	108 (92%)	10 (8%)	0	100	100
20	M	116/119 (98%)	105 (90%)	11 (10%)	0	100	100
21	N	112/116 (97%)	100 (89%)	12 (11%)	0	100	100
22	O	114/118 (97%)	111 (97%)	3 (3%)	0	100	100
23	P	100/102 (98%)	88 (88%)	12 (12%)	0	100	100
24	Q	110/117 (94%)	108 (98%)	2 (2%)	0	100	100
25	R	87/91 (96%)	79 (91%)	8 (9%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
26	S	98/105 (93%)	85 (87%)	13 (13%)	0	100	100
27	T	92/219 (42%)	83 (90%)	9 (10%)	0	100	100
28	U	75/94 (80%)	71 (95%)	4 (5%)	0	100	100
29	V	56/62 (90%)	51 (91%)	5 (9%)	0	100	100
30	W	63/69 (91%)	57 (90%)	6 (10%)	0	100	100
31	X	56/59 (95%)	52 (93%)	4 (7%)	0	100	100
32	Y	66/125 (53%)	48 (73%)	16 (24%)	2 (3%)	4	17
33	Z	46/57 (81%)	39 (85%)	7 (15%)	0	100	100
35	b	222/232 (96%)	180 (81%)	39 (18%)	3 (1%)	11	36
36	c	200/217 (92%)	169 (84%)	30 (15%)	1 (0%)	29	61
37	d	197/200 (98%)	157 (80%)	40 (20%)	0	100	100
38	e	154/166 (93%)	134 (87%)	19 (12%)	1 (1%)	25	58
39	f	93/98 (95%)	64 (69%)	29 (31%)	0	100	100
40	g	153/156 (98%)	125 (82%)	28 (18%)	0	100	100
41	h	129/132 (98%)	115 (89%)	14 (11%)	0	100	100
42	i	125/130 (96%)	109 (87%)	16 (13%)	0	100	100
43	j	95/102 (93%)	80 (84%)	15 (16%)	0	100	100
44	k	112/129 (87%)	82 (73%)	30 (27%)	0	100	100
45	l	133/149 (89%)	104 (78%)	27 (20%)	2 (2%)	10	34
46	m	114/121 (94%)	95 (83%)	19 (17%)	0	100	100
47	n	58/61 (95%)	46 (79%)	11 (19%)	1 (2%)	9	31
48	o	85/89 (96%)	72 (85%)	13 (15%)	0	100	100
49	p	85/91 (93%)	68 (80%)	16 (19%)	1 (1%)	13	40
50	q	78/87 (90%)	57 (73%)	19 (24%)	2 (3%)	5	20
51	r	62/80 (78%)	57 (92%)	5 (8%)	0	100	100
52	s	80/108 (74%)	65 (81%)	14 (18%)	1 (1%)	12	37
53	t	79/83 (95%)	64 (81%)	12 (15%)	3 (4%)	3	13
All	All	5825/6385 (91%)	5019 (86%)	784 (14%)	22 (0%)	38	66

5 of 22 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	6	156	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
36	c	155	ARG
49	p	87	GLN
32	Y	44	PRO
38	e	101	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	1	45/47 (96%)	45 (100%)	0	100	100
2	2	39/40 (98%)	38 (97%)	1 (3%)	46	77
3	3	55/57 (96%)	54 (98%)	1 (2%)	59	85
4	4	35/35 (100%)	35 (100%)	0	100	100
6	6	473/524 (90%)	471 (100%)	2 (0%)	91	97
10	C	221/223 (99%)	221 (100%)	0	100	100
11	D	173/177 (98%)	173 (100%)	0	100	100
12	E	168/169 (99%)	167 (99%)	1 (1%)	86	96
14	G	96/155 (62%)	96 (100%)	0	100	100
15	H	123/123 (100%)	123 (100%)	0	100	100
16	I	100/100 (100%)	99 (99%)	1 (1%)	76	92
17	J	112/112 (100%)	111 (99%)	1 (1%)	78	93
18	K	114/119 (96%)	110 (96%)	4 (4%)	36	70
19	L	101/102 (99%)	100 (99%)	1 (1%)	76	92
20	M	94/95 (99%)	94 (100%)	0	100	100
21	N	100/102 (98%)	98 (98%)	2 (2%)	55	82
22	O	96/98 (98%)	95 (99%)	1 (1%)	76	92
23	P	86/86 (100%)	86 (100%)	0	100	100
24	Q	91/94 (97%)	90 (99%)	1 (1%)	73	92
25	R	80/82 (98%)	79 (99%)	1 (1%)	69	90

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
26	S	75/90 (83%)	75 (100%)	0	100	100
27	T	82/192 (43%)	79 (96%)	3 (4%)	34	68
28	U	60/75 (80%)	59 (98%)	1 (2%)	60	86
29	V	49/52 (94%)	48 (98%)	1 (2%)	55	82
30	W	59/62 (95%)	58 (98%)	1 (2%)	60	86
31	X	52/53 (98%)	51 (98%)	1 (2%)	57	84
32	Y	10/114 (9%)	9 (90%)	1 (10%)	7	23
33	Z	44/52 (85%)	42 (96%)	2 (4%)	27	61
35	b	194/201 (96%)	187 (96%)	7 (4%)	35	69
36	c	164/175 (94%)	163 (99%)	1 (1%)	86	96
37	d	174/175 (99%)	170 (98%)	4 (2%)	50	80
38	e	122/131 (93%)	119 (98%)	3 (2%)	47	78
39	f	83/86 (96%)	82 (99%)	1 (1%)	71	91
40	g	131/132 (99%)	130 (99%)	1 (1%)	81	94
41	h	112/113 (99%)	110 (98%)	2 (2%)	59	85
42	i	105/107 (98%)	103 (98%)	2 (2%)	57	84
43	j	87/91 (96%)	87 (100%)	0	100	100
44	k	90/104 (86%)	90 (100%)	0	100	100
45	l	117/130 (90%)	116 (99%)	1 (1%)	78	93
46	m	100/104 (96%)	99 (99%)	1 (1%)	76	92
47	n	52/53 (98%)	51 (98%)	1 (2%)	57	84
48	o	79/81 (98%)	78 (99%)	1 (1%)	69	90
49	p	74/77 (96%)	73 (99%)	1 (1%)	67	89
50	q	75/82 (92%)	75 (100%)	0	100	100
51	r	57/68 (84%)	57 (100%)	0	100	100
52	s	71/91 (78%)	71 (100%)	0	100	100
53	t	67/69 (97%)	66 (98%)	1 (2%)	65	87
All	All	4787/5300 (90%)	4733 (99%)	54 (1%)	74	92

5 of 54 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
35	b	21	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
37	d	27	GLU
46	m	11	ARG
35	b	22	ARG
35	b	155	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 78 such sidechains are listed below:

Mol	Chain	Res	Type
40	g	148	ASN
48	o	68	ASN
42	i	52	GLN
45	l	109	HIS
51	r	57	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
34	a	1470/1548 (94%)	588 (40%)	0
5	5	72/73 (98%)	14 (19%)	0
7	7	2/3 (66%)	0	0
8	A	2648/2921 (90%)	672 (25%)	44 (1%)
9	B	112/115 (97%)	17 (15%)	1 (0%)
All	All	4304/4660 (92%)	1291 (29%)	45 (1%)

5 of 1291 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
5	5	4	G
5	5	6	G
5	5	9	G
5	5	14	A
5	5	16	U

5 of 45 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
8	A	1178	C
8	A	1519	U
8	A	1186	A
8	A	1383	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
8	A	1605	A

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 7 ligands modelled in this entry, 5 are monoatomic - leaving 2 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
55	ATP	6	602	56	26,33,33	0.92	1 (3%)	31,52,52	1.65	5 (16%)
55	ATP	6	601	6,56	26,33,33	0.95	0	31,52,52	1.66	7 (22%)

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
55	ATP	6	602	56	-	0/18/38/38	0/3/3/3
55	ATP	6	601	6,56	-	4/18/38/38	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
55	6	602	ATP	C5-C4	2.14	1.46	1.40

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
55	6	602	ATP	PB-O3B-PG	-3.88	119.51	132.83
55	6	601	ATP	PB-O3B-PG	-3.67	120.22	132.83
55	6	602	ATP	N3-C2-N1	-3.62	123.02	128.68
55	6	602	ATP	PA-O3A-PB	-3.48	120.89	132.83
55	6	601	ATP	N3-C2-N1	-3.37	123.42	128.68

There are no chirality outliers.

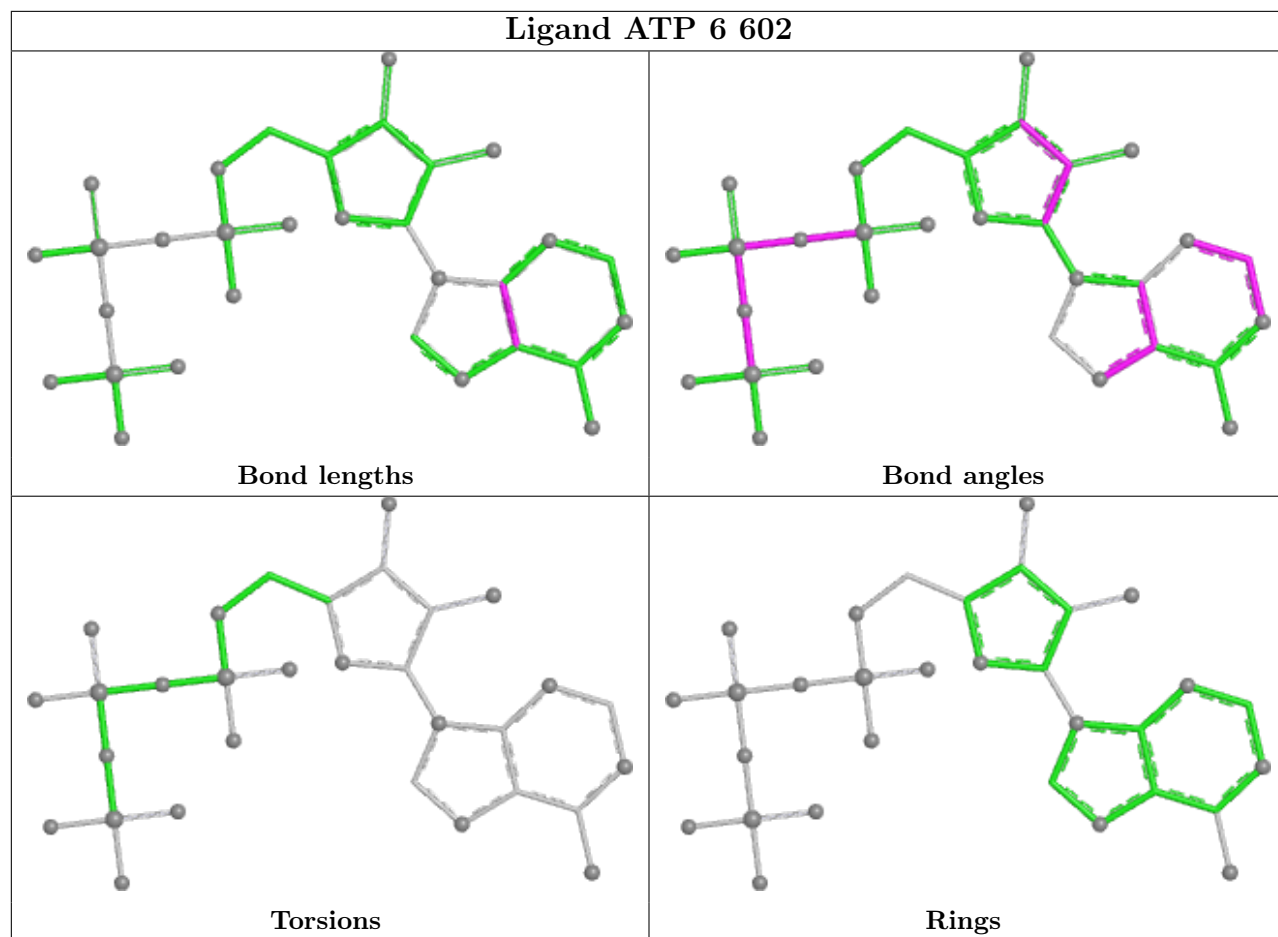
All (4) torsion outliers are listed below:

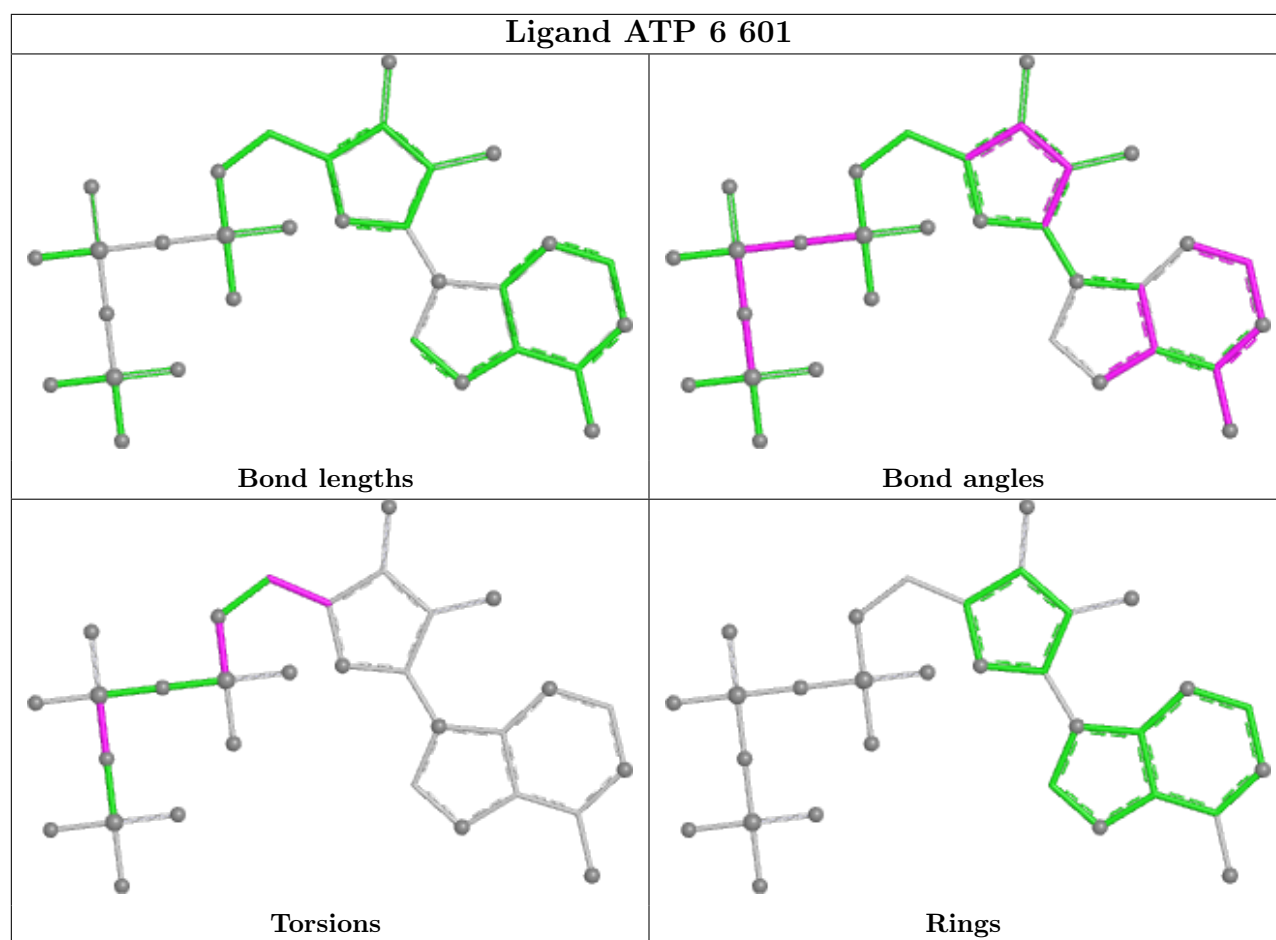
Mol	Chain	Res	Type	Atoms
55	6	601	ATP	C5'-O5'-PA-O1A
55	6	601	ATP	O4'-C4'-C5'-O5'
55	6	601	ATP	PG-O3B-PB-O2B
55	6	601	ATP	C5'-O5'-PA-O3A

There are no ring outliers.

No monomer is involved in short contacts.

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





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

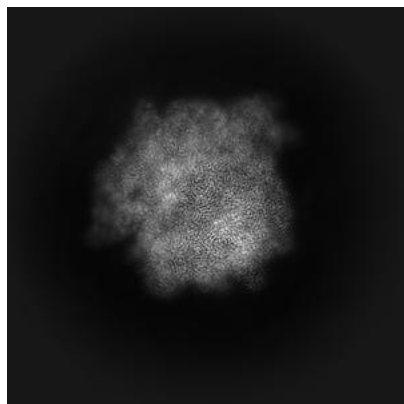
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13191. These allow visual inspection of the internal detail of the map and identification of artifacts.

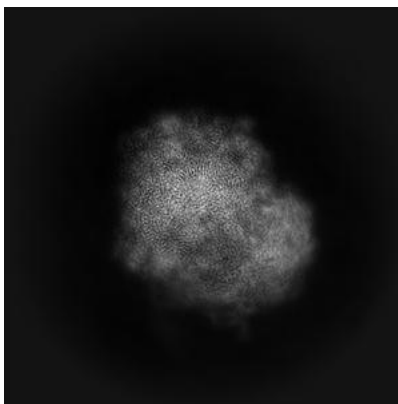
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

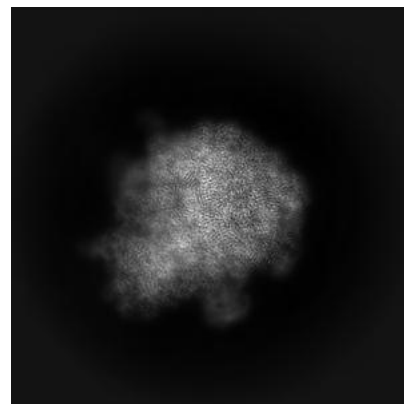
6.1.1 Primary map



X

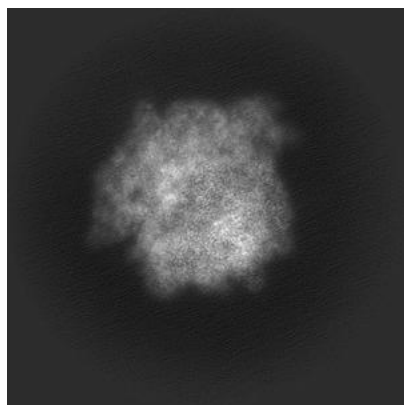


Y

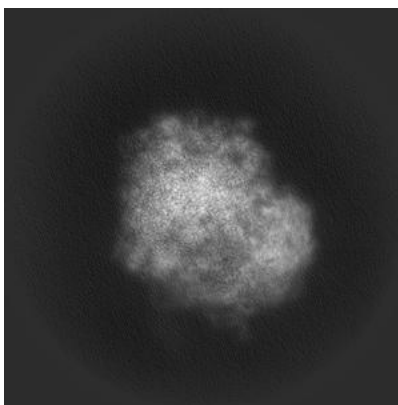


Z

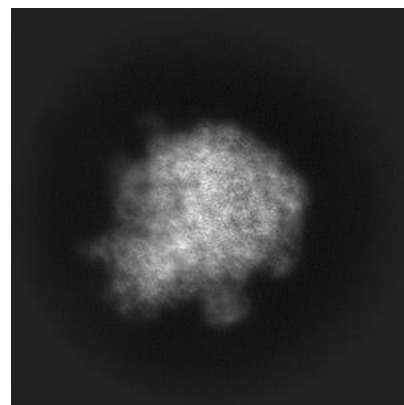
6.1.2 Raw map



X



Y

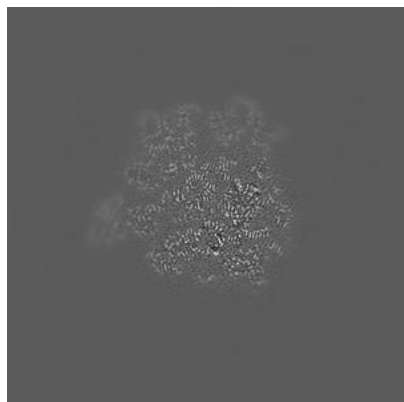


Z

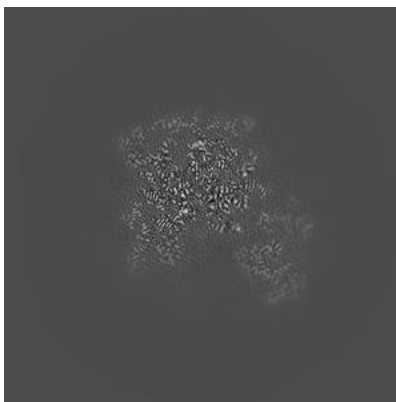
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

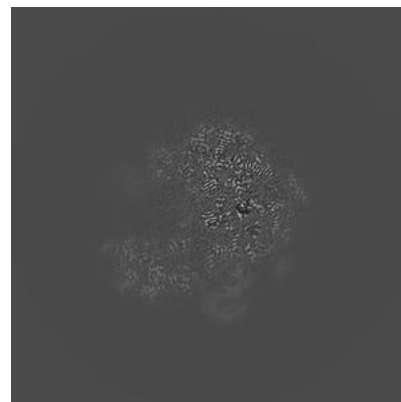
6.2.1 Primary map



X Index: 208

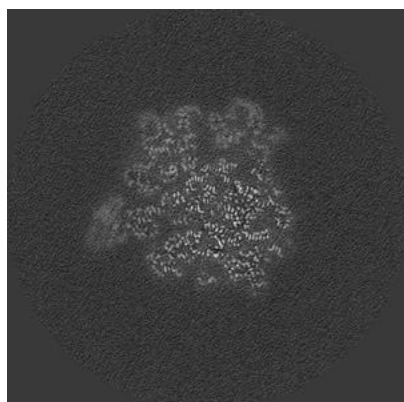


Y Index: 208

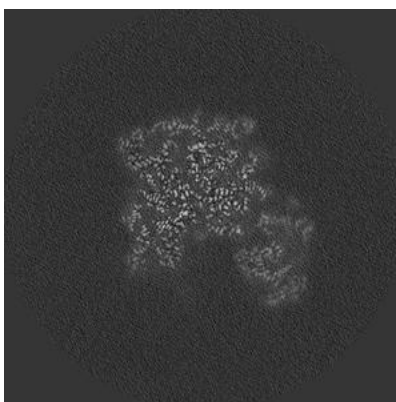


Z Index: 208

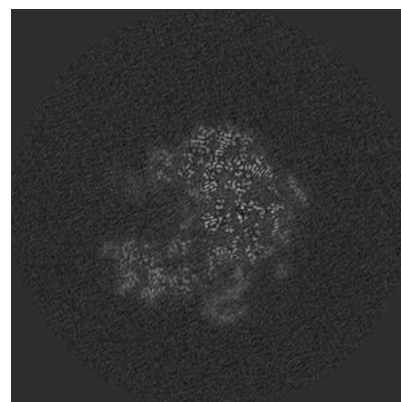
6.2.2 Raw map



X Index: 208



Y Index: 208

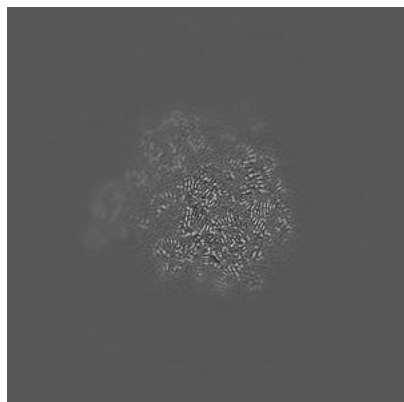


Z Index: 208

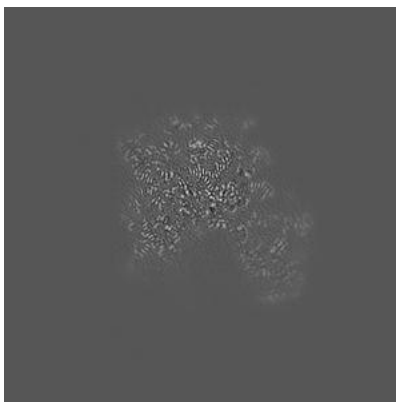
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

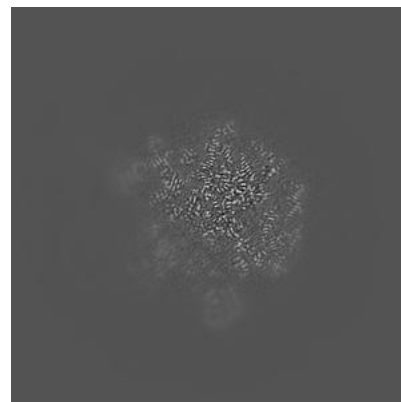
6.3.1 Primary map



X Index: 219

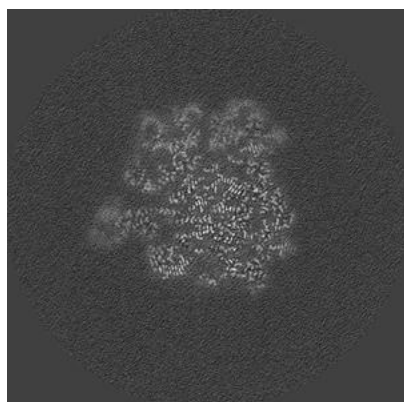


Y Index: 204

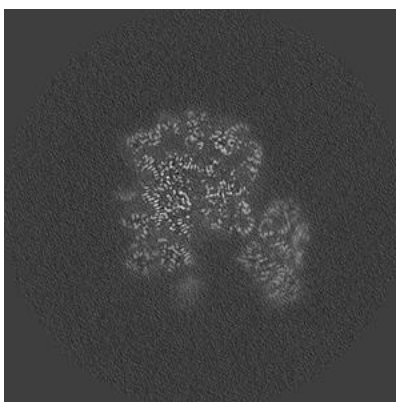


Z Index: 177

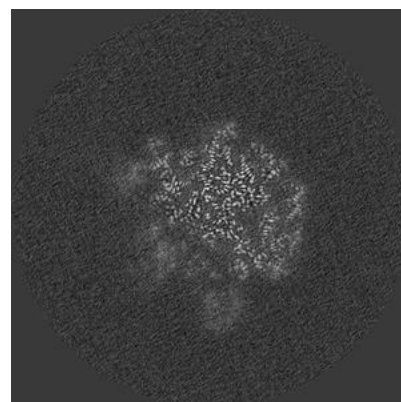
6.3.2 Raw map



X Index: 204



Y Index: 218



Z Index: 177

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

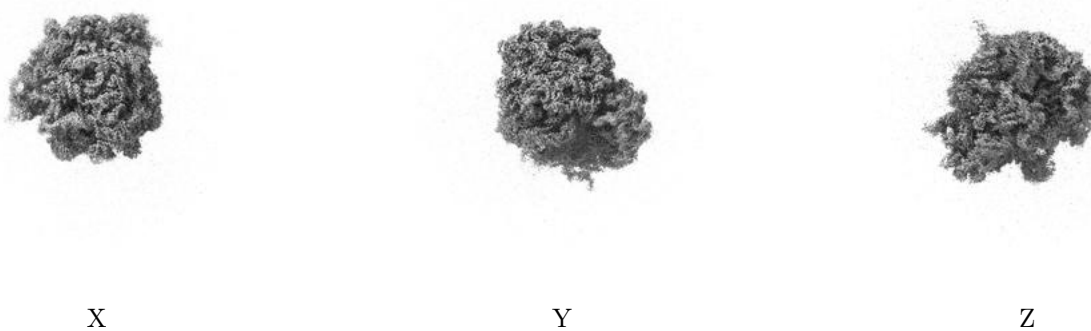
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.065. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



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

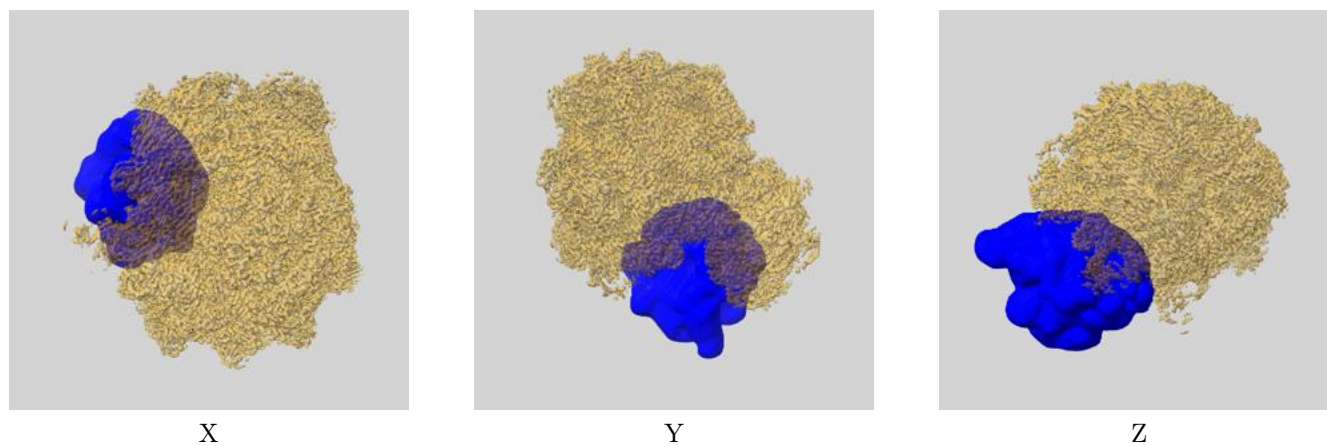
6.5 Mask visualisation [i](#)

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

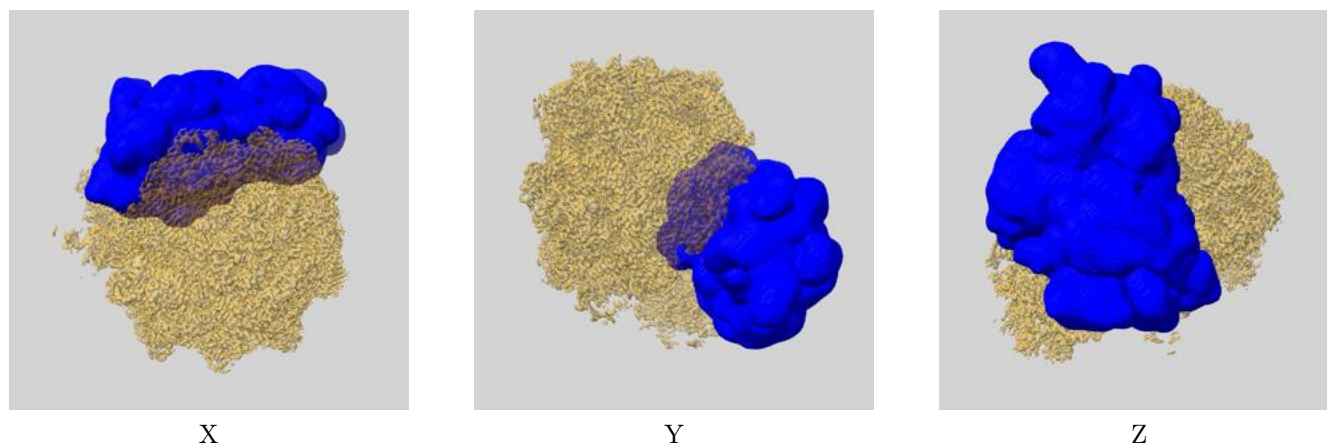
A mask typically either:

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

6.5.1 emd_13191_msk_1.map [i](#)



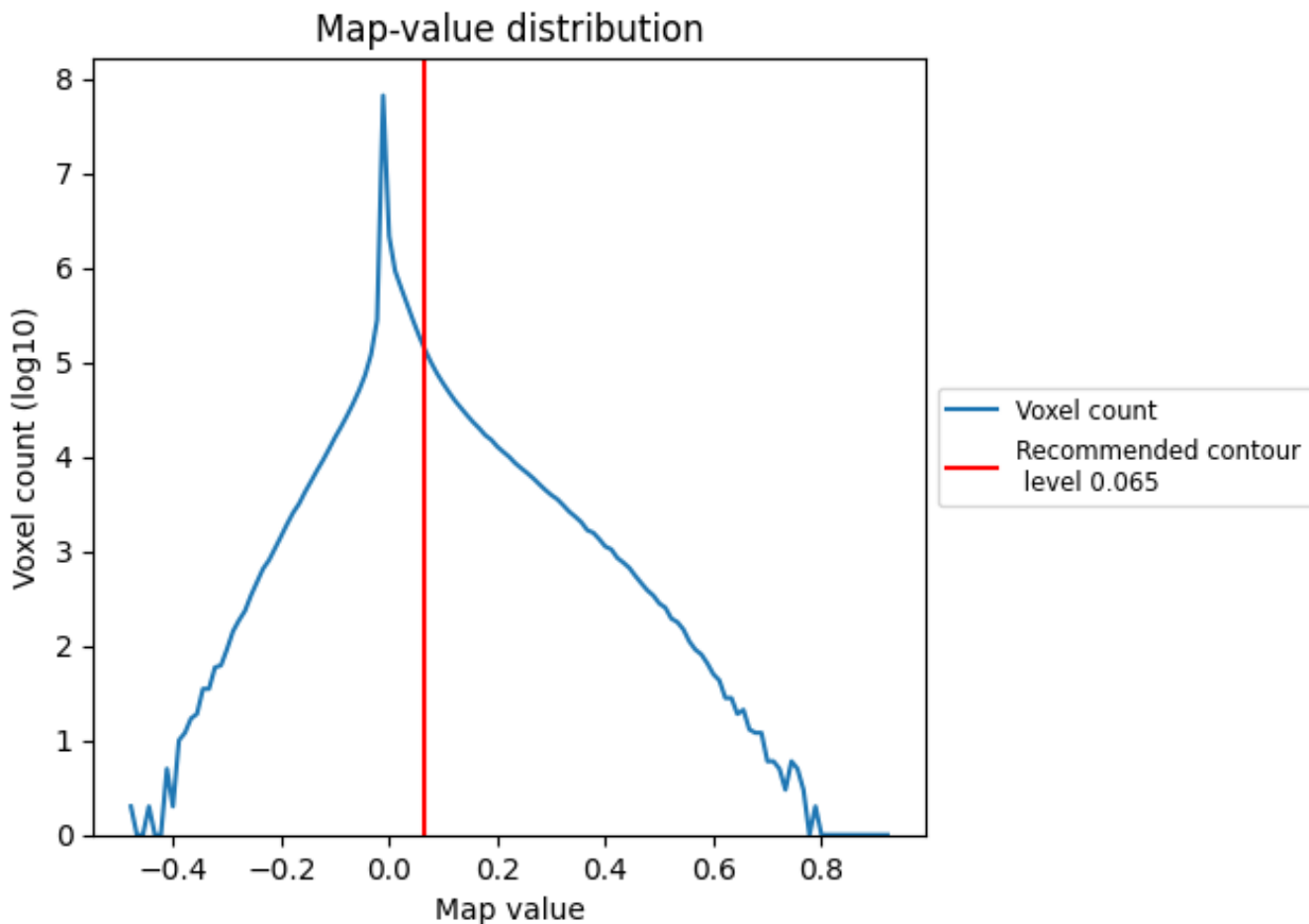
6.5.2 emd_13191_msk_2.map [i](#)



7 Map analysis [i](#)

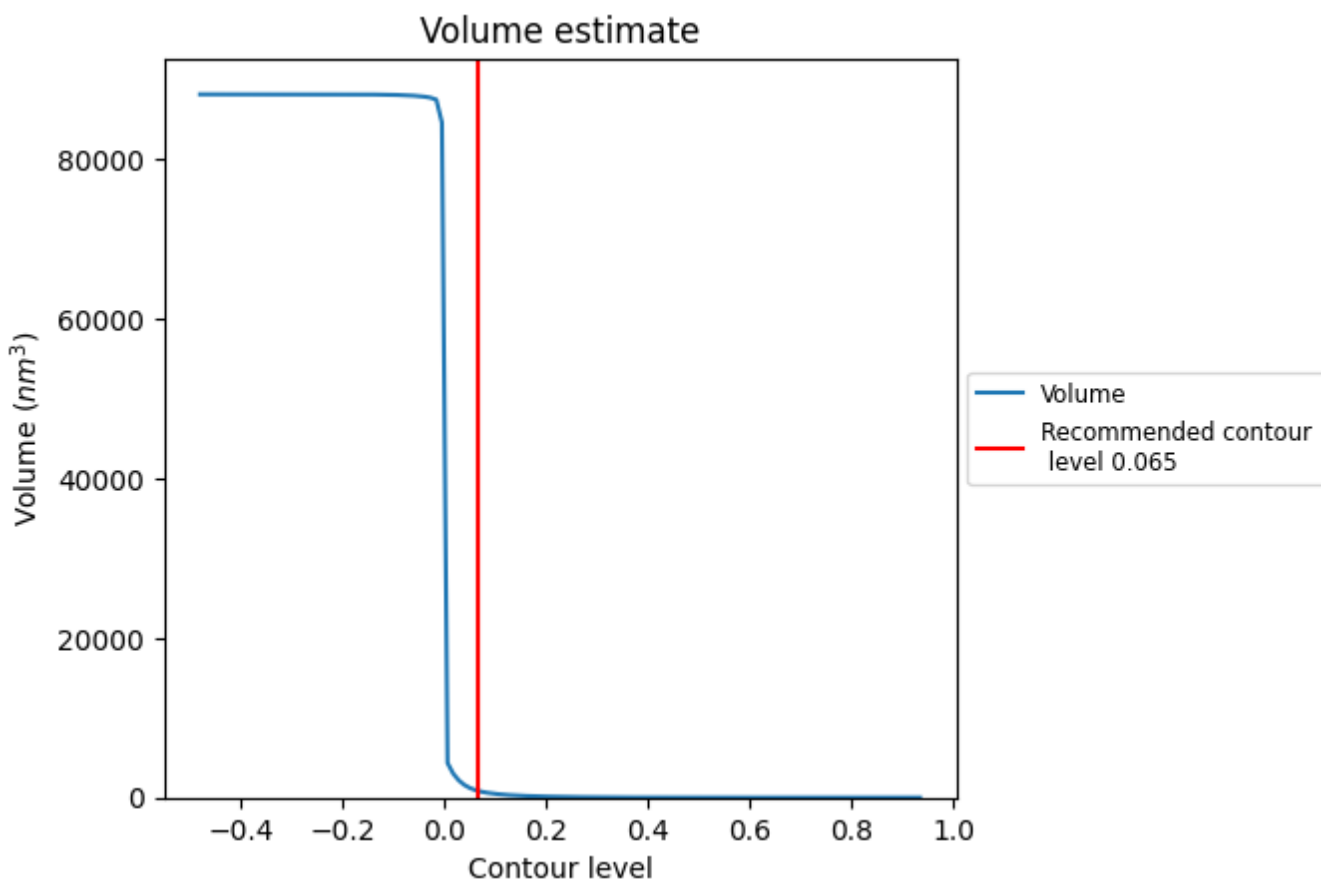
This section contains the results of statistical analysis of the map.

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.

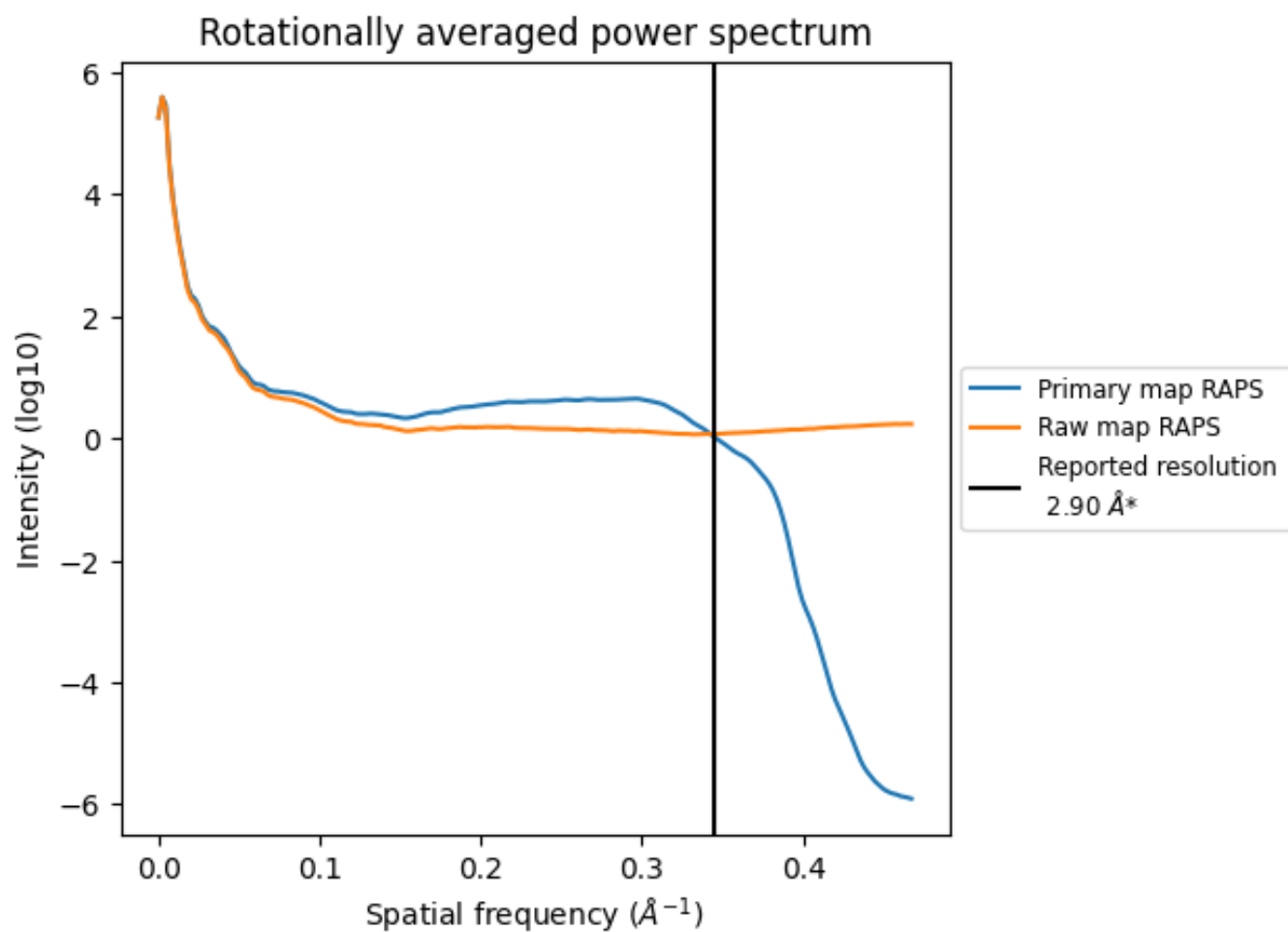
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 884 nm³; this corresponds to an approximate mass of 799 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

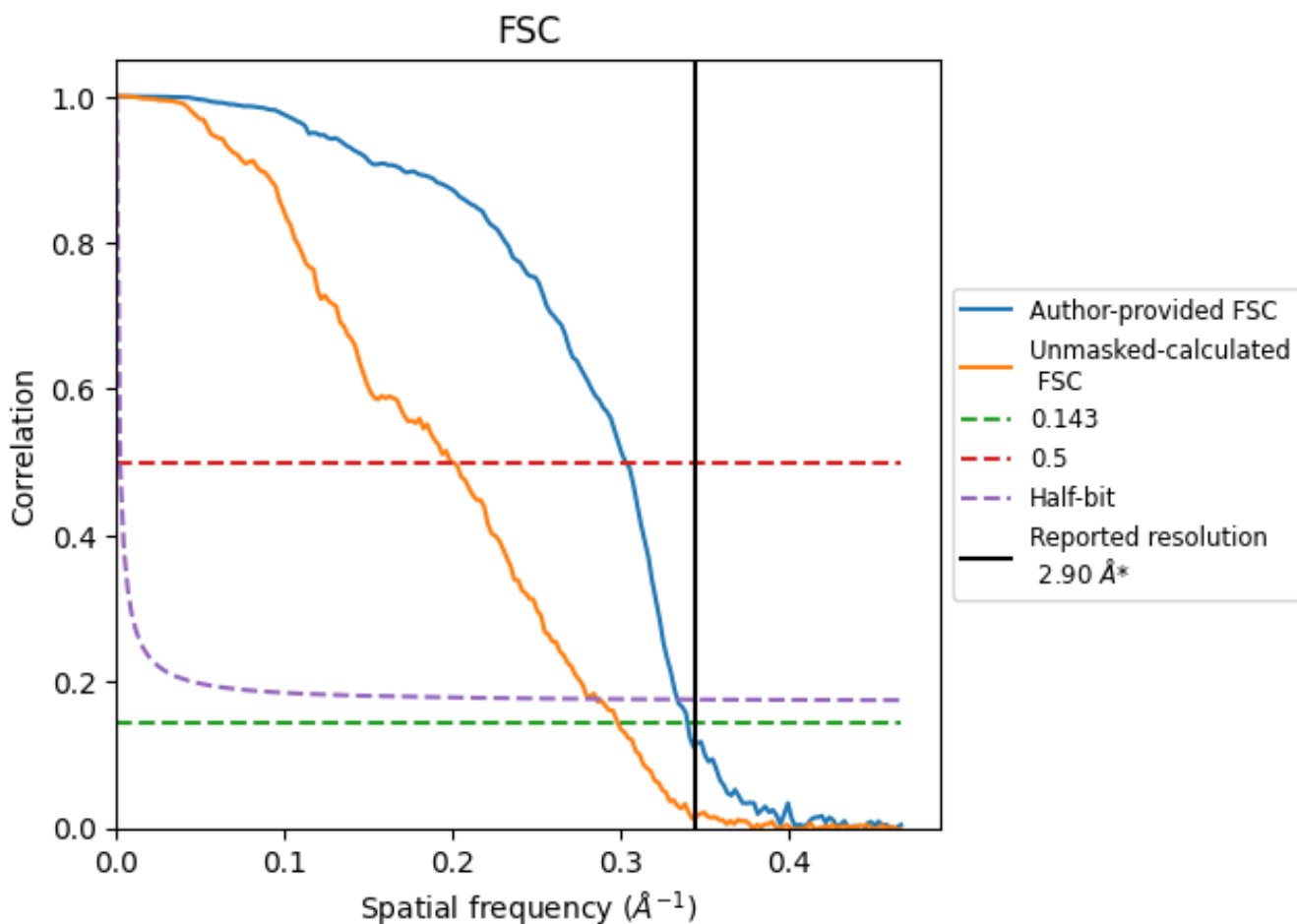


*Reported resolution corresponds to spatial frequency of 0.345 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.345 \AA^{-1}

8.2 Resolution estimates [i](#)

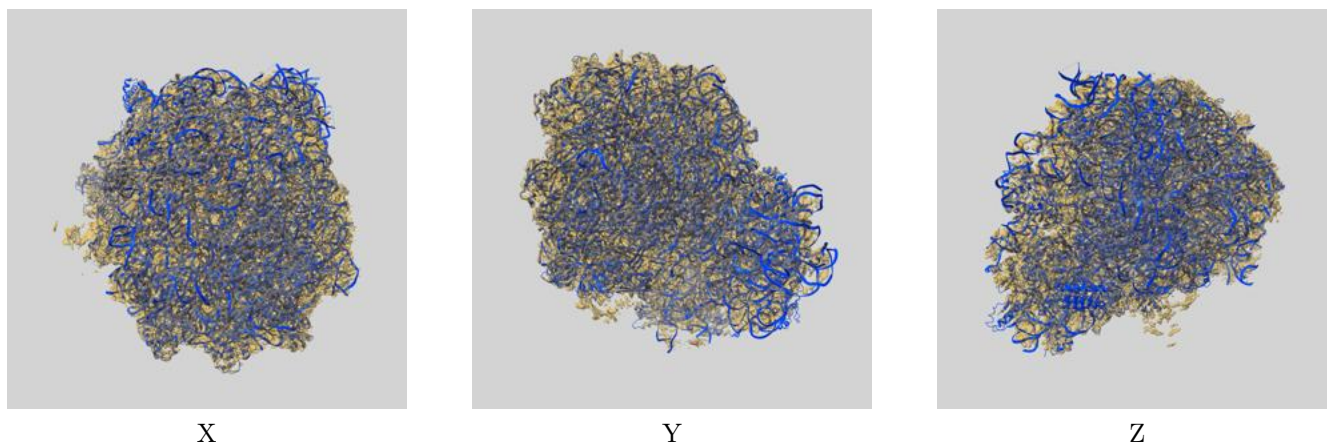
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.90	-	-
Author-provided FSC curve	2.94	3.30	2.99
Unmasked-calculated*	3.35	5.00	3.50

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.35 differs from the reported value 2.9 by more than 10 %

9 Map-model fit [i](#)

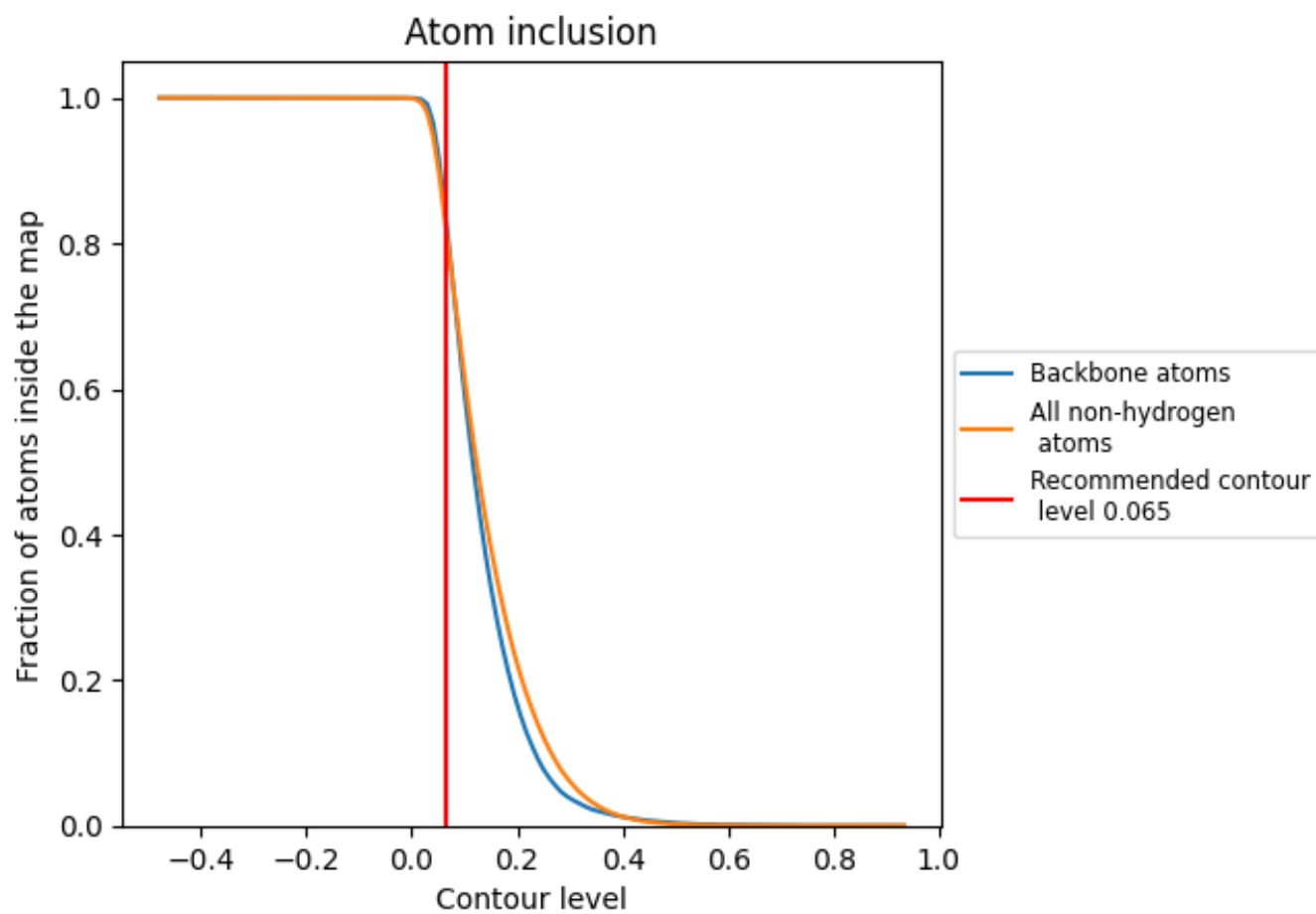
This section contains information regarding the fit between EMDB map EMD-13191 and PDB model 7P48. Per-residue inclusion information can be found in section 3 on page 15.

9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.065 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 Atom inclusion [i](#)



At the recommended contour level, 83% of all backbone atoms, 82% of all non-hydrogen atoms, are inside the map.