wwPDB EM Validation Summary Report

Feb 22, 2024 – 08:02 PM EST

PDB ID	:	4V66
EMDB ID	:	EMD-1056
Title	:	Structure of the E. coli ribosome and the tRNAs in Post-accommodation state
Authors	:	Devkota, B.; Caulfield, T.R.; Tan, R.-Z.; Harvey, S.C.
Deposited on	:	2008-08-03
Resolution	:	9.00 Å(reported)
Based on initial models	:	1EHZ, 2I2P

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

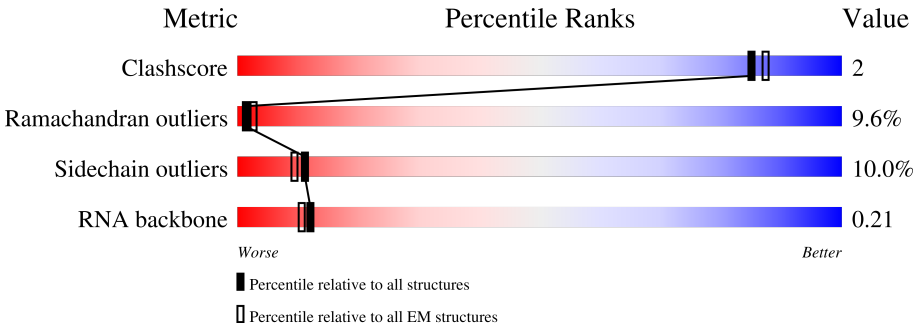
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 9.00 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)
Clashscore	158937	4297
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 <=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	AA	76	64% 22% 37% 39% .
1	AE	76	54% 22% 62% 16%
1	AP	76	57% 21% 53% 25% .
2	AM	20	10% 15% 30% 55%
3	A1	1530	66% 15% 47% 38%
4	AB	241	70% 61% 23% 5% 10%
5	AC	129	46% 57% 26% 5% . 9%

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Mol	Chain	Length	Quality of chain
6	AD	124	73% 56% 31% 10%
7	AF	118	53% 53% 35% 8%
8	AG	101	86% 65% 24% 5%
9	AH	89	83% 62% 30% 6%
10	AI	82	100% 57% 34% 9%
11	AJ	84	73% 56% 30% 8% 5%
12	AK	75	25% 36% 29% 8% 27%
13	AL	92	83% 51% 24% 9% 14%
14	AN	87	57% 64% 28% 6%
15	AO	233	28% 61% 23% 12%
16	AQ	71	42% 37% 27% 7% 28%
17	AR	206	53% 64% 28% 7%
18	AS	159	32% 62% 25% 8% 6%
19	AT	135	53% 42% 24% 7% 26%
20	AU	179	39% 48% 29% 6% 16%
21	AV	130	50% 62% 31% 5%
22	AW	130	82% 58% 29% 9%
23	AX	103	71% 59% 27% 8% 5%
24	BA	117	66% 20% 44% 36%
25	BB	2903	55% 15% 43% 42%
26	BC	94	72% 67% 31%
27	BD	123	57% 63% 32%
28	BE	144	60% 55% 31% 12%
29	BF	136	63% 55% 29% 12%
30	BG	127	39% 55% 36% 9%

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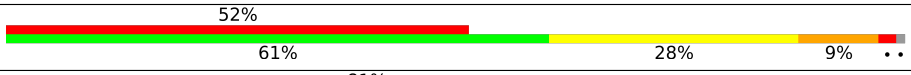
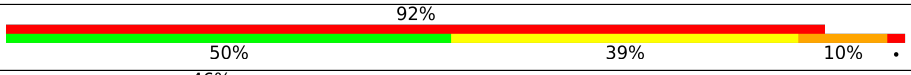
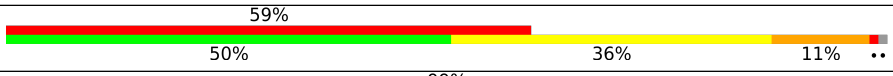
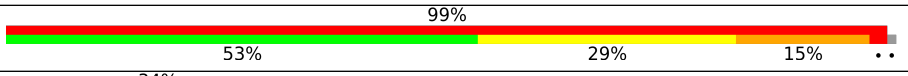
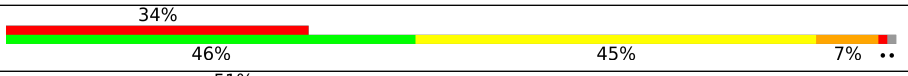
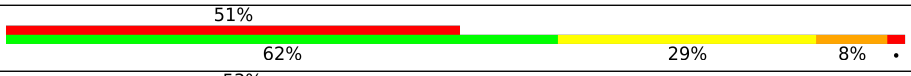
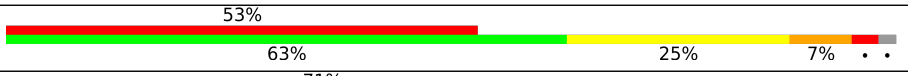
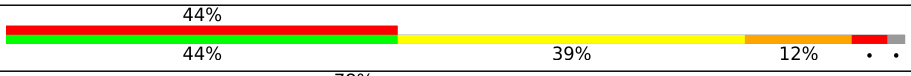
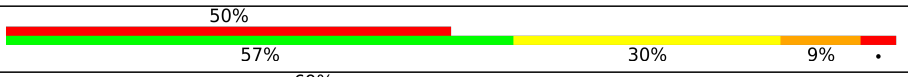
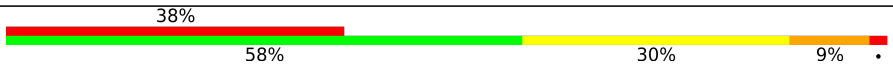
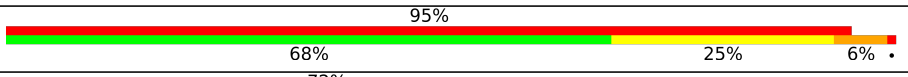
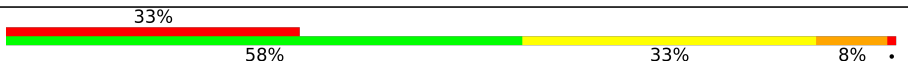
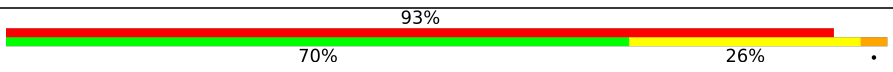
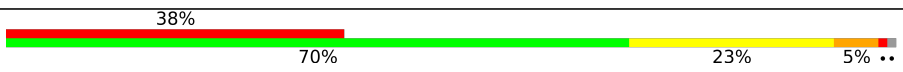
Mol	Chain	Length	Quality of chain
31	BH	117	
32	BI	115	
33	BJ	118	
34	BK	103	
35	BL	110	
36	BM	99	
37	BN	270	
38	BO	103	
39	BP	85	
40	BQ	63	
41	BR	59	
42	BS	70	
43	BT	57	
44	BU	54	
45	BV	46	
46	BW	64	
47	BX	38	
48	BY	209	
49	BZ	213	
50	B1	201	
51	B2	178	
52	B3	177	
53	B4	149	
54	B5	142	
55	B6	140	

2 Entry composition (i)

There are 55 unique types of molecules in this entry. The entry contains 149248 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/T, P and E-site tRNAs.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	AA	75	Total	C	N	O	P	0	0
			1600	715	288	523	74		
1	AP	75	Total	C	N	O	P	0	0
			1600	715	288	523	74		
1	AE	76	Total	C	N	O	P	0	0
			1622	725	293	529	75		

- Molecule 2 is a RNA chain called mRNA model.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	AM	20	Total	C	N	O	P	0	0
			397	180	40	158	19		

- Molecule 3 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	A1	1530	Total	C	N	O	P	0	0
			32828	14642	6024	10633	1529		

- Molecule 4 is a protein called 30S ribosomal protein S2.

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

- Molecule 5 is a protein called 30S ribosomal protein S11.

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

- Molecule 6 is a protein called 30S ribosomal protein S12.

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

- Molecule 7 is a protein called 30S ribosomal protein S13.

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

- Molecule 8 is a protein called 30S ribosomal protein S14.

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

- Molecule 9 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	AH	88	Total	C	N	O	S	0	0
			715	440	146	128	1		

- Molecule 10 is a protein called 30S ribosomal protein S16.

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

- Molecule 11 is a protein called 30S ribosomal protein S17.

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

- Molecule 12 is a protein called 30S ribosomal protein S18.

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

- Molecule 13 is a protein called 30S ribosomal protein S19.

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

- Molecule 14 is a protein called 30S ribosomal protein S20.

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

- Molecule 15 is a protein called 30S ribosomal protein S3.

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

- Molecule 16 is a protein called 30S ribosomal protein S21.

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

- Molecule 17 is a protein called 30S ribosomal protein S4.

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

- Molecule 18 is a protein called 30S ribosomal protein S5.

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

- Molecule 19 is a protein called 30S ribosomal protein S6.

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

- Molecule 20 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	AU	150	Total	C	N	O	S	0	0
			1174	730	226	214	4		

- Molecule 21 is a protein called 30S ribosomal protein S8.

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

- Molecule 22 is a protein called 30S ribosomal protein S9.

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

- Molecule 23 is a protein called 30S ribosomal protein S10.

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

- Molecule 24 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	BA	117	Total	C	N	O	P	0	0
			2504	1116	459	813	116		

- Molecule 25 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	BB	2903	Total	C	N	O	P	0	0
			62317	27801	11467	20147	2902		

- Molecule 26 is a protein called 50S ribosomal protein L25.

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

- Molecule 27 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	BD	121	Total	C	N	O	S	0	0
			930	582	179	164	5		

- Molecule 28 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	BE	144	Total	C	N	O	S	0	0
			1052	654	207	189	2		

- Molecule 29 is a protein called 50S ribosomal protein L16.

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

- Molecule 30 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	BG	127	Total	C	N	O	S	0	0
			1007	621	204	177	5		

- Molecule 31 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	BH	117	Total	C	N	O	S	0	0
			899	557	179	162	1		

- Molecule 32 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	BI	114	Total	C	N	O	S	0	0
			916	574	179	162	1		

- Molecule 33 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
33	BJ	117	Total	C	N	O	0	0
			946	604	192	150		

- Molecule 34 is a protein called 50S ribosomal protein L21.

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

- Molecule 35 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	BL	110	Total	C	N	O	S	0	0
			856	532	166	155	3		

- Molecule 36 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	BM	99	Total	C	N	O	S	0	0
			777	491	145	139	2		

- Molecule 37 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	BN	267	Total	C	N	O	S	0	0
			2053	1271	416	359	7		

- Molecule 38 is a protein called 50S ribosomal protein L24.

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

- Molecule 39 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	BP	84	Total	C	N	O	S	0	0
			633	391	129	112	1		

- Molecule 40 is a protein called 50S ribosomal protein L29.

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

- Molecule 41 is a protein called 50S ribosomal protein L30.

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

- Molecule 42 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	BS	70	Total	C	N	O	S	0	0
			548	339	104	99	6		

- Molecule 43 is a protein called 50S ribosomal protein L32.

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

- Molecule 44 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
44	BU	54	Total	C	N	O	0	0
			440	284	81	75		

- Molecule 45 is a protein called 50S ribosomal protein L34.

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

- Molecule 46 is a protein called 50S ribosomal protein L35.

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

- Molecule 47 is a protein called 50S ribosomal protein L36.

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

- Molecule 48 is a protein called 50S ribosomal protein L3.

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

- Molecule 49 is a protein called 50S ribosomal protein L1P.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	BZ	213	Total	C	N	O	S	0	0
			1687	1078	300	308	1		

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
BZ	1	MET	-	insertion	UNP P35024
BZ	?	-	MET	deletion	UNP P35024
BZ	70	SER	PHE	conflict	UNP P35024
BZ	82	LYS	ASN	conflict	UNP P35024
BZ	?	-	MET	deletion	UNP P35024
BZ	?	-	MET	deletion	UNP P35024
BZ	?	-	MET	deletion	UNP P35024

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

Mol	Chain	Residues	Atoms					AltConf	Trace
50	B1	201	Total	C	N	O	S	0	0
			1551	974	283	289	5		

- Molecule 51 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	B2	178	Total	C	N	O	S	0	0
			1419	905	251	257	6		

- Molecule 52 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	B3	176	Total	C	N	O	S	0	0
			1322	832	243	245	2		

- Molecule 53 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	B4	149	Total	C	N	O	S	0	0
			1110	699	197	213	1		

- Molecule 54 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	B5	141	Total	C	N	O	S	0	0
			1031	651	179	195	6		

- Molecule 55 is a protein called 50S ribosomal protein L13.

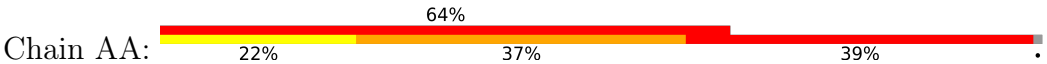
Mol	Chain	Residues	Atoms					AltConf	Trace
55	B6	140	Total	C	N	O	S	0	0
			1112	704	210	194	4		

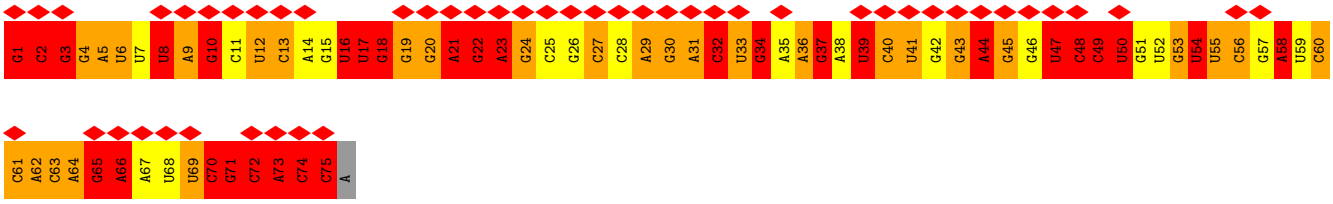
3 Residue-property plots (i)

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/T, P and E-site tRNAs

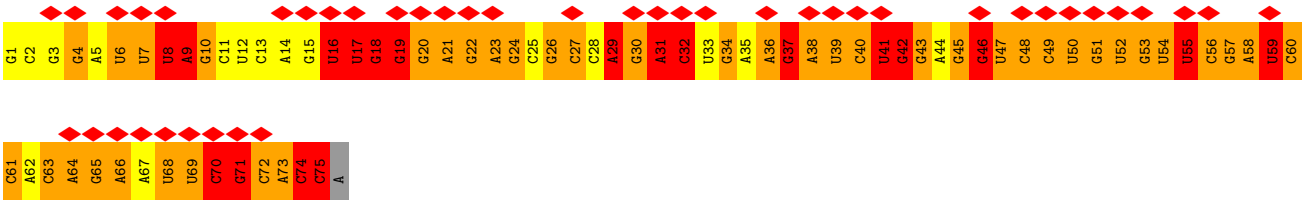
Chain AA:





• Molecule 1: A/T, P and E-site tRNAs

Chain AP:



• Molecule 1: A/T, P and E-site tRNAs

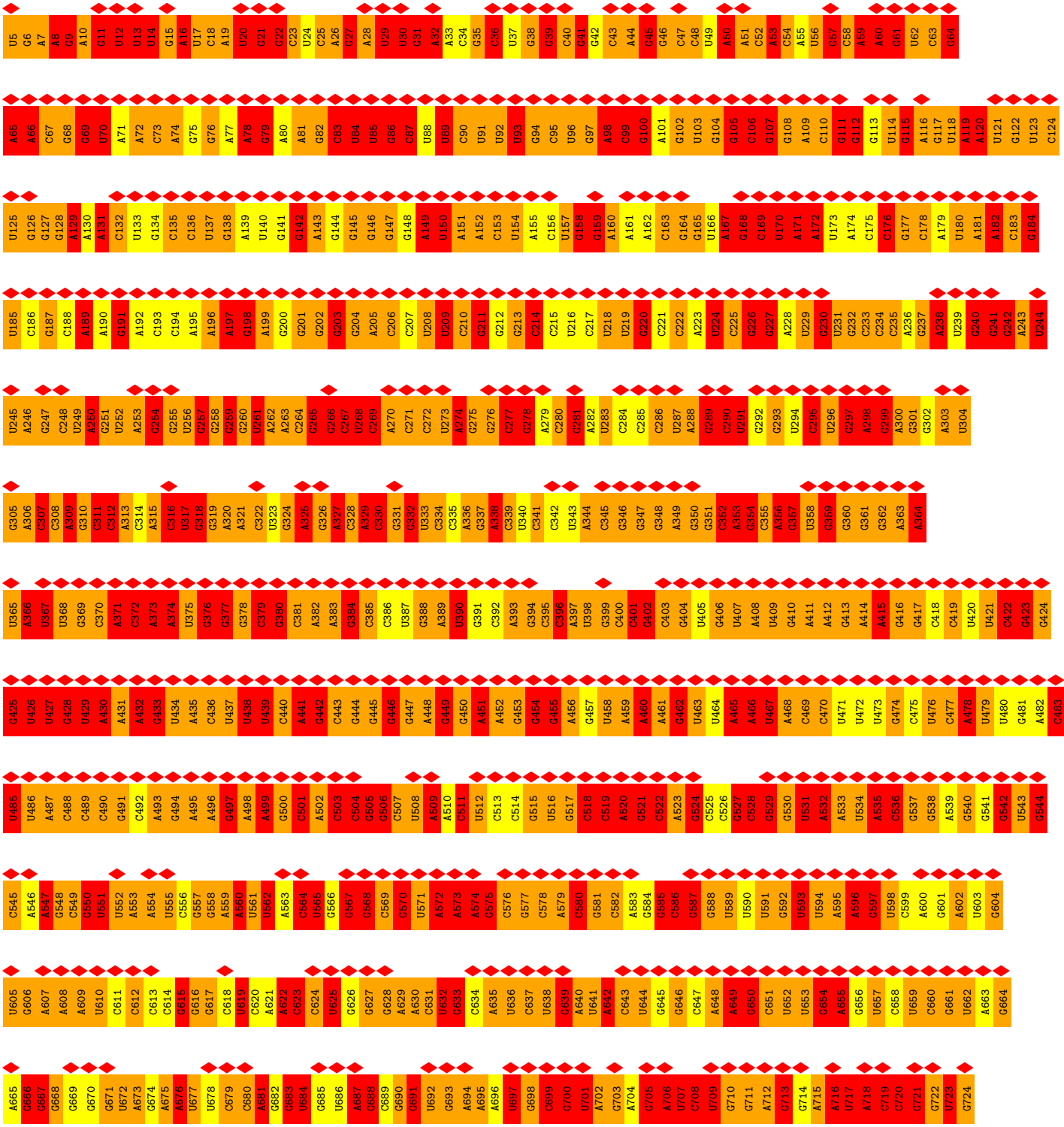
Chain AE:

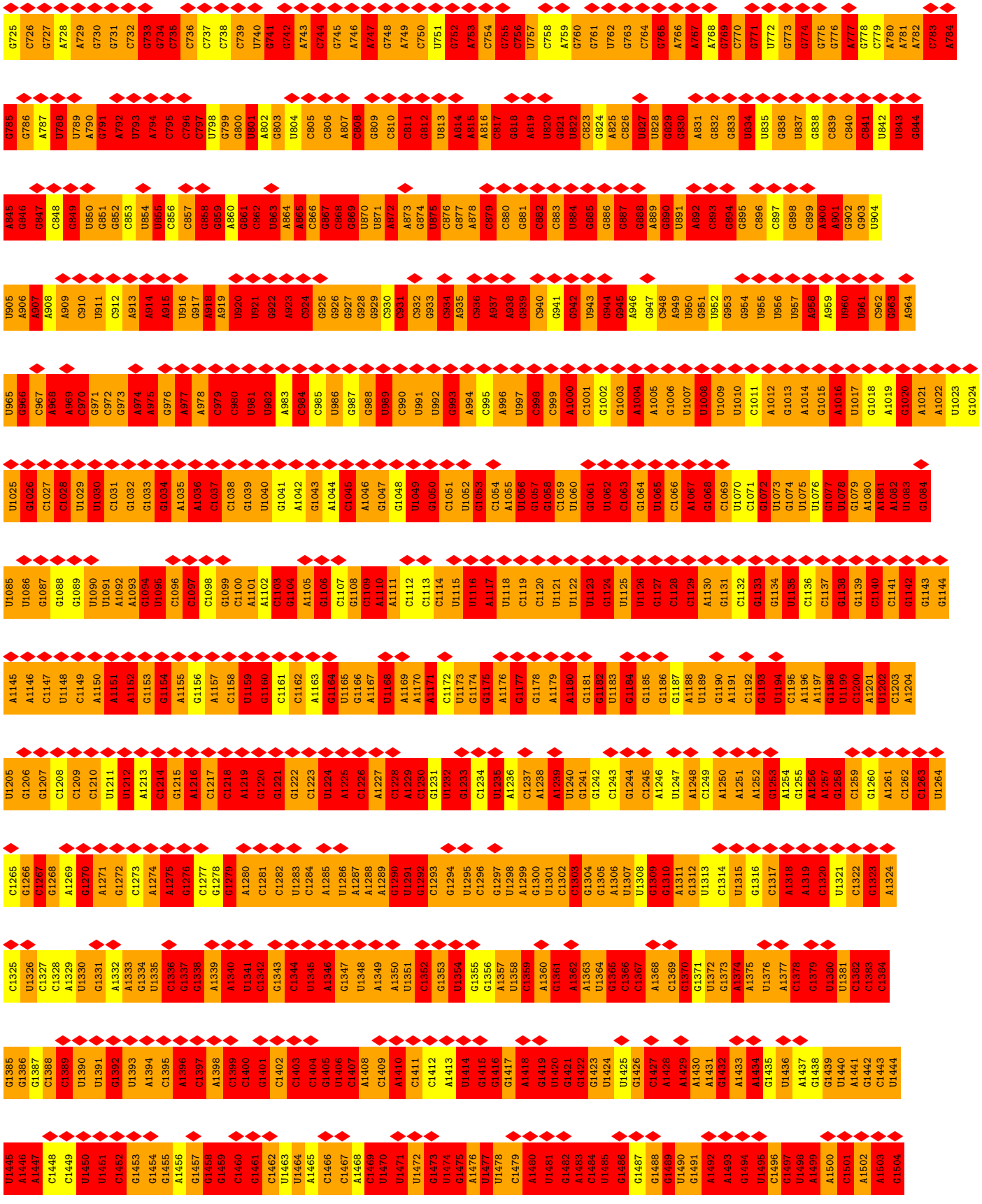
• Molecule 2: mRNA model

Chain AM:

• Molecule 3: 16S rRNA

Chain A1:

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A845 G846 G847 C848 G849 U850 C851 G852 C853 U854 U855 C856 C857 G858 G859 A860 G861 C862 U863 A864 A865 C866 C867 C868 G869 U870 U871 A872 A873 G874 U875 C876 G877 A878 C879 C880 G881 C882 C883 U884 G885 G886 G887 G888 A889 G890 U891 A892 C893 G894 G895 C896 C897 G898 C899 A900 A901 G902 G903 U904
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U1085 U1086 G1087 G1088 G1089 U1090 U1091 A1092 A1093 G1094 U1095 C1096 C1097 C1098 G1099 C1100 A1101 A1102 C1103 G1104 A1105 G1106 C1107 G1108 C1109 A1110 A1111 C1112 C1113 C1114 U1115 U1116 A1117 U1118 C1119 C1120 U1121 U1122 U1123 G1124 U1125 U1126 G1127 C1128 C1129 A1130 G1131 C1132 G1133 G1134 U1135 C1136 C1137 G1138 G1139 C1140 C1141 G1142 G1143 G1144
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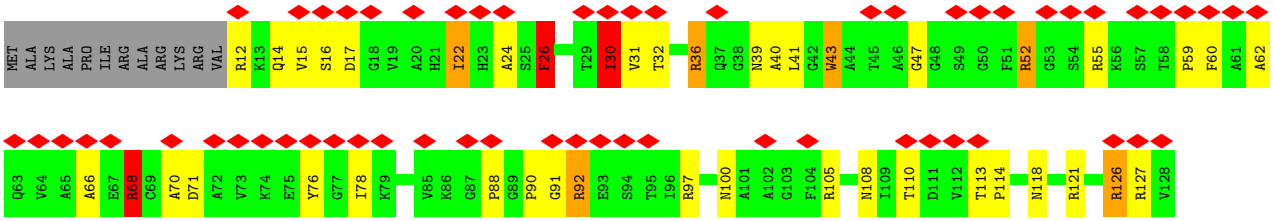
U1445 A1446 A1447 C1448 C1449 U1450 U1451 C1452 G1453 G1454 G1455 A1456 G1457 G1458 G1459 C1460 G1461 C1462 U1463 U1464 A1465 C1466 C1467 A1468 C1469 U1470 U1471 U1472 G1473 U1474 G1475 A1476 U1477 U1478 C1479 A1480 U1481 G1482 A1483 U1484 U1485 G1486 G1487 G1488 G1489 U1490 G1491 A1492 A1493 G1494 U1495 C1496 G1497 U1498 A1499 A1500 C1501 A1502 A1503 G1504

• Molecule 4: 30S ribosomal protein S2

Chain AB:

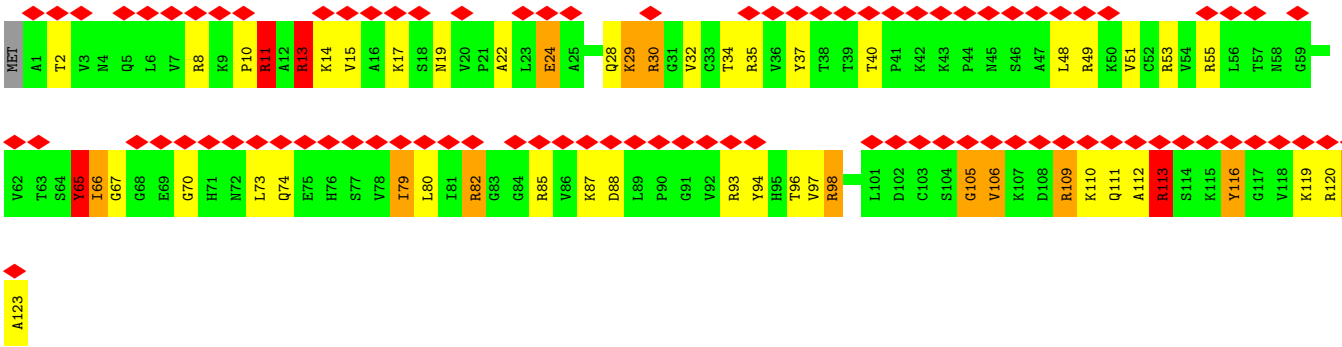
• Molecule 5: 30S ribosomal protein S11

Chain AC:



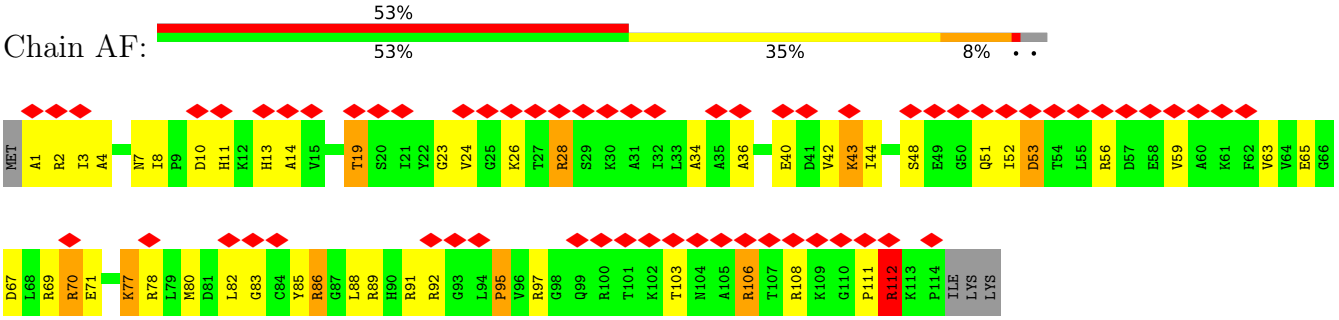
• Molecule 6: 30S ribosomal protein S12

Chain AD:



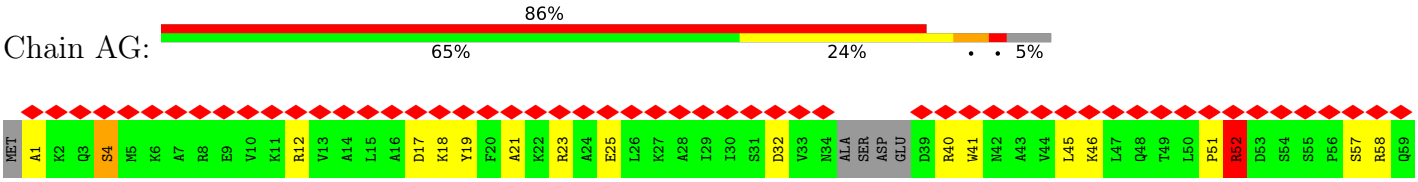
• Molecule 7: 30S ribosomal protein S13

Chain AF:



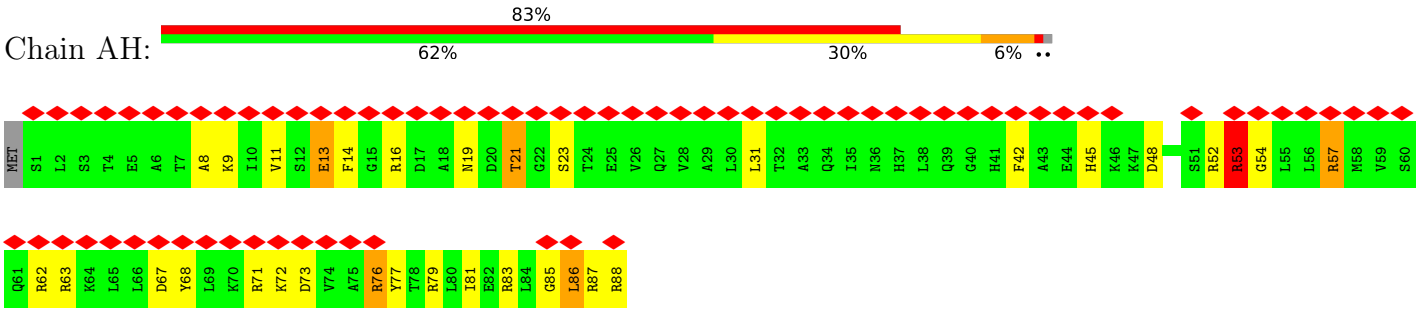
• Molecule 8: 30S ribosomal protein S14

Chain AG:



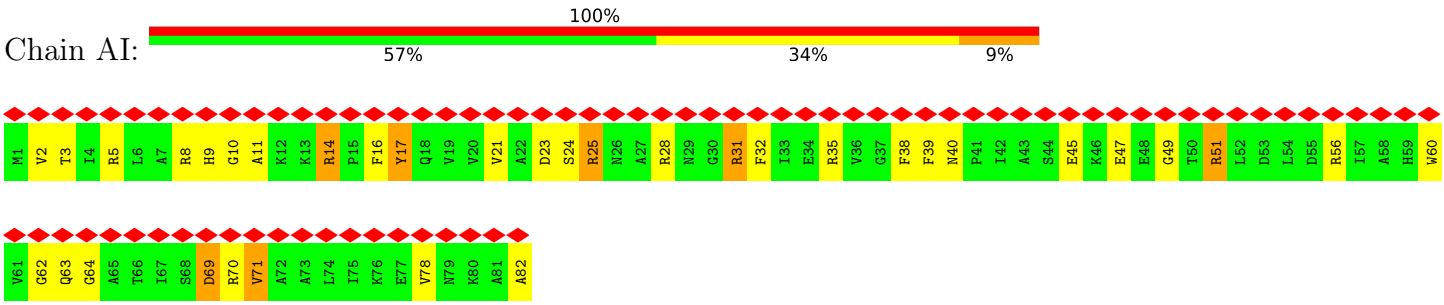
• Molecule 9: 30S ribosomal protein S15

Chain AH:



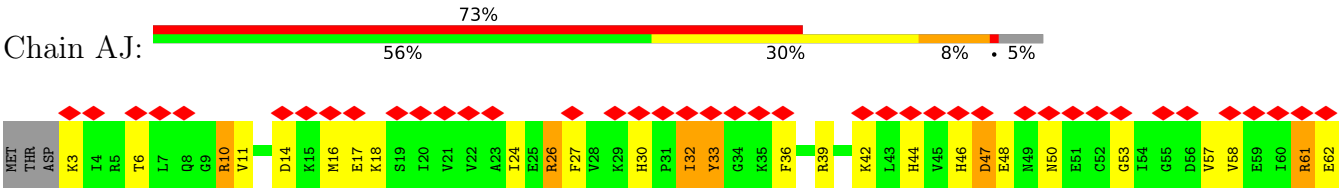
• Molecule 10: 30S ribosomal protein S16

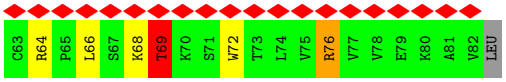
Chain AI:



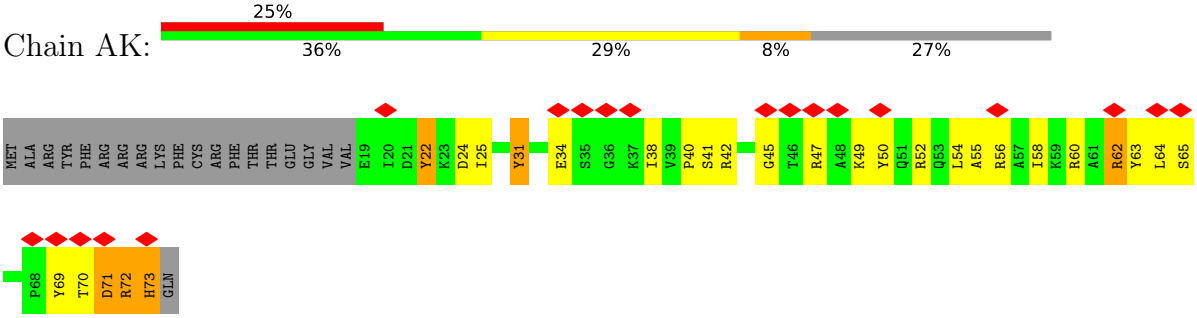
• Molecule 11: 30S ribosomal protein S17

Chain AJ:

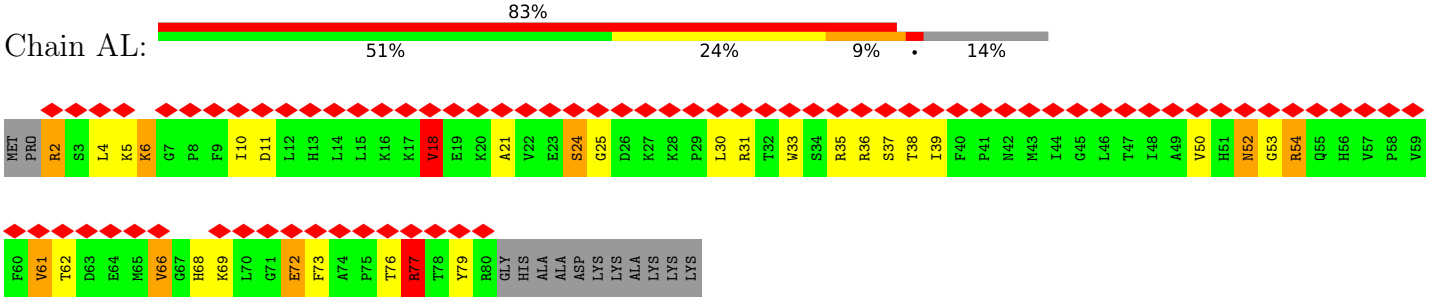




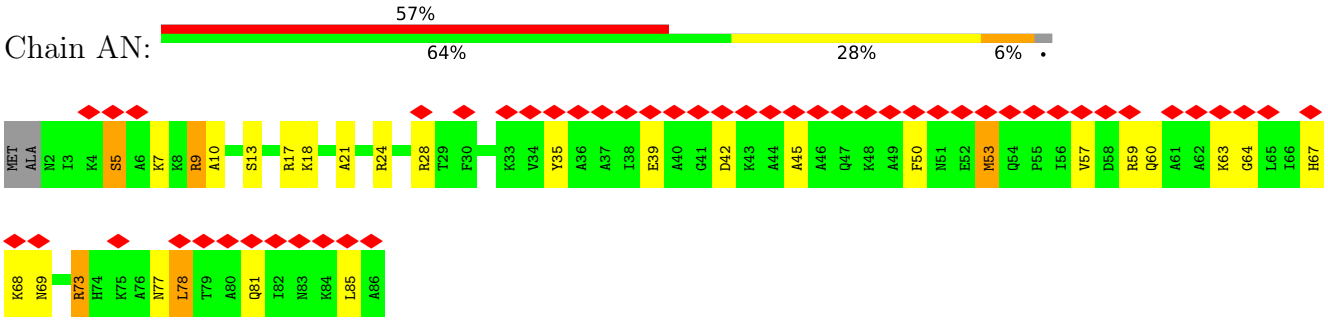
• Molecule 12: 30S ribosomal protein S18



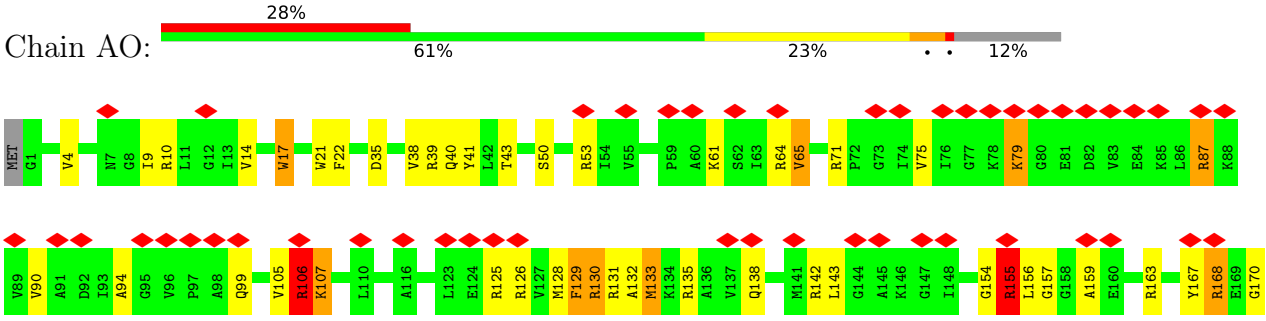
• Molecule 13: 30S ribosomal protein S19

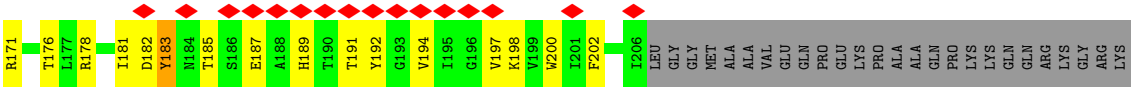


• Molecule 14: 30S ribosomal protein S20



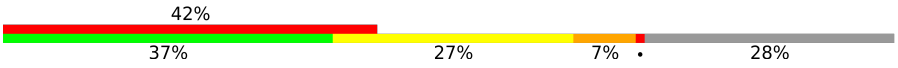
• Molecule 15: 30S ribosomal protein S3

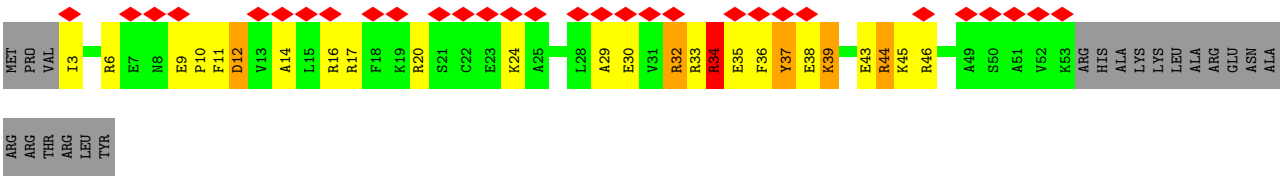




• Molecule 16: 30S ribosomal protein S21

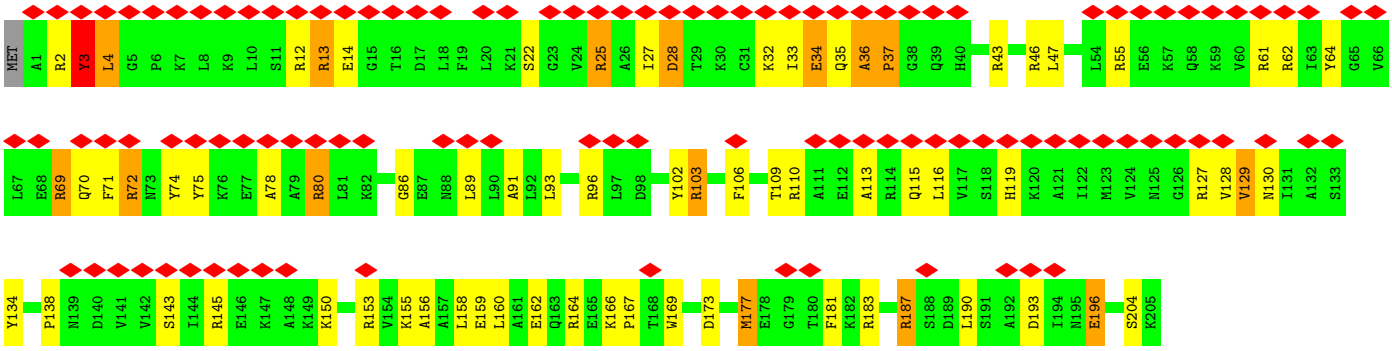
Chain AQ:





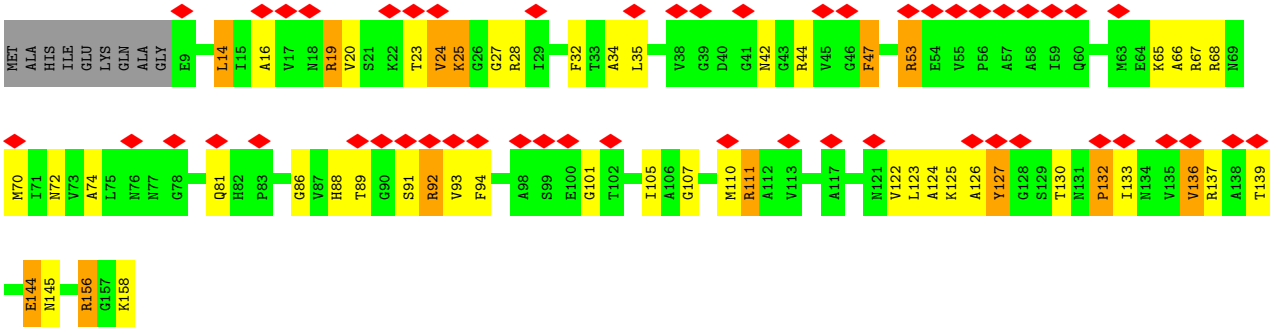
• Molecule 17: 30S ribosomal protein S4

Chain AR:



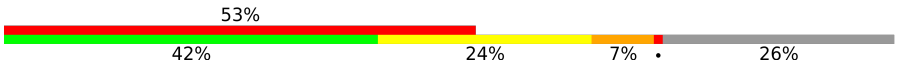
• Molecule 18: 30S ribosomal protein S5

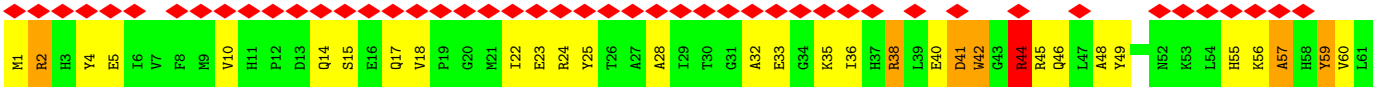
Chain AS:

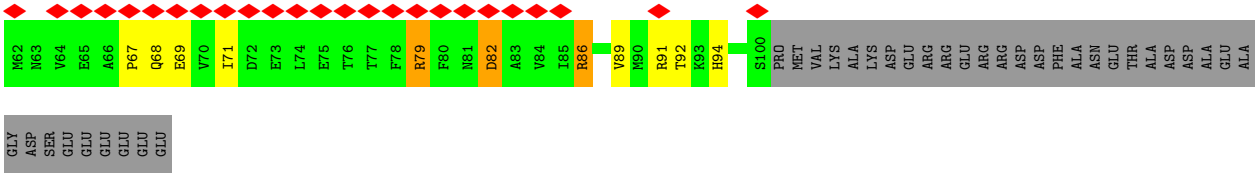


• Molecule 19: 30S ribosomal protein S6

Chain AT:

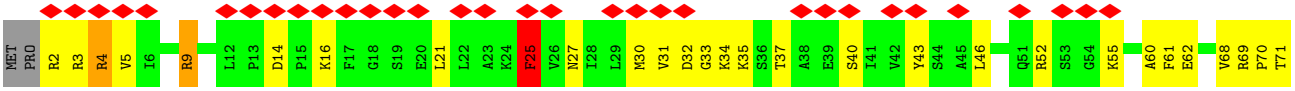


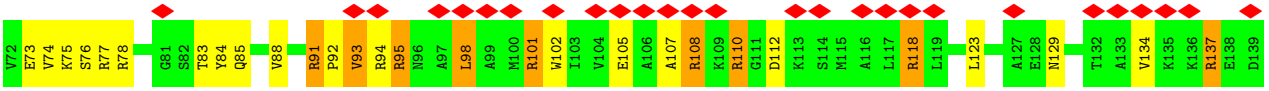


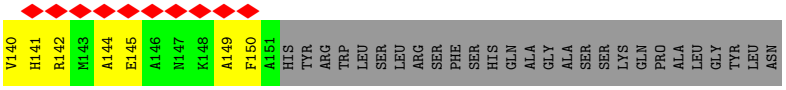


• Molecule 20: 30S ribosomal protein S7

Chain AU:

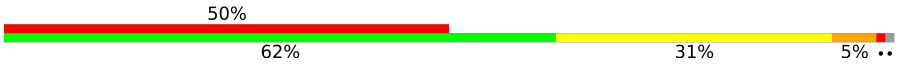


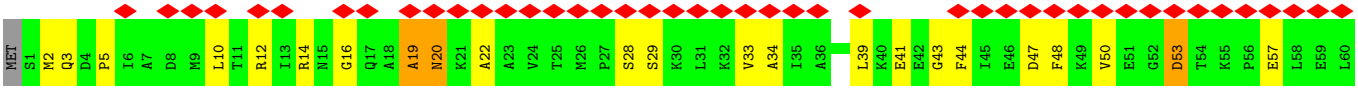


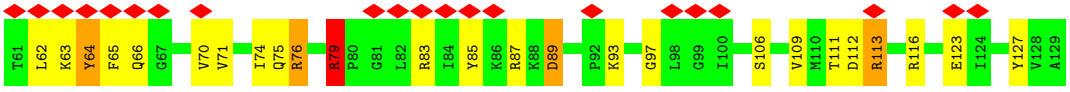


• Molecule 21: 30S ribosomal protein S8

Chain AV:

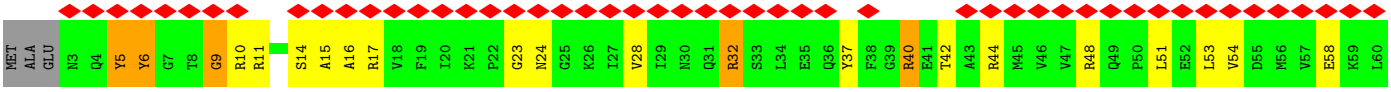


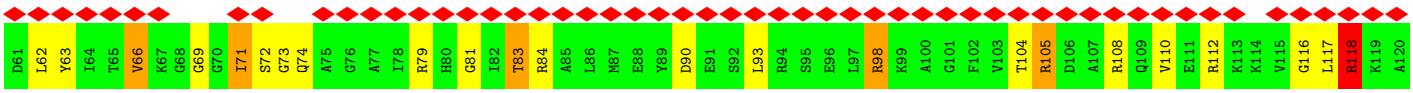


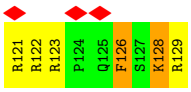


• Molecule 22: 30S ribosomal protein S9

Chain AW:

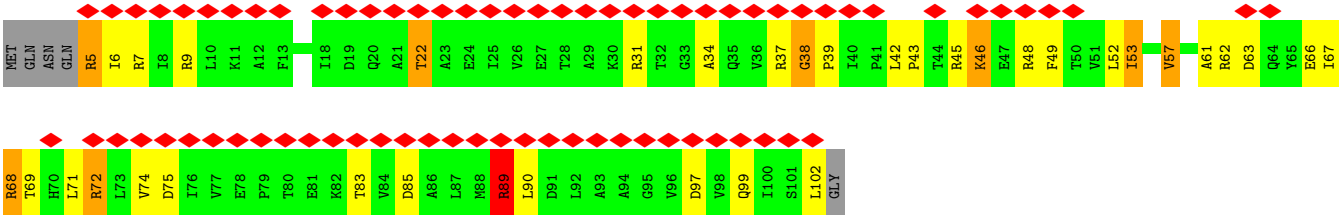






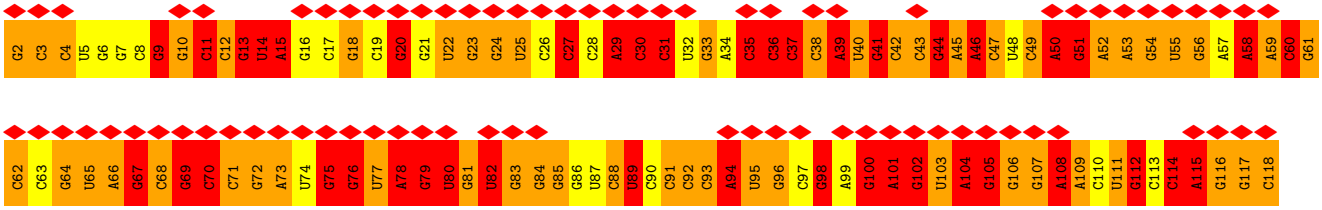
• Molecule 23: 30S ribosomal protein S10

Chain AX:



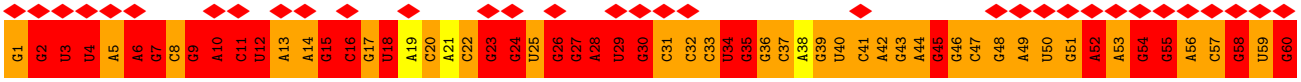
• Molecule 24: 5S rRNA

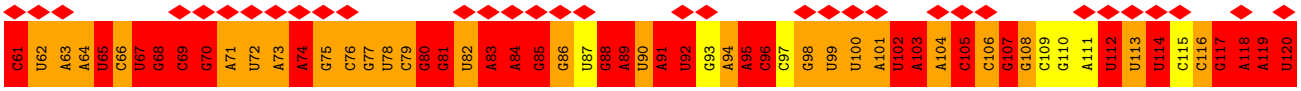
Chain BA:

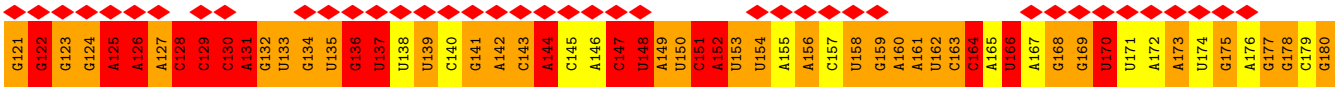


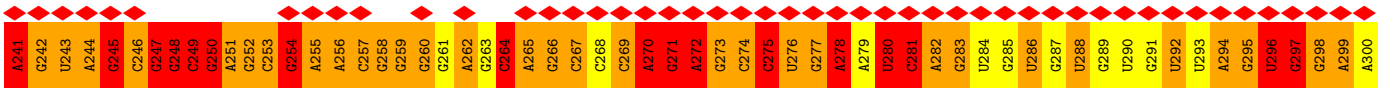
• Molecule 25: 23S rRNA

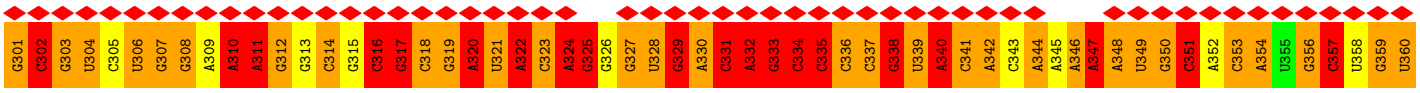
Chain BB:

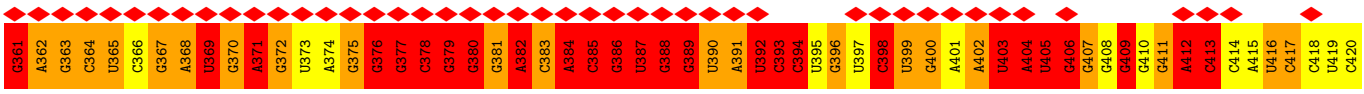


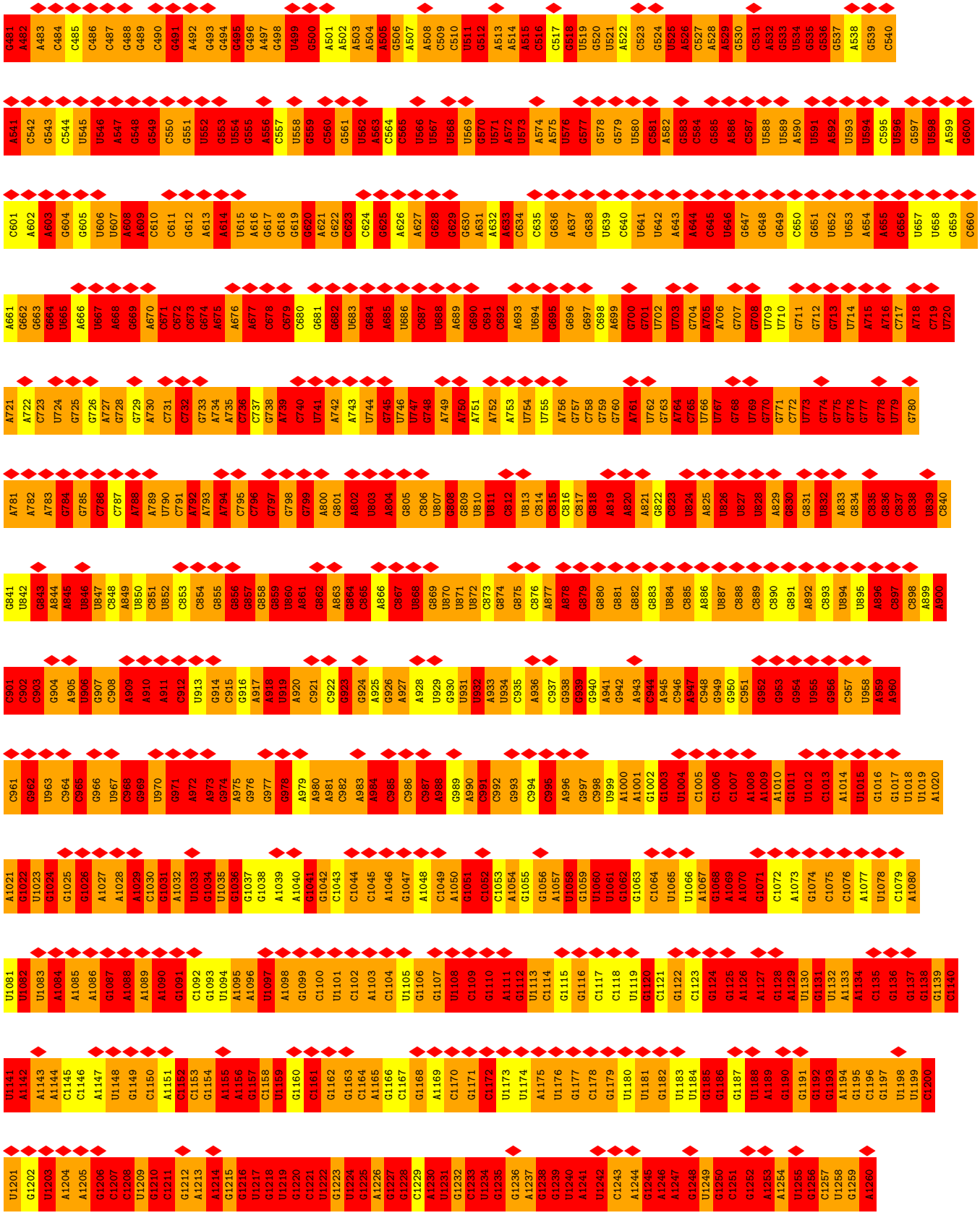








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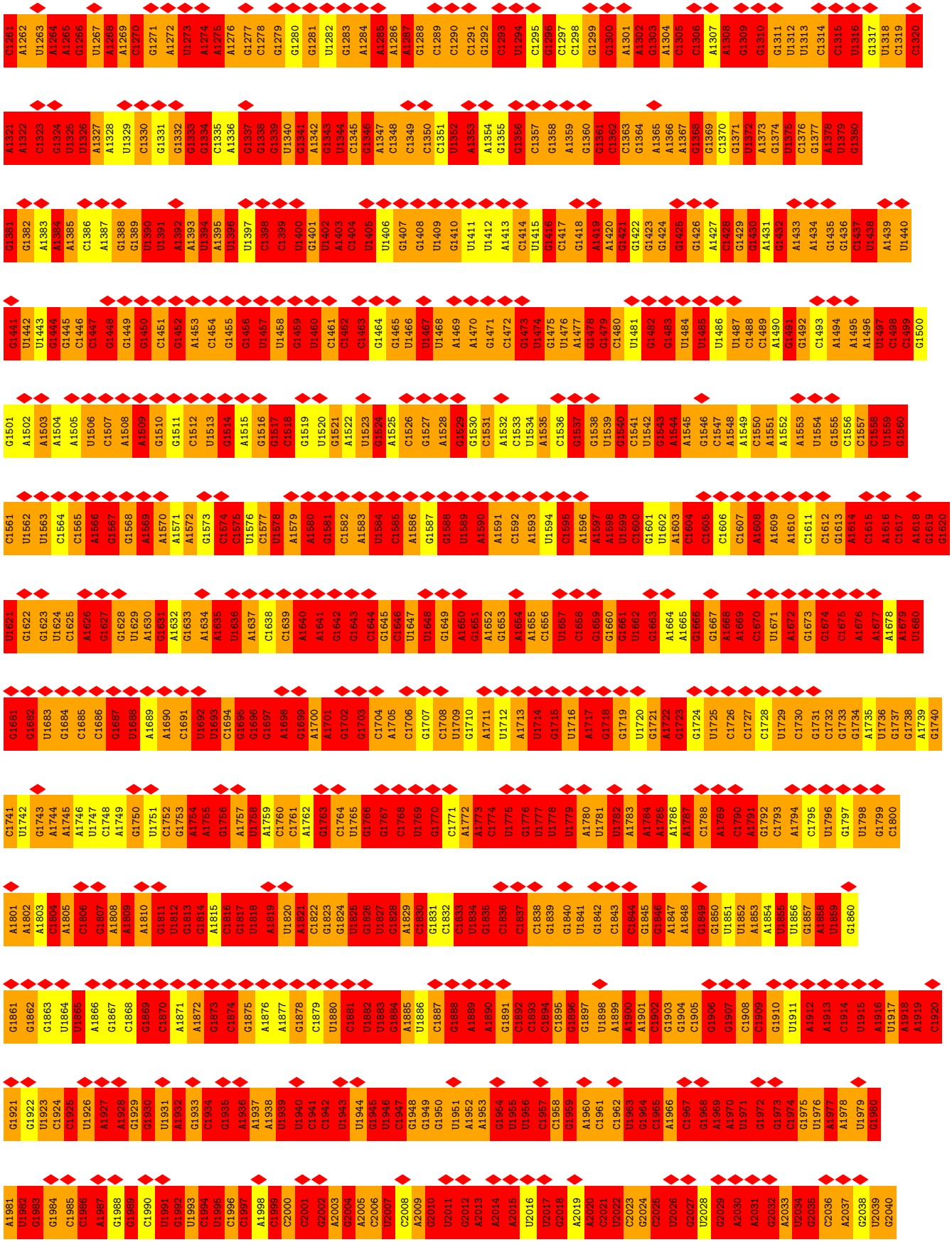
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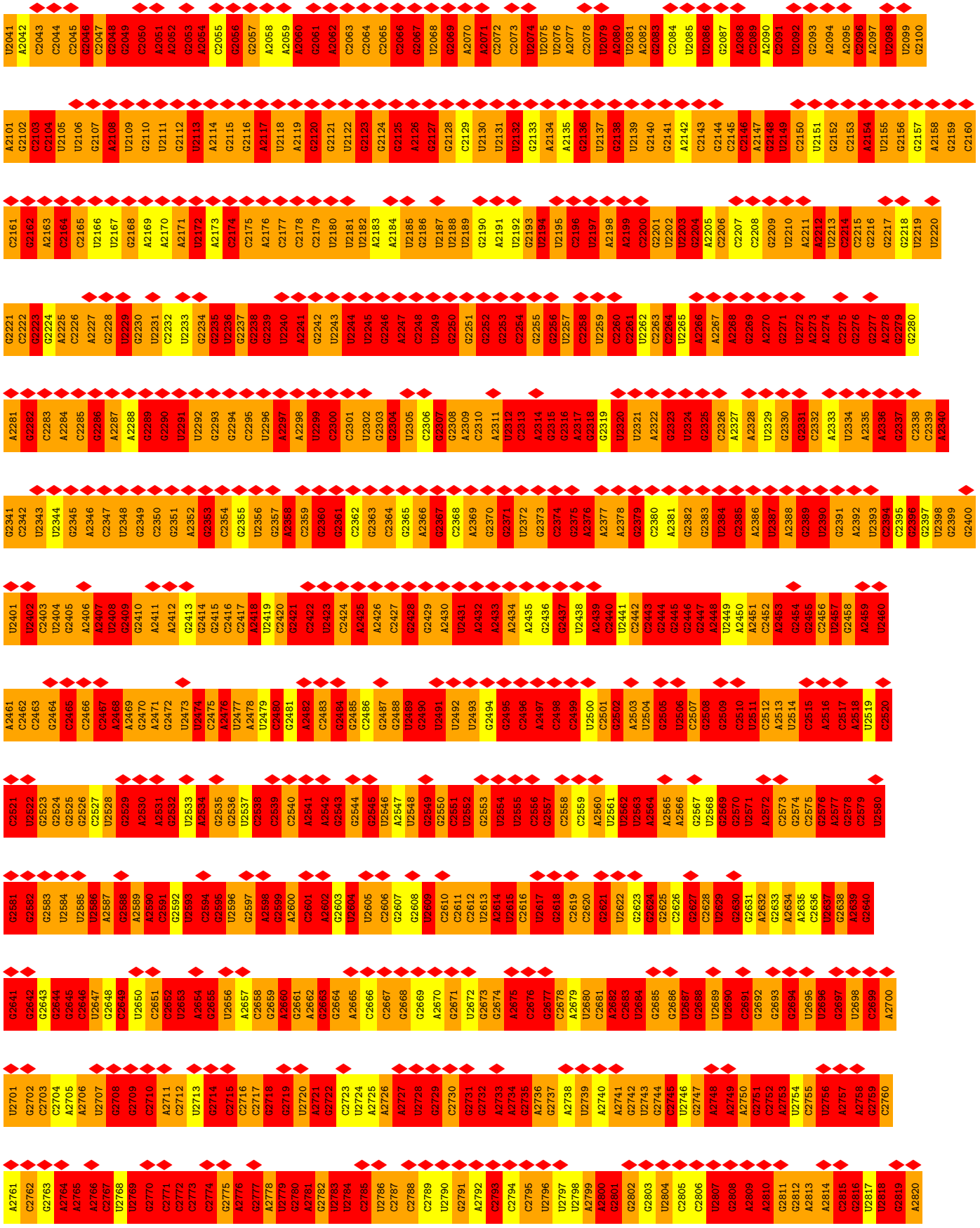
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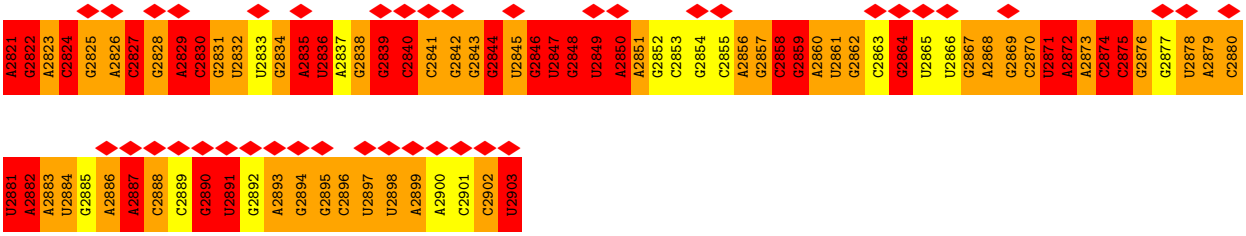

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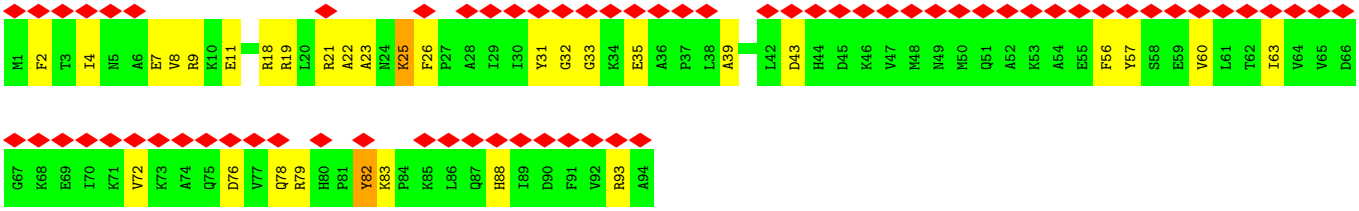

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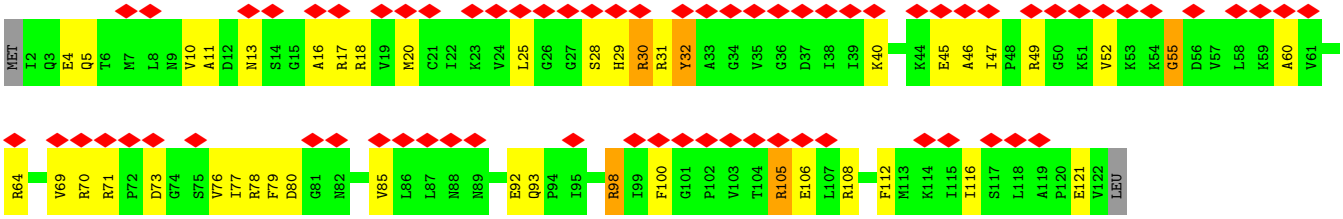

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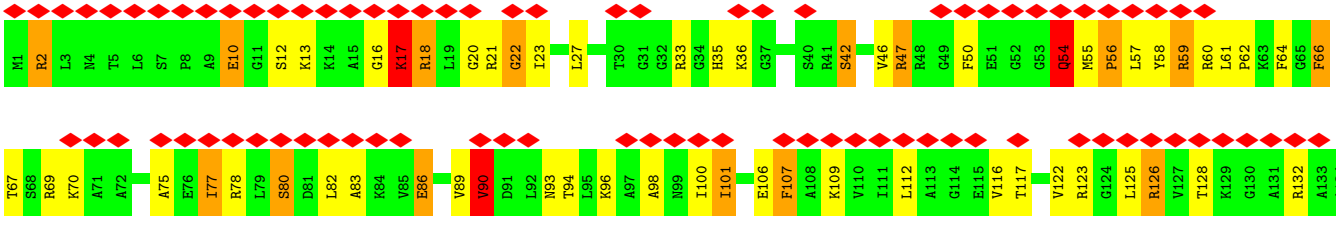

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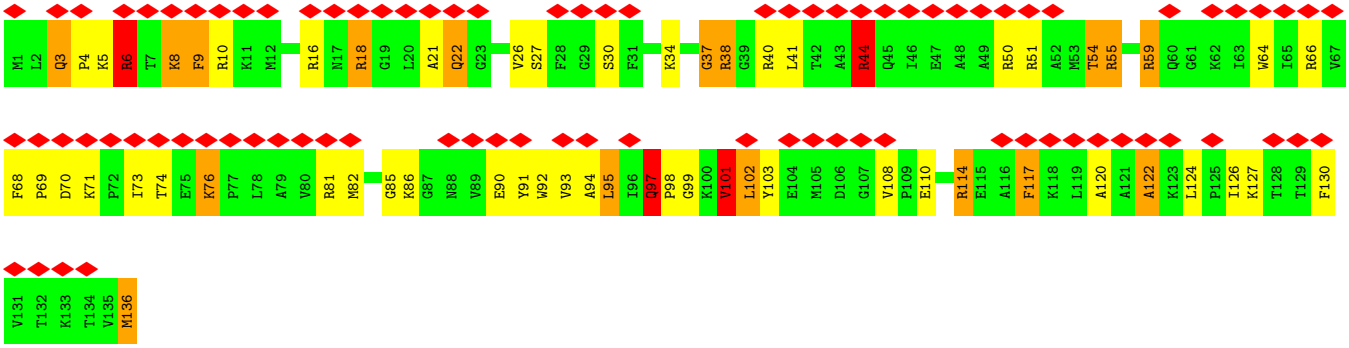

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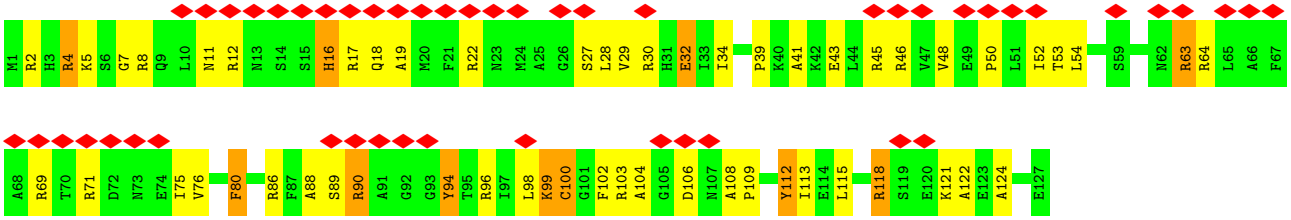
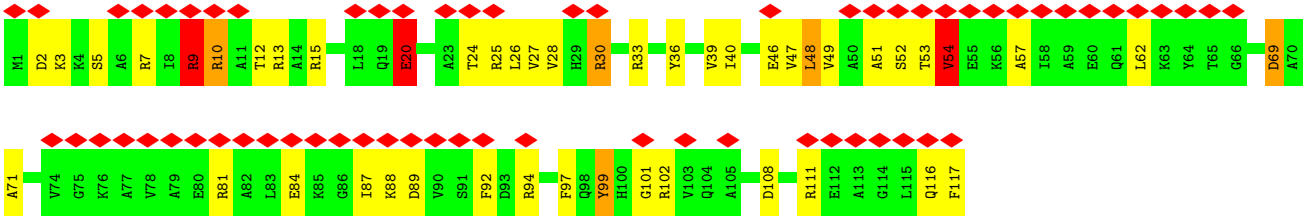


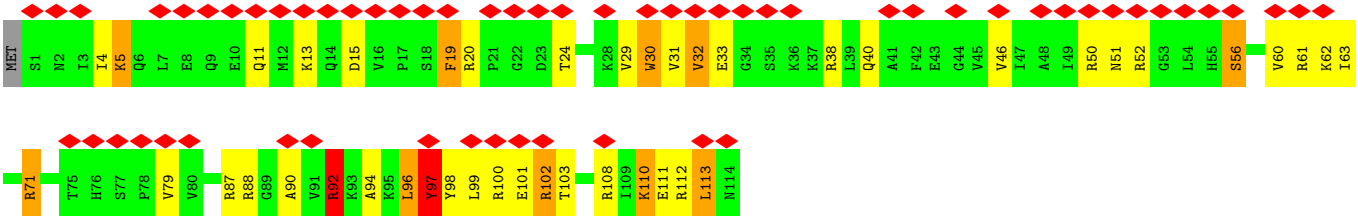
• Molecule 31: 50S ribosomal protein L18

Chain BH:



• Molecule 32: 50S ribosomal protein L19

Chain BI:

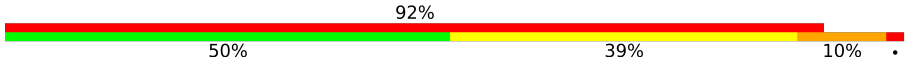


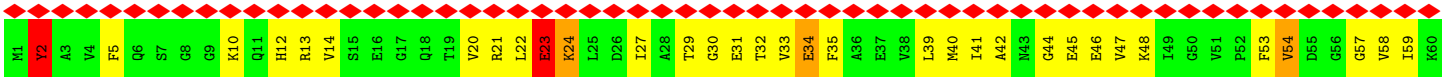
• Molecule 33: 50S ribosomal protein L20

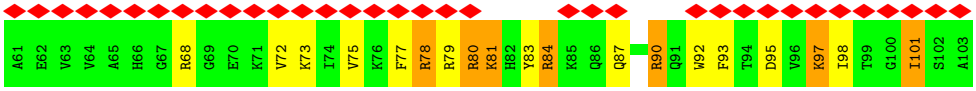
Chain BJ:

• Molecule 34: 50S ribosomal protein L21

Chain BK:

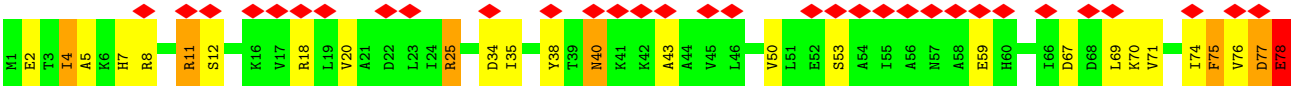


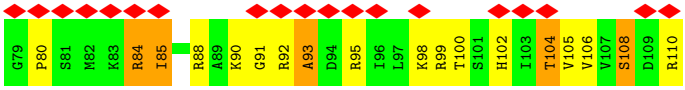




• Molecule 35: 50S ribosomal protein L22

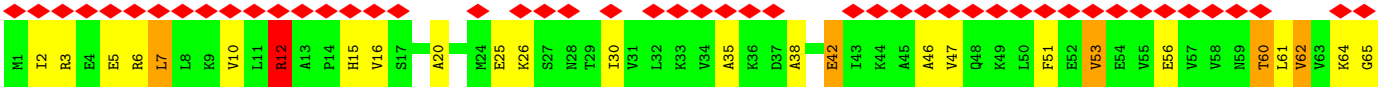
Chain BL:

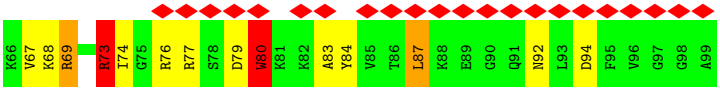




• Molecule 36: 50S ribosomal protein L23

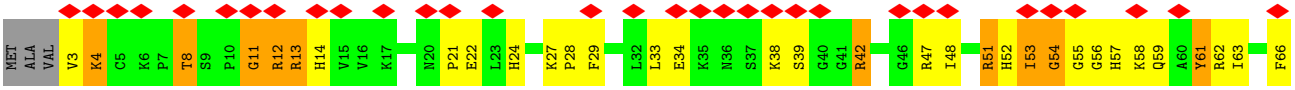
Chain BM:

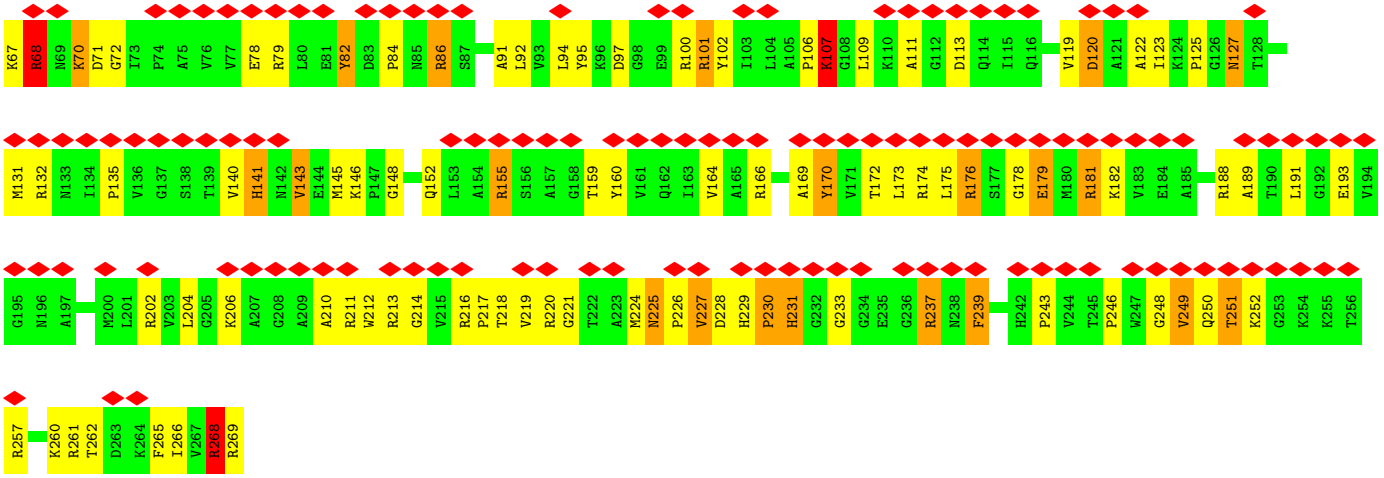




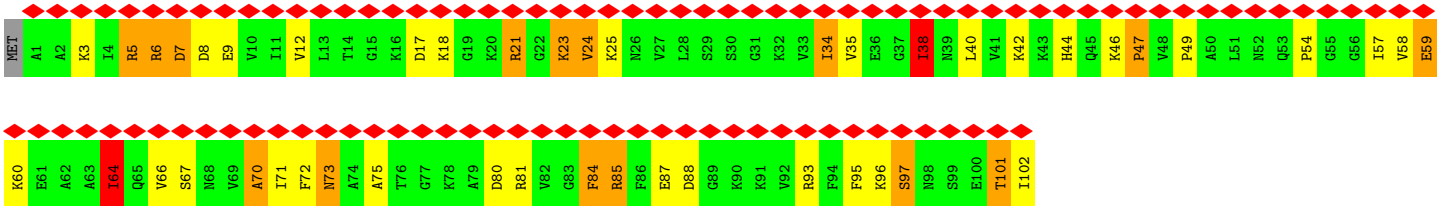
• Molecule 37: 50S ribosomal protein L2

Chain BN:

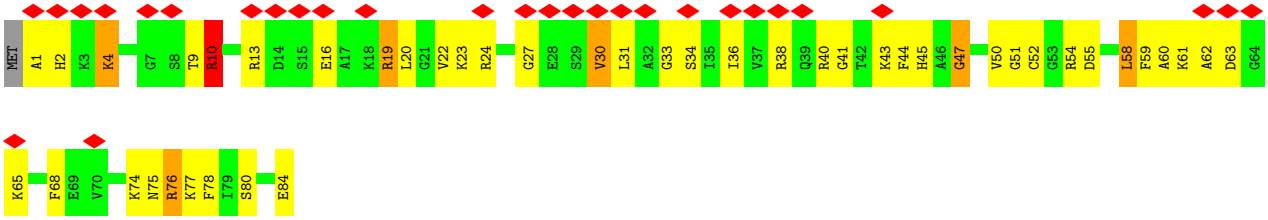




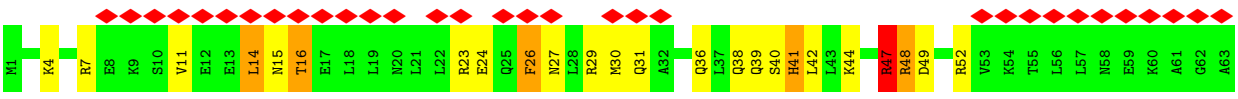
• Molecule 38: 50S ribosomal protein L24



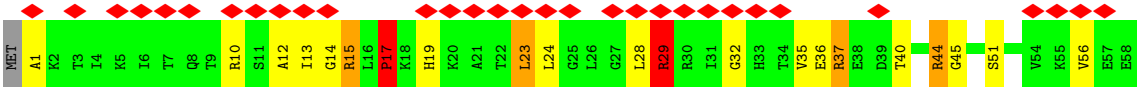
• Molecule 39: 50S ribosomal protein L27



• Molecule 40: 50S ribosomal protein L29

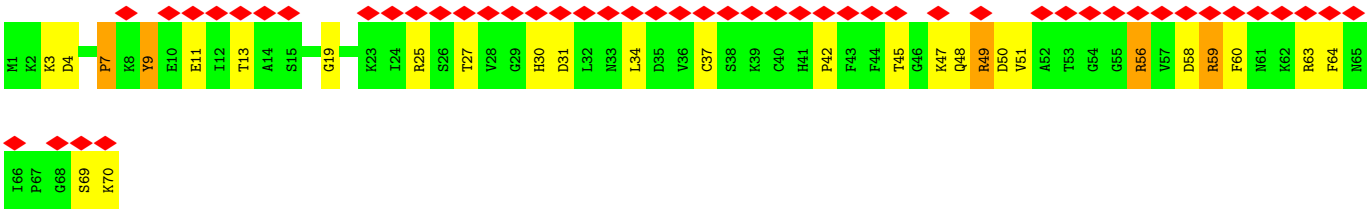


• Molecule 41: 50S ribosomal protein L30



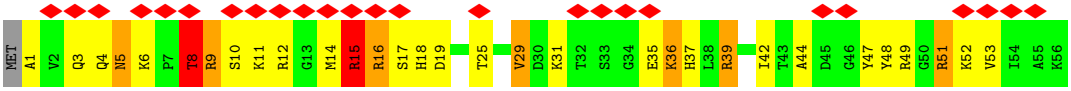
• Molecule 42: 50S ribosomal protein L31

Chain BS:



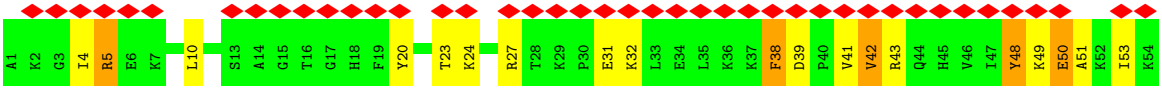
• Molecule 43: 50S ribosomal protein L32

Chain BT:



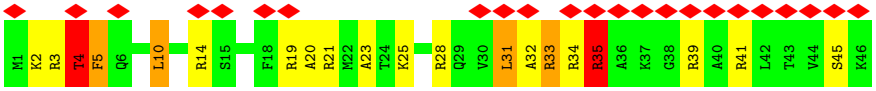
• Molecule 44: 50S ribosomal protein L33

Chain BU:



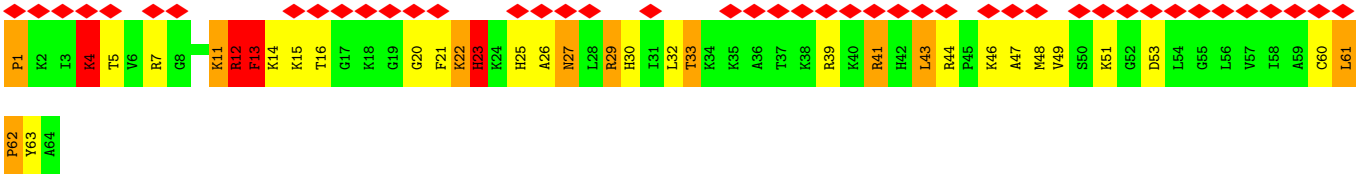
• Molecule 45: 50S ribosomal protein L34

Chain BV:



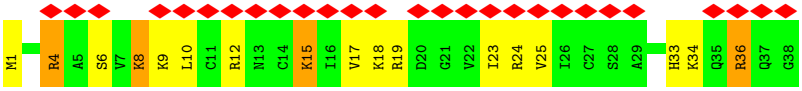
• Molecule 46: 50S ribosomal protein L35

Chain BW:



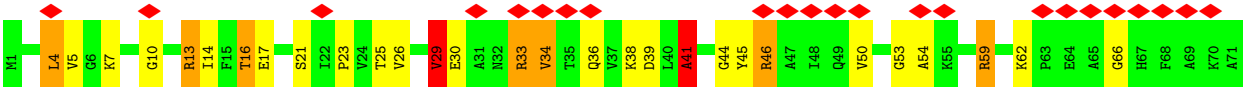
• Molecule 47: 50S ribosomal protein L36

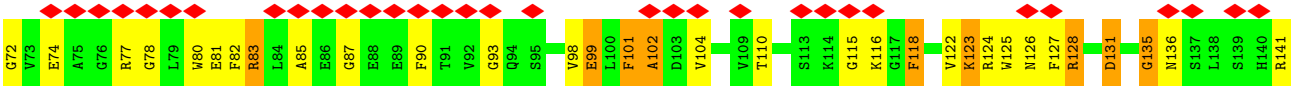
Chain BX:



• Molecule 48: 50S ribosomal protein L3

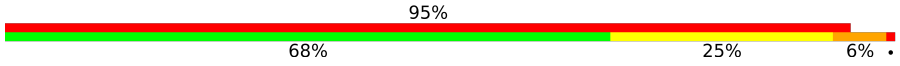
Chain BY:

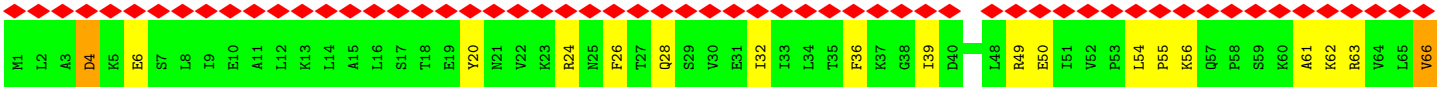


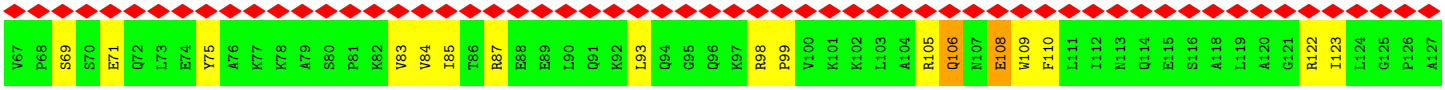


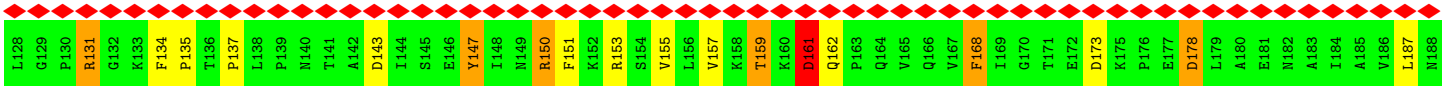
• Molecule 49: 50S ribosomal protein L1P

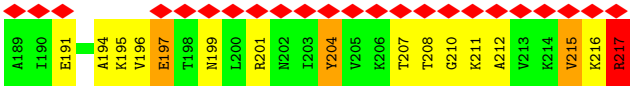
Chain BZ:





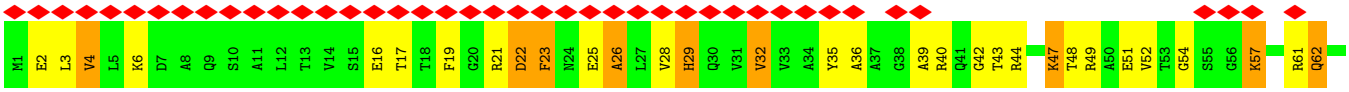


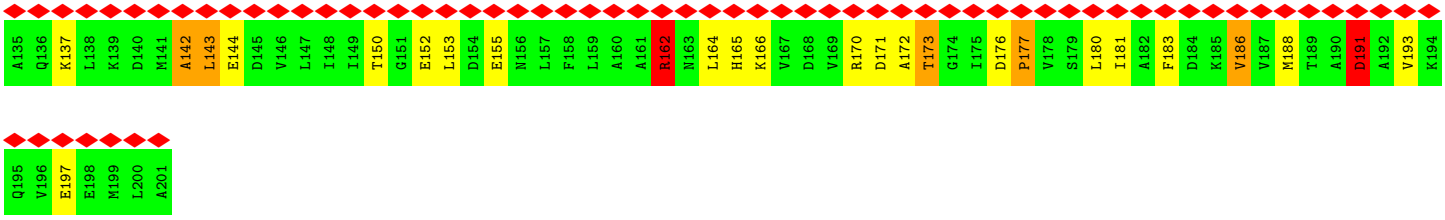




• Molecule 50: 50S ribosomal protein L4

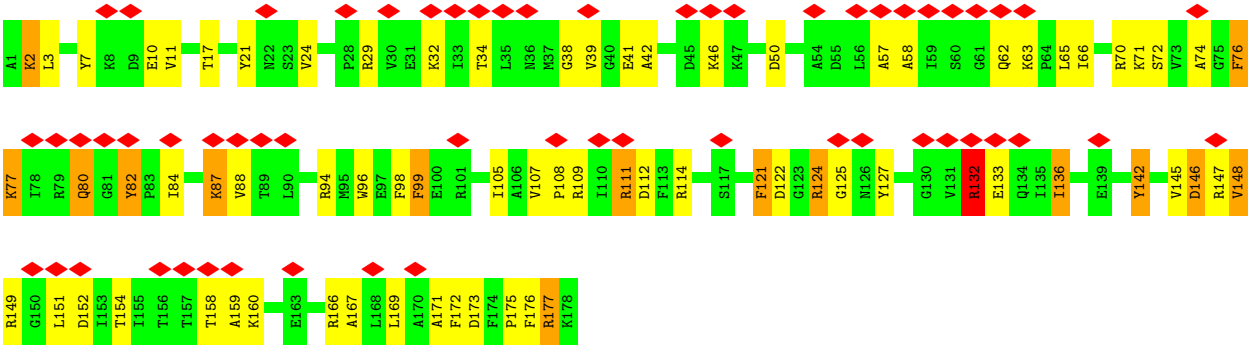
Chain B1:





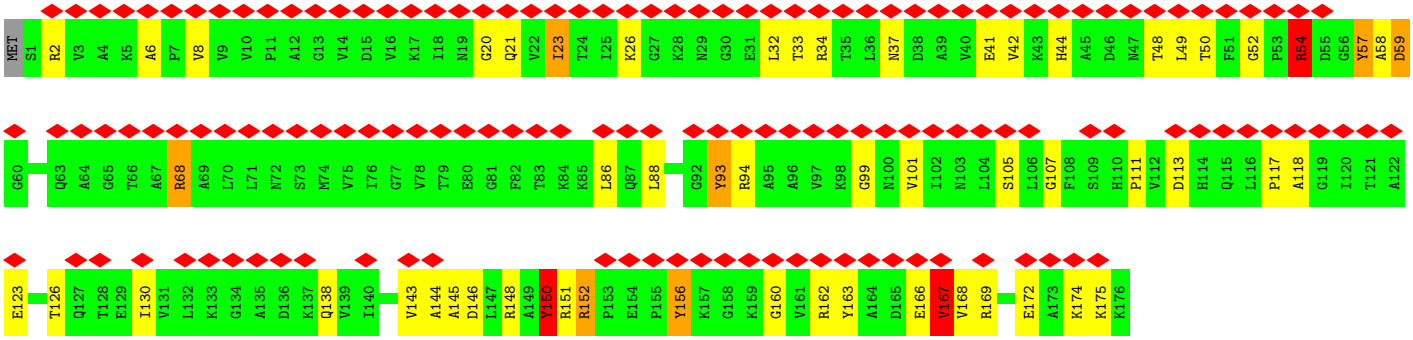
• Molecule 51: 50S ribosomal protein L5

Chain B2:



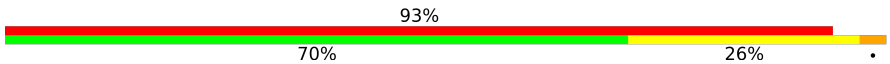
• Molecule 52: 50S ribosomal protein L6

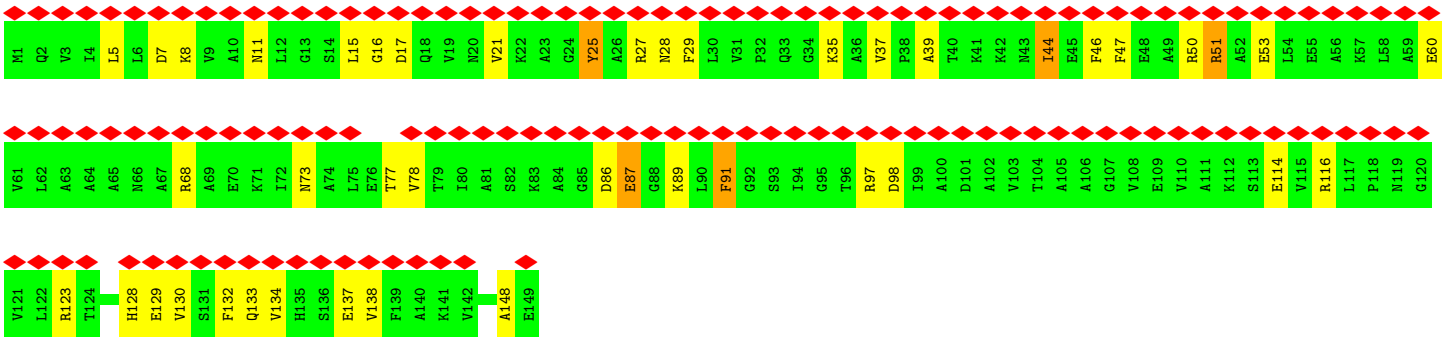
Chain B3:



• Molecule 53: 50S ribosomal protein L9

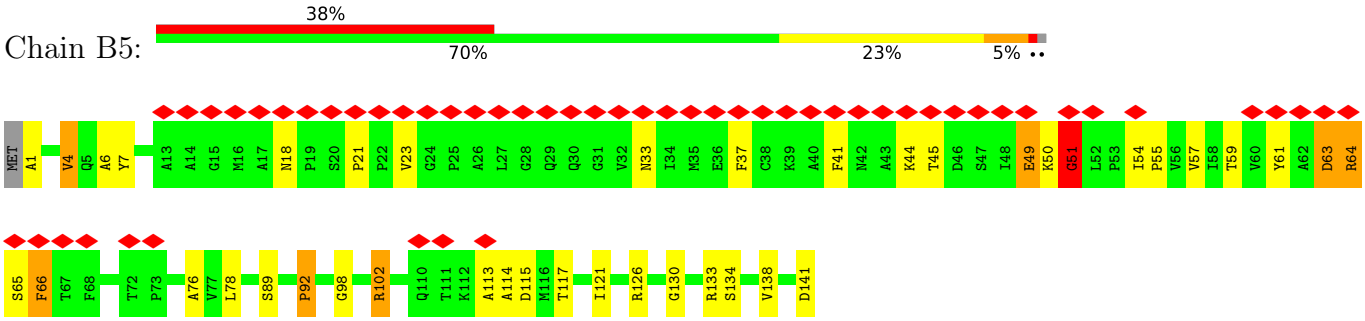
Chain B4:





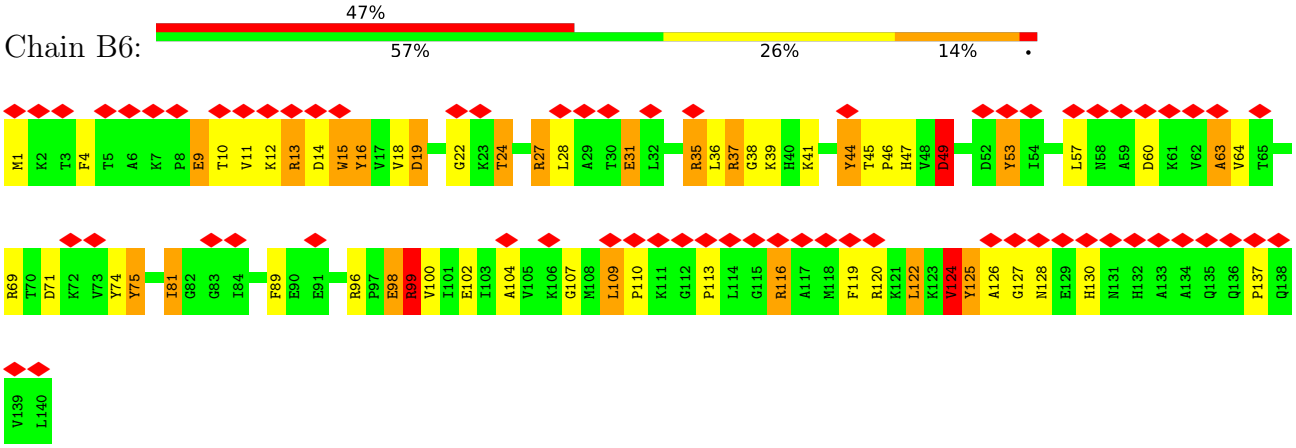
• Molecule 54: 50S ribosomal protein L11

Chain B5:



• Molecule 55: 50S ribosomal protein L13

Chain B6:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	52181	Depositor
Resolution determination method	Not provided	
CTF correction method	Not provided	
Microscope	FEI TECNAI F20	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	15	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	4000	Depositor
Magnification	50000	Depositor
Image detector	KODAK SO-163 FILM	Depositor
Maximum map value	250.773	Depositor
Minimum map value	-142.587	Depositor
Average map value	1.513	Depositor
Map value standard deviation	24.331	Depositor
Recommended contour level	43.4	Depositor
Map size (Å)	366.6, 366.6, 366.6	wwPDB
Map dimensions	130, 130, 130	wwPDB
Map angles (°)	90, 90, 90	wwPDB
Pixel spacing (Å)	2.82, 2.82, 2.82	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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	AA	3.40	236/1789 (13.2%)	4.38	561/2788 (20.1%)
1	AE	3.39	235/1814 (13.0%)	4.16	549/2827 (19.4%)
1	AP	4.04	200/1789 (11.2%)	4.62	517/2788 (18.5%)
2	AM	2.83	38/436 (8.7%)	3.84	119/672 (17.7%)
3	A1	3.49	4705/36759 (12.8%)	4.27	10939/57346 (19.1%)
4	AB	1.61	8/1735 (0.5%)	2.18	57/2338 (2.4%)
5	AC	1.67	7/892 (0.8%)	2.45	47/1205 (3.9%)
6	AD	1.69	12/968 (1.2%)	2.37	39/1300 (3.0%)
7	AF	1.58	5/892 (0.6%)	2.47	46/1193 (3.9%)
8	AG	1.66	9/785 (1.1%)	2.56	33/1046 (3.2%)
9	AH	1.80	12/723 (1.7%)	2.44	37/966 (3.8%)
10	AI	1.65	6/658 (0.9%)	2.62	33/884 (3.7%)
11	AJ	1.59	5/657 (0.8%)	2.37	33/881 (3.7%)
12	AK	1.77	5/462 (1.1%)	2.48	33/621 (5.3%)
13	AL	1.63	3/652 (0.5%)	2.09	19/877 (2.2%)
14	AN	1.53	3/670 (0.4%)	2.09	21/888 (2.4%)
15	AO	1.66	19/1651 (1.2%)	2.22	58/2225 (2.6%)
16	AQ	1.74	6/430 (1.4%)	2.77	30/570 (5.3%)
17	AR	1.65	17/1664 (1.0%)	2.37	81/2227 (3.6%)
18	AS	1.67	10/1118 (0.9%)	2.31	38/1504 (2.5%)
19	AT	1.63	5/835 (0.6%)	2.30	36/1128 (3.2%)
20	AU	1.68	10/1187 (0.8%)	2.46	56/1591 (3.5%)
21	AV	1.64	7/988 (0.7%)	2.27	43/1326 (3.2%)
22	AW	1.78	14/1033 (1.4%)	2.59	48/1375 (3.5%)
23	AX	1.57	4/796 (0.5%)	2.46	38/1077 (3.5%)
24	BA	3.32	357/2800 (12.8%)	4.36	854/4367 (19.6%)
25	BB	15.87	8884/69795 (12.7%)	4.40	21260/108884 (19.5%)
26	BC	1.63	10/765 (1.3%)	2.11	24/1025 (2.3%)
27	BD	1.69	7/939 (0.7%)	2.47	44/1258 (3.5%)
28	BE	1.68	9/1061 (0.8%)	2.33	37/1413 (2.6%)
29	BF	1.62	6/1092 (0.5%)	2.24	37/1460 (2.5%)
30	BG	1.70	10/1020 (1.0%)	2.53	58/1364 (4.3%)
31	BH	1.69	11/909 (1.2%)	2.40	43/1219 (3.5%)
32	BI	1.71	8/928 (0.9%)	2.37	36/1242 (2.9%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	BJ	1.71	15/959 (1.6%)	2.50	62/1278 (4.9%)
34	BK	1.62	5/828 (0.6%)	2.36	35/1107 (3.2%)
35	BL	1.52	4/863 (0.5%)	2.38	33/1156 (2.9%)
36	BM	1.54	4/784 (0.5%)	2.16	28/1048 (2.7%)
37	BN	1.74	26/2092 (1.2%)	2.34	97/2813 (3.4%)
38	BO	1.59	2/787 (0.3%)	2.39	37/1051 (3.5%)
39	BP	1.71	7/641 (1.1%)	2.42	28/848 (3.3%)
40	BQ	1.67	5/509 (1.0%)	2.16	15/677 (2.2%)
41	BR	1.60	5/452 (1.1%)	2.10	15/605 (2.5%)
42	BS	1.65	8/558 (1.4%)	2.43	20/745 (2.7%)
43	BT	1.77	7/449 (1.6%)	2.34	22/599 (3.7%)
44	BU	1.61	3/447 (0.7%)	2.19	18/594 (3.0%)
45	BV	1.74	3/379 (0.8%)	2.64	22/498 (4.4%)
46	BW	1.55	3/512 (0.6%)	2.18	20/676 (3.0%)
47	BX	1.56	2/302 (0.7%)	2.90	18/397 (4.5%)
48	BY	1.69	11/1585 (0.7%)	2.23	58/2134 (2.7%)
49	BZ	1.57	8/1711 (0.5%)	2.13	57/2305 (2.5%)
50	B1	1.66	15/1570 (1.0%)	2.30	70/2113 (3.3%)
51	B2	1.67	11/1443 (0.8%)	2.29	62/1937 (3.2%)
52	B3	1.60	9/1342 (0.7%)	2.13	50/1816 (2.8%)
53	B4	1.61	11/1121 (1.0%)	2.08	27/1515 (1.8%)
54	B5	1.51	4/1045 (0.4%)	2.16	35/1410 (2.5%)
55	B6	1.69	9/1135 (0.8%)	2.39	60/1529 (3.9%)
All	All	10.61	15060/162206 (9.3%)	3.93	36793/242726 (15.2%)

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	AA	0	52
1	AE	0	46
1	AP	2	51
2	AM	0	12
3	A1	4	995
4	AB	0	8
5	AC	0	4
6	AD	0	9
7	AF	0	8
8	AG	0	3
9	AH	0	2

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
10	AI	0	9
11	AJ	0	4
12	AK	0	3
13	AL	0	8
14	AN	1	0
15	AO	0	9
16	AQ	0	5
17	AR	0	5
18	AS	0	2
19	AT	0	9
20	AU	0	8
21	AV	0	4
22	AW	0	9
23	AX	0	2
24	BA	0	81
25	BB	3	1853
26	BC	0	2
27	BD	0	4
28	BE	0	5
29	BF	0	9
30	BG	0	5
31	BH	0	7
32	BI	0	6
33	BJ	0	3
34	BK	0	11
35	BL	0	4
36	BM	0	3
37	BN	0	12
38	BO	0	4
39	BP	0	7
41	BR	0	4
42	BS	0	7
43	BT	0	3
44	BU	0	3
45	BV	0	4
46	BW	0	7
47	BX	0	1
48	BY	0	8
49	BZ	0	9
50	B1	0	9
51	B2	0	7
52	B3	0	7

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Mol	Chain	#Chirality outliers	#Planarity outliers
53	B4	0	3
54	B5	0	3
55	B6	0	12
All	All	10	3370

The worst 5 of 15060 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
25	BB	995	C	C4-C5	2385.00	20.50	1.43
25	BB	995	C	C2-N3	2363.63	20.26	1.35
25	BB	995	C	C4-N4	2355.33	22.53	1.33
3	A1	1429	A	P-O5'	178.05	3.37	1.59
3	A1	1340	A	C3'-O3'	103.07	2.86	1.42

The worst 5 of 36793 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
25	BB	995	C	C5-C4-N4	-167.42	3.01	120.20
25	BB	995	C	C4-C5-C6	-165.92	34.44	117.40
25	BB	995	C	N1-C2-N3	-110.87	41.59	119.20
1	AP	74	C	P-O3'-C3'	-90.94	10.58	119.70
25	BB	995	C	N3-C4-C5	-73.62	92.45	121.90

5 of 10 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	AP	31	A	C1',C2'
3	A1	13	U	C1',C2'
3	A1	1198	G	C4'
3	A1	1483	A	C2'
14	AN	13	SER	CA

5 of 3370 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	AA	1	G	Sidechain
1	AA	3	G	Sidechain
1	AA	4	G	Sidechain
1	AA	5	A	Sidechain
1	AA	6	U	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	AA	1600	0	754	13	0
1	AE	1622	0	773	5	0
1	AP	1600	0	756	42	0
2	AM	397	0	202	4	0
3	A1	32828	0	15398	147	0
4	AB	1704	0	1732	7	0
5	AC	876	0	887	5	0
6	AD	954	0	1019	5	0
7	AF	883	0	944	5	0
8	AG	773	0	824	4	0
9	AH	715	0	742	3	0
10	AI	648	0	666	0	0
11	AJ	648	0	691	2	0
12	AK	455	0	478	1	0
13	AL	637	0	665	5	0
14	AN	664	0	714	5	0
15	AO	1624	0	1699	2	0
16	AQ	425	0	449	1	0
17	AR	1642	0	1710	6	0
18	AS	1105	0	1148	3	0
19	AT	817	0	808	2	0
20	AU	1174	0	1230	0	0
21	AV	978	0	1034	3	0
22	AW	1021	0	1070	0	0
23	AX	786	0	828	7	0
24	BA	2504	0	1160	13	0
25	BB	62317	0	29301	262	0
26	BC	752	0	780	2	0
27	BD	930	0	1000	1	0
28	BE	1052	0	1129	6	0
29	BF	1073	0	1157	8	0
30	BG	1007	0	1045	5	0
31	BH	899	0	935	2	0
32	BI	916	0	965	6	0
33	BJ	946	0	1022	3	0
34	BK	815	0	839	5	0
35	BL	856	0	922	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
36	BM	777	0	840	5	0
37	BN	2053	0	2122	10	0
38	BO	779	0	834	8	0
39	BP	633	0	656	0	0
40	BQ	508	0	543	5	0
41	BR	448	0	491	0	0
42	BS	548	0	552	0	0
43	BT	443	0	461	1	0
44	BU	440	0	485	1	0
45	BV	376	0	418	5	0
46	BW	503	0	574	3	0
47	BX	301	0	343	0	0
48	BY	1564	0	1616	7	0
49	BZ	1687	0	1814	4	0
50	B1	1551	0	1619	6	0
51	B2	1419	0	1460	6	0
52	B3	1322	0	1374	4	0
53	B4	1110	0	1148	1	0
54	B5	1031	0	1088	2	0
55	B6	1112	0	1147	1	0
All	All	149248	0	97061	544	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 2.

The worst 5 of 544 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:BB:1687:G:C2'	25:BB:1687:G:C3'	1.94	1.42
25:BB:1687:G:C2'	25:BB:1687:G:C1'	1.98	1.40
1:AP:31:A:C2'	3:A1:1340:A:H3'	1.50	1.40
25:BB:1687:G:C3'	25:BB:1687:G:C4'	1.99	1.37
1:AP:31:A:C2'	1:AP:31:A:C1'	2.04	1.35

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
4	AB	216/241 (90%)	173 (80%)	35 (16%)	8 (4%)	3 24
5	AC	115/129 (89%)	85 (74%)	26 (23%)	4 (4%)	3 25
6	AD	121/124 (98%)	71 (59%)	35 (29%)	15 (12%)	0 5
7	AF	112/118 (95%)	76 (68%)	27 (24%)	9 (8%)	1 12
8	AG	94/101 (93%)	71 (76%)	18 (19%)	5 (5%)	2 19
9	AH	86/89 (97%)	67 (78%)	14 (16%)	5 (6%)	1 18
10	AI	80/82 (98%)	56 (70%)	15 (19%)	9 (11%)	0 7
11	AJ	78/84 (93%)	51 (65%)	22 (28%)	5 (6%)	1 16
12	AK	53/75 (71%)	40 (76%)	9 (17%)	4 (8%)	1 13
13	AL	77/92 (84%)	57 (74%)	13 (17%)	7 (9%)	1 11
14	AN	83/87 (95%)	68 (82%)	12 (14%)	3 (4%)	3 25
15	AO	204/233 (88%)	157 (77%)	33 (16%)	14 (7%)	1 15
16	AQ	49/71 (69%)	38 (78%)	7 (14%)	4 (8%)	1 12
17	AR	203/206 (98%)	165 (81%)	29 (14%)	9 (4%)	2 22
18	AS	148/159 (93%)	111 (75%)	26 (18%)	11 (7%)	1 14
19	AT	98/135 (73%)	76 (78%)	15 (15%)	7 (7%)	1 14
20	AU	148/179 (83%)	118 (80%)	20 (14%)	10 (7%)	1 15
21	AV	127/130 (98%)	102 (80%)	17 (13%)	8 (6%)	1 17
22	AW	125/130 (96%)	96 (77%)	22 (18%)	7 (6%)	2 19
23	AX	96/103 (93%)	73 (76%)	15 (16%)	8 (8%)	1 12
26	BC	92/94 (98%)	70 (76%)	16 (17%)	6 (6%)	1 16
27	BD	119/123 (97%)	84 (71%)	25 (21%)	10 (8%)	1 12
28	BE	142/144 (99%)	90 (63%)	27 (19%)	25 (18%)	0 3
29	BF	134/136 (98%)	74 (55%)	37 (28%)	23 (17%)	0 3
30	BG	125/127 (98%)	82 (66%)	32 (26%)	11 (9%)	1 11

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
31	BH	115/117 (98%)	78 (68%)	27 (24%)	10 (9%)	1 11
32	BI	112/115 (97%)	67 (60%)	32 (29%)	13 (12%)	0 6
33	BJ	115/118 (98%)	84 (73%)	19 (16%)	12 (10%)	0 8
34	BK	101/103 (98%)	57 (56%)	32 (32%)	12 (12%)	0 6
35	BL	108/110 (98%)	71 (66%)	18 (17%)	19 (18%)	0 3
36	BM	97/99 (98%)	70 (72%)	19 (20%)	8 (8%)	1 12
37	BN	265/270 (98%)	167 (63%)	49 (18%)	49 (18%)	0 2
38	BO	100/103 (97%)	51 (51%)	31 (31%)	18 (18%)	0 3
39	BP	82/85 (96%)	42 (51%)	26 (32%)	14 (17%)	0 3
40	BQ	61/63 (97%)	44 (72%)	13 (21%)	4 (7%)	1 16
41	BR	56/59 (95%)	39 (70%)	10 (18%)	7 (12%)	0 5
42	BS	68/70 (97%)	47 (69%)	14 (21%)	7 (10%)	0 8
43	BT	54/57 (95%)	37 (68%)	11 (20%)	6 (11%)	0 7
44	BU	52/54 (96%)	35 (67%)	14 (27%)	3 (6%)	1 18
45	BV	44/46 (96%)	33 (75%)	9 (20%)	2 (4%)	2 22
46	BW	62/64 (97%)	31 (50%)	16 (26%)	15 (24%)	0 1
47	BX	36/38 (95%)	23 (64%)	6 (17%)	7 (19%)	0 2
48	BY	207/209 (99%)	120 (58%)	54 (26%)	33 (16%)	0 3
49	BZ	211/213 (99%)	169 (80%)	33 (16%)	9 (4%)	2 22
50	B1	199/201 (99%)	117 (59%)	53 (27%)	29 (15%)	0 4
51	B2	176/178 (99%)	125 (71%)	35 (20%)	16 (9%)	1 11
52	B3	174/177 (98%)	145 (83%)	19 (11%)	10 (6%)	1 18
53	B4	147/149 (99%)	109 (74%)	31 (21%)	7 (5%)	2 21
54	B5	139/142 (98%)	116 (84%)	17 (12%)	6 (4%)	2 22
55	B6	138/140 (99%)	78 (56%)	40 (29%)	20 (14%)	0 4
All	All	5844/6172 (95%)	4106 (70%)	1175 (20%)	563 (10%)	1 10

5 of 563 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	AB	21	TYR
4	AB	97	GLY
4	AB	169	HIS

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Mol	Chain	Res	Type
5	AC	118	ASN
6	AD	15	VAL

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
4	AB	180/199 (90%)	167 (93%)	13 (7%)	14 39
5	AC	90/99 (91%)	81 (90%)	9 (10%)	7 26
6	AD	103/104 (99%)	91 (88%)	12 (12%)	5 21
7	AF	92/96 (96%)	82 (89%)	10 (11%)	6 23
8	AG	79/84 (94%)	76 (96%)	3 (4%)	33 57
9	AH	76/77 (99%)	71 (93%)	5 (7%)	16 41
10	AI	65/65 (100%)	61 (94%)	4 (6%)	18 43
11	AJ	74/78 (95%)	69 (93%)	5 (7%)	16 41
12	AK	48/66 (73%)	42 (88%)	6 (12%)	4 19
13	AL	70/79 (89%)	62 (89%)	8 (11%)	5 21
14	AN	65/66 (98%)	58 (89%)	7 (11%)	6 23
15	AO	170/190 (90%)	158 (93%)	12 (7%)	14 39
16	AQ	44/61 (72%)	39 (89%)	5 (11%)	5 21
17	AR	172/173 (99%)	156 (91%)	16 (9%)	9 28
18	AS	113/119 (95%)	97 (86%)	16 (14%)	3 16
19	AT	87/116 (75%)	78 (90%)	9 (10%)	7 25
20	AU	123/147 (84%)	109 (89%)	14 (11%)	5 21
21	AV	104/105 (99%)	98 (94%)	6 (6%)	20 45
22	AW	105/107 (98%)	95 (90%)	10 (10%)	8 27
23	AX	86/90 (96%)	81 (94%)	5 (6%)	20 45
26	BC	78/78 (100%)	76 (97%)	2 (3%)	46 66
27	BD	102/104 (98%)	94 (92%)	8 (8%)	12 36

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
28	BE	103/103 (100%)	84 (82%)	19 (18%)	1 9
29	BF	109/109 (100%)	94 (86%)	15 (14%)	3 17
30	BG	103/103 (100%)	94 (91%)	9 (9%)	10 31
31	BH	87/87 (100%)	82 (94%)	5 (6%)	20 45
32	BI	99/100 (99%)	95 (96%)	4 (4%)	31 55
33	BJ	89/90 (99%)	79 (89%)	10 (11%)	6 22
34	BK	84/84 (100%)	73 (87%)	11 (13%)	4 18
35	BL	93/93 (100%)	83 (89%)	10 (11%)	6 23
36	BM	83/83 (100%)	71 (86%)	12 (14%)	3 15
37	BN	213/215 (99%)	188 (88%)	25 (12%)	5 21
38	BO	83/84 (99%)	74 (89%)	9 (11%)	6 23
39	BP	62/63 (98%)	53 (86%)	9 (14%)	3 15
40	BQ	55/55 (100%)	45 (82%)	10 (18%)	1 10
41	BR	48/49 (98%)	45 (94%)	3 (6%)	18 43
42	BS	62/62 (100%)	58 (94%)	4 (6%)	17 42
43	BT	47/48 (98%)	34 (72%)	13 (28%)	0 3
44	BU	48/48 (100%)	43 (90%)	5 (10%)	7 24
45	BV	38/38 (100%)	32 (84%)	6 (16%)	2 13
46	BW	51/51 (100%)	41 (80%)	10 (20%)	1 8
47	BX	34/34 (100%)	32 (94%)	2 (6%)	19 45
48	BY	164/164 (100%)	150 (92%)	14 (8%)	10 33
49	BZ	187/187 (100%)	172 (92%)	15 (8%)	12 35
50	B1	165/165 (100%)	143 (87%)	22 (13%)	4 18
51	B2	149/149 (100%)	133 (89%)	16 (11%)	6 23
52	B3	137/138 (99%)	123 (90%)	14 (10%)	7 25
53	B4	114/114 (100%)	104 (91%)	10 (9%)	10 31
54	B5	109/110 (99%)	100 (92%)	9 (8%)	11 34
55	B6	114/114 (100%)	102 (90%)	12 (10%)	7 24
All	All	4856/5043 (96%)	4368 (90%)	488 (10%)	11 26

5 of 488 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
31	BH	54	VAL
52	B3	21	GLN
37	BN	66	PHE
51	B2	146	ASP
54	B5	117	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 18 such sidechains are listed below:

Mol	Chain	Res	Type
37	BN	162	GLN
55	B6	76	HIS
43	BT	3	GLN
30	BG	16	HIS
37	BN	114	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	AA	75/76 (98%)	21 (28%)	10 (13%)
1	AE	75/76 (98%)	12 (16%)	5 (6%)
1	AP	74/76 (97%)	10 (13%)	9 (12%)
2	AM	20/20 (100%)	10 (50%)	8 (40%)
24	BA	116/117 (99%)	36 (31%)	18 (15%)
25	BB	2901/2903 (99%)	1500 (51%)	494 (17%)
3	A1	1529/1530 (99%)	730 (47%)	270 (17%)
All	All	4790/4798 (99%)	2319 (48%)	814 (16%)

5 of 2319 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	AA	2	C
1	AA	3	G
1	AA	10	G
1	AA	16	U
1	AA	17	U

5 of 814 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
25	BB	814	C
25	BB	1497	U

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Mol	Chain	Res	Type
25	BB	2799	A
25	BB	958	U
25	BB	811	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)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
25	BB	1
1	AP	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	BB	1959:G	O3'	1960:A	P	3.49
1	AP	74:C	O3'	75:C	P	1.29

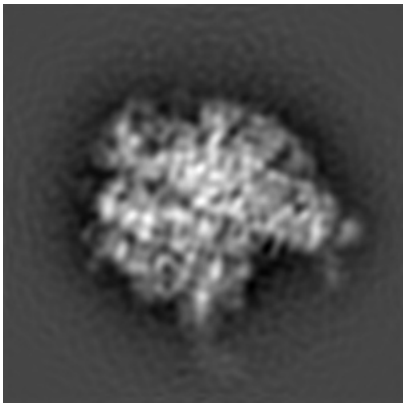
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-1056. These allow visual inspection of the internal detail of the map and identification of artifacts.

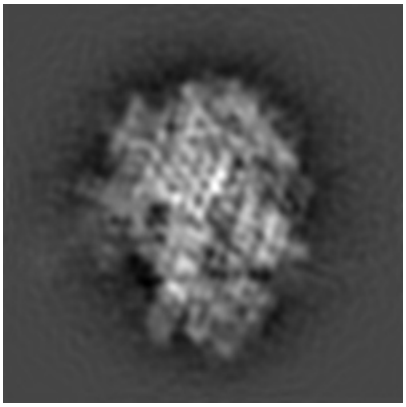
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

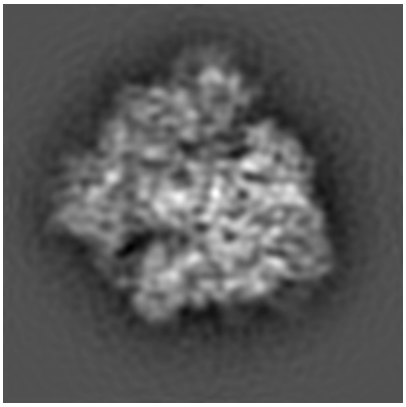
6.1.1 Primary map



X



Y

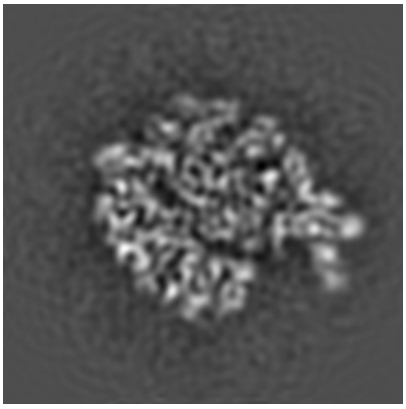


Z

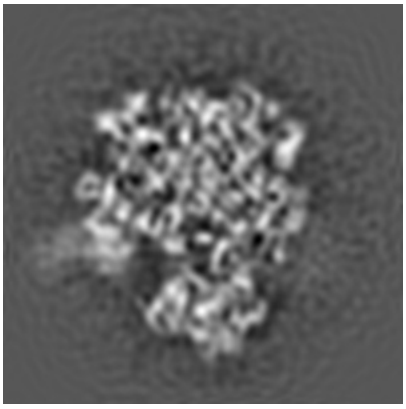
The images above show the map projected in three orthogonal directions.

6.2 Central slices

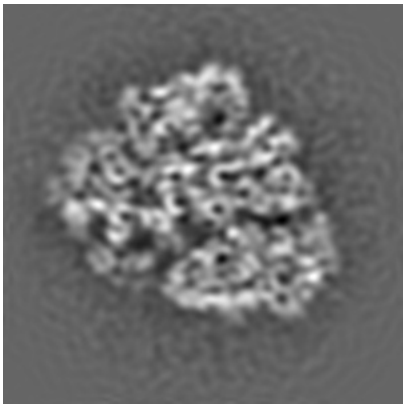
6.2.1 Primary map



X Index: 65



Y Index: 65

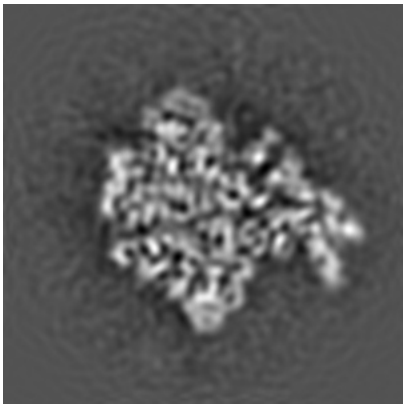


Z Index: 65

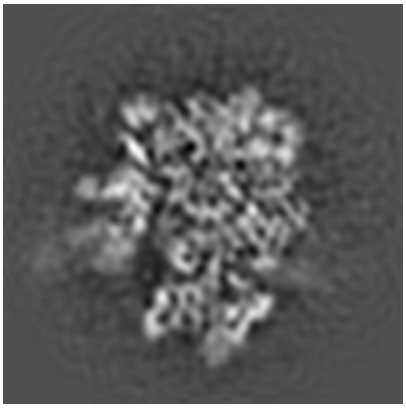
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

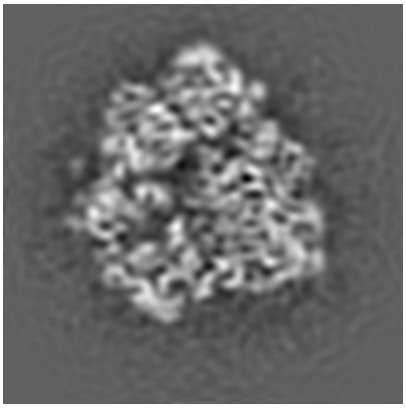
6.3.1 Primary map



X Index: 68



Y Index: 68

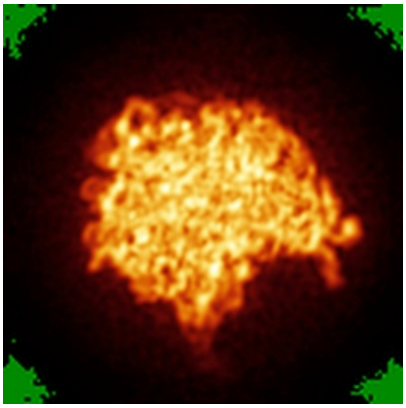


Z Index: 58

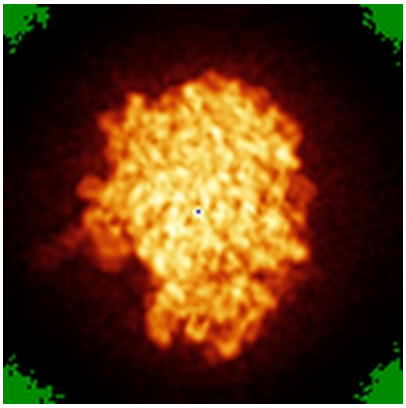
The images above show the largest variance slices of the map in three orthogonal directions.

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

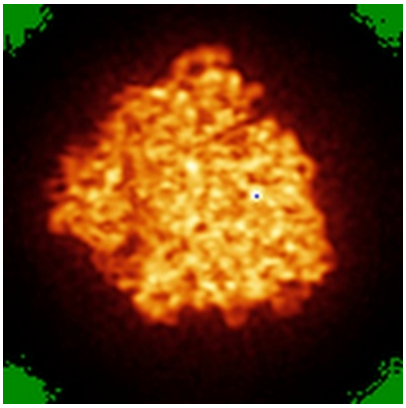
6.4.1 Primary map



X



Y

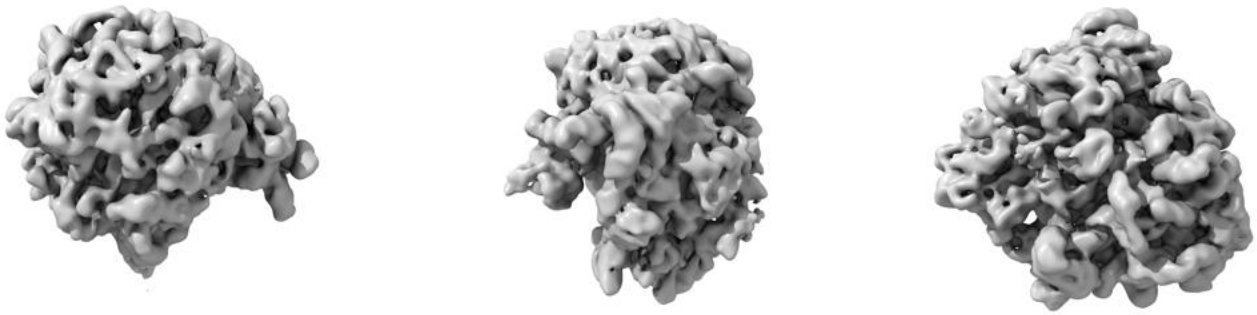


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 43.4. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

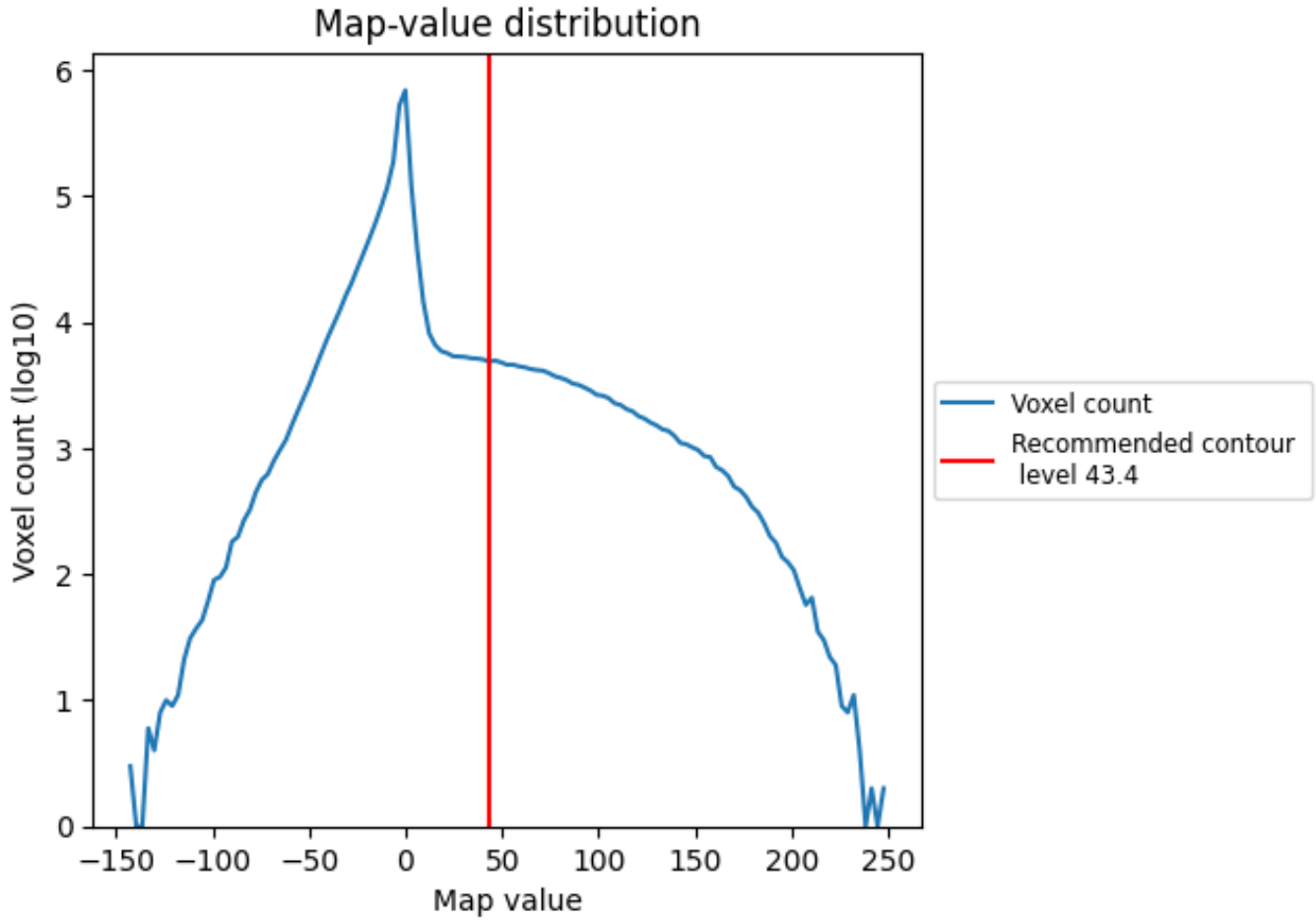
6.6 Mask visualisation (i)

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

7 Map analysis

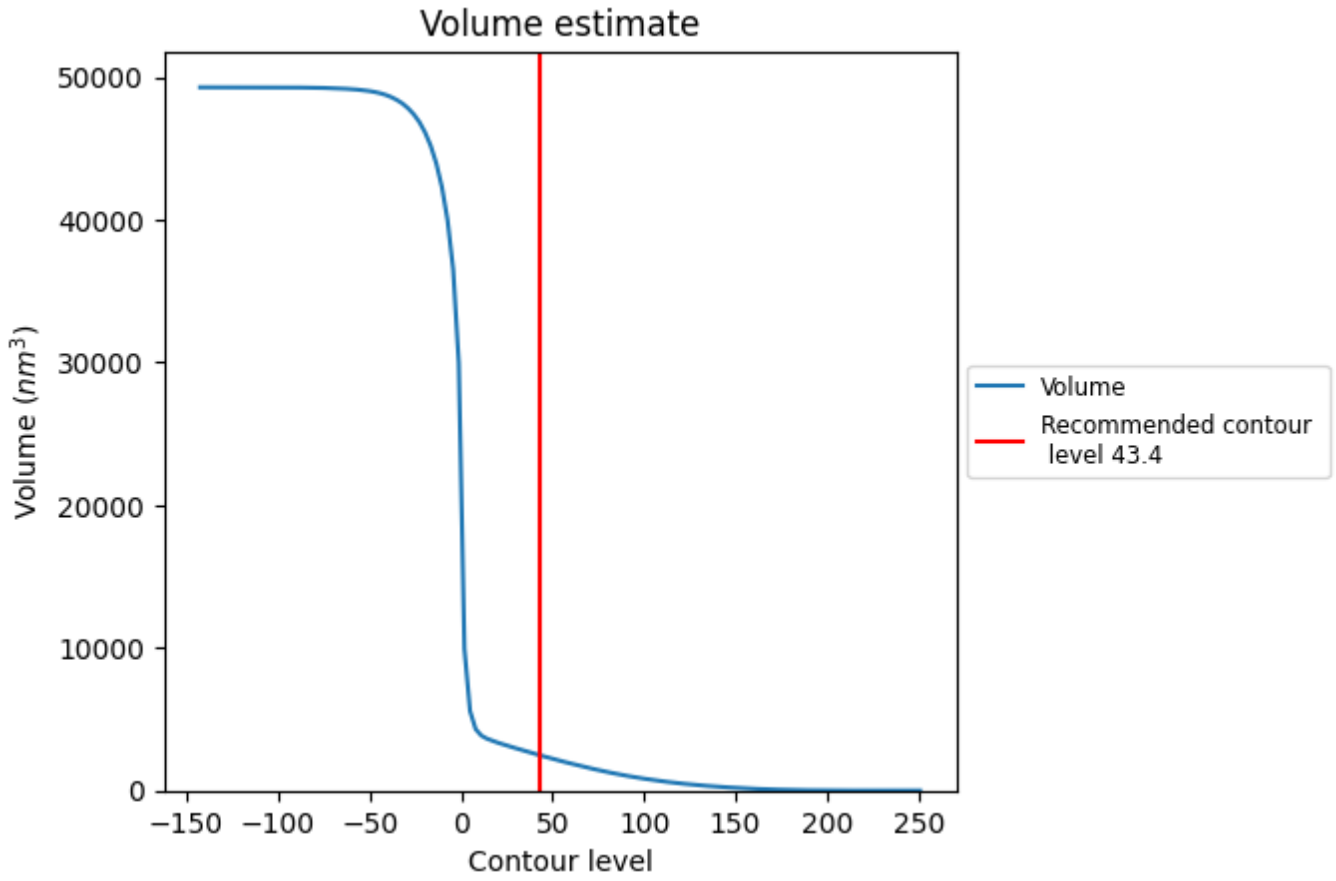
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

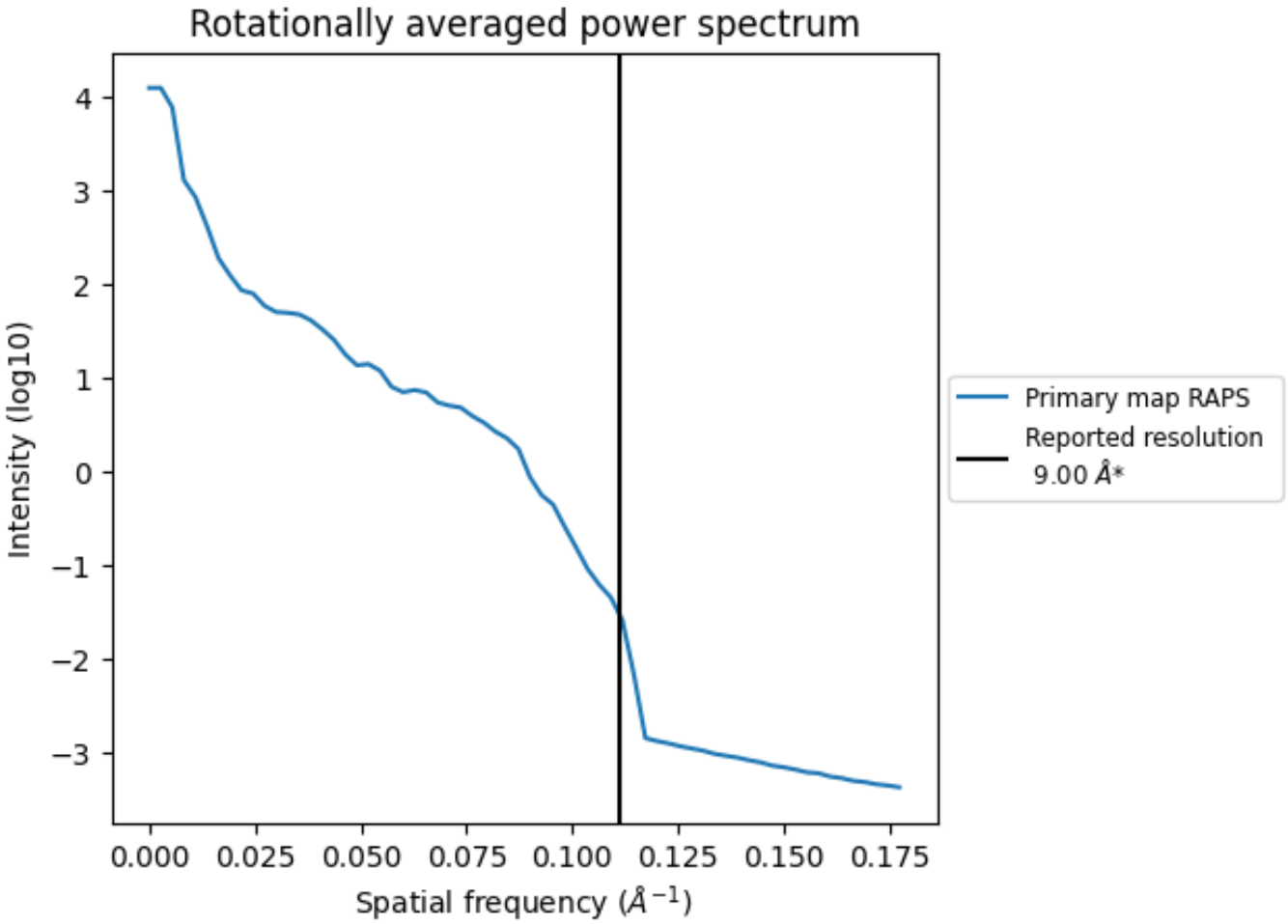
7.2 Volume estimate (i)



The volume at the recommended contour level is 2462 nm^3; this corresponds to an approximate mass of 2224 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 0.111 Å^{-1}

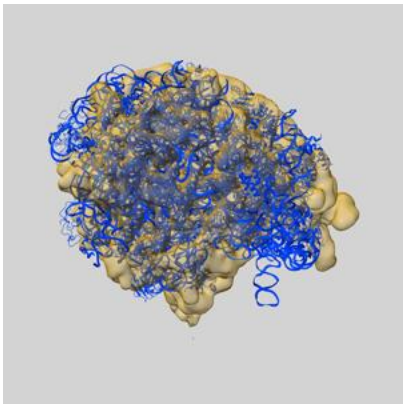
8 Fourier-Shell correlation (i)

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

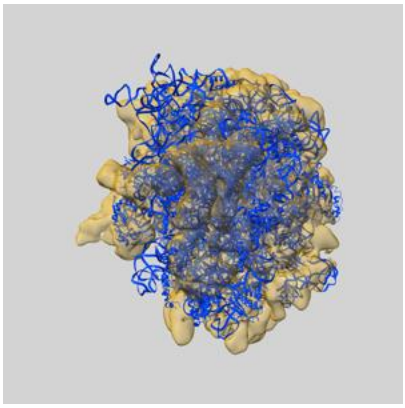
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-1056 and PDB model 4V66. Per-residue inclusion information can be found in section 3 on page 14.

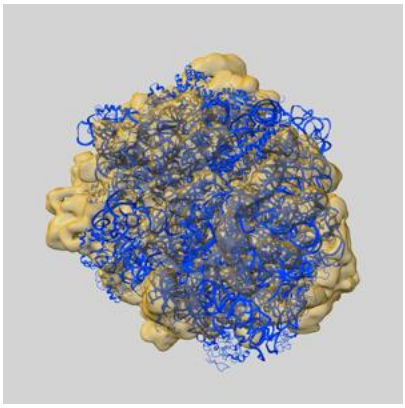
9.1 Map-model overlay



X



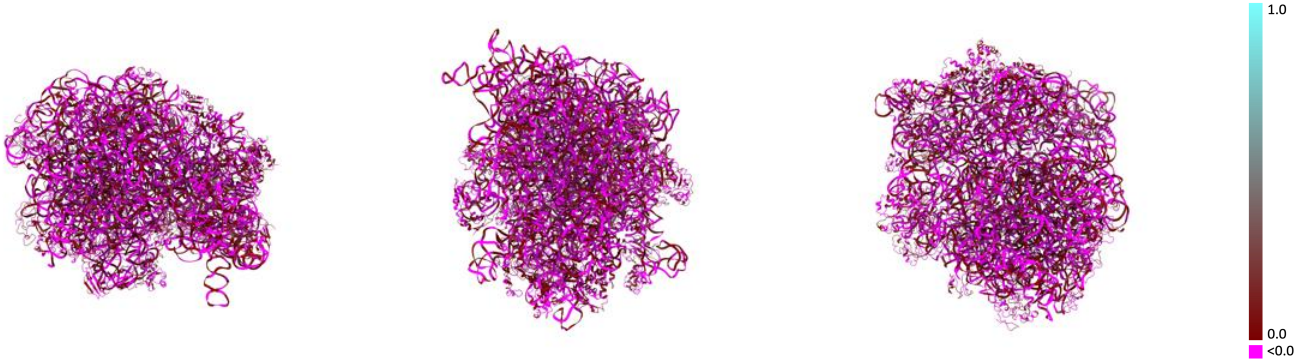
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 43.4 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

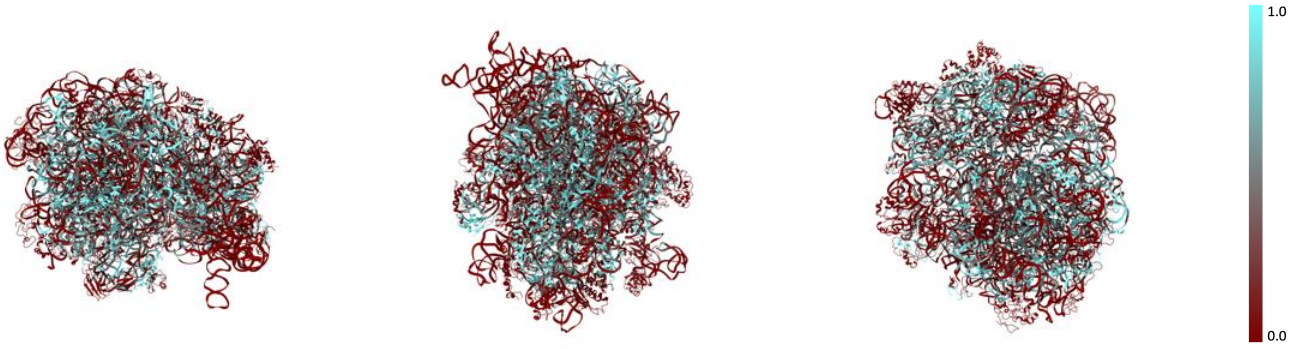
9.2 Q-score mapped to coordinate model



X Y Z

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

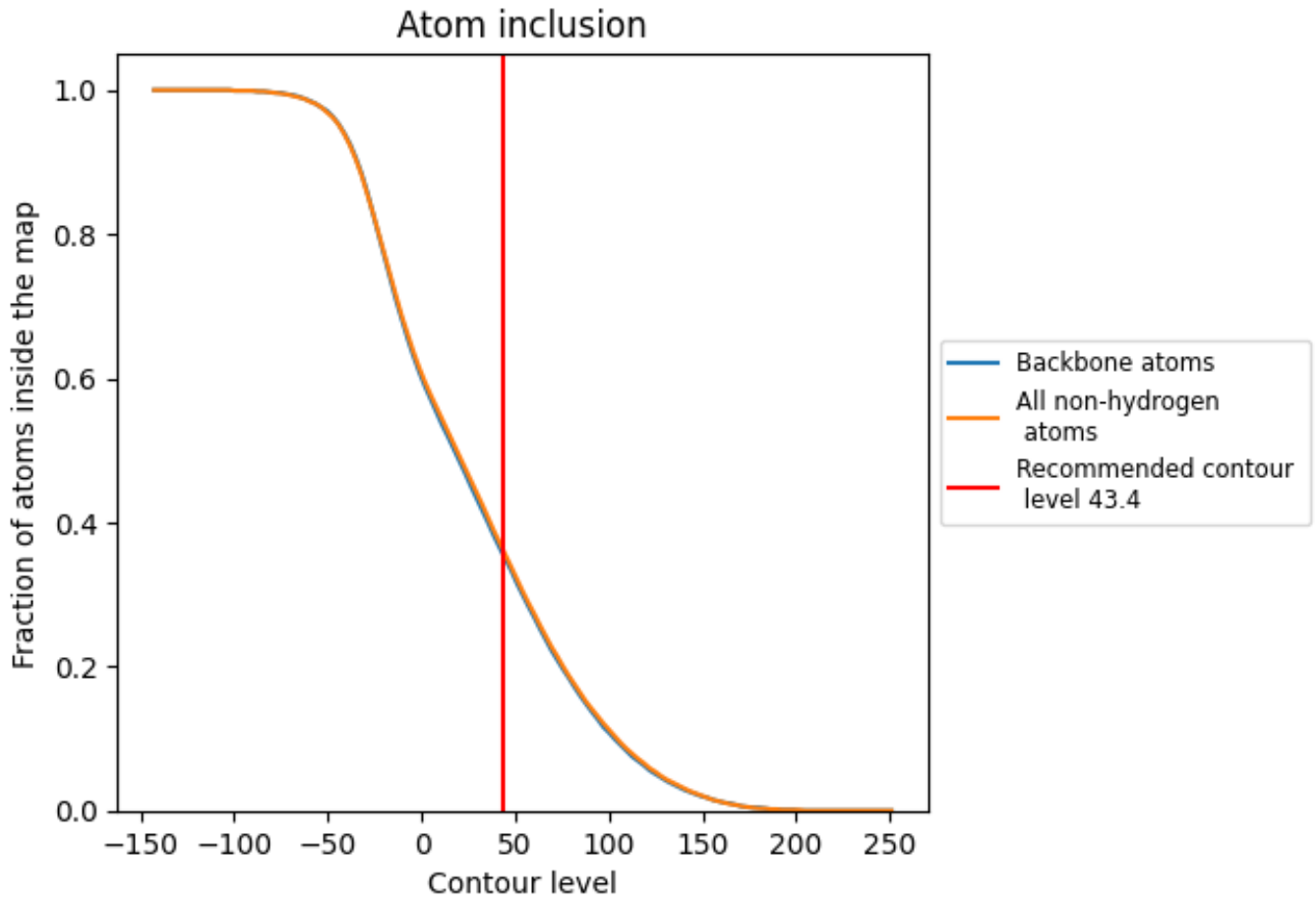
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (43.4).

9.4 Atom inclusion (i)



At the recommended contour level, 36% of all backbone atoms, 36% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (43.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.3630	-0.0040
A1	0.3040	-0.0060
AA	0.3110	0.0030
AB	0.2260	-0.0120
AC	0.4430	0.0120
AD	0.2320	-0.0130
AE	0.4020	-0.0090
AF	0.4050	-0.0120
AG	0.1040	-0.0300
AH	0.1730	0.0060
AI	0.0000	-0.0250
AJ	0.2610	-0.0340
AK	0.6440	0.0240
AL	0.0370	-0.0070
AM	0.7100	0.0400
AN	0.4180	0.0020
AO	0.6430	0.0220
AP	0.3780	-0.0140
AQ	0.3890	-0.0540
AR	0.4320	-0.0070
AS	0.5970	-0.0040
AT	0.2310	0.0030
AU	0.5160	-0.0040
AV	0.4660	0.0180
AW	0.1320	0.0180
AX	0.2560	-0.0200
B1	0.2470	-0.0070
B2	0.6610	0.0260
B3	0.1920	-0.0360
B4	0.0750	-0.0060
B5	0.5770	-0.0120
B6	0.5010	0.0050
BA	0.3050	-0.0250
BB	0.4050	-0.0030
BC	0.2330	-0.0090

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Chain	Atom inclusion	Q-score
BD	0.3820	-0.0020
BE	0.3730	-0.0020
BF	0.3480	-0.0040
BG	0.5840	-0.0030
BH	0.4220	0.0030
BI	0.4100	-0.0180
BJ	0.1770	-0.0330
BK	0.0770	0.0020
BL	0.4600	0.0040
BM	0.2620	-0.0100
BN	0.3830	0.0020
BO	0.0010	-0.0340
BP	0.5960	0.0340
BQ	0.4780	0.0290
BR	0.4430	-0.0030
BS	0.2920	0.0010
BT	0.4890	-0.0090
BU	0.1710	-0.0080
BV	0.4440	0.0120
BW	0.2550	-0.0220
BX	0.2890	-0.0030
BY	0.5370	0.0070
BZ	0.0450	-0.0170