Full wwPDB EM Validation Report ⓘ

Mar 20, 2024 – 10:41 AM JST

PDB ID	:	6LQQ
EMDB ID	:	EMD-0950
Title	:	Cryo-EM structure of 90S small subunit preribosomes in transition states (State B)
Authors	:	Du, Y.; Ye, K.
Deposited on	:	2020-01-14
Resolution	:	4.10 Å(reported)
Based on initial model	:	6LQP

This is a Full wwPDB EM Validation 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:

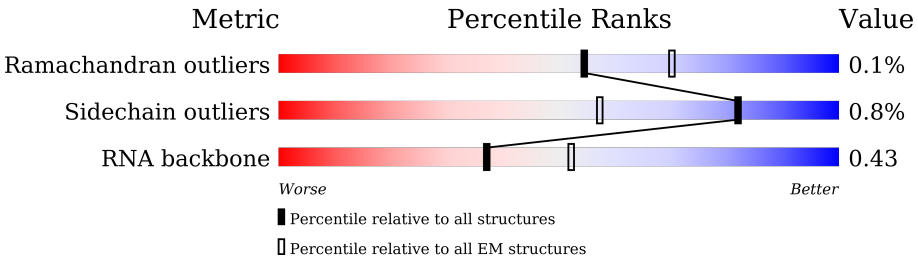
EMDB validation analysis	:	0.0.1.dev70
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (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 4.10 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	3A	333	11% 38% 13% · 47%
2	5A	700	41% 37% 15% · 46%
3	SA	1808	27% 43% 27% · 27%
4	SC	255	23% 87% · 10%
5	SF	261	26% 84% · 12%
6	SG	225	9% 95% 5%
7	SH	236	36% 70% · 29%
8	SI	190	30% 84% · 13%

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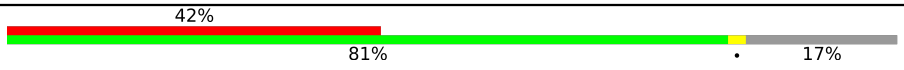
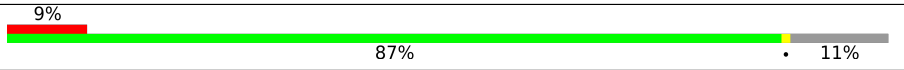
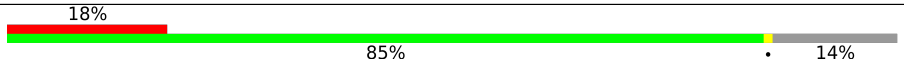
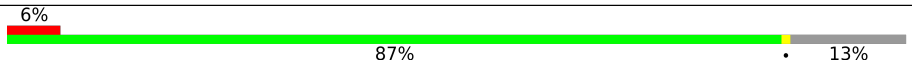
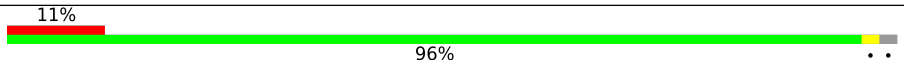
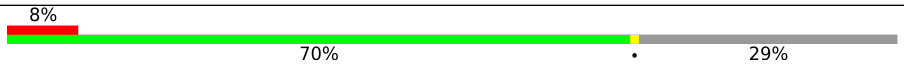
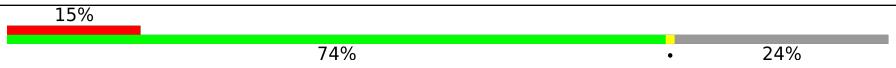
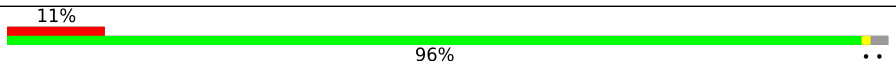
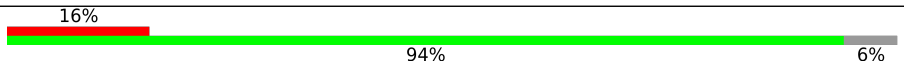
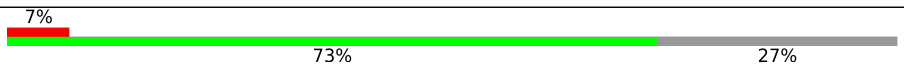
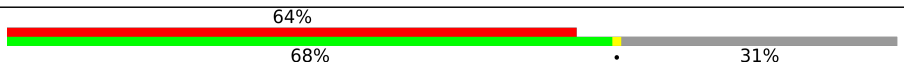
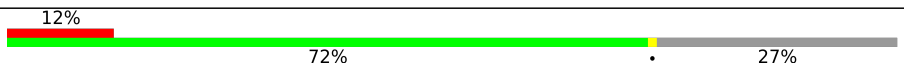
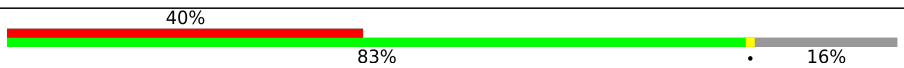
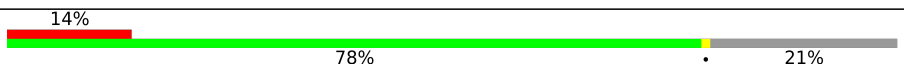
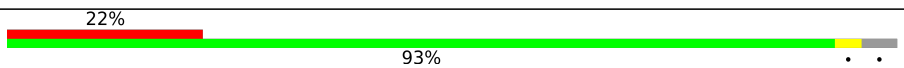
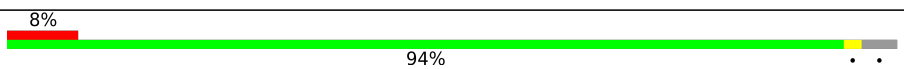
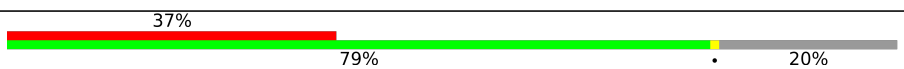
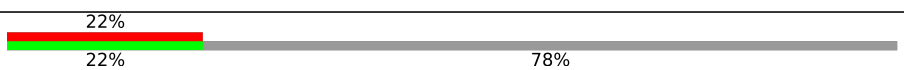
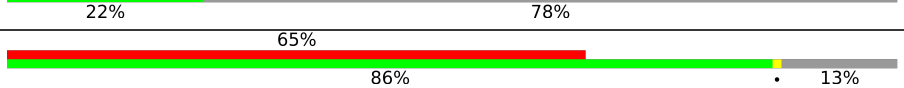
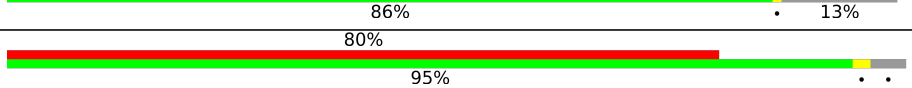
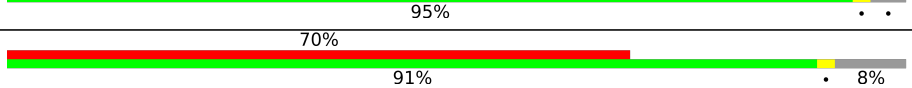
Mol	Chain	Length	Quality of chain
9	SJ	200	
10	SK	197	
11	SM	156	
12	SO	151	
13	SP	137	
14	SR	143	
15	SX	130	
16	SY	145	
17	SZ	135	
18	Sc	82	
19	Sd	67	
20	3B	327	
20	3C	327	
21	3D	504	
22	3E	511	
23	3F	573	
24	3G	126	
24	3H	126	
25	A4	776	
26	A5	643	
27	A8	713	
28	A9	575	
29	AE	1769	
30	AF	513	
31	AG	896	

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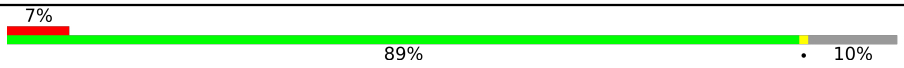
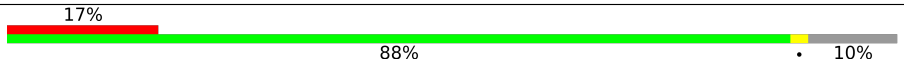
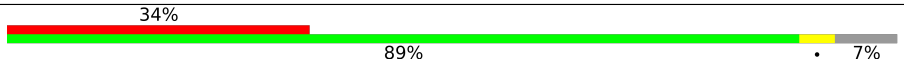
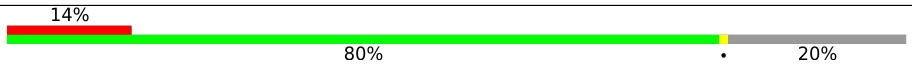
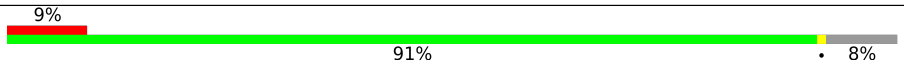
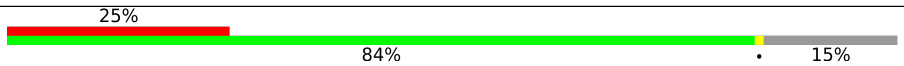
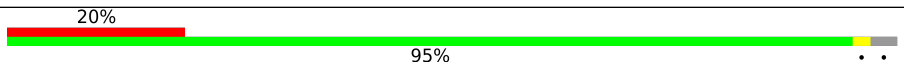
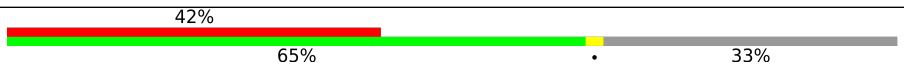
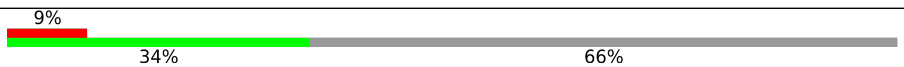
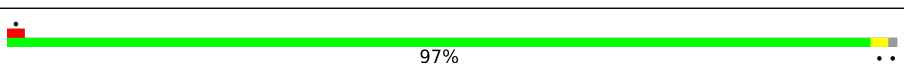
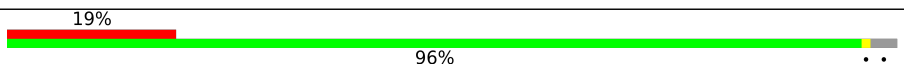
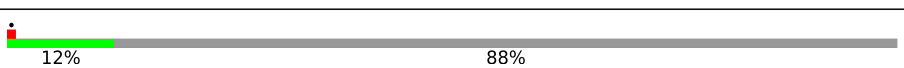
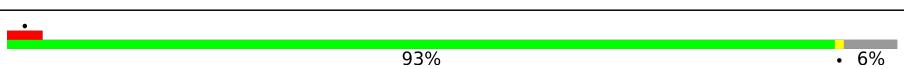
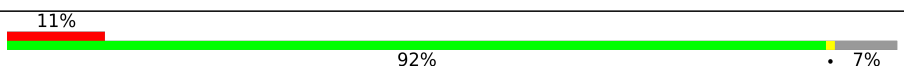
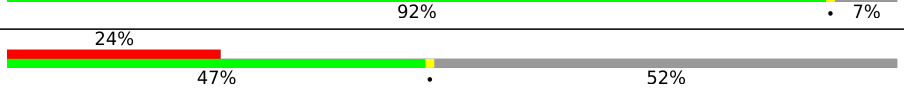
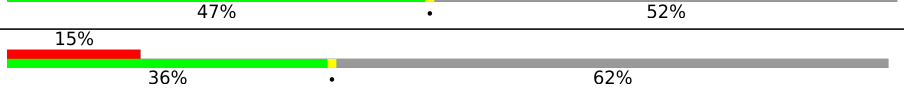
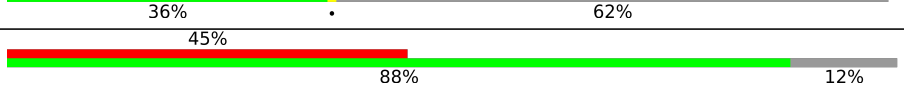
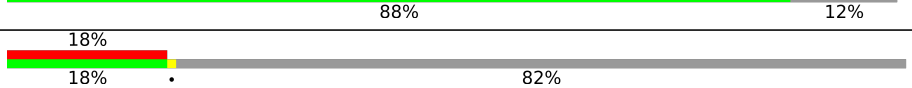
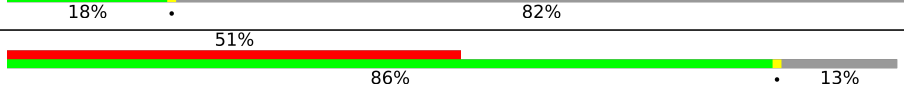
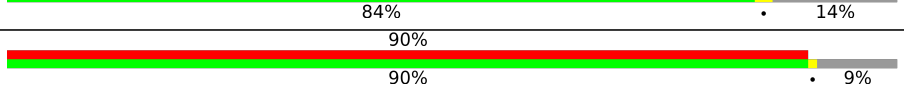
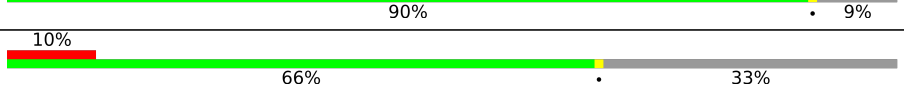
Mol	Chain	Length	Quality of chain
32	B1	923	
33	B2	943	
34	B3	817	
35	B8	594	
36	BE	939	
37	B6	440	
38	5B	214	
39	5C	554	
40	5D	250	
41	5E	593	
42	5F	183	
43	5G	290	
44	5H	610	
45	5I	489	
46	5J	217	
47	5K	189	
48	RA	707	
49	RB	357	
50	RC	316	
51	RD	1729	
52	RE	1237	
53	RF	297	
54	RG	252	
54	RH	252	
55	RJ	1183	

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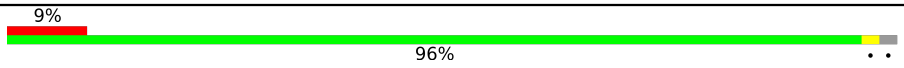
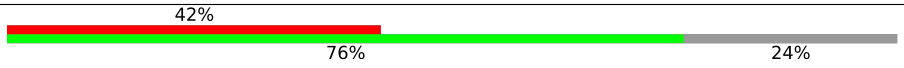
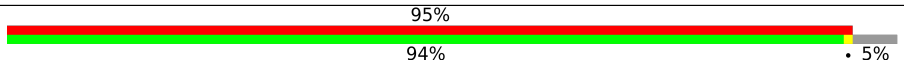
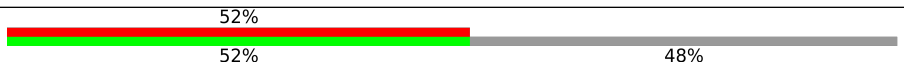
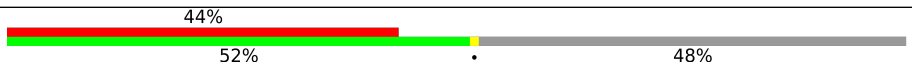
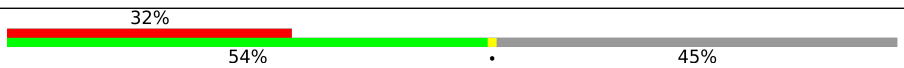
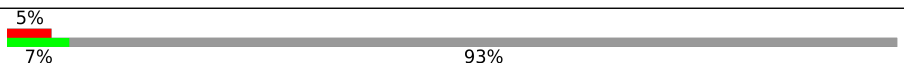
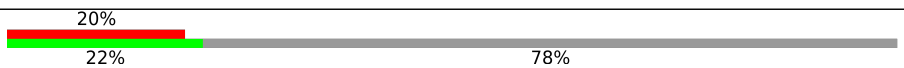
Mol	Chain	Length	Quality of chain
56	RK	367	
57	RL	1056	
57	RM	1056	
58	RN	810	
59	RO	552	
60	RP	2493	
61	RQ	899	
62	RS	483	
63	RT	326	
64	RV	346	
65	RY	534	
66	X1	347	

2 Entry composition

There are 69 unique types of molecules in this entry. The entry contains 226161 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 U3 snoRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	3A	175	3711	1661	648	1227	175	0	0

- Molecule 2 is a RNA chain called 5' ETS.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	5A	375	8009	3578	1426	2630	375	0	0

- Molecule 3 is a RNA chain called 18S pre-rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	SA	1323	28210	12608	5022	9257	1323	0	0

- Molecule 4 is a protein called 40S ribosomal protein S1-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	SC	230	1830	1156	335	335	4	0	0

- Molecule 5 is a protein called 40S ribosomal protein S4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	SF	229	1815	1161	331	320	3	0	0

- Molecule 6 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	SG	213	1669	1045	307	314	3	0	0

- Molecule 7 is a protein called 40S ribosomal protein S6-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	SH	167	Total	C	N	O	S	0	0
			1327	834	256	235	2		

- Molecule 8 is a protein called 40S ribosomal protein S7-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	SI	165	Total	C	N	O	0	0
			1321	853	226	242		

- Molecule 9 is a protein called 40S ribosomal protein S8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	SJ	166	Total	C	N	O	S	0	0
			1324	824	262	236	2		

- Molecule 10 is a protein called 40S ribosomal protein S9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	SK	171	Total	C	N	O	S	0	0
			1388	879	268	240	1		

- Molecule 11 is a protein called 40S ribosomal protein S11-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	SM	123	Total	C	N	O	S	0	0
			997	641	189	164	3		

- Molecule 12 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	SO	134	Total	C	N	O	S	0	0
			1087	698	202	186	1		

- Molecule 13 is a protein called 40S ribosomal protein S14-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	SP	118	Total	C	N	O	S	0	0
			868	536	164	165	3		

- Molecule 14 is a protein called 40S ribosomal protein S16-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	SR	125	Total 973	C 625	N 174	O 174	0	0

- Molecule 15 is a protein called 40S ribosomal protein S22-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	SX	127	Total 1003	C 640	N 183	O 177	S 3	0	0

- Molecule 16 is a protein called 40S ribosomal protein S23-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	SY	103	Total 786	C 503	N 144	O 137	S 2	0	0

- Molecule 17 is a protein called 40S ribosomal protein S24-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	SZ	102	Total 809	C 517	N 148	O 144	0	0

- Molecule 18 is a protein called 40S ribosomal protein S27-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Sc	80	Total 603	C 377	N 109	O 112	S 5	0	0

- Molecule 19 is a protein called 40S ribosomal protein S28-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	Sd	63	Total 497	C 306	N 99	O 91	S 1	0	0

- Molecule 20 is a protein called rRNA 2'-O-methyltransferase fibrillarin.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	3B	240	Total 1865	C 1184	N 333	O 338	S 10	0	0
20	3C	225	Total 1763	C 1120	N 316	O 317	S 10	0	0

- Molecule 21 is a protein called Nucleolar protein 56.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	3D	369	Total	C	N	O	S	0	0
			2848	1811	489	540	8		

- Molecule 22 is a protein called Nucleolar protein 58.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	3E	431	Total	C	N	O	S	0	0
			3028	1888	543	588	9		

- Molecule 23 is a protein called Ribosomal RNA-processing protein 9.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	3F	454	Total	C	N	O	S	0	0
			3643	2315	638	680	10		

- Molecule 24 is a protein called 13 kDa ribonucleoprotein-associated protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	3G	121	Total	C	N	O	S	0	0
			916	583	158	171	4		
24	3H	121	Total	C	N	O	S	0	0
			916	583	158	171	4		

- Molecule 25 is a protein called U3 small nucleolar RNA-associated protein 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	A4	662	Total	C	N	O	S	0	0
			5226	3309	910	986	21		

- Molecule 26 is a protein called U3 small nucleolar RNA-associated protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	A5	514	Total	C	N	O	S	0	0
			3976	2520	688	755	13		

- Molecule 27 is a protein called U3 small nucleolar RNA-associated protein 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	A8	548	Total	C	N	O	S	0	0
			3307	2054	608	642	3		

- Molecule 28 is a protein called U3 small nucleolar RNA-associated protein 9.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	A9	128	Total	C	N	O	S	0	0
			939	594	173	170	2		

- Molecule 29 is a protein called U3 small nucleolar RNA-associated protein 10.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	AE	1534	Total	C	N	O	S	0	0
			9955	6242	1771	1923	19		

- Molecule 30 is a protein called U3 small nucleolar RNA-associated protein 15.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	AF	493	Total	C	N	O	S	0	0
			3911	2462	702	735	12		

- Molecule 31 is a protein called NET1-associated nuclear protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	AG	826	Total	C	N	O	S	0	0
			6570	4181	1111	1259	19		

- Molecule 32 is a protein called Periodic tryptophan protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	B1	834	Total	C	N	O	S	0	0
			6635	4223	1140	1253	19		

- Molecule 33 is a protein called U3 small nucleolar RNA-associated protein 12.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	B2	851	Total	C	N	O	S	0	0
			6723	4294	1133	1269	27		

- Molecule 34 is a protein called U3 small nucleolar RNA-associated protein 13.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	B3	757	Total	C	N	O	S	0	0
			5919	3769	993	1130	27		

- Molecule 35 is a protein called U3 small nucleolar RNA-associated protein 18.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	B8	477	Total	C	N	O	S	0	0
			3764	2387	662	705	10		

- Molecule 36 is a protein called U3 small nucleolar RNA-associated protein 21.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	BE	865	Total	C	N	O	S	0	0
			6810	4322	1175	1292	21		

- Molecule 37 is a protein called U3 small nucleolar RNA-associated protein 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	B6	374	Total	C	N	O	S	0	0
			2800	1782	501	505	12		

- Molecule 38 is a protein called Bud site selection protein 21.

Mol	Chain	Residues	Atoms				AltConf	Trace
38	5B	60	Total	C	N	O	0	0
			495	310	101	84		

- Molecule 39 is a protein called U3 small nucleolar RNA-associated protein 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	5C	535	Total	C	N	O	S	0	0
			4237	2656	762	807	12		

- Molecule 40 is a protein called U3 small nucleolar RNA-associated protein 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	5D	167	Total	C	N	O	S	0	0
			1396	862	266	263	5		

- Molecule 41 is a protein called U3 small nucleolar RNA-associated protein MPP10.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	5E	204	Total	C	N	O	S	0	0
			1647	1021	294	328	4		

- Molecule 42 is a protein called U3 small nucleolar ribonucleoprotein protein IMP3.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	5F	182	Total	C	N	O	S	0	0
			1530	967	287	269	7		

- Molecule 43 is a protein called U3 small nucleolar ribonucleoprotein protein IMP4.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	5G	282	Total	C	N	O	S	0	0
			2296	1441	430	418	7		

- Molecule 44 is a protein called Something about silencing protein 10.

Mol	Chain	Residues	Atoms				AltConf	Trace
44	5H	74	Total	C	N	O	0	0
			596	373	122	101		

- Molecule 45 is a protein called Protein SOF1.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	5I	461	Total	C	N	O	S	0	0
			3765	2354	686	709	16		

- Molecule 46 is a protein called rRNA-processing protein FCF2.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	5J	151	Total	C	N	O	S	0	0
			1280	807	240	228	5		

- Molecule 47 is a protein called rRNA-processing protein FCF1.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	5K	175	Total	C	N	O	S	0	0
			1403	896	256	241	10		

- Molecule 48 is a protein called Ribosome biogenesis protein ENP2.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	RA	338	Total	C	N	O	S	0	0
			2709	1713	463	524	9		

- Molecule 49 is a protein called U3 small nucleolar ribonucleoprotein protein LCP5.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	RB	134	Total	C	N	O	S	0	0
			1108	664	227	214	3		

- Molecule 50 is a protein called KRR1 small subunit processome component.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	RC	278	Total	C	N	O	S	0	0
			2207	1408	391	395	13		

- Molecule 51 is a protein called rRNA biogenesis protein RRP5.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	RD	316	Total	C	N	O	S	0	0
			2412	1541	414	452	5		

- Molecule 52 is a protein called U3 small nucleolar RNA-associated protein 22.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	RE	1079	Total	C	N	O	S	0	0
			8716	5666	1437	1589	24		

- Molecule 53 is a protein called Ribosomal RNA-processing protein 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	RF	241	Total	C	N	O	S	0	0
			1963	1253	335	367	8		

- Molecule 54 is a protein called Ribosomal RNA small subunit methyltransferase NEP1.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	RG	216	Total	C	N	O	S	0	0
			1701	1079	296	315	11		
54	RH	230	Total	C	N	O	S	0	0
			1799	1142	313	333	11		

- Molecule 55 is a protein called Ribosome biogenesis protein BMS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	RJ	796	Total	C	N	O	S	0	0
			6379	4086	1136	1128	29		

- Molecule 56 is a protein called RNA 3'-terminal phosphate cyclase-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	RK	360	Total	C	N	O	S	0	0
			2781	1781	473	516	11		

- Molecule 57 is a protein called RNA cytidine acetyltransferase.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	RL	805	Total	C	N	O	S	0	0
			4539	2760	885	887	7		
57	RM	766	Total	C	N	O		0	0
			3779	2247	766	766			

- Molecule 58 is a protein called Nucleolar complex protein 14.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	RN	607	Total	C	N	O	S	0	0
			4529	2861	820	837	11		

- Molecule 59 is a protein called Nucleolar complex protein 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	RO	525	Total	C	N	O	S	0	0
			3766	2412	646	696	12		

- Molecule 60 is a protein called U3 small nucleolar RNA-associated protein 20.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	RP	2108	Total	C	N	O	S	0	0
			12171	7483	2291	2381	16		

- Molecule 61 is a protein called U3 small nucleolar RNA-associated protein 14.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	RQ	226	Total	C	N	O	S	0	0
			1651	1023	313	313	2		

- Molecule 62 is a protein called Essential nuclear protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	RS	251	Total	C	N	O	S	0	0
			2051	1340	349	359	3		

- Molecule 63 is a protein called Pno1.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	RT	171	Total	C	N	O	S	0	0
			1357	864	249	240	4		

- Molecule 64 is a protein called Protein FAF1.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	RV	190	Total	C	N	O	S	0	0
			1448	891	290	264	3		

- Molecule 65 is a protein called Protein BFR2.

Mol	Chain	Residues	Atoms				AltConf	Trace
65	RY	37	Total	C	N	O	0	0
			299	191	48	60		

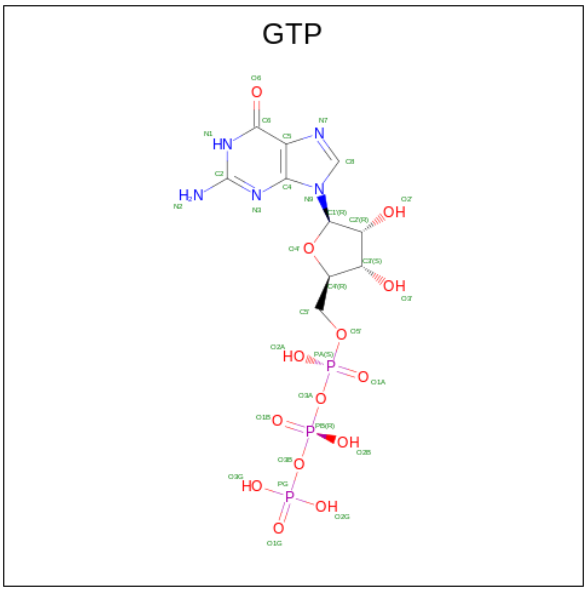
- Molecule 66 is a protein called Unassigned helices.

Mol	Chain	Residues	Atoms				AltConf	Trace
66	X1	75	Total	C	N	O	0	0
			375	225	75	75		

- Molecule 67 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
67	Sc	1	Total	Zn	0
			1	1	
67	5K	1	Total	Zn	0
			1	1	

- Molecule 68 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



Mol	Chain	Residues	Atoms					AltConf
68	RJ	1	Total	C	N	O	P	0
			32	10	5	14	3	

- Molecule 69 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

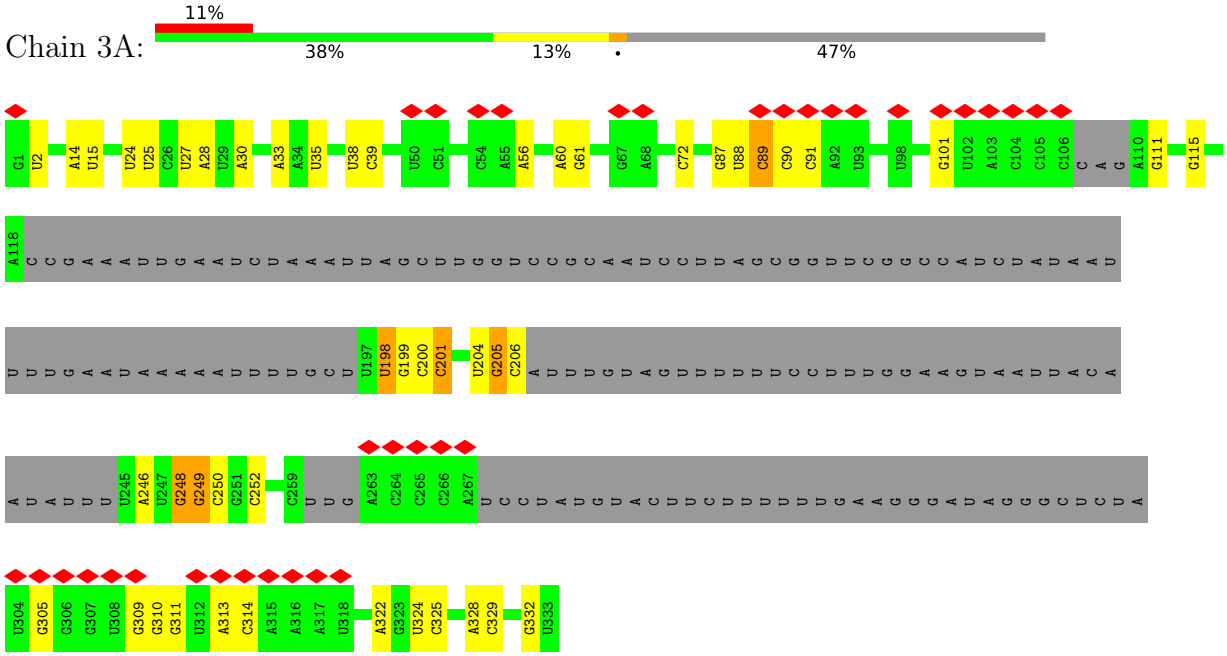
Mol	Chain	Residues	Atoms		AltConf
69	RJ	1	Total	Mg	0
			1	1	

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.

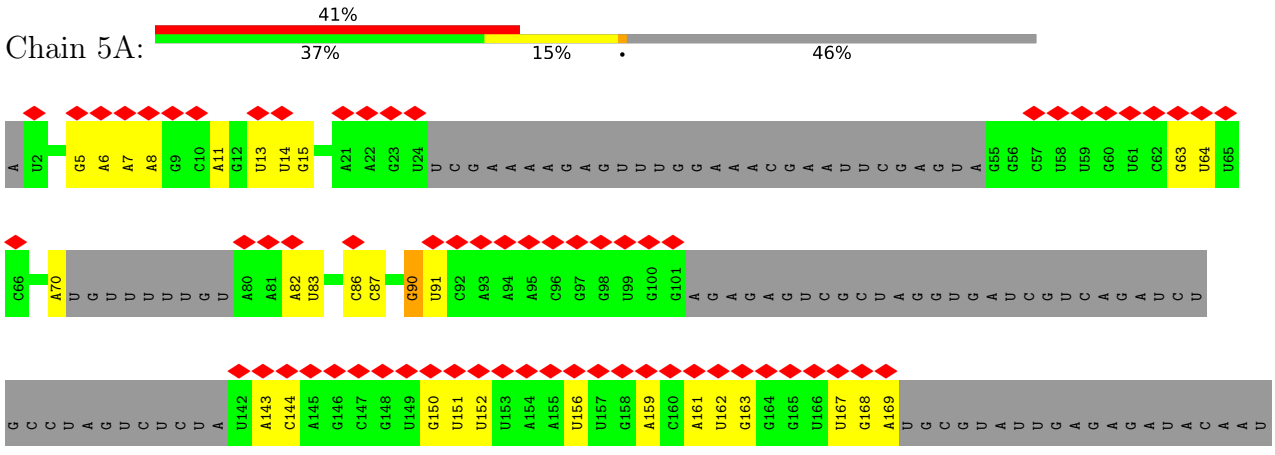
• Molecule 1: U3 snoRNA

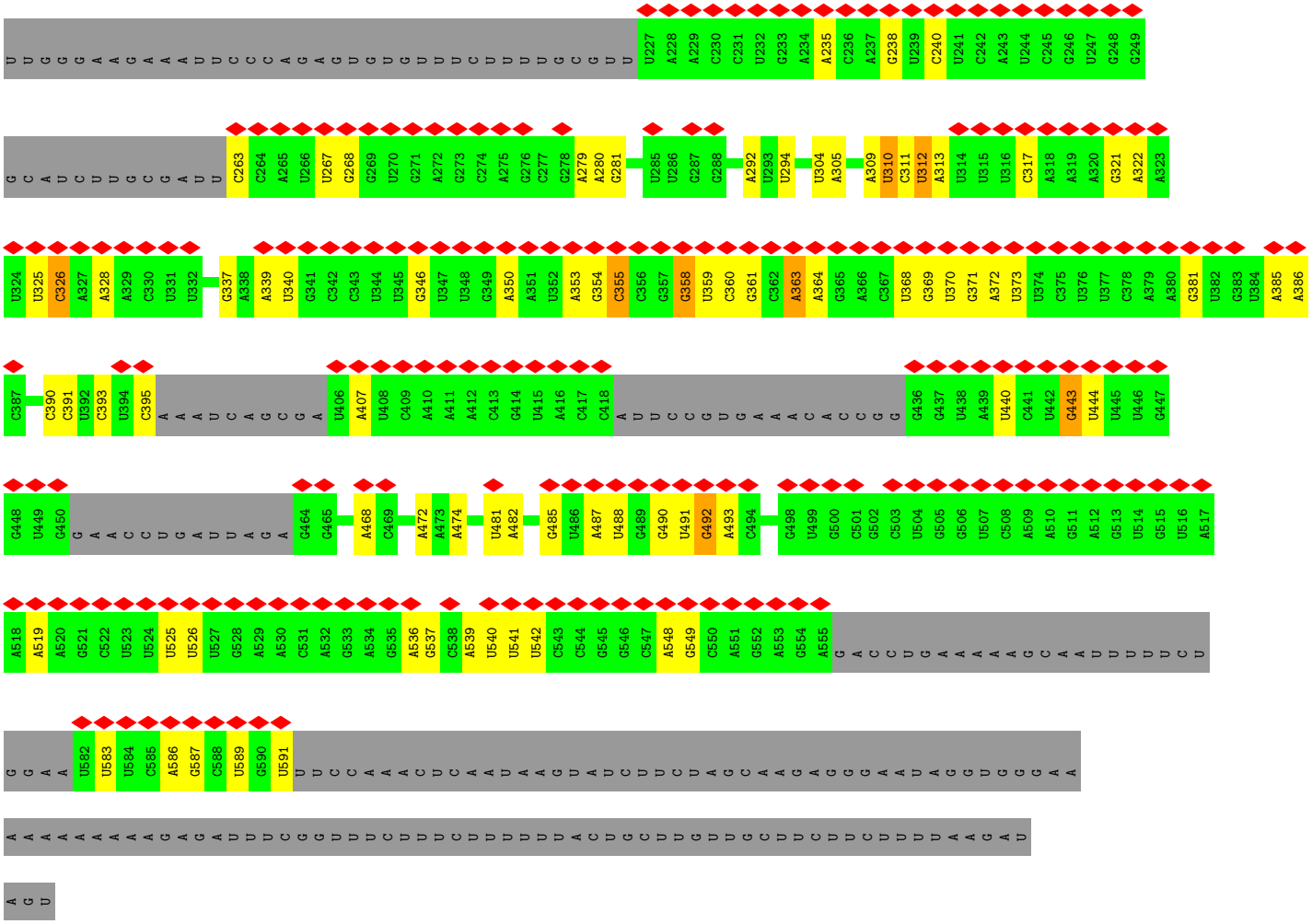
Chain 3A:



• Molecule 2: 5' ETS

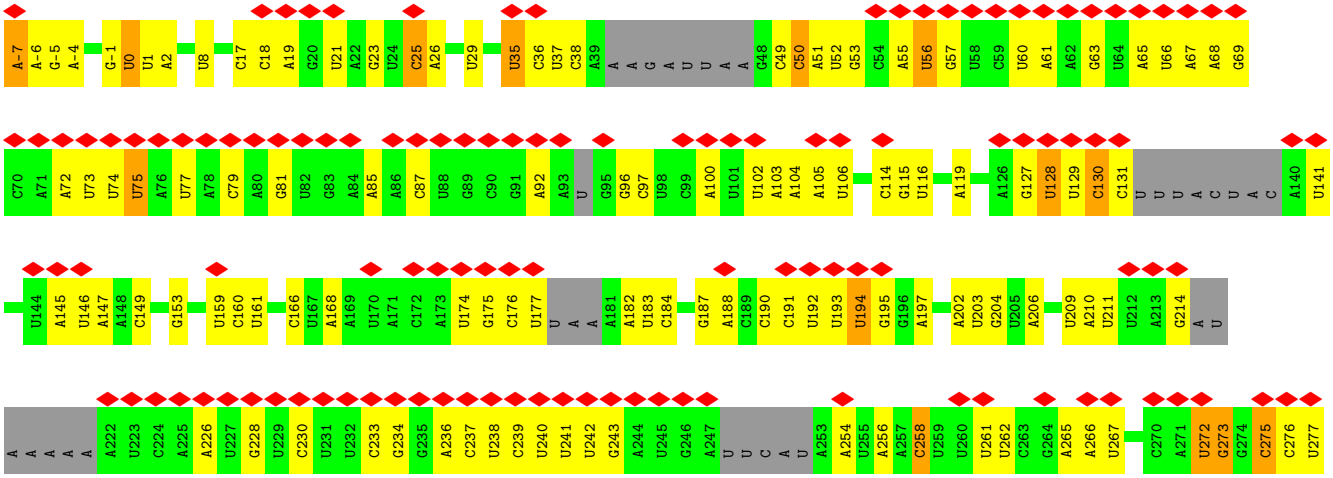
Chain 5A:

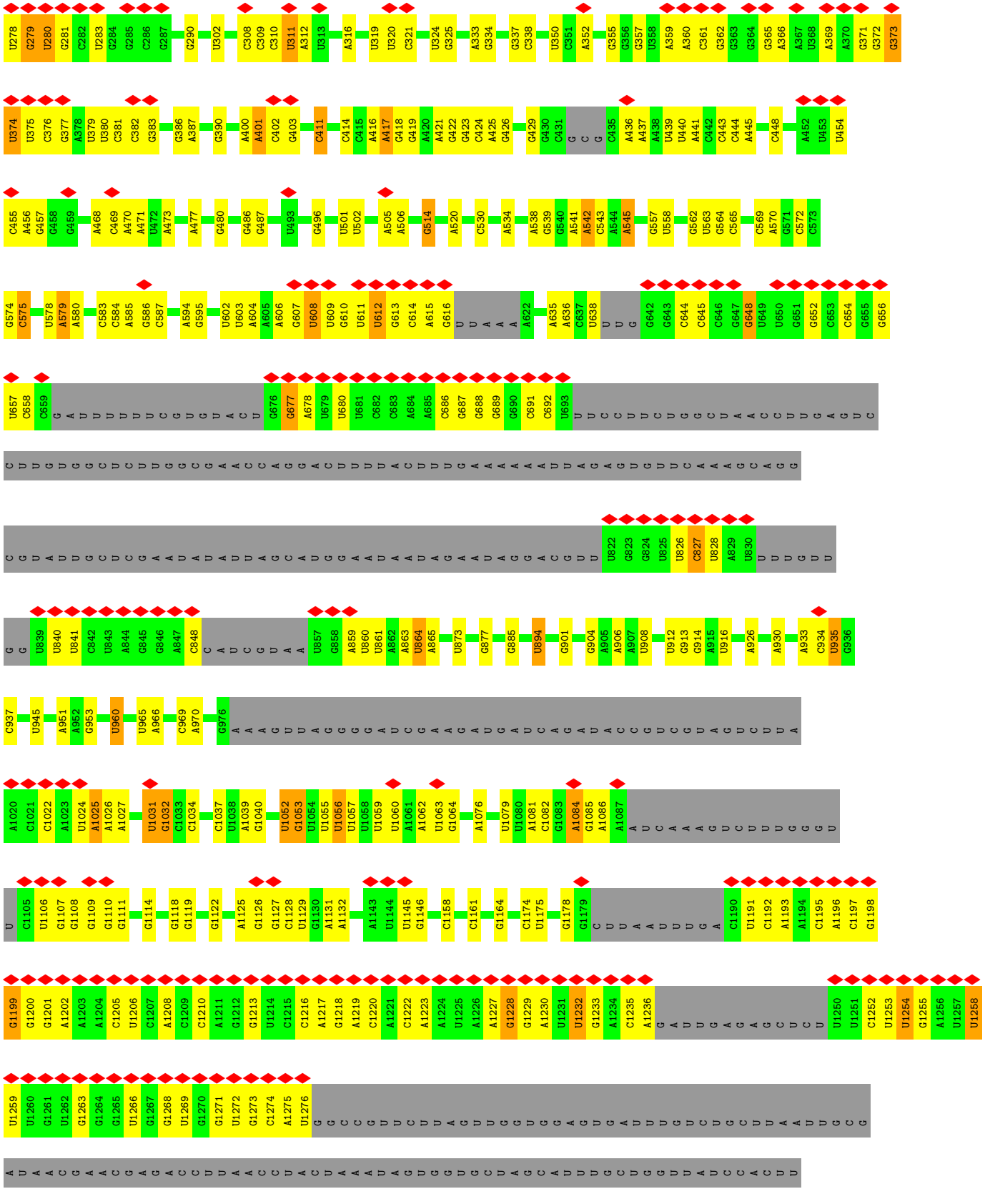


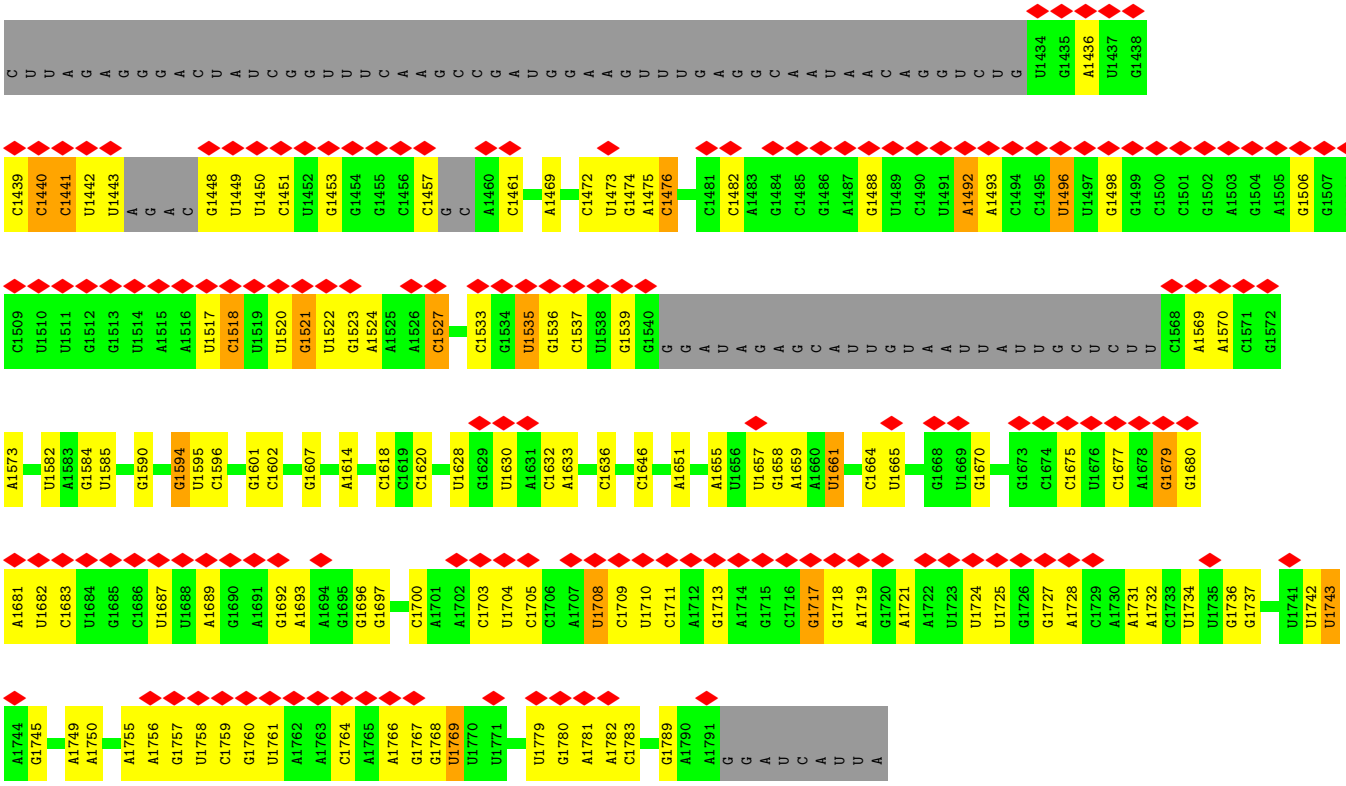


• Molecule 3: 18S pre-rRNA

Chain SA:

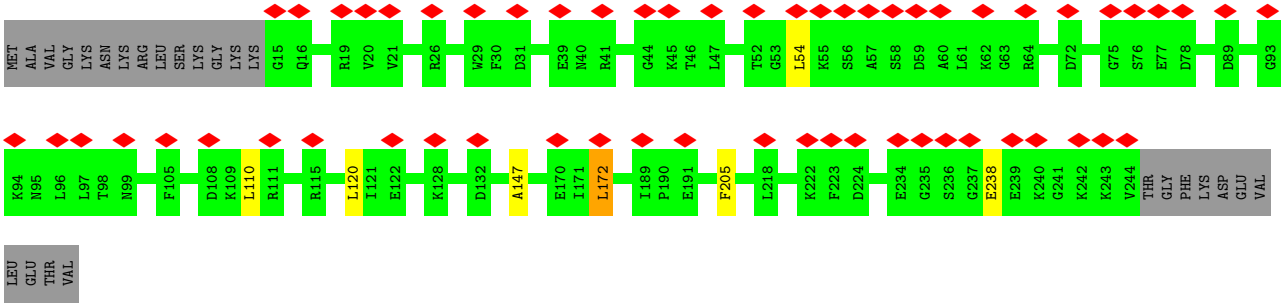






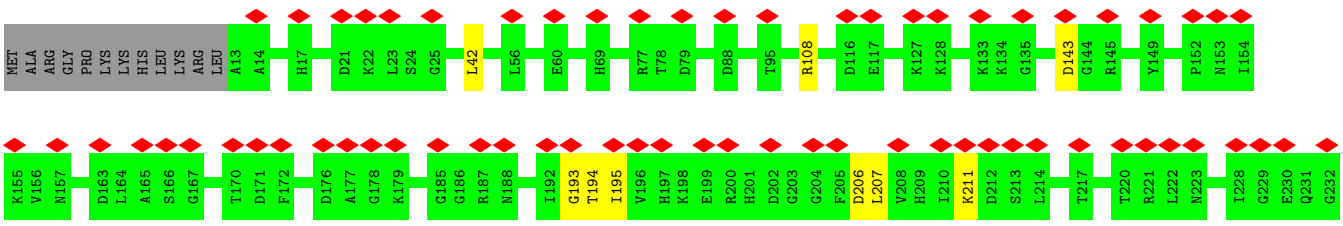
• Molecule 4: 40S ribosomal protein S1-A

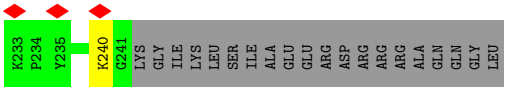
Chain SC:



• Molecule 5: 40S ribosomal protein S4-A

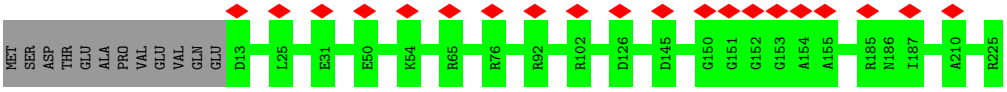
Chain SF:





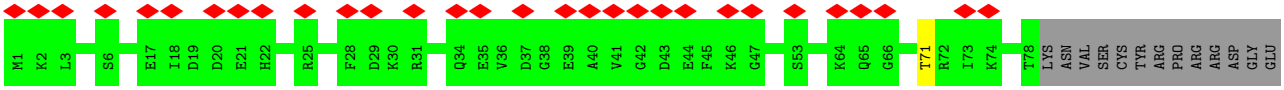
• Molecule 6: 40S ribosomal protein S5

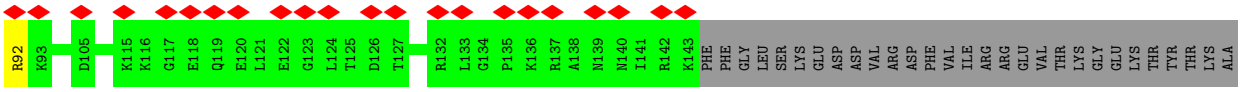
Chain SG:

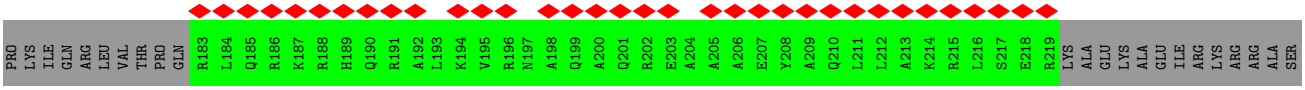


• Molecule 7: 40S ribosomal protein S6-A

Chain SH:

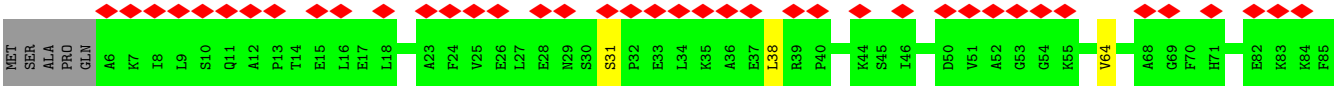


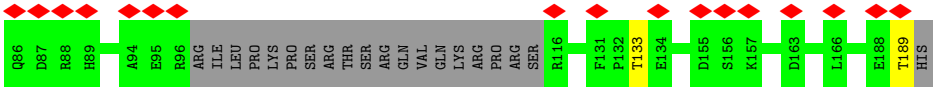




• Molecule 8: 40S ribosomal protein S7-A

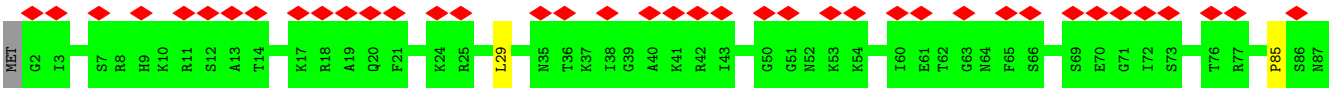
Chain SI:

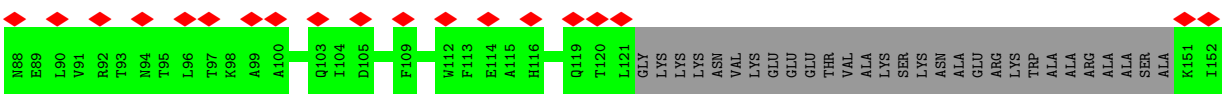


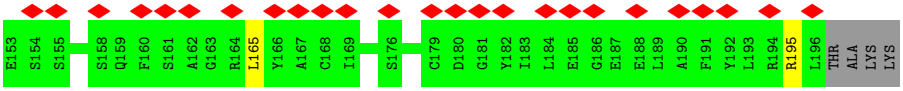


• Molecule 9: 40S ribosomal protein S8-A

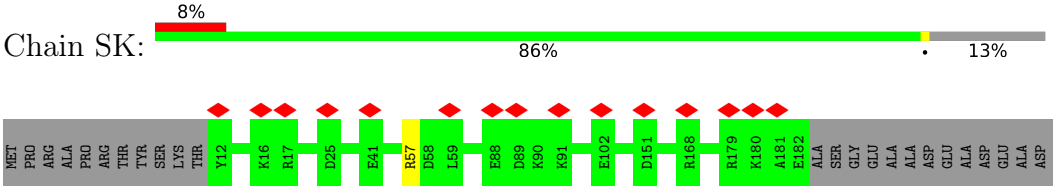
Chain SJ:



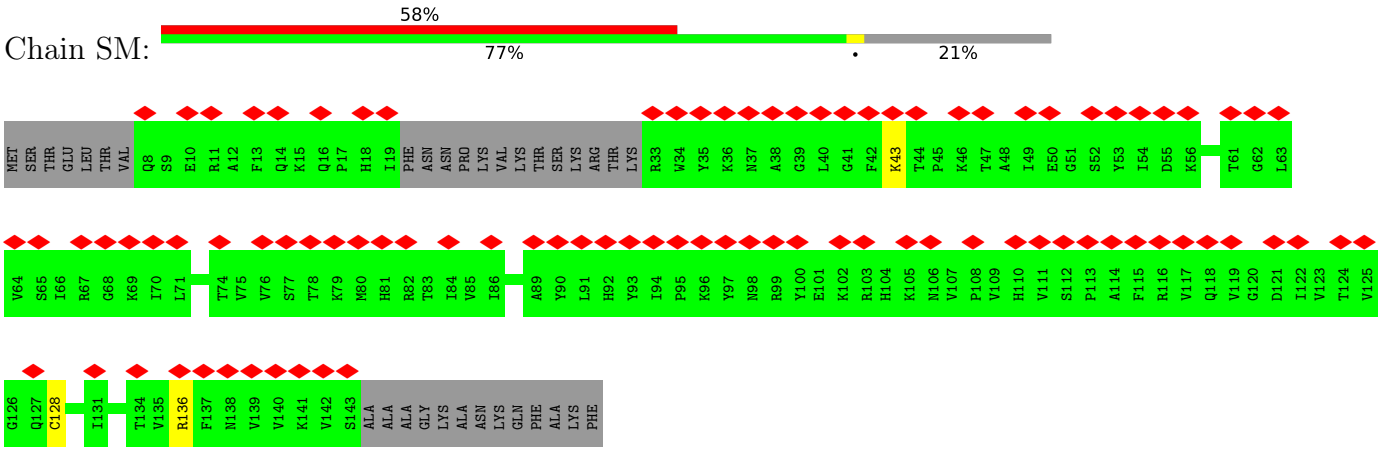




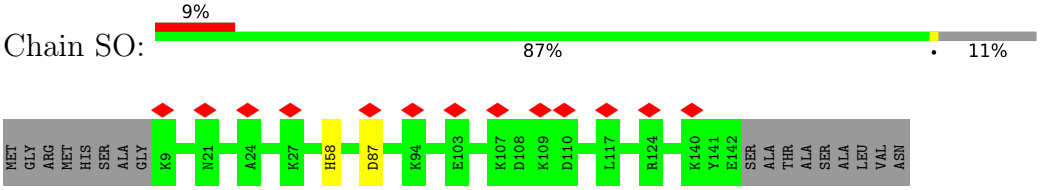
• Molecule 10: 40S ribosomal protein S9-A



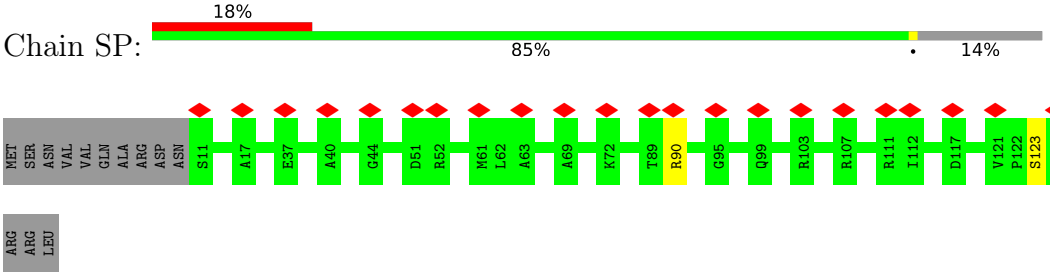
• Molecule 11: 40S ribosomal protein S11-A



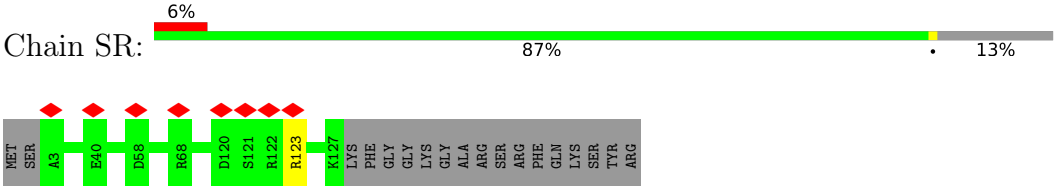
• Molecule 12: 40S ribosomal protein S13



• Molecule 13: 40S ribosomal protein S14-A

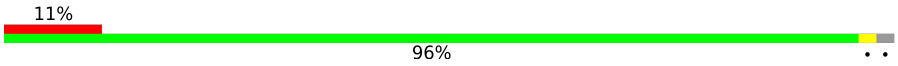


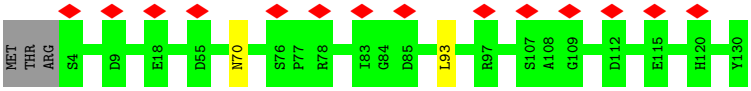
• Molecule 14: 40S ribosomal protein S16-A



• Molecule 15: 40S ribosomal protein S22-B

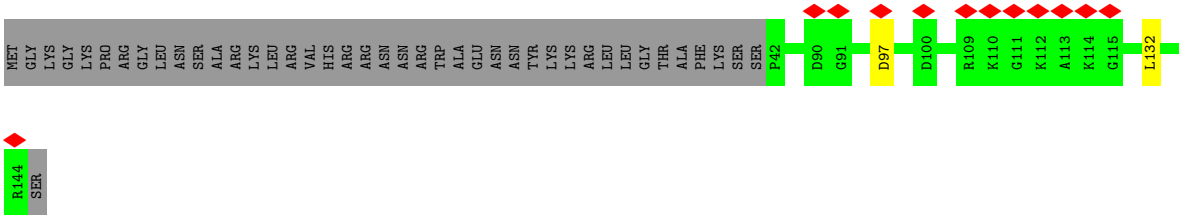
Chain SX:





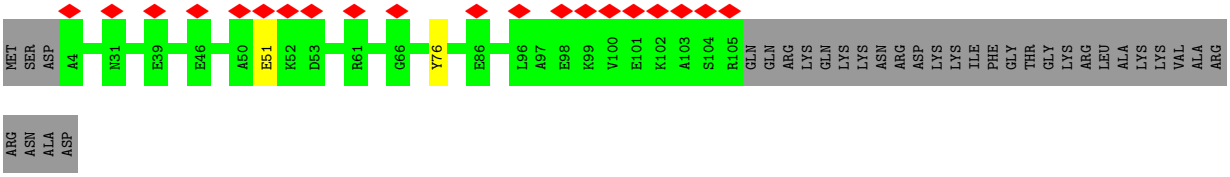
• Molecule 16: 40S ribosomal protein S23-A

Chain SY:



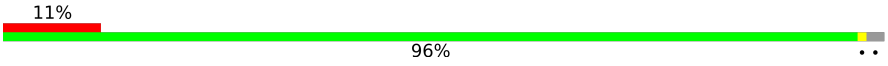
• Molecule 17: 40S ribosomal protein S24-A

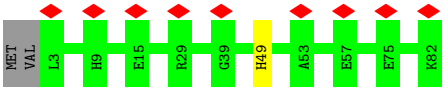
Chain SZ:



• Molecule 18: 40S ribosomal protein S27-A

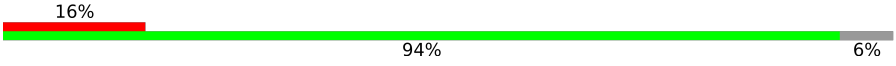
Chain Sc:

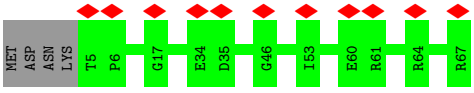




• Molecule 19: 40S ribosomal protein S28-A

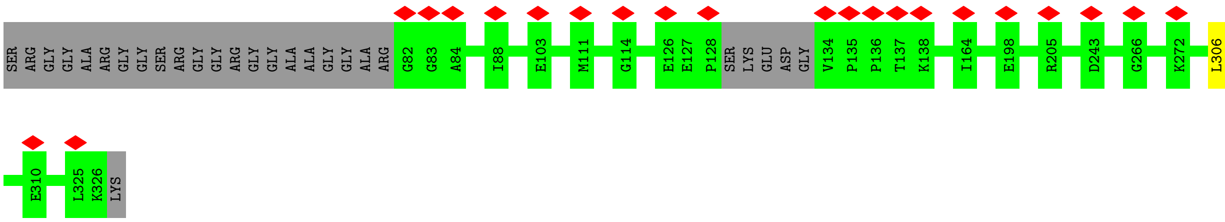
Chain Sd:





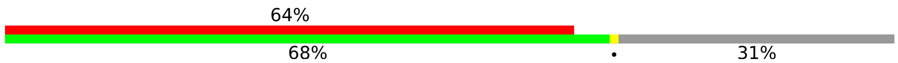
• Molecule 20: rRNA 2'-O-methyltransferase fibrillarin

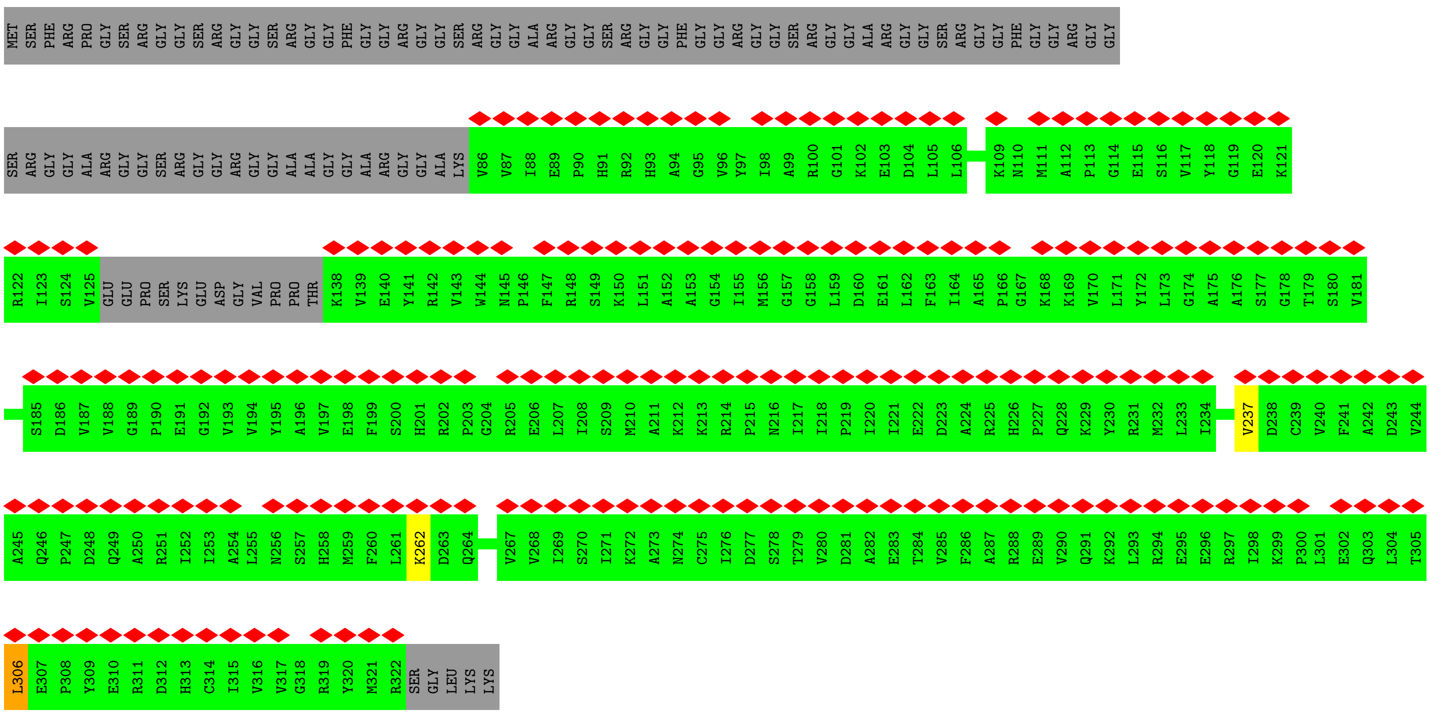
Chain 3B:



- Molecule 20: rRNA 2'-O-methyltransferase fibrillarin

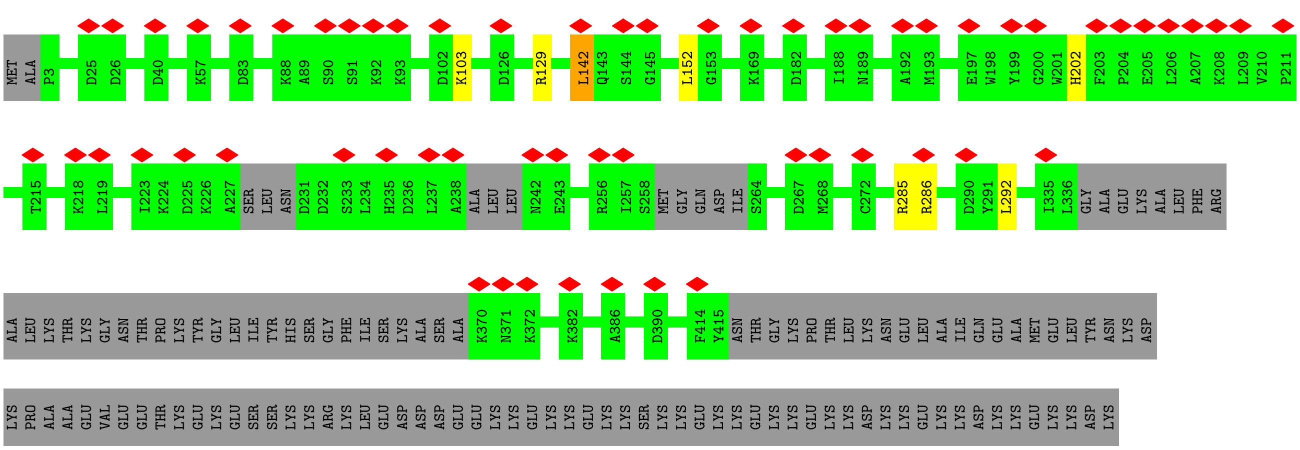
Chain 3C:





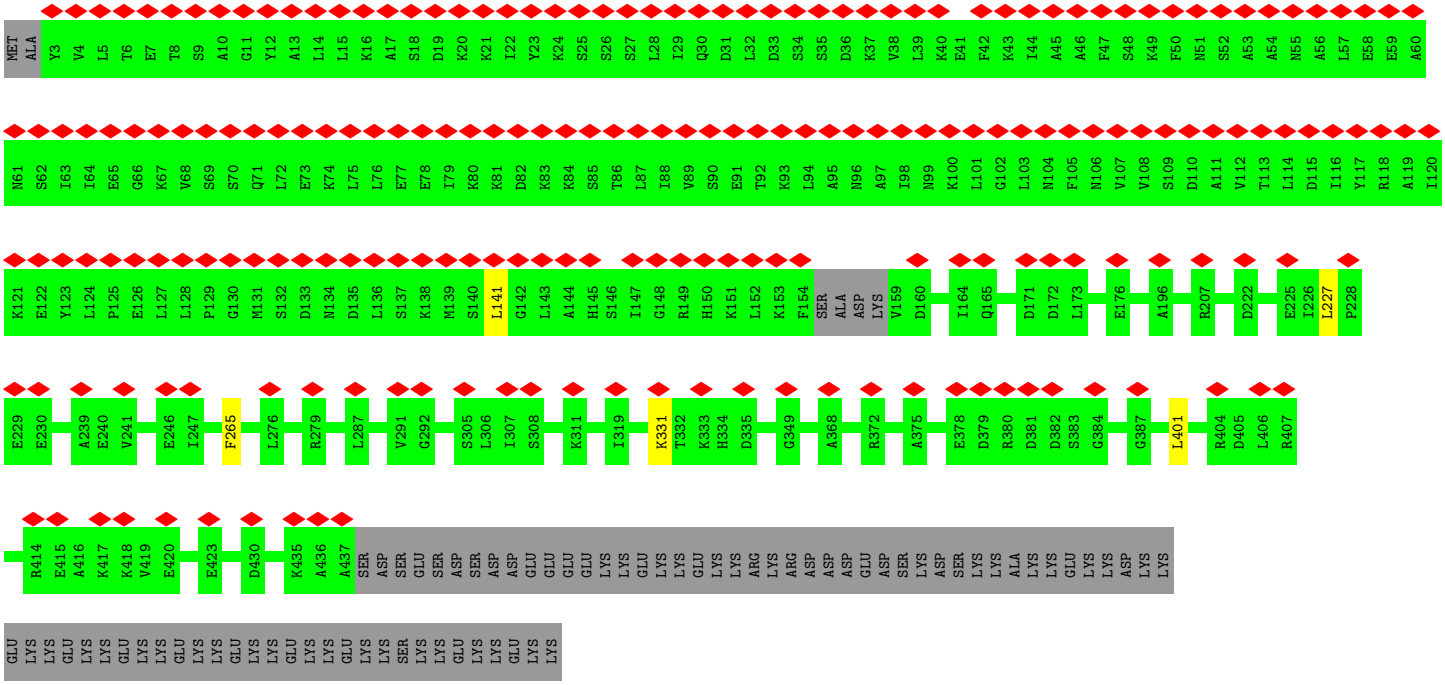
- Molecule 21: Nucleolar protein 56

Chain 3D:



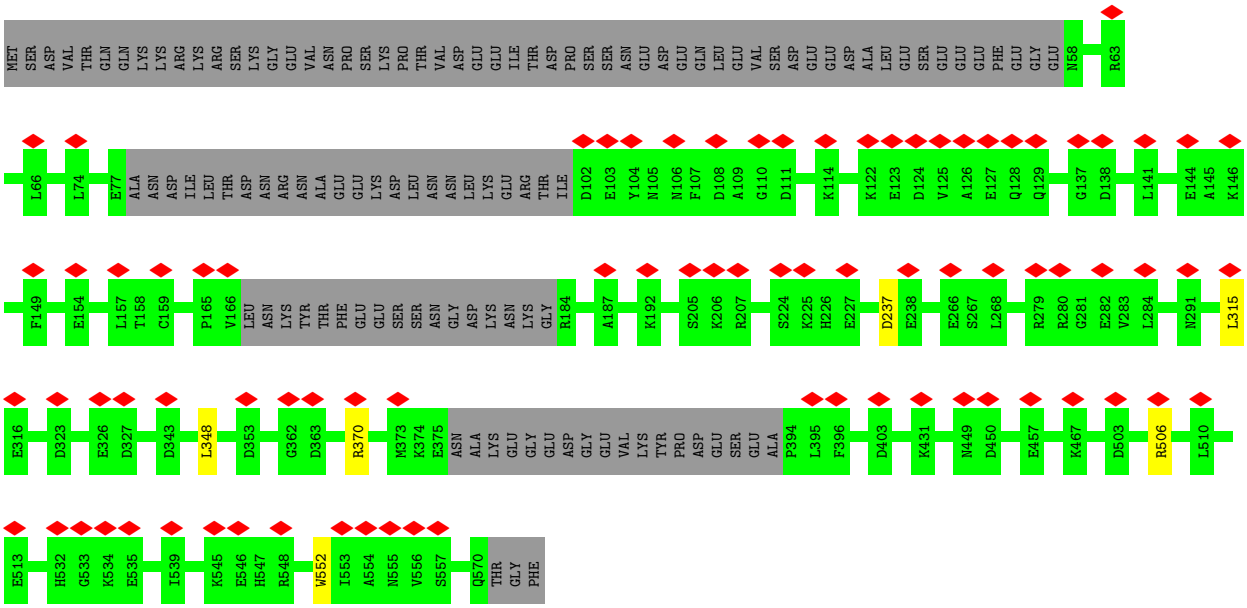
• Molecule 22: Nucleolar protein 58

Chain 3E:



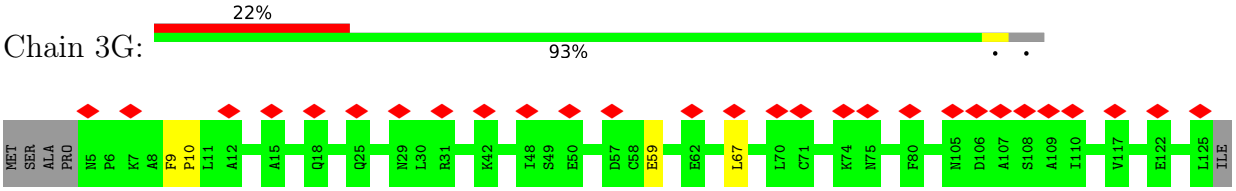
• Molecule 23: Ribosomal RNA-processing protein 9

Chain 3F:



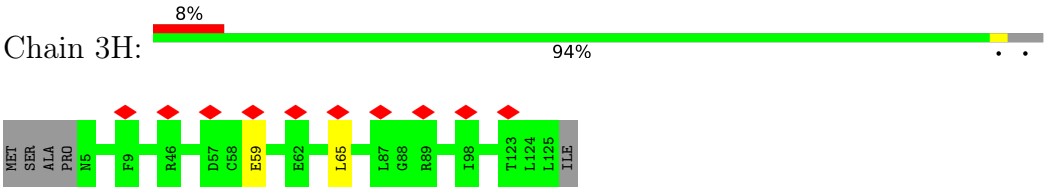
• Molecule 24: 13 kDa ribonucleoprotein-associated protein

Chain 3G:



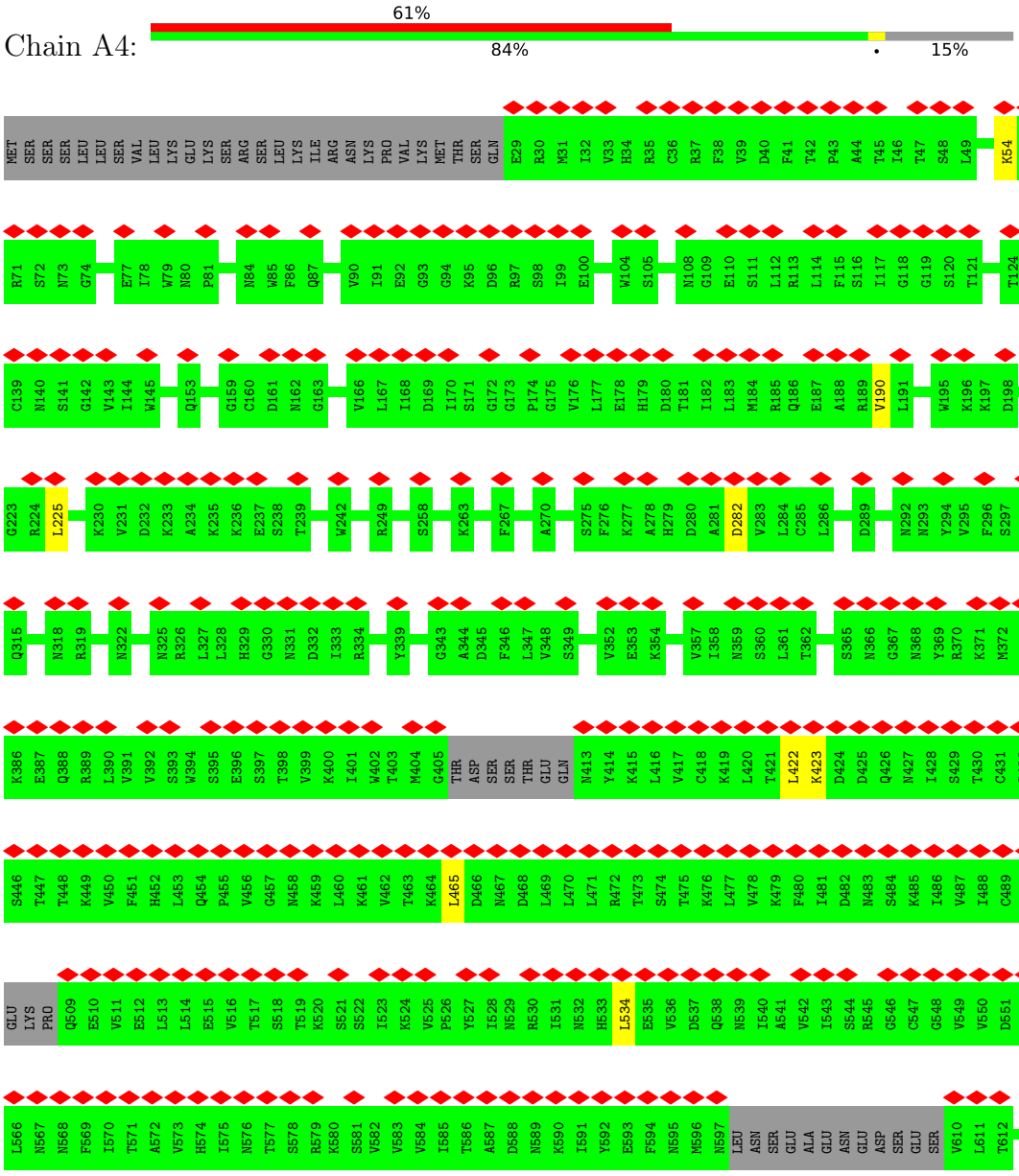
• Molecule 24: 13 kDa ribonucleoprotein-associated protein

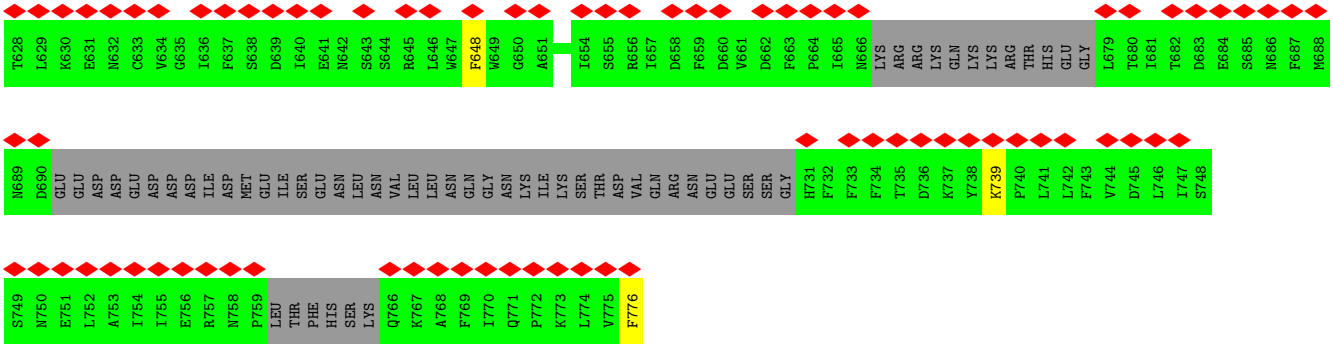
Chain 3H:



• Molecule 25: U3 small nucleolar RNA-associated protein 4

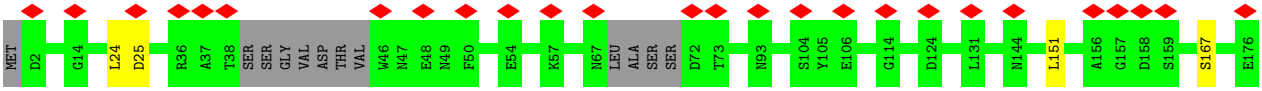
Chain A4:

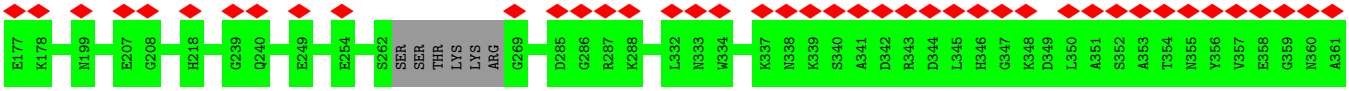


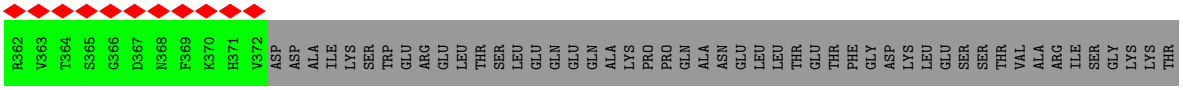


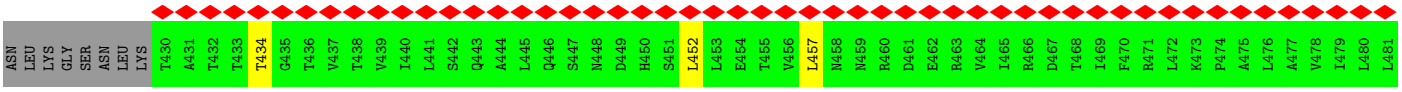
• Molecule 26: U3 small nucleolar RNA-associated protein 5

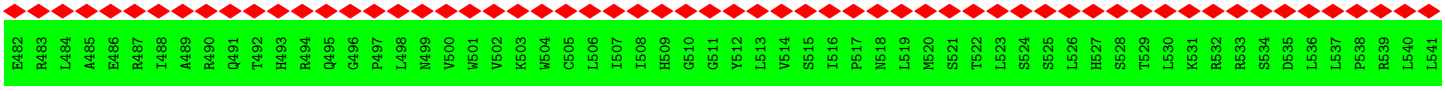
Chain A5:

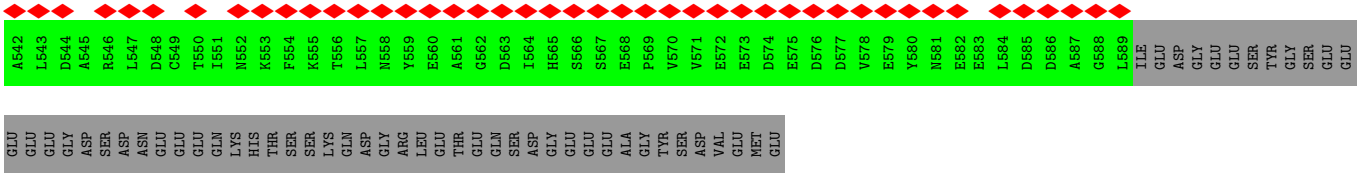






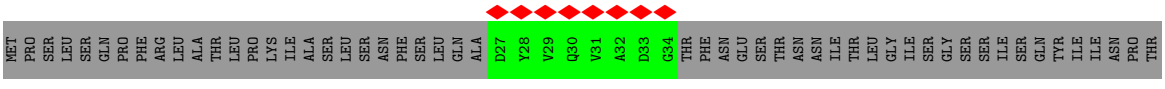


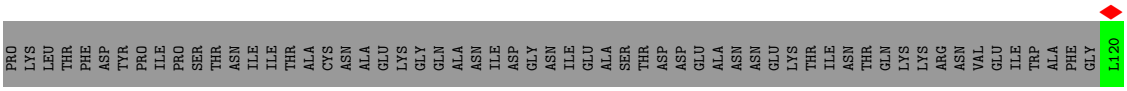


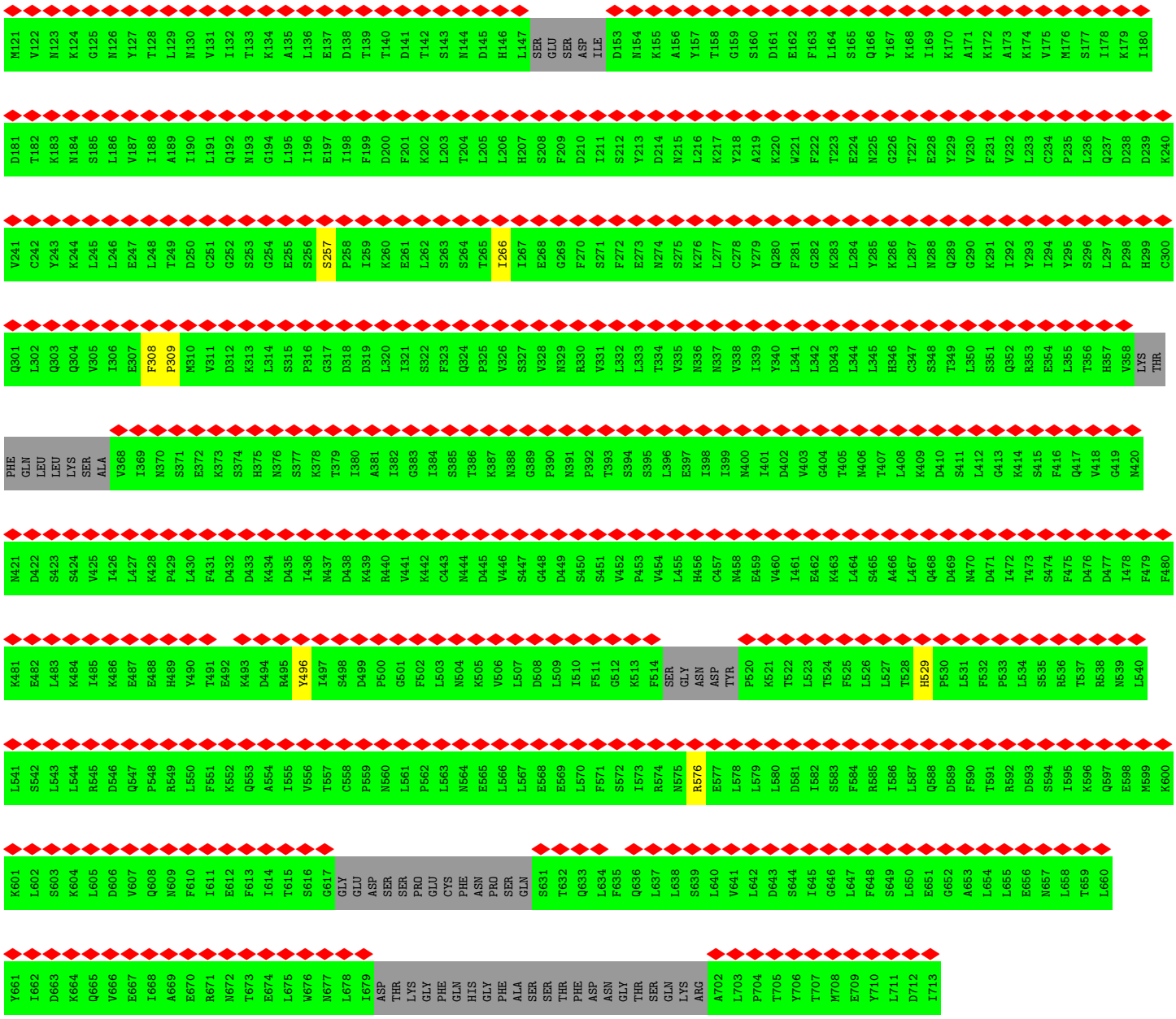


• Molecule 27: U3 small nucleolar RNA-associated protein 8

Chain A8:

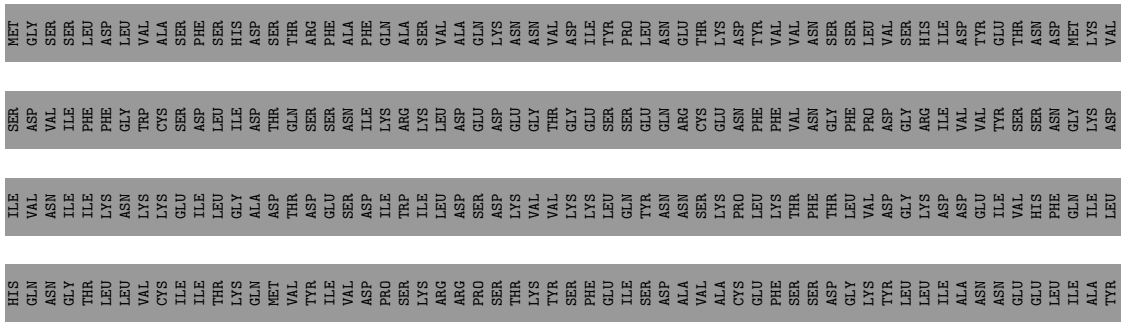


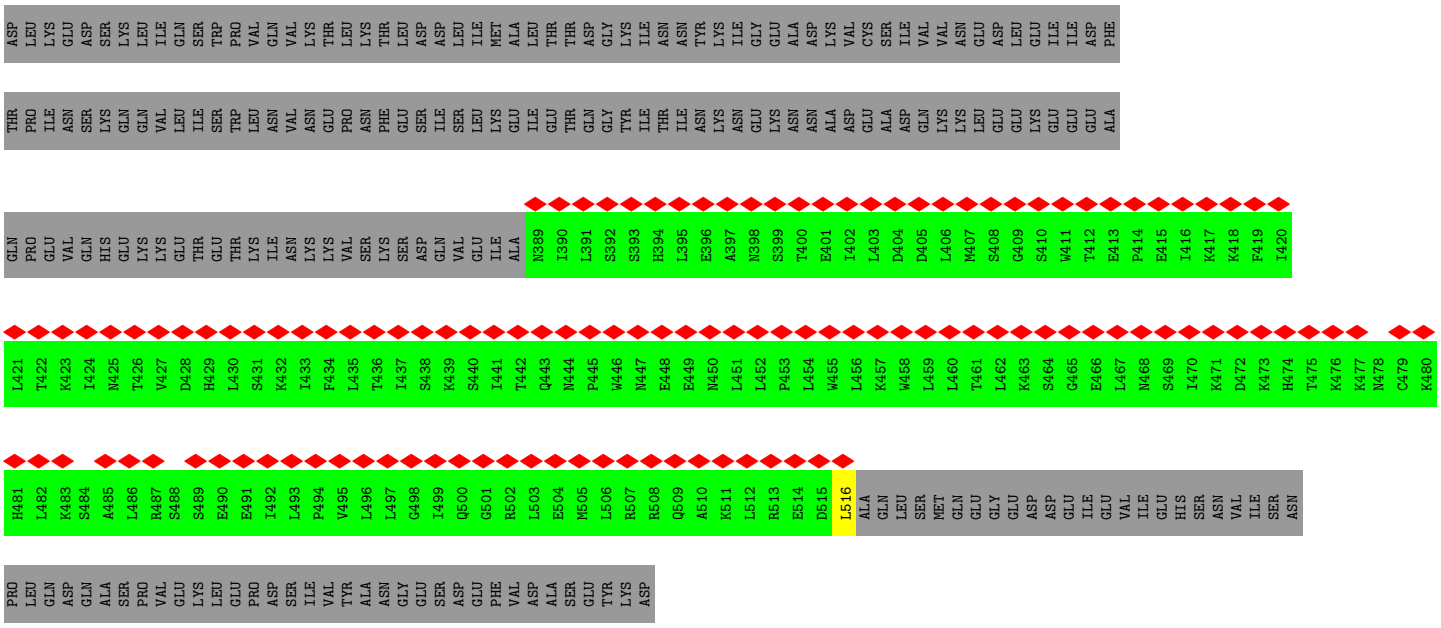




• Molecule 28: U3 small nucleolar RNA-associated protein 9

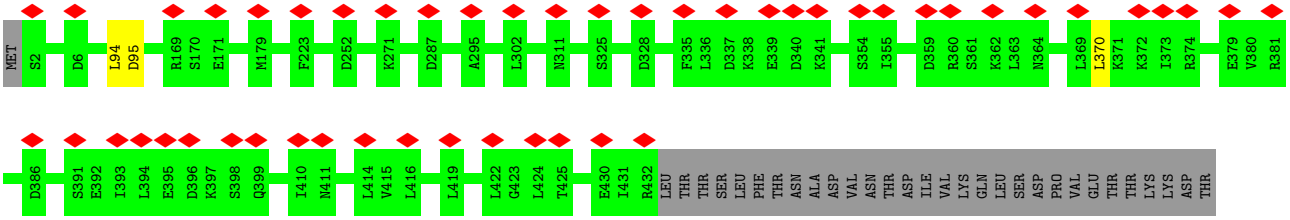
Chain A9:

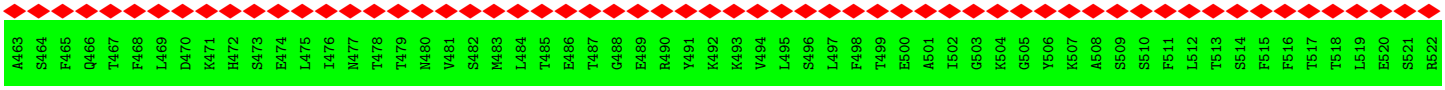


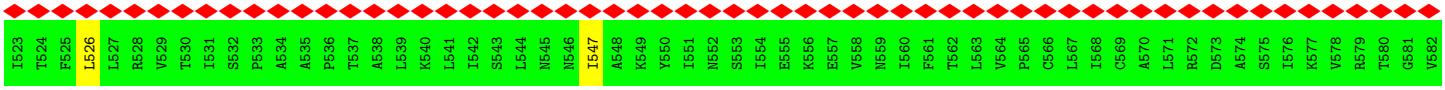


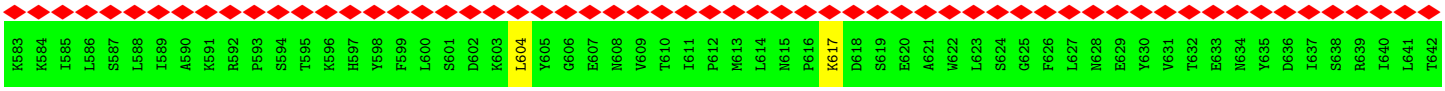
• Molecule 29: U3 small nucleolar RNA-associated protein 10

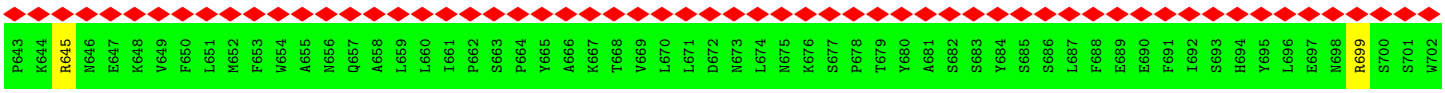
Chain AE:

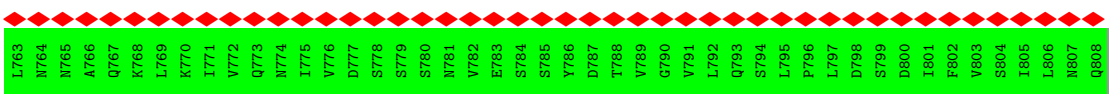


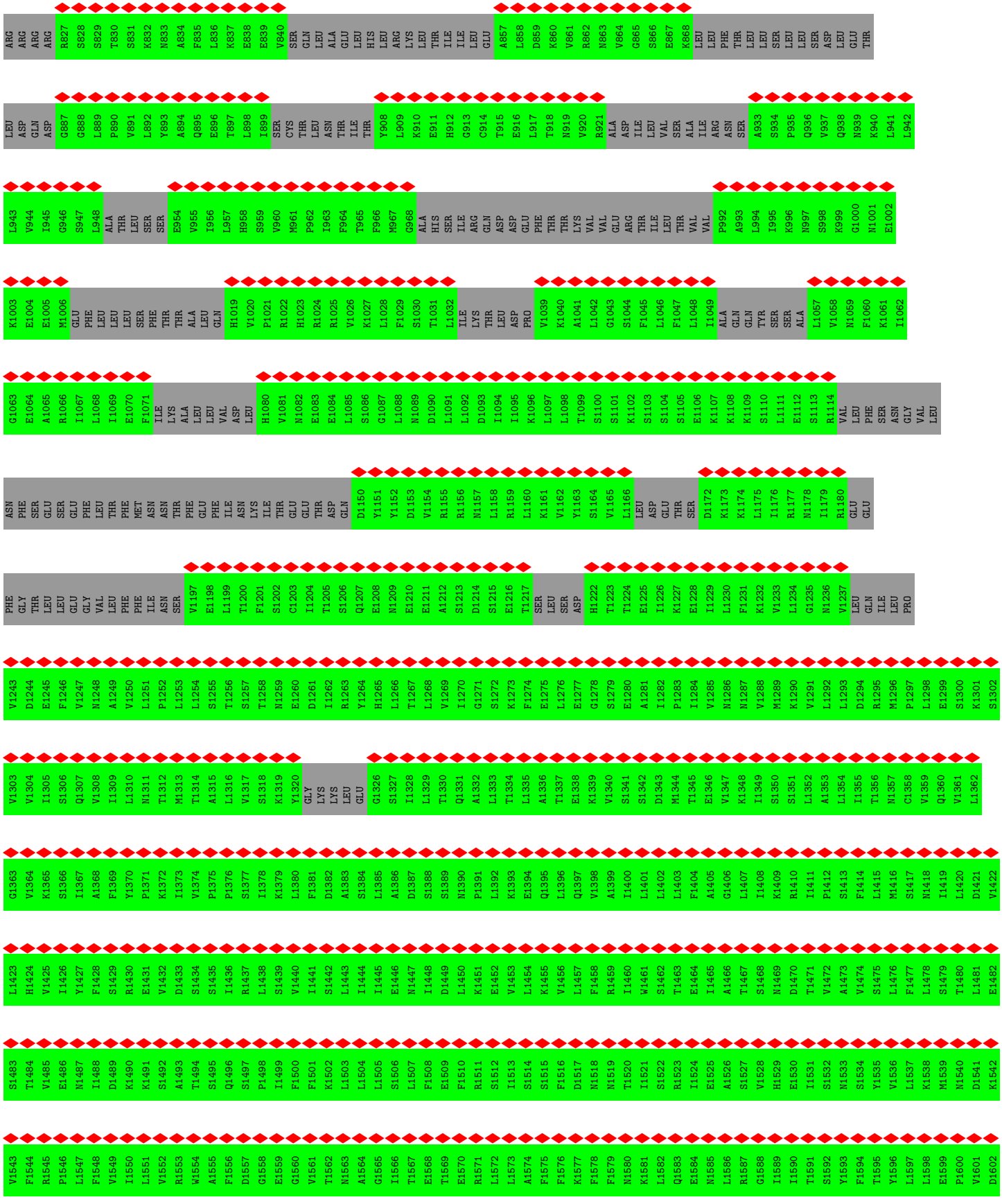








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LEU ASP GLN ASP G887 G888 L889 P890 V891 L892 Y893 A894 Q895 E896 T897 L898 I899 SER CYS THR LEU ASN THR ILE THR Y908 L909 K910 E911 H912 G913 C914 T915 E916 L917 T918 N919 V920 R921 ALA ASP ILE LEU VAL SER ALA ILE ARG ASN SER A933 S934 P935 Q936 V937 Q938 N939 K940 L941 L942
L943 V944 I945 G946 S947 L948 ALA THR LEU SER SER E954 V955 I956 L957 H958 S959 V960 M961 P962 I963 F964 T965 F966 M967 G968 ALA HIS SER ILE ARG GLN ASP ASP GLU PHE THR THR LYS VAL VAL GLU ARG THR ILE LEU THR VAL VAL P992 A993 L994 I995 K996 N997 S998 K999 G1000 N1001 E1002
K1003 E1004 E1005 M1006 GLU PHE LEU LEU LEU SER PHE THR THR ALA LEU GLN H1019 V1020 P1021 R1022 H1023 R1024 R1025 V1026 K1027 L1028 F1029 S1030 T1031 L1032 ILE LYS THR LEU ASP PRO V1039 K1040 A1041 L1042 G1043 S1044 F1045 L1046 F1047 L1048 I1049 ALA GLN GLN TYR SER SER ALA L1057 V1058 N1059 F1060 K1061 I1062
G1063 E1064 A1065 R1066 I1067 L1068 I1069 E1070 F1071 ILE LYS ALA LEU LEU VAL ASP LEU H1080 V1081 N1082 E1083 E1084 L1085 S1086 G1087 L1088 N1089 D1090 L1091 L1092 D1093 I1094 I1095 K1096 L1097 L1098 T1099 S1100 S1101 K1102 S1103 S1104 S1105 E1106 K1107 K1108 K1109 S1110 L1111 E1112 S1113 R1114 VAL LEU PHE SER ASN GLY VAL LEU
ASN PHE SER GLU SER GLU PHE LEU THR PHE MET ASN ASN THR PHE GLU PHE ILE ASN LYS ILE THR GLU GLU THR ASP GLN D1150 Y1151 Y1152 D1153 V1154 R1155 R1156 N1157 L1158 R1159 L1160 K1161 V1162 Y1163 S1164 V1165 L1166 LEU ASP GLU THR SER D1172 K1173 K1174 L1175 I1176 R1177 N1178 I1179 R1180 GLU GLU
PHE GLY THR LEU LEU GLU GLY VAL LEU PHE PHE ILE ASN SER V1197 E1198 L1199 T1200 F1201 S1202 C1203 I1204 T1205 S1206 Q1207 E1208 N1209 E1210 E1211 A1212 S1213 D1214 S1215 E1216 T1217 SER LEU SER ASP H1222 T1223 T1224 E1225 I1226 K1227 E1228 I1229 L1230 F1231 K1232 V1233 L1234 G1235 N1236 V1237 LEU GLN ILE LEU PRO
V1243 D1244 E1245 F1246 V1247 N1248 A1249 V1250 L1251 P1252 L1253 L1254 S1255 T1256 S1257 T1258 N1259 E1260 D1261 I1262 R1263 Y1264 H1265 L1266 T1267 L1268 V1269 I1270 G1271 S1272 K1273 F1274 E1275 L1276 E1277 G1278 S1279 E1280 A1281 I1282 P1283 I1284 V1285 N1286 N1287 V1288 M1289 K1290 V1291 L1292 L1293 D1294 R1295 M1296 P1297 L1298 E1299 S1300 K1301 S1302
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L1423 H1424 V1425 I1426 Y1427 F1428 S1429 R1430 E1431 V1432 D1433 S1434 S1435 I1436 R1437 L1438 S1439 V1440 I1441 S1442 L1443 I1444 I1445 E1446 N1447 I1448 D1449 L1450 K1451 E1452 V1453 L1454 K1455 V1456 L1457 F1458 R1459 I1460 W1461 S1462 T1463 E1464 I1465 A1466 T1467 S1468 N1469 D1470 T1471 V1472 A1473 V1474 S1475 L1476 F1477 L1478 S1479 T1480 L1481 E1482
S1483 T1484 V1485 E1486 N1487 I1488 D1489 K1490 K1491 S1492 A1493 T1494 S1495 Q1496 S1497 P1498 I1499 F1500 F1501 K1502 L1503 L1504 L1505 S1506 L1507 F1508 E1509 F1510 R1511 S1512 I1513 S1514 S1515 F1516 D1517 N1518 N1519 T1520 I1521 S1522 R1523 I1524 E1525 A1526 S1527 V1528 H1529 E1530 I1531 S1532 N1533 S1534 V1535 V1536 L1537 K1538 M1539 N1540 D1541 K1542
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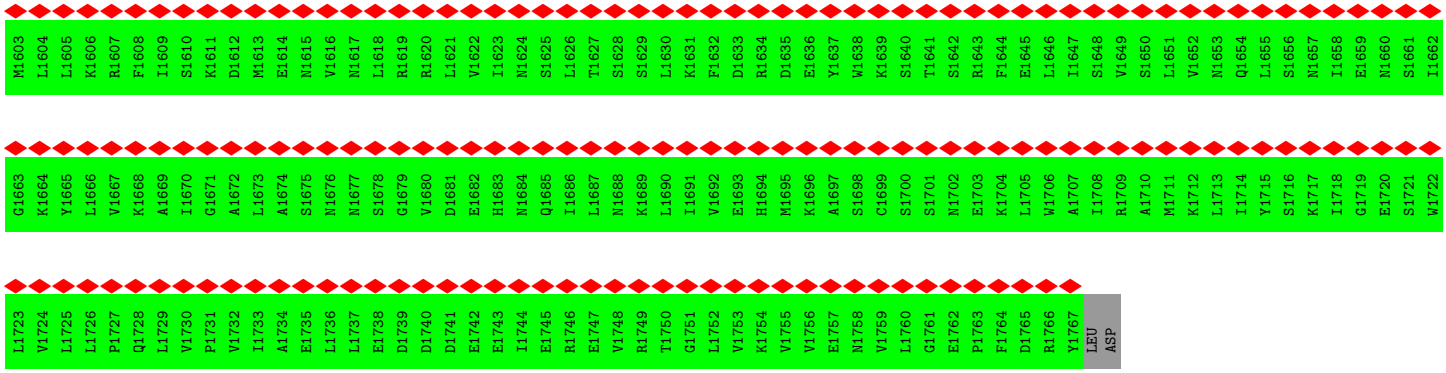
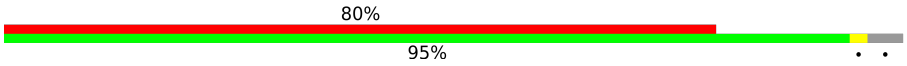
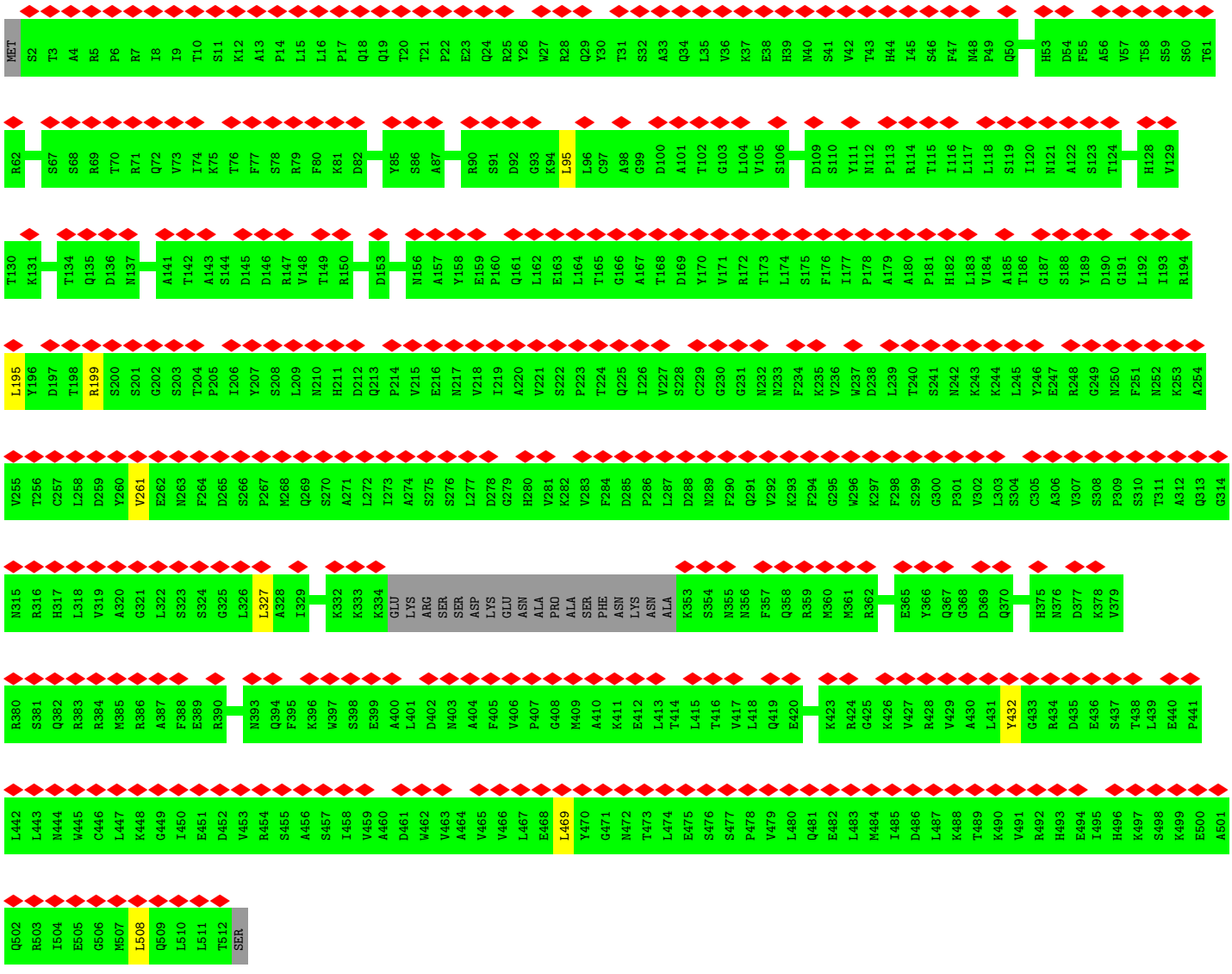


• Molecule 30: U3 small nucleolar RNA-associated protein 15

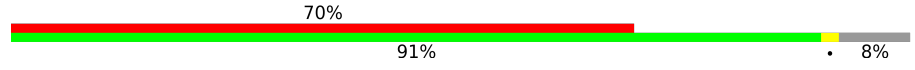
Chain AF:

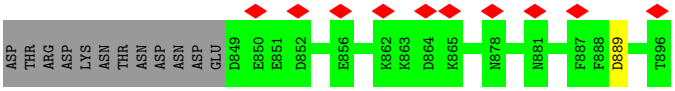




• Molecule 31: NET1-associated nuclear protein 1

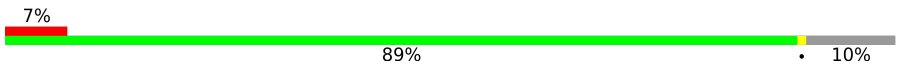
Chain AG:

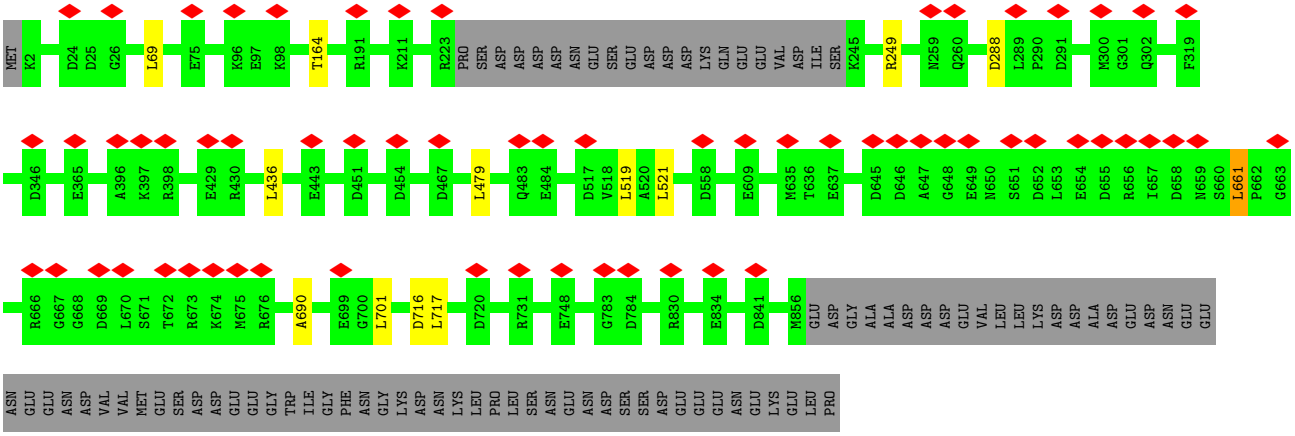




• Molecule 32: Periodic tryptophan protein 2

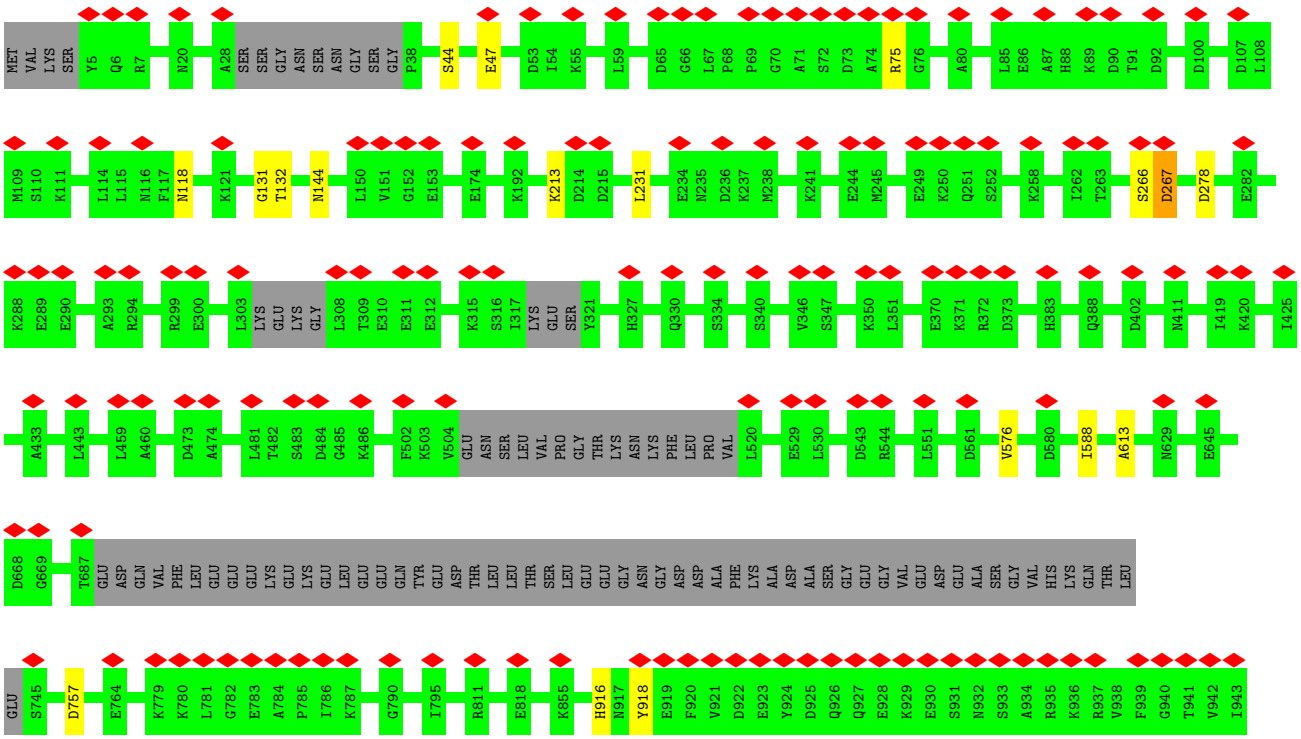
Chain B1:





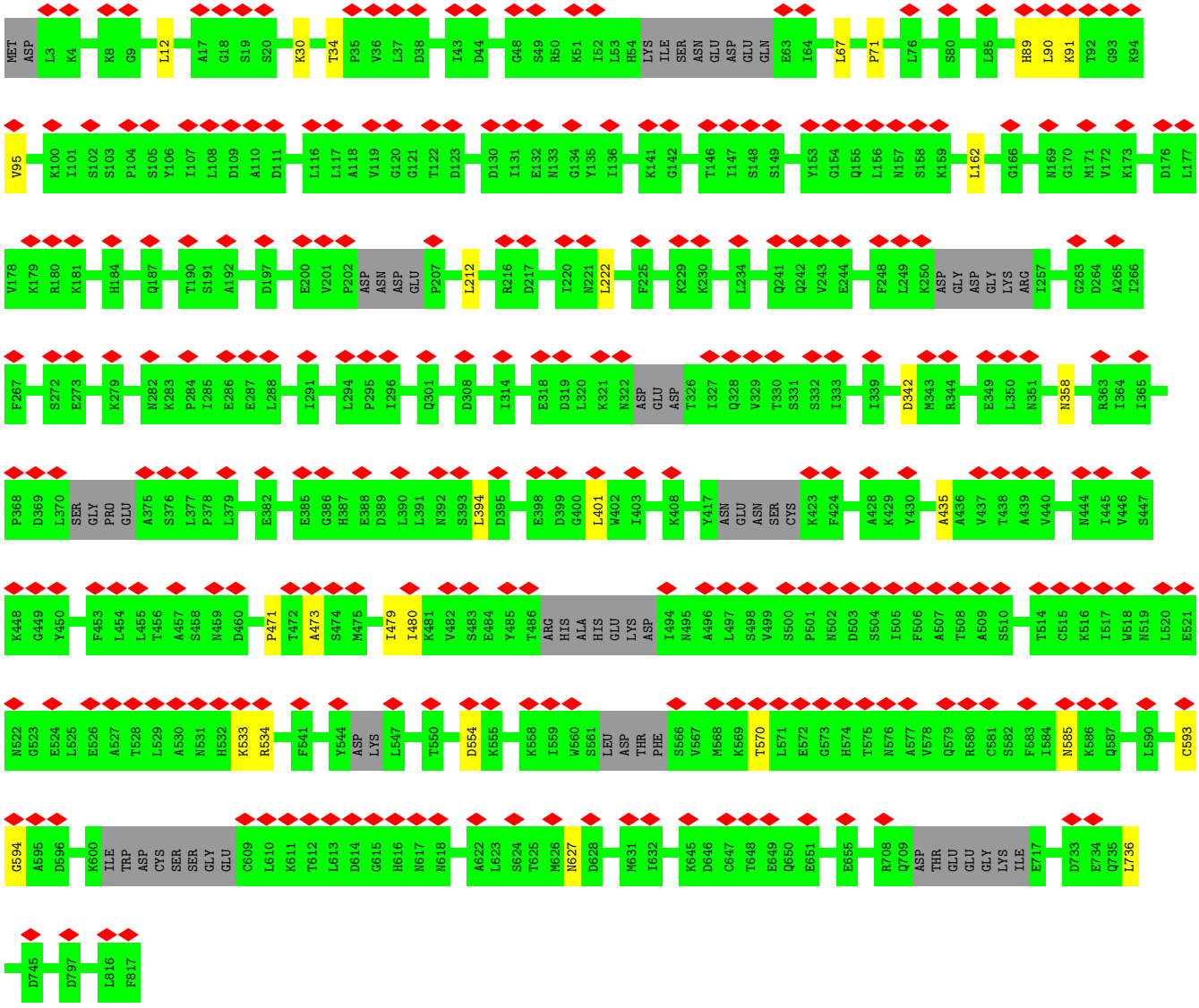
• Molecule 33: U3 small nucleolar RNA-associated protein 12

Chain B2:



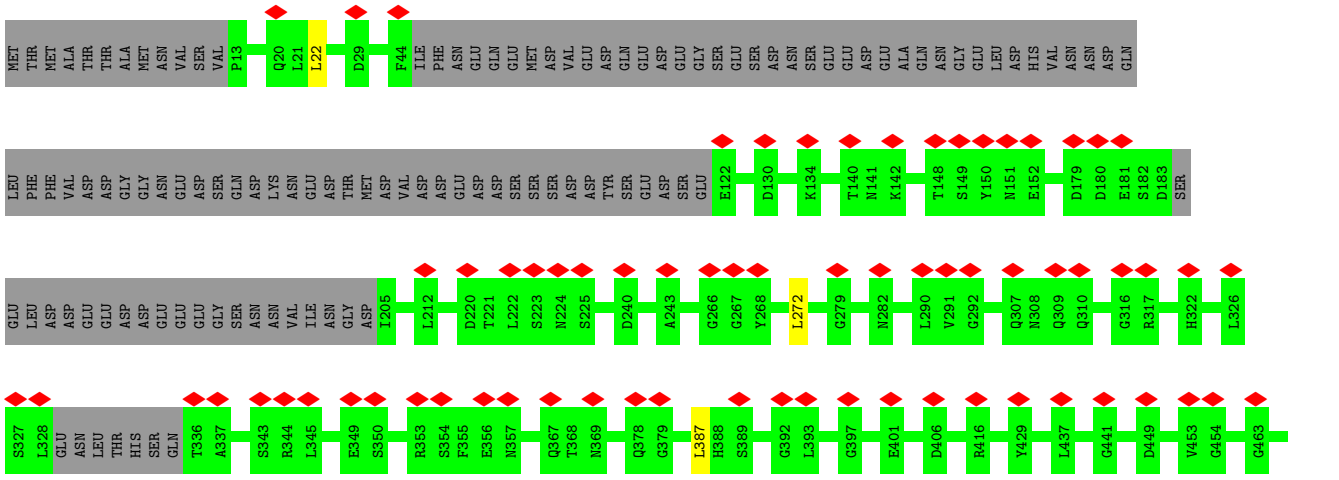
• Molecule 34: U3 small nucleolar RNA-associated protein 13

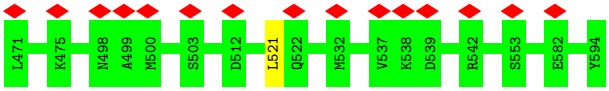
Chain B3:



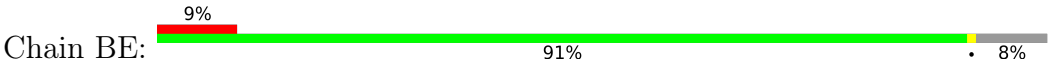
• Molecule 35: U3 small nucleolar RNA-associated protein 18

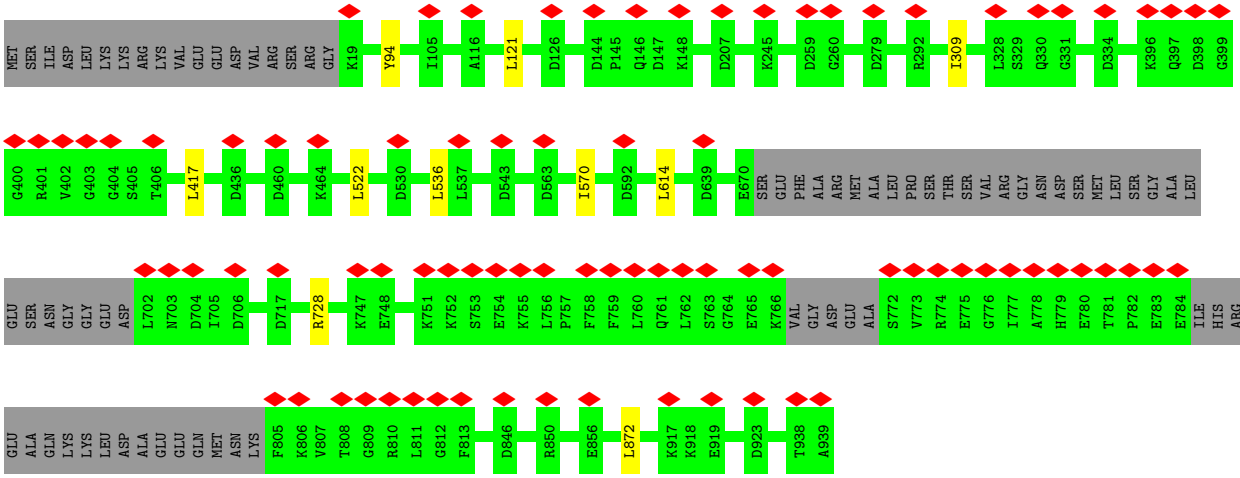
Chain B8:



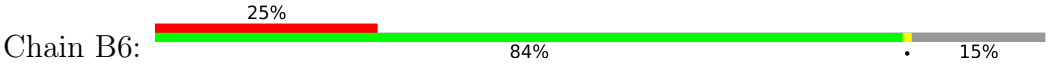


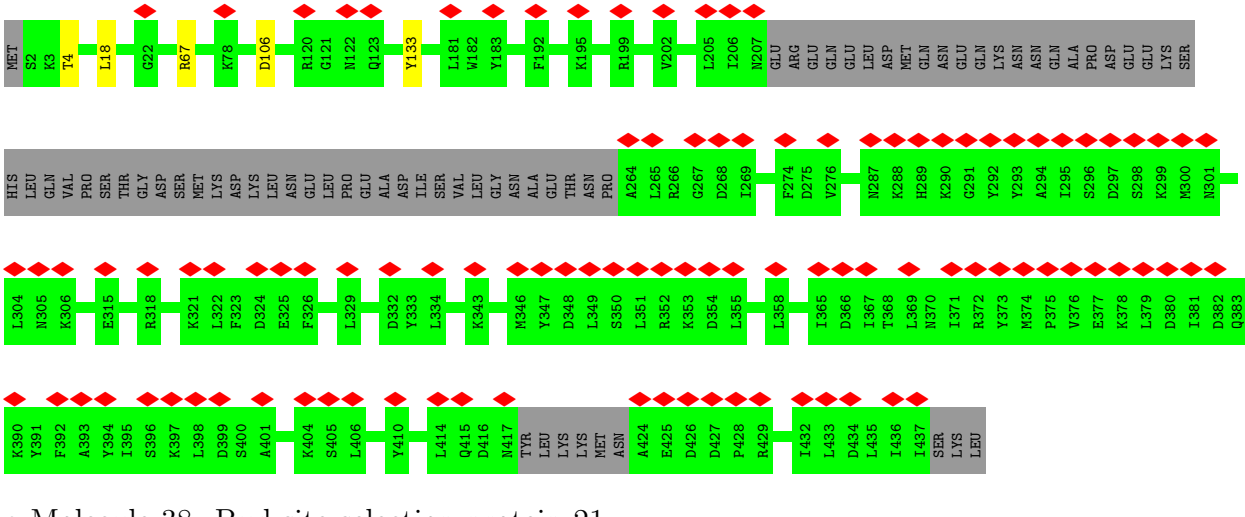
• Molecule 36: U3 small nucleolar RNA-associated protein 21



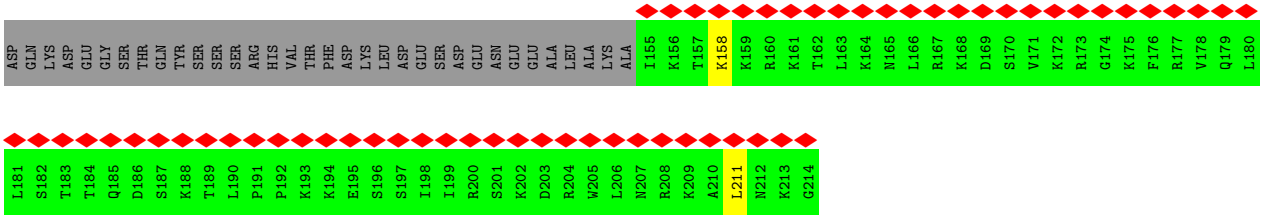


• Molecule 37: U3 small nucleolar RNA-associated protein 6

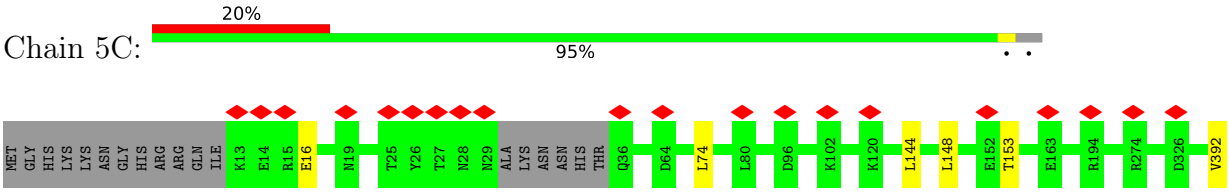


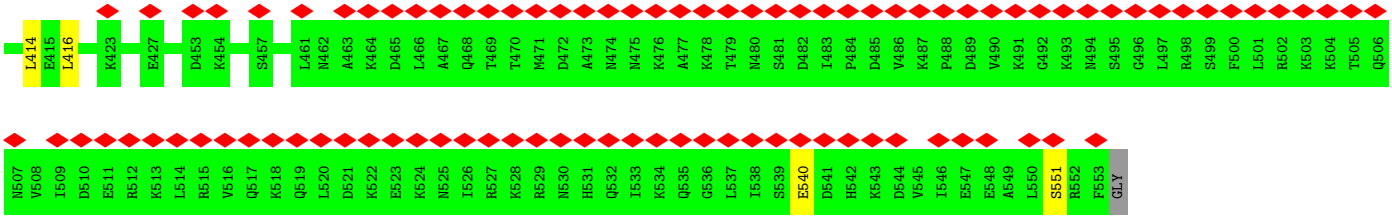


• Molecule 38: Bud site selection protein 21

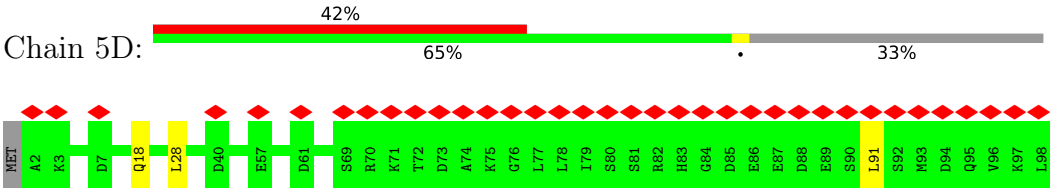


• Molecule 39: U3 small nucleolar RNA-associated protein 7

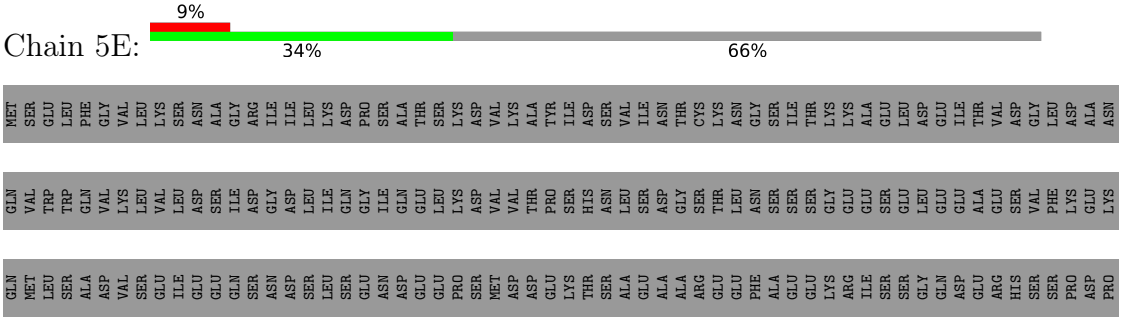


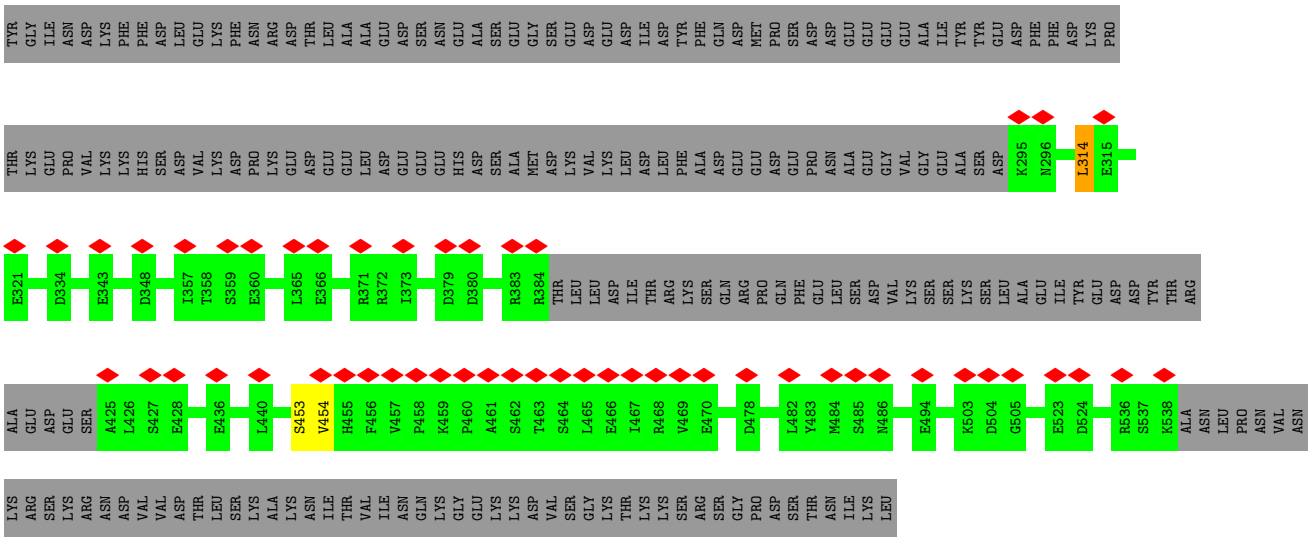


• Molecule 40: U3 small nucleolar RNA-associated protein 11



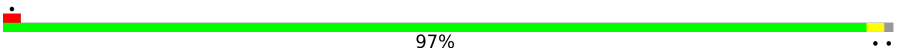
• Molecule 41: U3 small nucleolar RNA-associated protein MPP10

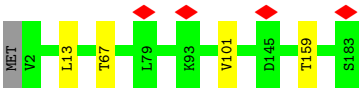




• Molecule 42: U3 small nucleolar ribonucleoprotein protein IMP3

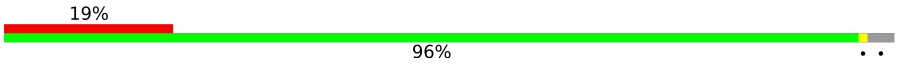
Chain 5F:

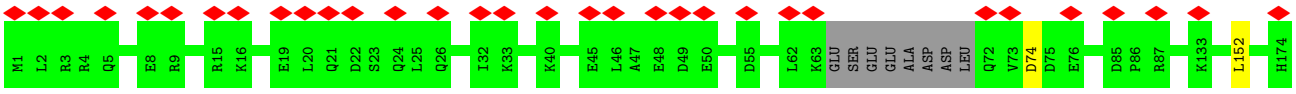


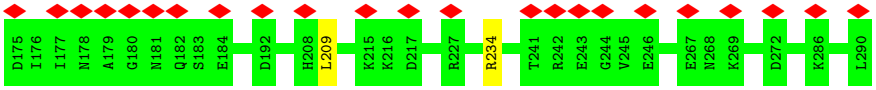


• Molecule 43: U3 small nucleolar ribonucleoprotein protein IMP4

Chain 5G:

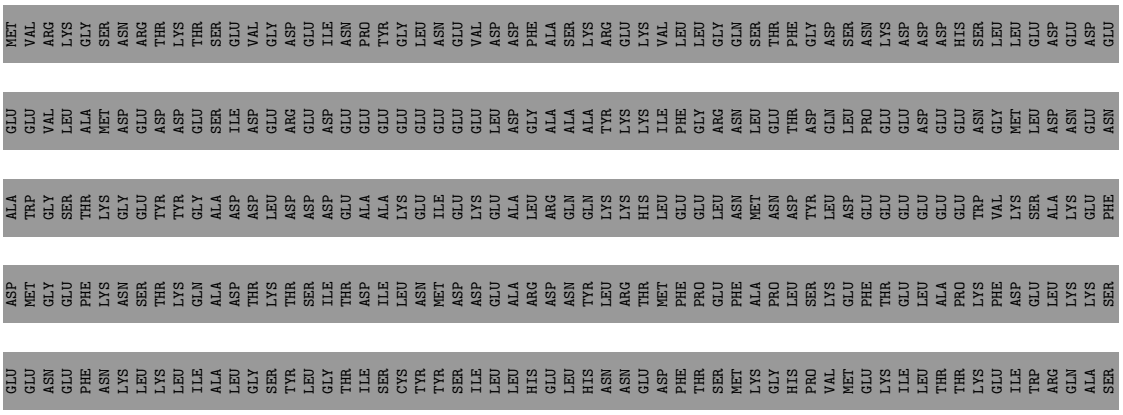


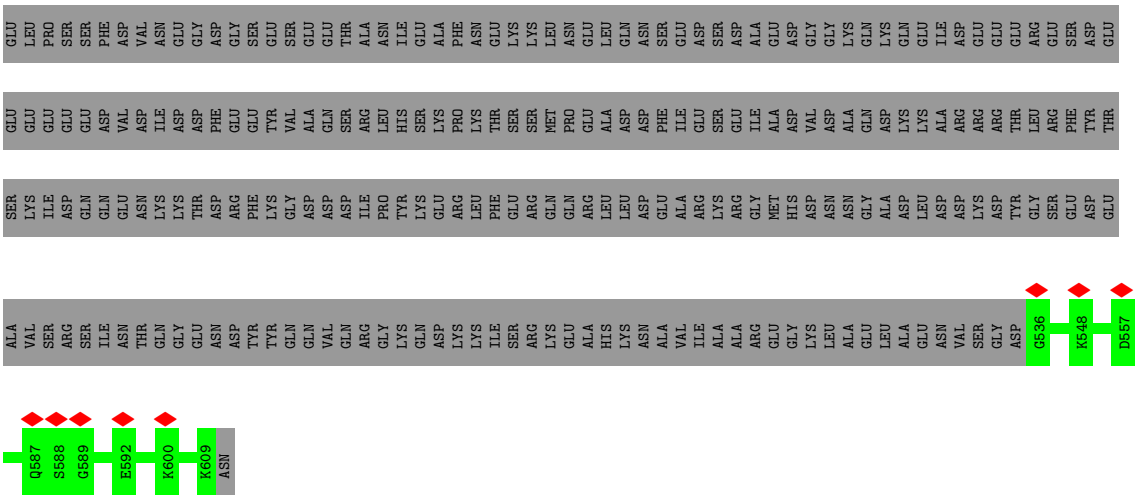




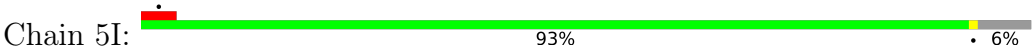
• Molecule 44: Something about silencing protein 10

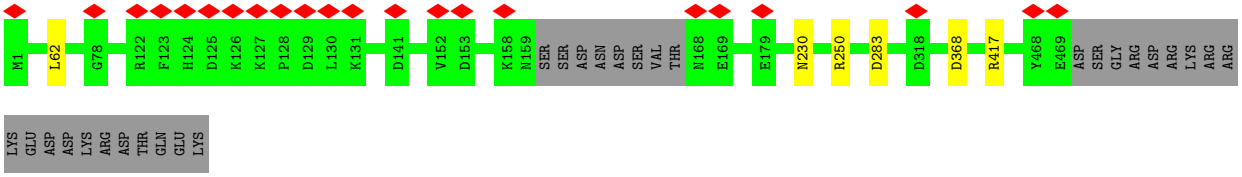
Chain 5H:



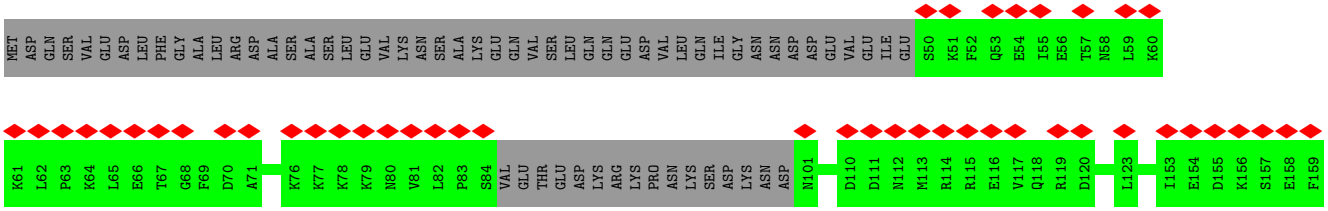


• Molecule 45: Protein SOF1

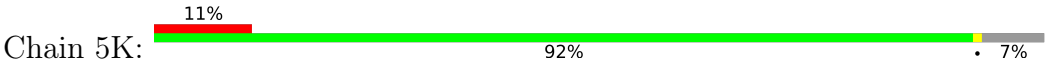


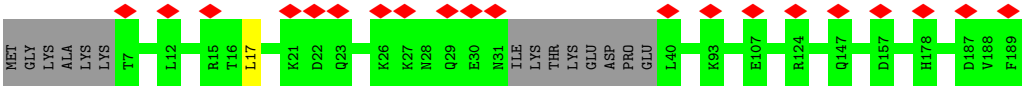


• Molecule 46: rRNA-processing protein FCF2

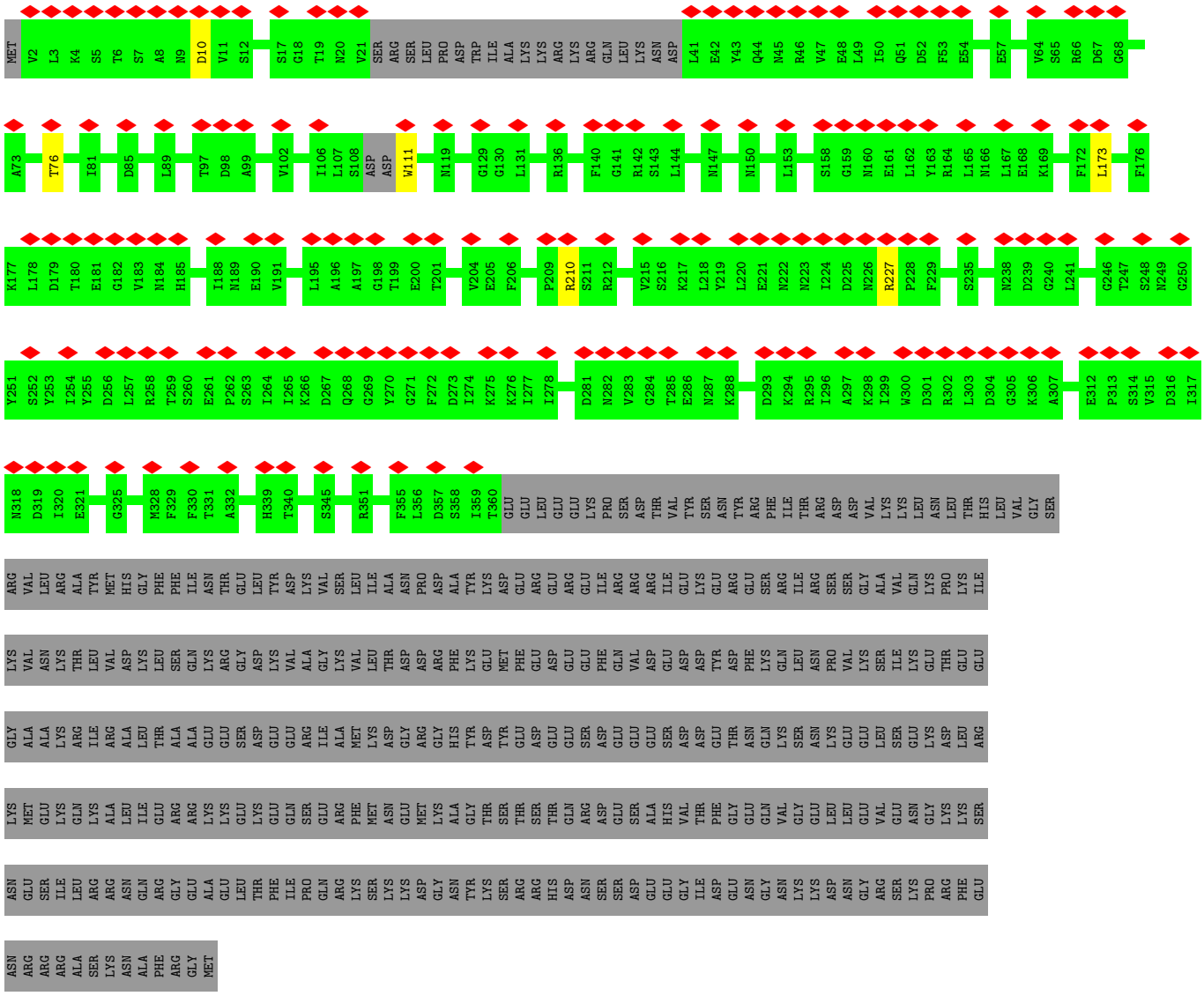


• Molecule 47: rRNA-processing protein FCF1



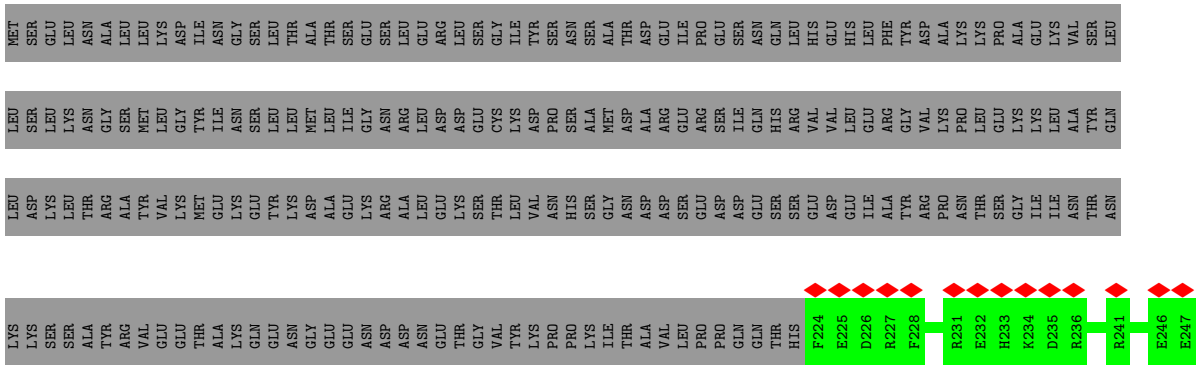


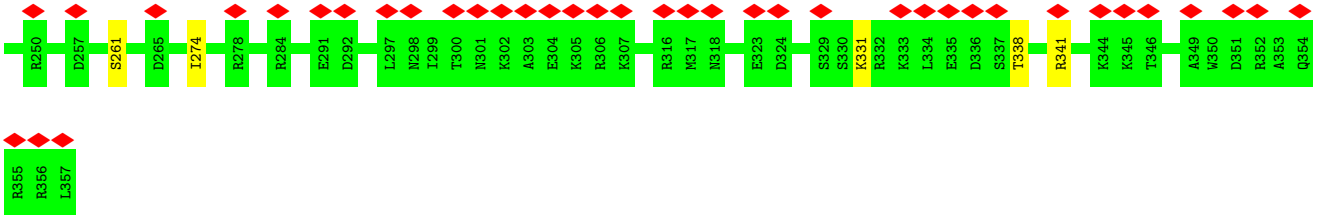
• Molecule 48: Ribosome biogenesis protein ENP2



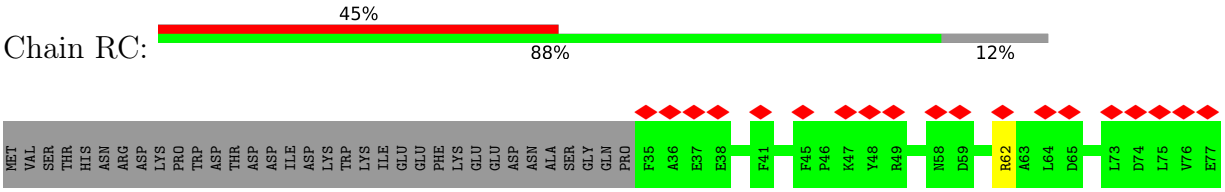
• Molecule 49: U3 small nucleolar ribonucleoprotein protein LCP5

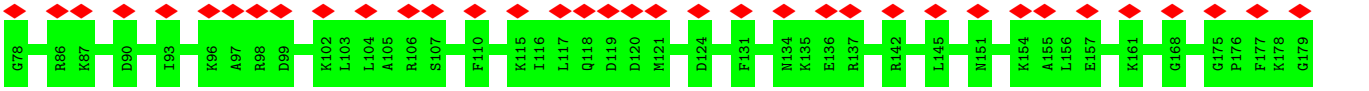
Chain RB:

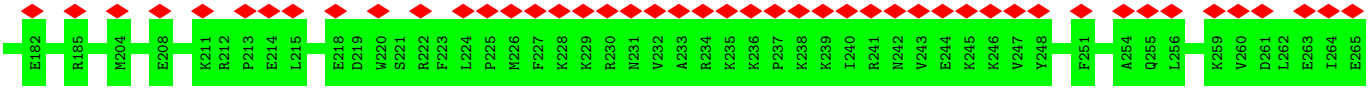


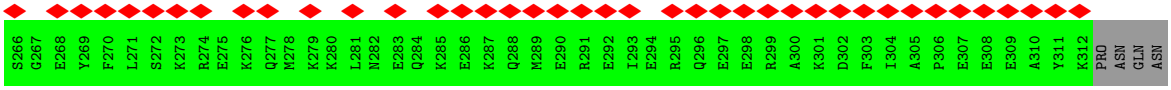


• Molecule 50: KRR1 small subunit processome component

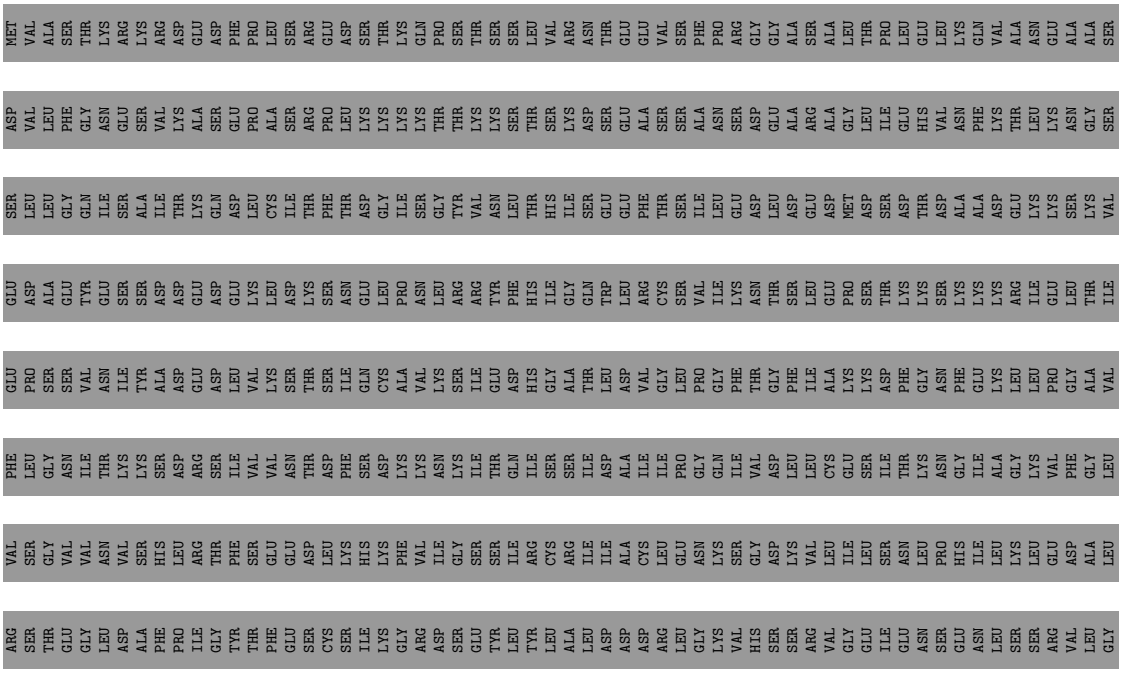








• Molecule 51: rRNA biogenesis protein RRP5



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PRO LEU HIS ILE SER ASP THR ARG LEU VAL TYR PRO GLU ARG LYS PHE LYS ILE GLY SER LYS VAL LYS GLY ARG VAL ILE SER VAL ASN SER ARG GLY ASN VAL HIS VAL THR LEU LYS LYS SER LEU VAL ASN ILE GLU ASP ASN GLU LEU PRO LEU VAL SER THR TYR GLU ASN ALA

LYS ASN ILE LYS GLU LYS ASN GLU LYS THR LEU ALA THR ILE GLN VAL PHE LYS PRO ASN GLY CYS ILE ILE SER PHE PHE GLY GLY LEU SER GLY PHE LEU PRO ASN SER GLU ILE SER GLU VAL PHE VAL LYS ARG PRO GLU GLU HIS LEU ARG LEU GLY GLN THR VAL ILE VAL LYS

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ARG GLY VAL ILE TYR VAL GLY HIS LEU SER ASP SER ARG ILE GLU GLN ASN ARG ALA GLN LEU LYS LYS LEU ARG ILE GLY THR GLU LEU THR GLY LEU VAL ILE ASP LYS ASP THR ARG THR ARG VAL PHE ASN MET SER LEU LYS SER SER LEU ILE LYS ASP ALA LYS GLU THR

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PRO THR THR VAL LEU SER VAL ASP GLU GLN ASN LYS LYS ILE GLU LEU SER LEU ARG PRO ALA THR ALA LYS THR ARG SER ILE LYS S1170 H1171 E1172 D1173 L1174 K1175 Q1176 G1177 E1178 I1179 V1180 D1181 G1182 I1183 V1184 K1185 N1186 V1187 N1188 D1189 K1190 G1191 I1192 F1193 V1194 Y1195 L1196 S1197 R1198 K1199 V1200

E1201 A1202 F1203 V1204 P1205 V1206 S1207 K1208 L1209 S1210 D1211 S1212 Y1213 L1214 K1215 E1216 W1217 K1218 K1219 F1220 Y1221 K1222 P1223 M1224 GLN TYR VAL LEU GLY LYS VAL VAL THR CYS ASP GLU ASP SER ARG ILE SER LEU THR LEU ARG GLU SER GLU ILE ASN GLY ASP LEU LYS VAL LEU LYS THR TYR SER

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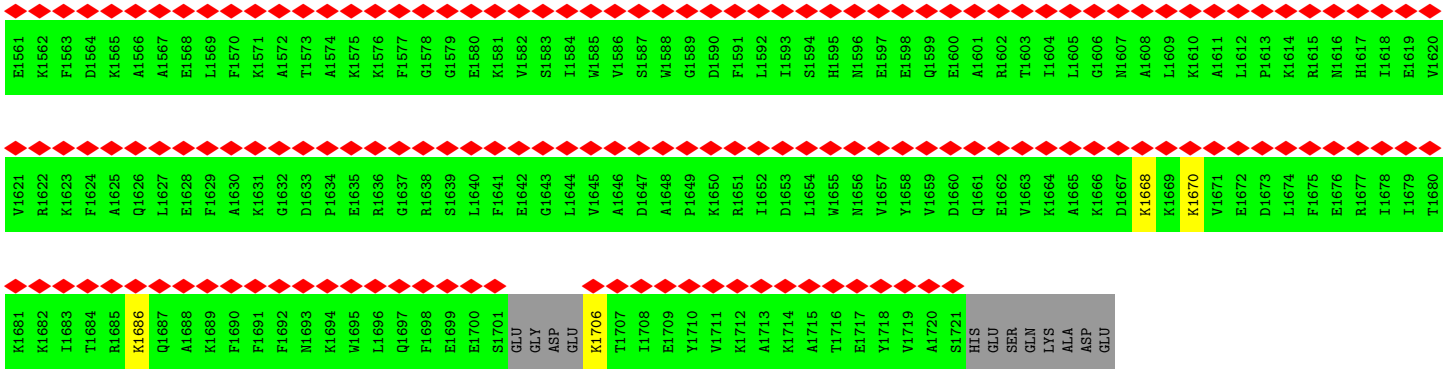
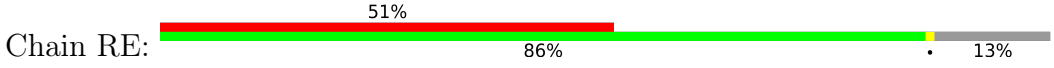
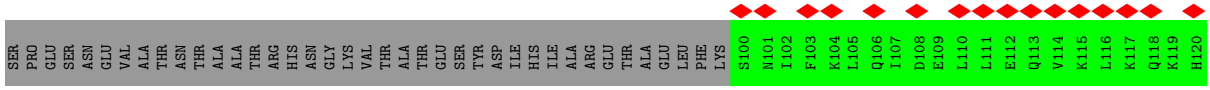
ARG LYS GLU ASN VAL VAL GLN ASP LYS THR ILE ASP ILE ASN THR ARG A1457 P1458 E1459 S1460 V1461 A1462 D1463 F1464 E1465 R1466 L1467 L1468 I1469 G1470 N1471 P1472 N1473 S1474 S1475 V1476 V1477 W1478 M1479 N1480 Y1481 M1482 A1483 F1484 Q1485 L1486 Q1487 L1488 S1489 E1490 I1491 E1492 K1493 A1494 R1495 E1496 L1497 A1498 E1499 R1500

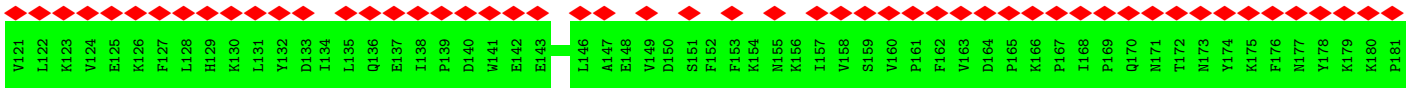
A1501 L1502 K1503 T1504 I1505 N1506 F1507 R1508 E1509 E1510 A1511 E1512 K1513 L1514 N1515 I1516 W1517 I1518 A1519 M1520 L1521 N1522 L1523 E1524 N1525 T1526 F1527 G1528 T1529 E1530 E1531 T1532 L1533 E1534 E1535 V1536 F1537 S1538 R1539 A1540 C1541 Q1542 Y1543 M1544 D1545 S1546 Y1547 T1548 I1549 H1550 T1551 K1552 L1553 L1554 G1555 I1556 Y1557 E1558 I1559 S1560

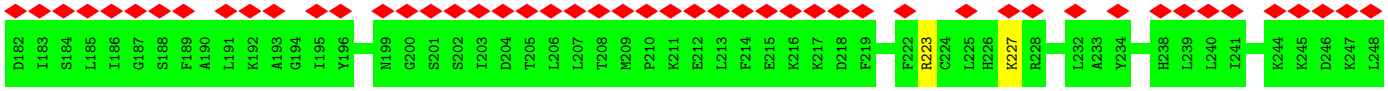


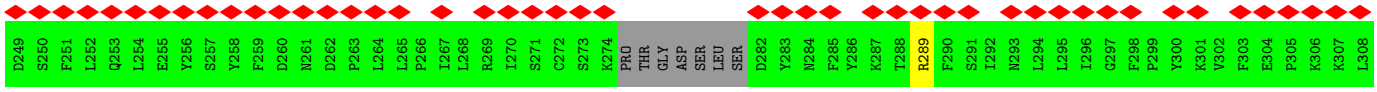
• Molecule 52: U3 small nucleolar RNA-associated protein 22

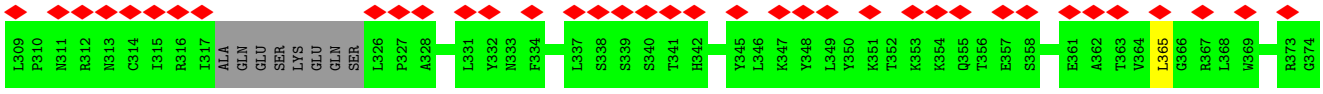


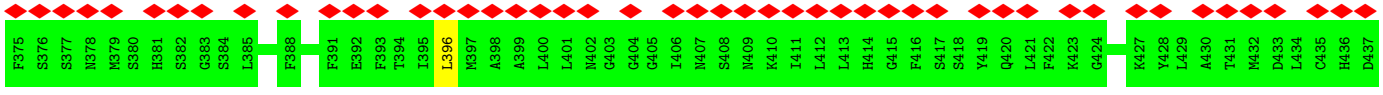


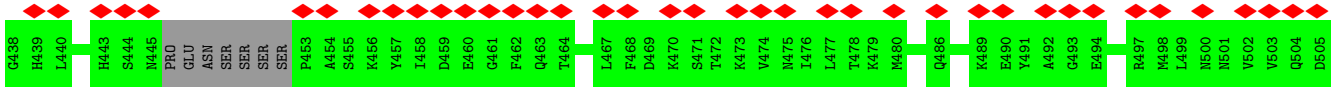


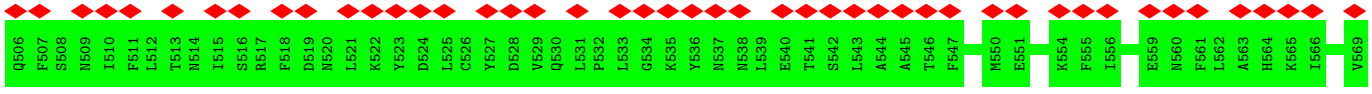


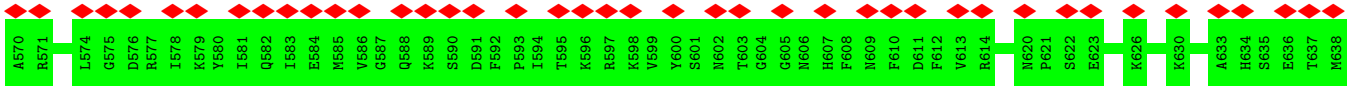


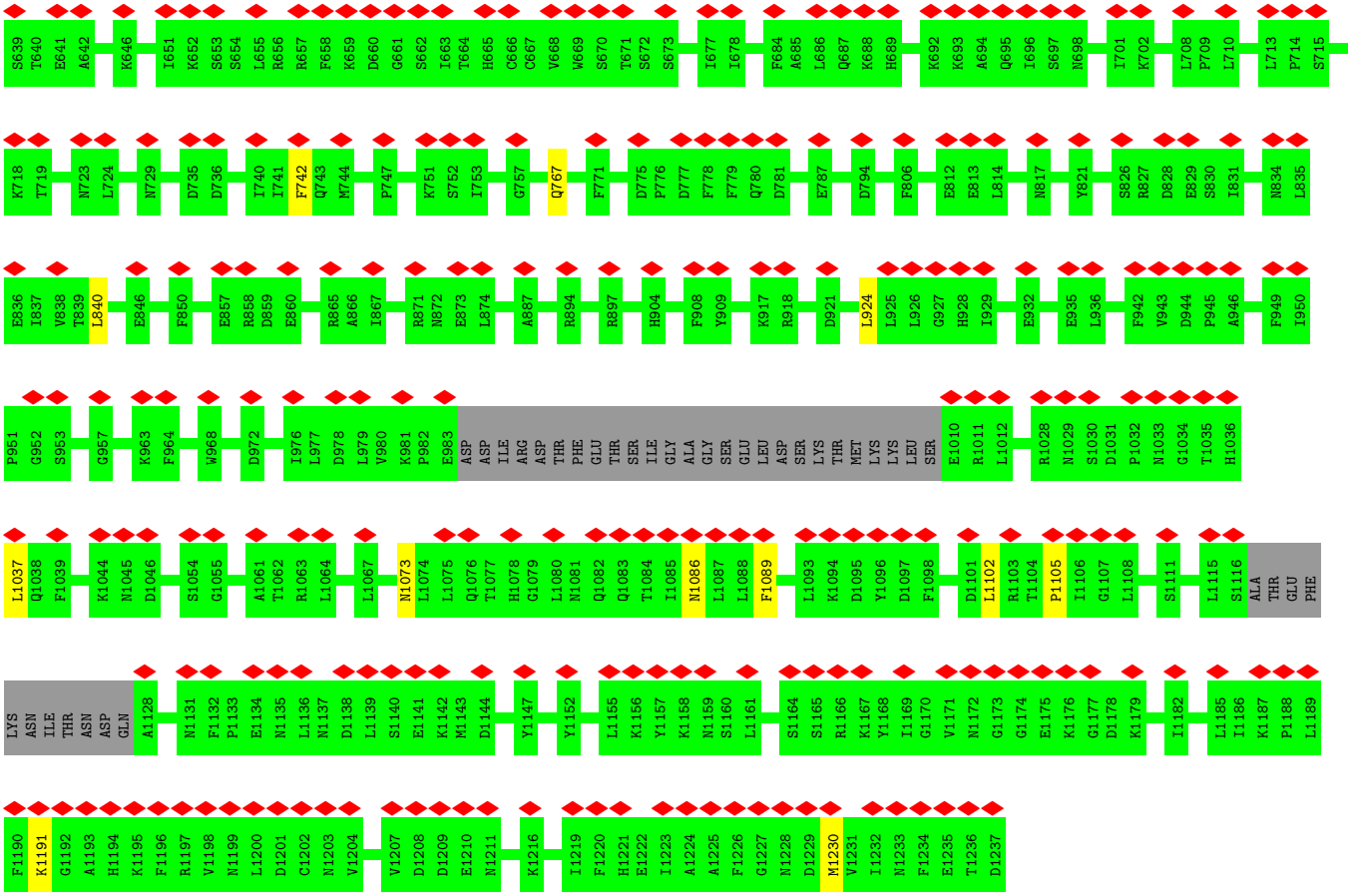






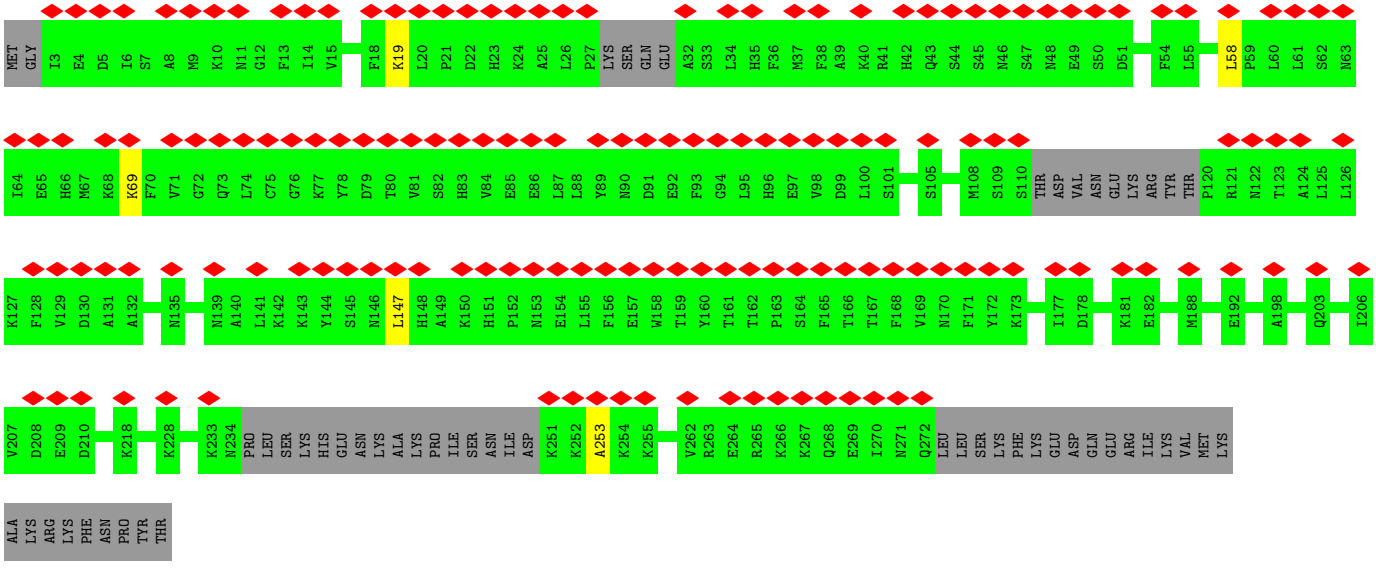






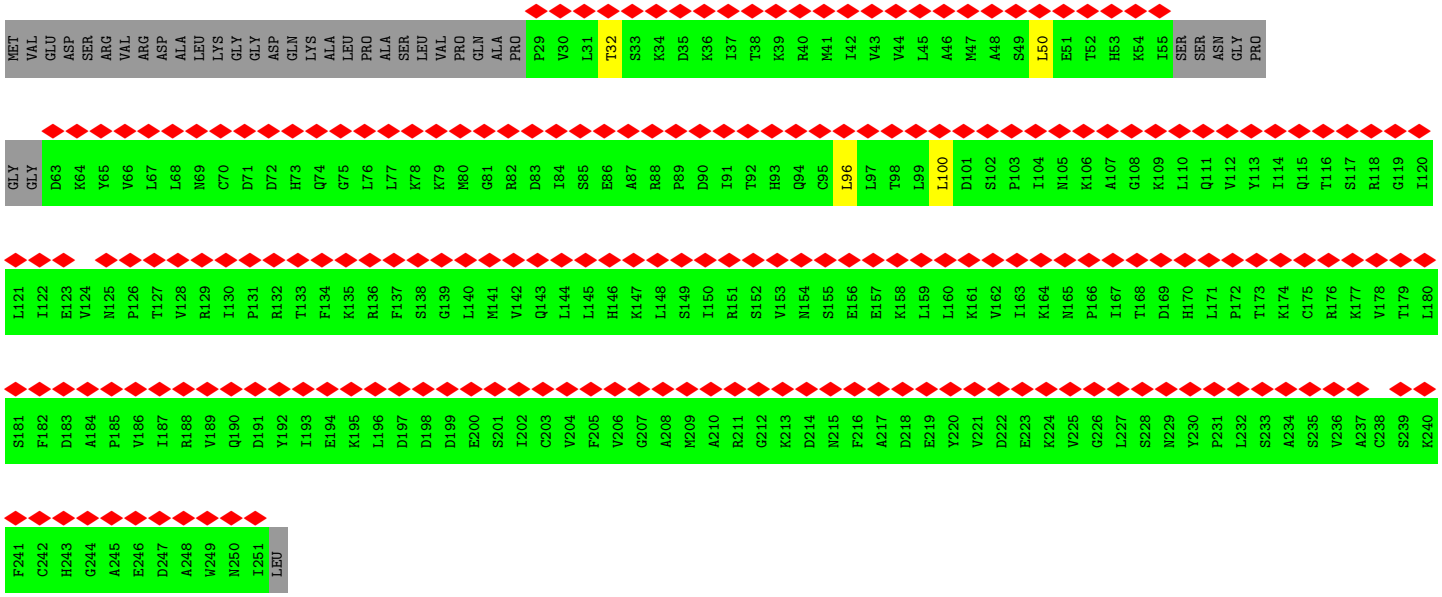
• Molecule 53: Ribosomal RNA-processing protein 7

Chain RF:



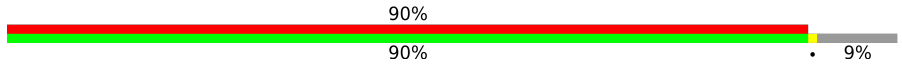
• Molecule 54: Ribosomal RNA small subunit methyltransferase NEP1

Chain RG:



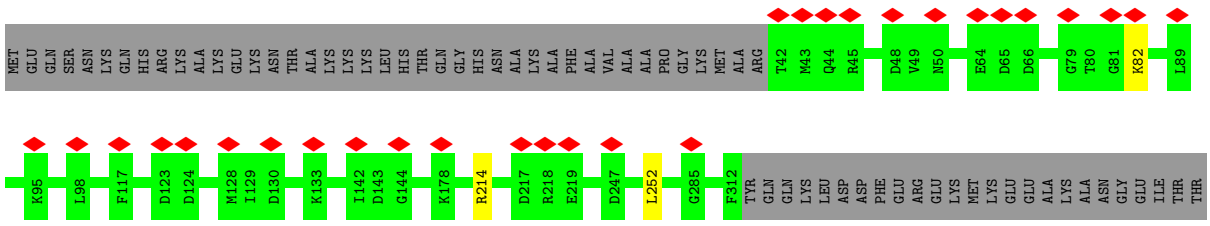
• Molecule 54: Ribosomal RNA small subunit methyltransferase NEP1

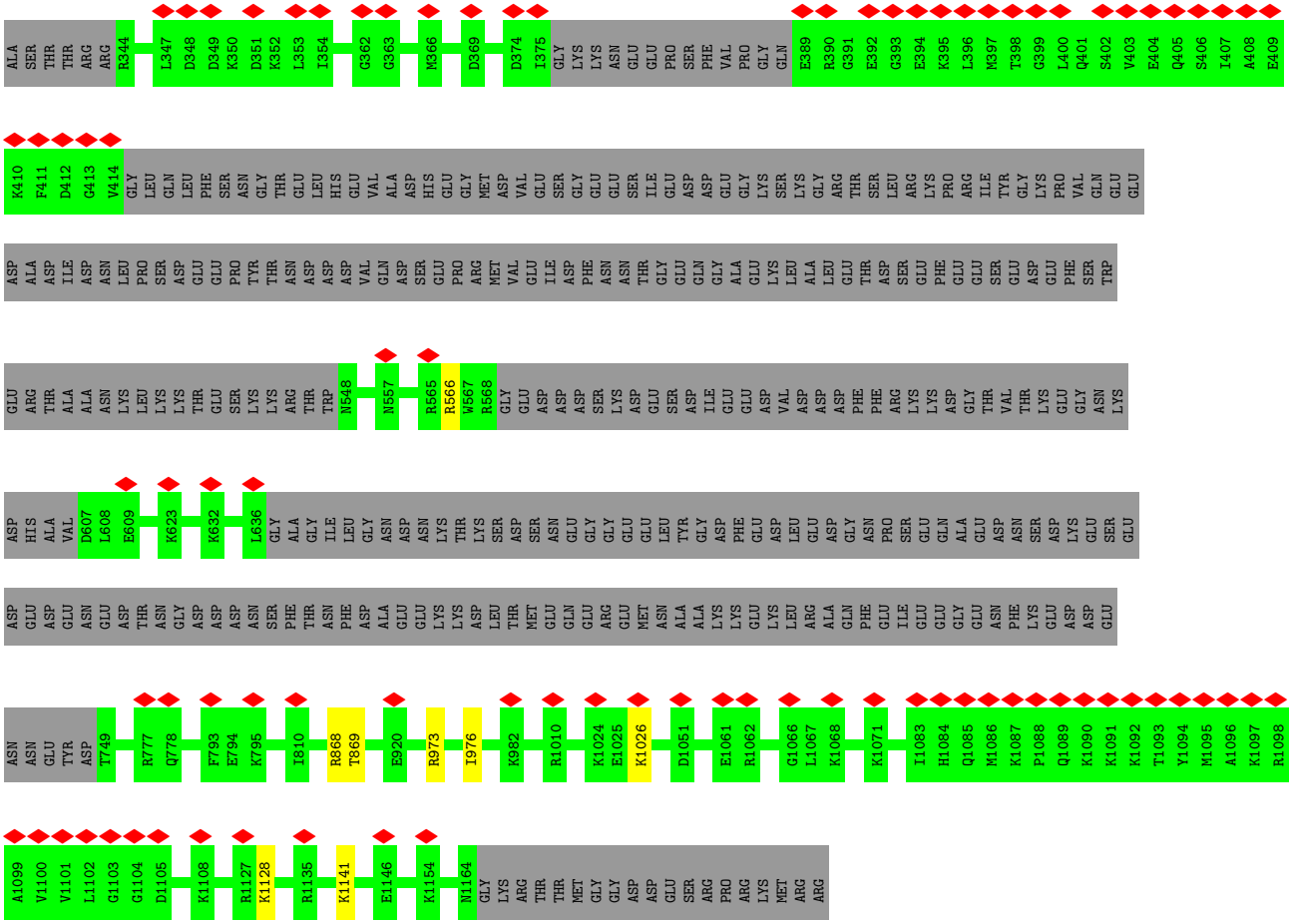
Chain RH:



• Molecule 55: Ribosome biogenesis protein BMS1

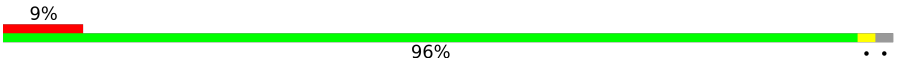
Chain RJ:

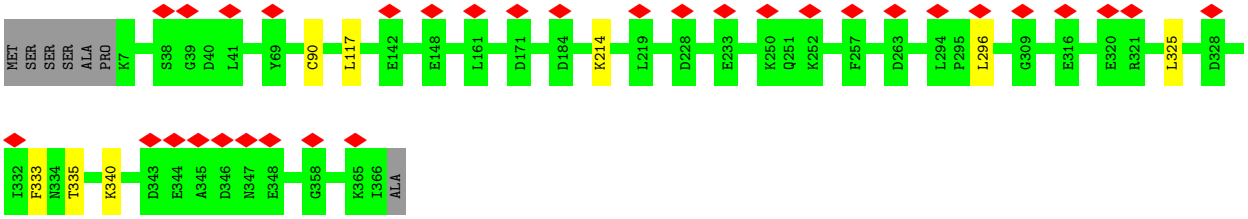




• Molecule 56: RNA 3'-terminal phosphate cyclase-like protein

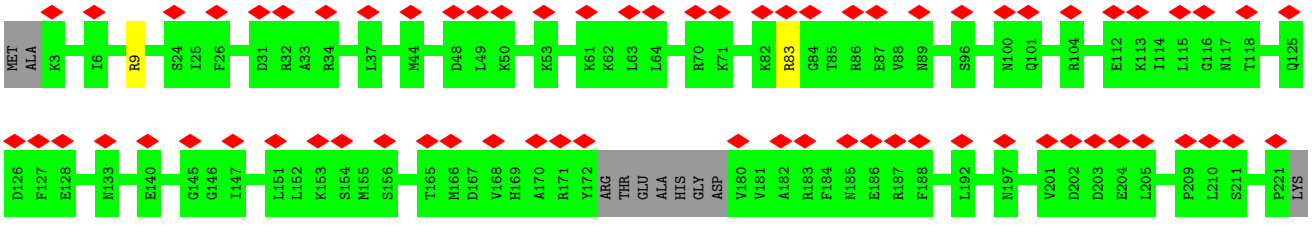
Chain RK:

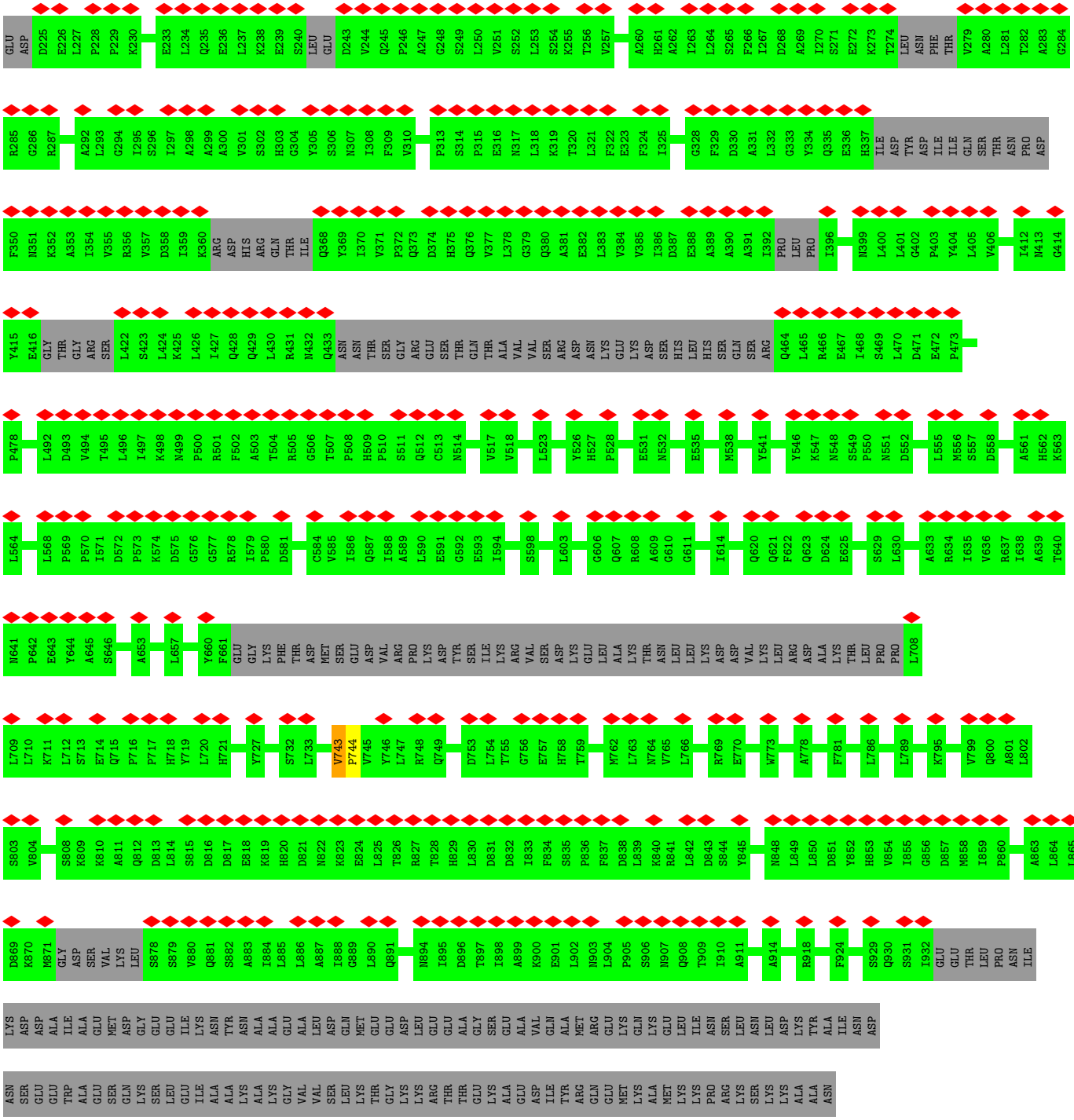




• Molecule 57: RNA cytidine acetyltransferase

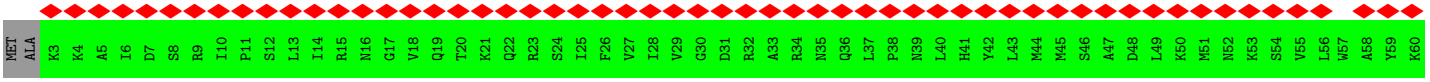
Chain RL:

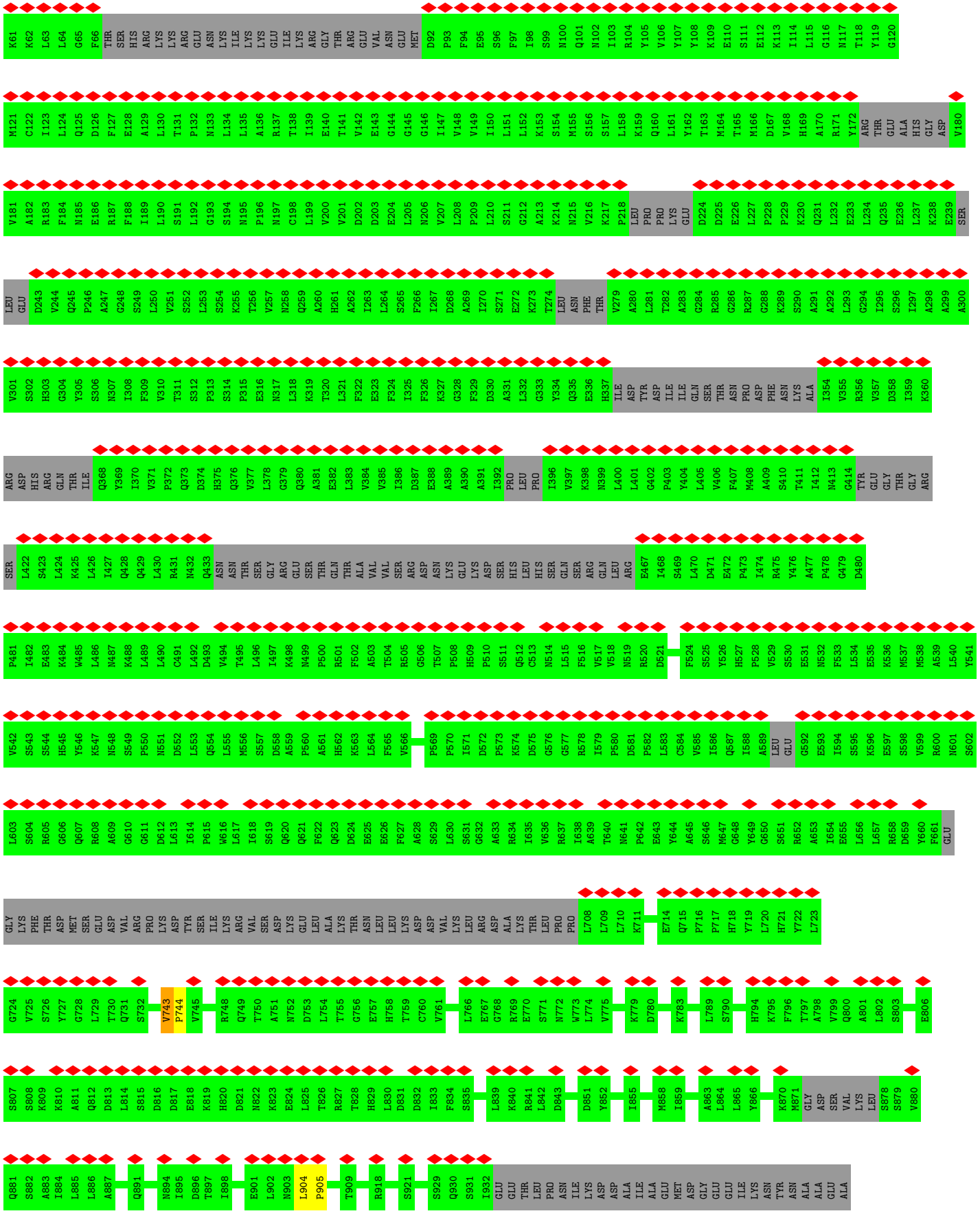


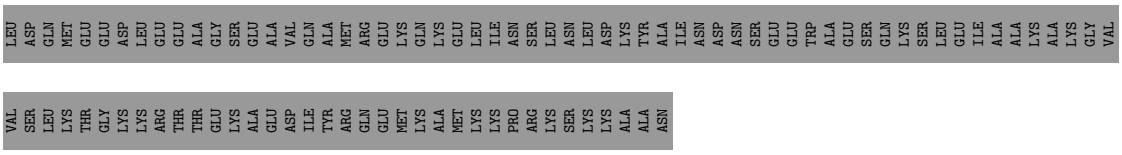


• Molecule 57: RNA cytidine acetyltransferase

Chain RM:

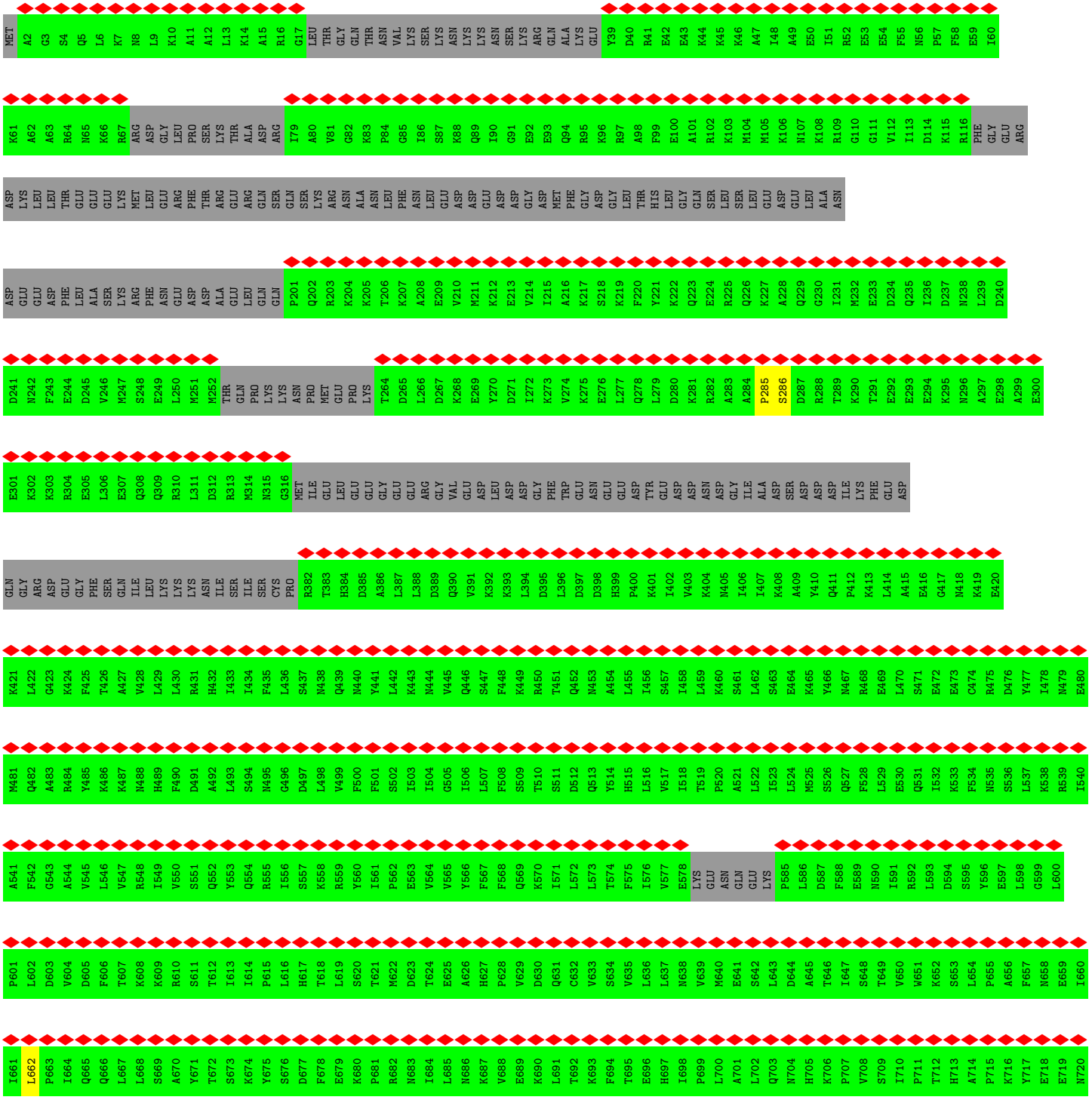


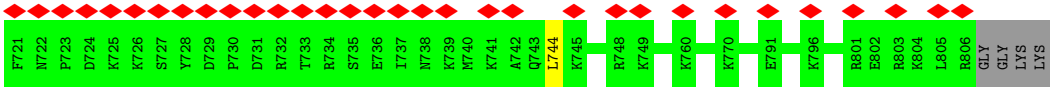

K61 K62 L63 L64 G65 F66 THR SER HIS ARG LYS LYS ARG GLU ASN LYS ILE LYS LYS GLU ILE LYS ARG GLY THR ARG GLU VAL ASN GLU MET D92 P93 F94 E95 S96 F97 I98 S99 N100 Q101 N102 I103 R104 Y105 V106 Y107 Y108 K109 E110 S111 E112 K113 I114 L115 G116 N117 T118 Y119 G120
M121 C122 I123 L124 Q125 D126 F127 E128 A129 L130 T131 P132 N133 L134 L135 A136 R137 T138 I139 E140 T141 V142 E143 G144 G145 G146 I147 V148 V149 I150 L151 L152 K153 S154 M155 S156 S157 L158 K159 Q160 L161 Y162 T163 M164 T165 M166 D167 V168 H169 A170 R171 Y172 ARG THR GLU ALA HIS GLY ASP V180
V181 A182 R183 F184 N185 E186 R187 F188 I189 L190 S191 L192 G193 S194 N195 P196 N197 C198 L199 V200 V201 D202 D203 E204 L205 N206 V207 L208 P209 L210 S211 L212 A213 K214 N215 V216 K217 P218 LEU PRO PRO LYS GLU D224 D225 E226 L227 P228 P229 K230 Q231 L232 E233 L234 Q235 E236 L237 K238 E239 SER
LEU GLU D243 V244 Q245 P246 A247 G248 S249 L250 V251 S252 L253 S254 K255 T256 V257 N258 Q259 A260 H261 A262 I263 L264 S265 F266 I267 D268 A269 I270 S271 E272 K273 T274 LEU ASN PHE THR V279 A280 L281 T282 A283 G284 R285 G286 R287 G288 K289 S290 A291 A292 L293 G294 I295 S296 I297 A298 A299 A300
V301 S302 H303 G304 Y305 S306 N307 I308 F309 V310 T311 S312 P313 S314 P315 E316 N317 L318 K319 T320 L321 F322 E323 F324 I325 F326 K327 G328 F329 D330 A331 L332 G333 Y334 Q335 E336 H337 ILE ASP TYR ASP ILE ILE GLN SER THR ASN PRO ASP PHE ASN LYS ALA I354 V355 R356 V357 D358 I359 K360
ARG ASP HIS ARG GLN THR ILE Q368 Y369 I370 V371 P372 Q373 D374 H375 Q376 V377 L378 G379 Q380 A381 E382 L383 V384 V385 I386 D387 E388 A389 A390 A391 I392 PRO LEU PRO I396 V397 K398 N399 L400 L401 G402 P403 Y404 L405 V406 F407 M408 A409 S410 T411 I412 N413 G414 TYR GLU GLY THR GLY ARG
SER L422 S423 L424 K425 L426 I427 Q428 Q429 L430 R431 N432 Q433 ASN ASN THR SER GLY ARG GLU SER THR GLN THR ALA VAL VAL SER ARG ASP ASN LYS GLU LYS ASP SER HIS LEU HIS SER GLN SER ARG GLN LEU ARG E467 I468 S469 L470 D471 E472 P473 I474 R475 Y476 A477 P478 G479 D480
P481 I482 E483 K484 W485 L486 N487 K488 L489 L490 C491 L492 D493 V494 T495 L496 I497 K498 N499 P500 R501 F502 A503 T504 R505 G506 T507 P508 H509 P510 S511 Q512 C513 N514 L515 F516 V517 K518 N519 R520 D521 F524 S525 Y526 H527 P528 V529 S530 E531 N532 F533 L534 E535 K536 M537 M538 A539 L540 Y541
V542 S543 S544 H545 Y546 K547 N548 S549 P550 N551 D552 L553 Q554 L555 M556 S557 D558 A559 P560 A561 H562 K563 L564 F565 V566 P569 P570 I571 D572 P573 K574 D575 G576 G577 R578 I579 P580 D581 P582 L583 C584 V585 I586 Q587 I588 A589 LEU GLU G592 E593 I594 S595 K596 E597 S598 V599 R600 N601 S602
L603 S604 R605 G606 Q607 R608 A609 G610 G611 D612 L613 I614 P615 W616 L617 I618 S619 Q620 Q621 F622 Q623 D624 E625 E626 F627 A628 S629 L630 S631 G632 A633 R634 I635 V636 R637 I638 A639 T640 N641 P642 E643 Y644 A645 S646 M647 G648 Y649 G650 S651 R652 A653 I654 E655 L656 L657 R658 D659 Y660 F661 GLU
GLY LYS PHE THR ASP MET SER GLU ASP VAL ARG PRO LYS ASP TYR SER ILE LYS ARG VAL SER ASP LYS GLU LEU ALA LYS THR ASN LEU LEU LYS ASP ASP VAL LYS LEU ARG ASP ALA LYS THR LEU PRO PRO L708 L709 L710 K711 E714 Q715 P716 P717 H718 Y719 L720 H721 Y722 L723
G724 V725 S726 Y727 G728 L729 T730 Q731 S732 V743 P744 V745 R748 Q749 T750 A751 N752 D753 L754 T755 G756 E757 H758 T759 C760 V761 L766 E767 G768 R769 E770 S771 N772 W773 L774 V775 K779 D780 K783 L789 S790 H794 K795 F796 T797 A798 V799 Q800 A801 L802 S803 E806
S807 S808 K809 K810 A811 Q812 D813 L814 S815 D816 D817 E818 K819 H820 D821 N822 K823 E824 L825 T826 R827 T828 H829 L830 D831 D832 I833 F834 S835 L839 K840 R841 L842 D843 D851 Y852 I855 M858 I859 A863 L864 L865 Y866 K870 M871 GLY ASP SER VAL LYS LEU S878 S879 V880
Q881 S882 A883 I884 L885 L886 A887 Q891 N894 I895 D896 T897 I898 E901 L902 N903 L904 P905 T909 R918 S921 S929 Q930 S931 I932 GLU GLU THR LEU PRO ASN ILE LYS ASP ALA ILE ALA GLU MET ASP GLY GLU GLU ILE LYS ASN TYR ASN ALA ALA GLU ALA



• Molecule 58: Nucleolar complex protein 14

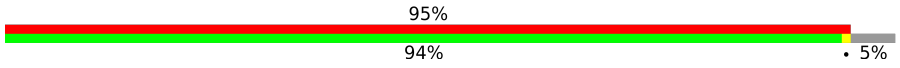
Chain RN:

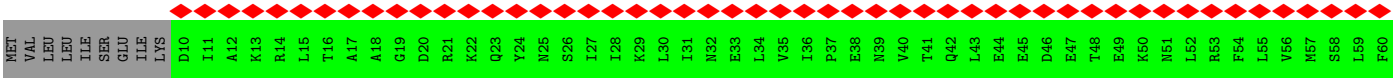


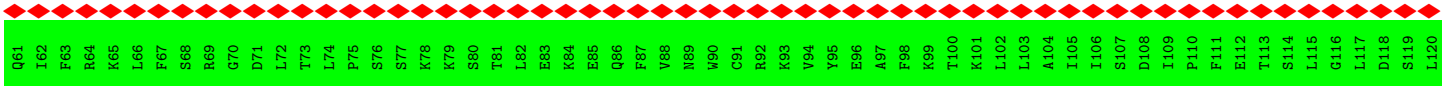


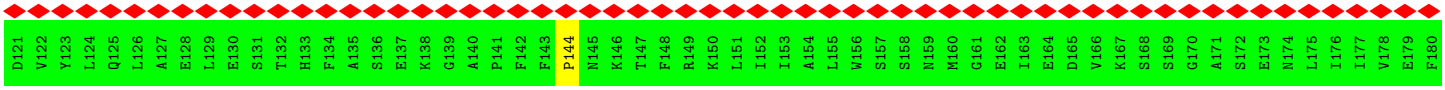
• Molecule 59: Nucleolar complex protein 4

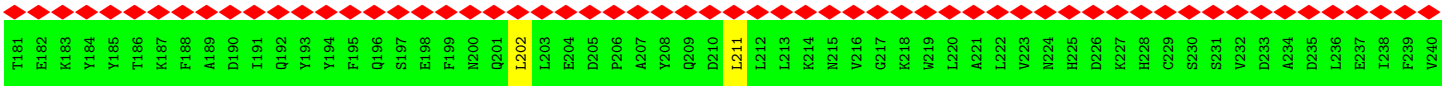
Chain RO:

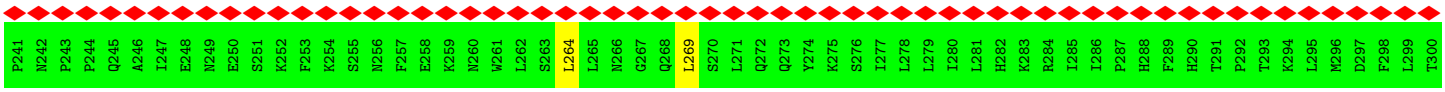


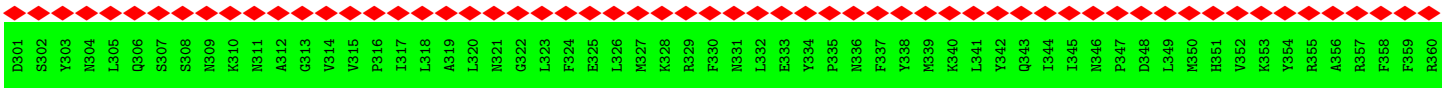


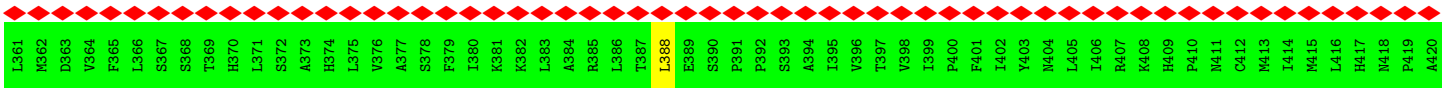


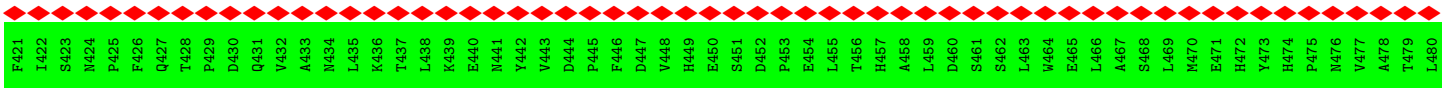


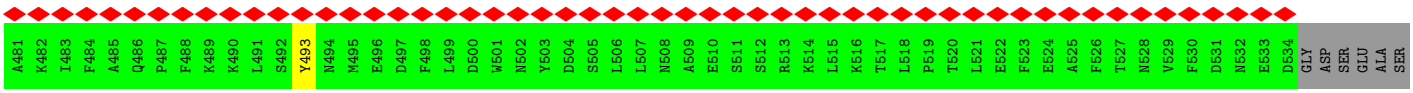






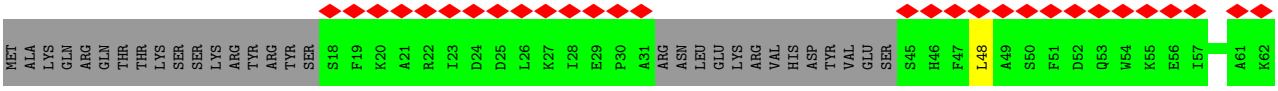


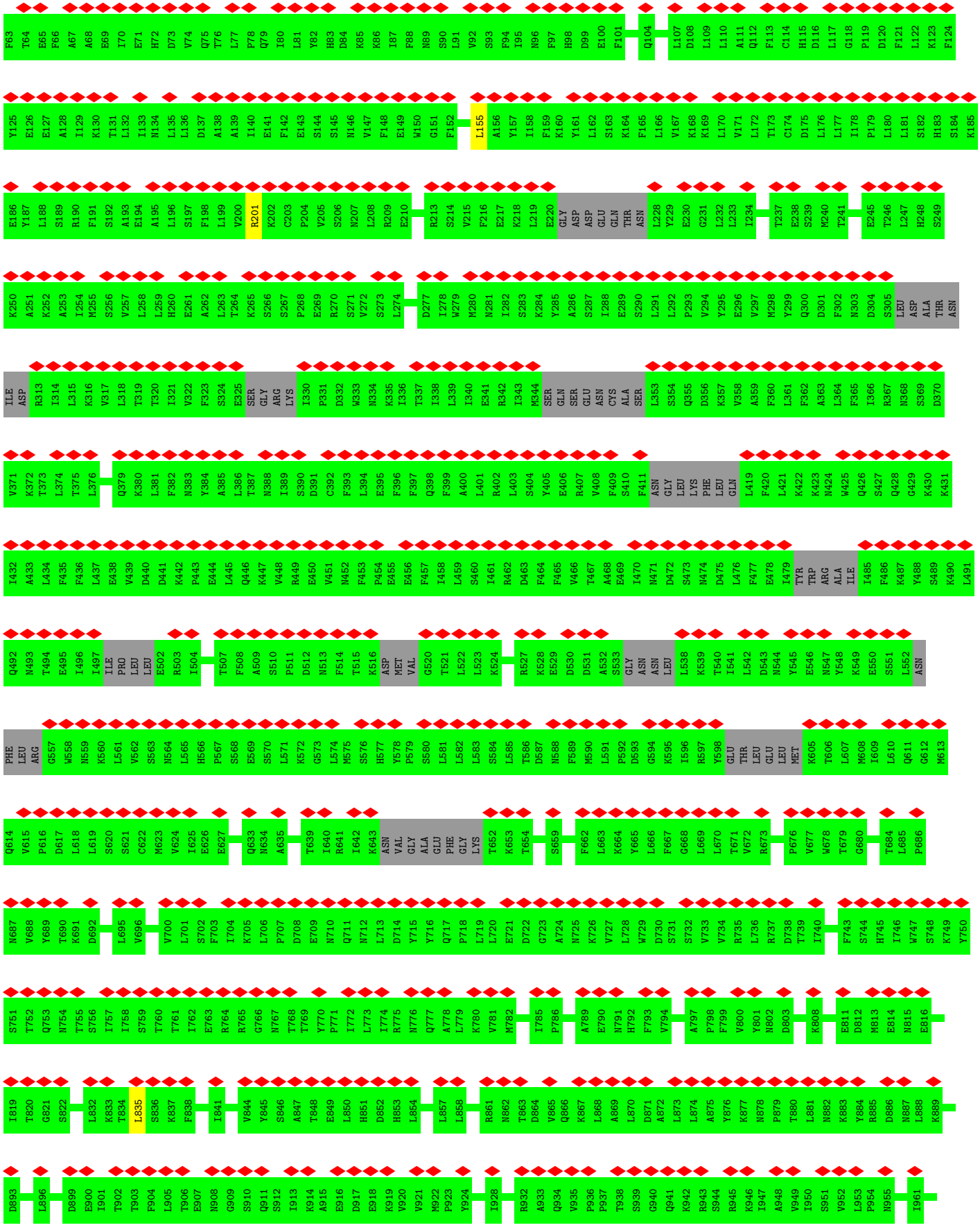


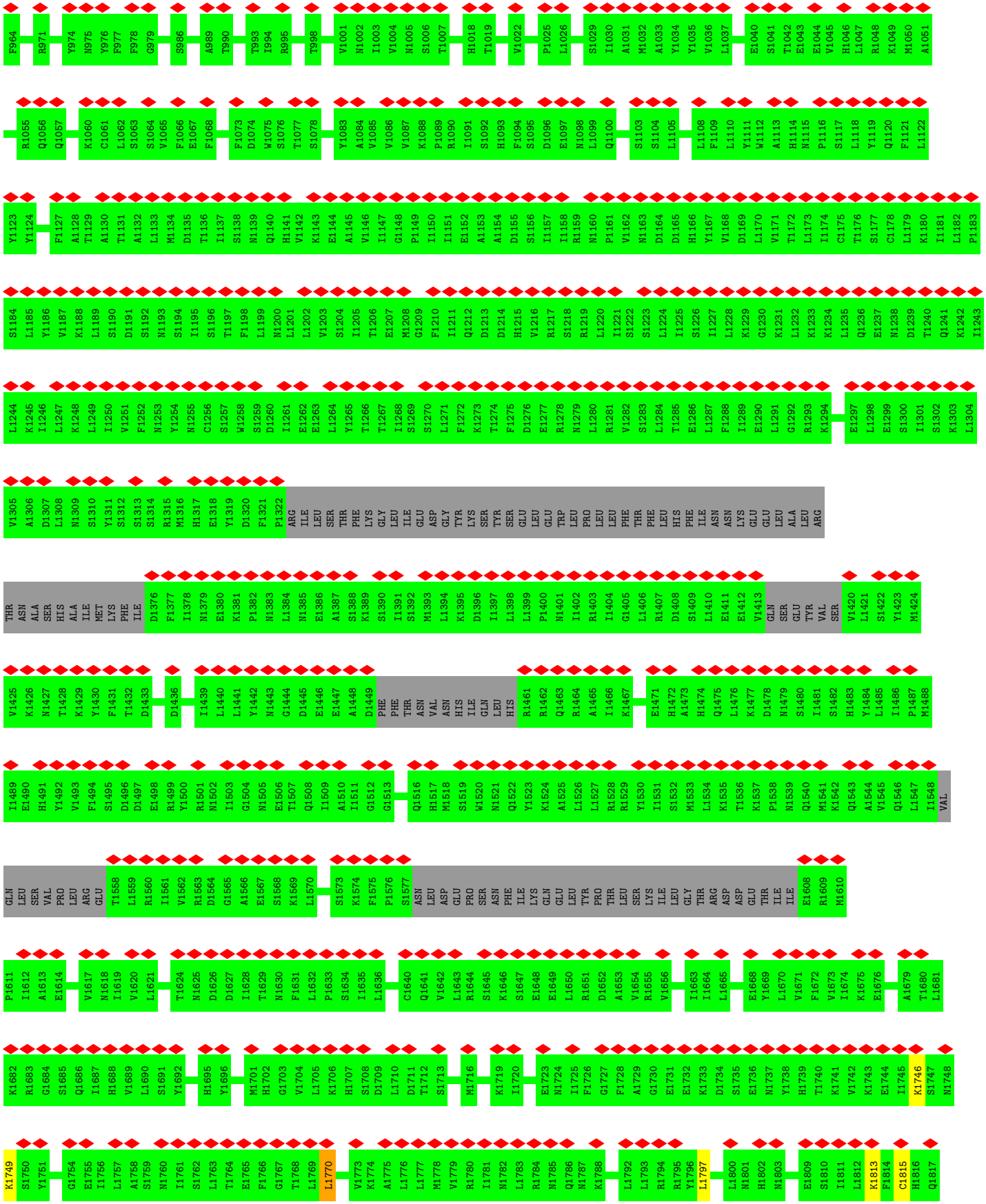


• Molecule 60: U3 small nucleolar RNA-associated protein 20

Chain RP:




F63 T64 E65 F66 A67 A68 E69 I70 E71 H72 D73 V74 Q75 T76 L77 P78 Q79 I80 L81 Y82 H83 D84 K85 K86 I87 F88 N89 S90 L91 V92 S93 F94 I95 N96 F97 H98 D99 E100 F101 Q104 L107 D108 L109 L110 A111 Q112 F113 C114 H115 D116 L117 G118 P119 D120 F121 L122 K123 F124
Y125 E126 E127 A128 I129 K130 T131 L132 I133 N134 L135 L136 D137 A138 A139 I140 E141 F142 E143 S144 S145 N146 V147 F148 E149 W150 G151 F152 L155 A156 Y157 I158 F159 K160 Y161 L162 S163 K164 F165 L166 V167 K168 K169 L170 V171 L172 T173 C174 D175 L176 L177 I178 P179 L180 L181 S182 H183 S184 K185
E186 Y187 L188 S189 R190 F191 S192 A193 E194 A195 L196 S197 F198 L199 V200 R201 K202 C203 P204 V205 S206 N207 L208 R209 E210 R213 S214 V215 F216 E217 K218 L219 E220 GLY ASP ASP GLU GLN THR ASN L228 Y229 E230 G231 L232 L233 I234 T237 E238 S239 M240 T241 E245 T246 L247 H248 S249
K250 A251 K252 A253 I254 M255 S256 V257 L258 L259 H260 E261 A262 L263 T264 K265 S266 S267 P268 E269 R270 S271 V272 S273 L274 D277 I278 W279 M280 N281 I282 S283 K284 Y285 A286 S287 I288 E289 S290 L291 L292 P293 V294 Y295 E296 V297 M298 Y299 Q300 D301 F302 N303 D304 S305 LEU ASP ALA THR ASN
ILE ASP R313 I314 L315 K316 V317 L318 T319 T320 I321 V322 F323 S324 E325 SER GLY ARG LYS I330 P331 D332 W333 N334 K335 I336 T337 I338 L339 I340 E341 R342 I343 M344 SER GLN SER GLU ASN CYS ALA SER L353 S354 Q355 D356 K357 V358 A359 F360 L361 F362 A363 L364 F365 I366 R367 N368 S369 D370
V371 K372 T373 L374 T375 L376 Q379 K380 L381 F382 N383 Y384 A385 L386 T387 N388 I389 S390 D391 C392 F393 L394 E395 F396 F397 Q398 F399 A400 L401 R402 L403 S404 Y405 E406 R407 V408 F409 S410 F411 ASN GLY LEU LYS PHE LEU GLN L419 F420 L421 K422 K423 N424 W425 Q426 S427 Q428 G429 K430 K431
I432 A433 L434 F435 F436 L437 E438 V439 D440 D441 K442 P443 E444 L445 Q446 K447 V448 R449 E450 V451 N452 F453 P454 E455 E456 F457 I458 L459 S460 I461 R462 D463 F464 F465 V466 T467 A468 E469 I470 N471 D472 S473 N474 D475 L476 F477 E478 I479 TYR TRP ARG ALA ILE I485 F486 K487 Y488 S489 K490 L491
Q492 N493 T494 E495 I496 I497 ILE PRO LEU LEU E502 R503 I504 T507 F508 A509 S510 P511 D512 N513 F514 T515 K516 ASP MET VAL G520 T521 L522 L523 K524 R527 K528 E529 D530 D531 A532 S533 GLY ASN ASN LEU L538 K539 T540 I541 L542 D543 N544 Y545 E546 N547 Y548 K549 E550 S551 L552 ASN
PHE LEU ARG G557 W558 N559 K560 L561 V562 S563 N564 L565 H566 P567 S568 E569 S570 L571 K572 G573 L574 M575 S576 H577 Y578 P579 S580 L581 L582 L583 S584 L585 T586 D587 N588 F589 M590 L591 P592 D593 G594 K595 I596 R597 Y598 GLU THR LEU GLU LEU MET K605 T606 L607 M608 I609 L610 Q611 G612 M613
Q614 V615 P616 D617 L618 L619 S620 S621 C622 M623 V624 I625 E626 E627 Q633 N634 A635 T639 I640 R641 I642 K643 ASN VAL GLY ALA GLU PHE GLY LYS T652 K653 T654 S659 F662 L663 K664 Y665 L666 F667 G668 L669 L670 T671 V672 R673 P676 V677 W678 T679 G680 T684 L685 P686
N687 V688 Y689 T690 K691 D692 L695 V696 V700 L701 S702 F703 I704 K705 L706 P707 D708 E709 N710 Q711 N712 L713 D714 Y715 Y716 Q717 P718 L719 L720 E721 D722 G723 A724 N725 K726 V727 L728 W729 D730 S731 S732 V733 V734 R735 L736 R737 D738 T739 I740 F743 S744 H745 I746 W747 S748 K749 Y750
S751 T752 Q753 N754 T755 S756 I757 I758 S759 T760 T761 I762 E763 R764 R765 G766 N767 T768 T769 Y770 P771 I772 L773 I774 R775 N776 Q777 A778 L779 K780 V781 M782 I785 P786 A789 E790 N791 H792 F793 V794 A797 P798 F799 V800 Y801 N802 D803 K808 E811 D812 M813 E814 N815 E816
I819 T820 G821 S822 L832 K833 T834 L835 S836 K837 F838 I841 V844 Y845 S846 A847 T848 E849 L850 H851 D852 H853 L854 L857 L858 R861 N862 T863 D864 V865 Q866 K867 L868 A869 L870 D871 A872 L873 L874 A875 Y876 K877 N878 P879 T880 L881 N882 K883 Y884 R885 D886 N887 L888 K889
D893 L896 D899 E900 I901 T902 T903 F904 L905 T906 E907 N908 G909 S910 Q911 S912 I913 K914 A915 E916 D917 E918 K919 V920 V921 M922 P923 Y924 I928 R932 A933 Q934 V935 P936 P937 T938 S939 G940 Q941 K942 R943 S944 R945 K946 I947 A948 V949 I950 S951 V952 L953 P954 N955 I961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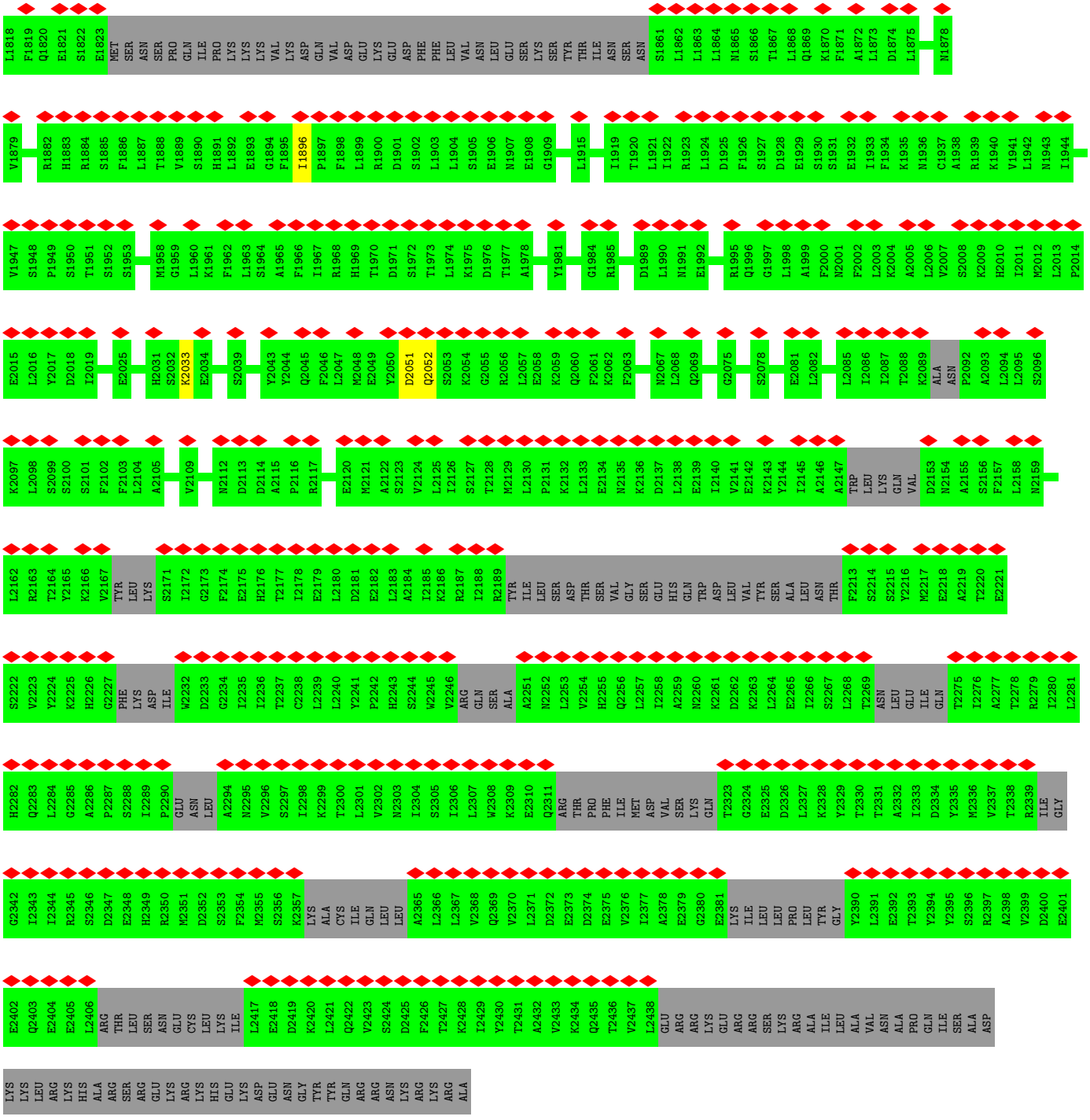
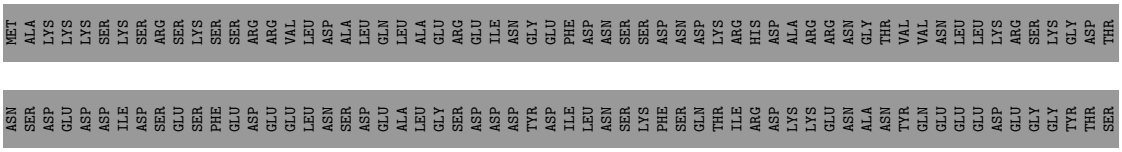
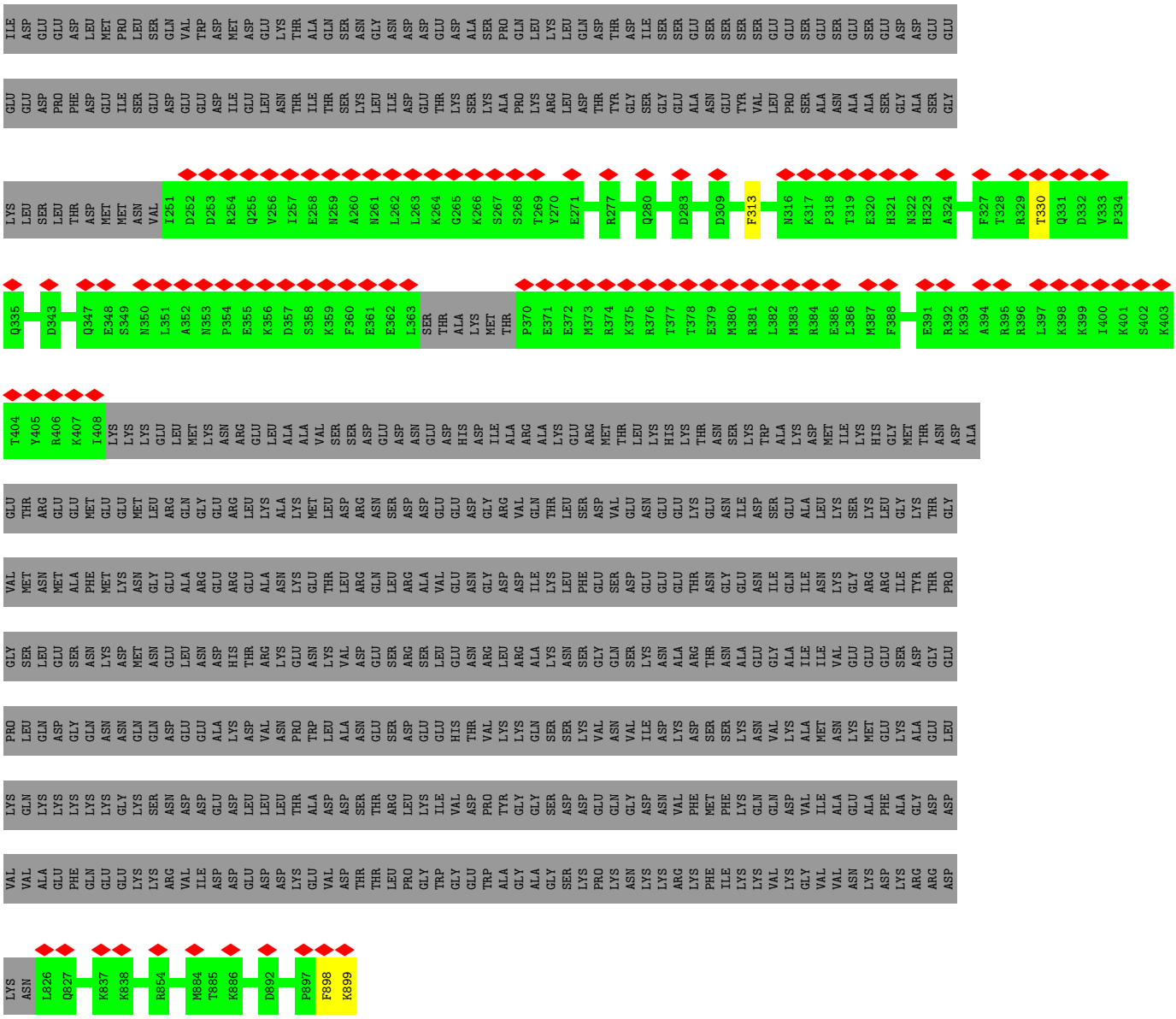
R1055 Q1056 Q1057 K1060 C1061 L1062 S1063 S1064 V1065 F1066 E1067 F1068 F1073 D1074 W1075 S1076 T1077 S1078 Y1083 A1084 V1085 V1086 V1087 K1088 P1089 R1090 I1091 S1092 H1093 F1094 S1095 D1096 E1097 N1098 L1099 Q1100 S1103 S1104 L1105 L1108 F1109 L1110 Y1111 W1112 A1113 H1114 N1115 P1116 S1117 L1118 Y1119 Q1120 F1121 L1122
Y1123 Y1124 F1127 A1128 T1129 A1130 T1131 A1132 L1133 M1134 D1135 T1136 I1137 S1138 N1139 Q1140 H1141 V1142 K1143 E1144 A1145 V1146 I1147 G1148 P1149 I1150 I1151 E1152 A1153 A1154 D1155 S1156 I1157 I1158 R1159 N1160 P1161 V1162 N1163 D1164 D1165 H1166 Y1167 V1168 D1169 L1170 V1171 T1172 L1173 I1174 C1175 T1176 S1177 C1178 L1179 K1180 I1181 L1182 P1183
S1184 L1185 Y1186 V1187 K1188 L1189 S1190 D1191 S1192 N1193 S1194 I1195 S1196 T1197 F1198 L1199 N1200 L1201 L1202 V1203 S1204 I1205 T1206 E1207 M1208 G1209 F1210 I1211 Q1212 D1213 D1214 H1215 V1216 R1217 S1218 R1219 L1220 I1221 S1222 S1223 L1224 I1225 S1226 I1227 L1228 K1229 G1230 K1231 L1232 K1233 K1234 L1235 Q1236 E1237 N1238 D1239 T1240 Q1241 K1242 I1243
L1244 K1245 I1246 L1247 K1248 L1249 I1250 V1251 F1252 N1253 Y1254 N1255 C1256 S1257 W1258 S1259 D1260 I1261 E1262 E1263 L1264 Y1265 T1266 T1267 I1268 S1269 S1270 L1271 F1272 K1273 T1274 F1275 D1276 E1277 R1278 N1279 L1280 R1281 V1282 S1283 L1284 T1285 E1286 L1287 F1288 I1289 E1290 L1291 G1292 R1293 K1294 E1297 L1298 E1299 S1300 I1301 S1302 K1303 L1304
V1305 A1306 D1307 L1308 N1309 S1310 Y1311 S1312 S1313 S1314 R1315 M1316 H1317 E1318 Y1319 D1320 F1321 P1322 ARG ILE LEU SER THR PHE LYS GLY LEU ILE GLU ASP GLY TYR LYS SER TYR SER GLU LEU GLU TRP LEU PRO LEU LEU PHE THR PHE LEU HIS PHE ILE ASN ASN LYS GLU GLU LEU ALA LEU ARG
THR ASN ALA SER HIS ALA ILE MET LYS PHE ILE D1376 F1377 I1378 N1379 E1380 K1381 P1382 N1383 L1384 N1385 E1386 A1387 S1388 K1389 S1390 I1391 S1392 M1393 L1394 K1395 D1396 I1397 L1398 L1399 P1400 N1401 T1402 R1403 I1404 G1405 L1406 R1407 D1408 S1409 L1410 E1411 E1412 V1413 GLN SER GLU TYR VAL SER V1420 L1421 S1422 Y1423 M1424
V1425 K1426 N1427 T1428 K1429 Y1430 F1431 T1432 D1433 D1436 I1439 L1440 L1441 Y1442 N1443 G1444 D1445 E1446 E1447 A1448 D1449 PHE PHE THR ASN VAL ASN HIS ILE GLN LEU HIS R1461 R1462 Q1463 R1464 A1465 I1466 K1467 E1471 H1472 A1473 H1474 Q1475 L1476 K1477 D1478 N1479 S1480 I1481 S1482 H1483 Y1484 L1485 I1486 P1487 M1488
I1489 E1490 H1491 Y1492 V1493 F1494 S1495 D1496 D1497 E1498 R1499 Y1500 R1501 N1502 I1503 G1504 N1505 E1506 T1507 Q1508 I1509 A1510 I1511 G1512 G1513 Q1516 H1517 M1518 S1519 W1520 N1521 Q1522 Y1523 K1524 A1525 L1526 L1527 R1528 R1529 Y1530 I1531 S1532 M1533 L1534 K1535 T1536 K1537 P1538 N1539 Q1540 M1541 K1542 Q1543 A1544 V1545 Q1546 L1547 I1548 VAL
GLN LEU SER VAL PRO LEU ARG GLU T1558 L1559 R1560 I1561 V1562 R1563 D1564 G1565 A1566 E1567 S1568 K1569 L1570 S1573 K1574 F1575 P1576 S1577 ASN LEU ASP GLU PRO SER ASN PHE ILE LYS GLN GLU LEU TYR PRO THR LEU SER LYS ILE LEU GLY THR ARG ASP ASP GLU THR ILE ILE E1608 R1609 M1610
P1611 I1612 A1613 E1614 V1617 N1618 I1619 V1620 L1621 T1624 N1625 D1626 D1627 I1628 T1629 N1630 F1631 L1632 P1633 S1634 I1635 L1636 C1640 Q1641 V1642 L1643 R1644 S1645 K1646 S1647 E1648 E1649 L1650 R1651 D1652 A1653 V1654 R1655 V1656 I1663 I1664 L1665 E1668 Y1669 L1670 V1671 F1672 V1673 I1674 K1675 E1676 A1679 T1680 L1681
K1682 R1683 G1684 S1685 Q1686 I1687 H1688 V1689 L1690 S1691 Y1692 H1695 Y1696 M1701 H1702 G1703 V1704 L1705 K1706 H1707 S1708 D1709 L1710 D1711 T1712 S1713 M1716 K1719 I1720 E1723 N1724 I1725 F1726 G1727 F1728 A1729 G1730 E1731 E1732 K1733 D1734 S1735 E1736 N1737 Y1738 H1739 T1740 K1741 V1742 K1743 E1744 I1745 K1746 S1747 N1748
K1749 S1750 Y1751 G1754 E1755 I1756 L1757 A1758 S1759 N1760 I1761 S1762 L1763 T1764 E1765 F1766 G1767 T1768 L1769 L1770 V1773 K1774 A1775 L1776 L1777 M1778 V1779 R1780 I1781 N1782 L1783 R1784 N1785 Q1786 N1787 K1788 L1792 L1793 R1794 R1795 Y1796 L1797 L1800 N1801 H1802 N1803 E1809 S1810 I1811 L1812 K1813 F1814 C1815 H1816 Q1817



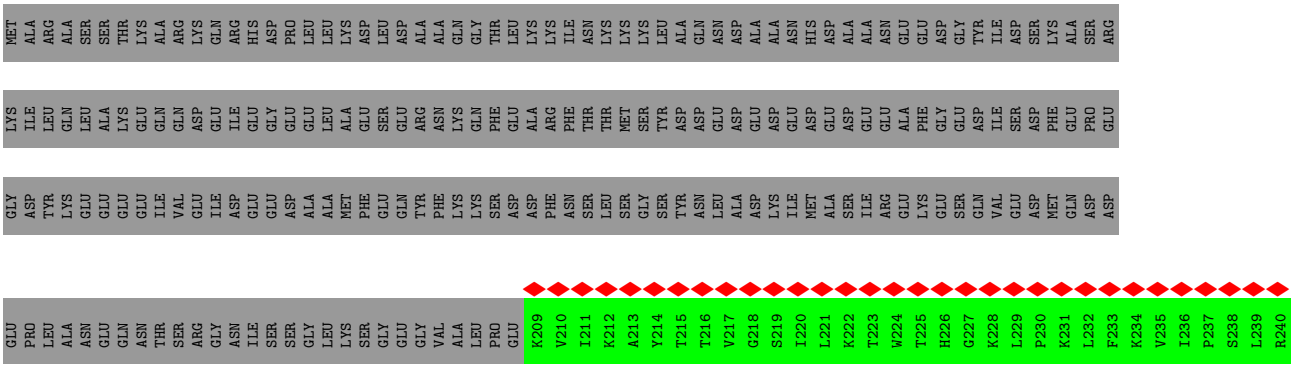
• Molecule 61: U3 small nucleolar RNA-associated protein 14

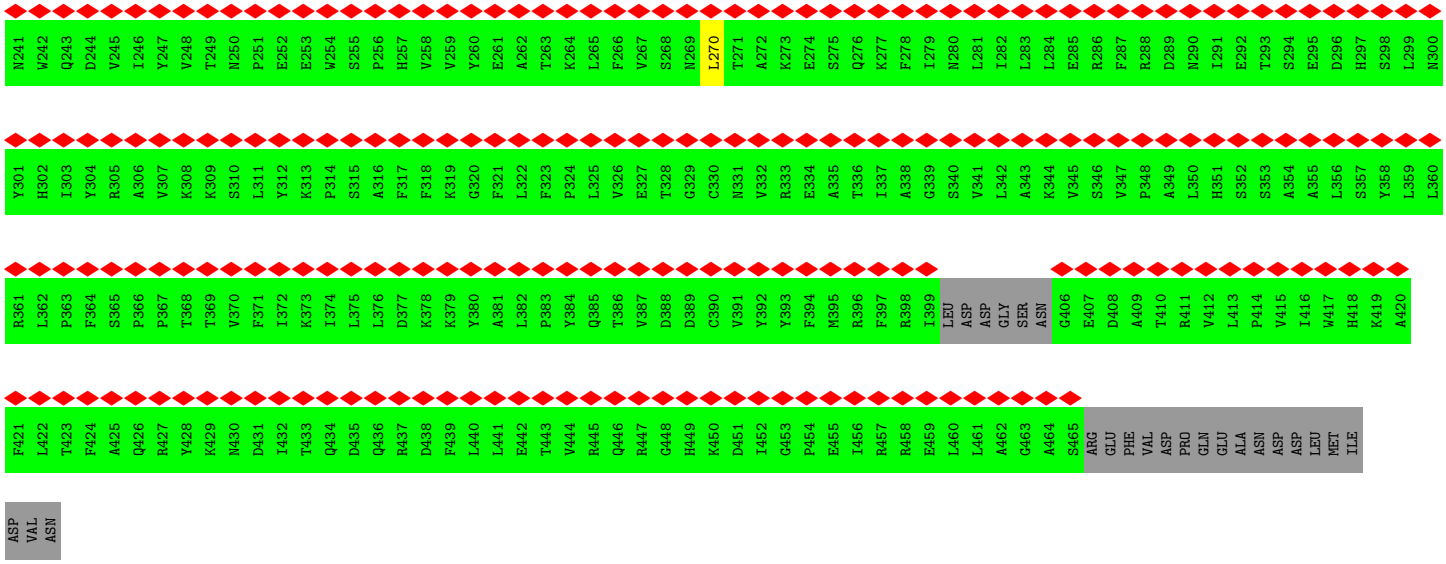




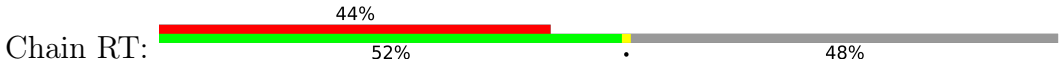
• Molecule 62: Essential nuclear protein 1

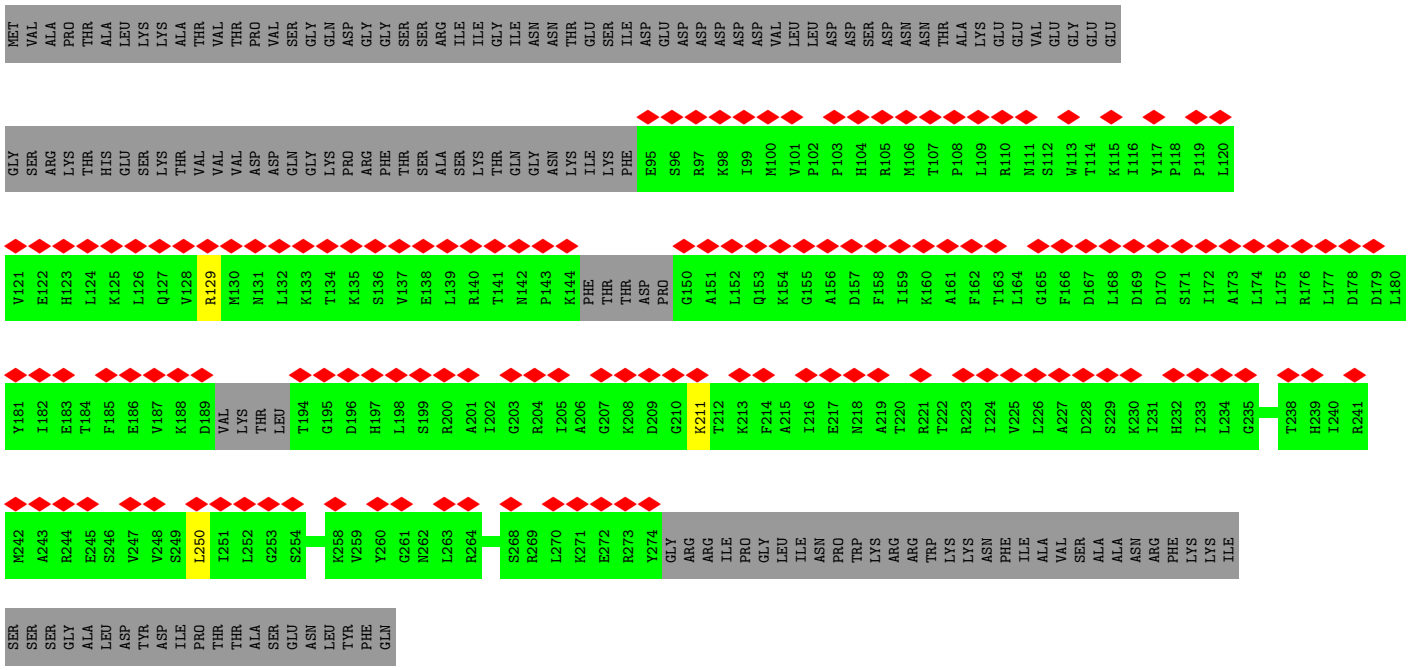
Chain RS:



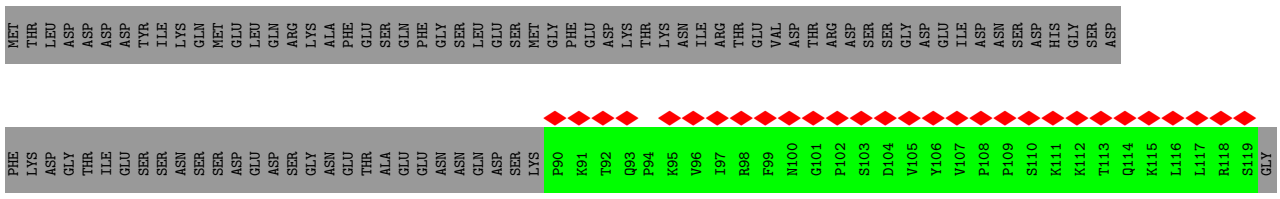


- Molecule 63: Pno1





- Molecule 64: Protein FAF1



LYS THR LEU THR GLN ILE ASN LYS LYS LEU GLU SER THR GLU ALA LYS GLU GLU LYS GLU ASP GLU THR LEU GLU ALA E147 N148 L149 Q150 N151 D152 L153 Q157 F158 L159 N169 ASN GLY GLY SER GLY SER THR ASN SER GLY VAL SER LEU THR LEU GLN SER MET GLY GLY GLY

ASN ASP ASP G194 I195 V196 Y197 Q198 D199 D200 Q201 V202 I203 G204 E212 M213 R214 L215 N216 R217 L218 S219 R220 Q225 D226 K227 I228 N229 K230 L231 E232 M236 R240 D244 K248 K251 K252 Y253 E254 Q255 E259 G260 G261 I262 K266 V267 K268 K269 G270 R273

E276 K281 D282 R285 R286 I287 G288 G289 A293 R294 D295 K296 E297 K298 A299 T300 E303 R304 G305 L306 K307 I308 S309 S310 V311 G312 R313 S314 N317 G318 L319 I320 V321 S322 K323 R324 D325 I326 A327 R328 I329 S330 GLY GLY GLU ARG SER GLY LYS PHE ASN GLY LYS LYS

LYS SER ARG ARG

- Molecule 65: Protein BFR2

Chain RY: 5% 7% 93%

MET GLU LYS SER LEU ALA ASP GLN ILE SER ASP ILE ALA ILE LYS PRO VAL ASN LYS ASP PHE ASP ILE GLU ASP GLU GLU ASN ALA SER LEU PHE GLN HIS ASN GLU LYS ASN GLY GLU SER ASP LEU SER ASP TYR GLY ASN SER ASN THR GLU GLU THR LYS LYS ALA HIS TYR LEU

GLU VAL GLU LYS SER LYS LEU ARG ALA GLU LYS GLY LEU GLU LEU ASN ASP PRO LYS TYR THR GLY VAL LYS GLY SER ARG GLN ALA LEU TYR GLU GLU VAL SER GLU ASN GLU ASP GLU GLU GLU GLU GLU GLU GLU GLU LYS GLU GLU ASP ALA LEU SER PHE ARG THR ASP

SER GLU ASP GLU GLU VAL GLU ILE ASP GLU GLU GLU SER ASP ALA ASP GLY GLY GLU THR GLU GLU ALA GLN GLN LYS ARG HIS ALA LEU SER LYS LEU ILE GLN GLN THR LYS GLN ALA ILE ASN LYS LEU SER GLN SER VAL GLN ARG ASP ALA SER LYS GLY TYR SER ILE LEU

GLN GLN THR LYS LEU PHE ASP ASN ILE ILE ASP LEU ARG ILE LYS LEU GLN LYS ALA VAL ILE ALA ALA ASN LYS LEU PRO LEU THR THR GLU SER TRP GLU GLU ALA LYS MET ASP ASP SER GLU GLU THR LYS ARG LEU LEU LYS GLU ASN GLU LYS LEU PHE ASN ASN LEU PHE ASN

ARG LEU ILE ASN PHE ARG ILE LYS PHE GLN LEU GLY ASP HIS ILE THR GLN ASN GLU GLU VAL ALA LYS HIS LYS LEU SER LYS LYS ARG SER LEU LYS GLU LEU TYR GLN GLU THR ASN SER LEU ASP SER GLU LEU LYS GLU TYR ARG THR ALA VAL LEU ASN LYS TRP SER THR LYS

VAL SER SER ALA SER GLY ASN ALA ALA LEU SER SER ASN LYS PHE LYS ALA ILE ASN LEU PRO ALA ASP VAL GLN VAL GLU ASN GLN LEU SER ASP MET SER ARG LEU MET LYS ARG THR LYS LEU ASN ARG ARG ASN ILE THR PRO LEU TYR PHE GLN LYS ASP CYS ALA ASN GLY ARG

LEU PRO GLU LEU ILE SER PRO VAL VAL LYS ASP SER VAL ASP ASP ASN GLU ASN SER ASP ASP GLY LEU ASP ILE PRO LYS ASN TYR ASP PRO ARG ARG LYS ASP ASN ASN ALA ILE ASP ILE THR GLU ASN PRO TYR VAL PHE ASP ASP GLU ASP PHE TYR ARG VAL LEU LEU ASN ASP

LEU ILE ASP LYS LYS ILE SER ASN ALA HIS ASN SER GLU SER ALA ALA ILE THR ILE THR SER THR ASN ALA ARG SER ASN ASN LYS LEU LYS LYS ASN ILE ASP THR LYS ALA SER K460 G461 L464 N465 Y466 S467 V468 Q469 D470 P471 I472 A473 A477 P478 I479 T480 S481 G482 Y483

K484 W485 S486 D487 D488 Q489 I490 D491 E492 F493 F494 A495 G496 LEU LEU GLY GLN ARG VAL ASN PHE ASN GLU ASN GLU ASP GLU GLU GLN HIS ALA ARG ILE GLU ASN ASP GLU GLU LEU GLU ALA VAL LYS ASN ASP ASP ILE GLN ILE PHE GLY

- Molecule 66: Unassigned helices

Chain X1: 20% 22% 78%

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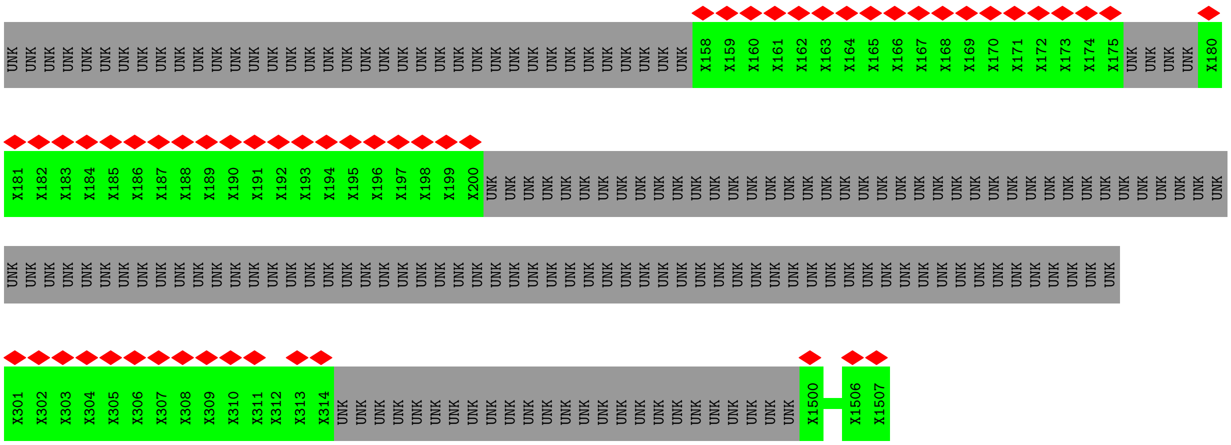
UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK X77 X78 X79 X80 X81 X82 X83 X84 X85 X86 X87 X88 X89 X90 UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK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X181 X182 X183 X184 X185 X186 X187 X188 X189 X190 X191 X192 X193 X194 X195 X196 X197 X198 X199 X200 UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK
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X301 X302 X303 X304 X305 X306 X307 X308 X309 X310 X311 X312 X313 X314 UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK X1500 X1506 X1507

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	17924	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.126	Depositor
Minimum map value	-0.059	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.03	Depositor
Map size (Å)	597.632, 597.632, 597.632	wwPDB
Map dimensions	448, 448, 448	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.334, 1.334, 1.334	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: GTP, ZN, MG

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	3A	0.92	0/4141	1.17	24/6433 (0.4%)
2	5A	0.90	0/8952	1.09	28/13931 (0.2%)
3	SA	0.71	0/31535	1.16	247/49095 (0.5%)
4	SC	0.47	0/1856	0.73	5/2490 (0.2%)
5	SF	0.35	0/1854	0.66	1/2504 (0.0%)
6	SG	0.53	0/1690	0.64	0/2285
7	SH	0.31	0/1341	0.60	0/1789
8	SI	0.38	0/1341	0.67	1/1806 (0.1%)
9	SJ	0.31	0/1347	0.59	1/1801 (0.1%)
10	SK	0.47	0/1410	0.60	0/1888
11	SM	0.31	0/1020	0.58	0/1374
12	SO	0.45	0/1109	0.62	0/1495
13	SP	0.49	0/879	0.68	0/1186
14	SR	0.58	0/990	0.73	1/1335 (0.1%)
15	SX	0.51	0/1020	0.66	1/1371 (0.1%)
16	SY	0.54	0/798	0.67	1/1065 (0.1%)
17	SZ	0.43	0/822	0.64	0/1103
18	Sc	0.44	0/613	0.65	0/828
19	Sd	0.54	0/499	0.66	0/670
20	3B	0.59	0/1901	0.66	1/2567 (0.0%)
20	3C	0.44	0/1796	0.62	1/2424 (0.0%)
21	3D	0.44	0/2891	0.63	3/3895 (0.1%)
22	3E	0.41	0/3059	0.62	3/4153 (0.1%)
23	3F	0.42	0/3715	0.64	2/5001 (0.0%)
24	3G	0.52	0/928	0.76	1/1262 (0.1%)
24	3H	0.47	0/928	0.69	2/1262 (0.2%)
25	A4	0.47	0/5321	0.66	5/7207 (0.1%)
26	A5	0.48	0/4044	0.68	5/5493 (0.1%)
27	A8	0.30	0/3328	0.61	0/4565
28	A9	0.31	0/951	0.58	1/1287 (0.1%)
29	AE	0.37	0/10049	0.56	6/13737 (0.0%)
30	AF	0.53	0/3993	0.67	4/5413 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
31	AG	0.47	0/6699	0.65	3/9077 (0.0%)
32	B1	0.64	0/6780	0.68	7/9175 (0.1%)
33	B2	0.43	0/6853	0.67	3/9256 (0.0%)
34	B3	0.39	0/6014	0.69	7/8137 (0.1%)
35	B8	0.58	0/3848	0.66	4/5218 (0.1%)
36	BE	0.57	0/6948	0.66	7/9391 (0.1%)
37	B6	0.45	0/2849	0.58	1/3853 (0.0%)
38	5B	0.34	0/499	0.62	0/659
39	5C	0.58	0/4321	0.68	5/5832 (0.1%)
40	5D	0.51	0/1417	0.67	2/1885 (0.1%)
41	5E	0.47	0/1665	0.64	1/2233 (0.0%)
42	5F	0.66	0/1559	0.73	2/2097 (0.1%)
43	5G	0.56	0/2337	0.66	1/3148 (0.0%)
44	5H	0.52	0/601	0.57	0/789
45	5I	0.61	0/3844	0.66	2/5174 (0.0%)
46	5J	0.42	0/1302	0.54	0/1728
47	5K	0.56	0/1426	0.66	1/1917 (0.1%)
48	RA	0.34	0/2769	0.67	1/3753 (0.0%)
49	RB	0.38	0/1121	0.62	0/1487
50	RC	0.46	0/2245	0.60	0/3021
51	RD	0.31	0/2453	0.63	3/3308 (0.1%)
52	RE	0.38	0/8924	0.63	8/12070 (0.1%)
53	RF	0.34	0/2004	0.63	2/2697 (0.1%)
54	RG	0.39	0/1727	0.68	2/2329 (0.1%)
54	RH	0.42	0/1828	0.61	0/2470
55	RJ	0.50	0/6514	0.60	1/8768 (0.0%)
56	RK	0.44	0/2832	0.65	3/3825 (0.1%)
57	RL	0.29	0/4549	0.50	0/6241
57	RM	0.25	0/3765	0.47	0/5218
58	RN	0.36	0/4591	0.58	2/6187 (0.0%)
59	RO	0.38	0/3849	0.62	5/5261 (0.1%)
60	RP	0.28	0/12225	0.51	5/16812 (0.0%)
61	RQ	0.46	0/1678	0.58	0/2282
62	RS	0.33	0/2104	0.67	1/2854 (0.0%)
63	RT	0.42	0/1379	0.63	1/1853 (0.1%)
64	RV	0.47	0/1456	0.63	2/1937 (0.1%)
65	RY	0.29	0/307	0.51	0/415
All	All	0.52	0/233403	0.77	426/325072 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
4	SC	0	1
5	SF	0	2
8	SI	0	3
9	SJ	0	1
11	SM	0	1
12	SO	0	1
13	SP	0	1
17	SZ	0	1
18	Sc	0	1
21	3D	0	3
22	3E	0	1
23	3F	0	1
24	3G	0	2
24	3H	0	1
25	A4	0	1
26	A5	0	1
27	A8	0	4
31	AG	0	2
32	B1	0	3
33	B2	0	9
34	B3	0	11
36	BE	0	1
39	5C	0	2
40	5D	0	1
41	5E	0	1
42	5F	0	1
43	5G	0	1
45	5I	0	2
48	RA	0	2
49	RB	0	1
52	RE	0	1
53	RF	0	1
55	RJ	0	2
56	RK	0	1
57	RL	0	1
57	RM	0	1
58	RN	0	1
59	RO	0	1
60	RP	0	3
61	RQ	0	1
64	RV	0	2
All	All	0	78

There are no bond length outliers.

All (426) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	SA	861	U	C2-N1-C1'	10.60	130.42	117.70
3	SA	376	C	N1-C2-O2	10.43	125.16	118.90
3	SA	1174	C	N1-C2-O2	10.35	125.11	118.90
42	5F	13	LEU	CA-CB-CG	10.29	138.96	115.30
3	SA	1034	C	C5-C6-N1	10.00	126.00	121.00
26	A5	25	ASP	CB-CG-OD1	9.52	126.87	118.30
24	3G	67	LEU	CA-CB-CG	9.36	136.82	115.30
3	SA	1274	C	C6-N1-C2	-9.01	116.70	120.30
2	5A	312	U	P-O3'-C3'	8.94	130.43	119.70
4	SC	54	LEU	CA-CB-CG	8.93	135.85	115.30
3	SA	1743	U	N1-C2-O2	8.93	129.05	122.80
3	SA	1451	C	N3-C2-O2	-8.87	115.69	121.90
52	RE	924	LEU	CA-CB-CG	8.78	135.50	115.30
3	SA	1274	C	C2-N1-C1'	8.73	128.40	118.80
3	SA	1174	C	N3-C2-O2	-8.70	115.81	121.90
2	5A	310	U	N3-C2-O2	-8.64	116.15	122.20
1	3A	200	C	C2-N1-C1'	8.62	128.29	118.80
3	SA	1254	U	N1-C2-O2	8.57	128.80	122.80
29	AE	95	ASP	CB-CG-OD1	8.49	125.94	118.30
3	SA	376	C	C2-N1-C1'	8.42	128.06	118.80
1	3A	89	C	C2-N1-C1'	8.41	128.05	118.80
3	SA	258	C	N1-C2-O2	8.38	123.93	118.90
3	SA	1451	C	C6-N1-C2	-8.29	116.98	120.30
3	SA	1174	C	C2-N1-C1'	8.29	127.92	118.80
3	SA	1743	U	C2-N1-C1'	8.23	127.58	117.70
3	SA	1274	C	C5-C6-N1	8.22	125.11	121.00
2	5A	355	C	C2-N1-C1'	8.18	127.80	118.80
3	SA	607	G	N3-C4-C5	-8.17	124.52	128.60
1	3A	200	C	N1-C2-O2	8.15	123.79	118.90
3	SA	275	C	N1-C2-O2	8.10	123.76	118.90
3	SA	607	G	C2-N3-C4	8.05	115.93	111.90
20	3B	306	LEU	CA-CB-CG	8.05	133.82	115.30
3	SA	166	C	N1-C2-O2	7.97	123.68	118.90
3	SA	1254	U	N3-C2-O2	-7.94	116.64	122.20
3	SA	1053	G	O5'-P-OP1	-7.94	98.55	105.70
35	B8	521	LEU	CA-CB-CG	7.91	133.49	115.30
1	3A	89	C	C6-N1-C2	-7.88	117.15	120.30
3	SA	1274	C	N1-C2-O2	7.84	123.61	118.90
3	SA	374	U	C2-N1-C1'	7.83	127.10	117.70
3	SA	258	C	C2-N1-C1'	7.80	127.38	118.80
2	5A	340	U	C5-C6-N1	7.79	126.59	122.70
3	SA	607	G	C4-N9-C1'	7.78	136.62	126.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
48	RA	10	ASP	CB-CG-OD1	7.73	125.26	118.30
3	SA	376	C	N3-C2-O2	-7.72	116.50	121.90
1	3A	201	C	N1-C2-O2	7.70	123.52	118.90
3	SA	1703	C	N3-C2-O2	-7.68	116.53	121.90
3	SA	374	U	N1-C2-O2	7.67	128.17	122.80
1	3A	89	C	N1-C2-O2	7.66	123.50	118.90
64	RV	200	ASP	CB-CG-OD1	7.66	125.19	118.30
1	3A	89	C	C5-C6-N1	7.59	124.79	121.00
3	SA	861	U	C6-N1-C1'	-7.57	110.60	121.20
3	SA	1254	U	C2-N1-C1'	7.55	126.76	117.70
2	5A	91	U	C5-C6-N1	7.45	126.42	122.70
25	A4	225	LEU	CA-CB-CG	7.45	132.43	115.30
3	SA	1518	C	N1-C2-O2	7.44	123.36	118.90
62	RS	270	LEU	CA-CB-CG	7.36	132.24	115.30
36	BE	536	LEU	CA-CB-CG	7.35	132.21	115.30
3	SA	1258	U	C2-N1-C1'	7.28	126.44	117.70
2	5A	310	U	N1-C2-O2	7.28	127.89	122.80
2	5A	90	G	O4'-C1'-N9	7.25	114.00	108.20
3	SA	275	C	C2-N1-C1'	7.25	126.77	118.80
3	SA	1760	G	C4-N9-C1'	7.24	135.91	126.50
63	RT	250	LEU	CA-CB-CG	7.24	131.94	115.30
3	SA	1228	G	N3-C4-C5	-7.23	124.99	128.60
3	SA	579	A	P-O3'-C3'	7.14	128.27	119.70
30	AF	469	LEU	CA-CB-CG	7.14	131.73	115.30
58	RN	662	LEU	CA-CB-CG	7.13	131.69	115.30
26	A5	24	LEU	CA-CB-CG	7.09	131.62	115.30
2	5A	312	U	C5-C6-N1	-7.09	119.16	122.70
3	SA	311	U	N1-C2-O2	7.09	127.76	122.80
3	SA	272	U	P-O3'-C3'	7.05	128.16	119.70
3	SA	1451	C	N1-C2-O2	7.04	123.13	118.90
39	5C	144	LEU	CA-CB-CG	7.04	131.49	115.30
21	3D	292	LEU	CA-CB-CG	7.00	131.39	115.30
51	RD	1223	PRO	N-CA-CB	6.99	111.69	103.30
3	SA	1056	U	N1-C2-O2	6.97	127.68	122.80
3	SA	1518	C	C2-N1-C1'	6.97	126.46	118.80
24	3H	65	LEU	CB-CG-CD1	-6.96	99.17	111.00
3	SA	1258	U	N1-C2-O2	6.96	127.67	122.80
1	3A	248	G	O4'-C1'-N9	6.93	113.75	108.20
3	SA	374	U	N3-C2-O2	-6.92	117.35	122.20
3	SA	280	U	N3-C2-O2	-6.92	117.36	122.20
3	SA	1760	G	N3-C4-N9	6.86	130.12	126.00
3	SA	1743	U	C6-N1-C1'	-6.85	111.61	121.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	SA	1760	G	N3-C4-C5	-6.84	125.18	128.60
3	SA	381	C	N3-C2-O2	-6.83	117.12	121.90
3	SA	1034	C	C6-N1-C2	-6.83	117.57	120.30
3	SA	1704	U	N1-C2-O2	6.82	127.57	122.80
3	SA	209	U	N3-C2-O2	-6.81	117.44	122.20
2	5A	312	U	OP1-P-O3'	6.80	120.17	105.20
1	3A	72	C	C6-N1-C2	-6.79	117.58	120.30
3	SA	258	C	N3-C2-O2	-6.79	117.15	121.90
41	5E	314	LEU	CA-CB-CG	6.79	130.92	115.30
16	SY	132	LEU	CA-CB-CG	6.75	130.83	115.30
3	SA	311	U	C2-N1-C1'	6.73	125.77	117.70
3	SA	1174	C	C6-N1-C2	-6.71	117.62	120.30
3	SA	56	U	P-O3'-C3'	6.70	127.74	119.70
33	B2	757	ASP	CB-CG-OD1	6.69	124.32	118.30
52	RE	1105	PRO	O-C-N	-6.68	112.02	122.70
3	SA	607	G	N3-C4-N9	6.67	130.00	126.00
3	SA	545	A	O4'-C1'-N9	6.67	113.54	108.20
3	SA	1527	C	N1-C2-O2	6.66	122.90	118.90
2	5A	358	G	P-O3'-C3'	6.66	127.69	119.70
3	SA	1258	U	N3-C2-O2	-6.65	117.55	122.20
3	SA	1661	U	C5-C6-N1	6.65	126.03	122.70
2	5A	355	C	N1-C2-O2	6.64	122.89	118.90
3	SA	1496	U	N3-C2-O2	-6.63	117.56	122.20
3	SA	648	G	N3-C4-N9	6.63	129.98	126.00
3	SA	1052	U	O4'-C1'-N1	6.62	113.50	108.20
3	SA	608	U	C2-N1-C1'	6.60	125.62	117.70
3	SA	1518	C	N3-C2-O2	-6.60	117.28	121.90
21	3D	142	LEU	CA-CB-CG	6.60	130.47	115.30
37	B6	18	LEU	CA-CB-CG	6.59	130.46	115.30
3	SA	1476	C	C2-N1-C1'	6.55	126.00	118.80
3	SA	864	U	C2-N1-C1'	6.53	125.54	117.70
24	3H	65	LEU	CA-CB-CG	6.52	130.30	115.30
3	SA	280	U	N1-C2-O2	6.51	127.36	122.80
3	SA	1175	U	N3-C2-O2	-6.50	117.65	122.20
3	SA	1274	C	N3-C2-O2	-6.49	117.35	121.90
30	AF	327	LEU	CA-CB-CG	6.49	130.24	115.30
55	RJ	252	LEU	CA-CB-CG	6.49	130.24	115.30
3	SA	280	U	C2-N1-C1'	6.49	125.48	117.70
3	SA	401	A	P-O3'-C3'	6.49	127.48	119.70
32	B1	717	LEU	CA-CB-CG	6.46	130.16	115.30
3	SA	302	U	N3-C2-O2	-6.45	117.68	122.20
3	SA	1535	U	N3-C2-O2	-6.45	117.68	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
45	5I	368	ASP	CB-CG-OD1	6.45	124.10	118.30
26	A5	452	LEU	CA-CB-CG	6.44	130.11	115.30
3	SA	166	C	N3-C2-O2	-6.43	117.40	121.90
4	SC	120	LEU	CA-CB-CG	6.43	130.08	115.30
3	SA	1031	U	P-O3'-C3'	6.41	127.39	119.70
1	3A	250	C	N1-C2-O2	6.40	122.74	118.90
3	SA	1232	U	N1-C2-O2	6.40	127.28	122.80
3	SA	275	C	N3-C2-O2	-6.39	117.43	121.90
3	SA	1228	G	C2-N3-C4	6.39	115.09	111.90
3	SA	864	U	N3-C2-O2	-6.38	117.73	122.20
3	SA	965	U	C2-N1-C1'	6.38	125.35	117.70
3	SA	1175	U	N1-C2-O2	6.38	127.26	122.80
1	3A	200	C	C6-N1-C1'	-6.36	113.16	120.80
3	SA	1440	C	C6-N1-C2	-6.36	117.75	120.30
3	SA	648	G	C4-N9-C1'	6.35	134.75	126.50
3	SA	1496	U	N1-C2-O2	6.34	127.24	122.80
2	5A	443	G	O4'-C1'-N9	6.31	113.25	108.20
3	SA	1594	G	P-O3'-C3'	6.29	127.25	119.70
30	AF	95	LEU	CA-CB-CG	6.29	129.75	115.30
3	SA	38	C	N1-C2-O2	6.28	122.67	118.90
60	RP	48	LEU	CA-CB-CG	6.28	129.74	115.30
3	SA	1704	U	N3-C2-O2	-6.27	117.81	122.20
3	SA	1703	C	N1-C2-O2	6.26	122.66	118.90
3	SA	1056	U	N3-C2-O2	-6.25	117.83	122.20
43	5G	152	LEU	CA-CB-CG	6.24	129.66	115.30
26	A5	457	LEU	CA-CB-CG	6.23	129.63	115.30
3	SA	826	U	O4'-C1'-N1	6.20	113.16	108.20
3	SA	1527	C	C2-N1-C1'	6.19	125.61	118.80
3	SA	861	U	N1-C2-O2	6.18	127.13	122.80
2	5A	312	U	C2-N1-C1'	-6.17	110.30	117.70
3	SA	1769	U	N1-C2-O2	6.17	127.12	122.80
3	SA	1228	G	C4-N9-C1'	6.16	134.51	126.50
3	SA	935	U	N1-C2-O2	6.15	127.11	122.80
3	SA	1440	C	C5-C6-N1	6.15	124.07	121.00
1	3A	198	U	P-O3'-C3'	6.14	127.07	119.70
3	SA	1441	C	N3-C2-O2	-6.14	117.60	121.90
3	SA	864	U	N1-C2-O2	6.13	127.09	122.80
1	3A	200	C	C5-C6-N1	6.10	124.05	121.00
3	SA	607	G	C8-N9-C1'	-6.10	119.07	127.00
3	SA	648	G	C8-N9-C1'	-6.10	119.08	127.00
3	SA	209	U	N1-C2-O2	6.09	127.07	122.80
3	SA	273	G	C4-N9-C1'	6.09	134.42	126.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	SA	376	C	C6-N1-C2	-6.09	117.86	120.30
51	RD	1205	PRO	N-CA-CB	6.09	110.60	103.30
3	SA	1760	G	C8-N9-C1'	-6.08	119.09	127.00
59	RO	269	LEU	CA-CB-CG	6.08	129.28	115.30
3	SA	514	G	N7-C8-N9	6.07	116.14	113.10
3	SA	1259	U	C5-C6-N1	6.05	125.72	122.70
3	SA	1476	C	C5-C6-N1	6.04	124.02	121.00
56	RK	117	LEU	CA-CB-CG	6.04	129.19	115.30
3	SA	1055	U	N3-C2-O2	-6.04	117.97	122.20
3	SA	1032	G	N3-C4-N9	6.03	129.62	126.00
3	SA	311	U	N3-C2-O2	-6.01	117.99	122.20
3	SA	1439	C	N3-C2-O2	-6.00	117.70	121.90
2	5A	492	G	P-O3'-C3'	6.00	126.90	119.70
3	SA	1620	C	N1-C2-O2	6.00	122.50	118.90
32	B1	521	LEU	CA-CB-CG	6.00	129.10	115.30
3	SA	575	C	N1-C2-O2	5.99	122.50	118.90
3	SA	-7	A	P-O3'-C3'	5.99	126.89	119.70
3	SA	1476	C	C6-N1-C2	-5.98	117.91	120.30
1	3A	72	C	C5-C6-N1	5.96	123.98	121.00
9	SJ	29	LEU	CA-CB-CG	5.95	128.99	115.30
3	SA	1228	G	N3-C4-N9	5.92	129.55	126.00
3	SA	645	C	N1-C2-O2	5.92	122.45	118.90
3	SA	608	U	N1-C2-O2	5.91	126.94	122.80
3	SA	275	C	C6-N1-C2	-5.91	117.94	120.30
3	SA	1232	U	C2-N1-C1'	5.91	124.79	117.70
3	SA	1232	U	N3-C2-O2	-5.91	118.06	122.20
3	SA	1084	A	OP1-P-O3'	5.91	118.19	105.20
60	RP	1797	LEU	CA-CB-CG	5.90	128.88	115.30
32	B1	479	LEU	CA-CB-CG	5.90	128.87	115.30
3	SA	1216	C	N3-C2-O2	-5.89	117.77	121.90
3	SA	1769	U	N3-C2-O2	-5.89	118.07	122.20
3	SA	1084	A	P-O3'-C3'	5.89	126.77	119.70
3	SA	381	C	N1-C2-O2	5.89	122.43	118.90
40	5D	28	LEU	CA-CB-CG	5.88	128.82	115.30
3	SA	1034	C	C2-N1-C1'	5.88	125.26	118.80
3	SA	1679	G	O4'-C1'-N9	5.88	112.90	108.20
3	SA	0	U	P-O3'-C3'	5.87	126.74	119.70
3	SA	1254	U	C5-C6-N1	5.86	125.63	122.70
54	RG	96	LEU	CA-CB-CG	5.85	128.76	115.30
3	SA	562	G	O4'-C1'-N9	5.84	112.87	108.20
34	B3	401	LEU	CA-CB-CG	5.83	128.71	115.30
3	SA	1055	U	N1-C2-O2	5.83	126.88	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	SA	542	A	P-O3'-C3'	5.83	126.69	119.70
32	B1	69	LEU	CA-CB-CG	5.83	128.70	115.30
2	5A	355	C	C6-N1-C2	-5.81	117.98	120.30
3	SA	411	C	N1-C2-O2	5.79	122.37	118.90
3	SA	1734	U	N3-C2-O2	-5.79	118.15	122.20
3	SA	417	A	P-O3'-C3'	5.78	126.64	119.70
36	BE	522	LEU	CA-CB-CG	5.78	128.60	115.30
39	5C	74	LEU	CA-CB-CG	5.76	128.56	115.30
2	5A	263	C	C6-N1-C2	-5.76	118.00	120.30
36	BE	872	LEU	CA-CB-CG	5.75	128.52	115.30
3	SA	194	U	C2-N1-C1'	5.75	124.59	117.70
3	SA	376	C	C5-C6-N1	5.74	123.87	121.00
3	SA	612	U	C2-N1-C1'	5.74	124.59	117.70
3	SA	885	G	C8-N9-C4	-5.73	104.11	106.40
3	SA	894	U	N1-C2-O2	5.73	126.81	122.80
30	AF	195	LEU	CA-CB-CG	5.73	128.47	115.30
36	BE	121	LEU	CA-CB-CG	5.73	128.47	115.30
3	SA	87	C	C6-N1-C2	-5.72	118.01	120.30
3	SA	1448	G	C5-C6-O6	5.71	132.03	128.60
34	B3	342	ASP	CB-CG-OD1	5.70	123.43	118.30
8	SI	38	LEU	CA-CB-CG	5.70	128.41	115.30
3	SA	373	G	N3-C4-C5	-5.70	125.75	128.60
3	SA	310	C	C6-N1-C2	-5.70	118.02	120.30
3	SA	1199	G	N3-C4-N9	5.69	129.42	126.00
3	SA	1521	G	P-O3'-C3'	5.69	126.53	119.70
1	3A	201	C	N3-C2-O2	-5.68	117.92	121.90
29	AE	604	LEU	CA-CB-CG	5.68	128.36	115.30
3	SA	376	C	C6-N1-C1'	-5.67	114.00	120.80
3	SA	1034	C	N1-C2-O2	5.67	122.30	118.90
3	SA	1518	C	C6-N1-C2	-5.67	118.03	120.30
35	B8	387	LEU	CA-CB-CG	5.67	128.33	115.30
45	5I	62	LEU	CA-CB-CG	5.66	128.32	115.30
3	SA	569	C	C6-N1-C2	-5.66	118.04	120.30
25	A4	422	LEU	CA-CB-CG	5.65	128.30	115.30
3	SA	1174	C	C5-C6-N1	5.63	123.81	121.00
32	B1	716	ASP	CB-CG-OD1	5.63	123.37	118.30
3	SA	1743	U	N3-C2-O2	-5.63	118.26	122.20
31	AG	449	LEU	CA-CB-CG	5.62	128.23	115.30
3	SA	273	G	N3-C4-N9	5.58	129.35	126.00
3	SA	1056	U	C2-N1-C1'	5.58	124.40	117.70
3	SA	894	U	N3-C2-O2	-5.58	118.30	122.20
25	A4	534	LEU	CA-CB-CG	5.58	128.12	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	SA	411	C	N3-C2-O2	-5.57	118.00	121.90
3	SA	1705	C	C6-N1-C2	-5.57	118.07	120.30
3	SA	1441	C	N1-C2-O2	5.56	122.24	118.90
28	A9	516	LEU	CA-CB-CG	5.55	128.07	115.30
3	SA	273	G	N3-C4-C5	-5.55	125.83	128.60
36	BE	417	LEU	CA-CB-CG	5.54	128.04	115.30
2	5A	326	C	N1-C2-O2	5.54	122.22	118.90
3	SA	38	C	C6-N1-C2	-5.54	118.09	120.30
39	5C	414	LEU	CA-CB-CG	5.53	128.02	115.30
2	5A	355	C	C6-N1-C1'	-5.52	114.18	120.80
54	RG	50	LEU	CA-CB-CG	5.51	127.98	115.30
2	5A	90	G	C8-N9-C1'	5.51	134.16	127.00
35	B8	272	LEU	CA-CB-CG	5.51	127.96	115.30
3	SA	87	C	C5-C6-N1	5.50	123.75	121.00
5	SF	42	LEU	CA-CB-CG	5.50	127.96	115.30
3	SA	1585	U	N1-C2-O2	5.50	126.65	122.80
2	5A	360	C	C2-N1-C1'	5.49	124.84	118.80
29	AE	526	LEU	CA-CB-CG	5.49	127.93	115.30
3	SA	1161	C	C5-C6-N1	5.48	123.74	121.00
47	5K	17	LEU	CA-CB-CG	5.48	127.91	115.30
29	AE	370	LEU	CA-CB-CG	5.48	127.89	115.30
3	SA	965	U	N1-C2-O2	5.47	126.63	122.80
3	SA	1734	U	N1-C2-O2	5.46	126.62	122.80
20	3C	306	LEU	CA-CB-CG	5.45	127.84	115.30
36	BE	614	LEU	CA-CB-CG	5.45	127.84	115.30
3	SA	1783	C	C6-N1-C2	-5.45	118.12	120.30
3	SA	38	C	C2-N1-C1'	5.45	124.79	118.80
39	5C	416	LEU	CA-CB-CG	5.45	127.83	115.30
34	B3	471	PRO	C-N-CA	5.45	135.31	121.70
3	SA	50	C	C2-N1-C1'	5.44	124.79	118.80
1	3A	89	C	N3-C2-O2	-5.44	118.09	121.90
3	SA	894	U	C2-N1-C1'	5.44	124.22	117.70
3	SA	373	G	C4-N9-C1'	5.43	133.56	126.50
3	SA	1585	U	N3-C2-O2	-5.43	118.40	122.20
56	RK	296	LEU	CA-CB-CG	5.43	127.78	115.30
3	SA	608	U	N3-C2-O2	-5.42	118.40	122.20
4	SC	172	LEU	CA-CB-CG	5.42	127.77	115.30
3	SA	275	C	C5-C6-N1	5.42	123.71	121.00
3	SA	935	U	N3-C2-O2	-5.42	118.41	122.20
3	SA	258	C	C6-N1-C1'	-5.41	114.30	120.80
31	AG	323	LEU	CA-CB-CG	5.41	127.75	115.30
3	SA	1496	U	C2-N1-C1'	5.41	124.19	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	SA	258	C	C6-N1-C2	-5.40	118.14	120.30
1	3A	248	G	P-O3'-C3'	5.40	126.18	119.70
3	SA	916	U	N3-C2-O2	-5.40	118.42	122.20
3	SA	514	G	C8-N9-C4	-5.40	104.24	106.40
34	B3	736	LEU	CA-CB-CG	5.39	127.71	115.30
3	SA	128	U	C2-N1-C1'	5.38	124.16	117.70
29	AE	547	ILE	CG1-CB-CG2	-5.38	99.55	111.40
3	SA	1448	G	N1-C6-O6	-5.38	116.67	119.90
3	SA	908	U	N3-C2-O2	-5.38	118.43	122.20
3	SA	1717	G	C4-N9-C1'	5.38	133.49	126.50
3	SA	648	G	C6-C5-N7	-5.38	127.17	130.40
21	3D	152	LEU	CA-CB-CG	5.37	127.65	115.30
64	RV	204	GLY	N-CA-C	5.37	126.52	113.10
3	SA	1174	C	C6-N1-C1'	-5.37	114.36	120.80
31	AG	889	ASP	CB-CG-OD1	5.37	123.13	118.30
3	SA	311	U	C5-C6-N1	5.36	125.38	122.70
23	3F	315	LEU	CA-CB-CG	5.36	127.63	115.30
3	SA	607	G	C8-N9-C4	-5.36	104.26	106.40
2	5A	312	U	O4'-C1'-N1	5.36	112.49	108.20
3	SA	79	C	N1-C2-O2	5.35	122.11	118.90
3	SA	908	U	N1-C2-O2	5.35	126.54	122.80
3	SA	530	C	N1-C2-O2	5.34	122.11	118.90
22	3E	401	LEU	CA-CB-CG	5.34	127.58	115.30
3	SA	75	U	C2-N1-C1'	5.34	124.10	117.70
52	RE	1037	LEU	CA-CB-CG	-5.34	103.02	115.30
34	B3	162	LEU	CB-CG-CD2	-5.33	101.93	111.00
3	SA	1439	C	N1-C2-O2	5.33	122.10	118.90
60	RP	155	LEU	CA-CB-CG	5.33	127.56	115.30
3	SA	937	C	C6-N1-C2	-5.32	118.17	120.30
3	SA	38	C	N3-C2-O2	-5.32	118.18	121.90
2	5A	90	G	C4-N9-C1'	-5.32	119.59	126.50
52	RE	365	LEU	CA-CB-CG	5.32	127.53	115.30
3	SA	680	U	C5-C6-N1	5.31	125.35	122.70
52	RE	840	LEU	CA-CB-CG	5.31	127.50	115.30
3	SA	1760	G	C2-N3-C4	5.30	114.55	111.90
3	SA	1064	G	C4-N9-C1'	5.30	133.39	126.50
3	SA	1646	C	N1-C2-O2	5.29	122.08	118.90
3	SA	25	C	C2-N1-C1'	5.29	124.61	118.80
3	SA	680	U	N1-C2-O2	5.28	126.50	122.80
3	SA	960	U	N3-C2-O2	-5.27	118.51	122.20
39	5C	148	LEU	CA-CB-CG	5.27	127.43	115.30
3	SA	380	U	N1-C2-O2	5.27	126.49	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	SA	916	U	N1-C2-O2	5.26	126.48	122.80
3	SA	1708	U	C2-N1-C1'	5.26	124.02	117.70
3	SA	49	C	C5-C6-N1	5.26	123.63	121.00
3	SA	50	C	C6-N1-C2	-5.26	118.19	120.30
3	SA	443	C	C5-C6-N1	5.26	123.63	121.00
36	BE	536	LEU	CB-CG-CD2	-5.26	102.06	111.00
3	SA	1269	U	N3-C2-O2	-5.26	118.52	122.20
3	SA	1664	C	N3-C2-O2	-5.26	118.22	121.90
59	RO	388	LEU	CA-CB-CG	5.25	127.36	115.30
3	SA	8	U	N3-C2-O2	-5.24	118.53	122.20
22	3E	227	LEU	CA-CB-CG	5.24	127.35	115.30
3	SA	935	U	C5-C6-N1	5.24	125.32	122.70
3	SA	-7	A	OP1-P-O3'	5.23	116.72	105.20
23	3F	348	LEU	CA-CB-CG	5.23	127.33	115.30
15	SX	93	LEU	CA-CB-CG	5.23	127.33	115.30
53	RF	147	LEU	CA-CB-CG	5.23	127.32	115.30
34	B3	12	LEU	CA-CB-CG	5.22	127.31	115.30
52	RE	1105	PRO	CA-C-N	5.22	128.69	117.20
3	SA	279	G	N3-C4-N9	-5.22	122.87	126.00
29	AE	94	LEU	CA-CB-CG	5.22	127.30	115.30
3	SA	827	C	C2-N1-C1'	5.21	124.53	118.80
26	A5	151	LEU	CA-CB-CG	5.21	127.29	115.30
60	RP	1770	LEU	CA-CB-CG	5.21	127.28	115.30
42	5F	67	THR	C-N-CA	-5.21	108.69	121.70
3	SA	373	G	N3-C4-N9	5.20	129.12	126.00
3	SA	1269	U	N1-C2-O2	5.19	126.44	122.80
22	3E	141	LEU	CA-CB-CG	5.19	127.24	115.30
3	SA	677	G	N3-C4-N9	-5.19	122.89	126.00
34	B3	394	LEU	CA-CB-CG	5.18	127.23	115.30
1	3A	39	C	C2-N1-C1'	5.18	124.50	118.80
3	SA	612	U	N1-C2-O2	5.18	126.43	122.80
33	B2	267	ASP	C-N-CA	5.18	134.65	121.70
3	SA	380	U	N3-C2-O2	-5.18	118.58	122.20
35	B8	521	LEU	CB-CG-CD1	-5.18	102.20	111.00
1	3A	39	C	C6-N1-C2	-5.17	118.23	120.30
1	3A	205	G	P-O3'-C3'	5.16	125.89	119.70
4	SC	110	LEU	CA-CB-CG	5.15	127.14	115.30
3	SA	1704	U	C2-N1-C1'	5.15	123.88	117.70
3	SA	443	C	C6-N1-C2	-5.14	118.24	120.30
3	SA	861	U	N3-C2-O2	-5.14	118.60	122.20
59	RO	211	LEU	CA-CB-CG	5.14	127.13	115.30
2	5A	310	U	C6-N1-C2	-5.14	117.92	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	SA	273	G	C8-N9-C1'	-5.14	120.32	127.00
3	SA	411	C	C6-N1-C2	-5.14	118.25	120.30
3	SA	1783	C	C5-C6-N1	5.14	123.57	121.00
2	5A	390	C	C5-C6-N1	5.13	123.57	121.00
56	RK	325	LEU	CA-CB-CG	5.13	127.09	115.30
2	5A	355	C	C5-C6-N1	5.12	123.56	121.00
3	SA	885	G	N1-C6-O6	-5.11	116.83	119.90
2	5A	317	C	C6-N1-C2	-5.09	118.26	120.30
25	A4	465	LEU	CA-CB-CG	5.09	127.02	115.30
1	3A	249	G	O5'-P-OP1	-5.09	101.12	105.70
3	SA	1492	A	C4-N9-C1'	5.09	135.46	126.30
3	SA	1535	U	C6-N1-C2	-5.09	117.95	121.00
3	SA	35	U	C5-C6-N1	5.09	125.24	122.70
1	3A	89	C	C6-N1-C1'	-5.08	114.70	120.80
2	5A	238	G	C8-N9-C4	-5.08	104.37	106.40
3	SA	130	C	C2-N1-C1'	5.07	124.38	118.80
3	SA	1053	G	C8-N9-C4	-5.07	104.37	106.40
14	SR	123	ARG	C-N-CD	-5.07	109.46	120.60
1	3A	200	C	C6-N1-C2	-5.06	118.27	120.30
1	3A	198	U	OP1-P-O3'	5.06	116.34	105.20
3	SA	75	U	N3-C2-O2	-5.06	118.66	122.20
53	RF	58	LEU	CA-CB-CG	5.06	126.93	115.30
52	RE	1102	LEU	CA-CB-CG	5.05	126.93	115.30
3	SA	1664	C	N1-C2-O2	5.05	121.93	118.90
3	SA	861	U	C5-C6-N1	5.05	125.22	122.70
2	5A	363	A	P-O3'-C3'	5.05	125.76	119.70
40	5D	91	LEU	CA-CB-CG	5.05	126.91	115.30
59	RO	264	LEU	CA-CB-CG	5.05	126.91	115.30
4	SC	147	ALA	C-N-CA	5.04	134.31	121.70
25	A4	435	PRO	C-N-CA	5.04	134.31	121.70
32	B1	701	LEU	CA-CB-CG	5.04	126.90	115.30
3	SA	1664	C	C2-N1-C1'	5.04	124.34	118.80
33	B2	231	LEU	CA-CB-CG	5.04	126.90	115.30
51	RD	1502	LEU	CA-CB-CG	5.04	126.89	115.30
3	SA	414	C	C5-C6-N1	5.03	123.52	121.00
3	SA	1222	C	C5-C6-N1	5.03	123.52	121.00
3	SA	35	U	N1-C2-O2	5.03	126.32	122.80
52	RE	396	LEU	CA-CB-CG	5.03	126.86	115.30
3	SA	885	G	N9-C4-C5	5.03	107.41	105.40
32	B1	436	LEU	CA-CB-CG	5.02	126.84	115.30
3	SA	1025	A	O4'-C1'-N9	5.01	112.21	108.20
3	SA	960	U	N1-C2-O2	5.01	126.31	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	SA	1717	G	N3-C4-N9	5.01	129.00	126.00
59	RO	202	LEU	CA-CB-CG	5.01	126.81	115.30
60	RP	2033	LYS	C-N-CA	5.01	134.22	121.70
3	SA	1636	C	C5-C6-N1	5.00	123.50	121.00
3	SA	1664	C	C6-N1-C2	-5.00	118.30	120.30
58	RN	744	LEU	CA-CB-CG	5.00	126.80	115.30

There are no chirality outliers.

All (78) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
21	3D	142	LEU	Peptide
21	3D	202	HIS	Peptide
21	3D	286	ARG	Peptide
22	3E	331	LYS	Peptide
23	3F	237	ASP	Peptide
24	3G	59	GLU	Peptide
24	3G	9	PHE	Peptide
24	3H	59	GLU	Peptide
39	5C	540	GLU	Peptide
39	5C	551	SER	Peptide
40	5D	138	ASP	Peptide
41	5E	453	SER	Peptide
42	5F	101	VAL	Peptide
43	5G	74	ASP	Peptide
45	5I	230	ASN	Peptide
45	5I	283	ASP	Peptide
25	A4	54	LYS	Peptide
26	A5	167	SER	Peptide
27	A8	257	SER	Peptide
27	A8	266	ILE	Peptide
27	A8	496	TYR	Peptide
27	A8	529	HIS	Peptide
31	AG	178	PHE	Peptide
31	AG	780	GLU	Peptide
32	B1	288	ASP	Peptide
32	B1	661	LEU	Peptide
32	B1	690	ALA	Peptide
33	B2	131	GLY	Peptide
33	B2	213	LYS	Peptide
33	B2	266	SER	Peptide
33	B2	267	ASP	Peptide

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Mol	Chain	Res	Type	Group
33	B2	278	ASP	Peptide
33	B2	44	SER	Peptide
33	B2	613	ALA	Peptide
33	B2	916	HIS	Peptide
33	B2	918	TYR	Peptide
34	B3	34	THR	Peptide
34	B3	435	ALA	Peptide
34	B3	473	ALA	Peptide
34	B3	479	ILE	Peptide
34	B3	480	ILE	Peptide
34	B3	585	ASN	Peptide
34	B3	593	CYS	Peptide
34	B3	594	GLY	Peptide
34	B3	627	ASN	Peptide
34	B3	89	HIS	Peptide
34	B3	90	LEU	Peptide
36	BE	94	TYR	Peptide
48	RA	111	TRP	Peptide
48	RA	173	LEU	Peptide
49	RB	261	SER	Peptide
52	RE	767	GLN	Peptide
53	RF	253	ALA	Peptide
55	RJ	1026	LYS	Peptide
55	RJ	868	ARG	Peptide
56	RK	333	PHE	Peptide
57	RL	743	VAL	Peptide
57	RM	743	VAL	Peptide
58	RN	286	SER	Peptide
59	RO	144	PRO	Peptide
60	RP	1746	LYS	Peptide
60	RP	2051	ASP	Peptide
60	RP	835	LEU	Peptide
61	RQ	313	PHE	Peptide
64	RV	203	ILE	Peptide
64	RV	261	GLY	Peptide
4	SC	238	GLU	Peptide
5	SF	193	GLY	Peptide
5	SF	195	ILE	Peptide
8	SI	133	THR	Peptide
8	SI	31	SER	Peptide
8	SI	64	VAL	Peptide
9	SJ	85	PRO	Peptide

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Mol	Chain	Res	Type	Group
11	SM	128	CYS	Peptide
12	SO	58	HIS	Peptide
13	SP	90	ARG	Peptide
17	SZ	76	TYR	Peptide
18	Sc	49	HIS	Peptide

5.2 Too-close contacts

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles

5.3.1 Protein backbone

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	SC	228/255 (89%)	196 (86%)	32 (14%)	0	100	100
5	SF	227/261 (87%)	197 (87%)	29 (13%)	1 (0%)	34	71
6	SG	211/225 (94%)	195 (92%)	16 (8%)	0	100	100
7	SH	161/236 (68%)	143 (89%)	18 (11%)	0	100	100
8	SI	161/190 (85%)	143 (89%)	18 (11%)	0	100	100
9	SJ	162/200 (81%)	140 (86%)	22 (14%)	0	100	100
10	SK	169/197 (86%)	163 (96%)	6 (4%)	0	100	100
11	SM	119/156 (76%)	103 (87%)	16 (13%)	0	100	100
12	SO	132/151 (87%)	123 (93%)	9 (7%)	0	100	100
13	SP	116/137 (85%)	99 (85%)	16 (14%)	1 (1%)	17	54
14	SR	123/143 (86%)	112 (91%)	11 (9%)	0	100	100
15	SX	125/130 (96%)	119 (95%)	6 (5%)	0	100	100
16	SY	101/145 (70%)	90 (89%)	11 (11%)	0	100	100
17	SZ	100/135 (74%)	87 (87%)	12 (12%)	1 (1%)	15	52

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	Sc	78/82 (95%)	69 (88%)	9 (12%)	0	100	100
19	Sd	61/67 (91%)	57 (93%)	4 (7%)	0	100	100
20	3B	236/327 (72%)	222 (94%)	14 (6%)	0	100	100
20	3C	221/327 (68%)	207 (94%)	14 (6%)	0	100	100
21	3D	359/504 (71%)	346 (96%)	13 (4%)	0	100	100
22	3E	427/511 (84%)	387 (91%)	40 (9%)	0	100	100
23	3F	446/573 (78%)	403 (90%)	42 (9%)	1 (0%)	47	80
24	3G	119/126 (94%)	107 (90%)	11 (9%)	1 (1%)	19	58
24	3H	119/126 (94%)	111 (93%)	8 (7%)	0	100	100
25	A4	648/776 (84%)	590 (91%)	58 (9%)	0	100	100
26	A5	504/643 (78%)	465 (92%)	39 (8%)	0	100	100
27	A8	534/713 (75%)	398 (74%)	134 (25%)	2 (0%)	34	71
28	A9	126/575 (22%)	115 (91%)	11 (9%)	0	100	100
29	AE	1496/1769 (85%)	1367 (91%)	129 (9%)	0	100	100
30	AF	489/513 (95%)	442 (90%)	47 (10%)	0	100	100
31	AG	812/896 (91%)	731 (90%)	80 (10%)	1 (0%)	51	84
32	B1	830/923 (90%)	767 (92%)	63 (8%)	0	100	100
33	B2	839/943 (89%)	749 (89%)	88 (10%)	2 (0%)	47	80
34	B3	733/817 (90%)	606 (83%)	125 (17%)	2 (0%)	41	75
35	B8	469/594 (79%)	439 (94%)	30 (6%)	0	100	100
36	BE	857/939 (91%)	803 (94%)	54 (6%)	0	100	100
37	B6	368/440 (84%)	341 (93%)	27 (7%)	0	100	100
38	5B	58/214 (27%)	55 (95%)	3 (5%)	0	100	100
39	5C	531/554 (96%)	487 (92%)	43 (8%)	1 (0%)	47	80
40	5D	165/250 (66%)	145 (88%)	20 (12%)	0	100	100
41	5E	200/593 (34%)	183 (92%)	16 (8%)	1 (0%)	29	67
42	5F	180/183 (98%)	172 (96%)	8 (4%)	0	100	100
43	5G	278/290 (96%)	256 (92%)	22 (8%)	0	100	100
44	5H	72/610 (12%)	65 (90%)	7 (10%)	0	100	100
45	5I	457/489 (94%)	421 (92%)	36 (8%)	0	100	100
46	5J	147/217 (68%)	136 (92%)	11 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
47	5K	171/189 (90%)	166 (97%)	5 (3%)	0	100	100
48	RA	332/707 (47%)	276 (83%)	56 (17%)	0	100	100
49	RB	132/357 (37%)	117 (89%)	14 (11%)	1 (1%)	19	58
50	RC	276/316 (87%)	259 (94%)	17 (6%)	0	100	100
51	RD	310/1729 (18%)	284 (92%)	23 (7%)	3 (1%)	15	52
52	RE	1067/1237 (86%)	999 (94%)	68 (6%)	0	100	100
53	RF	233/297 (78%)	203 (87%)	30 (13%)	0	100	100
54	RG	212/252 (84%)	182 (86%)	30 (14%)	0	100	100
54	RH	226/252 (90%)	219 (97%)	7 (3%)	0	100	100
55	RJ	784/1183 (66%)	721 (92%)	62 (8%)	1 (0%)	51	84
56	RK	358/367 (98%)	341 (95%)	17 (5%)	0	100	100
57	RL	781/1056 (74%)	664 (85%)	115 (15%)	2 (0%)	41	75
57	RM	738/1056 (70%)	625 (85%)	109 (15%)	4 (0%)	29	67
58	RN	593/810 (73%)	545 (92%)	47 (8%)	1 (0%)	47	80
59	RO	523/552 (95%)	455 (87%)	68 (13%)	0	100	100
60	RP	2042/2493 (82%)	1815 (89%)	226 (11%)	1 (0%)	100	100
61	RQ	220/899 (24%)	199 (90%)	21 (10%)	0	100	100
62	RS	247/483 (51%)	225 (91%)	22 (9%)	0	100	100
63	RT	165/326 (51%)	150 (91%)	15 (9%)	0	100	100
64	RV	184/346 (53%)	165 (90%)	19 (10%)	0	100	100
65	RY	35/534 (7%)	29 (83%)	6 (17%)	0	100	100
All	All	24623/34586 (71%)	22191 (90%)	2405 (10%)	27 (0%)	54	84

All (27) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
41	5E	454	VAL
51	RD	1223	PRO
57	RL	744	PRO
57	RM	744	PRO
57	RM	905	PRO
17	SZ	51	GLU
55	RJ	82	LYS
27	A8	309	PRO
31	AG	434	GLN

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Mol	Chain	Res	Type
33	B2	132	THR
34	B3	91	LYS
57	RM	904	LEU
58	RN	285	PRO
23	3F	552	TRP
5	SF	194	THR
27	A8	308	PHE
33	B2	118	ASN
49	RB	274	ILE
51	RD	1204	VAL
51	RD	1222	LYS
57	RL	743	VAL
57	RM	743	VAL
13	SP	123	SER
34	B3	71	PRO
39	5C	16	GLU
60	RP	2052	GLN
24	3G	10	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
4	SC	203/224 (91%)	201 (99%)	2 (1%)	76 85
5	SF	196/222 (88%)	190 (97%)	6 (3%)	40 63
6	SG	180/191 (94%)	180 (100%)	0	100 100
7	SH	139/201 (69%)	137 (99%)	2 (1%)	67 80
8	SI	146/170 (86%)	145 (99%)	1 (1%)	84 90
9	SJ	136/161 (84%)	134 (98%)	2 (2%)	65 79
10	SK	147/166 (89%)	146 (99%)	1 (1%)	84 90
11	SM	110/137 (80%)	108 (98%)	2 (2%)	59 77
12	SO	117/128 (91%)	116 (99%)	1 (1%)	78 87
13	SP	90/105 (86%)	90 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
14	SR	105/119 (88%)	105 (100%)	0	100	100
15	SX	108/111 (97%)	107 (99%)	1 (1%)	78	87
16	SY	85/120 (71%)	84 (99%)	1 (1%)	71	83
17	SZ	85/113 (75%)	85 (100%)	0	100	100
18	Sc	69/71 (97%)	69 (100%)	0	100	100
19	Sd	56/60 (93%)	56 (100%)	0	100	100
20	3B	201/240 (84%)	201 (100%)	0	100	100
20	3C	190/240 (79%)	187 (98%)	3 (2%)	62	78
21	3D	296/435 (68%)	293 (99%)	3 (1%)	76	85
22	3E	262/433 (60%)	261 (100%)	1 (0%)	91	94
23	3F	396/503 (79%)	394 (100%)	2 (0%)	88	93
24	3G	100/104 (96%)	100 (100%)	0	100	100
24	3H	100/104 (96%)	100 (100%)	0	100	100
25	A4	591/713 (83%)	584 (99%)	7 (1%)	71	83
26	A5	433/574 (75%)	432 (100%)	1 (0%)	93	96
27	A8	174/657 (26%)	173 (99%)	1 (1%)	86	92
28	A9	89/533 (17%)	89 (100%)	0	100	100
29	AE	708/1633 (43%)	705 (100%)	3 (0%)	91	94
30	AF	437/454 (96%)	433 (99%)	4 (1%)	78	87
31	AG	750/826 (91%)	740 (99%)	10 (1%)	69	81
32	B1	730/812 (90%)	726 (100%)	4 (0%)	88	93
33	B2	736/832 (88%)	731 (99%)	5 (1%)	84	90
34	B3	665/719 (92%)	655 (98%)	10 (2%)	65	79
35	B8	421/529 (80%)	420 (100%)	1 (0%)	93	96
36	BE	757/819 (92%)	754 (100%)	3 (0%)	91	94
37	B6	251/414 (61%)	247 (98%)	4 (2%)	62	78
38	5B	57/196 (29%)	55 (96%)	2 (4%)	36	61
39	5C	465/480 (97%)	463 (100%)	2 (0%)	91	94
40	5D	156/234 (67%)	154 (99%)	2 (1%)	69	81
41	5E	185/535 (35%)	184 (100%)	1 (0%)	88	93
42	5F	171/172 (99%)	170 (99%)	1 (1%)	86	92

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
43	5G	251/258 (97%)	249 (99%)	2 (1%)	81 88
44	5H	63/538 (12%)	63 (100%)	0	100 100
45	5I	416/443 (94%)	414 (100%)	2 (0%)	88 93
46	5J	140/200 (70%)	140 (100%)	0	100 100
47	5K	157/169 (93%)	157 (100%)	0	100 100
48	RA	303/636 (48%)	300 (99%)	3 (1%)	76 85
49	RB	117/315 (37%)	114 (97%)	3 (3%)	46 67
50	RC	231/289 (80%)	230 (100%)	1 (0%)	91 94
51	RD	226/1544 (15%)	220 (97%)	6 (3%)	44 66
52	RE	984/1125 (88%)	975 (99%)	9 (1%)	78 87
53	RF	221/274 (81%)	219 (99%)	2 (1%)	78 87
54	RG	195/222 (88%)	193 (99%)	2 (1%)	76 85
54	RH	206/222 (93%)	204 (99%)	2 (1%)	76 85
55	RJ	683/1039 (66%)	676 (99%)	7 (1%)	76 85
56	RK	307/312 (98%)	303 (99%)	4 (1%)	69 81
57	RL	164/934 (18%)	162 (99%)	2 (1%)	71 83
58	RN	422/732 (58%)	422 (100%)	0	100 100
59	RO	329/506 (65%)	328 (100%)	1 (0%)	92 95
60	RP	499/2307 (22%)	493 (99%)	6 (1%)	71 83
61	RQ	148/808 (18%)	145 (98%)	3 (2%)	55 73
62	RS	225/424 (53%)	225 (100%)	0	100 100
63	RT	148/282 (52%)	146 (99%)	2 (1%)	67 80
64	RV	141/304 (46%)	141 (100%)	0	100 100
65	RY	31/482 (6%)	30 (97%)	1 (3%)	39 62
All	All	17900/29855 (60%)	17753 (99%)	147 (1%)	82 88

All (147) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	SC	172	LEU
4	SC	205	PHE
5	SF	108	ARG
5	SF	143	ASP
5	SF	206	ASP

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Mol	Chain	Res	Type
5	SF	207	LEU
5	SF	211	LYS
5	SF	240	LYS
7	SH	71	THR
7	SH	92	ARG
8	SI	189	THR
9	SJ	165	LEU
9	SJ	195	ARG
10	SK	57	ARG
11	SM	43	LYS
11	SM	136	ARG
12	SO	87	ASP
15	SX	70	ASN
16	SY	97	ASP
20	3C	237	VAL
20	3C	262	LYS
20	3C	306	LEU
21	3D	103	LYS
21	3D	129	ARG
21	3D	285	ARG
22	3E	265	PHE
23	3F	370	ARG
23	3F	506	ARG
25	A4	190	VAL
25	A4	282	ASP
25	A4	423	LYS
25	A4	436	ASP
25	A4	648	PHE
25	A4	739	LYS
25	A4	776	PHE
26	A5	434	THR
27	A8	576	ARG
29	AE	617	LYS
29	AE	645	ARG
29	AE	699	ARG
30	AF	199	ARG
30	AF	261	VAL
30	AF	432	TYR
30	AF	508	LEU
31	AG	141	LEU
31	AG	259	VAL
31	AG	336	ARG

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Mol	Chain	Res	Type
31	AG	368	ASP
31	AG	421	LYS
31	AG	434	GLN
31	AG	435	ASP
31	AG	436	PHE
31	AG	615	TRP
31	AG	716	ARG
32	B1	164	THR
32	B1	249	ARG
32	B1	519	LEU
32	B1	661	LEU
33	B2	47	GLU
33	B2	75	ARG
33	B2	144	ASN
33	B2	576	VAL
33	B2	588	ILE
34	B3	30	LYS
34	B3	67	LEU
34	B3	95	VAL
34	B3	212	LEU
34	B3	222	LEU
34	B3	358	ASN
34	B3	533	LYS
34	B3	534	ARG
34	B3	554	ASP
34	B3	570	THR
35	B8	22	LEU
36	BE	309	ILE
36	BE	570	ILE
36	BE	728	ARG
37	B6	4	THR
37	B6	67	ARG
37	B6	106	ASP
37	B6	133	TYR
38	5B	158	LYS
38	5B	211	LEU
39	5C	153	THR
39	5C	392	VAL
40	5D	18	GLN
40	5D	161	ARG
41	5E	314	LEU
42	5F	159	THR

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Mol	Chain	Res	Type
43	5G	209	LEU
43	5G	234	ARG
45	5I	250	ARG
45	5I	417	ARG
48	RA	76	THR
48	RA	210	ARG
48	RA	227	ARG
49	RB	331	LYS
49	RB	338	THR
49	RB	341	ARG
50	RC	62	ARG
51	RD	1466	ARG
51	RD	1521	LEU
51	RD	1668	LYS
51	RD	1670	LYS
51	RD	1686	LYS
51	RD	1706	LYS
52	RE	223	ARG
52	RE	227	LYS
52	RE	289	ARG
52	RE	742	PHE
52	RE	1073	ASN
52	RE	1086	ASN
52	RE	1089	PHE
52	RE	1191	LYS
52	RE	1230	MET
53	RF	19	LYS
53	RF	69	LYS
54	RG	32	THR
54	RG	100	LEU
54	RH	82	ARG
54	RH	197	ASP
55	RJ	214	ARG
55	RJ	566	ARG
55	RJ	869	THR
55	RJ	973	ARG
55	RJ	976	ILE
55	RJ	1128	LYS
55	RJ	1141	LYS
56	RK	90	CYS
56	RK	214	LYS
56	RK	335	THR

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Mol	Chain	Res	Type
56	RK	340	LYS
57	RL	9	ARG
57	RL	83	ARG
59	RO	493	TYR
60	RP	201	ARG
60	RP	1749	LYS
60	RP	1770	LEU
60	RP	1813	LYS
60	RP	1815	CYS
60	RP	1896	ILE
61	RQ	330	THR
61	RQ	898	PHE
61	RQ	899	LYS
63	RT	129	ARG
63	RT	211	LYS
65	RY	487	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (304) such sidechains are listed below:

Mol	Chain	Res	Type
4	SC	74	GLN
4	SC	92	GLN
4	SC	101	HIS
4	SC	194	ASN
6	SG	63	GLN
6	SG	169	ASN
6	SG	186	ASN
7	SH	140	ASN
7	SH	201	GLN
8	SI	29	ASN
8	SI	42	GLN
8	SI	170	GLN
9	SJ	32	GLN
9	SJ	84	HIS
9	SJ	103	GLN
9	SJ	159	GLN
11	SM	81	HIS
13	SP	12	GLN
14	SR	32	ASN
14	SR	74	HIS
15	SX	12	ASN
15	SX	16	ASN

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Mol	Chain	Res	Type
18	Sc	42	ASN
20	3B	91	HIS
20	3B	183	HIS
20	3B	258	HIS
21	3D	39	ASN
21	3D	85	ASN
21	3D	168	GLN
21	3D	213	ASN
22	3E	191	HIS
22	3E	256	ASN
22	3E	286	ASN
22	3E	289	GLN
22	3E	400	GLN
23	3F	155	ASN
23	3F	235	HIS
23	3F	525	GLN
23	3F	561	ASN
24	3G	19	GLN
24	3G	29	ASN
24	3G	38	ASN
24	3H	5	ASN
24	3H	18	GLN
24	3H	45	ASN
25	A4	53	HIS
25	A4	179	HIS
25	A4	279	HIS
25	A4	292	ASN
25	A4	317	ASN
25	A4	426	GLN
25	A4	438	GLN
25	A4	452	HIS
25	A4	529	ASN
25	A4	589	ASN
26	A5	32	GLN
26	A5	67	ASN
26	A5	115	ASN
26	A5	293	ASN
26	A5	302	ASN
26	A5	316	ASN
26	A5	324	ASN
26	A5	333	ASN
26	A5	443	GLN

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Mol	Chain	Res	Type
27	A8	553	GLN
27	A8	609	ASN
27	A8	636	GLN
28	A9	478	ASN
28	A9	509	GLN
29	AE	14	ASN
29	AE	141	ASN
29	AE	166	ASN
29	AE	219	ASN
29	AE	224	ASN
29	AE	258	HIS
29	AE	477	ASN
29	AE	480	ASN
29	AE	545	ASN
29	AE	673	ASN
29	AE	730	GLN
30	AF	48	ASN
30	AF	64	GLN
30	AF	125	HIS
30	AF	133	HIS
30	AF	156	ASN
30	AF	289	ASN
30	AF	481	GLN
31	AG	50	ASN
31	AG	105	HIS
31	AG	190	GLN
31	AG	266	ASN
31	AG	269	GLN
31	AG	325	GLN
31	AG	332	GLN
31	AG	370	GLN
31	AG	375	ASN
31	AG	393	ASN
31	AG	407	ASN
31	AG	410	ASN
31	AG	453	HIS
31	AG	467	GLN
31	AG	489	ASN
31	AG	568	ASN
31	AG	579	ASN
31	AG	669	ASN
31	AG	706	HIS

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Mol	Chain	Res	Type
31	AG	881	ASN
32	B1	92	HIS
32	B1	142	HIS
32	B1	190	HIS
32	B1	201	HIS
32	B1	297	GLN
32	B1	303	ASN
32	B1	349	ASN
32	B1	386	HIS
32	B1	432	GLN
32	B1	452	ASN
32	B1	456	HIS
32	B1	483	GLN
32	B1	549	GLN
32	B1	552	ASN
32	B1	650	ASN
32	B1	795	ASN
32	B1	813	HIS
32	B1	837	ASN
32	B1	842	ASN
33	B2	172	GLN
33	B2	390	GLN
33	B2	455	GLN
33	B2	524	HIS
33	B2	596	ASN
33	B2	628	HIS
33	B2	629	ASN
33	B2	657	GLN
33	B2	770	ASN
33	B2	791	ASN
33	B2	856	ASN
33	B2	879	GLN
34	B3	241	GLN
34	B3	337	HIS
34	B3	387	HIS
34	B3	519	ASN
34	B3	667	GLN
34	B3	753	HIS
34	B3	767	HIS
34	B3	792	HIS
35	B8	162	ASN
35	B8	167	GLN

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Mol	Chain	Res	Type
35	B8	224	ASN
35	B8	282	ASN
35	B8	311	ASN
35	B8	352	GLN
35	B8	472	GLN
35	B8	492	ASN
35	B8	528	GLN
35	B8	592	ASN
36	BE	163	GLN
36	BE	289	ASN
36	BE	481	ASN
36	BE	501	HIS
36	BE	514	ASN
36	BE	627	ASN
36	BE	708	ASN
36	BE	877	ASN
36	BE	911	ASN
36	BE	916	HIS
37	B6	90	GLN
37	B6	115	ASN
37	B6	166	ASN
37	B6	287	ASN
38	5B	207	ASN
39	5C	101	ASN
39	5C	124	HIS
39	5C	133	HIS
39	5C	151	ASN
39	5C	164	GLN
39	5C	170	GLN
39	5C	371	HIS
39	5C	394	HIS
39	5C	525	ASN
40	5D	42	HIS
40	5D	144	ASN
40	5D	153	ASN
41	5E	303	GLN
41	5E	316	ASN
42	5F	37	HIS
42	5F	125	GLN
42	5F	135	HIS
42	5F	144	ASN
43	5G	143	HIS

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Mol	Chain	Res	Type
43	5G	156	HIS
43	5G	159	HIS
43	5G	193	ASN
44	5H	560	ASN
45	5I	20	GLN
45	5I	46	ASN
45	5I	109	HIS
45	5I	242	ASN
45	5I	260	GLN
45	5I	336	HIS
45	5I	371	ASN
45	5I	406	HIS
45	5I	460	GLN
46	5J	135	HIS
46	5J	184	ASN
46	5J	195	GLN
47	5K	29	GLN
47	5K	43	ASN
48	RA	82	HIS
48	RA	96	HIS
48	RA	119	ASN
48	RA	147	ASN
48	RA	230	GLN
48	RA	268	GLN
48	RA	282	ASN
48	RA	339	HIS
49	RB	314	ASN
49	RB	318	ASN
50	RC	149	ASN
50	RC	151	ASN
50	RC	255	GLN
51	RD	1485	GLN
51	RD	1522	ASN
51	RD	1525	ASN
52	RE	170	GLN
52	RE	293	ASN
52	RE	402	ASN
52	RE	409	ASN
52	RE	506	GLN
52	RE	520	ASN
52	RE	537	ASN
52	RE	568	ASN

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Mol	Chain	Res	Type
52	RE	602	ASN
52	RE	834	ASN
52	RE	841	ASN
52	RE	872	ASN
52	RE	969	ASN
52	RE	1029	ASN
52	RE	1033	ASN
52	RE	1073	ASN
52	RE	1078	HIS
52	RE	1086	ASN
52	RE	1194	HIS
52	RE	1199	ASN
52	RE	1203	ASN
52	RE	1215	ASN
52	RE	1228	ASN
53	RF	23	HIS
53	RF	73	GLN
53	RF	90	ASN
53	RF	135	ASN
53	RF	136	ASN
53	RF	187	HIS
53	RF	197	GLN
54	RG	105	ASN
54	RG	125	ASN
54	RH	69	ASN
54	RH	125	ASN
54	RH	250	ASN
55	RJ	126	ASN
55	RJ	157	ASN
55	RJ	276	HIS
55	RJ	289	HIS
55	RJ	778	GLN
56	RK	16	ASN
56	RK	334	ASN
57	RL	16	ASN
57	RL	75	ASN
57	RL	133	ASN
58	RN	8	ASN
58	RN	56	ASN
58	RN	482	GLN
58	RN	703	GLN
58	RN	771	ASN

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Mol	Chain	Res	Type
58	RN	797	ASN
59	RO	192	GLN
59	RO	266	ASN
59	RO	268	GLN
59	RO	273	GLN
59	RO	304	ASN
59	RO	306	GLN
59	RO	343	GLN
59	RO	434	ASN
59	RO	472	HIS
59	RO	474	HIS
60	RP	58	ASN
60	RP	1686	GLN
60	RP	1702	HIS
60	RP	1707	HIS
60	RP	1785	ASN
60	RP	1787	ASN
60	RP	1802	HIS
60	RP	1816	HIS
61	RQ	303	GLN
61	RQ	310	HIS
61	RQ	344	GLN
61	RQ	839	ASN
61	RQ	867	GLN
61	RQ	876	GLN
63	RT	127	GLN
63	RT	218	ASN
63	RT	232	HIS
64	RV	222	ASN
64	RV	224	HIS

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	3A	169/333 (50%)	44 (26%)	2 (1%)
2	5A	365/700 (52%)	104 (28%)	7 (1%)
3	SA	1302/1808 (72%)	493 (37%)	19 (1%)
All	All	1836/2841 (64%)	641 (34%)	28 (1%)

All (641) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	3A	2	U
1	3A	14	A
1	3A	15	U
1	3A	24	U
1	3A	25	U
1	3A	27	U
1	3A	28	A
1	3A	30	A
1	3A	33	A
1	3A	35	U
1	3A	38	U
1	3A	56	A
1	3A	60	A
1	3A	61	G
1	3A	87	G
1	3A	88	U
1	3A	89	C
1	3A	90	C
1	3A	91	C
1	3A	101	G
1	3A	111	G
1	3A	115	G
1	3A	198	U
1	3A	199	G
1	3A	201	C
1	3A	204	U
1	3A	205	G
1	3A	206	C
1	3A	246	A
1	3A	248	G
1	3A	249	G
1	3A	252	C
1	3A	305	G
1	3A	309	G
1	3A	310	G
1	3A	311	G
1	3A	313	A
1	3A	314	C
1	3A	322	A
1	3A	324	U
1	3A	325	C
1	3A	328	A
1	3A	329	C

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Mol	Chain	Res	Type
1	3A	332	G
2	5A	5	G
2	5A	6	A
2	5A	7	A
2	5A	8	A
2	5A	11	A
2	5A	13	U
2	5A	14	U
2	5A	15	G
2	5A	63	G
2	5A	64	U
2	5A	70	A
2	5A	82	A
2	5A	83	U
2	5A	86	C
2	5A	87	C
2	5A	90	G
2	5A	143	A
2	5A	144	C
2	5A	150	G
2	5A	151	U
2	5A	152	U
2	5A	156	U
2	5A	159	A
2	5A	161	A
2	5A	162	U
2	5A	163	G
2	5A	167	U
2	5A	168	G
2	5A	169	A
2	5A	235	A
2	5A	240	C
2	5A	267	U
2	5A	268	G
2	5A	279	A
2	5A	280	A
2	5A	281	G
2	5A	292	A
2	5A	294	U
2	5A	304	U
2	5A	305	A
2	5A	309	A

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Mol	Chain	Res	Type
2	5A	310	U
2	5A	311	C
2	5A	312	U
2	5A	313	A
2	5A	321	G
2	5A	322	A
2	5A	325	U
2	5A	326	C
2	5A	328	A
2	5A	337	G
2	5A	339	A
2	5A	346	G
2	5A	350	A
2	5A	353	A
2	5A	354	G
2	5A	355	C
2	5A	359	U
2	5A	361	G
2	5A	363	A
2	5A	364	A
2	5A	368	U
2	5A	369	G
2	5A	370	U
2	5A	371	G
2	5A	372	A
2	5A	373	U
2	5A	381	G
2	5A	385	A
2	5A	386	A
2	5A	391	C
2	5A	393	C
2	5A	395	C
2	5A	407	A
2	5A	440	U
2	5A	443	G
2	5A	444	U
2	5A	468	A
2	5A	472	A
2	5A	474	A
2	5A	481	U
2	5A	482	A
2	5A	485	G

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Mol	Chain	Res	Type
2	5A	487	A
2	5A	488	U
2	5A	490	G
2	5A	491	U
2	5A	493	A
2	5A	519	A
2	5A	525	U
2	5A	526	U
2	5A	536	A
2	5A	537	G
2	5A	539	A
2	5A	540	U
2	5A	541	U
2	5A	542	U
2	5A	548	A
2	5A	549	G
2	5A	583	U
2	5A	586	A
2	5A	587	G
2	5A	589	U
2	5A	591	U
3	SA	-6	A
3	SA	-5	G
3	SA	-4	A
3	SA	-1	G
3	SA	0	U
3	SA	1	U
3	SA	2	A
3	SA	17	C
3	SA	18	C
3	SA	19	A
3	SA	21	U
3	SA	23	G
3	SA	25	C
3	SA	26	A
3	SA	29	U
3	SA	35	U
3	SA	36	C
3	SA	37	U
3	SA	50	C
3	SA	51	A
3	SA	52	U

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Mol	Chain	Res	Type
3	SA	53	G
3	SA	55	A
3	SA	56	U
3	SA	57	G
3	SA	60	U
3	SA	61	A
3	SA	63	G
3	SA	65	A
3	SA	66	U
3	SA	67	A
3	SA	68	A
3	SA	69	G
3	SA	72	A
3	SA	73	U
3	SA	74	U
3	SA	75	U
3	SA	77	U
3	SA	81	G
3	SA	85	A
3	SA	92	A
3	SA	96	G
3	SA	97	C
3	SA	100	A
3	SA	102	U
3	SA	103	A
3	SA	104	A
3	SA	105	A
3	SA	106	U
3	SA	114	C
3	SA	115	G
3	SA	116	U
3	SA	119	A
3	SA	127	G
3	SA	128	U
3	SA	129	U
3	SA	130	C
3	SA	131	C
3	SA	141	U
3	SA	145	A
3	SA	146	U
3	SA	147	A
3	SA	149	C

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Mol	Chain	Res	Type
3	SA	153	G
3	SA	159	U
3	SA	160	C
3	SA	161	U
3	SA	168	A
3	SA	174	U
3	SA	175	G
3	SA	176	C
3	SA	177	U
3	SA	182	A
3	SA	183	U
3	SA	184	C
3	SA	187	G
3	SA	188	A
3	SA	190	C
3	SA	191	C
3	SA	192	U
3	SA	193	U
3	SA	194	U
3	SA	195	G
3	SA	197	A
3	SA	202	A
3	SA	203	U
3	SA	204	G
3	SA	206	A
3	SA	210	A
3	SA	211	U
3	SA	214	G
3	SA	226	A
3	SA	228	G
3	SA	230	C
3	SA	233	C
3	SA	234	G
3	SA	236	A
3	SA	237	C
3	SA	238	U
3	SA	239	C
3	SA	240	U
3	SA	241	U
3	SA	242	U
3	SA	243	G
3	SA	254	A

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Mol	Chain	Res	Type
3	SA	256	A
3	SA	258	C
3	SA	261	U
3	SA	262	U
3	SA	265	A
3	SA	266	A
3	SA	267	U
3	SA	272	U
3	SA	273	G
3	SA	275	C
3	SA	276	C
3	SA	277	U
3	SA	278	U
3	SA	279	G
3	SA	280	U
3	SA	281	G
3	SA	283	U
3	SA	290	G
3	SA	308	C
3	SA	309	C
3	SA	311	U
3	SA	312	A
3	SA	316	A
3	SA	319	U
3	SA	320	U
3	SA	321	C
3	SA	324	U
3	SA	325	G
3	SA	333	A
3	SA	334	G
3	SA	337	G
3	SA	338	C
3	SA	350	U
3	SA	352	A
3	SA	355	G
3	SA	357	G
3	SA	359	A
3	SA	360	A
3	SA	361	C
3	SA	362	G
3	SA	365	G
3	SA	366	A

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Mol	Chain	Res	Type
3	SA	369	A
3	SA	371	G
3	SA	373	G
3	SA	374	U
3	SA	375	U
3	SA	377	G
3	SA	379	U
3	SA	382	C
3	SA	383	G
3	SA	386	G
3	SA	387	A
3	SA	390	G
3	SA	400	A
3	SA	401	A
3	SA	402	C
3	SA	403	G
3	SA	411	C
3	SA	416	A
3	SA	417	A
3	SA	418	G
3	SA	419	G
3	SA	421	A
3	SA	422	G
3	SA	423	G
3	SA	424	C
3	SA	425	A
3	SA	426	G
3	SA	429	G
3	SA	436	A
3	SA	437	A
3	SA	439	U
3	SA	440	U
3	SA	441	A
3	SA	444	C
3	SA	445	A
3	SA	448	C
3	SA	454	U
3	SA	455	C
3	SA	456	A
3	SA	457	G
3	SA	468	A
3	SA	469	C

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Mol	Chain	Res	Type
3	SA	470	A
3	SA	471	A
3	SA	473	A
3	SA	477	A
3	SA	480	G
3	SA	486	G
3	SA	487	G
3	SA	496	G
3	SA	501	U
3	SA	502	U
3	SA	505	A
3	SA	506	A
3	SA	514	G
3	SA	520	A
3	SA	534	A
3	SA	538	A
3	SA	539	G
3	SA	541	A
3	SA	542	A
3	SA	543	C
3	SA	545	A
3	SA	557	G
3	SA	558	U
3	SA	563	U
3	SA	564	G
3	SA	565	C
3	SA	570	A
3	SA	572	C
3	SA	574	G
3	SA	575	C
3	SA	578	U
3	SA	579	A
3	SA	580	A
3	SA	583	C
3	SA	584	C
3	SA	585	A
3	SA	586	G
3	SA	587	C
3	SA	594	A
3	SA	595	G
3	SA	602	U
3	SA	603	U

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Mol	Chain	Res	Type
3	SA	604	A
3	SA	606	A
3	SA	608	U
3	SA	609	U
3	SA	610	G
3	SA	611	U
3	SA	612	U
3	SA	613	G
3	SA	614	C
3	SA	615	A
3	SA	616	G
3	SA	635	A
3	SA	636	A
3	SA	638	U
3	SA	644	C
3	SA	648	G
3	SA	652	G
3	SA	654	C
3	SA	656	G
3	SA	657	U
3	SA	658	C
3	SA	677	G
3	SA	678	A
3	SA	686	C
3	SA	687	G
3	SA	688	G
3	SA	689	G
3	SA	691	C
3	SA	692	C
3	SA	827	C
3	SA	828	U
3	SA	840	U
3	SA	841	U
3	SA	848	C
3	SA	859	A
3	SA	860	U
3	SA	863	A
3	SA	864	U
3	SA	865	A
3	SA	873	U
3	SA	877	G
3	SA	894	U

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Mol	Chain	Res	Type
3	SA	901	G
3	SA	904	G
3	SA	906	A
3	SA	912	U
3	SA	913	G
3	SA	914	G
3	SA	926	A
3	SA	930	A
3	SA	933	A
3	SA	934	C
3	SA	935	U
3	SA	945	U
3	SA	951	A
3	SA	953	G
3	SA	960	U
3	SA	966	A
3	SA	969	C
3	SA	970	A
3	SA	1022	C
3	SA	1024	U
3	SA	1025	A
3	SA	1026	A
3	SA	1027	A
3	SA	1031	U
3	SA	1032	G
3	SA	1037	C
3	SA	1039	A
3	SA	1040	G
3	SA	1052	U
3	SA	1053	G
3	SA	1056	U
3	SA	1057	U
3	SA	1059	U
3	SA	1060	U
3	SA	1062	A
3	SA	1063	U
3	SA	1076	A
3	SA	1079	U
3	SA	1081	A
3	SA	1082	C
3	SA	1084	A
3	SA	1085	G

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Mol	Chain	Res	Type
3	SA	1086	A
3	SA	1106	U
3	SA	1107	G
3	SA	1108	G
3	SA	1109	G
3	SA	1110	G
3	SA	1111	G
3	SA	1114	G
3	SA	1118	G
3	SA	1119	G
3	SA	1122	G
3	SA	1125	A
3	SA	1126	G
3	SA	1127	G
3	SA	1128	C
3	SA	1129	U
3	SA	1131	A
3	SA	1132	A
3	SA	1145	U
3	SA	1146	G
3	SA	1158	C
3	SA	1164	G
3	SA	1178	G
3	SA	1191	U
3	SA	1192	C
3	SA	1193	A
3	SA	1195	C
3	SA	1196	A
3	SA	1197	C
3	SA	1198	G
3	SA	1199	G
3	SA	1200	G
3	SA	1201	G
3	SA	1202	A
3	SA	1205	C
3	SA	1206	U
3	SA	1208	A
3	SA	1210	C
3	SA	1213	G
3	SA	1217	A
3	SA	1218	G
3	SA	1219	A

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Mol	Chain	Res	Type
3	SA	1220	C
3	SA	1223	A
3	SA	1227	A
3	SA	1228	G
3	SA	1229	G
3	SA	1230	A
3	SA	1232	U
3	SA	1233	G
3	SA	1235	C
3	SA	1236	A
3	SA	1252	C
3	SA	1253	U
3	SA	1254	U
3	SA	1255	G
3	SA	1258	U
3	SA	1263	G
3	SA	1266	U
3	SA	1268	G
3	SA	1271	G
3	SA	1272	U
3	SA	1273	G
3	SA	1275	A
3	SA	1276	U
3	SA	1436	A
3	SA	1440	C
3	SA	1441	C
3	SA	1442	U
3	SA	1443	U
3	SA	1449	U
3	SA	1450	U
3	SA	1453	G
3	SA	1457	C
3	SA	1461	C
3	SA	1469	A
3	SA	1472	C
3	SA	1473	U
3	SA	1474	G
3	SA	1475	A
3	SA	1476	C
3	SA	1482	C
3	SA	1488	G
3	SA	1492	A

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Mol	Chain	Res	Type
3	SA	1493	A
3	SA	1496	U
3	SA	1498	G
3	SA	1506	G
3	SA	1517	U
3	SA	1518	C
3	SA	1520	U
3	SA	1521	G
3	SA	1522	U
3	SA	1523	G
3	SA	1524	A
3	SA	1527	C
3	SA	1533	C
3	SA	1535	U
3	SA	1536	G
3	SA	1537	C
3	SA	1539	G
3	SA	1569	A
3	SA	1570	A
3	SA	1573	A
3	SA	1582	U
3	SA	1584	G
3	SA	1590	G
3	SA	1594	G
3	SA	1595	U
3	SA	1596	C
3	SA	1601	G
3	SA	1602	C
3	SA	1607	G
3	SA	1614	A
3	SA	1618	C
3	SA	1628	U
3	SA	1630	U
3	SA	1633	A
3	SA	1651	A
3	SA	1655	A
3	SA	1657	U
3	SA	1658	G
3	SA	1659	A
3	SA	1661	U
3	SA	1665	U
3	SA	1670	G

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Mol	Chain	Res	Type
3	SA	1675	C
3	SA	1677	C
3	SA	1679	G
3	SA	1680	G
3	SA	1681	A
3	SA	1682	U
3	SA	1683	C
3	SA	1687	U
3	SA	1689	A
3	SA	1692	G
3	SA	1693	A
3	SA	1696	G
3	SA	1697	G
3	SA	1700	C
3	SA	1708	U
3	SA	1709	C
3	SA	1710	U
3	SA	1711	C
3	SA	1713	G
3	SA	1717	G
3	SA	1718	G
3	SA	1719	A
3	SA	1721	A
3	SA	1724	U
3	SA	1725	U
3	SA	1727	G
3	SA	1728	A
3	SA	1731	A
3	SA	1732	A
3	SA	1736	G
3	SA	1737	G
3	SA	1742	U
3	SA	1743	U
3	SA	1745	G
3	SA	1749	A
3	SA	1750	A
3	SA	1755	A
3	SA	1756	A
3	SA	1757	G
3	SA	1758	U
3	SA	1759	C
3	SA	1761	U

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Mol	Chain	Res	Type
3	SA	1764	C
3	SA	1766	A
3	SA	1767	G
3	SA	1768	G
3	SA	1769	U
3	SA	1779	U
3	SA	1780	G
3	SA	1781	A
3	SA	1782	A
3	SA	1789	G

All (28) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	3A	198	U
1	3A	248	G
2	5A	312	U
2	5A	358	G
2	5A	363	A
2	5A	368	U
2	5A	487	A
2	5A	492	G
2	5A	536	A
3	SA	-7	A
3	SA	0	U
3	SA	56	U
3	SA	68	A
3	SA	272	U
3	SA	372	G
3	SA	401	A
3	SA	417	A
3	SA	538	A
3	SA	542	A
3	SA	579	A
3	SA	602	U
3	SA	1031	U
3	SA	1052	U
3	SA	1084	A
3	SA	1197	C
3	SA	1521	G
3	SA	1594	G
3	SA	1632	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)

Of 4 ligands modelled in this entry, 3 are monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
68	GTP	RJ	1201	69	26,34,34	0.94	2 (7%)	32,54,54	0.92	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
68	GTP	RJ	1201	69	-	3/18/38/38	0/3/3/3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
68	RJ	1201	GTP	C5-C6	-2.47	1.42	1.47
68	RJ	1201	GTP	C8-N7	-2.05	1.31	1.35

There are no bond angle outliers.

There are no chirality outliers.

All (3) torsion outliers are listed below:

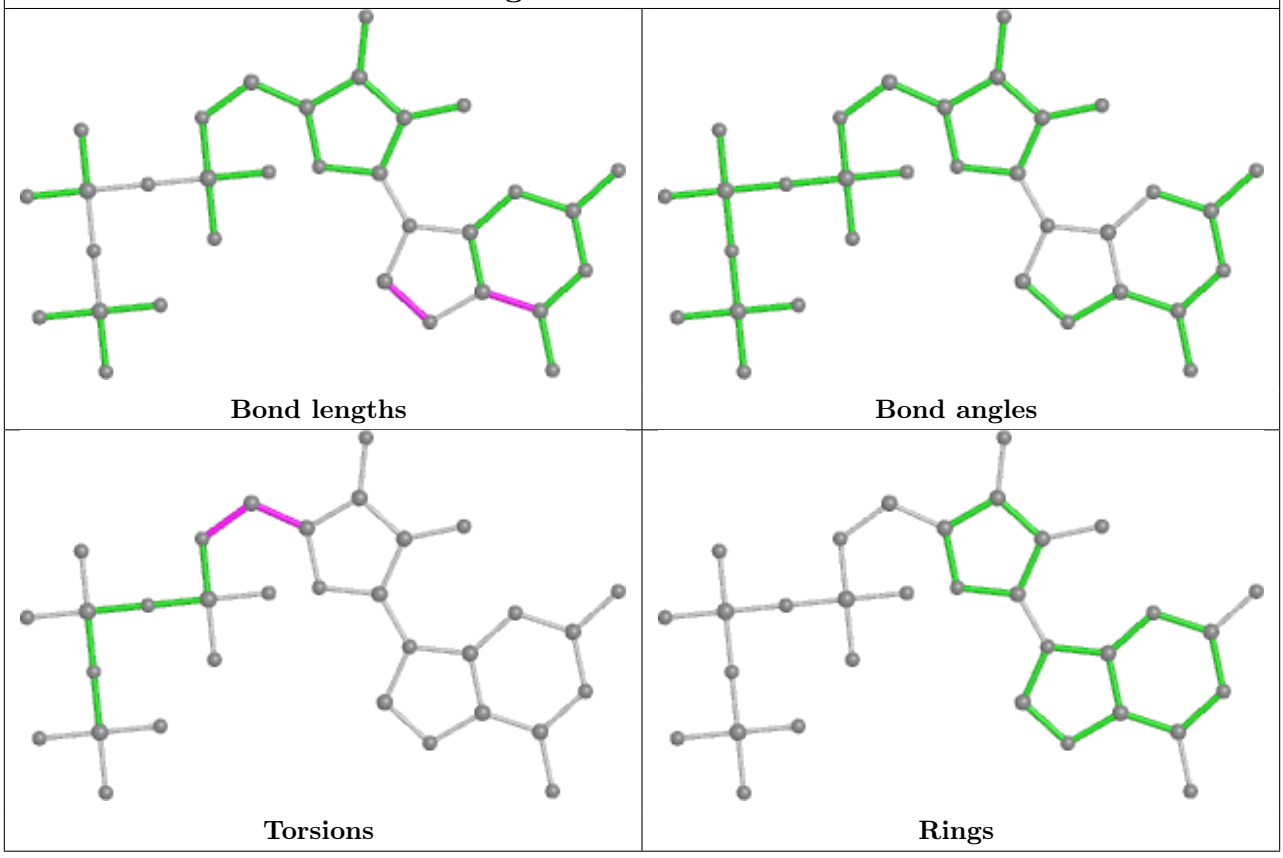
Mol	Chain	Res	Type	Atoms
68	RJ	1201	GTP	O4'-C4'-C5'-O5'
68	RJ	1201	GTP	C3'-C4'-C5'-O5'
68	RJ	1201	GTP	C4'-C5'-O5'-PA

There are no ring outliers.

No monomer is involved in short contacts.

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

Ligand GTP RJ 1201



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

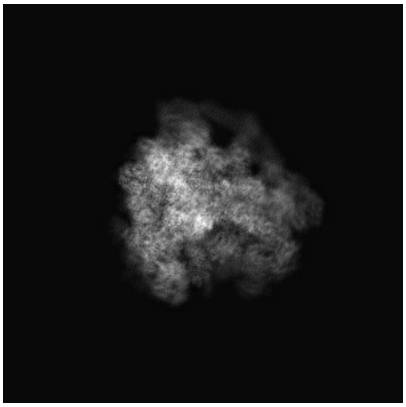
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-0950. These allow visual inspection of the internal detail of the map and identification of artifacts.

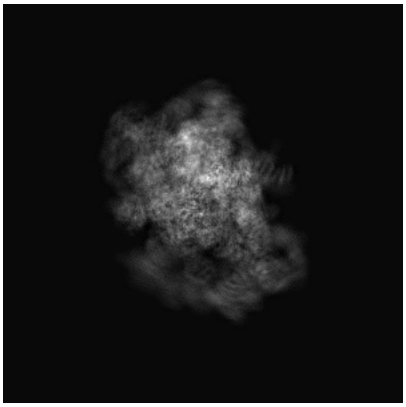
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

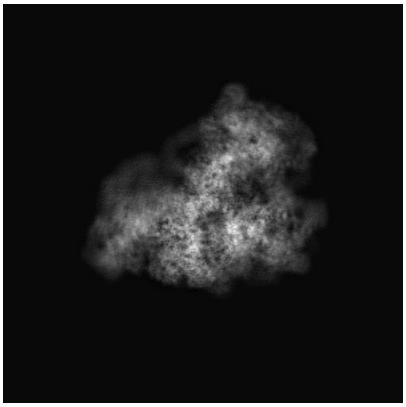
6.1.1 Primary map



X



Y

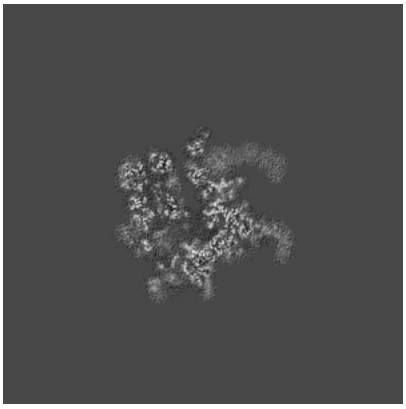


Z

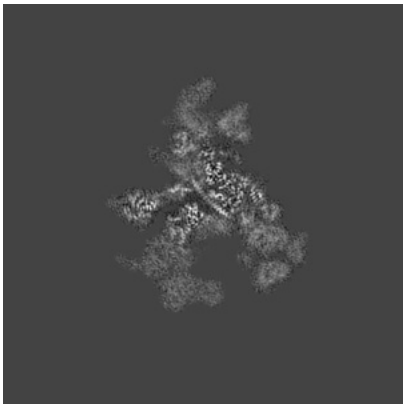
The images above show the map projected in three orthogonal directions.

6.2 Central slices

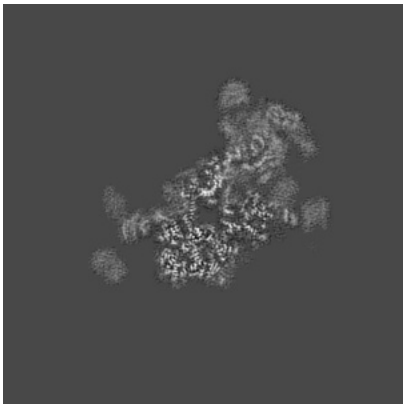
6.2.1 Primary map



X Index: 224



Y Index: 224

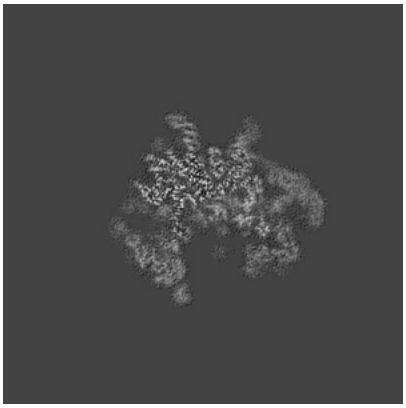


Z Index: 224

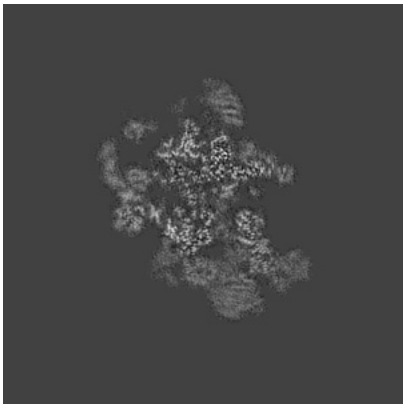
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

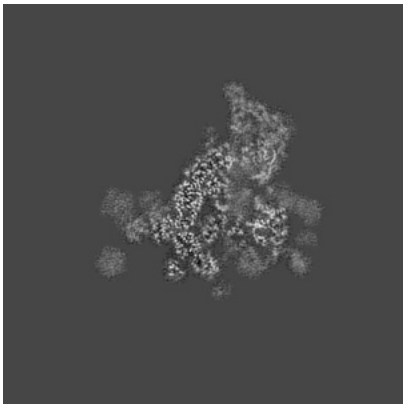
6.3.1 Primary map



X Index: 253



Y Index: 197

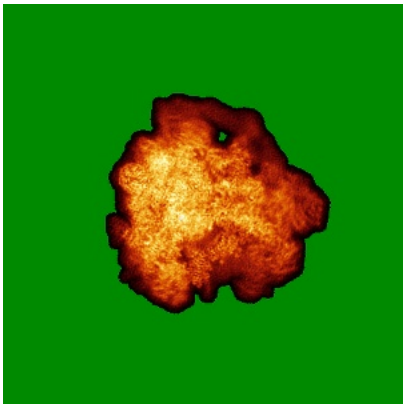


Z Index: 208

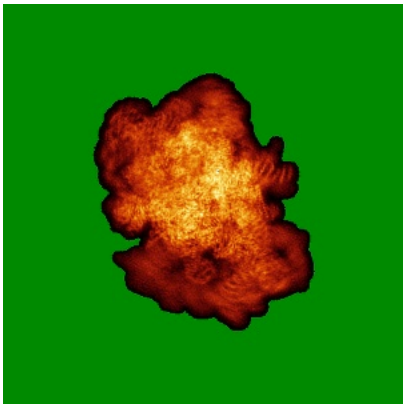
The images above show the largest variance slices of the map in three orthogonal directions.

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

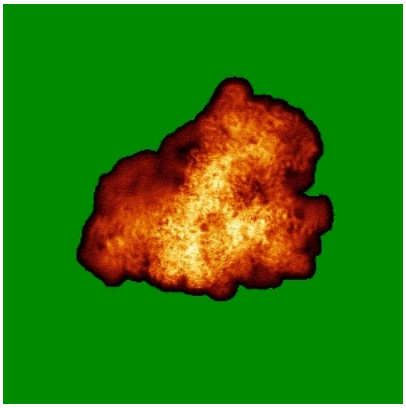
6.4.1 Primary map



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 0.03. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

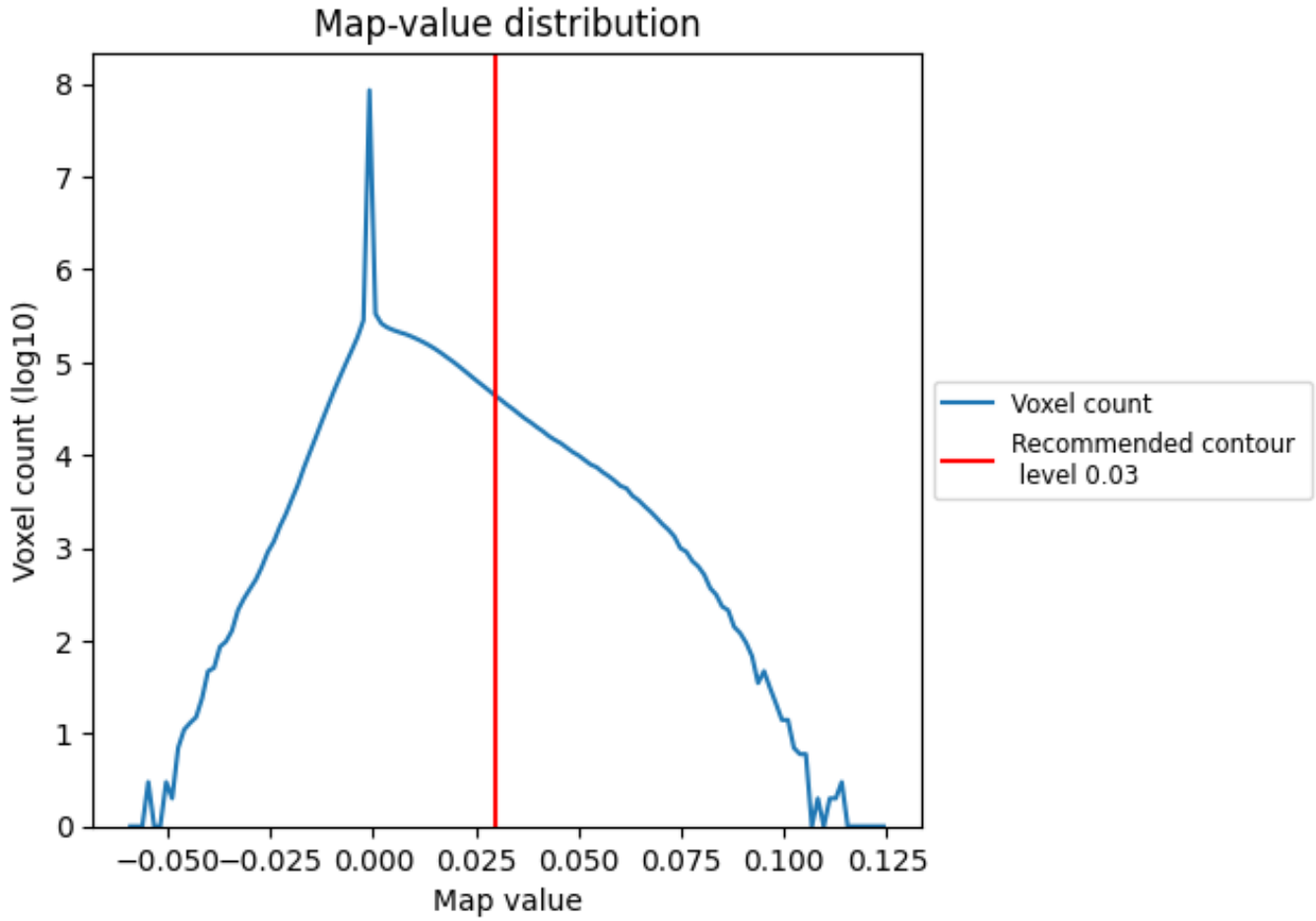
6.6 Mask visualisation (i)

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

7 Map analysis

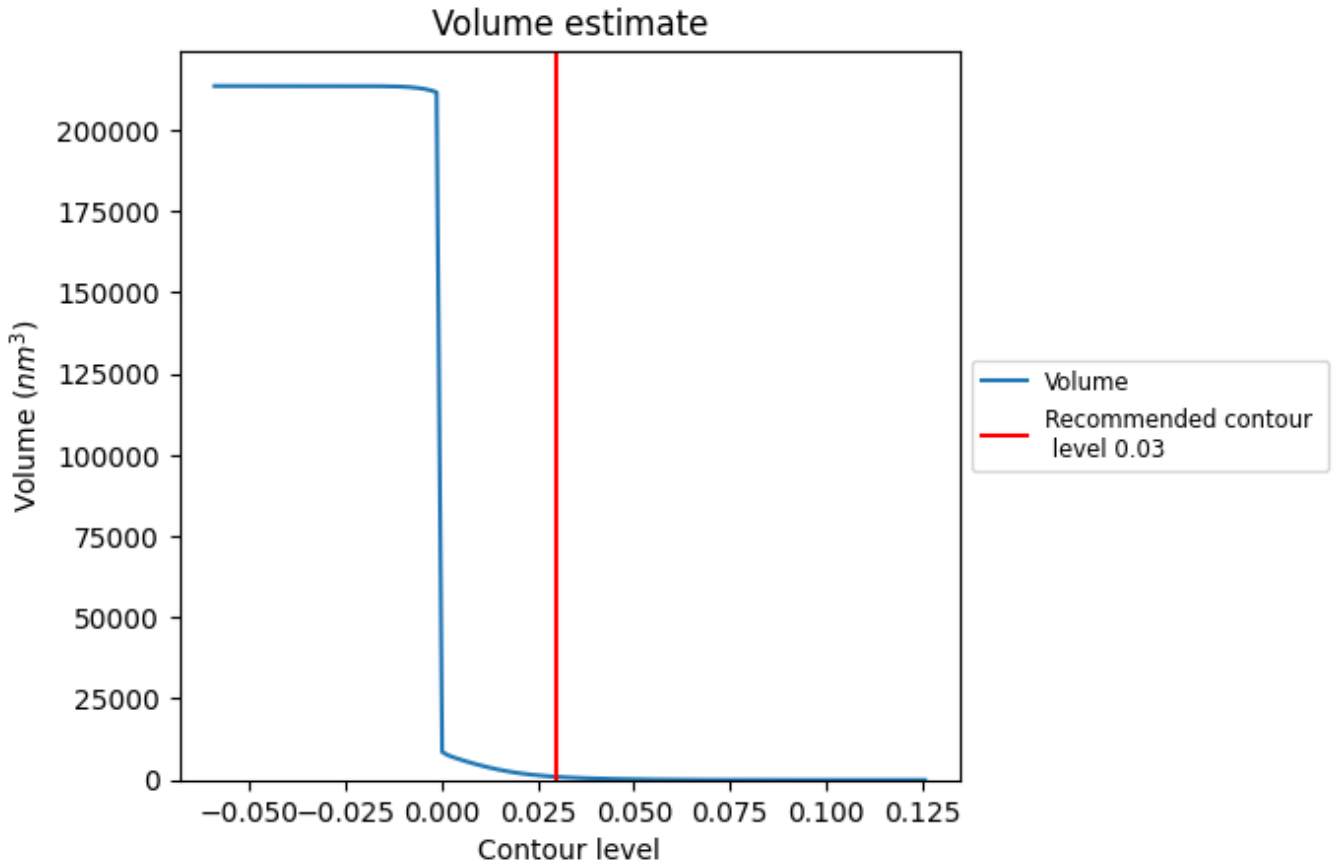
This section contains the results of statistical analysis of the map.

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.

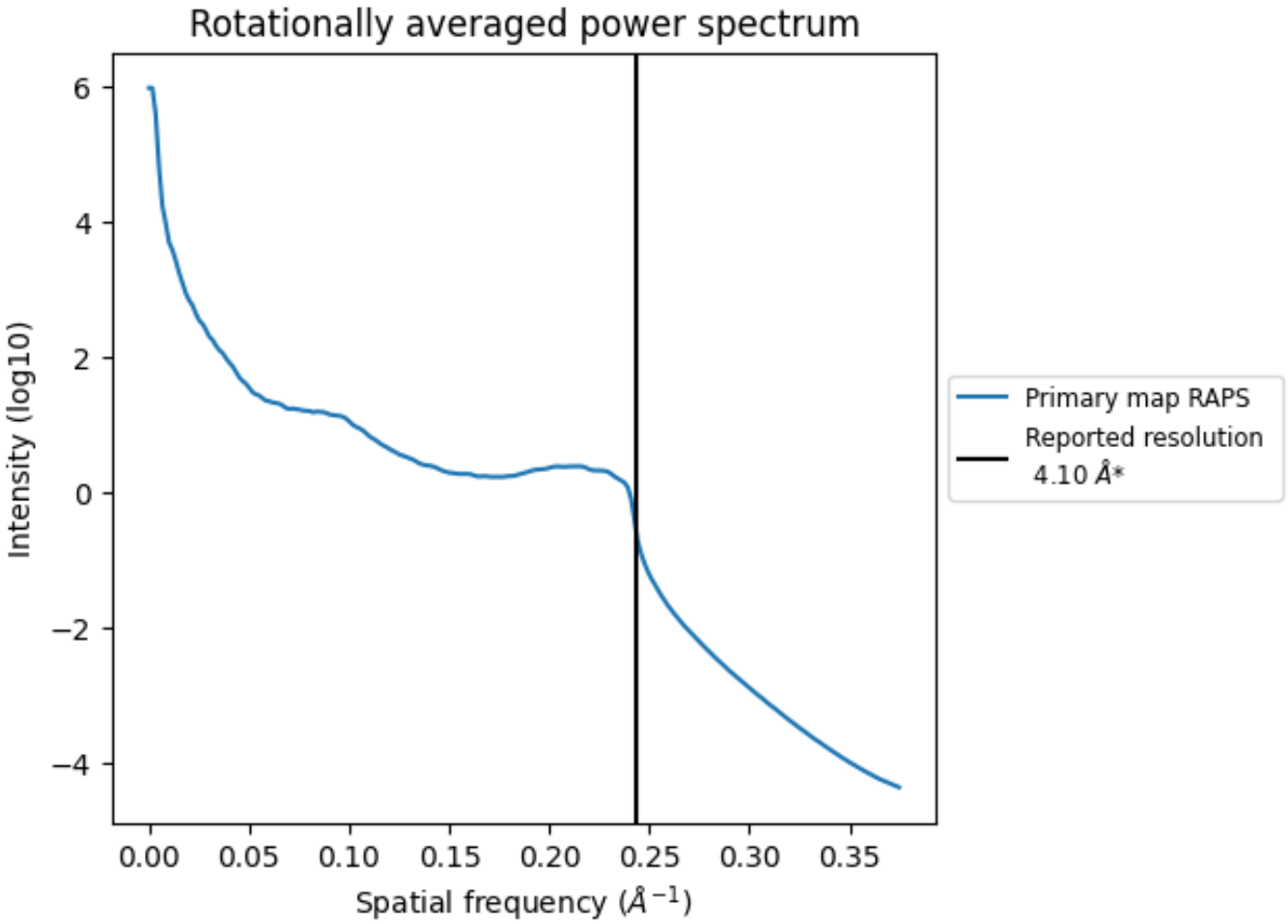
7.2 Volume estimate



The volume at the recommended contour level is 963 nm^3; this corresponds to an approximate mass of 870 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 0.244 $Å^{-1}$

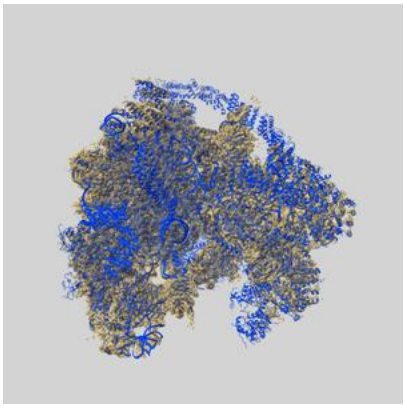
8 Fourier-Shell correlation (i)

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

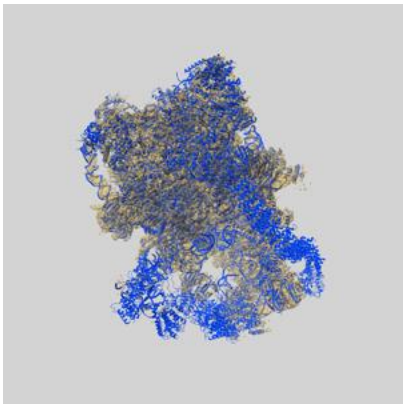
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-0950 and PDB model 6LQQ. Per-residue inclusion information can be found in section 3 on page 17.

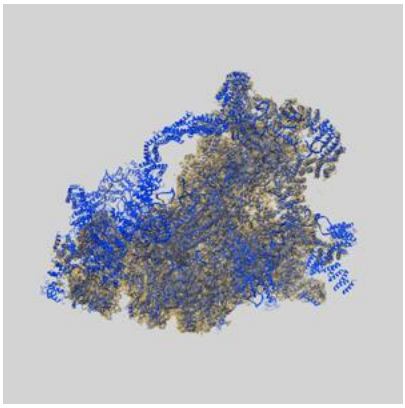
9.1 Map-model overlay



X



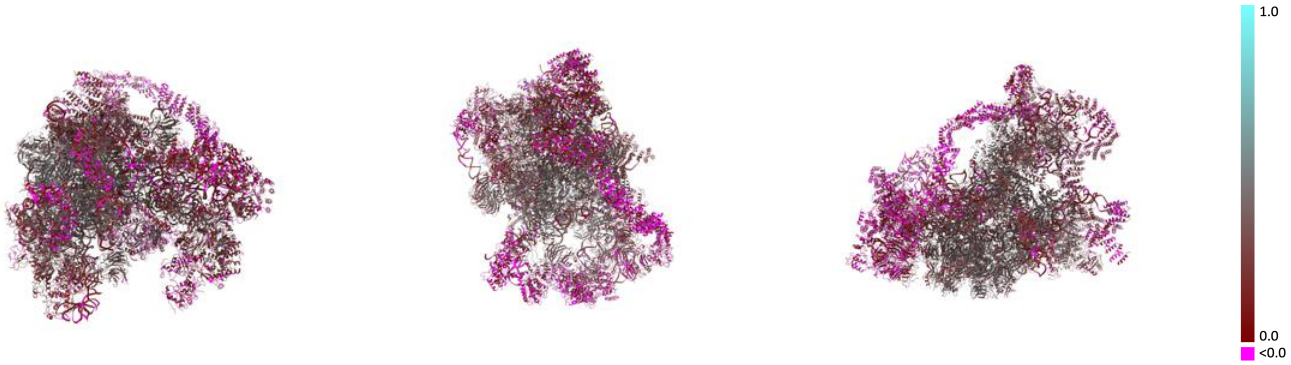
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.03 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.

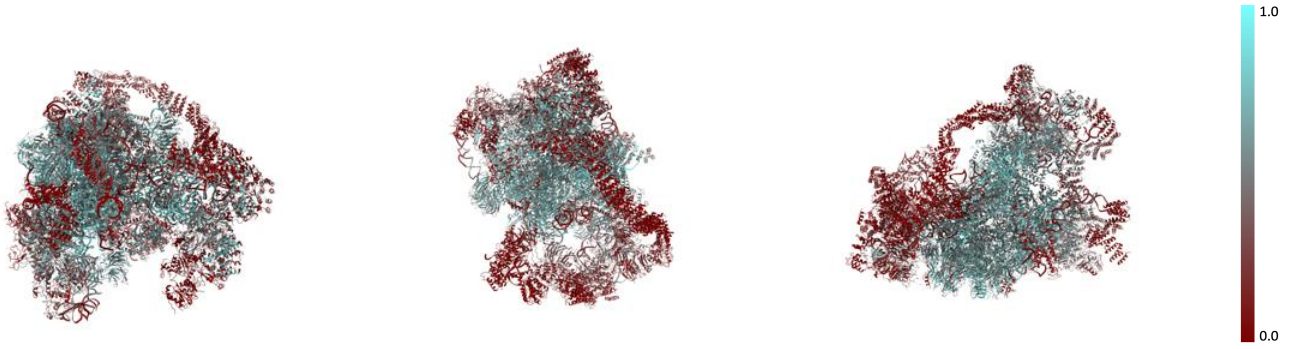
9.2 Q-score mapped to coordinate model



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.

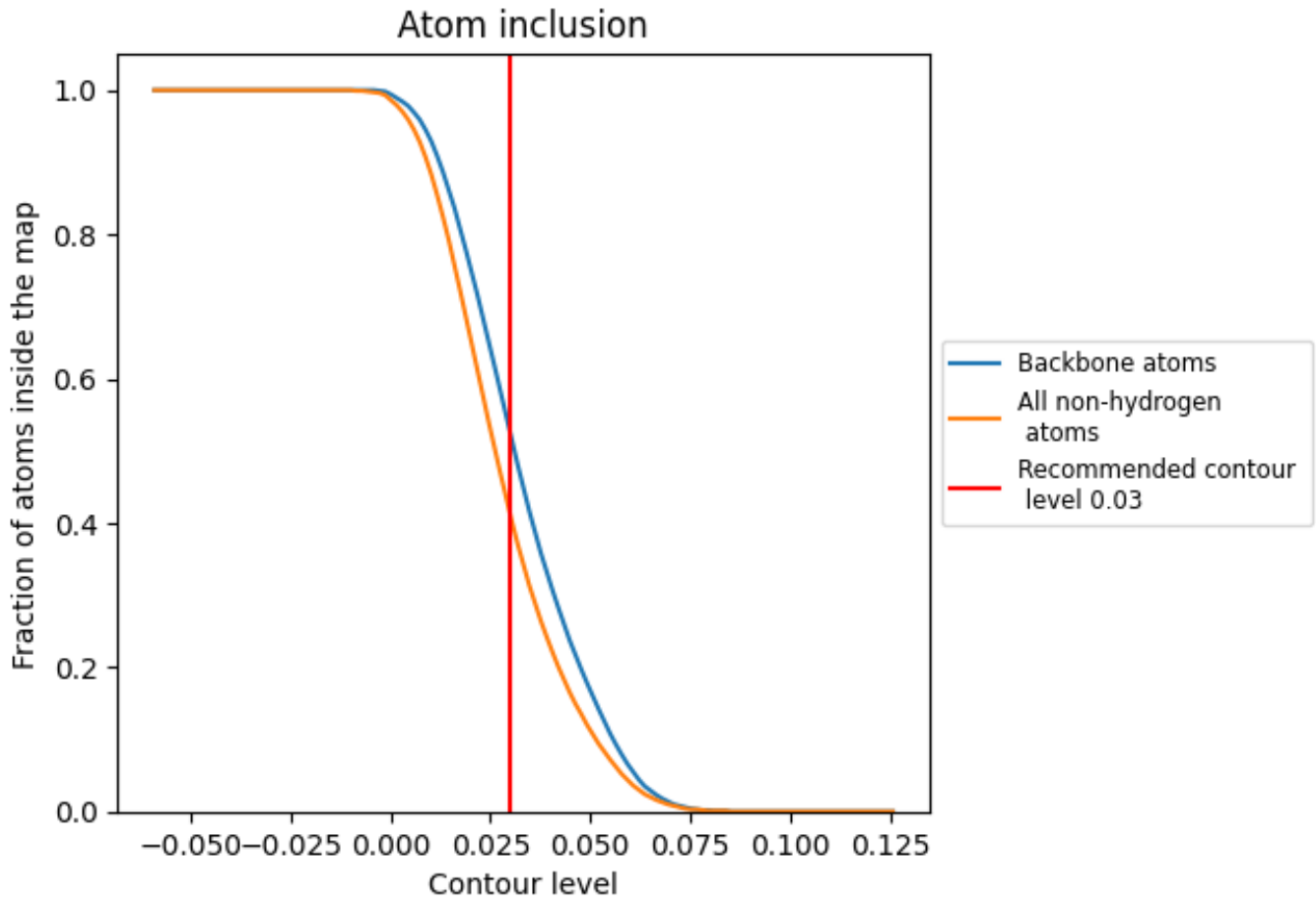
9.3 Atom inclusion mapped to coordinate model



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 (0.03).

9.4 Atom inclusion (i)



At the recommended contour level, 52% of all backbone atoms, 41% 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 (0.03) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4110	0.2550
3A	0.6470	0.2880
3B	0.6400	0.3850
3C	0.1330	0.1640
3D	0.5950	0.3190
3E	0.4170	0.2480
3F	0.5760	0.3330
3G	0.5180	0.2880
3H	0.6120	0.3680
5A	0.2360	0.2060
5B	0.0290	0.1290
5C	0.5690	0.3810
5D	0.2920	0.2640
5E	0.5310	0.3520
5F	0.6520	0.3990
5G	0.5730	0.3840
5H	0.6500	0.3910
5I	0.6900	0.4090
5J	0.3860	0.2600
5K	0.6320	0.4030
A4	0.2650	0.1750
A5	0.4090	0.2640
A8	0.0170	0.0350
A9	0.0500	0.0530
AE	0.2040	0.1300
AF	0.1830	0.1930
AG	0.2310	0.1370
B1	0.6490	0.4020
B2	0.5870	0.3260
B3	0.4860	0.2820
B6	0.5520	0.2760
B8	0.5770	0.3310
BE	0.6500	0.3950
RA	0.4000	0.2630
RB	0.4710	0.2910

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Chain	Atom inclusion	Q-score
RC	0.3940	0.3180
RD	0.0020	0.0240
RE	0.3440	0.2480
RF	0.2870	0.2400
RG	0.0150	0.1160
RH	0.0410	0.1740
RJ	0.5980	0.3620
RK	0.6270	0.3690
RL	0.4210	0.2740
RM	0.1620	0.1440
RN	0.0760	0.1140
RO	0.0000	0.0830
RP	0.2500	0.1580
RQ	0.4550	0.3130
RS	0.0020	0.0210
RT	0.2210	0.3060
RV	0.3570	0.3440
RY	0.3040	0.2060
SA	0.5390	0.2470
SC	0.5380	0.3630
SF	0.4940	0.2910
SG	0.6060	0.3600
SH	0.3660	0.2430
SI	0.4620	0.2910
SJ	0.3960	0.2340
SK	0.6400	0.3810
SM	0.2530	0.1500
SO	0.5920	0.3670
SP	0.5510	0.3690
SR	0.6340	0.3890
SX	0.5970	0.3850
SY	0.6040	0.4080
SZ	0.5550	0.3210
Sc	0.5900	0.3860
Sd	0.5950	0.3980
X1	0.0830	0.1700