wwPDB EM Validation Summary Report (i)

Nov 8, 2022 – 09:18 AM JST

PDB ID	:	5Z56
EMDB ID	:	EMD-6889
Title	:	cryo-EM structure of a human activated spliceosome (mature Bact) at 5.1 angstrom.
Authors	:	Zhang, X.; Yan, C.; Zhan, X.; Li, L.; Lei, J.; Shi, Y.
Deposited on	:	2018-01-17
Resolution	:	5.10 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 (i) 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 (i)) were used in the production of this report:

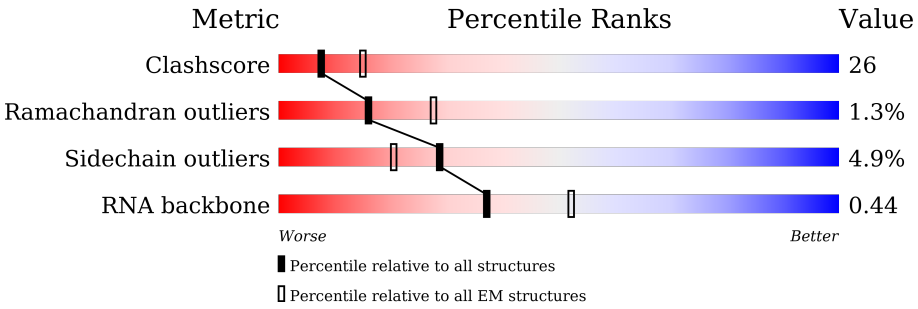
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.2

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 5.10 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)
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	A	2335	21% 55% 36%
2	B	117	18% 29% 26% 14% 28%
3	C	972	10% 49% 31% 7% 12%
4	D	2136	75% 79% 19%
5	E	357	26% 58% 22% 16%
6	a	126	62% 64% 36%
6	h	126	63% 63% 37%

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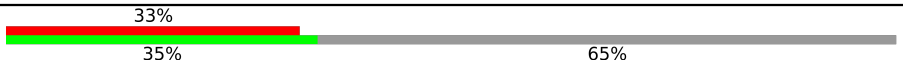
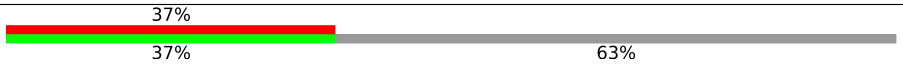
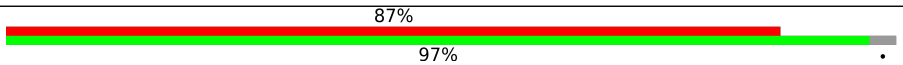
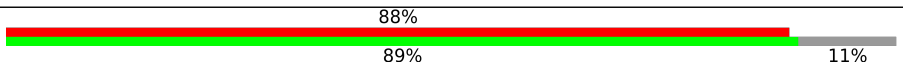
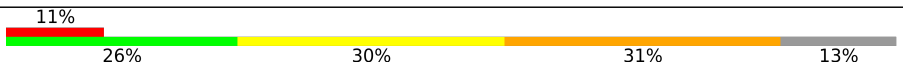
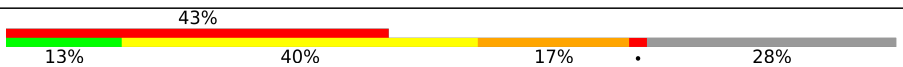
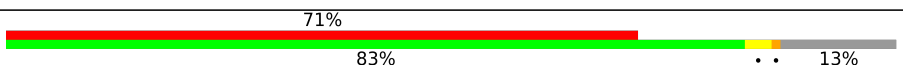
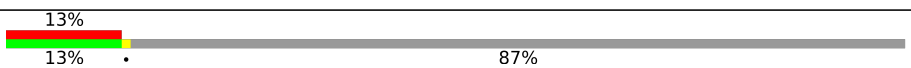
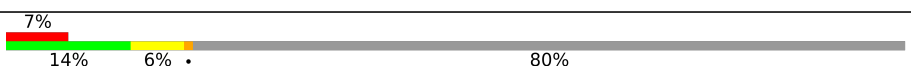
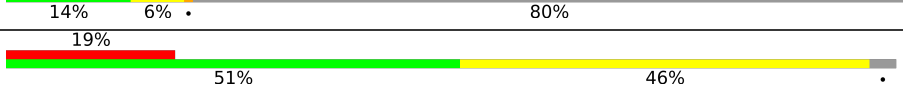
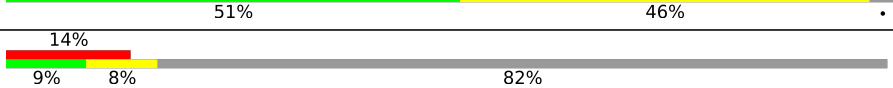
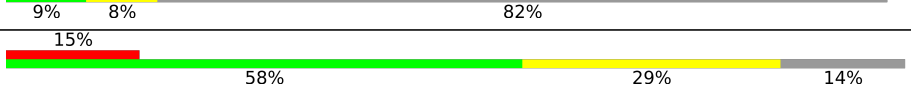
Mol	Chain	Length	Quality of chain
7	b	231	
7	i	231	
8	c	119	
8	j	119	
9	d	118	
9	k	118	
10	f	86	
10	m	86	
11	e	92	
11	l	92	
12	g	76	
12	n	76	
13	F	107	
14	G	274	
15	H	188	
16	o	255	
17	p	225	
18	w	501	
19	u	793	
20	v	464	
21	1	1304	
22	2	895	
23	3	1217	
24	4	424	
25	5	125	

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Mol	Chain	Length	Quality of chain
26	6	110	9% 51% 26% 23%
27	7	86	7% 43% 33% 23%
28	J	848	45% 54% 6% 38%
29	L	802	29% 35% 7% 57%
30	q	504	26% 25% 74%
30	r	504	26% 25% 74%
30	s	504	13% 13% 87%
30	t	504	13% 13% 87%
31	K	225	63% 54% 12% 32%
32	I	855	65% 60% 6% 34%
33	Q	1485	88% 89% 11%
34	M	343	8% 6% 90%
35	N	144	12% 58% 36% 5%
36	O	420	30% 33% 30% 32%
37	P	229	27% 18% 18% 5% 58%
38	R	540	20% 28% 19% 9% 43%
39	S	166	60% 59% 30% 6%
40	T	514	7% 36% 20% 39%
41	U	2752	99%
42	V	908	30% 44% 5% 50%
43	W	579	70% 64% 17% 17%
44	X	396	11% 31% 9% 60%
45	Y	322	16% 17% 67%
46	Z	619	9% 7% 82%
47	z	472	32% 38% 62%

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Mol	Chain	Length	Quality of chain
48	x	1041	56% 55% 44%
49	y	301	74% 77% 23%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
50	IHP	A	3000	-	-	X	-
51	GTP	C	1500	-	-	X	-
53	ZN	O	502	-	-	X	-

2 Entry composition (i)

There are 53 unique types of molecules in this entry. The entry contains 117278 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 Pre-mRNA-processing-splicing factor 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	2232	18450	11885	3217	3269	79	0	0

- Molecule 2 is a RNA chain called U5 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	B	84	1768	792	295	597	84	0	0

- Molecule 3 is a protein called 116 kDa U5 small nuclear ribonucleoprotein component.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	860	6716	4294	1120	1270	32	0	0

- Molecule 4 is a protein called U5 small nuclear ribonucleoprotein 200 kDa helicase.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	D	1722	8528	5084	1722	1722	0	0

- Molecule 5 is a protein called U5 small nuclear ribonucleoprotein 40 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	299	2338	1470	410	445	13	0	0

- Molecule 6 is a protein called Small nuclear ribonucleoprotein Sm D3.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
6	a	81	399	237	81	81	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
6	h	80	Total 393	C 233	N 80	O 80	0	0

- Molecule 7 is a protein called Small nuclear ribonucleoprotein-associated proteins B and B'.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	b	82	Total 405	C 241	N 82	O 82	0	0
7	i	86	Total 422	C 250	N 86	O 86	0	0

- Molecule 8 is a protein called Small nuclear ribonucleoprotein Sm D1.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	c	82	Total 406	C 242	N 82	O 82	0	0
8	j	82	Total 406	C 242	N 82	O 82	0	0

- Molecule 9 is a protein called Small nuclear ribonucleoprotein Sm D2.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	d	97	Total 480	C 286	N 97	O 97	0	0
9	k	85	Total 422	C 252	N 85	O 85	0	0

- Molecule 10 is a protein called Small nuclear ribonucleoprotein F.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	f	74	Total 361	C 213	N 74	O 74	0	0
10	m	74	Total 361	C 213	N 74	O 74	0	0

- Molecule 11 is a protein called Small nuclear ribonucleoprotein E.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	e	79	Total 391	C 233	N 79	O 79	0	0
11	l	79	Total 391	C 233	N 79	O 79	0	0

- Molecule 12 is a protein called Small nuclear ribonucleoprotein G.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	g	74	Total 363	C 215	N 74	O 74	0	0
12	n	68	Total 334	C 198	N 68	O 68	0	0

- Molecule 13 is a RNA chain called U6 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	F	93	Total 1988	C 889	N 363	O 643	P 93	0	0

- Molecule 14 is a RNA chain called pre-mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	G	77	Total 1545	C 689	N 240	O 539	P 77	0	0

- Molecule 15 is a RNA chain called U2 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	H	136	Total 2886	C 1289	N 499	O 962	P 136	0	0

- Molecule 16 is a protein called U2 small nuclear ribonucleoprotein A'.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	o	162	Total 804	C 480	N 162	O 162	0	0

- Molecule 17 is a protein called U2 small nuclear ribonucleoprotein B".

Mol	Chain	Residues	Atoms				AltConf	Trace
17	p	165	Total 813	C 483	N 165	O 165	0	0

- Molecule 18 is a protein called Splicing factor 3A subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	w	437	Total 2369	C 1448	N 460	O 458	S 3	0	0

- Molecule 19 is a protein called Splicing factor 3A subunit 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	u	106	Total	C	N	O	0	0
			530	318	106	106		

- Molecule 20 is a protein called Splicing factor 3A subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	v	167	Total	C	N	O	S	0	0
			946	571	193	180	2		

- Molecule 21 is a protein called Splicing factor 3B subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	1	1038	Total	C	N	O	S	0	0
			7702	4900	1347	1415	40		

- Molecule 22 is a protein called Splicing factor 3B subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	2	183	Total	C	N	O	S	0	0
			1252	809	213	226	4		

- Molecule 23 is a protein called Splicing factor 3B subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	3	1177	Total	C	N	O	S	0	0
			9220	5854	1566	1755	45		

- Molecule 24 is a protein called Splicing factor 3B subunit 4.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	4	78	Total	C	N	O	0	0
			527	345	83	99		

- Molecule 25 is a protein called Splicing factor 3B subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	5	108	Total	C	N	O	S	0	0
			807	512	142	150	3		

- Molecule 26 is a protein called PHD finger-like domain-containing protein 5A.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	6	85	Total	C	N	O	S	0	0
			645	396	114	122	13		

- Molecule 27 is a protein called Splicing factor 3B subunit 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	7	66	Total	C	N	O	S	0	0
			540	343	94	98	5		

- Molecule 28 is a protein called Crooked neck-like protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	J	522	Total	C	N	O	S	0	0
			3463	2156	653	648	6		

- Molecule 29 is a protein called Cell division cycle 5-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	L	342	Total	C	N	O	S	0	0
			2260	1430	406	420	4		

- Molecule 30 is a protein called Pre-mRNA-processing factor 19.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	q	132	Total	C	N	O	0	0
			659	395	132	132		
30	r	131	Total	C	N	O	0	0
			654	392	131	131		
30	s	67	Total	C	N	O	0	0
			335	201	67	67		
30	t	67	Total	C	N	O	0	0
			335	201	67	67		

- Molecule 31 is a protein called Pre-mRNA-splicing factor SPF27.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	K	152	Total	C	N	O	S	0	0
			979	611	177	189	2		

- Molecule 32 is a protein called Pre-mRNA-splicing factor SYF1.

Mol	Chain	Residues	Atoms				AltConf	Trace
32	I	564	Total 2778	C 1650	N 564	O 564	0	0

- Molecule 33 is a protein called Intron-binding protein aquarius.

Mol	Chain	Residues	Atoms				AltConf	Trace
33	Q	1317	Total 6528	C 3894	N 1317	O 1317	0	0

- Molecule 34 is a protein called RING finger protein 113A.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	M	36	Total 267	C 167	N 45	O 52	S 3	0	0

- Molecule 35 is a protein called Protein BUD31 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	N	143	Total 1184	C 746	N 217	O 209	S 12	0	0

- Molecule 36 is a protein called Pre-mRNA-splicing factor RBM22.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	O	285	Total 2273	C 1428	N 401	O 424	S 20	0	0

- Molecule 37 is a protein called Spliceosome-associated protein CWC15 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	P	96	Total 829	C 508	N 162	O 157	S 2	0	0

- Molecule 38 is a protein called Skip.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	R	309	Total 2316	C 1456	N 413	O 435	S 12	0	0

- Molecule 39 is a protein called Peptidyl-prolyl cis-trans isomerase-like 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	S	159	Total	C	N	O	S	0	0
			1236	787	215	227	7		

- Molecule 40 is a protein called Pleiotropic regulator 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	T	313	Total	C	N	O	S	0	0
			2457	1552	447	450	8		

- Molecule 41 is a protein called Serine/arginine repetitive matrix protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	U	26	Total	C	N	O	S	0	0
			193	120	36	36	1		

- Molecule 42 is a protein called Pre-mRNA-splicing factor CWC22 homolog.

Mol	Chain	Residues	Atoms				AltConf	Trace
42	V	452	Total	C	N	O	0	0
			2243	1339	452	452		

- Molecule 43 is a protein called Pre-mRNA-processing factor 17.

Mol	Chain	Residues	Atoms				AltConf	Trace
43	W	481	Total	C	N	O	0	0
			2374	1412	481	481		

- Molecule 44 is a protein called Smad nuclear-interacting protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	X	159	Total	C	N	O	S	0	0
			1021	649	173	198	1		

- Molecule 45 is a protein called RNA-binding motif protein, X-linked 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	Y	105	Total	C	N	O	S	0	0
			743	470	127	144	2		

- Molecule 46 is a protein called BUD13 homolog.

Mol	Chain	Residues	Atoms				AltConf	Trace
46	Z	113	Total 755	C 474	N 147	O 134	0	0

- Molecule 47 is a protein called Peptidyl-prolyl cis-trans isomerase CWC27 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	z	177	Total 1381	C 869	N 241	O 266	S 5	1	0

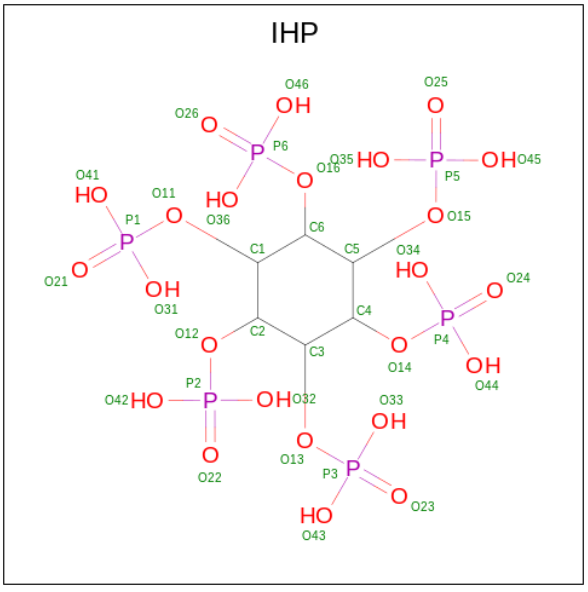
- Molecule 48 is a protein called Putative pre-mRNA-splicing factor ATP-dependent RNA helicase DHX16.

Mol	Chain	Residues	Atoms				AltConf	Trace
48	x	584	Total 2887	C 1718	N 584	O 585	0	0

- Molecule 49 is a protein called Peptidyl-prolyl cis-trans isomerase E.

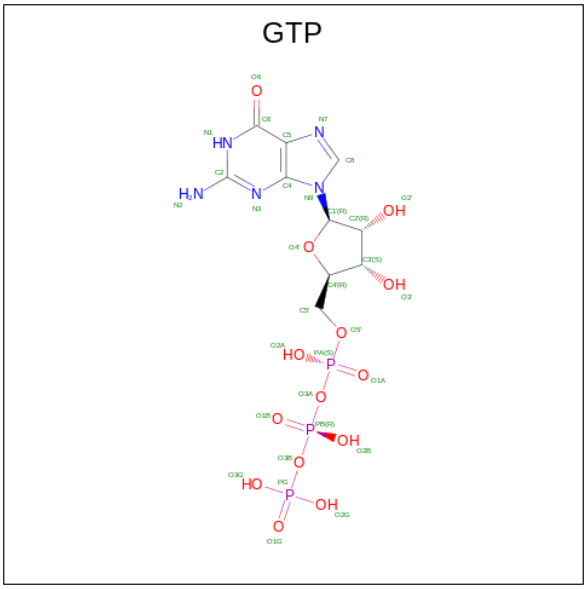
Mol	Chain	Residues	Atoms				AltConf	Trace
49	y	232	Total 1133	C 669	N 232	O 232	0	0

- Molecule 50 is INOSITOL HEXAKISPHOSPHATE (three-letter code: IHP) (formula: $C_6H_{18}O_{24}P_6$).



Mol	Chain	Residues	Atoms				AltConf
50	A	1	Total 36	C 6	O 24	P 6	0

- Molecule 51 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



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

- Molecule 52 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
52	C	1	Total	Mg	0
			1	1	
52	F	5	Total	Mg	0
			5	5	

- Molecule 53 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
53	v	1	Total	Zn	0
			1	1	
53	6	3	Total	Zn	0
			3	3	
53	M	1	Total	Zn	0
			1	1	
53	N	3	Total	Zn	0
			3	3	
53	O	3	Total	Zn	0
			3	3	

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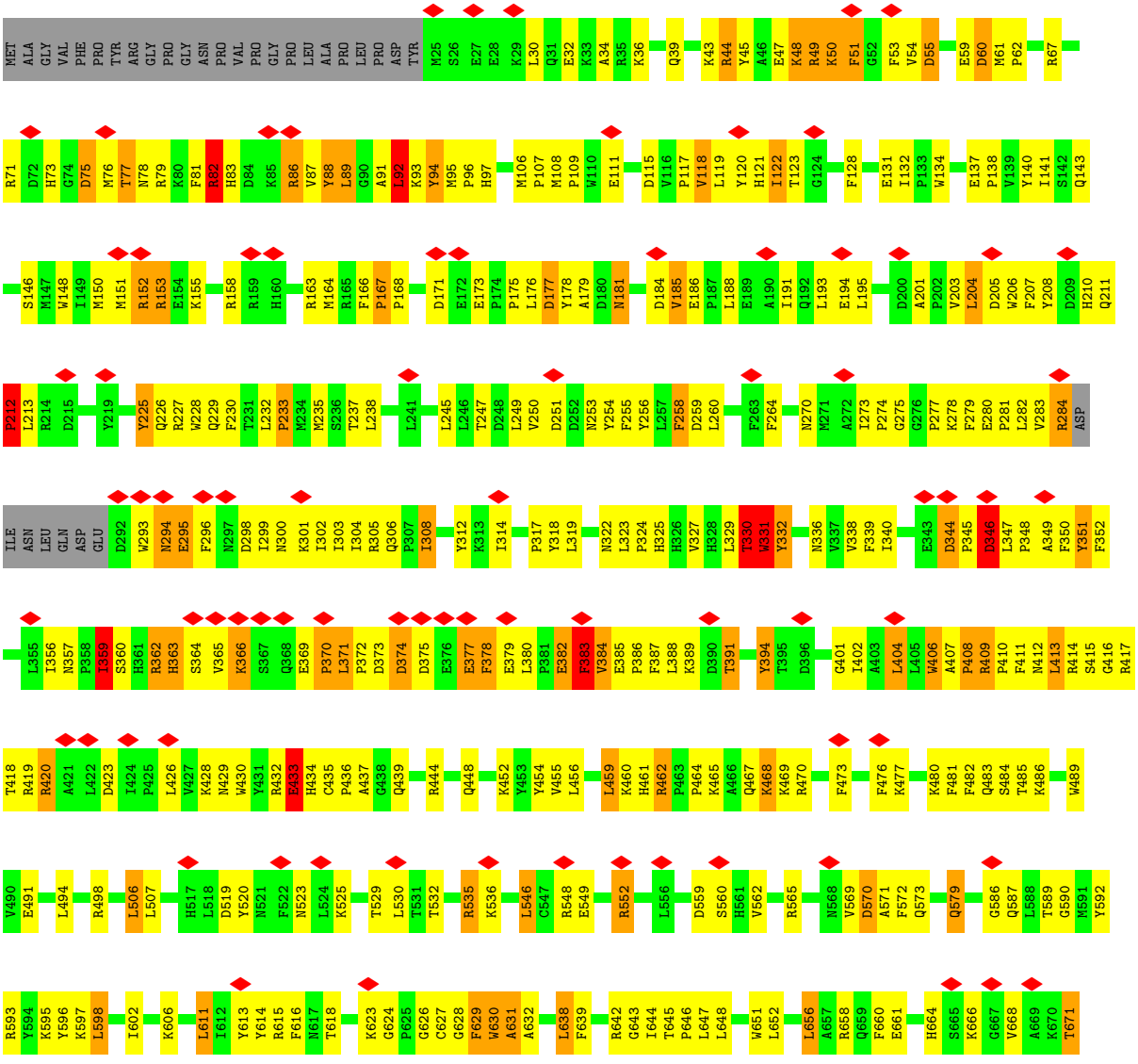
Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
53	W	2	2	2	0

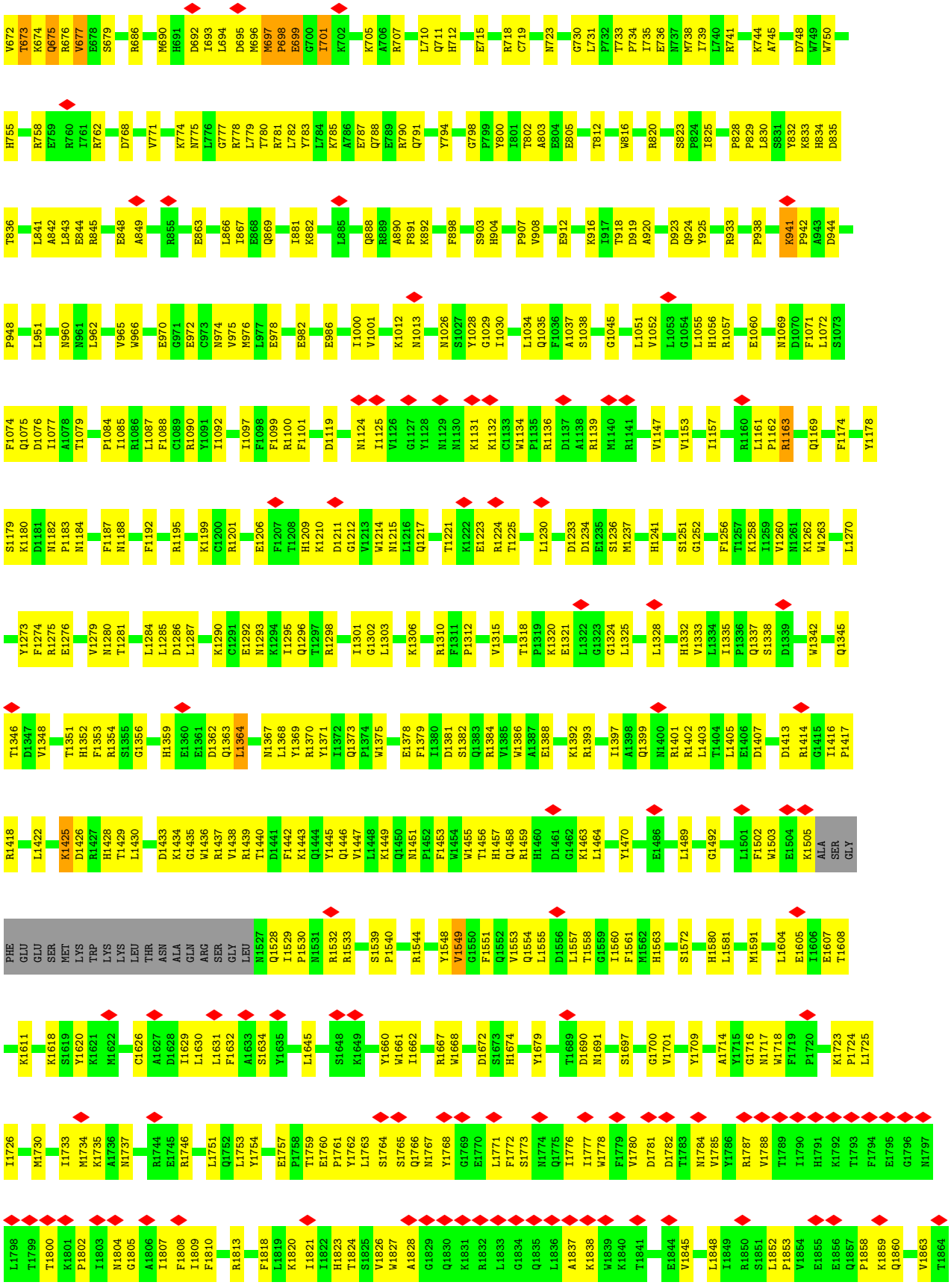
3 Residue-property plots (i)

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: Pre-mRNA-processing-splicing factor 8

Chain A:

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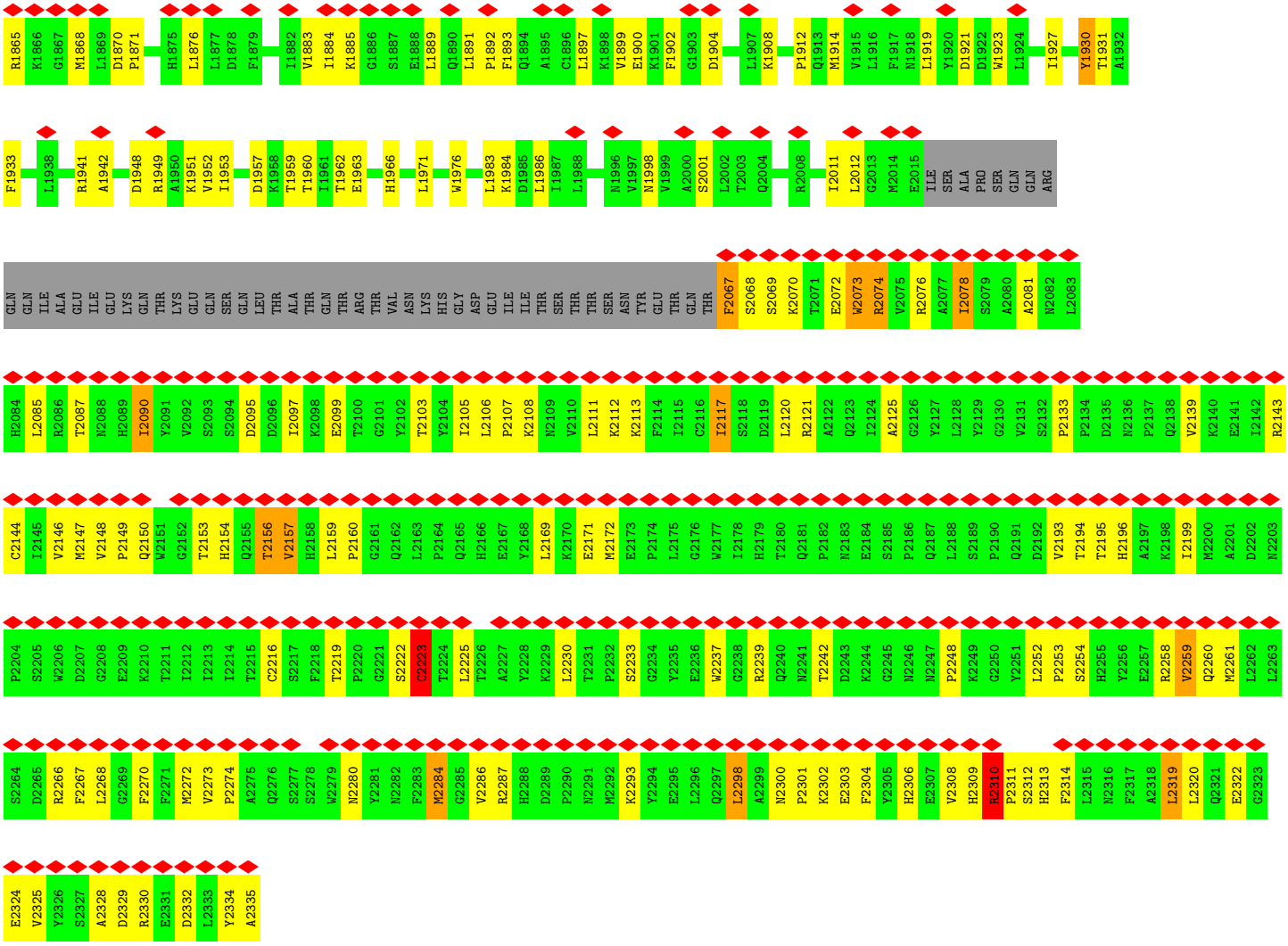

• Molecule 2: U5 snRNA

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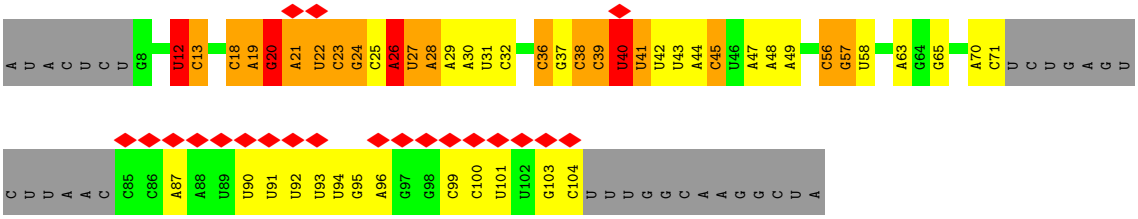
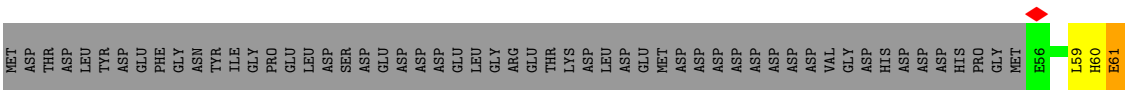
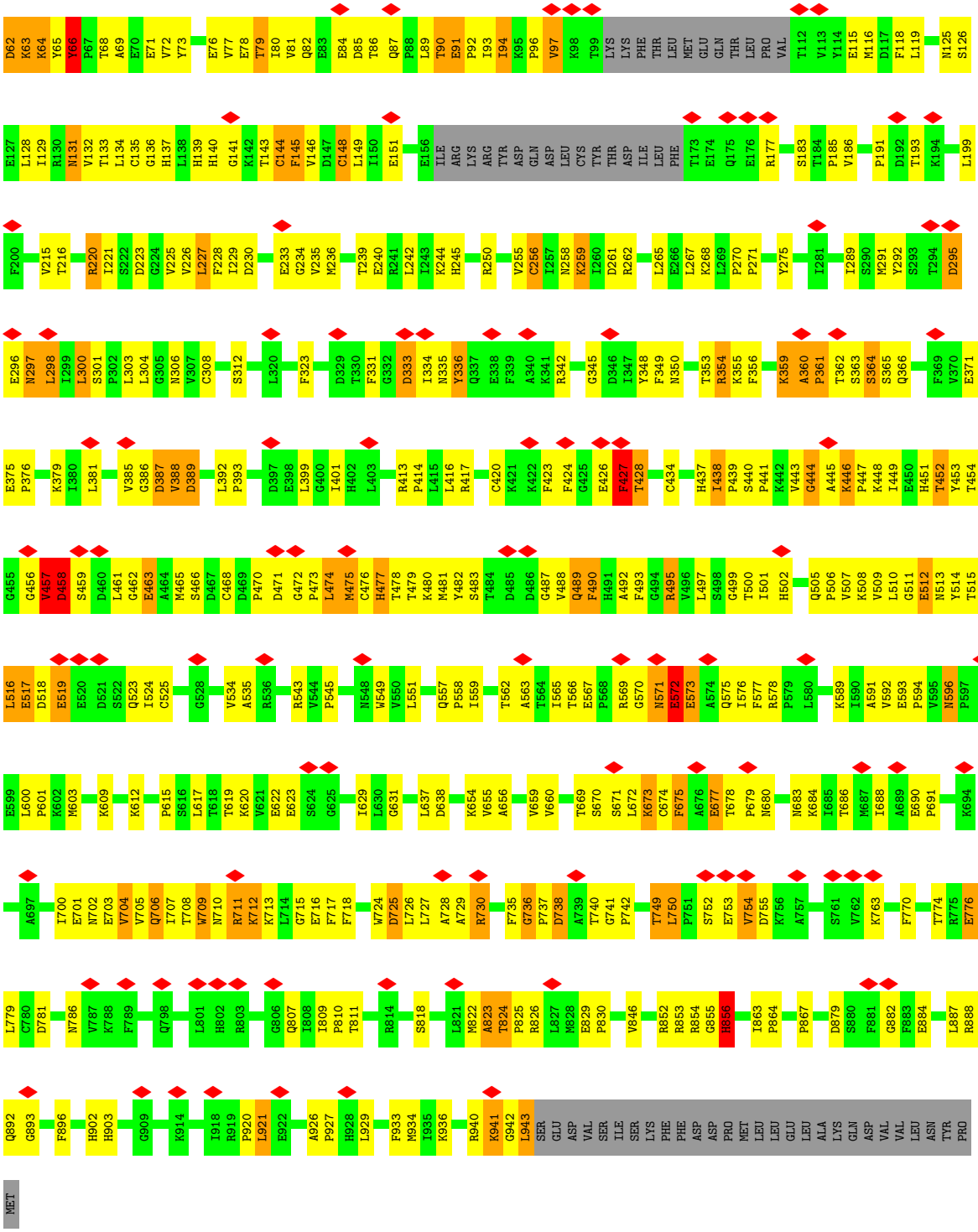


• Molecule 3: 116 kDa U5 small nuclear ribonucleoprotein component

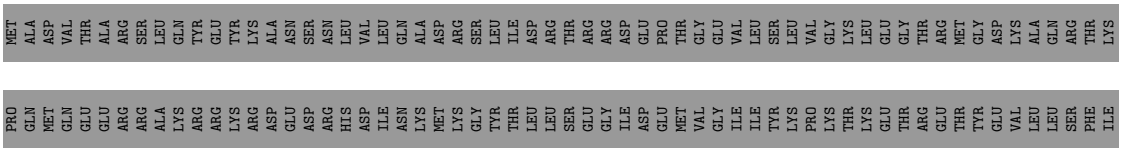
Chain C:

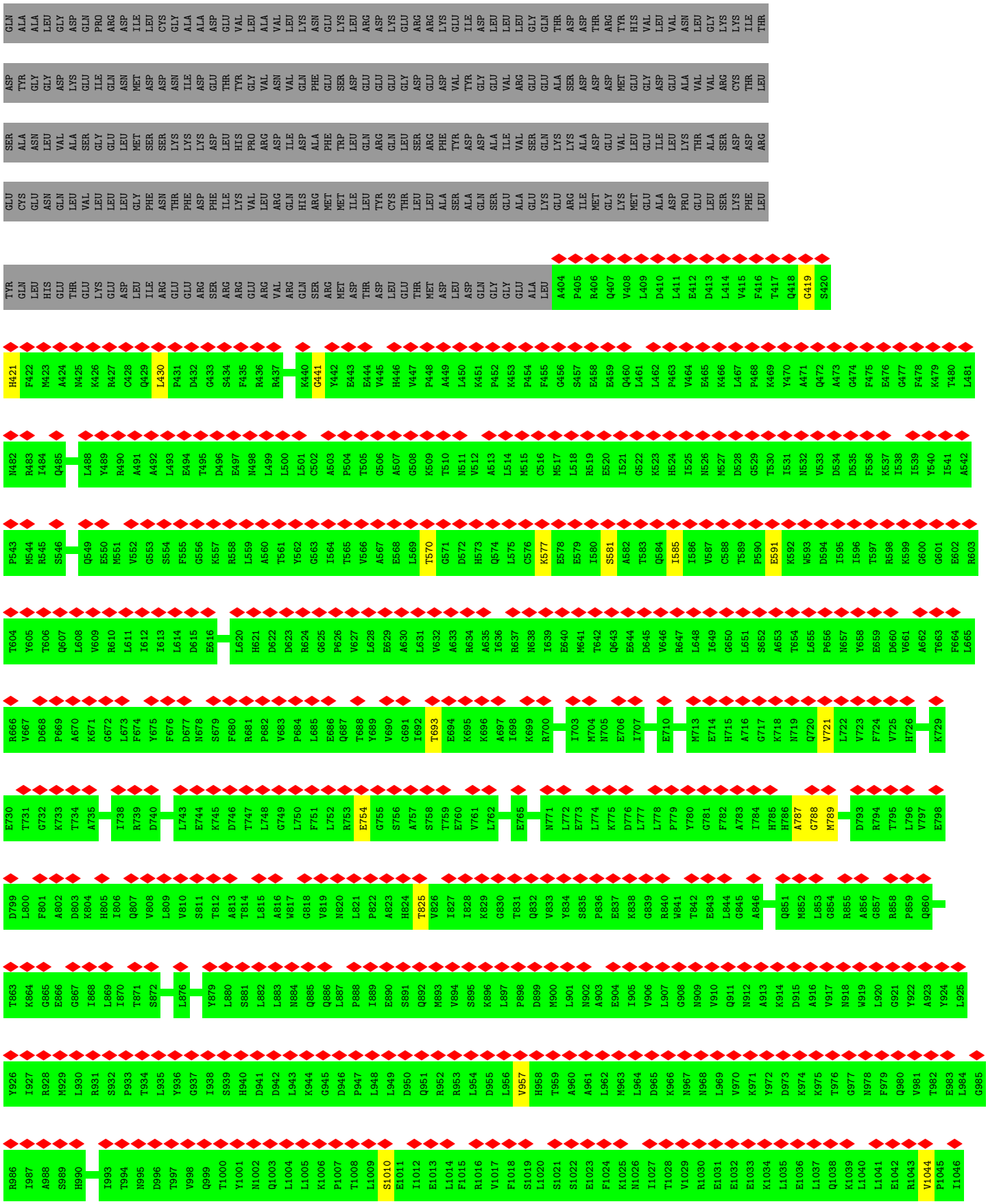




• Molecule 4: U5 small nuclear ribonucleoprotein 200 kDa helicase

Chain D:

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ASP TYR GLY GLY ASP LYS GLU ILE GLN ASN MET ASP ASP ASN ILE ASP GLU THR TYR GLY VAL ASN VAL GLN PHE GLU GLU GLU GLY ASP GLU ASP VAL TYR GLY GLU VAL ARG GLU GLU ASP ASP ASP MET GLU GLY ASP GLU ALA VAL VAL ARG CYS THR LEU
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GLU CYS GLU ASN GLN LEU VAL LEU LEU LEU GLY PHE ASN THR PHE ASP PHE ILE LYS VAL LEU ARG GLN HIS ARG MET MET ILE LEU TYR CYS THR LEU LEU ALA SER ALA GLN SER GLU ALA GLU LYS GLU ARG ILE MET GLY LYS MET GLU ALA ASP PRO GLU LEU SER LYS PHE LEU
TYR GLN LEU HIS GLU THR GLU LYS GLU ASP LEU ILE ARG GLU GLU ARG SER ARG ARG GLU VAL ARG GLN SER ARG MET ASP THR ASP LEU GLU THR MET ASP LEU ASP GLN GLY GLY GLU ALA LEU A404 P405 R406 Q407 V408 L409 D410 L411 E412 D413 L414 V415 F416 T417 Q418 G419 S420
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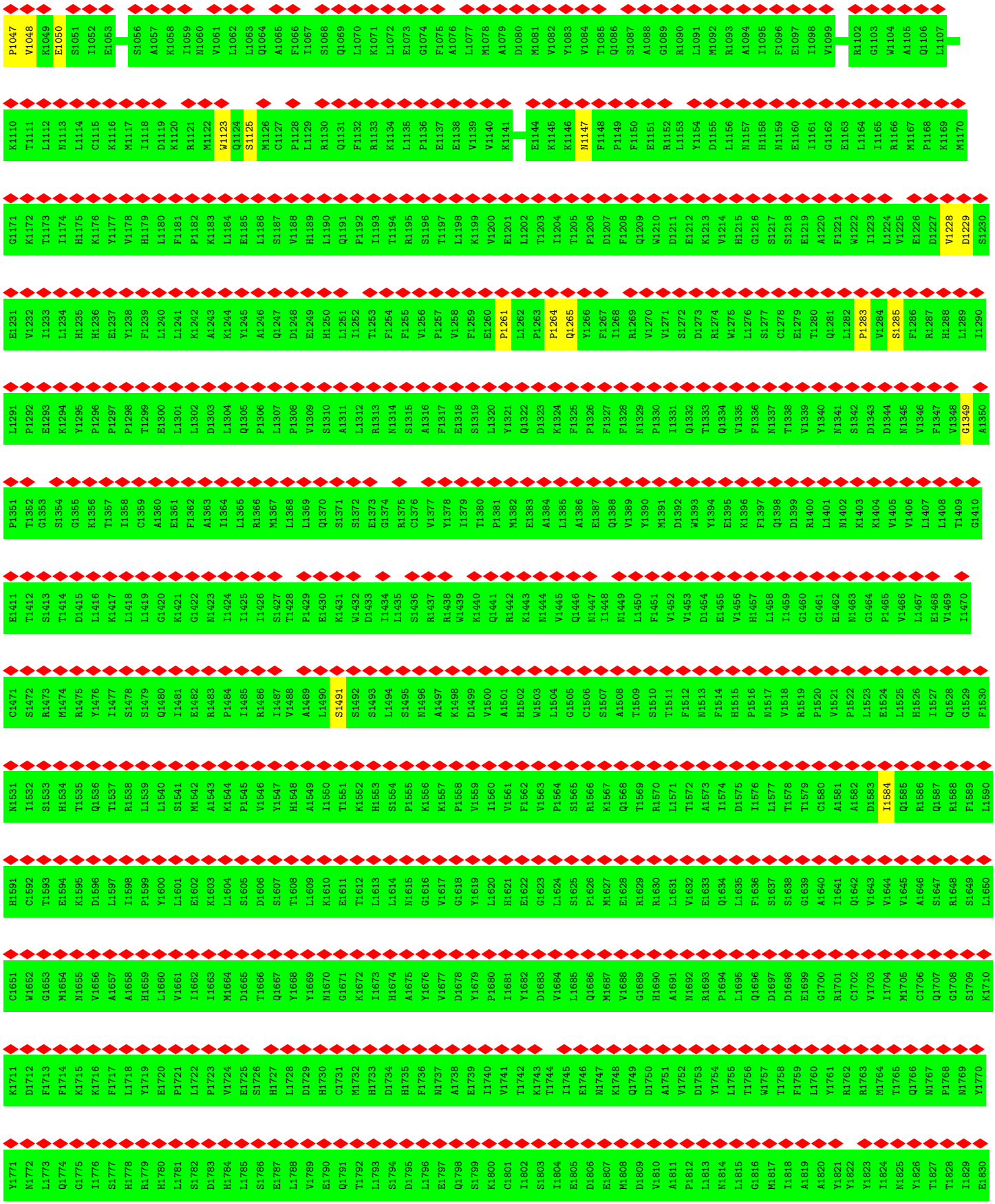
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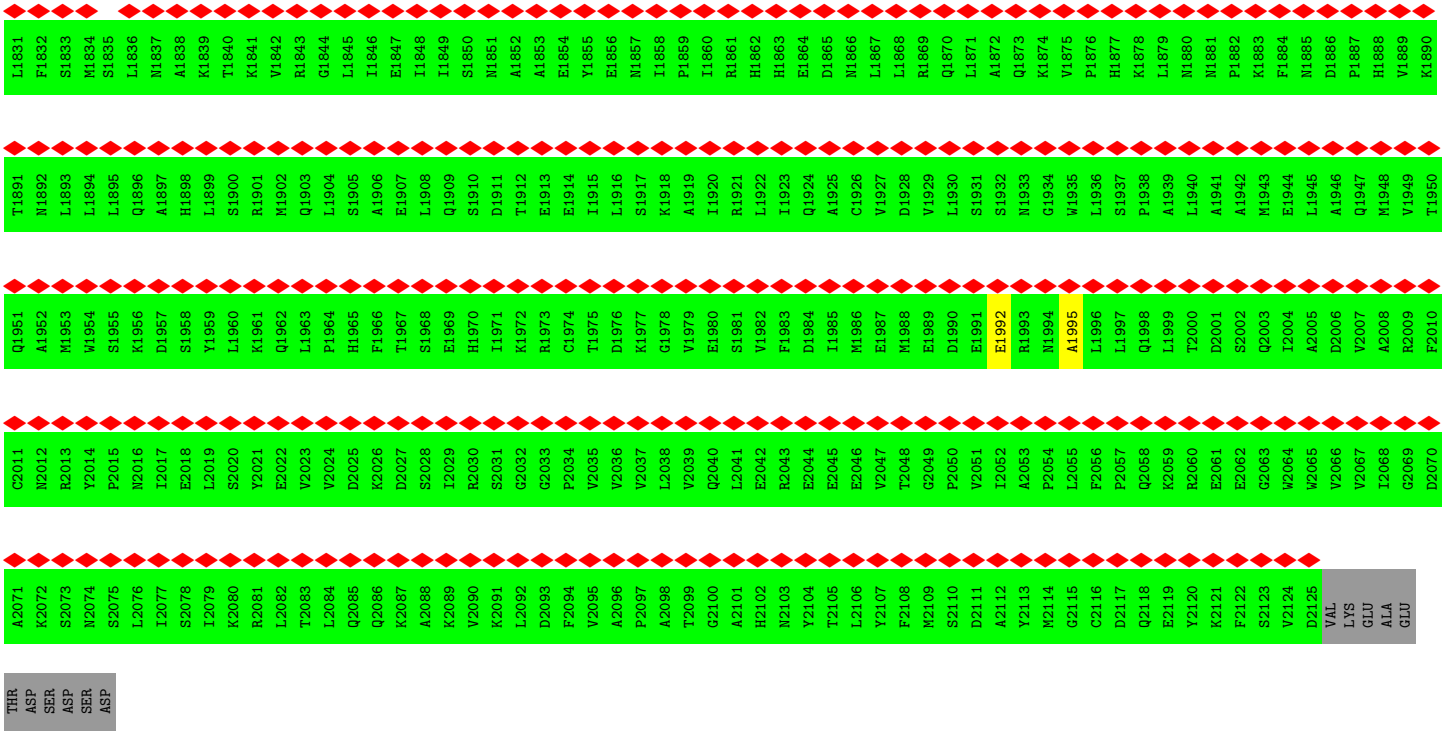

• Molecule 5: U5 small nuclear ribonucleoprotein 40 kDa protein

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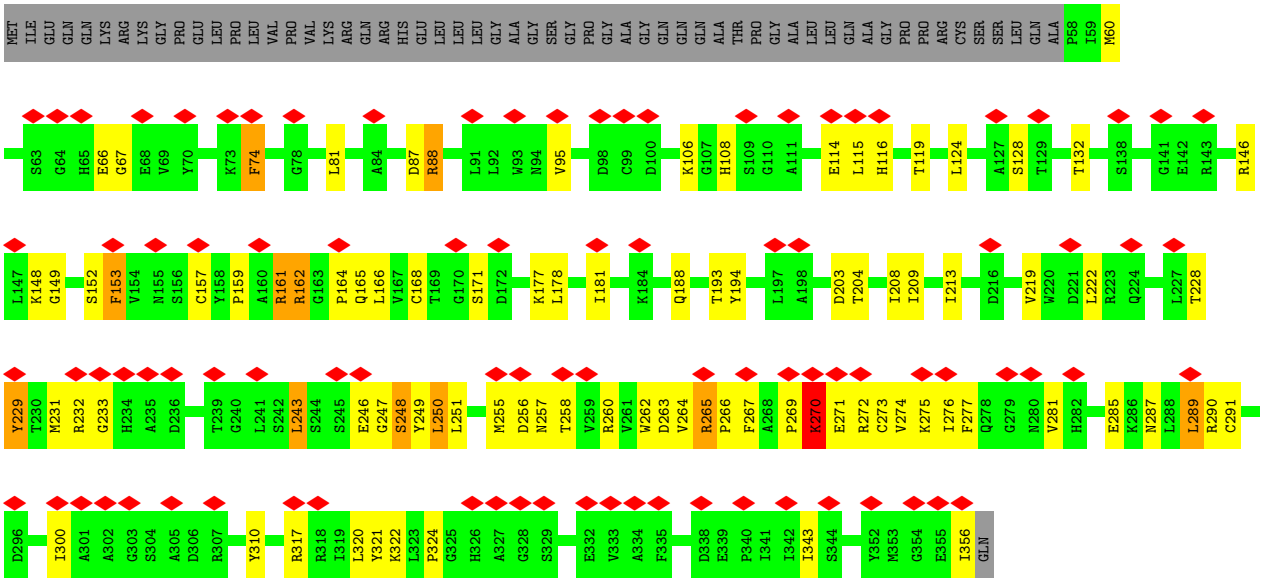

• Molecule 6: Small nuclear ribonucleoprotein Sm D3

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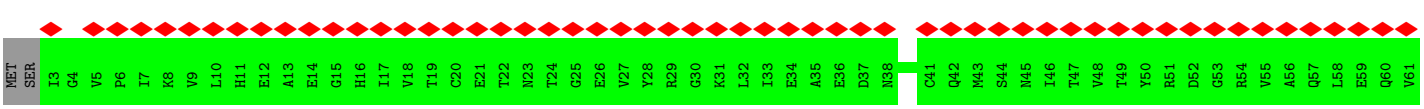
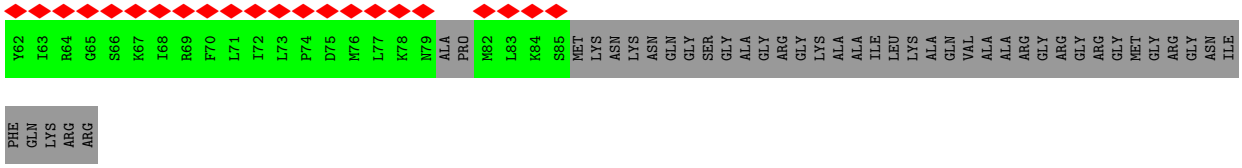
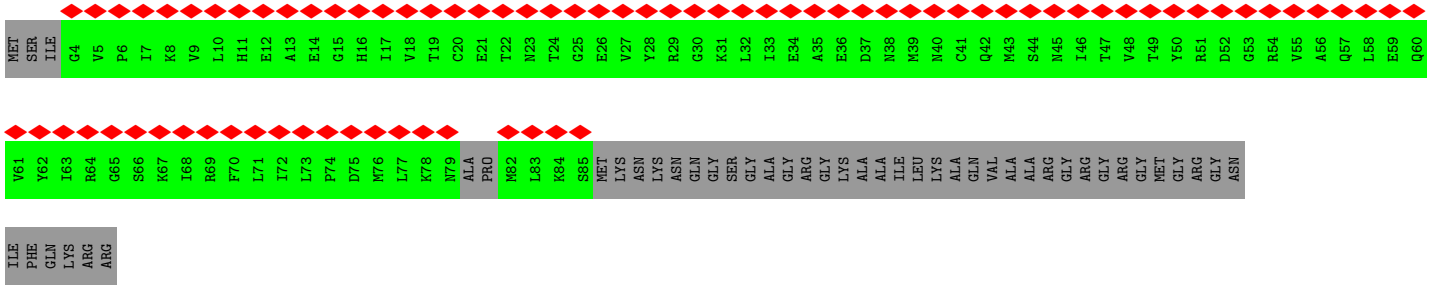
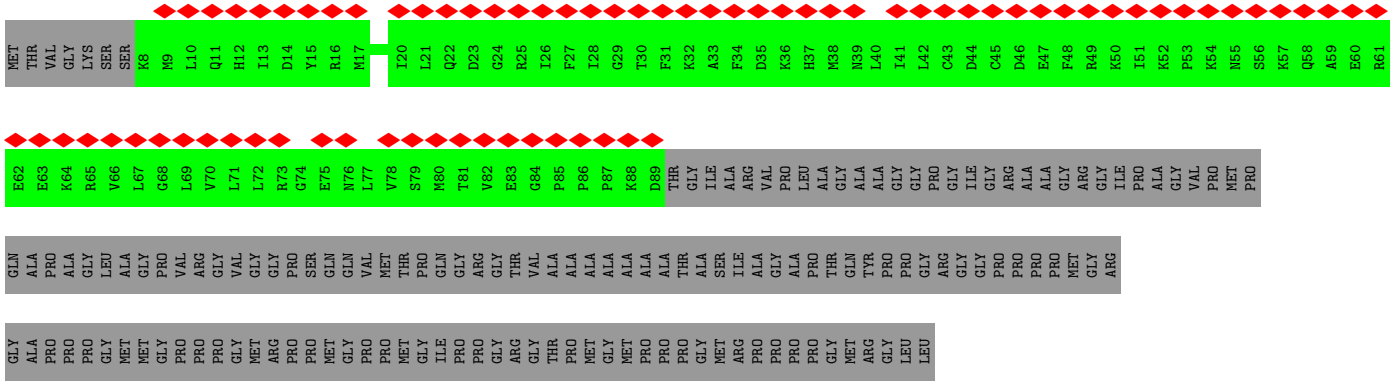




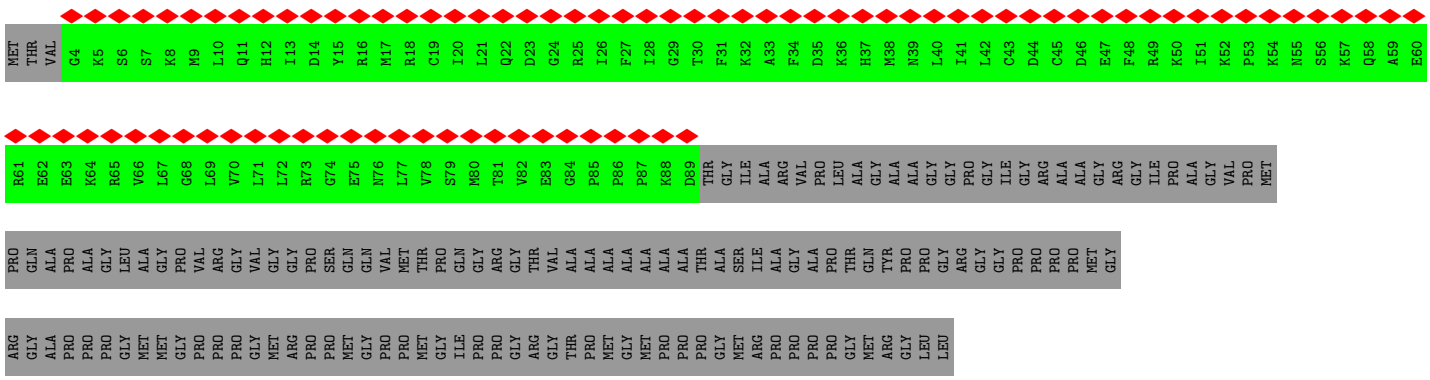
• Molecule 6: Small nuclear ribonucleoprotein Sm D3



• Molecule 7: Small nuclear ribonucleoprotein-associated proteins B and B'

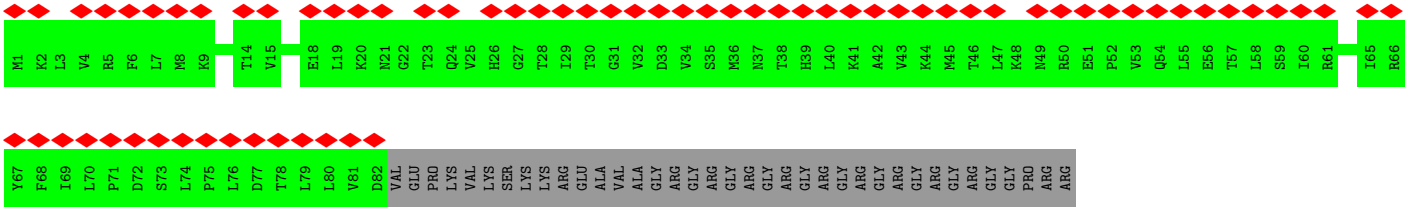


• Molecule 7: Small nuclear ribonucleoprotein-associated proteins B and B'



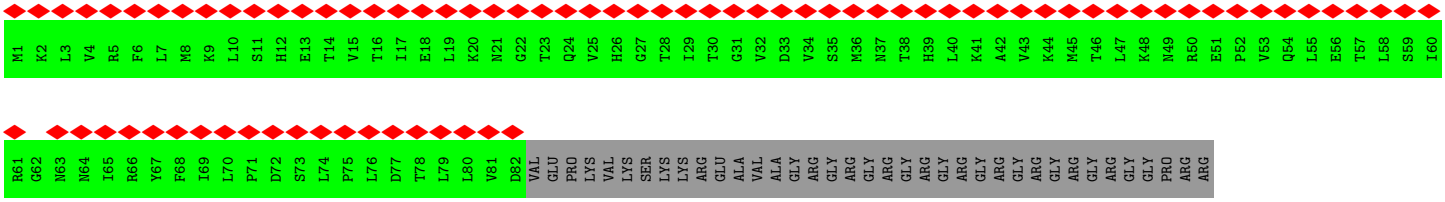
• Molecule 8: Small nuclear ribonucleoprotein Sm D1

Chain c:



• Molecule 8: Small nuclear ribonucleoprotein Sm D1

Chain j:



• Molecule 9: Small nuclear ribonucleoprotein Sm D2

Chain d:

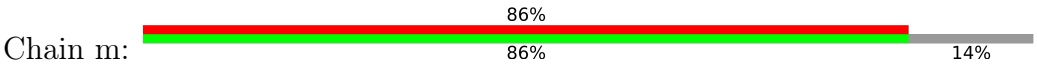
• Molecule 9: Small nuclear ribonucleoprotein Sm D2

Chain k:

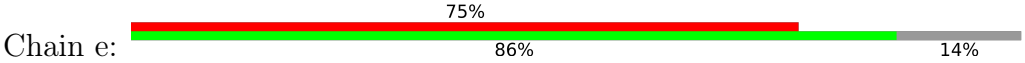
• Molecule 10: Small nuclear ribonucleoprotein F

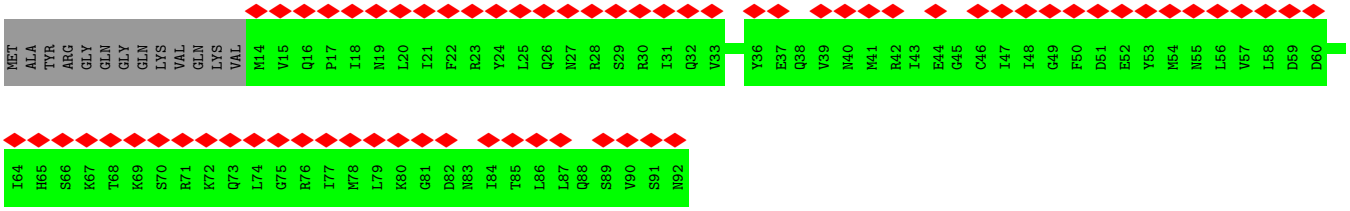
Chain f:

• Molecule 10: Small nuclear ribonucleoprotein F

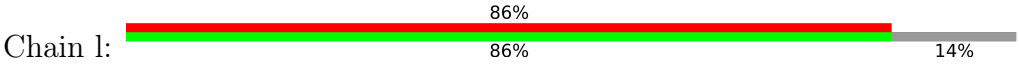


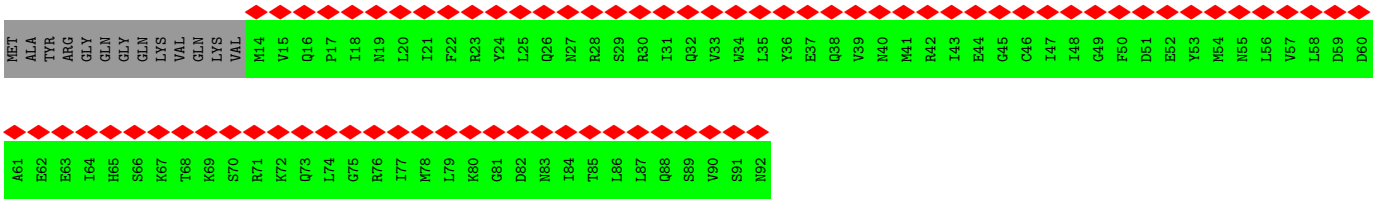
• Molecule 11: Small nuclear ribonucleoprotein E



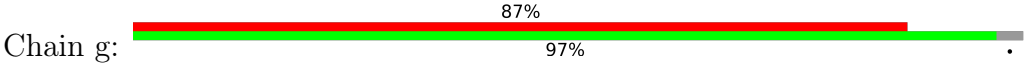


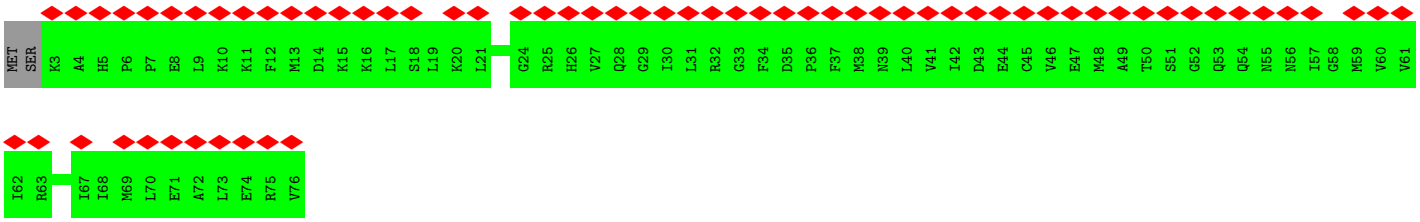
• Molecule 11: Small nuclear ribonucleoprotein E





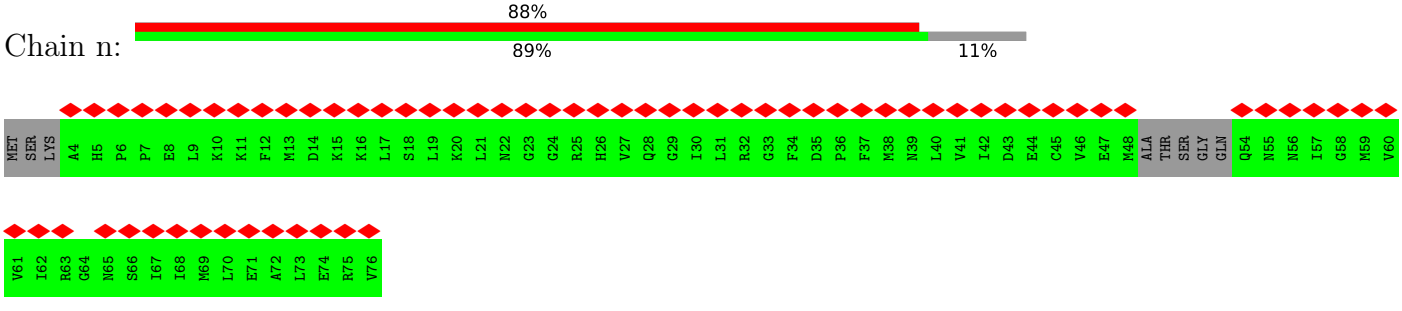
• Molecule 12: Small nuclear ribonucleoprotein G





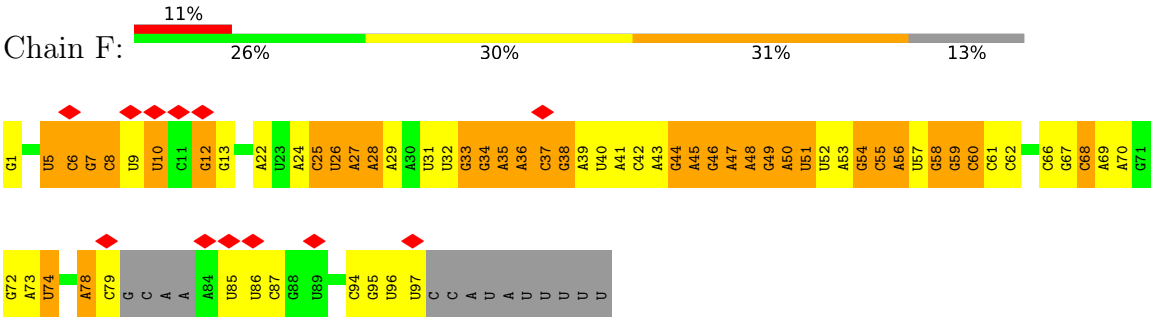
• Molecule 12: Small nuclear ribonucleoprotein G

Chain n:



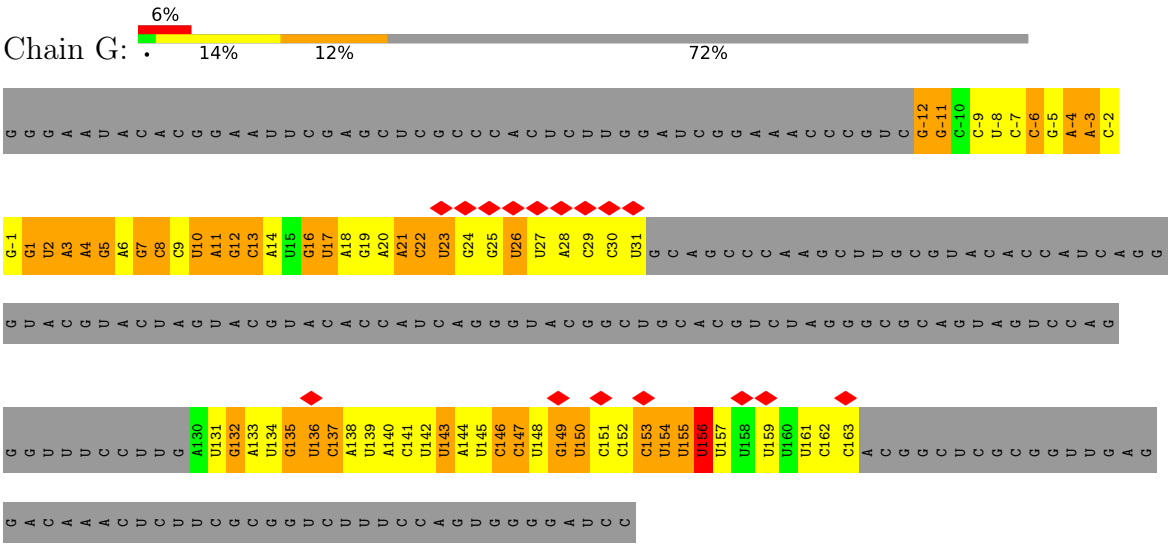
• Molecule 13: U6 snRNA

Chain F:



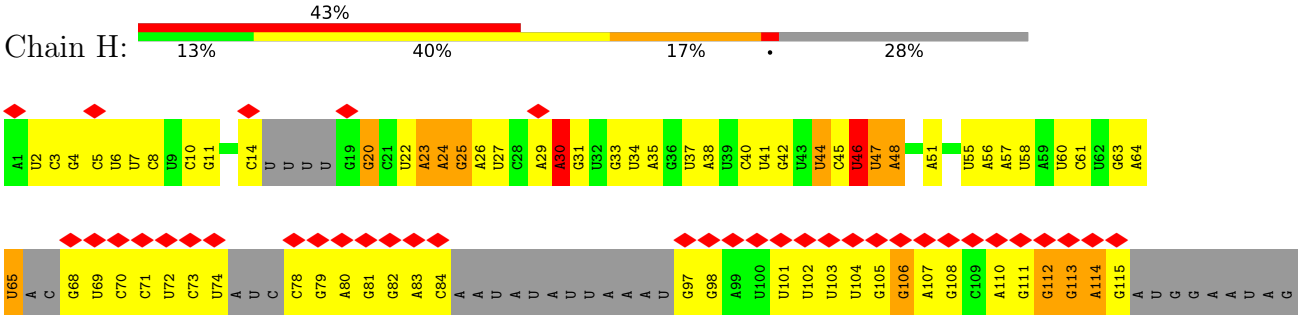
• Molecule 14: pre-mRNA

Chain G:



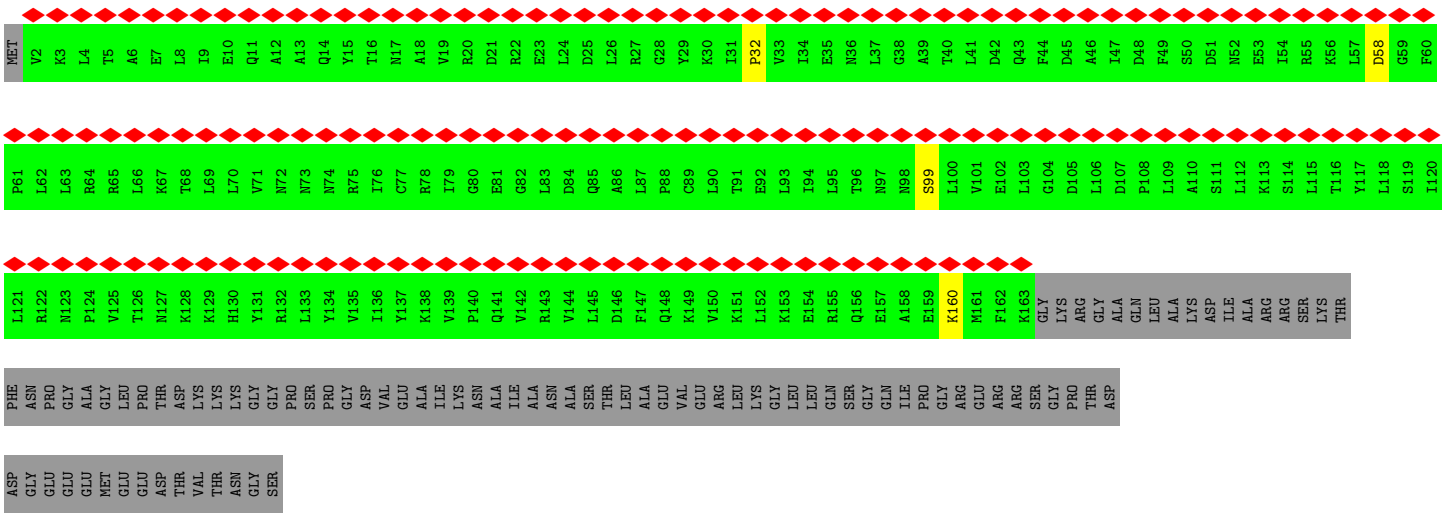
• Molecule 15: U2 snRNA

Chain H:



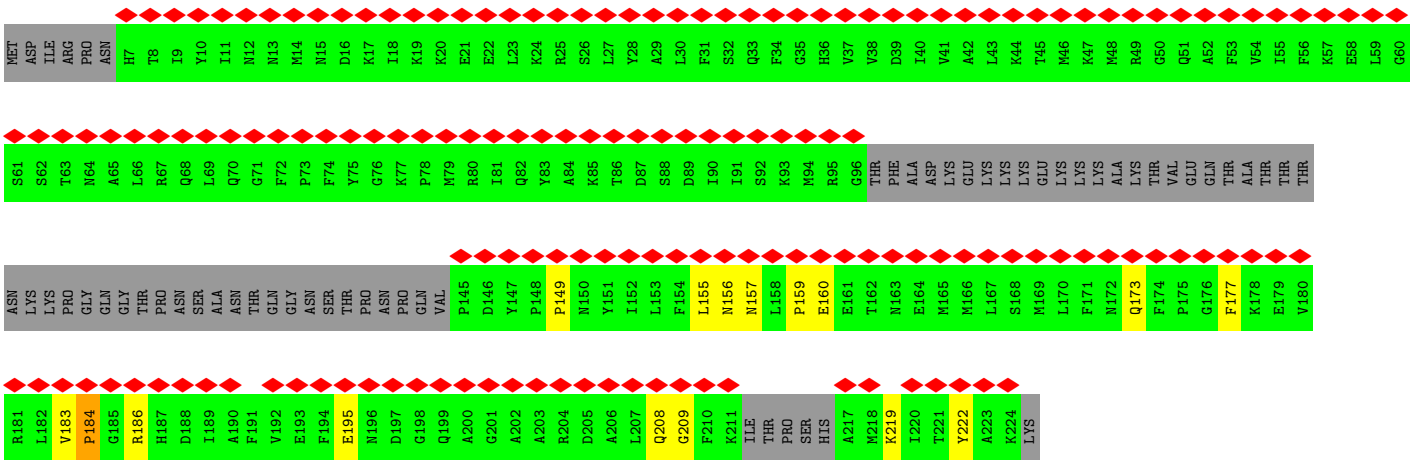
• Molecule 16: U2 small nuclear ribonucleoprotein A'

Chain o:



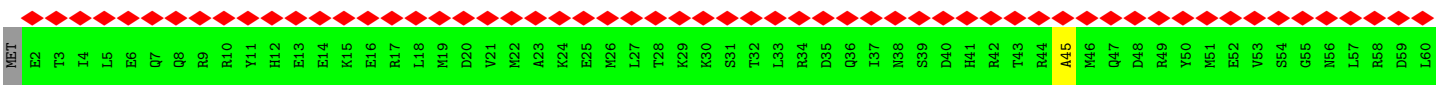
• Molecule 17: U2 small nuclear ribonucleoprotein B"

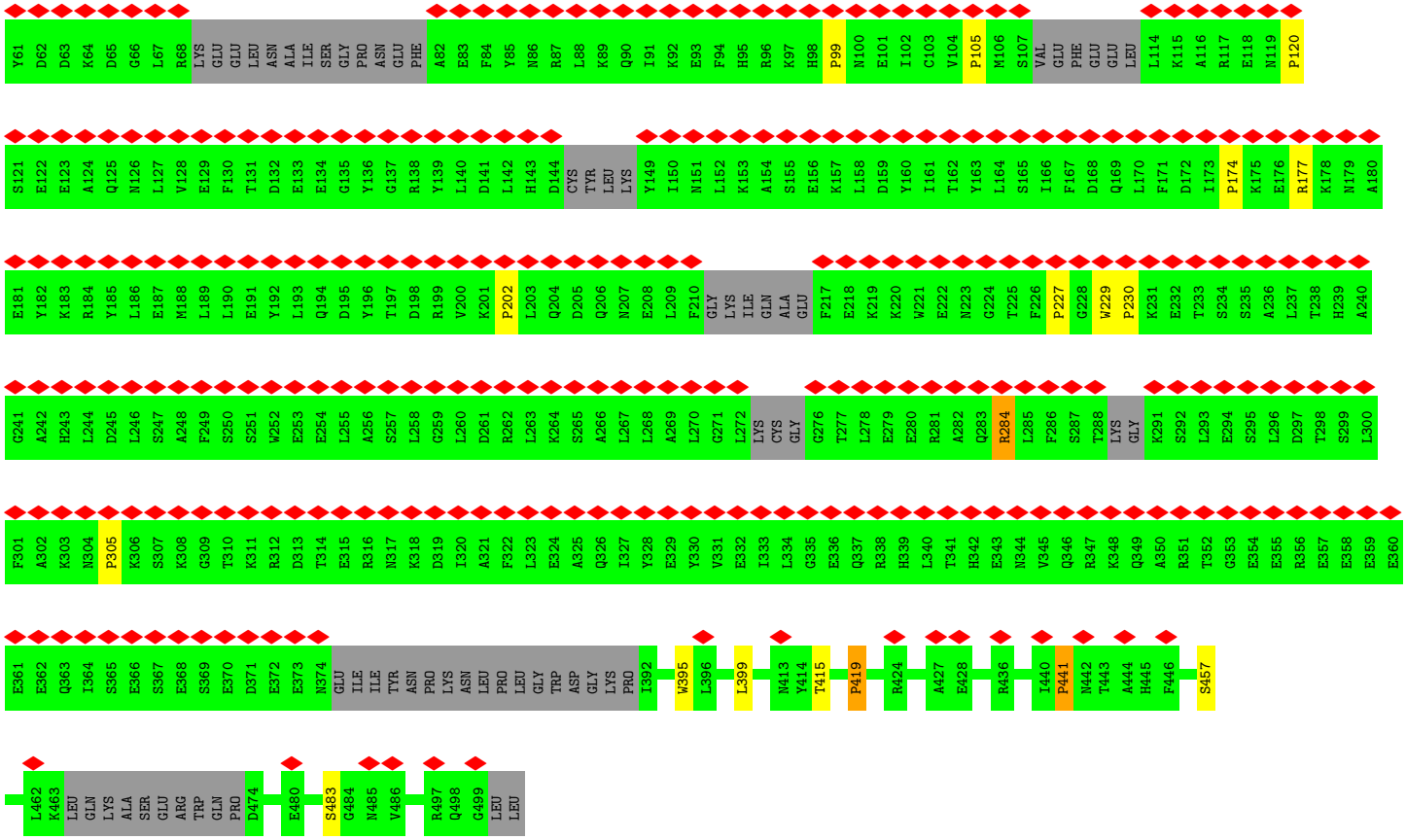
Chain p:



• Molecule 18: Splicing factor 3A subunit 3

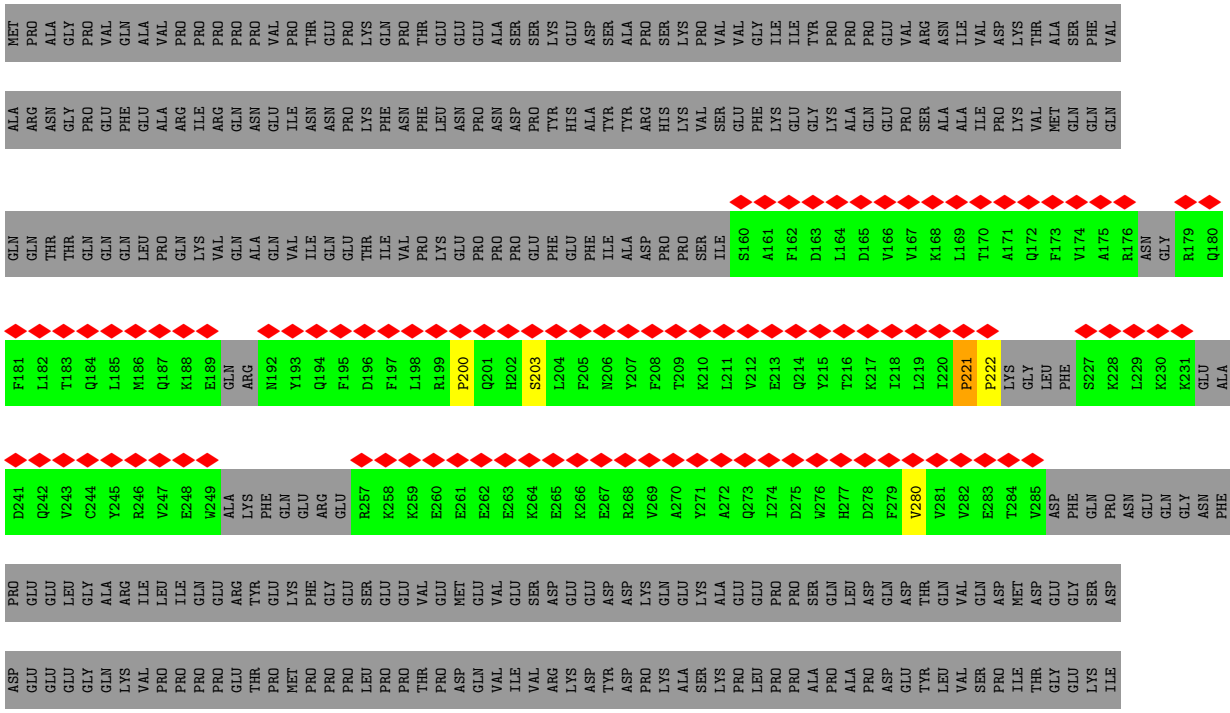
Chain w:





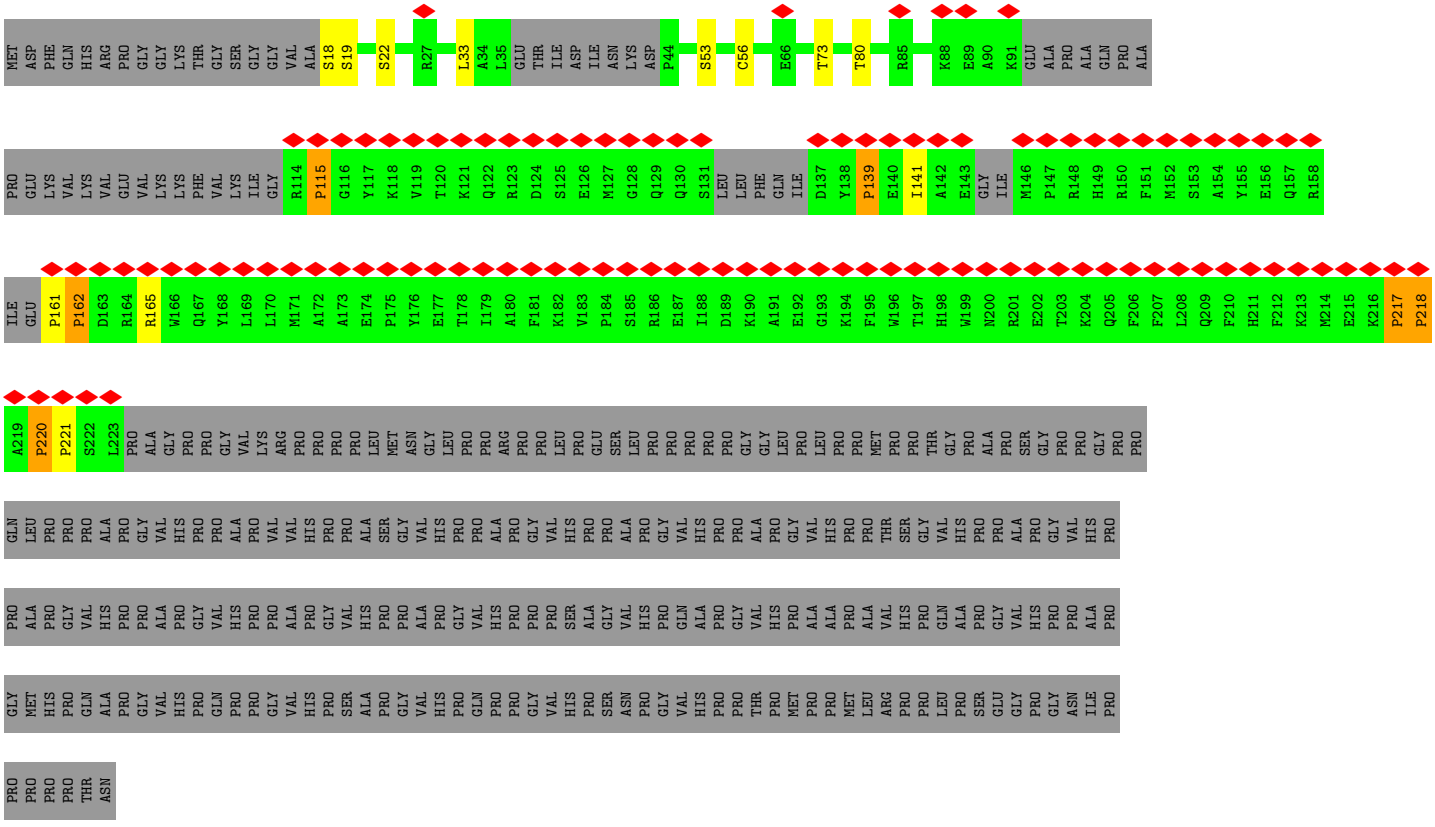
• Molecule 19: Splicing factor 3A subunit 1

Chain u:



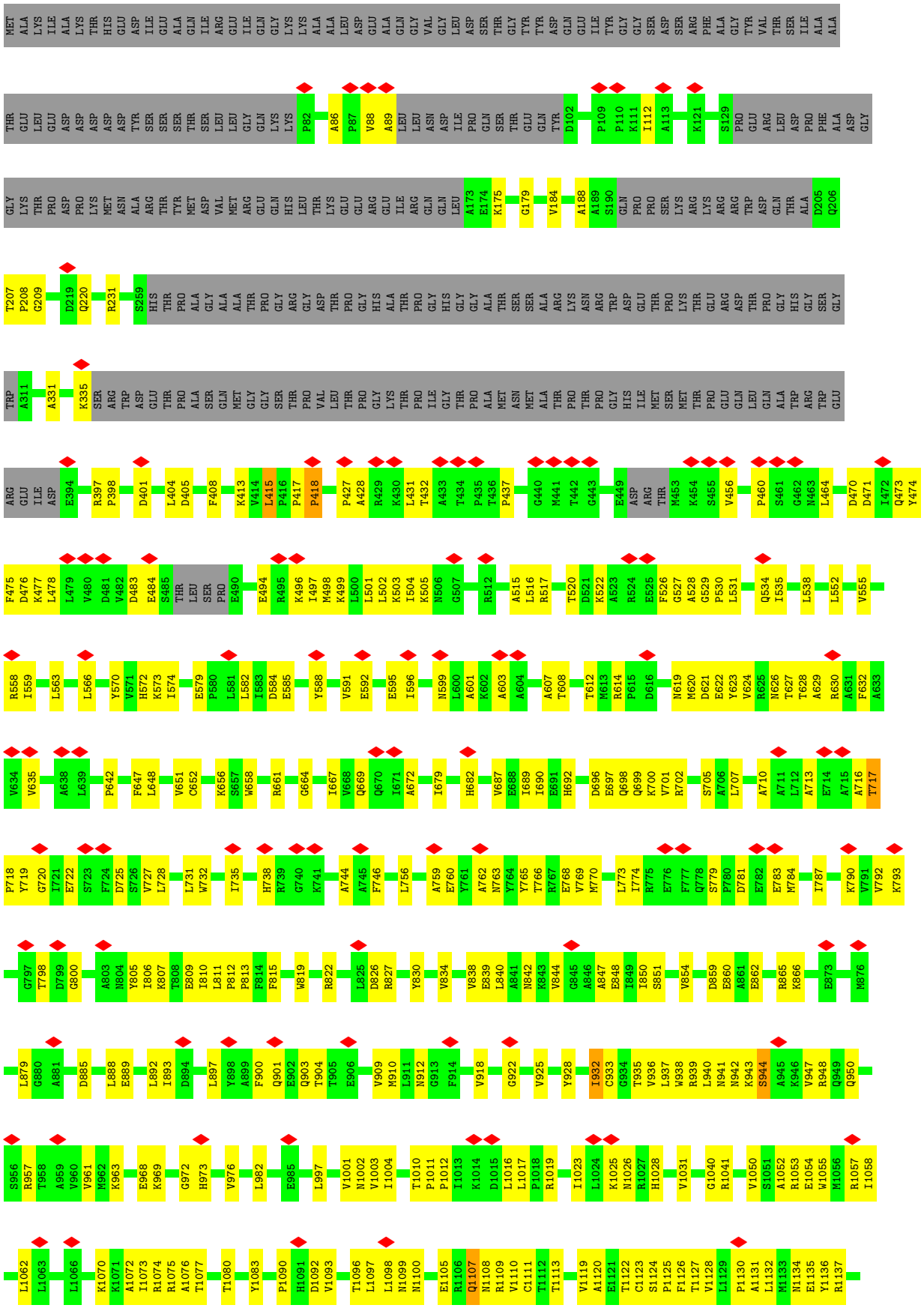
• Molecule 20: Splicing factor 3A subunit 2

Chain v:



• Molecule 21: Splicing factor 3B subunit 1

Chain 1: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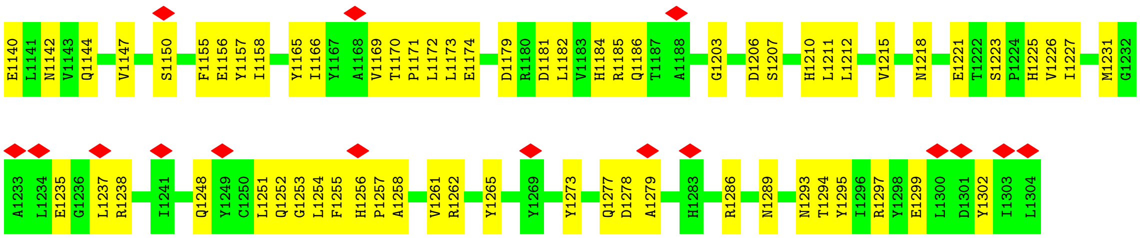
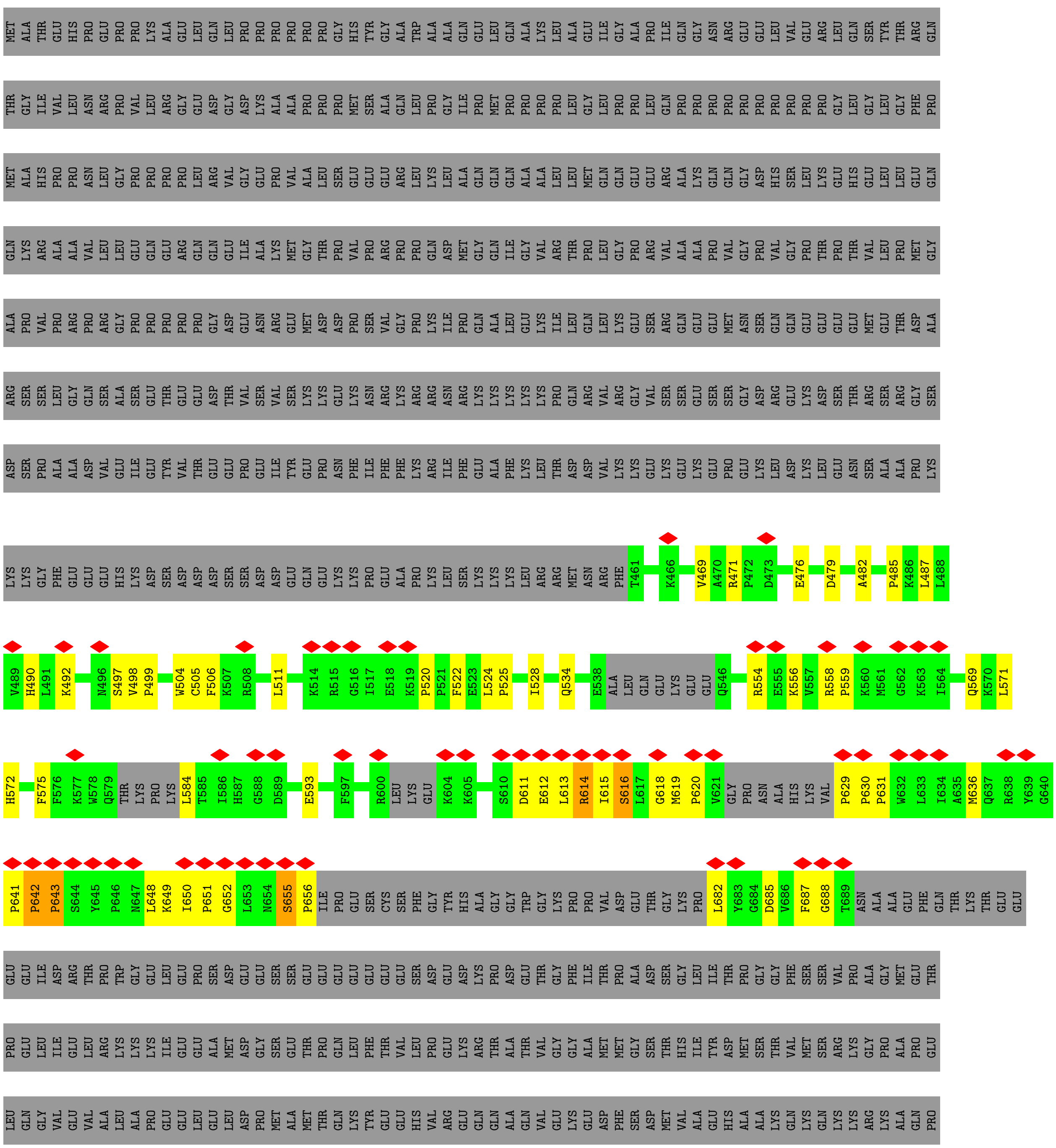
THR GLU LEU GLU ASP ASP ASP ASP ASP TYR SER SER SER THR SER LEU LEU GLY GLN LYS LYS P82 A86 P87 V88 A89 LEU LEU ASN ASP ILE PRO GLN SER THR GLU GLN TYR D102 P109 P110 K111 I112 A113 K121 S129 PRO GLU ARG LEU ASP PRO PHE ALA ASP GLY
GLY LYS THR PRO ASP PRO LYS MET ASN ALA ARG THR TYR MET ASP VAL MET ARG GLU GLN HIS LEU THR LYS GLU GLU ARG GLU ILE ARG GLN GLN LEU A173 E174 K175 G179 V184 A188 A189 S190 GLN PRO PRO SER LYS ARG LYS ARG ARG TRP ASP GLN THR ALA D205 Q206
T207 P208 C209 D219 Q220 R231 S259 HIS THR PRO ALA GLY ALA ALA THR PRO GLY ARG GLY ASP THR PRO GLY HIS ALA THR PRO GLY HIS GLY GLY ALA THR SER SER ALA ARG LYS ASN ARG TRP ASP GLU THR PRO LYS THR GLU ARG ASP THR PRO GLY GLY GLN ALA TRP ARG GLY SER GLY
TRP A311 A331 K335 SER ARG TRP ASP GLU THR PRO ALA SER GLN MET GLY GLY SER THR PRO VAL LEU THR PRO GLY LYS THR PRO ILE GLY THR PRO ALA MET ASN MET ALA THR PRO THR PRO GLY HIS ILE MET SER MET THR PRO GLU GLN LEU GLN ALA TRP ARG TRP GLU
ARG GLU ILE ASP E394 R397 P398 D401 L404 D405 F408 K413 V414 L415 P416 P417 P418 P427 A428 R429 K430 L431 T432 A433 T434 P435 T436 P437 G440 M441 T442 G443 E449 ASP ARG THR M453 K454 S455 V456 P460 S461 G462 N463 L464 D470 D471 I472 Q473 Y474
F475 D476 K477 L478 L479 V480 D481 V482 D483 E484 S485 THR LEU SER PRO E490 E494 R495 K496 I497 M498 K499 L500 L501 L502 K503 I504 K505 N506 G507 R512 A515 L516 R517 T520 D521 K522 A523 R524 E525 F526 G527 A528 G529 P530 L531 Q534 I535 L538 L552 V555
R558 I559 L563 L566 Y570 V571 H572 K573 I574 E579 P580 L581 L582 I583 D584 E585 Y588 V591 E592 E595 I596 N599 L600 A601 K602 A603 A604 A607 T608 T612 K613 R614 P615 D616 N619 M620 D621 E622 Y623 V624 R625 N626 T627 T628 A629 R630 A631 F632 A633
V634 V635 A638 L639 P642 F647 L648 V651 C652 K656 S657 W658 R661 G664 I667 V668 Q669 Q670 I671 A672 I679 H682 V687 E688 I689 I690 E691 H692 D696 E697 Q698 Q699 K700 V701 R702 S705 A706 L707 A710 A711 L712 A713 E714 A715 A716 T717
P718 Y719 G720 I721 E722 S723 F724 D725 S726 V727 L728 L731 W732 I735 H738 R739 G740 K741 A744 A745 F746 L756 A759 E760 Y761 A762 N763 Y764 Y765 T766 R767 E768 V769 M770 L773 I774 R775 E776 F777 Q778 S779 P780 D781 E782 E783 M784 I787 K790 V791 V792 K793
G797 T798 D799 G800 A803 N804 Y805 I806 K807 T808 E809 I810 L811 P812 P813 F814 F815 W819 R822 L825 D826 R827 Y830 V834 V838 E839 L840 A841 N842 K843 V844 G845 A846 A847 E848 I849 I850 S851 V854 D859 E860 A861 E862 R865 K866 E873 M876
L879 G880 A881 D885 L888 E889 L892 I893 D894 L897 Y898 A899 F900 Q901 E902 Q903 T904 Y905 E906 V909 M910 L911 N912 G913 F914 V918 G922 V925 Y928 I932 C933 G934 T935 V936 L937 W938 R939 L940 N941 N942 K943 S944 A945 K946 V947 R948 Q949 Q950
S956 R957 T958 A959 V960 V961 M962 K963 E968 K969 G972 H973 V976 L982 E985 L997 V1001 N1002 V1003 I1004 T1010 P1011 P1012 I1013 K1014 D1015 L1016 L1017 P1018 R1019 I1023 L1024 K1025 N1026 R1027 H1028 V1031 G1040 R1041 V1050 S1051 A1052 R1053 E1054 W1055 M1056 R1057 I1058
L1062 L1063 L1066 K1070 K1071 A1072 I1073 R1074 R1075 A1076 T1077 T1080 Y1083 P1090 H1091 D1092 V1093 T1096 L1097 L1098 N1099 N1100 E1105 R1106 Q1107 N1108 R1109 V1110 C1111 T1112 T1113 V1119 A1120 E1121 T1122 C1123 S1124 P1125 F1126 T1127 V1128 L1129 P1130 A1131 L1132 M1133 N1134 E1135 Y1136 R1137



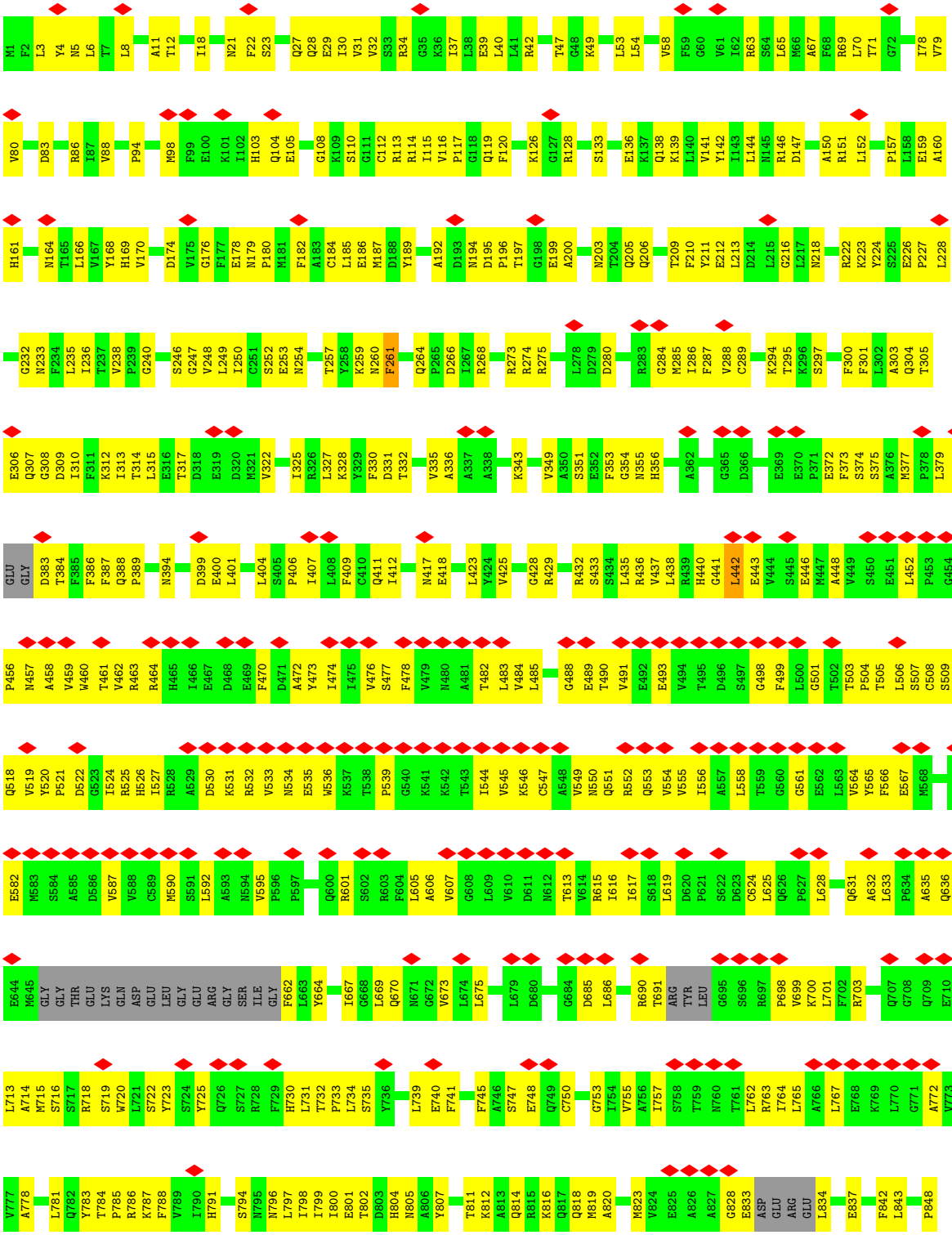
- Molecule 22: Splicing factor 3B subunit 2

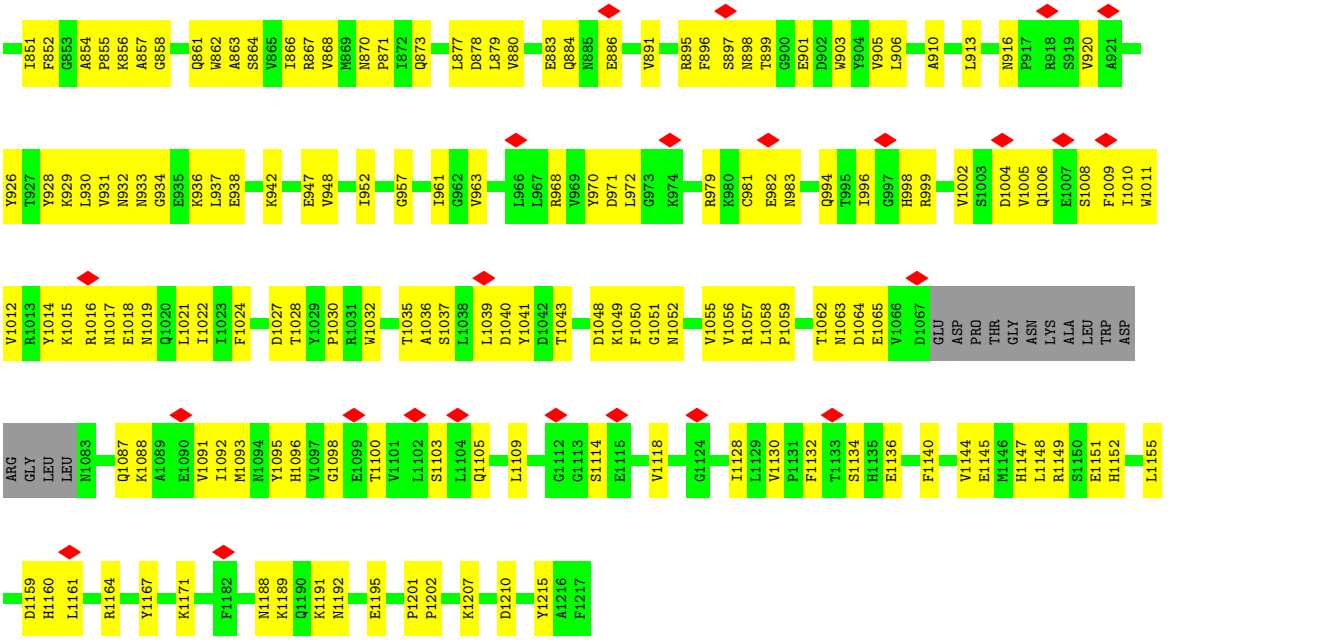
Chain 2:



• Molecule 23: Splicing factor 3B subunit 3

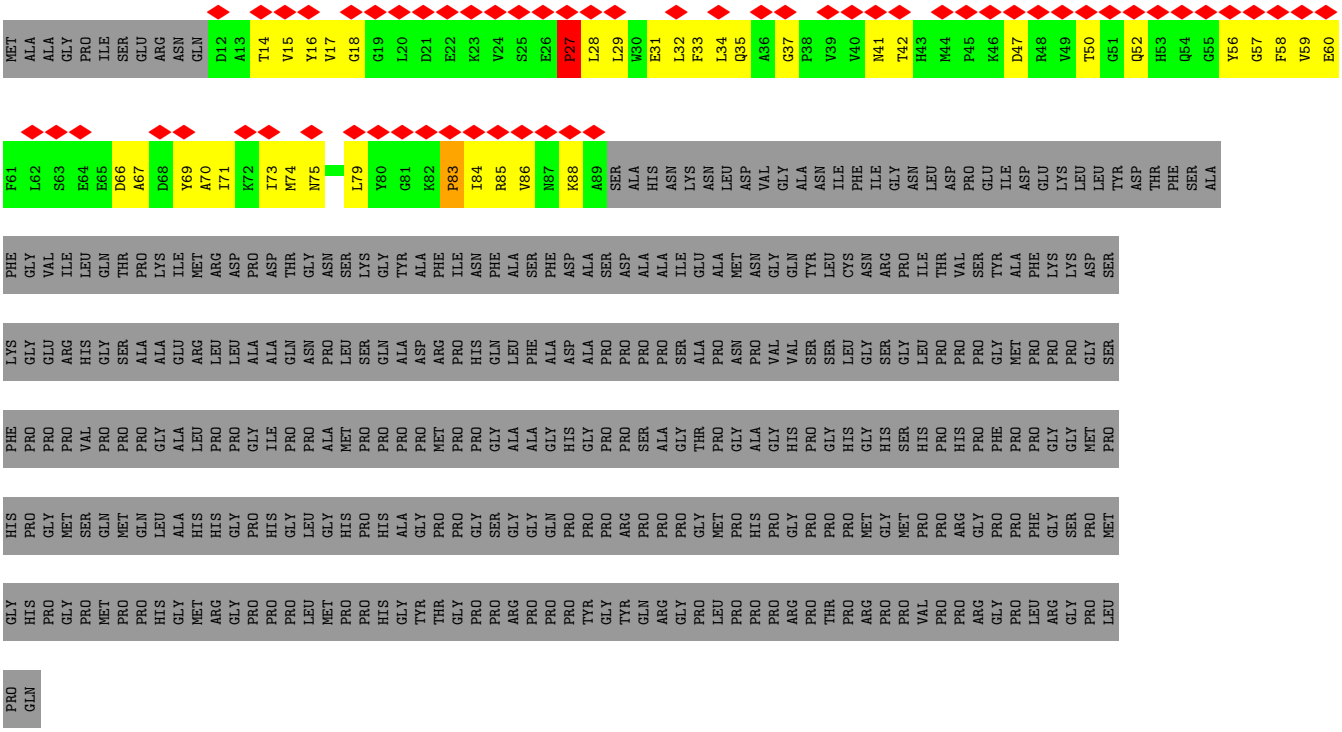
Chain 3:





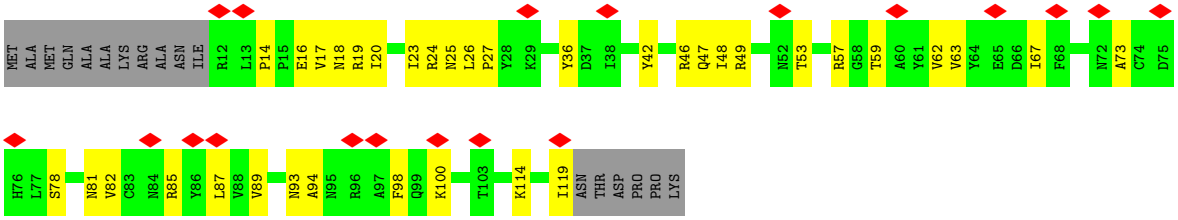
• Molecule 24: Splicing factor 3B subunit 4

Chain 4:



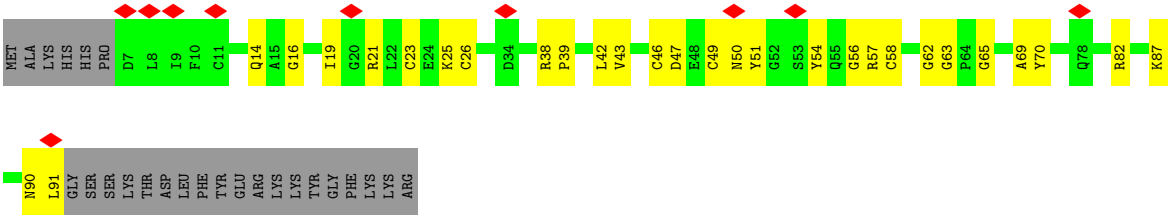
• Molecule 25: Splicing factor 3B subunit 6

Chain 5:



• Molecule 26: PHD finger-like domain-containing protein 5A

Chain 6:

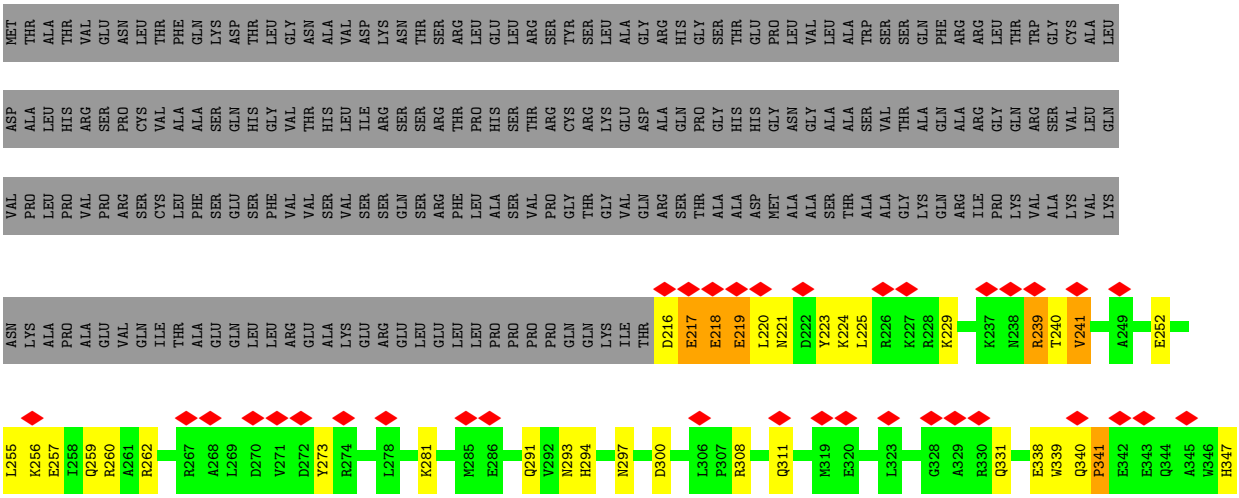


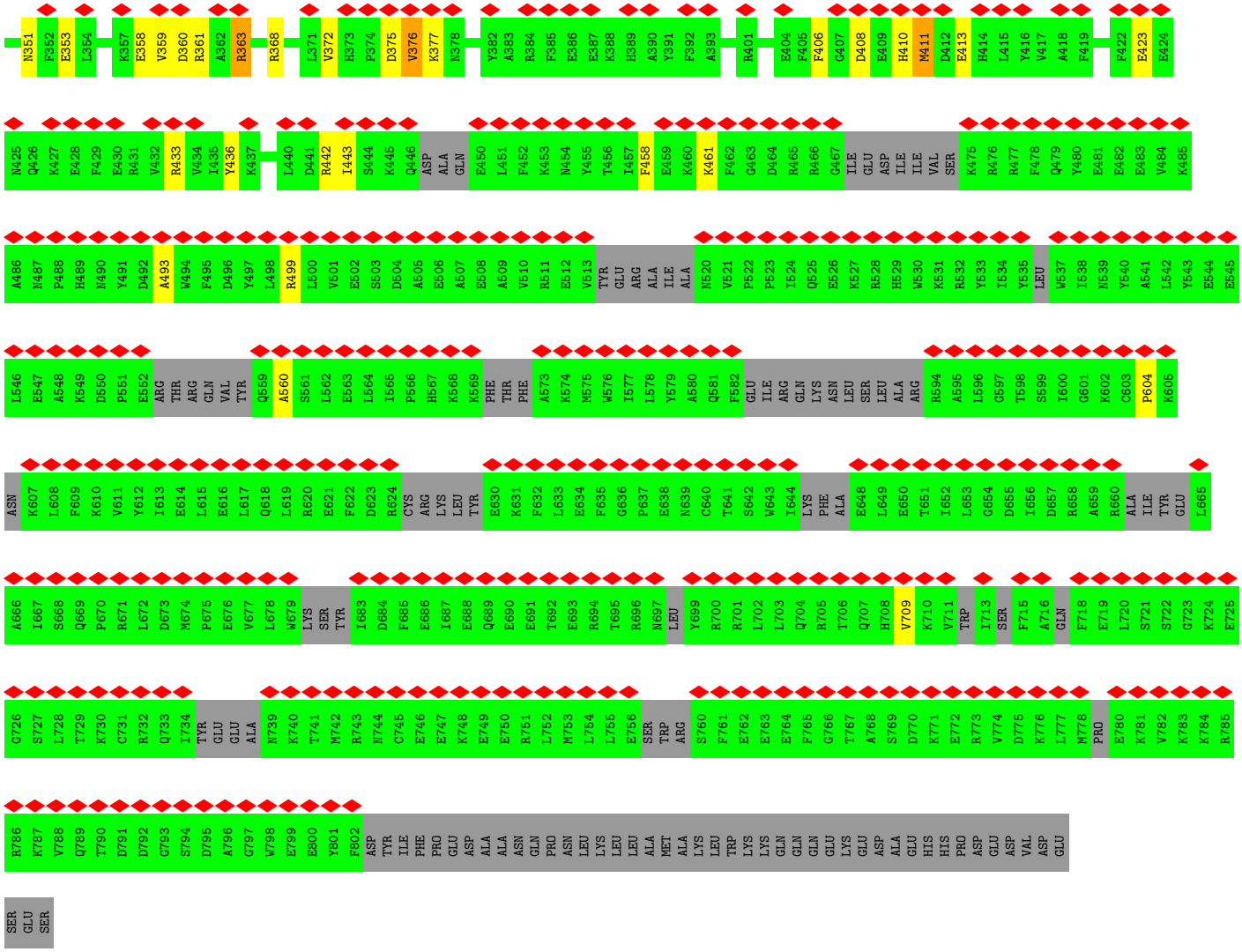
• Molecule 27: Splicing factor 3B subunit 5

Chain 7:

• Molecule 28: Crooked neck-like protein 1

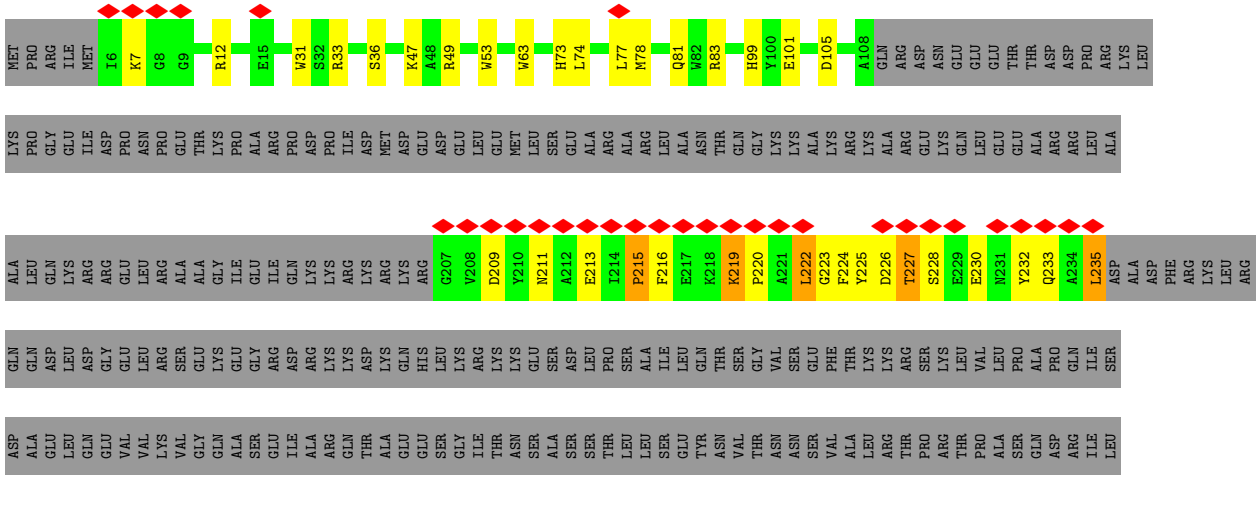
Chain J:

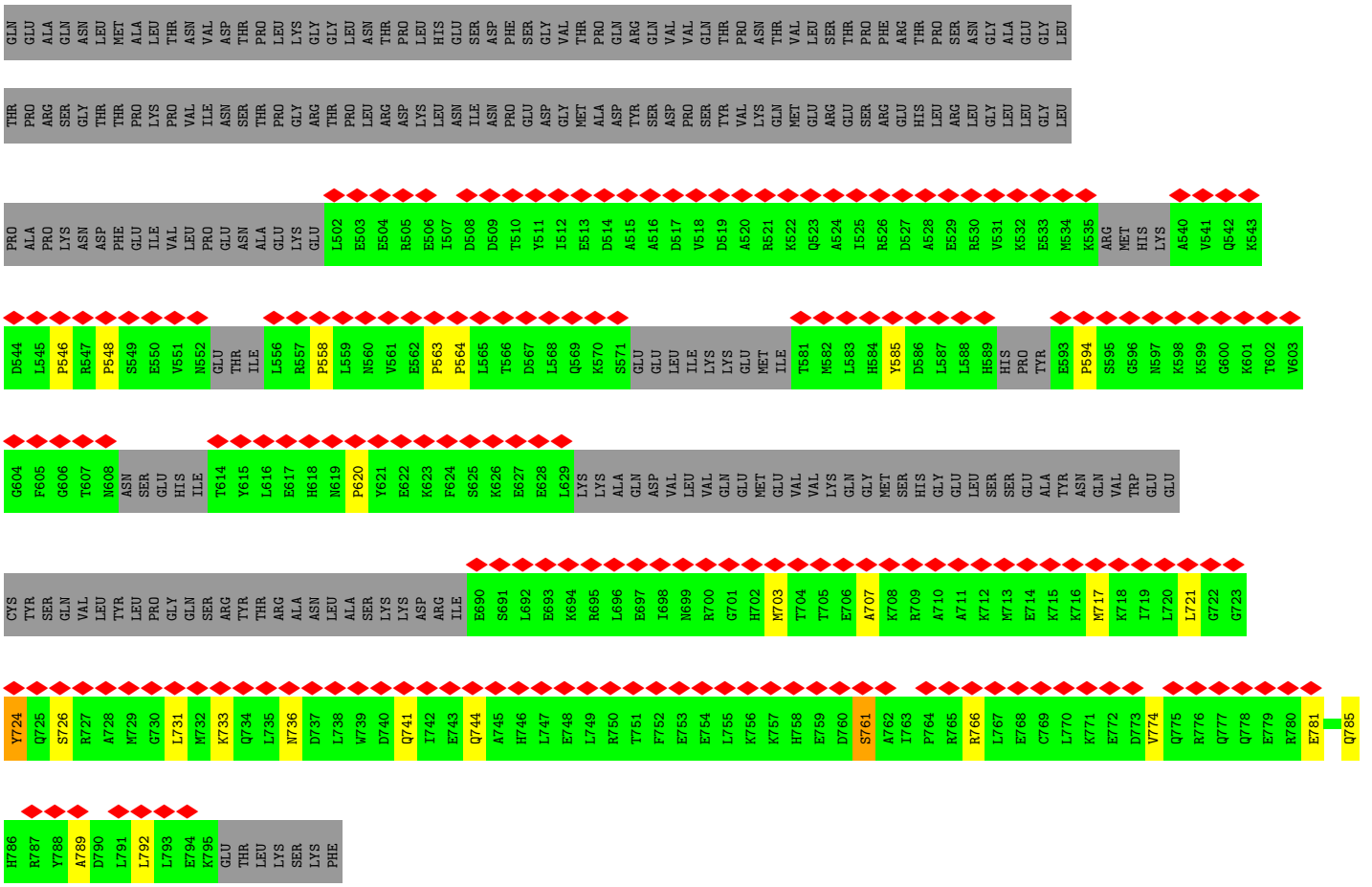




• Molecule 29: Cell division cycle 5-like protein

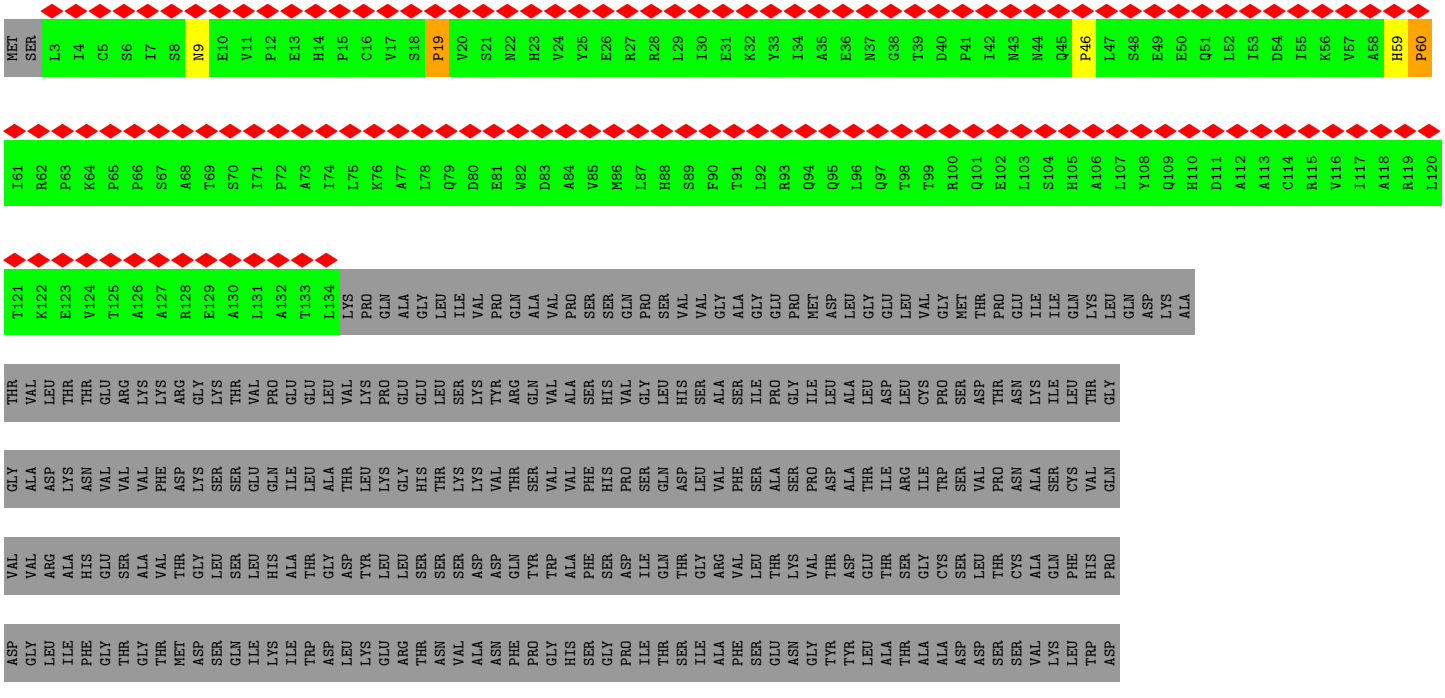
Chain L:

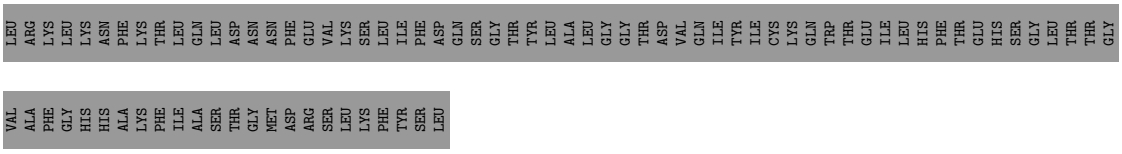




• Molecule 30: Pre-mRNA-processing factor 19

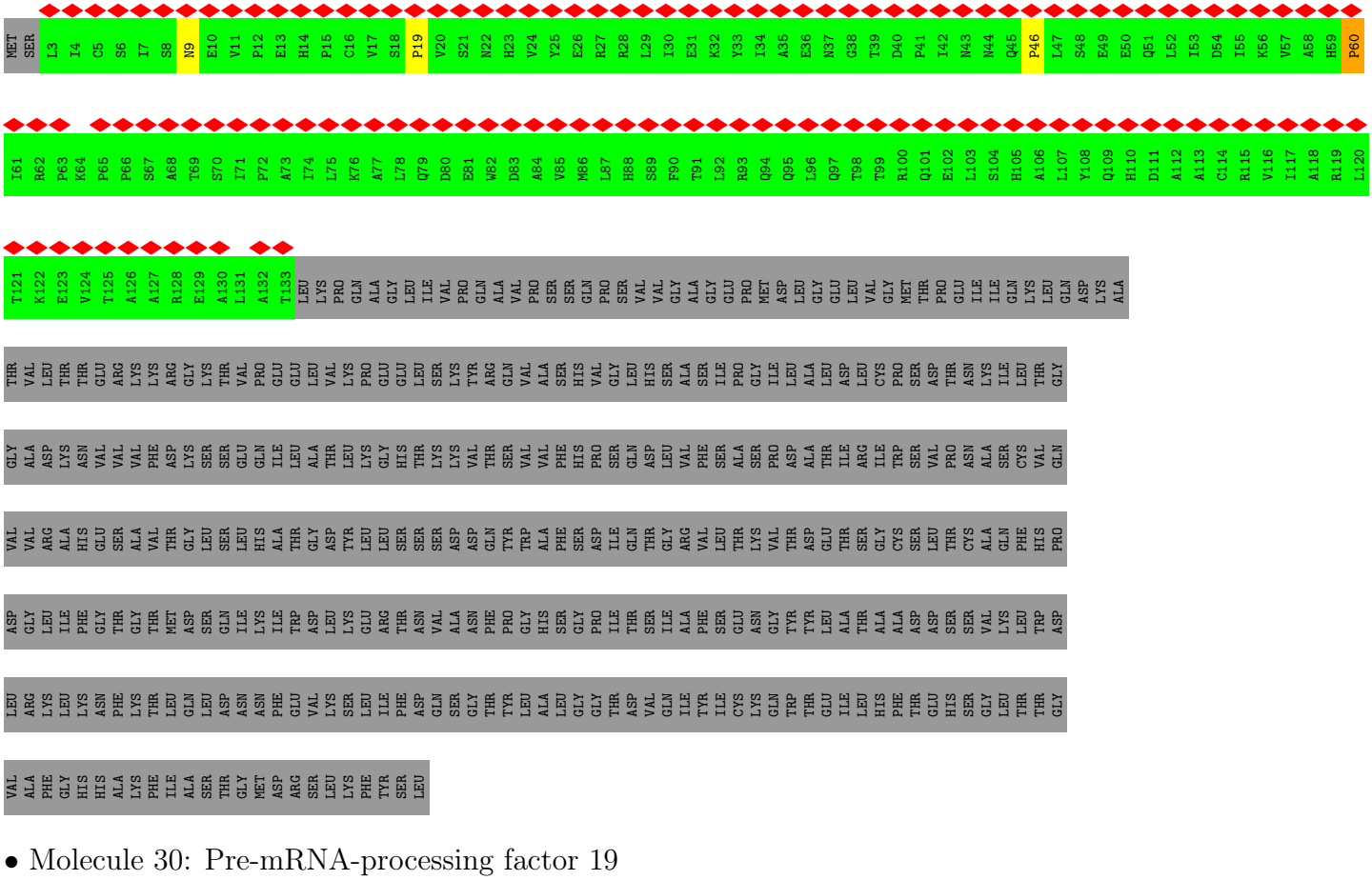
Chain q:





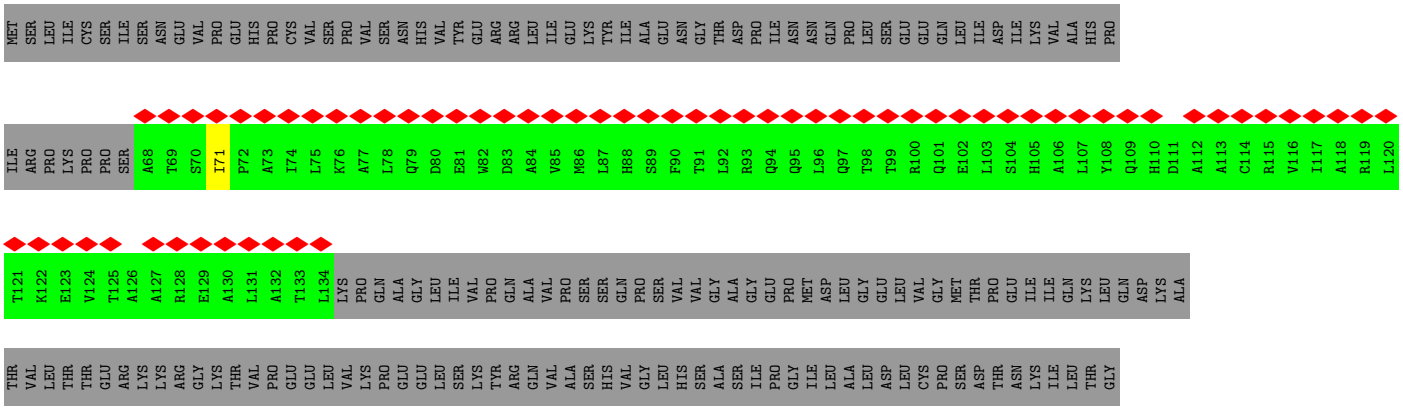
• Molecule 30: Pre-mRNA-processing factor 19

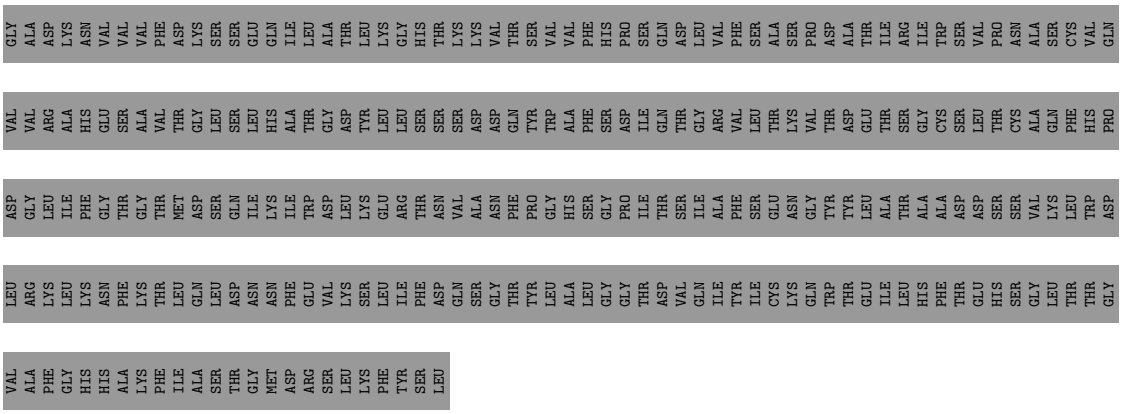
Chain r:



• Molecule 30: Pre-mRNA-processing factor 19

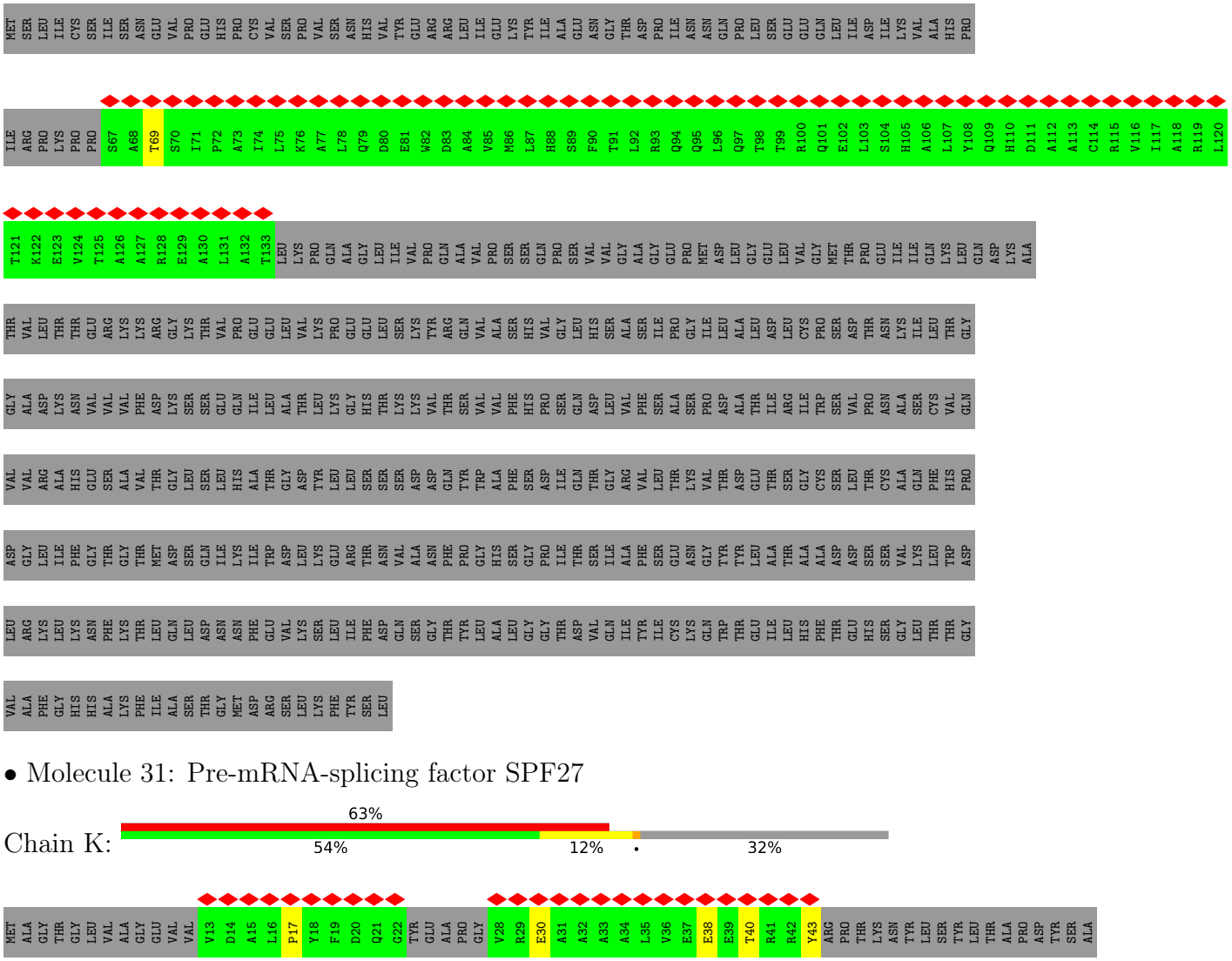
Chain s:





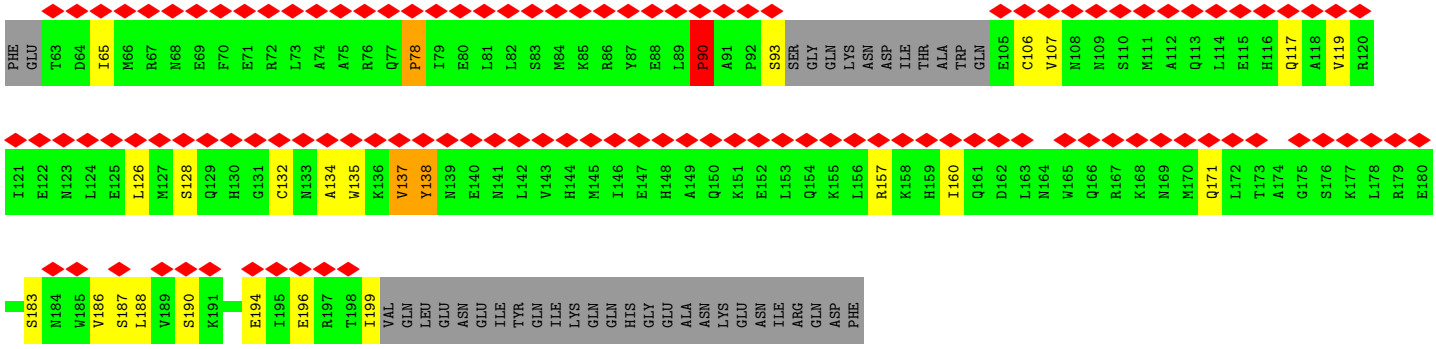
• Molecule 30: Pre-mRNA-processing factor 19

Chain t:



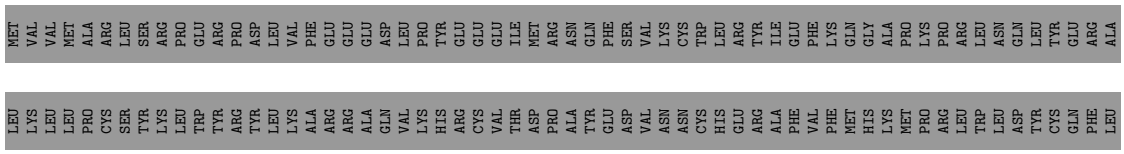
• Molecule 31: Pre-mRNA-splicing factor SPF27

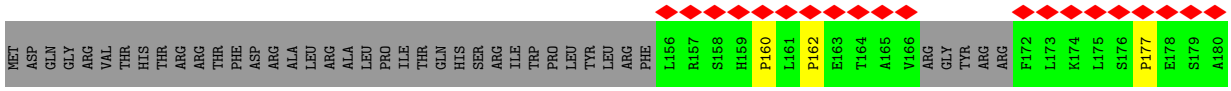
Chain K:

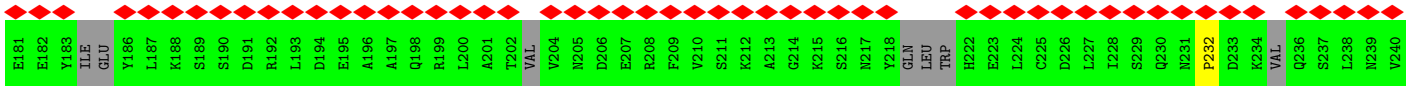


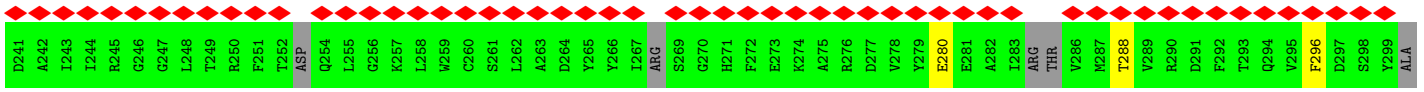
• Molecule 32: Pre-mRNA-splicing factor SYF1

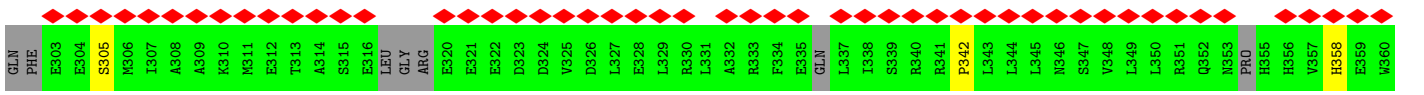
Chain I:

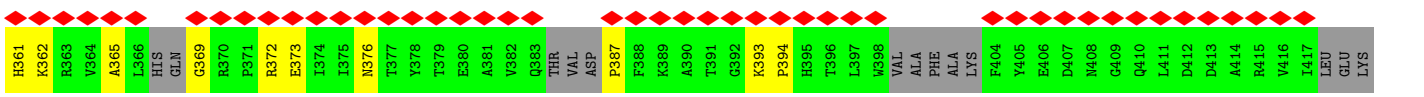


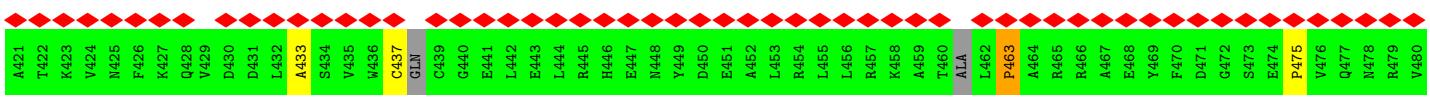


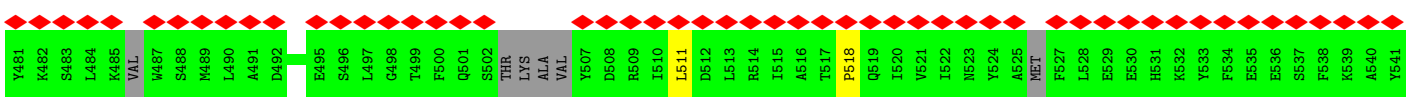


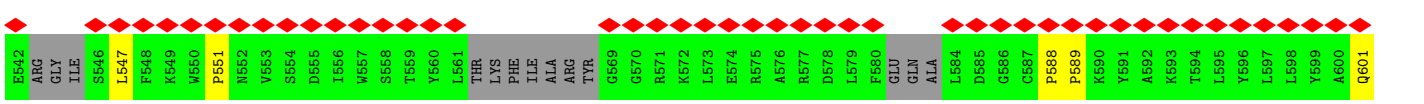


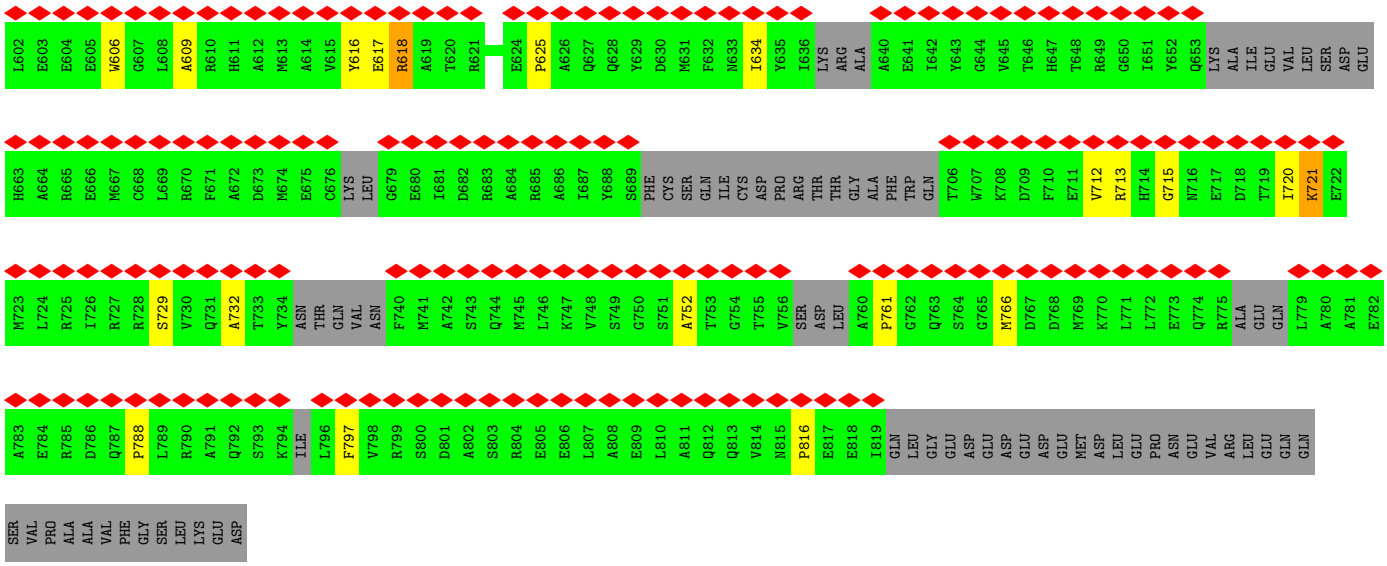






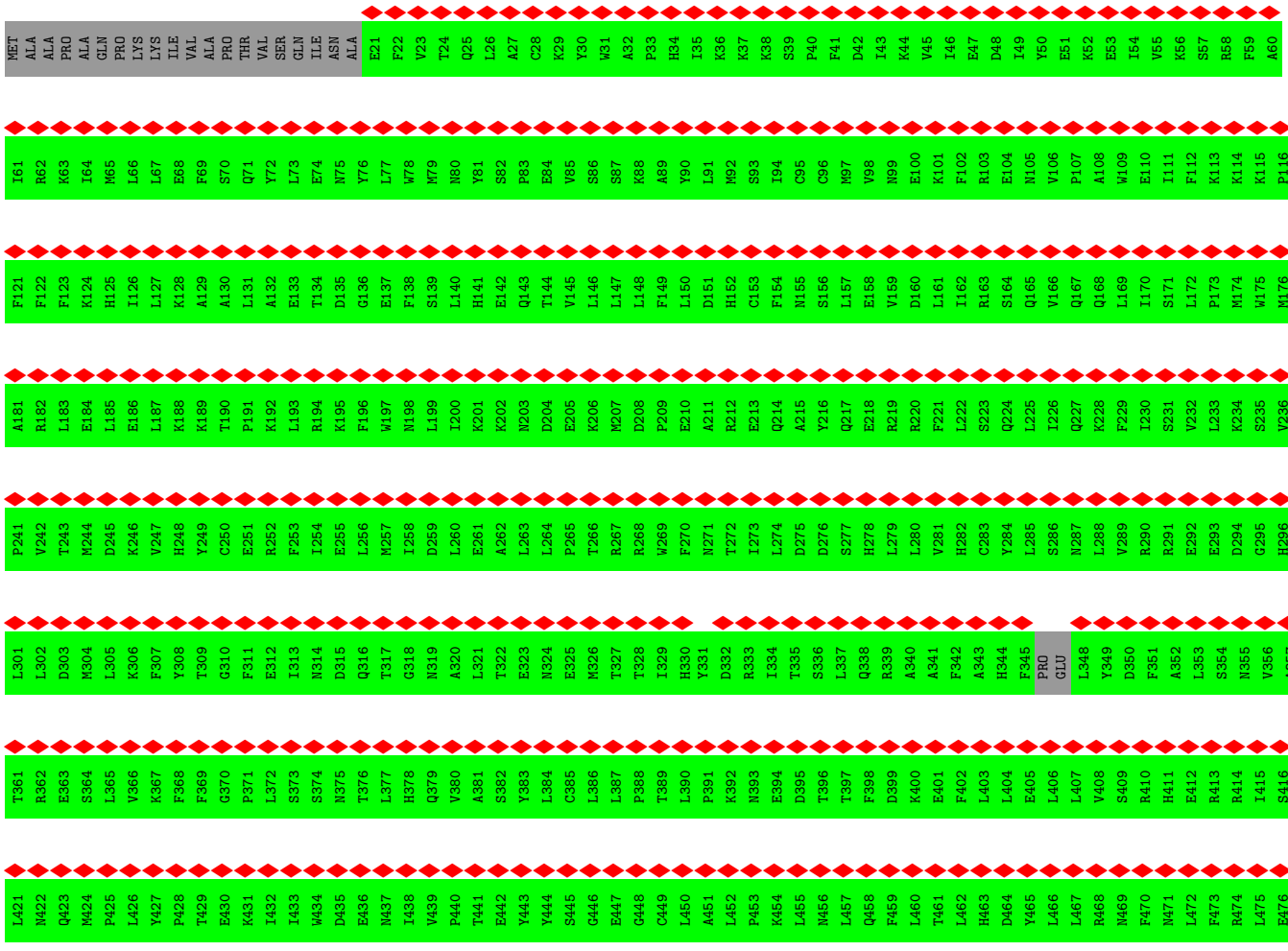


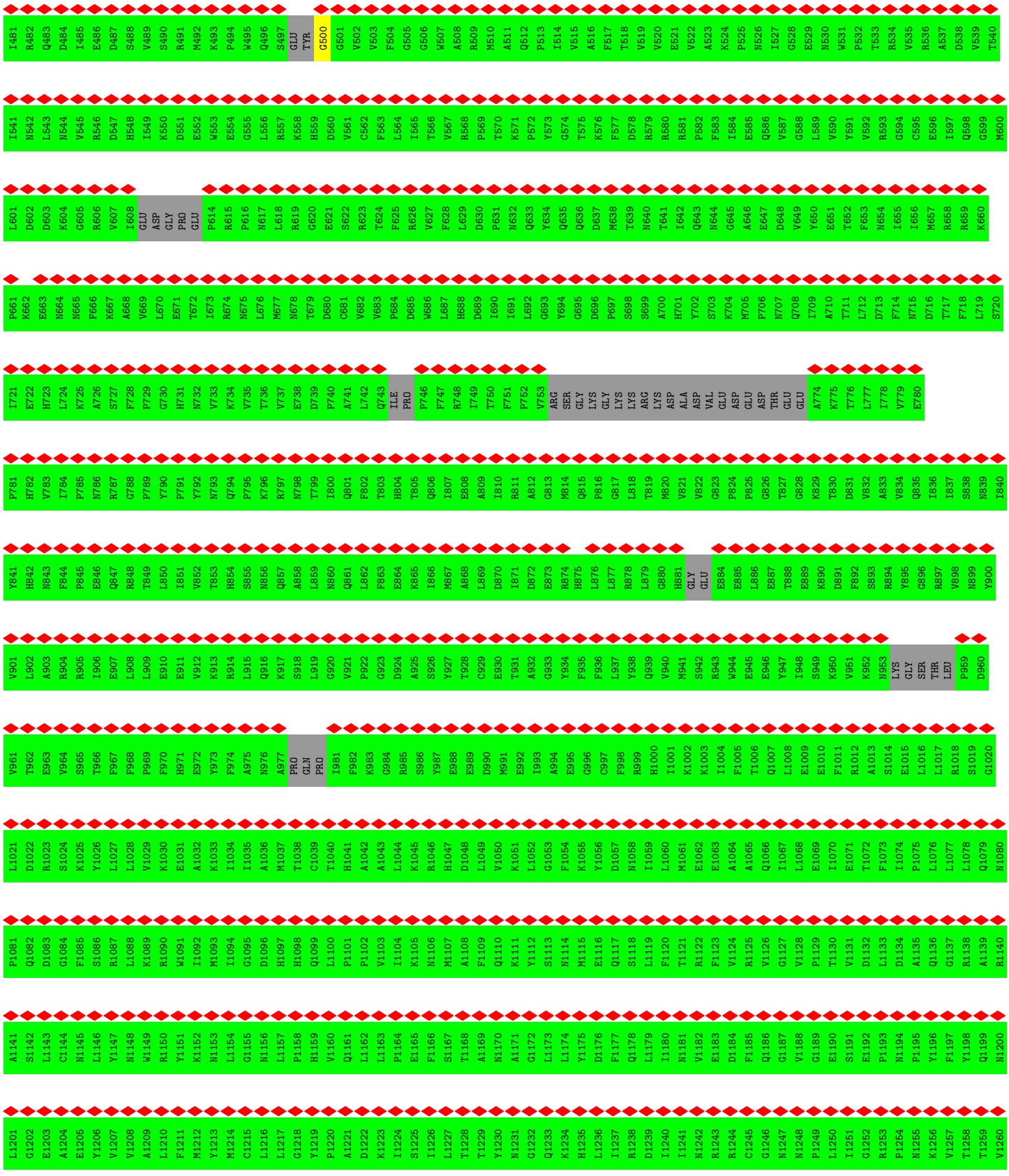




• Molecule 33: Intron-binding protein aquarius

Chain Q:

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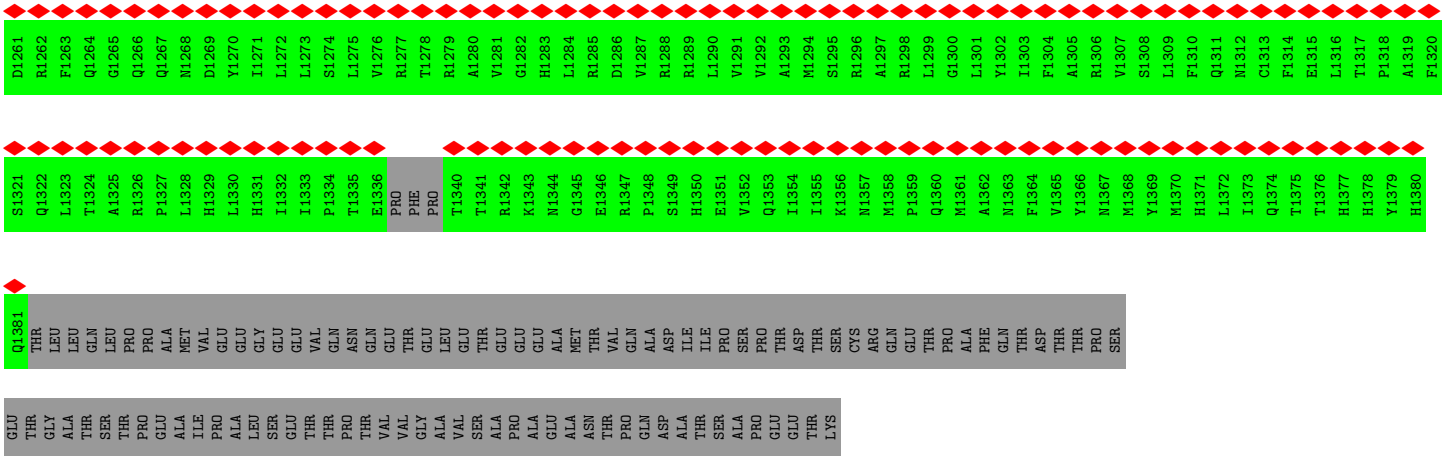
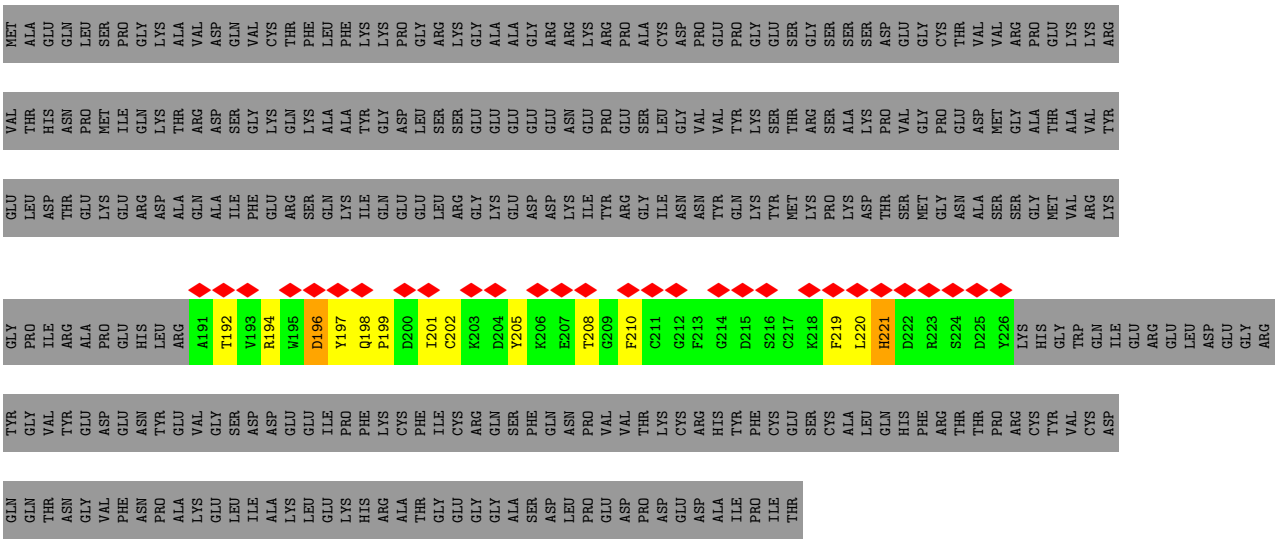
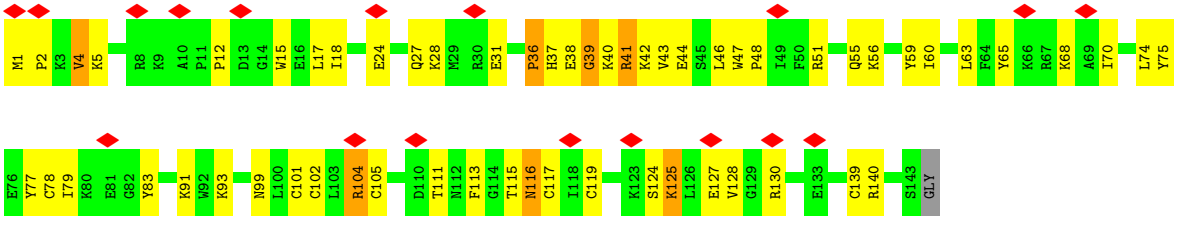
I541 N542 L543 N544 V545 R546 D547 H548 I549 K550 D551 E552 W553 E554 G555 L556 R557 K558 H559 D560 V561 C562 F563 L564 I565 T566 V567 R568 P569 T570 K571 P572 Y573 G574 T575 K576 F577 D578 R579 R580 R581 P582 F583 I584 E585 Q586 V587 G588 L589 V590 Y591 V592 R593 G594 C595 E596 I597 Q598 G599 M600
L601 D602 D603 K604 G605 R606 V607 I608 GLU ASP GLY PRO GLU P614 R615 P616 N617 L618 R619 G620 E621 S622 R623 T624 F625 R626 V627 F628 L629 D630 P631 N632 Q633 Y634 Q635 Q636 D637 M638 T639 N640 T641 I642 Q643 N644 G645 A646 E647 D648 V649 Y650 E651 T652 F653 N654 I655 I656 M657 R658 R659 K660
P661 K662 E663 N664 M665 F666 K667 A668 V669 L670 E671 T672 I673 R674 N675 L676 M677 N678 T679 D680 C681 V682 V683 P684 D685 W686 L687 H688 D689 I690 I691 L692 G693 Y694 G695 D696 P697 S698 S699 A700 H701 Y702 S703 K704 M705 P706 N707 Q708 I709 A710 T711 L712 D713 F714 N715 D716 T717 F718 L719 S720
I721 E722 H723 L724 K725 A726 S727 F728 P729 G730 H731 N732 V733 K734 V735 T736 V737 E738 D739 P740 A741 L742 Q743 ILE PRO P746 F747 R748 I749 T750 F751 P752 V753 ARG SER GLY LYS GLY LYS LYS ARG LYS ASP ALA ASP VAL GLU ASP GLU ASP THR GLU GLU A774 K775 T776 L777 I778 V779 E780
P781 H782 V783 I784 P785 N786 R787 G788 P789 Y790 P791 Y792 N793 Q794 P795 K796 R797 N798 T799 I800 Q801 F802 T803 H804 T805 Q806 I807 E808 A809 I810 R811 A812 G813 M814 Q815 P816 G817 L818 T819 M820 V821 V822 G823 P824 P825 G826 T827 G828 K829 T830 D831 V832 A833 V834 Q835 I836 I837 S838 N839 I840
Y841 H842 N843 F844 P845 E846 Q847 R848 T849 L850 I851 V852 T853 H854 S855 N856 Q857 A858 L859 N860 Q861 L862 F863 E864 K865 I866 M867 A868 L869 D870 I871 D872 E873 R874 H875 L876 L877 R878 L879 G880 H881 GLY GLU E884 E885 L886 E887 T888 E889 K890 D891 F892 S893 R894 Y895 G896 R897 V898 N899 Y900
V901 L902 A903 R904 R905 I906 E907 L908 L909 E910 E911 V912 K913 R914 L915 Q916 K917 S918 L919 G920 V921 P922 G923 D924 A925 S926 Y927 T928 C929 E930 T931 A932 G933 Y934 F935 F936 L937 Y938 Q939 V940 M941 S942 R943 W944 E945 E946 Y947 I948 S949 K950 V951 K952 N953 LYS GLY SER THR LEU P959 D960
V961 T962 E963 V964 S965 T966 F967 F968 P969 F970 H971 E972 Y973 F974 A975 N976 A977 PRO GLN PRO I981 F982 K983 G984 R985 S986 Y987 E988 E989 D990 M991 E992 I993 A994 E995 G996 C997 F998 R999 H1000 I1001 K1002 K1003 I1004 F1005 T1006 Q1007 L1008 E1009 E1010 F1011 R1012 A1013 S1014 E1015 L1016 L1017 R1018 S1019 G1020
L1021 D1022 R1023 S1024 K1025 Y1026 L1027 L1028 V1029 K1030 E1031 A1032 K1033 I1034 I1035 A1036 M1037 T1038 C1039 T1040 H1041 A1042 A1043 L1044 K1045 R1046 H1047 D1048 L1049 V1050 K1051 L1052 G1053 F1054 K1055 Y1056 D1057 N1058 I1059 L1060 M1061 E1062 E1063 A1064 A1065 Q1066 I1067 L1068 E1069 I1070 E1071 T1072 F1073 I1074 P1075 L1076 L1077 L1078 Q1079 N1080
P1081 Q1082 D1083 G1084 F1085 S1086 R1087 L1088 K1089 R1090 W1091 I1092 M1093 I1094 G1095 D1096 H1097 H1098 Q1099 L1100 P1101 P1102 V1103 I1104 K1105 N1106 M1107 A1108 F1109 Q1110 K1111 Y1112 S1113 N1114 M1115 E1116 Q1117 S1118 L1119 F1120 T1121 R1122 F1123 V1124 R1125 V1126 G1127 V1128 P1129 T1130 V1131 D1132 L1133 D1134 A1135 Q1136 G1137 R1138 A1139 R1140
A1141 S1142 L1143 C1144 N1145 L1146 Y1147 N1148 W1149 R1150 Y1151 K1152 N1153 L1154 G1155 N1156 L1157 P1158 H1159 V1160 Q1161 L1162 L1163 P1164 E1165 F1166 S1167 T1168 A1169 N1170 A1171 G1172 L1173 L1174 Y1175 D1176 F1177 Q1178 L1179 I1180 N1181 V1182 E1183 D1184 F1185 Q1186 G1187 V1188 G1189 E1190 S1191 E1192 P1193 N1194 P1195 Y1196 F1197 Y1198 Q1199 N1200
L1201 G1202 E1203 A1204 E1205 Y1206 V1207 V1208 A1209 L1210 F1211 M1212 Y1213 M1214 C1215 L1216 L1217 G1218 Y1219 P1220 A1221 D1222 K1223 I1224 S1225 I1226 L1227 T1228 T1229 Y1230 N1231 G1232 Q1233 K1234 H1235 L1236 I1237 R1238 D1239 I1240 I1241 N1242 R1243 R1244 C1245 G1246 N1247 N1248 P1249 L1250 I1251 G1252 R1253 P1254 N1255 K1256 V1257 T1258 T1259 V1260



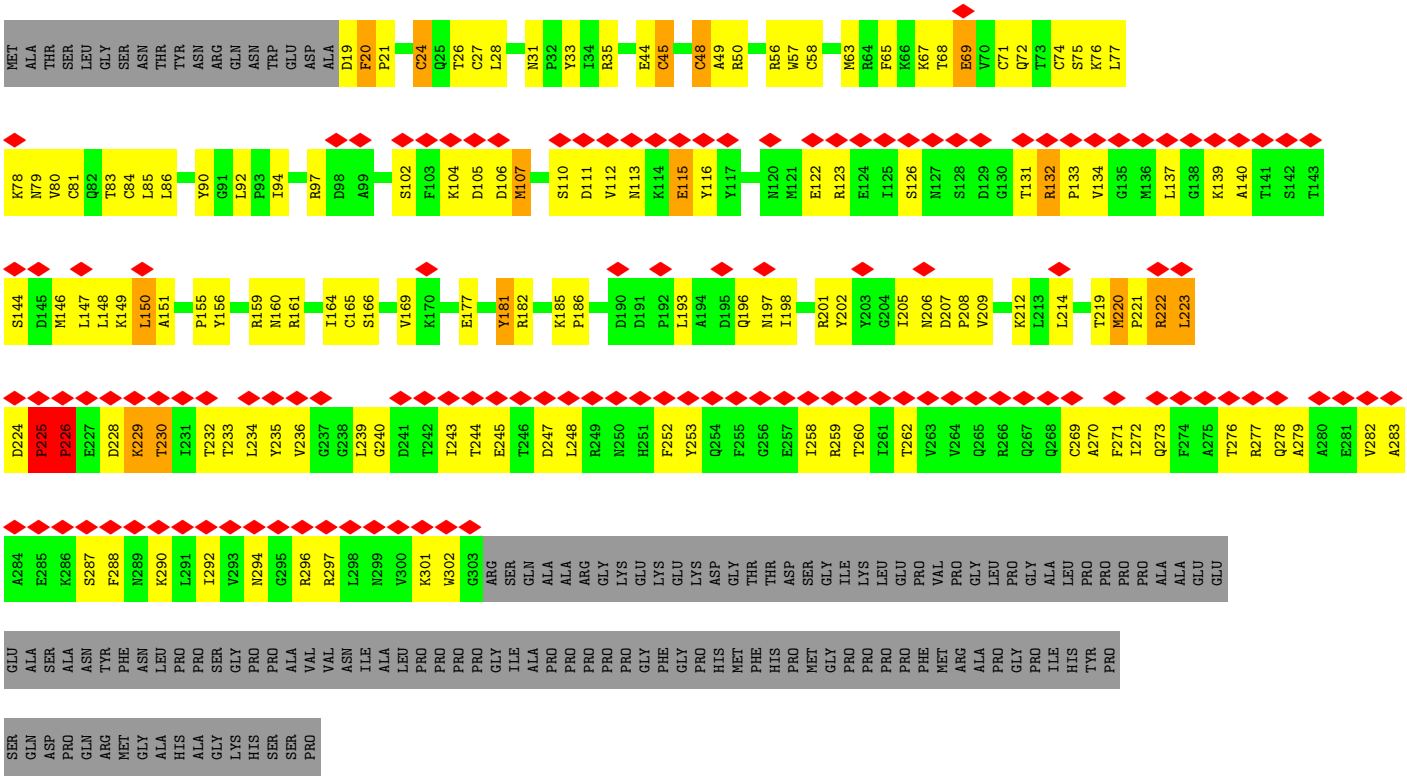
• Molecule 34: RING finger protein 113A



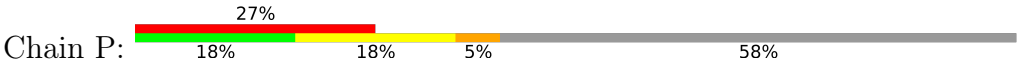
• Molecule 35: Protein BUD31 homolog

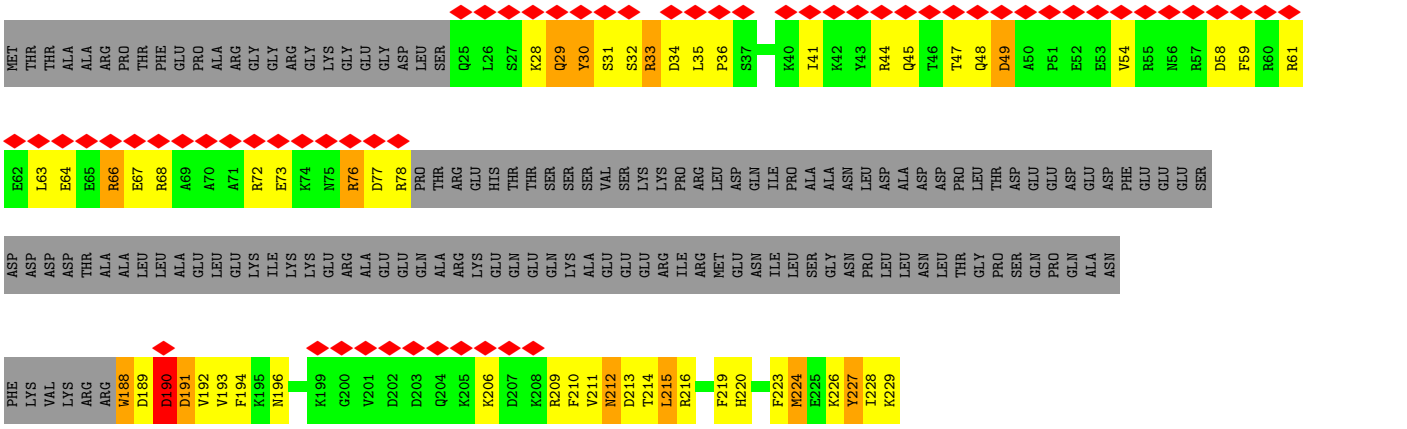


• Molecule 36: Pre-mRNA-splicing factor RBM22

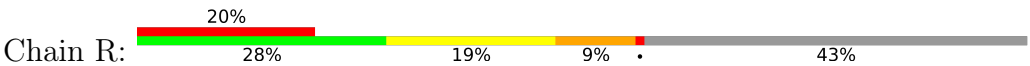


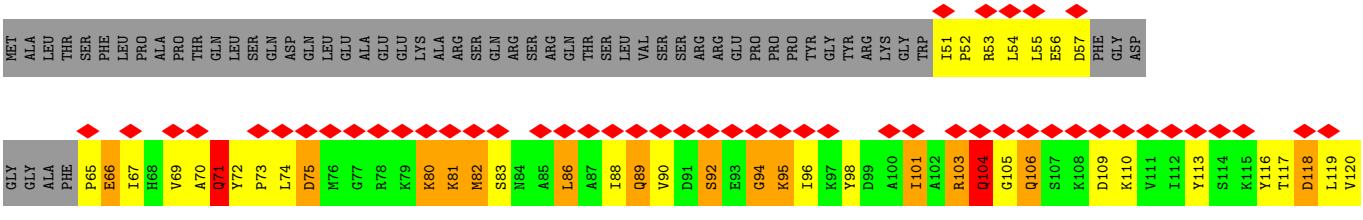
• Molecule 37: Spliceosome-associated protein CWC15 homolog

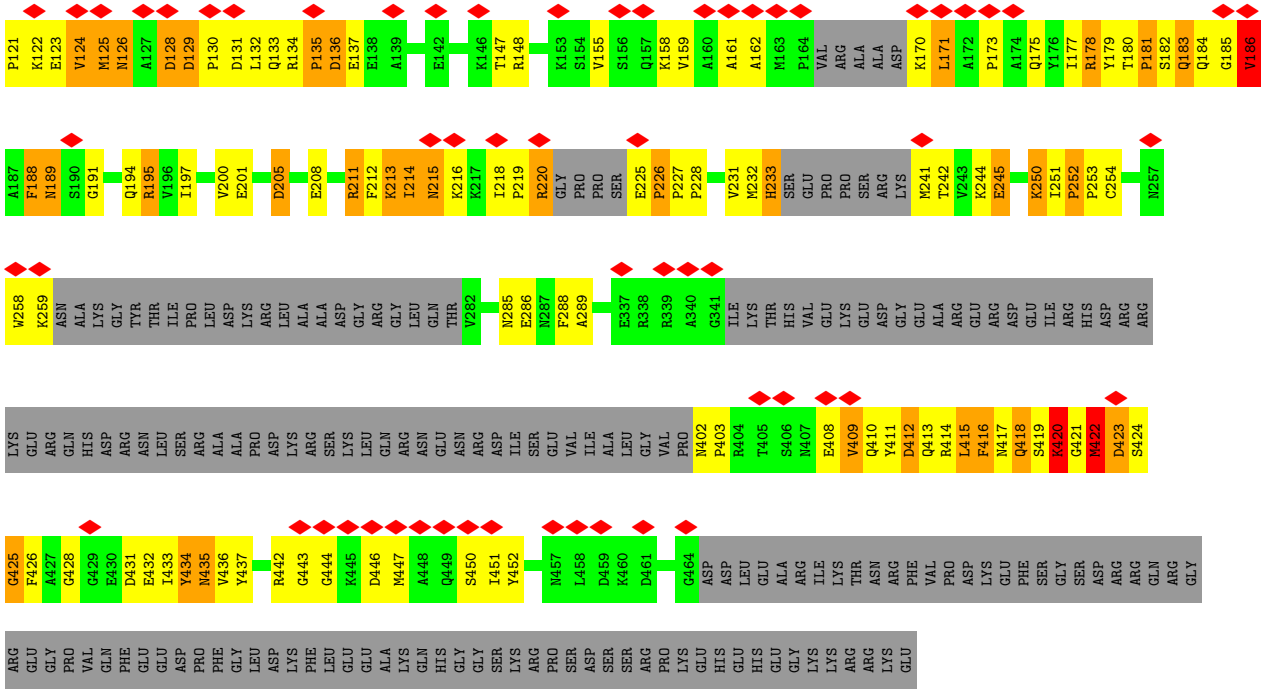




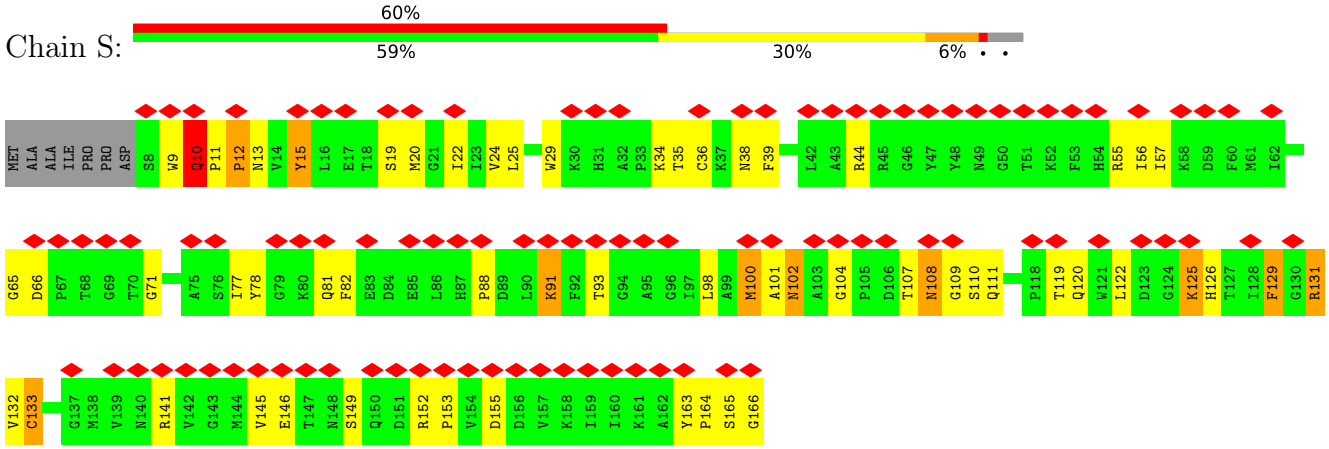
• Molecule 38: Skip



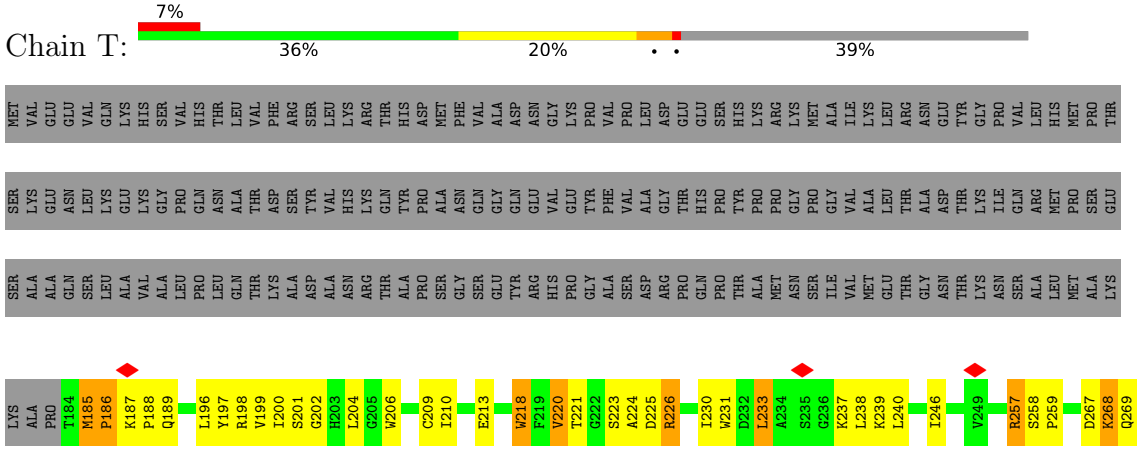


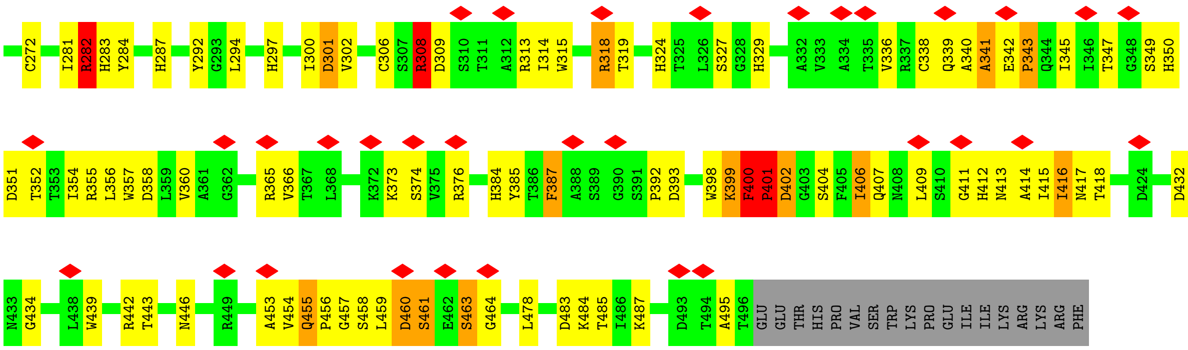


• Molecule 39: Peptidyl-prolyl cis-trans isomerase-like 1



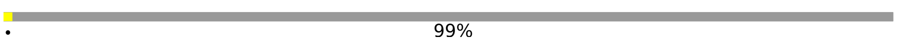
• Molecule 40: Pleiotropic regulator 1

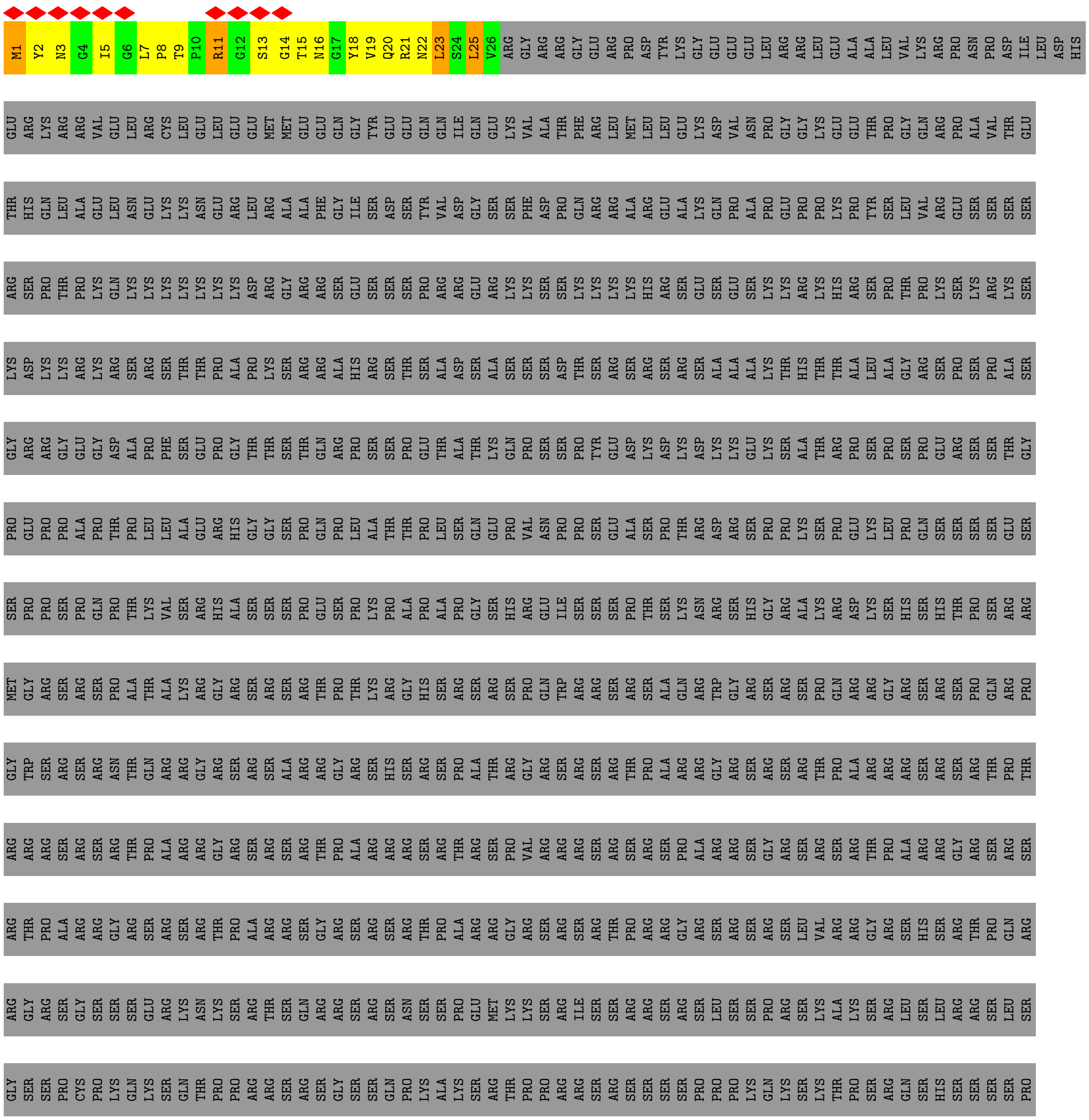


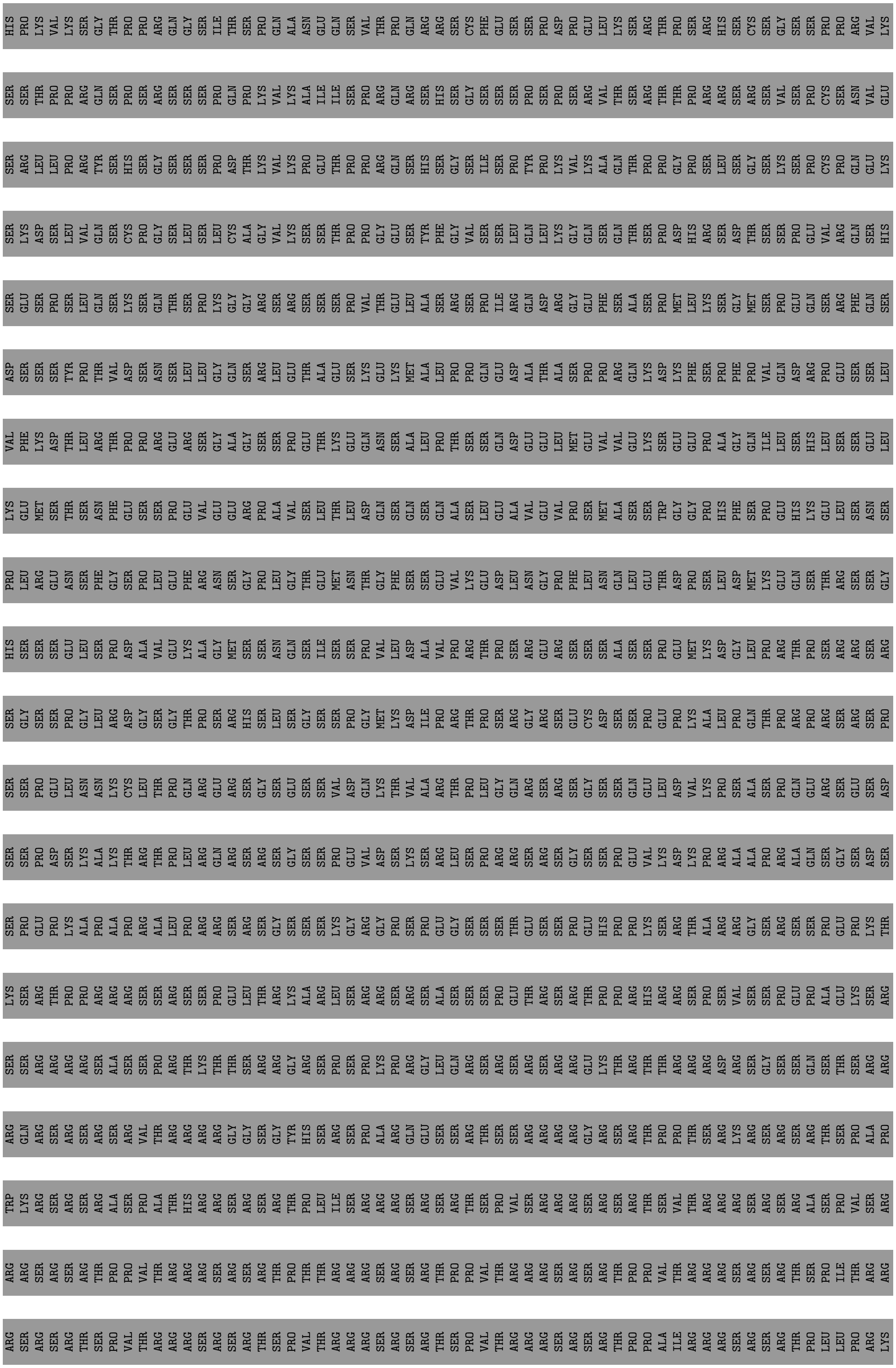


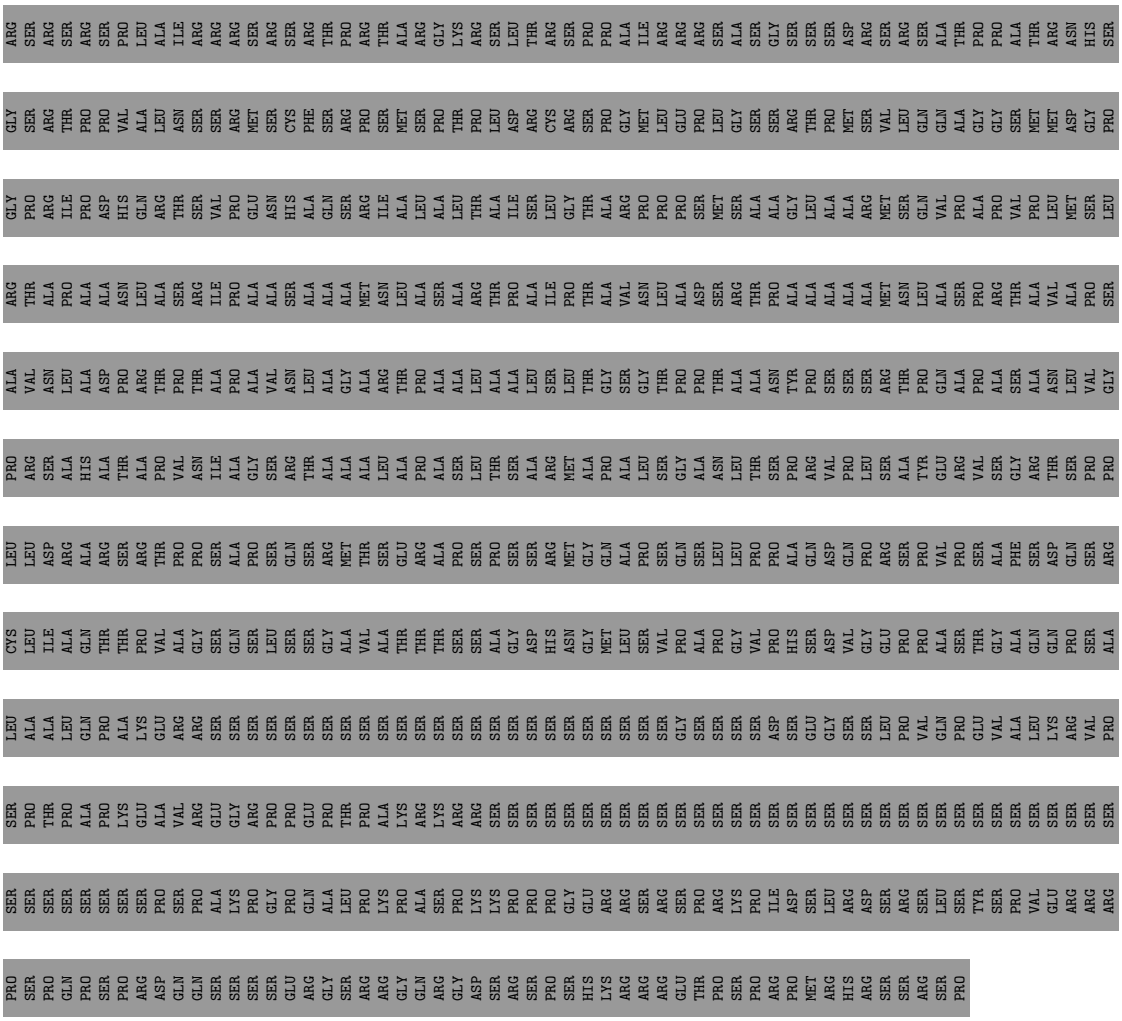
• Molecule 41: Serine/arginine repetitive matrix protein 2

Chain U:



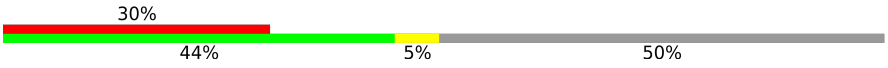


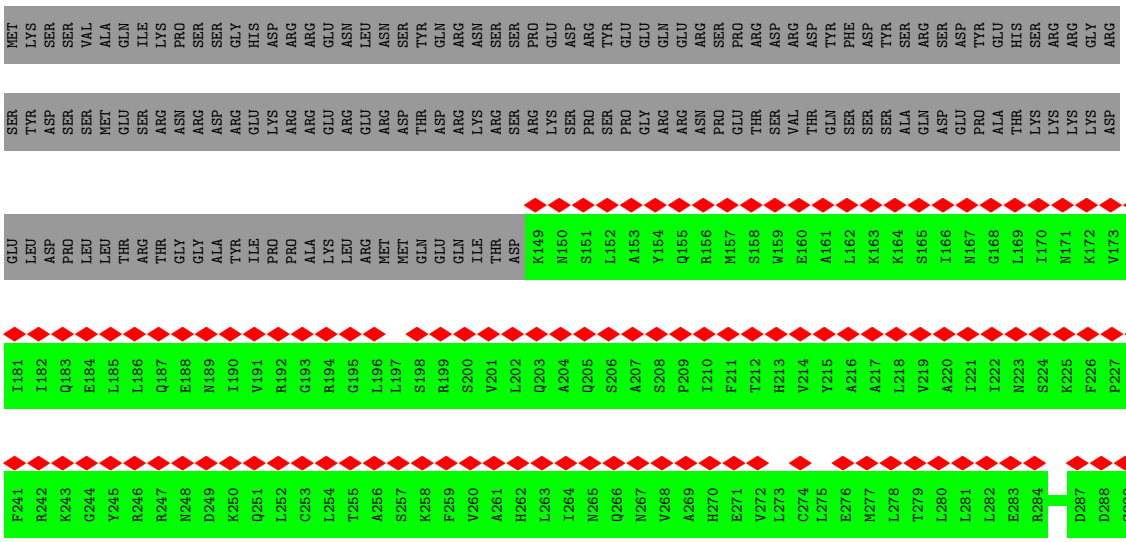

HIS PRO LYS VAL LYS SER GLY THR PRO PRO ARG GLN GLY SER ILE THR SER PRO GLN ALA ASN GLU GLN SER VAL THR PRO GLN ARG ARG SER CYS PHE GLU SER SER PRO ASP PRO GLU LEU LYS SER ARG THR PRO SER ARG HIS SER CYS SER GLY SER SER PRO PRO ARG VAL LYS
SER SER THR PRO PRO ARG GLN SER PRO SER ARG SER SER SER PRO GLN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

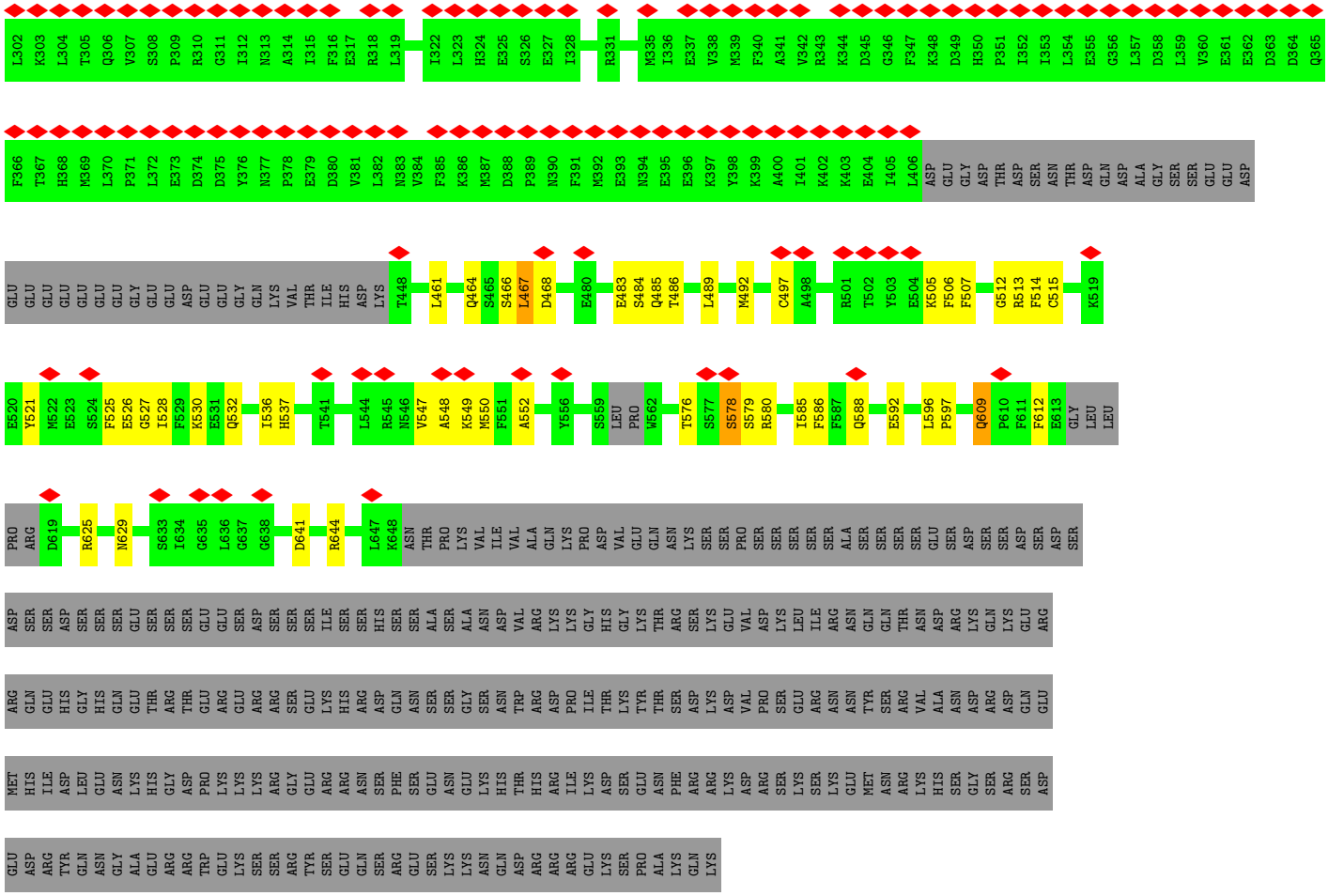


• Molecule 42: Pre-mRNA-splicing factor CWC22 homolog

Chain V:

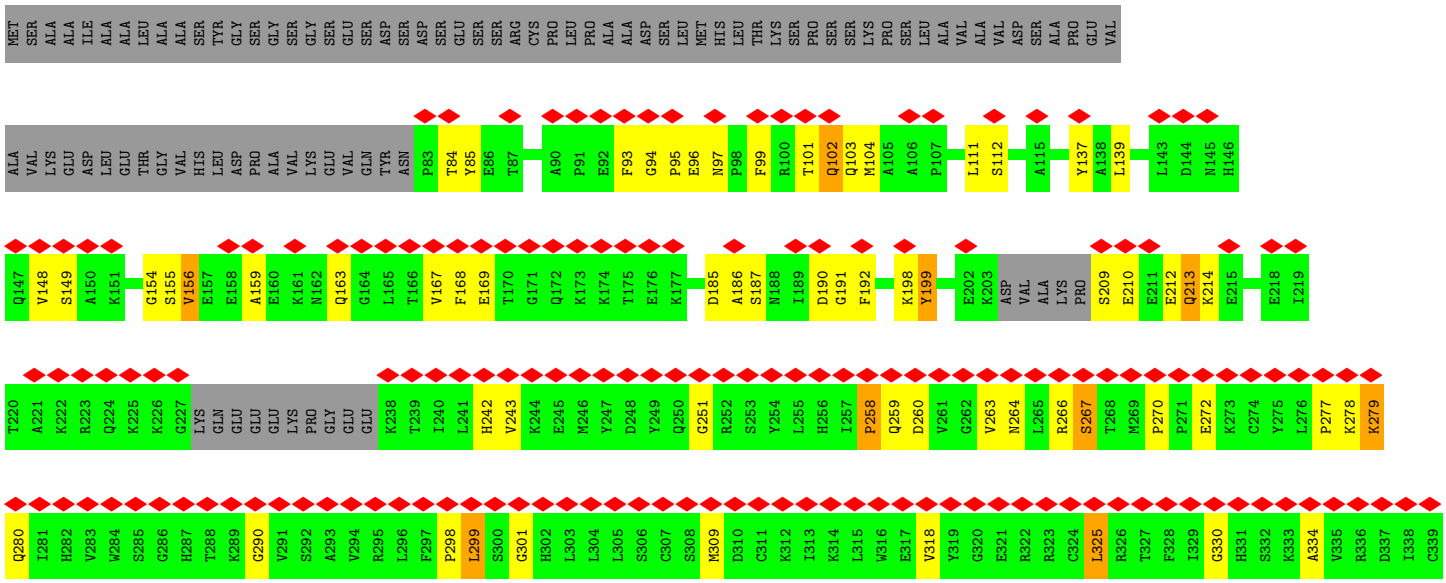


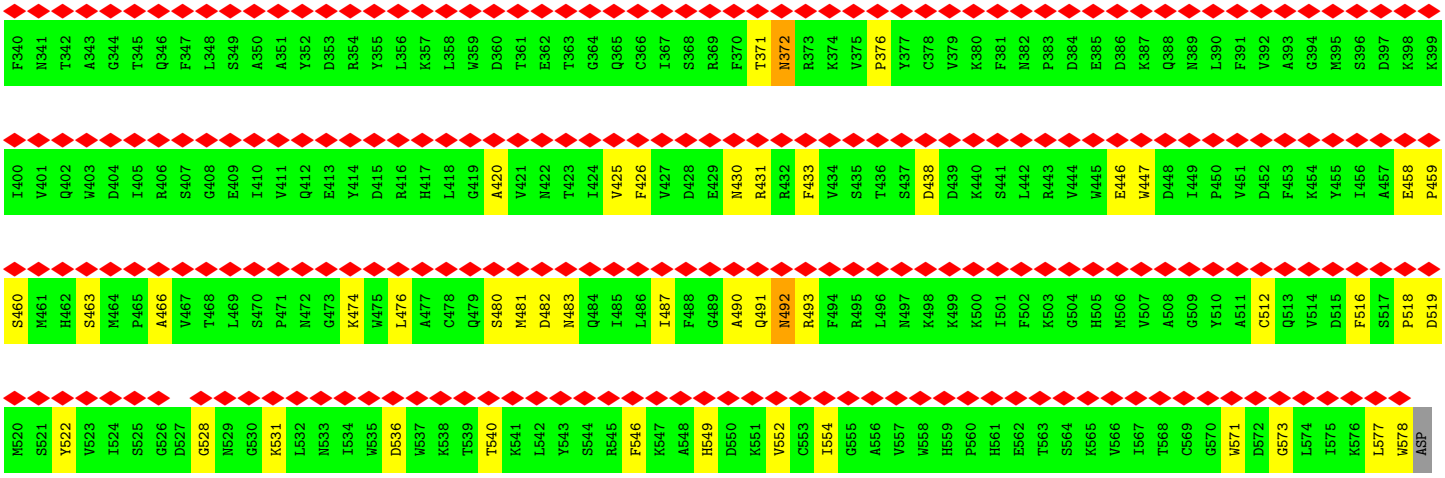




• Molecule 43: Pre-mRNA-processing factor 17

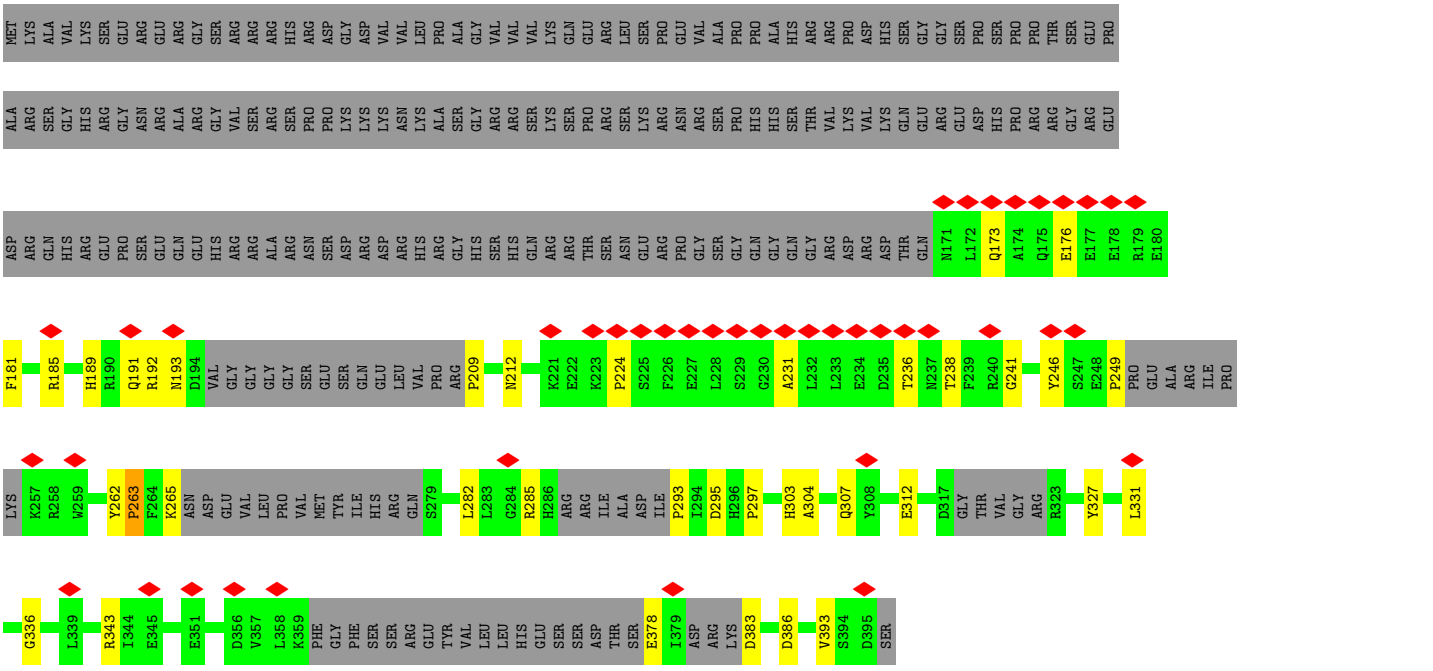
Chain W:





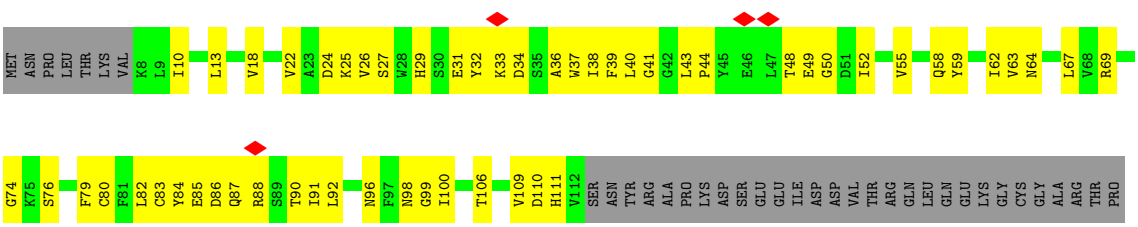
• Molecule 44: Smad nuclear-interacting protein 1

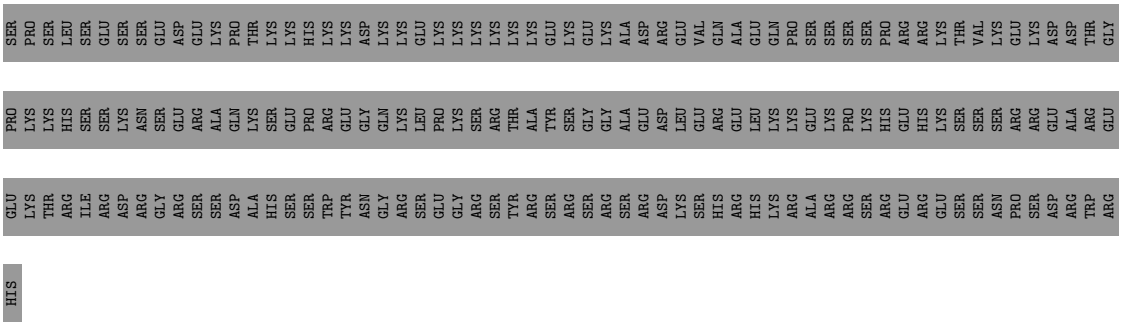
Chain X:



• Molecule 45: RNA-binding motif protein, X-linked 2

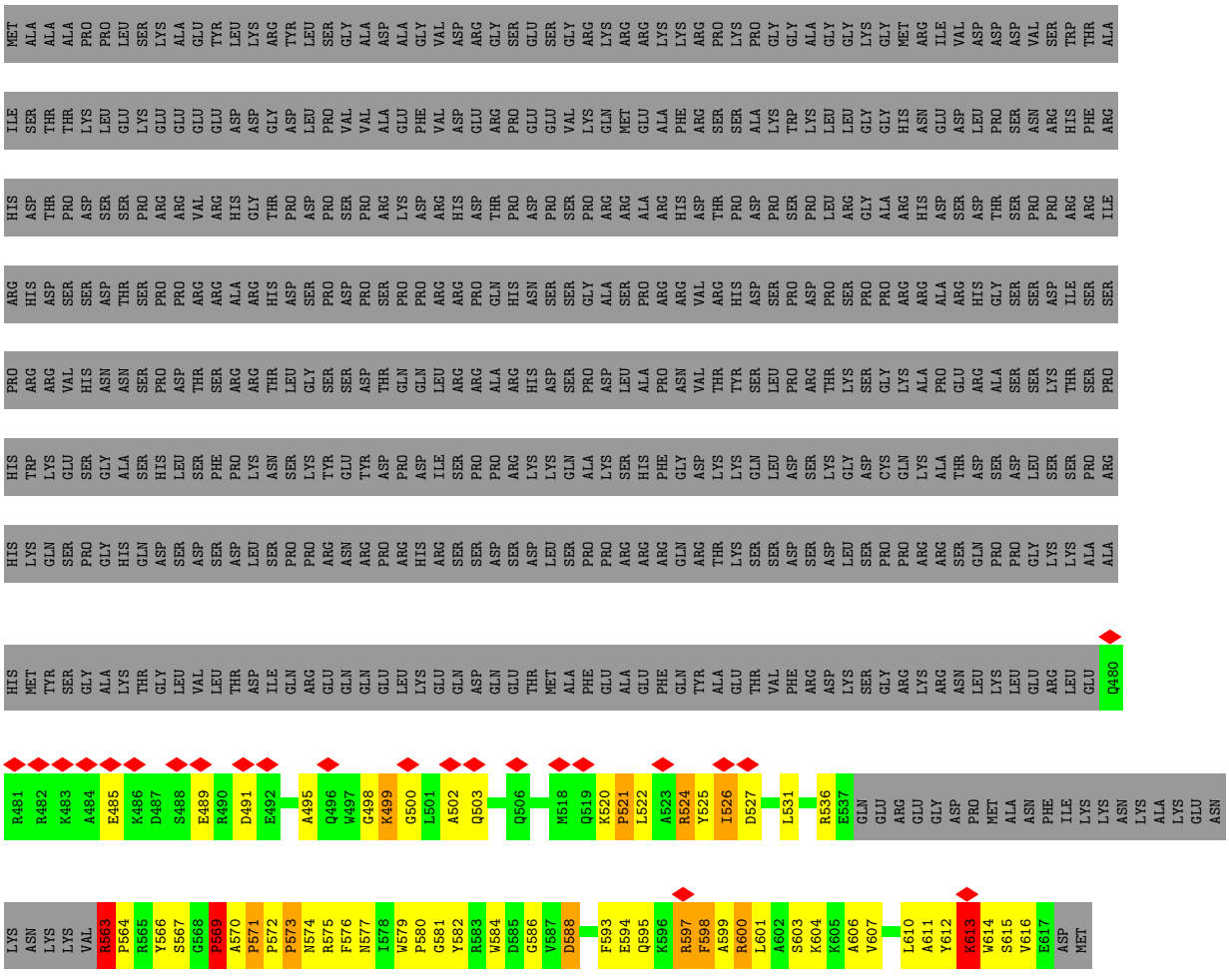
Chain Y:





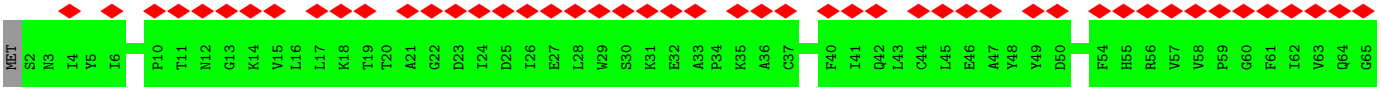
• Molecule 46: BUD13 homolog

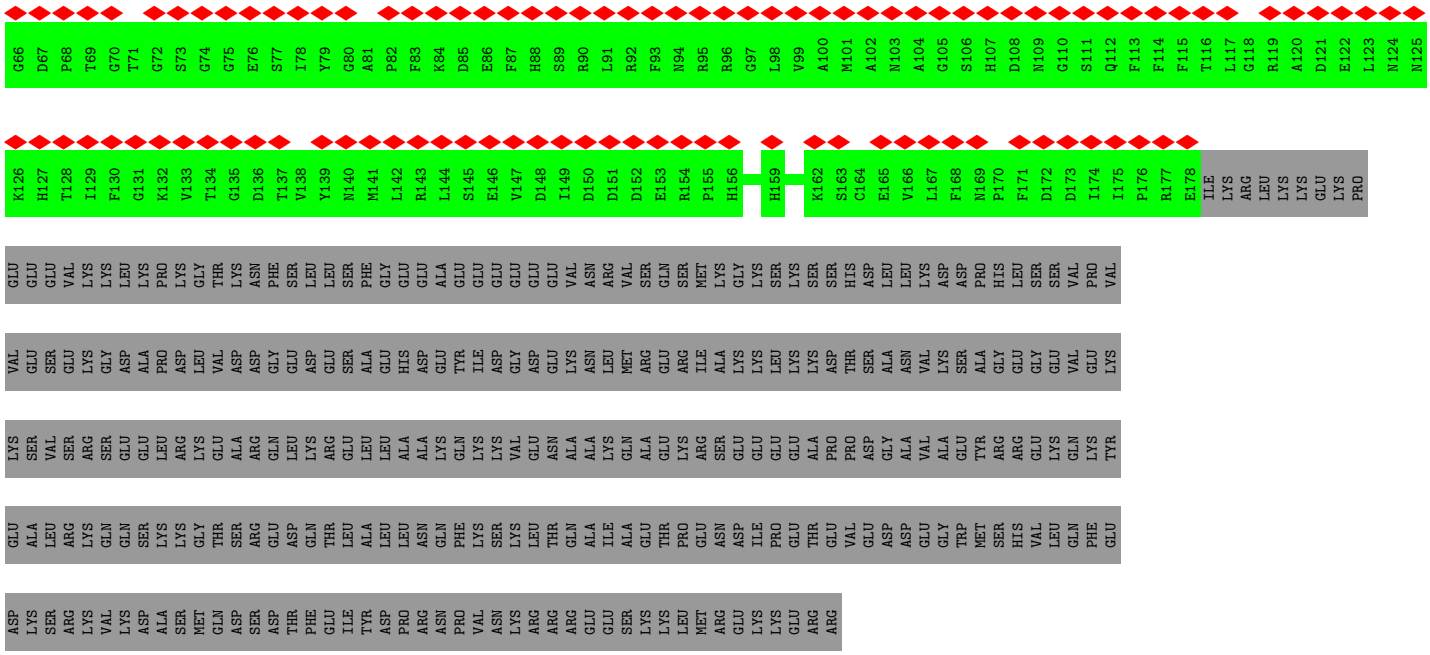
Chain Z: 9% 7% 82%



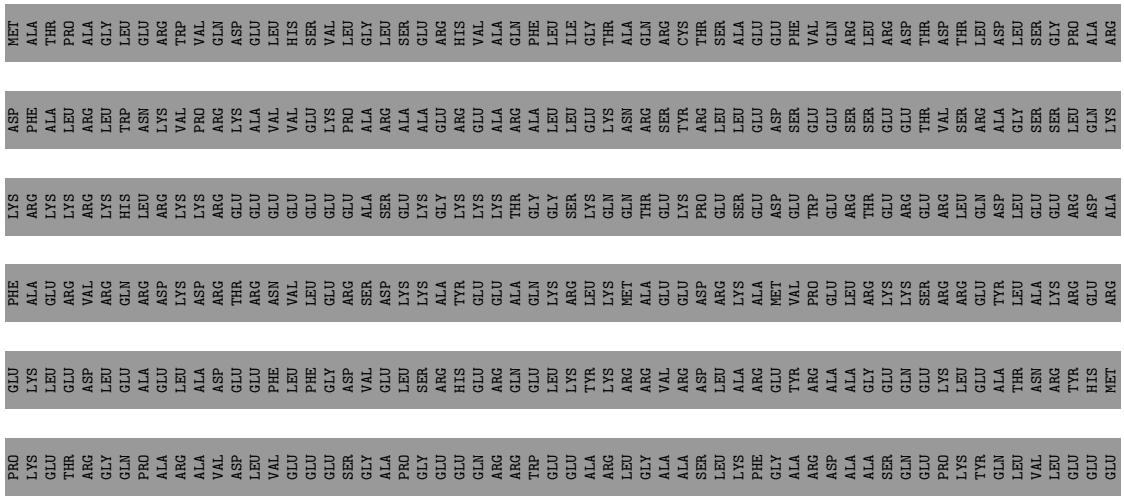
• Molecule 47: Peptidyl-prolyl cis-trans isomerase CWC27 homolog

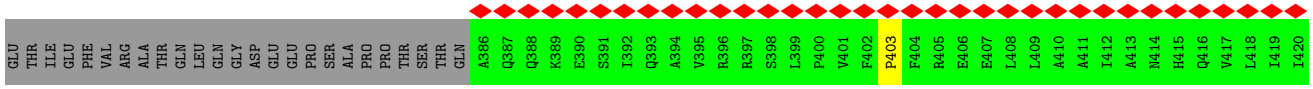
Chain z: 32% 38% 62%

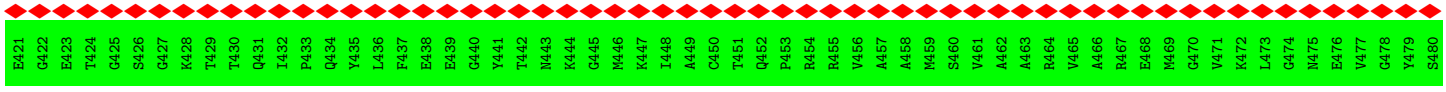


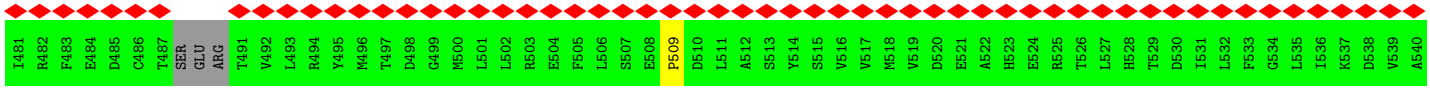


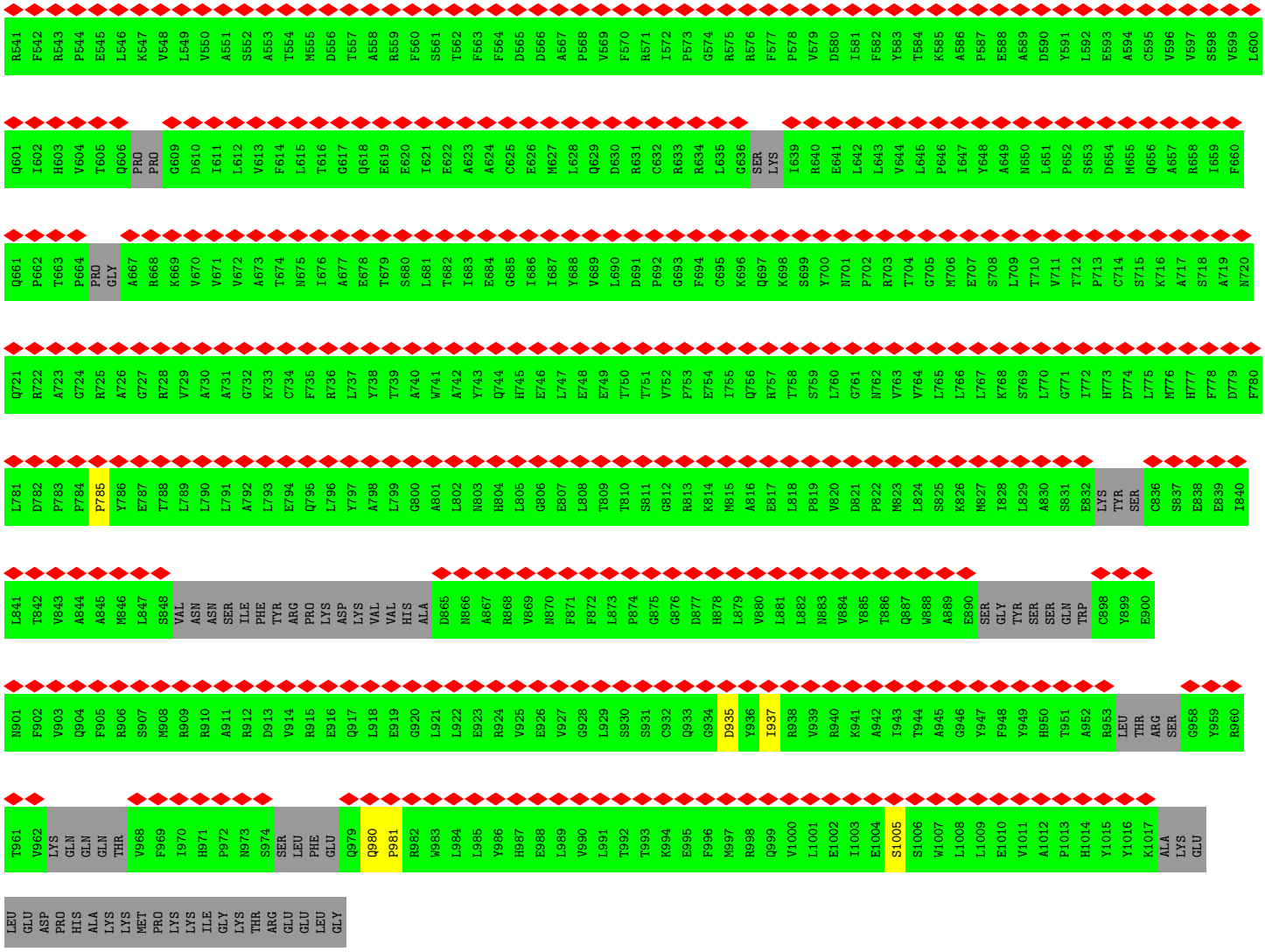
• Molecule 48: Putative pre-mRNA-splicing factor ATP-dependent RNA helicase DHX16





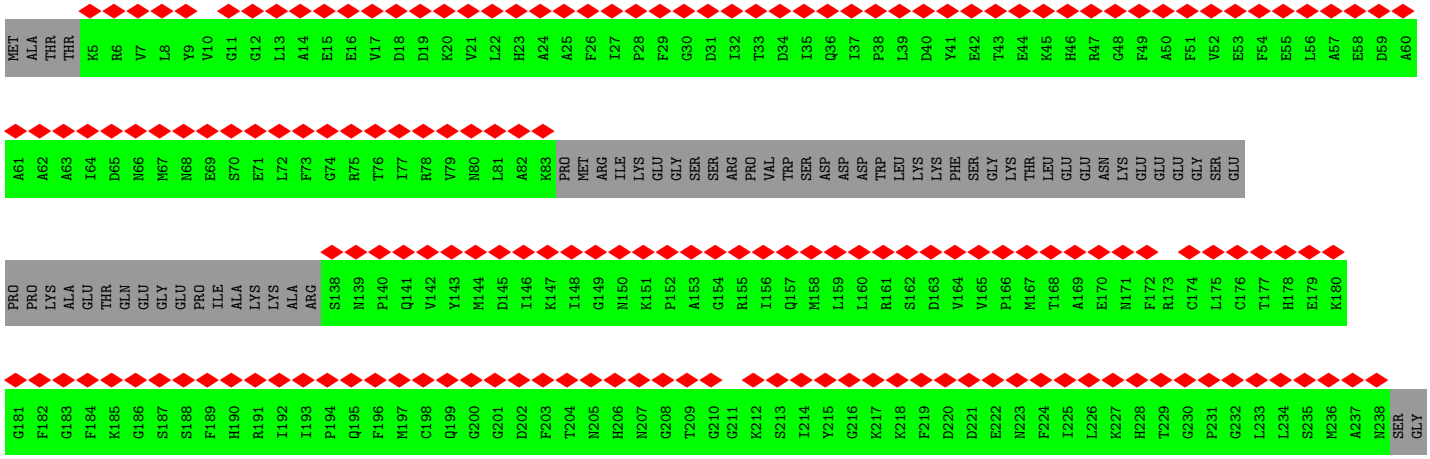


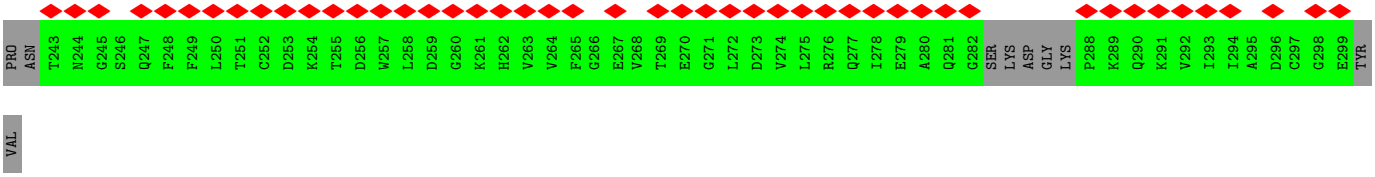




• Molecule 49: Peptidyl-prolyl cis-trans isomerase E

Chain y:




PRO
ASN
T243
N244
G245
S246
Q247
F248
F249
L250
T251
C252
D253
K254
T255
D256
W257
L258
D259
G260
K261
H262
V263
V264
F265
G266
E267
V268
T269
E270
G271
L272
D273
V274
L275
R276
Q277
I278
E279
A280
Q281
G282
SER
LYS
ASP
GLY
LYS
P288
K289
Q290
K291
V292
I293
I294
A295
D296
C297
G298
E299
TYR
VAL

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	27405	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 ($e^-/Å^2$)	48	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.168	Depositor
Minimum map value	-0.080	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.0374	Depositor
Map size (Å)	535.2, 535.2, 535.2	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.338, 1.338, 1.338	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: IHP, MG, ZN, GTP

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	A	0.68	9/18964 (0.0%)	0.77	25/25741 (0.1%)
2	B	0.75	2/1970 (0.1%)	0.91	7/3060 (0.2%)
3	C	0.79	1/6864 (0.0%)	0.96	10/9334 (0.1%)
4	D	0.33	0/8527	0.59	0/11887
5	E	0.64	0/2392	0.79	0/3242
6	a	0.47	0/397	0.61	0/549
6	h	0.46	0/391	0.61	0/540
7	b	0.49	0/404	0.72	0/561
7	i	0.50	0/421	0.73	0/583
8	c	0.57	0/405	0.73	0/563
8	j	0.57	0/405	0.73	0/563
9	d	0.68	0/479	0.84	0/666
9	k	0.70	0/420	0.85	0/583
10	f	0.75	0/360	0.81	0/497
10	m	0.75	0/360	0.81	0/497
11	e	0.65	0/390	0.80	0/542
11	l	0.64	0/390	0.80	0/542
12	g	0.54	0/362	0.71	0/501
12	n	0.54	0/332	0.72	0/458
13	F	0.39	0/2224	0.86	0/3462
14	G	0.35	0/1717	0.95	1/2664 (0.0%)
15	H	0.59	7/3217 (0.2%)	1.06	18/4997 (0.4%)
16	o	0.61	0/803	1.41	2/1119 (0.2%)
17	p	1.01	1/810 (0.1%)	1.46	4/1122 (0.4%)
18	w	0.53	5/2376 (0.2%)	0.67	13/3269 (0.4%)
19	u	0.23	0/524	0.62	4/724 (0.6%)
20	v	0.73	4/945 (0.4%)	0.83	10/1280 (0.8%)
21	1	0.33	0/7826	0.51	0/10617
22	2	0.52	3/1277 (0.2%)	0.73	7/1724 (0.4%)
23	3	0.32	0/9408	0.53	0/12767
24	4	0.83	2/535 (0.4%)	0.98	4/724 (0.6%)
25	5	0.29	0/823	0.48	0/1123

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
26	6	0.29	0/653	0.48	0/877
27	7	0.31	0/556	0.45	0/751
28	J	0.62	0/3500	0.73	0/4750
29	L	0.52	3/2283 (0.1%)	0.58	8/3088 (0.3%)
30	q	0.35	0/658	0.58	3/919 (0.3%)
30	r	0.32	0/653	0.59	3/912 (0.3%)
30	s	0.26	0/334	0.37	0/466
30	t	0.30	0/334	0.38	0/466
31	K	1.28	14/981 (1.4%)	0.69	5/1317 (0.4%)
32	I	0.39	0/2745	0.56	17/3765 (0.5%)
33	Q	0.21	0/6518	0.42	0/9075
34	M	0.29	0/272	0.48	0/363
35	N	0.88	1/1210 (0.1%)	1.00	3/1622 (0.2%)
36	O	0.80	3/2321 (0.1%)	0.94	6/3135 (0.2%)
37	P	0.83	1/841 (0.1%)	1.01	2/1117 (0.2%)
38	R	0.66	4/2353 (0.2%)	0.87	8/3167 (0.3%)
39	S	0.59	0/1268	0.80	1/1714 (0.1%)
40	T	1.05	1/2522 (0.0%)	1.11	4/3438 (0.1%)
41	U	1.03	0/196	1.09	1/265 (0.4%)
42	V	0.54	0/2239	0.67	1/3118 (0.0%)
43	W	0.55	0/2371	0.77	4/3296 (0.1%)
44	X	0.27	0/1020	0.48	0/1360
45	Y	0.31	0/753	0.48	0/1014
46	Z	0.57	2/772 (0.3%)	0.79	7/1056 (0.7%)
47	z	0.29	0/1414	0.51	0/1916
48	x	0.35	0/2876	0.53	3/3988 (0.1%)
49	y	0.35	0/1129	0.61	0/1558
All	All	0.57	63/119490 (0.1%)	0.74	181/165014 (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
1	A	0	6
3	C	0	3
4	D	0	1
9	d	0	1
9	k	0	1
21	1	0	9
22	2	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
23	3	0	4
27	7	0	1
34	M	0	1
35	N	0	1
38	R	0	1
40	T	0	2
44	X	0	1
All	All	0	33

The worst 5 of 63 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
31	K	106	CYS	CB-SG	-23.13	1.43	1.82
31	K	132	CYS	CB-SG	-17.48	1.52	1.82
29	L	761	SER	CB-OG	8.91	1.53	1.42
31	K	128	SER	CB-OG	8.42	1.53	1.42
31	K	183	SER	CB-OG	8.28	1.53	1.42

The worst 5 of 181 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
24	4	83	PRO	CA-CB-CG	10.19	124.17	104.80
22	2	636	MET	CG-SD-CE	9.28	115.05	100.20
38	R	226	PRO	CA-N-CD	-8.88	99.07	111.50
31	K	90	PRO	CA-CB-CG	8.66	121.26	104.80
46	Z	569	PRO	CA-N-CD	-8.56	99.52	111.50

There are no chirality outliers.

5 of 33 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	166	PHE	Peptide
1	A	346	ASP	Peptide
1	A	408	PRO	Peptide
1	A	433	GLU	Peptide
1	A	697	MET	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	A	18450	0	18276	1482	0
2	B	1768	0	897	120	0
3	C	6716	0	6691	892	0
4	D	8528	0	3745	69	0
5	E	2338	0	2272	153	0
6	a	399	0	173	0	0
6	h	393	0	170	0	0
7	b	405	0	170	0	0
7	i	422	0	177	0	0
8	c	406	0	170	0	0
8	j	406	0	170	0	0
9	d	480	0	200	0	0
9	k	422	0	175	0	0
10	f	361	0	158	0	0
10	m	361	0	158	0	0
11	e	391	0	163	0	0
11	l	391	0	163	0	0
12	g	363	0	160	0	0
12	n	334	0	143	0	0
13	F	1988	0	1005	186	0
14	G	1545	0	786	190	0
15	H	2886	0	1463	239	0
16	o	804	0	350	0	0
17	p	813	0	365	0	0
18	w	2369	0	1298	0	0
19	u	530	0	218	0	0
20	v	946	0	594	0	0
21	1	7702	0	7389	291	0
22	2	1252	0	1040	57	0
23	3	9220	0	9139	481	0
24	4	527	0	438	40	0
25	5	807	0	729	26	0
26	6	645	0	628	21	0
27	7	540	0	509	25	0
28	J	3463	0	2544	102	0
29	L	2260	0	1776	92	0
30	q	659	0	296	0	0
30	r	654	0	294	0	0
30	s	335	0	168	0	0
30	t	335	0	168	0	0
31	K	979	0	739	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
32	I	2778	0	1238	21	0
33	Q	6528	0	2814	6	0
34	M	267	0	225	29	0
35	N	1184	0	1190	75	0
36	O	2273	0	2244	225	0
37	P	829	0	814	192	0
38	R	2316	0	2189	420	0
39	S	1236	0	1210	135	0
40	T	2457	0	2416	251	0
41	U	193	0	196	40	0
42	V	2243	0	971	48	0
43	W	2374	0	1051	108	0
44	X	1021	0	738	19	0
45	Y	743	0	613	67	0
46	Z	755	0	591	154	0
47	z	1381	0	1298	0	0
48	x	2887	0	1310	0	0
49	y	1133	0	519	0	0
50	A	36	0	6	10	0
51	C	32	0	12	11	0
52	C	1	0	0	0	0
52	F	5	0	0	0	0
53	6	3	0	0	0	0
53	M	1	0	0	0	0
53	N	3	0	0	0	0
53	O	3	0	0	3	0
53	W	2	0	0	0	0
53	v	1	0	0	0	0
All	All	117278	0	87812	4995	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 26.

The worst 5 of 4995 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)
45:Y:37:TRP:CH2	46:Z:498:GLY:HA2	1.23	1.65
1:A:2270:PHE:HB3	4:D:1264:PRO:CB	1.34	1.57
1:A:2270:PHE:CG	4:D:1264:PRO:CB	1.89	1.56
3:C:149:LEU:HD13	3:C:427:PHE:CD2	1.38	1.54
3:C:77:VAL:HG11	40:T:196:LEU:CG	1.39	1.52

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
1	A	2224/2335 (95%)	2081 (94%)	115 (5%)	28 (1%)	12 48
3	C	854/972 (88%)	777 (91%)	57 (7%)	20 (2%)	6 36
4	D	1720/2136 (80%)	1632 (95%)	85 (5%)	3 (0%)	47 81
5	E	297/357 (83%)	272 (92%)	16 (5%)	9 (3%)	4 31
6	a	77/126 (61%)	76 (99%)	1 (1%)	0	100 100
6	h	76/126 (60%)	75 (99%)	1 (1%)	0	100 100
7	b	80/231 (35%)	78 (98%)	2 (2%)	0	100 100
7	i	84/231 (36%)	82 (98%)	2 (2%)	0	100 100
8	c	80/119 (67%)	77 (96%)	3 (4%)	0	100 100
8	j	80/119 (67%)	77 (96%)	3 (4%)	0	100 100
9	d	95/118 (80%)	91 (96%)	4 (4%)	0	100 100
9	k	81/118 (69%)	78 (96%)	3 (4%)	0	100 100
10	f	72/86 (84%)	69 (96%)	3 (4%)	0	100 100
10	m	72/86 (84%)	68 (94%)	4 (6%)	0	100 100
11	e	77/92 (84%)	76 (99%)	1 (1%)	0	100 100
11	l	77/92 (84%)	76 (99%)	1 (1%)	0	100 100
12	g	72/76 (95%)	70 (97%)	2 (3%)	0	100 100
12	n	64/76 (84%)	62 (97%)	2 (3%)	0	100 100
16	o	160/255 (63%)	146 (91%)	12 (8%)	2 (1%)	12 48
17	p	159/225 (71%)	138 (87%)	9 (6%)	12 (8%)	1 15
18	w	419/501 (84%)	378 (90%)	38 (9%)	3 (1%)	22 62
19	u	94/793 (12%)	87 (93%)	5 (5%)	2 (2%)	7 38

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
20	v	155/464 (33%)	125 (81%)	22 (14%)	8 (5%)	2 21
21	1	1022/1304 (78%)	897 (88%)	119 (12%)	6 (1%)	25 65
22	2	171/895 (19%)	154 (90%)	17 (10%)	0	100 100
23	3	1165/1217 (96%)	1086 (93%)	78 (7%)	1 (0%)	51 85
24	4	76/424 (18%)	69 (91%)	6 (8%)	1 (1%)	12 48
25	5	106/125 (85%)	90 (85%)	16 (15%)	0	100 100
26	6	83/110 (76%)	76 (92%)	7 (8%)	0	100 100
27	7	64/86 (74%)	55 (86%)	9 (14%)	0	100 100
28	J	483/848 (57%)	452 (94%)	24 (5%)	7 (1%)	11 46
29	L	324/802 (40%)	304 (94%)	18 (6%)	2 (1%)	25 65
30	q	130/504 (26%)	119 (92%)	7 (5%)	4 (3%)	4 30
30	r	129/504 (26%)	118 (92%)	9 (7%)	2 (2%)	9 44
30	s	65/504 (13%)	62 (95%)	2 (3%)	1 (2%)	10 46
30	t	65/504 (13%)	64 (98%)	0	1 (2%)	10 46
31	K	144/225 (64%)	134 (93%)	6 (4%)	4 (3%)	5 32
32	I	498/855 (58%)	479 (96%)	11 (2%)	8 (2%)	9 44
33	Q	1297/1485 (87%)	1271 (98%)	26 (2%)	0	100 100
34	M	34/343 (10%)	30 (88%)	3 (9%)	1 (3%)	4 31
35	N	141/144 (98%)	126 (89%)	12 (8%)	3 (2%)	7 38
36	O	283/420 (67%)	247 (87%)	26 (9%)	10 (4%)	3 28
37	P	92/229 (40%)	82 (89%)	8 (9%)	2 (2%)	6 37
38	R	295/540 (55%)	249 (84%)	31 (10%)	15 (5%)	2 21
39	S	157/166 (95%)	144 (92%)	10 (6%)	3 (2%)	8 40
40	T	311/514 (60%)	282 (91%)	17 (6%)	12 (4%)	3 25
41	U	24/2752 (1%)	20 (83%)	3 (12%)	1 (4%)	3 24
42	V	444/908 (49%)	412 (93%)	27 (6%)	5 (1%)	14 52
43	W	475/579 (82%)	419 (88%)	32 (7%)	24 (5%)	2 21
44	X	143/396 (36%)	133 (93%)	10 (7%)	0	100 100
45	Y	103/322 (32%)	92 (89%)	11 (11%)	0	100 100
46	Z	109/619 (18%)	93 (85%)	10 (9%)	6 (6%)	2 21
47	z	176/472 (37%)	170 (97%)	6 (3%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
48	x	562/1041 (54%)	537 (96%)	20 (4%)	5 (1%)	17 56
49	y	224/301 (74%)	217 (97%)	7 (3%)	0	100 100
All	All	16564/29872 (55%)	15374 (93%)	979 (6%)	211 (1%)	16 48

5 of 211 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	82	ARG
1	A	92	LEU
1	A	167	PRO
1	A	188	LEU
1	A	331	TRP

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
1	A	2001/2108 (95%)	1902 (95%)	99 (5%)	25 51
3	C	745/866 (86%)	677 (91%)	68 (9%)	9 31
5	E	256/300 (85%)	244 (95%)	12 (5%)	26 52
18	w	49/446 (11%)	47 (96%)	2 (4%)	30 55
20	v	30/382 (8%)	28 (93%)	2 (7%)	16 42
21	1	735/1104 (67%)	735 (100%)	0	100 100
22	2	94/776 (12%)	90 (96%)	4 (4%)	29 54
23	3	1018/1051 (97%)	1017 (100%)	1 (0%)	93 96
24	4	39/336 (12%)	37 (95%)	2 (5%)	24 50
25	5	74/109 (68%)	74 (100%)	0	100 100
26	6	73/95 (77%)	73 (100%)	0	100 100
27	7	57/77 (74%)	57 (100%)	0	100 100
28	J	205/751 (27%)	194 (95%)	11 (5%)	22 48
29	L	131/709 (18%)	122 (93%)	9 (7%)	15 42

Continued on next page...

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
31	K	54/196 (28%)	49 (91%)	5 (9%)	9 30
34	M	25/294 (8%)	24 (96%)	1 (4%)	31 56
35	N	130/130 (100%)	125 (96%)	5 (4%)	33 57
36	O	250/361 (69%)	239 (96%)	11 (4%)	28 53
37	P	90/203 (44%)	77 (86%)	13 (14%)	3 17
38	R	220/463 (48%)	170 (77%)	50 (23%)	1 6
39	S	129/134 (96%)	119 (92%)	10 (8%)	12 38
40	T	268/441 (61%)	251 (94%)	17 (6%)	18 44
41	U	21/2432 (1%)	16 (76%)	5 (24%)	0 5
44	X	52/349 (15%)	46 (88%)	6 (12%)	5 23
45	Y	57/291 (20%)	56 (98%)	1 (2%)	59 77
46	Z	47/545 (9%)	39 (83%)	8 (17%)	2 13
47	z	146/416 (35%)	146 (100%)	0	100 100
48	x	1/897 (0%)	1 (100%)	0	100 100
All	All	6997/16262 (43%)	6655 (95%)	342 (5%)	29 51

5 of 342 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
36	O	229	LYS
38	R	409	VAL
37	P	76	ARG
38	R	118	ASP
39	S	108	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 111 such sidechains are listed below:

Mol	Chain	Res	Type
21	1	1277	GLN
47	z	127	HIS
28	J	221	ASN
47	z	112	GLN
40	T	217	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
13	F	91/107 (85%)	37 (40%)	12 (13%)
14	G	76/274 (27%)	48 (63%)	9 (11%)
15	H	130/188 (69%)	33 (25%)	4 (3%)
2	B	82/117 (70%)	19 (23%)	10 (12%)
All	All	379/686 (55%)	137 (36%)	35 (9%)

5 of 137 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	B	12	U
2	B	13	C
2	B	19	A
2	B	20	G
2	B	21	A

5 of 35 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
14	G	151	C
14	G	153	C
15	H	46	U
13	F	25	C
13	F	7	G

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 21 ligands modelled in this entry, 19 are monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the

expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
50	IHP	A	3000	-	36,36,36	1.01	2 (5%)	54,60,60	1.62	12 (22%)
51	GTP	C	1500	52	26,34,34	1.18	1 (3%)	32,54,54	1.81	8 (25%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
50	IHP	A	3000	-	-	6/30/54/54	0/1/1/1
51	GTP	C	1500	52	-	7/18/38/38	0/3/3/3

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
51	C	1500	GTP	C6-N1	-3.52	1.32	1.37
50	A	3000	IHP	P5-O45	-2.86	1.43	1.54
50	A	3000	IHP	P2-O12	2.65	1.64	1.59

The worst 5 of 20 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	A	3000	IHP	O45-P5-O35	4.10	123.30	107.64
50	A	3000	IHP	O35-P5-O15	-3.97	88.19	105.99
51	C	1500	GTP	C5-C6-N1	3.79	120.64	113.95
51	C	1500	GTP	PA-O3A-PB	-3.79	119.84	132.83
51	C	1500	GTP	O6-C6-C5	-3.73	117.08	124.37

There are no chirality outliers.

5 of 13 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
50	A	3000	IHP	C4-C5-O15-P5
50	A	3000	IHP	C6-C5-O15-P5
51	C	1500	GTP	PB-O3B-PG-O3G
51	C	1500	GTP	C5'-O5'-PA-O3A
51	C	1500	GTP	C5'-O5'-PA-O1A

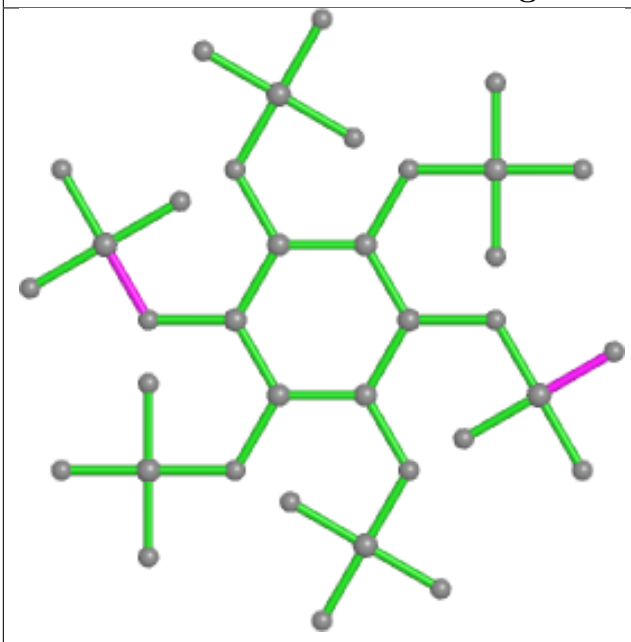
There are no ring outliers.

2 monomers are involved in 21 short contacts:

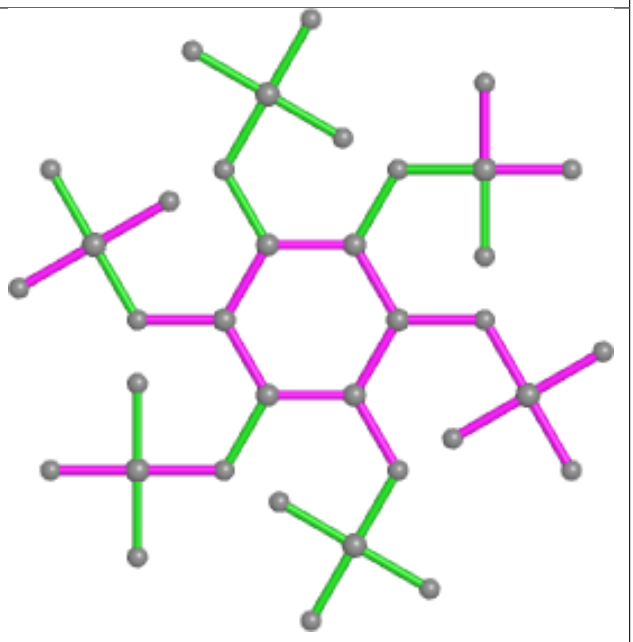
Mol	Chain	Res	Type	Clashes	Symm-Clashes
50	A	3000	IHP	10	0
51	C	1500	GTP	11	0

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

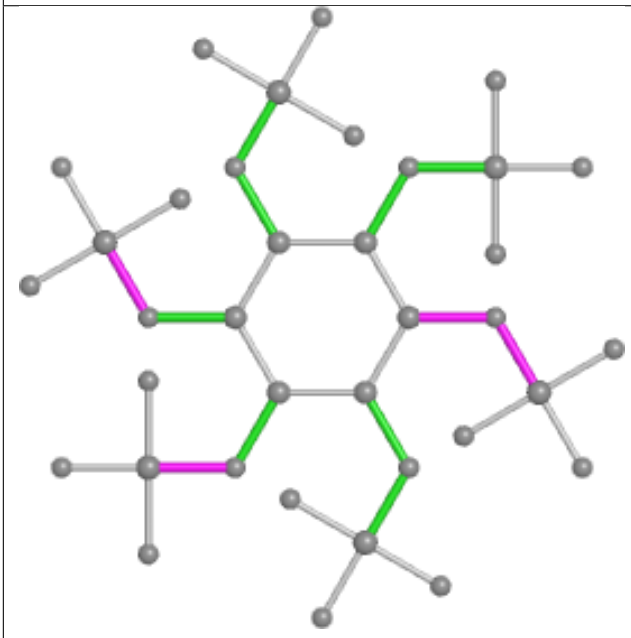
Ligand IHP A 3000



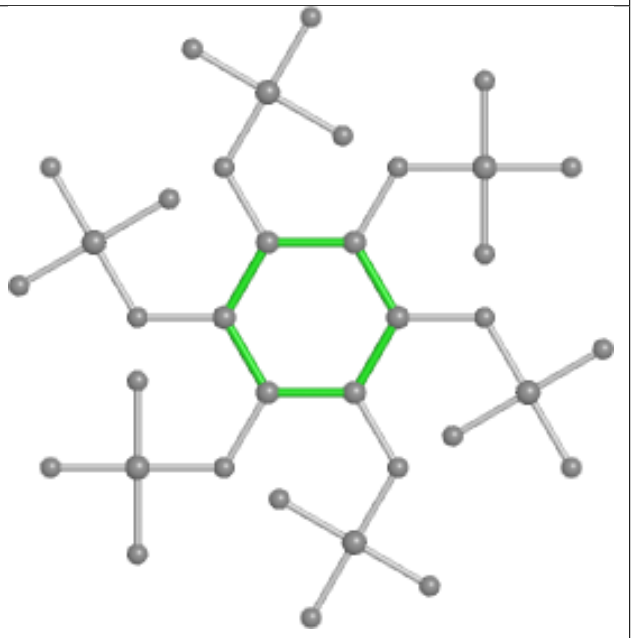
Bond lengths



Bond angles

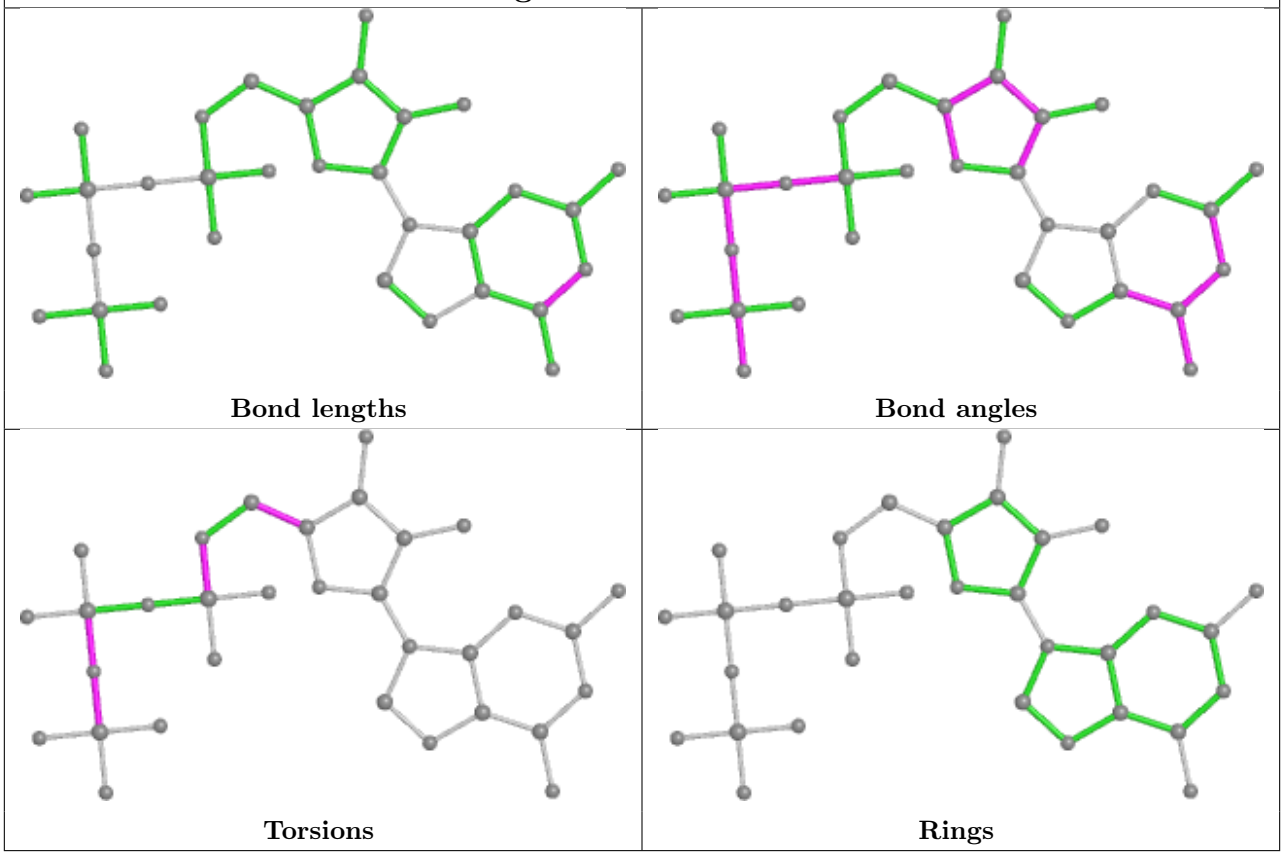


Torsions



Rings

Ligand GTP C 1500



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

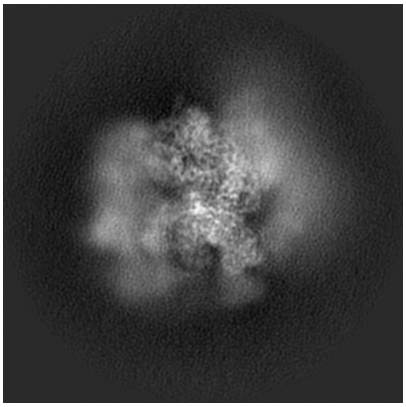
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-6889. These allow visual inspection of the internal detail of the map and identification of artifacts.

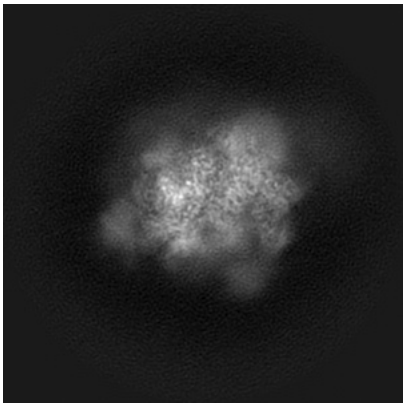
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

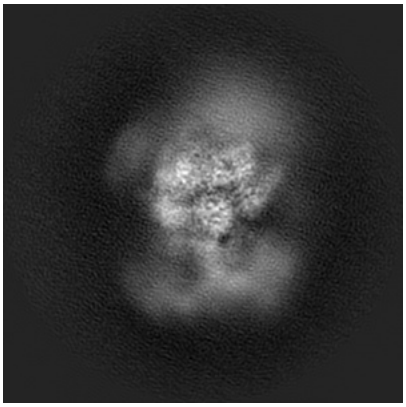
6.1.1 Primary map



X



Y

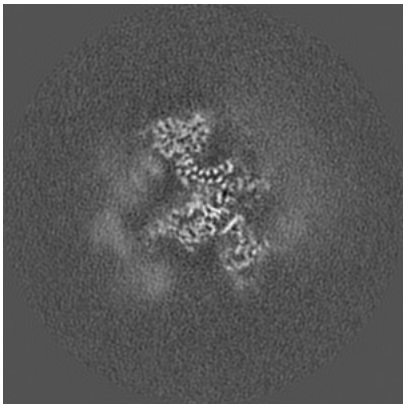


Z

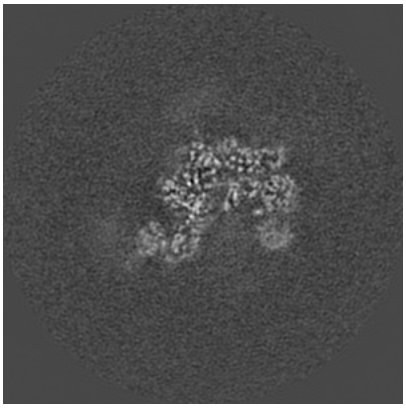
The images above show the map projected in three orthogonal directions.

6.2 Central slices

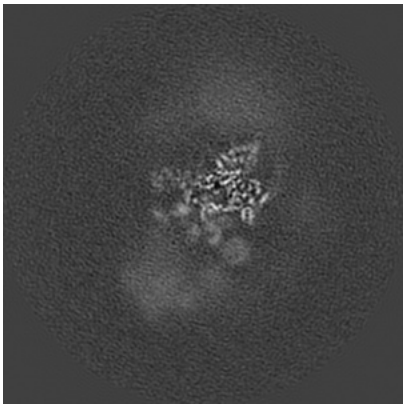
6.2.1 Primary map



X Index: 200



Y Index: 200

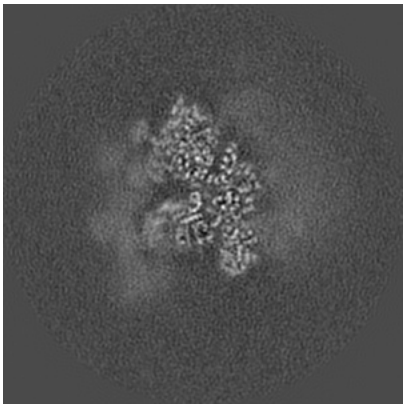


Z Index: 200

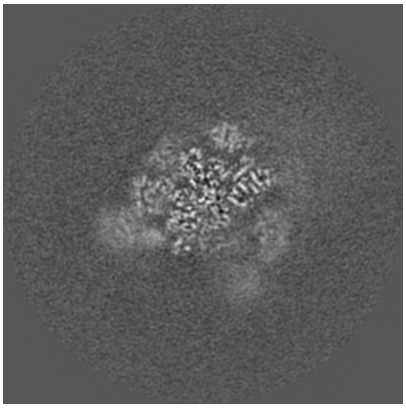
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

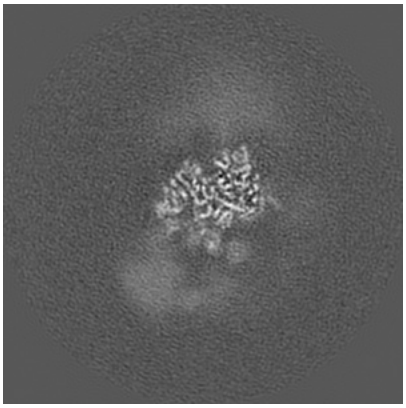
6.3.1 Primary map



X Index: 212



Y Index: 225



Z Index: 192

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

6.4 Orthogonal surface views (i)

6.4.1 Primary map

X

Y

Z

The images above show the 3D surface view of the map at the recommended contour level 0.0374. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

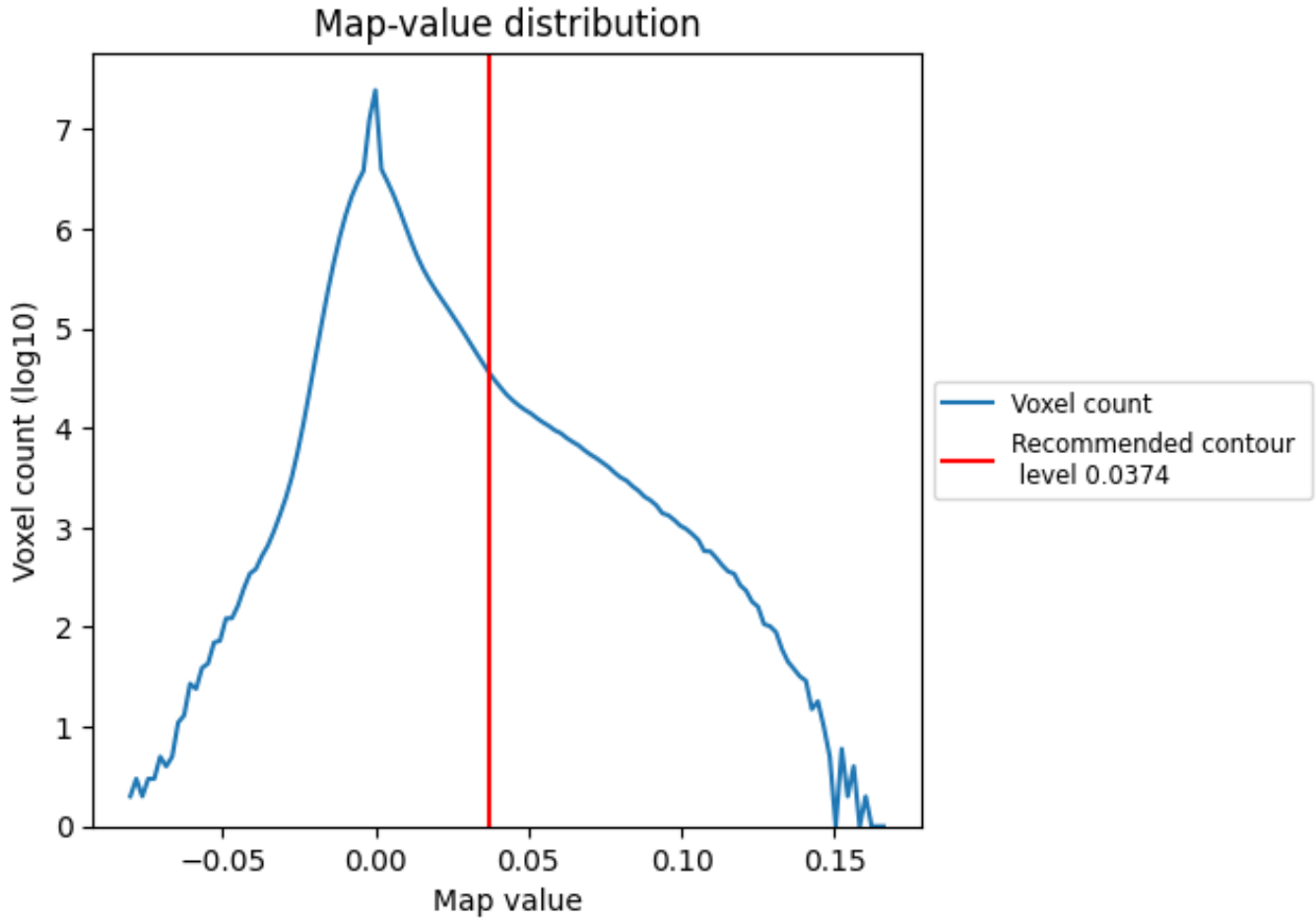
6.5 Mask visualisation (i)

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

7 Map analysis

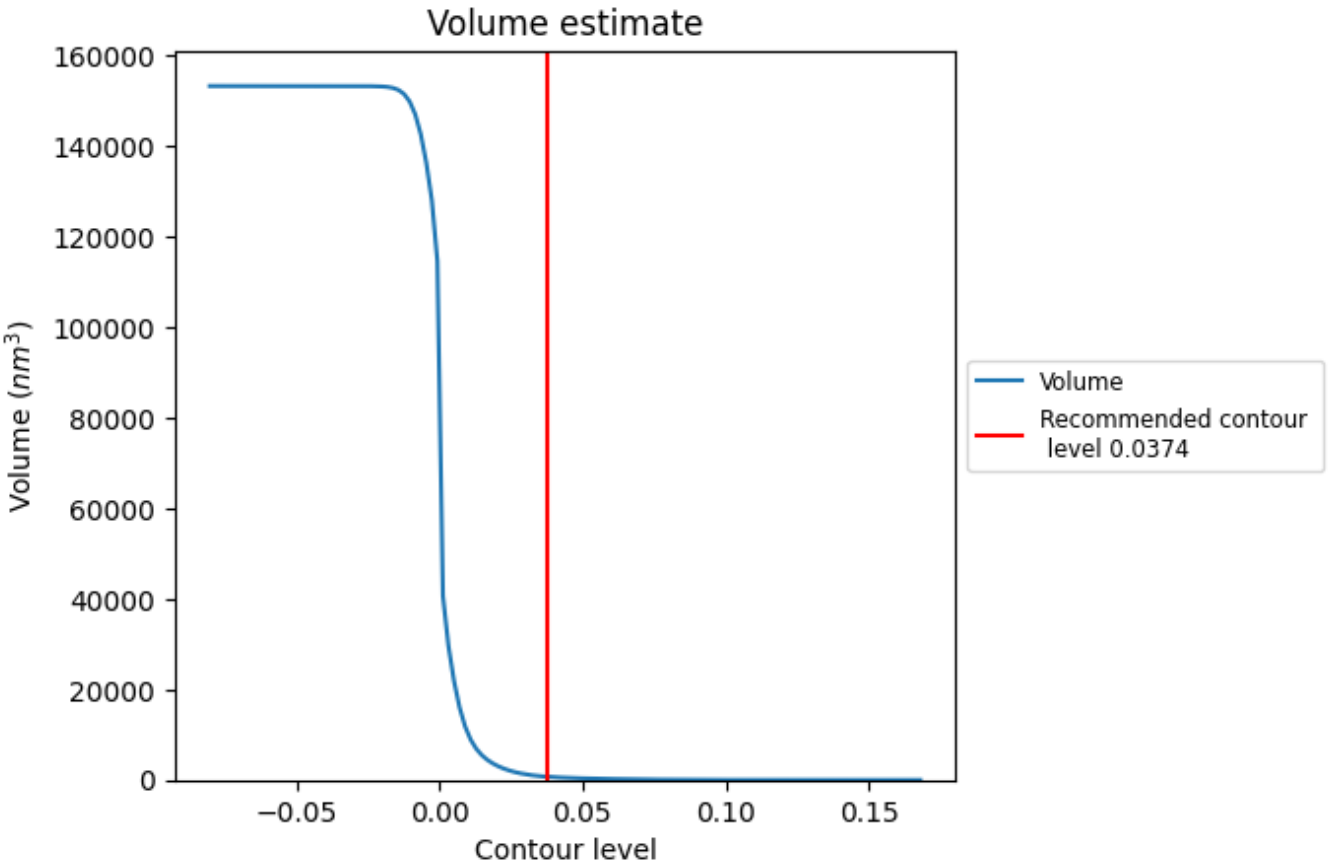
This section contains the results of statistical analysis of the map.

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.

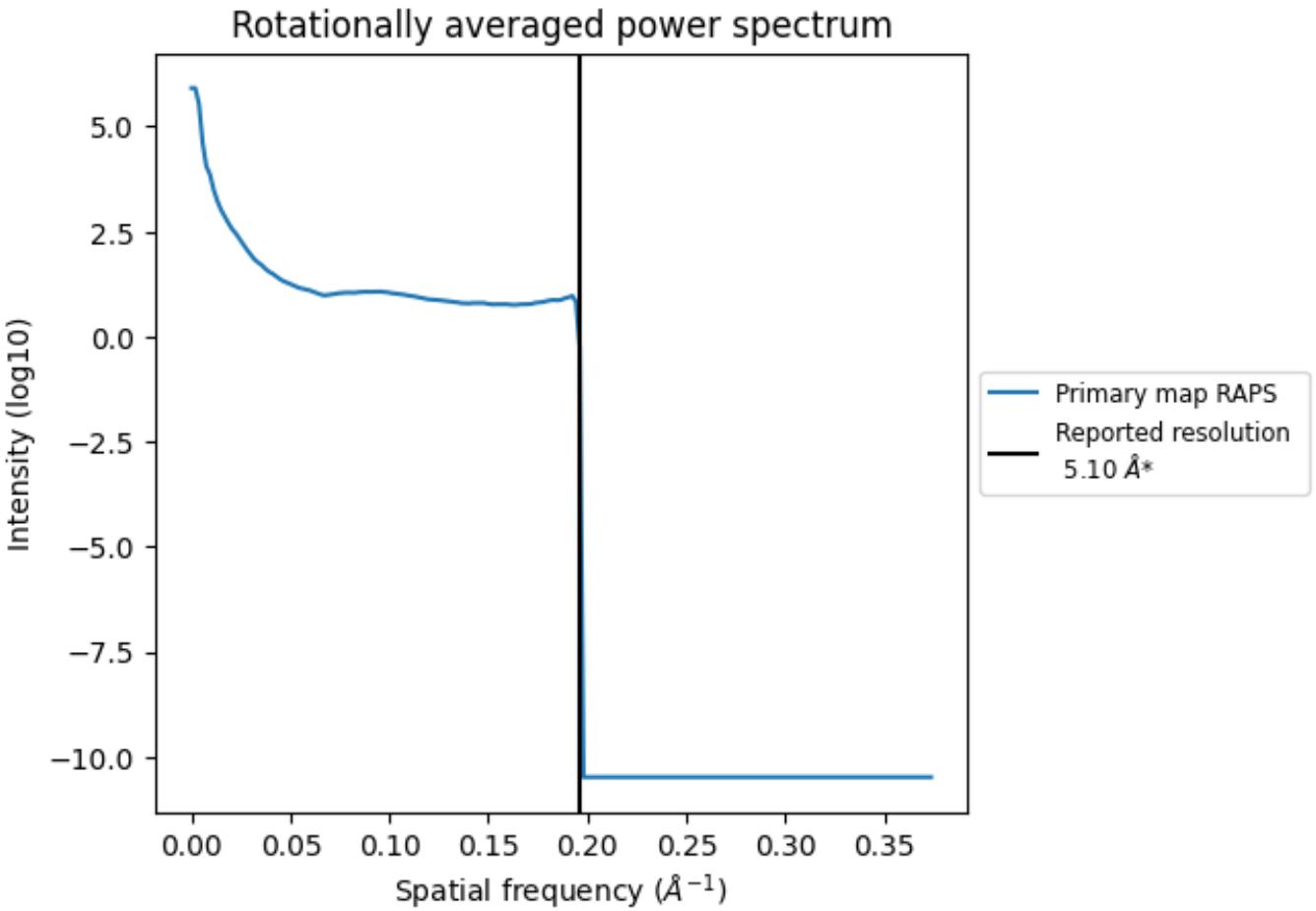
7.2 Volume estimate (i)



The volume at the recommended contour level is 725 nm^3; this corresponds to an approximate mass of 654 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 0.196 $Å^{-1}$

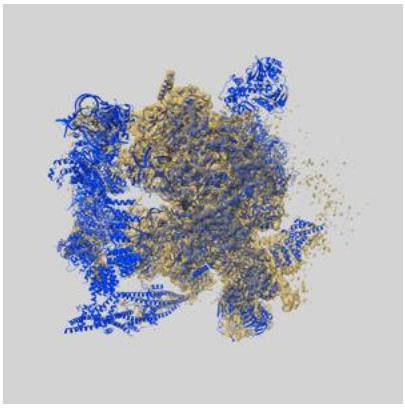
8 Fourier-Shell correlation (i)

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

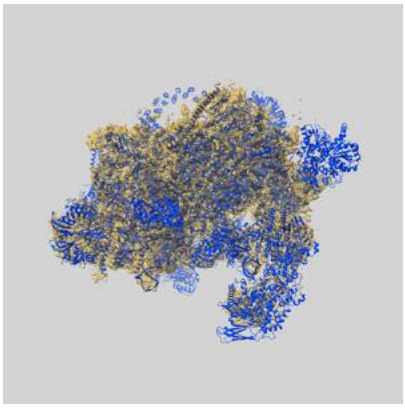
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-6889 and PDB model 5Z56. Per-residue inclusion information can be found in section 3 on page 16.

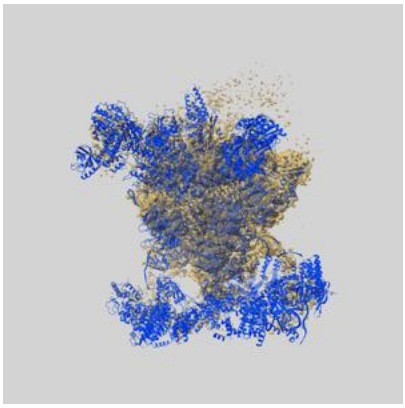
9.1 Map-model overlay



X



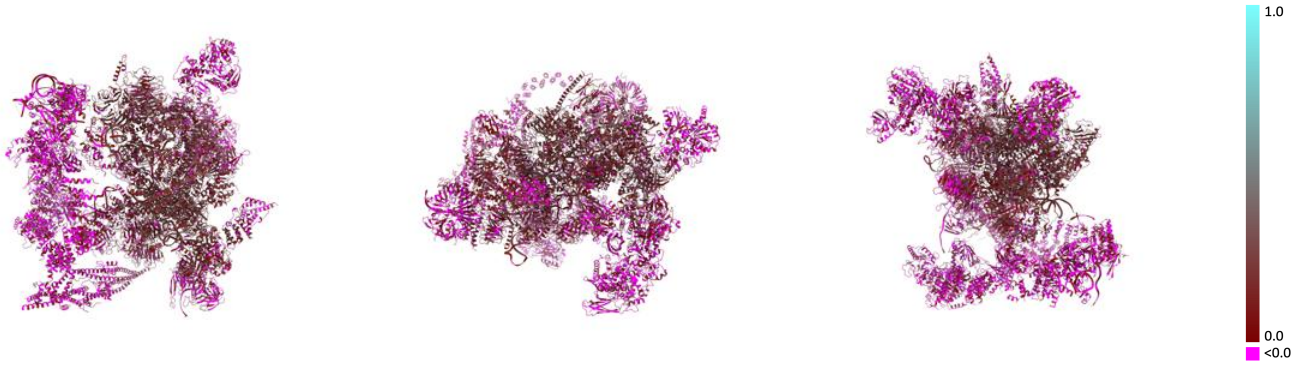
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0374 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.

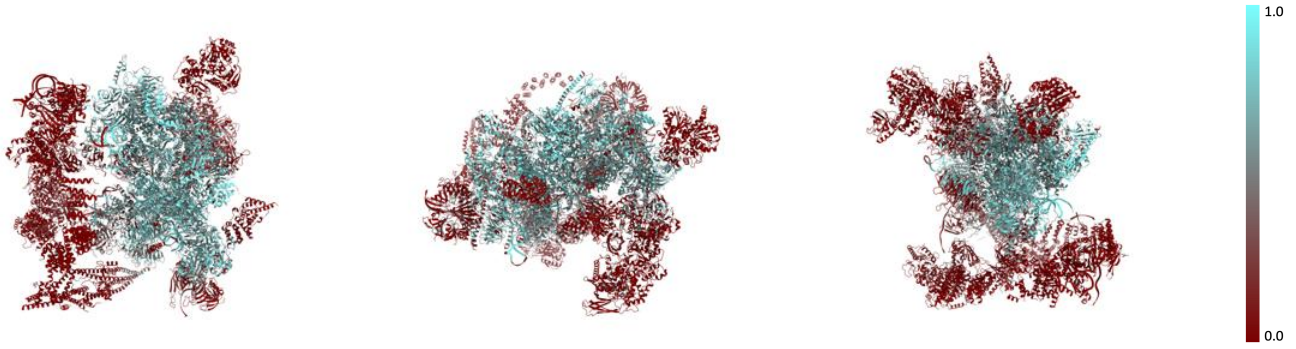
9.2 Q-score mapped to coordinate model



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.

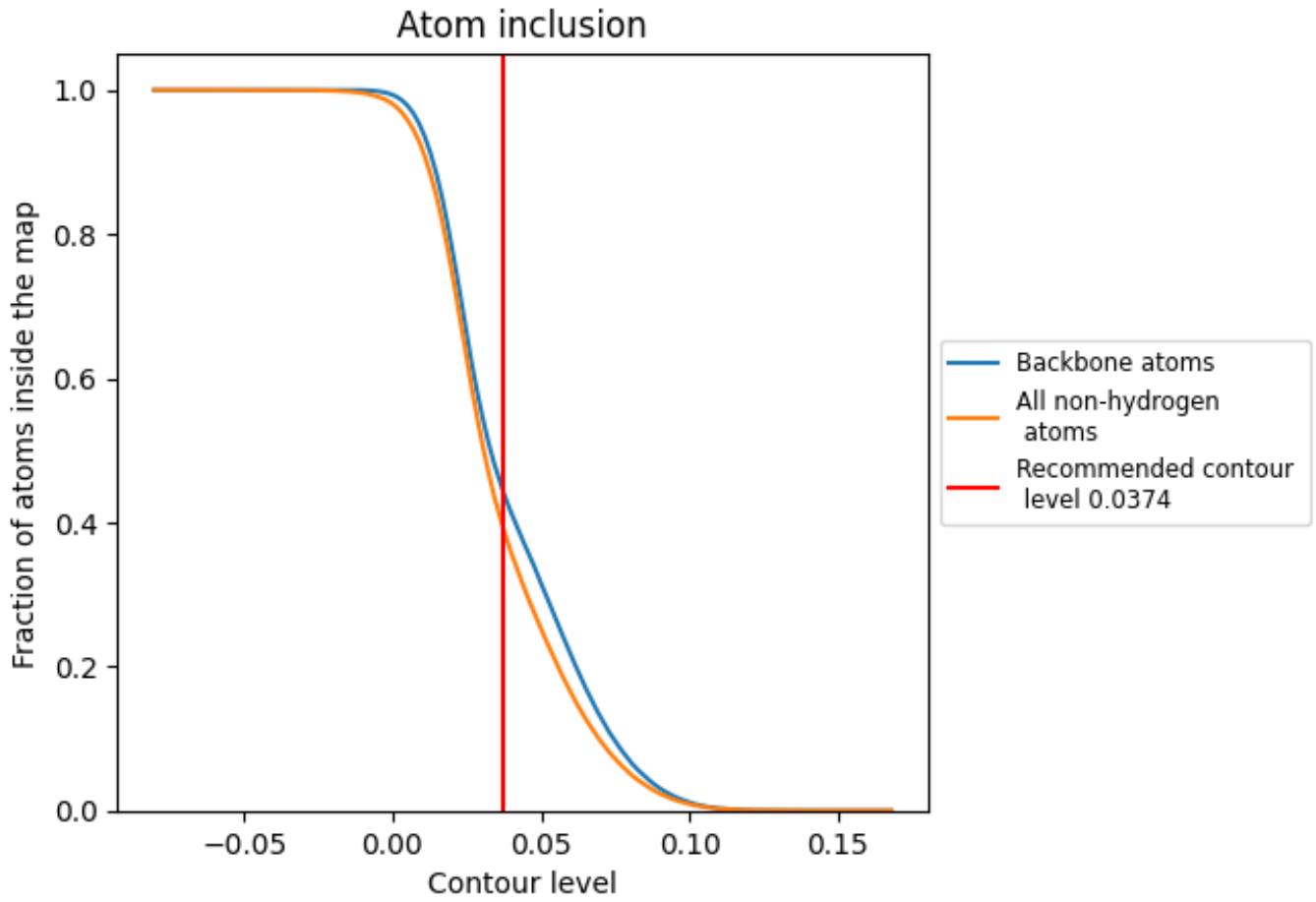
9.3 Atom inclusion mapped to coordinate model



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 (0.0374).

9.4 Atom inclusion (i)



At the recommended contour level, 44% of all backbone atoms, 39% 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 (0.0374) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.3902	0.1310
1	0.6324	0.2170
2	0.5230	0.1780
3	0.6059	0.1710
4	0.2314	0.0610
5	0.6446	0.2070
6	0.6672	0.2070
7	0.6705	0.2160
A	0.5628	0.2060
B	0.7036	0.1870
C	0.6428	0.1910
D	0.1004	0.0630
E	0.5398	0.1430
F	0.7612	0.2100
G	0.7269	0.2080
H	0.3812	0.1180
I	0.0212	0.0120
J	0.2703	0.0700
K	0.0714	0.0420
L	0.2918	0.1050
M	0.2264	0.1790
N	0.6189	0.1720
O	0.4389	0.1590
P	0.2841	0.1630
Q	0.0090	-0.0050
R	0.4890	0.2030
S	0.3281	0.0920
T	0.6898	0.1960
U	0.4866	0.2470
V	0.3749	0.1280
W	0.1587	0.0700
X	0.6107	0.1900
Y	0.7008	0.2550
Z	0.6412	0.2540
a	0.0551	0.0050

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Chain	Atom inclusion	Q-score
b	0.0963	0.0920
c	0.1872	-0.0010
d	0.1833	0.0510
e	0.1688	0.0540
f	0.1690	-0.0090
g	0.1185	0.0210
h	0.0280	0.0350
i	0.0095	0.0050
j	0.0369	-0.0030
k	0.0237	0.0350
l	0.0051	-0.0000
m	0.0222	0.0220
n	0.0269	0.0070
o	0.0112	0.0180
p	0.0320	0.0150
q	0.0015	-0.0120
r	0.0122	0.0120
s	0.0478	0.0470
t	0.0030	-0.0040
u	0.0019	0.0250
v	0.3358	0.1070
w	0.1965	0.0420
x	0.0010	-0.0010
y	0.0468	0.0010
z	0.1696	0.1660