



wwPDB EM Validation Summary Report ⓘ

Nov 19, 2022 – 07:02 PM EST

PDB ID : 4V4B
EMDB ID : EMD-1067
Title : Structure of the ribosomal 80S-eEF2-sordarin complex from yeast obtained by docking atomic models for RNA and protein components into a 11.7 Å cryo-EM map.
Authors : Spahn, C.M.; Gomez-Lorenzo, M.G.; Grassucci, R.A.; Jorgensen, R.; Andersen, G.R.; Beckmann, R.; Penczek, P.A.; Ballesta, J.P.G.; Frank, J.
Deposited on : 2004-01-06
Resolution : 11.70 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

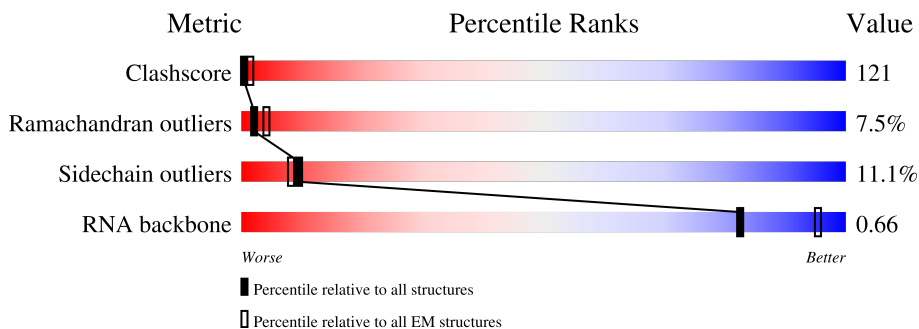
EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

1 Overall quality at a glance

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

The reported resolution of this entry is 11.70 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 $\leq 5\%$. 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	AA	1507	
2	AT	842	
3	AB	185	
4	AC	192	
5	AD	179	
6	AE	149	
7	AG	150	

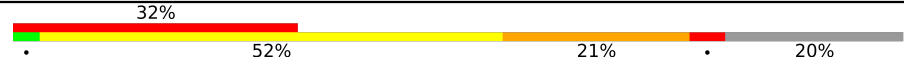

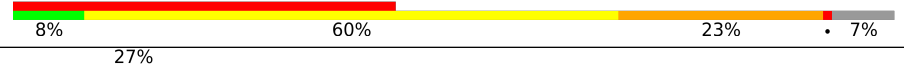
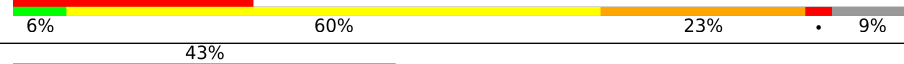

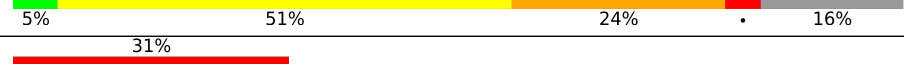

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Mol	Chain	Length	Quality of chain
8	AH	129	84% 19% 71% 8%
9	AI	142	32% 13% 70% 12%
10	AJ	100	49% 12% 70% 13%
11	AK	136	43% 22% 64% 8%
12	AL	118	90% 19% 71% 8%
13	AM	132	32% 14% 81% 5%
14	AN	36	47% 11% 61% 8% 19%
15	AO	65	35% 23% 68% 9%
16	AQ	76	67% 24% 72%
17	AS	80	10% 9% 82% 9%
18	B3	2999	15% 33% 52% 9% 5%
19	B4	125	6% 22% 61% 12%
20	BA	217	85% 20% 72% 6%
21	BB	253	82% 10% 61% 21%
22	BC	386	40% 8% 63% 19% 7%
23	BD	361	29% 6% 49% 13% 29%
24	BE	222	15% 5% 71% 19% 5%
25	BF	162	77% 11% 65% 22%
26	BG	119	17% 10% 66% 21%
27	BH	191	45% 9% 55% 26% 7%
28	BI	168	54% 9% 64% 21%
29	BJ	173	35% 9% 61% 21% 5% 5%
30	BK	131	76% 21% 73%
31	BL	203	64% 9% 51% 29% 7%
32	BM	146	81% 8% 69% 16% 7%

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Mol	Chain	Length	Quality of chain
33	BN	183	
34	BO	120	
35	BP	142	
36	BQ	100	
37	BR	137	
38	BS	56	
39	BT	83	
40	BU	126	
41	BV	148	
42	B0	130	
43	BW	112	
44	BX	120	
45	BY	87	
46	BZ	105	
47	B9	91	

2 Entry composition

There are 47 unique types of molecules in this entry. The entry contains 146792 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 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	AA	1466	31507	14026	5840	10176	1465	0	0

- Molecule 2 is a protein called Elongation factor 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	AT	819	6375	4057	1086	1202	30	0	0

- Molecule 3 is a protein called 40S ribosomal protein S0-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	AB	185	1438	919	261	256	2	0	0

- Molecule 4 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	AC	188	1469	929	271	263	6	0	0

- Molecule 5 is a protein called 40S ribosomal protein S9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	AD	178	1424	893	271	259	1	0	0

- Molecule 6 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	AE	149	1099	691	206	200	2	0	0

- Molecule 7 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	AG	150	1161	714	229	215	3	0	0

- Molecule 8 is a protein called 40S ribosomal protein S22.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	AH	127	1004	640	183	178	3	0	0

- Molecule 9 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
9	AI	139	1094	700	201	193	0	0

- Molecule 10 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	AJ	97	777	492	141	143	1	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AJ	?	-	VAL	deletion	UNP P38701

- Molecule 11 is a protein called 40S ribosomal protein S14-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	AK	125	925	566	181	175	3	0	0

- Molecule 12 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	AL	118	906	579	166	159	2	0	0

- Molecule 13 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	AM	131	Total	C	N	O	S	0	0
			1084	675	218	189	2		

- Molecule 14 is a protein called 40S ribosomal protein S29-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	AN	29	Total	C	N	O	S	0	0
			235	141	48	42	4		

- Molecule 15 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	AO	65	Total	C	N	O	S	0	0
			552	353	107	91	1		

- Molecule 16 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	AQ	76	Total	C	N	O	S	0	0
			618	396	120	100	2		

- Molecule 17 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	AS	80	Total	C	N	O	S	0	0
			622	398	110	108	6		

- Molecule 18 is a RNA chain called 5.8S/25S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	B3	2863	Total	C	N	O	P	0	69
			59964	26726	11030	19346	2862		

There are 144 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B3	73	C	U	conflict	GB 3377778
B3	74	A	G	conflict	GB 3377778
B3	103	U	C	conflict	GB 3377778
B3	104	G	A	conflict	GB 3377778
B3	?	-	U	deletion	GB 3377778
B3	?	-	C	deletion	GB 3377778

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Chain	Residue	Modelled	Actual	Comment	Reference
B3	130	C	-	insertion	GB 3377778
B3	131B	U	-	insertion	GB 3377778
B3	200	U	C	conflict	GB 3377778
B3	300	C	U	conflict	GB 3377778
B3	301	G	C	conflict	GB 3377778
B3	318	C	U	conflict	GB 3377778
B3	350	C	G	conflict	GB 3377778
B3	351	G	A	conflict	GB 3377778
B3	363	A	C	conflict	GB 3377778
B3	364	C	U	conflict	GB 3377778
B3	560	C	U	conflict	GB 3377778
B3	574	C	G	conflict	GB 3377778
B3	575	G	A	conflict	GB 3377778
B3	582	C	U	conflict	GB 3377778
B3	583	G	C	conflict	GB 3377778
B3	653	C	U	conflict	GB 3377778
B3	972	C	-	insertion	GB 3377778
B3	973	U	-	insertion	GB 3377778
B3	974	A	-	insertion	GB 3377778
B3	976Z	G	-	insertion	GB 3377778
B3	976	G	-	insertion	GB 3377778
B3	977	G	-	insertion	GB 3377778
B3	978	G	-	insertion	GB 3377778
B3	979	G	-	insertion	GB 3377778
B3	980	C	-	insertion	GB 3377778
B3	981	C	-	insertion	GB 3377778
B3	982	C	-	insertion	GB 3377778
B3	983	A	-	insertion	GB 3377778
B3	984	C	-	insertion	GB 3377778
B3	985	C	-	insertion	GB 3377778
B3	986	A	-	insertion	GB 3377778
B3	987	G	-	insertion	GB 3377778
B3	988	C	-	insertion	GB 3377778
B3	989	C	-	insertion	GB 3377778
B3	990	U	-	insertion	GB 3377778
B3	991	A	-	insertion	GB 3377778
B3	992	C	-	insertion	GB 3377778
B3	993	C	-	insertion	GB 3377778
B3	994	A	-	insertion	GB 3377778
B3	995	A	-	insertion	GB 3377778
B3	1026	C	U	conflict	GB 3377778
B3	1162	U	G	conflict	GB 3377778

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Chain	Residue	Modelled	Actual	Comment	Reference
B3	1165	U	G	conflict	GB 3377778
B3	1166	G	A	conflict	GB 3377778
B3	1180	C	U	conflict	GB 3377778
B3	1182	U	C	conflict	GB 3377778
B3	1184	A	C	conflict	GB 3377778
B3	1186	U	C	conflict	GB 3377778
B3	1190	A	G	conflict	GB 3377778
B3	1191	G	A	conflict	GB 3377778
B3	1193	G	A	conflict	GB 3377778
B3	1194	U	A	conflict	GB 3377778
B3	1206	C	U	conflict	GB 3377778
B3	1320	U	C	conflict	GB 3377778
B3	1326	U	C	conflict	GB 3377778
B3	1329	A	G	conflict	GB 3377778
B3	1331	A	G	conflict	GB 3377778
B3	1337	A	G	conflict	GB 3377778
B3	1479	A	G	conflict	GB 3377778
B3	1480	U	A	conflict	GB 3377778
B3	1496	G	A	conflict	GB 3377778
B3	1587	U	A	conflict	GB 3377778
B3	1669	A	G	conflict	GB 3377778
B3	1670	G	A	conflict	GB 3377778
B3	1949	C	G	conflict	GB 3377778
B3	1950	C	G	conflict	GB 3377778
B3	1959	A	G	conflict	GB 3377778
B3	1962	G	C	conflict	GB 3377778
B3	1963	G	C	conflict	GB 3377778
B3	1966	C	U	conflict	GB 3377778
B3	2137	U	A	conflict	GB 3377778
B3	2139	U	G	conflict	GB 3377778
B3	3145	G	-	insertion	GB 3377778
B3	2146	G	-	insertion	GB 3377778
B3	2147	G	-	insertion	GB 3377778
B3	2148	G	-	insertion	GB 3377778
B3	2149	A	-	insertion	GB 3377778
B3	2150	U	-	insertion	GB 3377778
B3	2151	G	-	insertion	GB 3377778
B3	2152	C	-	insertion	GB 3377778
B3	2153	G	-	insertion	GB 3377778
B3	2154	U	-	insertion	GB 3377778
B3	2155	A	-	insertion	GB 3377778
B3	2156	G	-	insertion	GB 3377778

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Chain	Residue	Modelled	Actual	Comment	Reference
B3	2157	G	-	insertion	GB 3377778
B3	2158	A	-	insertion	GB 3377778
B3	2159	U	-	insertion	GB 3377778
B3	2160	A	-	insertion	GB 3377778
B3	2161	G	-	insertion	GB 3377778
B3	2162	G	-	insertion	GB 3377778
B3	2163	U	-	insertion	GB 3377778
B3	2164	G	-	insertion	GB 3377778
B3	2165	G	-	insertion	GB 3377778
B3	2166	G	-	insertion	GB 3377778
B3	2167	A	-	insertion	GB 3377778
B3	2168	G	-	insertion	GB 3377778
B3	2169	C	-	insertion	GB 3377778
B3	2170	G	-	insertion	GB 3377778
B3	2171	C	-	insertion	GB 3377778
B3	2203	A	-	insertion	GB 3377778
B3	2204	A	-	insertion	GB 3377778
B3	2205	G	-	insertion	GB 3377778
B3	2206	C	-	insertion	GB 3377778
B3	2207	G	-	insertion	GB 3377778
B3	2208	C	-	insertion	GB 3377778
B3	2209	C	-	insertion	GB 3377778
B3	2210	G	-	insertion	GB 3377778
B3	2211	G	-	insertion	GB 3377778
B3	2212	U	-	insertion	GB 3377778
B3	2213	G	-	insertion	GB 3377778
B3	2214	A	-	insertion	GB 3377778
B3	2215	A	-	insertion	GB 3377778
B3	2216	A	-	insertion	GB 3377778
B3	2217	U	-	insertion	GB 3377778
B3	2218	A	-	insertion	GB 3377778
B3	2219	C	-	insertion	GB 3377778
B3	2220	C	-	insertion	GB 3377778
B3	2221	A	-	insertion	GB 3377778
B3	2222	C	-	insertion	GB 3377778
B3	2223	C	-	insertion	GB 3377778
B3	2224	C	-	insertion	GB 3377778
B3	2225	U	-	insertion	GB 3377778
B3	2226	U	-	insertion	GB 3377778
B3	2227	C	-	insertion	GB 3377778
B3	2228	C	-	insertion	GB 3377778
B3	2229	C	-	insertion	GB 3377778

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Chain	Residue	Modelled	Actual	Comment	Reference
B3	2230	C	-	insertion	GB 3377778
B3	2231	G	-	insertion	GB 3377778
B3	2232	G	-	insertion	GB 3377778
B3	2233	C	-	insertion	GB 3377778
B3	2234	U	-	insertion	GB 3377778
B3	2235	G	-	insertion	GB 3377778
B3	2236	G	-	insertion	GB 3377778
B3	2325	C	U	conflict	GB 3377778
B3	2326	U	C	conflict	GB 3377778
B3	2341	G	A	conflict	GB 3377778
B3	2374	A	G	conflict	GB 3377778
B3	2375	G	A	conflict	GB 3377778

- Molecule 19 is a RNA chain called 5S RIBOSOMAL RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
19	B4	122	2600	1160	472	847	121	0	0

- Molecule 20 is a protein called 60S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	BA	213	1682	1074	294	305	9	0	0

- Molecule 21 is a protein called 60S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	BB	244	1855	1156	375	323	1	0	0

- Molecule 22 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	BC	359	2856	1813	541	495	7	0	0

- Molecule 23 is a protein called 60S ribosomal protein L4-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	BD	256	1942	1221	374	344	3	0	0

- Molecule 24 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	BE	222	1799	1140	312	345	2	0	0

- Molecule 25 is a protein called 60S ribosomal protein L7-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	BF	161	1298	854	228	215	1	0	0

- Molecule 26 is a protein called 60S ribosomal protein L8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	BG	119	886	566	152	166	2	0	0

- Molecule 27 is a protein called 60S ribosomal protein L9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	BH	178	1410	892	259	256	3	0	0

- Molecule 28 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	BI	165	1326	834	257	228	7	0	0

- Molecule 29 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	BJ	165	1319	826	247	242	4	0	0

- Molecule 30 is a protein called 60S ribosomal protein L12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	BK	131	978	613	181	182	2	0	0

- Molecule 31 is a protein called 60S ribosomal protein L15-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	BL	194	1637	1022	344	270	1	0	0

- Molecule 32 is a protein called 60S ribosomal protein L16-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	BM	146	1165	754	221	189	1	0	0

- Molecule 33 is a protein called 60S ribosomal protein L17-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
33	BN	147	1163	725	226	212	0	0

- Molecule 34 is a protein called 60S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	BO	120	925	595	169	160	1	0	0

- Molecule 35 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
35	BP	141	1145	714	242	189	0	0

- Molecule 36 is a protein called 60S ribosomal protein L21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	BQ	97	795	505	153	134	3	0	0

- Molecule 37 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	BR	131	977	614	183	173	7	0	0

- Molecule 38 is a protein called 60S ribosomal protein L24-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
38	BS	53	439	282	84	73	0	0

- Molecule 39 is a protein called 60S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	BT	77	614	395	101	116	2	0	0

- Molecule 40 is a protein called 60S ribosomal protein L26-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
40	BU	115	911	574	178	159	0	0

- Molecule 41 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	BV	143	1133	723	222	185	3	0	0

- Molecule 42 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	B0	109	880	555	176	148	1	0	0

- Molecule 43 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	BW	78	654	412	132	109	1	0	0

- Molecule 44 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	BX	59	461	294	82	84	1	0	0

- Molecule 45 is a protein called 60S ribosomal protein L37-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	BY	52	402	245	85	68	4	0	0

- Molecule 46 is a protein called 60S ribosomal protein L42.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	BZ	91	740	466	150	119	5	0	0

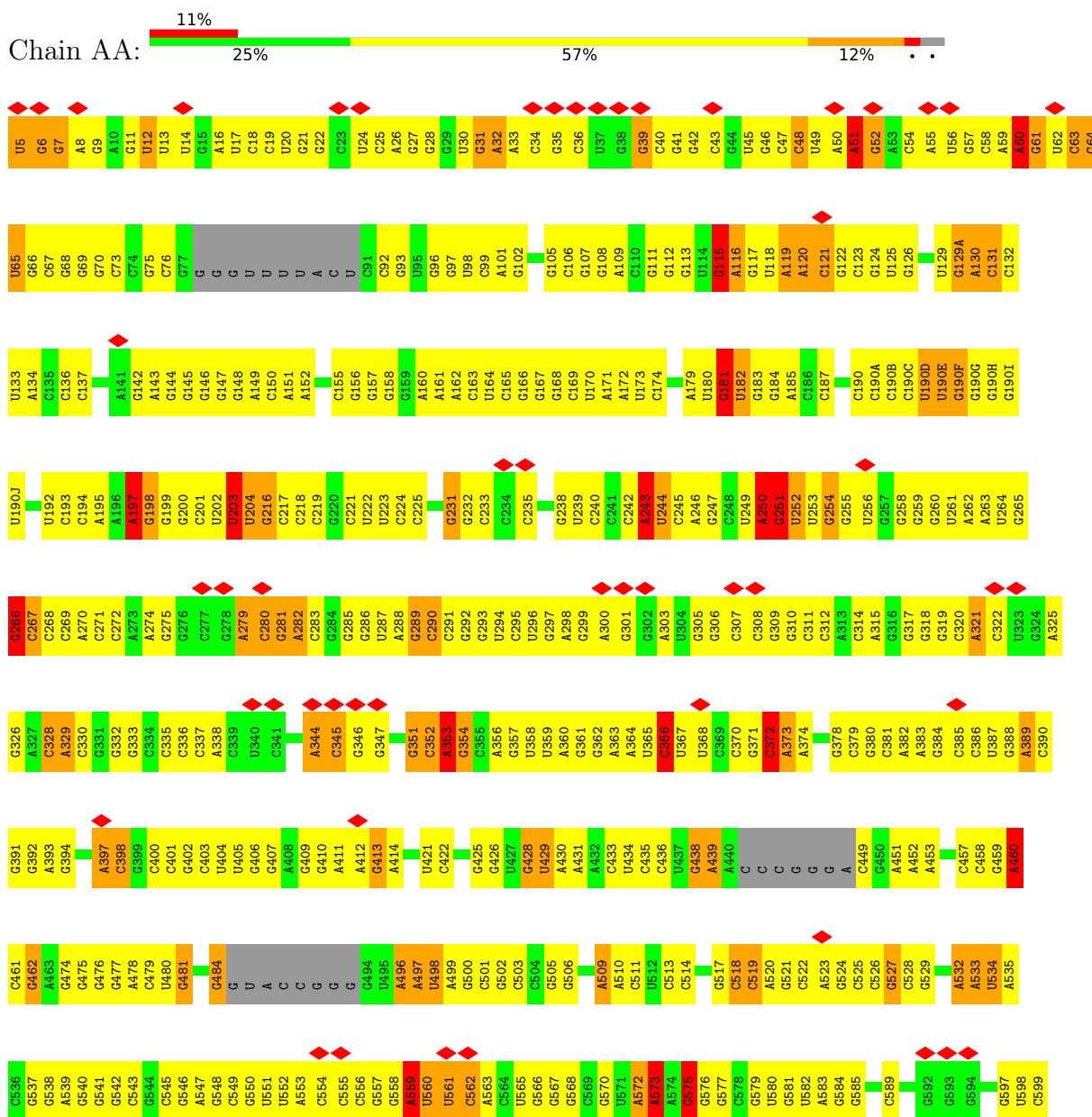
- Molecule 47 is a protein called 60S ribosomal protein L43.

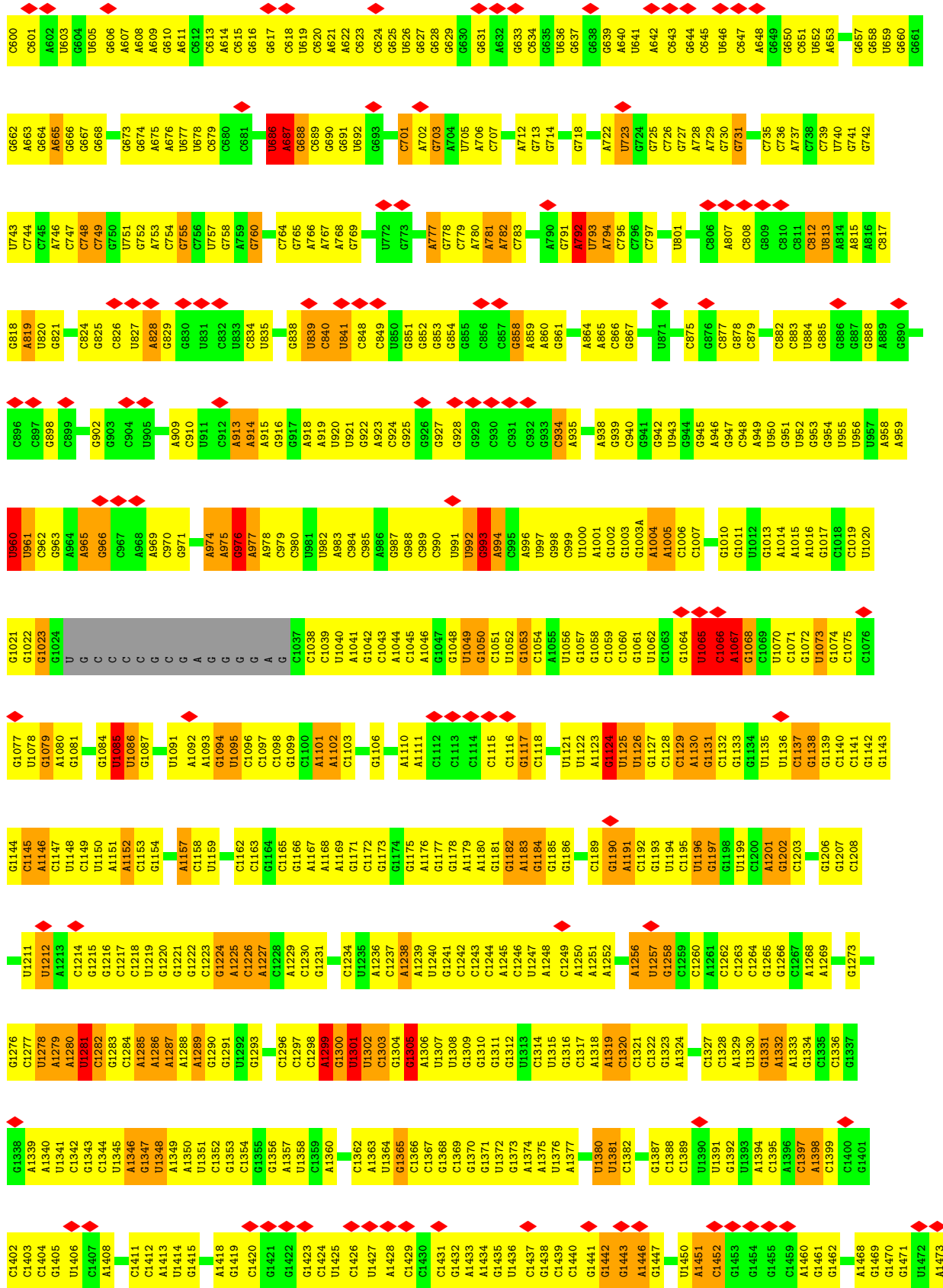
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	B9	73	546	338	105	98	5	0	0

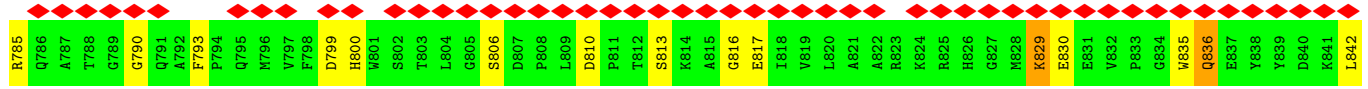
3 Residue-property plots

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.

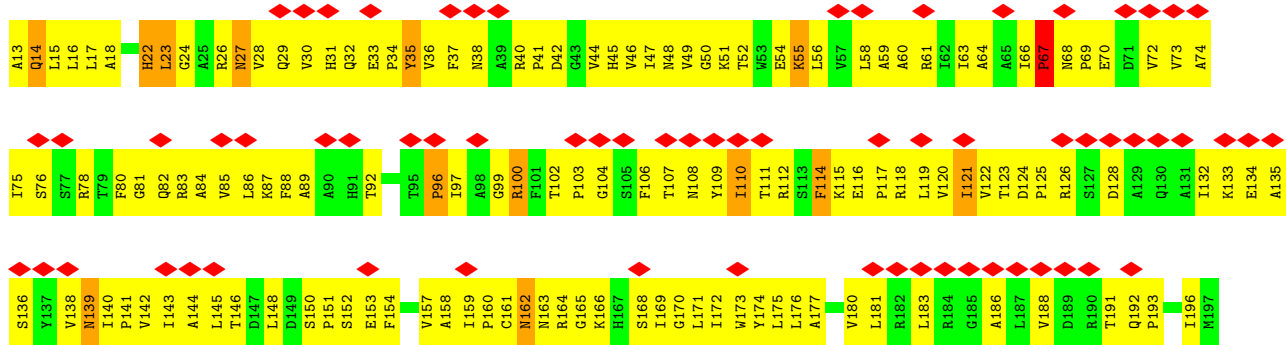
• Molecule 1: 18S ribosomal RNA



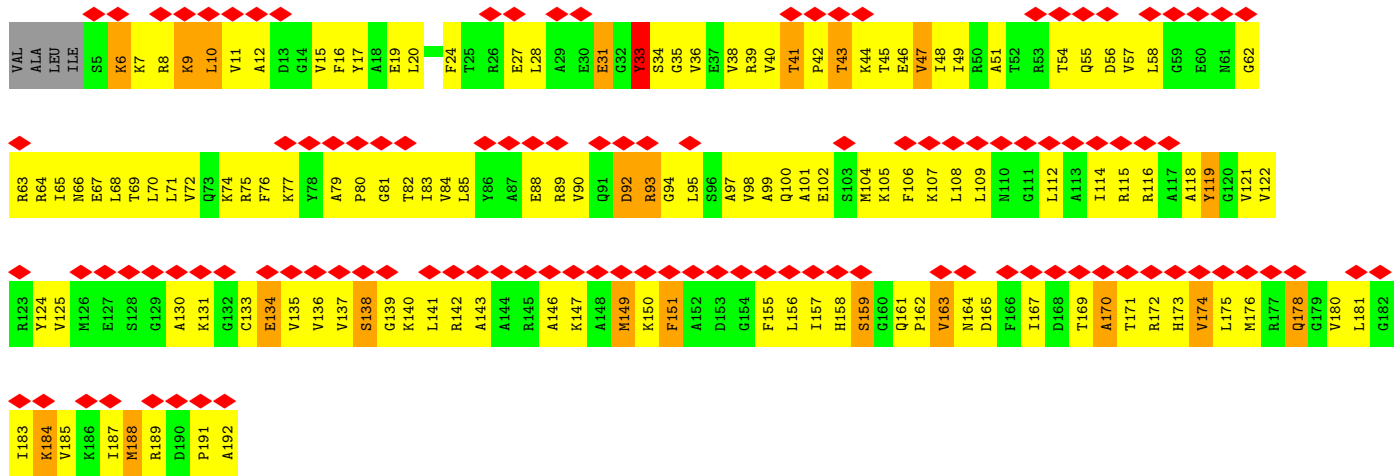




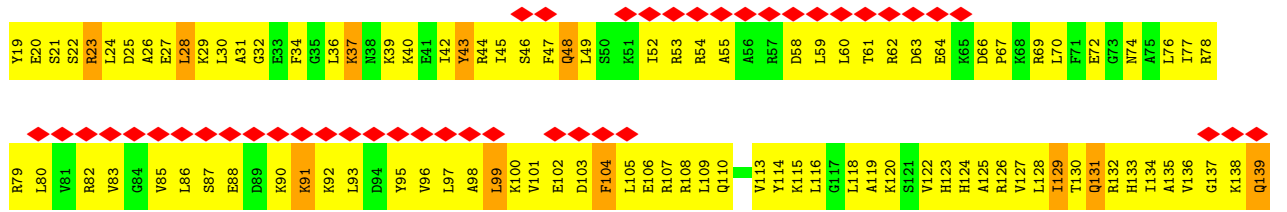
• Molecule 3: 40S ribosomal protein S0-A



• Molecule 4: 40S ribosomal protein S3

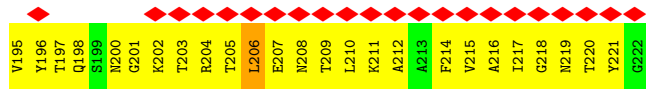


• Molecule 5: 40S ribosomal protein S9-A

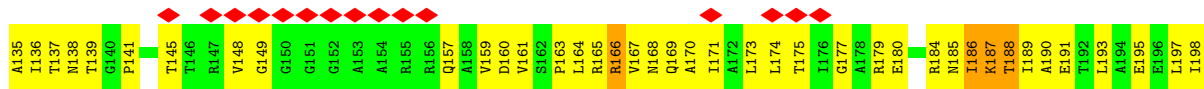




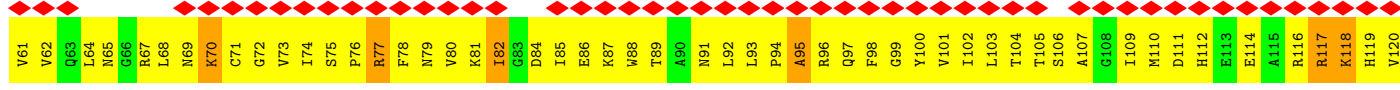
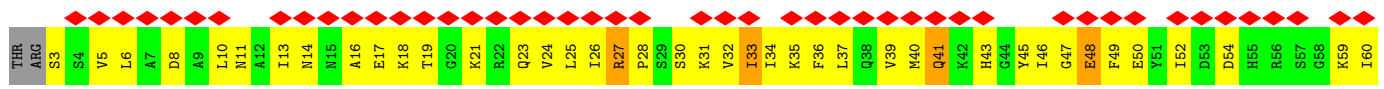
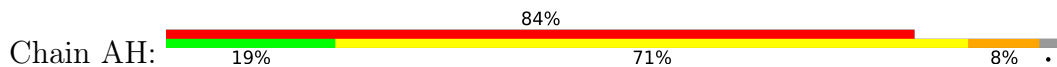
• Molecule 6: 40S ribosomal protein S2



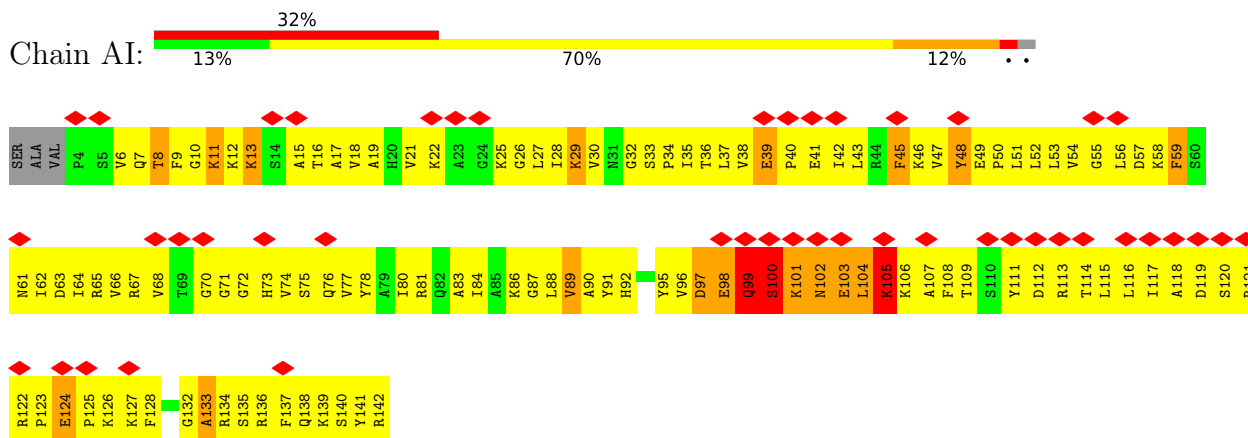
• Molecule 7: 40S ribosomal protein S5



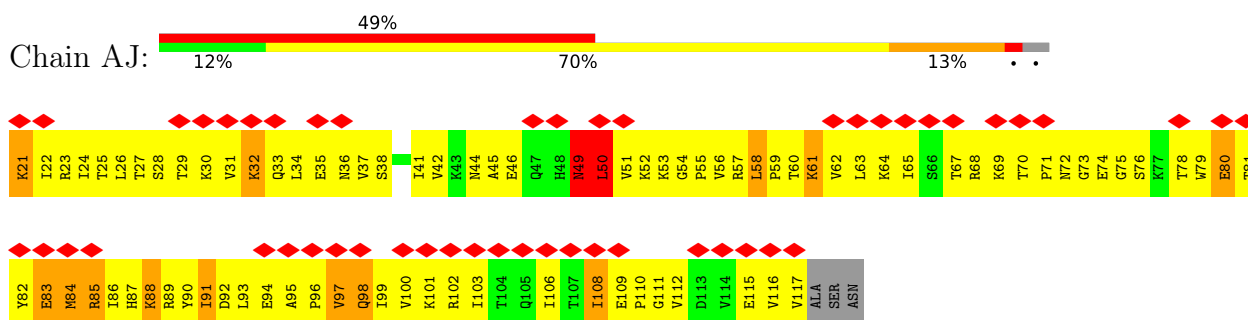
• Molecule 8: 40S ribosomal protein S22



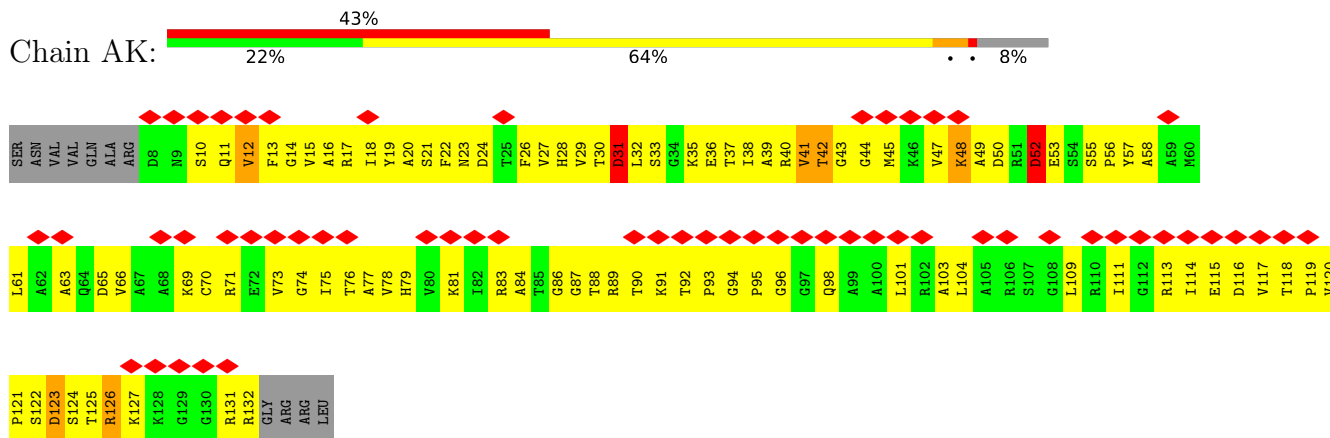
• Molecule 9: 40S ribosomal protein S16



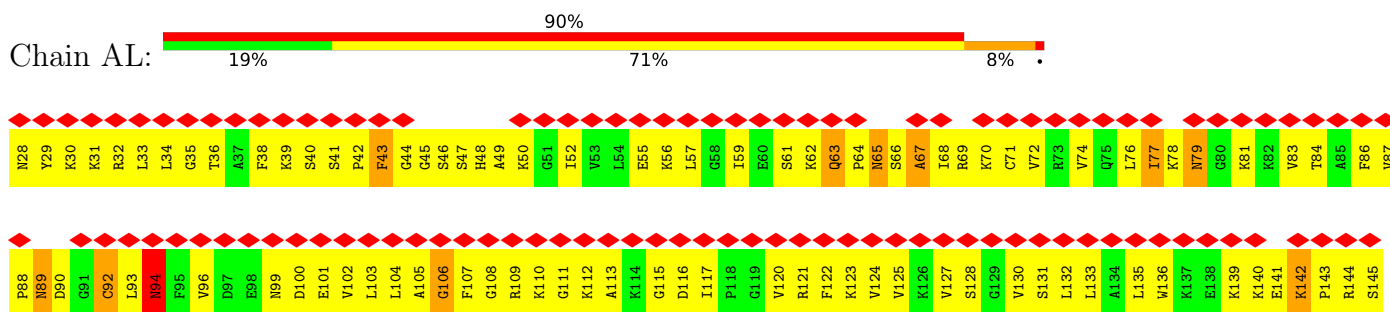
- Molecule 10: 40S ribosomal protein S20



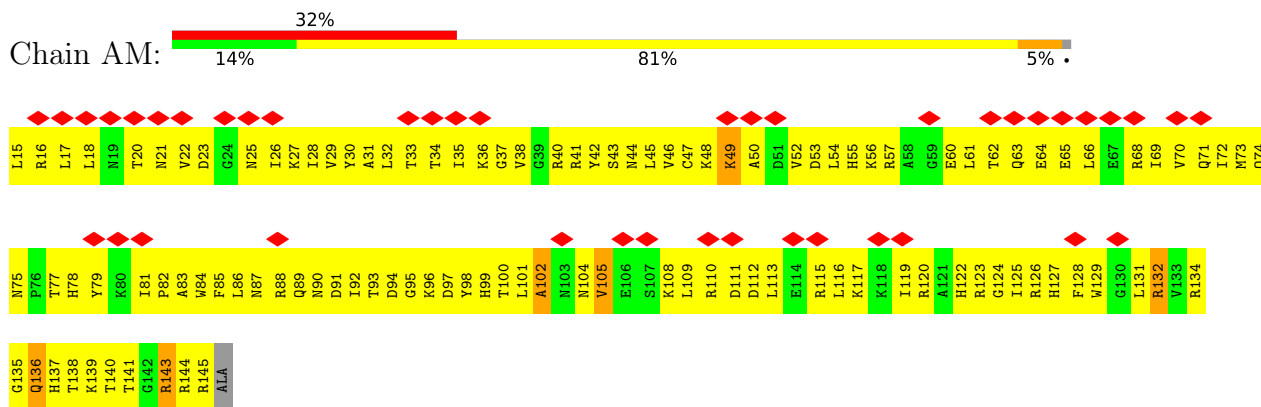
- Molecule 11: 40S ribosomal protein S14-A



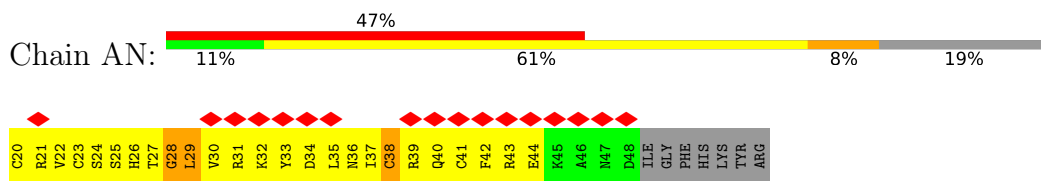
- Molecule 12: 40S ribosomal protein S23



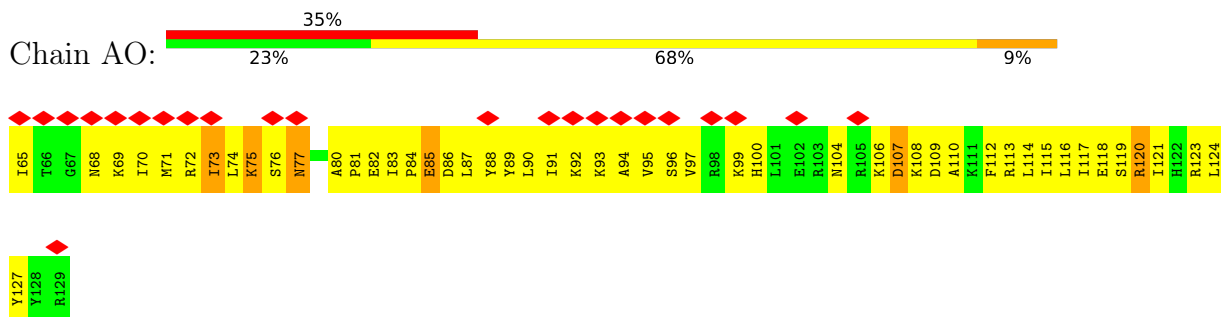
- Molecule 13: 40S ribosomal protein S18



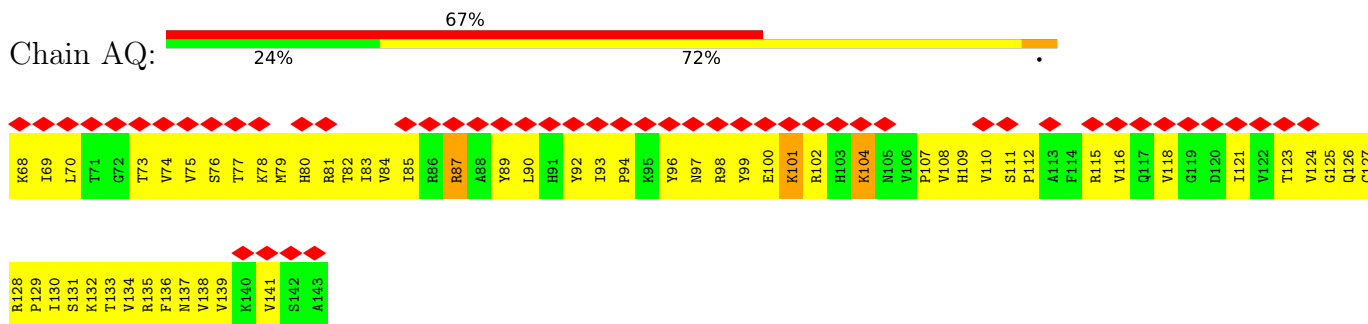
• Molecule 14: 40S ribosomal protein S29-B



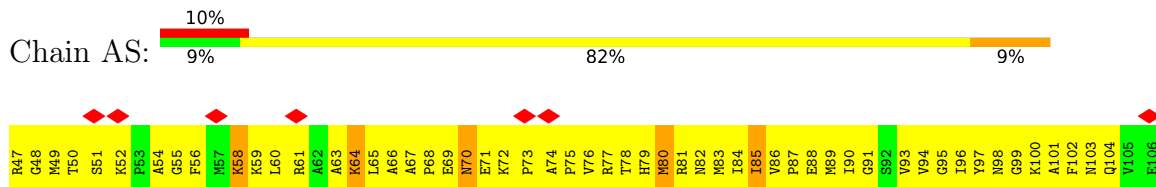
• Molecule 15: 40S ribosomal protein S13

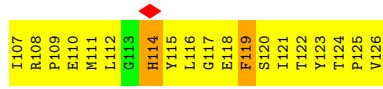


• Molecule 16: 40S ribosomal protein S11

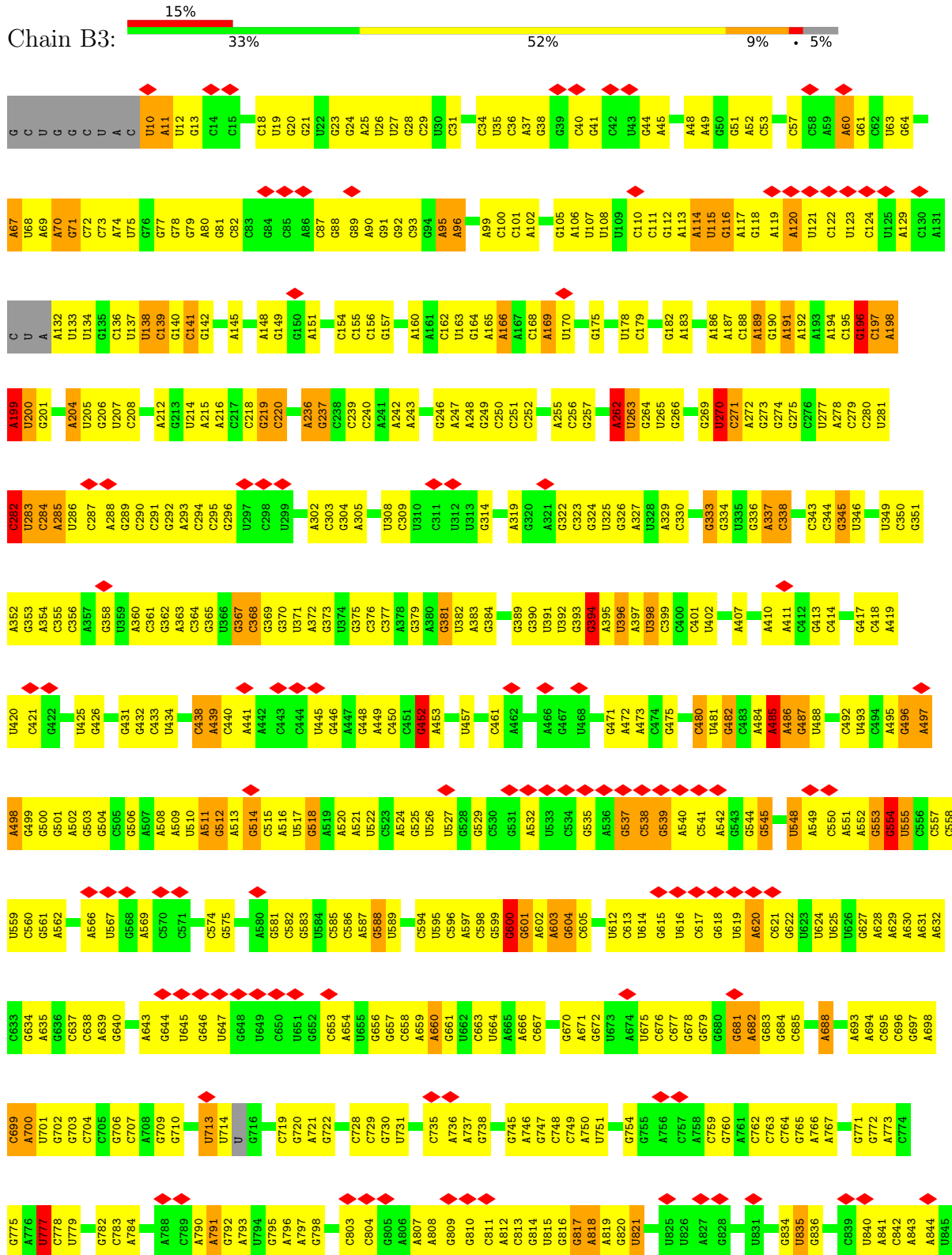


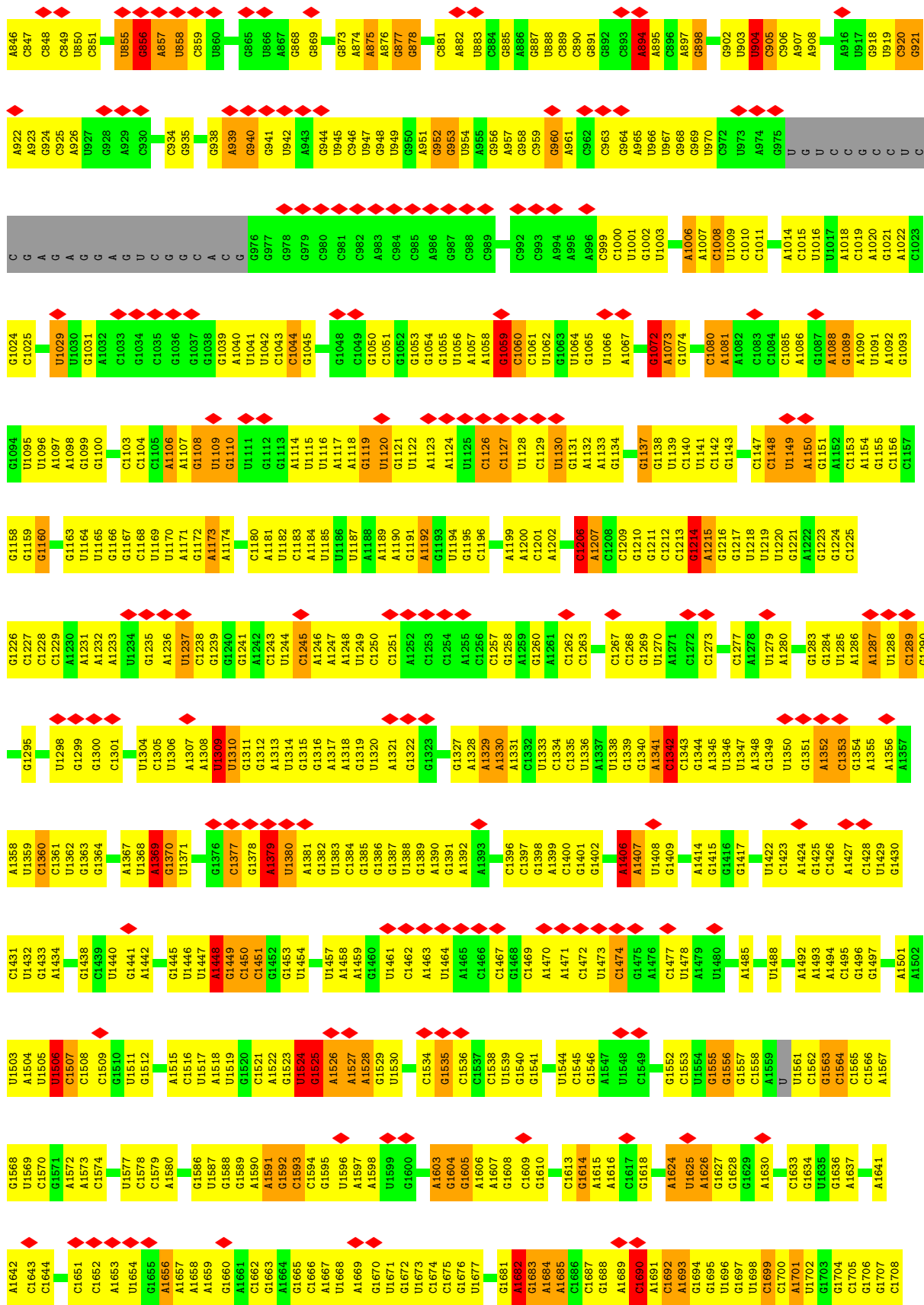
• Molecule 17: 40S ribosomal protein S15

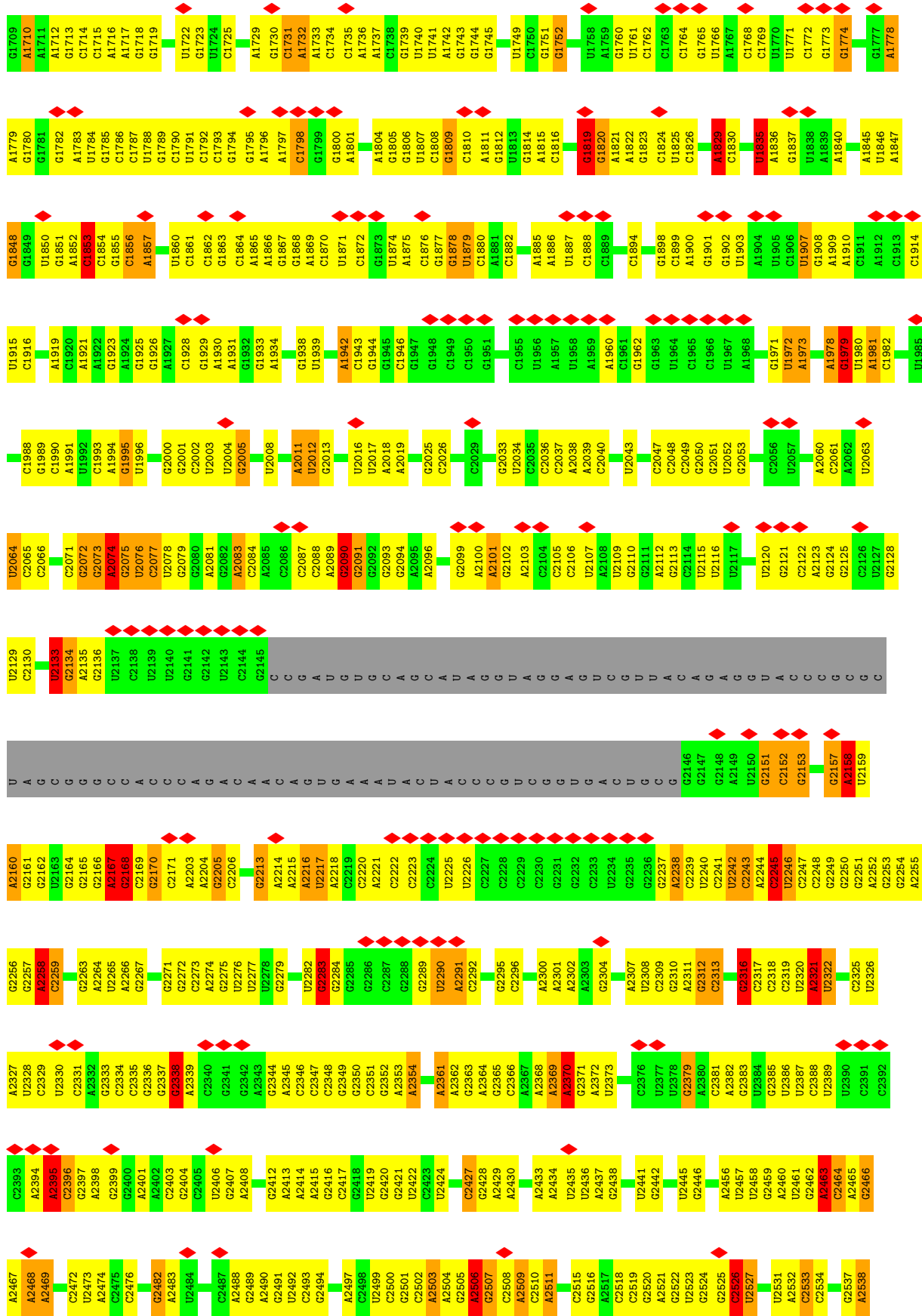


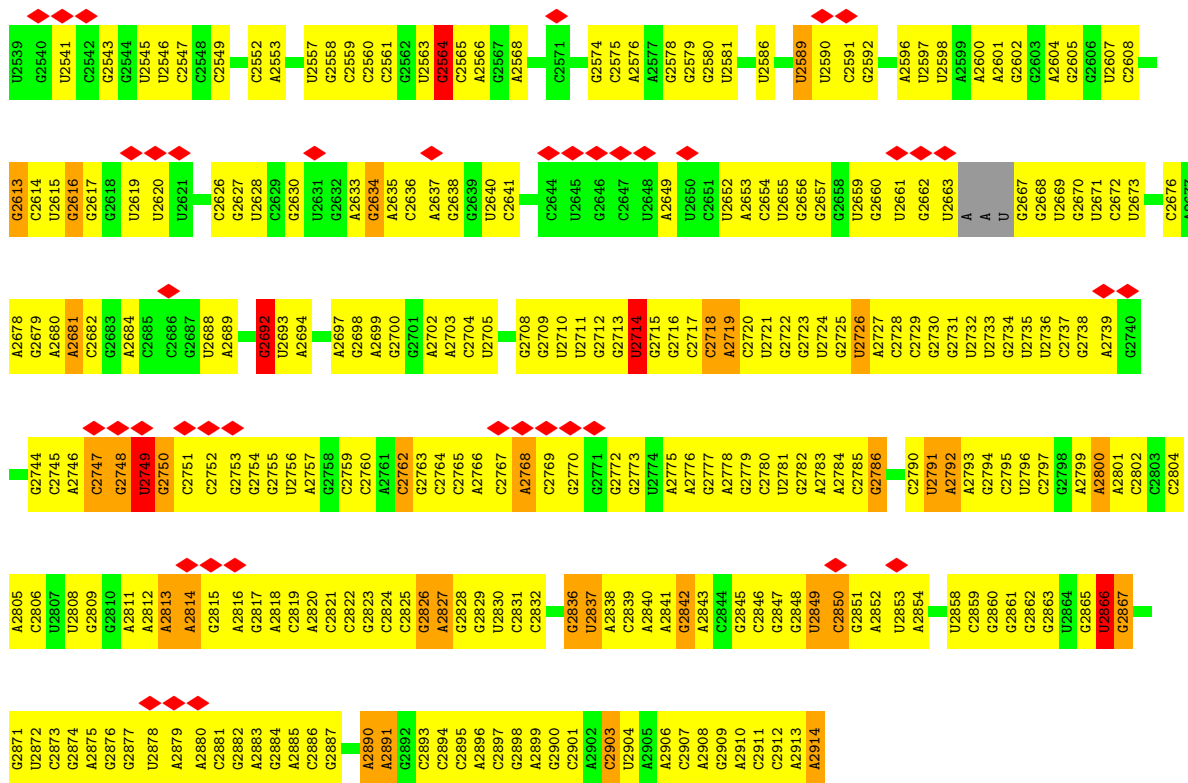


• Molecule 18: 5.8S/25S ribosomal RNA

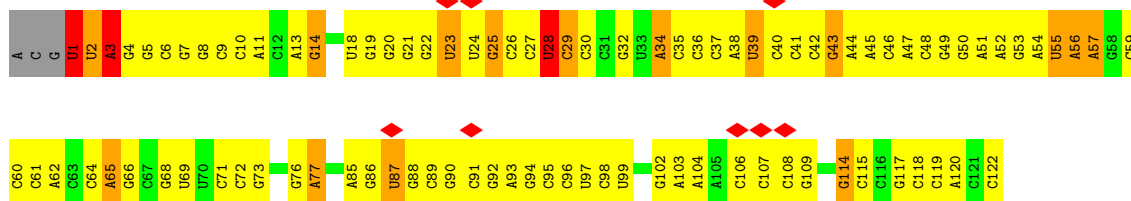




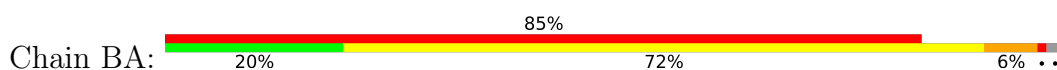


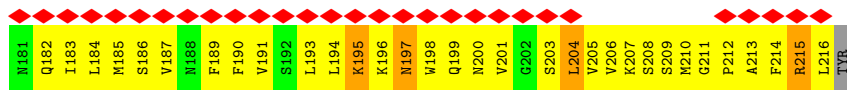


• Molecule 19: 5S RIBOSOMAL RNA

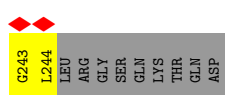
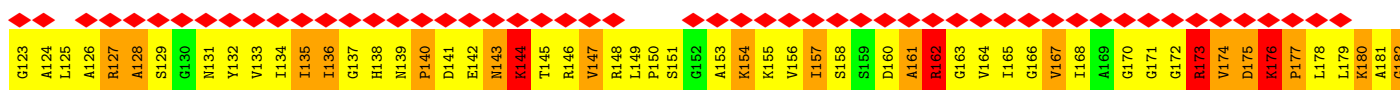
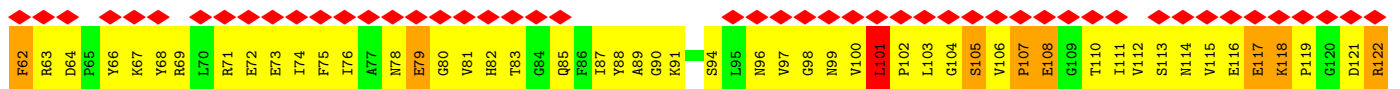
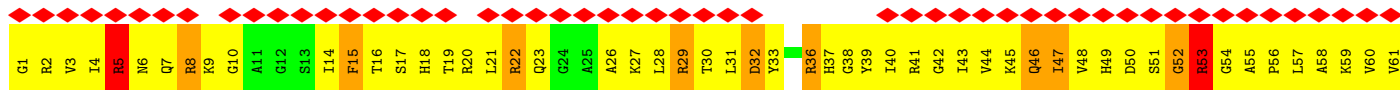
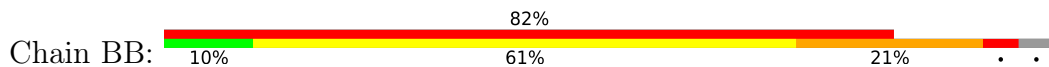


• Molecule 20: 60S ribosomal protein L1

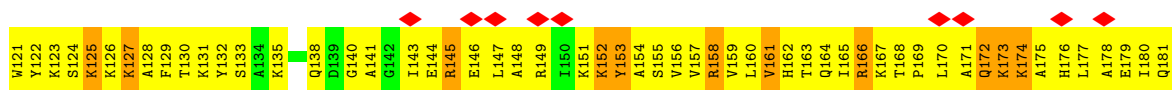
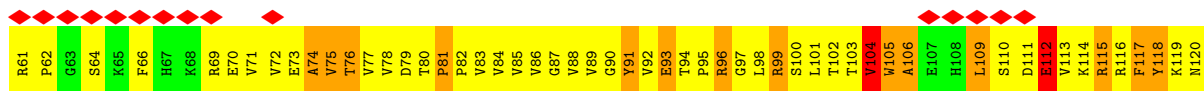
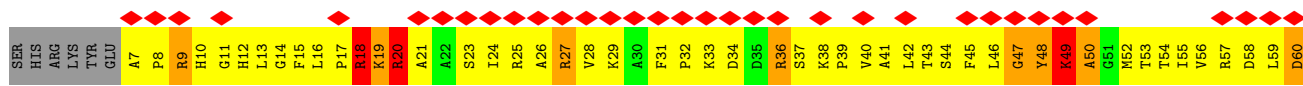
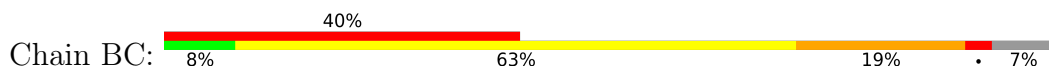




• Molecule 21: 60S ribosomal protein L2

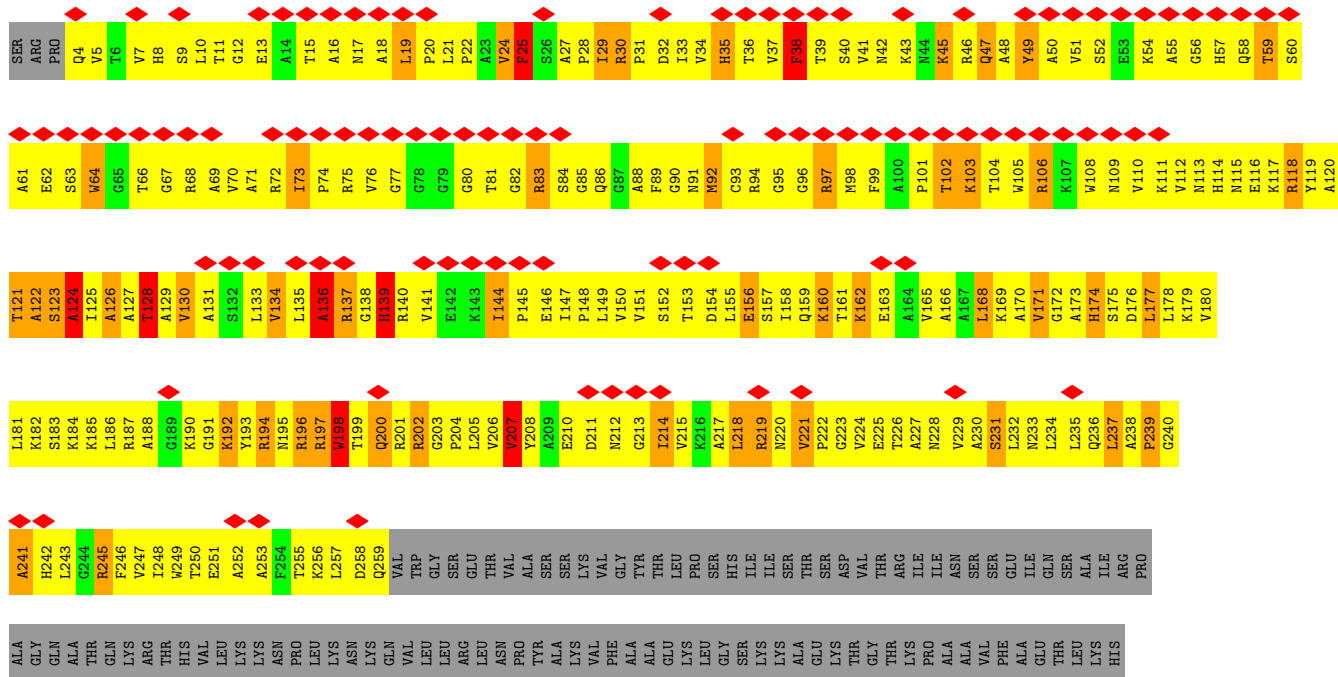


• Molecule 22: 60S ribosomal protein L3

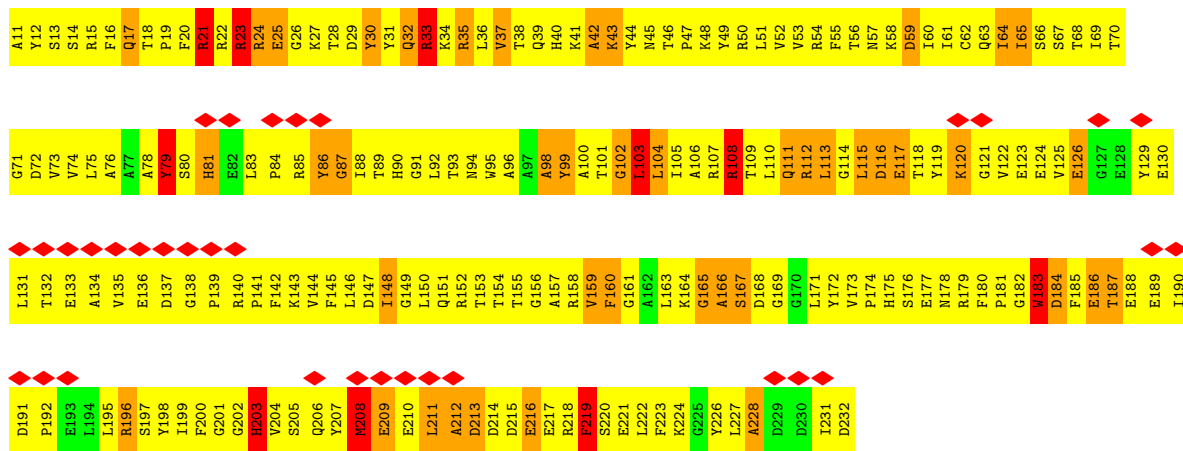
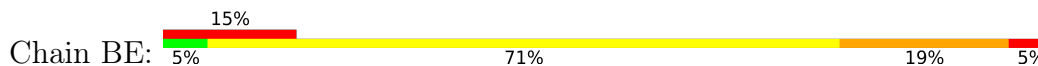


S362	ARG	GLN	THR	PRO	ALA	GLU	LYS	HIS	ALA	PHE	MET	GLY	THR	LEU	LYS	ASP	LEU
K363	ARG	GLN	THR	PRO	ALA	GLU	LYS	HIS	ALA	PHE	MET	GLY	THR	LEU	LYS	ASP	LEU
F364	PRO	THR	PRO	PRO	ALA	GLU	LYS	HIS	ALA	PHE	MET	GLY	THR	LEU	LYS	ASP	LEU
G365	PRO	THR	PRO	PRO	ALA	GLU	LYS	HIS	ALA	PHE	MET	GLY	THR	LEU	LYS	ASP	LEU
LYS	GLY	ARG	PHE	GLN	THR	PRO	ALA	GLU	LYS	HIS	ALA	PHE	MET	GLY	THR	LEU	LYS

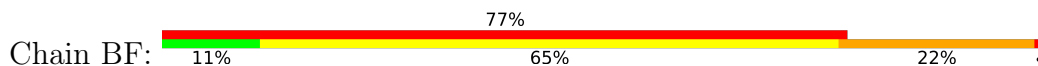
• Molecule 23: 60S ribosomal protein L4-B

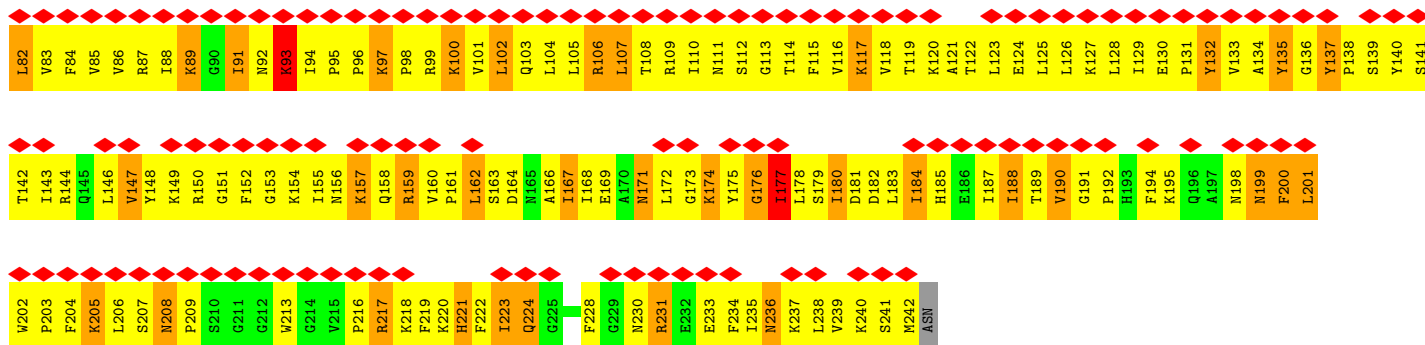


• Molecule 24: 60S ribosomal protein L5

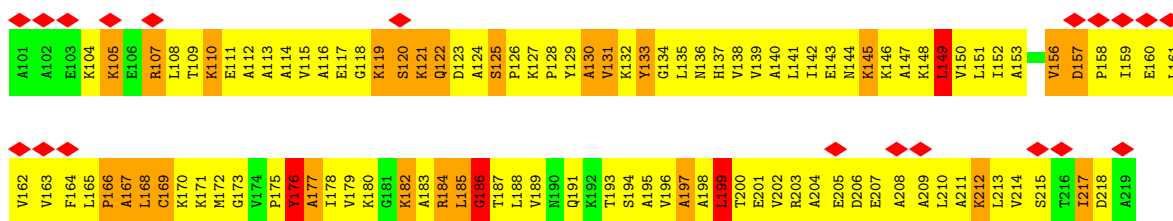
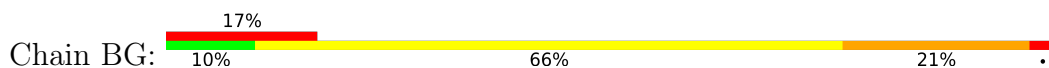


• Molecule 25: 60S ribosomal protein L7-A

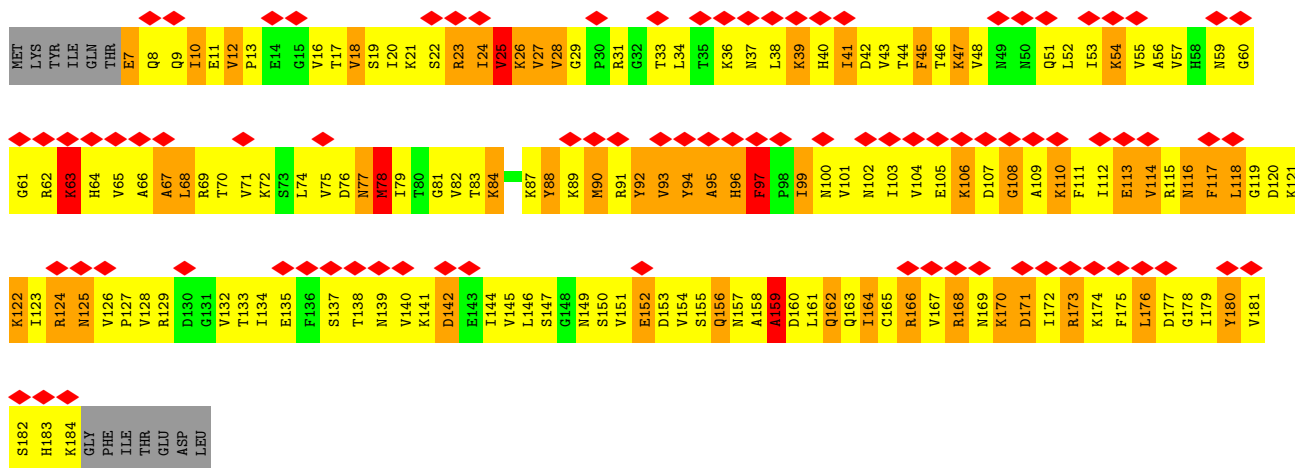
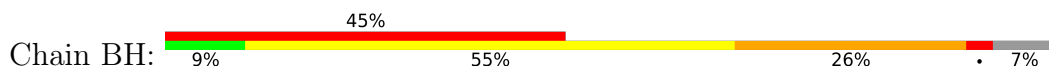




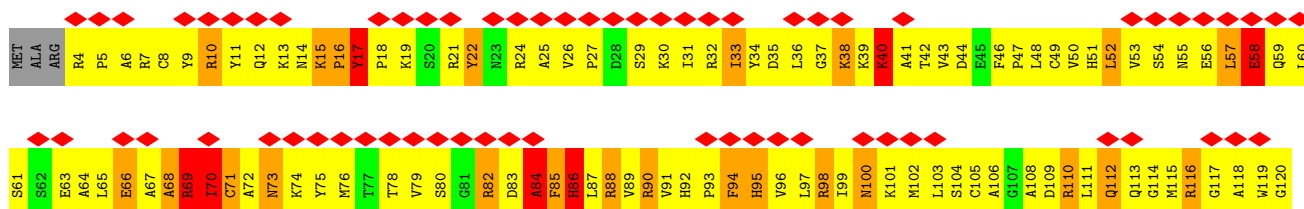
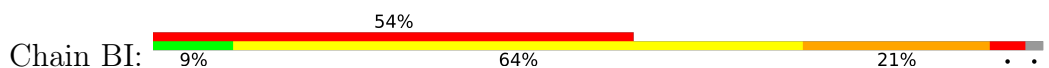
• Molecule 26: 60S ribosomal protein L8-A



• Molecule 27: 60S ribosomal protein L9-A

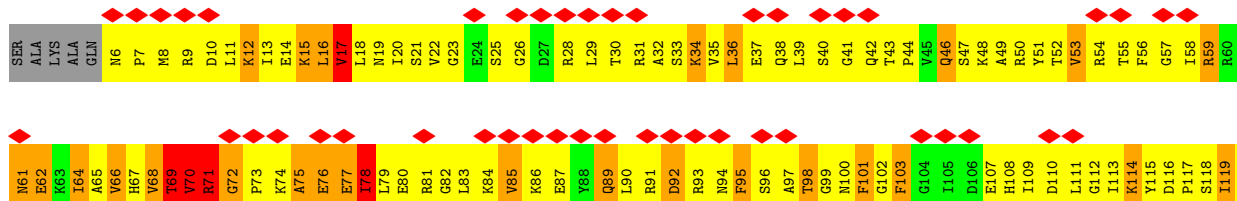
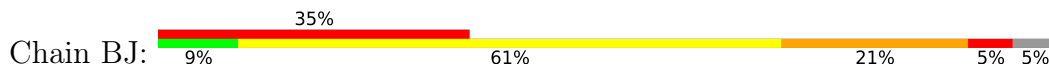


• Molecule 28: 60S ribosomal protein L10

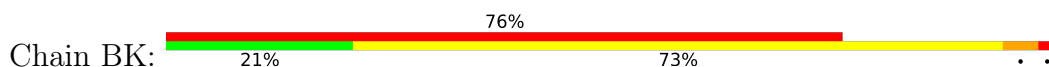




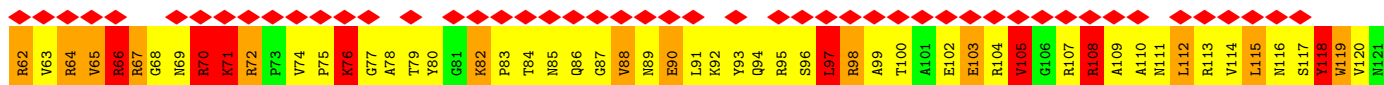
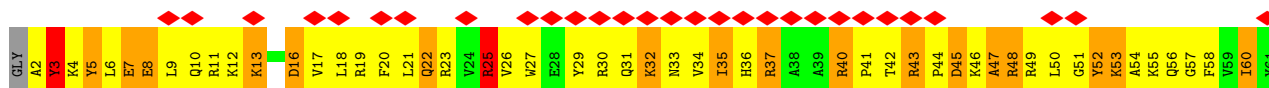
• Molecule 29: 60S ribosomal protein L11



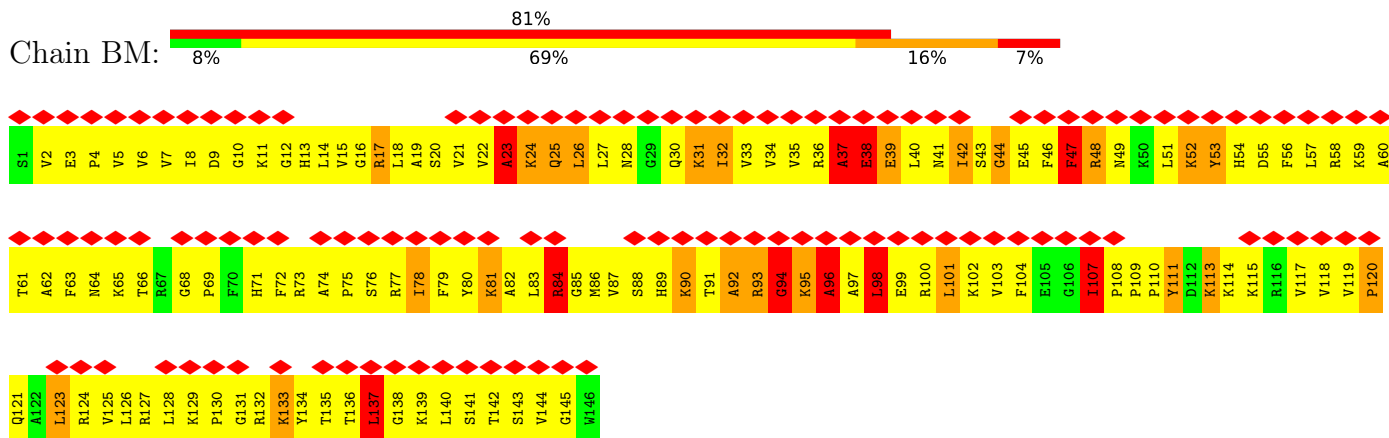
• Molecule 30: 60S ribosomal protein L12



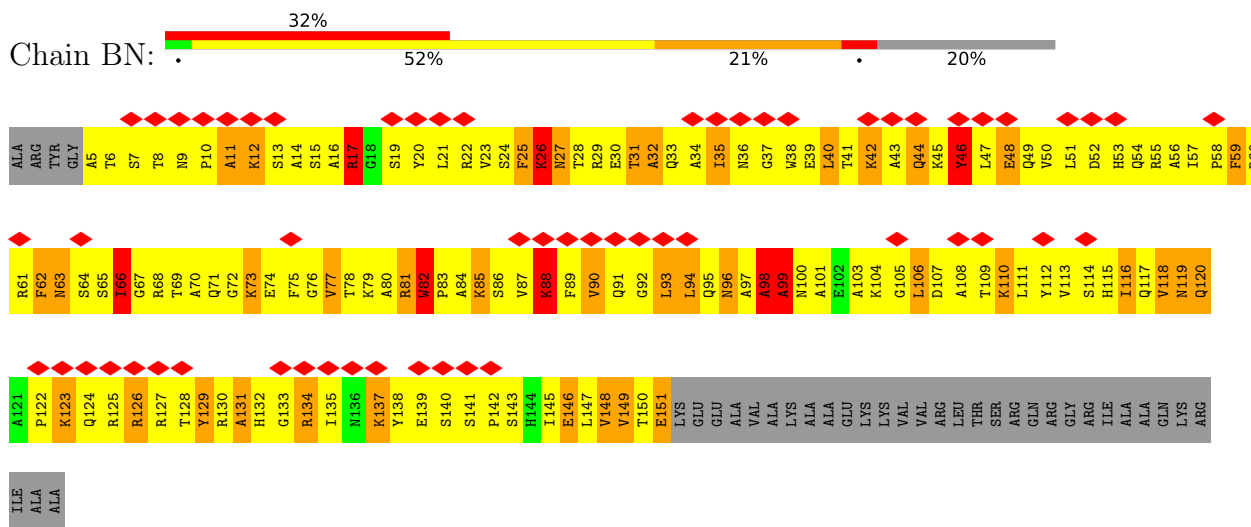
• Molecule 31: 60S ribosomal protein L15-A



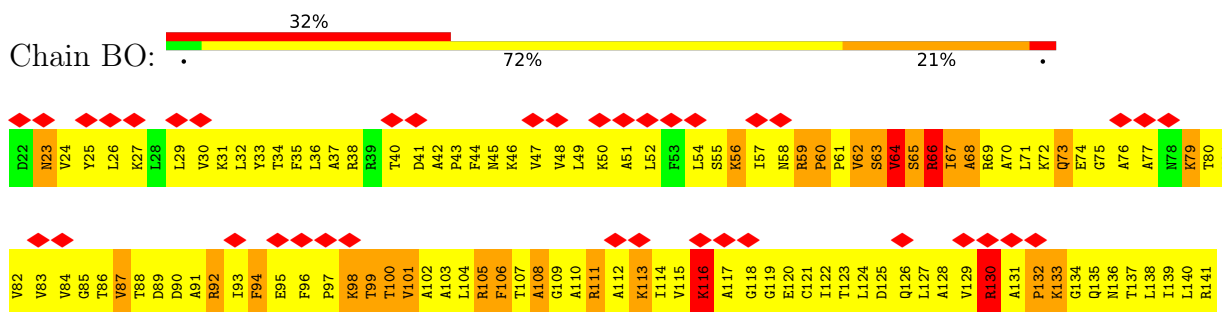
• Molecule 32: 60S ribosomal protein L16-A



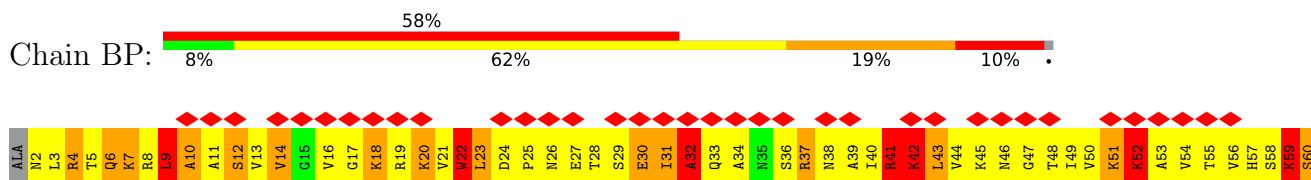
• Molecule 33: 60S ribosomal protein L17-A

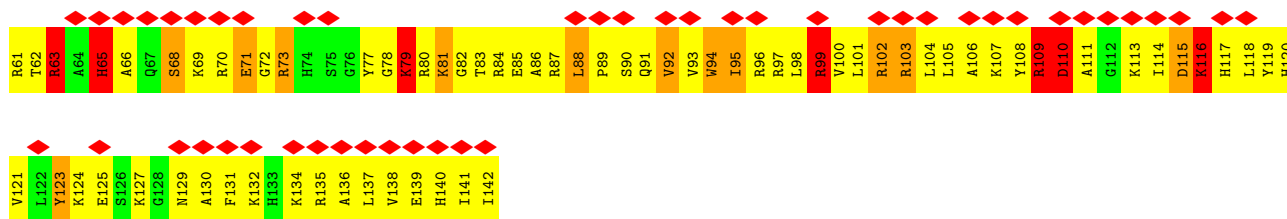


• Molecule 34: 60S ribosomal protein L18

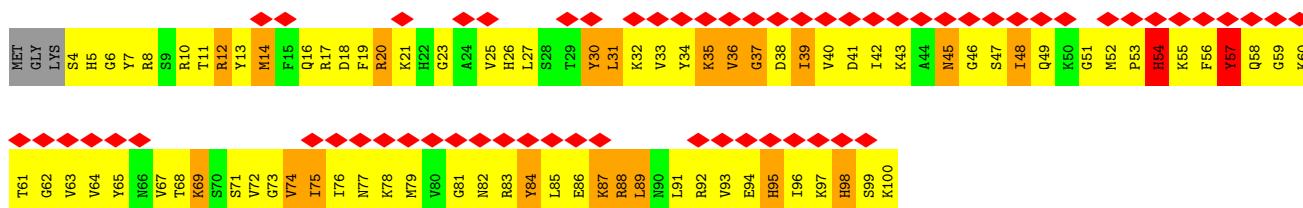
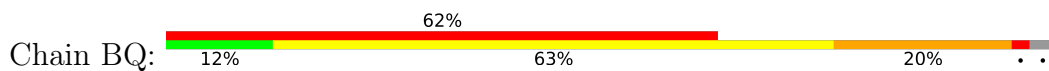


• Molecule 35: 60S ribosomal protein L19

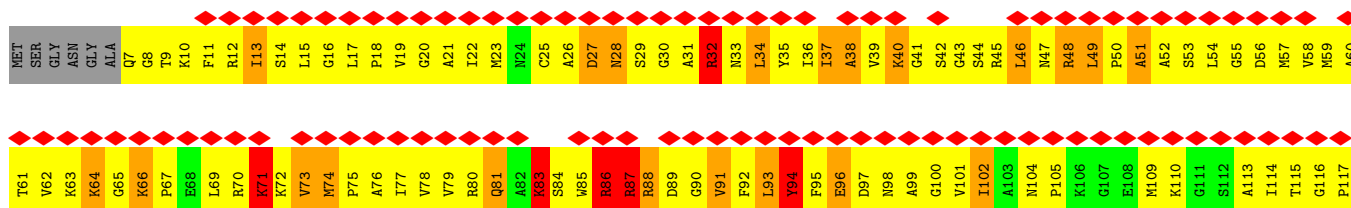
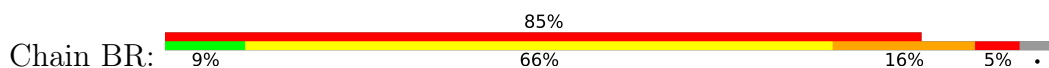




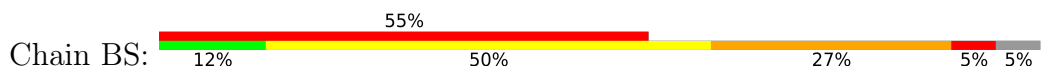
• Molecule 36: 60S ribosomal protein L21-A



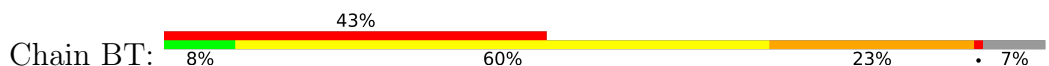
• Molecule 37: 60S ribosomal protein L23

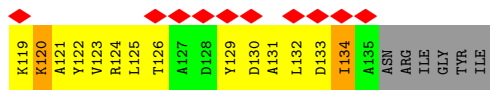


• Molecule 38: 60S ribosomal protein L24-A

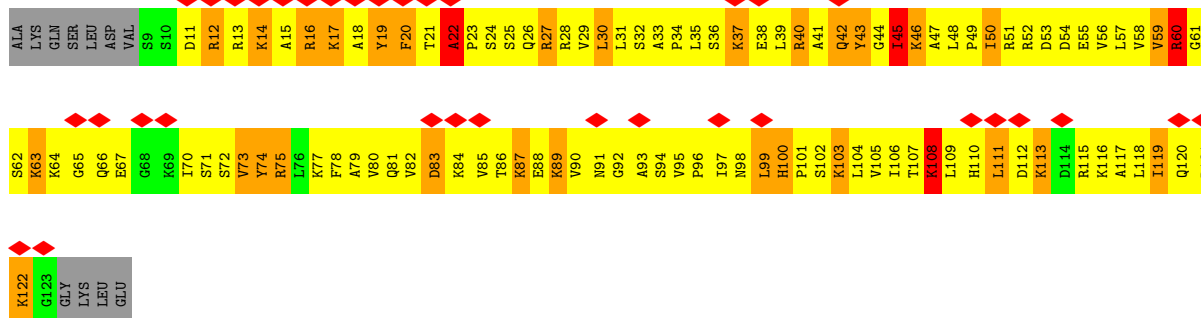
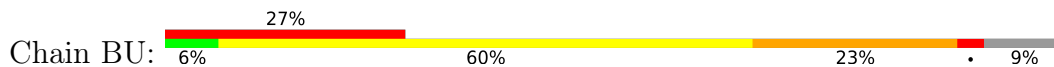


• Molecule 39: 60S ribosomal protein L25

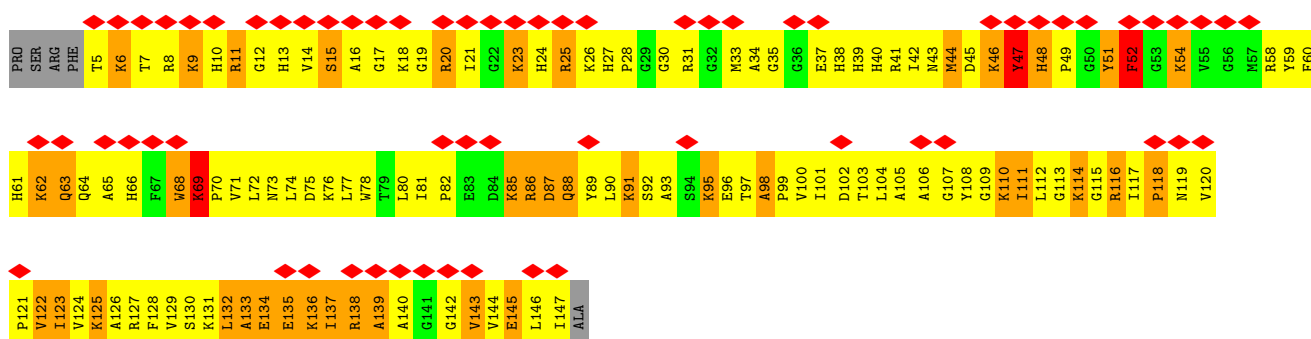
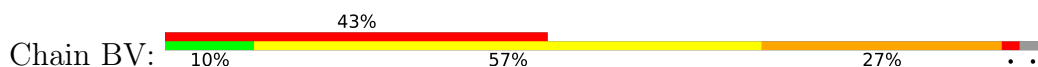




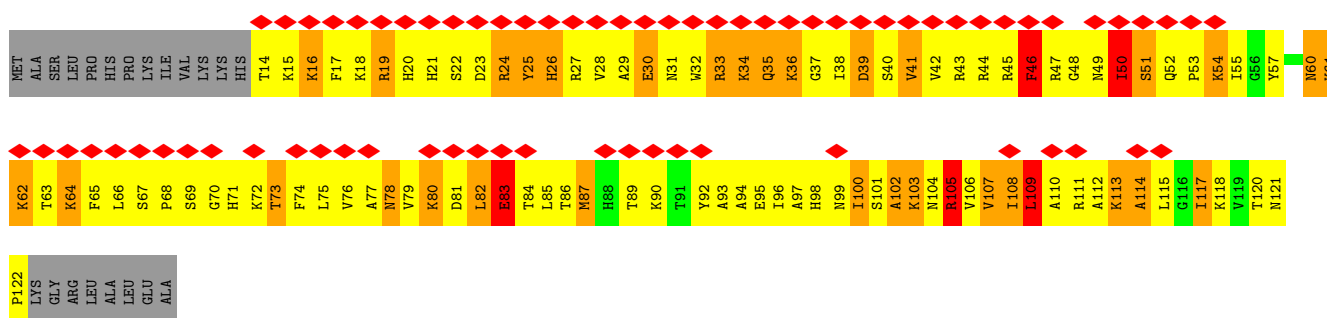
• Molecule 40: 60S ribosomal protein L26-A



• Molecule 41: 60S ribosomal protein L28

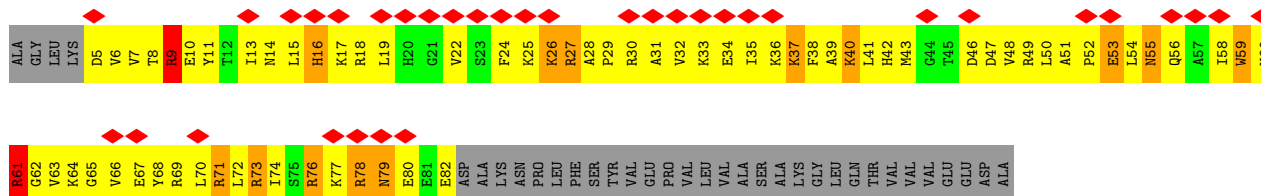


• Molecule 42: 60S ribosomal protein L32

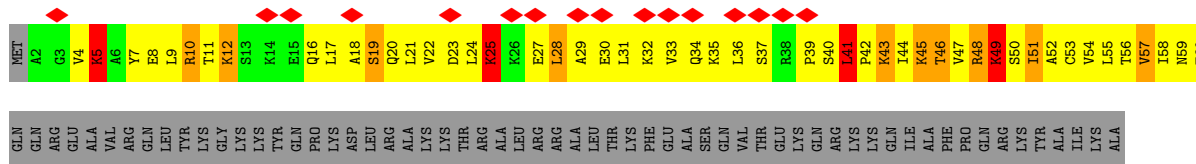
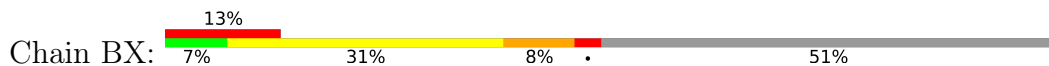


• Molecule 43: 60S ribosomal protein L31

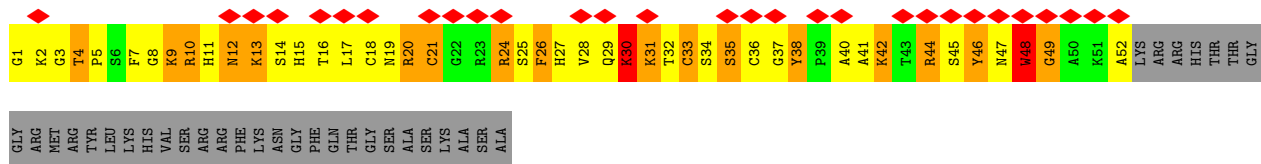




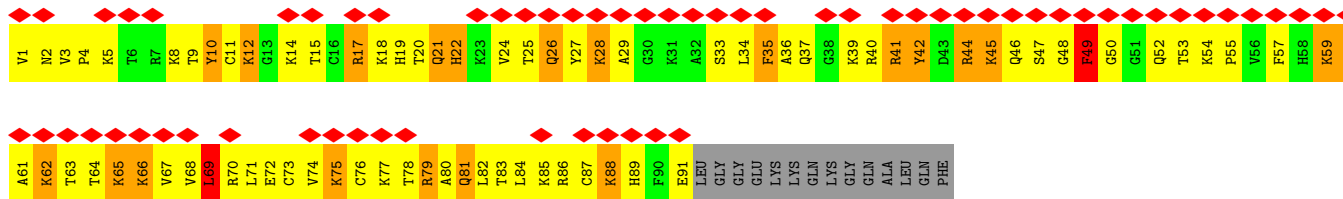
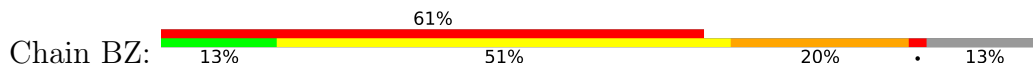
• Molecule 44: 60S ribosomal protein L35



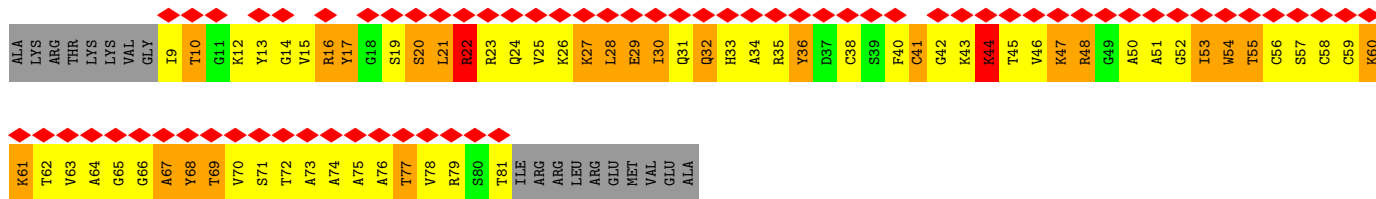
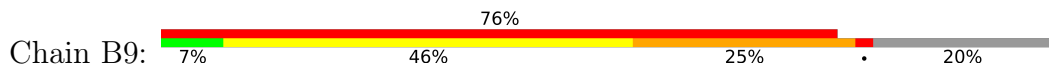
• Molecule 45: 60S ribosomal protein L37-A



• Molecule 46: 60S ribosomal protein L42



• Molecule 47: 60S ribosomal protein L43



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	Not provided	
Resolution determination method	Not provided	
CTF correction method	CTF correction of 3D-maps by Wiener filtration	Depositor
Microscope	FEI TECNAI 20	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	15	Depositor
Minimum defocus (nm)	4900	Depositor
Maximum defocus (nm)	1400	Depositor
Magnification	52000	Depositor
Image detector	KODAK SO-163 FILM	Depositor
Maximum map value	0.002	Depositor
Minimum map value	-0.001	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.000	Depositor
Recommended contour level	0.000477	Depositor
Map size (Å)	366.25, 366.25, 366.25	wwPDB
Map dimensions	125, 125, 125	wwPDB
Map angles (°)	90, 90, 90	wwPDB
Pixel spacing (Å)	2.93, 2.93, 2.93	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	0.49	1/35241 (0.0%)	0.77	43/54932 (0.1%)
2	AT	0.31	0/6496	0.59	1/8794 (0.0%)
3	AB	1.00	0/1471	1.13	2/2007 (0.1%)
4	AC	1.04	0/1488	1.19	4/1996 (0.2%)
5	AD	1.06	0/1443	1.21	2/1932 (0.1%)
6	AE	1.03	0/1112	1.17	0/1500
7	AG	1.06	0/1169	1.14	2/1570 (0.1%)
8	AH	0.99	0/1021	1.15	0/1371
9	AI	1.18	5/1114 (0.4%)	1.65	21/1492 (1.4%)
10	AJ	0.99	0/787	1.17	0/1063
11	AK	1.10	0/936	1.28	3/1260 (0.2%)
12	AL	0.99	0/920	1.19	1/1226 (0.1%)
13	AM	1.06	0/1100	1.54	4/1476 (0.3%)
14	AN	1.13	0/237	1.37	0/315
15	AO	1.09	0/560	1.06	1/745 (0.1%)
16	AQ	1.08	0/631	1.15	0/852
17	AS	1.03	0/636	1.27	3/855 (0.4%)
18	B3	0.58	5/67026 (0.0%)	0.79	89/104457 (0.1%)
19	B4	0.36	0/2905	0.75	4/4528 (0.1%)
20	BA	0.91	0/1706	1.12	1/2289 (0.0%)
21	BB	1.27	2/1889 (0.1%)	4.30	39/2539 (1.5%)
22	BC	1.19	3/2921 (0.1%)	3.76	53/3933 (1.3%)
23	BD	1.46	5/1979 (0.3%)	3.13	28/2680 (1.0%)
24	BE	1.23	1/1840 (0.1%)	1.67	35/2487 (1.4%)
25	BF	1.05	0/1330	1.33	4/1794 (0.2%)
26	BG	1.05	0/895	1.51	15/1208 (1.2%)
27	BH	1.13	0/1429	1.77	18/1925 (0.9%)
28	BI	1.16	0/1352	2.99	29/1815 (1.6%)
29	BJ	1.20	1/1340 (0.1%)	1.89	20/1797 (1.1%)
30	BK	1.08	1/986 (0.1%)	2.52	7/1320 (0.5%)
31	BL	1.33	1/1671 (0.1%)	3.44	43/2239 (1.9%)
32	BM	1.23	1/1190 (0.1%)	3.77	22/1597 (1.4%)
33	BN	1.19	2/1185 (0.2%)	4.05	30/1597 (1.9%)
34	BO	1.20	2/937 (0.2%)	5.64	22/1266 (1.7%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
35	BP	1.24	1/1162 (0.1%)	2.86	20/1550 (1.3%)
36	BQ	1.10	0/811	1.45	7/1081 (0.6%)
37	BR	1.17	0/992	1.52	10/1333 (0.8%)
38	BS	1.23	0/449	1.66	7/597 (1.2%)
39	BT	1.19	0/621	1.52	5/837 (0.6%)
40	BU	1.15	0/922	1.78	6/1232 (0.5%)
41	BV	1.08	0/1162	1.32	6/1556 (0.4%)
42	B0	1.18	1/897 (0.1%)	4.22	12/1201 (1.0%)
43	BW	1.17	0/664	1.46	3/885 (0.3%)
44	BX	1.10	0/463	1.44	3/619 (0.5%)
45	BY	1.35	1/412 (0.2%)	6.06	13/548 (2.4%)
46	BZ	1.15	2/752 (0.3%)	7.19	34/995 (3.4%)
47	B9	1.27	0/553	1.66	6/740 (0.8%)
All	All	0.77	35/158803 (0.0%)	1.54	678/236031 (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
1	AA	4	37
18	B3	19	47
19	B4	2	0
21	BB	0	2
22	BC	0	1
28	BI	0	2
29	BJ	0	1
30	BK	0	1
31	BL	0	1
32	BM	0	2
33	BN	0	1
34	BO	0	2
35	BP	0	1
38	BS	0	1
40	BU	0	1
41	BV	0	1
47	B9	0	1
All	All	25	102

The worst 5 of 35 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
18	B3	1206	C	O3'-P	-58.99	0.90	1.61
18	B3	2133	U	O3'-P	-56.48	0.93	1.61
18	B3	2168	G	O3'-P	-32.11	1.22	1.61
23	BD	64	TRP	CD2-CE2	-26.50	1.09	1.41
23	BD	64	TRP	NE1-CE2	20.96	1.64	1.37

The worst 5 of 678 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
22	BC	297	PHE	CZ-CE2-CD2	-87.49	15.11	120.10
42	B0	46	PHE	CZ-CE2-CD2	-87.16	15.51	120.10
45	BY	26	PHE	CZ-CE2-CD2	-87.13	15.54	120.10
21	BB	15	PHE	CZ-CE2-CD2	-87.10	15.57	120.10
34	BO	94	PHE	CD1-CE1-CZ	-87.08	15.60	120.10

5 of 25 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	AA	181	G	C3'
1	AA	1493	A	C3'
1	AA	1504	G	C3'
1	AA	1528	U	C3'
18	B3	191	A	C3'

5 of 102 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	AA	12	U	Sidechain
1	AA	197	A	Sidechain
1	AA	203	U	Sidechain
1	AA	231	G	Sidechain
1	AA	51	A	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	31507	0	15705	4692	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	AT	6375	0	6431	574	0
3	AB	1438	0	1465	366	0
4	AC	1469	0	1534	306	0
5	AD	1424	0	1448	585	0
6	AE	1099	0	1150	351	0
7	AG	1161	0	1217	318	0
8	AH	1004	0	1033	415	0
9	AI	1094	0	1138	718	0
10	AJ	777	0	828	415	0
11	AK	925	0	935	342	0
12	AL	906	0	955	480	0
13	AM	1084	0	1091	719	0
14	AN	235	0	228	263	0
15	AO	552	0	597	174	0
16	AQ	618	0	655	359	0
17	AS	622	0	625	552	0
18	B3	59964	0	29926	9142	0
19	B4	2600	0	1308	630	0
20	BA	1682	0	1750	644	0
21	BB	1855	0	1912	1147	0
22	BC	2856	0	2895	1961	0
23	BD	1942	0	1964	1382	0
24	BE	1799	0	1710	1194	0
25	BF	1298	0	1365	687	0
26	BG	886	0	953	454	0
27	BH	1410	0	1472	794	0
28	BI	1326	0	1355	735	0
29	BJ	1319	0	1334	777	0
30	BK	978	0	1045	469	0
31	BL	1637	0	1668	873	0
32	BM	1165	0	1243	670	0
33	BN	1163	0	1157	768	0
34	BO	925	0	998	447	0
35	BP	1145	0	1215	793	0
36	BQ	795	0	804	454	0
37	BR	977	0	1008	673	0
38	BS	439	0	445	249	0
39	BT	614	0	635	429	0
40	BU	911	0	987	583	0
41	BV	1133	0	1163	782	0
42	B0	880	0	911	664	0
43	BW	654	0	689	315	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	BX	461	0	512	338	0
45	BY	402	0	389	346	0
46	BZ	740	0	798	422	0
47	B9	546	0	556	396	0
All	All	146792	0	101202	29887	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 121.

The worst 5 of 29887 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)
1:AA:1329:A:H5'	13:AM:98:TYR:CG	1.25	1.70
18:B3:1694:G:C2	45:BY:5:PRO:HG2	1.20	1.70
18:B3:541:C:C5	42:B0:15:LYS:HG3	1.20	1.69
1:AA:1178:G:P	9:AI:105:LYS:HG2	1.34	1.68
18:B3:2388:C:P	36:BQ:88:ARG:HB3	1.34	1.67

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	
2	AT	811/842 (96%)	779 (96%)	24 (3%)	8 (1%)	15	55
3	AB	183/185 (99%)	159 (87%)	17 (9%)	7 (4%)	3	24
4	AC	186/192 (97%)	169 (91%)	7 (4%)	10 (5%)	2	19
5	AD	176/179 (98%)	157 (89%)	15 (8%)	4 (2%)	6	34
6	AE	145/149 (97%)	134 (92%)	8 (6%)	3 (2%)	7	36
7	AG	148/150 (99%)	136 (92%)	10 (7%)	2 (1%)	11	46

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	AH	125/129 (97%)	113 (90%)	6 (5%)	6 (5%)	2	21
9	AI	137/142 (96%)	118 (86%)	11 (8%)	8 (6%)	1	18
10	AJ	95/100 (95%)	80 (84%)	7 (7%)	8 (8%)	1	12
11	AK	123/136 (90%)	110 (89%)	10 (8%)	3 (2%)	6	33
12	AL	116/118 (98%)	101 (87%)	9 (8%)	6 (5%)	2	19
13	AM	127/132 (96%)	121 (95%)	5 (4%)	1 (1%)	19	60
14	AN	27/36 (75%)	23 (85%)	2 (7%)	2 (7%)	1	14
15	AO	63/65 (97%)	60 (95%)	2 (3%)	1 (2%)	9	44
16	AQ	74/76 (97%)	71 (96%)	3 (4%)	0	100	100
17	AS	78/80 (98%)	70 (90%)	7 (9%)	1 (1%)	12	48
20	BA	207/217 (95%)	193 (93%)	9 (4%)	5 (2%)	6	33
21	BB	242/253 (96%)	163 (67%)	48 (20%)	31 (13%)	0	5
22	BC	357/386 (92%)	268 (75%)	55 (15%)	34 (10%)	0	10
23	BD	254/361 (70%)	182 (72%)	42 (16%)	30 (12%)	0	6
24	BE	220/222 (99%)	166 (76%)	31 (14%)	23 (10%)	0	8
25	BF	159/162 (98%)	118 (74%)	27 (17%)	14 (9%)	1	11
26	BG	117/119 (98%)	80 (68%)	21 (18%)	16 (14%)	0	4
27	BH	176/191 (92%)	113 (64%)	36 (20%)	27 (15%)	0	3
28	BI	163/168 (97%)	106 (65%)	43 (26%)	14 (9%)	1	12
29	BJ	163/173 (94%)	113 (69%)	32 (20%)	18 (11%)	0	7
30	BK	127/131 (97%)	117 (92%)	7 (6%)	3 (2%)	6	33
31	BL	192/203 (95%)	128 (67%)	39 (20%)	25 (13%)	0	5
32	BM	144/146 (99%)	106 (74%)	24 (17%)	14 (10%)	0	10
33	BN	145/183 (79%)	101 (70%)	27 (19%)	17 (12%)	0	6
34	BO	118/120 (98%)	82 (70%)	25 (21%)	11 (9%)	0	11
35	BP	139/142 (98%)	89 (64%)	30 (22%)	20 (14%)	0	4
36	BQ	95/100 (95%)	73 (77%)	13 (14%)	9 (10%)	0	10
37	BR	129/137 (94%)	92 (71%)	23 (18%)	14 (11%)	0	8
38	BS	51/56 (91%)	36 (71%)	8 (16%)	7 (14%)	0	4
39	BT	75/83 (90%)	53 (71%)	13 (17%)	9 (12%)	0	6
40	BU	113/126 (90%)	82 (73%)	15 (13%)	16 (14%)	0	4

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
41	BV	141/148 (95%)	102 (72%)	23 (16%)	16 (11%)	0	7
42	B0	107/130 (82%)	76 (71%)	17 (16%)	14 (13%)	0	5
43	BW	76/112 (68%)	57 (75%)	13 (17%)	6 (8%)	1	13
44	BX	57/120 (48%)	41 (72%)	9 (16%)	7 (12%)	0	5
45	BY	50/87 (58%)	35 (70%)	6 (12%)	9 (18%)	0	3
46	BZ	89/105 (85%)	66 (74%)	17 (19%)	6 (7%)	1	15
47	B9	71/91 (78%)	43 (61%)	17 (24%)	11 (16%)	0	3
All	All	6591/7183 (92%)	5282 (80%)	813 (12%)	496 (8%)	2	13

5 of 496 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	AT	106	PRO
2	AT	108	HIS
2	AT	460	ASP
3	AB	23	LEU
3	AB	27	ASN

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	
2	AT	697/715 (98%)	677 (97%)	20 (3%)	42	64
3	AB	153/153 (100%)	146 (95%)	7 (5%)	27	52
4	AC	152/155 (98%)	140 (92%)	12 (8%)	12	35
5	AD	148/149 (99%)	136 (92%)	12 (8%)	11	35
6	AE	115/115 (100%)	109 (95%)	6 (5%)	23	48
7	AG	123/123 (100%)	115 (94%)	8 (6%)	17	42
8	AH	108/110 (98%)	102 (94%)	6 (6%)	21	46
9	AI	116/118 (98%)	111 (96%)	5 (4%)	29	53
10	AJ	91/93 (98%)	82 (90%)	9 (10%)	8	26

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
11	AK	95/104 (91%)	91 (96%)	4 (4%)	30	54
12	AL	98/98 (100%)	93 (95%)	5 (5%)	24	48
13	AM	116/116 (100%)	113 (97%)	3 (3%)	46	66
14	AN	27/33 (82%)	26 (96%)	1 (4%)	34	58
15	AO	59/59 (100%)	55 (93%)	4 (7%)	16	41
16	AQ	70/70 (100%)	67 (96%)	3 (4%)	29	53
17	AS	66/66 (100%)	63 (96%)	3 (4%)	27	52
20	BA	194/198 (98%)	184 (95%)	10 (5%)	23	48
21	BB	187/195 (96%)	156 (83%)	31 (17%)	2	12
22	BC	299/322 (93%)	252 (84%)	47 (16%)	2	14
23	BD	198/287 (69%)	174 (88%)	24 (12%)	5	20
24	BE	187/187 (100%)	171 (91%)	16 (9%)	10	32
25	BF	142/143 (99%)	121 (85%)	21 (15%)	3	15
26	BG	92/92 (100%)	82 (89%)	10 (11%)	6	23
27	BH	159/171 (93%)	136 (86%)	23 (14%)	3	15
28	BI	141/143 (99%)	118 (84%)	23 (16%)	2	13
29	BJ	143/149 (96%)	119 (83%)	24 (17%)	2	12
30	BK	105/105 (100%)	103 (98%)	2 (2%)	57	75
31	BL	167/175 (95%)	126 (75%)	41 (25%)	0	3
32	BM	123/123 (100%)	106 (86%)	17 (14%)	3	17
33	BN	120/145 (83%)	94 (78%)	26 (22%)	1	6
34	BO	98/98 (100%)	85 (87%)	13 (13%)	4	18
35	BP	119/119 (100%)	90 (76%)	29 (24%)	0	4
36	BQ	86/88 (98%)	76 (88%)	10 (12%)	5	21
37	BR	102/105 (97%)	87 (85%)	15 (15%)	3	15
38	BS	46/49 (94%)	37 (80%)	9 (20%)	1	8
39	BT	68/73 (93%)	59 (87%)	9 (13%)	4	18
40	BU	100/109 (92%)	83 (83%)	17 (17%)	2	12
41	BV	114/118 (97%)	88 (77%)	26 (23%)	1	5
42	B0	94/111 (85%)	70 (74%)	24 (26%)	0	3
43	BW	69/96 (72%)	60 (87%)	9 (13%)	4	18

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
44	BX	53/105 (50%)	45 (85%)	8 (15%)	3 14
45	BY	42/70 (60%)	34 (81%)	8 (19%)	1 8
46	BZ	80/90 (89%)	66 (82%)	14 (18%)	2 11
47	B9	56/71 (79%)	44 (79%)	12 (21%)	1 6
All	All	5618/6014 (93%)	4992 (89%)	626 (11%)	9 22

5 of 626 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
35	BP	115	ASP
42	B0	113	LYS
37	BR	32	ARG
35	BP	109	ARG
40	BU	103	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 189 such sidechains are listed below:

Mol	Chain	Res	Type
27	BH	8	GLN
32	BM	71	HIS
27	BH	116	ASN
29	BJ	61	ASN
33	BN	100	ASN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	AA	1440/1507 (95%)	215 (14%)	91 (6%)
18	B3	2758/2999 (91%)	342 (12%)	115 (4%)
19	B4	122/125 (97%)	17 (13%)	5 (4%)
All	All	4320/4631 (93%)	574 (13%)	211 (4%)

5 of 574 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	AA	6	G
1	AA	8	A
1	AA	9	G

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Mol	Chain	Res	Type
1	AA	31	G
1	AA	32	A

5 of 211 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
18	B3	817	G
18	B3	1448	A
18	B3	2791	U
18	B3	894	A
18	B3	1126	C

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
18	B3	37
1	AA	25
20	BA	2
30	BK	2
2	AT	1

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Mol	Chain	Number of breaks
13	AM	1
6	AE	1

The worst 5 of 69 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	AA	142:G	O3'	143:A	P	21.73
1	AT	480:VAL	C	481:MET	N	21.40
1	AA	178:C	O3'	179:A	P	20.38
1	AA	454:C	O3'	455:C	P	14.81
1	B3	125:U	O3'	129:A	P	14.08

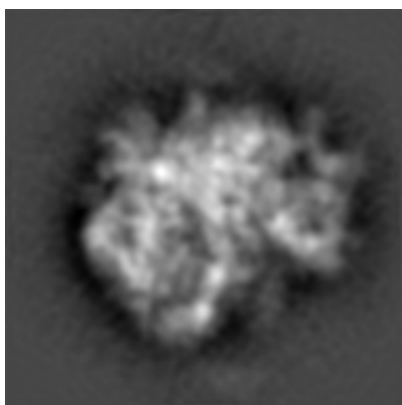
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-1067. These allow visual inspection of the internal detail of the map and identification of artifacts.

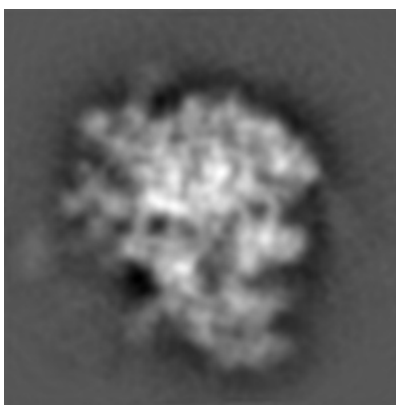
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

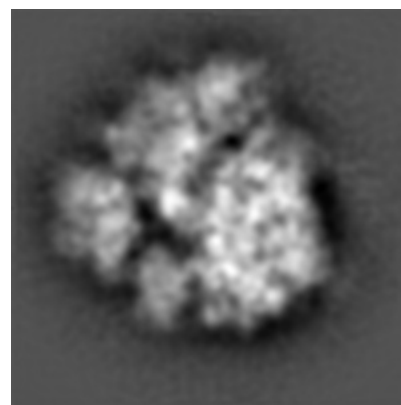
6.1.1 Primary map



X



Y

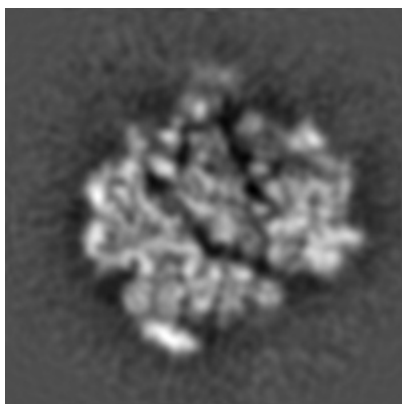


Z

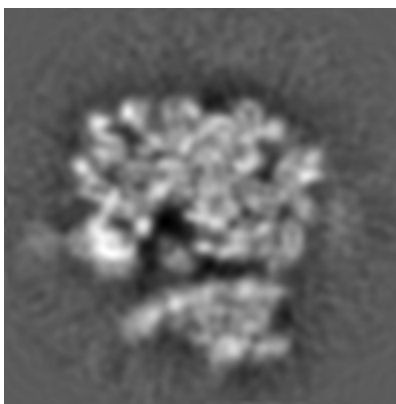
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

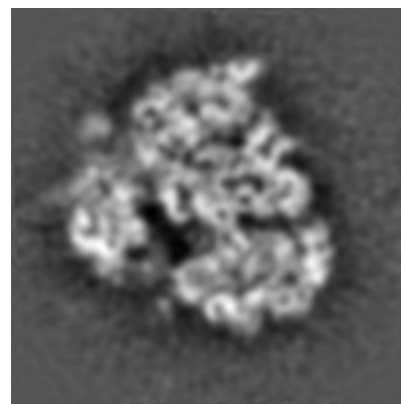
6.2.1 Primary map



X Index: 62



Y Index: 62

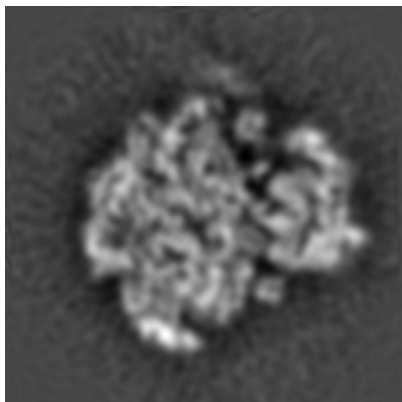


Z Index: 62

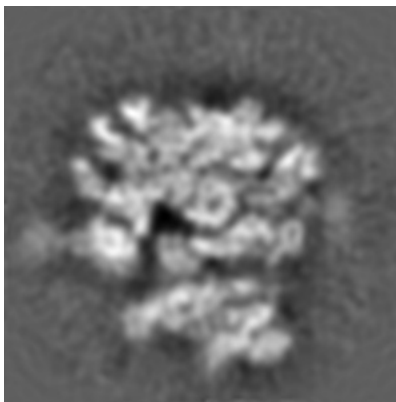
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

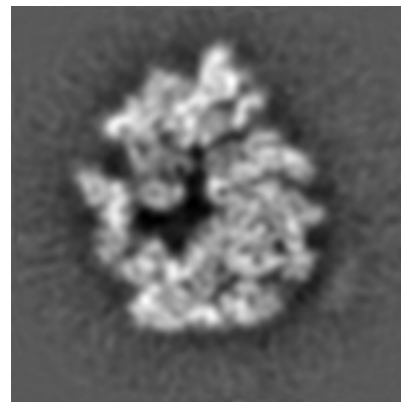
6.3.1 Primary map



X Index: 64



Y Index: 64

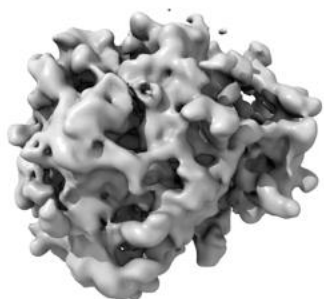


Z Index: 53

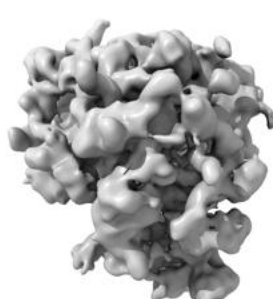
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

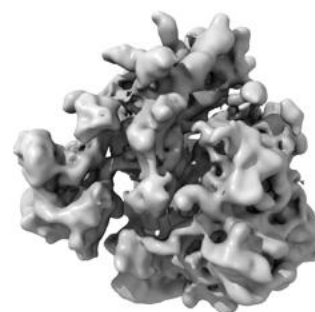
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.000477. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

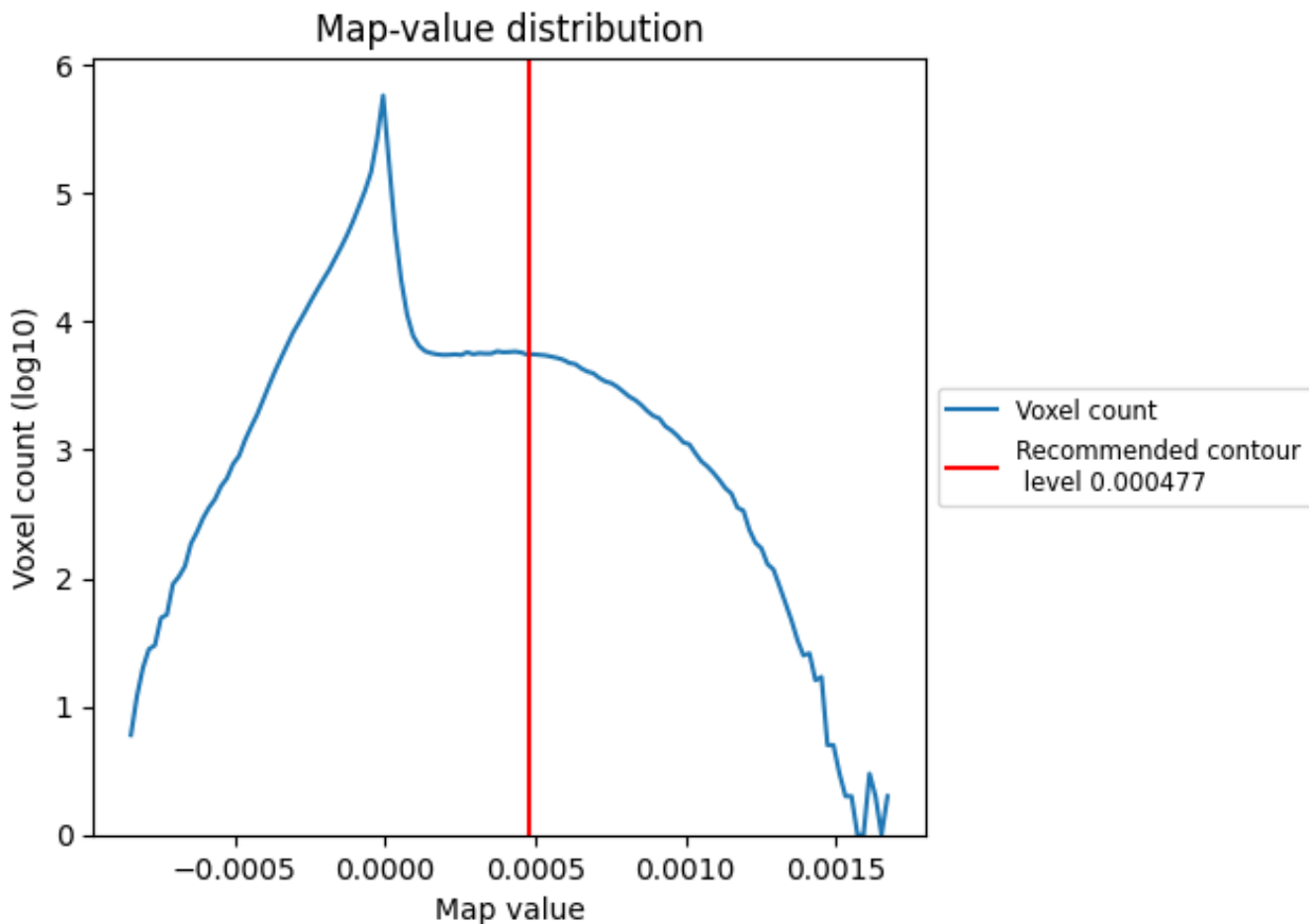
6.5 Mask visualisation

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

7 Map analysis [i](#)

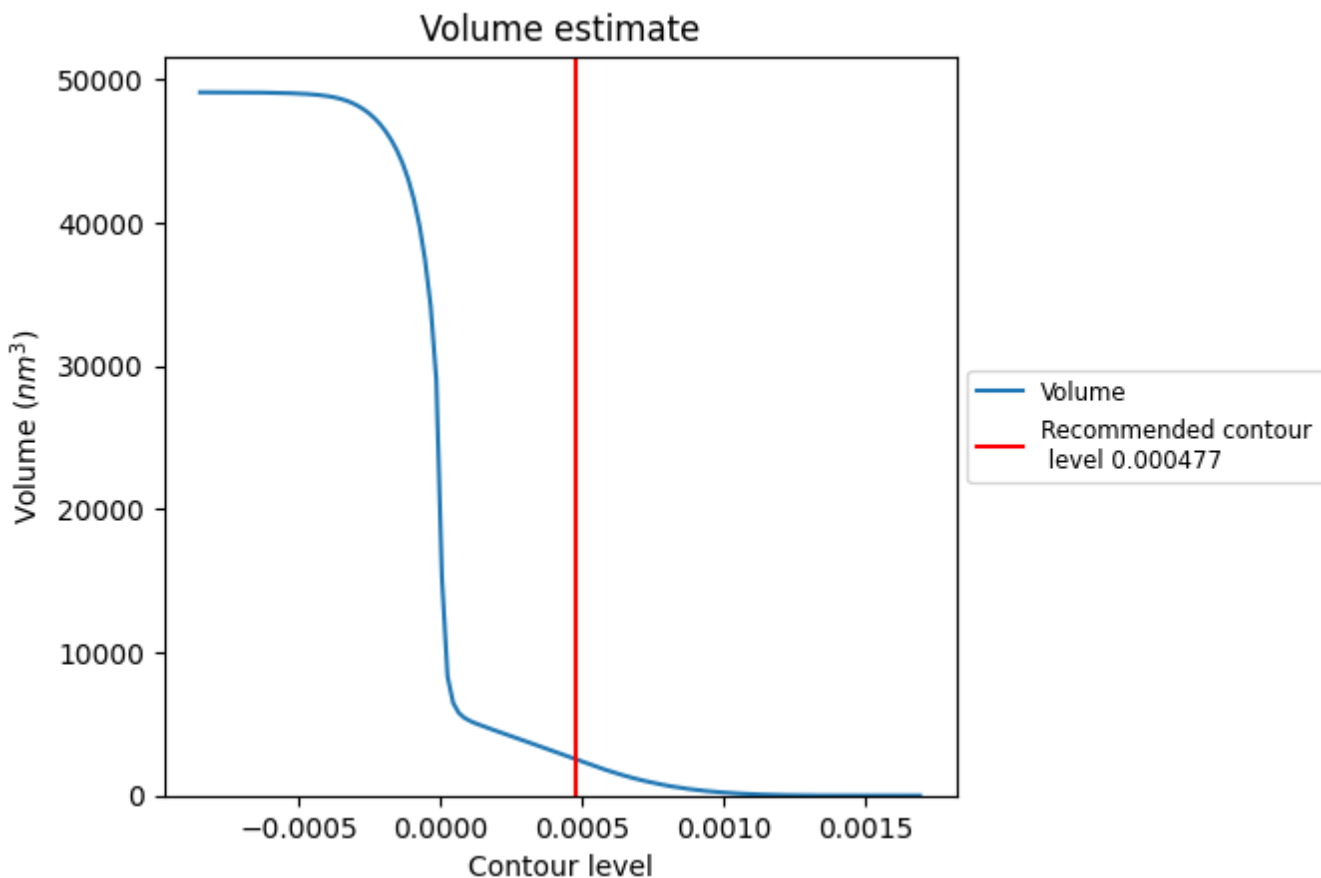
This section contains the results of statistical analysis of the map.

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.

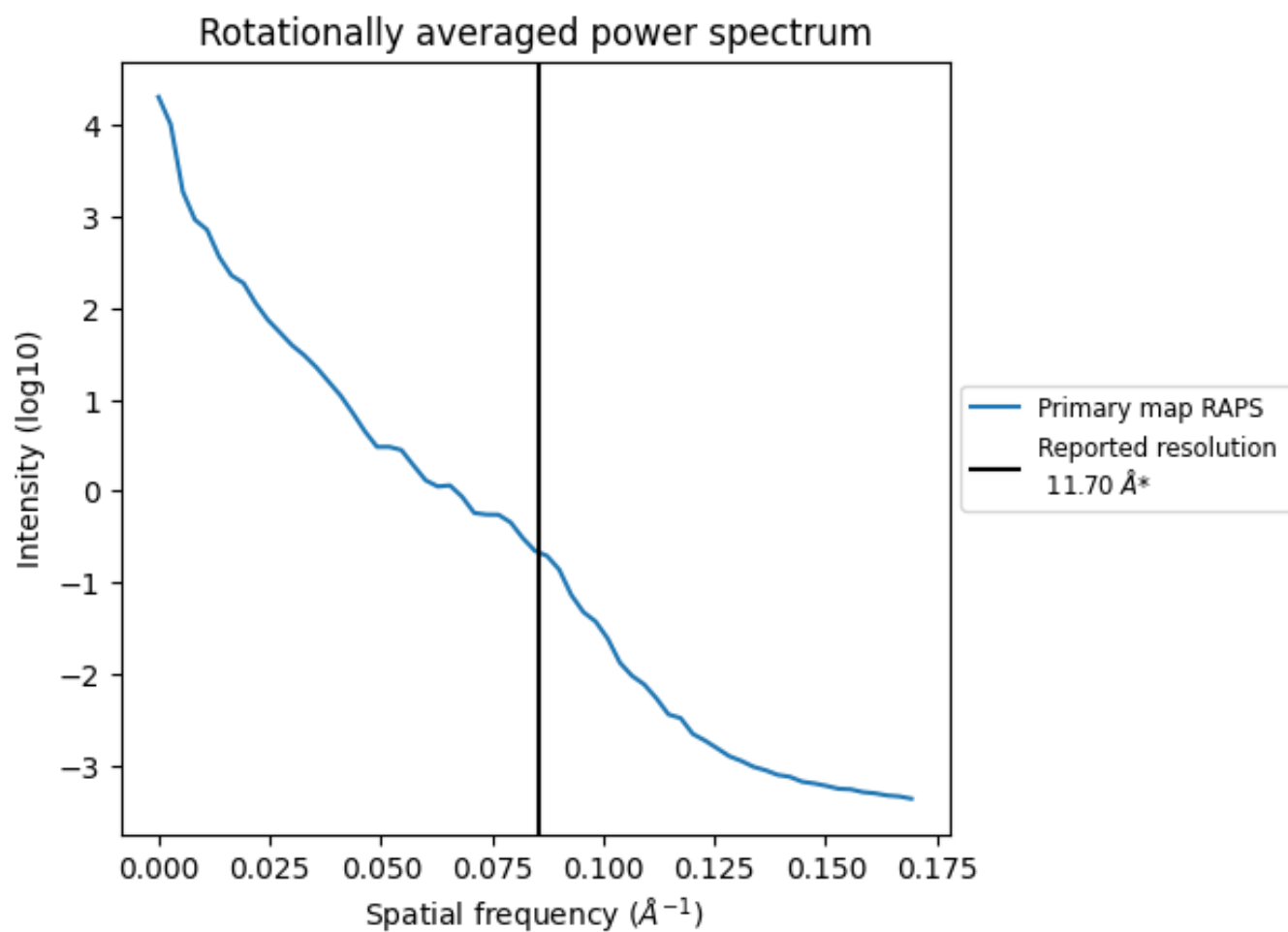
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 2527 nm³; this corresponds to an approximate mass of 2282 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 0.085 Å⁻¹

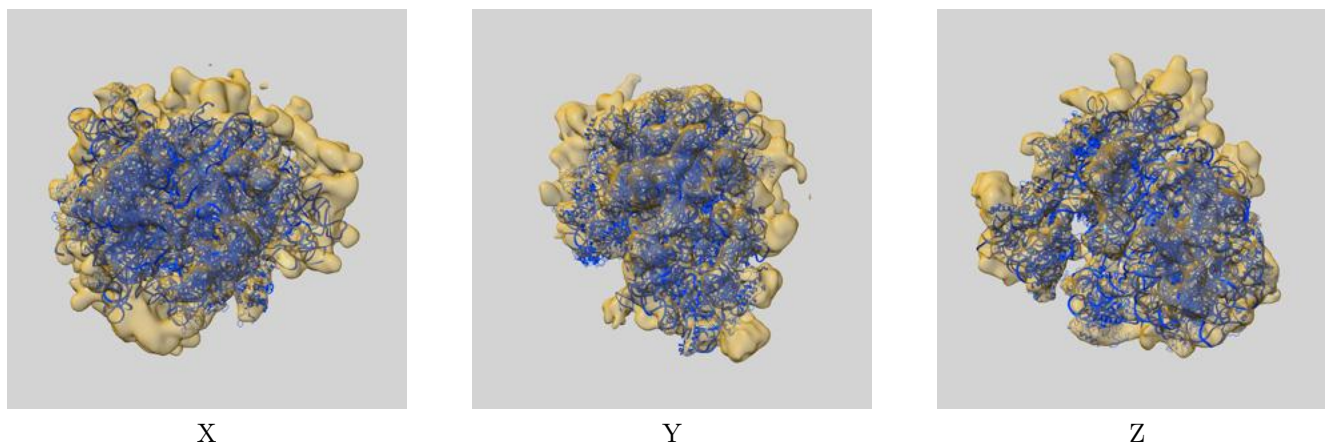
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

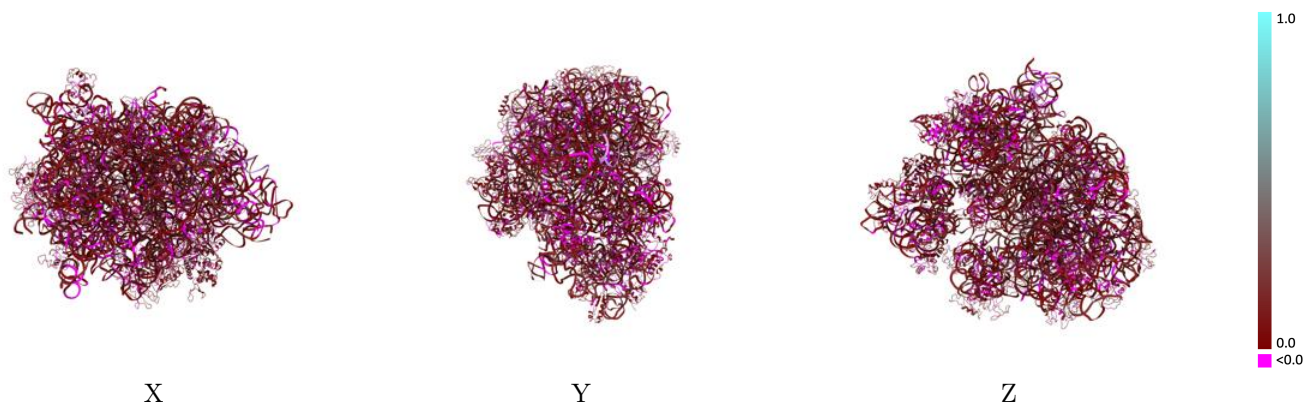
This section contains information regarding the fit between EMDB map EMD-1067 and PDB model 4V4B. Per-residue inclusion information can be found in section 3 on page 16.

9.1 Map-model overlay [i](#)



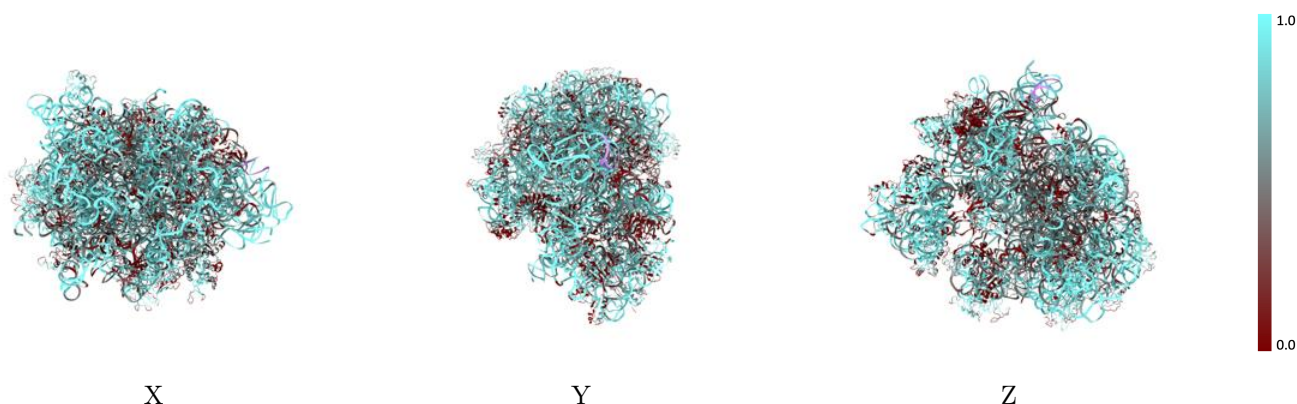
The images above show the 3D surface view of the map at the recommended contour level 0.000477 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



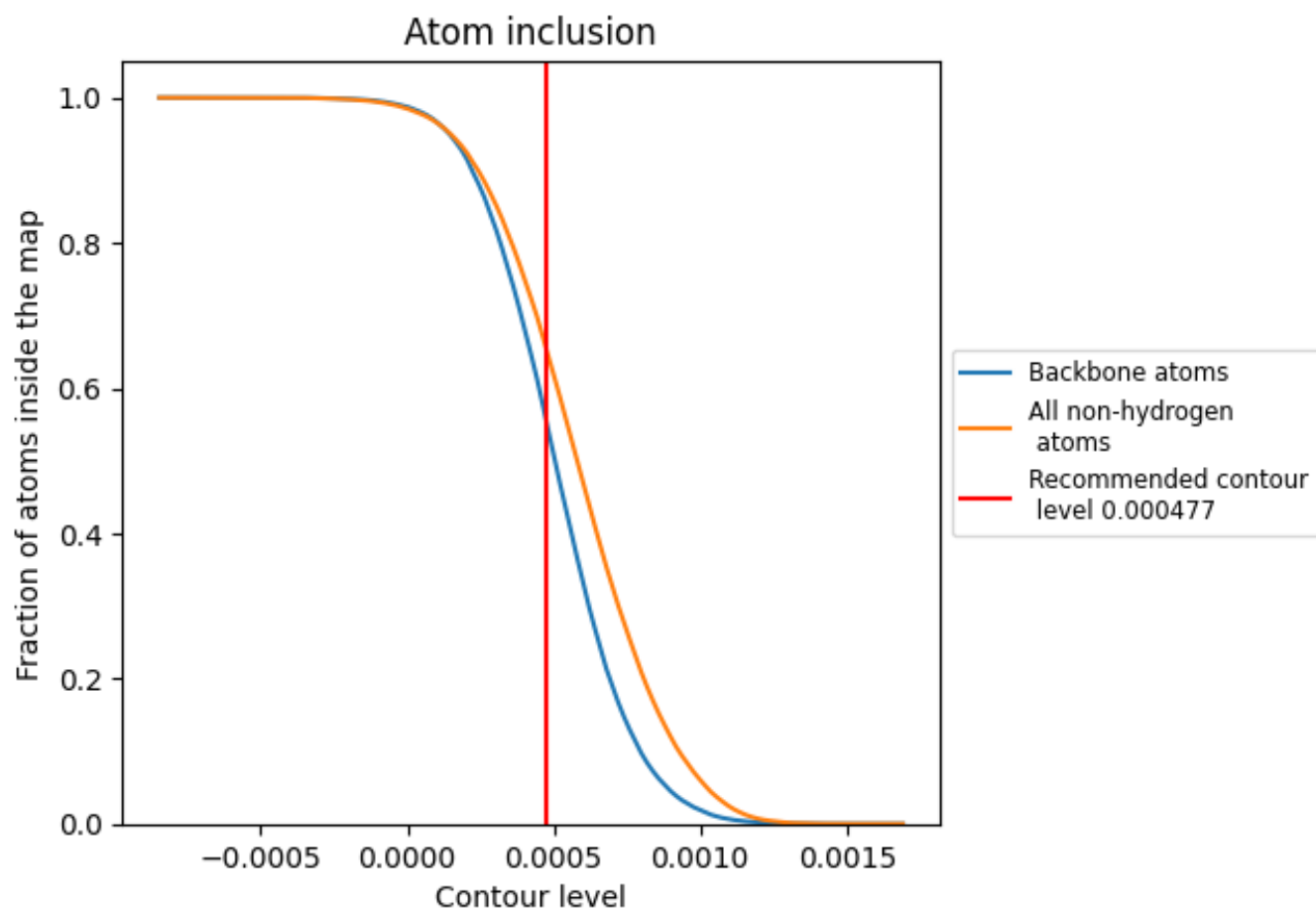
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.000477).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 55% of all backbone atoms, 65% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary



























The table lists the average atom inclusion at the recommended contour level (0.000477) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6512	 0.0780
AA	 0.7948	 0.0880
AB	 0.5788	 0.0270
AC	 0.3882	 0.0850
AD	 0.5681	 0.0210
AE	 0.2906	 0.0510
AG	 0.6389	 0.0620
AH	 0.1373	 0.0470
AI	 0.6255	 0.0440
AJ	 0.4409	 0.0830
AK	 0.4939	 0.0610
AL	 0.1020	 0.0400
AM	 0.6635	 0.0660
AN	 0.3407	 0.0350
AO	 0.6245	 0.0240
AQ	 0.2759	 0.0470
AS	 0.8621	 0.0350
AT	 0.4456	 0.0880
B0	 0.2932	 0.0050
B3	 0.7520	 0.0930
B4	 0.8442	 0.1050
B9	 0.0510	 0.0660
BA	 0.1151	 0.0430
BB	 0.1308	 0.0110
BC	 0.5367	 0.0540
BD	 0.5283	 0.0490
BE	 0.8350	 0.0630
BF	 0.2272	 0.0420
BG	 0.7834	 0.0640
BH	 0.4837	 0.0710
BI	 0.4337	 0.0700
BJ	 0.5894	 0.0610
BK	 0.2393	 0.0600
BL	 0.2962	 -0.0030
BM	 0.1652	 0.0060



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Chain	Atom inclusion	Q-score
BN	 0.5336	 0.0690
BO	 0.6290	 0.0590
BP	 0.3887	 0.0670
BQ	 0.3031	 0.0150
BR	 0.0881	 0.0400
BS	 0.3877	 0.0570
BT	 0.4595	 0.0630
BU	 0.6595	 0.0520
BV	 0.5245	 0.0270
BW	 0.4833	 0.0590
BX	 0.6101	 0.1170
BY	 0.3959	 0.0370
BZ	 0.2788	 0.0500