



## wwPDB EM Validation Summary Report ⓘ

Apr 21, 2022 – 04:30 am BST

PDB ID : 7QGN  
EMDB ID : EMD-13956  
Title : Structure of the SmrB-bound E. coli disome - stalled 70S ribosome  
Authors : Kratzat, H.; Buschauer, R.; Berninghausen, O.; Beckmann, R.  
Deposited on : 2021-12-09  
Resolution : 3.37 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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

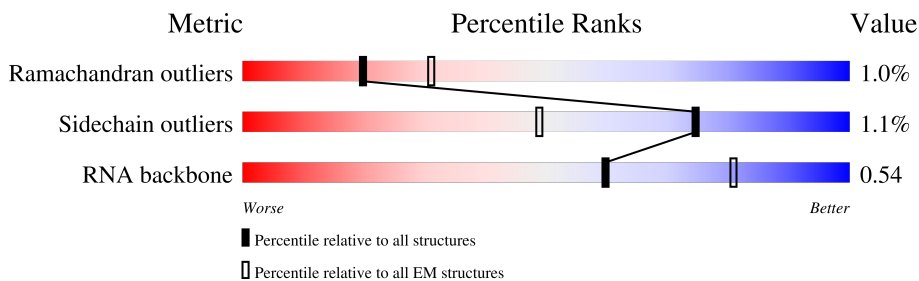
EMDB validation analysis : 0.0.0.dev97  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.27

# 1 Overall quality at a glance i

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

The reported resolution of this entry is 3.37 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	A	73	8% (red), 70% (green), 30% (yellow)
2	B	183	14% (red), 21% (green), 79% (grey)
3	s	179	20% (green), 79% (grey)
4	M	75	81% (green), 19% (yellow)
5	O	120	77% (green), 19% (yellow), 4% (orange), 2% (grey)
6	P	273	14% (red), 87% (green), 10% (yellow), 2% (orange), 2% (grey)
7	Q	209	14% (red), 93% (green), 7% (yellow)
8	R	201	31% (red), 95% (green), 2% (yellow), 2% (orange), 2% (grey)

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Mol	Chain	Length	Quality of chain
9	S	179	56% 98% ...
10	T	177	53% 98% ..
11	U	149	81% 93% 7% .
12	V	142	80% 98% ..
13	W	142	8% 94% 6%
14	X	123	41% 95% ..
15	Y	144	30% 88% 9% ..
16	Z	136	8% 90% 9% .
17	a	127	. 83% 10% . 6%
18	b	117	49% 94% 5% .
19	c	115	32% 91% 6% ..
20	d	118	11% 88% 10% ..
21	e	103	33% 95% ..
22	f	110	. 97% .
23	g	100	. 90% . 7%
24	h	104	12% 94% ... .
25	i	94	36% 100%
26	j	85	. 85% .. 12%
27	k	78	5% 91% 8% .
28	l	63	13% 94% 6%
29	m	59	10% 95% ..
30	n	57	5% 82% 16% .
31	o	55	16% 85% 5% 9%
32	p	46	89% 11%
33	q	65	88% 9% ..

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Mol	Chain	Length	Quality of chain
34	r	55	60% 9% 31%
35	N	2903	66% 29% 5%
36	L	70	66% 77% 21%
37	C	223	60% 60% 40%
38	0	1539	72% 25%
39	1	239	20% 87% 9%
40	2	218	7% 90% 6%
41	3	206	31% 97%
42	4	162	6% 83% 9% 7%
43	5	131	21% 66% 10% 24%
44	6	156	31% 90% 8%
45	7	130	5% 98%
46	8	130	12% 88% 9% 2%
47	9	103	19% 89% 5% 5%
48	D	129	33% 87% 9%
49	E	124	7% 90% 7% 2%
50	F	118	31% 90% 6% 2%
51	G	101	7% 88% 7% 5%
52	H	89	91% 7% 2%
53	I	82	24% 95% 5%
54	J	84	18% 88% 7% 5%
55	K	75	12% 68% 5% 27%
56	t	92	10% 83% 14%
57	u	87	30% 93% 2% 3%
58	v	88	8% 47% 10% 42%

## 2 Entry composition

There are 61 unique types of molecules in this entry. The entry contains 147306 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 A-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	A	73	1561	695	279	514	73	0	0

- Molecule 2 is a protein called UPF0115 protein YfcN.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	B	39	194	116	39	39	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	99	ALA	ASP	variant	UNP Q6KCY1
B	101	ALA	HIS	variant	UNP Q6KCY1

- Molecule 3 is a protein called VemP nascent chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	s	37	316	198	58	58	2	0	0

- Molecule 4 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	M	75	1594	711	281	527	75	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	O	118	2529	1126	464	821	118	0	0

- Molecule 6 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	P	271	2082	1288	423	364	7	0	0

- Molecule 7 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	Q	209	1564	979	288	293	4	0	0

- Molecule 8 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	R	201	1552	974	283	290	5	0	0

- Molecule 9 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	S	177	1410	899	249	256	6	0	0

- Molecule 10 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	T	176	1322	832	243	245	2	0	0

- Molecule 11 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	U	149	1111	699	197	214	1	0	0

- Molecule 12 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	V	141	1031	651	179	195	6	0	0

- Molecule 13 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	W	142	1128	714	212	198	4	0	0

- Molecule 14 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	X	122	938	587	180	165	6	0	0

- Molecule 15 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	Y	143	1044	649	206	188	1	0	0

- Molecule 16 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	Z	136	1073	686	205	176	6	0	0

- Molecule 17 is a protein called Ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	a	120	960	593	196	166	5	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
a	123	ALA	GLU	variant	UNP A0A829CNM8

- Molecule 18 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
18	b	116	891	552	178	161	0	0

- Molecule 19 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	c	114	915	573	179	162	1	0	0

- Molecule 20 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	d	117	946	604	192	150		0	0

- Molecule 21 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	e	103	815	516	153	144	2	0	0

- Molecule 22 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	f	110	857	532	166	156	3	0	0

- Molecule 23 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	g	93	738	466	139	131	2	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
g	98	SER	GLY	variant	UNP A0A829CFV1

- Molecule 24 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
24	h	102	779	492	146	141	0	0

- Molecule 25 is a protein called 50S ribosomal protein L25.



Mol	Chain	Residues	Atoms					AltConf	Trace
25	i	94	Total	C	N	O	S	0	0
			752	479	137	133	3		

- Molecule 26 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	j	75	Total	C	N	O	S	0	0
			568	353	113	101	1		

- Molecule 27 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	k	77	Total	C	N	O	S	0	0
			624	388	129	105	2		

- Molecule 28 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	l	63	Total	C	N	O	S	0	0
			508	313	99	94	2		

- Molecule 29 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	m	58	Total	C	N	O	S	0	0
			448	281	87	78	2		

- Molecule 30 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	n	56	Total	C	N	O	S	0	0
			443	269	94	79	1		

- Molecule 31 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	o	50	Total	C	N	O	0	0
			409	263	75	71		

- Molecule 32 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	p	46	Total	C	N	O	S	0	0
			376	228	90	56	2		

- Molecule 33 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	q	64	Total	C	N	O	S	0	0
			503	323	105	73	2		

- Molecule 34 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	r	38	Total	C	N	O	S	0	0
			301	185	65	47	4		

- Molecule 35 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	N	2897	Total	C	N	O	P	1	0
			62215	27754	11448	20115	2898		

- Molecule 36 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	L	55	Total	C	N	O	S	0	0
			419	258	76	79	6		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	68	SER	GLY	variant	UNP J7R8B2

- Molecule 37 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	C	134	Total	C	N	O	S	0	0
			1027	645	186	194	2		

- Molecule 38 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
38	0	1532	32873	14661	6031	10649	1532	0	0

- Molecule 39 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	1	218	1704	1081	305	311	7	0	0

- Molecule 40 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	2	206	1624	1028	305	288	3	0	0

- Molecule 41 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	3	205	1642	1026	315	297	4	0	0

- Molecule 42 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	4	150	1105	687	211	201	6	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
4	4	MET	ILE	variant	UNP A0A377C6M5

- Molecule 43 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	5	100	817	515	148	148	6	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
5	101	SER	PRO	variant	UNP C3SFQ7

- Molecule 44 is a protein called Ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	6	144	1129	705	213	207	4	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
6	78	HIS	ARG	variant	UNP A0A829CQ35

- Molecule 45 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	7	129	978	616	173	183	6	0	0

- Molecule 46 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	8	127	1021	634	206	178	3	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
8	3	ASP	GLU	variant	UNP A0A1Z3UZ18

- Molecule 47 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	9	98	786	493	150	142	1	0	0

- Molecule 48 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	D	117	876	540	174	159	3	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	5	ALA	PRO	variant	UNP A0A829AF87

- Molecule 49 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
49	E	123	954	590	196	164	4	0	0

- Molecule 50 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
50	F	114	883	546	178	156	3	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	1	VAL	MET	variant	UNP A0A7U9IV78

- Molecule 51 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
51	G	96	773	483	160	127	3	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	40	ALA	GLU	variant	UNP A0A090BZT4

- Molecule 52 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
52	H	88	709	437	143	128	1	0	0

- Molecule 53 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
53	I	82	648	406	128	113	1	0	0

- Molecule 54 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
54	J	80	648	411	121	113	3	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
J	2	ALA	THR	variant	UNP A0A829A8C6

- Molecule 55 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
55	K	55	455	288	86	81	0	0

- Molecule 56 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
56	t	79	637	408	120	107	2	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
t	82	TYR	GLY	variant	UNP S1EA57
t	83	TYR	HIS	variant	UNP S1EA57

- Molecule 57 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
57	u	85	664	411	137	113	3	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
u	1	LEU	MET	variant	UNP C3TRH7

- Molecule 58 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	v	51	Total	C	N	O	S	0	0
			425	265	86	73	1		

- Molecule 59 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
59	A	2	Total	Mg	0
			2	2	

- Molecule 60 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		AltConf
60	A	1	Total	K	0
			1	1	

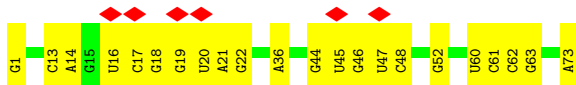
- Molecule 61 is water.

Mol	Chain	Residues	Atoms		AltConf
61	A	9	Total	O	0
			9	9	

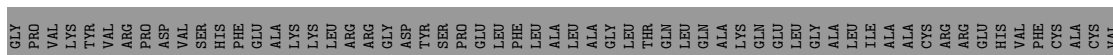
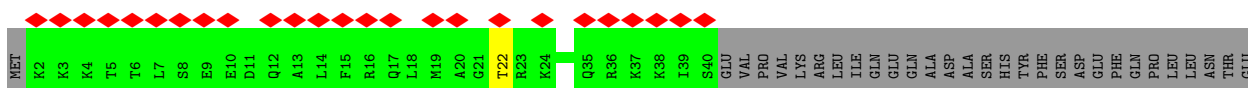
### 3 Residue-property plots [i](#)

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.

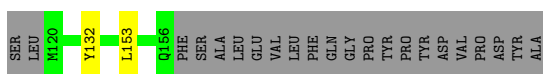
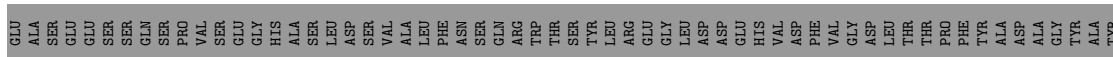
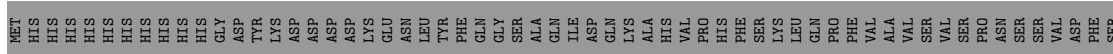
#### • Molecule 1: A-site tRNA



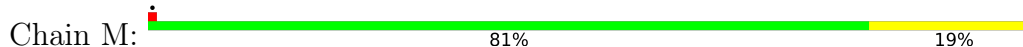
#### • Molecule 2: UPF0115 protein YfcN



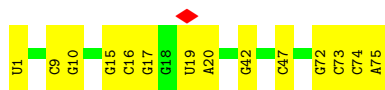
#### • Molecule 3: VemP nascent chain



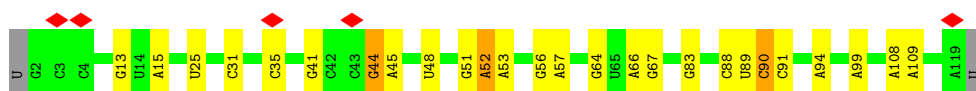
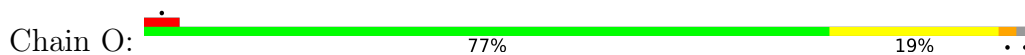
#### • Molecule 4: P-site tRNA



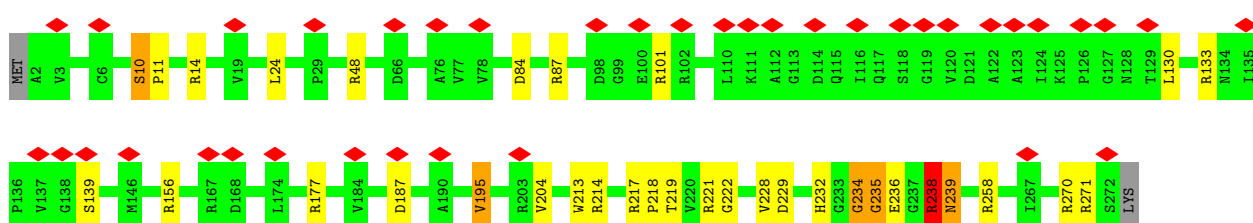




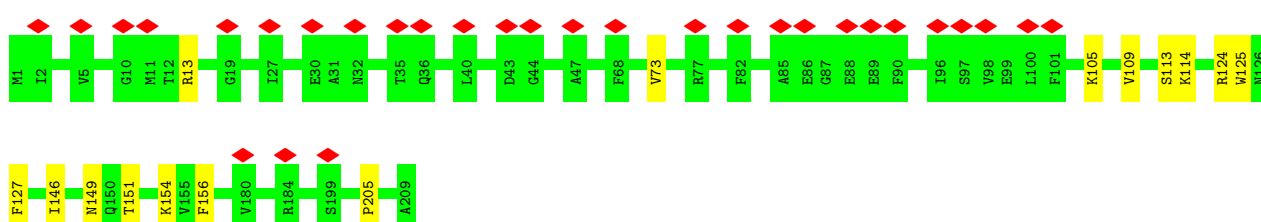
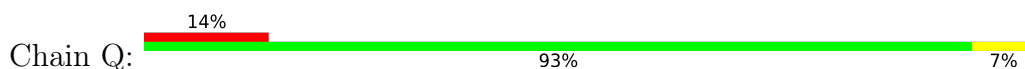
• Molecule 5: 5S rRNA



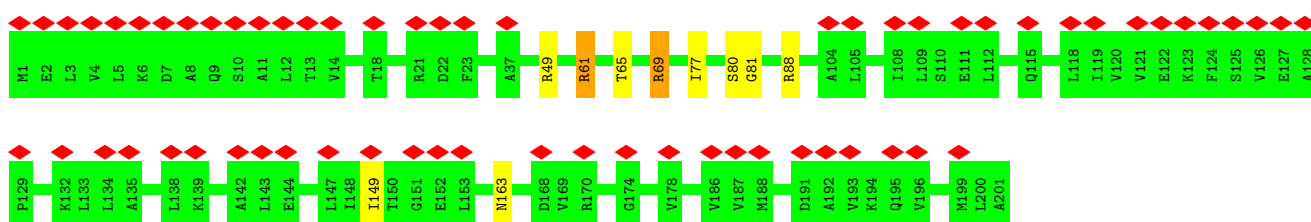
• Molecule 6: 50S ribosomal protein L2



• Molecule 7: 50S ribosomal protein L3

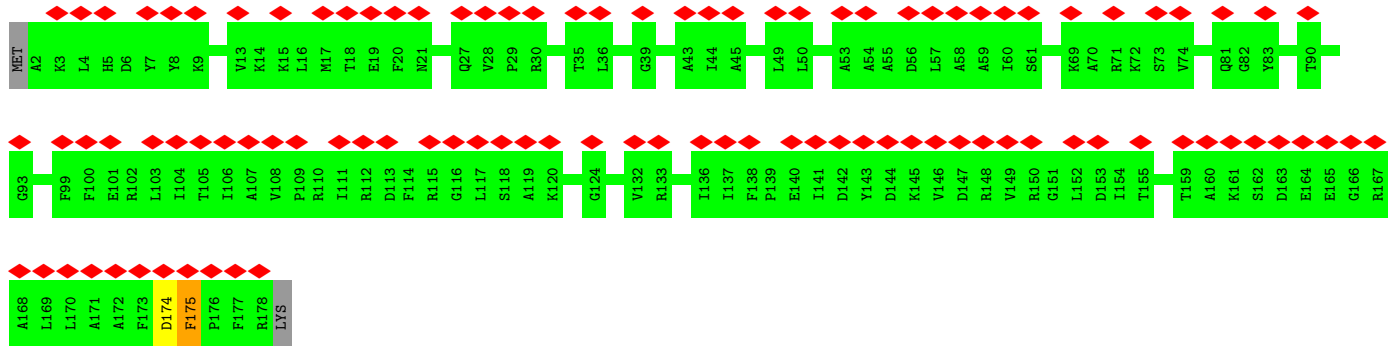


• Molecule 8: 50S ribosomal protein L4

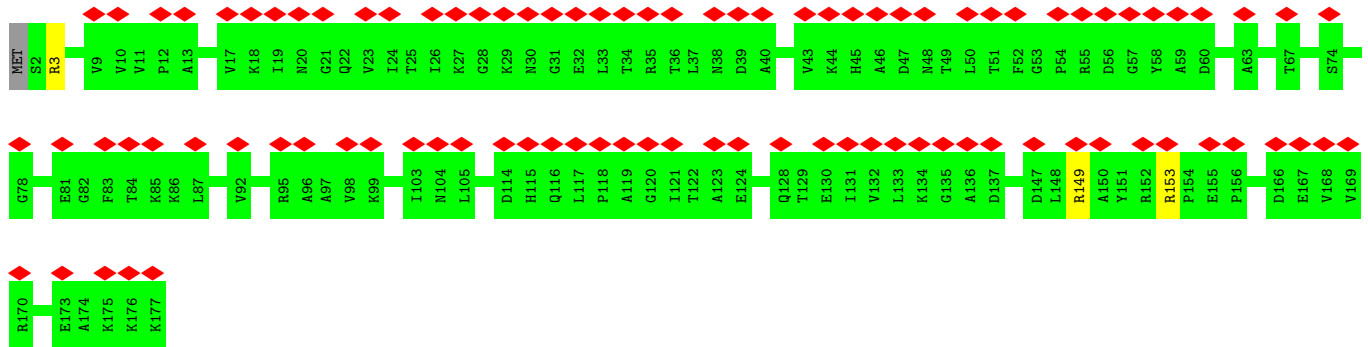


• Molecule 9: 50S ribosomal protein L5

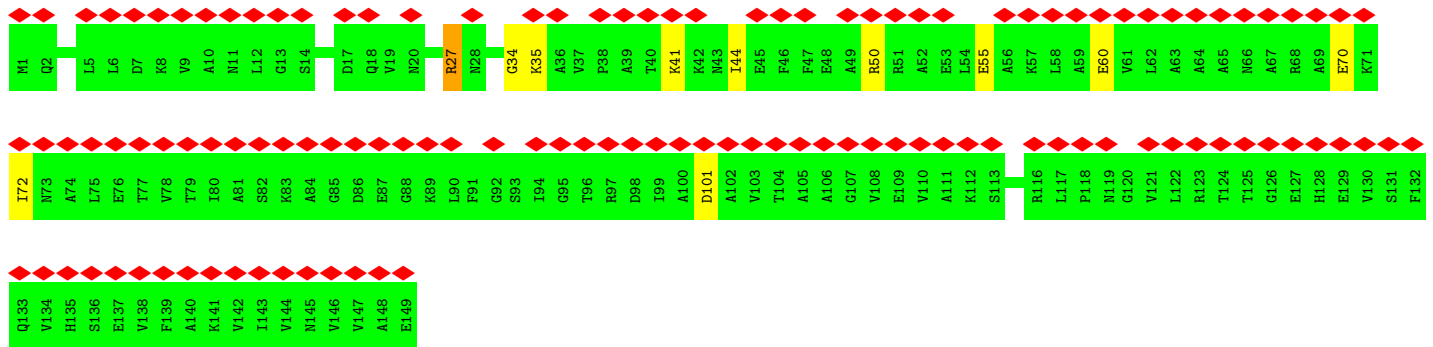
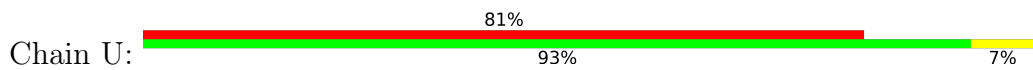




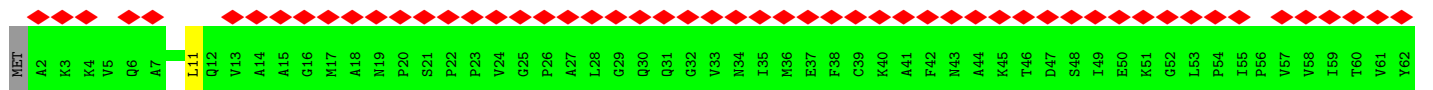
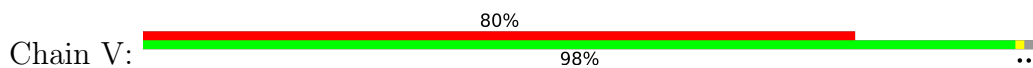
• Molecule 10: 50S ribosomal protein L6

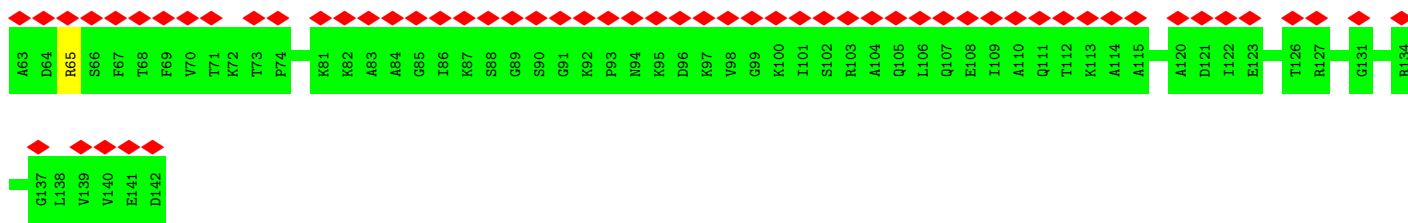


• Molecule 11: 50S ribosomal protein L9

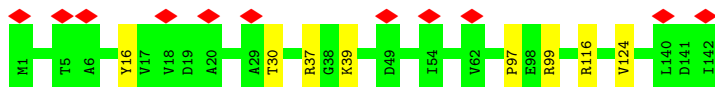


• Molecule 12: 50S ribosomal protein L11

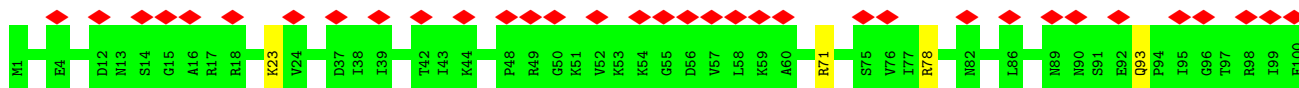




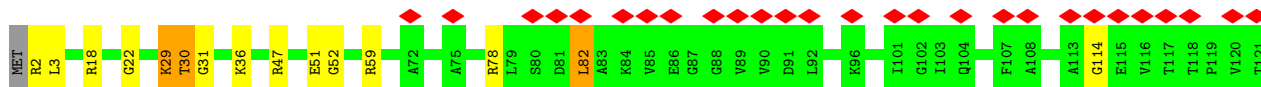
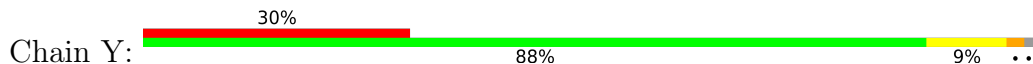
• Molecule 13: 50S ribosomal protein L13



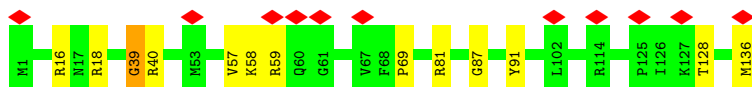
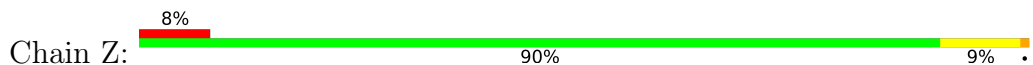
• Molecule 14: 50S ribosomal protein L14



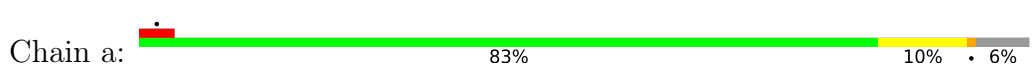
• Molecule 15: 50S ribosomal protein L15



• Molecule 16: 50S ribosomal protein L16

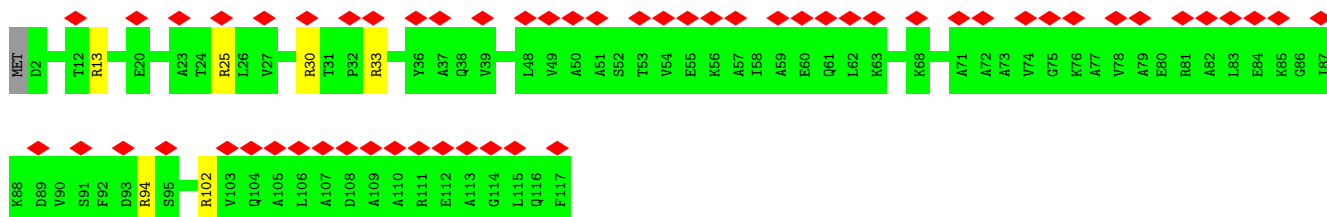
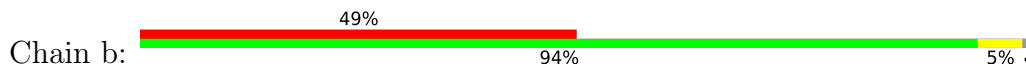


• Molecule 17: Ribosomal protein L17

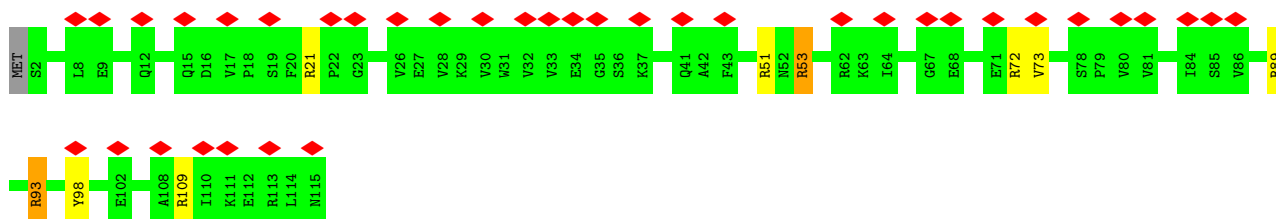
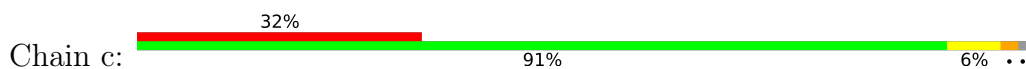




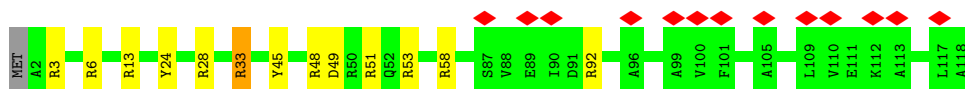
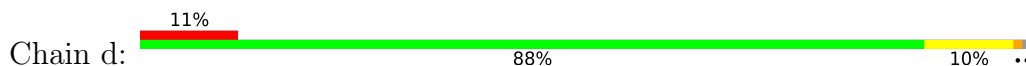
- Molecule 18: 50S ribosomal protein L18



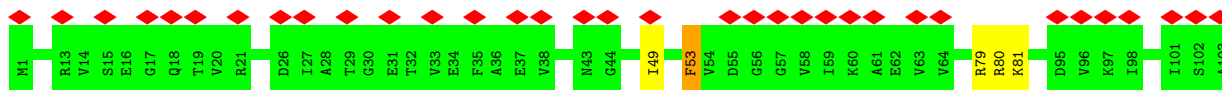
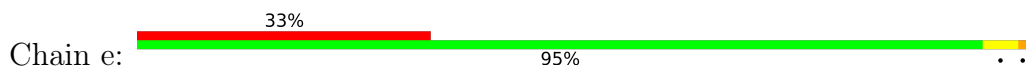
- Molecule 19: 50S ribosomal protein L19



- Molecule 20: 50S ribosomal protein L20



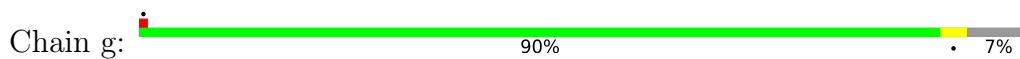
- Molecule 21: 50S ribosomal protein L21



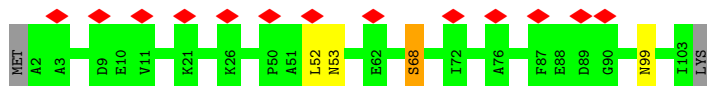
- Molecule 22: 50S ribosomal protein L22



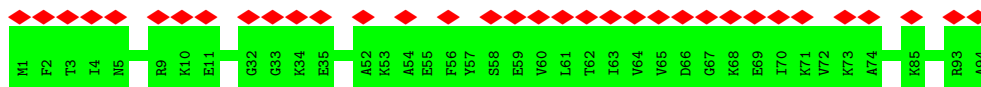
- Molecule 23: 50S ribosomal protein L23



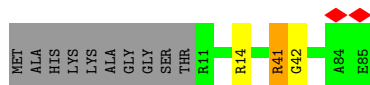
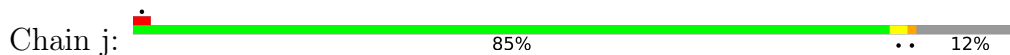
- Molecule 24: 50S ribosomal protein L24



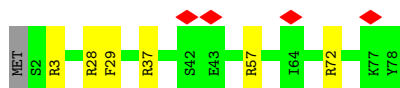
- Molecule 25: 50S ribosomal protein L25



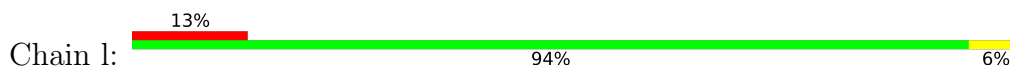
- Molecule 26: 50S ribosomal protein L27



- Molecule 27: 50S ribosomal protein L28

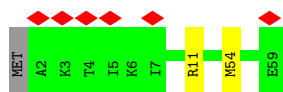


- Molecule 28: 50S ribosomal protein L29

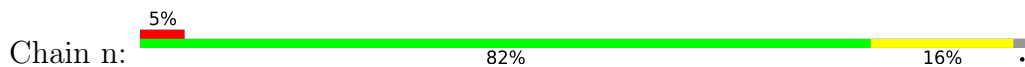


- Molecule 29: 50S ribosomal protein L30

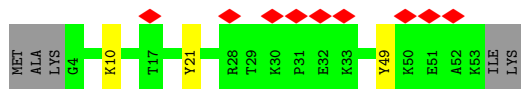
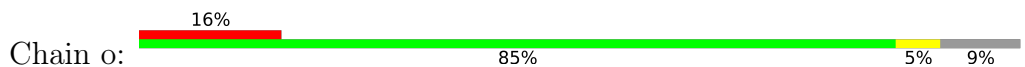




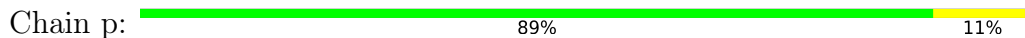
• Molecule 30: 50S ribosomal protein L32



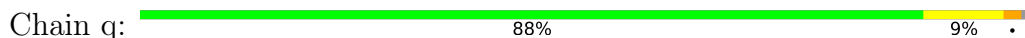
• Molecule 31: 50S ribosomal protein L33



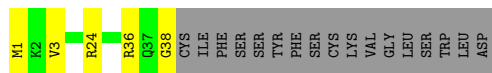
• Molecule 32: 50S ribosomal protein L34



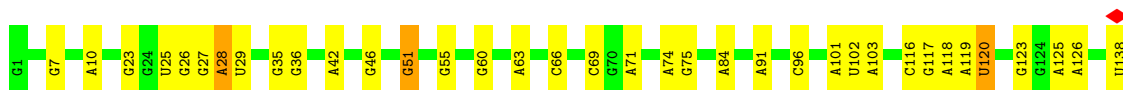
• Molecule 33: 50S ribosomal protein L35

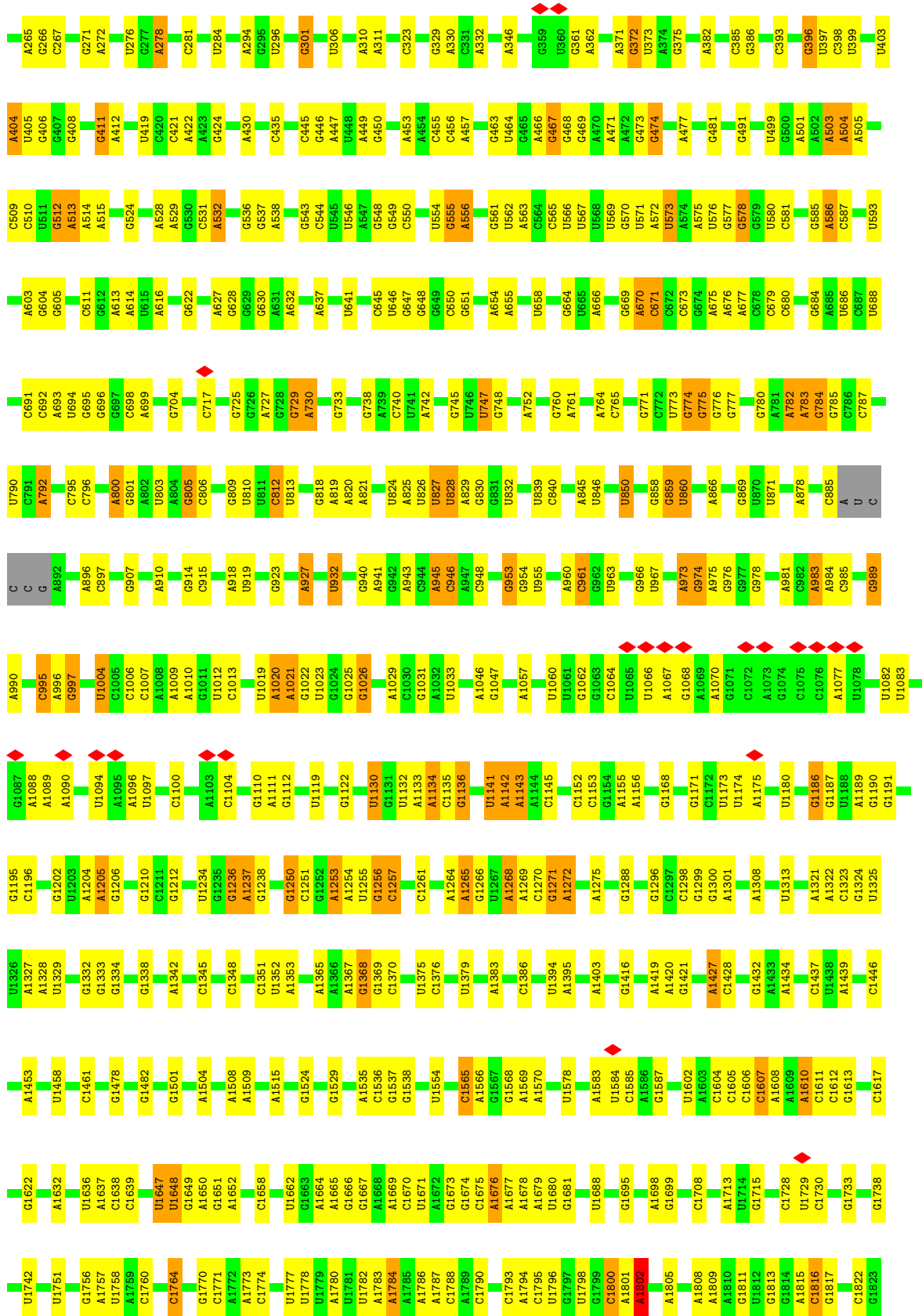


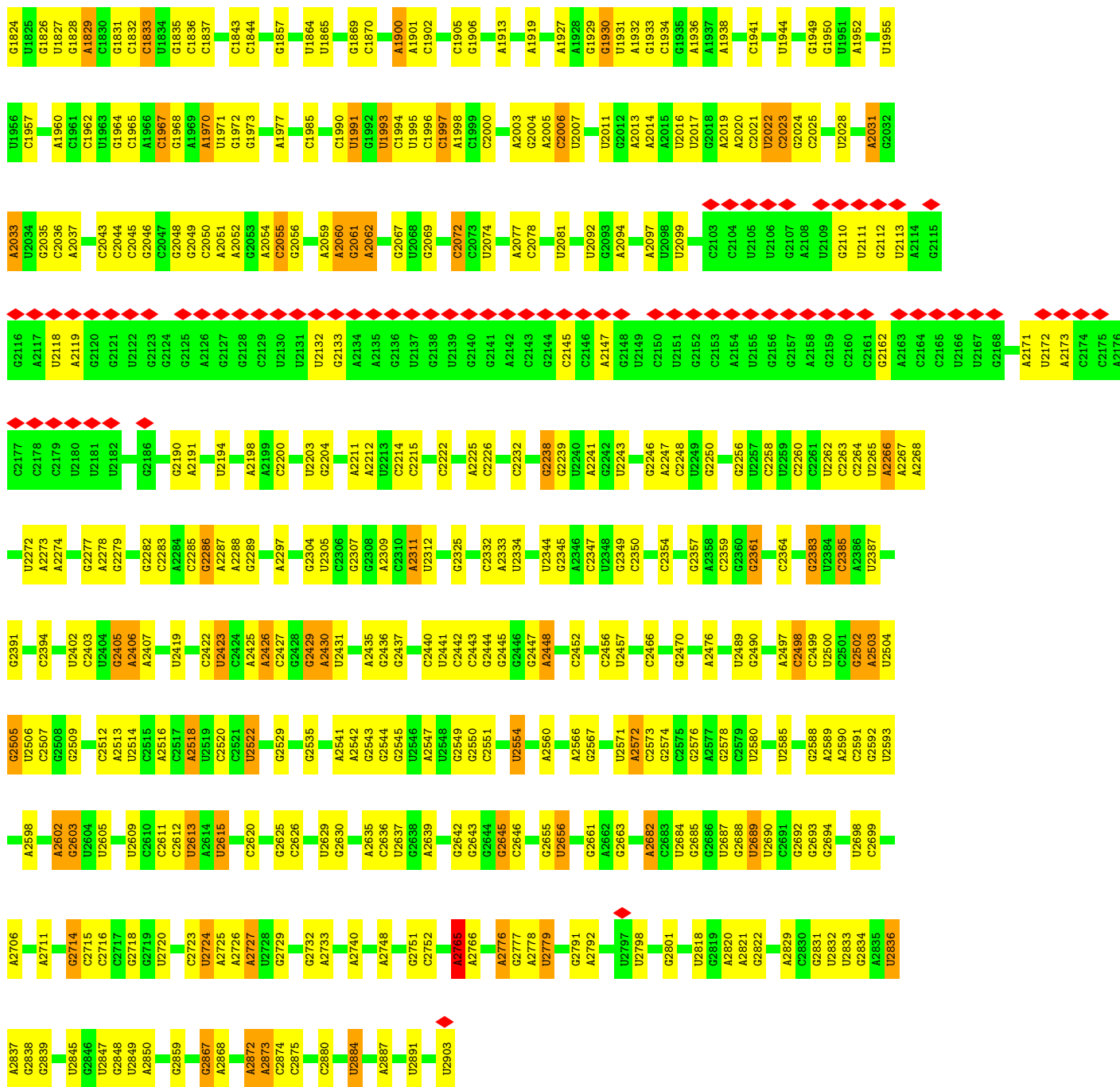
• Molecule 34: 50S ribosomal protein L36



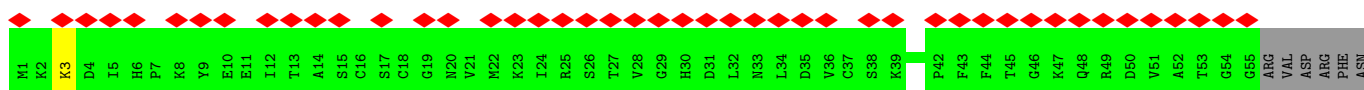
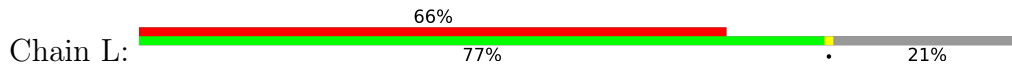
• Molecule 35: 23S rRNA







- Molecule 36: 50S ribosomal protein L31



LYS  
ARG  
PHE  
ASN  
ILE  
PRO  
SER  
SER  
LYS

- Molecule 37: 50S ribosomal protein L1



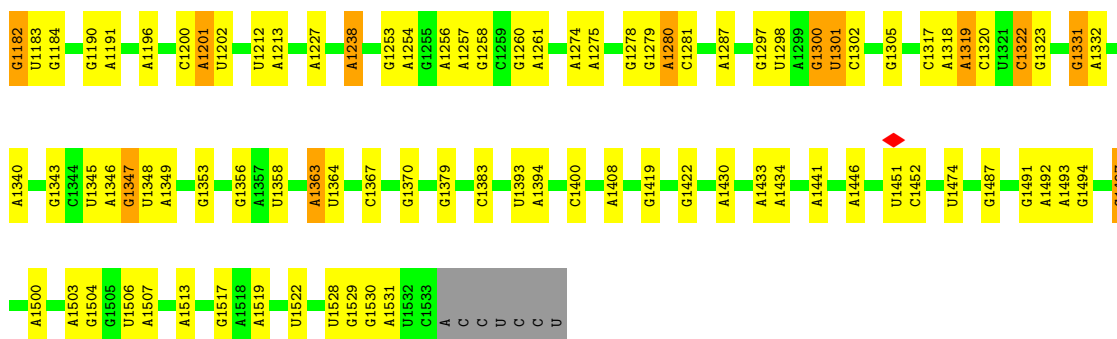


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T63	W64	L65	P66	H67	G68	T69	ARG	ARG	SER	VAL	VAL	VAL	ALA	VAL	PHE	THR	GLN	GLY	ALA	ASN	ALA	ALA	ALA	GLY	ALA	ALA	GLU	LEU	VAL	GLY	ALA	ASP	ASP	ILE	GLN	ILE	LYS	LYS	GLY	GLU	MET	ASN	S41	PHE	ASP	VAL	VAL	ILE	ALA	SER	PRO	ASP	ALA	MET	ARG		
VAL	VAL	GLY	GLN	LEU	GLY	GLN	VAL	LEU	PRO	ARG	GLY	LEU	MET	VAL	PRO	ALA	ASN	VAL	THR	THR	THR	ASN	VAL	ALA	ALA	LYS	GLU	LEU	VAL	LYS	ALA	G159	Q160	V161	R162	Y163	R164	N165	D166	K167	N168	G169	I170	I171	I172	T173	T174	I175	G176	K177	V178	D179	F180	D181	A182		
D183	K184	L185	K186	E187	N188	L189	E190	A191	L192	L193	V194	A195	L196	K197	K198	A199	K200	P201	T202	Q203	A204	K205	G206	V207	Y208	I209	K210	K211	V212	S213	I214	S215	T216	T217	M218	G219	A220	G221	V222	A223	V224	D225															

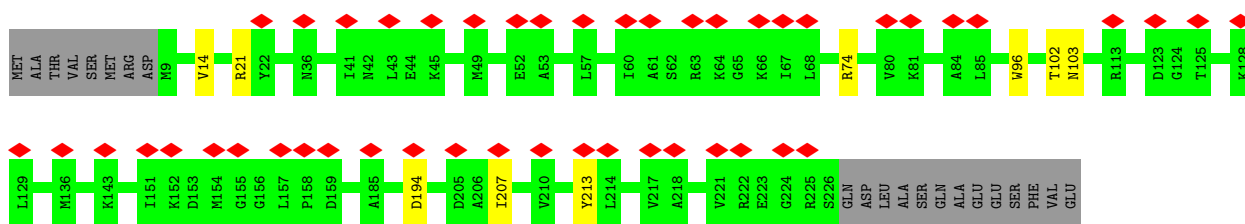
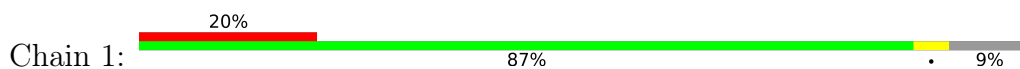
• Molecule 38: 16S rRNA



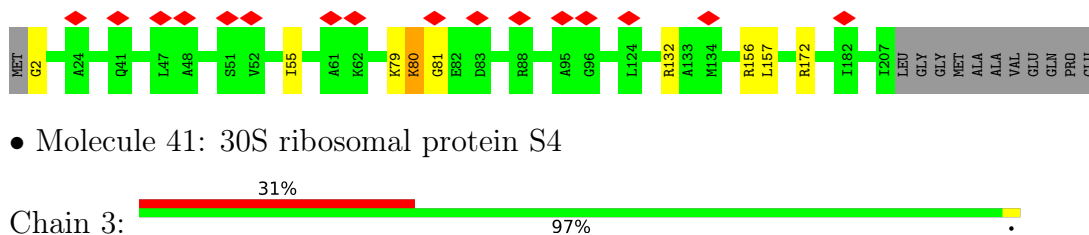
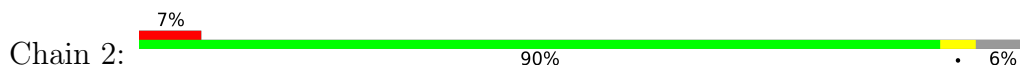
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G97	G108	G115	A116	G117	U118	G122	U123	A123	A130	A131	G141	A142	A143	G144	A149	C156	G163	A174	C175	C176	G177	A182	C183	G184	C188	A197	C207	U208	U209	C210	G211	C217	G226	C233	U245	A246	G247	G251	U261	G266							
C267	A412	G413	U421	C422	G423	G424	U429	A430	A451	U458	A459	G462	U463	A467	A468	C469	C470	U471	U472	G473	G474	A478	U479	G481	G484	U485	U486	A495	A496	G497	A498	A499	G500	C501	A502	G505	G506	C511	C518	C519	A520	G521	G527				
C528	G529	G530	U531	A532	A533	G540	C545	A546	A547	A554	C558	A559	A560	U561	U562	A563	G567	G568	C569	G570	U571	A572	A573	A574	C575	G576	G577	C578	G581	C586	A596	A596	A607	G613	G633	G639	G650	C651	U652	U653	A665	G666	G667	G674			
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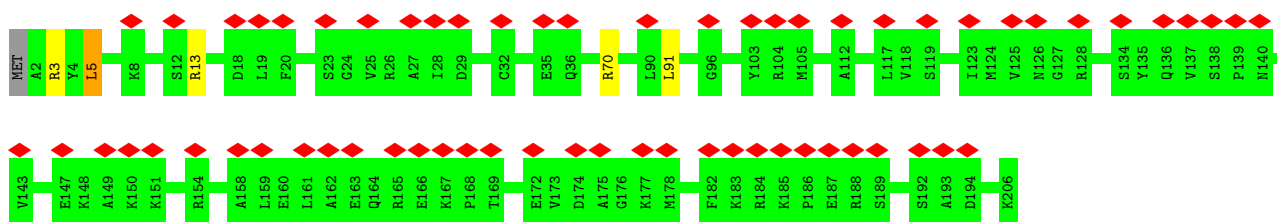
• Molecule 39: 30S ribosomal protein S2



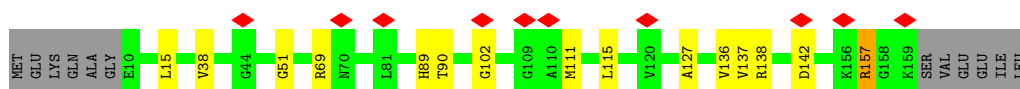
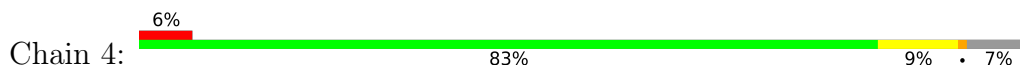
• Molecule 40: 30S ribosomal protein S3



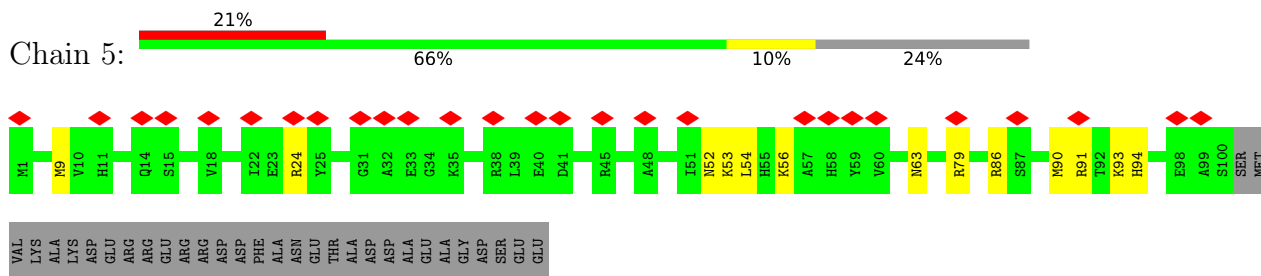
• Molecule 41: 30S ribosomal protein S4



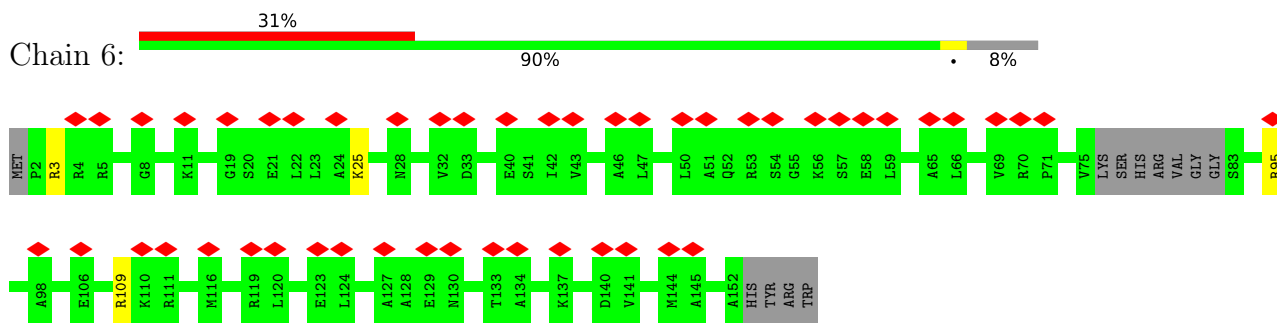
• Molecule 42: 30S ribosomal protein S5



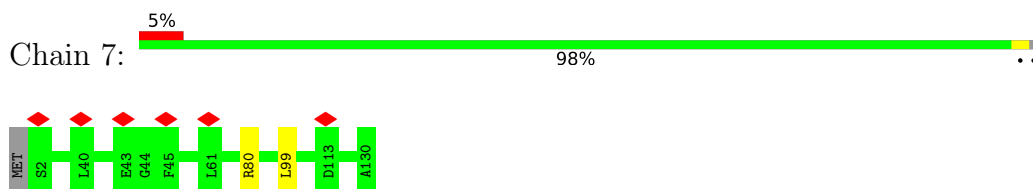
• Molecule 43: 30S ribosomal protein S6



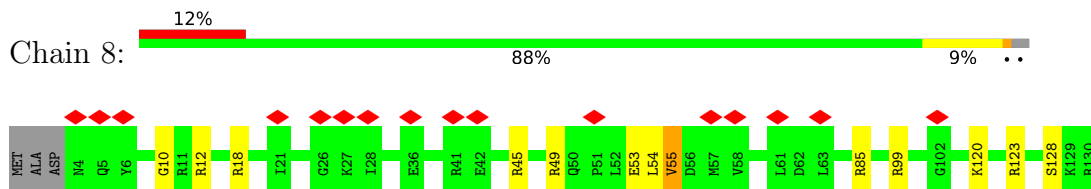
• Molecule 44: Ribosomal protein S7



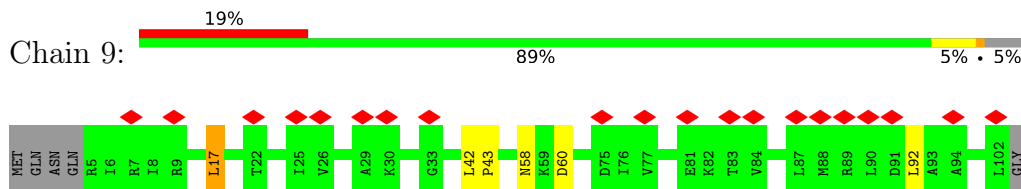
• Molecule 45: 30S ribosomal protein S8



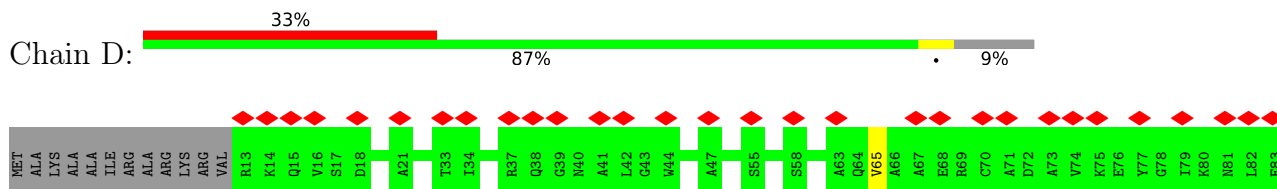
• Molecule 46: 30S ribosomal protein S9

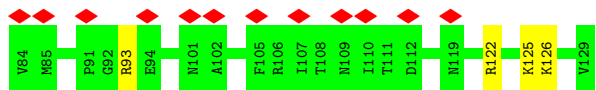


• Molecule 47: 30S ribosomal protein S10

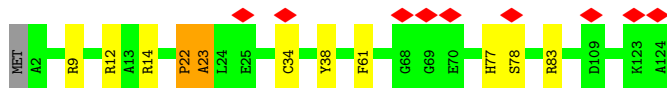
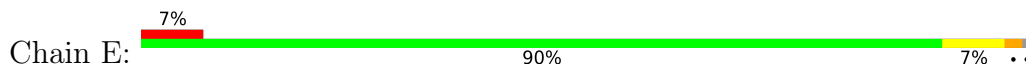


• Molecule 48: 30S ribosomal protein S11

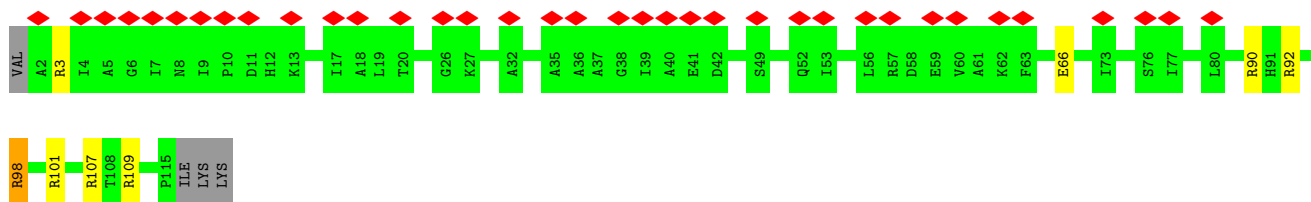
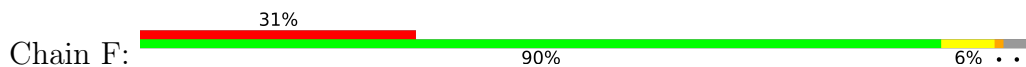




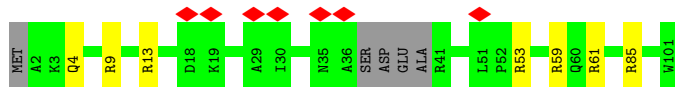
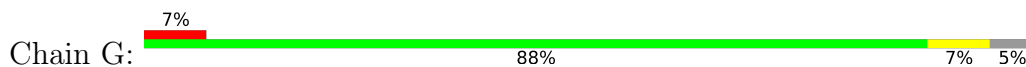
- Molecule 49: 30S ribosomal protein S12



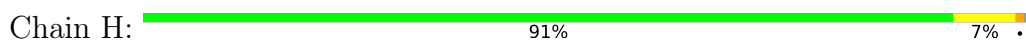
- Molecule 50: 30S ribosomal protein S13



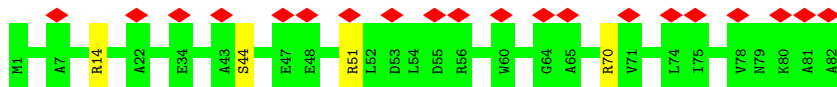
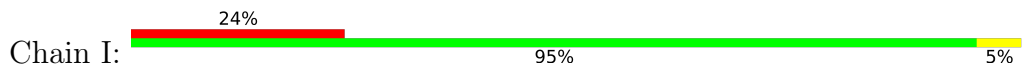
- Molecule 51: 30S ribosomal protein S14



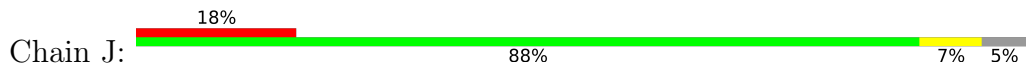
- Molecule 52: 30S ribosomal protein S15

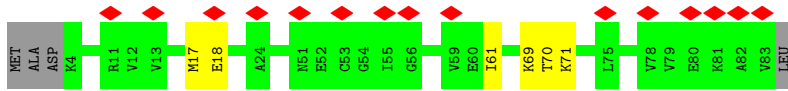


- Molecule 53: 30S ribosomal protein S16

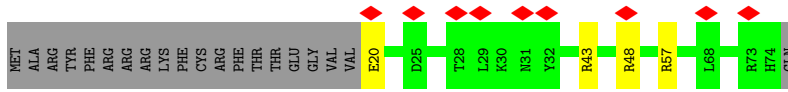


- Molecule 54: 30S ribosomal protein S17

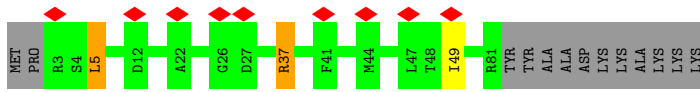
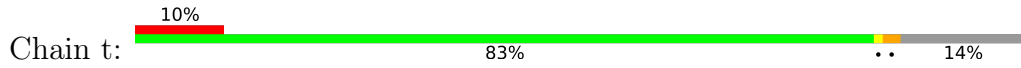




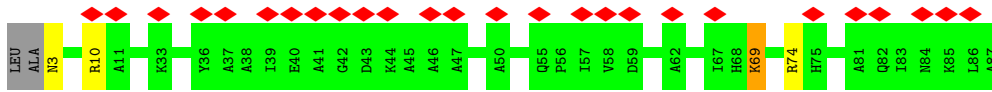
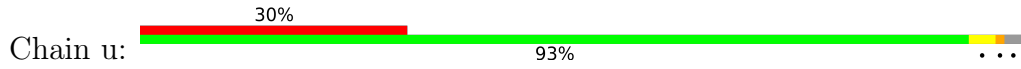
• Molecule 55: 30S ribosomal protein S18



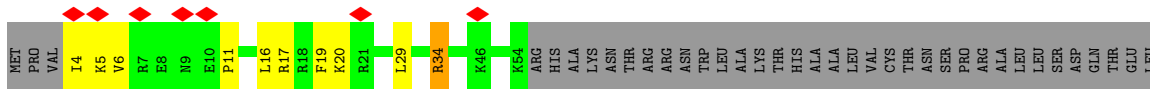
• Molecule 56: 30S ribosomal protein S19



• Molecule 57: 30S ribosomal protein S20



• Molecule 58: 30S ribosomal protein S21



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	32412	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 ( $e^-/\text{\AA}^2$ )	42.4	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	1.782	Depositor
Minimum map value	-0.457	Depositor
Average map value	0.020	Depositor
Map value standard deviation	0.141	Depositor
Recommended contour level	0.45	Depositor
Map size (Å)	476.55002, 476.55002, 476.55002	wwPDB
Map dimensions	450, 450, 450	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.059, 1.059, 1.059	Depositor

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: K, 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	A	0.66	1/1744 (0.1%)	0.86	0/2716
2	B	0.26	0/193	0.37	0/268
3	s	0.90	1/326 (0.3%)	0.80	1/441 (0.2%)
4	M	0.63	3/1779 (0.2%)	0.83	2/2768 (0.1%)
5	O	0.79	1/2828 (0.0%)	0.87	6/4410 (0.1%)
6	P	1.41	22/2121 (1.0%)	1.32	27/2852 (0.9%)
7	Q	1.18	3/1585 (0.2%)	1.13	8/2134 (0.4%)
8	R	0.97	3/1571 (0.2%)	1.02	9/2113 (0.4%)
9	S	0.67	0/1434	0.85	0/1926
10	T	0.67	0/1342	0.83	4/1816 (0.2%)
11	U	0.51	0/1122	0.78	1/1515 (0.1%)
12	V	0.52	0/1045	0.65	0/1410
13	W	1.10	4/1151 (0.3%)	1.10	7/1551 (0.5%)
14	X	1.15	0/947	1.20	5/1268 (0.4%)
15	Y	1.30	3/1053 (0.3%)	1.38	13/1403 (0.9%)
16	Z	1.13	2/1092 (0.2%)	1.19	6/1460 (0.4%)
17	a	1.28	3/973 (0.3%)	1.30	10/1301 (0.8%)
18	b	0.84	2/901 (0.2%)	1.08	8/1209 (0.7%)
19	c	1.09	3/927 (0.3%)	1.19	8/1240 (0.6%)
20	d	1.32	4/959 (0.4%)	1.37	15/1278 (1.2%)
21	e	1.08	1/828 (0.1%)	1.08	3/1107 (0.3%)
22	f	1.02	1/864 (0.1%)	1.09	1/1156 (0.1%)
23	g	0.91	0/744	1.01	1/994 (0.1%)
24	h	0.82	1/787 (0.1%)	0.89	0/1051
25	i	0.78	0/765	0.87	0/1025
26	j	1.21	2/575 (0.3%)	1.29	5/762 (0.7%)
27	k	1.09	1/634 (0.2%)	1.15	6/848 (0.7%)
28	l	0.71	0/509	1.04	4/677 (0.6%)
29	m	0.86	0/452	1.08	2/605 (0.3%)
30	n	1.16	2/449 (0.4%)	1.42	7/599 (1.2%)
31	o	1.31	7/416 (1.7%)	0.96	1/554 (0.2%)
32	p	1.38	3/379 (0.8%)	1.76	6/498 (1.2%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
33	q	1.15	0/512	1.26	6/676 (0.9%)
34	r	1.16	1/302 (0.3%)	1.35	5/397 (1.3%)
35	N	1.24	520/69681 (0.7%)	1.04	345/108706 (0.3%)
36	L	0.61	0/426	0.78	0/570
37	C	0.28	0/1034	0.51	0/1387
38	0	0.97	134/36809 (0.4%)	0.93	106/57423 (0.2%)
39	1	0.82	2/1735 (0.1%)	0.94	4/2338 (0.2%)
40	2	0.85	1/1651 (0.1%)	0.95	4/2225 (0.2%)
41	3	0.75	0/1664	0.98	6/2227 (0.3%)
42	4	1.11	1/1118 (0.1%)	1.21	7/1504 (0.5%)
43	5	0.90	1/835 (0.1%)	1.04	4/1128 (0.4%)
44	6	0.66	0/1142	0.95	6/1532 (0.4%)
45	7	0.88	0/988	0.99	2/1326 (0.2%)
46	8	0.86	0/1033	1.13	7/1375 (0.5%)
47	9	0.74	0/796	1.01	3/1077 (0.3%)
48	D	0.86	1/892 (0.1%)	1.03	3/1205 (0.2%)
49	E	1.09	3/968 (0.3%)	1.22	7/1300 (0.5%)
50	F	0.85	1/892 (0.1%)	1.12	9/1193 (0.8%)
51	G	0.86	0/784	1.14	7/1043 (0.7%)
52	H	0.94	0/717	1.13	8/959 (0.8%)
53	I	0.94	0/658	1.16	4/884 (0.5%)
54	J	0.82	0/657	1.02	0/881
55	K	0.98	1/462 (0.2%)	1.10	2/621 (0.3%)
56	t	0.81	0/652	1.05	3/877 (0.3%)
57	u	0.89	0/670	1.06	3/888 (0.3%)
58	v	0.99	1/430 (0.2%)	1.15	2/570 (0.4%)
All	All	1.09	740/160003 (0.5%)	1.02	719/239267 (0.3%)

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
2	B	0	1
6	P	0	3
7	Q	0	1
9	S	0	2
11	U	0	1
12	V	0	1
15	Y	0	2
16	Z	0	2

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Mol	Chain	#Chirality outliers	#Planarity outliers
24	h	0	1
33	q	0	1
35	N	0	6
38	0	0	5
39	1	0	2
40	2	0	2
42	4	0	5
43	5	0	2
46	8	0	4
48	D	0	1
49	E	0	2
54	J	0	2
56	t	0	1
57	u	0	1
58	v	0	1
All	All	0	49

The worst 5 of 740 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
35	N	2873	A	C6-N1	-20.39	1.21	1.35
35	N	2765	A	C6-N1	-18.67	1.22	1.35
35	N	2502	G	P-OP2	16.64	1.77	1.49
35	N	503	A	C6-N1	-15.24	1.24	1.35
35	N	1156	A	P-OP2	15.23	1.74	1.49

The worst 5 of 719 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
35	N	2506[A]	U	OP1-P-O3'	17.17	142.97	105.20
35	N	2506[B]	U	OP1-P-O3'	17.17	142.97	105.20
32	p	39	ARG	NE-CZ-NH1	16.14	128.37	120.30
32	p	39	ARG	NE-CZ-NH2	-14.83	112.89	120.30
4	M	73	C	O3'-P-O5'	14.35	131.26	104.00

There are no chirality outliers.

5 of 49 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	22	THR	Peptide
6	P	195	VAL	Peptide

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Mol	Chain	Res	Type	Group
6	P	234	GLY	Peptide
6	P	238	ARG	Peptide
7	Q	151	THR	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	
2	B	37/183 (20%)	36 (97%)	1 (3%)	0	100	100
3	s	35/179 (20%)	32 (91%)	3 (9%)	0	100	100
6	P	269/273 (98%)	247 (92%)	18 (7%)	4 (2%)	10	39
7	Q	207/209 (99%)	195 (94%)	11 (5%)	1 (0%)	29	63
8	R	199/201 (99%)	191 (96%)	8 (4%)	0	100	100
9	S	175/179 (98%)	163 (93%)	11 (6%)	1 (1%)	25	59
10	T	174/177 (98%)	165 (95%)	9 (5%)	0	100	100
11	U	147/149 (99%)	125 (85%)	19 (13%)	3 (2%)	7	33
12	V	139/142 (98%)	112 (81%)	27 (19%)	0	100	100
13	W	140/142 (99%)	136 (97%)	4 (3%)	0	100	100
14	X	120/123 (98%)	109 (91%)	9 (8%)	2 (2%)	9	36
15	Y	141/144 (98%)	121 (86%)	16 (11%)	4 (3%)	5	27
16	Z	134/136 (98%)	118 (88%)	11 (8%)	5 (4%)	3	22
17	a	118/127 (93%)	102 (86%)	14 (12%)	2 (2%)	9	36
18	b	114/117 (97%)	108 (95%)	6 (5%)	0	100	100
19	c	112/115 (97%)	104 (93%)	8 (7%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
20	d	115/118 (98%)	115 (100%)	0	0	100	100
21	e	101/103 (98%)	92 (91%)	8 (8%)	1 (1%)	15	48
22	f	108/110 (98%)	100 (93%)	7 (6%)	1 (1%)	17	51
23	g	91/100 (91%)	80 (88%)	9 (10%)	2 (2%)	6	32
24	h	100/104 (96%)	84 (84%)	14 (14%)	2 (2%)	7	33
25	i	92/94 (98%)	89 (97%)	3 (3%)	0	100	100
26	j	73/85 (86%)	71 (97%)	2 (3%)	0	100	100
27	k	75/78 (96%)	71 (95%)	3 (4%)	1 (1%)	12	42
28	l	61/63 (97%)	56 (92%)	5 (8%)	0	100	100
29	m	56/59 (95%)	52 (93%)	4 (7%)	0	100	100
30	n	54/57 (95%)	48 (89%)	5 (9%)	1 (2%)	8	34
31	o	48/55 (87%)	45 (94%)	3 (6%)	0	100	100
32	p	44/46 (96%)	40 (91%)	4 (9%)	0	100	100
33	q	62/65 (95%)	56 (90%)	5 (8%)	1 (2%)	9	37
34	r	36/55 (66%)	35 (97%)	1 (3%)	0	100	100
36	L	53/70 (76%)	45 (85%)	7 (13%)	1 (2%)	8	34
37	C	130/223 (58%)	123 (95%)	7 (5%)	0	100	100
39	1	216/239 (90%)	188 (87%)	27 (12%)	1 (0%)	29	63
40	2	204/218 (94%)	186 (91%)	16 (8%)	2 (1%)	15	48
41	3	203/206 (98%)	182 (90%)	21 (10%)	0	100	100
42	4	148/162 (91%)	116 (78%)	30 (20%)	2 (1%)	11	40
43	5	98/131 (75%)	81 (83%)	11 (11%)	6 (6%)	1	11
44	6	140/156 (90%)	130 (93%)	10 (7%)	0	100	100
45	7	127/130 (98%)	121 (95%)	6 (5%)	0	100	100
46	8	125/130 (96%)	103 (82%)	20 (16%)	2 (2%)	9	37
47	9	96/103 (93%)	84 (88%)	9 (9%)	3 (3%)	4	25
48	D	115/129 (89%)	102 (89%)	13 (11%)	0	100	100
49	E	121/124 (98%)	104 (86%)	15 (12%)	2 (2%)	9	36
50	F	112/118 (95%)	103 (92%)	8 (7%)	1 (1%)	17	51
51	G	92/101 (91%)	77 (84%)	14 (15%)	1 (1%)	14	46
52	H	86/89 (97%)	81 (94%)	5 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
53	I	80/82 (98%)	69 (86%)	10 (12%)	1 (1%)	12	42
54	J	78/84 (93%)	66 (85%)	9 (12%)	3 (4%)	3	21
55	K	53/75 (71%)	49 (92%)	3 (6%)	1 (2%)	8	34
56	t	77/92 (84%)	73 (95%)	4 (5%)	0	100	100
57	u	83/87 (95%)	78 (94%)	4 (5%)	1 (1%)	13	44
58	v	49/88 (56%)	41 (84%)	7 (14%)	1 (2%)	7	33
All	All	5863/6625 (88%)	5300 (90%)	504 (9%)	59 (1%)	20	48

5 of 59 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	P	239	ASN
11	U	72	ILE
15	Y	36	LYS
16	Z	58	LYS
21	e	53	PHE

### 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	
3	s	34/158 (22%)	34 (100%)	0	100	100
6	P	216/218 (99%)	215 (100%)	1 (0%)	88	94
7	Q	164/164 (100%)	161 (98%)	3 (2%)	59	79
8	R	165/165 (100%)	161 (98%)	4 (2%)	49	74
9	S	148/150 (99%)	148 (100%)	0	100	100
10	T	137/138 (99%)	137 (100%)	0	100	100
11	U	114/114 (100%)	107 (94%)	7 (6%)	18	49
12	V	109/110 (99%)	108 (99%)	1 (1%)	78	89
13	W	116/116 (100%)	116 (100%)	0	100	100
14	X	103/104 (99%)	103 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
15	Y	102/103 (99%)	102 (100%)	0	100	100
16	Z	109/109 (100%)	108 (99%)	1 (1%)	78	89
17	a	100/102 (98%)	97 (97%)	3 (3%)	41	69
18	b	86/87 (99%)	86 (100%)	0	100	100
19	c	98/100 (98%)	95 (97%)	3 (3%)	40	68
20	d	89/90 (99%)	88 (99%)	1 (1%)	73	86
21	e	84/84 (100%)	82 (98%)	2 (2%)	49	74
22	f	93/93 (100%)	93 (100%)	0	100	100
23	g	80/85 (94%)	80 (100%)	0	100	100
24	h	83/85 (98%)	82 (99%)	1 (1%)	71	85
25	i	78/78 (100%)	78 (100%)	0	100	100
26	j	56/63 (89%)	55 (98%)	1 (2%)	59	79
27	k	67/68 (98%)	67 (100%)	0	100	100
28	l	55/55 (100%)	55 (100%)	0	100	100
29	m	48/49 (98%)	48 (100%)	0	100	100
30	n	47/48 (98%)	46 (98%)	1 (2%)	53	77
31	o	45/49 (92%)	45 (100%)	0	100	100
32	p	38/38 (100%)	38 (100%)	0	100	100
33	q	51/52 (98%)	49 (96%)	2 (4%)	32	62
34	r	34/50 (68%)	34 (100%)	0	100	100
36	L	48/63 (76%)	48 (100%)	0	100	100
37	C	110/174 (63%)	110 (100%)	0	100	100
39	1	180/198 (91%)	179 (99%)	1 (1%)	86	93
40	2	170/178 (96%)	169 (99%)	1 (1%)	86	93
41	3	172/173 (99%)	171 (99%)	1 (1%)	86	93
42	4	113/123 (92%)	110 (97%)	3 (3%)	44	71
43	5	87/112 (78%)	86 (99%)	1 (1%)	73	86
44	6	119/129 (92%)	118 (99%)	1 (1%)	81	91
45	7	104/105 (99%)	104 (100%)	0	100	100
46	8	105/107 (98%)	104 (99%)	1 (1%)	76	87
47	9	86/90 (96%)	85 (99%)	1 (1%)	71	85

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
48	D	90/98 (92%)	89 (99%)	1 (1%)	73	86
49	E	103/104 (99%)	103 (100%)	0	100	100
50	F	92/96 (96%)	91 (99%)	1 (1%)	73	86
51	G	79/83 (95%)	79 (100%)	0	100	100
52	H	75/77 (97%)	74 (99%)	1 (1%)	69	84
53	I	65/65 (100%)	65 (100%)	0	100	100
54	J	74/77 (96%)	73 (99%)	1 (1%)	67	83
55	K	48/66 (73%)	48 (100%)	0	100	100
56	t	70/80 (88%)	68 (97%)	2 (3%)	42	70
57	u	65/66 (98%)	65 (100%)	0	100	100
58	v	44/76 (58%)	36 (82%)	8 (18%)	1	7
All	All	4848/5265 (92%)	4793 (99%)	55 (1%)	74	86

5 of 55 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
30	n	28	LEU
42	4	115	LEU
58	v	29	LEU
58	v	6	VAL
33	q	2	PRO

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 41 such sidechains are listed below:

Mol	Chain	Res	Type
37	C	172	HIS
48	D	118	HIS
42	4	89	HIS
43	5	55	HIS
51	G	49	GLN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	72/73 (98%)	19 (26%)	8 (11%)
35	N	2894/2903 (99%)	519 (17%)	34 (1%)

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
38	0	1531/1539 (99%)	275 (17%)	22 (1%)
4	M	74/75 (98%)	11 (14%)	0
5	O	117/120 (97%)	21 (17%)	1 (0%)
All	All	4688/4710 (99%)	845 (18%)	65 (1%)

5 of 845 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	13	C
1	A	14	A
1	A	16	U
1	A	17	C
1	A	18	G

5 of 65 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
38	0	1190	G
38	0	1300	G
35	N	784	G
35	N	774	G
38	0	1345	U

## 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 3 ligands modelled in this entry, 3 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.



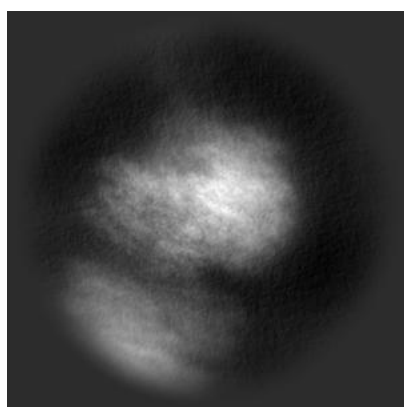
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13956. These allow visual inspection of the internal detail of the map and identification of artifacts.

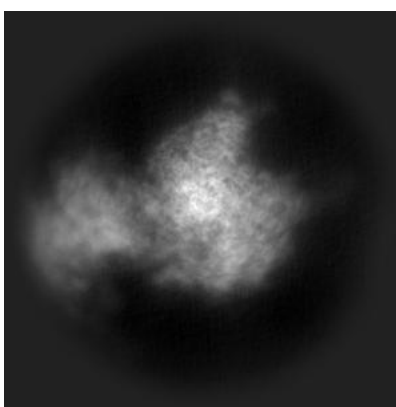
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

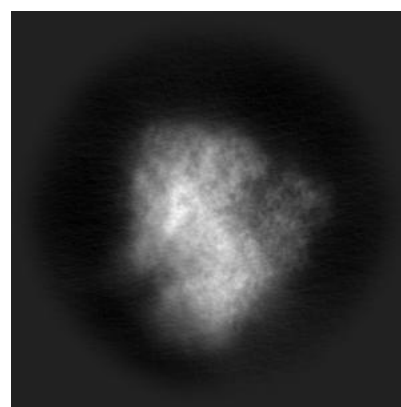
#### 6.1.1 Primary map



X



Y

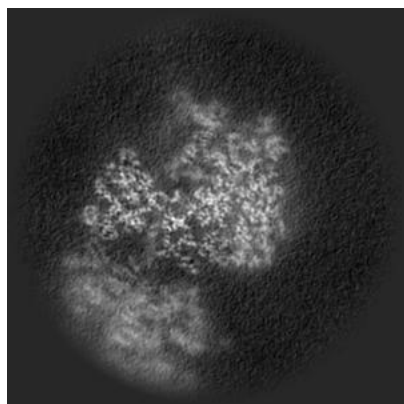


Z

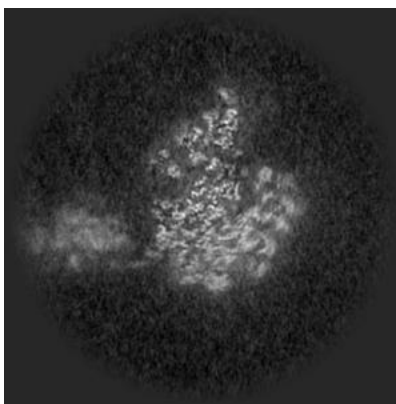
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

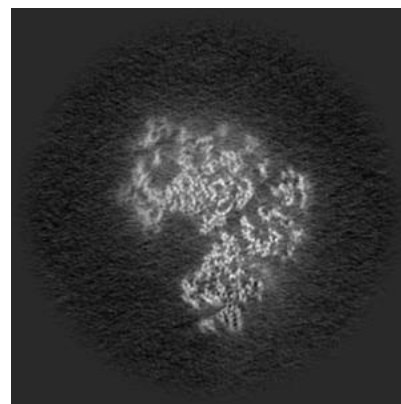
#### 6.2.1 Primary map



X Index: 225



Y Index: 225

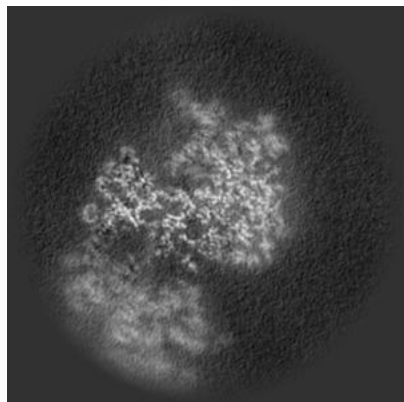


Z Index: 225

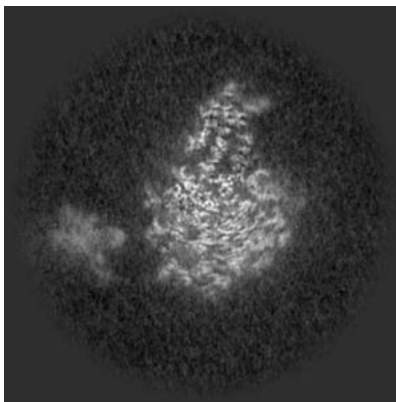
The images above show central slices of the map in three orthogonal directions.

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

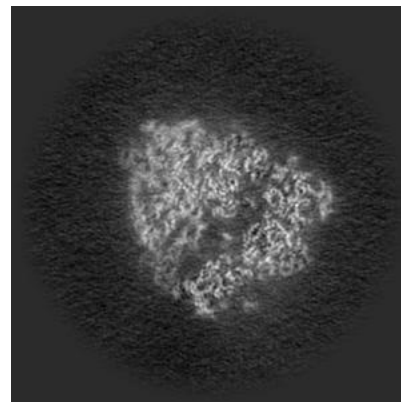
### 6.3.1 Primary map



X Index: 223



Y Index: 245



Z Index: 250

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

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

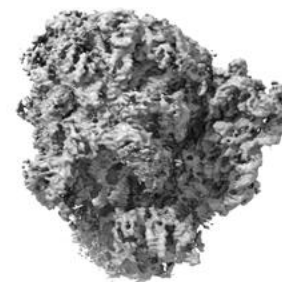
### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.45. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

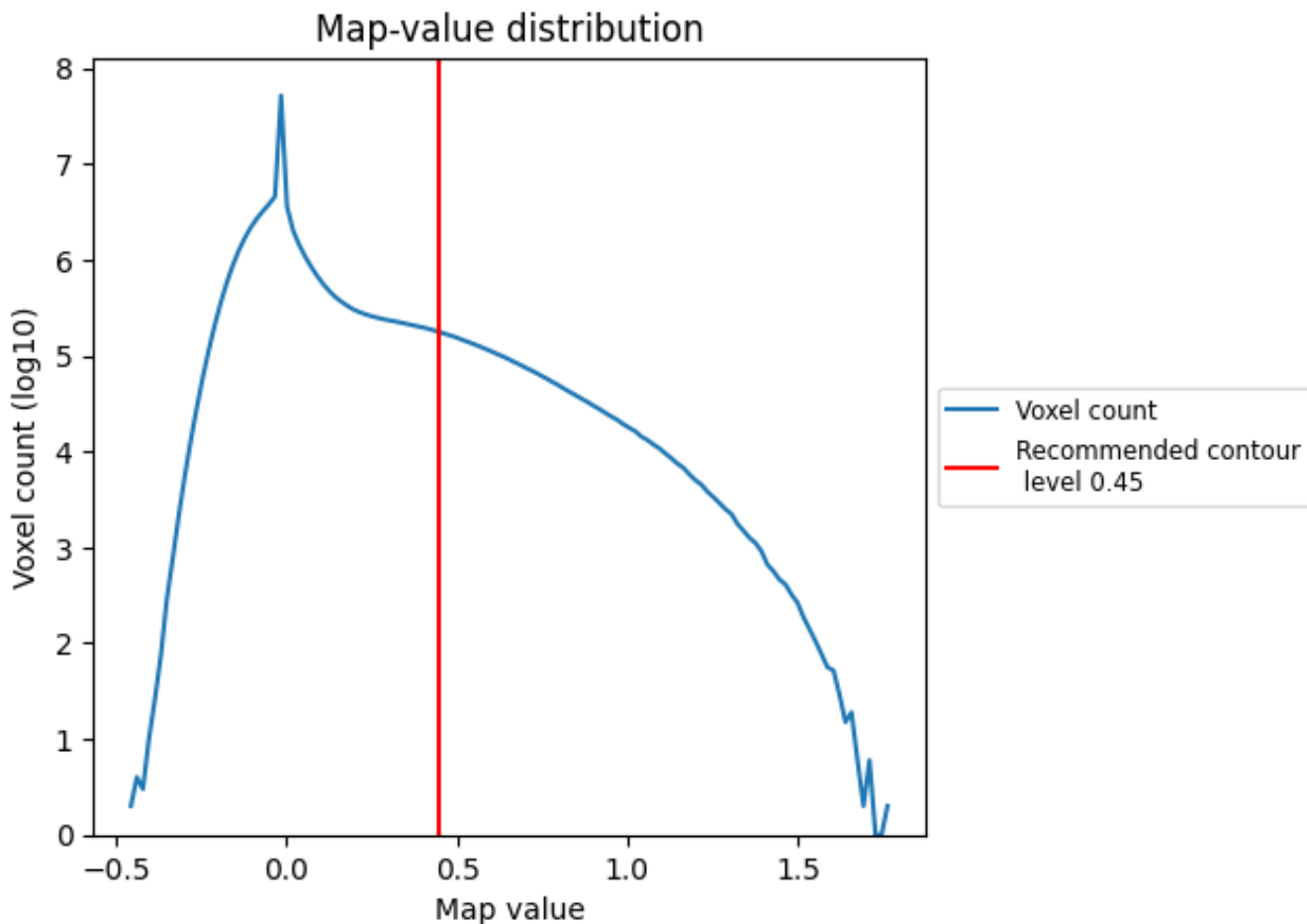
## 6.5 Mask visualisation

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

## 7 Map analysis [i](#)

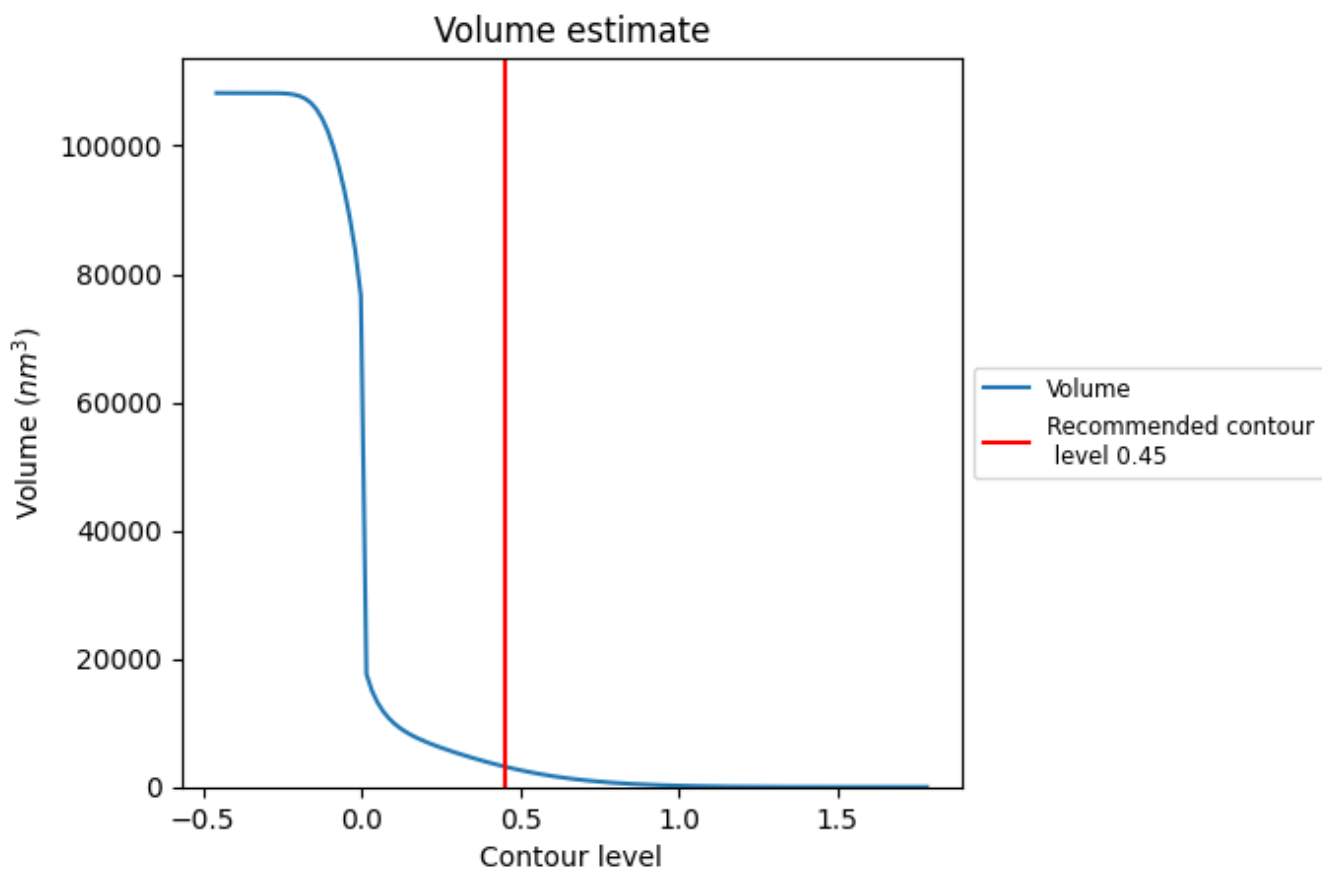
This section contains the results of statistical analysis of the map.

### 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.

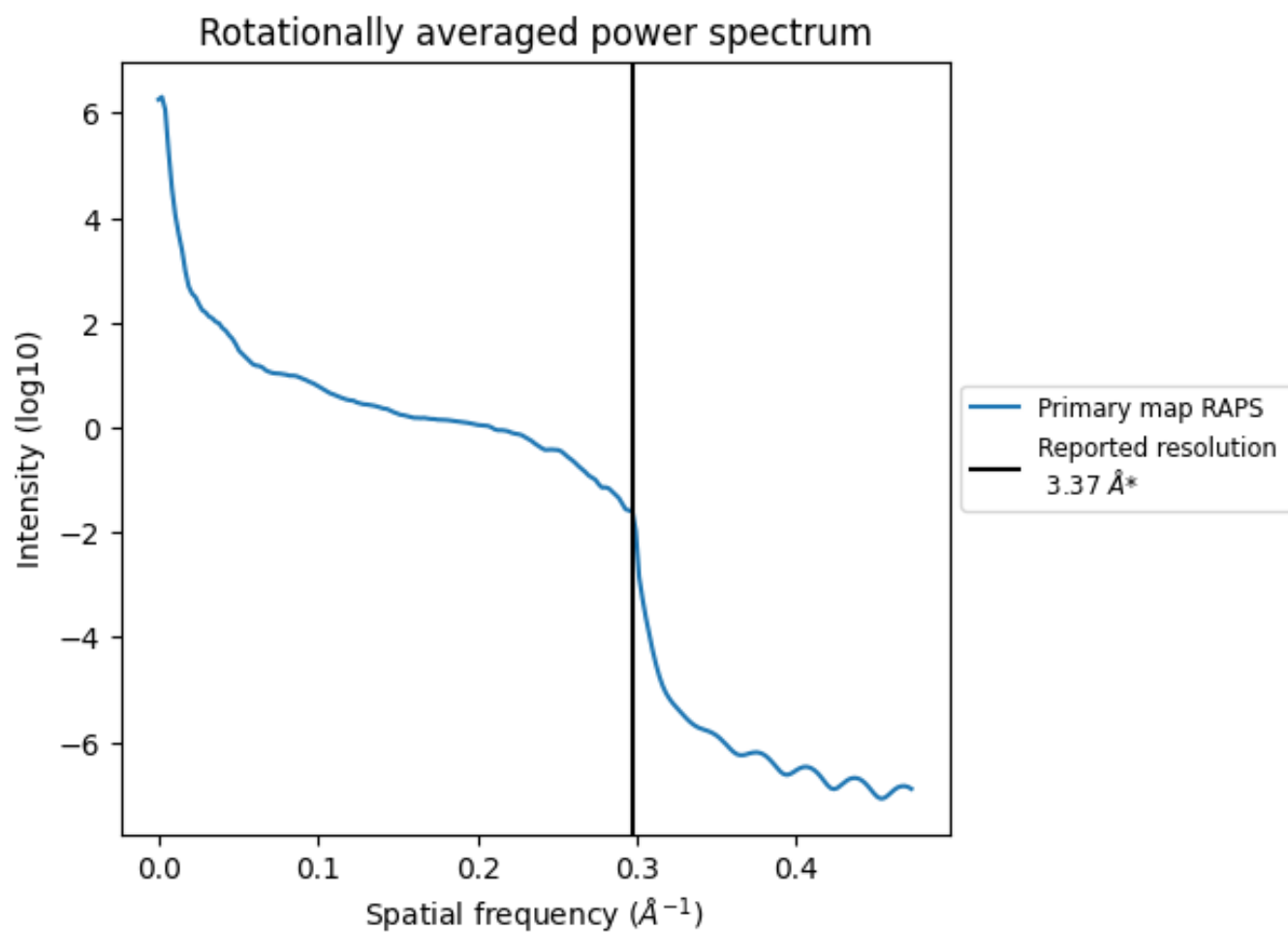
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 3188 nm<sup>3</sup>; this corresponds to an approximate mass of 2880 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 0.297 Å<sup>-1</sup>

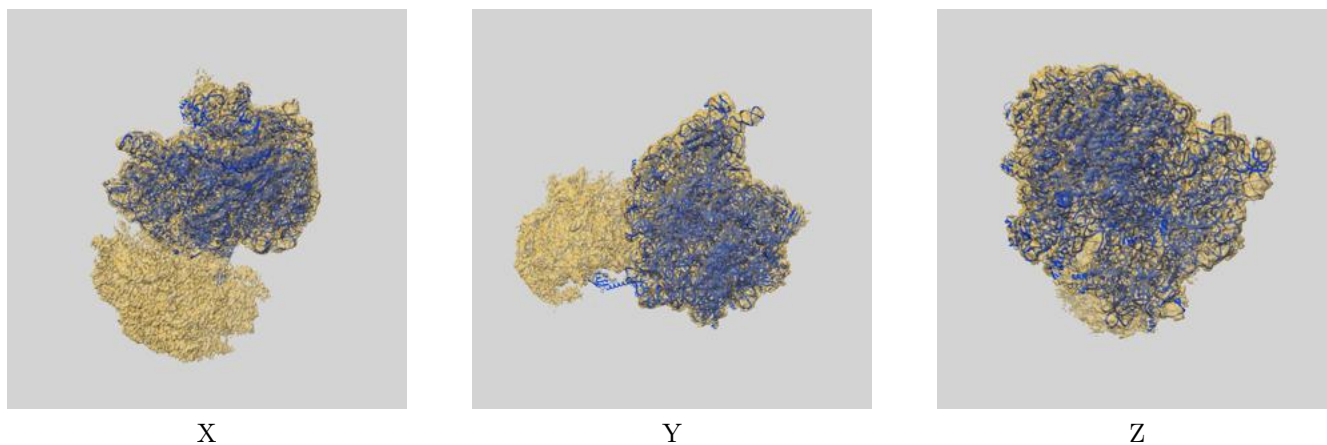
## 8 Fourier-Shell correlation

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-13956 and PDB model 7QGN. Per-residue inclusion information can be found in section [3](#) on page [16](#).

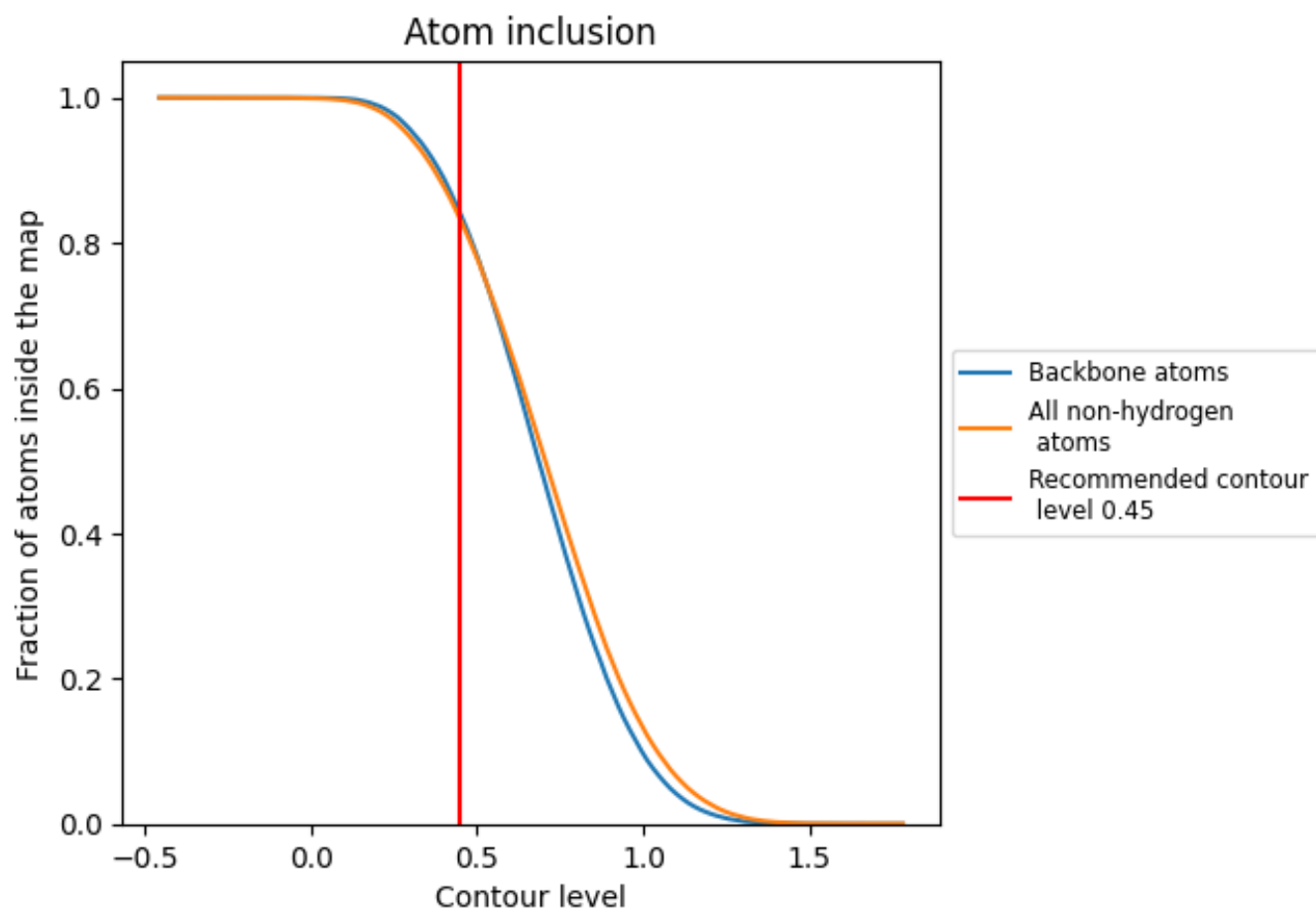
### 9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.45 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, 84% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.