Full wwPDB EM Validation Report ⓘ

May 18, 2024 – 11:51 am BST

PDB ID	:	6RXX
EMDB ID	:	EMD-10054
Title	:	Cryo-EM structure of the 90S pre-ribosome (Kre33-Noc4) from Chaetomium thermophilum, state C, Poly-Ala
Authors	:	Cheng, J.; Kellner, N.; Griesel, S.; Berninghausen, O.; Beckmann, R.; Hurt, E.
Deposited on	:	2019-06-10
Resolution	:	7.10 Å(reported)

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:

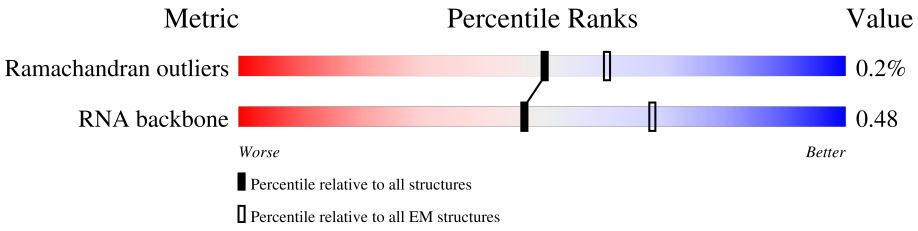
EMDB validation analysis	:	0.0.1.dev92
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

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 7.10 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
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	UA	904	9% 93% 7%
2	UC	648	11% 89%
3	UF	414	80% 20%
4	UG	558	17% 85% 14%
5	UK	270	37% 80% 20%
6	UL	962	6% 81% 18%
7	UM	912	11% 79% 20%
8	UN	938	19% 81%
9	UR	618	11% 72% 28%

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Mol	Chain	Length	Quality of chain
10	UU	1049	7% 86% 14%
11	UX	193	26% 98%
12	CJ	183	15% 98%
13	CK	297	17% 100%
14	CL	785	6% 29% 71%
15	CM	446	5% 100%
16	CN	252	28% 90% 10%
16	CO	252	33% 84% 15%
17	CP	322	31% 62% 38%
18	CQ	259	54% 67% 32%
19	Ca	255	16% 88% 12%
20	Cc	212	6% 90% 9%
21	Ce	203	19% 78% 22%
22	Cg	190	13% 84% 16%
23	Ch	151	14% 93% 6%
24	Ci	150	17% 77% 23%
25	Cj	143	14% 88% 12%
26	Cm	130	11% 97%
27	Cn	145	66% 34%
28	Cp	68	7% 90% 10%
29	Cq	82	21% 95%
30	CU	311	48% 57% 43%
31	C1	1859	9% 41% 21% 34%
32	UV	1171	37% 90% 9%
33	CV	322	20% 45% 54%

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Mol	Chain	Length	Quality of chain
34	Cl	156	28% 51% 49%
35	CH	411	5% 94% 5%
36	CI	1163	6% 70% 29%
37	CR	1073	13% 70% 29%
37	CS	1073	28% 70% 29%
38	Cb	264	37% 88% 12%
39	Cd	239	21% 95% 5%
40	Cf	202	29% 86% 14%
41	Ck	161	48% 87% 13%
42	Co	136	68% 32%
43	CW	668	19% 57% 43%
44	UT	2612	30% 77% 23%
45	CZ	609	7% 93%
46	UB	907	12% 56% 44%
47	UD	884	21% 87% 13%
48	UJ	1802	21% 60% 40%
49	UO	557	11% 90% 10%
50	UQ	960	11% 81% 18%
51	CX	480	20% 56% 44%
52	UE	410	30% 70%
52	UI	410	9% 30% 70%
53	UP	364	5% 15% 85%
54	UH	930	8% 39% 61%
55	US	549	26% 82% 18%
56	CA	313	5% 77% 23%

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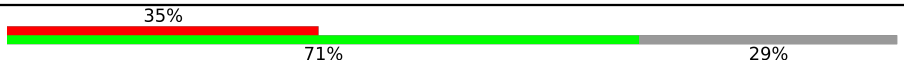
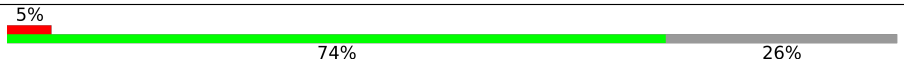
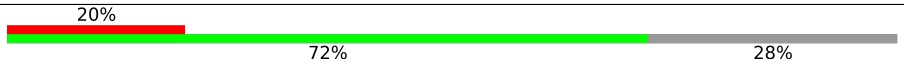
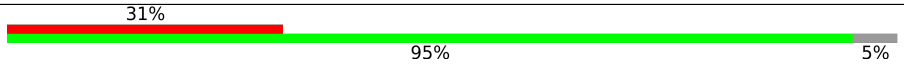
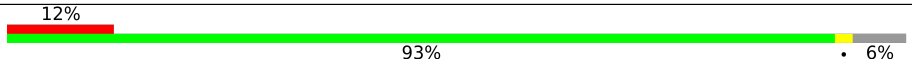
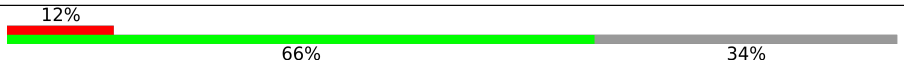
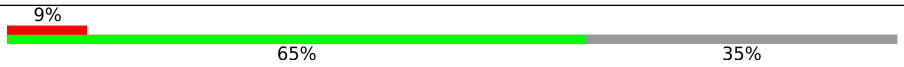
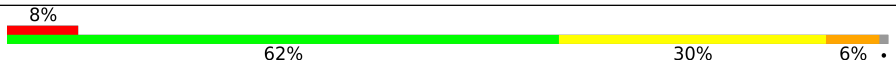
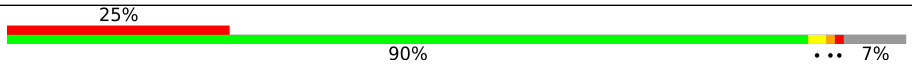
Mol	Chain	Length	Quality of chain
56	CB	313	
57	CC	523	
58	CD	582	
59	CE	127	
59	CF	127	
60	CG	630	
61	CT	203	
62	C2	232	
63	Cr	153	

2 Entry composition

There are 64 unique types of molecules in this entry. The entry contains 146382 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 protein called Periodic tryptophan protein 2-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	UA	839	Total	C	N	O	0	0
			4136	2458	839	839		

- Molecule 2 is a protein called Utp3.

Mol	Chain	Residues	Atoms				AltConf	Trace
2	UC	74	Total	C	N	O	0	0
			361	213	74	74		

- Molecule 3 is a protein called Utp6.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	UF	331	Total	C	N	O	0	0
			1644	982	331	331		

- Molecule 4 is a protein called Utp7.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	UG	479	Total	C	N	O	0	0
			2361	1403	479	479		

- Molecule 5 is a protein called U3 small nucleolar RNA-associated protein 11.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	UK	217	Total	C	N	O	0	0
			1070	636	217	217		

- Molecule 6 is a protein called Utp12.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	UL	785	Total	C	N	O	0	0
			3877	2307	785	785		

- Molecule 7 is a protein called Utp13.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	UM	729	Total 3602	C 2144	N 729	O 729	0	0

- Molecule 8 is a protein called Utp14.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	UN	177	Total 880	C 526	N 177	O 177	0	0

- Molecule 9 is a protein called Utp18.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	UR	447	Total 2198	C 1304	N 447	O 447	0	0

- Molecule 10 is a protein called Putative U3 snoRNP protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	UU	902	Total 4424	C 2620	N 902	O 902	0	0

- Molecule 11 is a protein called Utp24.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	UX	190	Total 942	C 562	N 190	O 190	0	0

- Molecule 12 is a protein called Imp3.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	CJ	179	Total 890	C 532	N 179	O 179	0	0

- Molecule 13 is a protein called Putative U3 small nucleolar ribonucleoprotein.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	CK	297	Total 1472	C 878	N 297	O 297	0	0

- Molecule 14 is a protein called Putative U3 small nucleolar ribonucleoprotein protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	CL	231	Total 1142	C 680	N 231	O 231	0	0

- Molecule 15 is a protein called Sof1.

Mol	Chain	Residues	Atoms				AltConf	Trace
15	CM	445	Total 2201	C 1311	N 445	O 445	0	0

- Molecule 16 is a protein called Emg1.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	CN	226	Total 1122	C 670	N 226	O 226	0	0
16	CO	215	Total 1067	C 637	N 215	O 215	0	0

- Molecule 17 is a protein called KRR1 small subunit processome component.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	CP	201	Total 995	C 593	N 201	O 201	0	0

- Molecule 18 is a protein called Pre-rRNA-processing protein PNO1.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	CQ	175	Total 864	C 514	N 175	O 175	0	0

- Molecule 19 is a protein called 40S ribosomal protein S1.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	Ca	225	Total 1115	C 665	N 225	O 225	0	0

- Molecule 20 is a protein called 40S ribosomal protein s5-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	Cc	192	Total 953	C 569	N 192	O 192	0	0

- Molecule 21 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	Ce	159	Total 786	C 468	N 159	O 159	0	0

- Molecule 22 is a protein called 40S ribosomal protein s9-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
22	Cg	159	Total 785	C 467	N 159	O 159	0	0

- Molecule 23 is a protein called 40S ribosomal protein S13-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	Ch	150	Total 741	C 441	N 150	O 150	0	0

- Molecule 24 is a protein called 40S ribosomal protein S14-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	Ci	115	Total 563	C 333	N 115	O 115	0	0

- Molecule 25 is a protein called 40S ribosomal protein S16-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
25	Cj	126	Total 622	C 370	N 126	O 126	0	0

- Molecule 26 is a protein called 40S ribosomal protein S22-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	Cm	126	Total 620	C 368	N 126	O 126	0	0

- Molecule 27 is a protein called 40S ribosomal protein s23-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	Cn	96	Total 469	C 277	N 96	O 96	0	0

- Molecule 28 is a protein called 40S ribosomal protein S28-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	Cp	61	Total 300	C 178	N 61	O 61	0	0

- Molecule 29 is a protein called Ribosomal protein s27-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
29	Cq	81	Total 400	C 238	N 81	O 81	0	0

- Molecule 30 is a protein called Faf1.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	CU	176	Total 871	C 519	N 176	O 176	0	0

- Molecule 31 is a RNA chain called 35S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	C1	1221	Total 26044	C 11631	N 4650	O 8542	P 1221	0	0

- Molecule 32 is a protein called U3 small nucleolar RNA-associated protein 22.

Mol	Chain	Residues	Atoms				AltConf	Trace
32	UV	1061	Total 5244	C 3122	N 1061	O 1061	0	0

- Molecule 33 is a protein called Rrp7.

Mol	Chain	Residues	Atoms				AltConf	Trace
33	CV	148	Total 732	C 436	N 148	O 148	0	0

- Molecule 34 is a protein called Putative ribosomal protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
34	Cl	80	Total 395	C 235	N 80	O 80	0	0

- Molecule 35 is a protein called RNA 3'-terminal phosphate cyclase-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
35	CH	389	Total 1902	C 1124	N 389	O 389	0	0

- Molecule 36 is a protein called Bms1.

Mol	Chain	Residues	Atoms				AltConf	Trace
36	CI	822	Total 4061	C 2417	N 822	O 822	0	0

- Molecule 37 is a protein called Kre33.

Mol	Chain	Residues	Atoms				AltConf	Trace
37	CR	760	Total 3755	C 2235	N 760	O 760	0	0
37	CS	760	Total 3755	C 2235	N 760	O 760	0	0

- Molecule 38 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms				AltConf	Trace
38	Cb	232	Total 1140	C 676	N 232	O 232	0	0

- Molecule 39 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms				AltConf	Trace
39	Cd	226	Total 1112	C 660	N 226	O 226	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
40	Cf	174	Total 852	C 504	N 174	O 174	0	0

- Molecule 41 is a protein called 40S ribosomal protein S11-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
41	Ck	140	Total 691	C 411	N 140	O 140	0	0

- Molecule 42 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms				AltConf	Trace
42	Co	92	Total 453	C 269	N 92	O 92	0	0

- Molecule 43 is a protein called Ribosome biogenesis protein ENP2.

Mol	Chain	Residues	Atoms				AltConf	Trace
43	CW	382	Total 1880	C 1116	N 382	O 382	0	0

- Molecule 44 is a protein called Utp20.

Mol	Chain	Residues	Atoms				AltConf	Trace
44	UT	2018	Total 10012	C 5976	N 2018	O 2018	0	0

- Molecule 45 is a protein called Bfr2.

Mol	Chain	Residues	Atoms				AltConf	Trace
45	CZ	42	Total 207	C 123	N 42	O 42	0	0

- Molecule 46 is a protein called Utp2.

Mol	Chain	Residues	Atoms				AltConf	Trace
46	UB	508	Total 2521	C 1505	N 508	O 508	0	0

- Molecule 47 is a protein called Utp4.

Mol	Chain	Residues	Atoms				AltConf	Trace
47	UD	772	Total 3799	C 2255	N 772	O 772	0	0

- Molecule 48 is a protein called UTP10.

Mol	Chain	Residues	Atoms				AltConf	Trace
48	UJ	1090	Total 5405	C 3225	N 1090	O 1090	0	0

- Molecule 49 is a protein called Utp15.

Mol	Chain	Residues	Atoms				AltConf	Trace
49	UO	504	Total 2486	C 1478	N 504	O 504	0	0

- Molecule 50 is a protein called Utp17.

Mol	Chain	Residues	Atoms				AltConf	Trace
50	UQ	789	Total 3899	C 2321	N 789	O 789	0	0

- Molecule 51 is a protein called Enp1.

Mol	Chain	Residues	Atoms				AltConf	Trace
51	CX	267	Total 1325	C 791	N 267	O 267	0	0

- Molecule 52 is a protein called Utp5.

Mol	Chain	Residues	Atoms				AltConf	Trace
52	UI	125	Total 616	C 366	N 125	O 125	0	0
52	UE	125	Total 616	C 366	N 125	O 125	0	0

- Molecule 53 is a protein called Utp16.

Mol	Chain	Residues	Atoms				AltConf	Trace
53	UP	54	Total 265	C 157	N 54	O 54	0	0

- Molecule 54 is a protein called Utp8.

Mol	Chain	Residues	Atoms				AltConf	Trace
54	UH	359	Total 1771	C 1053	N 359	O 359	0	0

- Molecule 55 is a protein called Noc4.

Mol	Chain	Residues	Atoms				AltConf	Trace
55	US	451	Total 2245	C 1343	N 451	O 451	0	0

- Molecule 56 is a protein called Nop1.

Mol	Chain	Residues	Atoms				AltConf	Trace
56	CA	242	Total 1189	C 705	N 242	O 242	0	0
56	CB	222	Total 1092	C 648	N 222	O 222	0	0

- Molecule 57 is a protein called Putative nucleolar protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
57	CC	387	Total 1911	C 1137	N 387	O 387	0	0

- Molecule 58 is a protein called Nop58.

Mol	Chain	Residues	Atoms				AltConf	Trace
58	CD	420	Total 2073	C 1233	N 420	O 420	0	0

- Molecule 59 is a protein called Snu13.

Mol	Chain	Residues	Atoms				AltConf	Trace
59	CE	121	Total 601	C 359	N 121	O 121	0	0
59	CF	120	Total 596	C 356	N 120	O 120	0	0

- Molecule 60 is a protein called Rrp9.

Mol	Chain	Residues	Atoms				AltConf	Trace
60	CG	416	Total 2049	C 1217	N 416	O 416	0	0

- Molecule 61 is a protein called Fcf2.

Mol	Chain	Residues	Atoms				AltConf	Trace
61	CT	131	Total 647	C 385	N 131	O 131	0	0

- Molecule 62 is a RNA chain called U3 snoRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	C2	229	Total 4869	C 2172	N 851	O 1617	P 229	0	0

- Molecule 63 is a protein called 40S ribosomal protein S19-like protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
63	Cr	142	Total 697	C 413	N 142	O 142	0	0

- Molecule 64 is ZINC ION (three-letter code: ZN) (formula: Zn).

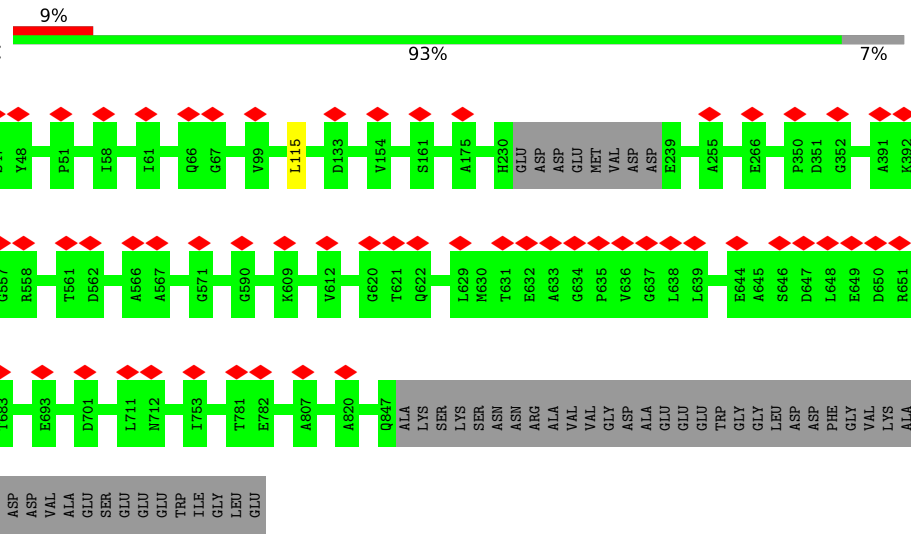
Mol	Chain	Residues	Atoms		AltConf
64	UX	1	Total 1	Zn 1	0
64	Cq	1	Total 1	Zn 1	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

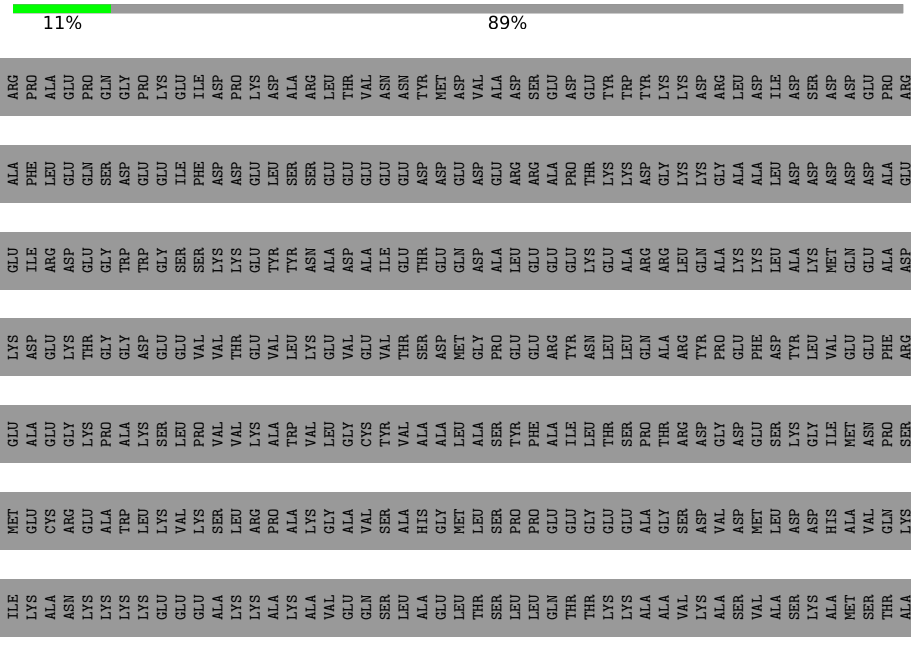
• Molecule 1: Periodic tryptophan protein 2-like protein

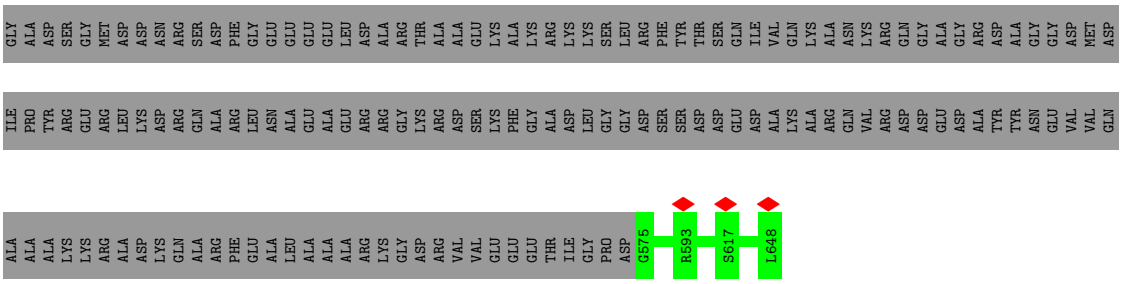
Chain UA:



• Molecule 2: Utp3

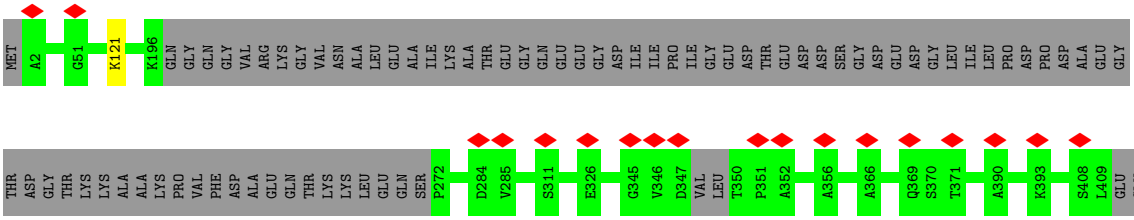
Chain UC:





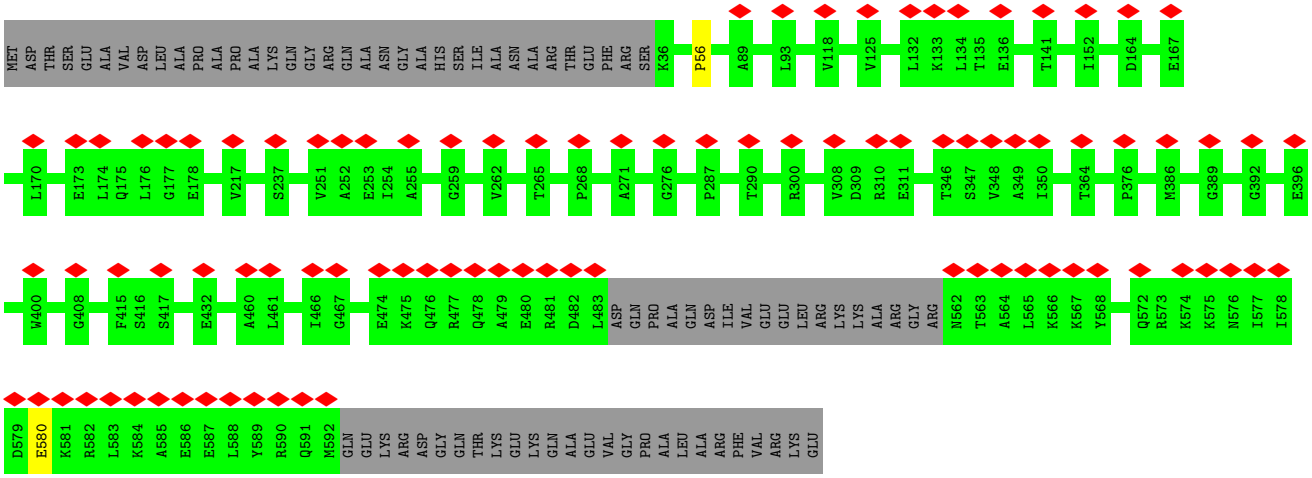
• Molecule 3: Utp6

Chain UF:



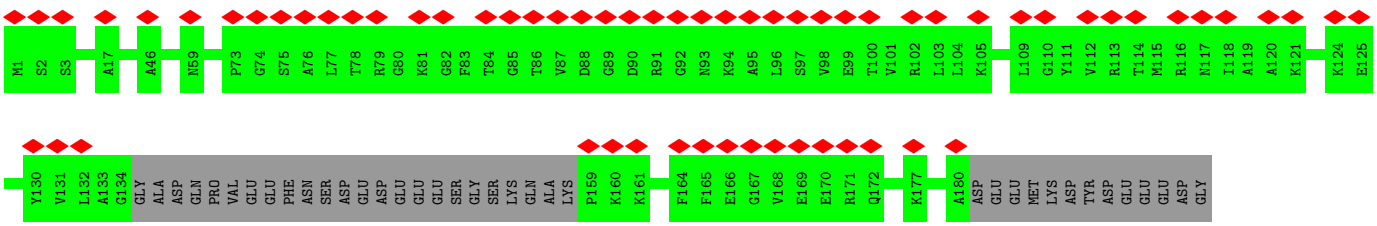
• Molecule 4: Utp7

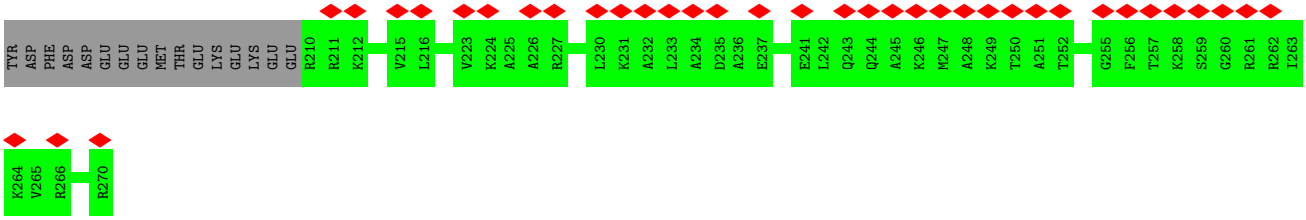
Chain UG:



• Molecule 5: U3 small nucleolar RNA-associated protein 11

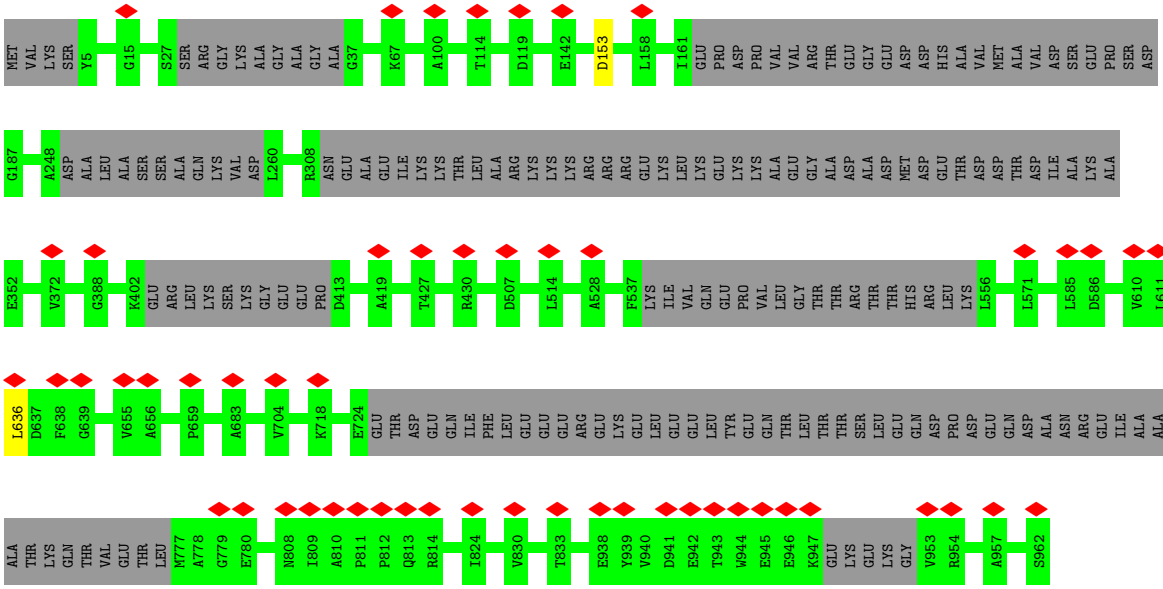
Chain UK:





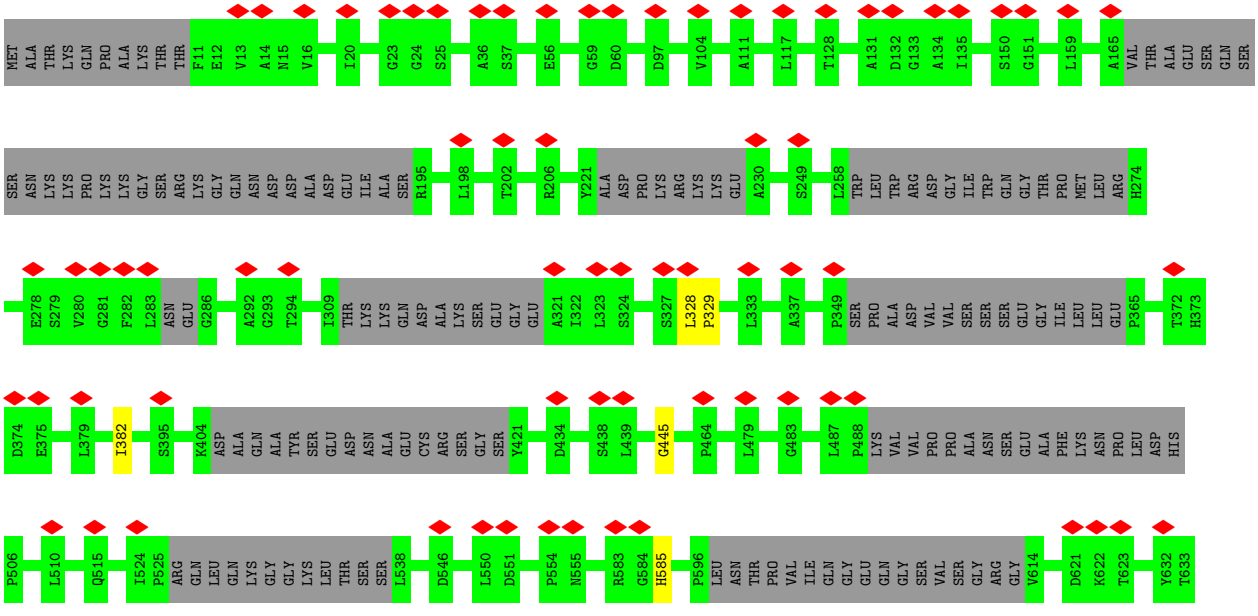
• Molecule 6: Utp12

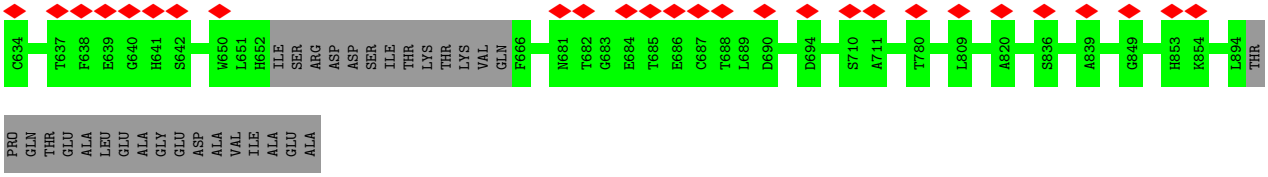
Chain UL:



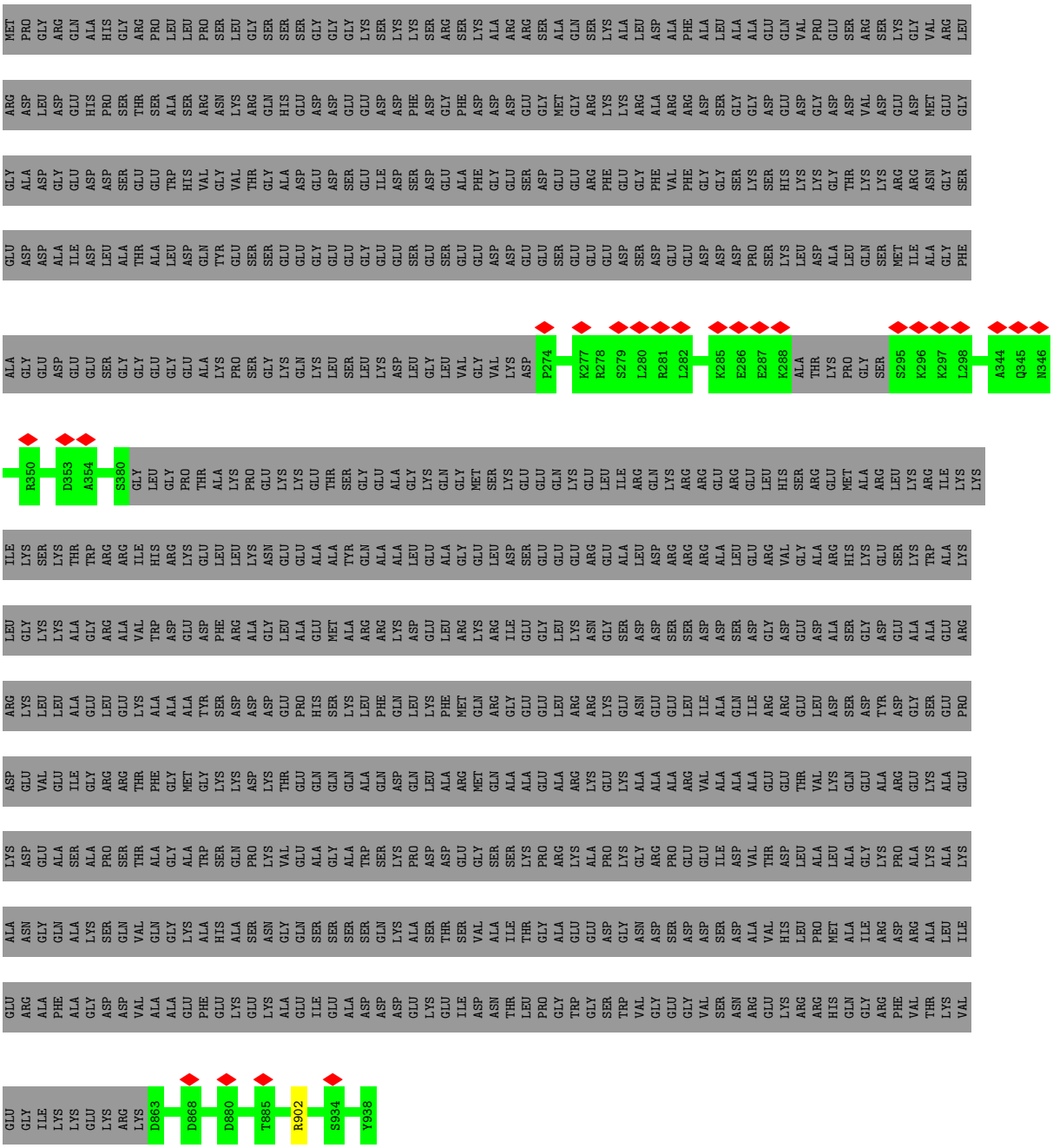
• Molecule 7: Utp13

Chain UM:



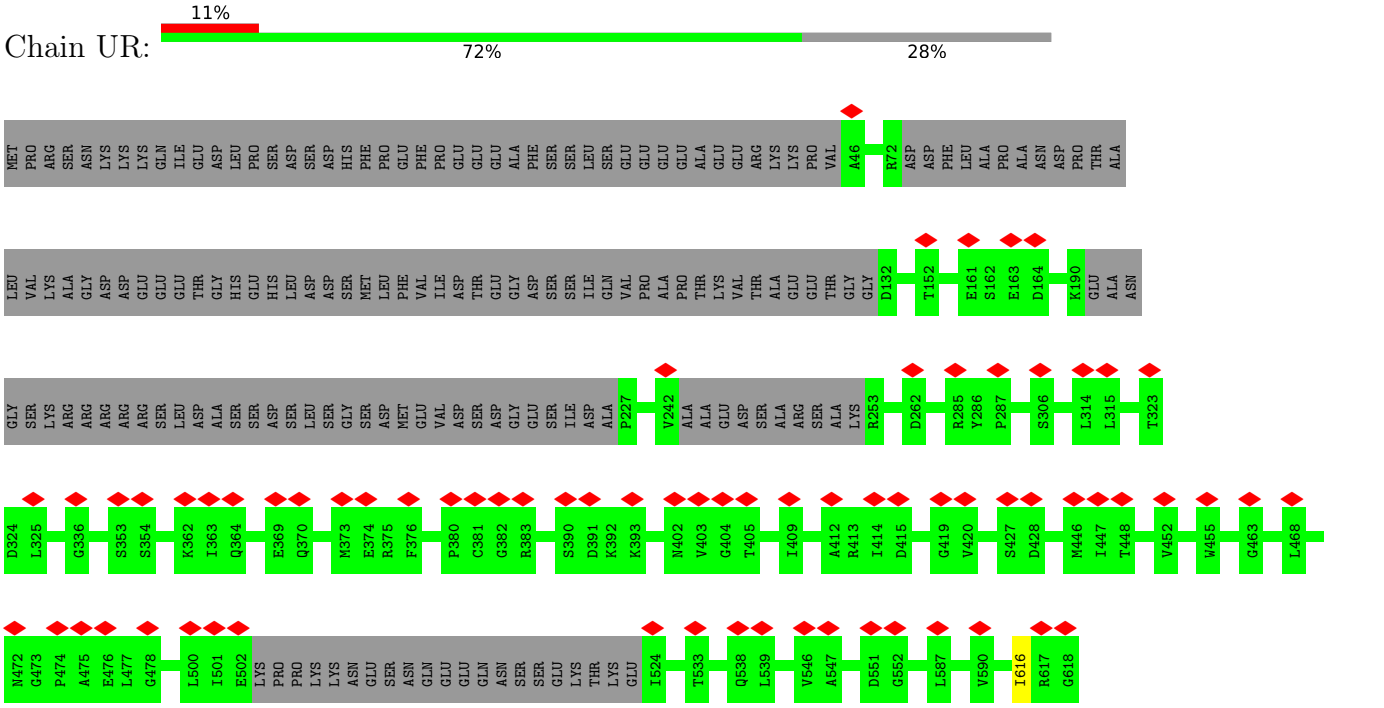


• Molecule 8: Utp14



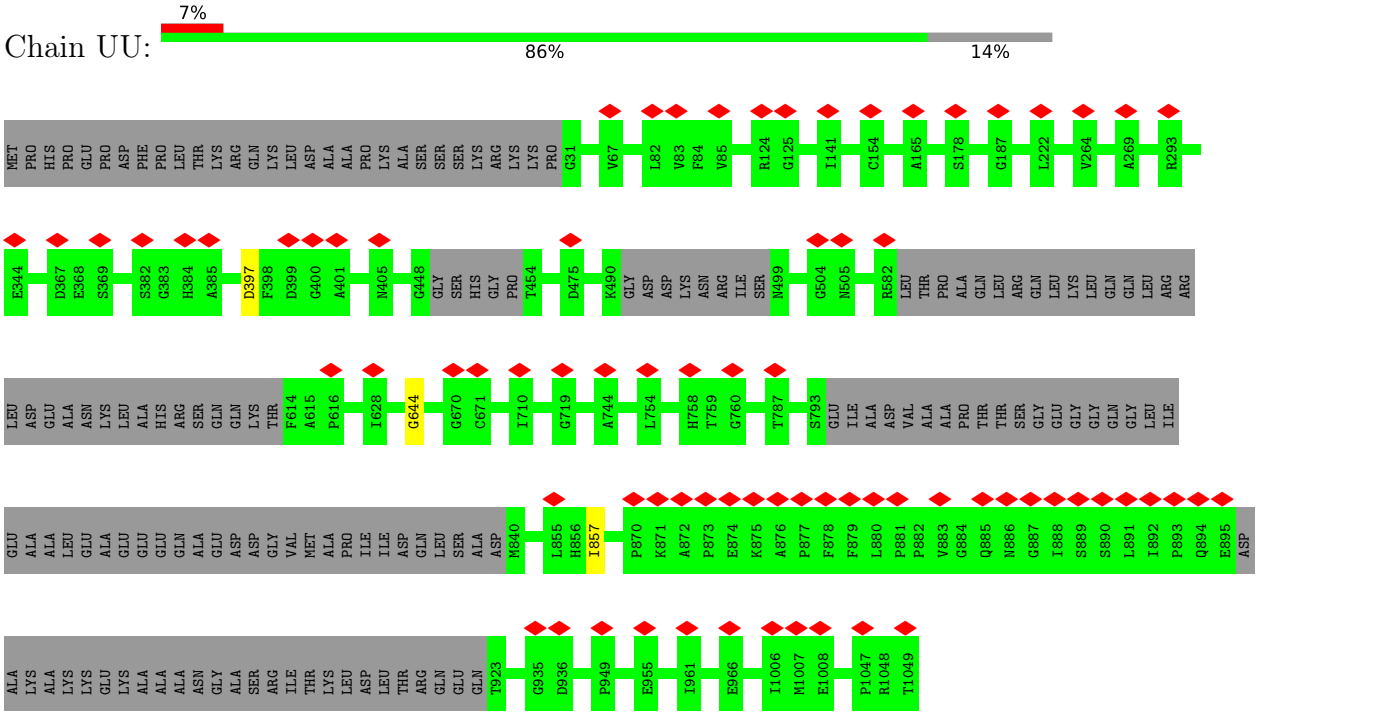
• Molecule 9: Utp18

Chain UR:



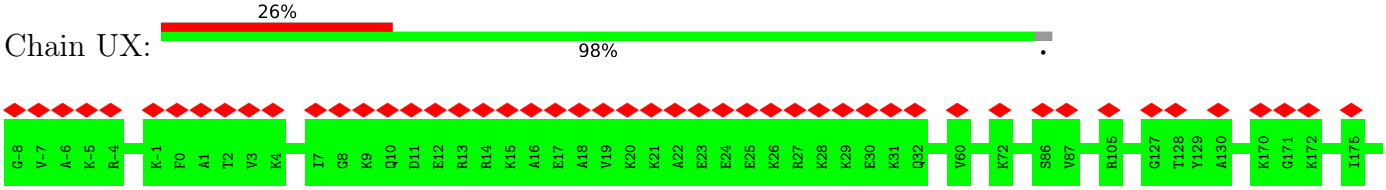
• Molecule 10: Putative U3 snoRNP protein

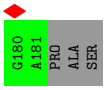
Chain UU:



• Molecule 11: Utp24

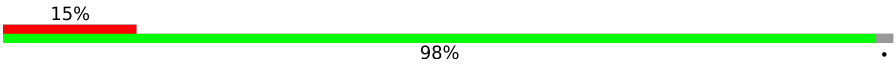
Chain UX:

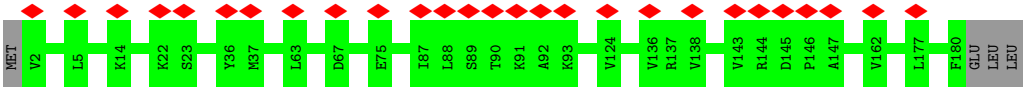




• Molecule 12: Imp3

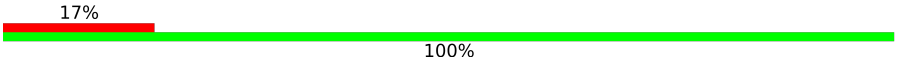
Chain CJ:

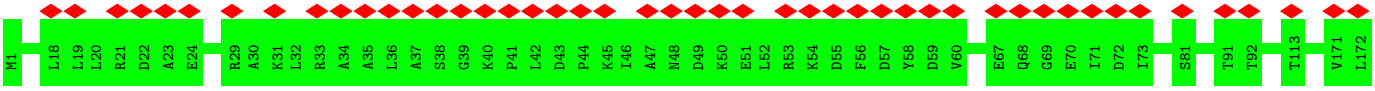




• Molecule 13: Putative U3 small nucleolar ribonucleoprotein

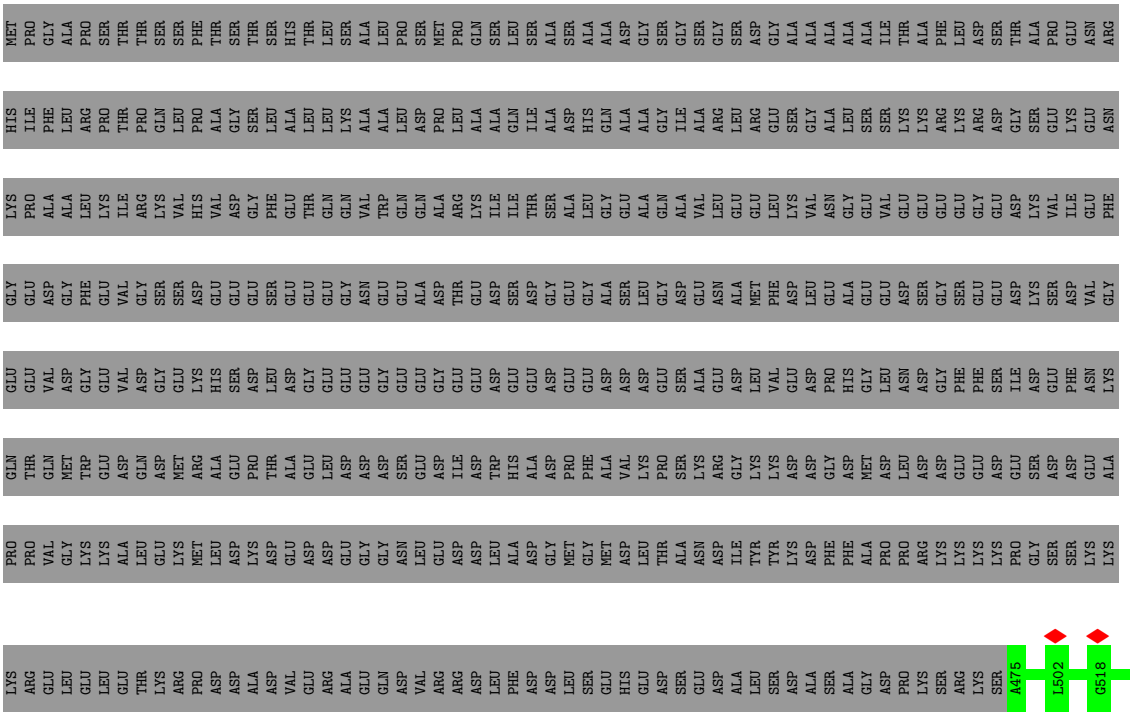
Chain CK:

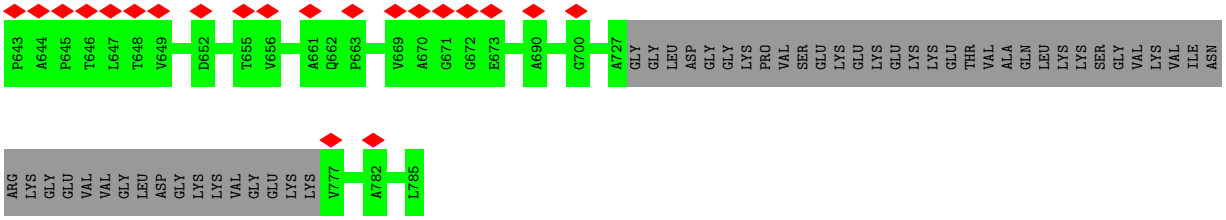




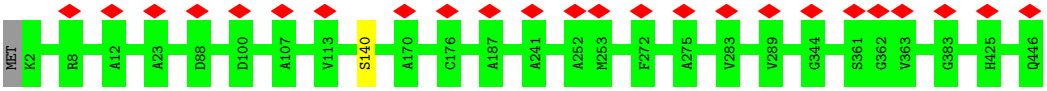
• Molecule 14: Putative U3 small nucleolar ribonucleoprotein protein

Chain CL:

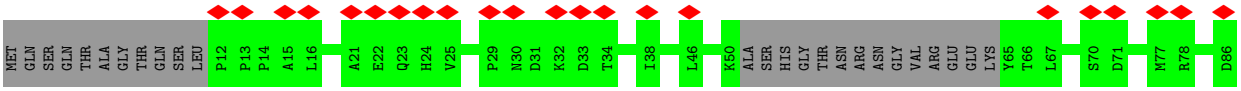


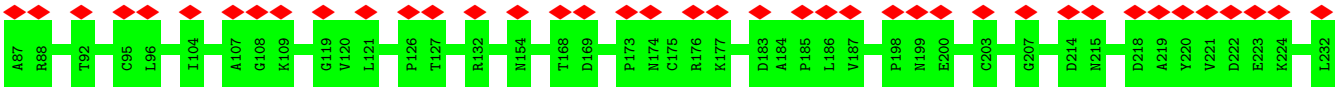


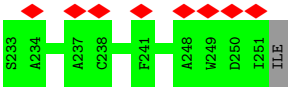
• Molecule 15: Sof1



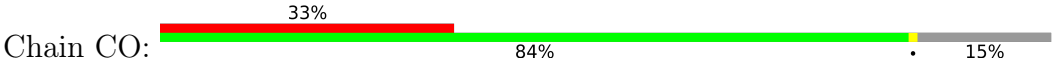
• Molecule 16: Emg1

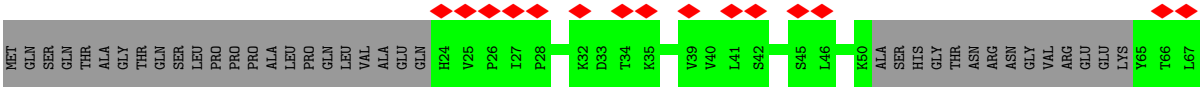


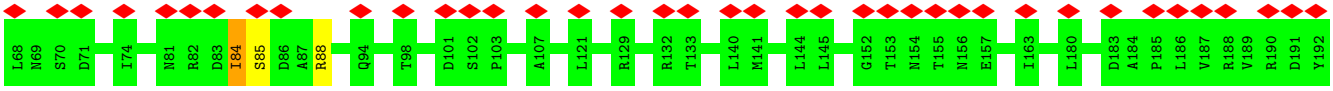


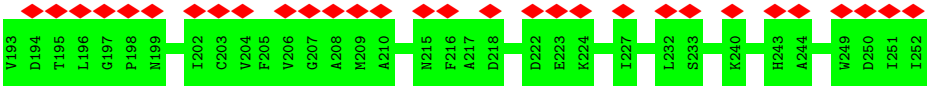


• Molecule 16: Emg1

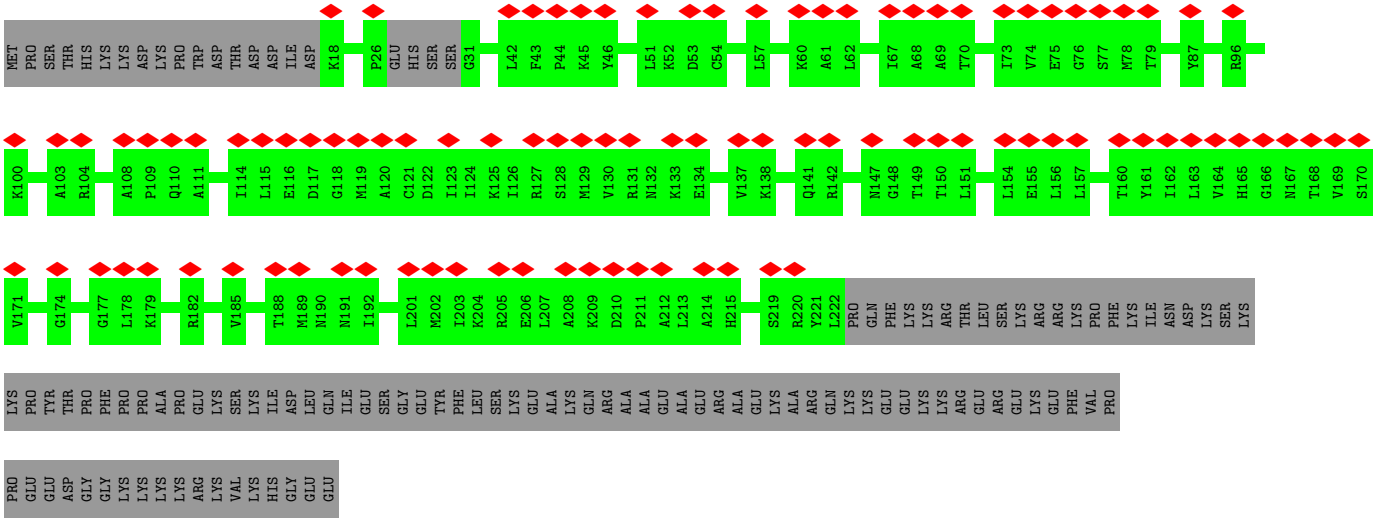






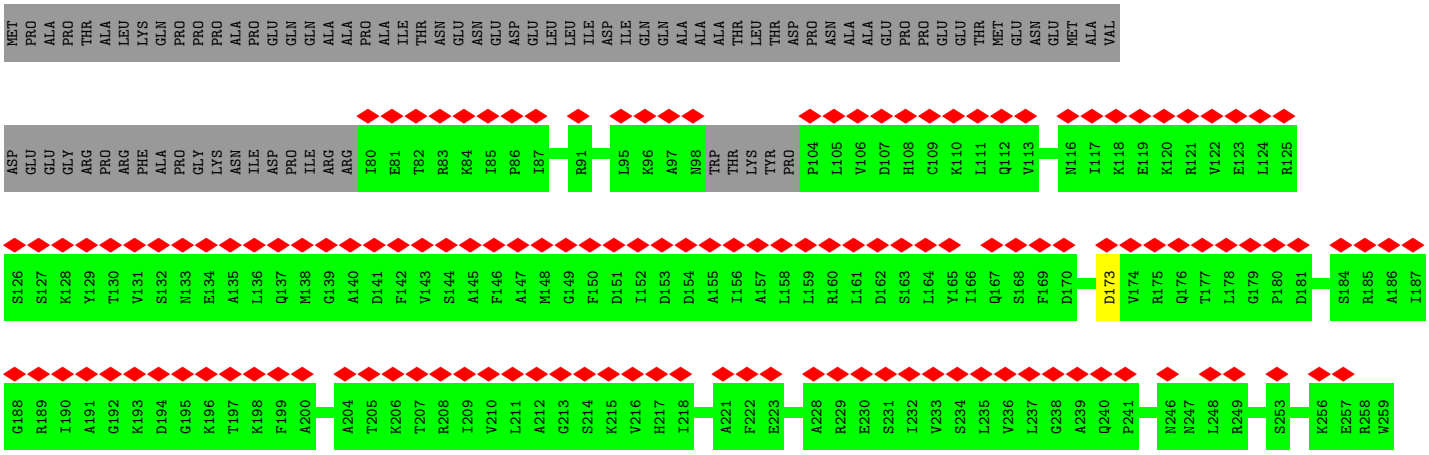


• Molecule 17: KRR1 small subunit processome component



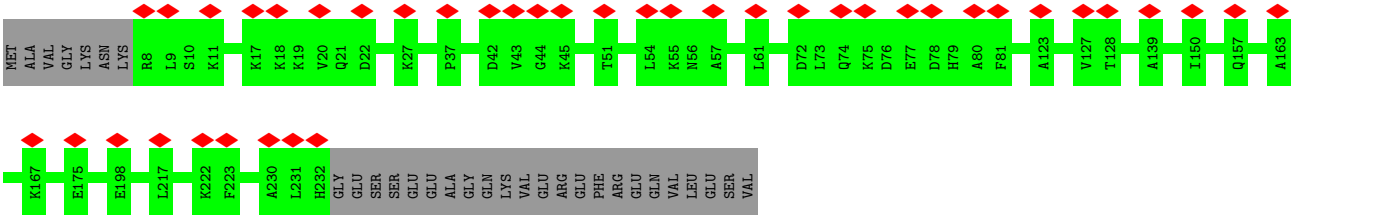
• Molecule 18: Pre-rRNA-processing protein PNO1

Chain CQ:



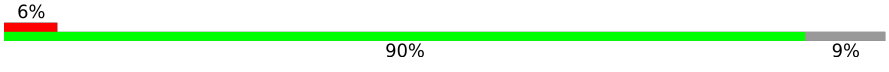
• Molecule 19: 40S ribosomal protein S1

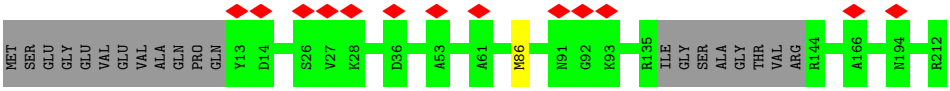
Chain Ca:



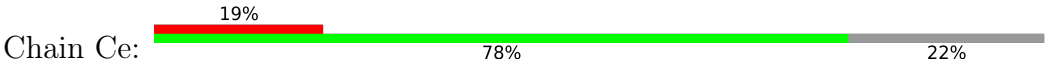
• Molecule 20: 40S ribosomal protein s5-like protein

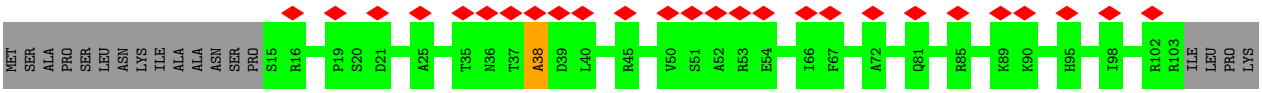
Chain Cc:

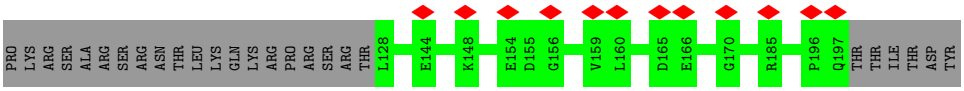




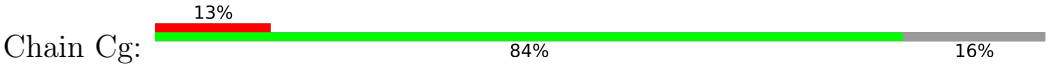
• Molecule 21: 40S ribosomal protein S7

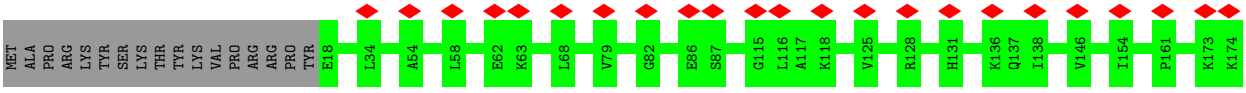


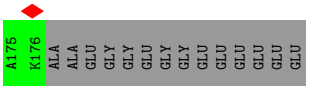




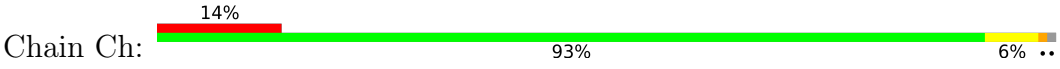
• Molecule 22: 40S ribosomal protein s9-like protein

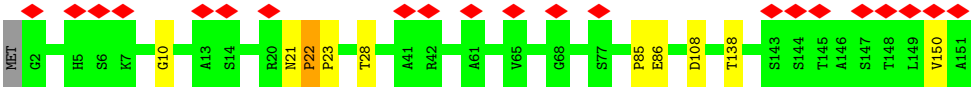




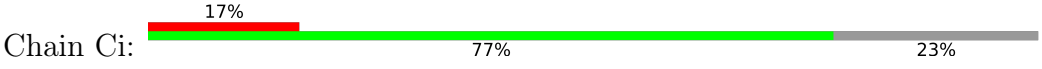


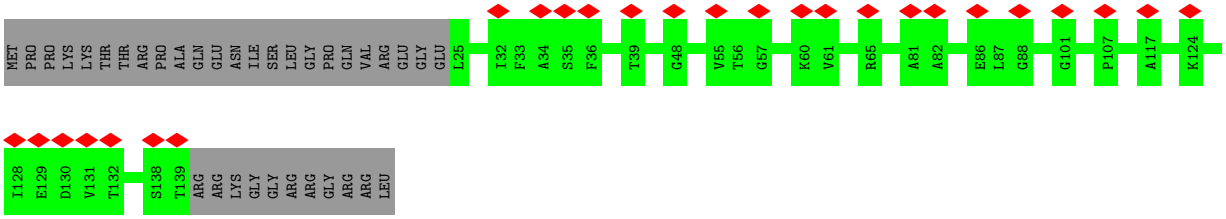
• Molecule 23: 40S ribosomal protein S13-like protein



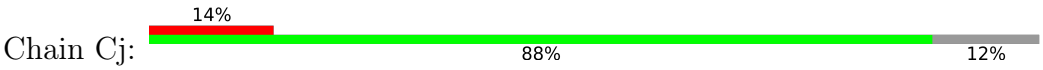


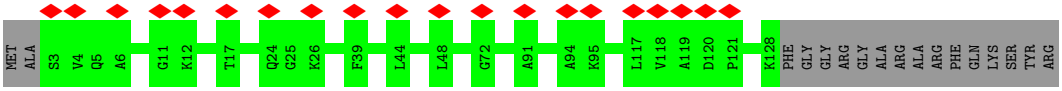
• Molecule 24: 40S ribosomal protein S14-like protein



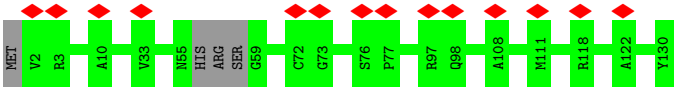


• Molecule 25: 40S ribosomal protein S16-like protein

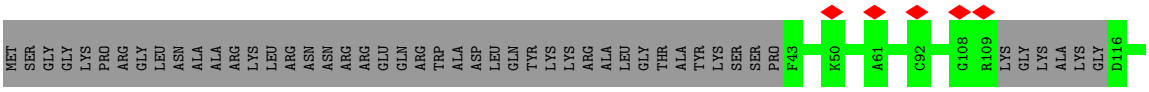




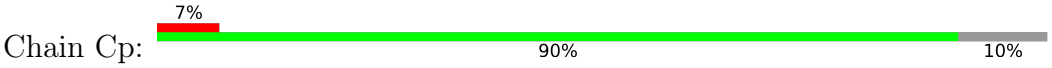
• Molecule 26: 40S ribosomal protein S22-like protein

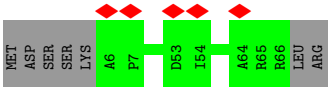


• Molecule 27: 40S ribosomal protein s23-like protein

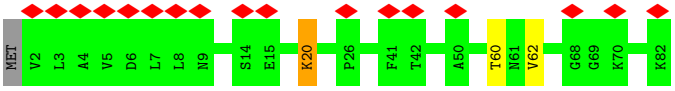


• Molecule 28: 40S ribosomal protein S28-like protein

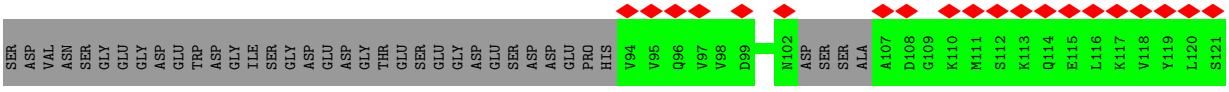


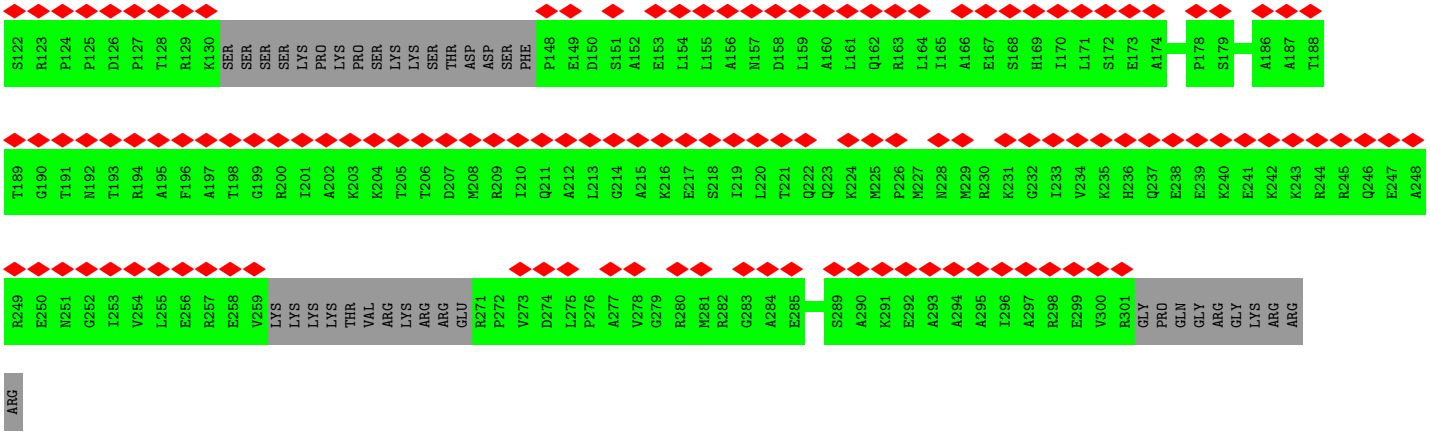


• Molecule 29: Ribosomal protein s27-like protein



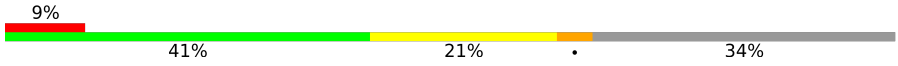
• Molecule 30: Faf1

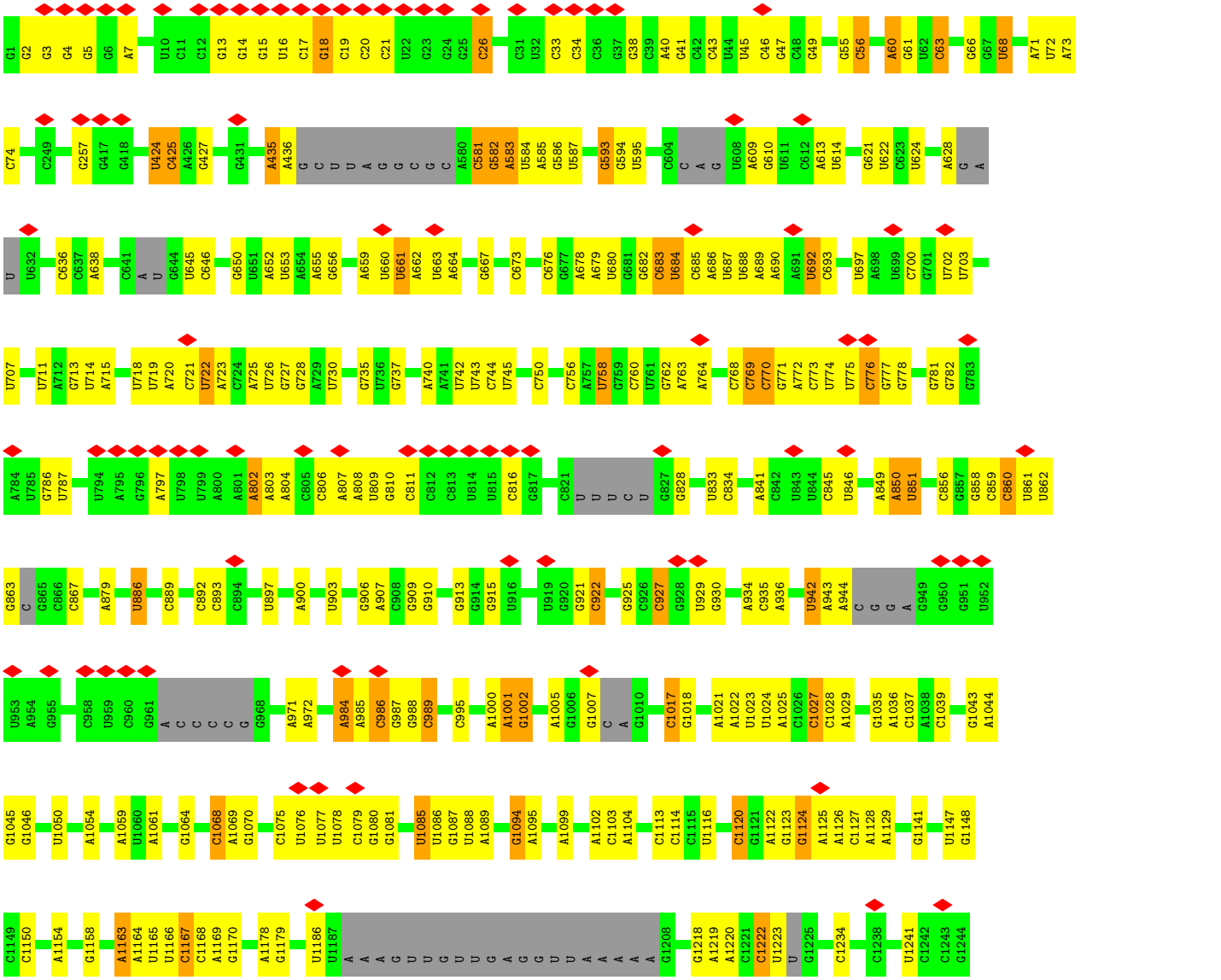


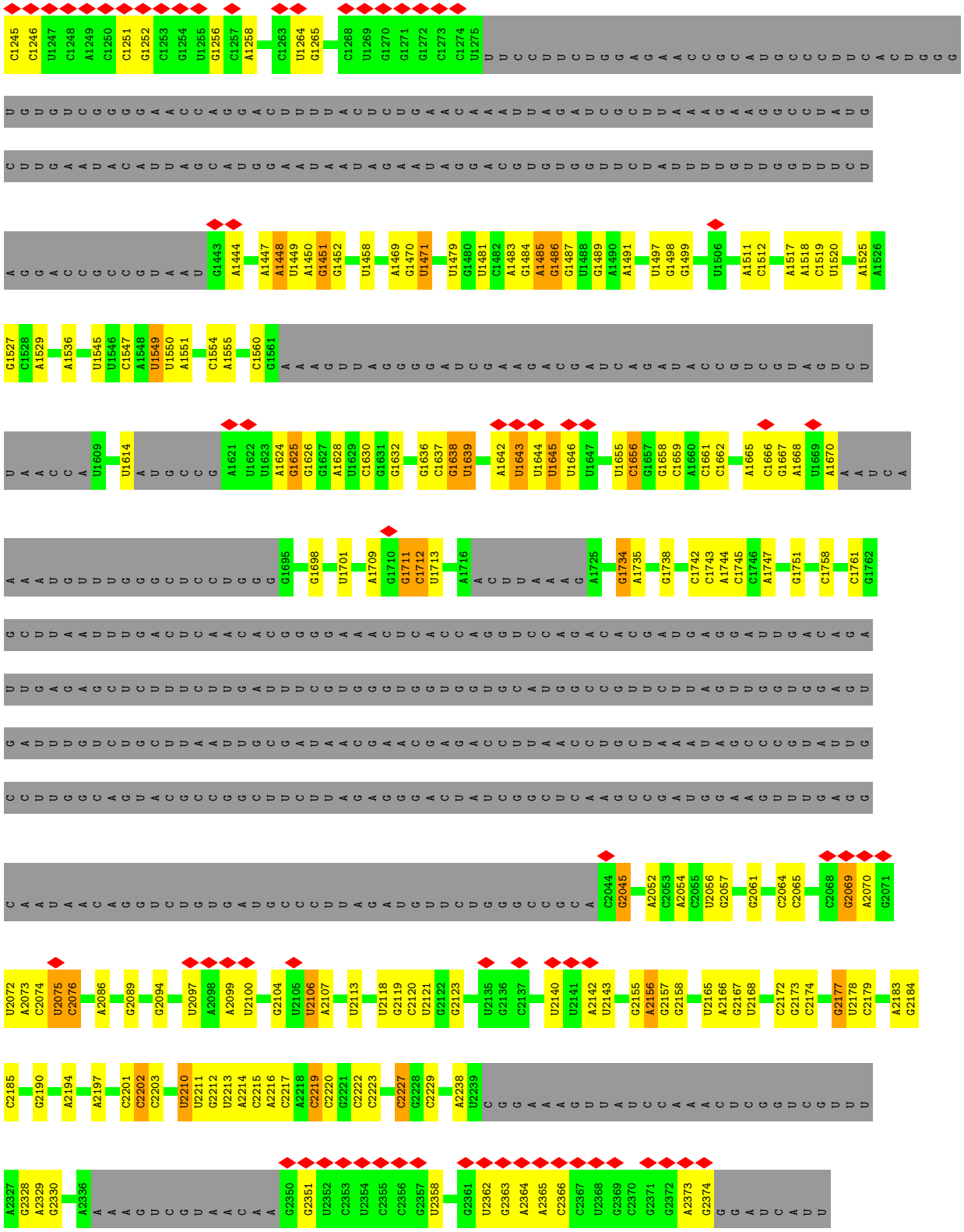


• Molecule 31: 35S ribosomal RNA

Chain C1:

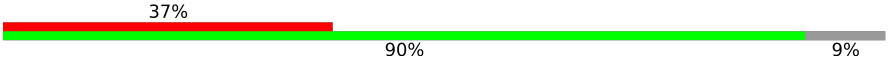


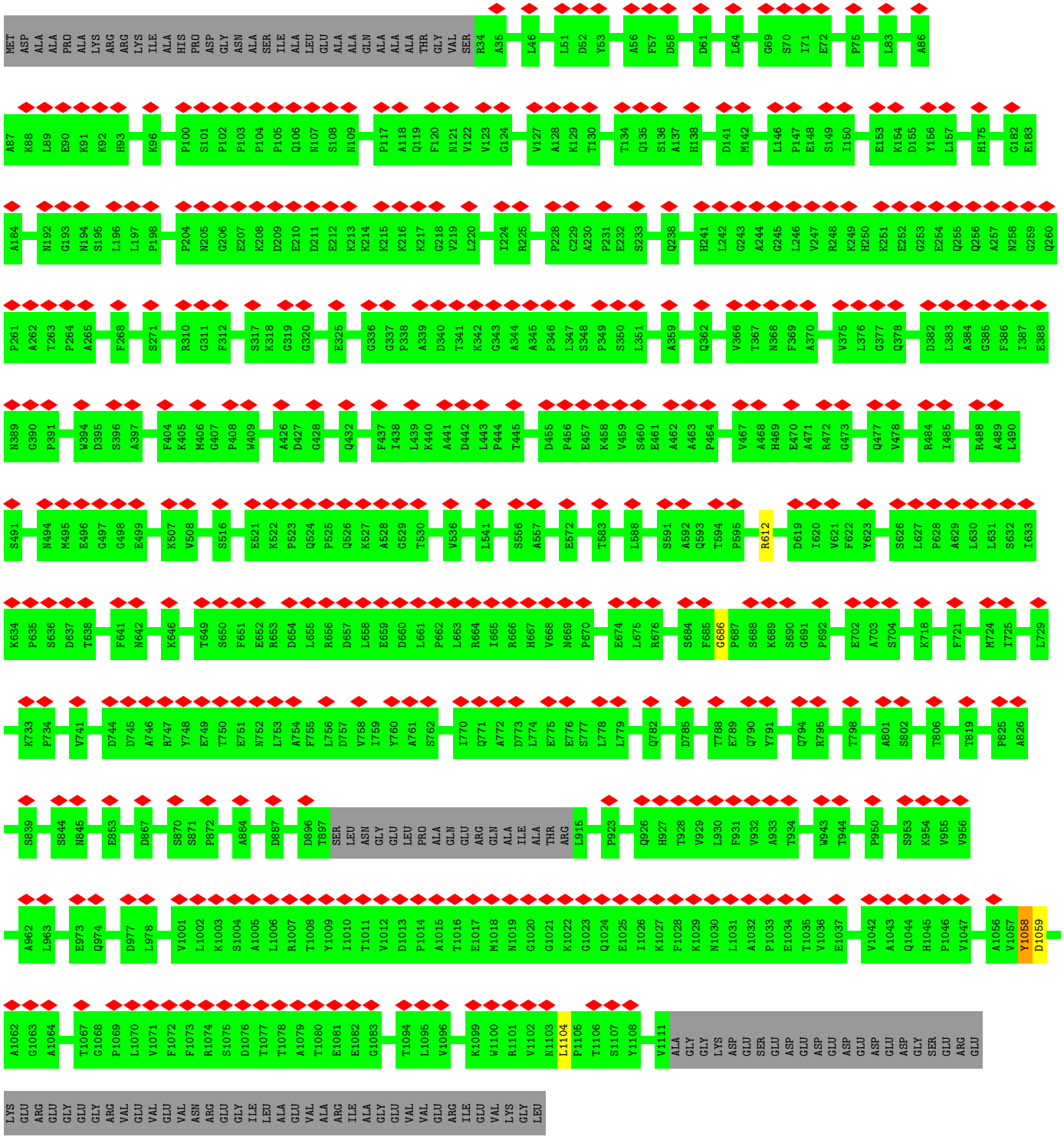




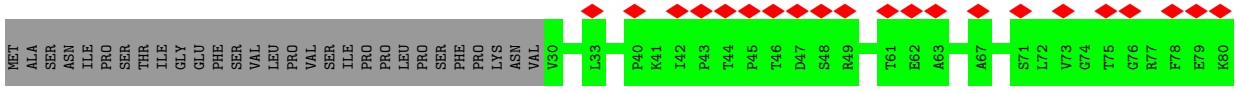
• Molecule 32: U3 small nucleolar RNA-associated protein 22

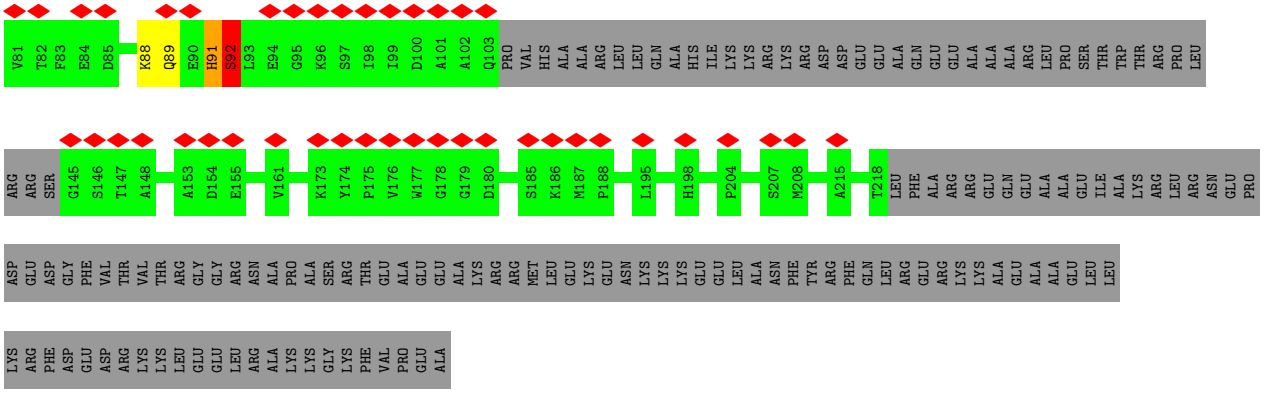
Chain UV:



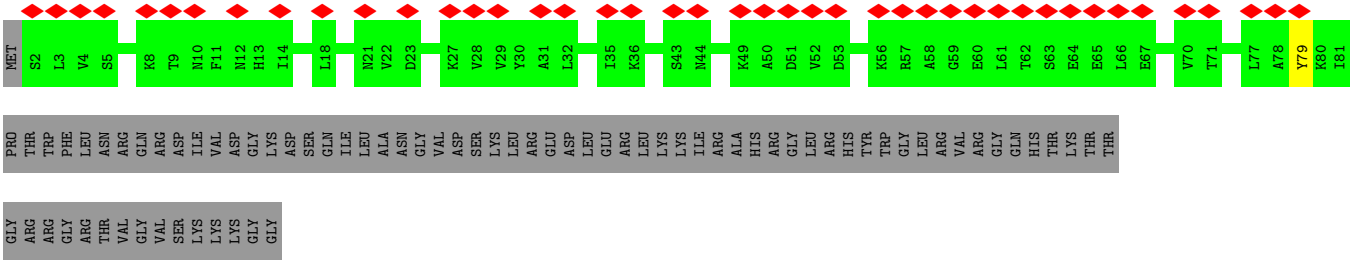


• Molecule 33: Rrp7

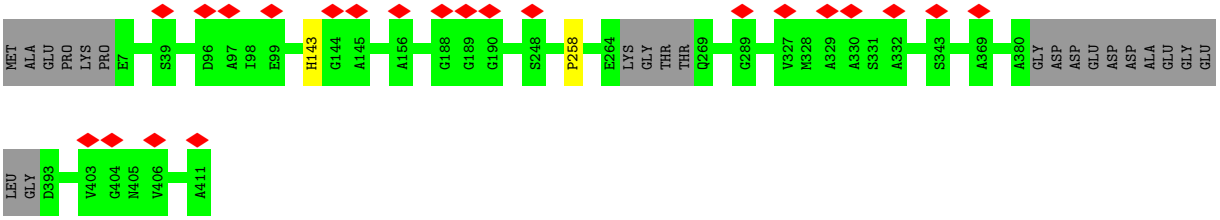




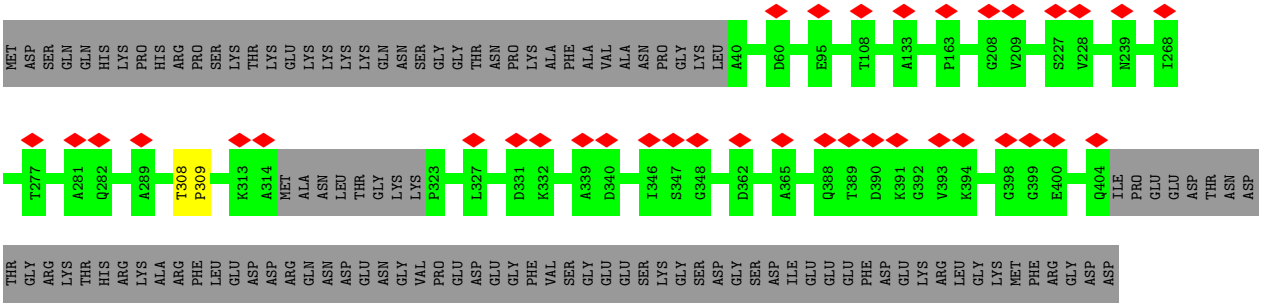
• Molecule 34: Putative ribosomal protein

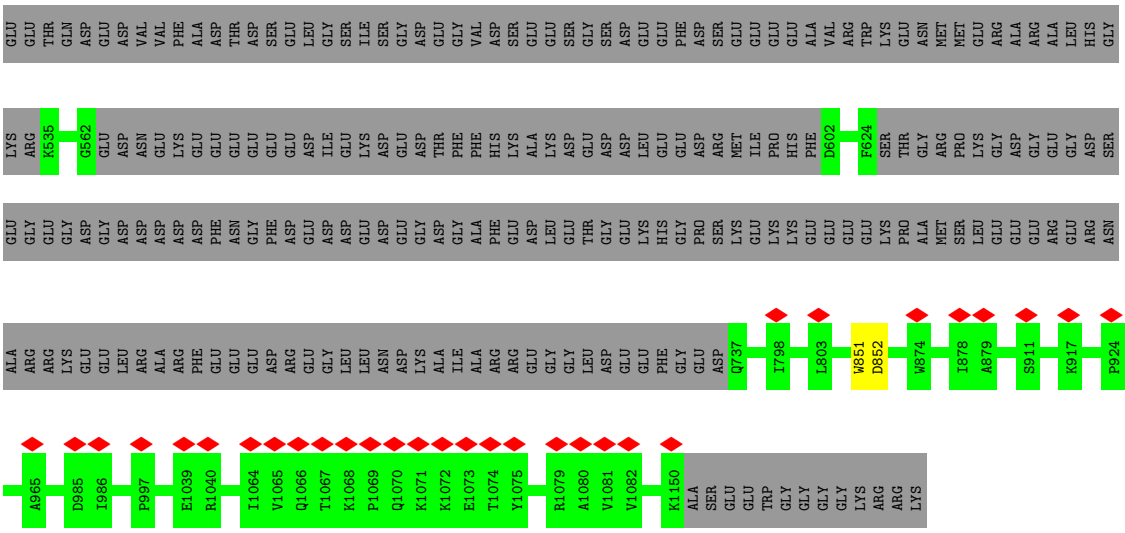


• Molecule 35: RNA 3'-terminal phosphate cyclase-like protein

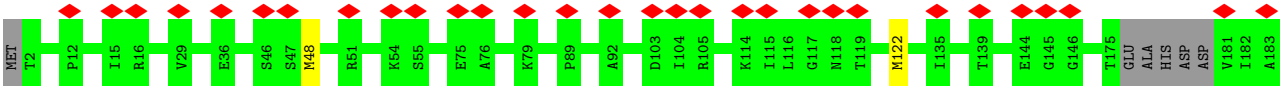


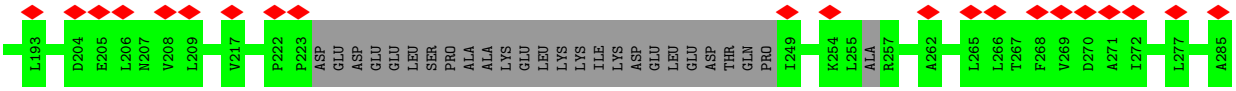
• Molecule 36: Bms1

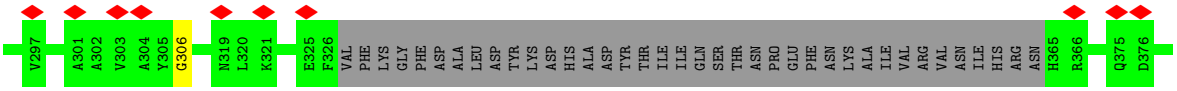


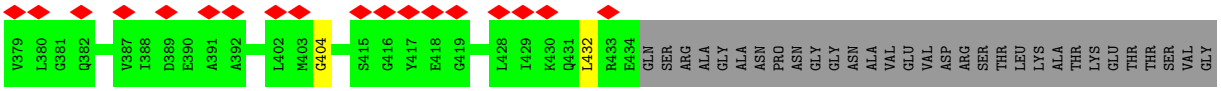


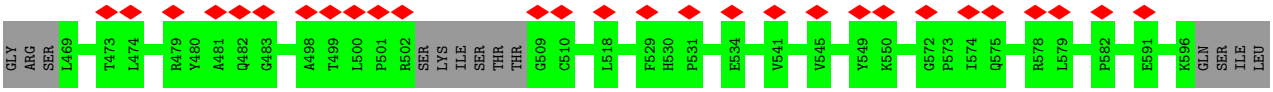
• Molecule 37: Kre33

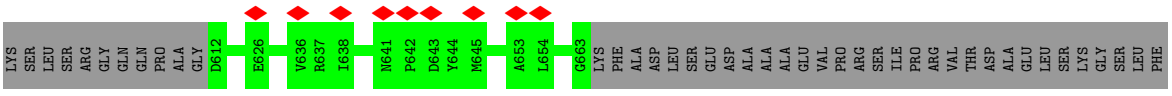


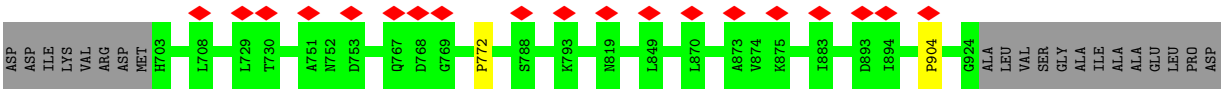






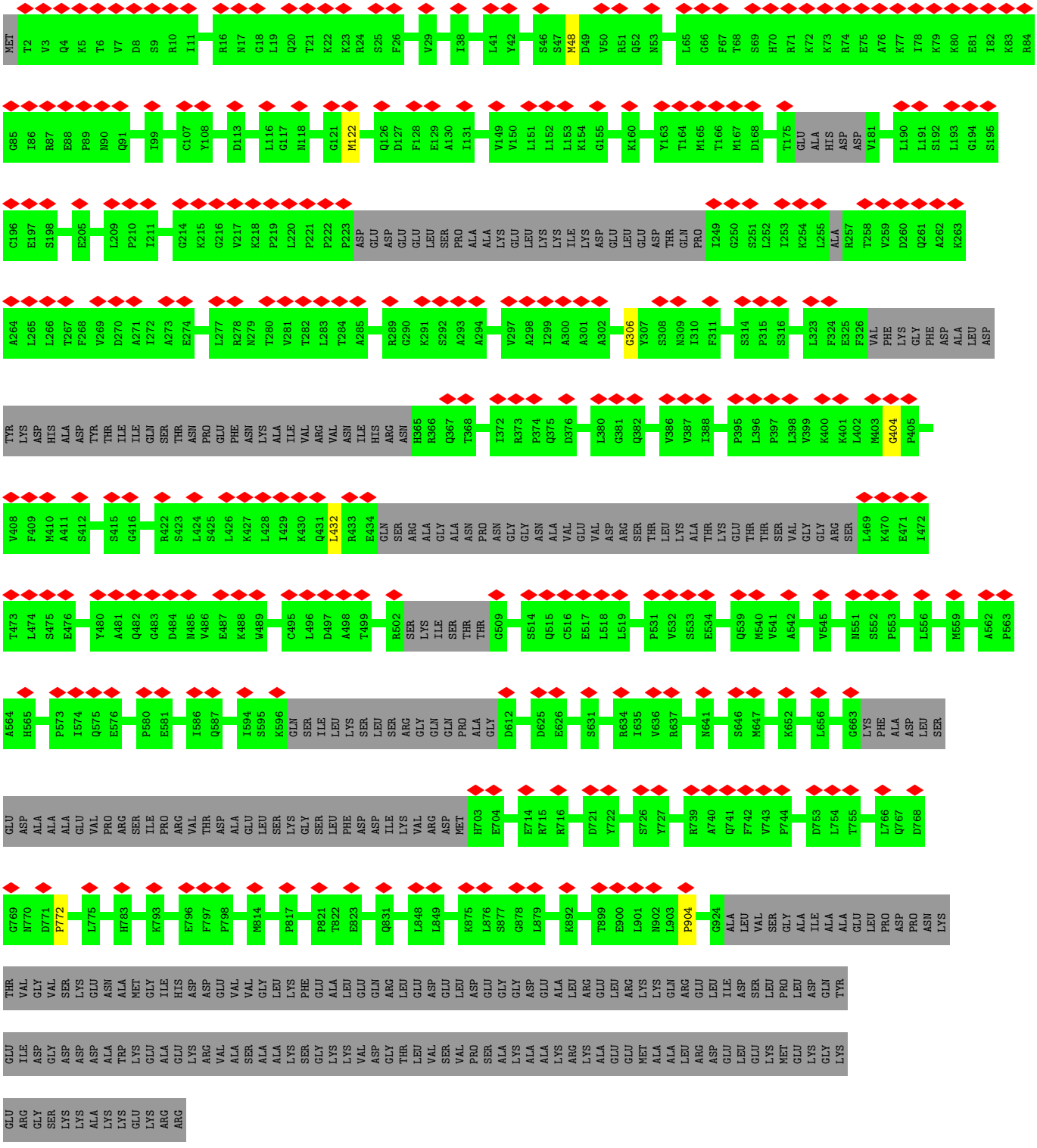






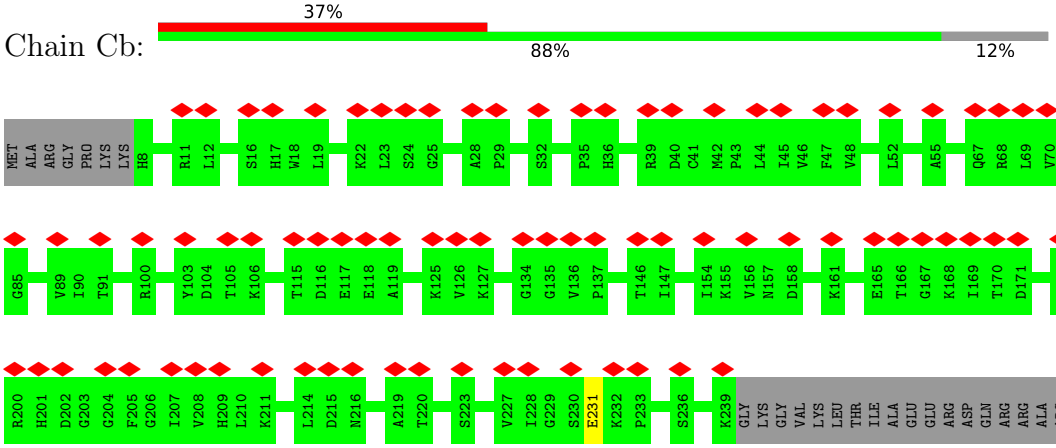
• Molecule 37: Kre33

Chain CS:



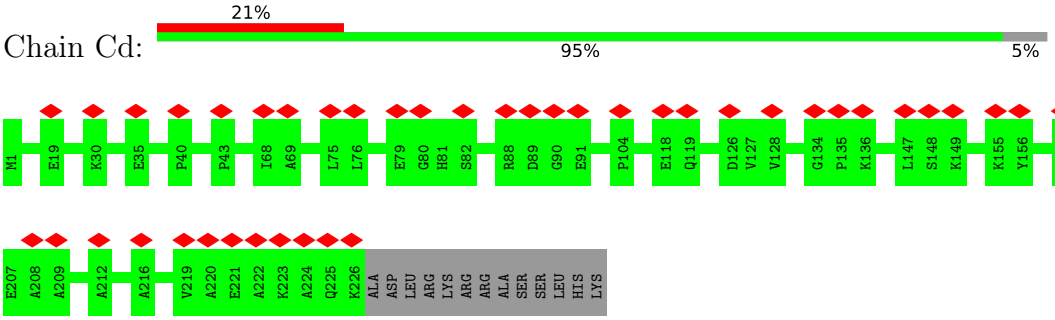
• Molecule 38: 40S ribosomal protein S4

Chain Cb:



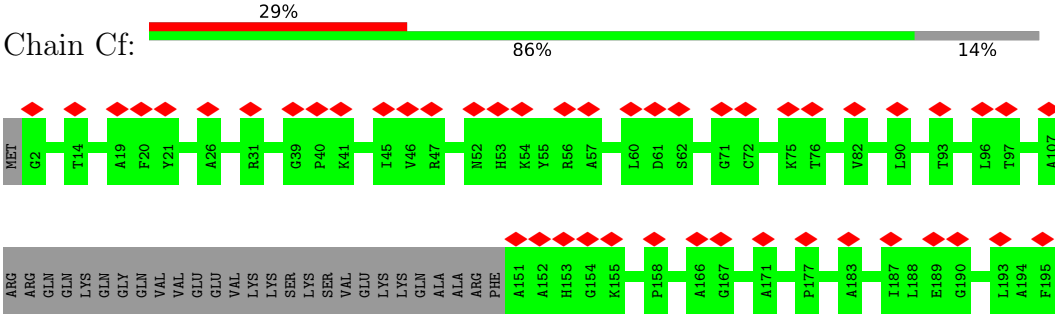
• Molecule 39: 40S ribosomal protein S6

Chain Cd:



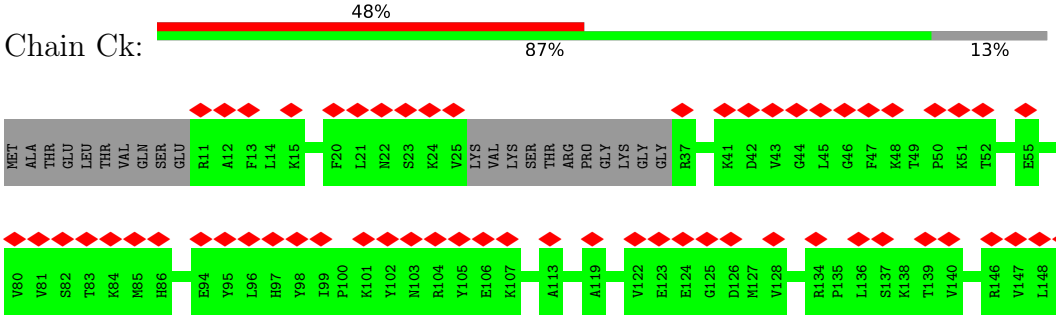
• Molecule 40: 40S ribosomal protein S8

Chain Cf:



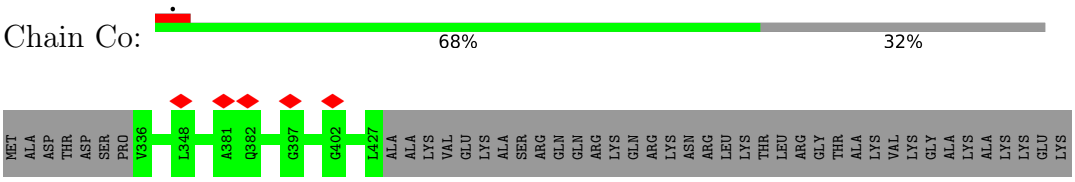
• Molecule 41: 40S ribosomal protein S11-like protein

Chain Ck:



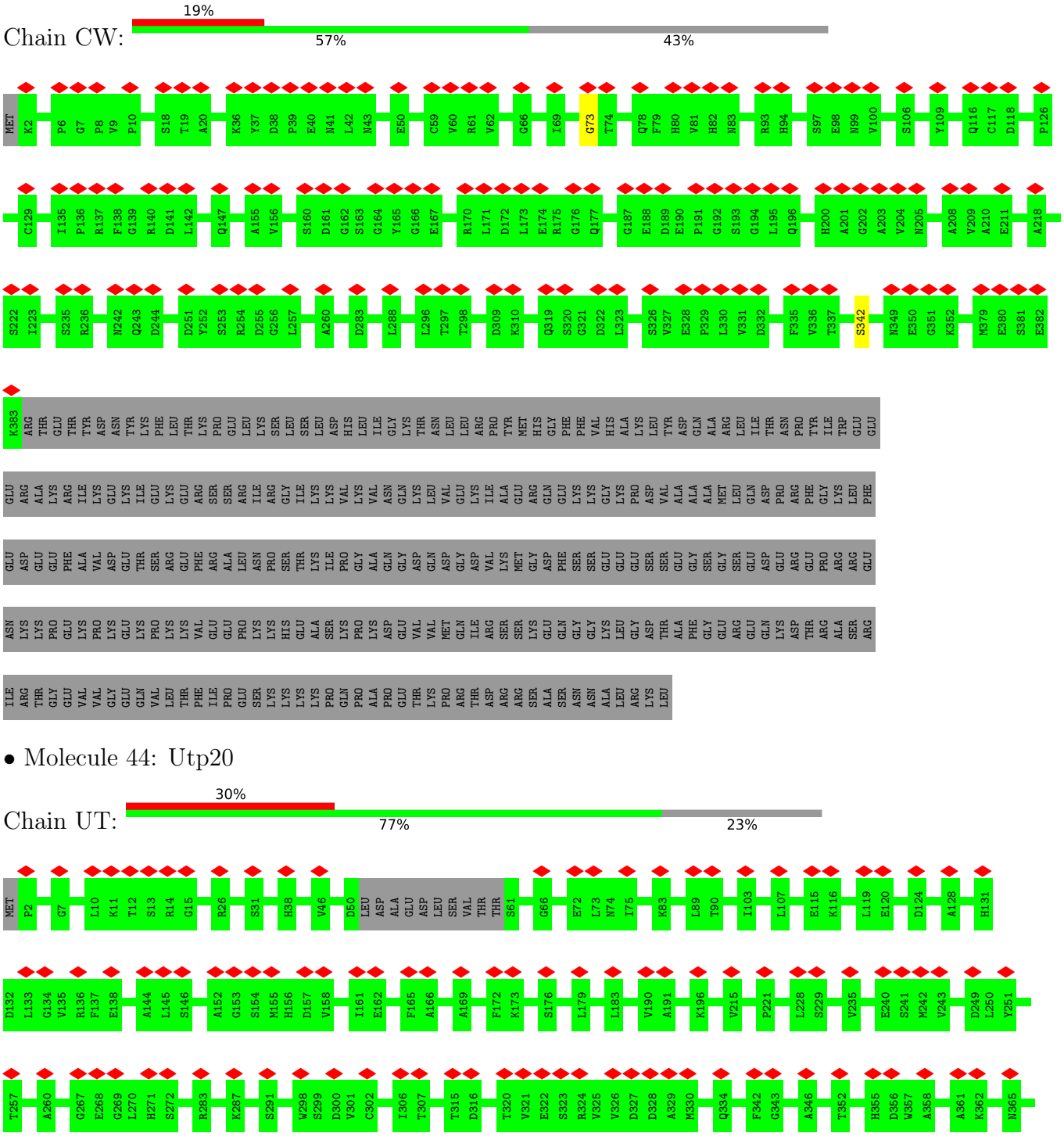
• Molecule 42: 40S ribosomal protein S24

Chain Co:



• Molecule 43: Ribosome biogenesis protein ENP2

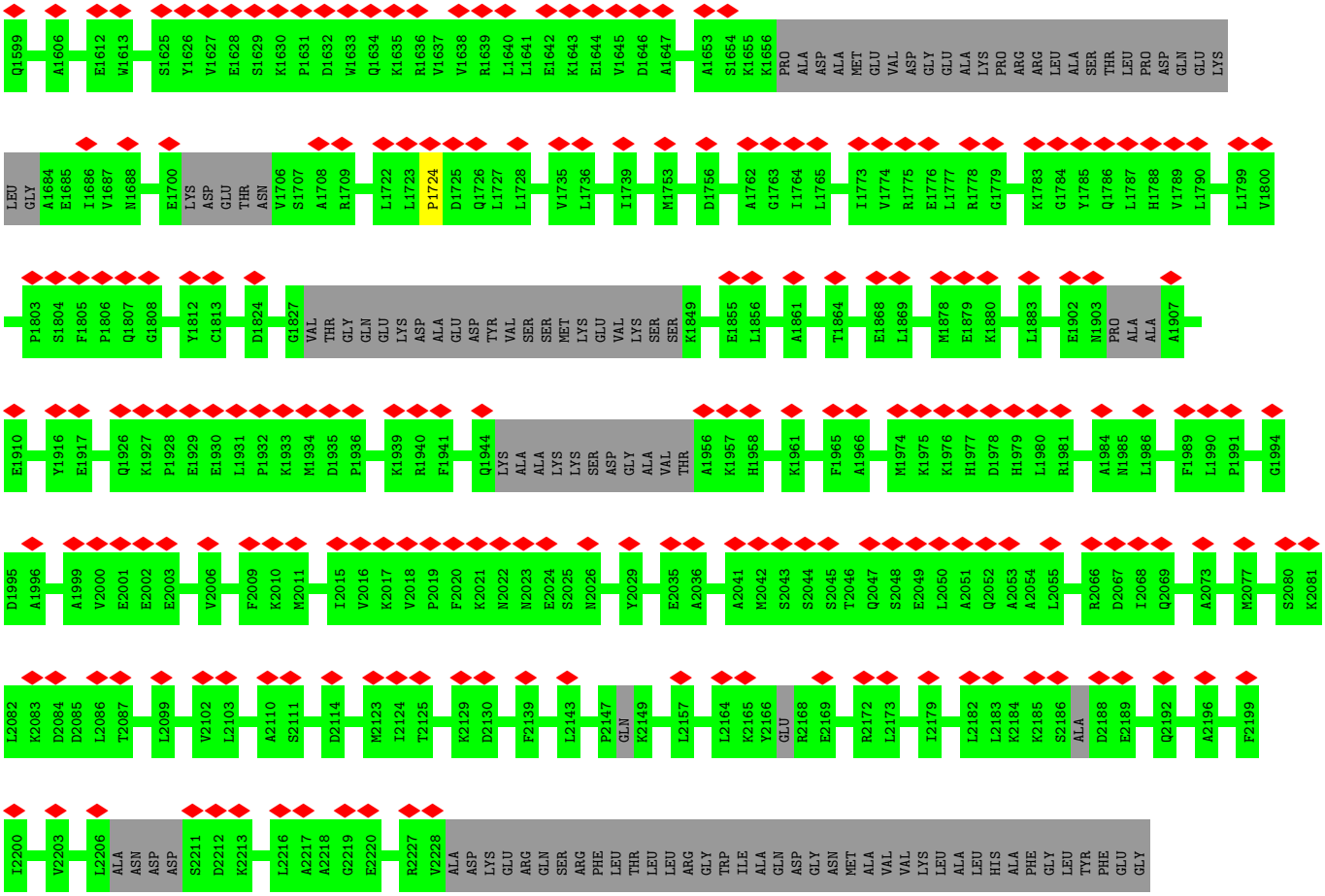
Chain CW:

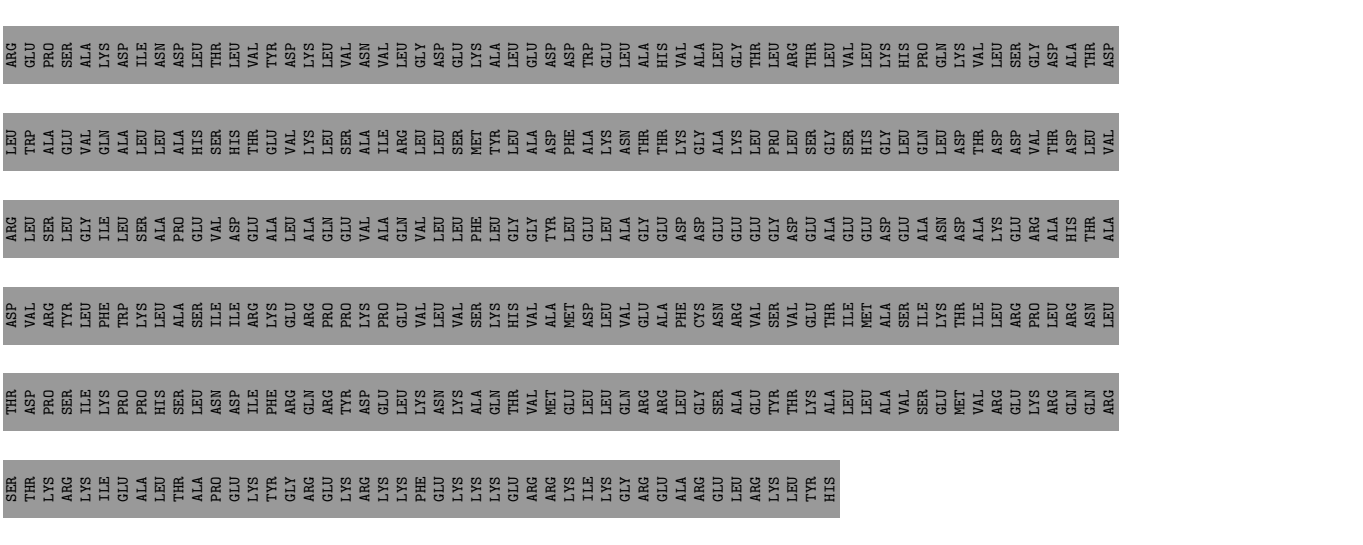


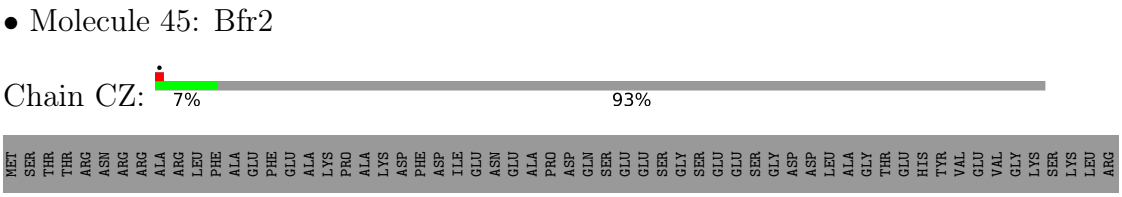
• Molecule 44: Utp20

Chain UT:


L368 V369 S370 L371 G372 T373 Q374 A375 K376
E379 V380 M381
S399 R400
D404 A405 L406 I407 P408 A409 M410 S411 T412 F413 Q414 T415
T418 K419 E420
M423 K424
D435 Q436 N437 A438 E439 R440 F441 R442
K447
Q450 K451 F452 I453 V454
W457 S458 Q459 G460 N461 N462
E463 D464 L465 L466 C467 V468 L469 I470 P471
E475 S476 G477 G478 L479 P480 A481
P482 G483 S484 K485 E486 T487 F488 P489
D496 Q497
D507 T508 PRO PHE PRO GLU SER GLY GLY PHE GLY LYS ASP PRO GLU THR TRP ARG ASP LYS C527
L535
T542 V543 H544 P545 S546 T547 N548
S549 R550 I551 A552 E553 V554 L555 L556 K557
R564 PRO SER SER SER LEU PRO THR ASP GLU
A574 N575
L586 R587
K590 A591 P592 G593 S594 I595 D596 P597 S598
A607
F610
L621
Q625 E626 I627 K628 ALA LYS GLY LYS ASN THR PRO GLU SER ASP SER GLY ALA GLU
SER SER
H645 E646
L651
C654 L655 I656
L659
E665
L668 A669
E675 V676 L677 D678 F679 T680
P681 D682 S683 N684 N685
S688
Q692
E695 M696 P697
Q701
R704 A705
L715
S718
E721 Q722 D723
G736
T739 V740 P741 L742 A743 P744 V745
W746 A749 M753 N768 I769 D772 D775
W781 S782 G783
P788 ALA ASP ASP N792 H793 G794 P795
E800 N803
H806 L807 T808 E809
A813
Q816
G822
E831 G832 Q833
A843
A847 L848 K849 A850 L851 A852 A853 L854 P855 W856 R861
K864 P867 T873 D874 ASP SER GLU THR PRO GLU GLU ASP ILE GLU GLU GLU GLU SER PRO GLU SER GLY GLU G893 S894
V906 F907
S911
R914 V915
L926
L929 L930
G933
Q938
A941
I945
Y956 Q957 E958
E961
K970
L973 T974 V975 L976
F977 D980 S989 E990 V991 Y1000 A1010 R1020 L1021 A1022 I1023 I1024 R1025 E1030 D1031 S1034 I1038 G1039 L1040 G1041 P1042 L1043 R1044 A1045 I1046 R1047 V1048 V1049 D1050 E1051 Q1052 G1053 V1054 R1055 E1056 S1057 V1058 F1059 A1060 H1061 E1062 P1063 L1064 P1065 P1066 R1067 L1076 V1079 I1080
L1083 E1088 P1089 L1094 C1101 L1102 C1106 R1107 K1108 L1109 GLY VAL SER ALA GLU GLU PRO GLU SER GLY GLU GLY GLY GLY GLN ILE GLU N1126 T1136 K1139 S1140 L1141 S1142 F1145 Q1146 N1147 A1148 P1149 D1150 F1151 N1152 L1159 M1160 V1161 K1162 E1163 I1164 I1165 S1166 P1167 R1168 I1169 E1170
K1171 L1172 E1175 S1176 S1181 A1182 R1185 A1188 T1189 W1190 S1191 S1192 P1198 F1199 L1200 N1201 V1202 D1203 K1204 R1205 E1212 S1215 I1216 E1217 K1218 D1229 I1230 L1231 K1232 I1235 N1236 L1237 A1238 E1242 S1245 Q1246 F1247 N1248 E1249 L1250 I1251 K1252 T1253 E1254 L1255 L1256 D1257 P1258 N1259
T1260 D1261 L1262 I1263 L1264 K1265 T1266 I1267 G1268 G1269 V1270 L1271 H1272 G1273 Q1274 S1275 E1280 S1283 S1284 A1285 V1286 D1287 T1288 A1293 I1296 E1297 V1298 S1299 S1300 H1301 I1302 Q1303 D1304 M1305 L1306 E1307 I1308 A1309 L1317 V1320 V1324 A1327 I1328 L1338 D1339 D1340 L1341 Q1342 S1343 N1344 Q1345
E1346 L1347 Q1348 R1349 K1350 V1351 Y1352 S1353 T1354 F1359 G1360 F1361 F1362 K1363 D1364 K1365 Q1369 D1376 V1377 F1378 A1379 R1380 R1381 E1382 VAL W1384 A1385 Q1386 E1387 V1388 S1389 R1393 E1400 GLN ARG LEU ASP GLU PRO D1407 Y1408 N1409 T1410 R1411 L1412 A1413 N1416 S1417 I1418 T1419 K1420 ASP ARG ASP
LYS PRO PHE T1427 L1428 D1429 Q1430 P1433 L1434 V1435 H1436 N1437 Q1443 E1446 E1447 A1456 D1457 V1469 W1470 A1471 T1472 P1473 D1474 Q1475 A1476 A1477 D1480 V1481 V1482 A1483 N1484 I1485 I1486 L1487 P1488 A1489 I1490 Y1491 A1492 G1493 S1494 R1495 D1496 P1497 S1498 E1499 T1500 R1507 L1516 E1520 L1521
V1522 ALA ASP LEU THR CYS LEU VAL PRO GLU SER GLU ASP SER ASP GLU ALA PHE PHE PHE HIS ILE MET SER PRO A1547 V1548 S1549 R1550 L1555 R1556 V1557 D1563 E1566 F1567 R1568 S1569 K1570 H1571 I1572 S1573 Q1574 I1584 F1585 D1586 ARG PRO GLU GLY GLY ASP ASP HIS G1595 A1598

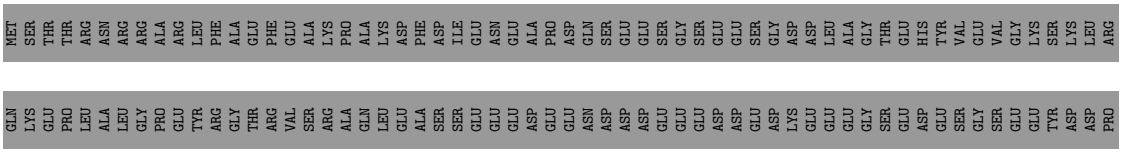


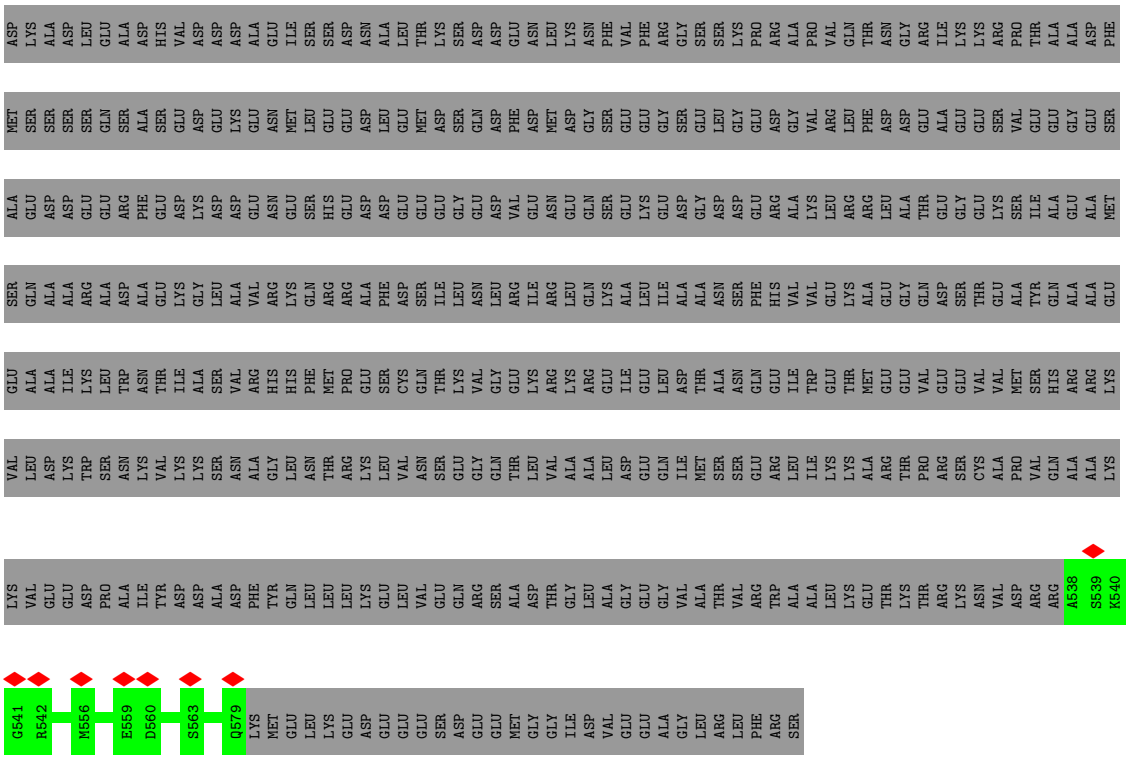




• Molecule 45: Bfr2

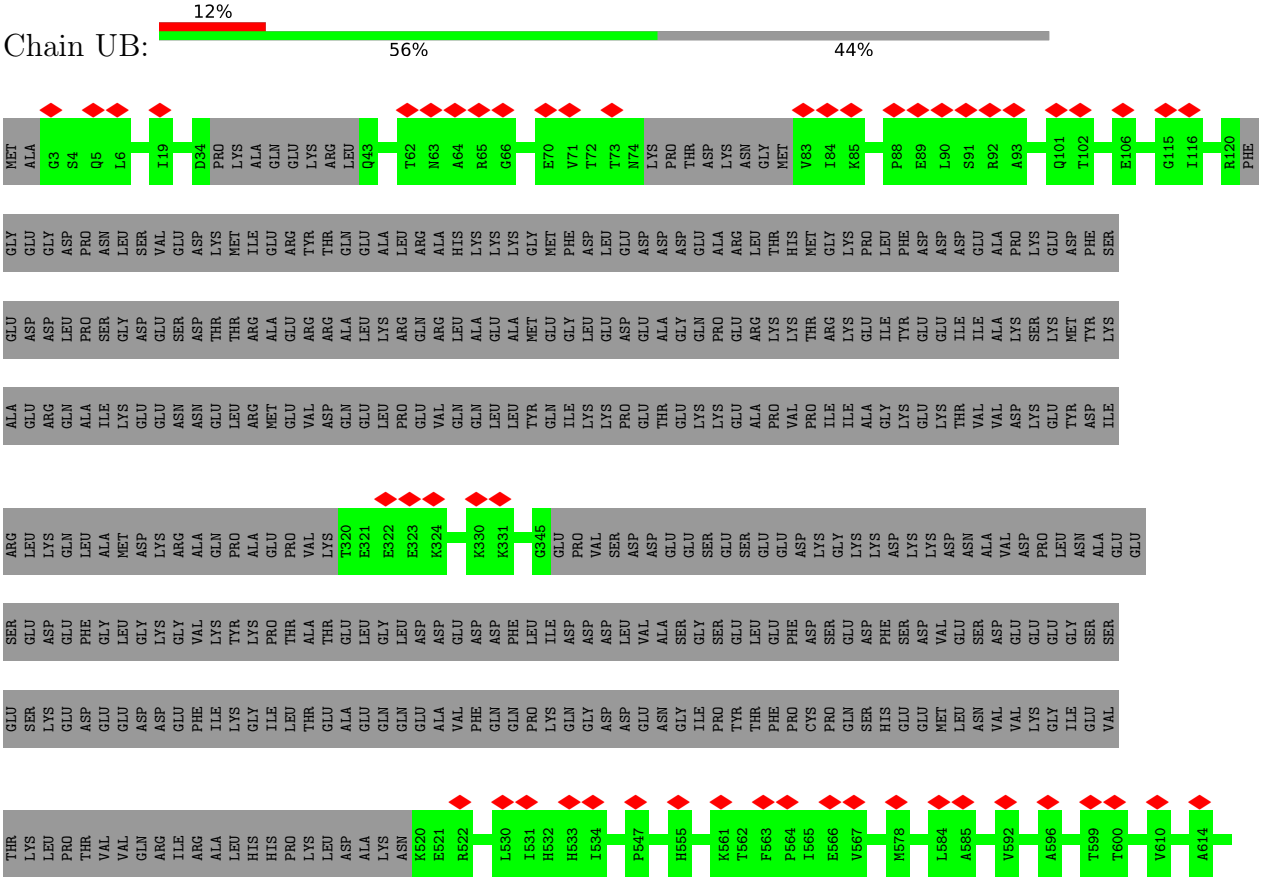
Chain CZ:

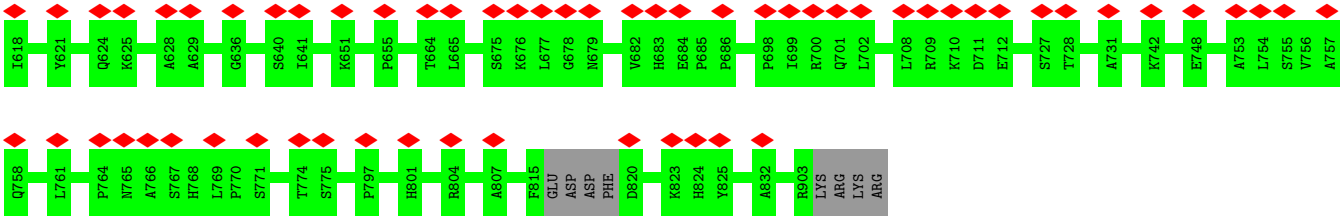




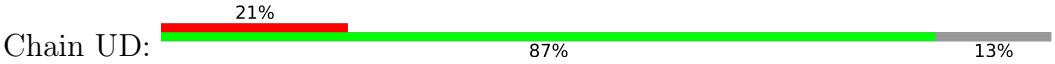
• Molecule 46: Utp2

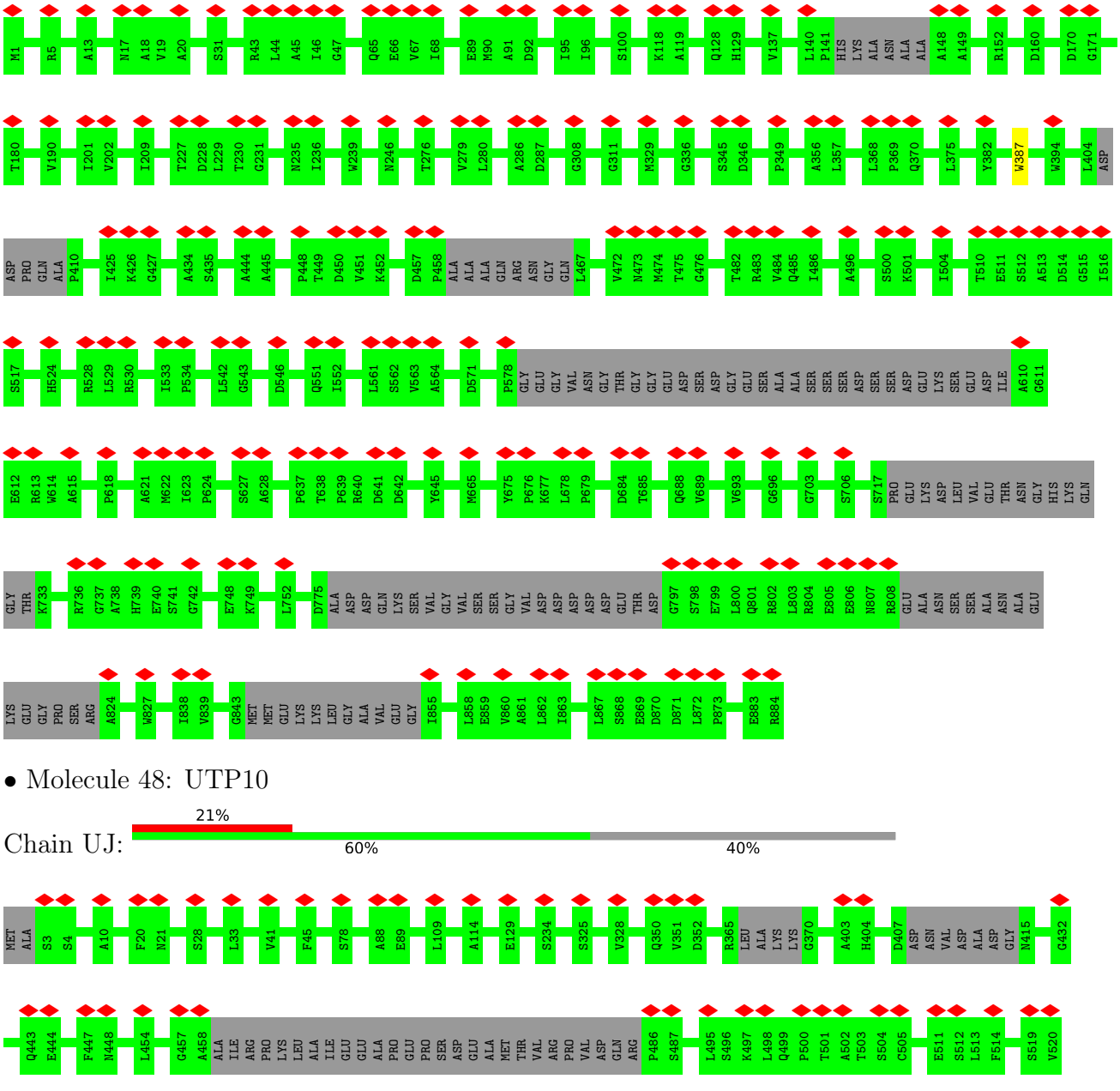
Chain UB:



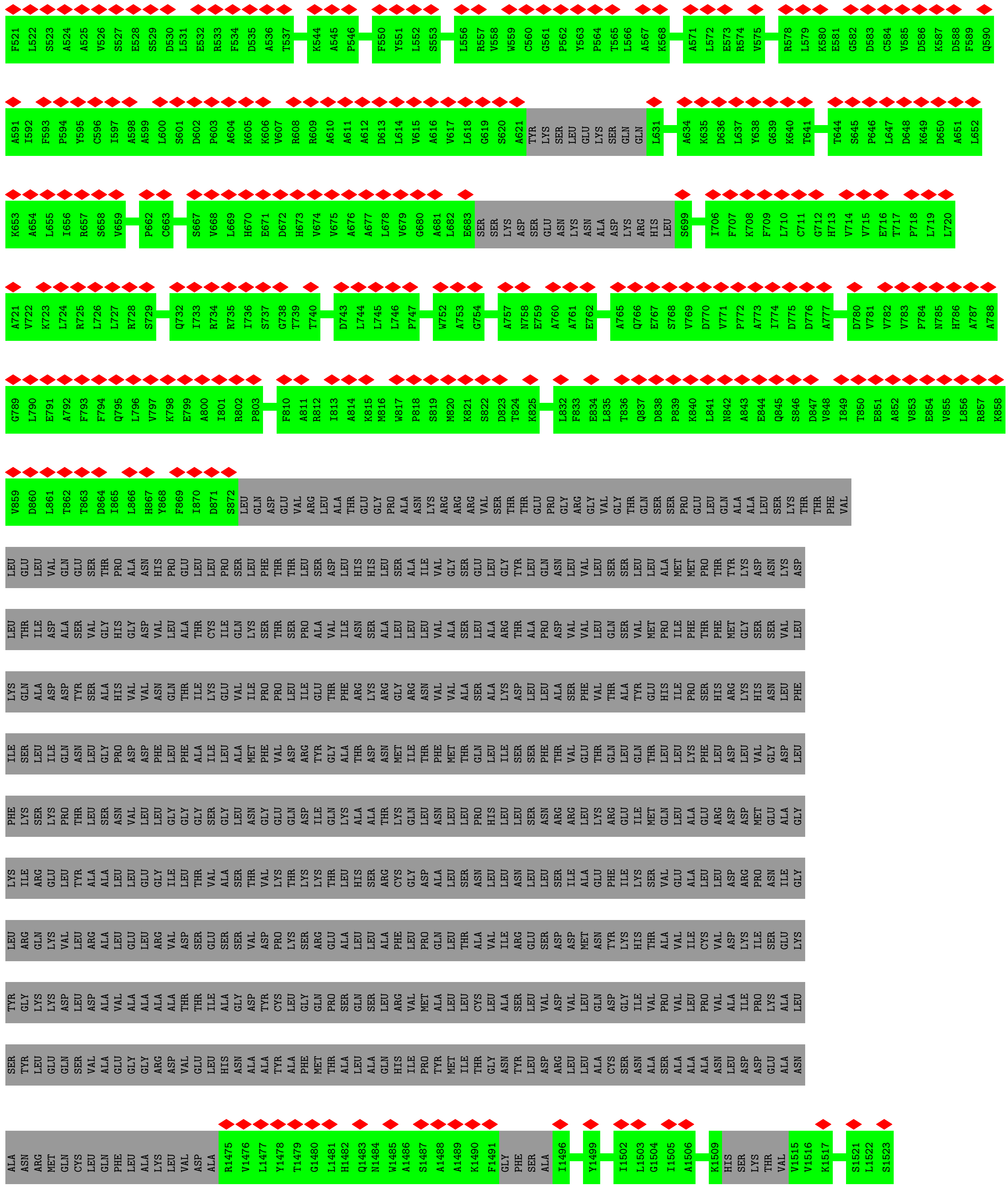


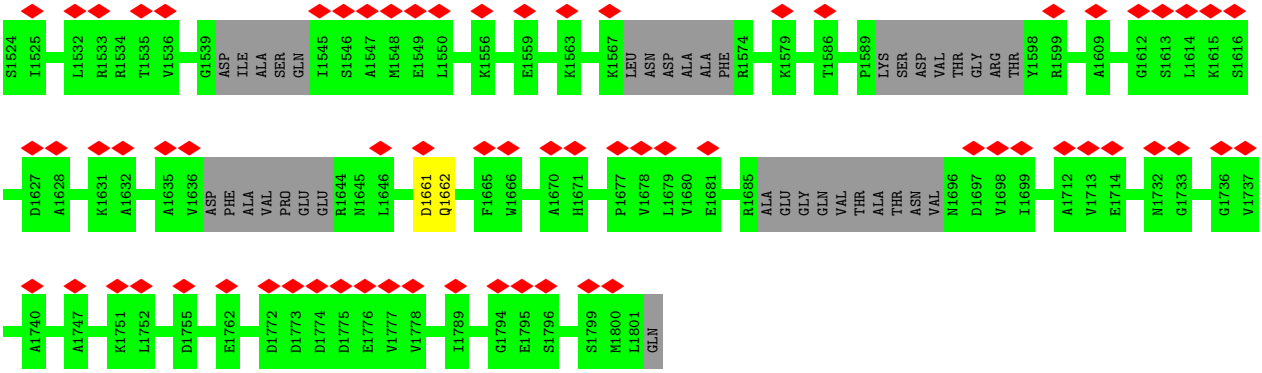
• Molecule 47: Utp4





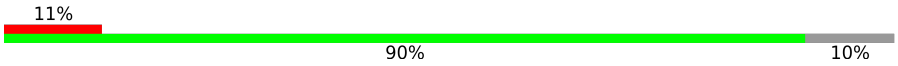
• Molecule 48: UTP10

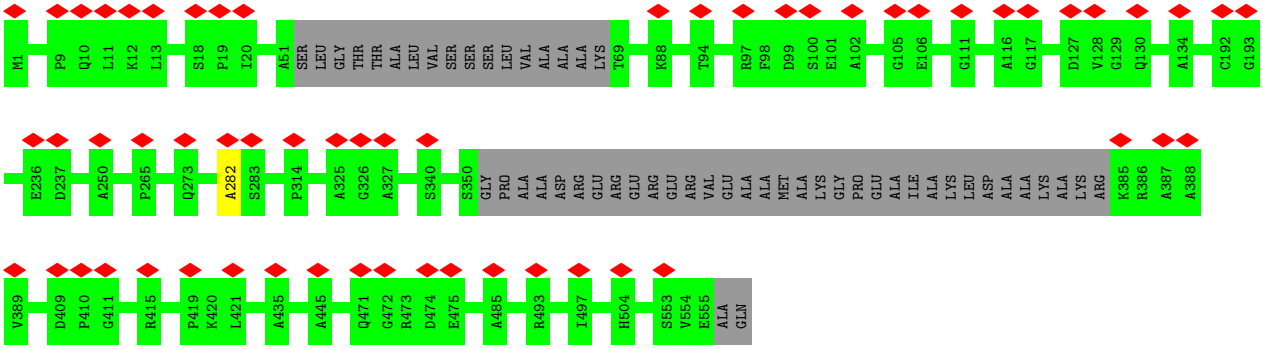

F521 L522 S523 A524 A525 V526 S527 E528 S529 D530 L531 E532 R533 F534 D535 A536 T537 K544 A545 P546 F550 Y551 L552 S553 L556 R557 V558 W559 C560 G561 P562 Y563 P564 T565 L566 A567 K568 A571 L572 E573 R574 V575 R578 L579 K580 E581 G582 D583 C584 V585 D586 K587 D588 F589 Q590
A591 I592 F593 P594 Y595 C596 I597 A598 A599 L600 S601 D602 P603 A604 K605 K606 V607 R608 R609 A610 A611 A612 D613 L614 V615 A616 V617 L618 G619 S620 A621 TYR LYS SER LEU GLU LYS SER GLN GLN L631 A634 K635 D636 L637 Y638 G639 K640 T641 T644 S645 P646 L647 D648 K649 D650 A651 L652
K653 A654 L655 I656 R657 S658 V659 P662 C663 S667 V668 L669 H670 E671 D672 H673 V674 V675 A676 A677 L678 V679 G680 A681 L682 E683 SER SER LYS ASP SER GLU ASN LYS ASN ALA ASP LYS ARG HIS LEU S699 I706 F707 K708 F709 L710 C711 G712 H713 V714 V715 E716 T717 P718 L719 L720
A721 V722 K723 L724 R725 L726 L727 R728 S729 Q732 I733 R734 R735 I736 S737 G738 T739 T740 D743 L744 L745 L746 P747 W752 A753 G754 A757 N758 E759 A760 A761 E762 A765 Q766 E767 S768 V769 D770 V771 P772 A773 I774 D775 D776 A777 D780 V781 V782 V783 P784 N785 H786 A787 A788
G789 L790 E791 A792 F793 F794 Q795 L796 V797 K798 E799 A800 I801 R802 P803 F810 A811 R812 I813 A814 K815 M816 W817 P818 S819 M820 K821 S822 D823 T824 K825 L832 F833 E834 L835 T836 Q837 D838 P839 K840 L841 N842 A843 E844 Q845 S846 D847 V848 I849 T850 E851 A852 V853 E854 V855 L856 R857 K858
V859 D860 L861 T862 T863 D864 I865 L866 H867 Y868 F869 I870 D871 S872 LEU GLN ASP GLU VAL ARG LEU ALA THR GLU GLY PRO ALA ASN LYS ARG ARG ARG VAL SER THR THR GLU PRO GLY ARG GLY VAL GLY THR GLN SER SER PRO GLU LEU GLN ALA ALA LEU SER LYS THR THR PHE VAL
LEU GLU LEU VAL GLN GLU SER THR PRO ALA ASN HIS PRO GLU LEU LEU PRO SER LEU PHE THR THR LEU SER ASP LEU HIS HIS LEU SER ALA ILE VAL GLY SER GLU LEU GLY TYR LEU GLN ASN LEU VAL LEU SER SER LEU LEU ALA MET MET PRO THR TYR LYS ASP ASN LYS ASP
LEU THR ILE ASP ALA SER VAL GLY HIS GLY ASP VAL LEU ALA THR CYS ILE GLN LYS SER THR SER PRO ALA VAL ILE ASN SER ALA LEU LEU LEU VAL ALA SER LEU ALA ARG THR ALA PRO ASP VAL VAL LEU GLN SER VAL MET PRO ILE PHE THR PHE MET GLY SER SER VAL LEU
LYS GLN ALA ASP ASP TYR SER ALA HIS VAL VAL ASN GLN THR ILE LYS GLU VAL ILE PRO PRO LEU ILE GLU THR PHE ARG LYS ARG GLY ARG ASN VAL VAL ALA SER ALA LYS ASP LEU LEU ALA SER PHE VAL THR ALA TYR GLU HIS ILE PRO SER HIS ARG LYS HIS ASN LEU PHE
ILE SER LEU ILE GLN ASN LEU GLY PRO ASP ASP PHE LEU PHE ALA ILE LEU ALA MET PHE VAL ASP ARG TYR GLY ALA THR ASP ASN MET ILE THR PHE MET THR GLN LEU ILE SER SER PHE THR VAL GLU THR GLN LEU GLN THR LEU LEU LYS PHE LEU ASP LEU VAL GLY ASP LEU
PHE LYS SER LYS PRO THR LEU SER ASN VAL LEU LEU GLY GLY SER GLY LEU ASN GLY GLU GLN ASP ILE GLN LYS ALA ALA THR LYS GLN LEU ASN LEU LEU PRO HIS LEU LEU SER ASN ARG ARG LEU LYS ARG GLU ILE MET GLN LEU ALA GLU ARG ASP ASP MET GLU ALA GLY
LYS ILE ARG GLU LEU TYR ALA ALA LEU LEU GLU GLY ILE LEU THR VAL ALA SER THR VAL LYS THR LYS LYS THR LEU HIS SER ARG CYS GLY ASP ALA LEU SER ASN LEU LEU ASN LEU LEU SER ILE ALA GLU PHE ILE LYS SER VAL GLU ALA LEU LEU ASP ARG PRO ASN ILE GLY
LEU ARG GLN LYS VAL LEU ARG ALA LEU GLU LEU ARG VAL ASP SER GLU SER SER VAL ASP PRO LYS SER ARG GLU ALA LEU LEU ALA PHE LEU PRO GLN LEU THR ALA VAL ILE ARG GLU SER ASP ASP MET ASN TYR LYS HIS THR ALA VAL ILE CYS VAL ASP LYS ILE SER GLU LYS
TYR GLY LYS LYS ASP LEU ASP ALA VAL ALA ALA ALA ALA THR THR ILE ALA GLY ASP TYR CYS LEU GLY GLN PRO SER GLN SER LEU ARG VAL MET ALA LEU LEU CYS LEU ALA SER LEU VAL ASP VAL LEU GLN ASP GLY ILE VAL PRO VAL LEU PRO VAL ALA ILE PRO LYS ALA LEU
SER TYR LEU GLU GLN SER VAL ALA GLU GLY GLY ARG ASP VAL GLU LEU HIS ASN ALA ALA TYR ALA PHE MET THR ALA LEU ALA GLN HIS ILE PRO TYR MET ILE THR GLY ASN TYR LEU ASP ARG LEU LEU ALA CYS SER ASN ALA SER ALA ALA ALA ASN LEU ASP ASP GLU ALA ASN
ALA ASN ARG MET GLN CYS LEU GLN PHE LEU ALA LYS LEU VAL ASP ALA R1475 V1476 L1477 Y1478 T1479 G1480 L1481 H1482 Q1483 N1484 W1485 A1486 S1487 A1488 A1489 K1490 F1491 GLY PHE SER ALA I1496 Y1499 I1502 L1503 G1504 I1505 A1506 K1509 HIS SER LYS THR VAL V1515 V1516 K1517 S1521 L1522 S1523



• Molecule 49: Utp15

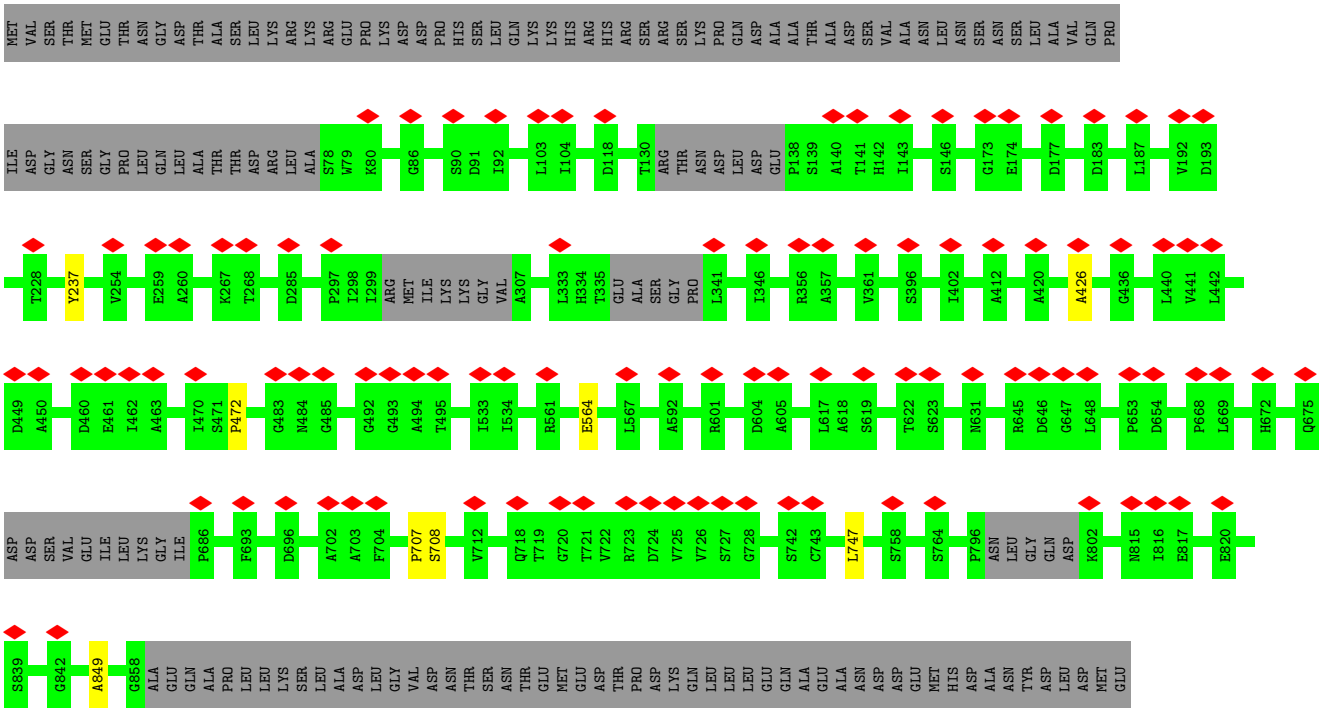
Chain UO:

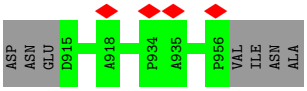




• Molecule 50: Utp17

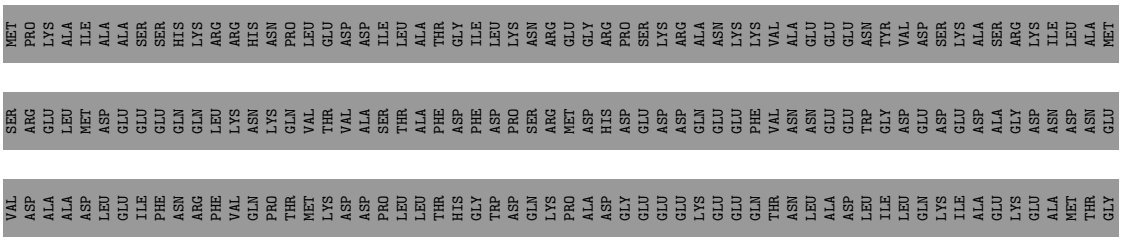
Chain UQ:

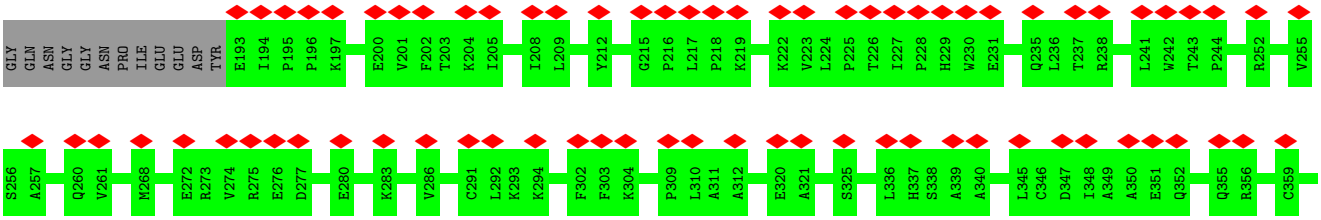




• Molecule 51: Enp1

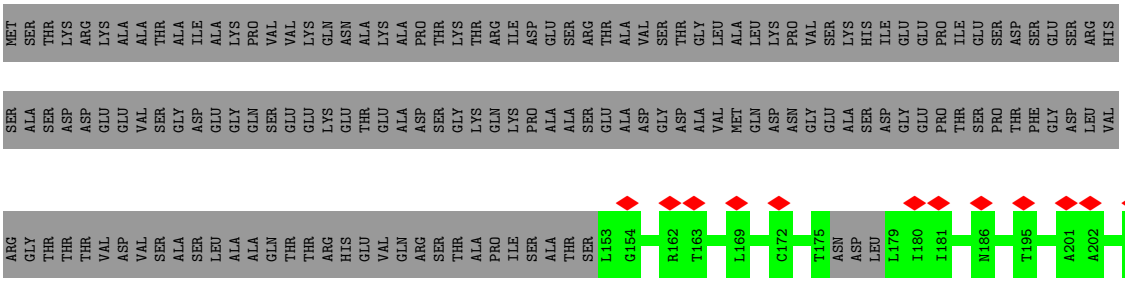
Chain CX:





• Molecule 52: Utp5

Chain UI:

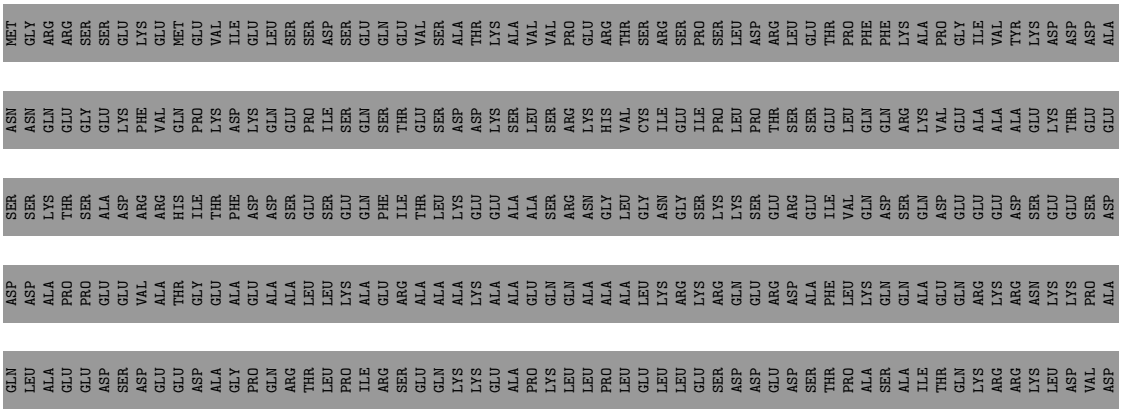


• Molecule 52: Utp5

Chain UE:

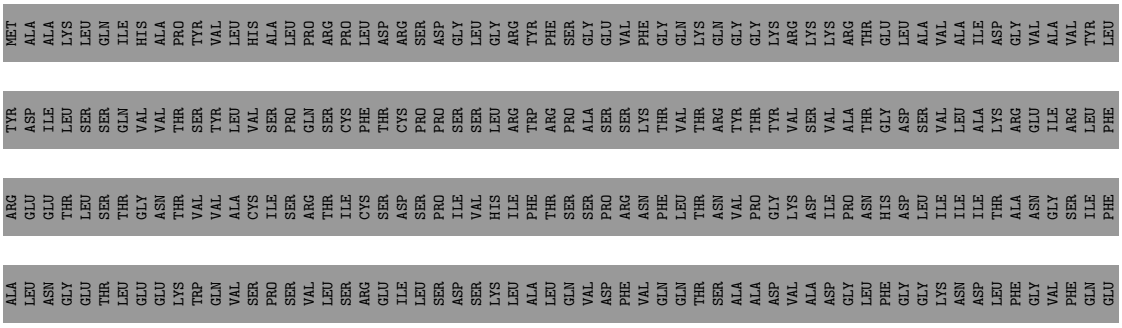
- Molecule 53: Utp16

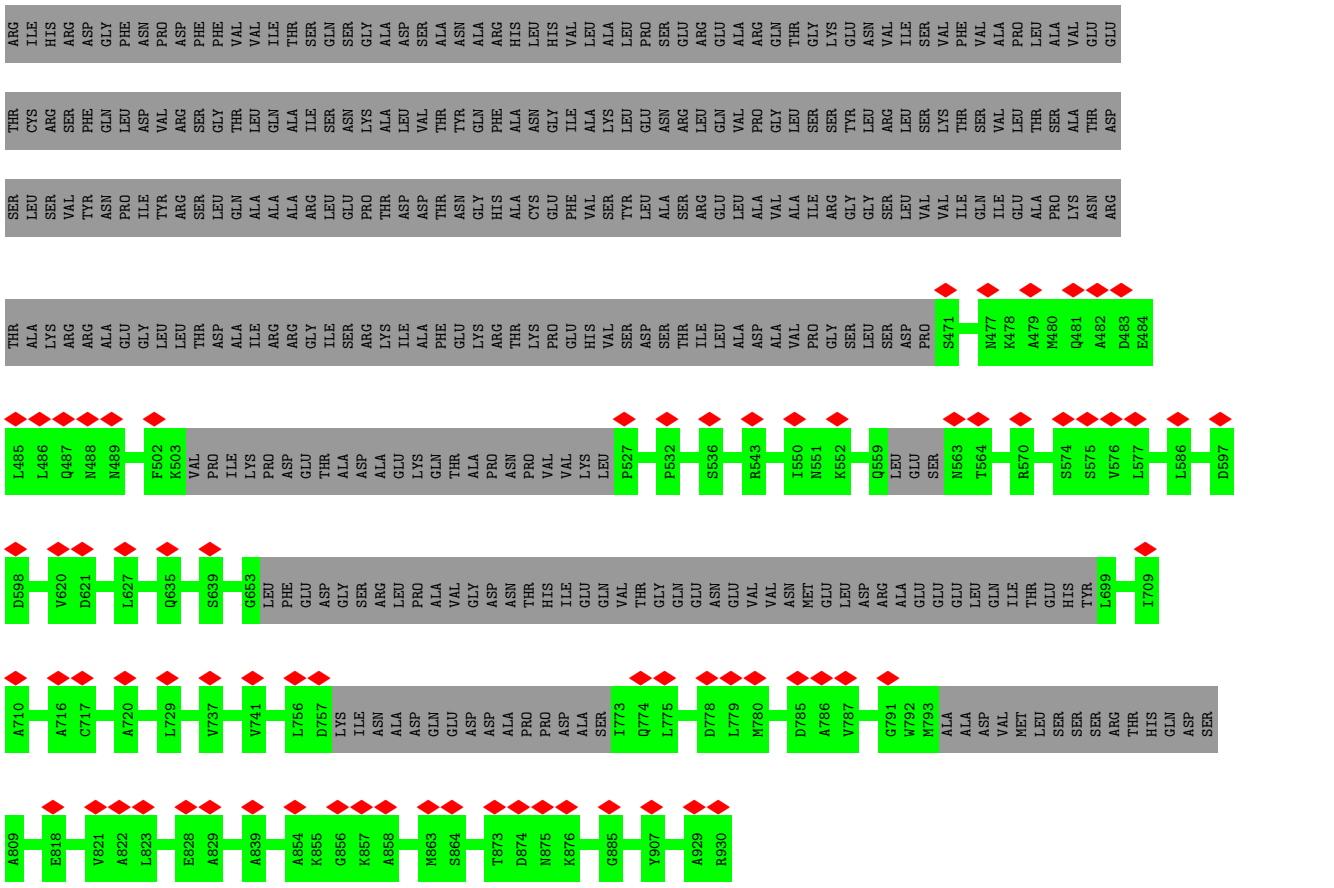
Chain UP:



- Molecule 54: Utp8

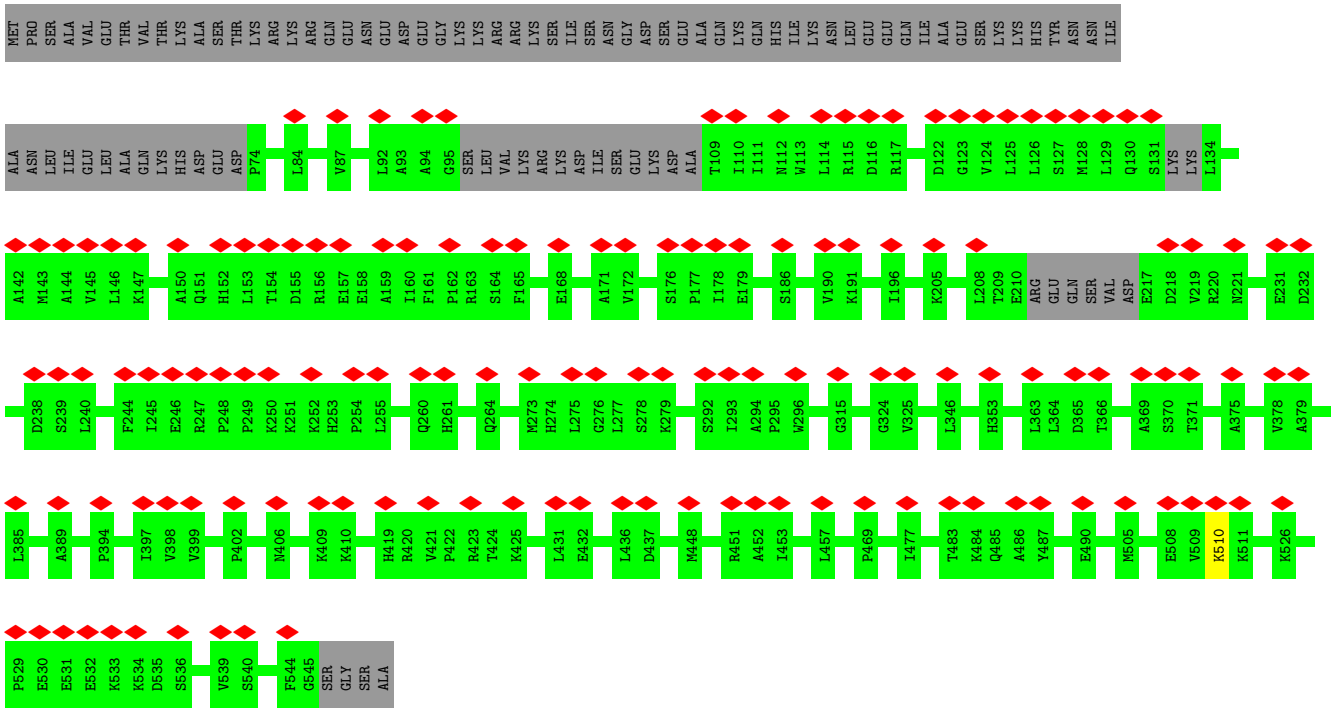
Chain UH:





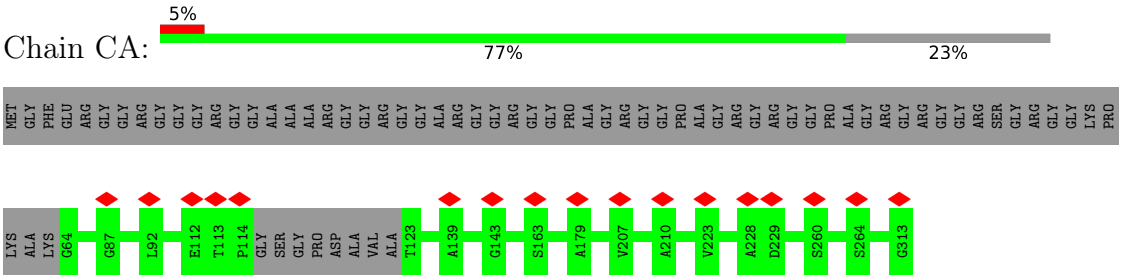
• Molecule 55: Noc4

Chain US:



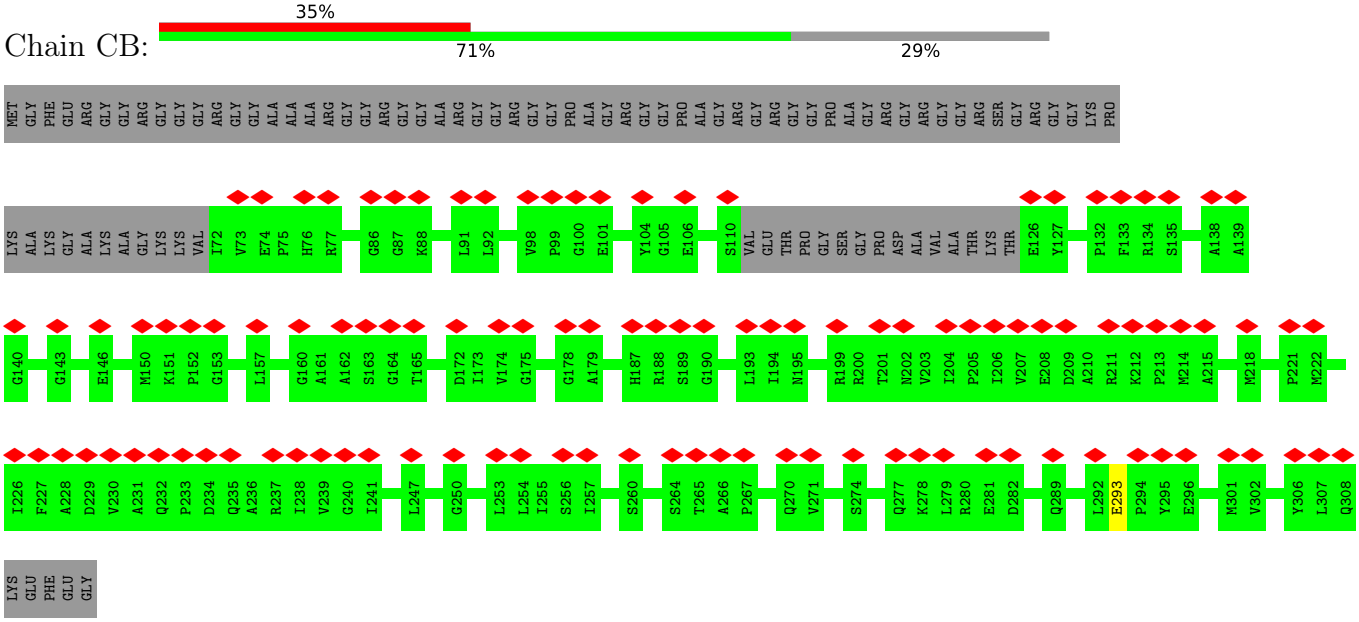
• Molecule 56: Nop1

Chain CA:



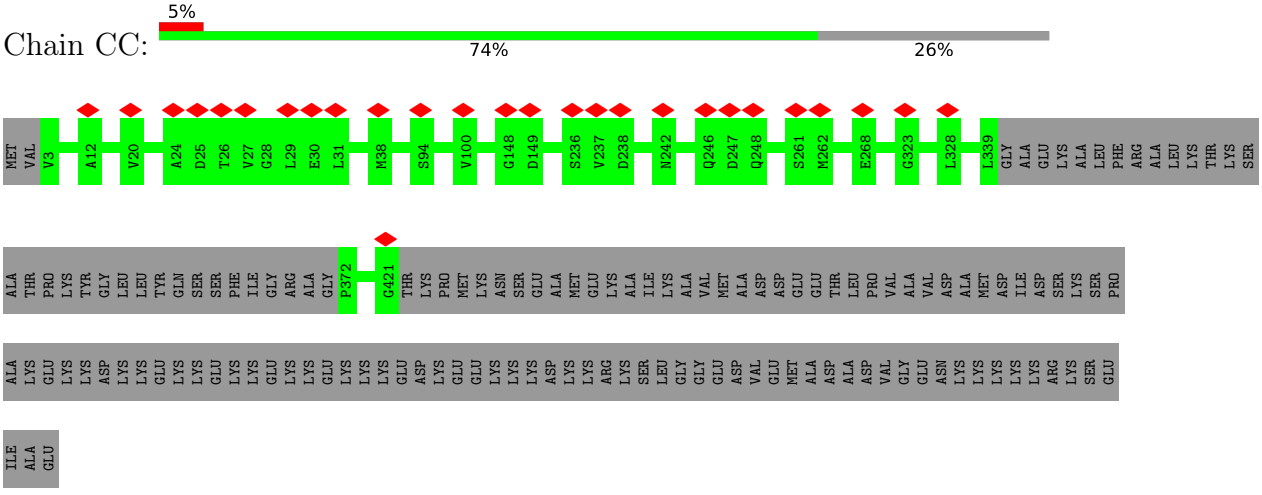
• Molecule 56: Nop1

Chain CB:



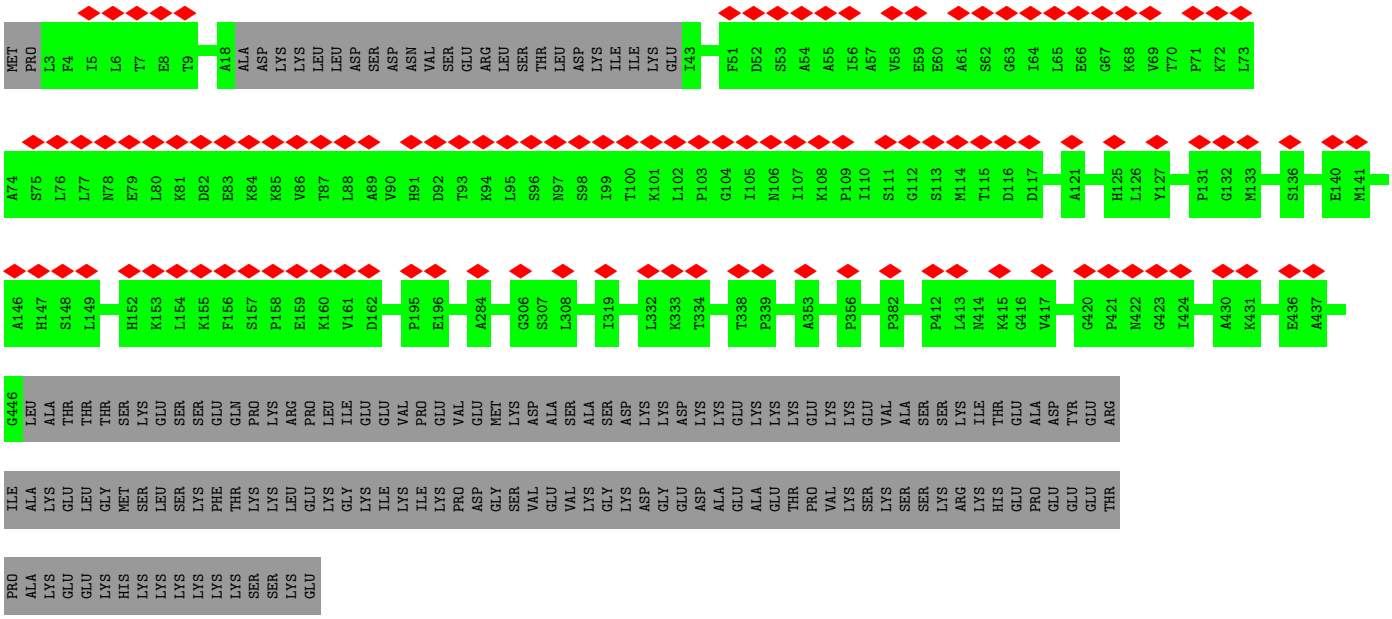
• Molecule 57: Putative nucleolar protein

Chain CC:

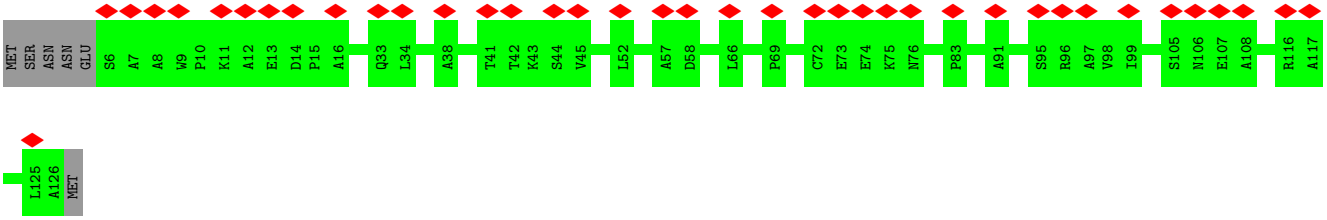


• Molecule 58: Nop58

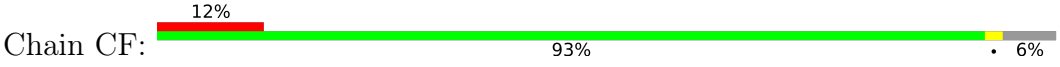
Chain CD:

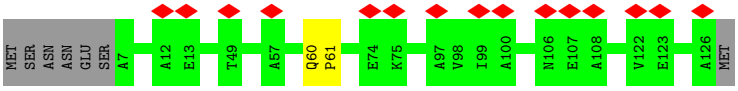


• Molecule 59: Snu13

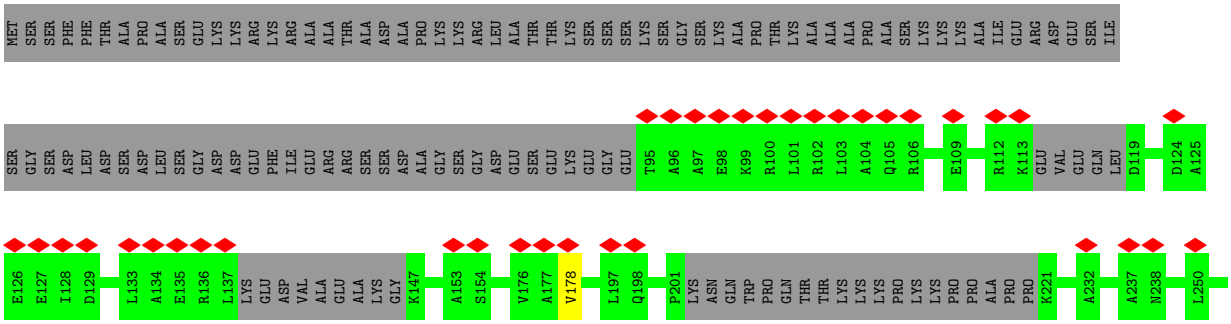


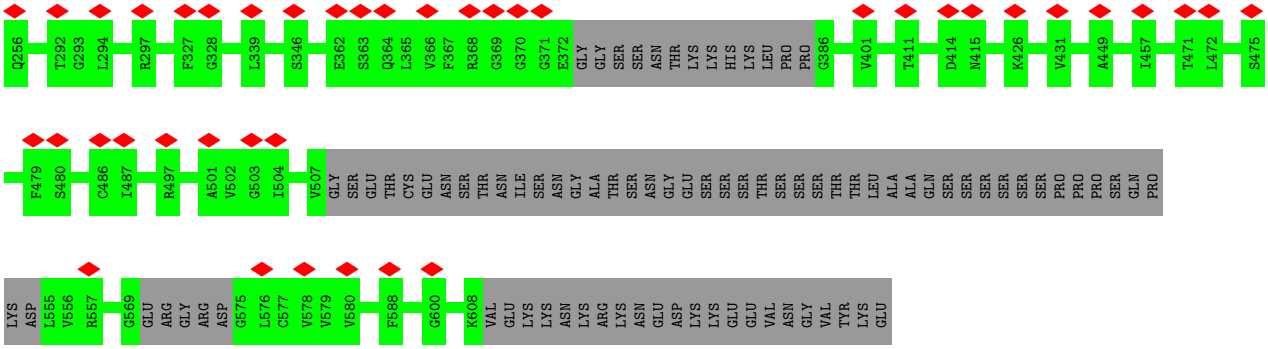
• Molecule 59: Snu13





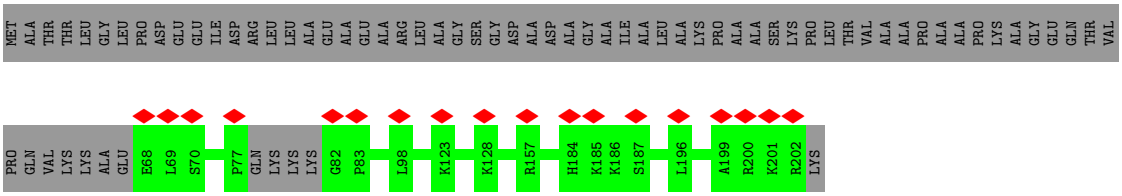
• Molecule 60: Rrp9





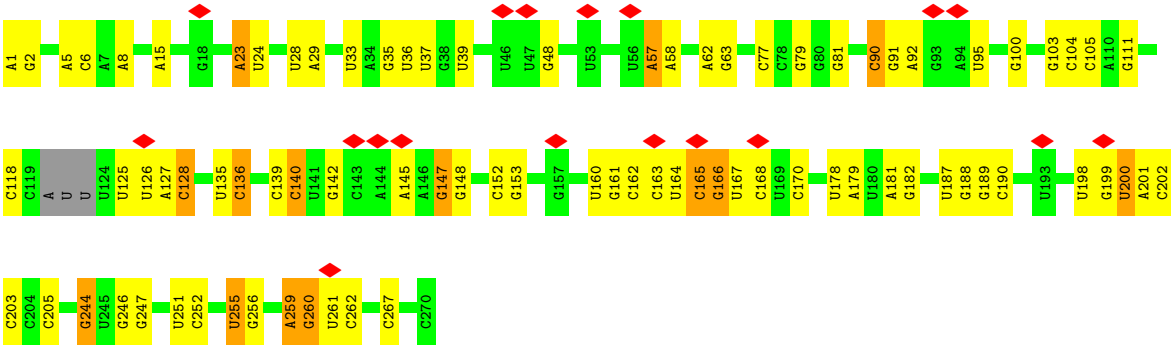
• Molecule 61: Fcf2

Chain CT:



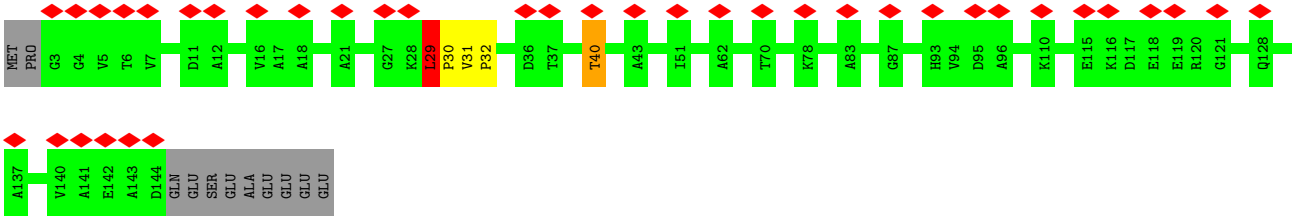
• Molecule 62: U3 snoRNA

Chain C2:



• Molecule 63: 40S ribosomal protein S19-like protein

Chain Cr:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	9041	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 ($e^-/Å^2$)	28	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.171	Depositor
Minimum map value	-0.104	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.008	Depositor
Recommended contour level	0.03	Depositor
Map size (Å)	520.32, 520.32, 520.32	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.084, 1.084, 1.084	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: ZN

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	UA	0.35	0/4134	0.61	1/5749 (0.0%)
2	UC	0.33	0/360	0.50	0/497
3	UF	0.29	0/1641	0.48	0/2286
4	UG	0.34	0/2359	0.58	0/3279
5	UK	0.32	0/1067	0.44	0/1480
6	UL	0.31	0/3868	0.59	0/5372
7	UM	0.28	0/3590	0.57	0/4981
8	UN	0.32	0/877	0.52	0/1220
9	UR	0.33	0/2193	0.55	0/3040
10	UU	0.34	0/4418	0.57	0/6124
11	UX	0.32	0/941	0.56	0/1311
12	CJ	0.33	0/889	0.51	0/1240
13	CK	0.35	0/1471	0.57	0/2050
14	CL	0.31	0/1139	0.49	0/1582
15	CM	0.34	0/2200	0.59	0/3064
16	CN	0.29	0/1120	0.51	0/1560
16	CO	0.29	0/1065	0.56	0/1483
17	CP	0.30	0/993	0.54	0/1381
18	CQ	0.26	0/862	0.50	0/1197
19	Ca	0.30	0/1114	0.58	0/1552
20	Cc	0.29	0/951	0.49	0/1324
21	Ce	0.32	0/784	0.62	1/1089 (0.1%)
22	Cg	0.32	0/784	0.50	0/1090
23	Ch	0.57	0/740	0.76	0/1029
24	Ci	0.31	0/562	0.50	0/778
25	Cj	0.32	0/621	0.56	0/863
26	Cm	0.30	0/618	0.54	0/856
27	Cn	0.30	0/467	0.54	0/644
28	Cp	0.31	0/299	0.52	0/414
29	Cq	0.70	0/399	1.23	1/554 (0.2%)
30	CU	0.27	0/867	0.52	0/1202
31	C1	0.61	5/29104 (0.0%)	1.24	309/45308 (0.7%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
32	UV	0.32	0/5242	0.59	1/7299 (0.0%)
33	CV	0.47	1/730 (0.1%)	0.76	3/1014 (0.3%)
34	Cl	0.27	0/394	0.56	0/547
35	CH	0.32	0/1899	0.55	0/2628
36	CI	0.33	0/4056	0.55	0/5641
37	CR	0.30	0/3748	0.63	0/5209
37	CS	0.30	0/3748	0.63	0/5209
38	Cb	0.29	0/1139	0.58	0/1581
39	Cd	0.31	0/1111	0.54	0/1543
40	Cf	0.31	0/850	0.55	0/1176
41	Ck	0.27	0/689	0.55	0/956
42	Co	0.31	0/452	0.57	0/627
43	CW	0.30	0/1879	0.62	0/2611
44	UT	0.30	0/9990	0.54	0/13904
45	CZ	0.29	0/206	0.64	0/285
46	UB	0.29	0/2515	0.48	0/3500
47	UD	0.31	0/3790	0.56	0/5255
48	UJ	0.29	0/5391	0.52	0/7498
49	UO	0.32	0/2483	0.56	0/3451
50	UQ	0.32	0/3892	0.61	2/5410 (0.0%)
51	CX	0.26	0/1324	0.48	0/1846
52	UE	0.29	0/614	0.50	0/851
52	UI	0.24	0/614	0.40	0/851
53	UP	0.29	0/264	0.54	0/365
54	UH	0.29	0/1766	0.50	0/2450
55	US	0.29	0/2241	0.52	0/3125
56	CA	0.33	0/1187	0.56	0/1646
56	CB	0.28	0/1090	0.52	0/1512
57	CC	0.31	0/1909	0.52	0/2655
58	CD	0.31	0/2071	0.52	0/2880
59	CE	0.34	0/600	0.54	0/836
59	CF	0.34	0/595	0.56	0/829
60	CG	0.30	0/2042	0.57	0/2829
61	CT	0.31	0/645	0.54	0/895
62	C2	0.65	0/5434	1.40	69/8459 (0.8%)
63	Cr	0.70	0/696	1.21	2/965 (0.2%)
All	All	0.41	6/149793 (0.0%)	0.80	389/213937 (0.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	UA	0	1
6	UL	0	2
7	UM	0	4
9	UR	0	1
10	UU	0	3
13	CK	0	1
15	CM	0	1
16	CO	0	2
18	CQ	0	1
20	Cc	0	1
21	Ce	0	1
23	Ch	0	1
32	UV	0	3
33	CV	0	2
34	Cl	0	1
35	CH	0	1
36	CI	0	2
37	CR	0	3
37	CS	0	3
38	Cb	0	1
43	CW	0	2
44	UT	0	10
47	UD	0	1
48	UJ	0	2
49	UO	0	1
50	UQ	0	4
52	UE	0	1
55	US	0	1
56	CB	0	1
59	CF	0	1
60	CG	0	1
63	Cr	0	1
All	All	0	61

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
31	C1	2076	C	C1'-N1	5.83	1.57	1.48
31	C1	2094	G	C1'-N9	-5.69	1.38	1.46
31	C1	2075	U	C1'-N1	5.68	1.57	1.48
31	C1	1081	G	C2-N3	-5.57	1.28	1.32
33	CV	91	HIS	N-CA	5.49	1.57	1.46
31	C1	2106	U	C1'-N1	5.30	1.56	1.48

All (389) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
62	C2	2	G	O5'-P-OP1	-30.50	74.10	110.70
62	C2	2	G	OP1-P-OP2	-27.22	78.76	119.60
62	C2	2	G	O5'-P-OP2	18.20	132.55	110.70
62	C2	1	A	OP1-P-O3'	13.82	135.61	105.20
62	C2	1	A	OP2-P-O3'	-13.12	76.34	105.20
31	C1	55	G	OP1-P-O3'	-12.21	78.34	105.20
31	C1	45	U	OP1-P-O3'	-11.39	80.14	105.20
31	C1	2168	U	N3-C2-O2	-10.39	114.93	122.20
31	C1	1222	C	N1-C2-O2	10.19	125.01	118.90
31	C1	758	U	N3-C2-O2	-9.97	115.22	122.20
62	C2	140	C	N3-C2-O2	-9.83	115.02	121.90
31	C1	2168	U	N1-C2-O2	9.68	129.58	122.80
31	C1	1662	C	N3-C2-O2	-9.50	115.25	121.90
62	C2	128	C	C6-N1-C2	-9.48	116.51	120.30
31	C1	1658	G	N3-C4-N9	-9.28	120.43	126.00
62	C2	200	U	C2-N1-C1'	9.28	128.84	117.70
31	C1	661	U	C2-N1-C1'	9.26	128.82	117.70
62	C2	200	U	N1-C2-O2	9.26	129.28	122.80
31	C1	1658	G	C5-C6-O6	9.26	134.16	128.60
31	C1	2217	C	N1-C2-O2	9.15	124.39	118.90
31	C1	45	U	OP2-P-O3'	-9.15	85.07	105.20
31	C1	1550	U	C2-N1-C1'	9.10	128.62	117.70
62	C2	140	C	N1-C2-O2	9.10	124.36	118.90
62	C2	128	C	C5-C6-N1	9.07	125.53	121.00
31	C1	1027	C	N3-C2-O2	-8.95	115.64	121.90
31	C1	1658	G	N9-C4-C5	8.92	108.97	105.40
31	C1	692	U	N1-C2-O2	8.83	128.98	122.80
31	C1	1655	U	N3-C2-O2	-8.82	116.02	122.20
31	C1	927	C	N3-C2-O2	-8.81	115.73	121.90
62	C2	200	U	N3-C2-O2	-8.75	116.08	122.20
31	C1	2217	C	C2-N1-C1'	8.66	128.33	118.80
31	C1	922	C	N3-C2-O2	-8.62	115.86	121.90
62	C2	136	C	N1-C2-O2	8.61	124.07	118.90
31	C1	850	A	N1-C6-N6	-8.59	113.45	118.60
31	C1	915	G	N3-C4-N9	-8.48	120.91	126.00
31	C1	1486	G	C4-N9-C1'	8.47	137.51	126.50
31	C1	661	U	N1-C2-O2	8.44	128.71	122.80
31	C1	692	U	N3-C2-O2	-8.44	116.29	122.20
31	C1	683	C	C2-N1-C1'	8.42	128.06	118.80
31	C1	2202	C	N1-C2-O2	8.38	123.93	118.90
31	C1	1547	C	N1-C2-O2	8.36	123.92	118.90
31	C1	1222	C	C2-N1-C1'	8.27	127.89	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	C1	758	U	C2-N1-C1'	8.21	127.55	117.70
31	C1	661	U	N3-C2-O2	-8.14	116.50	122.20
31	C1	915	G	N9-C4-C5	8.05	108.62	105.40
31	C1	1222	C	N3-C2-O2	-7.93	116.35	121.90
31	C1	1081	G	N3-C2-N2	-7.93	114.35	119.90
31	C1	68	U	N1-C2-O2	7.91	128.33	122.80
62	C2	203	C	N3-C2-O2	-7.89	116.37	121.90
62	C2	103	G	N3-C4-C5	-7.82	124.69	128.60
31	C1	583	A	O5'-P-OP1	-7.81	98.67	105.70
62	C2	128	C	O4'-C1'-N1	7.79	114.43	108.20
31	C1	2210	U	N3-C2-O2	-7.77	116.76	122.20
62	C2	267	C	N3-C2-O2	-7.77	116.46	121.90
31	C1	1645	U	C2-N1-C1'	7.72	126.97	117.70
31	C1	915	G	N1-C6-O6	-7.72	115.27	119.90
31	C1	1645	U	N1-C2-O2	7.59	128.11	122.80
31	C1	2179	C	C2-N1-C1'	7.59	127.14	118.80
62	C2	6	C	C6-N1-C2	-7.56	117.28	120.30
31	C1	707	U	C2-N1-C1'	7.54	126.75	117.70
31	C1	1658	G	N1-C6-O6	-7.52	115.39	119.90
31	C1	1662	C	N1-C2-O2	7.49	123.39	118.90
31	C1	989	C	C2-N1-C1'	7.47	127.02	118.80
31	C1	1745	C	C5-C6-N1	7.44	124.72	121.00
31	C1	1625	G	N3-C4-N9	7.43	130.46	126.00
31	C1	776	C	N1-C2-O2	7.42	123.35	118.90
31	C1	1645	U	N3-C2-O2	-7.41	117.01	122.20
31	C1	768	C	C2-N1-C1'	7.40	126.94	118.80
31	C1	1512	C	C6-N1-C2	-7.40	117.34	120.30
31	C1	1120	C	C2-N1-C1'	7.39	126.93	118.80
62	C2	246	G	C4-N9-C1'	7.32	136.01	126.50
31	C1	1711	G	C4-N9-C1'	7.31	136.00	126.50
31	C1	1658	G	C4-C5-N7	-7.29	107.88	110.80
31	C1	56	C	OP1-P-OP2	7.28	130.53	119.60
62	C2	136	C	C2-N1-C1'	7.28	126.81	118.80
31	C1	915	G	C5-C6-O6	7.25	132.95	128.60
31	C1	1486	G	N3-C4-C5	-7.25	124.97	128.60
62	C2	139	C	N1-C2-O2	7.25	123.25	118.90
62	C2	139	C	N3-C2-O2	-7.19	116.87	121.90
31	C1	942	U	N3-C2-O2	-7.16	117.19	122.20
31	C1	1163	A	P-O3'-C3'	7.15	128.28	119.70
31	C1	2217	C	N3-C2-O2	-7.13	116.91	121.90
31	C1	46	C	OP1-P-OP2	7.13	130.29	119.60
31	C1	1666	C	N1-C2-O2	7.12	123.17	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	C1	989	C	C6-N1-C2	-7.12	117.45	120.30
31	C1	750	C	N1-C2-O2	7.03	123.12	118.90
31	C1	851	U	N3-C2-O2	-7.01	117.29	122.20
31	C1	622	U	N3-C2-O2	-7.00	117.30	122.20
62	C2	255	U	P-O3'-C3'	6.99	128.09	119.70
62	C2	252	C	N3-C2-O2	-6.98	117.02	121.90
31	C1	56	C	C2-N1-C1'	6.96	126.45	118.80
31	C1	34	C	N1-C2-O2	6.94	123.06	118.90
62	C2	260	G	C4-N9-C1'	6.90	135.47	126.50
62	C2	57	A	O4'-C1'-N9	6.90	113.72	108.20
31	C1	1549	U	N3-C4-C5	6.88	118.73	114.60
62	C2	161	G	C4-N9-C1'	6.87	135.43	126.50
31	C1	1114	C	N1-C2-O2	6.86	123.02	118.90
33	CV	92	SER	CB-CA-C	-6.86	97.07	110.10
31	C1	1471	U	C2-N1-C1'	6.85	125.92	117.70
31	C1	34	C	N3-C2-O2	-6.84	117.11	121.90
31	C1	2202	C	N3-C2-O2	-6.82	117.13	121.90
62	C2	103	G	N3-C4-N9	6.81	130.09	126.00
31	C1	581	C	N3-C2-O2	-6.81	117.13	121.90
62	C2	260	G	N3-C4-N9	6.80	130.08	126.00
31	C1	1487	G	O4'-C1'-N9	6.77	113.61	108.20
31	C1	33	C	N3-C2-O2	-6.76	117.17	121.90
31	C1	1113	C	N1-C2-O2	6.76	122.96	118.90
62	C2	259	A	O4'-C1'-N9	6.73	113.58	108.20
31	C1	1547	C	C5-C6-N1	6.72	124.36	121.00
32	UV	1058	TYR	CB-CA-C	-6.70	97.01	110.40
31	C1	1471	U	C5-C4-O4	-6.67	121.90	125.90
31	C1	68	U	N3-C2-O2	-6.66	117.54	122.20
31	C1	581	C	N1-C2-O2	6.66	122.89	118.90
31	C1	1486	G	C8-N9-C1'	-6.65	118.36	127.00
31	C1	1046	G	C5-C6-O6	6.61	132.57	128.60
31	C1	769	C	C2-N1-C1'	6.59	126.06	118.80
31	C1	1486	G	N7-C8-N9	6.59	116.39	113.10
31	C1	1486	G	N3-C4-N9	6.58	129.95	126.00
33	CV	92	SER	N-CA-CB	6.57	120.36	110.50
31	C1	1666	C	C5-C6-N1	6.54	124.27	121.00
31	C1	984	A	C2-N3-C4	6.53	113.86	110.60
31	C1	1745	C	C6-N1-C2	-6.53	117.69	120.30
62	C2	260	G	N3-C4-C5	-6.53	125.33	128.60
62	C2	202	C	N1-C2-O2	6.52	122.81	118.90
31	C1	989	C	C5-C6-N1	6.51	124.25	121.00
62	C2	147	G	N3-C4-N9	6.49	129.89	126.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	C1	661	U	C5-C6-N1	6.48	125.94	122.70
31	C1	1711	G	N3-C4-N9	6.47	129.88	126.00
31	C1	915	G	C8-N9-C1'	6.46	135.40	127.00
31	C1	1625	G	N3-C4-C5	-6.46	125.37	128.60
62	C2	267	C	C6-N1-C2	-6.46	117.72	120.30
31	C1	2179	C	N1-C2-O2	6.45	122.77	118.90
1	UA	662	GLY	C-N-CA	6.44	137.81	121.70
31	C1	1666	C	C2-N1-C1'	6.43	125.87	118.80
31	C1	776	C	C2-N1-C1'	6.42	125.86	118.80
31	C1	2086	A	N1-C6-N6	6.42	122.45	118.60
31	C1	1547	C	C2-N1-C1'	6.39	125.83	118.80
63	Cr	40	THR	N-CA-CB	6.39	122.45	110.30
31	C1	1068	C	C6-N1-C2	-6.39	117.74	120.30
31	C1	2045	G	C8-N9-C4	6.39	108.95	106.40
31	C1	692	U	C2-N1-C1'	6.38	125.36	117.70
31	C1	68	U	C5-C6-N1	6.36	125.88	122.70
31	C1	1114	C	N3-C2-O2	-6.35	117.45	121.90
62	C2	161	G	N3-C4-N9	6.35	129.81	126.00
31	C1	1448	A	C5-C6-N1	6.34	120.87	117.70
31	C1	758	U	N1-C2-O2	6.34	127.24	122.80
31	C1	915	G	C6-C5-N7	6.34	134.20	130.40
31	C1	18	G	N3-C4-C5	-6.33	125.43	128.60
31	C1	581	C	C2-N1-C1'	6.33	125.76	118.80
31	C1	68	U	C2-N1-C1'	6.33	125.29	117.70
31	C1	593	G	P-O3'-C3'	6.32	127.29	119.70
31	C1	1550	U	C6-N1-C1'	-6.32	112.35	121.20
31	C1	860	C	C2-N1-C1'	-6.31	111.86	118.80
31	C1	683	C	N1-C2-O2	6.30	122.68	118.90
31	C1	683	C	C6-N1-C2	-6.30	117.78	120.30
31	C1	1747	A	C6-N1-C2	-6.27	114.84	118.60
62	C2	246	G	C8-N9-C1'	-6.25	118.87	127.00
31	C1	63	C	N1-C2-O2	6.21	122.63	118.90
62	C2	23	A	P-O3'-C3'	6.21	127.15	119.70
62	C2	105	C	C5-C6-N1	6.19	124.10	121.00
31	C1	1711	G	C8-N9-C1'	-6.19	118.95	127.00
31	C1	1658	G	C6-C5-N7	6.19	134.11	130.40
31	C1	622	U	N1-C2-O2	6.19	127.13	122.80
62	C2	161	G	C6-C5-N7	-6.17	126.70	130.40
31	C1	1222	C	C6-N1-C2	-6.17	117.83	120.30
31	C1	2113	U	O5'-P-OP2	-6.17	100.15	105.70
31	C1	1638	G	P-O3'-C3'	6.14	127.07	119.70
31	C1	425	C	C6-N1-C2	-6.11	117.86	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	C1	850	A	C6-N1-C2	-6.11	114.94	118.60
31	C1	1745	C	C2-N1-C1'	6.11	125.52	118.80
31	C1	1167	C	C6-N1-C2	-6.10	117.86	120.30
31	C1	56	C	N1-C2-O2	6.09	122.56	118.90
31	C1	2217	C	C6-N1-C1'	-6.08	113.50	120.80
31	C1	1630	C	N3-C2-O2	-6.08	117.65	121.90
31	C1	1017	C	P-O3'-C3'	6.07	126.99	119.70
31	C1	910	G	C5-C6-O6	6.07	132.24	128.60
31	C1	2045	G	N9-C4-C5	-6.04	102.98	105.40
31	C1	18	G	C4-N9-C1'	6.04	134.35	126.50
31	C1	1245	C	N1-C2-O2	6.04	122.52	118.90
31	C1	1712	C	P-O3'-C3'	6.03	126.94	119.70
31	C1	18	G	N3-C4-N9	6.03	129.62	126.00
31	C1	1711	G	N3-C4-C5	-6.02	125.59	128.60
31	C1	1234	C	C2-N1-C1'	6.01	125.41	118.80
31	C1	850	A	C5-C6-N1	6.01	120.70	117.70
31	C1	1485	A	P-O3'-C3'	6.01	126.91	119.70
62	C2	103	G	C2-N3-C4	6.01	114.90	111.90
31	C1	2210	U	C5-C4-O4	6.00	129.50	125.90
31	C1	1549	U	N3-C4-O4	-6.00	115.20	119.40
31	C1	1486	G	C8-N9-C4	-6.00	104.00	106.40
31	C1	2194	A	C8-N9-C4	-6.00	103.40	105.80
31	C1	909	G	N3-C4-N9	5.99	129.59	126.00
62	C2	161	G	C8-N9-C1'	-5.99	119.22	127.00
31	C1	21	C	N3-C2-O2	-5.97	117.72	121.90
31	C1	684	U	P-O3'-C3'	5.97	126.86	119.70
31	C1	886	U	N3-C2-O2	-5.97	118.02	122.20
31	C1	1547	C	C6-N1-C2	-5.96	117.92	120.30
31	C1	1661	C	C2-N3-C4	-5.96	116.92	119.90
31	C1	802	A	P-O3'-C3'	5.95	126.84	119.70
31	C1	636	C	C2-N1-C1'	5.95	125.34	118.80
31	C1	1451	G	N9-C4-C5	-5.94	103.03	105.40
31	C1	55	G	OP2-P-O3'	-5.93	92.16	105.20
62	C2	260	G	C8-N9-C1'	-5.90	119.32	127.00
62	C2	6	C	C5-C6-N1	5.90	123.95	121.00
62	C2	200	U	C6-N1-C1'	-5.89	112.96	121.20
31	C1	1165	U	C2-N1-C1'	5.88	124.76	117.70
31	C1	722	U	N1-C2-O2	5.88	126.92	122.80
62	C2	136	C	C5-C6-N1	5.88	123.94	121.00
31	C1	2179	C	C6-N1-C1'	-5.87	113.75	120.80
31	C1	1113	C	N3-C2-O2	-5.87	117.79	121.90
31	C1	1448	A	C6-N1-C2	-5.86	115.08	118.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	C1	1458	U	C2-N1-C1'	5.85	124.72	117.70
31	C1	1639	U	C2-N1-C1'	5.84	124.71	117.70
31	C1	1560	C	N1-C2-O2	5.84	122.40	118.90
62	C2	6	C	N1-C2-O2	5.82	122.39	118.90
31	C1	776	C	N3-C2-O2	-5.82	117.83	121.90
31	C1	2069	G	C5-N7-C8	-5.81	101.40	104.30
31	C1	927	C	N1-C2-O2	5.80	122.38	118.90
31	C1	2210	U	N1-C2-O2	5.80	126.86	122.80
31	C1	2143	U	N3-C2-O2	-5.79	118.15	122.20
62	C2	244	G	C5-C6-O6	5.79	132.07	128.60
31	C1	886	U	C2-N1-C1'	5.79	124.64	117.70
31	C1	770	C	C2-N1-C1'	5.78	125.16	118.80
31	C1	1120	C	C6-N1-C2	-5.78	117.99	120.30
31	C1	2177	G	P-O3'-C3'	5.78	126.64	119.70
31	C1	1666	C	C6-N1-C2	-5.77	117.99	120.30
31	C1	1451	G	N3-C4-N9	5.76	129.46	126.00
31	C1	2358	U	N3-C2-O2	-5.76	118.17	122.20
31	C1	727	G	N3-C4-N9	5.76	129.45	126.00
31	C1	3	G	N3-C4-N9	-5.75	122.55	126.00
31	C1	942	U	N1-C2-O2	5.75	126.83	122.80
31	C1	1458	U	N1-C2-O2	5.75	126.82	122.80
31	C1	886	U	N1-C2-O2	5.75	126.82	122.80
31	C1	2358	U	C2-N1-C1'	5.75	124.59	117.70
31	C1	1002	G	O5'-P-OP2	-5.74	100.53	105.70
31	C1	2069	G	C8-N9-C4	-5.74	104.11	106.40
31	C1	1046	G	N1-C6-O6	-5.73	116.46	119.90
31	C1	1639	U	N1-C2-O2	5.71	126.80	122.80
31	C1	2203	C	N1-C2-O2	5.70	122.32	118.90
31	C1	1560	C	N3-C2-O2	-5.70	117.91	121.90
62	C2	105	C	C6-N1-C2	-5.69	118.02	120.30
31	C1	922	C	C6-N1-C2	-5.67	118.03	120.30
31	C1	1511	A	C2-N3-C4	5.67	113.44	110.60
62	C2	152	C	C6-N1-C2	-5.67	118.03	120.30
31	C1	661	U	C6-N1-C1'	-5.66	113.27	121.20
31	C1	915	G	C4-C5-N7	-5.66	108.53	110.80
31	C1	1252	G	N1-C6-O6	-5.66	116.50	119.90
31	C1	750	C	N3-C2-O2	-5.65	117.95	121.90
31	C1	56	C	C5-C6-N1	5.64	123.82	121.00
62	C2	6	C	N3-C2-O2	-5.64	117.95	121.90
31	C1	2069	G	N7-C8-N9	5.63	115.91	113.10
31	C1	770	C	C5-C6-N1	5.63	123.81	121.00
31	C1	787	U	N3-C2-O2	-5.63	118.26	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	C1	1001	A	P-O3'-C3'	5.62	126.45	119.70
31	C1	2165	U	C5-C6-N1	5.62	125.51	122.70
50	UQ	747	LEU	C-N-CA	5.61	135.73	121.70
62	C2	251	U	N3-C2-O2	-5.61	118.28	122.20
31	C1	60	A	C2-N3-C4	5.60	113.40	110.60
31	C1	2217	C	C6-N1-C2	-5.60	118.06	120.30
31	C1	1656	C	C6-N1-C2	-5.60	118.06	120.30
62	C2	139	C	C6-N1-C2	-5.59	118.06	120.30
31	C1	2217	C	C5-C6-N1	5.59	123.80	121.00
31	C1	683	C	C6-N1-C1'	-5.58	114.10	120.80
62	C2	246	G	N3-C4-C5	-5.58	125.81	128.60
31	C1	1085	U	P-O3'-C3'	5.56	126.37	119.70
62	C2	90	C	O4'-C1'-N1	5.56	112.65	108.20
31	C1	673	C	C6-N1-C2	-5.55	118.08	120.30
62	C2	77	C	C5-C6-N1	5.55	123.77	121.00
31	C1	722	U	N3-C2-O2	-5.52	118.33	122.20
62	C2	246	G	N3-C4-N9	5.52	129.31	126.00
31	C1	1246	C	N3-C2-O2	-5.50	118.05	121.90
31	C1	1068	C	C5-C6-N1	5.50	123.75	121.00
31	C1	1165	U	N1-C2-O2	5.49	126.64	122.80
31	C1	781	G	O4'-C1'-N9	5.48	112.59	108.20
31	C1	26	C	N3-C2-O2	-5.47	118.07	121.90
31	C1	2202	C	C6-N1-C2	-5.47	118.11	120.30
62	C2	200	U	C5-C6-N1	5.47	125.44	122.70
31	C1	2179	C	N3-C2-O2	-5.47	118.07	121.90
31	C1	1241	U	N3-C2-O2	-5.46	118.38	122.20
31	C1	995	C	C2-N1-C1'	5.45	124.80	118.80
31	C1	989	C	N1-C2-O2	5.45	122.17	118.90
31	C1	1165	U	N3-C2-O2	-5.44	118.39	122.20
31	C1	1222	C	C6-N1-C1'	-5.44	114.28	120.80
31	C1	1549	U	C2-N3-C4	-5.43	123.74	127.00
31	C1	1758	C	C6-N1-C1'	5.43	127.31	120.80
31	C1	2174	C	C5-C6-N1	5.42	123.71	121.00
31	C1	661	U	C6-N1-C2	-5.42	117.75	121.00
31	C1	2	G	N3-C4-N9	5.42	129.25	126.00
31	C1	1626	G	C6-N1-C2	-5.41	121.86	125.10
62	C2	136	C	N3-C2-O2	-5.40	118.12	121.90
62	C2	136	C	C6-N1-C2	-5.40	118.14	120.30
31	C1	1120	C	N1-C2-O2	5.40	122.14	118.90
31	C1	915	G	C4-N9-C1'	-5.39	119.49	126.50
31	C1	986	C	N1-C2-O2	5.39	122.14	118.90
31	C1	1256	G	N3-C4-C5	-5.39	125.91	128.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	C1	1643	U	C2-N1-C1'	5.38	124.16	117.70
63	Cr	29	LEU	CA-C-N	5.38	132.17	117.10
31	C1	676	C	N3-C2-O2	-5.38	118.14	121.90
31	C1	768	C	C6-N1-C1'	-5.38	114.35	120.80
31	C1	2194	A	N7-C8-N9	5.38	116.49	113.80
62	C2	147	G	N9-C4-C5	-5.37	103.25	105.40
31	C1	683	C	C5-C6-N1	5.36	123.68	121.00
31	C1	851	U	N1-C2-O2	5.36	126.56	122.80
31	C1	1625	G	N3-C2-N2	5.36	123.65	119.90
31	C1	18	G	C2-N3-C4	5.35	114.58	111.90
31	C1	582	G	P-O3'-C3'	5.34	126.11	119.70
31	C1	1761	C	C5-C6-N1	5.34	123.67	121.00
31	C1	879	A	C6-N1-C2	-5.34	115.40	118.60
31	C1	1027	C	C6-N1-C2	-5.34	118.17	120.30
31	C1	2155	G	C4-C5-N7	5.33	112.93	110.80
62	C2	103	G	C4-N9-C1'	5.33	133.43	126.50
62	C2	165	C	N1-C2-O2	5.33	122.10	118.90
33	CV	91	HIS	O-C-N	-5.31	114.20	122.70
31	C1	1471	U	N3-C4-O4	5.31	123.11	119.40
31	C1	2177	G	OP2-P-O3'	5.31	116.88	105.20
31	C1	1045	G	N3-C4-C5	-5.31	125.95	128.60
31	C1	1458	U	N3-C2-O2	-5.30	118.49	122.20
31	C1	1547	C	N3-C4-N4	5.29	121.71	118.00
31	C1	1001	A	OP2-P-O3'	5.29	116.85	105.20
31	C1	1050	U	N3-C2-O2	-5.29	118.50	122.20
31	C1	2219	C	P-O3'-C3'	5.28	126.03	119.70
31	C1	758	U	C2-N3-C4	-5.26	123.84	127.00
31	C1	63	C	C2-N1-C1'	5.24	124.57	118.80
31	C1	645	U	N3-C2-O2	-5.23	118.54	122.20
31	C1	2168	U	C2-N1-C1'	5.23	123.98	117.70
31	C1	1451	G	C8-N9-C1'	-5.23	120.20	127.00
31	C1	1630	C	C6-N1-C1'	5.22	127.07	120.80
21	Ce	38	ALA	C-N-CA	5.22	134.75	121.70
31	C1	1167	C	N1-C2-O2	5.22	122.03	118.90
31	C1	1734	G	P-O3'-C3'	5.21	125.95	119.70
31	C1	43	C	C2-N1-C1'	5.20	124.53	118.80
31	C1	1451	G	C4-C5-N7	5.20	112.88	110.80
31	C1	1625	G	C4-N9-C1'	5.20	133.26	126.50
31	C1	1124	G	C4-N9-C1'	5.20	133.26	126.50
31	C1	435	A	C6-N1-C2	5.19	121.72	118.60
31	C1	2	G	N3-C4-C5	-5.19	126.00	128.60
31	C1	867	C	N1-C2-O2	5.19	122.01	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	C1	1560	C	C6-N1-C2	-5.19	118.22	120.30
31	C1	1625	G	C6-C5-N7	-5.18	127.29	130.40
31	C1	1658	G	C8-N9-C1'	5.18	133.73	127.00
31	C1	2203	C	N3-C2-O2	-5.18	118.28	121.90
62	C2	79	G	N3-C4-N9	5.18	129.11	126.00
31	C1	2358	U	N1-C2-O2	5.17	126.42	122.80
31	C1	1114	C	C6-N1-C2	-5.17	118.23	120.30
62	C2	202	C	C5-C6-N1	5.17	123.58	121.00
31	C1	582	G	OP1-P-O3'	5.16	116.55	105.20
31	C1	1511	A	C5-C6-N1	5.15	120.28	117.70
31	C1	1646	U	O4'-C1'-N1	5.15	112.32	108.20
31	C1	1068	C	P-O3'-C3'	5.15	125.88	119.70
31	C1	1045	G	N3-C4-N9	5.14	129.09	126.00
31	C1	1245	C	N3-C2-O2	-5.14	118.30	121.90
31	C1	1222	C	C5-C6-N1	5.13	123.57	121.00
31	C1	684	U	N3-C2-O2	-5.13	118.61	122.20
31	C1	768	C	N1-C2-O2	5.13	121.98	118.90
31	C1	1256	G	C4-N9-C1'	5.12	133.16	126.50
31	C1	910	G	N3-C4-N9	-5.12	122.93	126.00
31	C1	1246	C	C6-N1-C1'	5.12	126.94	120.80
31	C1	1662	C	C6-N1-C2	-5.12	118.25	120.30
31	C1	1094	G	C6-C5-N7	-5.12	127.33	130.40
31	C1	2156	A	C4'-C3'-O3'	5.12	123.23	113.00
31	C1	2143	U	C2-N1-C1'	5.11	123.83	117.70
62	C2	161	G	N7-C8-N9	5.11	115.66	113.10
31	C1	1656	C	C5-C6-N1	5.11	123.55	121.00
62	C2	260	G	C2-N3-C4	5.11	114.45	111.90
31	C1	2202	C	C2-N1-C1'	5.11	124.42	118.80
31	C1	859	C	C6-N1-C2	-5.10	118.26	120.30
31	C1	684	U	N1-C2-O2	5.10	126.37	122.80
62	C2	202	C	C6-N1-C2	-5.09	118.26	120.30
31	C1	2227	C	C5-C6-N1	5.08	123.54	121.00
31	C1	63	C	N3-C2-O2	-5.08	118.35	121.90
31	C1	2168	U	C5-C6-N1	5.07	125.24	122.70
31	C1	1075	C	N3-C2-O2	-5.07	118.35	121.90
62	C2	246	G	OP1-P-O3'	5.06	116.34	105.20
31	C1	1081	G	N9-C4-C5	5.06	107.42	105.40
31	C1	1626	G	C8-N9-C4	-5.06	104.38	106.40
31	C1	2086	A	C4-C5-N7	5.06	113.23	110.70
62	C2	166	G	N3-C4-C5	-5.06	126.07	128.60
31	C1	1451	G	C6-C5-N7	-5.06	127.37	130.40
31	C1	2086	A	C5-N7-C8	-5.04	101.38	103.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	C1	2229	C	N1-C2-O2	5.04	121.92	118.90
31	C1	727	G	N3-C4-C5	-5.04	126.08	128.60
31	C1	424	U	P-O3'-C3'	5.03	125.74	119.70
31	C1	846	U	N1-C2-O2	5.03	126.32	122.80
31	C1	770	C	N1-C2-O2	5.02	121.91	118.90
31	C1	2172	C	C6-N1-C2	-5.01	118.29	120.30
29	Cq	20	LYS	N-CA-CB	-5.01	101.58	110.60
31	C1	860	C	O4'-C1'-N1	5.00	112.20	108.20
31	C1	909	G	C4-N9-C1'	5.00	133.00	126.50
31	C1	1511	A	N3-C4-N9	5.00	131.40	127.40
50	UQ	472	PRO	C-N-CA	5.00	134.20	121.70

There are no chirality outliers.

All (61) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
56	CB	293	GLU	Peptide
59	CF	60	GLN	Peptide
60	CG	178	VAL	Peptide
35	CH	143	HIS	Peptide
36	CI	851	TRP	Peptide
36	CI	852	ASP	Peptide
13	CK	261	PHE	Peptide
15	CM	140	SER	Peptide
16	CO	84	ILE	Peptide
16	CO	88	ARG	Peptide
18	CQ	173	ASP	Peptide
37	CR	122	MET	Peptide
37	CR	306	GLY	Peptide
37	CR	432	LEU	Peptide
37	CS	122	MET	Peptide
37	CS	306	GLY	Peptide
37	CS	432	LEU	Peptide
33	CV	88	LYS	Peptide
33	CV	92	SER	Mainchain
43	CW	342	SER	Peptide
43	CW	73	GLY	Peptide
38	Cb	231	GLU	Peptide
20	Cc	86	MET	Peptide
21	Ce	38	ALA	Peptide
23	Ch	22	PRO	Peptide
34	Cl	79	TYR	Peptide

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Mol	Chain	Res	Type	Group
63	Cr	29	LEU	Peptide
1	UA	115	LEU	Peptide
47	UD	387	TRP	Peptide
52	UE	232	GLN	Peptide
48	UJ	1661	ASP	Peptide
48	UJ	1662	GLN	Peptide
6	UL	153	ASP	Peptide
6	UL	636	LEU	Peptide
7	UM	328	LEU	Peptide
7	UM	382	ILE	Peptide
7	UM	445	GLY	Peptide
7	UM	585	HIS	Peptide
49	UO	282	ALA	Peptide
50	UQ	237	TYR	Peptide
50	UQ	426	ALA	Peptide
50	UQ	707	PRO	Peptide
50	UQ	849	ALA	Peptide
9	UR	616	ILE	Peptide
55	US	510	LYS	Peptide
44	UT	1516	LEU	Peptide
44	UT	1566	GLU	Peptide
44	UT	1724	PRO	Peptide
44	UT	408	PRO	Peptide
44	UT	420	GLU	Peptide
44	UT	481	ALA	Peptide
44	UT	485	LYS	Peptide
44	UT	486	GLU	Peptide
44	UT	487	ILE	Peptide
44	UT	781	TRP	Peptide
10	UU	397	ASP	Peptide
10	UU	644	GLY	Peptide
10	UU	857	ILE	Peptide
32	UV	1058	TYR	Peptide
32	UV	1104	LEU	Peptide
32	UV	686	GLY	Peptide

5.2 Too-close contacts (i)

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

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	UA	835/904 (92%)	768 (92%)	67 (8%)	0	100	100
2	UC	72/648 (11%)	64 (89%)	8 (11%)	0	100	100
3	UF	325/414 (78%)	310 (95%)	14 (4%)	1 (0%)	41	77
4	UG	475/558 (85%)	441 (93%)	32 (7%)	2 (0%)	34	72
5	UK	211/270 (78%)	210 (100%)	1 (0%)	0	100	100
6	UL	767/962 (80%)	711 (93%)	56 (7%)	0	100	100
7	UM	705/912 (77%)	656 (93%)	48 (7%)	1 (0%)	51	86
8	UN	171/938 (18%)	167 (98%)	3 (2%)	1 (1%)	25	66
9	UR	437/618 (71%)	416 (95%)	21 (5%)	0	100	100
10	UU	890/1049 (85%)	833 (94%)	57 (6%)	0	100	100
11	UX	188/193 (97%)	176 (94%)	12 (6%)	0	100	100
12	CJ	177/183 (97%)	166 (94%)	11 (6%)	0	100	100
13	CK	295/297 (99%)	284 (96%)	11 (4%)	0	100	100
14	CL	225/785 (29%)	212 (94%)	12 (5%)	1 (0%)	34	72
15	CM	443/446 (99%)	416 (94%)	27 (6%)	0	100	100
16	CN	222/252 (88%)	210 (95%)	12 (5%)	0	100	100
16	CO	211/252 (84%)	198 (94%)	11 (5%)	2 (1%)	17	57
17	CP	197/322 (61%)	191 (97%)	6 (3%)	0	100	100
18	CQ	171/259 (66%)	164 (96%)	7 (4%)	0	100	100
19	Ca	223/255 (88%)	212 (95%)	11 (5%)	0	100	100
20	Cc	188/212 (89%)	179 (95%)	9 (5%)	0	100	100
21	Ce	155/203 (76%)	139 (90%)	16 (10%)	0	100	100
22	Cg	157/190 (83%)	152 (97%)	5 (3%)	0	100	100
23	Ch	148/151 (98%)	127 (86%)	11 (7%)	10 (7%)	1	15
24	Ci	113/150 (75%)	107 (95%)	6 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
25	Cj	124/143 (87%)	116 (94%)	8 (6%)	0	100	100
26	Cm	122/130 (94%)	117 (96%)	5 (4%)	0	100	100
27	Cn	92/145 (63%)	89 (97%)	3 (3%)	0	100	100
28	Cp	59/68 (87%)	55 (93%)	4 (7%)	0	100	100
29	Cq	79/82 (96%)	64 (81%)	12 (15%)	3 (4%)	3	24
30	CU	168/311 (54%)	156 (93%)	12 (7%)	0	100	100
32	UV	1057/1171 (90%)	975 (92%)	80 (8%)	2 (0%)	47	81
33	CV	144/322 (45%)	131 (91%)	10 (7%)	3 (2%)	7	36
34	Cl	78/156 (50%)	73 (94%)	5 (6%)	0	100	100
35	CH	383/411 (93%)	346 (90%)	36 (9%)	1 (0%)	41	77
36	CI	812/1163 (70%)	761 (94%)	49 (6%)	2 (0%)	47	81
37	CR	746/1073 (70%)	682 (91%)	60 (8%)	4 (0%)	29	69
37	CS	746/1073 (70%)	682 (91%)	60 (8%)	4 (0%)	29	69
38	Cb	230/264 (87%)	204 (89%)	26 (11%)	0	100	100
39	Cd	224/239 (94%)	211 (94%)	13 (6%)	0	100	100
40	Cf	170/202 (84%)	164 (96%)	6 (4%)	0	100	100
41	Ck	136/161 (84%)	129 (95%)	7 (5%)	0	100	100
42	Co	90/136 (66%)	82 (91%)	8 (9%)	0	100	100
43	CW	380/668 (57%)	349 (92%)	31 (8%)	0	100	100
44	UT	1974/2612 (76%)	1859 (94%)	109 (6%)	6 (0%)	41	77
45	CZ	40/609 (7%)	32 (80%)	8 (20%)	0	100	100
46	UB	496/907 (55%)	464 (94%)	32 (6%)	0	100	100
47	UD	754/884 (85%)	721 (96%)	33 (4%)	0	100	100
48	UJ	1062/1802 (59%)	1010 (95%)	52 (5%)	0	100	100
49	UO	498/557 (89%)	475 (95%)	23 (5%)	0	100	100
50	UQ	775/960 (81%)	712 (92%)	61 (8%)	2 (0%)	41	77
51	CX	265/480 (55%)	255 (96%)	10 (4%)	0	100	100
52	UE	121/410 (30%)	117 (97%)	4 (3%)	0	100	100
52	UI	121/410 (30%)	121 (100%)	0	0	100	100
53	UP	52/364 (14%)	46 (88%)	5 (10%)	1 (2%)	8	38
54	UH	349/930 (38%)	340 (97%)	9 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
55	US	443/549 (81%)	415 (94%)	28 (6%)	0	100 100
56	CA	238/313 (76%)	225 (94%)	13 (6%)	0	100 100
56	CB	218/313 (70%)	204 (94%)	14 (6%)	0	100 100
57	CC	383/523 (73%)	367 (96%)	16 (4%)	0	100 100
58	CD	416/582 (72%)	393 (94%)	23 (6%)	0	100 100
59	CE	119/127 (94%)	111 (93%)	8 (7%)	0	100 100
59	CF	118/127 (93%)	110 (93%)	7 (6%)	1 (1%)	19 60
60	CG	402/630 (64%)	375 (93%)	27 (7%)	0	100 100
61	CT	127/203 (63%)	119 (94%)	8 (6%)	0	100 100
63	Cr	140/153 (92%)	122 (87%)	13 (9%)	5 (4%)	3 25
All	All	22952/33786 (68%)	21488 (94%)	1412 (6%)	52 (0%)	50 81

All (52) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
16	CO	85	SER
23	Ch	23	PRO
23	Ch	86	GLU
23	Ch	150	VAL
29	Cq	20	LYS
29	Cq	60	THR
29	Cq	62	VAL
32	UV	1059	ASP
33	CV	91	HIS
33	CV	92	SER
44	UT	487	ILE
63	Cr	29	LEU
63	Cr	30	PRO
63	Cr	32	PRO
4	UG	580	GLU
23	Ch	10	GLY
23	Ch	22	PRO
23	Ch	28	THR
33	CV	89	GLN
44	UT	1566	GLU
44	UT	1567	PHE
50	UQ	708	SER
4	UG	56	PRO

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Mol	Chain	Res	Type
23	Ch	21	ASN
23	Ch	108	ASP
32	UV	612	ARG
37	CR	48	MET
37	CS	48	MET
44	UT	457	TRP
63	Cr	40	THR
8	UN	902	ARG
14	CL	640	PRO
44	UT	407	ILE
44	UT	408	PRO
3	UF	121	LYS
7	UM	329	PRO
23	Ch	85	PRO
23	Ch	138	THR
36	CI	309	PRO
50	UQ	564	GLU
53	UP	329	PRO
37	CR	772	PRO
37	CS	772	PRO
35	CH	258	PRO
37	CR	904	PRO
37	CS	904	PRO
37	CR	404	GLY
37	CS	404	GLY
59	CF	61	PRO
63	Cr	31	VAL
16	CO	84	ILE
36	CI	308	THR

5.3.2 Protein sidechains

There are no protein residues with a non-rotameric sidechain to report in this entry.

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
31	C1	1197/1859 (64%)	376 (31%)	25 (2%)
62	C2	225/232 (96%)	67 (29%)	4 (1%)
All	All	1422/2091 (68%)	443 (31%)	29 (2%)

All (443) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
31	C1	4	G
31	C1	5	G
31	C1	7	A
31	C1	13	G
31	C1	14	G
31	C1	15	G
31	C1	16	U
31	C1	17	C
31	C1	18	G
31	C1	19	C
31	C1	20	C
31	C1	26	C
31	C1	38	G
31	C1	40	A
31	C1	41	G
31	C1	47	G
31	C1	49	G
31	C1	56	C
31	C1	60	A
31	C1	61	G
31	C1	63	C
31	C1	66	G
31	C1	68	U
31	C1	71	A
31	C1	72	U
31	C1	73	A
31	C1	74	C
31	C1	257	G
31	C1	425	C
31	C1	427	G
31	C1	435	A
31	C1	436	A
31	C1	581	C
31	C1	582	G
31	C1	583	A
31	C1	584	U
31	C1	585	A
31	C1	586	G
31	C1	587	U
31	C1	594	G
31	C1	595	U
31	C1	609	A

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Mol	Chain	Res	Type
31	C1	610	G
31	C1	613	A
31	C1	614	U
31	C1	621	G
31	C1	624	U
31	C1	628	A
31	C1	638	A
31	C1	646	C
31	C1	650	G
31	C1	652	A
31	C1	653	U
31	C1	655	A
31	C1	656	G
31	C1	659	A
31	C1	660	U
31	C1	661	U
31	C1	662	A
31	C1	663	U
31	C1	664	A
31	C1	667	G
31	C1	678	A
31	C1	679	A
31	C1	680	U
31	C1	682	G
31	C1	683	C
31	C1	685	C
31	C1	686	A
31	C1	687	U
31	C1	688	U
31	C1	689	A
31	C1	690	A
31	C1	692	U
31	C1	693	C
31	C1	697	U
31	C1	700	C
31	C1	702	U
31	C1	703	U
31	C1	711	U
31	C1	713	G
31	C1	714	U
31	C1	715	A
31	C1	718	U

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Mol	Chain	Res	Type
31	C1	719	U
31	C1	720	A
31	C1	721	C
31	C1	722	U
31	C1	723	A
31	C1	725	A
31	C1	726	U
31	C1	728	G
31	C1	730	U
31	C1	735	G
31	C1	737	G
31	C1	740	A
31	C1	742	U
31	C1	743	U
31	C1	744	C
31	C1	745	U
31	C1	756	C
31	C1	758	U
31	C1	760	C
31	C1	762	G
31	C1	763	A
31	C1	764	A
31	C1	769	C
31	C1	770	C
31	C1	772	A
31	C1	773	C
31	C1	774	U
31	C1	775	U
31	C1	776	C
31	C1	777	G
31	C1	778	G
31	C1	782	G
31	C1	786	G
31	C1	797	A
31	C1	802	A
31	C1	803	A
31	C1	804	A
31	C1	806	C
31	C1	807	A
31	C1	808	A
31	C1	809	U
31	C1	810	G

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Mol	Chain	Res	Type
31	C1	811	C
31	C1	816	C
31	C1	828	G
31	C1	833	U
31	C1	834	C
31	C1	841	A
31	C1	845	C
31	C1	849	A
31	C1	850	A
31	C1	851	U
31	C1	856	C
31	C1	858	G
31	C1	860	C
31	C1	861	U
31	C1	862	U
31	C1	863	G
31	C1	886	U
31	C1	889	C
31	C1	892	C
31	C1	893	C
31	C1	897	U
31	C1	900	A
31	C1	903	U
31	C1	907	A
31	C1	913	G
31	C1	921	G
31	C1	922	C
31	C1	925	G
31	C1	927	C
31	C1	929	U
31	C1	930	G
31	C1	934	A
31	C1	935	C
31	C1	936	A
31	C1	942	U
31	C1	943	A
31	C1	944	A
31	C1	971	A
31	C1	972	A
31	C1	984	A
31	C1	985	A
31	C1	986	C

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Mol	Chain	Res	Type
31	C1	987	G
31	C1	988	G
31	C1	989	C
31	C1	1000	A
31	C1	1001	A
31	C1	1002	G
31	C1	1005	A
31	C1	1007	G
31	C1	1017	C
31	C1	1018	G
31	C1	1021	A
31	C1	1022	A
31	C1	1023	U
31	C1	1024	U
31	C1	1025	A
31	C1	1027	C
31	C1	1028	C
31	C1	1029	A
31	C1	1035	G
31	C1	1036	A
31	C1	1037	C
31	C1	1039	C
31	C1	1043	G
31	C1	1044	A
31	C1	1054	A
31	C1	1059	A
31	C1	1061	A
31	C1	1064	G
31	C1	1069	A
31	C1	1070	G
31	C1	1076	U
31	C1	1077	U
31	C1	1078	U
31	C1	1079	C
31	C1	1080	G
31	C1	1085	U
31	C1	1086	U
31	C1	1088	U
31	C1	1089	A
31	C1	1094	G
31	C1	1095	A
31	C1	1099	A

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Mol	Chain	Res	Type
31	C1	1102	A
31	C1	1103	C
31	C1	1104	A
31	C1	1116	U
31	C1	1120	C
31	C1	1122	A
31	C1	1123	G
31	C1	1124	G
31	C1	1125	A
31	C1	1126	A
31	C1	1127	C
31	C1	1128	A
31	C1	1129	A
31	C1	1141	G
31	C1	1147	U
31	C1	1148	G
31	C1	1150	C
31	C1	1154	A
31	C1	1158	G
31	C1	1163	A
31	C1	1164	A
31	C1	1166	U
31	C1	1167	C
31	C1	1168	C
31	C1	1169	A
31	C1	1170	G
31	C1	1178	A
31	C1	1179	G
31	C1	1186	U
31	C1	1218	G
31	C1	1219	A
31	C1	1220	A
31	C1	1222	C
31	C1	1223	U
31	C1	1251	C
31	C1	1258	A
31	C1	1265	G
31	C1	1444	A
31	C1	1447	A
31	C1	1448	A
31	C1	1449	U
31	C1	1450	A

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Mol	Chain	Res	Type
31	C1	1451	G
31	C1	1452	G
31	C1	1469	A
31	C1	1470	G
31	C1	1471	U
31	C1	1479	U
31	C1	1481	U
31	C1	1483	A
31	C1	1484	G
31	C1	1486	G
31	C1	1489	G
31	C1	1491	A
31	C1	1497	U
31	C1	1498	G
31	C1	1499	G
31	C1	1517	A
31	C1	1518	A
31	C1	1519	C
31	C1	1520	U
31	C1	1525	A
31	C1	1527	G
31	C1	1529	A
31	C1	1536	A
31	C1	1545	U
31	C1	1549	U
31	C1	1551	A
31	C1	1554	C
31	C1	1555	A
31	C1	1614	U
31	C1	1624	A
31	C1	1625	G
31	C1	1628	A
31	C1	1632	G
31	C1	1636	G
31	C1	1637	C
31	C1	1639	U
31	C1	1642	A
31	C1	1643	U
31	C1	1644	U
31	C1	1645	U
31	C1	1656	C
31	C1	1659	C

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Mol	Chain	Res	Type
31	C1	1665	A
31	C1	1667	G
31	C1	1668	A
31	C1	1670	A
31	C1	1698	G
31	C1	1701	U
31	C1	1709	A
31	C1	1711	G
31	C1	1712	C
31	C1	1713	U
31	C1	1735	A
31	C1	1738	G
31	C1	1742	C
31	C1	1743	C
31	C1	1744	A
31	C1	1751	G
31	C1	2045	G
31	C1	2052	A
31	C1	2054	A
31	C1	2056	U
31	C1	2057	G
31	C1	2061	G
31	C1	2065	C
31	C1	2069	G
31	C1	2070	A
31	C1	2072	U
31	C1	2073	A
31	C1	2074	C
31	C1	2075	U
31	C1	2076	C
31	C1	2089	G
31	C1	2097	U
31	C1	2099	A
31	C1	2100	U
31	C1	2104	G
31	C1	2106	U
31	C1	2107	A
31	C1	2118	U
31	C1	2119	G
31	C1	2120	C
31	C1	2121	U
31	C1	2123	G

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Mol	Chain	Res	Type
31	C1	2140	U
31	C1	2142	A
31	C1	2156	A
31	C1	2157	G
31	C1	2158	G
31	C1	2166	A
31	C1	2167	G
31	C1	2173	G
31	C1	2177	G
31	C1	2178	U
31	C1	2183	A
31	C1	2184	G
31	C1	2185	C
31	C1	2190	G
31	C1	2197	A
31	C1	2201	C
31	C1	2202	C
31	C1	2210	U
31	C1	2211	U
31	C1	2212	G
31	C1	2213	U
31	C1	2214	A
31	C1	2215	C
31	C1	2216	A
31	C1	2220	C
31	C1	2222	C
31	C1	2223	C
31	C1	2227	C
31	C1	2238	A
31	C1	2328	G
31	C1	2329	A
31	C1	2330	G
31	C1	2351	G
31	C1	2362	U
31	C1	2363	G
31	C1	2364	A
31	C1	2365	A
31	C1	2366	C
31	C1	2373	A
31	C1	2374	G
62	C2	5	A
62	C2	8	A

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Mol	Chain	Res	Type
62	C2	15	A
62	C2	23	A
62	C2	24	U
62	C2	28	U
62	C2	29	A
62	C2	33	U
62	C2	36	U
62	C2	37	U
62	C2	39	U
62	C2	48	G
62	C2	57	A
62	C2	58	A
62	C2	62	A
62	C2	63	G
62	C2	81	G
62	C2	90	C
62	C2	91	G
62	C2	92	A
62	C2	95	U
62	C2	100	G
62	C2	104	C
62	C2	111	G
62	C2	118	C
62	C2	125	U
62	C2	126	U
62	C2	127	A
62	C2	128	C
62	C2	135	U
62	C2	136	C
62	C2	140	C
62	C2	142	G
62	C2	145	A
62	C2	147	G
62	C2	148	G
62	C2	153	G
62	C2	160	U
62	C2	162	C
62	C2	163	C
62	C2	164	U
62	C2	165	C
62	C2	166	G
62	C2	167	U

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Mol	Chain	Res	Type
62	C2	168	C
62	C2	170	C
62	C2	178	U
62	C2	179	A
62	C2	181	A
62	C2	182	G
62	C2	187	U
62	C2	188	G
62	C2	189	G
62	C2	190	C
62	C2	198	U
62	C2	199	G
62	C2	200	U
62	C2	201	A
62	C2	205	C
62	C2	244	G
62	C2	247	G
62	C2	255	U
62	C2	256	G
62	C2	259	A
62	C2	260	G
62	C2	261	U
62	C2	262	C

All (29) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
31	C1	424	U
31	C1	582	G
31	C1	593	G
31	C1	684	U
31	C1	771	G
31	C1	802	A
31	C1	906	G
31	C1	1001	A
31	C1	1017	C
31	C1	1068	C
31	C1	1077	U
31	C1	1085	U
31	C1	1087	G
31	C1	1163	A
31	C1	1264	U

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Mol	Chain	Res	Type
31	C1	1485	A
31	C1	1638	G
31	C1	1712	C
31	C1	1734	G
31	C1	2064	C
31	C1	2072	U
31	C1	2156	A
31	C1	2157	G
31	C1	2177	G
31	C1	2219	C
62	C2	23	A
62	C2	35	G
62	C2	91	G
62	C2	255	U

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 2 ligands modelled in this entry, 2 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
31	C1	4
62	C2	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	C1	74:C	O3'	244:G	P	56.87
1	C1	257:G	O3'	417:G	P	43.92
1	C2	206:G	O3'	240:C	P	18.77
1	C2	105:C	O3'	110:A	P	16.05
1	C1	34:C	O3'	36:C	P	5.49
1	C1	53:A	O3'	55:G	P	4.34

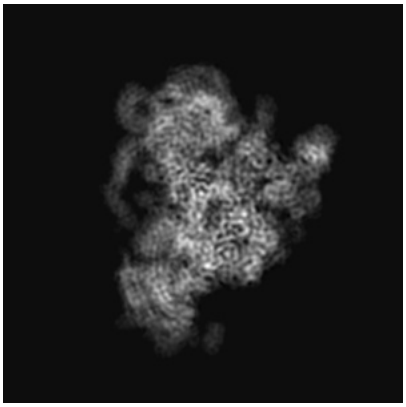
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-10054. These allow visual inspection of the internal detail of the map and identification of artifacts.

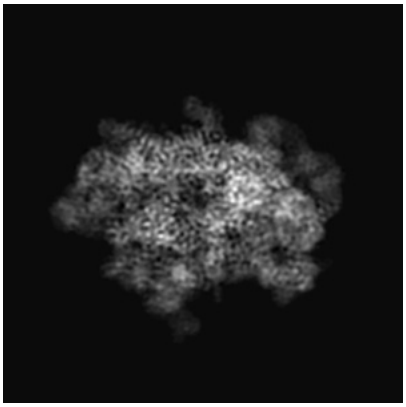
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

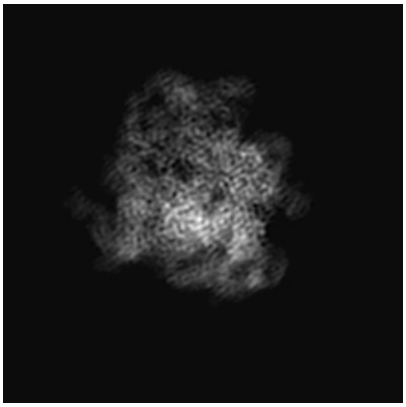
6.1.1 Primary map



X



Y

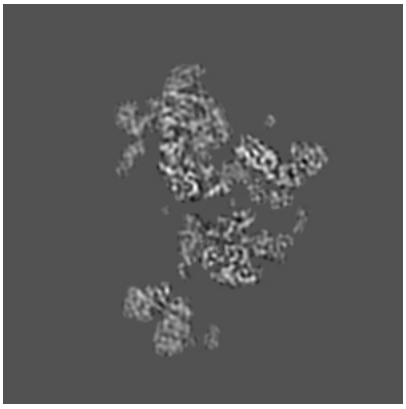


Z

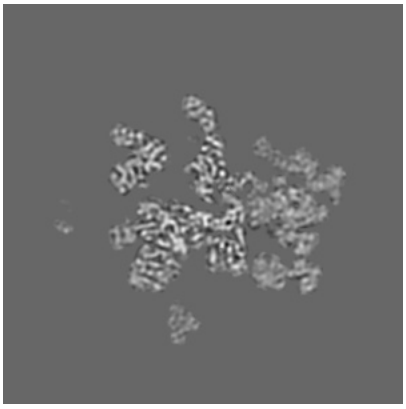
The images above show the map projected in three orthogonal directions.

6.2 Central slices

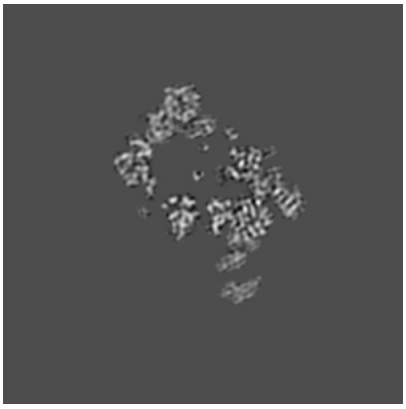
6.2.1 Primary map



X Index: 240



Y Index: 240

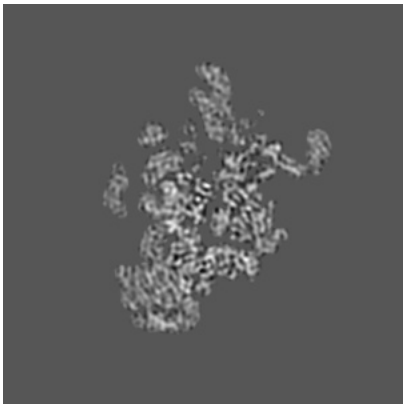


Z Index: 240

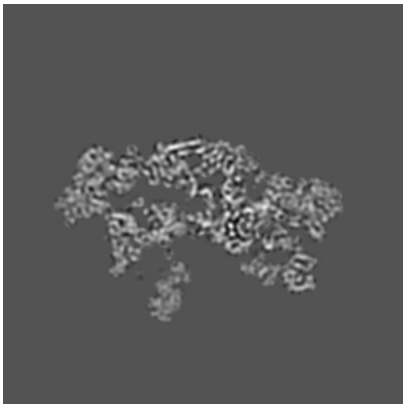
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

6.3.1 Primary map



X Index: 279



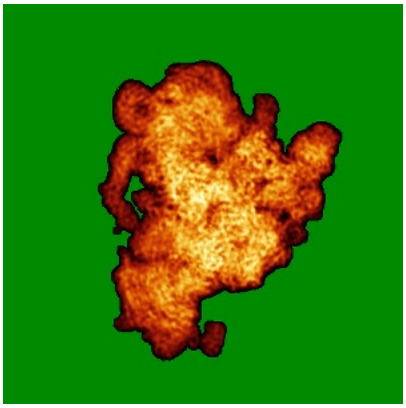
Y Index: 213

Z Index: 247

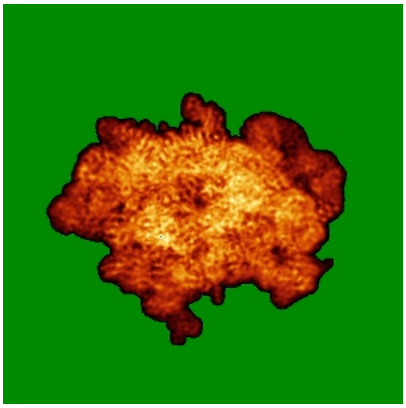
The images above show the largest variance slices of the map in three orthogonal directions.

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

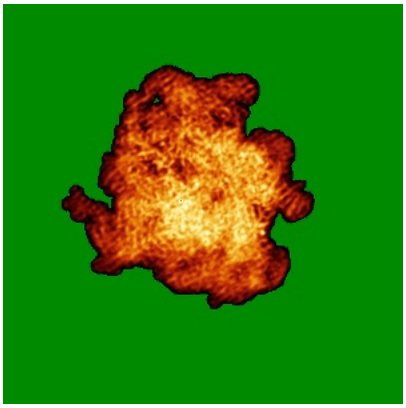
6.4.1 Primary map



X



Y

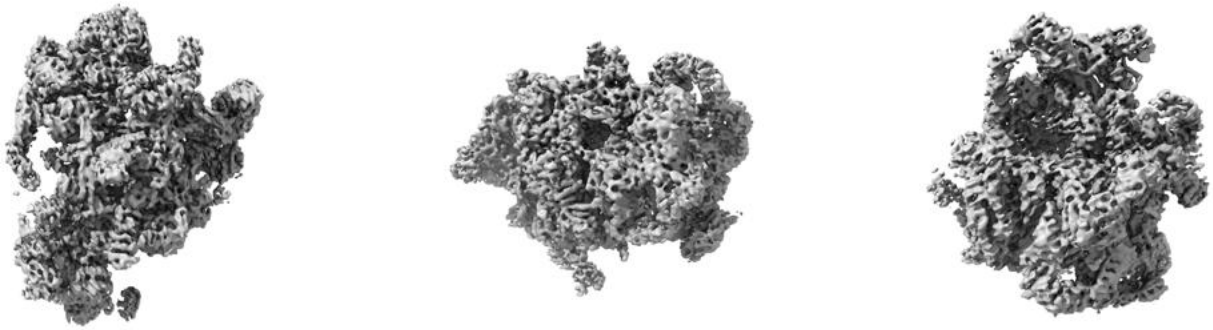


Z

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.

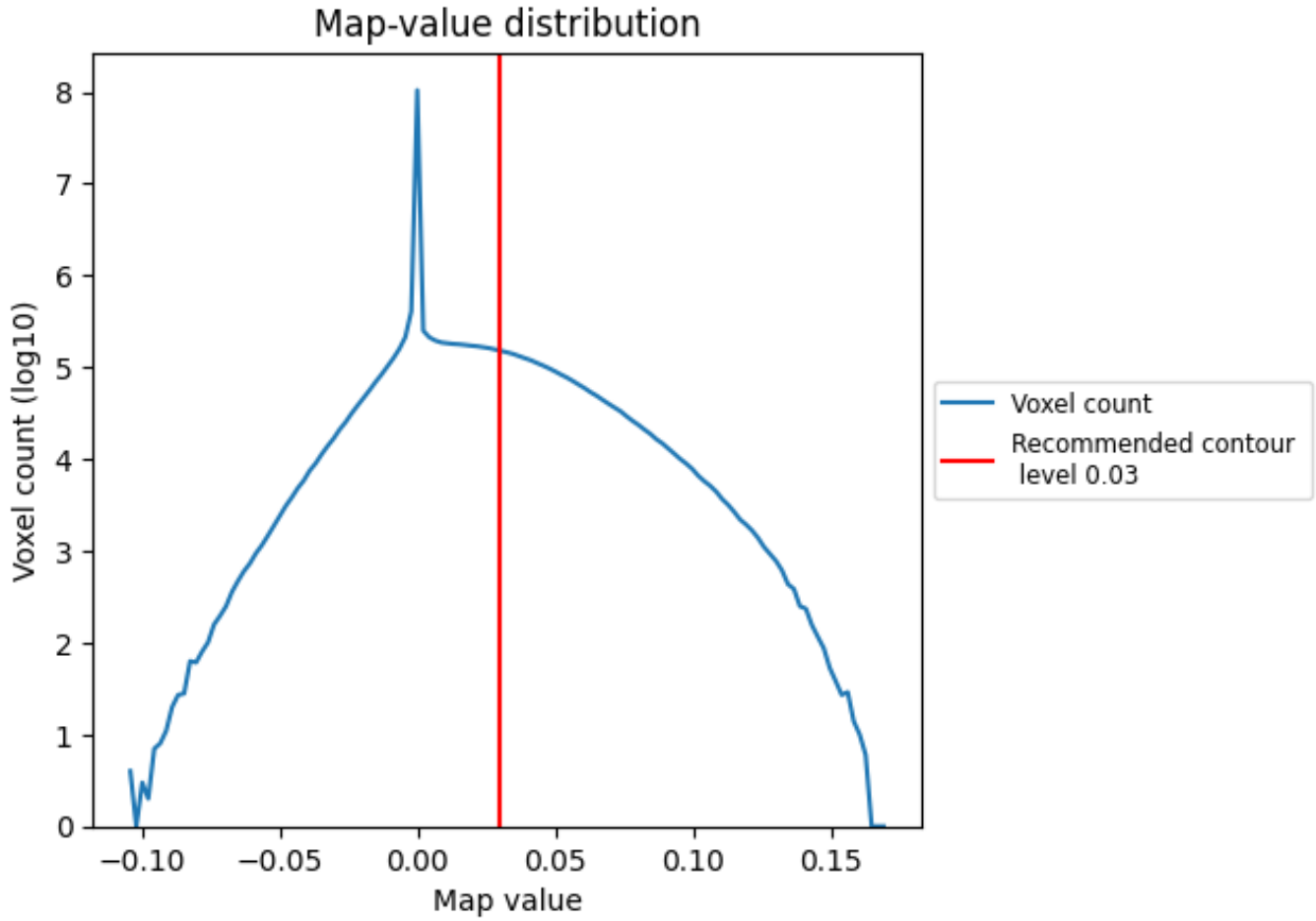
6.6 Mask visualisation (i)

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

7 Map analysis

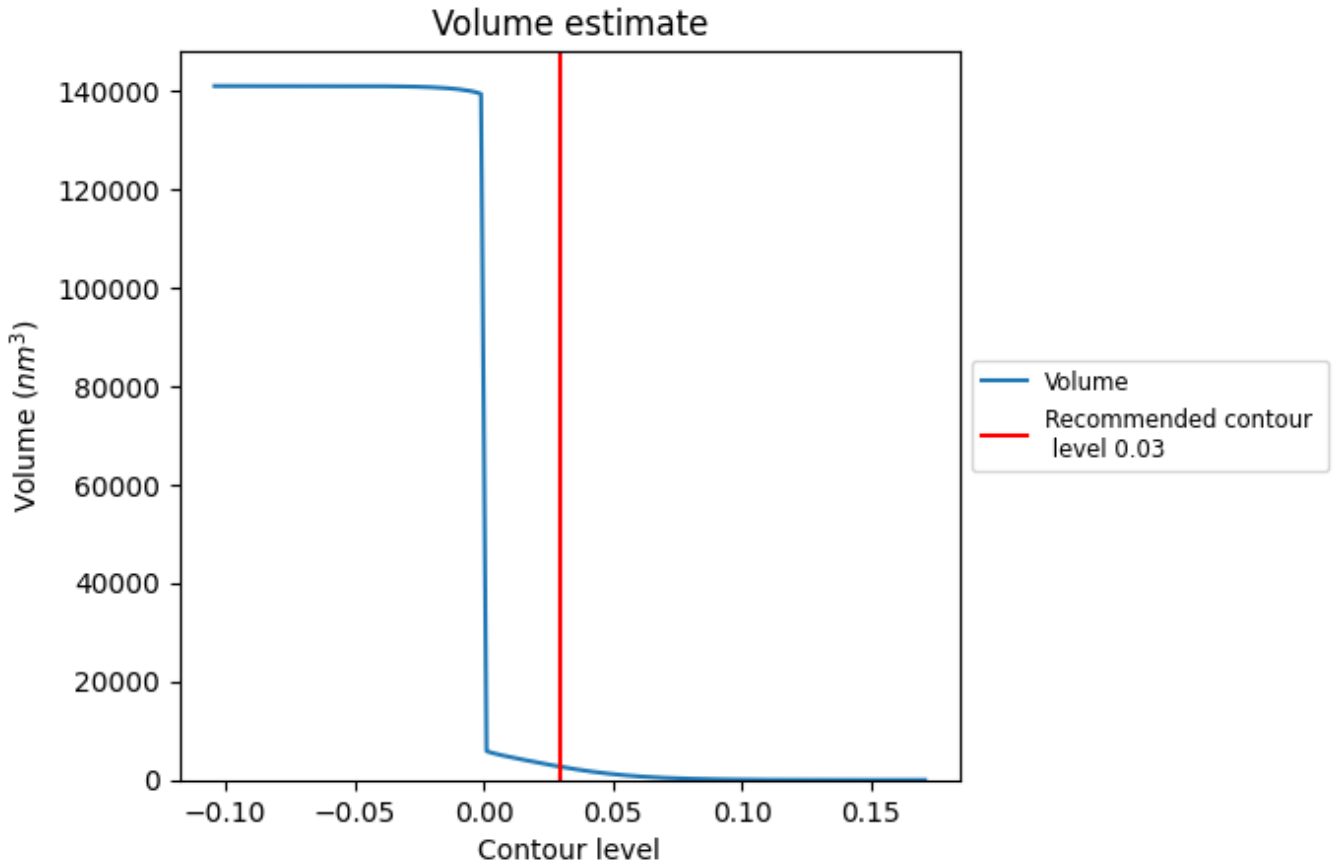
This section contains the results of statistical analysis of the map.

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.

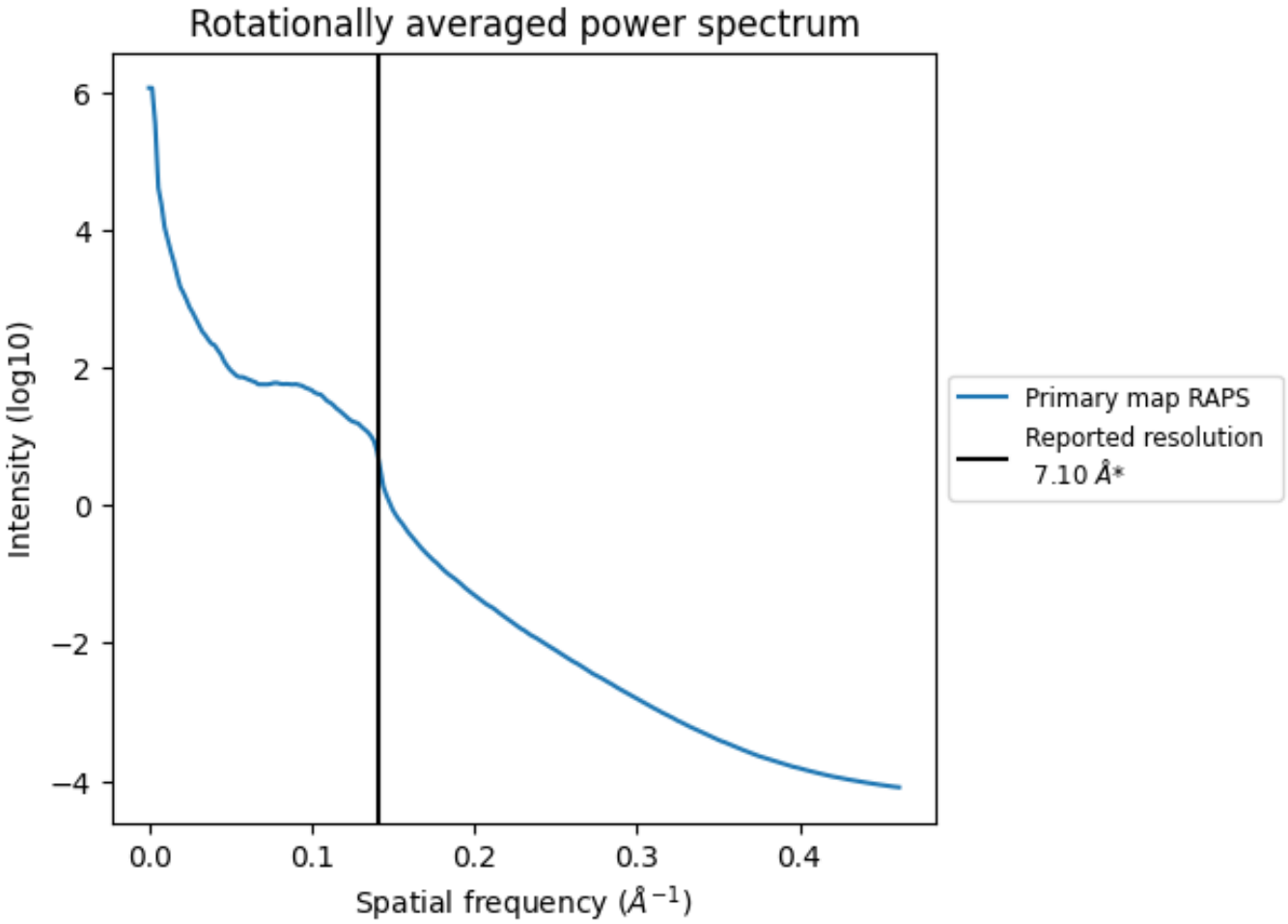
7.2 Volume estimate



The volume at the recommended contour level is 2664 nm^3; this corresponds to an approximate mass of 2407 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)

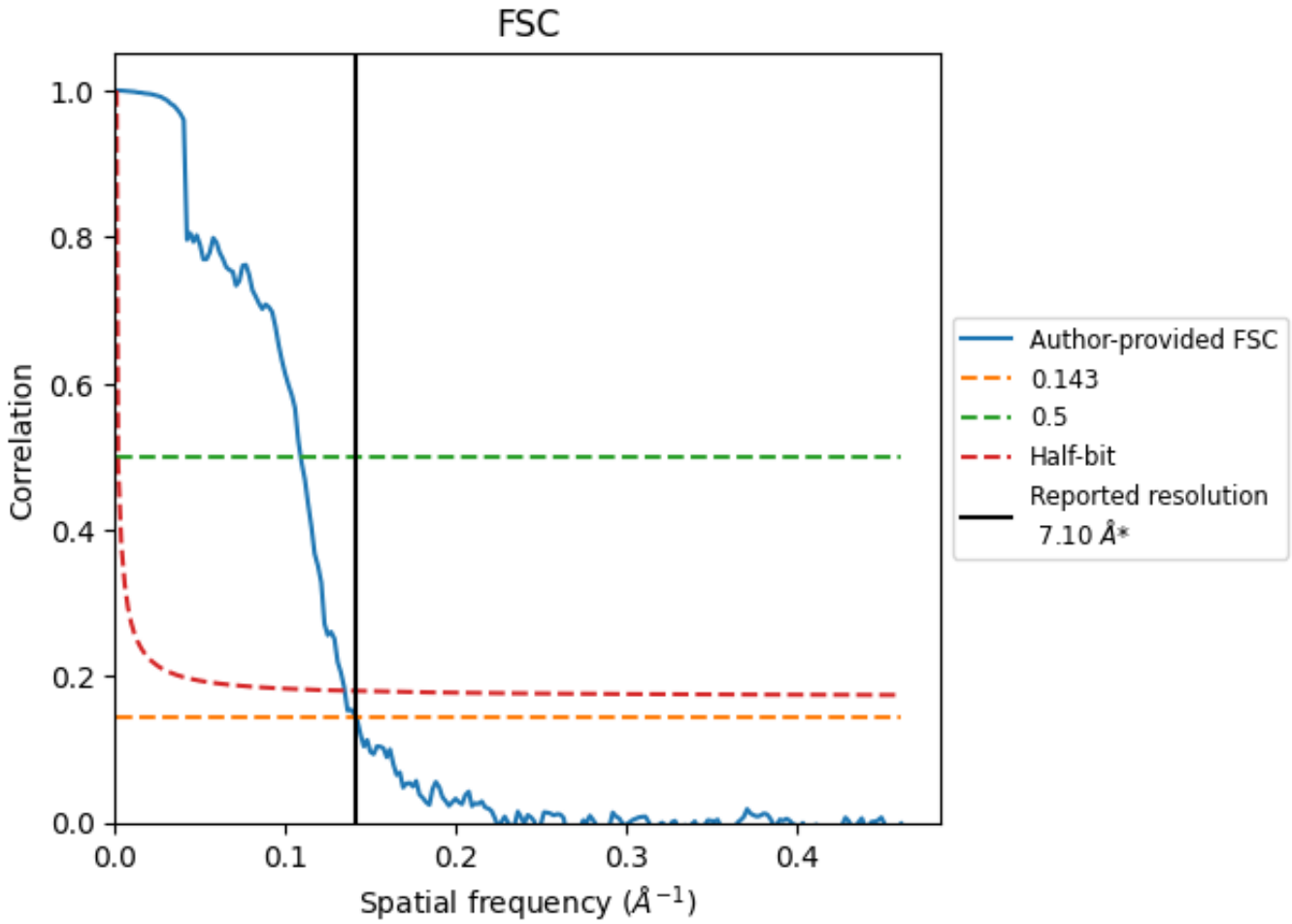


*Reported resolution corresponds to spatial frequency of 0.141 $Å^{-1}$

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.141 Å^{-1}

8.2 Resolution estimates (i)

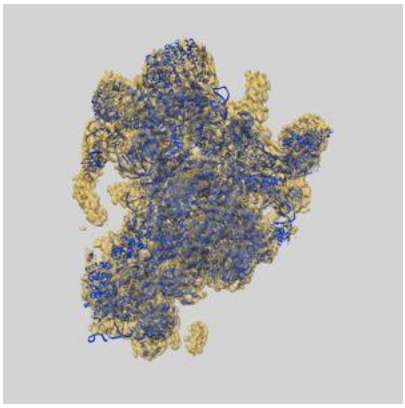
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	7.10	-	-
Author-provided FSC curve	7.07	9.17	7.42
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

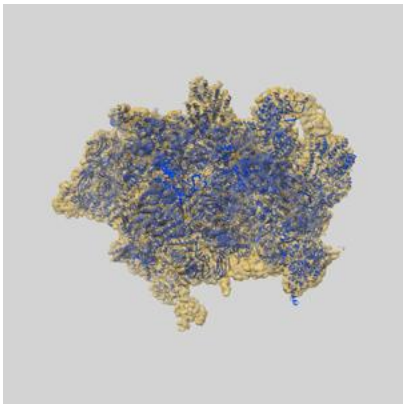
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-10054 and PDB model 6RXX. Per-residue inclusion information can be found in section 3 on page 16.

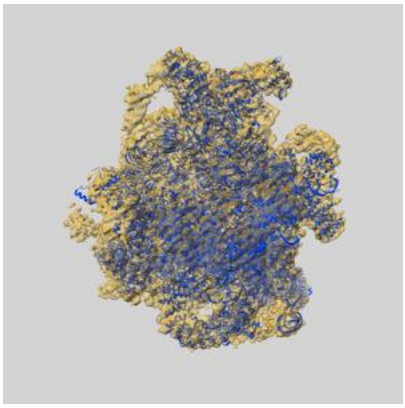
9.1 Map-model overlay



X



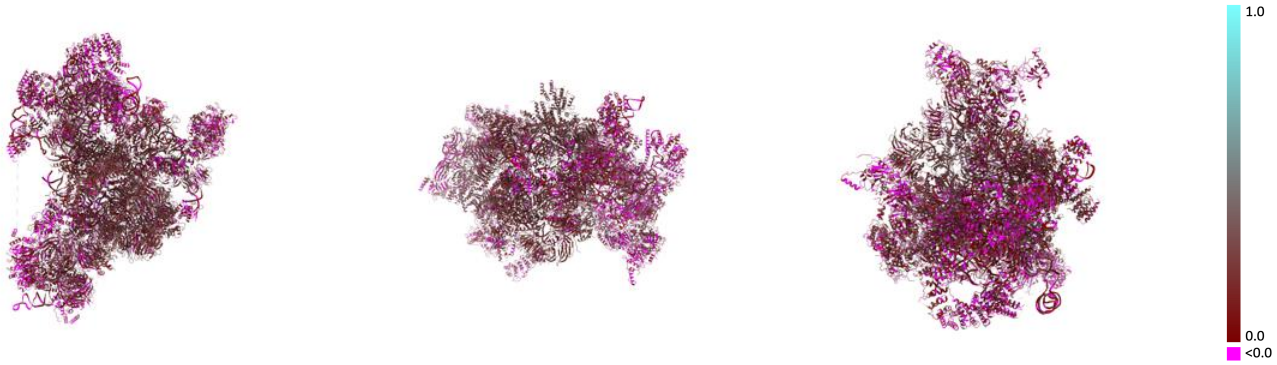
Y



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.

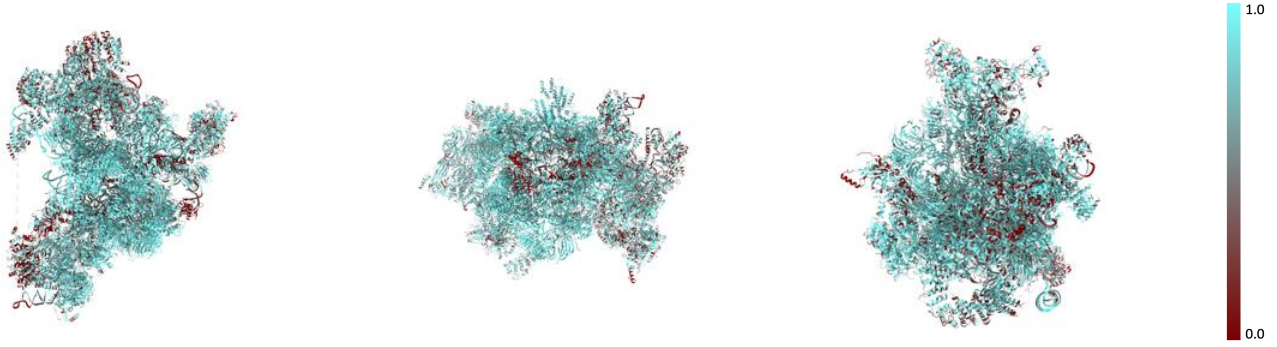
9.2 Q-score mapped to coordinate model (i)



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.

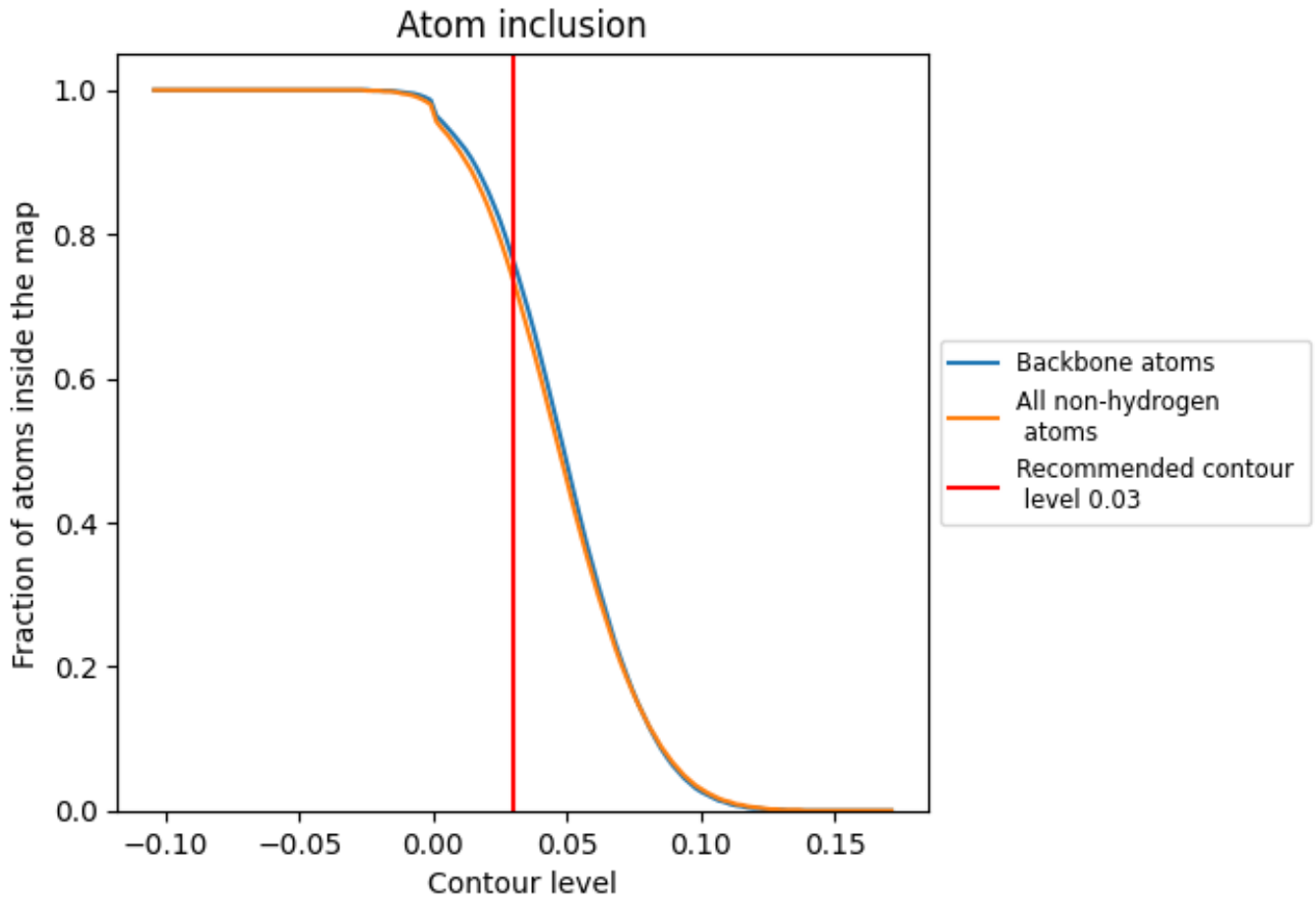
9.3 Atom inclusion mapped to coordinate model (i)



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, 76% of all backbone atoms, 73% 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	0.7340	0.1560
C1	0.7620	0.1390
C2	0.7890	0.1470
CA	0.8520	0.2410
CB	0.4950	0.0480
CC	0.8760	0.2410
CD	0.6950	0.1650
CE	0.6750	0.1340
CF	0.8020	0.1880
CG	0.7790	0.1600
CH	0.8760	0.2290
CI	0.8590	0.2360
CJ	0.7890	0.2200
CK	0.7640	0.2260
CL	0.7440	0.2110
CM	0.8640	0.2390
CN	0.6790	0.1520
CO	0.5950	0.0800
CP	0.5040	0.1520
CQ	0.2070	0.0590
CR	0.7820	0.1690
CS	0.5920	0.0780
CT	0.8070	0.2310
CU	0.1680	0.0390
CV	0.5900	0.0810
CW	0.6390	0.1150
CX	0.6180	0.0520
CZ	0.7340	0.1480
Ca	0.7750	0.1940
Cb	0.5740	0.0950
Cc	0.8580	0.2280
Cd	0.7430	0.1650
Ce	0.7350	0.1770
Cf	0.6350	0.0500
Cg	0.8200	0.2110

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Chain	Atom inclusion	Q-score
Ch	0.8120	0.2250
Ci	0.7270	0.1540
Cj	0.7830	0.2250
Ck	0.4700	0.0310
Cl	0.4710	0.0900
Cm	0.8130	0.2230
Cn	0.8380	0.2450
Co	0.9030	0.2100
Cp	0.8470	0.2140
Cq	0.7800	0.1910
Cr	0.6660	0.1870
UA	0.8430	0.2220
UB	0.7490	0.1500
UC	0.8860	0.2630
UD	0.7280	0.1210
UE	0.8470	0.2050
UF	0.9040	0.2370
UG	0.7480	0.1850
UH	0.7470	0.1370
UI	0.6880	0.1450
UJ	0.6260	0.1430
UK	0.5090	0.1030
UL	0.8870	0.2260
UM	0.8170	0.1760
UN	0.8010	0.2300
UO	0.8260	0.2060
UP	0.6080	0.1550
UQ	0.8180	0.1600
UR	0.7850	0.1700
US	0.6640	0.1290
UT	0.6010	0.0860
UU	0.8600	0.2110
UV	0.5870	0.0900
UX	0.6630	0.1970