wwPDB EM Validation Summary Report

Mar 3, 2024 – 01:02 PM EST

PDB ID	:	5WLC
EMDB ID	:	EMD-8859
Title	:	The complete structure of the small subunit processome
Authors	:	Barandun, J.; Chaker-Margot, M.; Hunziker, M.; Klinge, S.
Deposited on	:	2017-07-26
Resolution	:	3.80 Å(reported)

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

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

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

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

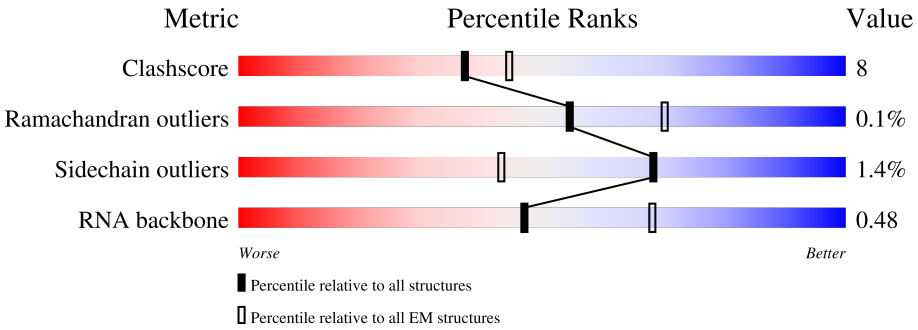
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.80 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	L0	700	5% 38% 26% 5% 30%
2	L1	1807	23% 30% 21% 6% 43%
3	L2	333	• 28% 18% • • 49%
4	L3	146	51% 64% 12% • 23%
5	L4	261	38% 63% 23% • 13%
6	L5	225	5% 76% 19% 5%
7	L6	236	38% 36% 11% • 52%

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Mol	Chain	Length	Quality of chain
8	L7	190	85% 68% 17% 13%
9	L8	200	61% 66% 18% 15%
10	L9	197	8% 71% 17% 11%
11	LC	143	73% 13% 13%
12	LD	156	67% 58% 22% 19%
13	LE	130	63% 82% 16%
14	LF	135	11% 53% 13% 33%
15	LG	67	73% 21% 6%
16	LH	896	7% 69% 23% 7%
17	LI	713	38% 58% 10% 32%
18	LJ	513	71% 24%
19	LK	575	19% 79%
20	LL	643	53% 21% 26%
21	LM	1769	20% 5% 76%
22	LN	776	9% 64% 23% 13%
23	LO	923	69% 21% 10%
24	LP	440	8% 68% 14% 18%
25	LQ	943	14% 63% 26% 10%
26	LR	817	69% 79% 11% 11%
27	LS	594	59% 22% 19%
28	LT	939	72% 19% 9%
29	LU	489	7% 69% 24% 7%
30	LV	707	42% 35% 16% 49%
31	LW	554	60% 19% 21%
32	LX	1056	49% 67% 9% 23%

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Mol	Chain	Length	Quality of chain
32	LY	1056	68% 69% 27%
33	LZ	183	70% 29%
34	NA	593	27% 7% 65%
35	NB	610	20% 77%
36	NC	357	15% 32% 6% 62%
37	ND	214	18% 31% 7% 62%
38	NE	346	41% 38% 8% 54%
39	NF	151	82% 82% 18%
40	NG	137	80% 70% 11% 19%
41	NH	1237	87% 86% 13%
42	NI	297	57% 56% 43%
43	NJ	1729	15% 15% 85%
44	NK	316	54% 54% 45%
45	SA	504	5% 60% 13% 27%
46	SB	511	12% 71% 12% 17%
47	SC	327	55% 18% 26%
47	SD	327	11% 50% 20% 30%
48	SE	126	81% 14%
48	SF	126	76% 20%
49	SG	573	7% 56% 19% 25%
50	SH	367	77% 21%
51	SI	1184	6% 50% 17% 32%
52	SJ	252	16% 67% 18% 14%
52	SK	252	7% 70% 20% 9%
53	SL	189	69% 23% 8%

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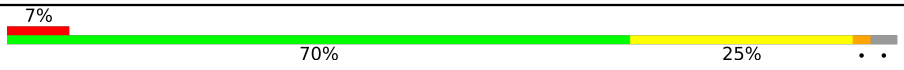
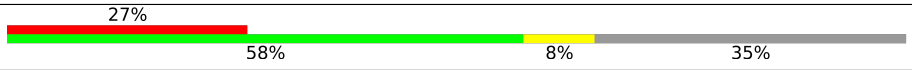
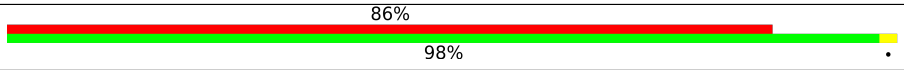
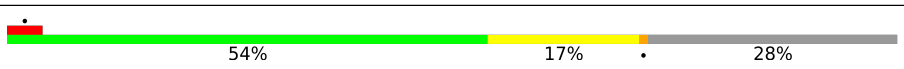
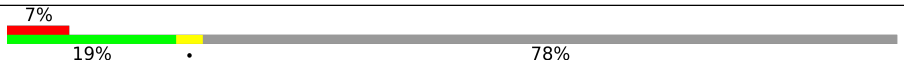
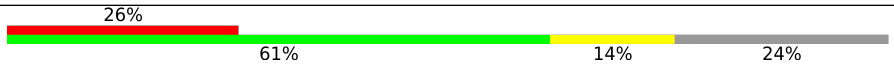
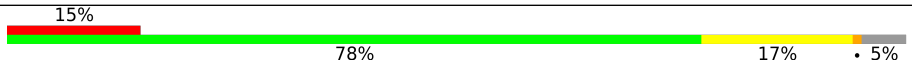
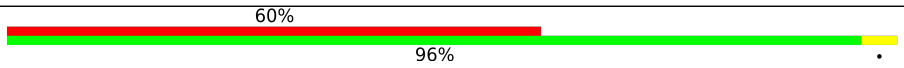
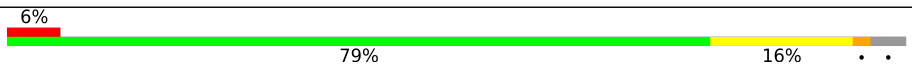
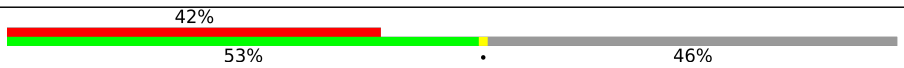
Mol	Chain	Length	Quality of chain
54	SM	290	
55	SN	274	
56	SO	274	
57	SP	982	
58	SQ	217	
59	SR	145	
60	SS	898	
61	ST	792	
62	SU	552	
63	SV	206	
64	SX	103	
65	SY	250	
66	SZ	483	

2 Entry composition (i)

There are 67 unique types of molecules in this entry. The entry contains 196921 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called 5' ETS.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	L0	488	10405	4650	1838	3429	488	0	0

- Molecule 2 is a RNA chain called 18S pre-rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	L1	1025	21866	9773	3905	7163	1025	0	0

- Molecule 3 is a RNA chain called U3 snoRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	L2	169	3585	1605	629	1182	169	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L2	200	C	G	conflict	GB 176452

- Molecule 4 is a protein called rpS18_uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	L3	113	901	569	168	162	2	0	0

- Molecule 5 is a protein called rpS4_eS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	L4	228	1810	1158	330	319	3	0	0

- Molecule 6 is a protein called rpS5_uS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	L5	213	Total	C	N	O	S	0	0
			1669	1045	307	314	3		

- Molecule 7 is a protein called rpS6_eS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	L6	113	Total	C	N	O	S	0	0
			888	567	156	163	2		

- Molecule 8 is a protein called rpS7_eS7.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	L7	165	Total	C	N	O	0	0
			1321	854	227	240		

- Molecule 9 is a protein called rpS8_eS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	L8	170	Total	C	N	O	S	0	0
			1349	839	267	241	2		

- Molecule 10 is a protein called rpS9_uS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	L9	175	Total	C	N	O	S	0	0
			1415	895	273	246	1		

- Molecule 11 is a protein called rpS16_uS9.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	LC	125	Total	C	N	O	0	0
			973	625	174	174		

- Molecule 12 is a protein called rpS11_uS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	LD	127	Total	C	N	O	S	0	0
			1027	660	194	170	3		

- Molecule 13 is a protein called rpS22_uS8.

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

- Molecule 14 is a protein called rpS24_eS24.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	LF	90	Total	C	N	O	0	0
			715	458	131	126		

- Molecule 15 is a protein called rpS28_eS28.

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

- Molecule 16 is a protein called Utp17.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	LH	834	Total	C	N	O	S	0	0
			6633	4215	1121	1278	19		

- Molecule 17 is a protein called Utp8.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	LI	487	Total	C	N	O	S	0	0
			2857	1763	529	562	3		

- Molecule 18 is a protein called Utp15.

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

- Molecule 19 is a protein called Utp9.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	LK	123	Total	C	N	O	S	0	0
			898	567	166	163	2		

- Molecule 20 is a protein called Utp5.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	LL	475	Total	C	N	O	S	0	0
			3772	2400	649	710	13		

- Molecule 21 is a protein called Utp10.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	LM	431	Total	C	N	O	S	0	0
			3443	2224	566	641	12		

- Molecule 22 is a protein called Utp4.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	LN	678	Total	C	N	O	S	0	0
			5344	3384	930	1009	21		

- Molecule 23 is a protein called Utp1.

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

- Molecule 24 is a protein called Utp6.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	LP	359	Total	C	N	O	S	0	0
			2709	1723	486	488	12		

- Molecule 25 is a protein called Utp12.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	LQ	848	Total	C	N	O	S	0	0
			6640	4244	1116	1253	27		

- Molecule 26 is a protein called Utp13.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	LR	729	Total	C	N	O	S	0	0
			4144	2520	797	818	9		

- Molecule 27 is a protein called Utp18.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	LS	481	Total	C	N	O	S	0	0
			3791	2399	668	714	10		

- Molecule 28 is a protein called Utp21.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	LT	850	Total	C	N	O	S	0	0
			6697	4253	1154	1269	21		

- Molecule 29 is a protein called Sof1.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	LU	457	Total	C	N	O	S	0	0
			3725	2328	679	702	16		

- Molecule 30 is a protein called Enp2.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	LV	362	Total	C	N	O	S	0	0
			2840	1789	487	555	9		

- Molecule 31 is a protein called Utp7.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	LW	438	Total	C	N	O	S	0	0
			3428	2163	601	652	12		

- Molecule 32 is a protein called Kre33.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	LX	808	Total	C	N	O	S	0	0
			4583	2798	888	890	7		
32	LY	769	Total	C	N	O		0	0
			3823	2285	769	769			

- Molecule 33 is a protein called Imp3.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	LZ	182	Total	C	N	O	S	0	0
			1530	967	287	269	7		

- Molecule 34 is a protein called Mpp10.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	NA	207	Total	C	N	O	S	0	0
			1667	1034	297	332	4		

- Molecule 35 is a protein called Sas10.

Mol	Chain	Residues	Atoms				AltConf	Trace
35	NB	142	Total	C	N	O	0	0
			1098	677	218	203		

- Molecule 36 is a protein called Lcp5.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	NC	136	Total	C	N	O	S	0	0
			1125	674	231	217	3		

- Molecule 37 is a protein called Bud21.

Mol	Chain	Residues	Atoms				AltConf	Trace
37	ND	81	Total	C	N	O	0	0
			600	373	122	105		

- Molecule 38 is a protein called Faf1.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	NE	158	Total	C	N	O	S	0	0
			1192	731	246	212	3		

- Molecule 39 is a protein called rpS13_uS15.

Mol	Chain	Residues	Atoms				AltConf	Trace
39	NF	124	Total	C	N	O	0	0
			615	367	124	124		

- Molecule 40 is a protein called rpS14_uS11.

Mol	Chain	Residues	Atoms				AltConf	Trace
40	NG	111	Total	C	N	O	0	0
			543	321	111	111		

- Molecule 41 is a protein called Utp22.

Mol	Chain	Residues	Atoms				AltConf	Trace
41	NH	1082	Total 5362	C 3198	N 1082	O 1082	0	0

- Molecule 42 is a protein called Rrp7.

Mol	Chain	Residues	Atoms				AltConf	Trace
42	NI	169	Total 841	C 503	N 169	O 169	0	0

- Molecule 43 is a protein called Rrp5.

Mol	Chain	Residues	Atoms				AltConf	Trace
43	NJ	265	Total 1314	C 784	N 265	O 265	0	0

- Molecule 44 is a protein called Krr1.

Mol	Chain	Residues	Atoms				AltConf	Trace
44	NK	175	Total 868	C 518	N 175	O 175	0	0

- Molecule 45 is a protein called Nop56.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	SA	370	Total 2854	C 1815	N 490	O 541	S 8	0	0

- Molecule 46 is a protein called Nop58.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	SB	425	Total 2937	C 1824	N 533	O 572	S 8	0	0

- Molecule 47 is a protein called Nop1.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	SC	242	Total 1881	C 1193	N 338	O 340	S 10	0	0
47	SD	228	Total 1782	C 1131	N 320	O 321	S 10	0	0

- Molecule 48 is a protein called Snu13.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	SE	121	Total	C	N	O	S	0	0
			916	583	158	171	4		
48	SF	121	Total	C	N	O	S	0	0
			916	583	158	171	4		

- Molecule 49 is a protein called Rrp9.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	SG	429	Total	C	N	O	S	0	0
			3428	2185	596	637	10		

- Molecule 50 is a protein called Rcl1.

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

- Molecule 51 is a protein called Bms1.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	SI	802	Total	C	N	O	S	0	0
			6412	4108	1142	1133	29		

- Molecule 52 is a protein called Emg1.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	SJ	216	Total	C	N	O	S	0	0
			1701	1079	296	315	11		
52	SK	230	Total	C	N	O	S	0	0
			1799	1142	313	333	11		

- Molecule 53 is a protein called Utp24.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	SL	174	Total	C	N	O	S	0	0
			1395	890	255	240	10		

- Molecule 54 is a protein called Imp4.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	SM	282	Total	C	N	O	S	0	0
			2296	1441	430	418	7		

- Molecule 55 is a protein called Utp30.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	SN	247	Total	C	N	O	S	0	0
			2006	1284	356	358	8		

- Molecule 56 is a protein called Pno1.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	SO	179	Total	C	N	O	S	0	0
			998	606	199	192	1		

- Molecule 57 is a protein called Utp20.

Mol	Chain	Residues	Atoms				AltConf	Trace
57	SP	982	Total	C	N	O	0	0
			4910	2946	982	982		

- Molecule 58 is a protein called Fcf2.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	SQ	135	Total	C	N	O	S	0	0
			1137	721	211	201	4		

- Molecule 59 is a protein called rpS23_uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	SR	104	Total	C	N	O	S	0	0
			792	506	145	139	2		

- Molecule 60 is a protein called Utp14.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	SS	197	Total	C	N	O	S	0	0
			1466	905	282	277	2		

- Molecule 61 is a protein called Nop14.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	ST	599	Total	C	N	O	S	0	0
			4473	2830	809	823	11		

- Molecule 62 is a protein called Noc4.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	SU	526	Total	C	N	O	S	0	0
			3781	2422	650	697	12		

- Molecule 63 is a protein called Rrt14.

Mol	Chain	Residues	Atoms				AltConf	Trace
63	SV	63	Total	C	N	O	0	0
			381	234	69	78		

- Molecule 64 is a protein called Unassigned peptides.

Mol	Chain	Residues	Atoms				AltConf	Trace
64	SX	103	Total	C	N	O	0	0
			515	309	103	103		

- Molecule 65 is a protein called Utp11.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	SY	241	Total	C	N	O	S	0	0
			2016	1251	388	370	7		

- Molecule 66 is a protein called Enp1.

Mol	Chain	Residues	Atoms				AltConf	Trace
66	SZ	261	Total	C	N	O	0	0
			1295	773	261	261		

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

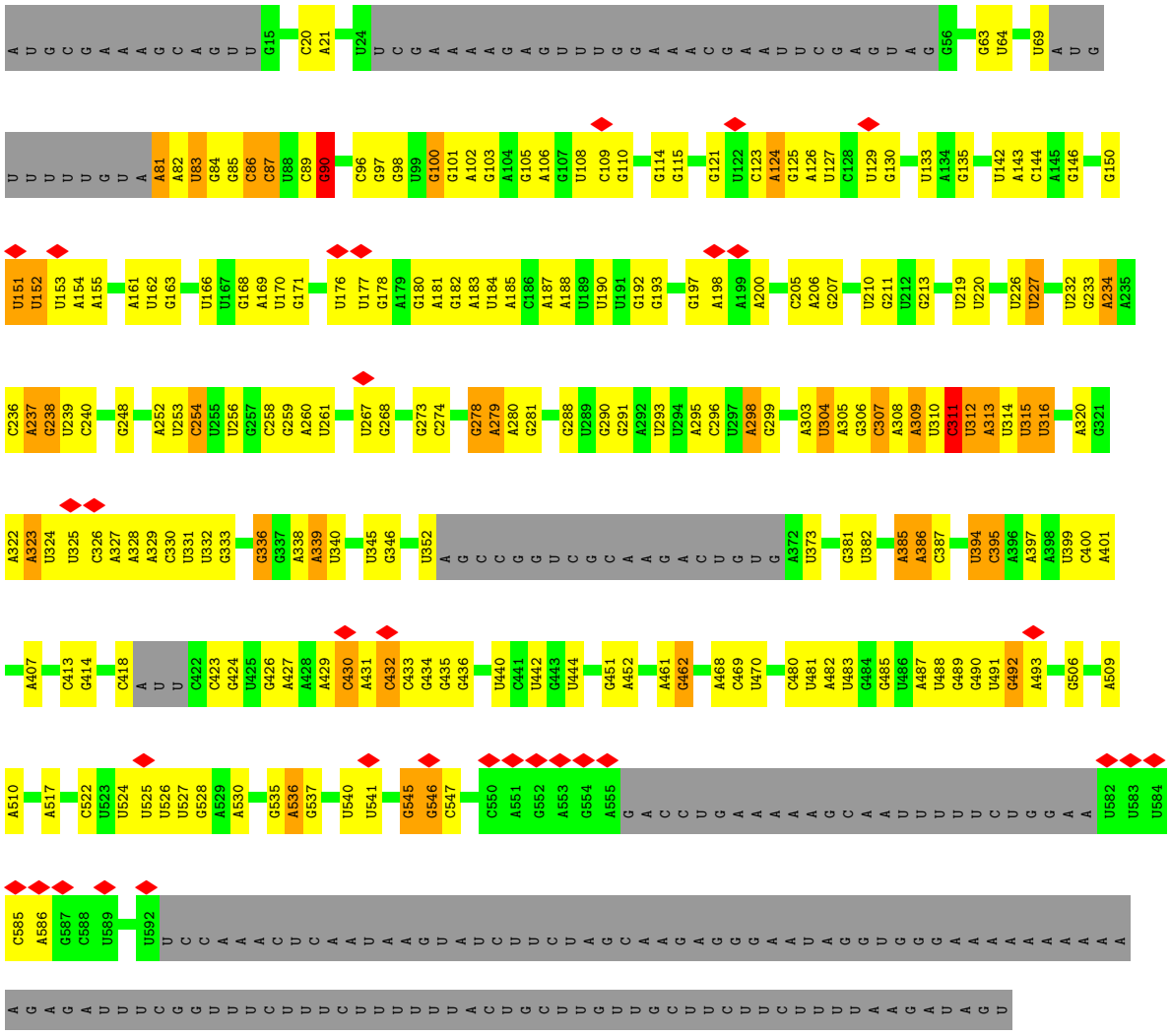
Mol	Chain	Residues	Atoms		AltConf
67	SL	1	Total	Zn	0
			1	1	

3 Residue-property plots (i)

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

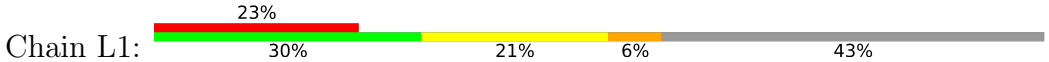
• Molecule 1: 5' ETS

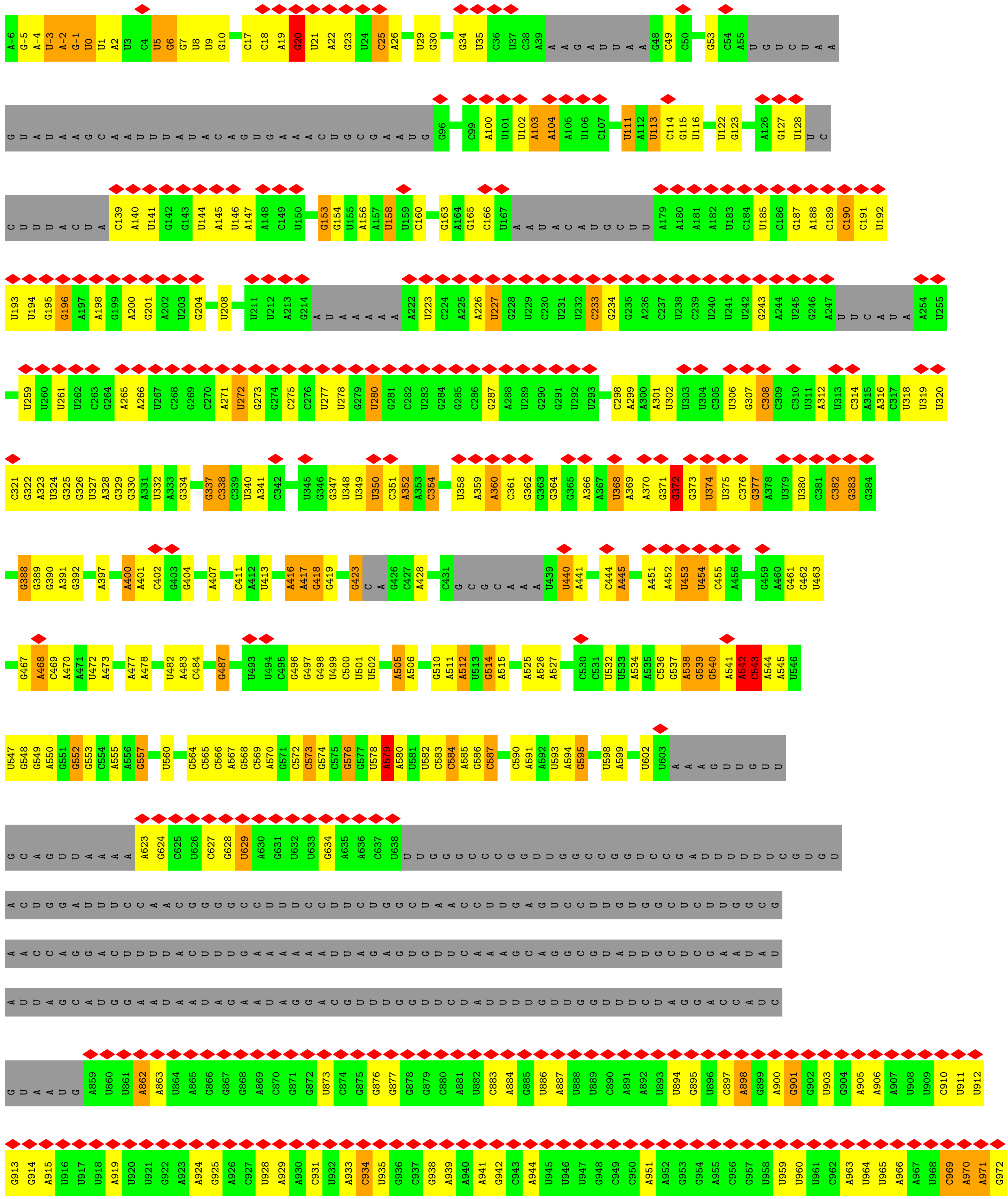
Chain L0:

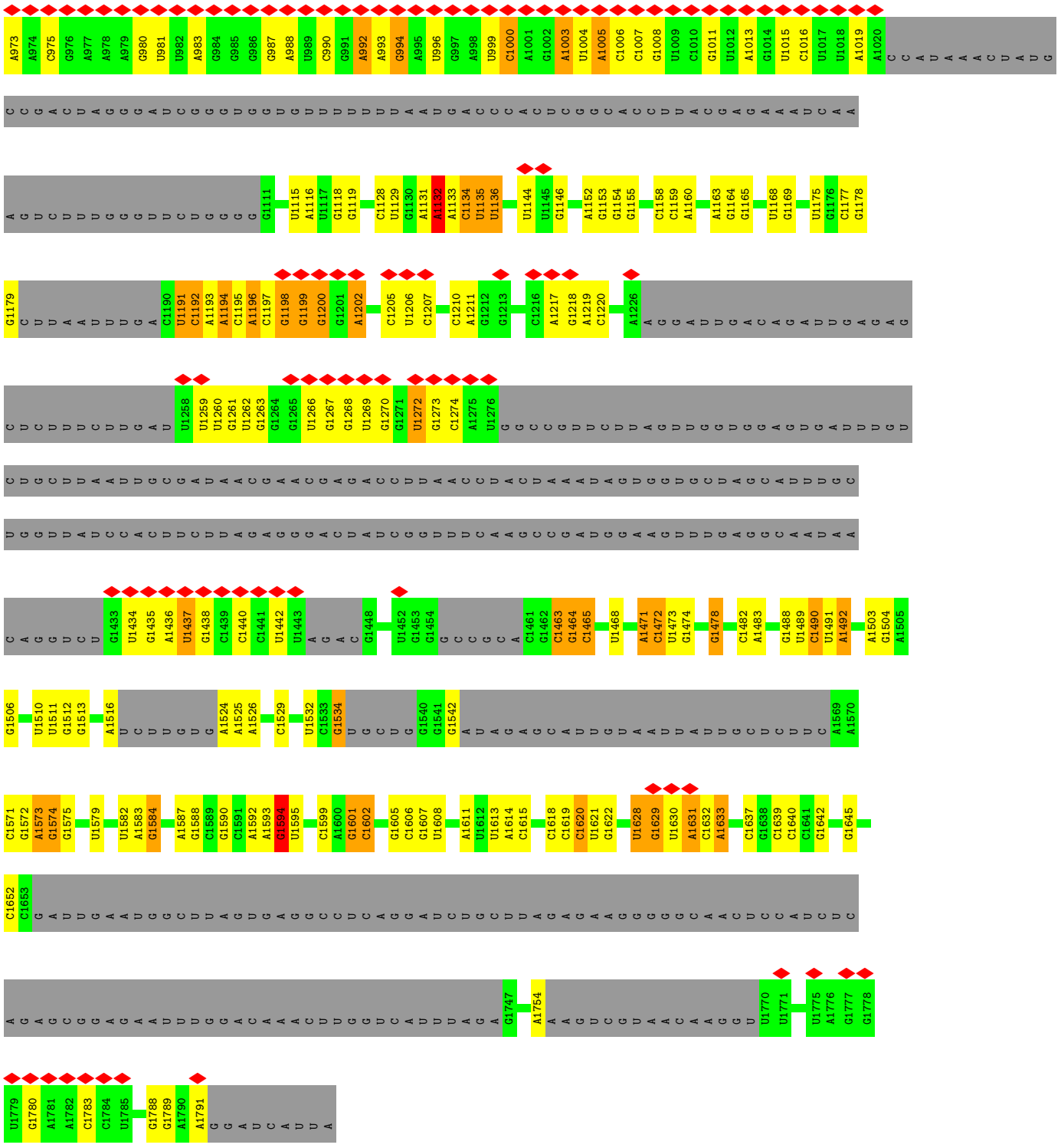


• Molecule 2: 18S pre-rRNA

Chain L1:

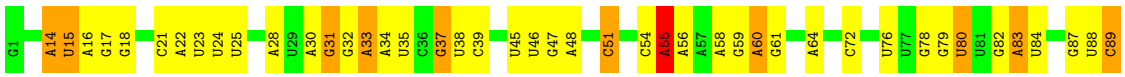


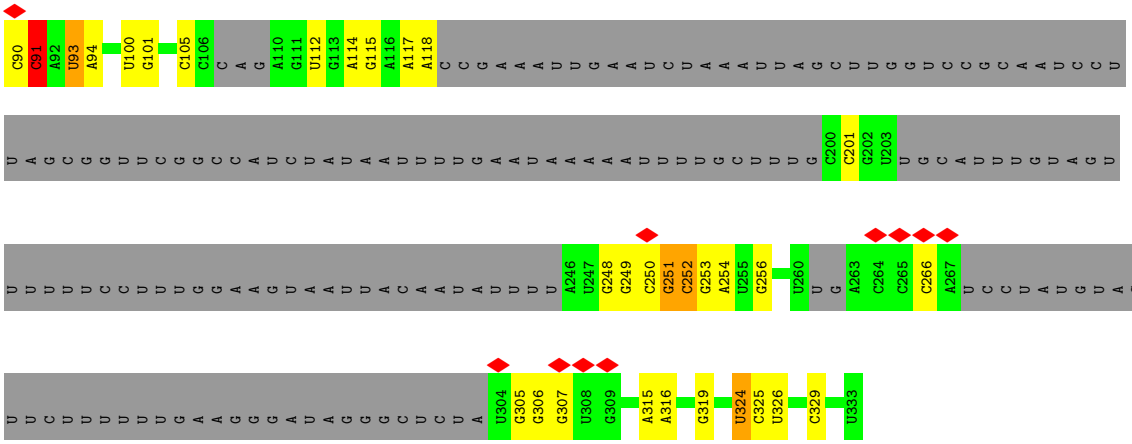

A-6 G-5 A-4 U-3 A-2 G-1 U0 U1 A2 U3 C4 U5 G6 G7 U8 U9 G10 C17 C18 A19 G20 U21 A22 G23 U24 C25 A26 U29 G30 G34 U35 C36 U37 C38 A39 A A G A U U A A G48 C49 C50 G53 C54 A55 U G U C U A A
G U A U A A G C A A U U U A U A C A G U G A A A C U G C G A A U G G96 C99 A100 U101 U102 A103 A104 A105 U106 C107 U111 A112 U113 C114 G115 U116 U122 G123 A126 G127 U128 U C
C U U U A C U A C139 A140 U141 G142 G143 U144 A145 U146 A147 A148 C149 U150 G153 G154 U155 A156 A157 U158 U159 C160 G163 A164 G165 C166 U167 A A U A C A U G C U U A179 A180 A181 A182 U183 C184 U185 C186 G187 A188 C189 C190 C191 U192
U193 U194 G195 G196 A197 A198 G199 A200 G201 A202 U203 G204 U208 U211 U212 A213 G214 A U A A A A A A222 U223 C224 A225 A226 U227 G228 U229 C230 U231 U232 C233 G234 G235 A236 C237 U238 C239 U240 U241 U242 G243 A244 U245 G246 A247 U U C A U A A254 U255
U259 U260 U261 U262 C263 G264 A265 A266 U267 C268 G269 C270 A271 U272 G273 G274 C275 C276 U277 U278 G279 U280 G281 C282 U283 G284 G285 C286 G287 A288 U289 G290 G291 U292 U293 C298 A299 A300 A301 U302 U303 U304 C305 U306 G307 C308 C309 C310 U311 A312 U313 C314 A315 A316 C317 U318 U319 U320
C321 G322 A323 U324 G325 G326 U327 A328 G329 G330 A331 U332 A333 G334 G337 C338 C339 U340 A341 C342 U345 G346 G347 U348 U349 U350 C351 A352 A353 C354 U358 A359 A360 C361 G362 G363 G364 G365 A366 A367 U368 A369 A370 G371 G372 C373 U374 U375 C376 G377 A378 U379 U380 C381 C382 G383 G384
G388 G389 G390 A391 G392 A397 A400 A401 C402 G403 G404 A407 C411 A412 U413 A416 A417 G418 G419 G423 C A G426 C427 A428 C431 G C G C A A A U439 U440 A441 C444 A445 A451 A452 U453 U454 C455 A456 G459 A460 G461 G462 U463
G467 A468 C469 A470 A471 U472 A473 A477 A478 U482 A483 C484 G487 U493 U494 C495 G496 G497 G498 U499 C500 U501 U502 A505 A506 G510 A511 A512 U513 G514 A515 A525 A526 A527 C530 C531 U532 U533 A534 A535 C536 G537 A538 G539 G540 A541 A542 C543 A544 A545 U546
U547 G548 G549 A550 G551 G552 G553 C554 A555 A556 G557 U560 G564 C565 C566 A567 G568 C569 A570 G571 C572 C573 G574 C575 G576 G577 U578 A579 A580 U581 U582 C583 C584 A585 G586 C587 C590 A591 A592 U593 A594 G595 U598 A599 U602 U603 A A A G U U G U U
G C A G U U A A A A623 G624 C625 U626 C627 G628 U629 A630 G631 U632 U633 G634 A635 A636 C637 U638 U U G G G C C C G G U G G C C G G U C C G A U U U U U U C G U G U
A C U G G A U U U C C A A C G G G G C C U U U C C U U C U G G C U A A C C U U G A G U C C U U G U G G C U C U U G G C G
A A C C A G G A C U U U U A C U U U G A A A A A A U U A G A G U G U U C A A A G C A G G C G G U A U U G C U C G A A U A U
A U U A G C A U G G A A U A A U A G A A U A G G A C G U U U G G U U C U A U U U G U U G G U U U C U A G G A C C A U C
G U A A U G A859 U860 U861 A862 A863 U864 A865 G866 G867 G868 A869 C870 G871 G872 U873 C874 G875 G876 G877 G878 G879 C880 A881 U882 C883 A884 G885 U886 A887 U888 U889 C890 A891 A892 U893 U894 G895 U896 C897 A898 G899 A900 G901 G902 U903 G904 A905 A906 A907 U908 U909 C910 U911 U912
G913 G914 A915 U916 U917 U918 A919 U920 U921 G922 A923 A924 G925 A926 C927 U928 A929 A930 C931 U932 A933 C934 U935 G936 C937 G938 A939 A940 A941 G942 C943 A944 U945 U946 U947 G948 C949 C950 A951 A952 G953 G954 A955 C956 G957 U958 U959 U960 U961 C962 A963 U964 U965 A966 A967 U968 C969 A970 A971 G972



• Molecule 3: U3 snoRNA

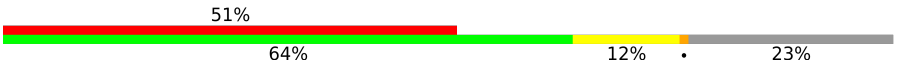
Chain L2:

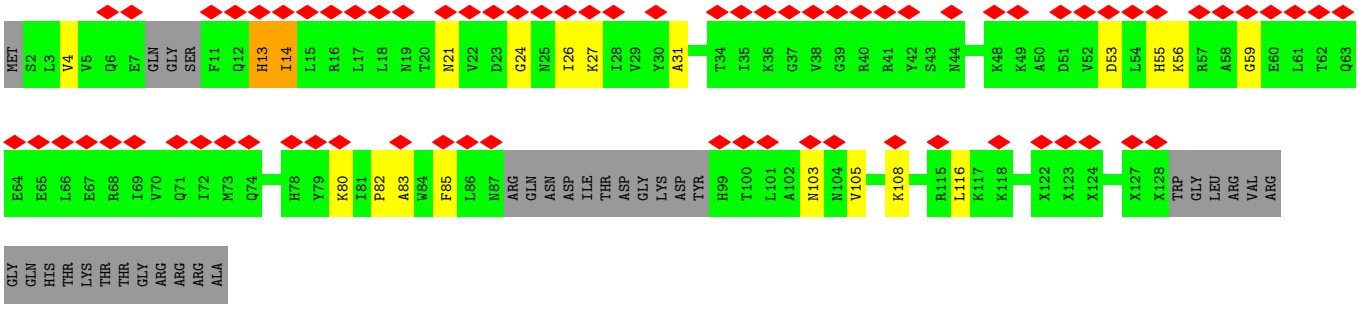




• Molecule 4: rpS18_uS13

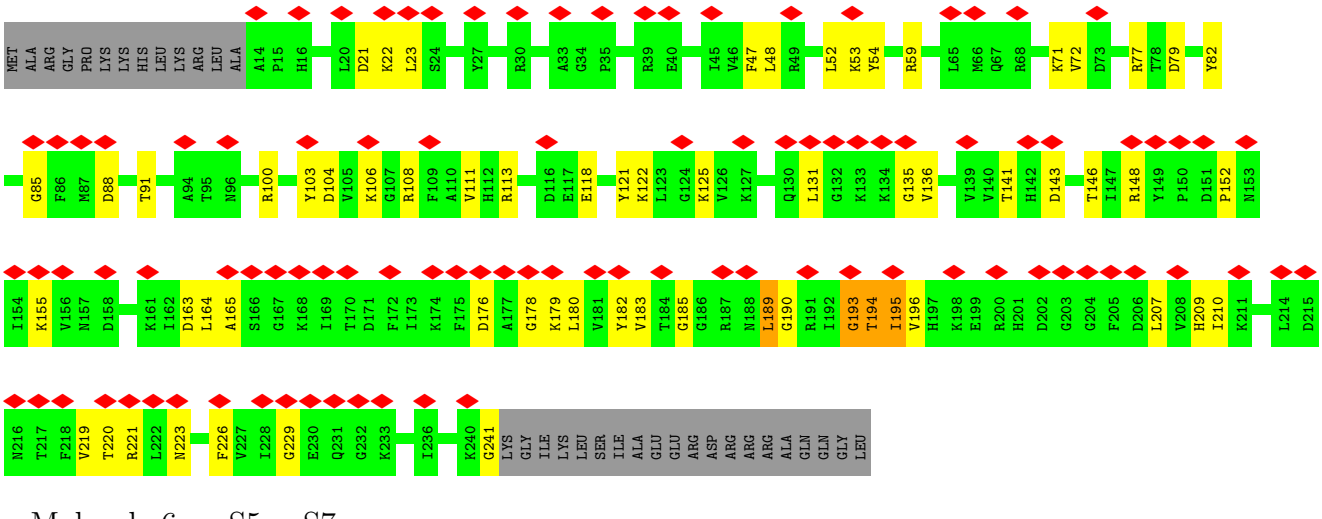
Chain L3:





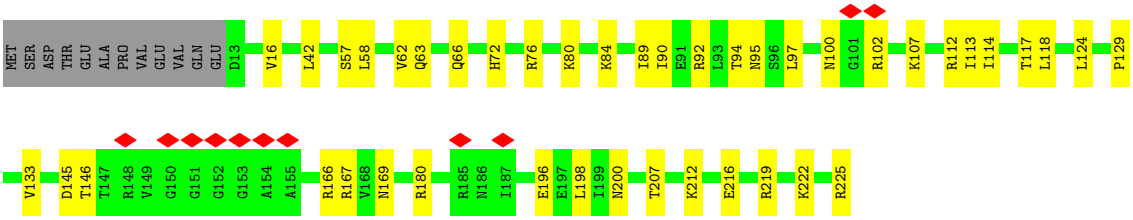
• Molecule 5: rpS4_eS4

Chain L4:



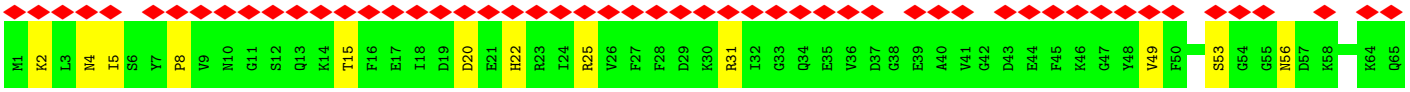
• Molecule 6: rpS5_uS7

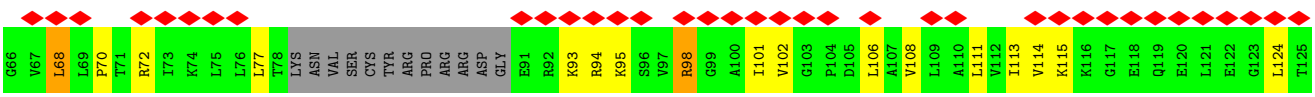
Chain L5:



• Molecule 7: rpS6_eS6

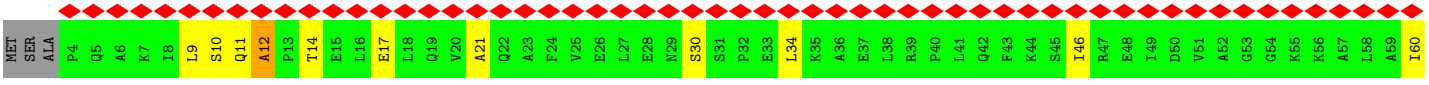
Chain L6:

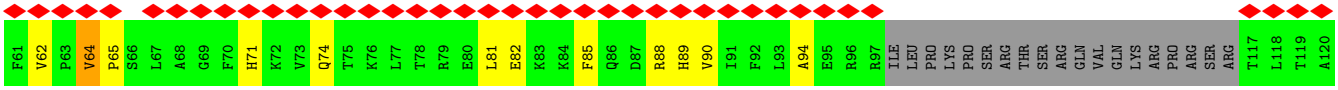


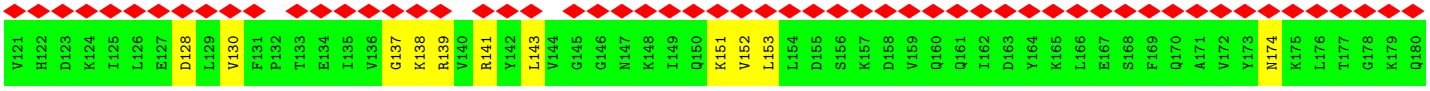


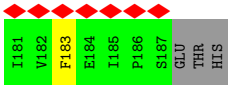
• Molecule 8: rpS7_eS7

Chain L7:



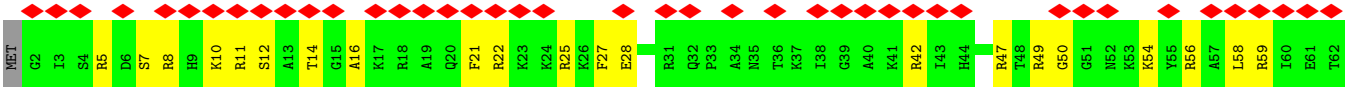


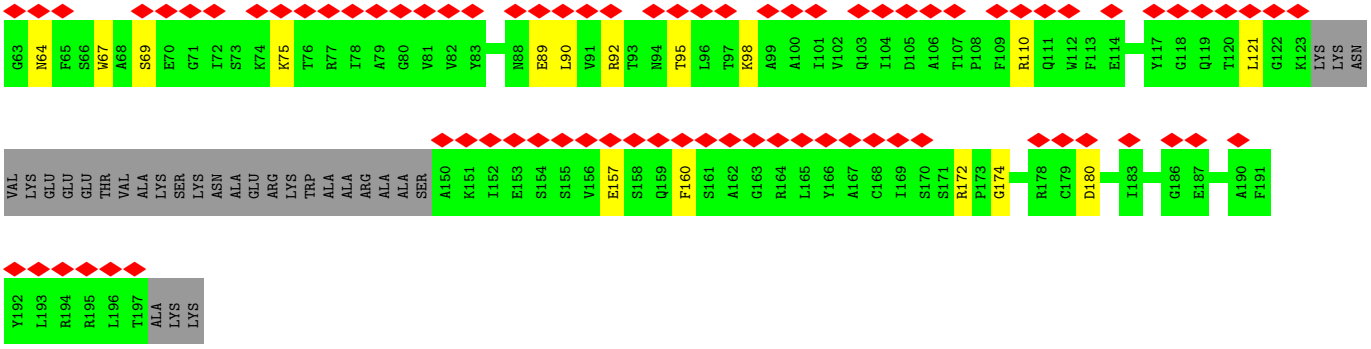




• Molecule 9: rpS8_eS8

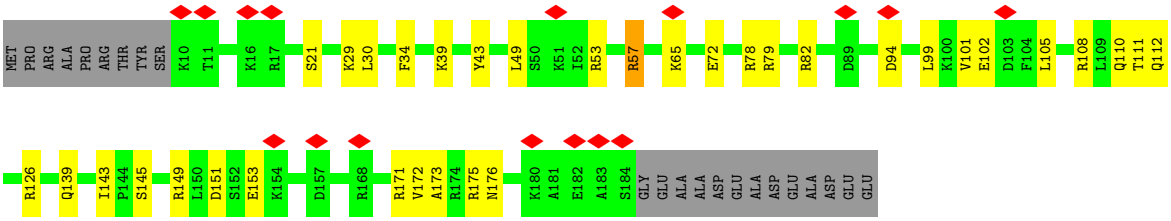
Chain L8:





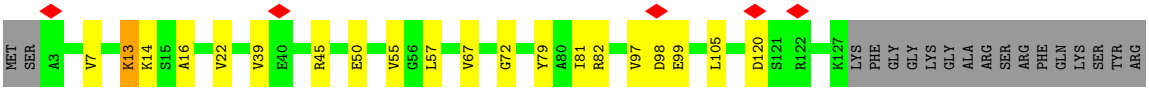
• Molecule 10: rpS9_uS4

Chain L9:



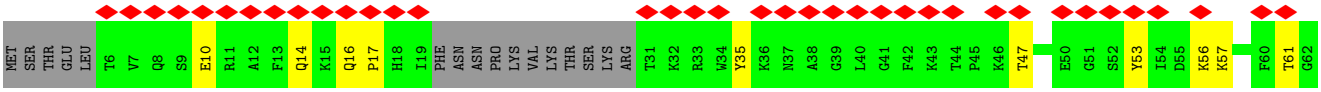
• Molecule 11: rpS16_uS9

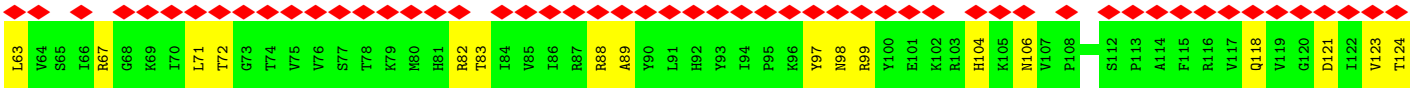
Chain LC:

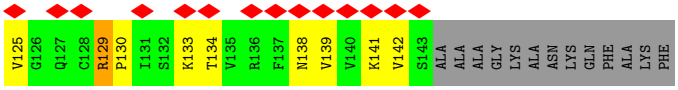


• Molecule 12: rpS11_uS17

Chain LD:

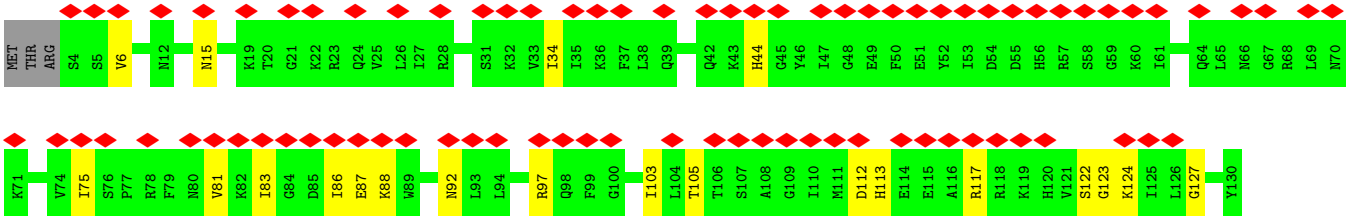






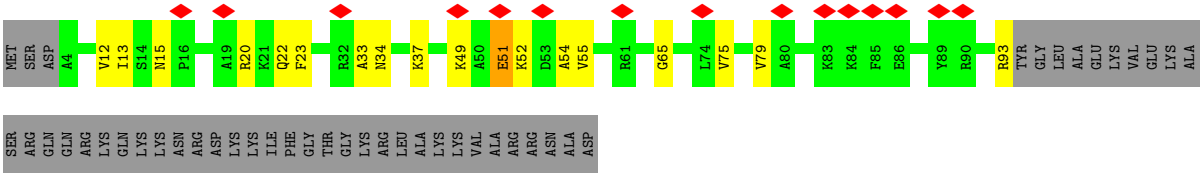
• Molecule 13: rpS22_uS8

Chain LE:



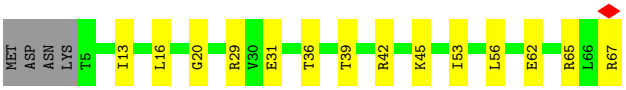
• Molecule 14: rpS24_eS24

Chain LF:



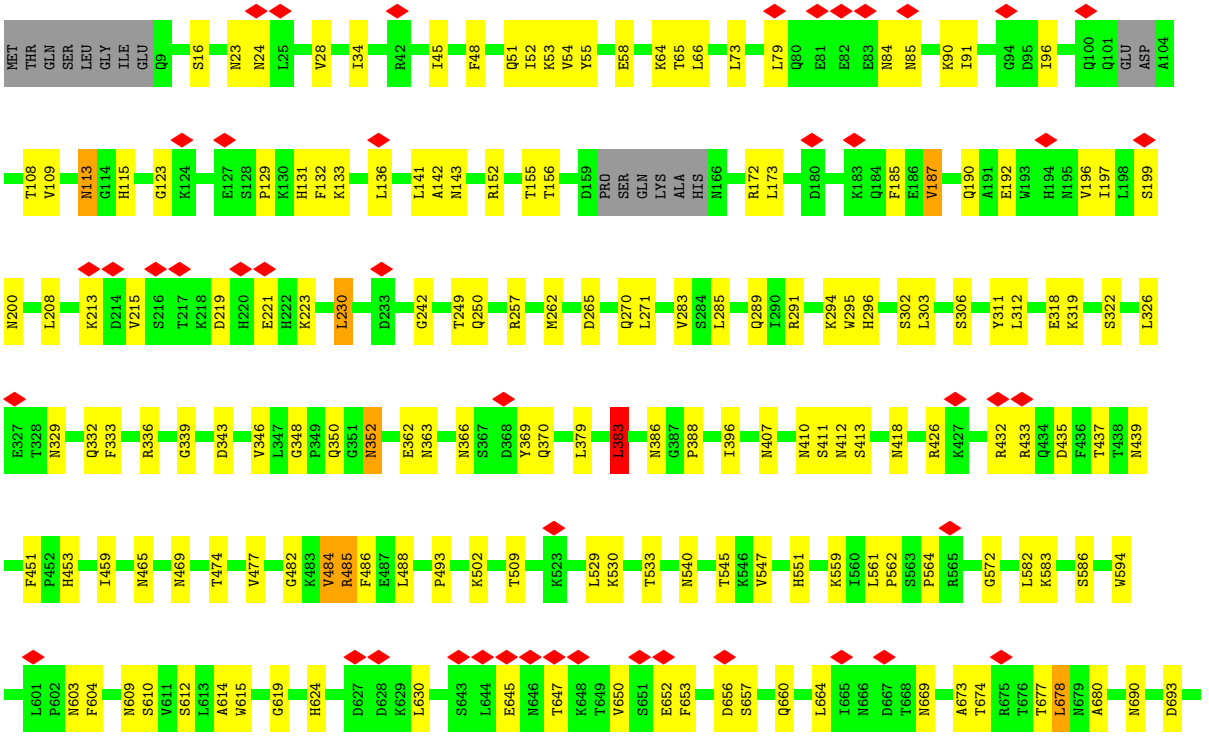
• Molecule 15: rpS28_eS28

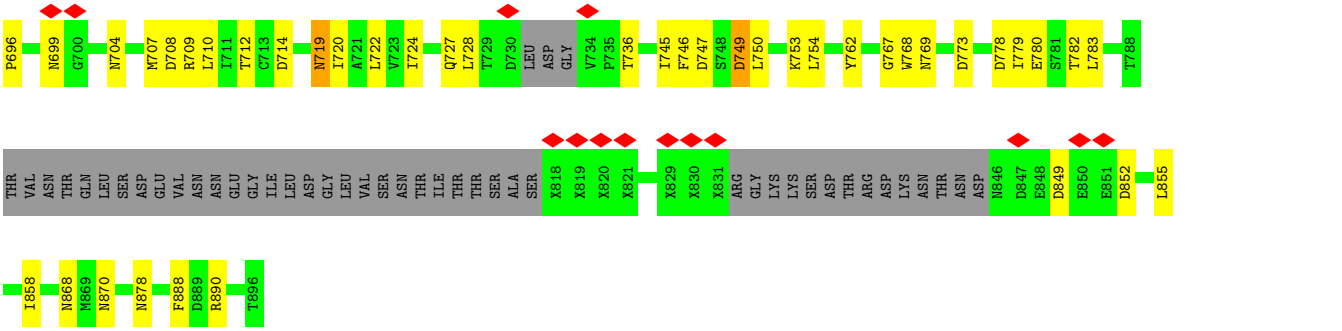
Chain LG:



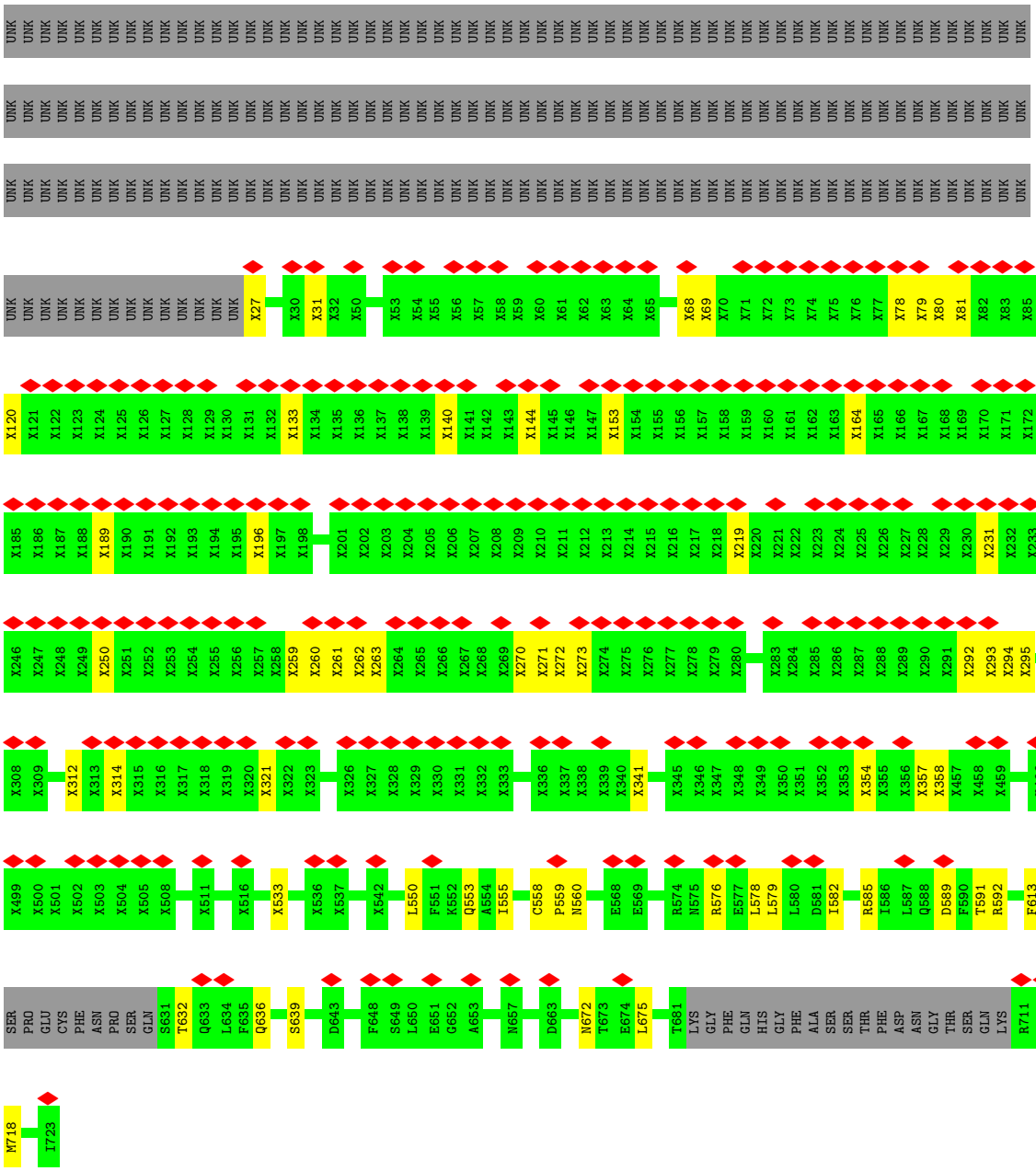
• Molecule 16: Utp17

Chain LH:



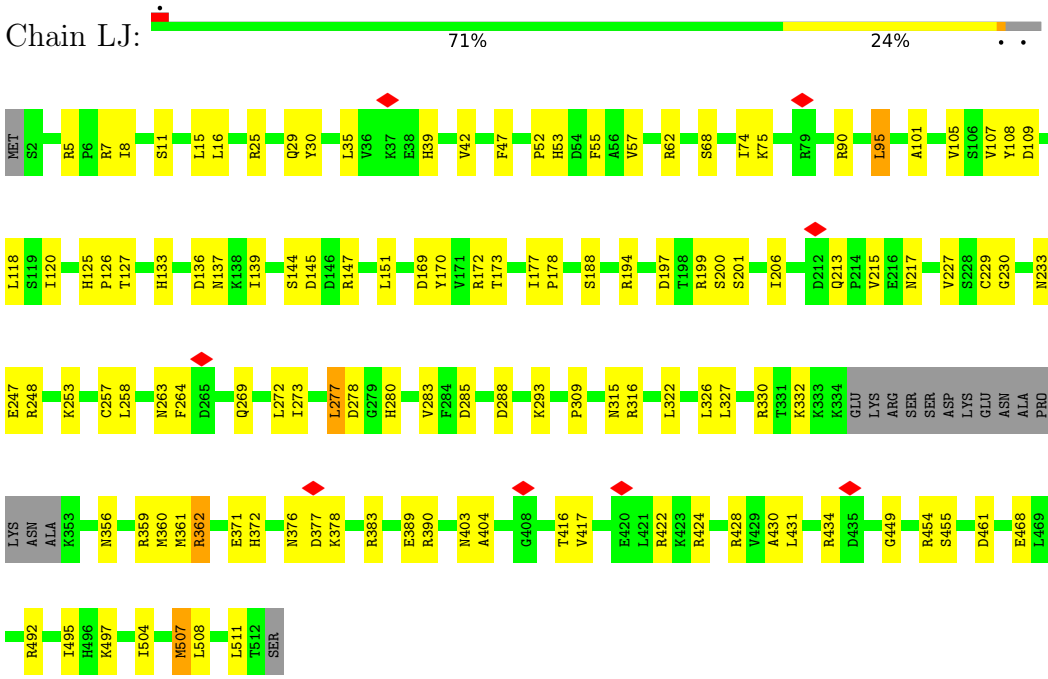


• Molecule 17: Utp8



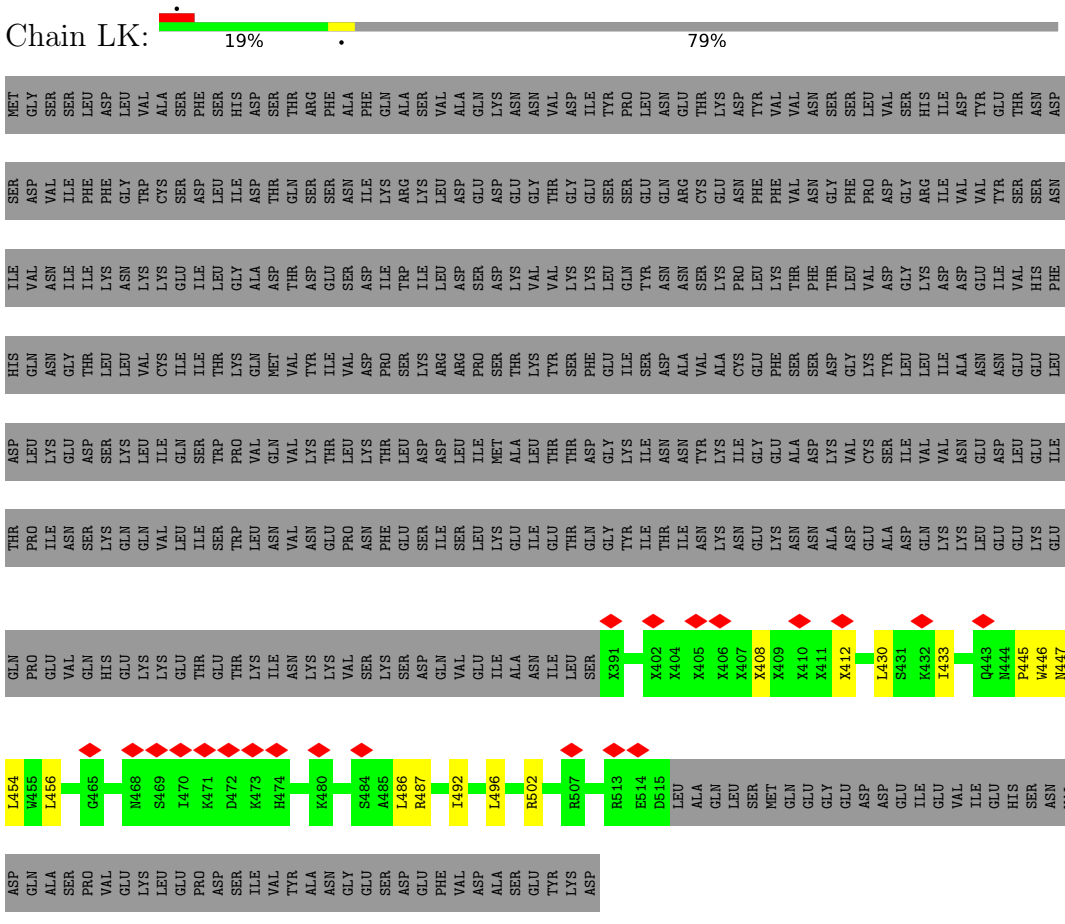
• Molecule 18: Utp15

Chain LJ:



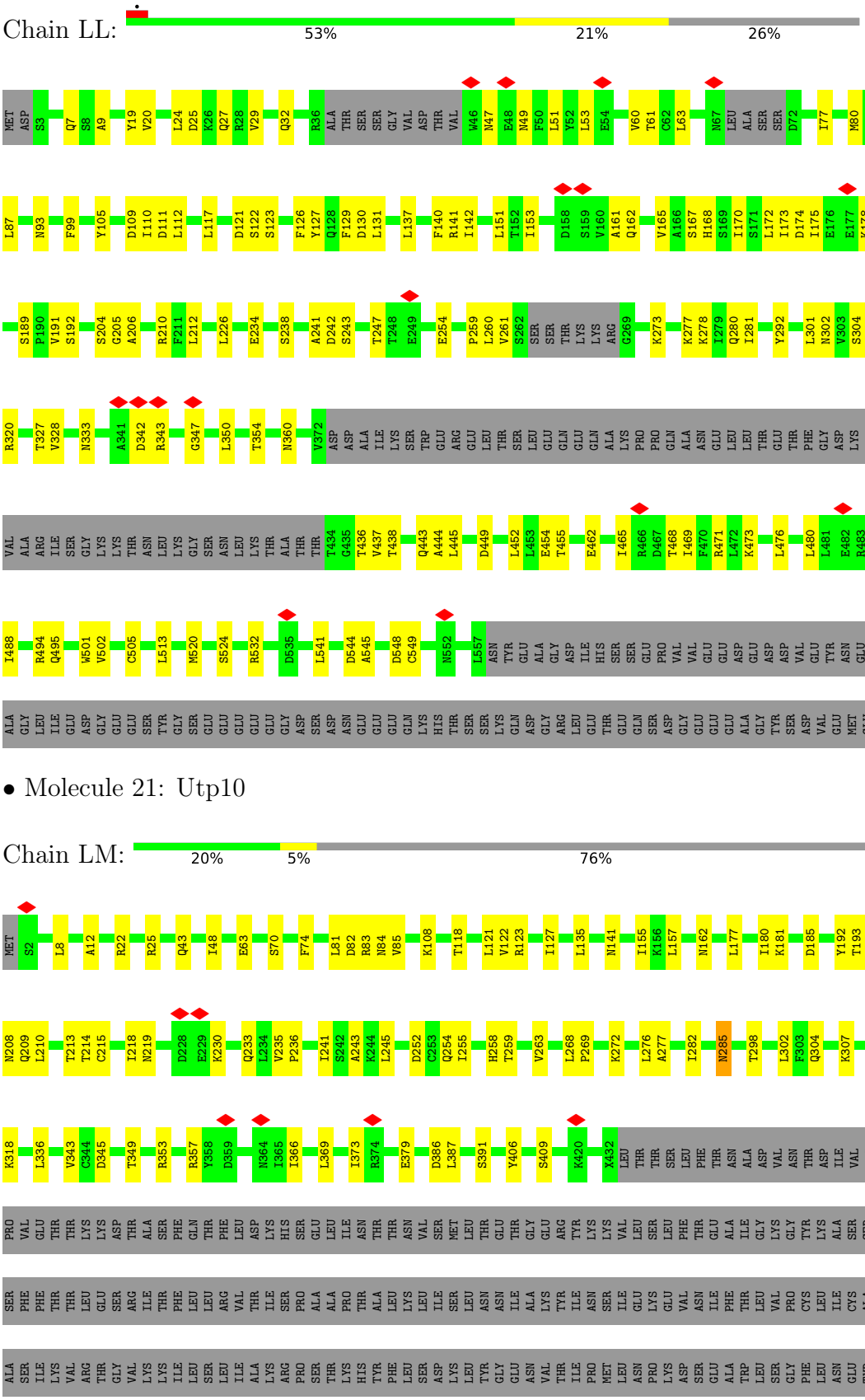
• Molecule 19: Utp9

Chain LK:



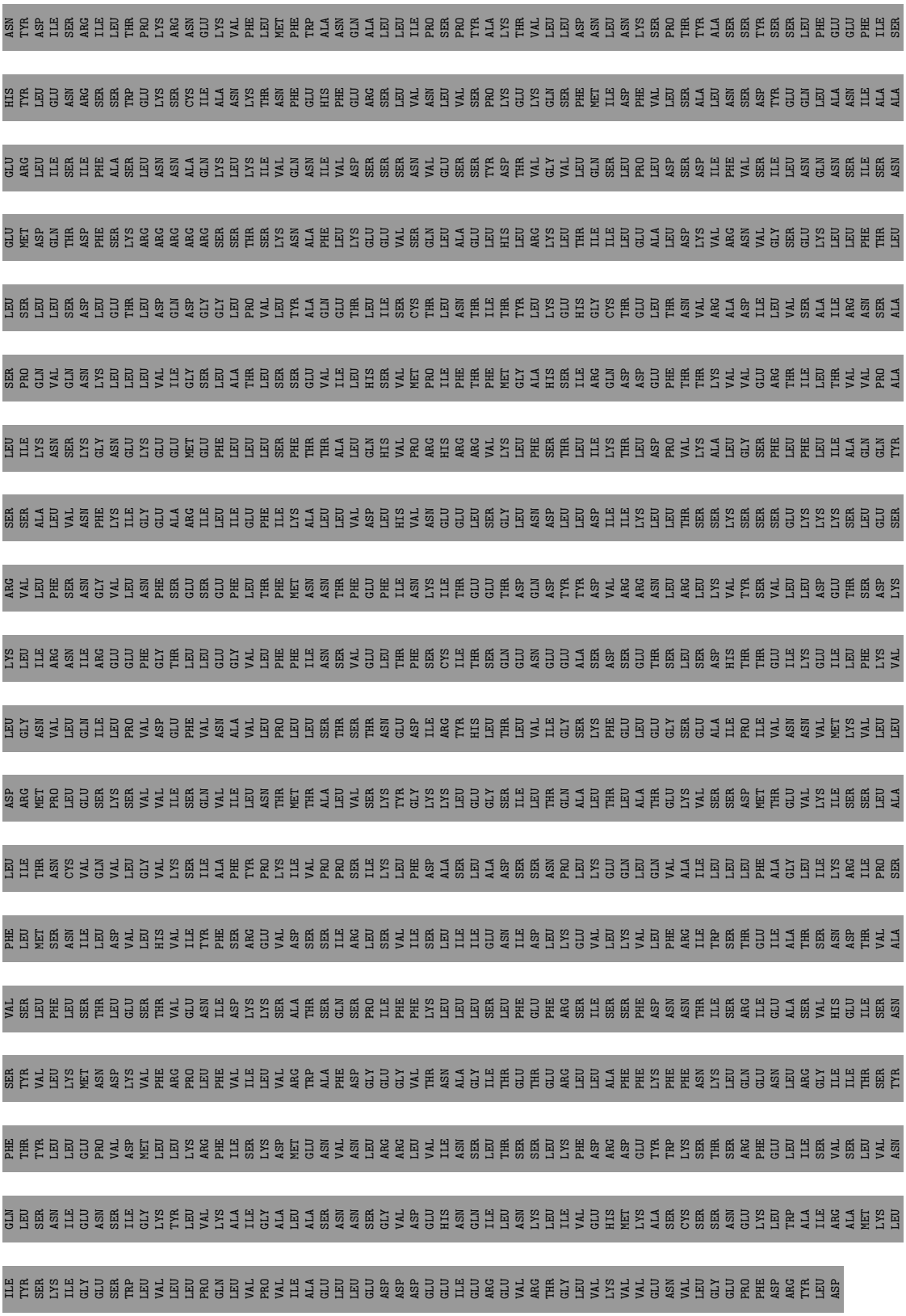
• Molecule 20: Utp5

Chain LL:



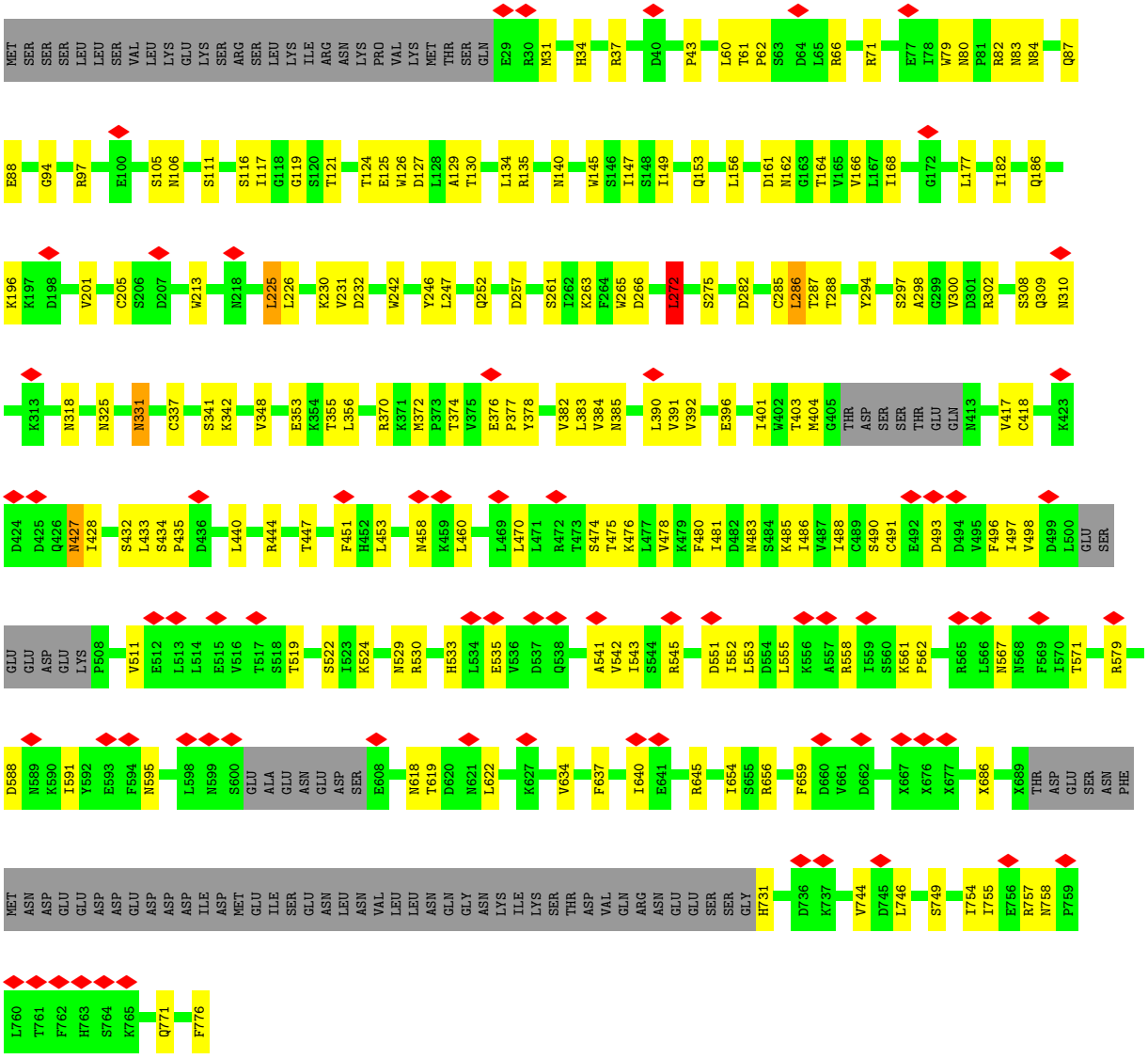
• Molecule 21: Utp10

Chain LM:



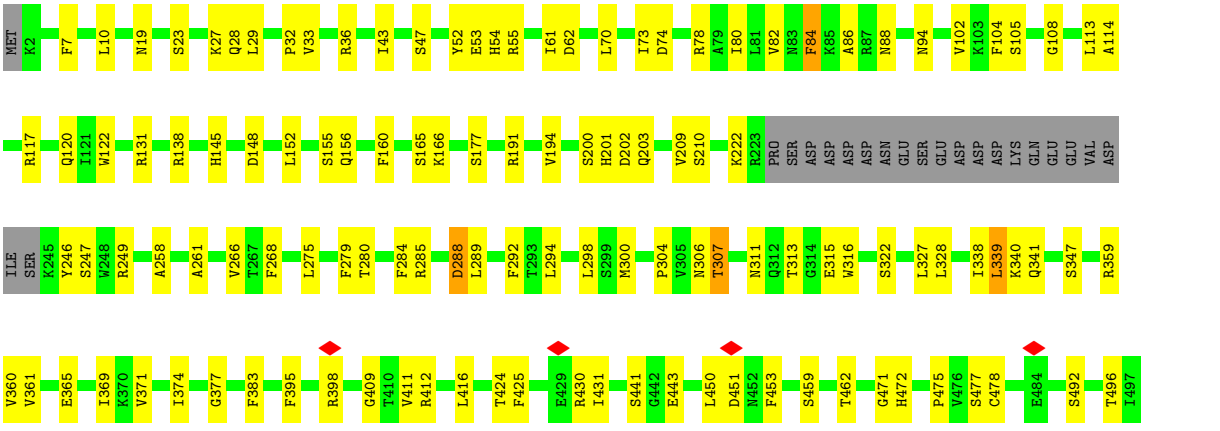
• Molecule 22: Utp4

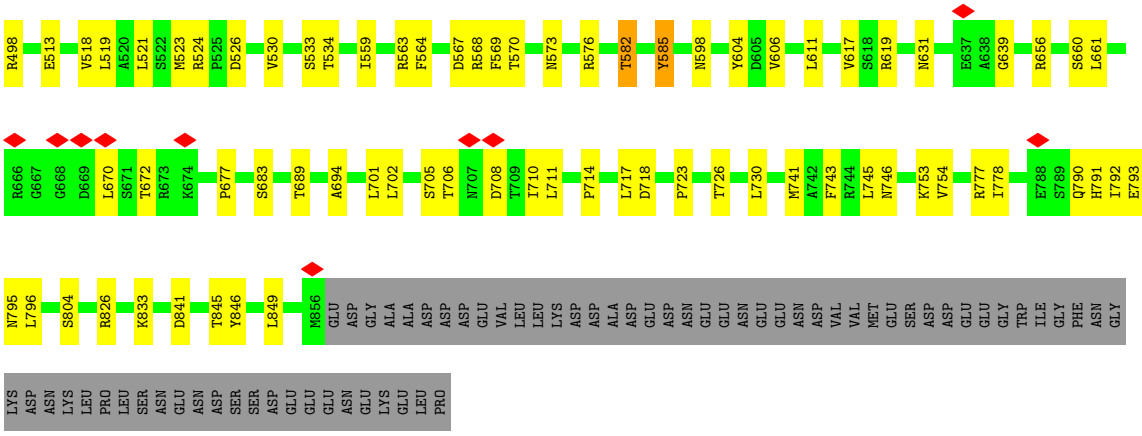
Chain LN:



• Molecule 23: Utp1

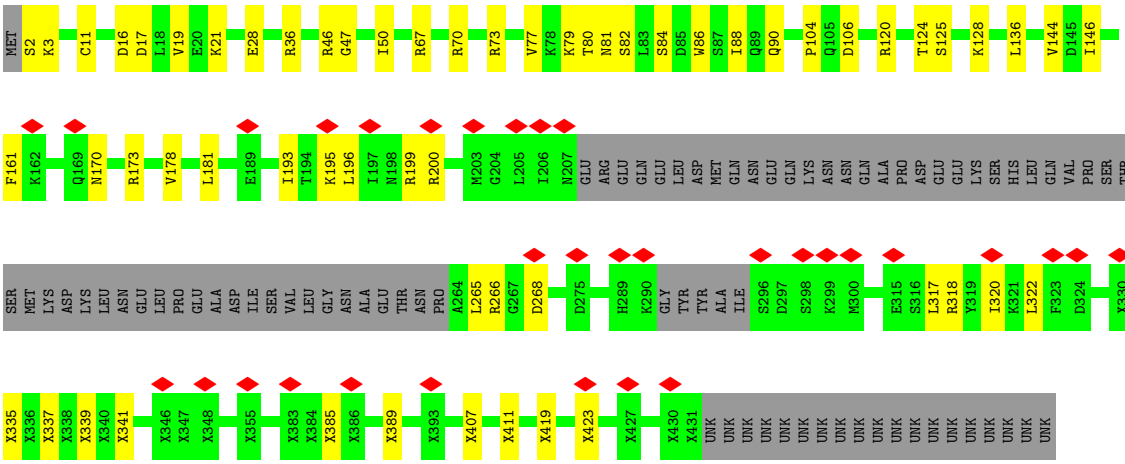
Chain LO:





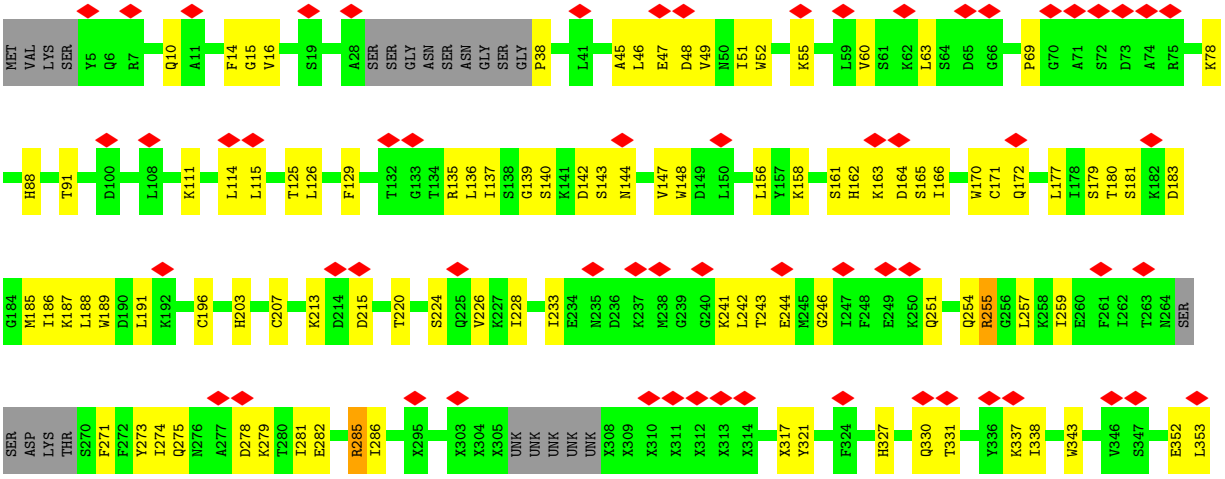
• Molecule 24: Utp6

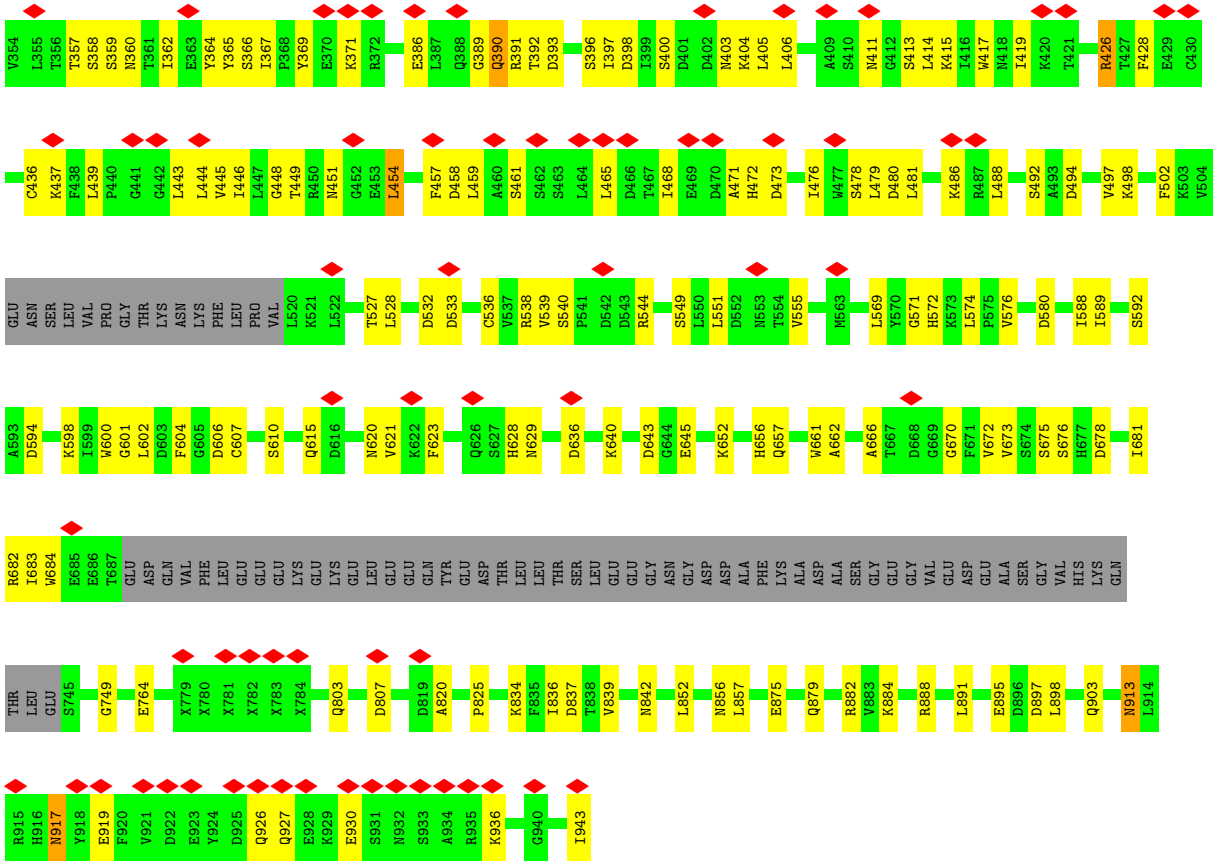
Chain LP:



• Molecule 25: Utp12

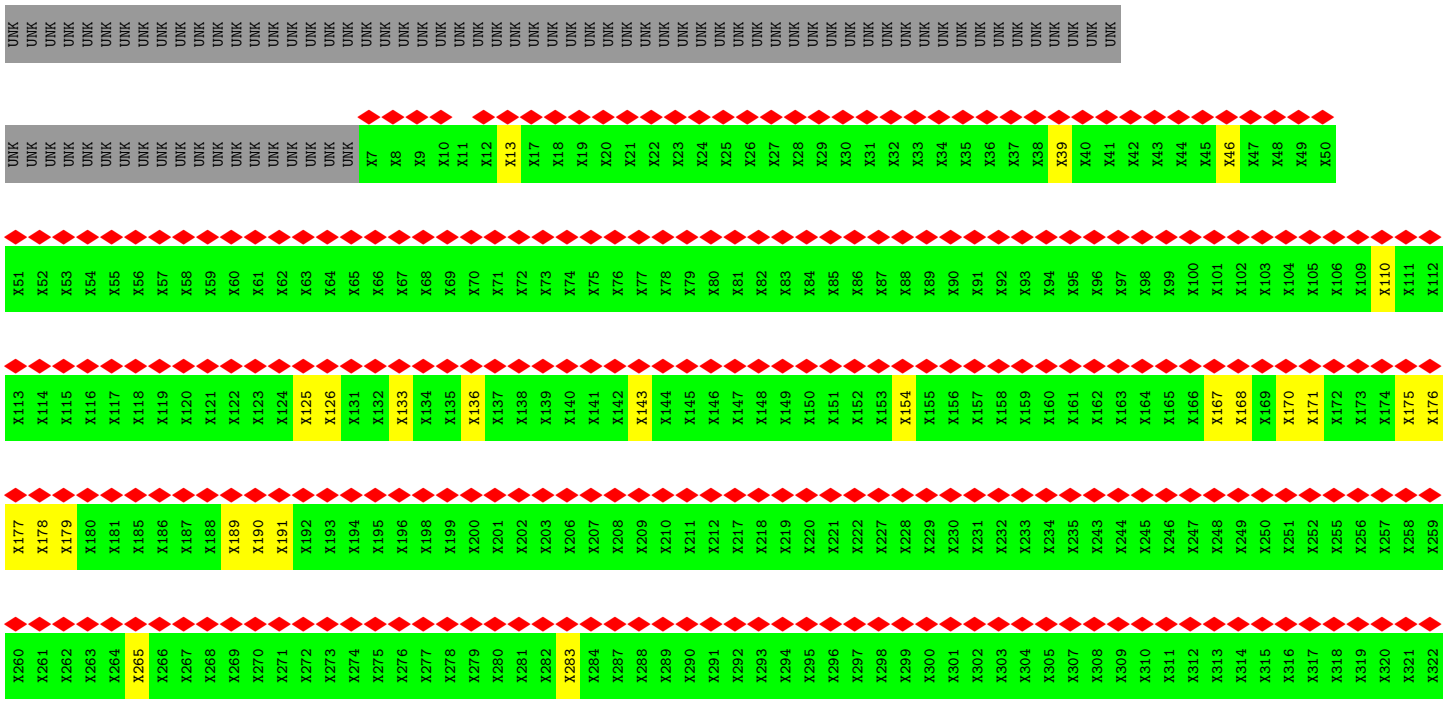
Chain LQ:

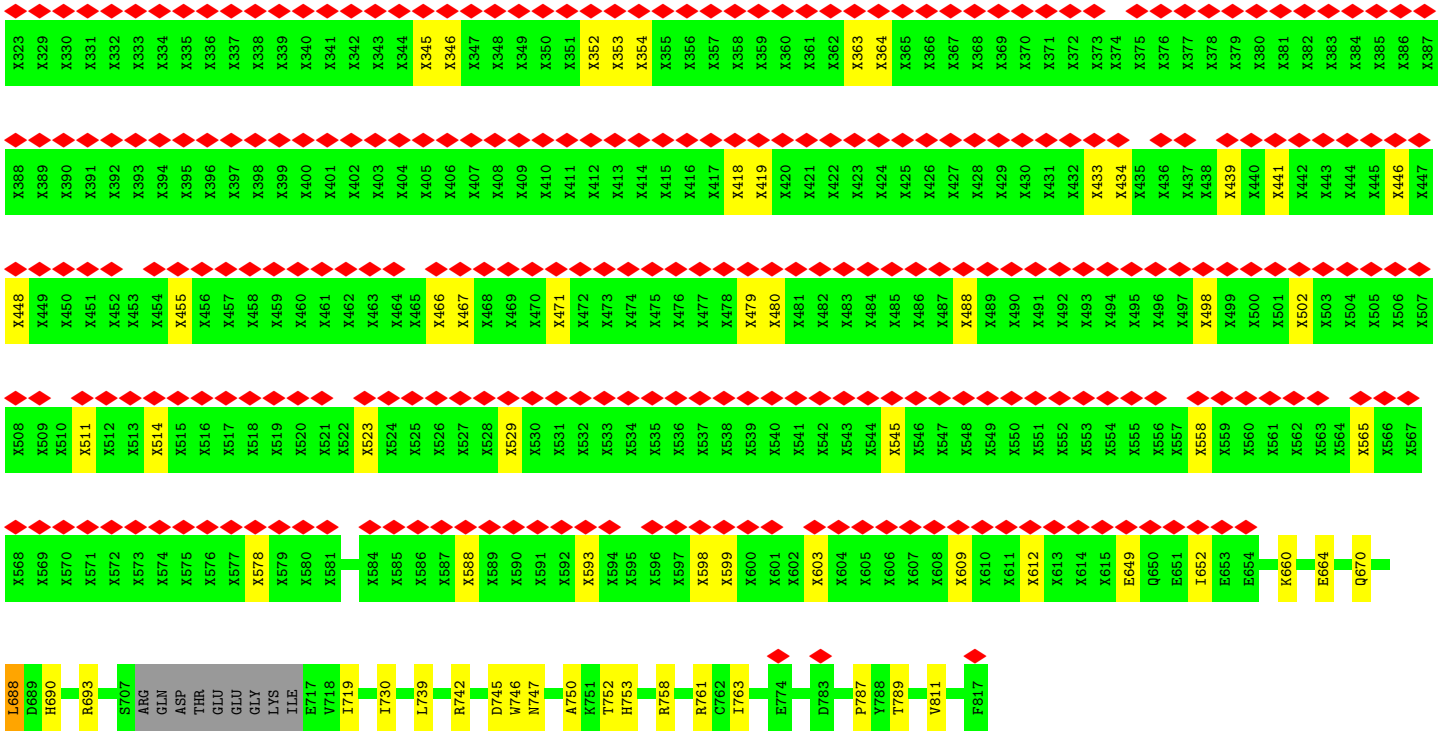




• Molecule 26: Utp13

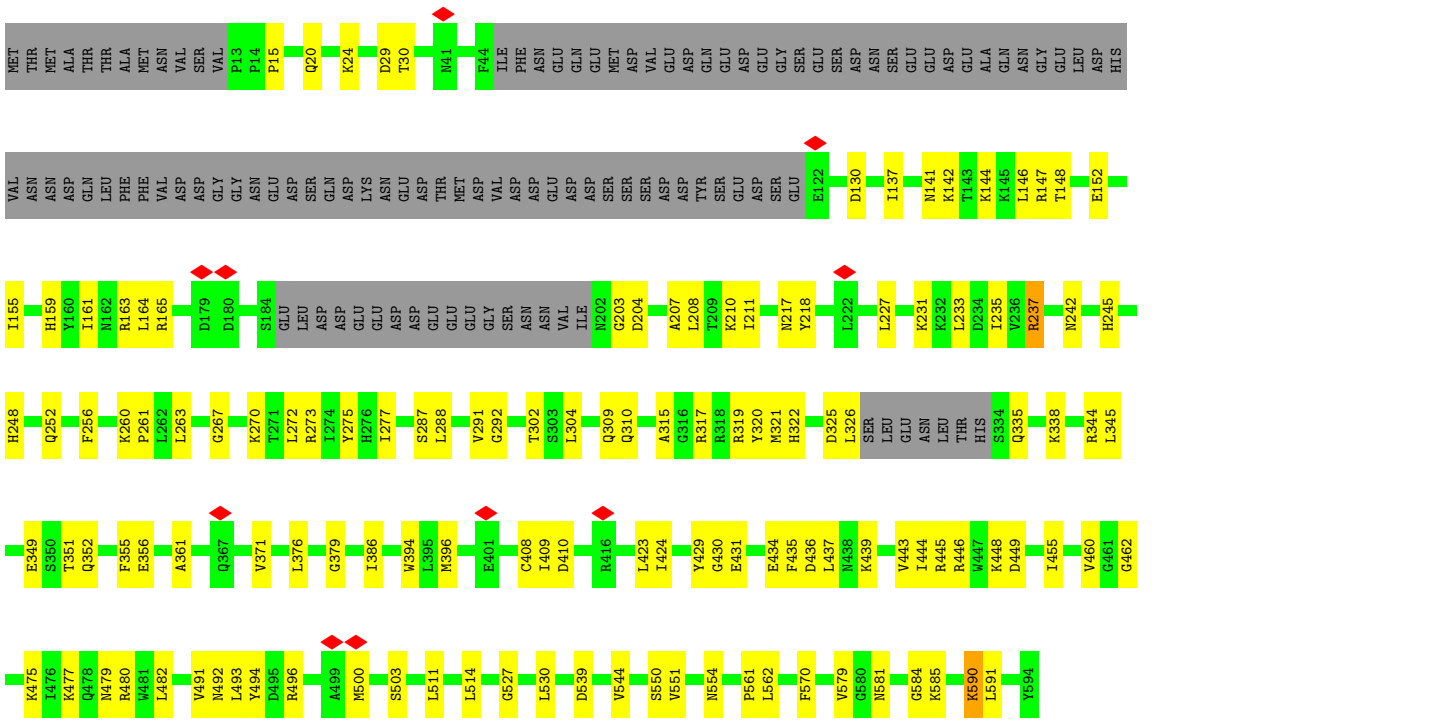
Chain LR:





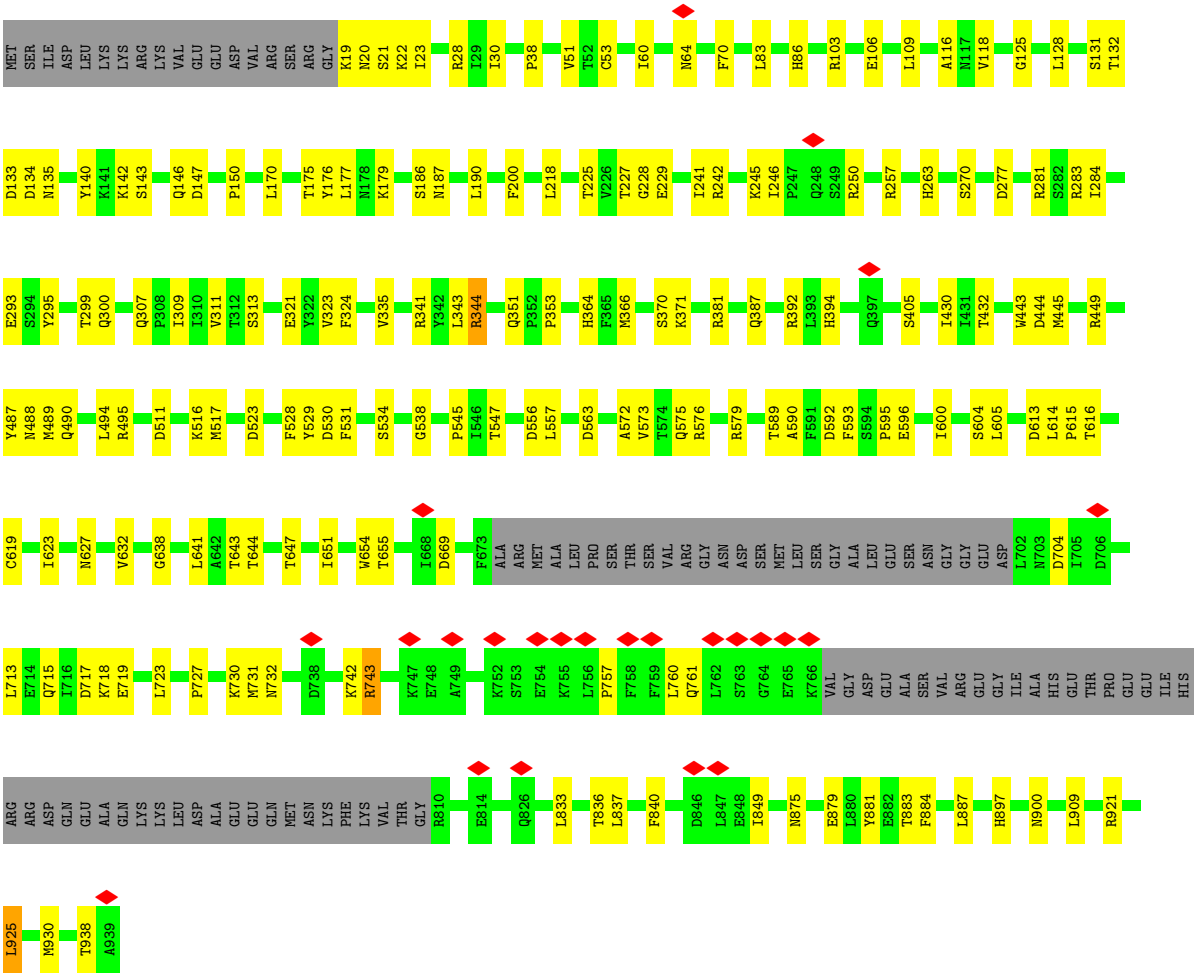
• Molecule 27: Utp18

Chain LS:



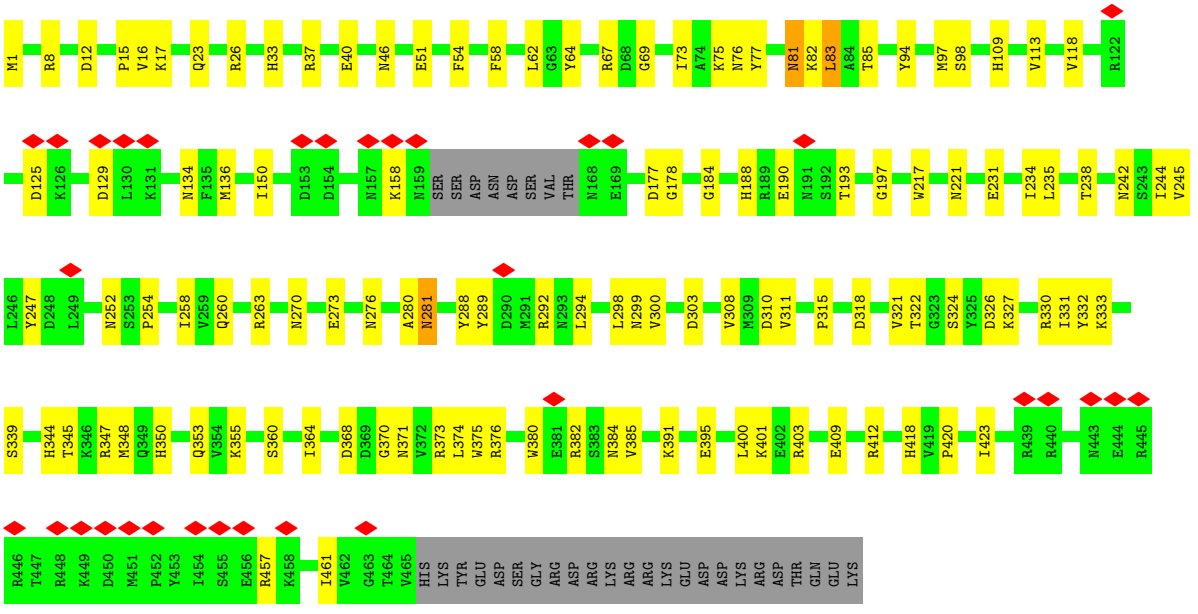
• Molecule 28: Utp21

Chain LT:



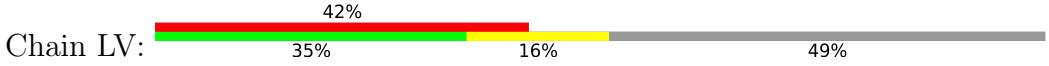
• Molecule 29: Sof1

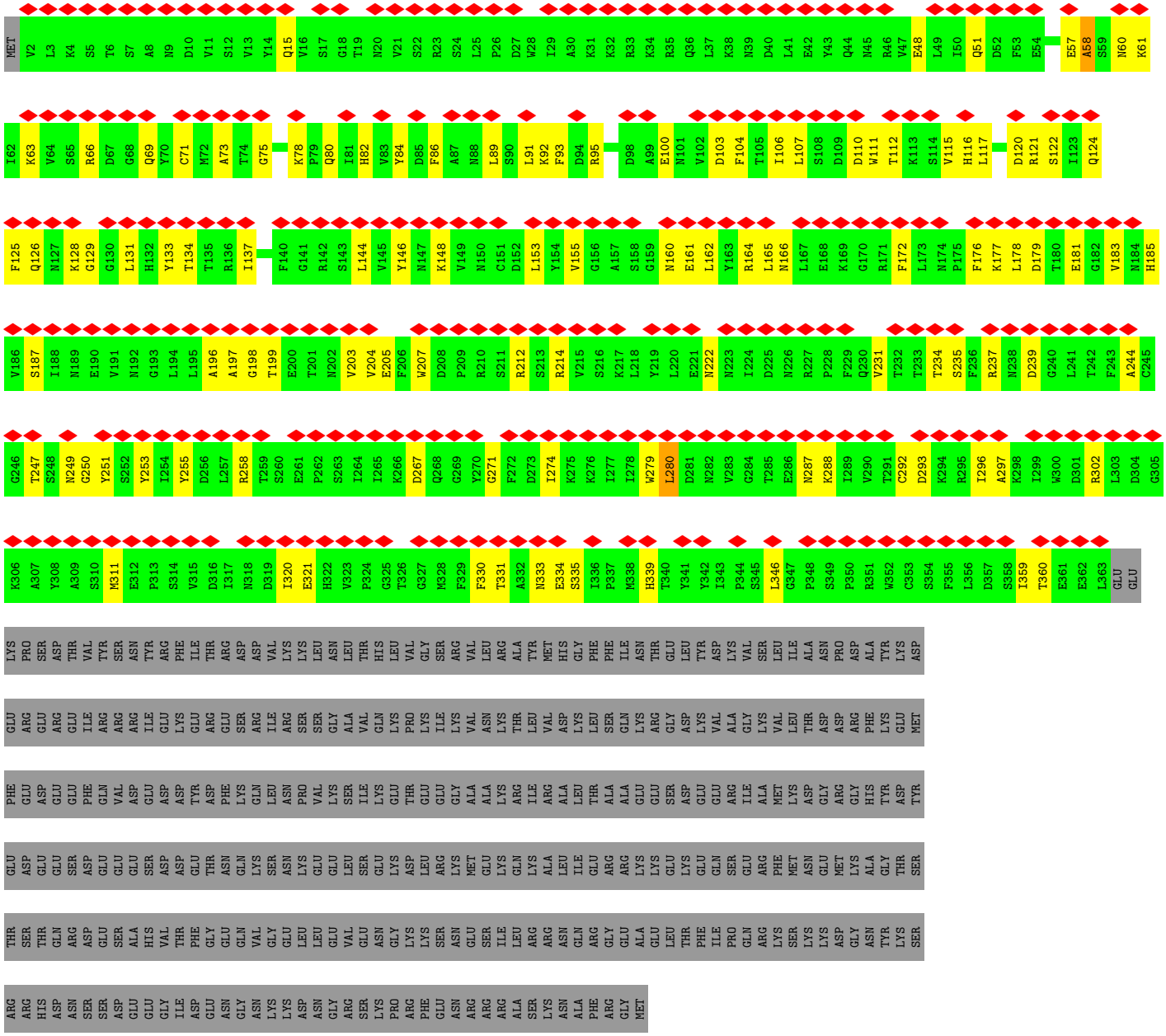
Chain LU:



• Molecule 30: Enp2

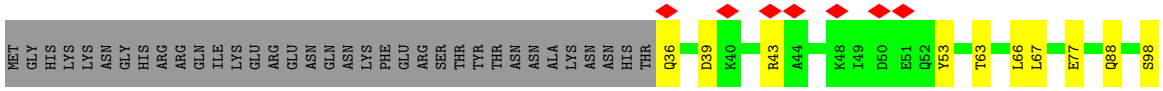
Chain LV:

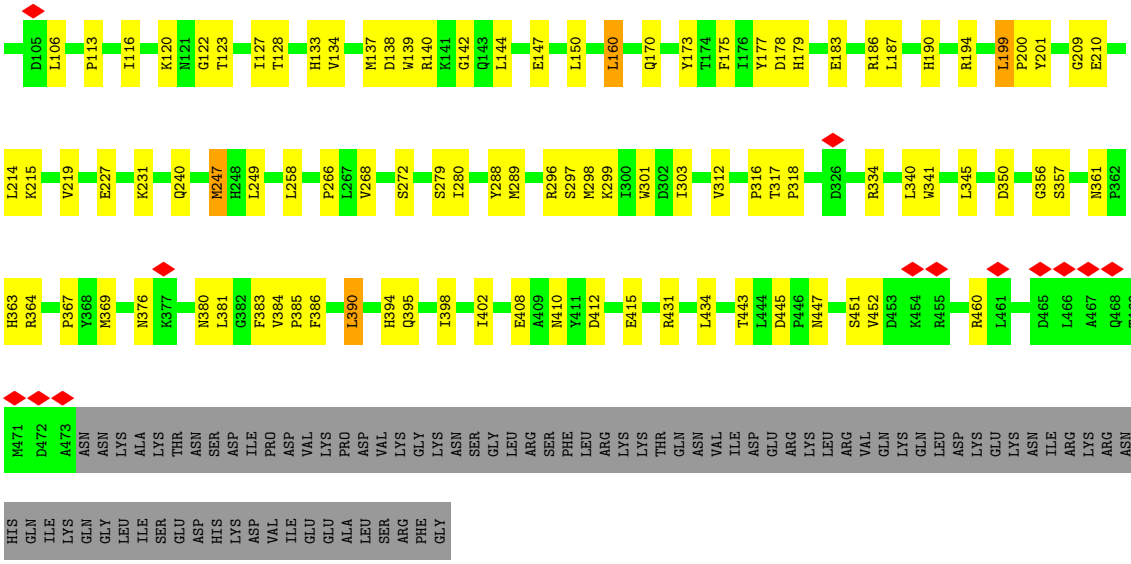




• Molecule 31: Utp7

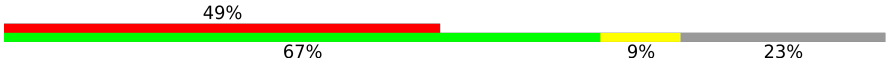
Chain LW:

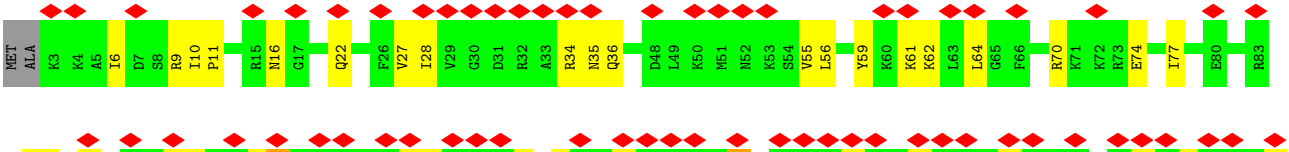


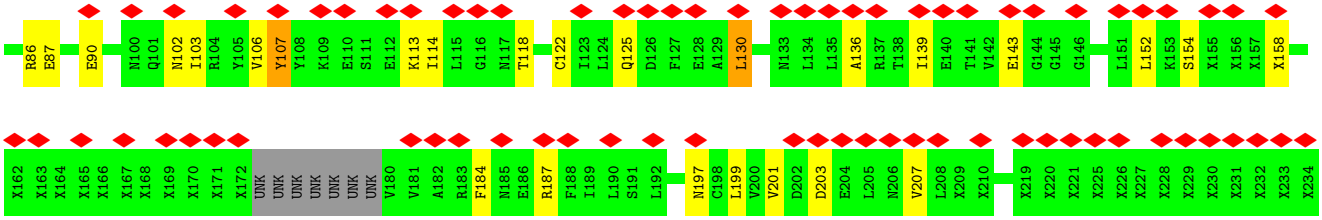


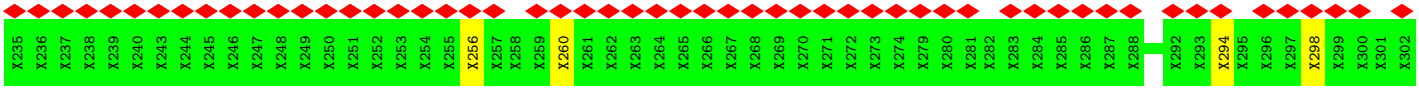
• Molecule 32: Kre33

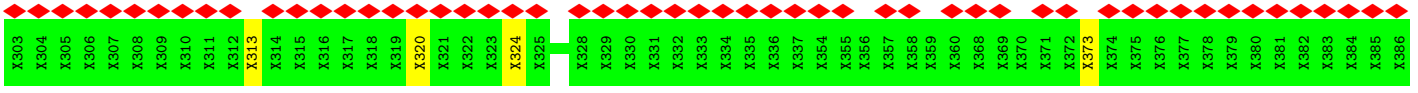
Chain LX:

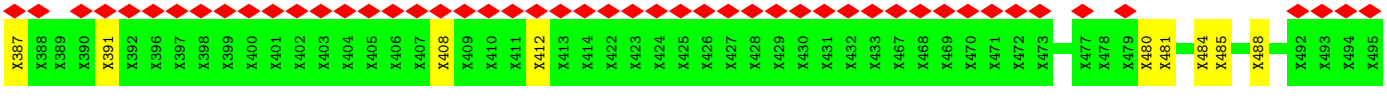


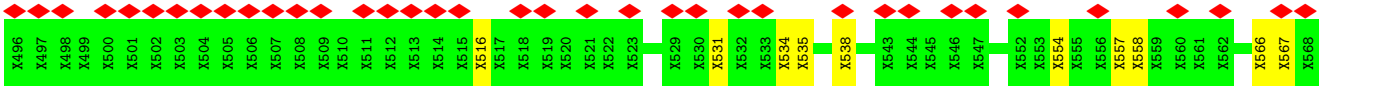


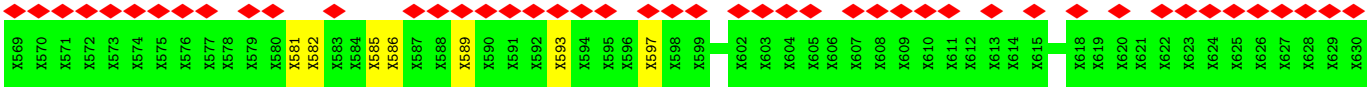


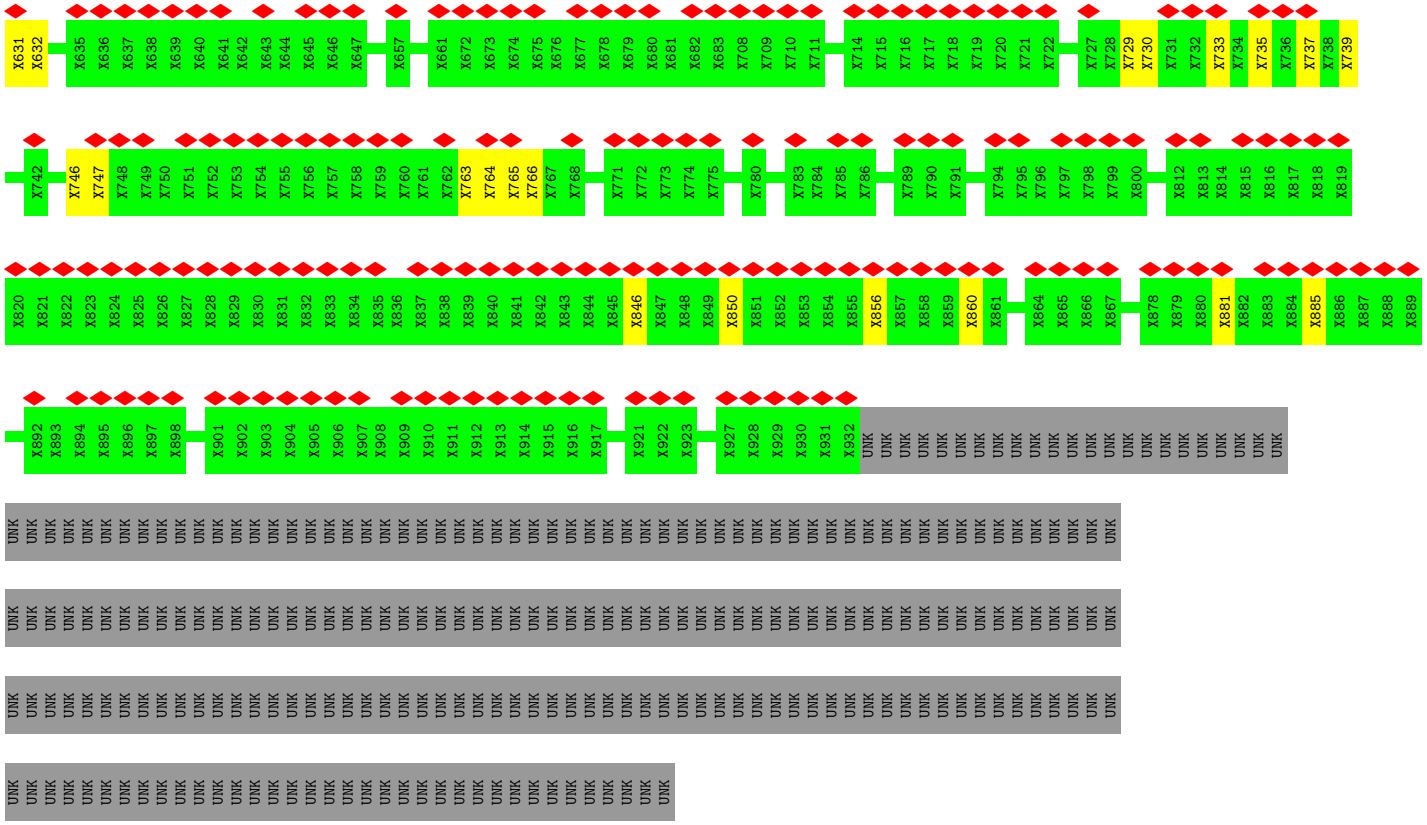






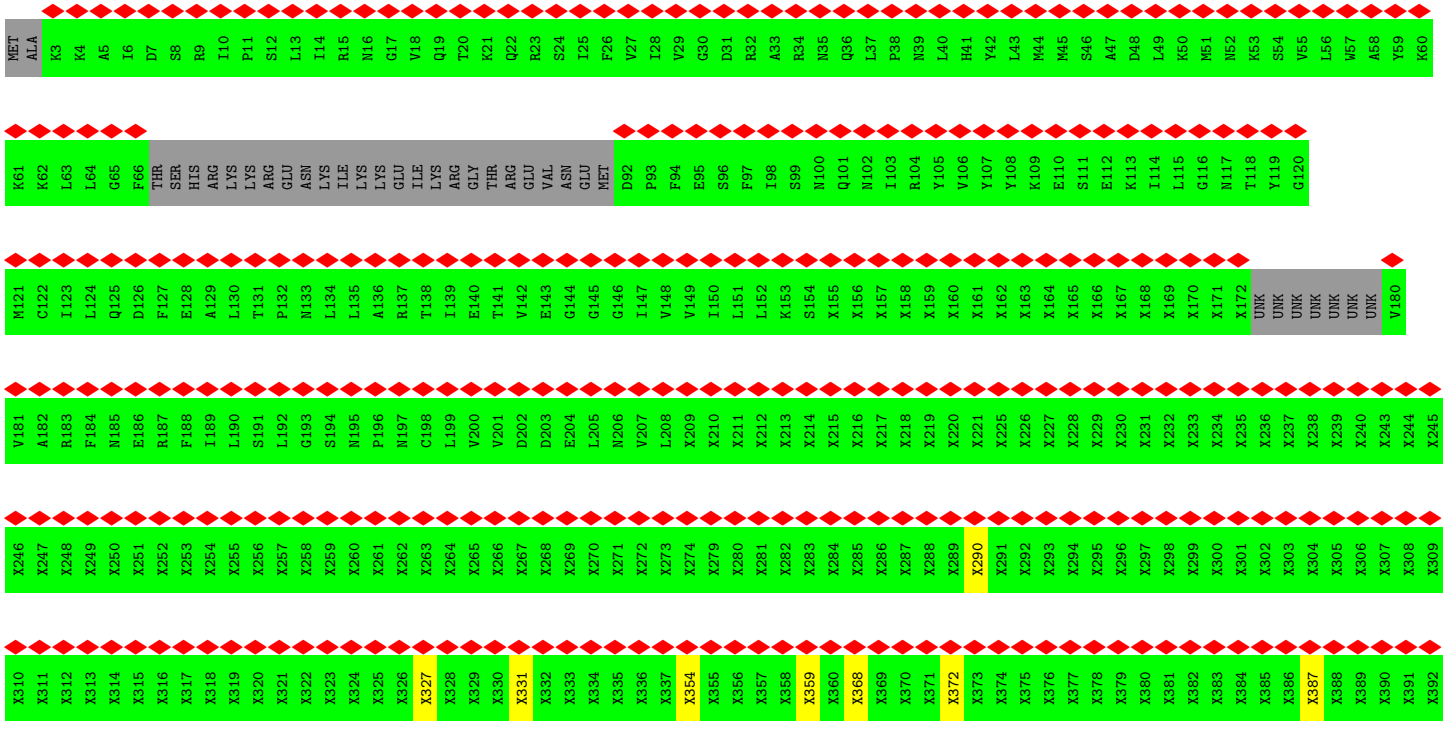


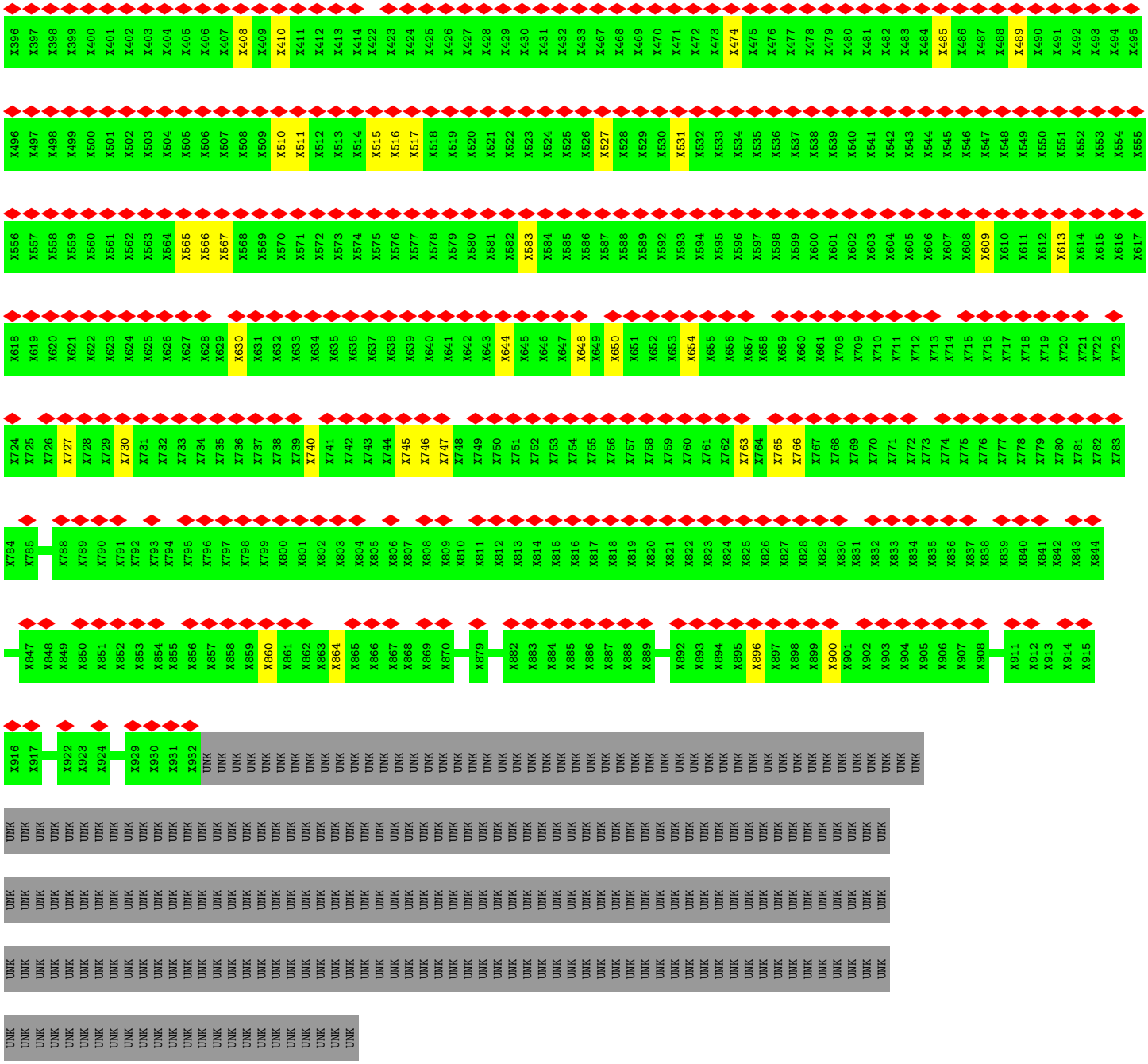




• Molecule 32: Kre33

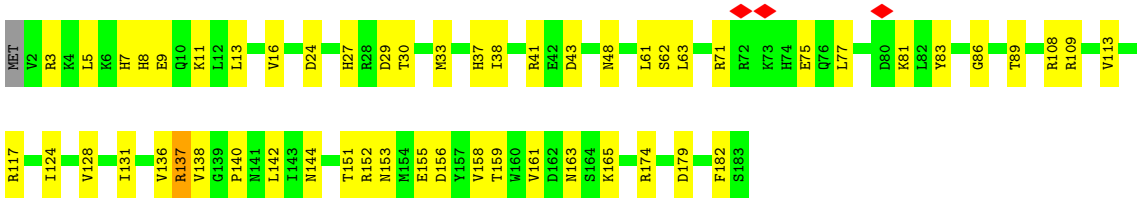
Chain LY:





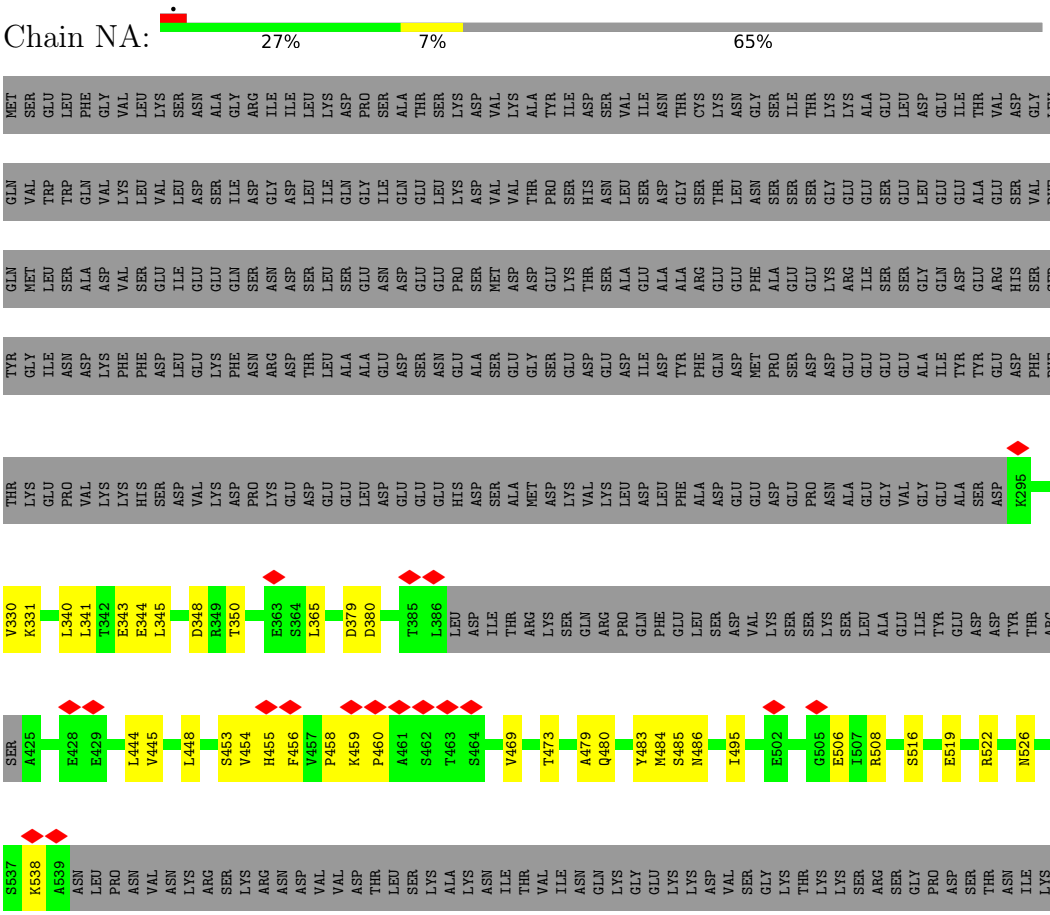
• Molecule 33: Imp3

Chain LZ:



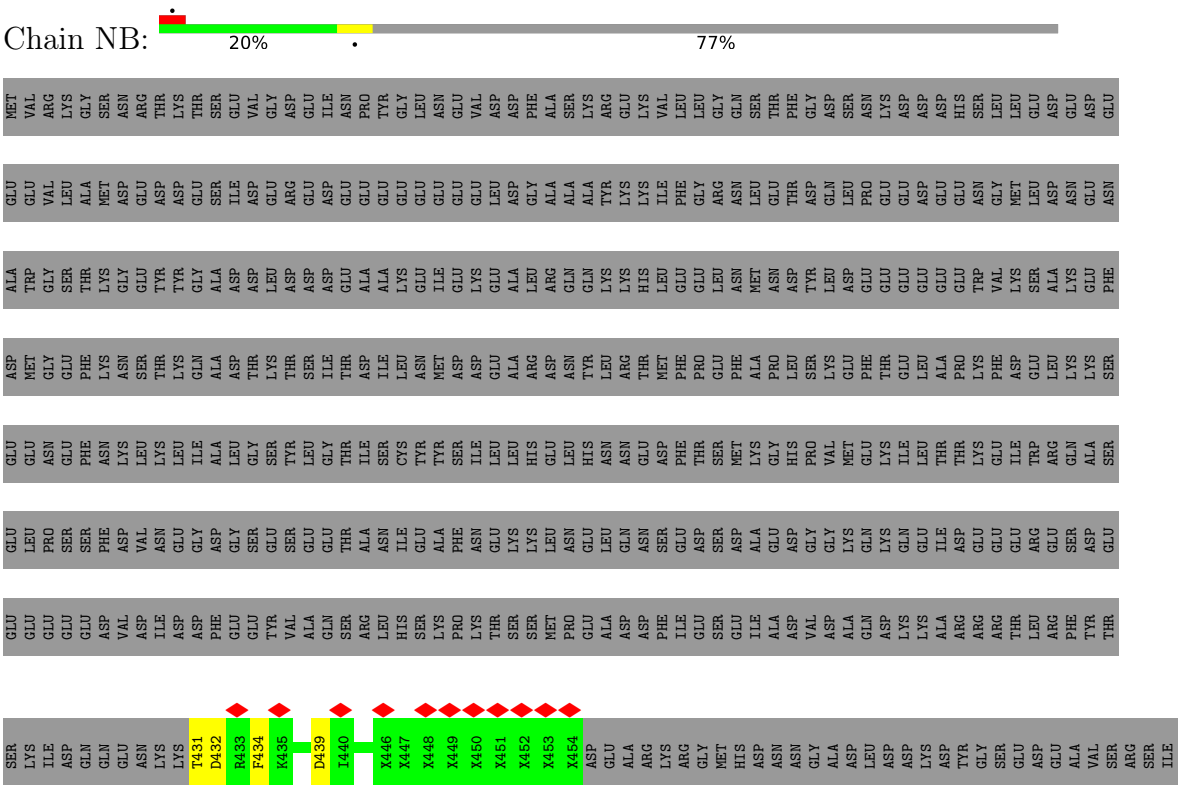
• Molecule 34: Mpp10

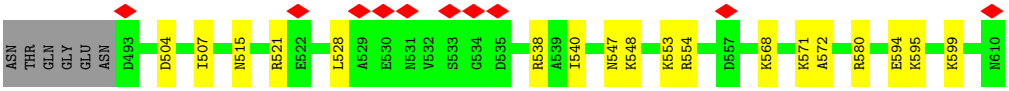
Chain NA:



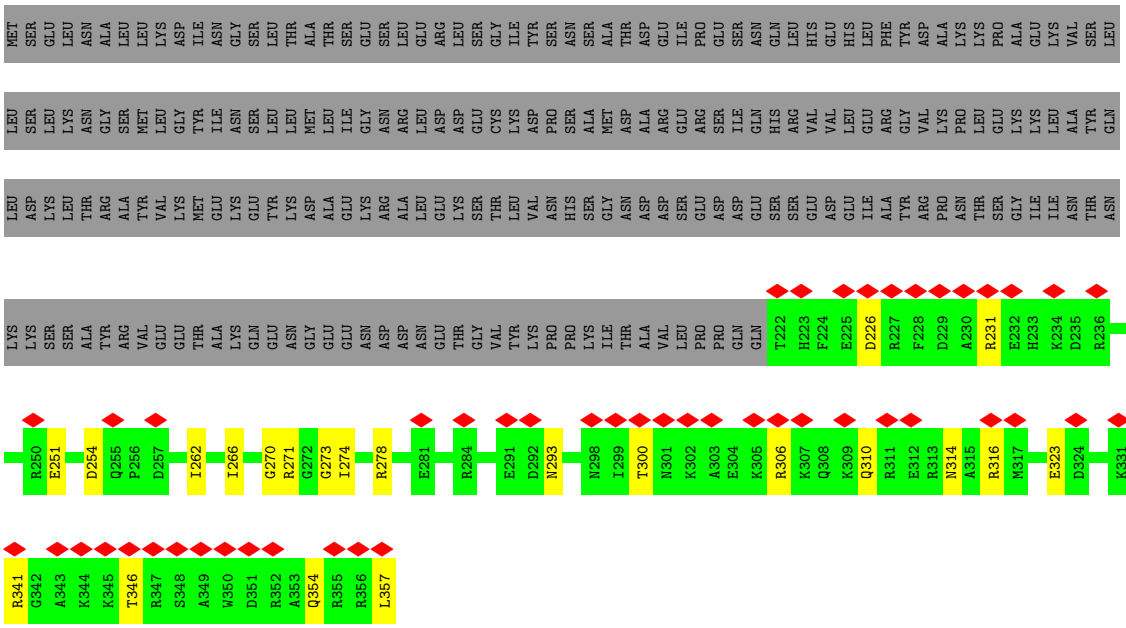
• Molecule 35: Sas10

Chain NB:

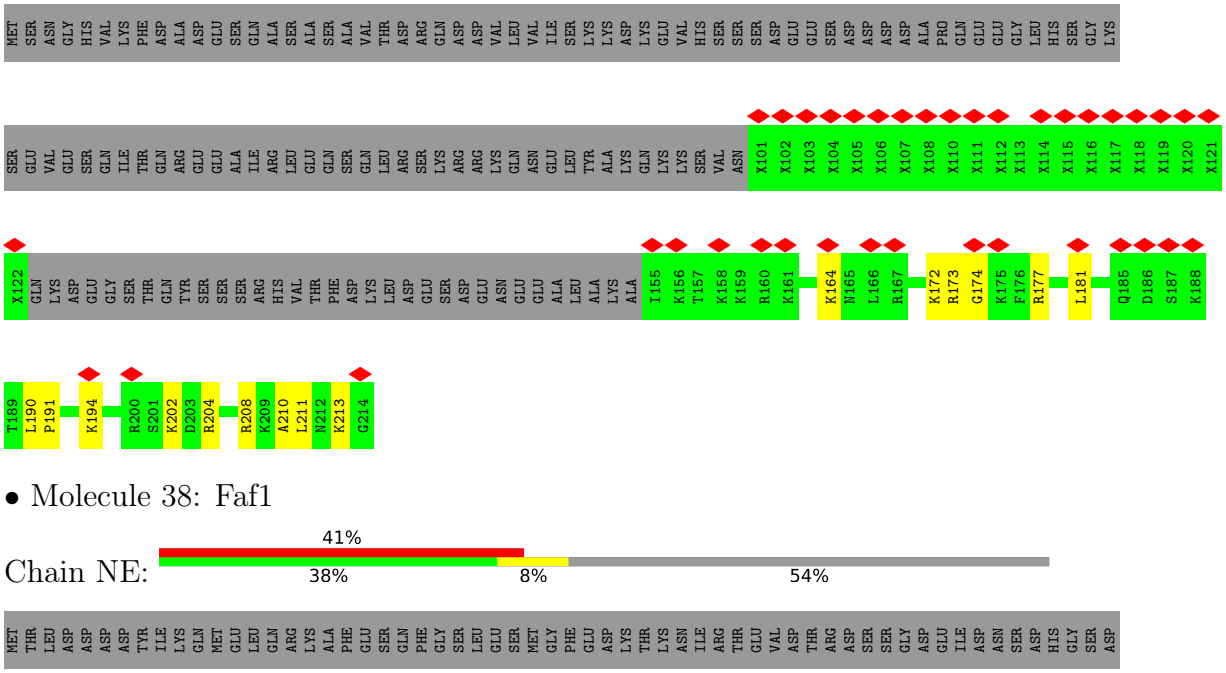




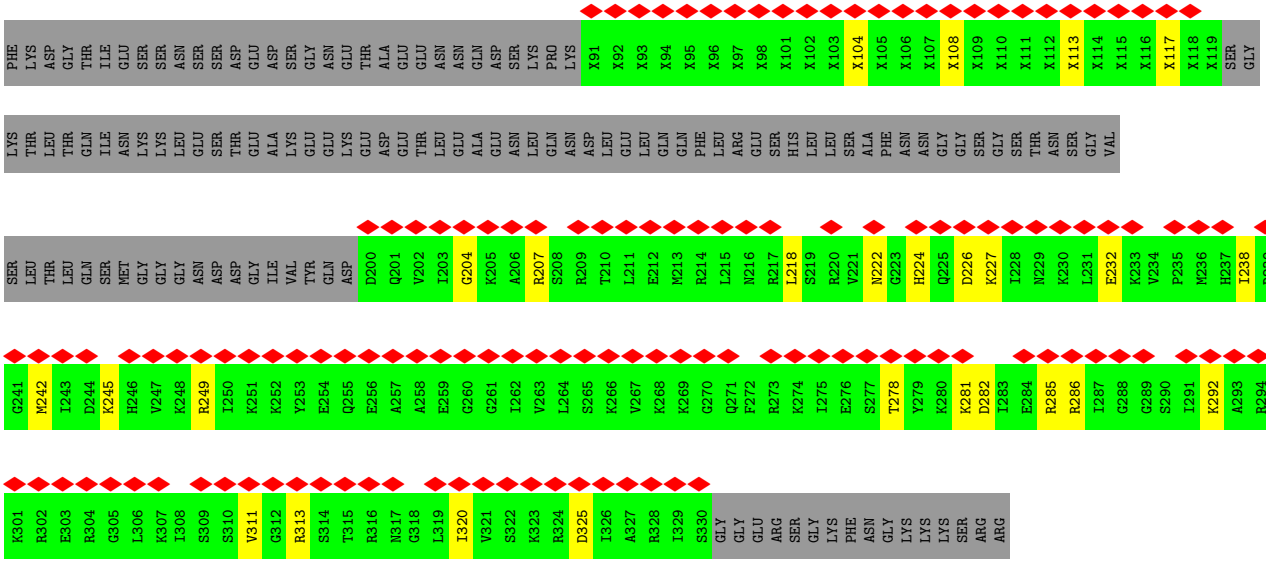
• Molecule 36: Lcp5



• Molecule 37: Bud21

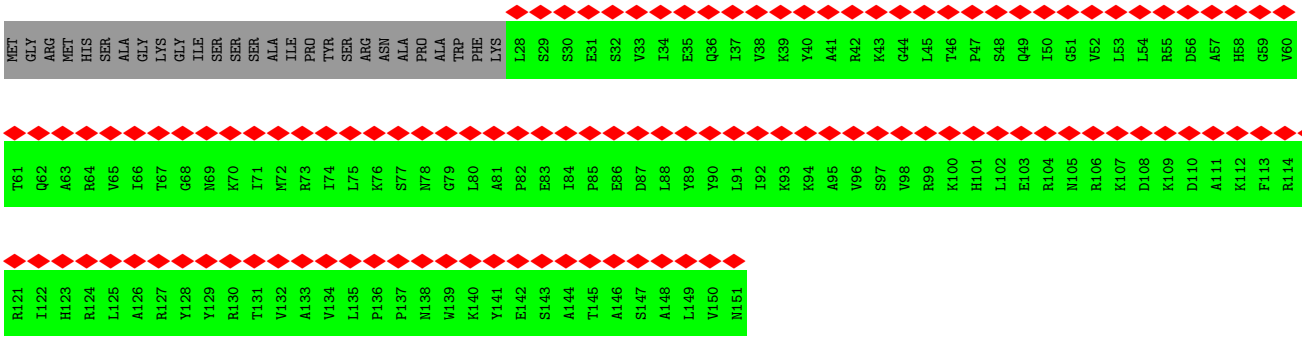


• Molecule 38: Faf1



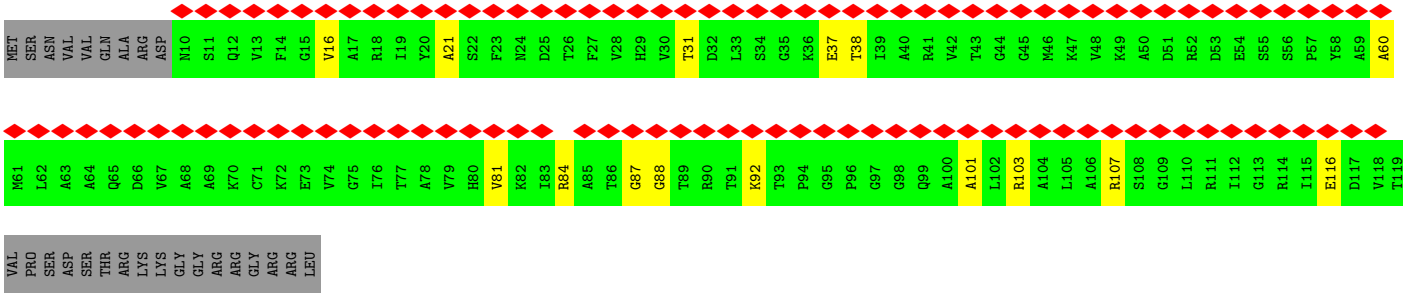
• Molecule 39: rpS13_uS15

Chain NF:



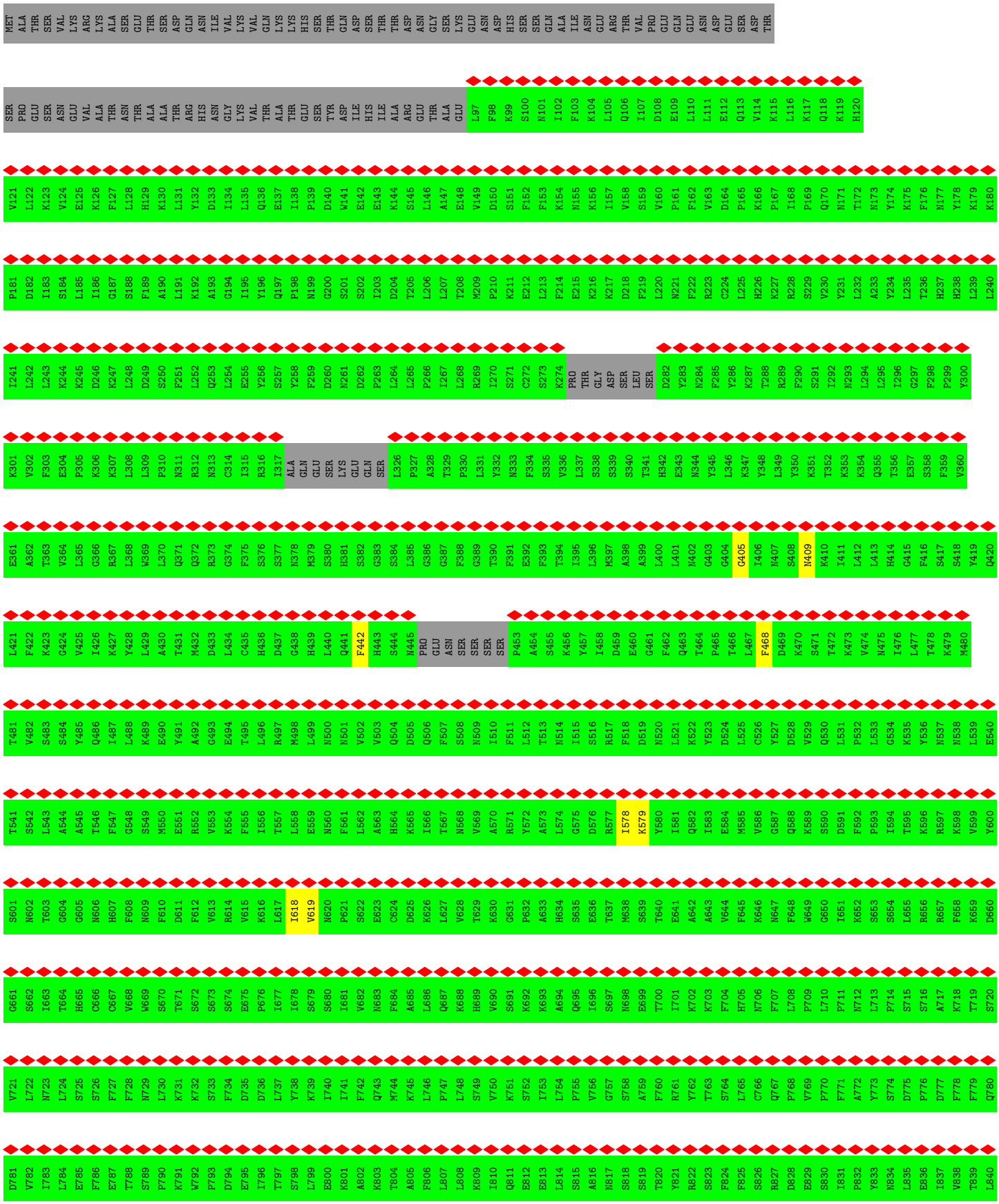
• Molecule 40: rpS14_uS11

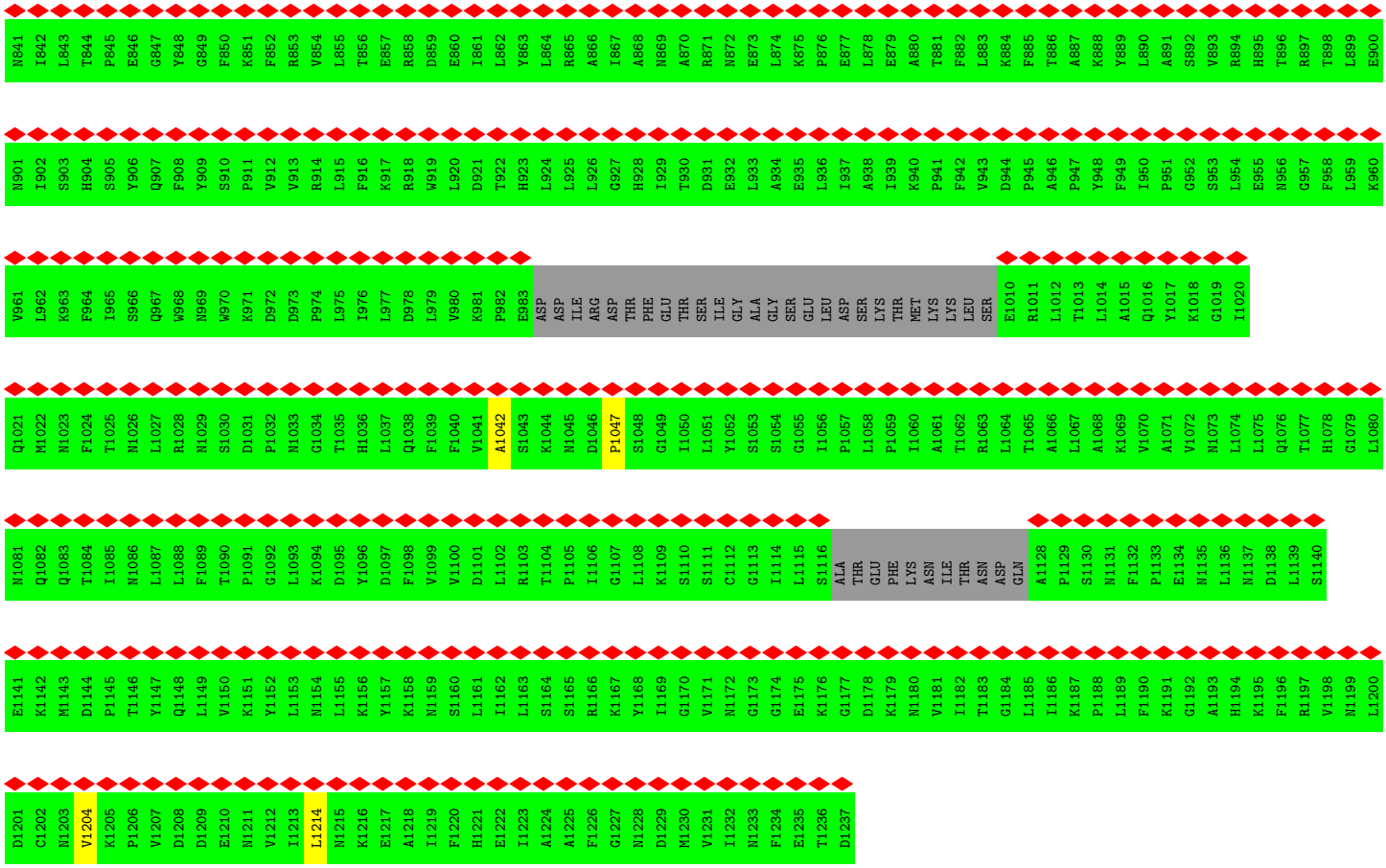
Chain NG:



• Molecule 41: Utp22

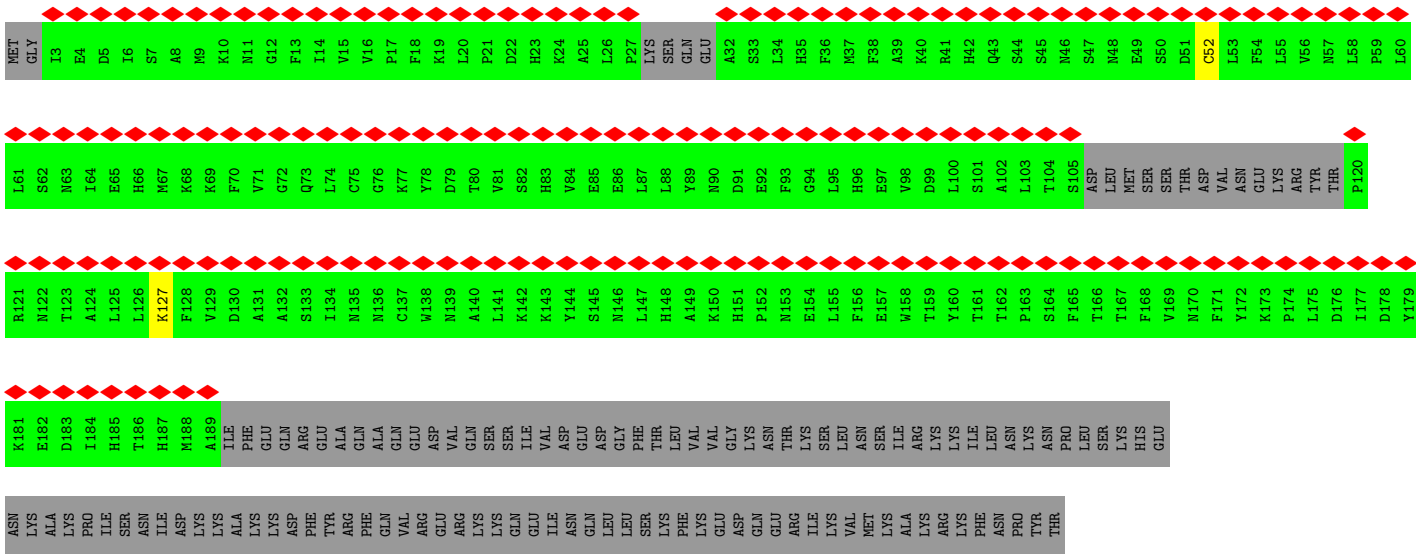
Chain NH:


MET ALA THR SER VAL LYS ARG LYS ALA SER GLU THR SER ASP GLN ASN ILE VAL LYS VAL GLN LYS LYS HIS SER THR GLN ASP SER THR THR ASP ASN GLY SER LYS GLU ASN ASP HIS SER SER GLN ALA ILE ASN GLU ARG THR VAL PRO GLU GLN GLU ASN ASP GLU SER ASP THR
SER PRO GLU SER ASN GLU VAL ALA THR ASN THR ALA ALA THR ARG HIS ASN GLY LYS VAL THR ALA THR GLU SER TYR ASP ILE HIS ILE ALA ARG GLU THR ALA GLU
L97 F98 K99 S100 N101 I102 F103 K104 L105 Q106 I107 D108 E109 L110 L111 E112 Q113 V114 K115 L116 K117 Q118 K119 H120
V121 L122 K123 V124 E125 K126 F127 L128 H129 K130 L131 Y132 D133 I134 L135 Q136 E137 I138 P139 D140 W141 E142 E143 K144 S145 L146 A147 E148 V149 D150 S151 F152 F153 K154 N155 K156 I157 V158 S159 V160 P161 F162 V163 D164 P165 K166 P167 I168 P169 Q170 N171 T172 N173 Y174 K175 F176 N177 Y178 K179 K180
P181 D182 I183 S184 L185 I186 G187 S188 F189 A190 L191 K192 A193 G194 I195 Y196 Q197 P198 N199 G200 S201 S202 I203 D204 T205 L206 L207 T208 M209 P210 K211 E212 L213 F214 E215 K216 K217 D218 F219 L220 N221 F222 R223 C224 L225 H226 K227 R228 S229 V230 Y231 L232 A233 Y234 L235 T236 H237 H238 L239 L240
I241 L242 L243 K244 K245 D246 K247 L248 D249 S250 F251 L252 Q253 L254 E255 Y256 S257 Y258 F259 D260 N261 D262 P263 L264 L265 P266 I267 L268 R269 I270 S271 C272 S273 K274 PRO THR GLY ASP SER LEU SER D282 Y283 N284 F285 Y286 K287 T288 R289 F290 S291 I292 N293 L294 L295 I296 G297 F298 P299 Y300
K301 V302 F303 E304 P305 K306 K307 L308 L309 P310 N311 R312 N313 C314 I315 R316 I317 ALA GLN GLU SER LYS GLU GLN SER L326 P327 A328 T329 P330 L331 Y332 N333 F334 S335 V336 L337 S338 S339 S340 T341 H342 E343 N344 Y345 L346 K347 Y348 L349 Y350 K351 T352 K353 K354 Q355 T356 E357 S358 F359 V360
E361 A362 T363 V364 L365 G366 R367 L368 W369 L370 Q371 Q372 R373 G374 F375 S376 S377 N378 M379 S380 H381 S382 G383 S384 L385 G386 G387 F388 G389 T390 F391 E392 F393 T394 I395 L396 M397 A398 A399 L400 L401 N402 G403 G404 G405 I406 N407 S408 N409 K410 I411 L412 L413 H414 G415 F416 S417 S418 Y419 Q420
L421 F422 K423 G424 V425 I426 K427 Y428 L429 A430 T431 M432 D433 L434 C435 H436 D437 G438 H439 L440 Q441 F442 H443 S444 N445 PRO GLU ASN SER SER SER SER P453 A454 S455 K456 Y457 I458 D459 E460 G461 F462 Q463 T464 P465 T466 L467 F468 D469 K470 S471 T472 K473 V474 N475 I476 L477 T478 K479 M480
T481 V482 S483 S484 Y485 Q486 I487 L488 K489 E490 Y491 A492 G493 E494 T495 L496 R497 M498 L499 N500 N501 V502 V503 Q504 D505 Q506 F507 S508 N509 I510 F511 L512 T513 N514 I515 S516 R517 F518 D519 N520 L521 K522 Y523 D524 L525 C526 Y527 D528 V529 Q530 L531 P532 L533 G534 K535 Y536 N537 N538 L539 E540
T541 S542 L543 A544 A545 T546 F547 G548 S549 M550 E551 R552 V553 K554 F555 I556 T557 L558 E559 N560 F561 L562 A563 H564 K565 I566 T567 N568 V569 A570 R571 Y572 A573 L574 G575 D576 R577 I578 K579 Y580 I581 Q582 I583 E584 M585 V586 G587 Q588 K589 S590 D591 F592 P593 I594 T595 K596 R597 K598 V599 Y600
S601 N602 T603 G604 G605 N606 H607 F608 N609 F610 D611 F612 V613 R614 V615 K616 L617 I618 V619 N620 P621 S622 E623 C624 D625 K626 L627 V628 T629 K630 G631 P632 A633 H634 S635 E636 T637 M638 S639 T640 E641 A642 A643 V644 F645 K646 N647 F648 W649 G650 I651 K652 S653 S654 L655 R656 R657 F658 K659 D660
G661 S662 I663 T664 H665 C666 C667 V668 W669 S670 T671 S672 S673 S674 E675 P676 I677 I678 S679 S680 I681 V682 N683 F684 A685 L686 Q687 K688 H689 V690 S691 K692 K693 A694 Q695 I696 S697 N698 E699 T700 I701 K702 K703 F704 H705 N706 F707 L708 P709 L710 P711 N712 L713 P714 S715 S716 A717 K718 T719 S720
V721 L722 N723 L724 S725 S726 F727 F728 N729 L730 K731 K732 S733 F734 D735 D736 L737 Y738 K739 I740 I741 F742 Q743 M744 K745 L746 P747 L748 S749 V750 K751 S752 I753 L754 P755 V756 G757 S758 A759 F760 R761 Y762 T763 S764 L765 C766 Q767 P768 V769 P770 F771 A772 Y773 S774 D775 P776 D777 F778 F779 Q780
D781 V782 I783 L784 E785 F786 E787 T788 S789 P790 K791 W792 P793 D794 E795 I796 T797 S798 L799 E800 K801 A802 K803 T804 A805 P806 L807 L808 K809 I810 Q811 E812 E813 L814 S815 A816 N817 S818 S819 T820 Y821 R822 S823 F824 F825 S826 R827 D828 E829 S830 I831 P832 Y833 N834 L835 E836 I837 V838 T839 L840



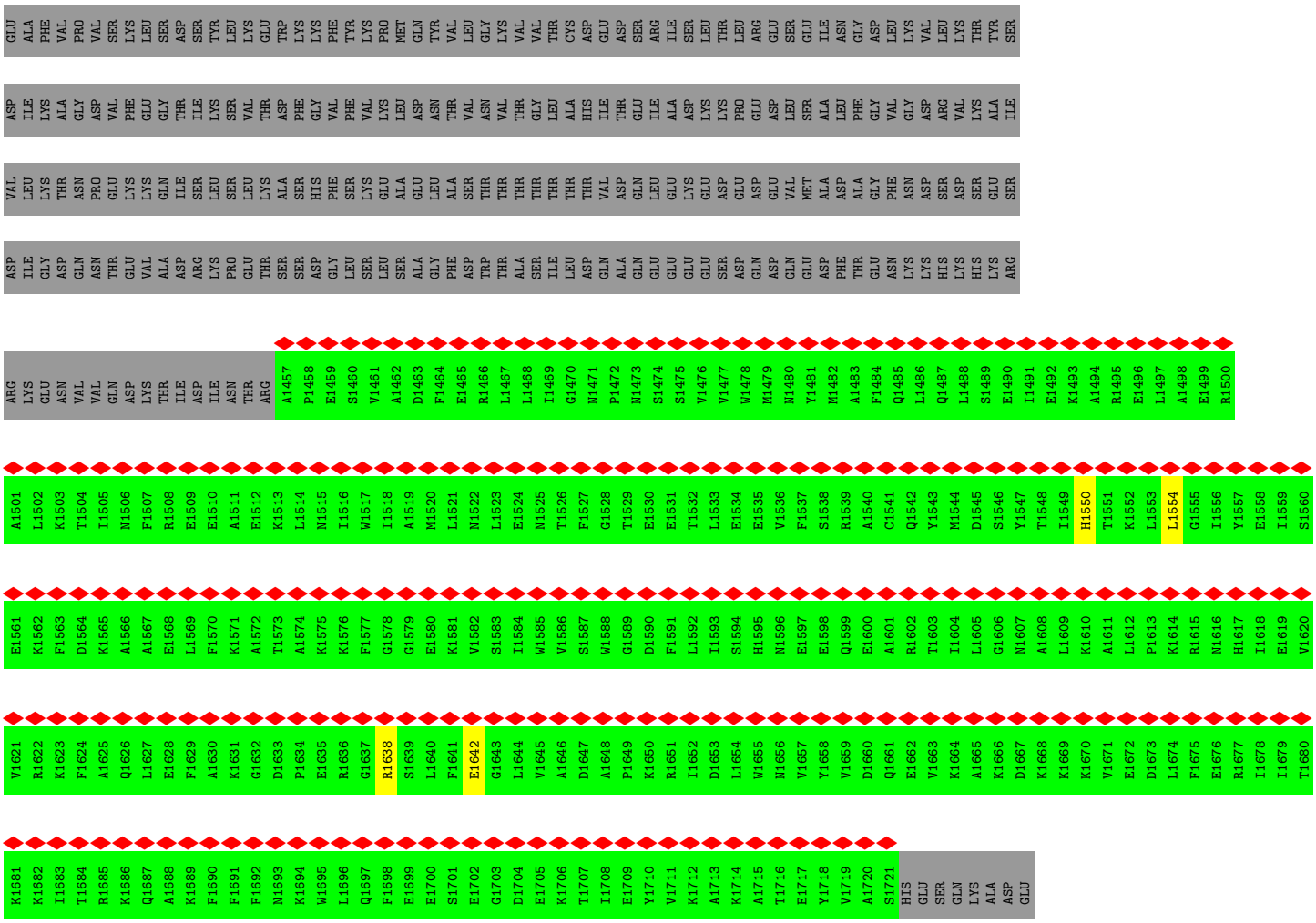
• Molecule 42: Rrp7

Chain NI:



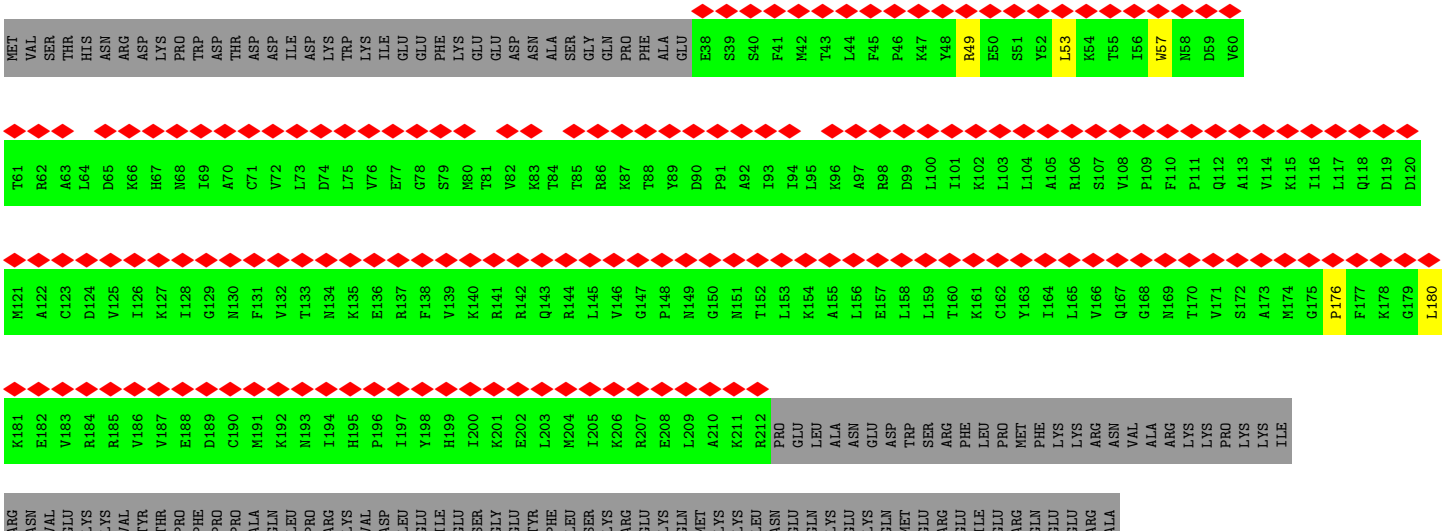
• Molecule 43: Rrp5

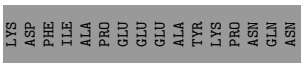
Chain NJ:



• Molecule 44: Krr1

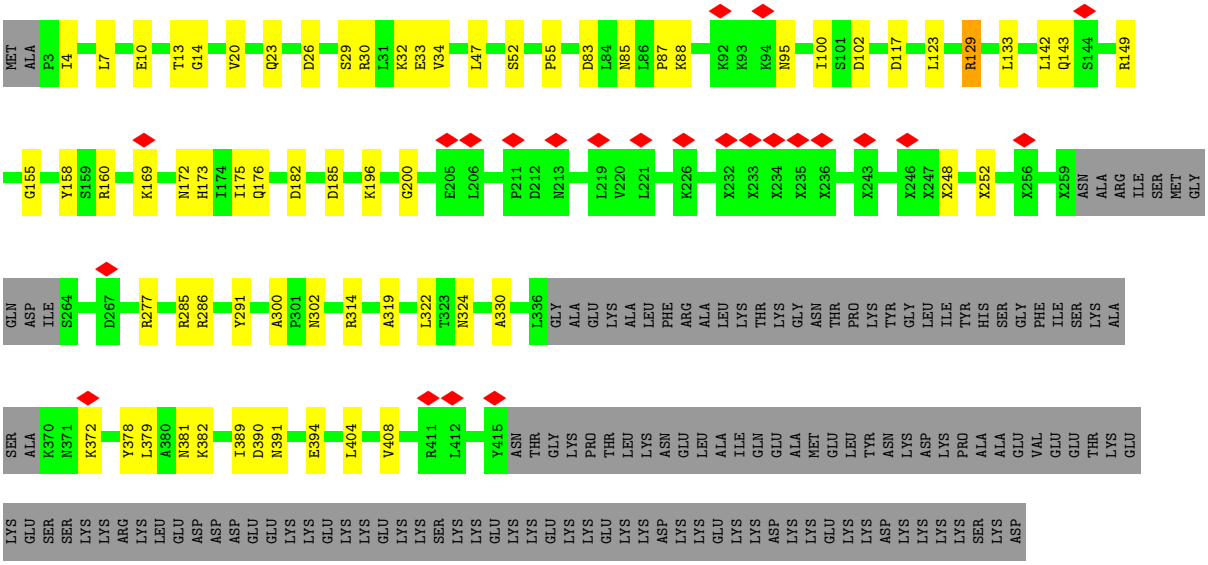
Chain NK:





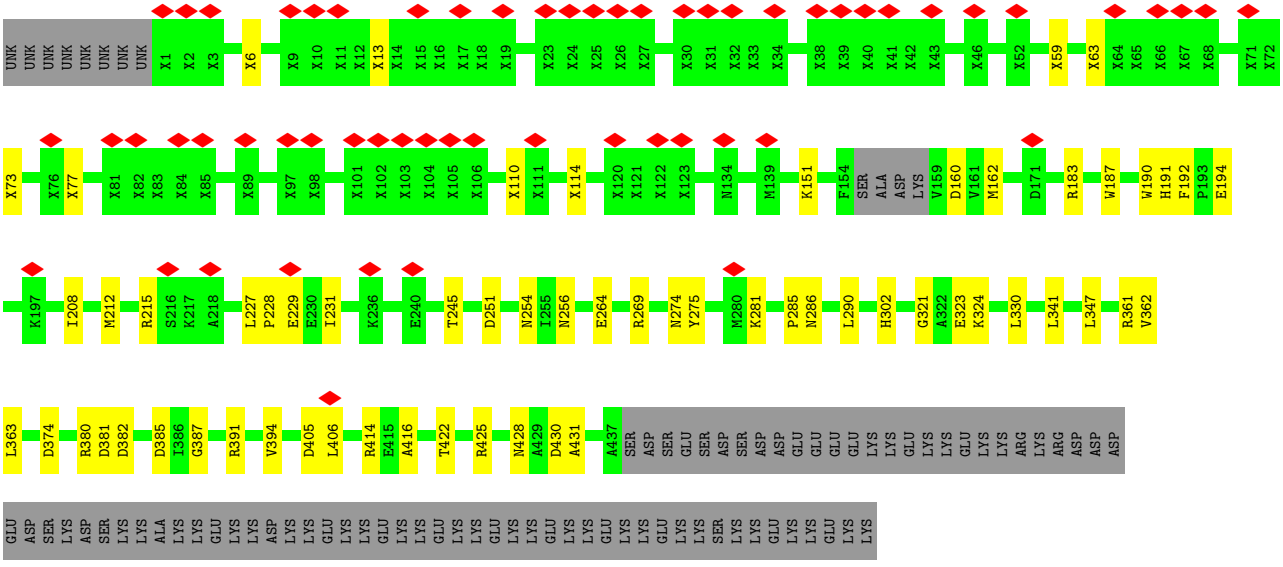
• Molecule 45: Nop56

Chain SA:



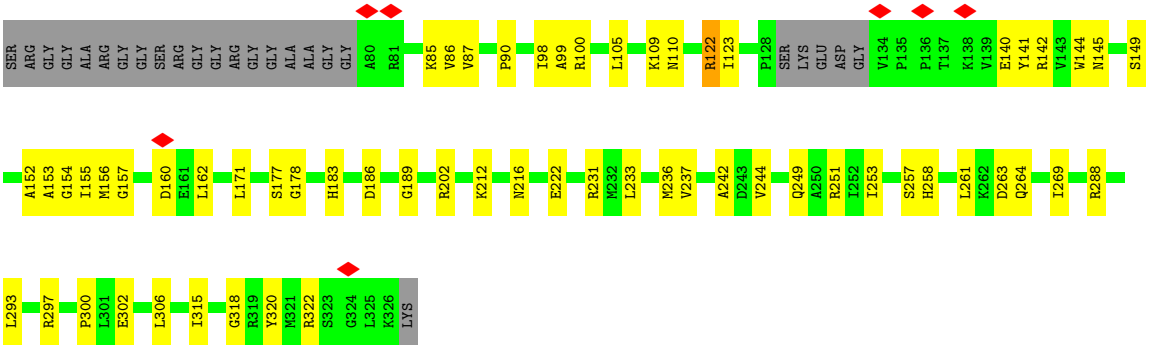
• Molecule 46: Nop58

Chain SB:



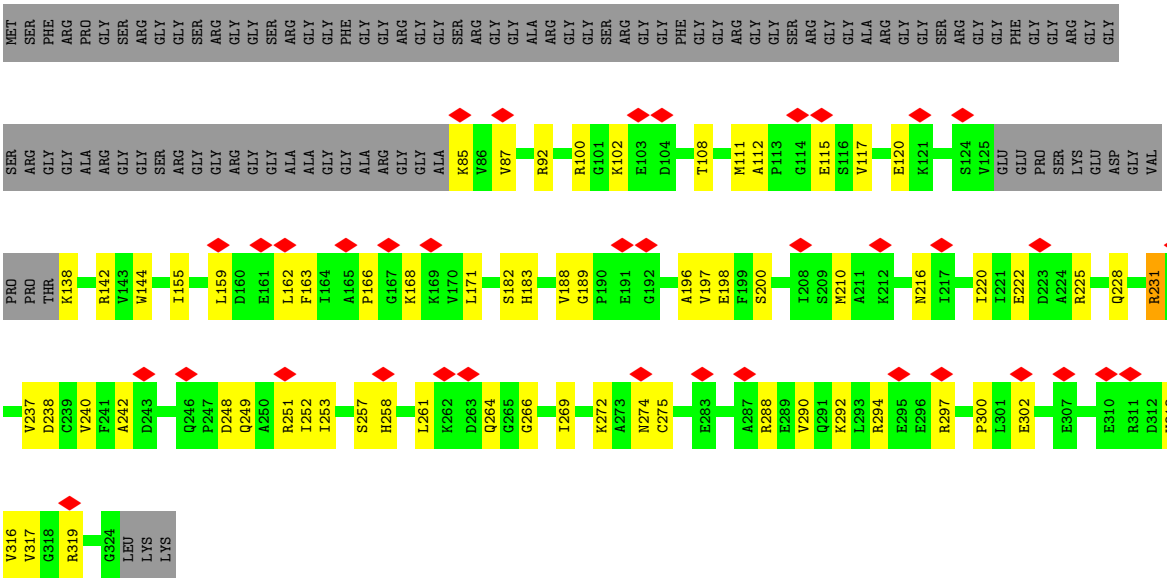
• Molecule 47: Nop1

Chain SC:



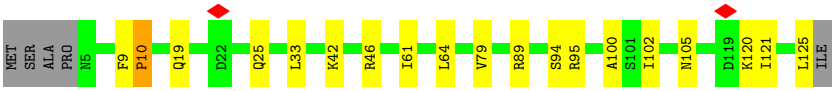
• Molecule 47: Nop1

Chain SD:



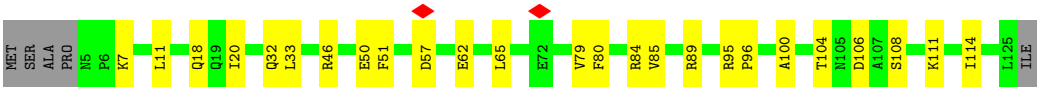
• Molecule 48: Snu13

Chain SE:



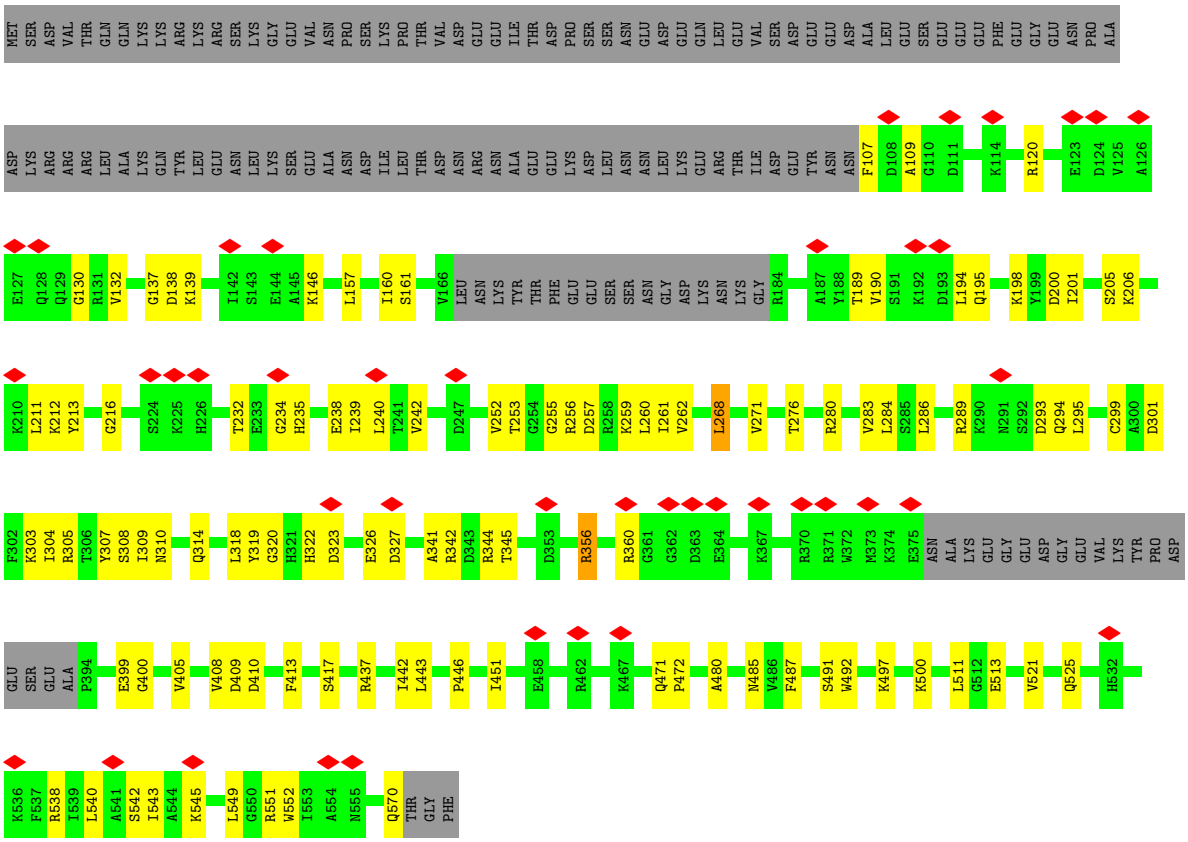
• Molecule 48: Snu13

Chain SF:



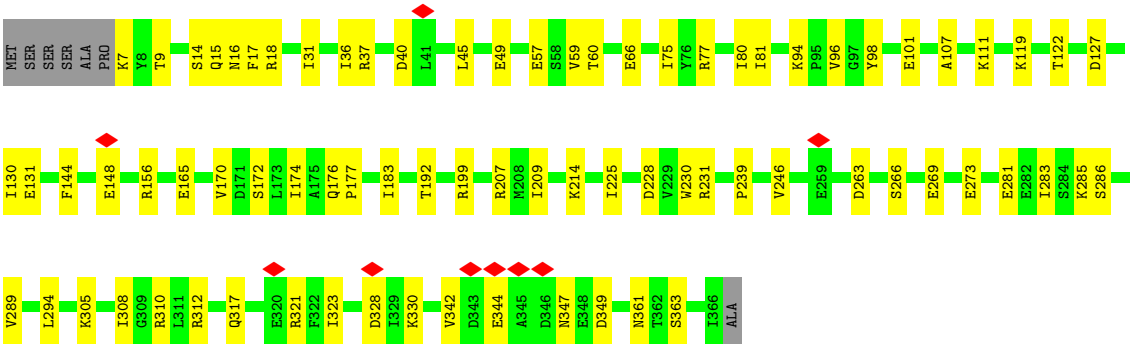
• Molecule 49: Rrp9

Chain SG:



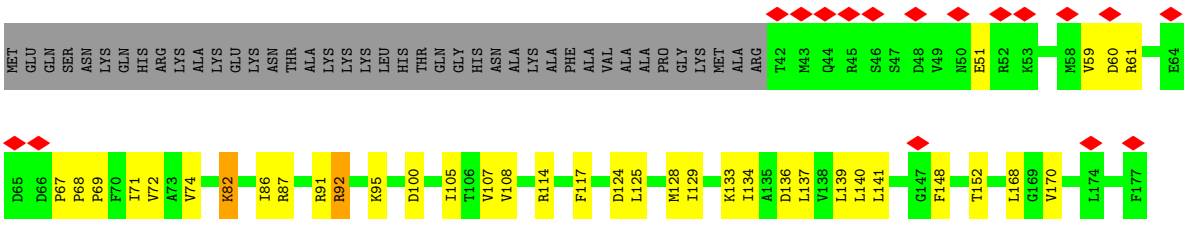
• Molecule 50: Rcl1

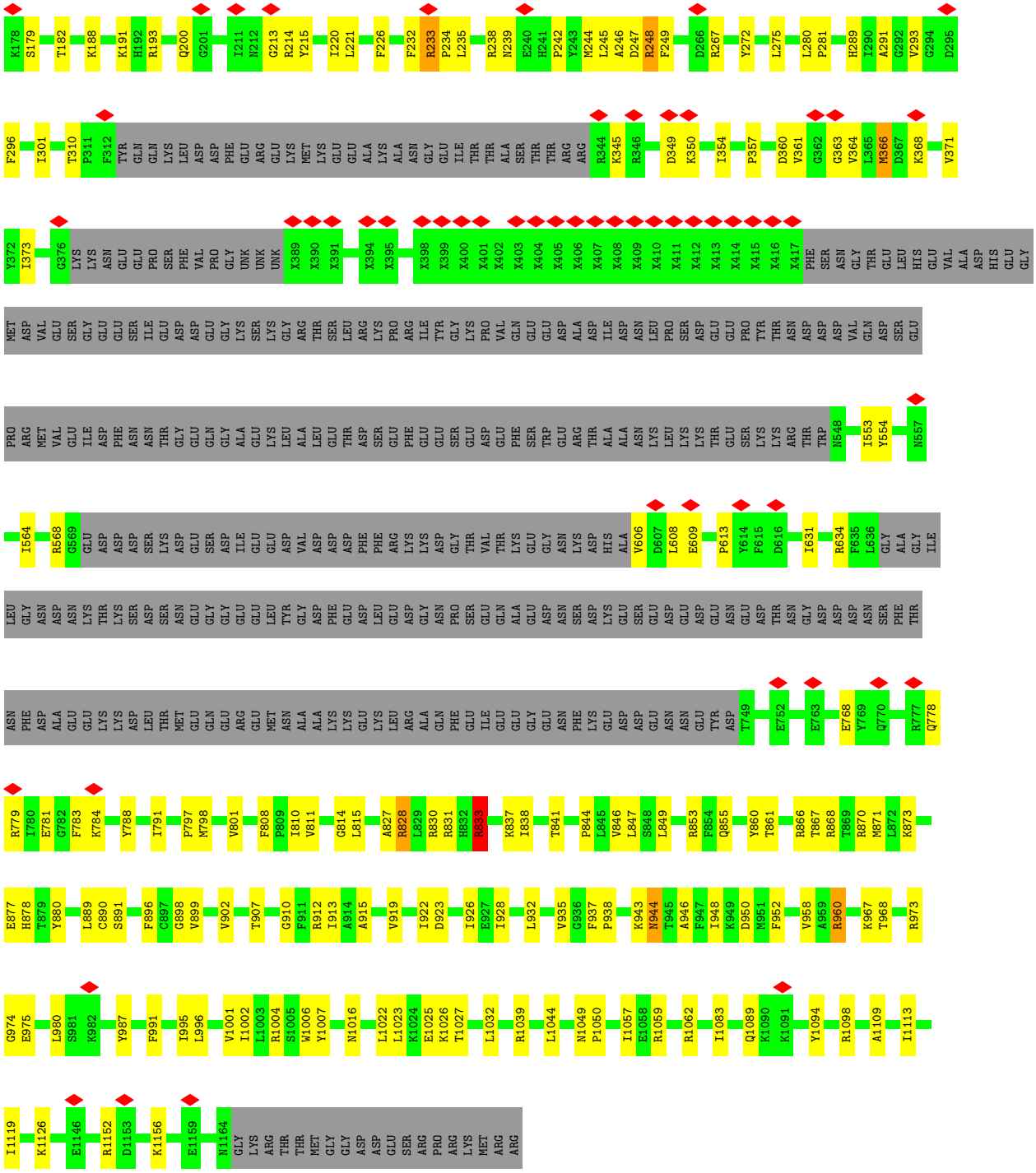
Chain SH:



• Molecule 51: Bms1

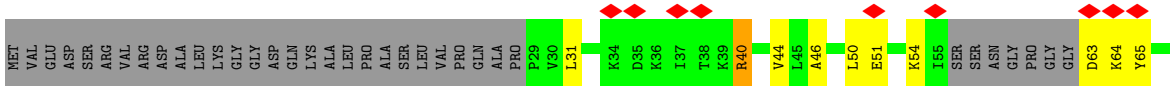
Chain SI:

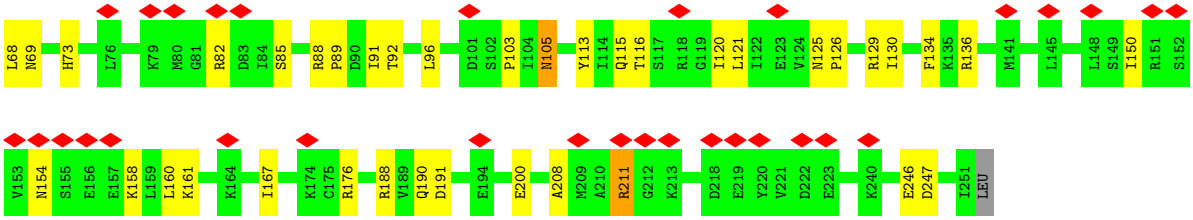




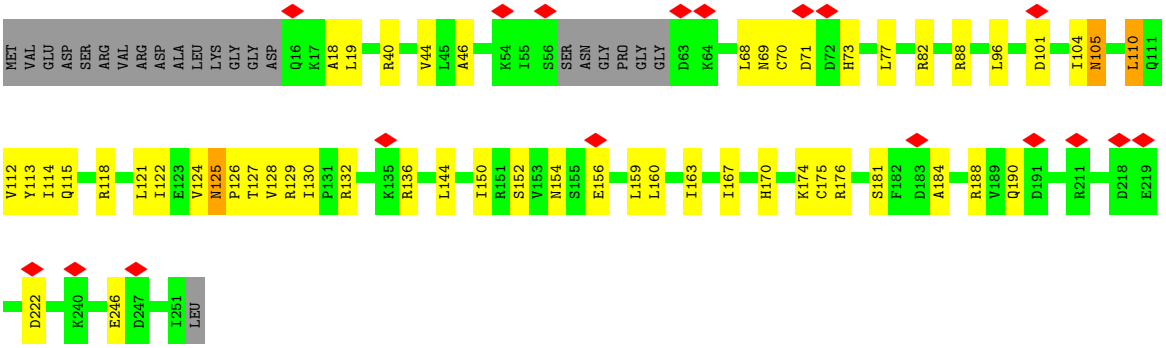
• Molecule 52: Emg1

Chain SJ:

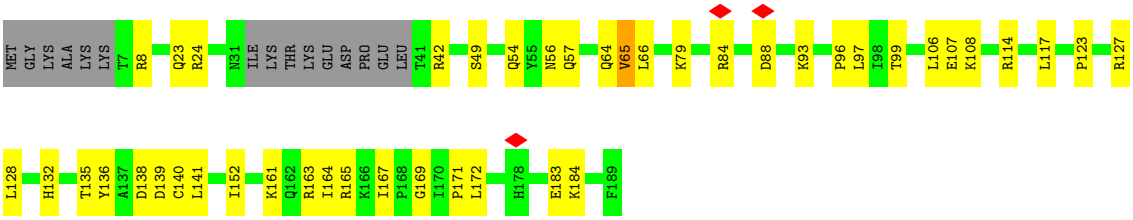




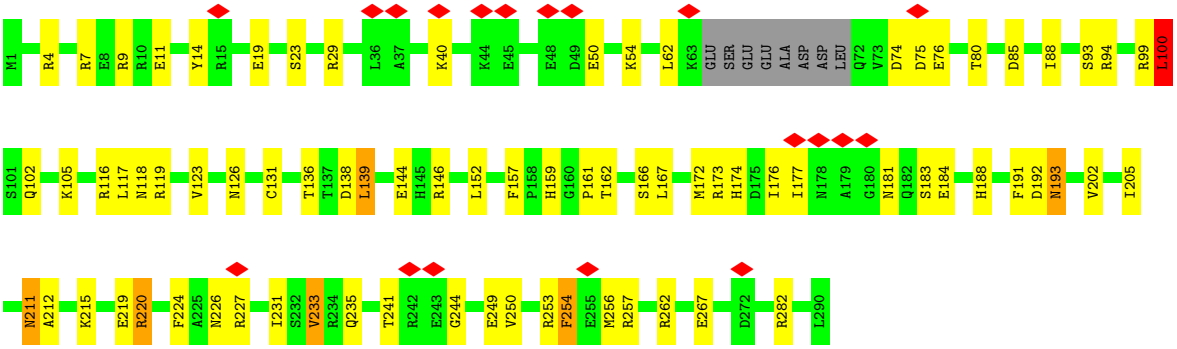
• Molecule 52: Emg1



• Molecule 53: Utp24

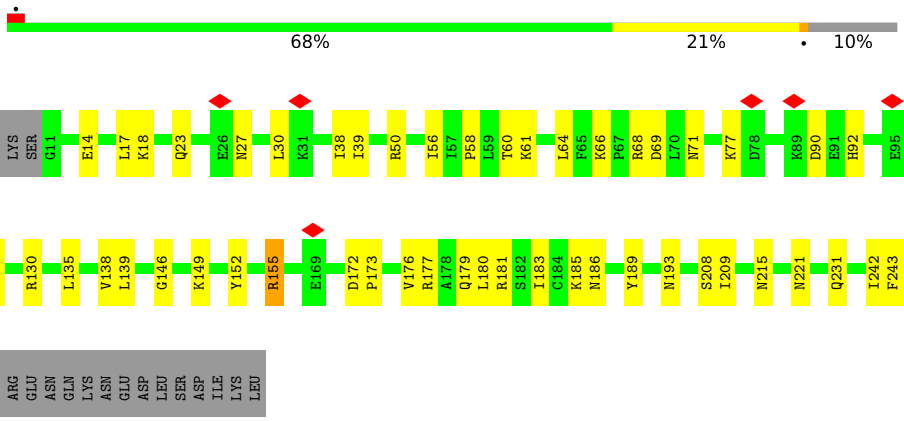


• Molecule 54: Imp4



• Molecule 55: Utp30

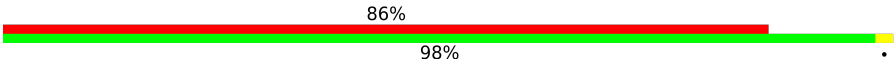
Chain SN:

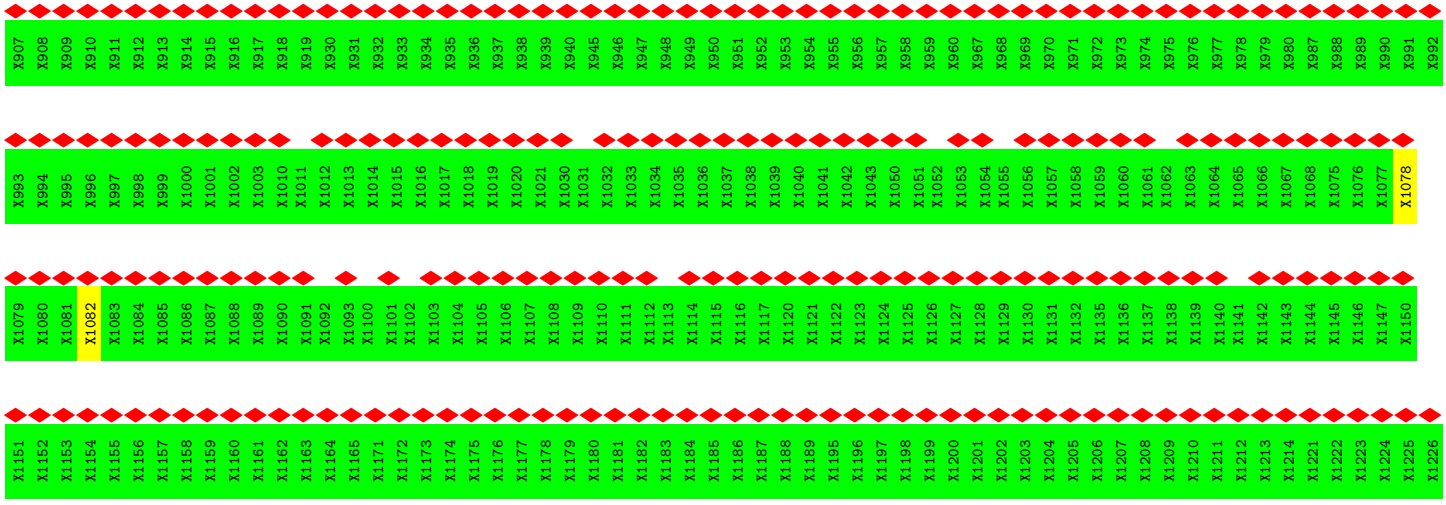


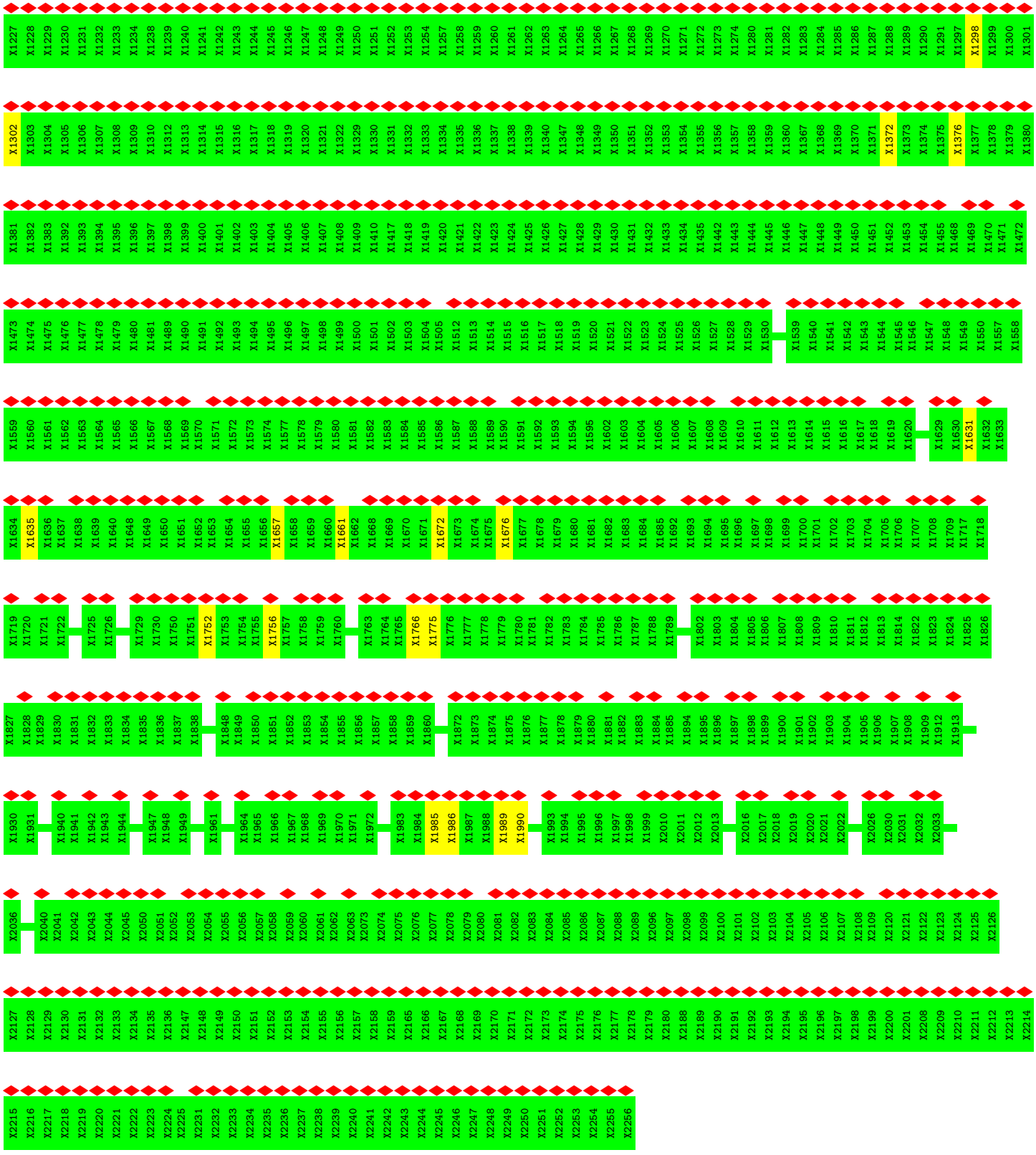
• Molecule 56: Pno1

Chain SO:

Chain SP:

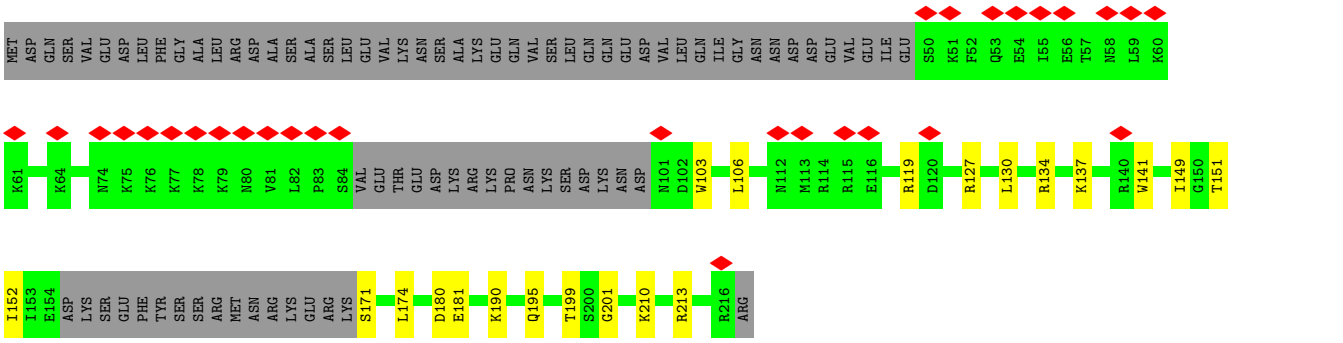






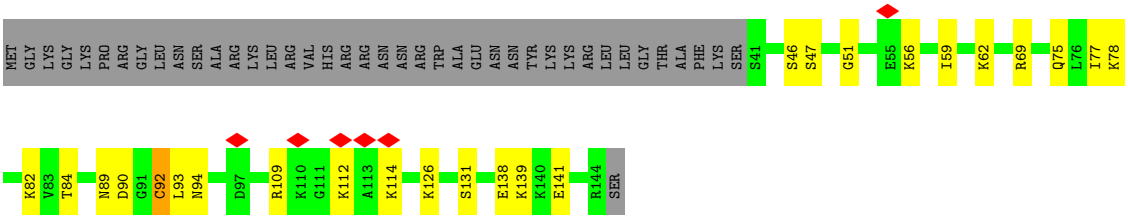
- Molecule 58: Fcf2

Chain SQ:



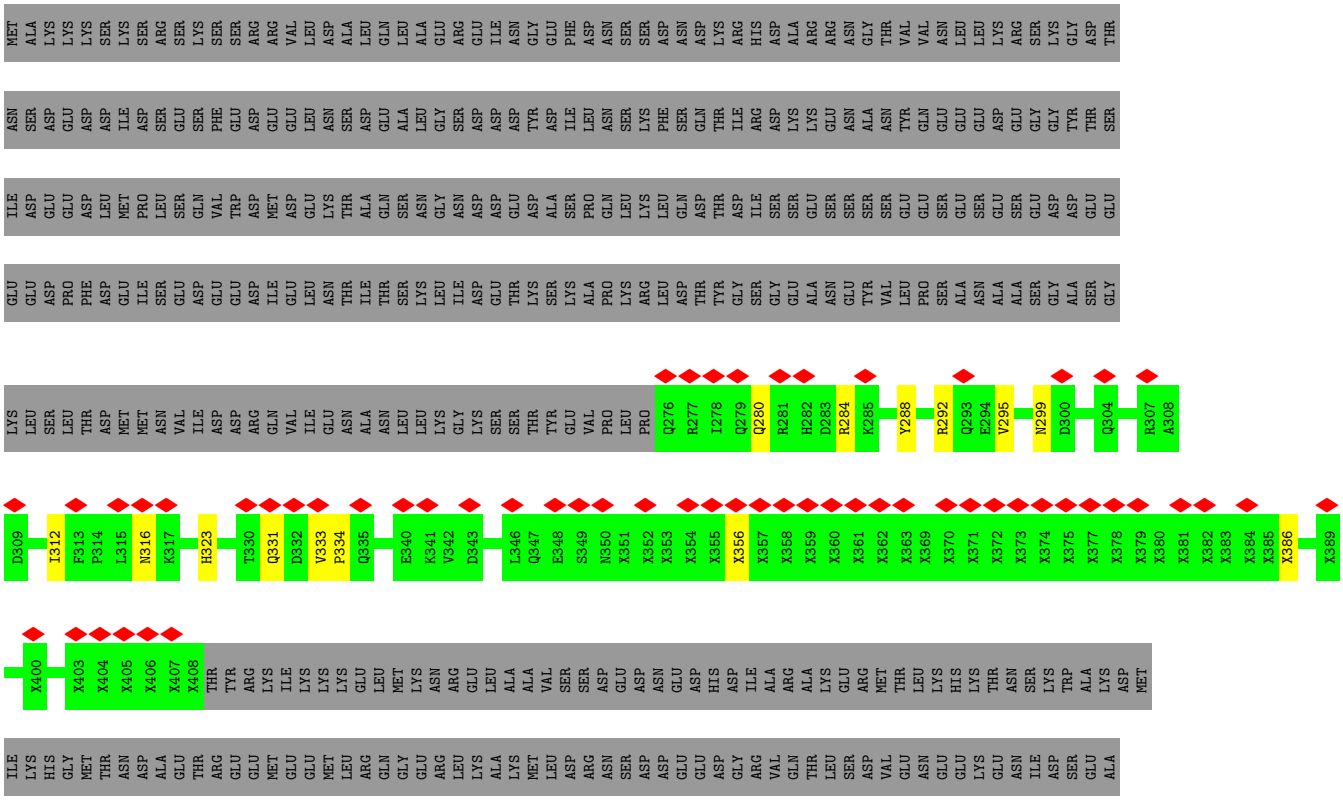
• Molecule 59: rpS23_uS12

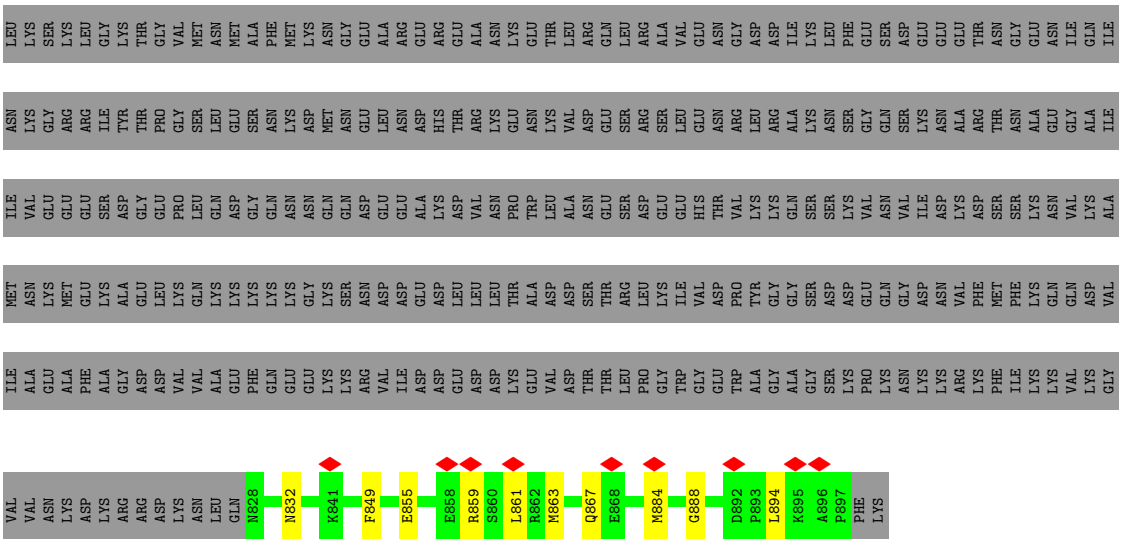
Chain SR:



• Molecule 60: Utp14

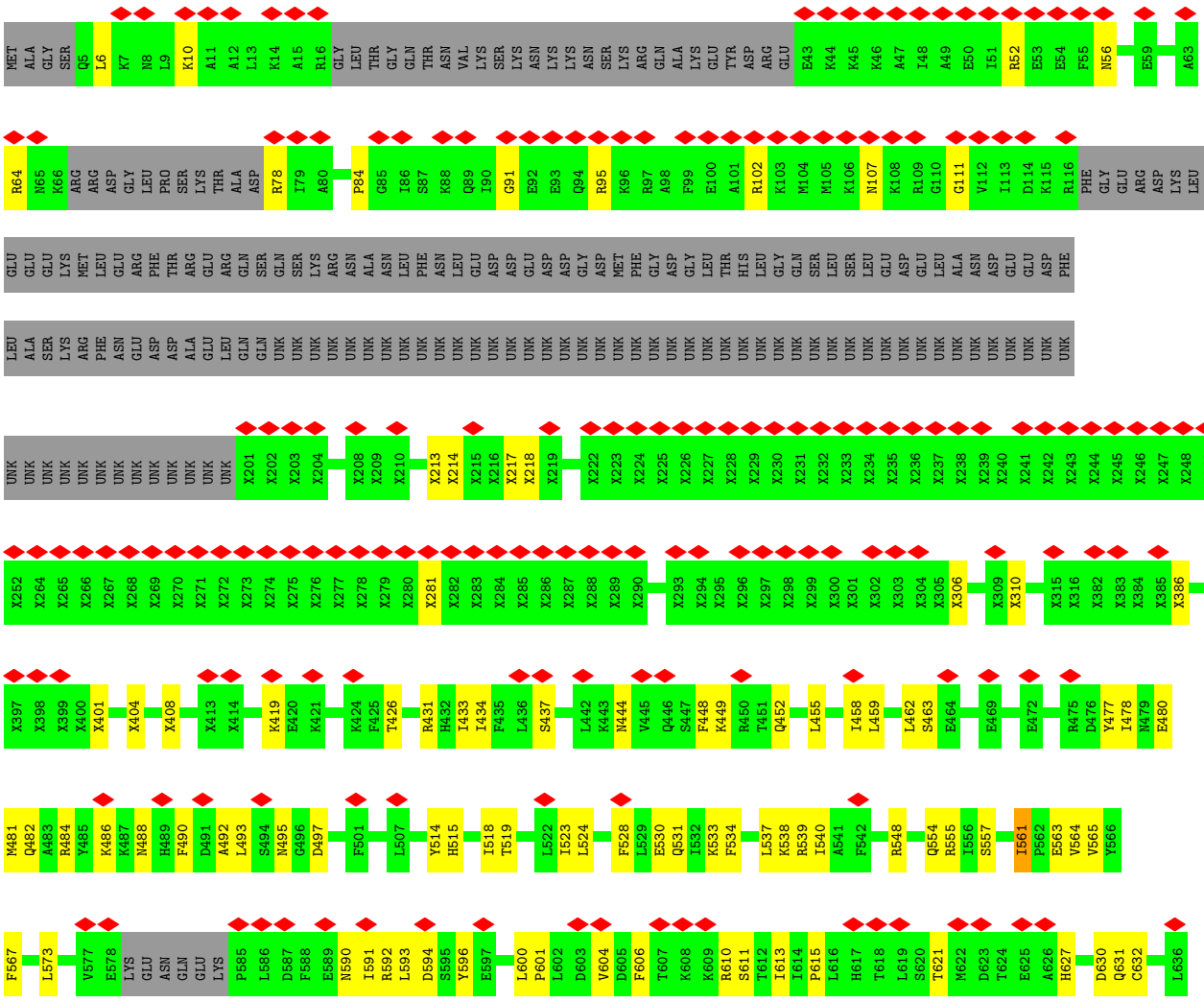
Chain SS:

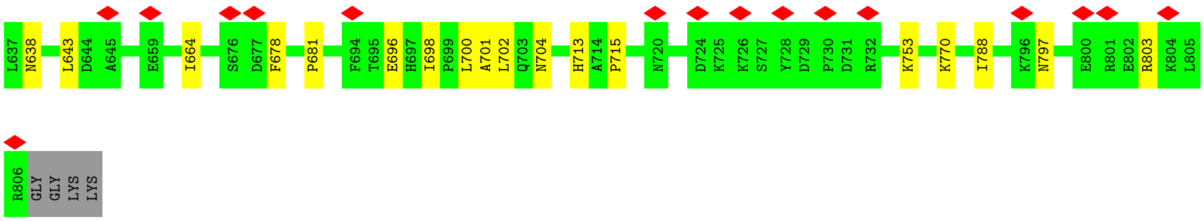




• Molecule 61: Nop14

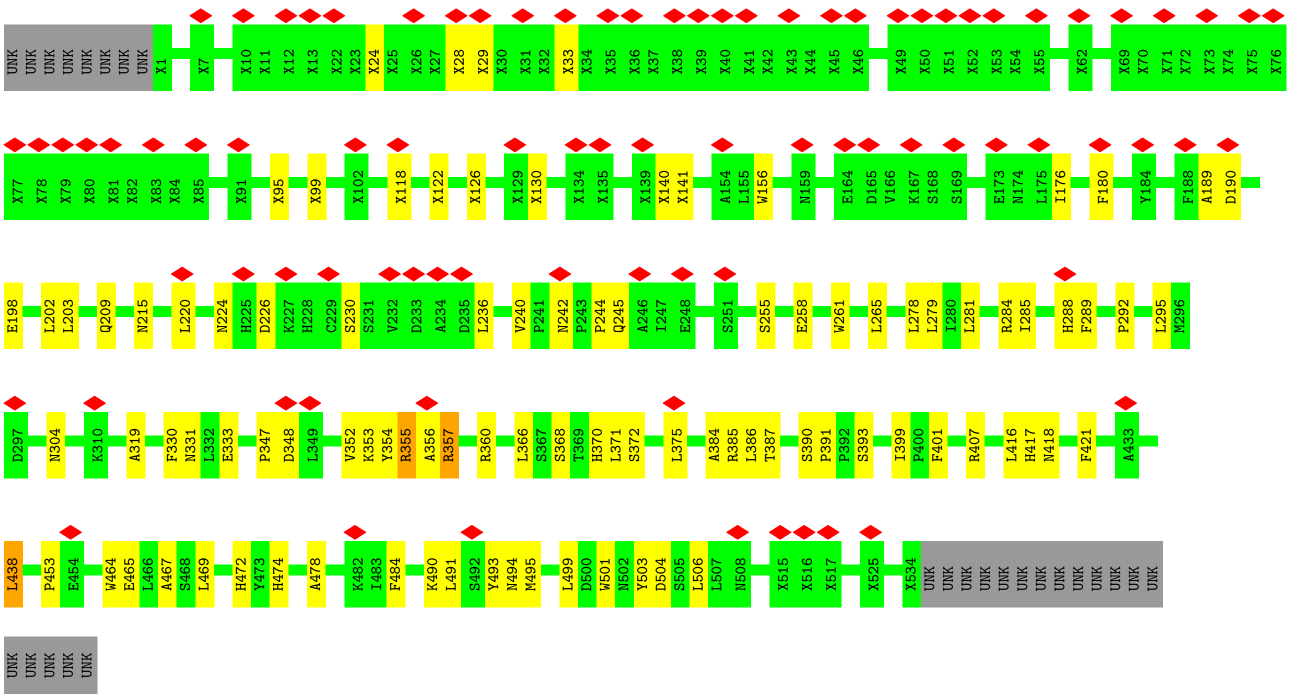
Chain ST:





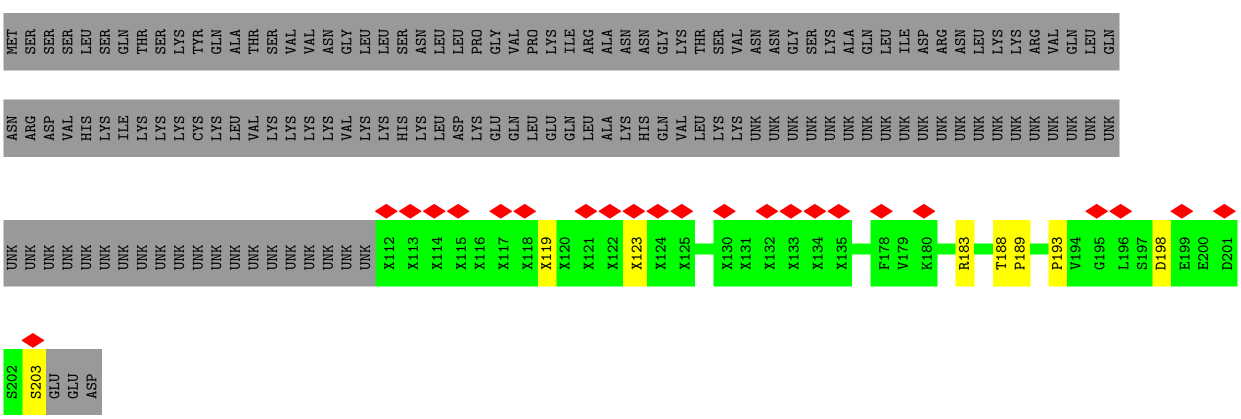
- Molecule 62: Noc4

Chain SU:



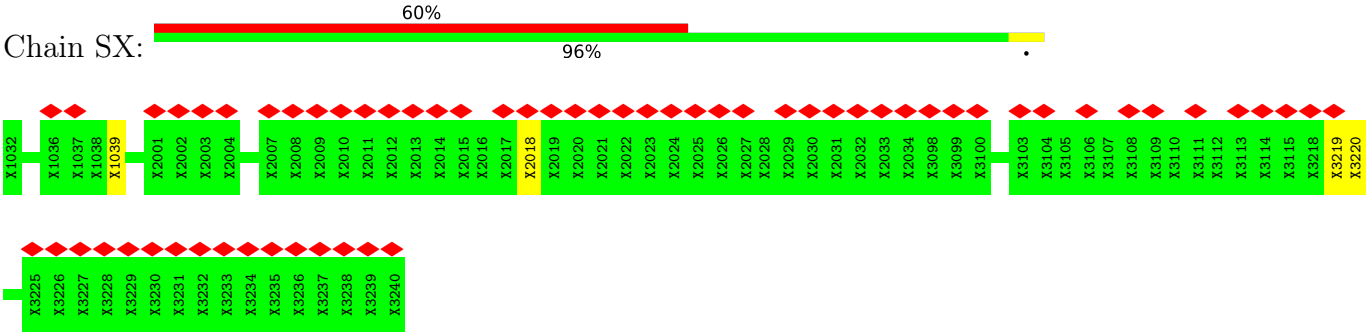
- Molecule 63: Rrt14

Chain SV:



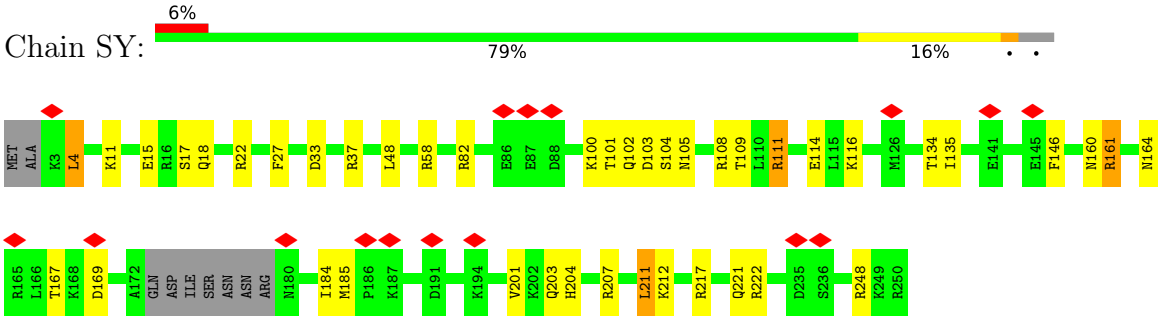
- Molecule 64: Unassigned peptides

Chain SX:



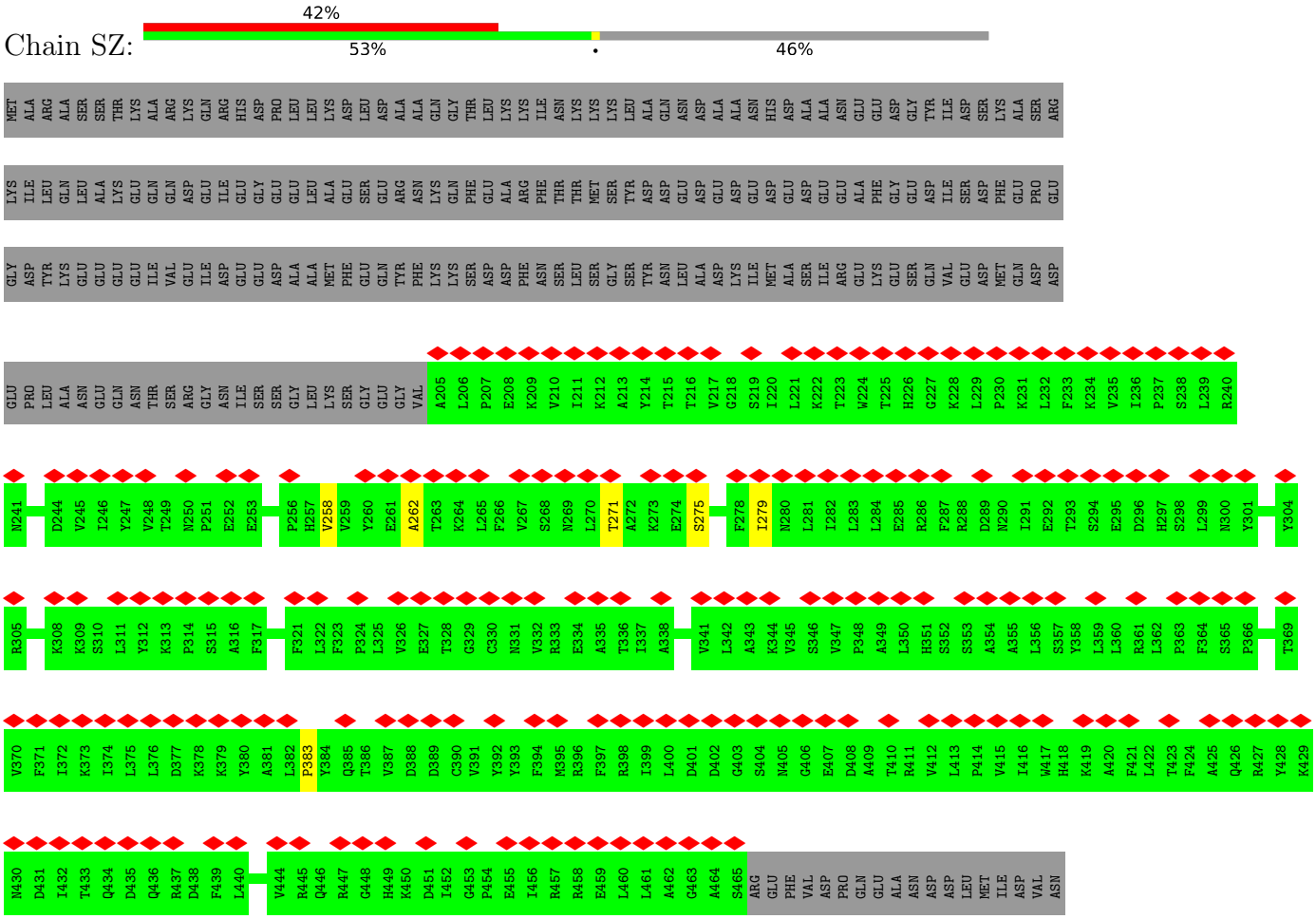
• Molecule 65: Utp11

Chain SY:



• Molecule 66: Enp1

Chain SZ:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	284213	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	1.56	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	2600	Depositor
Magnification	22500	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.166	Depositor
Minimum map value	-0.105	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.023	Depositor
Map size (Å)	520.0, 520.0, 520.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.3, 1.3, 1.3	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	L0	0.72	0/11634	1.03	32/18120 (0.2%)
2	L1	0.54	0/24442	1.01	70/38042 (0.2%)
3	L2	0.74	0/4001	1.03	11/6215 (0.2%)
4	L3	0.30	0/871	0.53	0/1171
5	L4	0.31	0/1849	0.65	1/2497 (0.0%)
6	L5	0.44	0/1690	0.61	0/2285
7	L6	0.29	0/899	0.58	0/1201
8	L7	0.30	0/1342	0.62	0/1807
9	L8	0.28	0/1372	0.53	0/1834
10	L9	0.43	0/1437	0.63	0/1924
11	LC	0.60	0/990	0.72	1/1335 (0.1%)
12	LD	0.31	0/1050	0.57	0/1415
13	LE	0.31	0/1020	0.54	0/1371
14	LF	0.36	0/727	0.70	0/977
15	LG	0.44	0/499	0.62	0/670
16	LH	0.38	0/6694	0.63	5/9070 (0.1%)
17	LI	0.28	0/1105	0.53	0/1491
18	LJ	0.44	0/3993	0.63	2/5413 (0.0%)
19	LK	0.27	0/735	0.51	0/987
20	LL	0.40	0/3840	0.62	0/5208
21	LM	0.44	0/3470	0.61	2/4694 (0.0%)
22	LN	0.39	0/5369	0.63	4/7272 (0.1%)
23	LO	0.54	0/6780	0.68	3/9175 (0.0%)
24	LP	0.39	0/2281	0.53	0/3059
25	LQ	0.34	0/6574	0.61	2/8881 (0.0%)
26	LR	0.39	0/1336	0.55	1/1800 (0.1%)
27	LS	0.50	0/3875	0.64	1/5254 (0.0%)
28	LT	0.47	0/6834	0.60	0/9238
29	LU	0.48	0/3802	0.63	2/5118 (0.0%)
30	LV	0.33	0/2902	0.64	2/3941 (0.1%)
31	LW	0.55	0/3505	0.69	4/4748 (0.1%)
32	LX	0.32	0/1481	0.57	0/1987

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
32	LY	0.22	0/768	0.40	0/1065
33	LZ	0.57	0/1559	0.71	0/2097
34	NA	0.39	0/1685	0.61	0/2261
35	NB	0.40	0/1042	0.53	0/1377
36	NC	0.33	0/1139	0.61	1/1512 (0.1%)
37	ND	0.31	0/499	0.58	0/659
38	NE	0.27	0/1063	0.56	0/1402
39	NF	0.23	0/614	0.42	0/855
40	NG	0.26	0/542	0.53	0/750
41	NH	0.23	0/5356	0.42	0/7460
42	NI	0.23	0/838	0.41	0/1166
43	NJ	0.23	0/1313	0.37	0/1830
44	NK	0.24	0/867	0.42	0/1208
45	SA	0.39	0/2769	0.54	1/3728 (0.0%)
46	SB	0.40	0/2344	0.59	0/3160
47	SC	0.54	0/1917	0.66	1/2588 (0.0%)
47	SD	0.35	0/1815	0.57	0/2448
48	SE	0.44	0/928	0.60	0/1262
48	SF	0.39	0/928	0.61	0/1262
49	SG	0.36	0/3498	0.58	0/4712
50	SH	0.36	0/2832	0.54	0/3825
51	SI	0.45	0/6403	0.63	1/8616 (0.0%)
52	SJ	0.30	0/1727	0.51	0/2329
52	SK	0.35	0/1828	0.55	0/2470
53	SL	0.49	0/1418	0.64	0/1906
54	SM	0.51	0/2337	0.72	5/3148 (0.2%)
55	SN	0.40	0/2041	0.64	0/2745
56	SO	0.28	0/1003	0.47	0/1381
58	SQ	0.39	0/1156	0.56	0/1536
59	SR	0.44	0/804	0.67	1/1074 (0.1%)
60	SS	0.34	0/1230	0.54	0/1660
61	ST	0.32	0/3826	0.52	1/5125 (0.0%)
62	SU	0.36	0/3064	0.57	0/4163
63	SV	0.36	0/201	0.56	0/273
65	SY	0.44	0/2042	0.62	0/2704
66	SZ	0.24	0/1294	0.39	0/1804
All	All	0.46	0/183089	0.72	154/255761 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
4	L3	0	1
5	L4	0	2
8	L7	0	4
11	LC	0	1
12	LD	0	1
14	LF	0	1
16	LH	0	2
22	LN	0	2
23	LO	0	2
25	LQ	0	2
28	LT	0	1
29	LU	0	1
30	LV	0	3
31	LW	0	2
34	NA	0	1
36	NC	0	2
46	SB	0	1
48	SE	0	1
49	SG	0	1
54	SM	0	3
56	SO	0	1
58	SQ	0	2
All	All	0	37

There are no bond length outliers.

The worst 5 of 154 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	L1	965	U	N1-C2-O2	11.23	130.66	122.80
1	L0	430	C	N1-C2-O2	11.16	125.59	118.90
2	L1	374	U	N1-C2-O2	11.06	130.54	122.80
2	L1	965	U	C2-N1-C1'	11.06	130.97	117.70
2	L1	374	U	C2-N1-C1'	10.92	130.80	117.70

There are no chirality outliers.

5 of 37 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	L3	13	HIS	Peptide
5	L4	193	GLY	Peptide
5	L4	194	THR	Peptide
8	L7	10	SER	Peptide

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Mol	Chain	Res	Type	Group
8	L7	12	ALA	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	L0	10405	0	5231	112	0
2	L1	21866	0	11031	252	0
3	L2	3585	0	1819	43	0
4	L3	901	0	904	15	0
5	L4	1810	0	1865	52	0
6	L5	1669	0	1724	35	0
7	L6	888	0	928	20	0
8	L7	1321	0	1390	18	0
9	L8	1349	0	1372	38	0
10	L9	1415	0	1497	31	0
11	LC	973	0	1029	16	0
12	LD	1027	0	1084	24	0
13	LE	1003	0	1040	12	0
14	LF	715	0	744	11	0
15	LG	497	0	535	12	0
16	LH	6633	0	6509	125	0
17	LI	2857	0	1520	46	0
18	LJ	3911	0	3906	93	0
19	LK	898	0	809	11	0
20	LL	3772	0	3806	90	0
21	LM	3443	0	3558	56	0
22	LN	5344	0	5303	116	0
23	LO	6635	0	6525	136	0
24	LP	2709	0	2363	45	0
25	LQ	6640	0	6501	172	0
26	LR	4144	0	1952	53	0
27	LS	3791	0	3772	105	0
28	LT	6697	0	6676	136	0
29	LU	3725	0	3679	94	0
30	LV	2840	0	2685	78	0
31	LW	3428	0	3407	81	0
32	LX	4583	0	2198	62	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
32	LY	3823	0	983	25	0
33	LZ	1530	0	1572	40	0
34	NA	1667	0	1701	43	0
35	NB	1098	0	1100	23	0
36	NC	1125	0	1101	18	0
37	ND	600	0	586	18	0
38	NE	1192	0	1184	22	0
39	NF	615	0	280	0	0
40	NG	543	0	277	9	0
41	NH	5362	0	2295	6	0
42	NI	841	0	365	1	0
43	NJ	1314	0	610	2	0
44	NK	868	0	379	3	0
45	SA	2854	0	2787	50	0
46	SB	2937	0	2512	43	0
47	SC	1881	0	1928	42	0
47	SD	1782	0	1826	43	0
48	SE	916	0	964	15	0
48	SF	916	0	964	19	0
49	SG	3428	0	3446	76	0
50	SH	2781	0	2878	57	0
51	SI	6412	0	6497	160	0
52	SJ	1701	0	1767	25	0
52	SK	1799	0	1872	40	0
53	SL	1395	0	1473	35	0
54	SM	2296	0	2325	61	0
55	SN	2006	0	2118	45	0
56	SO	998	0	631	11	0
57	SP	4910	0	1107	10	0
58	SQ	1137	0	1188	16	0
59	SR	792	0	847	26	0
60	SS	1466	0	1253	24	0
61	ST	4473	0	4053	73	0
62	SU	3781	0	3106	62	0
63	SV	381	0	224	7	0
64	SX	515	0	118	4	0
65	SY	2016	0	2093	38	0
66	SZ	1295	0	571	4	0
67	SL	1	0	0	0	0
All	All	196921	0	158343	2804	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 8.

The worst 5 of 2804 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L1:547:U:OP2	35:NB:554:ARG:NH1	1.81	1.12
1:L0:90:G:OP1	18:LJ:378:LYS:NZ	1.84	1.10
3:L2:253:G:OP2	48:SF:95:ARG:NH1	1.93	1.00
51:SI:1059:ARG:NH1	65:SY:33:ASP:OD2	1.95	0.99
29:LU:292:ARG:HH12	60:SS:299:ASN:HB2	1.28	0.98

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
4	L3	100/146 (68%)	93 (93%)	6 (6%)	1 (1%)	15 52
5	L4	226/261 (87%)	206 (91%)	19 (8%)	1 (0%)	34 70
6	L5	211/225 (94%)	198 (94%)	13 (6%)	0	100 100
7	L6	109/236 (46%)	100 (92%)	8 (7%)	1 (1%)	17 54
8	L7	161/190 (85%)	149 (92%)	10 (6%)	2 (1%)	13 50
9	L8	166/200 (83%)	155 (93%)	11 (7%)	0	100 100
10	L9	173/197 (88%)	165 (95%)	8 (5%)	0	100 100
11	LC	123/143 (86%)	111 (90%)	12 (10%)	0	100 100
12	LD	123/156 (79%)	109 (89%)	13 (11%)	1 (1%)	19 57
13	LE	125/130 (96%)	119 (95%)	6 (5%)	0	100 100
14	LF	88/135 (65%)	73 (83%)	12 (14%)	3 (3%)	3 31
15	LG	61/67 (91%)	57 (93%)	4 (7%)	0	100 100
16	LH	810/896 (90%)	760 (94%)	50 (6%)	0	100 100
17	LI	128/713 (18%)	121 (94%)	7 (6%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	LJ	489/513 (95%)	459 (94%)	30 (6%)	0	100	100
19	LK	86/575 (15%)	83 (96%)	3 (4%)	0	100	100
20	LL	465/643 (72%)	437 (94%)	28 (6%)	0	100	100
21	LM	424/1769 (24%)	407 (96%)	17 (4%)	0	100	100
22	LN	654/776 (84%)	600 (92%)	54 (8%)	0	100	100
23	LO	830/923 (90%)	762 (92%)	68 (8%)	0	100	100
24	LP	259/440 (59%)	253 (98%)	6 (2%)	0	100	100
25	LQ	798/943 (85%)	747 (94%)	51 (6%)	0	100	100
26	LR	156/817 (19%)	152 (97%)	4 (3%)	0	100	100
27	LS	473/594 (80%)	442 (93%)	31 (7%)	0	100	100
28	LT	844/939 (90%)	800 (95%)	44 (5%)	0	100	100
29	LU	453/489 (93%)	431 (95%)	22 (5%)	0	100	100
30	LV	360/707 (51%)	319 (89%)	40 (11%)	1 (0%)	41	74
31	LW	436/554 (79%)	405 (93%)	31 (7%)	0	100	100
32	LX	179/1056 (17%)	170 (95%)	9 (5%)	0	100	100
32	LY	152/1056 (14%)	139 (91%)	13 (9%)	0	100	100
33	LZ	180/183 (98%)	168 (93%)	11 (6%)	1 (1%)	25	62
34	NA	203/593 (34%)	188 (93%)	13 (6%)	2 (1%)	15	52
35	NB	126/610 (21%)	119 (94%)	7 (6%)	0	100	100
36	NC	134/357 (38%)	118 (88%)	16 (12%)	0	100	100
37	ND	58/214 (27%)	55 (95%)	3 (5%)	0	100	100
38	NE	129/346 (37%)	124 (96%)	5 (4%)	0	100	100
39	NF	122/151 (81%)	116 (95%)	6 (5%)	0	100	100
40	NG	109/137 (80%)	94 (86%)	15 (14%)	0	100	100
41	NH	1070/1237 (86%)	1019 (95%)	51 (5%)	0	100	100
42	NI	163/297 (55%)	159 (98%)	4 (2%)	0	100	100
43	NJ	263/1729 (15%)	256 (97%)	7 (3%)	0	100	100
44	NK	173/316 (55%)	164 (95%)	9 (5%)	0	100	100
45	SA	338/504 (67%)	326 (96%)	12 (4%)	0	100	100
46	SB	297/511 (58%)	283 (95%)	14 (5%)	0	100	100
47	SC	238/327 (73%)	220 (92%)	18 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
47	SD	224/327 (68%)	216 (96%)	8 (4%)	0	100	100
48	SE	119/126 (94%)	114 (96%)	4 (3%)	1 (1%)	19	57
48	SF	119/126 (94%)	117 (98%)	2 (2%)	0	100	100
49	SG	423/573 (74%)	395 (93%)	28 (7%)	0	100	100
50	SH	358/367 (98%)	343 (96%)	15 (4%)	0	100	100
51	SI	763/1184 (64%)	721 (94%)	41 (5%)	1 (0%)	51	83
52	SJ	212/252 (84%)	208 (98%)	4 (2%)	0	100	100
52	SK	226/252 (90%)	219 (97%)	7 (3%)	0	100	100
53	SL	170/189 (90%)	157 (92%)	13 (8%)	0	100	100
54	SM	278/290 (96%)	252 (91%)	26 (9%)	0	100	100
55	SN	245/274 (89%)	230 (94%)	15 (6%)	0	100	100
56	SO	177/274 (65%)	167 (94%)	10 (6%)	0	100	100
58	SQ	129/217 (59%)	121 (94%)	8 (6%)	0	100	100
59	SR	102/145 (70%)	88 (86%)	13 (13%)	1 (1%)	15	52
60	SS	142/898 (16%)	134 (94%)	8 (6%)	0	100	100
61	ST	448/792 (57%)	432 (96%)	16 (4%)	0	100	100
62	SU	366/552 (66%)	349 (95%)	17 (5%)	0	100	100
63	SV	24/206 (12%)	20 (83%)	4 (17%)	0	100	100
65	SY	237/250 (95%)	218 (92%)	18 (8%)	1 (0%)	34	70
66	SZ	259/483 (54%)	245 (95%)	14 (5%)	0	100	100
All	All	18286/31778 (58%)	17177 (94%)	1092 (6%)	17 (0%)	54	83

5 of 17 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	L4	195	ILE
34	NA	454	VAL
59	SR	90	ASP
14	LF	52	LYS
30	LV	58	ALA

5.3.2 Protein sidechains (i)

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

entries.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	L3	96/123 (78%)	95 (99%)	1 (1%)	76	86
5	L4	196/222 (88%)	194 (99%)	2 (1%)	76	86
6	L5	180/191 (94%)	180 (100%)	0	100	100
7	L6	96/201 (48%)	94 (98%)	2 (2%)	53	74
8	L7	146/170 (86%)	145 (99%)	1 (1%)	84	91
9	L8	138/161 (86%)	137 (99%)	1 (1%)	84	91
10	L9	150/166 (90%)	149 (99%)	1 (1%)	84	91
11	LC	105/119 (88%)	105 (100%)	0	100	100
12	LD	114/137 (83%)	112 (98%)	2 (2%)	59	77
13	LE	108/111 (97%)	107 (99%)	1 (1%)	78	88
14	LF	76/113 (67%)	74 (97%)	2 (3%)	46	69
15	LG	56/60 (93%)	56 (100%)	0	100	100
16	LH	758/813 (93%)	737 (97%)	21 (3%)	43	68
17	LI	126/153 (82%)	124 (98%)	2 (2%)	62	79
18	LJ	437/454 (96%)	430 (98%)	7 (2%)	62	79
19	LK	83/500 (17%)	81 (98%)	2 (2%)	49	71
20	LL	428/574 (75%)	426 (100%)	2 (0%)	88	94
21	LM	391/1627 (24%)	386 (99%)	5 (1%)	69	82
22	LN	604/699 (86%)	595 (98%)	9 (2%)	65	81
23	LO	730/812 (90%)	723 (99%)	7 (1%)	76	86
24	LP	248/303 (82%)	247 (100%)	1 (0%)	91	95
25	LQ	717/794 (90%)	709 (99%)	8 (1%)	73	85
26	LR	147/155 (95%)	146 (99%)	1 (1%)	84	91
27	LS	424/529 (80%)	420 (99%)	4 (1%)	78	88
28	LT	745/819 (91%)	737 (99%)	8 (1%)	73	85
29	LU	412/443 (93%)	407 (99%)	5 (1%)	71	84
30	LV	307/636 (48%)	305 (99%)	2 (1%)	84	91
31	LW	373/480 (78%)	372 (100%)	1 (0%)	92	96
32	LX	164/165 (99%)	159 (97%)	5 (3%)	41	66

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
33	LZ	171/172 (99%)	165 (96%)	6 (4%)	36	64
34	NA	187/535 (35%)	184 (98%)	3 (2%)	62	79
35	NB	108/525 (21%)	107 (99%)	1 (1%)	78	88
36	NC	119/315 (38%)	118 (99%)	1 (1%)	81	89
37	ND	57/176 (32%)	57 (100%)	0	100	100
38	NE	114/278 (41%)	113 (99%)	1 (1%)	78	88
45	SA	296/413 (72%)	293 (99%)	3 (1%)	76	86
46	SB	243/319 (76%)	238 (98%)	5 (2%)	53	74
47	SC	202/240 (84%)	198 (98%)	4 (2%)	55	75
47	SD	192/240 (80%)	189 (98%)	3 (2%)	62	79
48	SE	100/104 (96%)	98 (98%)	2 (2%)	55	75
48	SF	100/104 (96%)	100 (100%)	0	100	100
49	SG	373/503 (74%)	371 (100%)	2 (0%)	88	94
50	SH	307/312 (98%)	307 (100%)	0	100	100
51	SI	684/1014 (68%)	670 (98%)	14 (2%)	55	75
52	SJ	195/222 (88%)	190 (97%)	5 (3%)	46	69
52	SK	206/222 (93%)	201 (98%)	5 (2%)	49	71
53	SL	156/169 (92%)	154 (99%)	2 (1%)	69	82
54	SM	251/258 (97%)	244 (97%)	7 (3%)	43	68
55	SN	230/256 (90%)	226 (98%)	4 (2%)	60	78
56	SO	33/238 (14%)	32 (97%)	1 (3%)	41	66
58	SQ	124/200 (62%)	124 (100%)	0	100	100
59	SR	86/120 (72%)	84 (98%)	2 (2%)	50	72
60	SS	135/758 (18%)	135 (100%)	0	100	100
61	ST	417/534 (78%)	412 (99%)	5 (1%)	71	84
62	SU	330/338 (98%)	323 (98%)	7 (2%)	53	74
63	SV	22/117 (19%)	22 (100%)	0	100	100
65	SY	226/234 (97%)	220 (97%)	6 (3%)	44	69
All	All	14219/20646 (69%)	14027 (99%)	192 (1%)	68	81

5 of 192 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
45	SA	129	ARG
51	SI	868	ARG
46	SB	256	ASN
48	SE	25	GLN
52	SJ	125	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 259 such sidechains are listed below:

Mol	Chain	Res	Type
55	SN	221	ASN
61	ST	438	ASN
23	LO	306	ASN
23	LO	156	GLN
61	ST	704	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	L0	484/700 (69%)	122 (25%)	7 (1%)
2	L1	1004/1807 (55%)	282 (28%)	19 (1%)
3	L2	163/333 (48%)	45 (27%)	0
All	All	1651/2840 (58%)	449 (27%)	26 (1%)

5 of 449 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	L0	63	G
1	L0	64	U
1	L0	82	A
1	L0	83	U
1	L0	85	G

5 of 26 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	L1	272	U
2	L1	542	A
2	L1	1620	C
2	L1	417	A
2	L1	579	A

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 1 ligands modelled in this entry, 1 is 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
57	SP	61
26	LR	14
32	LY	11
32	LX	11
17	LI	9
64	SX	3
61	ST	2
24	LP	2
19	LK	2
45	SA	2
46	SB	2
63	SV	1

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Mol	Chain	Number of breaks
22	LN	1
60	SS	1
38	NE	1
62	SU	1
37	ND	1
25	LQ	1

The worst 5 of 126 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	SX	2034:UNK	C	3098:UNK	N	257.52
1	SX	1058:UNK	C	2000:UNK	N	68.50
1	SX	3115:UNK	C	3218:UNK	N	49.43
1	LI	358:UNK	C	457:UNK	N	41.95
1	LR	323:UNK	C	329:UNK	N	40.86

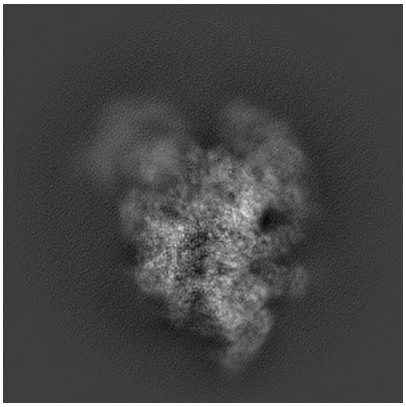
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-8859. These allow visual inspection of the internal detail of the map and identification of artifacts.

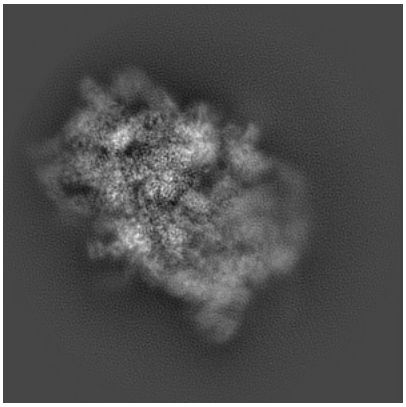
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

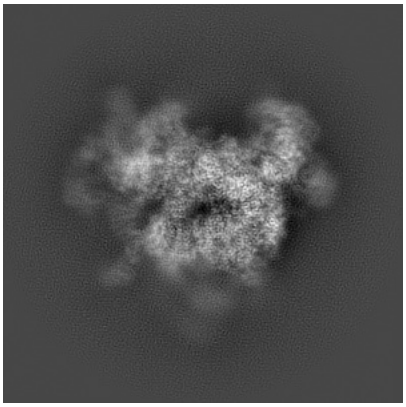
6.1.1 Primary map



X



Y

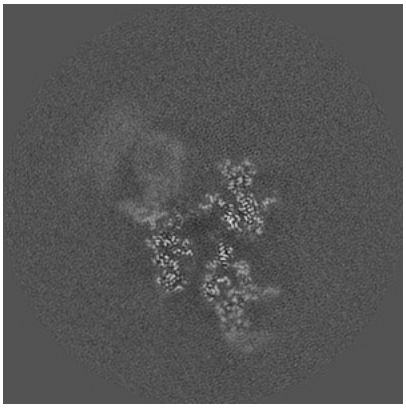


Z

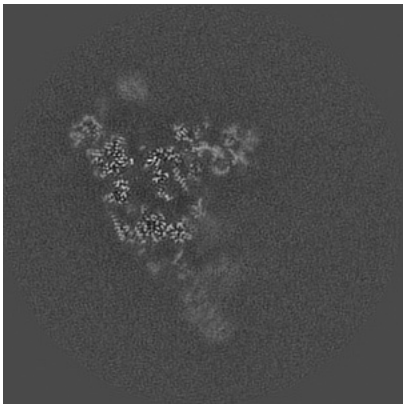
The images above show the map projected in three orthogonal directions.

6.2 Central slices

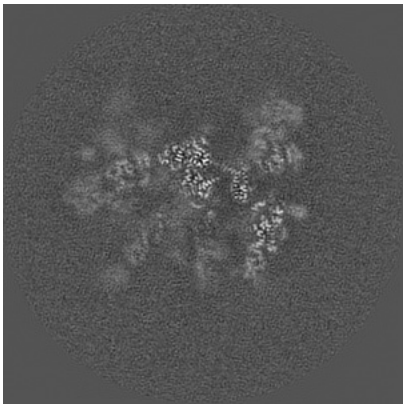
6.2.1 Primary map



X Index: 200



Y Index: 200

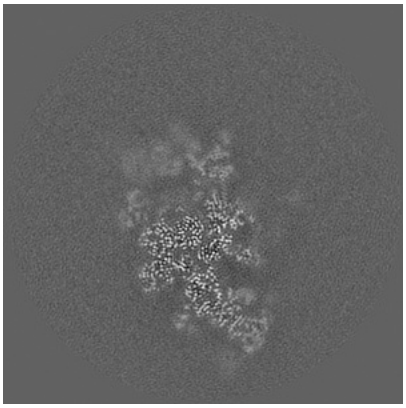


Z Index: 200

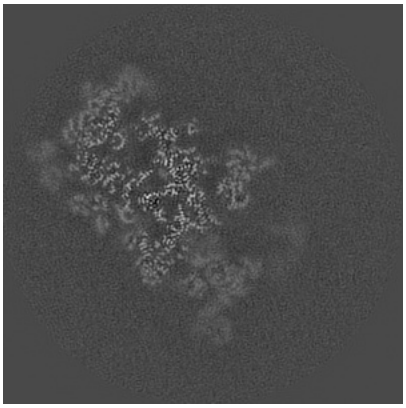
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

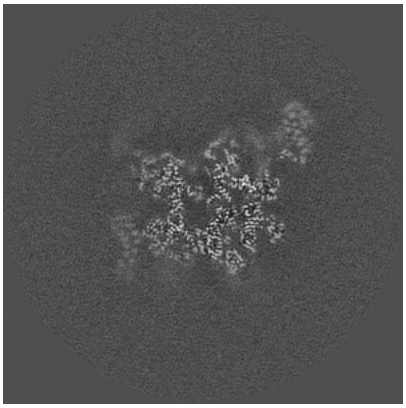
6.3.1 Primary map



X Index: 242



Y Index: 223

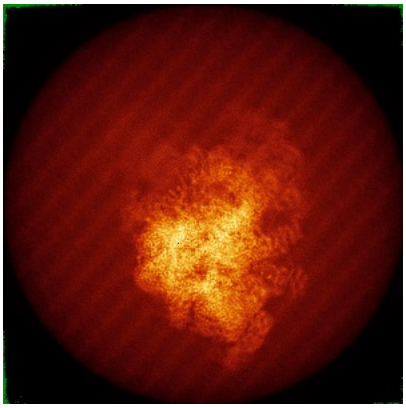


Z Index: 167

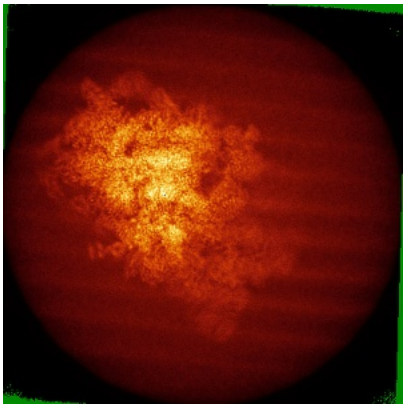
The images above show the largest variance slices of the map in three orthogonal directions.

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

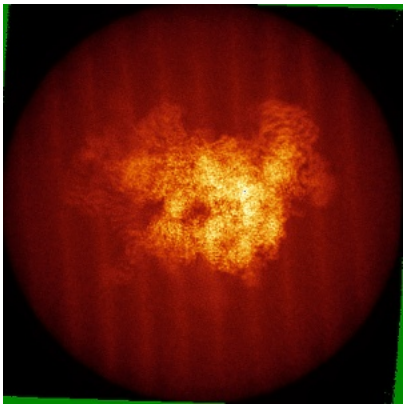
6.4.1 Primary map



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

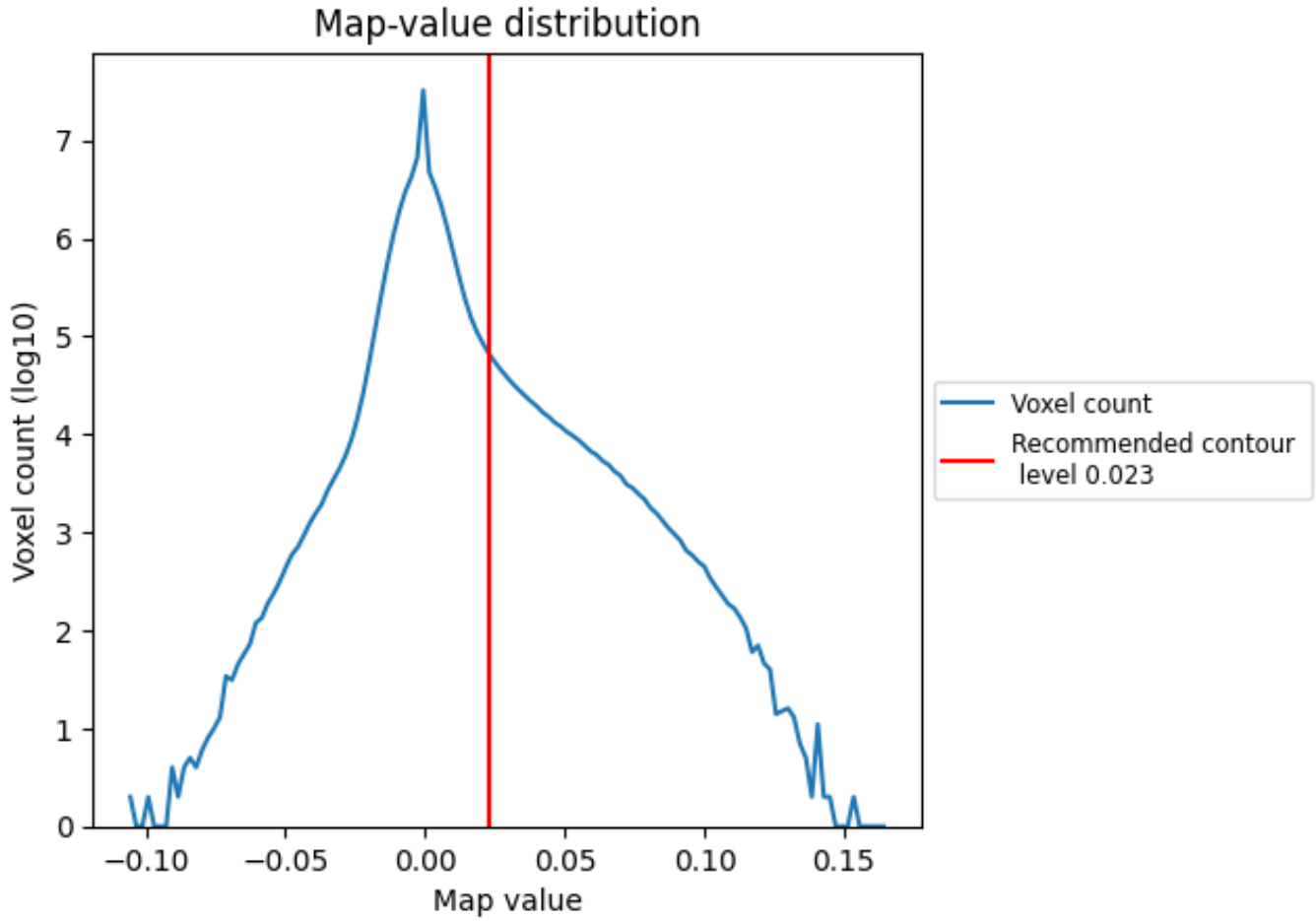
6.6 Mask visualisation (i)

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

7 Map analysis

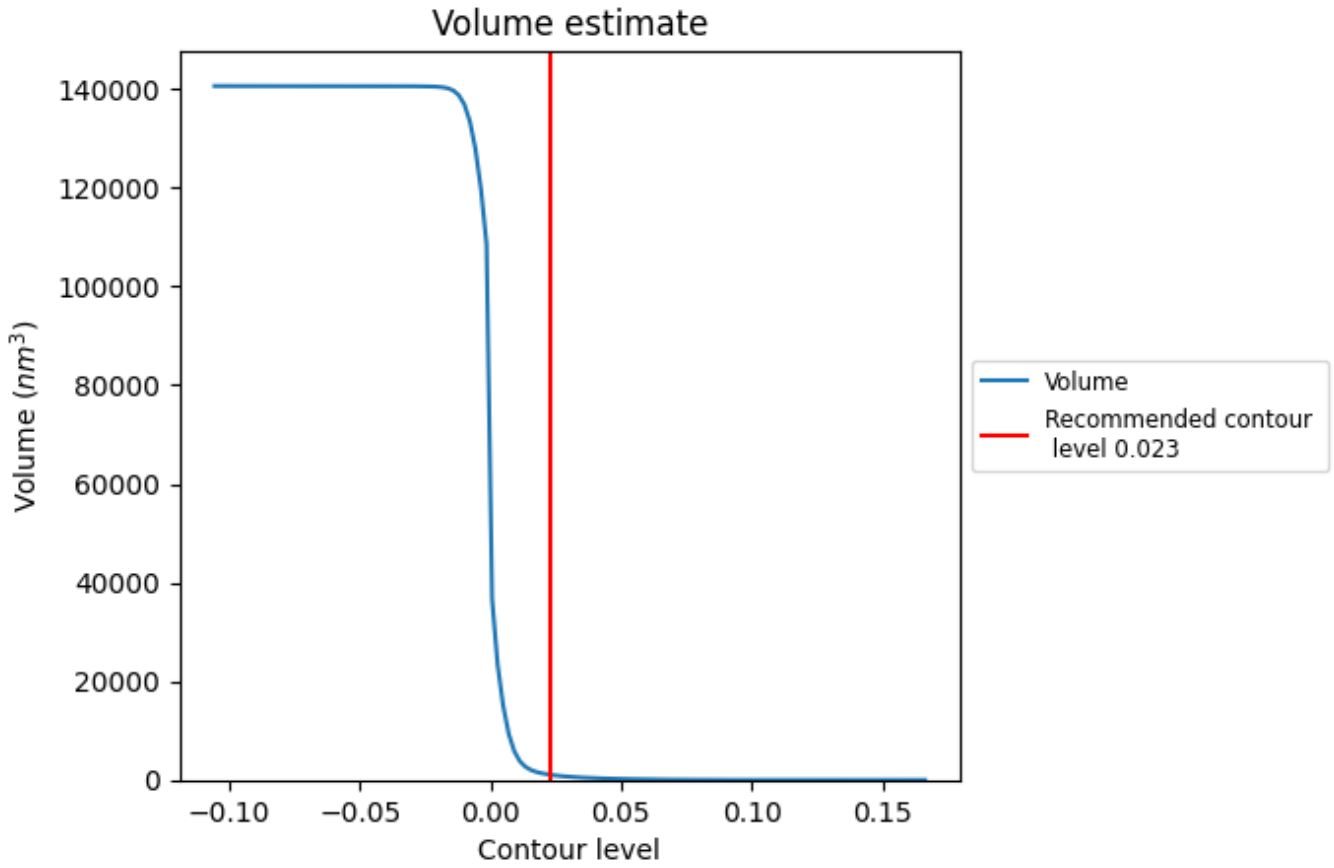
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

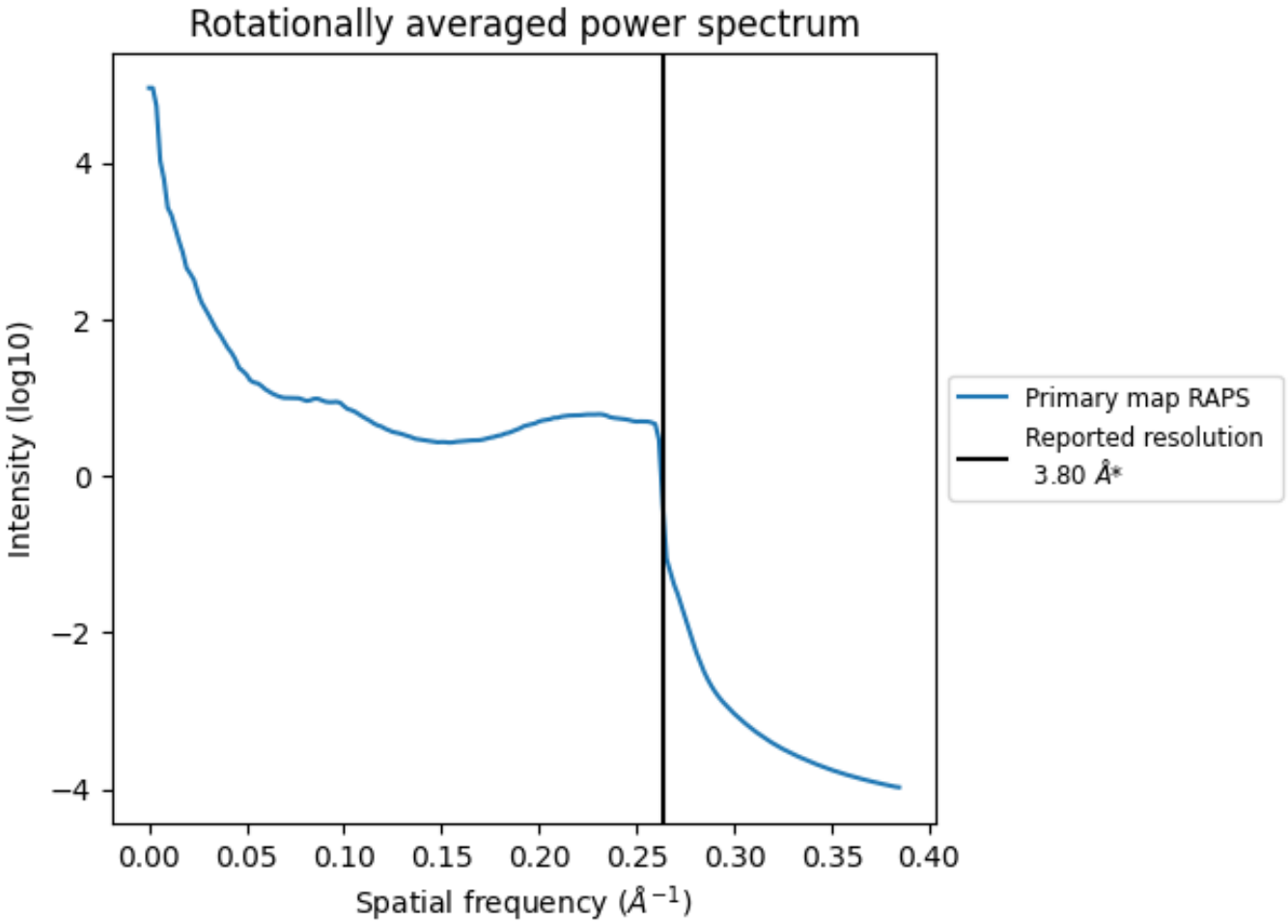
7.2 Volume estimate (i)



The volume at the recommended contour level is 1051 nm^3; this corresponds to an approximate mass of 950 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 0.263 Å^{-1}

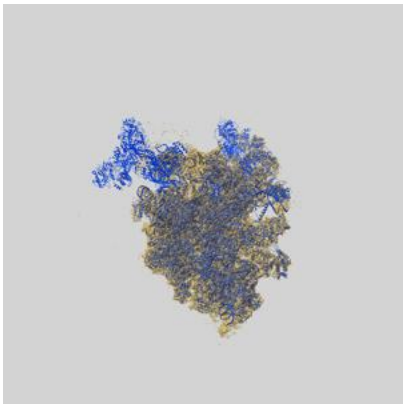
8 Fourier-Shell correlation (i)

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

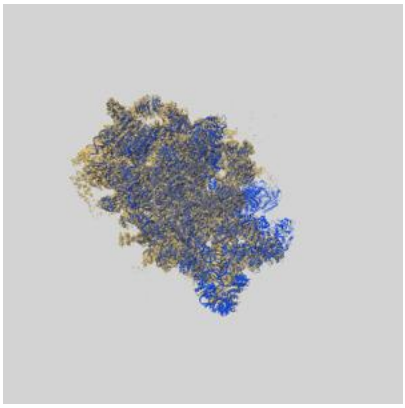
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-8859 and PDB model 5WLC. Per-residue inclusion information can be found in section 3 on page 16.

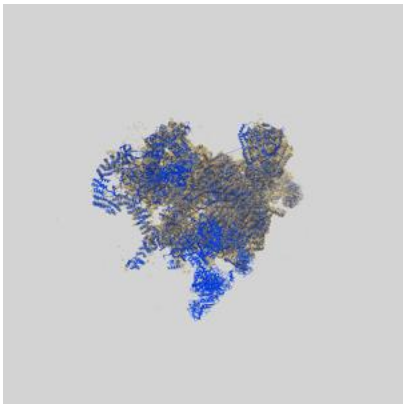
9.1 Map-model overlay



X



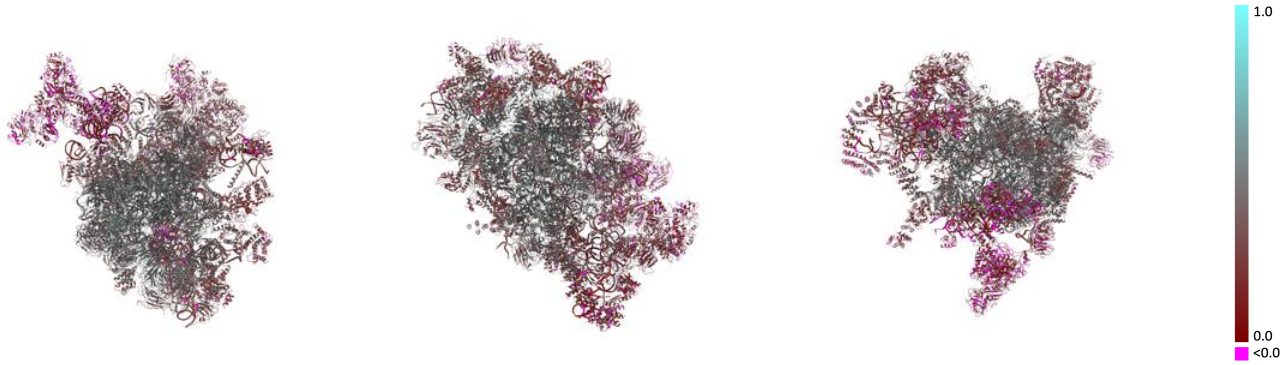
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.023 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

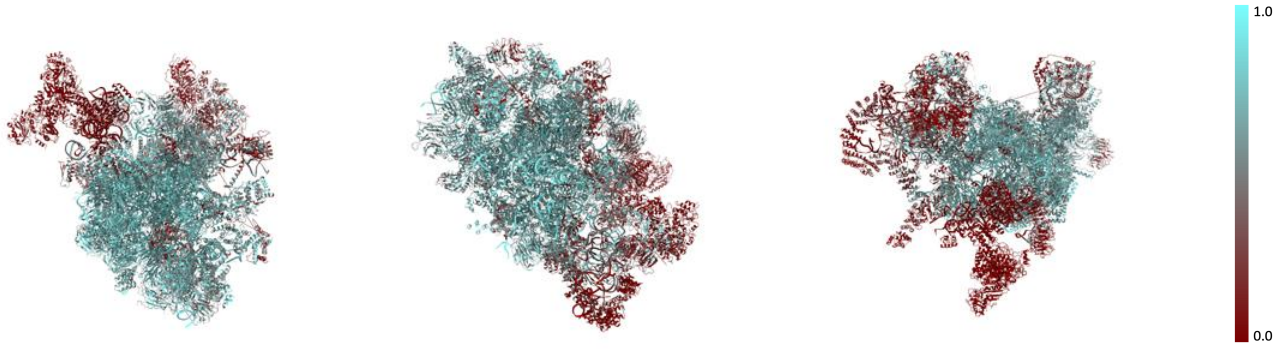
9.2 Q-score mapped to coordinate model



X Y Z

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

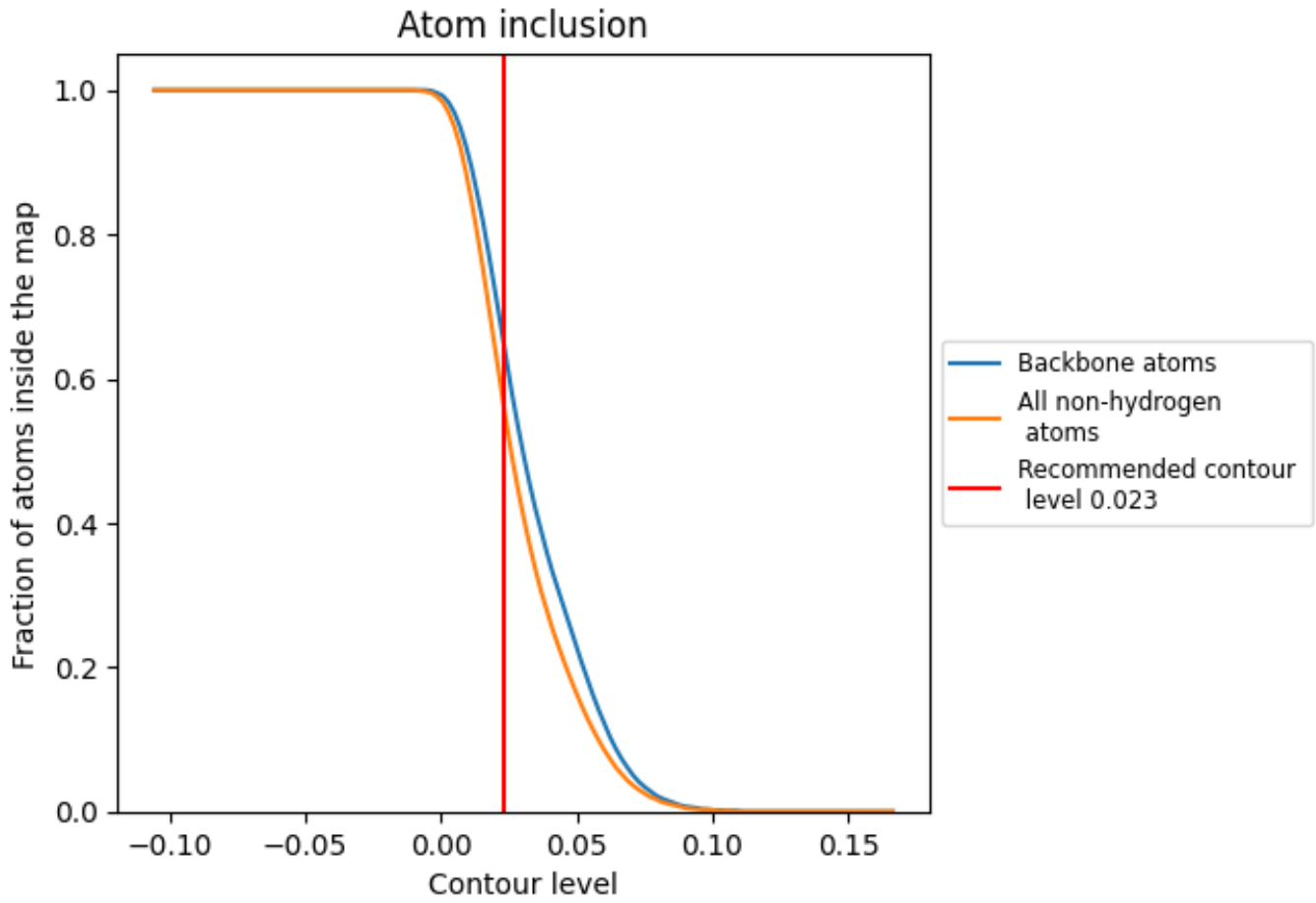
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.023).

9.4 Atom inclusion (i)



At the recommended contour level, 65% of all backbone atoms, 56% 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 (0.023) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5650	0.3730
L0	0.8090	0.4030
L1	0.5150	0.2950
L2	0.8300	0.4230
L3	0.3460	0.3430
L4	0.4540	0.3550
L5	0.7190	0.4610
L6	0.2410	0.2740
L7	0.1010	0.2740
L8	0.2820	0.2460
L9	0.6940	0.4630
LC	0.7830	0.5000
LD	0.1950	0.2040
LE	0.3400	0.3730
LF	0.5690	0.3810
LG	0.7150	0.4880
LH	0.6650	0.4140
LI	0.4180	0.2590
LJ	0.7440	0.4610
LK	0.5910	0.3190
LL	0.7170	0.4470
LM	0.7370	0.4510
LN	0.6410	0.3930
LO	0.7680	0.4850
LP	0.7110	0.3720
LQ	0.6090	0.3670
LR	0.2600	0.2480
LS	0.7660	0.4780
LT	0.7600	0.4740
LU	0.7010	0.4550
LV	0.2140	0.2370
LW	0.7590	0.4840
LX	0.3660	0.3050
LY	0.0880	0.2160
LZ	0.7750	0.4920

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Chain	Atom inclusion	Q-score
NA	0.6390	0.4320
NB	0.6630	0.4450
NC	0.4820	0.3750
ND	0.4500	0.3620
NE	0.1180	0.3550
NF	0.0110	0.1620
NG	0.0350	0.1830
NH	0.0020	0.1540
NI	0.0000	0.1450
NJ	0.0090	0.1660
NK	0.0590	0.2090
SA	0.6830	0.4210
SB	0.6800	0.4140
SC	0.7530	0.4900
SD	0.5960	0.4080
SE	0.7460	0.4860
SF	0.6960	0.4560
SG	0.6520	0.3940
SH	0.6970	0.4420
SI	0.6950	0.4410
SJ	0.5630	0.3460
SK	0.6560	0.4430
SL	0.7730	0.4890
SM	0.7210	0.4730
SN	0.7190	0.4400
SO	0.5020	0.3520
SP	0.1840	0.2730
SQ	0.6440	0.4410
SR	0.7030	0.4700
SS	0.5080	0.3900
ST	0.5060	0.3310
SU	0.6330	0.3490
SV	0.5000	0.4130
SX	0.3690	0.3230
SY	0.7330	0.4650
SZ	0.2670	0.2490