wwPDB EM Validation Summary Report

Nov 28, 2022 – 10:54 PM EST

PDB ID	:	7TBK
EMDB ID	:	EMD-11967
Title	:	Composite structure of the dilated human nuclear pore complex (NPC) symmetric core generated with a 37A in situ cryo-ET map of CD4+ T cell NPC
Authors	:	Petrovic, S.; Samanta, D.; Perriches, T.; Bley, C.J.; Thierbach, K.; Brown, B.; Nie, S.; Mobbs, G.W.; Stevens, T.A.; Liu, X.; Tomaleri, G.P.; Schaus, L.; Hoelz, A.
Deposited on	:	2021-12-22
Resolution	:	37.00 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:

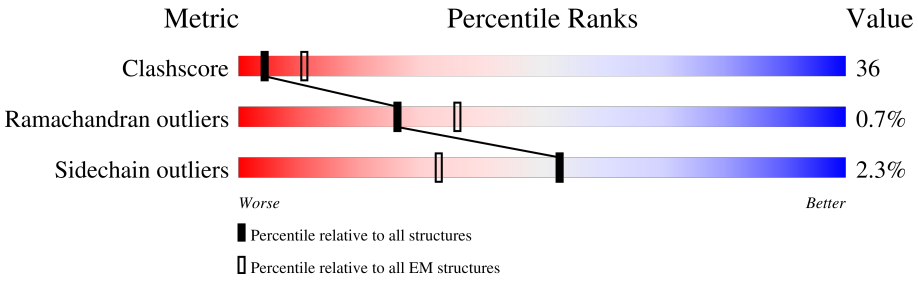
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (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 37.00 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

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	A1	1316	36% 87% 7% 6%
1	A3	1316	78% 79% 14% 6%
2	A2	1328	53% 73% 20%
2	A4	1328	86% 60% 32%
3	A5	1330	50% 81% 14%
3	A6	1330	85% 61% 35%
4	B1	14	79% 93% 7%
4	B2	14	57% 43%

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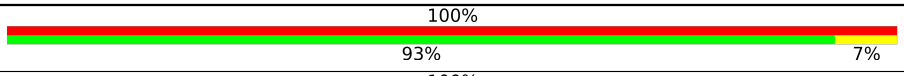
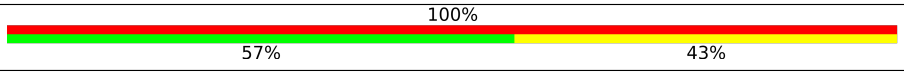
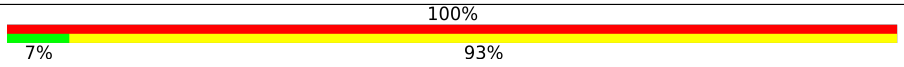
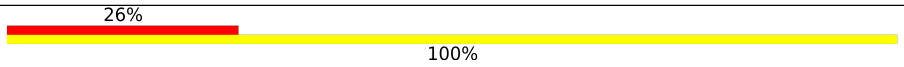
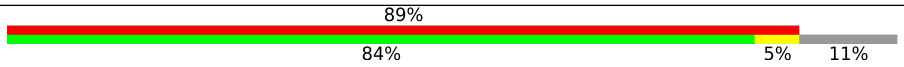
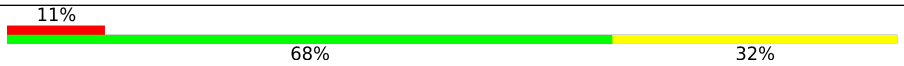
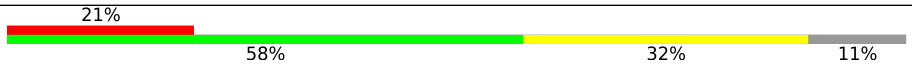
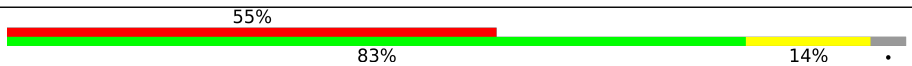
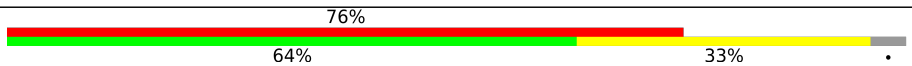
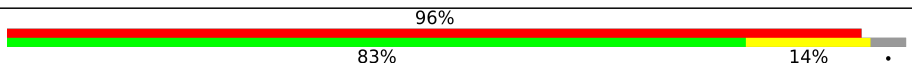
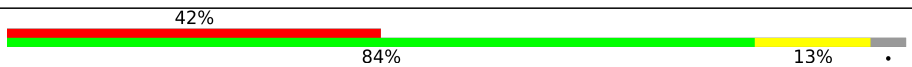
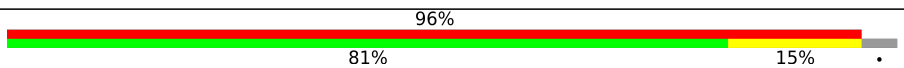
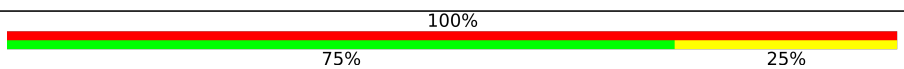
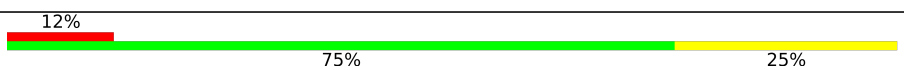
Mol	Chain	Length	Quality of chain
4	B3	14	
4	B4	14	
4	B5	14	
4	B6	14	
5	C1	19	
5	C2	19	
5	C3	19	
5	C4	19	
5	C5	19	
5	C6	19	
6	D1	644	
6	D2	644	
6	D3	644	
6	D4	644	
6	D5	644	
6	D6	644	
6	D7	644	
7	E1	8	
7	E2	8	
7	E3	8	
7	E4	8	
7	E5	8	
7	E6	8	
7	E7	8	
8	F1	1858	

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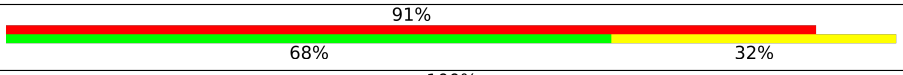
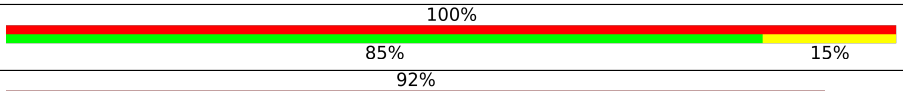
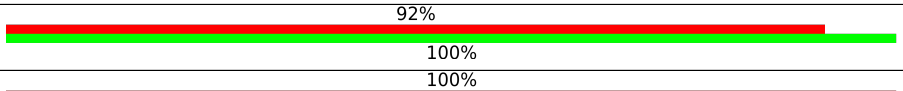
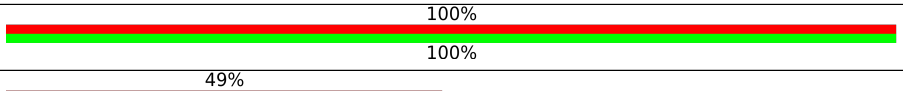
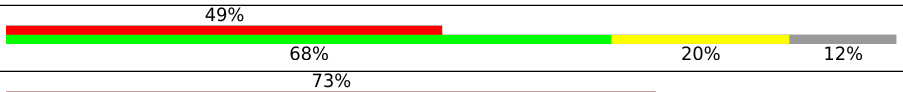
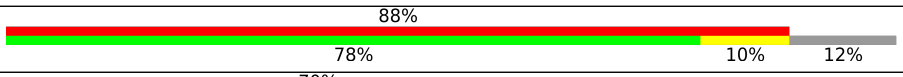
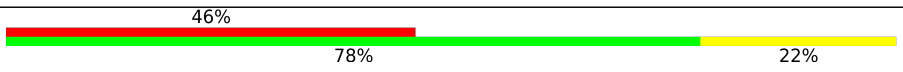
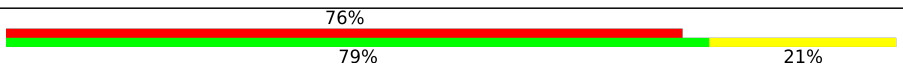
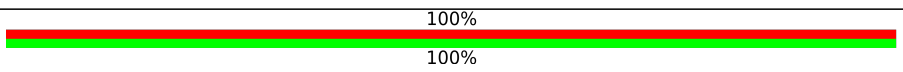
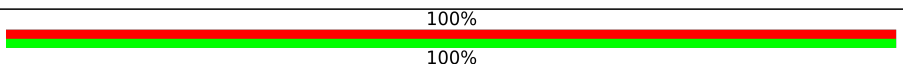
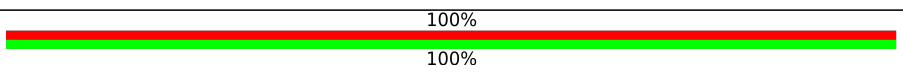
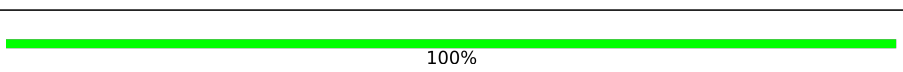
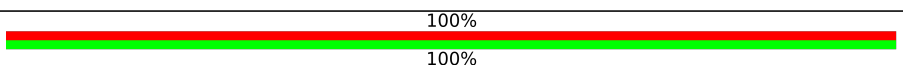
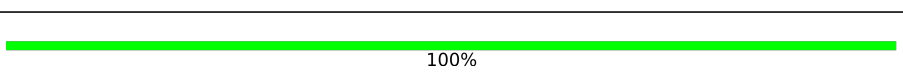
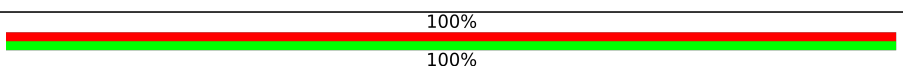
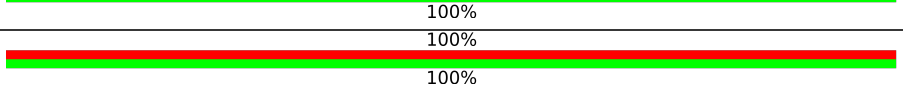
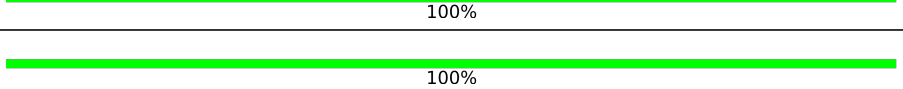
Mol	Chain	Length	Quality of chain
8	F2	1858	
9	G1	53	
9	G2	53	
10	H1	13	
10	H2	13	
11	I1	1756	
11	I2	1756	
11	I3	1756	
11	I4	1756	
11	I5	1756	
12	J1	63	
12	J2	63	
12	J3	63	
12	J4	63	
12	J5	63	
13	K1	9	
13	K2	9	
13	K3	9	
13	K4	9	
13	K5	9	
14	L1	2	
14	L2	2	
14	L3	2	
14	L4	2	
14	L5	2	

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Mol	Chain	Length	Quality of chain
15	M1	183	41% 63% 29% 8%
15	M2	183	56% 87% 5% 8%
15	M3	183	77% 64% 28% 8%
15	M4	183	81% 90% 8%
16	N1	222	36% 59% 22% 19%
16	N2	222	44% 74% 7% 19%
16	N3	222	55% 61% 20% 19%
16	N4	222	61% 78% 19%
17	O1	241	54% 68% 32%
17	O2	241	66% 79% 21%
17	O3	241	82% 65% 35%
17	O4	241	98% 81% 19%
18	P1	116	80% 91% 9%
18	P2	116	100% 94% 6%
18	P3	116	100% 91% 9%
18	P4	116	100% 91% 9%
19	Q1	84	95% 93% 6%
19	Q2	84	65% 87% 8% 5%
19	Q3	84	50% 93% 6%
19	Q4	84	21% 87% 8% 5%
20	R1	40	72% 35% 65%
20	R2	40	55% 92% 8%
20	R3	40	60% 30% 70%
20	R4	40	62% 92% 8%
21	S1	1156	70% 58% 18% 22%

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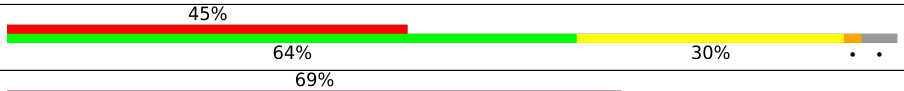
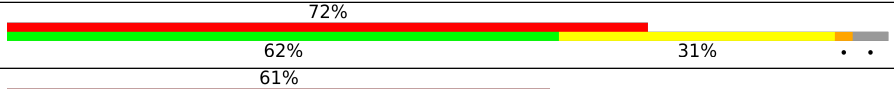
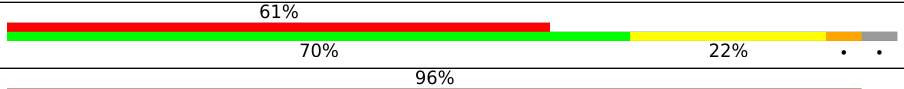
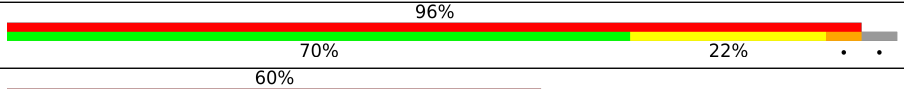
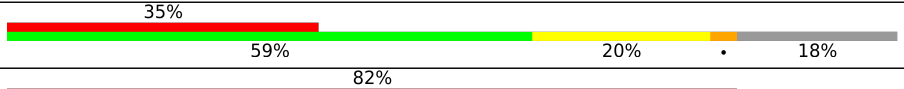
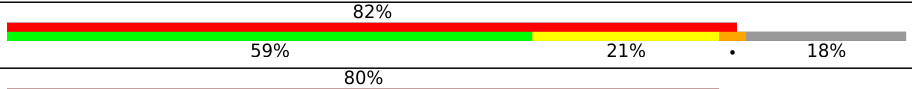
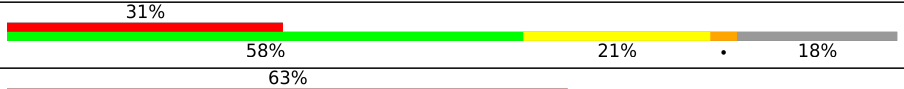
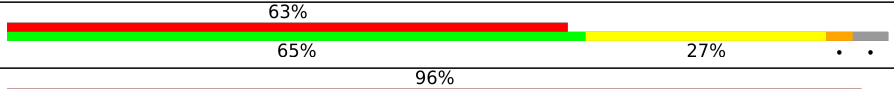
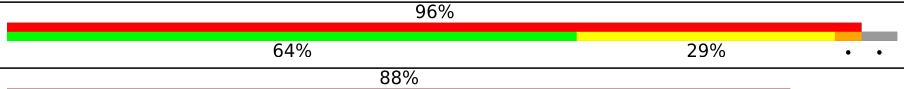
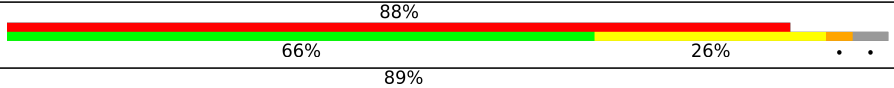
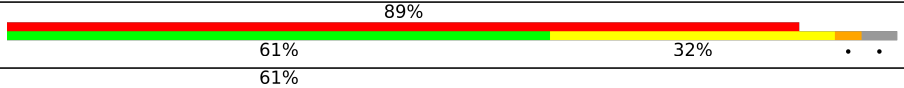
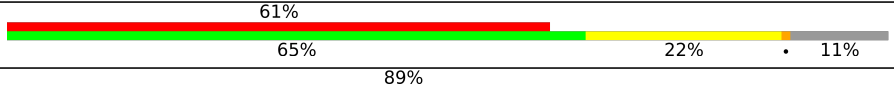
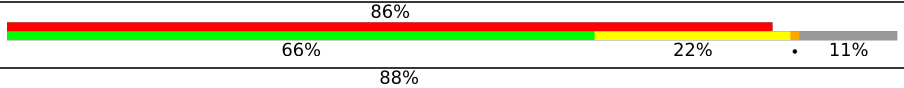
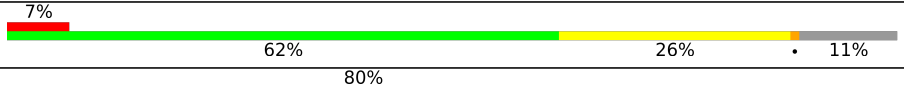
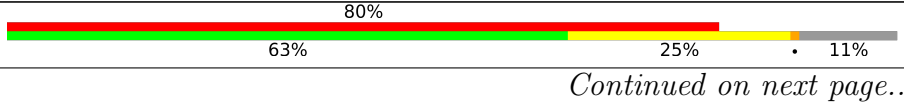
Mol	Chain	Length	Quality of chain
21	S2	1156	
21	S3	1156	
21	S4	1156	
22	T1	258	
22	T2	258	
22	T3	258	
22	T4	258	
23	U1	436	
23	U2	436	
23	U3	436	
23	U4	436	
24	V1	621	
24	V2	621	
24	V3	621	
24	V4	621	
25	W1	286	
25	W2	286	
25	W3	286	
25	W4	286	
26	X1	698	
26	X2	698	
26	X3	698	
26	X4	698	
27	Y1	346	
27	Y2	346	

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Mol	Chain	Length	Quality of chain
27	Y3	346	89% 63% 25% 11%
27	Y4	346	89% 61% 27% 11%
28	Z1	1037	31% 71% 15% 14%
28	Z2	1037	80% 66% 20% 14%
28	Z3	1037	73% 71% 15% 14%
28	Z4	1037	45% 67% 18% 14%
29	a1	380	64% 82% 17%
29	a2	380	23% 82% 17%
29	a3	380	83% 82% 17%
29	a4	380	83% 82% 17%
30	b1	391	57% 82% 6% 12%
30	b2	391	83% 82% 6% 12%
30	b3	391	88% 82% 6% 12%
30	b4	391	30% 82% 6% 12%

2 Entry composition (i)

There are 30 unique types of molecules in this entry. The entry contains 358888 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 NUP155.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A1	1231	Total	C	N	O	S	1	0
			9730	6152	1707	1843	28		
1	A3	1231	Total	C	N	O	S	1	0
			9730	6152	1707	1843	28		

- Molecule 2 is a protein called NUP155.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	A2	1269	Total	C	N	O	S	Se	0	0
			9946	6277	1745	1890	22	12		
2	A4	1269	Total	C	N	O	S	Se	0	0
			9946	6277	1745	1890	22	12		

- Molecule 3 is a protein called NUP155.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	A5	1276	Total	C	N	O	S	Se	1	0
			10030	6331	1762	1901	24	12		
3	A6	1276	Total	C	N	O	S	Se	1	0
			10030	6331	1762	1901	24	12		

- Molecule 4 is a protein called NUP53 R3.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	B1	14	Total	C	N	O	S	0	0
			111	73	19	18	1		
4	B2	14	Total	C	N	O	S	0	0
			111	73	19	18	1		
4	B3	14	Total	C	N	O	S	0	0
			111	73	19	18	1		
4	B4	14	Total	C	N	O	S	0	0
			111	73	19	18	1		

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Mol	Chain	Residues	Atoms					AltConf	Trace
4	B5	14	Total	C	N	O	S	0	0
			111	73	19	18	1		
4	B6	14	Total	C	N	O	S	0	0
			111	73	19	18	1		

- Molecule 5 is a protein called NUP98 R3.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	C1	17	Total	C	N	O	S	0	0
			138	88	24	25	1		
5	C2	19	Total	C	N	O	S	0	0
			157	100	29	27	1		
5	C3	17	Total	C	N	O	S	0	0
			138	88	24	25	1		
5	C4	19	Total	C	N	O	S	0	0
			157	100	29	27	1		
5	C5	17	Total	C	N	O	S	0	0
			138	88	24	25	1		
5	C6	17	Total	C	N	O	S	0	0
			138	88	24	25	1		

- Molecule 6 is a protein called NUP93 SOL.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	D1	621	Total	C	N	O	S	0	0
			5034	3200	874	934	26		
6	D2	621	Total	C	N	O	S	0	0
			5034	3200	874	934	26		
6	D3	621	Total	C	N	O	S	0	0
			5034	3200	874	934	26		
6	D4	621	Total	C	N	O	S	0	0
			5034	3200	874	934	26		
6	D5	621	Total	C	N	O	S	0	0
			5034	3200	874	934	26		
6	D6	621	Total	C	N	O	S	0	0
			5034	3200	874	934	26		
6	D7	621	Total	C	N	O	S	0	0
			5034	3200	874	934	26		

- Molecule 7 is a protein called NUP53 R2.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	E1	8	Total	C	N	O	0	0
			63	42	11	10		
7	E2	8	Total	C	N	O	0	0
			63	42	11	10		
7	E3	8	Total	C	N	O	0	0
			63	42	11	10		
7	E4	8	Total	C	N	O	0	0
			63	42	11	10		
7	E5	8	Total	C	N	O	0	0
			63	42	11	10		
7	E6	8	Total	C	N	O	0	0
			63	42	11	10		
7	E7	8	Total	C	N	O	0	0
			63	42	11	10		

- Molecule 8 is a protein called NUP188.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	F1	1641	Total	C	N	O	S	0	0
			12779	8190	2201	2333	55		
8	F2	1641	Total	C	N	O	S	0	0
			12779	8190	2201	2333	55		

- Molecule 9 is a protein called NUP93 R2.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	G1	53	Total	C	N	O	S	0	0
			438	274	75	88	1		
9	G2	53	Total	C	N	O	S	0	0
			438	274	75	88	1		

- Molecule 10 is a protein called NUP98 R2.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	H1	13	Total	C	N	O	0	0
			94	58	15	21		
10	H2	13	Total	C	N	O	0	0
			94	58	15	21		

- Molecule 11 is a protein called NUP205.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	I1	1542	Total	C	N	O	S	0	0
			12307	7880	2084	2278	65		
11	I2	1542	Total	C	N	O	S	0	0
			12307	7880	2084	2278	65		
11	I3	1542	Total	C	N	O	S	0	0
			12307	7880	2084	2278	65		
11	I4	1542	Total	C	N	O	S	0	0
			12307	7880	2084	2278	65		
11	I5	1542	Total	C	N	O	S	0	0
			12307	7880	2084	2278	65		

- Molecule 12 is a protein called NUP93 R2.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	J1	63	Total	C	N	O	S	0	0
			504	315	86	102	1		
12	J2	63	Total	C	N	O	S	0	0
			504	315	86	102	1		
12	J3	63	Total	C	N	O	S	0	0
			504	315	86	102	1		
12	J4	63	Total	C	N	O	S	0	0
			504	315	86	102	1		
12	J5	63	Total	C	N	O	S	0	0
			504	315	86	102	1		

- Molecule 13 is a protein called NUP98 R1.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	K1	9	Total	C	N	O	S	0	0
			73	51	10	11	1		
13	K2	9	Total	C	N	O	S	0	0
			73	51	10	11	1		
13	K3	9	Total	C	N	O	S	0	0
			73	51	10	11	1		
13	K4	9	Total	C	N	O	S	0	0
			73	51	10	11	1		
13	K5	9	Total	C	N	O	S	0	0
			73	51	10	11	1		

- Molecule 14 is a protein called NUP53 R1.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	L1	2	Total	C	N	O	0	0
			15	11	2	2		
14	L2	2	Total	C	N	O	0	0
			15	11	2	2		
14	L3	2	Total	C	N	O	0	0
			15	11	2	2		
14	L4	2	Total	C	N	O	0	0
			15	11	2	2		
14	L5	2	Total	C	N	O	0	0
			15	11	2	2		

- Molecule 15 is a protein called NUP62.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	M1	169	Total	C	N	O	S	0	0
			1372	855	235	276	6		
15	M2	169	Total	C	N	O	S	0	0
			1372	855	235	276	6		
15	M3	169	Total	C	N	O	S	0	0
			1372	855	235	276	6		
15	M4	169	Total	C	N	O	S	0	0
			1372	855	235	276	6		

- Molecule 16 is a protein called NUP58.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	N1	180	Total	C	N	O	S	0	0
			1401	876	236	282	7		
16	N2	180	Total	C	N	O	S	0	0
			1401	876	236	282	7		
16	N3	180	Total	C	N	O	S	0	0
			1401	876	236	282	7		
16	N4	180	Total	C	N	O	S	0	0
			1401	876	236	282	7		

- Molecule 17 is a protein called NUP54.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	O1	241	Total	C	N	O	S	0	0
			1971	1239	360	368	4		
17	O2	241	Total	C	N	O	S	0	0
			1971	1239	360	368	4		

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Mol	Chain	Residues	Atoms					AltConf	Trace
17	O3	241	Total	C	N	O	S	0	0
			1971	1239	360	368	4		
17	O4	241	Total	C	N	O	S	0	0
			1971	1239	360	368	4		

- Molecule 18 is a protein called NUP54 Ferrodoxin-like domain.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	P1	116	Total	C	N	O	S	1	0
			900	560	160	178	2		
18	P2	116	Total	C	N	O	S	1	0
			900	560	160	178	2		
18	P3	116	Total	C	N	O	S	1	0
			900	560	160	178	2		
18	P4	116	Total	C	N	O	S	1	0
			900	560	160	178	2		

- Molecule 19 is a protein called NUP54 Ferrodoxin-like domain.

Mol	Chain	Residues	Atoms						AltConf	Trace
19	Q1	84	Total	C	N	O	S	Se	1	0
			658	421	114	117	1	5		
19	Q2	80	Total	C	N	O	S	Se	1	0
			616	399	103	108	1	5		
19	Q3	84	Total	C	N	O	S	Se	1	0
			658	421	114	117	1	5		
19	Q4	80	Total	C	N	O	S	Se	1	0
			616	399	103	108	1	5		

- Molecule 20 is a protein called NUP93 R1.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	R1	40	Total	C	N	O	0	0
			311	195	59	57		
20	R2	40	Total	C	N	O	0	0
			311	195	59	57		
20	R3	40	Total	C	N	O	0	0
			311	195	59	57		
20	R4	40	Total	C	N	O	0	0
			311	195	59	57		

- Molecule 21 is a protein called NUP133.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	S1	902	Total	C	N	O	S	0	0
			6013	3738	1046	1210	19		
21	S2	902	Total	C	N	O	S	0	0
			6013	3738	1046	1210	19		
21	S3	902	Total	C	N	O	S	0	0
			6013	3738	1046	1210	19		
21	S4	902	Total	C	N	O	S	0	0
			6013	3738	1046	1210	19		

- Molecule 22 is a protein called NUP107 CTD.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	T1	247	Total	C	N	O	S	0	0
			1993	1282	343	355	13		
22	T2	247	Total	C	N	O	S	0	0
			1993	1282	343	355	13		
22	T3	247	Total	C	N	O	S	0	0
			1993	1282	343	355	13		
22	T4	247	Total	C	N	O	S	0	0
			1993	1282	343	355	13		

- Molecule 23 is a protein called NUP107 NTD.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	U1	419	Total	C	N	O	S	0	0
			3404	2178	557	657	12		
23	U2	419	Total	C	N	O	S	0	0
			3404	2178	557	657	12		
23	U3	419	Total	C	N	O	S	0	0
			3404	2178	557	657	12		
23	U4	419	Total	C	N	O	S	0	0
			3404	2178	557	657	12		

- Molecule 24 is a protein called NUP96.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	V1	511	Total	C	N	O	S	0	0
			3805	2417	648	730	10		
24	V2	511	Total	C	N	O	S	0	0
			3805	2417	648	730	10		
24	V3	511	Total	C	N	O	S	0	0
			3805	2417	648	730	10		

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Mol	Chain	Residues	Atoms					AltConf	Trace
24	V4	511	Total	C	N	O	S	0	0
			3805	2417	648	730	10		

- Molecule 25 is a protein called SEC13.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	W1	274	Total	C	N	O	S	0	0
			2160	1379	369	409	3		
25	W2	274	Total	C	N	O	S	0	0
			2160	1379	369	409	3		
25	W3	274	Total	C	N	O	S	0	0
			2160	1379	369	409	3		
25	W4	274	Total	C	N	O	S	0	0
			2160	1379	369	409	3		

- Molecule 26 is a protein called NUP75.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	X1	620	Total	C	N	O	S	0	0
			4535	2884	753	877	21		
26	X2	620	Total	C	N	O	S	0	0
			4535	2884	753	877	21		
26	X3	620	Total	C	N	O	S	0	0
			4535	2884	753	877	21		
26	X4	620	Total	C	N	O	S	0	0
			4535	2884	753	877	21		

- Molecule 27 is a protein called SEH1.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Y1	307	Total	C	N	O	S	0	0
			2438	1543	422	462	11		
27	Y2	307	Total	C	N	O	S	0	0
			2438	1543	422	462	11		
27	Y3	307	Total	C	N	O	S	0	0
			2438	1543	422	462	11		
27	Y4	307	Total	C	N	O	S	0	0
			2438	1543	422	462	11		

- Molecule 28 is a protein called NUP160.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Z1	896	Total	C	N	O	S	0	0
			6622	4232	1099	1275	16		
28	Z2	896	Total	C	N	O	S	0	0
			6622	4232	1099	1275	16		
28	Z3	896	Total	C	N	O	S	0	0
			6622	4232	1099	1275	16		
28	Z4	896	Total	C	N	O	S	0	0
			6622	4232	1099	1275	16		

- Molecule 29 is a protein called NUP43.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	a1	316	Total	C	N	O	S	33	1
			2587	1639	447	488	13		
29	a2	316	Total	C	N	O	S	33	1
			2587	1639	447	488	13		
29	a3	316	Total	C	N	O	S	33	1
			2587	1639	447	488	13		
29	a4	316	Total	C	N	O	S	33	1
			2587	1639	447	488	13		

- Molecule 30 is a protein called NUP37.

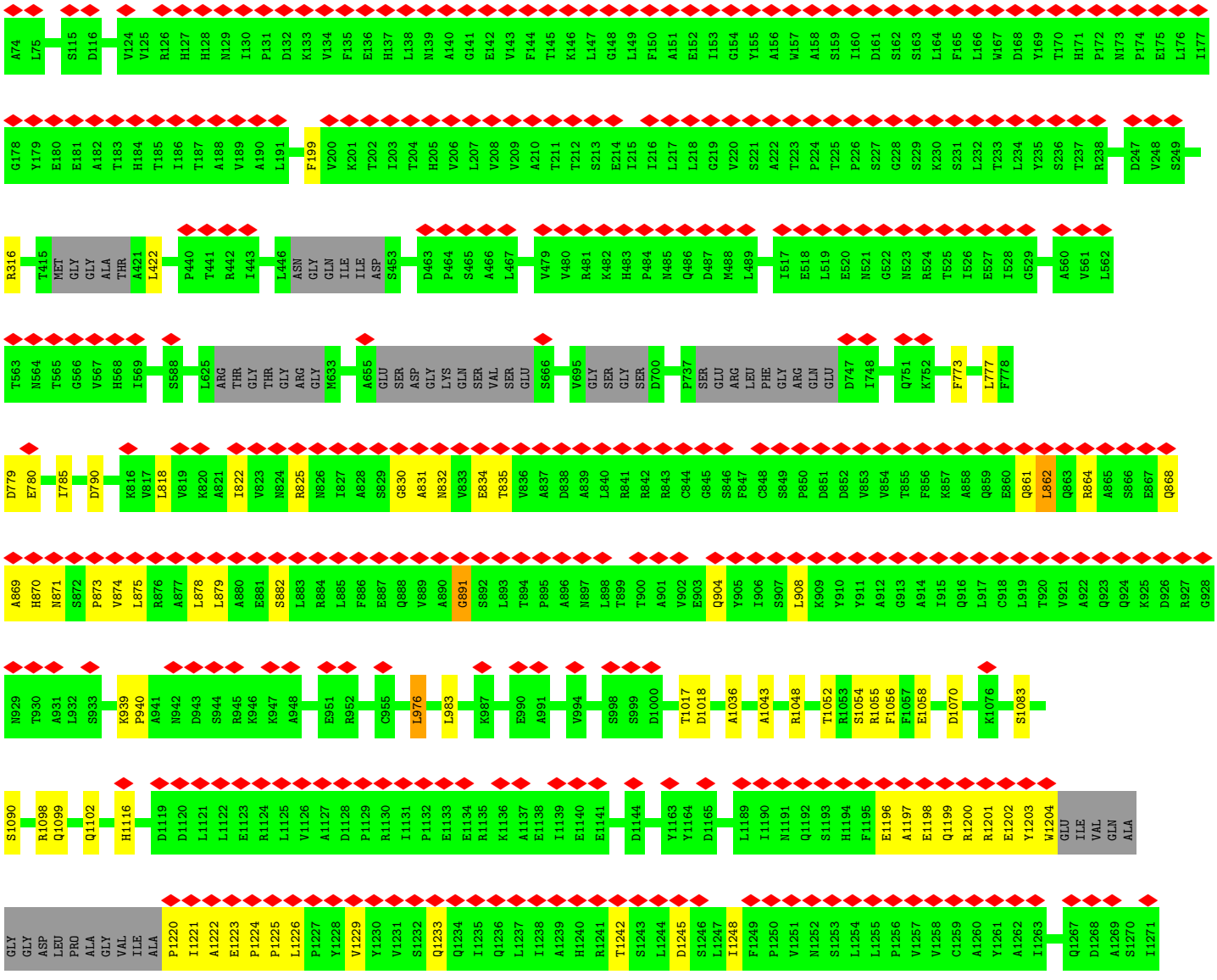
Mol	Chain	Residues	Atoms					AltConf	Trace
30	b1	343	Total	C	N	O	S	0	0
			2638	1676	447	500	15		
30	b2	343	Total	C	N	O	S	0	0
			2638	1676	447	500	15		
30	b3	343	Total	C	N	O	S	0	0
			2638	1676	447	500	15		
30	b4	343	Total	C	N	O	S	0	0
			2638	1676	447	500	15		

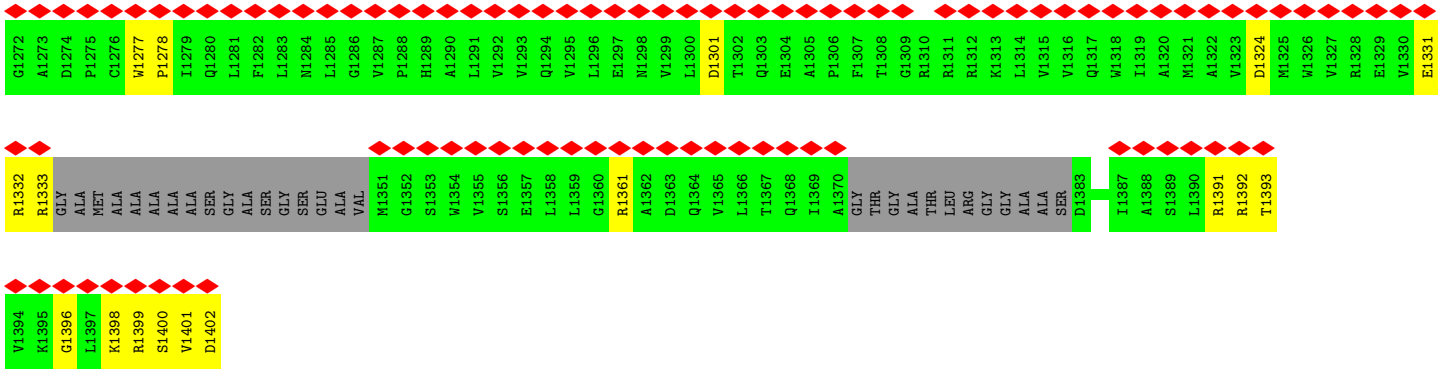
3 Residue-property plots (i)

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: NUP155

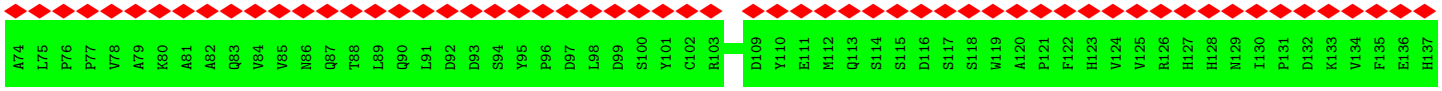
Chain A1:

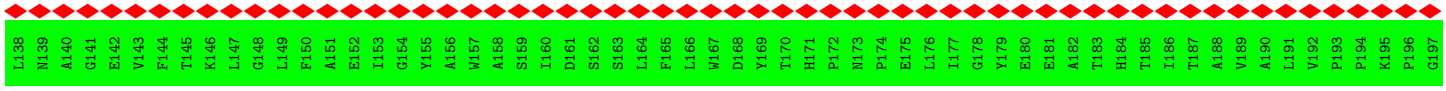


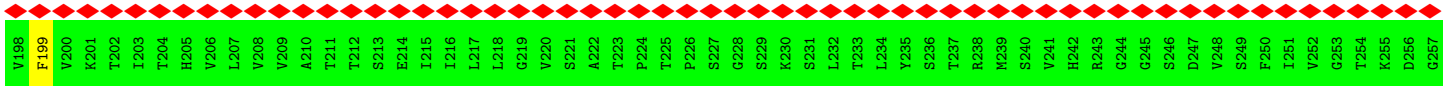


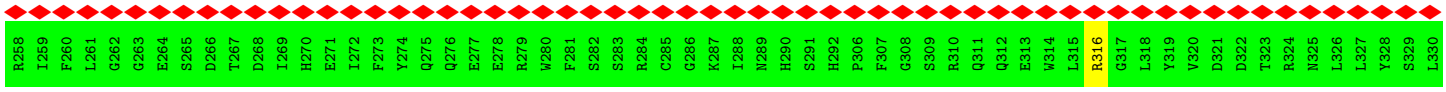
- Molecule 1: NUP155

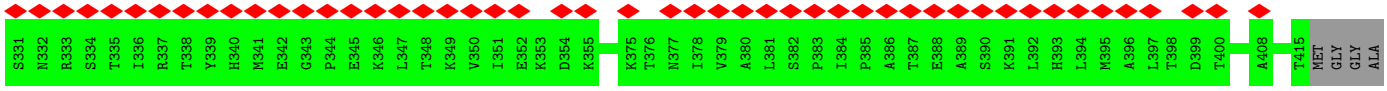
Chain A3:

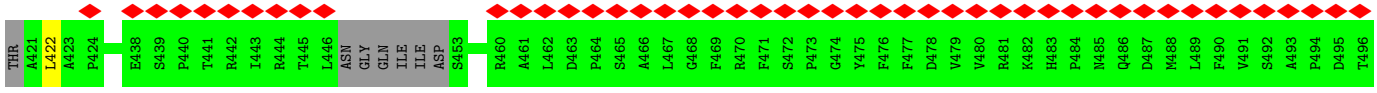


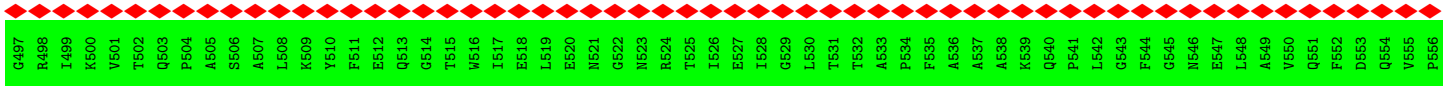


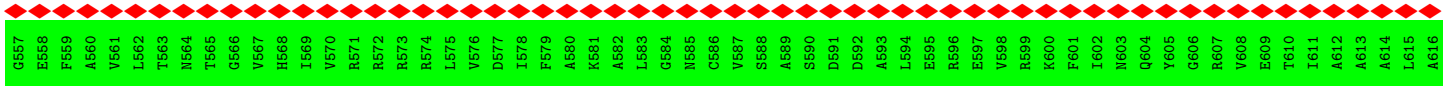


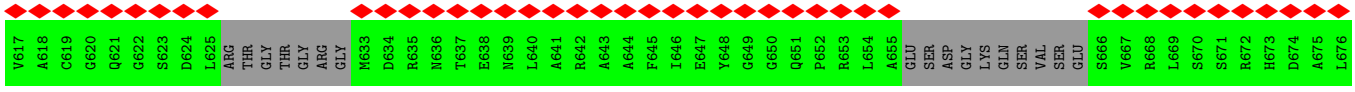


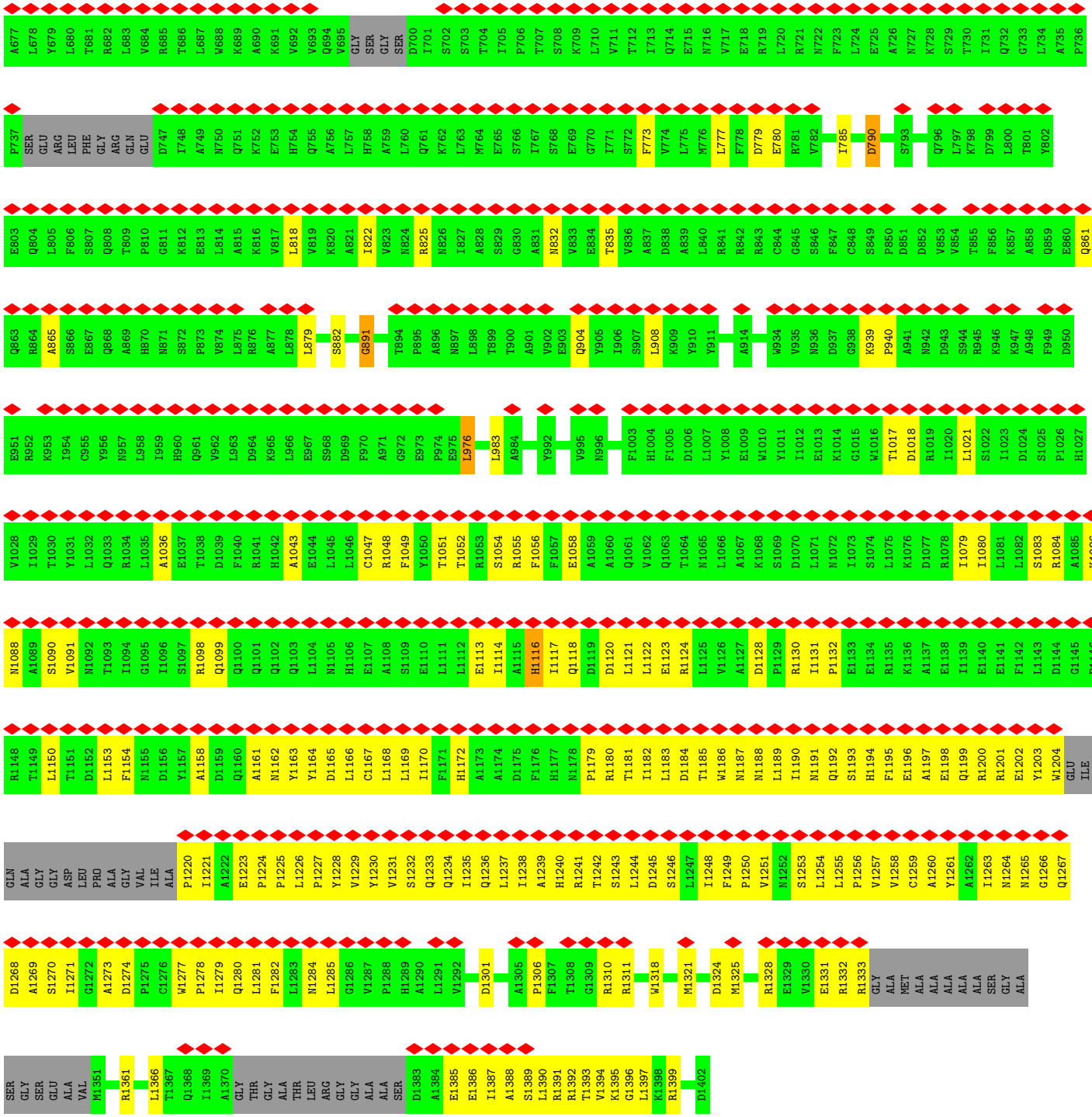






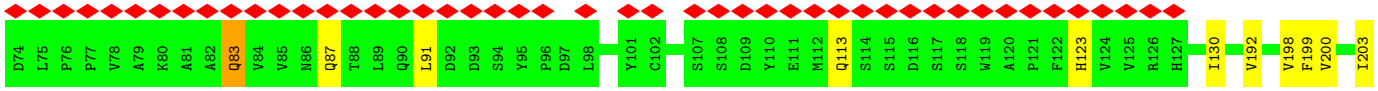


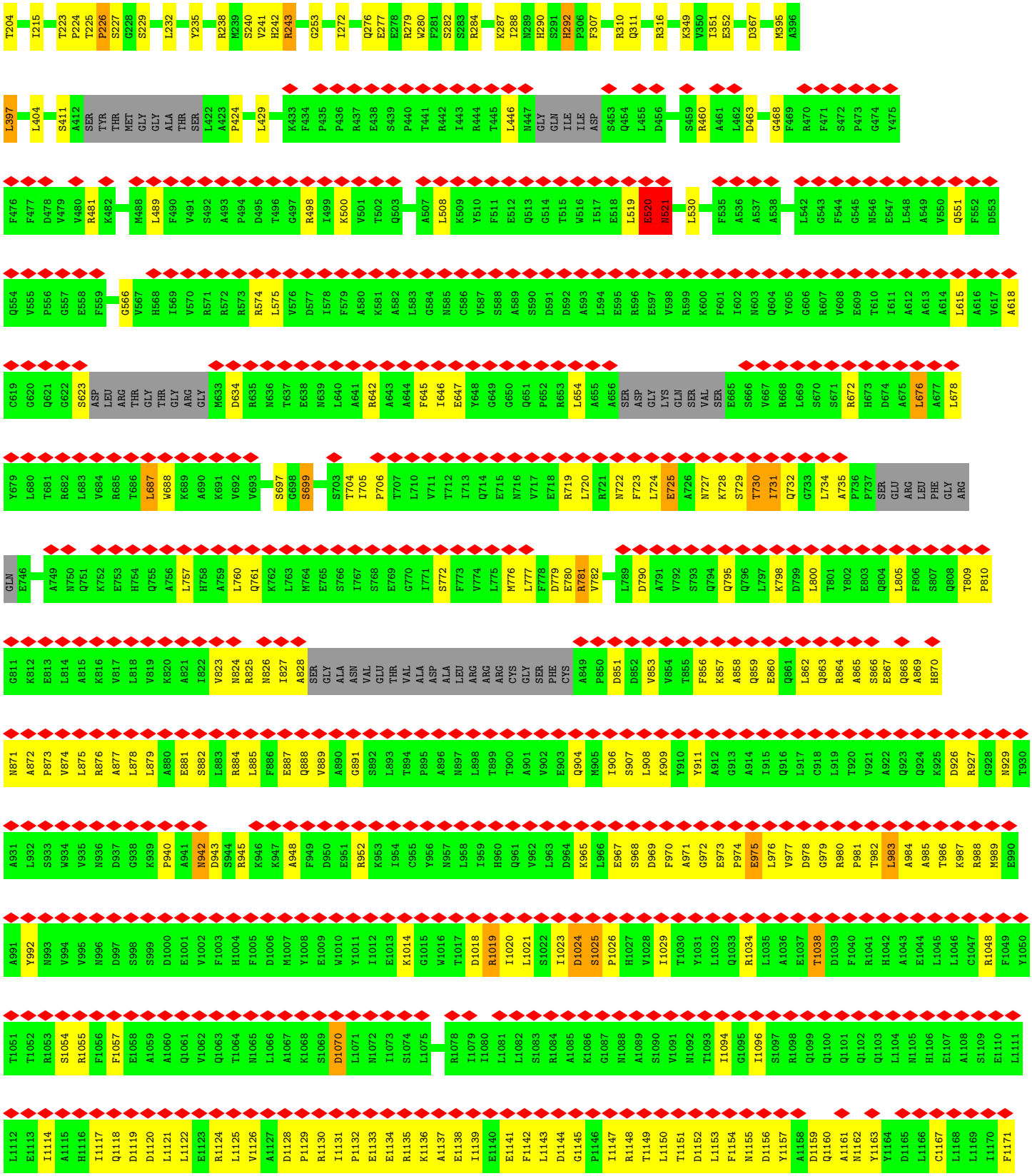




• Molecule 2: NUP155

Chain A2:




T204 I215 T223 P224 T225 P226 S227 G228 S229 L232 Y235 R238 M239 S240 V241 H242 R243 G253 I272 Q276 E277 E278 R279 W280 F281 S282 S283 R284 K287 I288 N289 H290 S291 H292 P306 F307 R310 Q311 R316 K349 V350 I351 E352 D367 M395 A396
L397 L404 S411 A412 SER TYR THR MET GLY GLY ALA THR SER L422 A423 P424 L429 K433 F434 P435 P436 R437 E438 S439 P440 T441 R442 I443 R444 T445 L446 N447 GLY GLN ILE ASP S453 Q454 L455 D456 S459 R460 A461 L462 D463 G468 F469 R470 F471 S472 P473 G474 Y475
F476 F477 D478 V479 Y480 R481 K482 M488 L489 F490 V491 S492 A493 P494 D495 T496 G497 R498 T499 K500 V501 T502 Q503 A507 L508 K509 Y510 F511 E512 Q513 G514 T515 W516 I517 E518 L519 E520 N521 L530 F535 A536 A537 A538 L542 G543 F544 G545 N546 E547 L548 A549 V550 Q551 F552 D553
Q554 V555 P556 G557 E558 F559 G566 V567 H568 I569 V570 R571 R572 R573 R574 L575 V576 D577 I578 F579 A580 K581 A582 L583 G584 N585 C586 V587 S588 A589 S590 D591 D592 A593 L594 E595 R596 E597 V598 R599 K600 F601 I602 N603 Q604 Y605 G606 R607 V608 E609 T610 I611 A612 A613 A614 L615 A616 V617 A618
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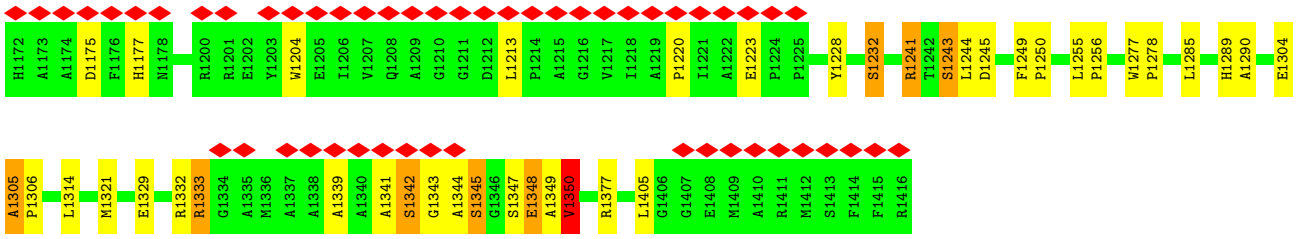
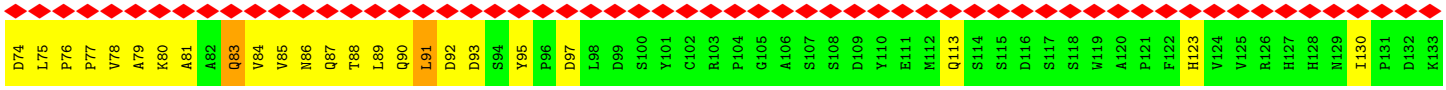
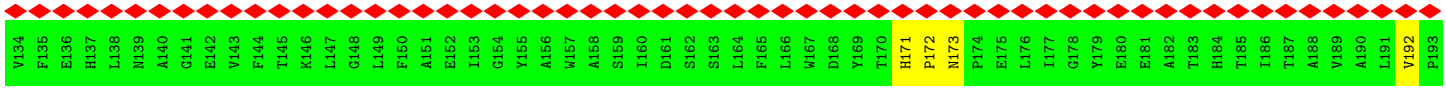
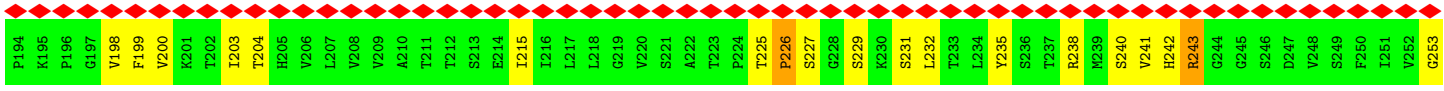


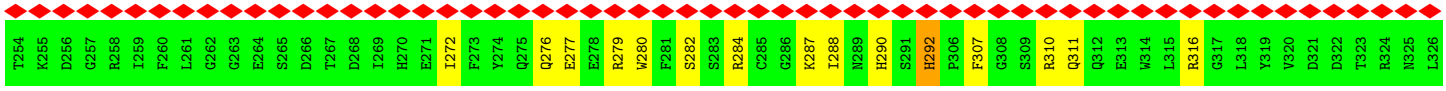
• Molecule 2: NUP155

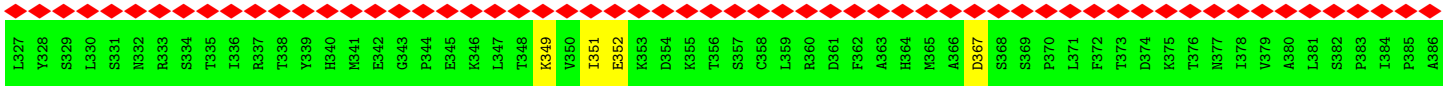
Chain A4:

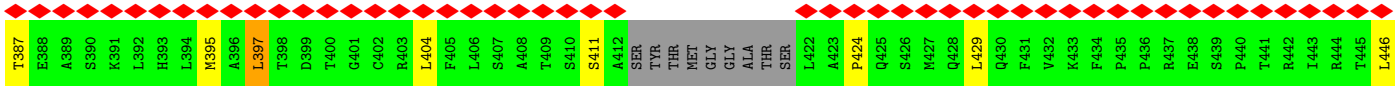


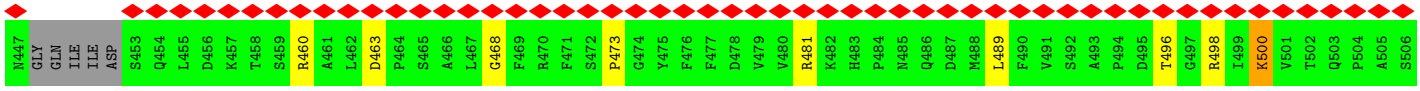


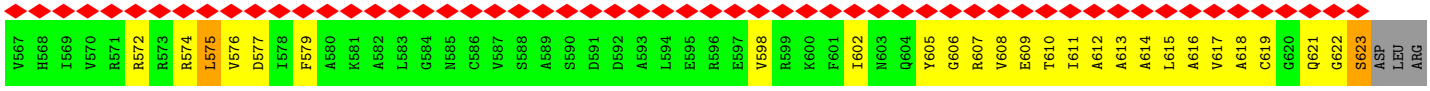


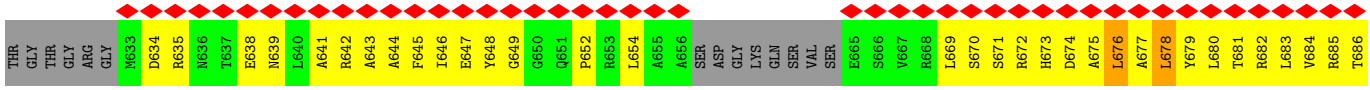


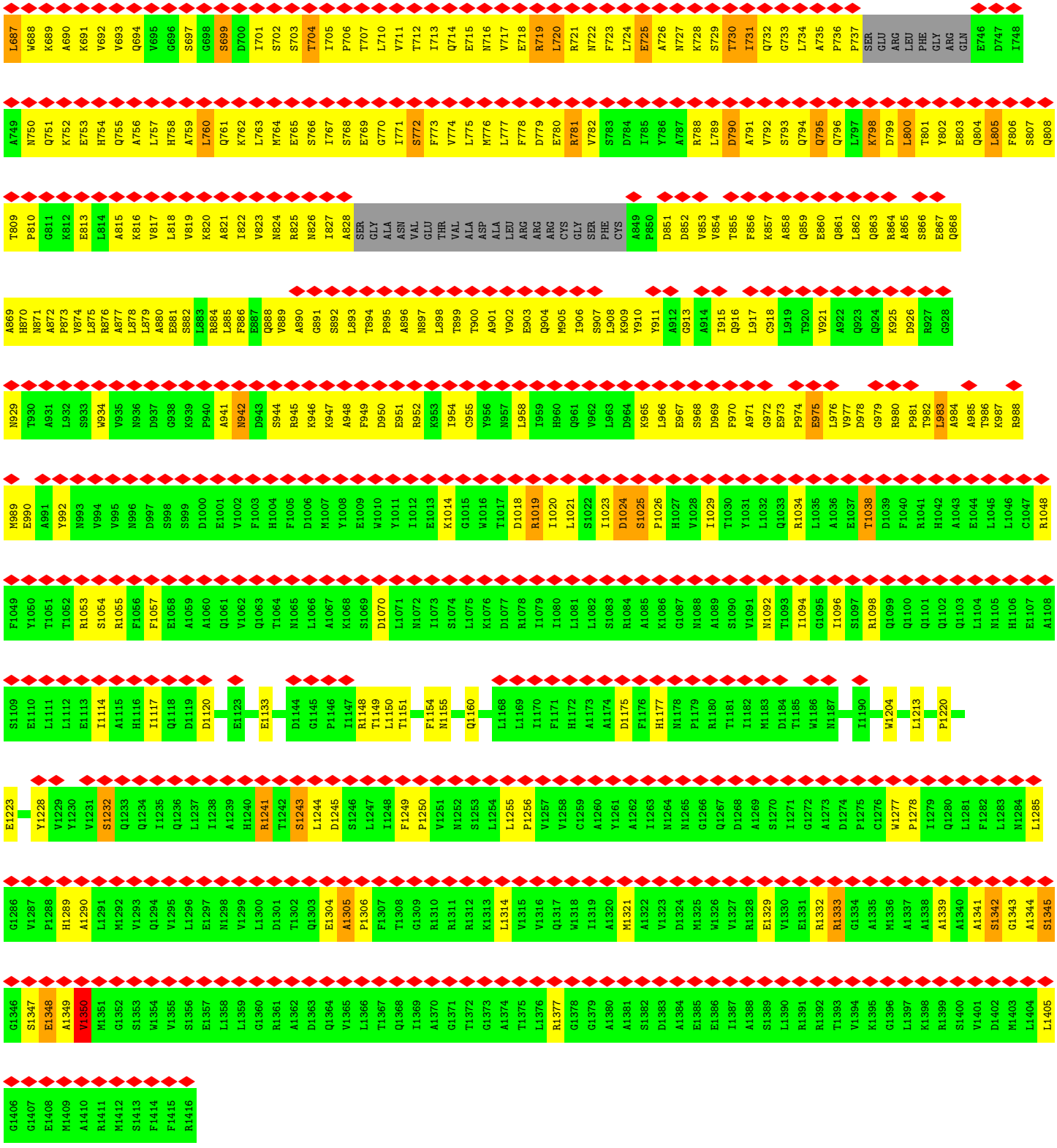






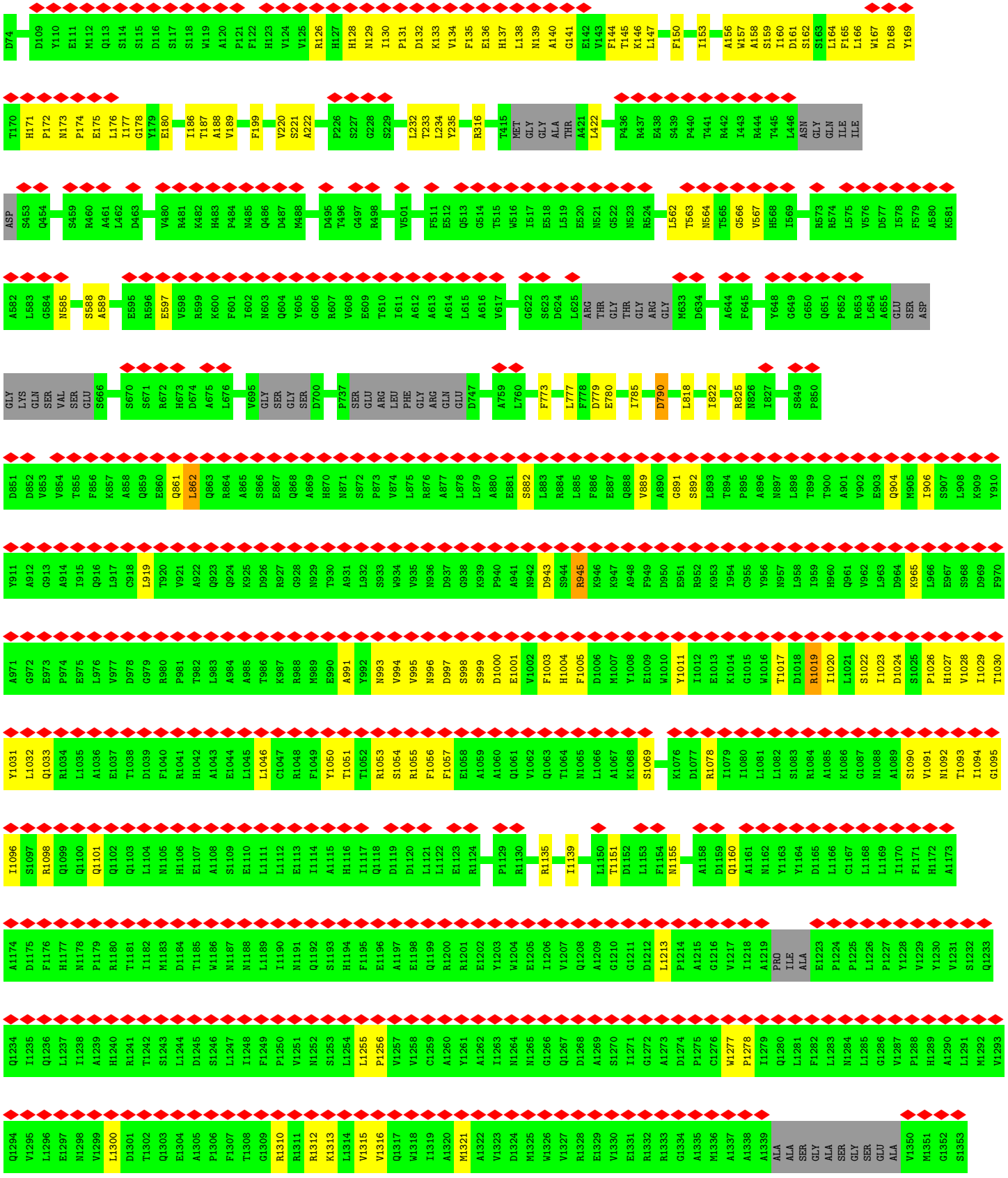






- Molecule 3: NUP155

Chain A5: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T170 H171 P172 N173 P174 E175 L176 I177 G178 Y179 E180 I186 T187 A188 V189 F199 V220 S221 A222 P226 S227 G228 S229 L232 T233 L234 Y235 R316 T415 MET GLY GLY ALA THR A421 L422 P436 R437 E438 S439 P440 T441 R442 I443 R444 T445 L446 ASN GLY GLN ILE ILE
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A971 G972 E973 P974 E975 L976 V977 D978 G979 R980 P981 T982 L983 A984 A985 T986 K987 R988 N989 E990 A991 Y992 N993 V994 V995 N996 D997 S998 S999 D1000 E1001 V1002 F1003 H1004 F1005 D1006 M1007 Y1008 E1009 W1010 Y1011 I1012 E1013 K1014 G1015 W1016 T1017 D1018 R1019 I1020 L1021 S1022 I1023 D1024 S1025 P1026 H1027 V1028 I1029 T1030
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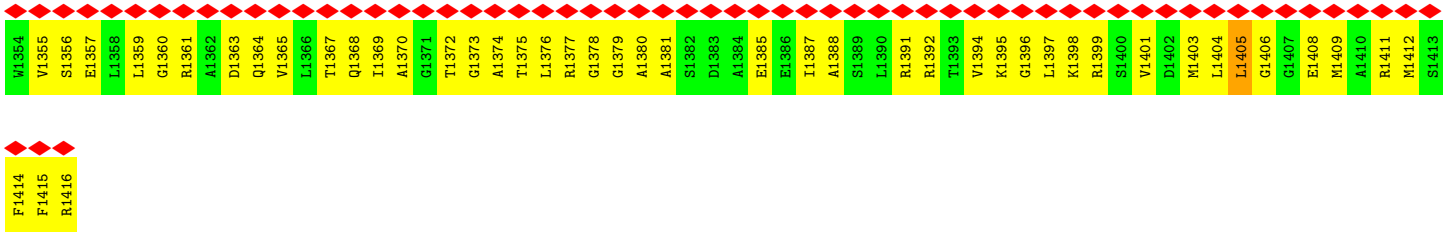
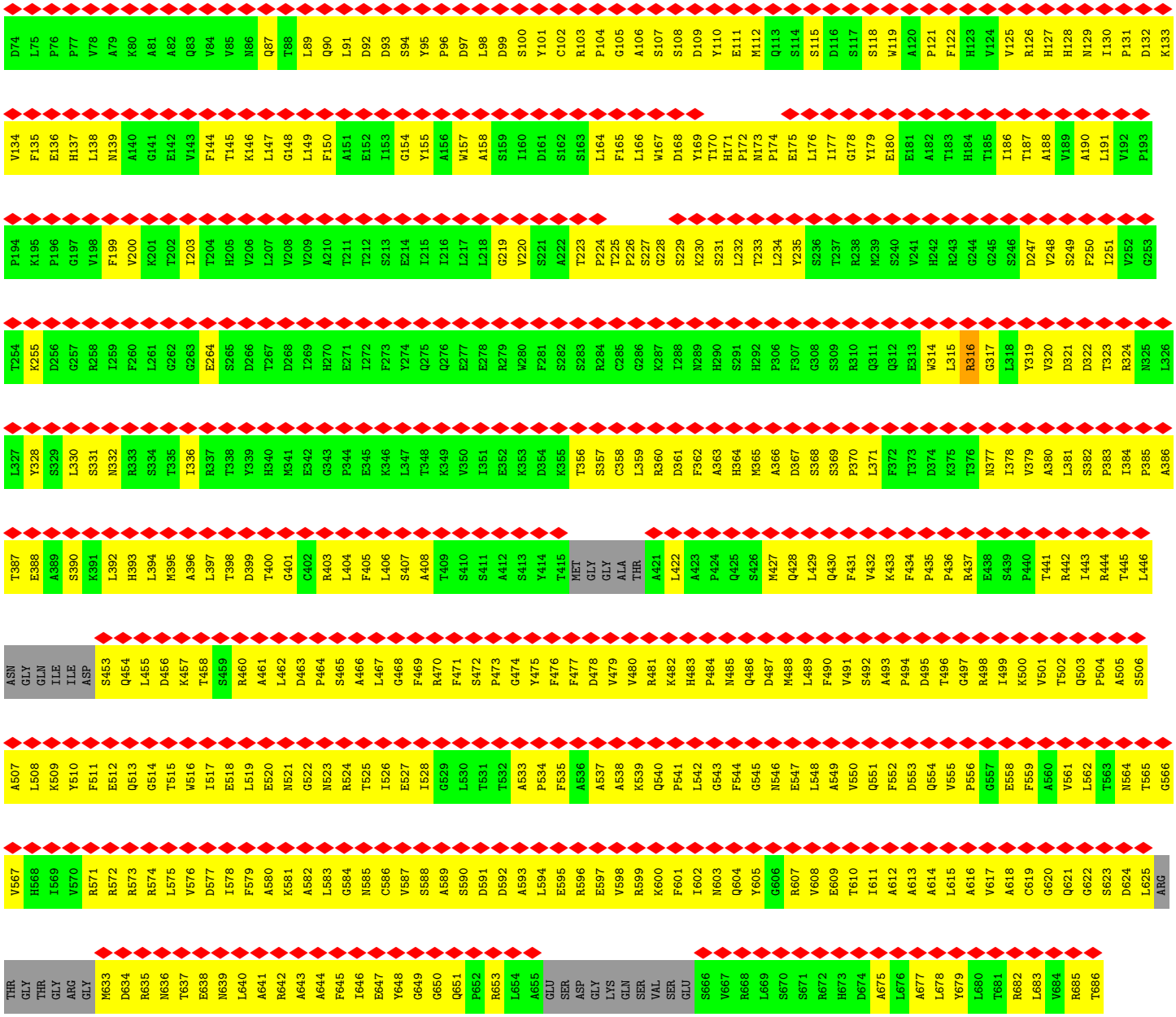
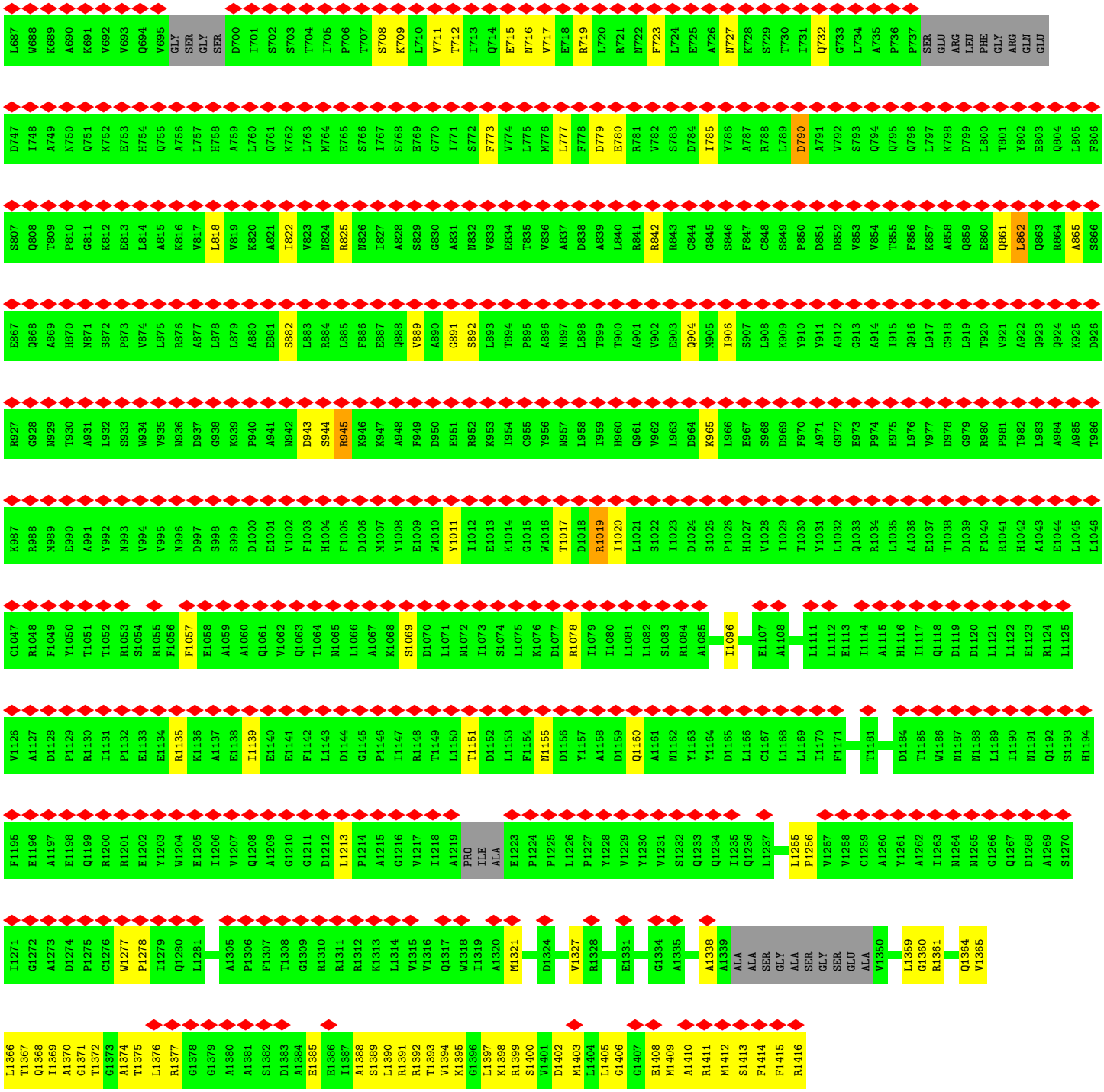


• Molecule 3: NUP155

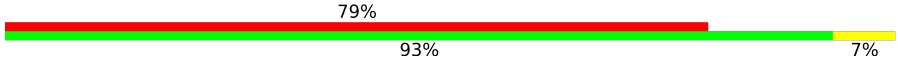
Chain A6:

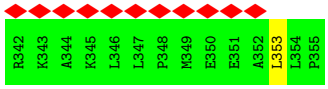




- Molecule 4: NUP53 R3

Chain B1:



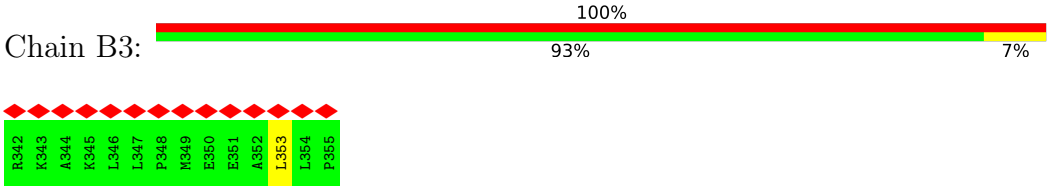


- Molecule 4: NUP53 R3

Chain B2:

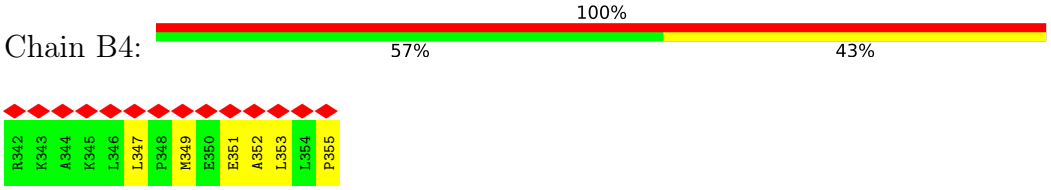
• Molecule 4: NUP53 R3

Chain B3:



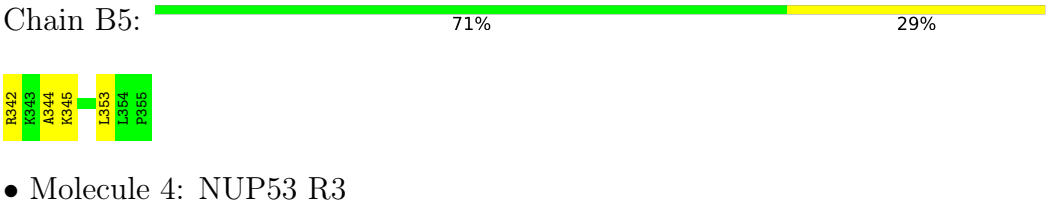
• Molecule 4: NUP53 R3

Chain B4:



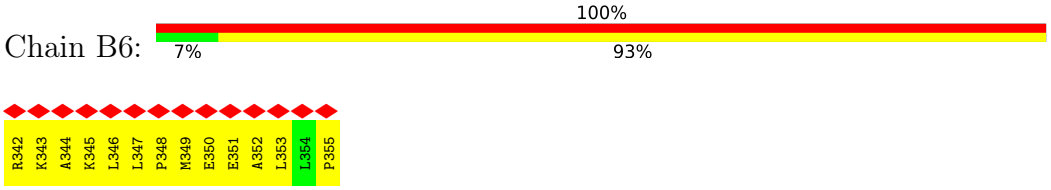
• Molecule 4: NUP53 R3

Chain B5:



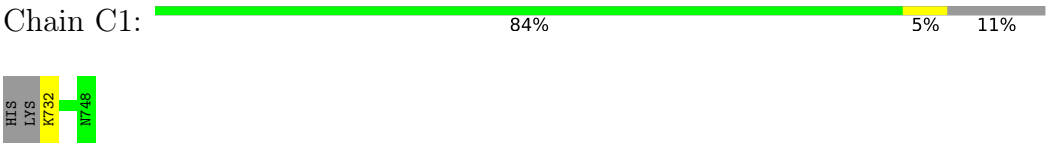
• Molecule 4: NUP53 R3

Chain B6:



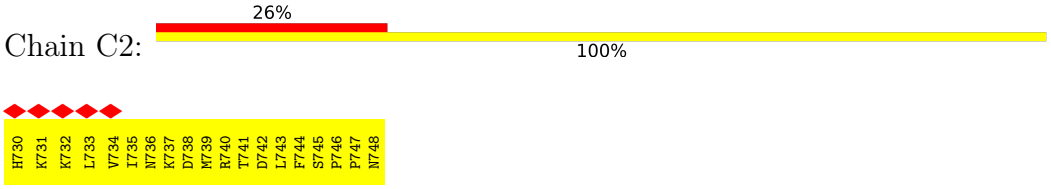
• Molecule 5: NUP98 R3

Chain C1:



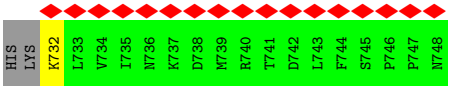
• Molecule 5: NUP98 R3

Chain C2:



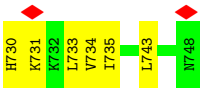
• Molecule 5: NUP98 R3

Chain C3:



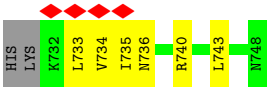
• Molecule 5: NUP98 R3

Chain C4:



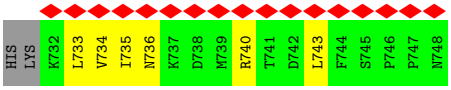
• Molecule 5: NUP98 R3

Chain C5:



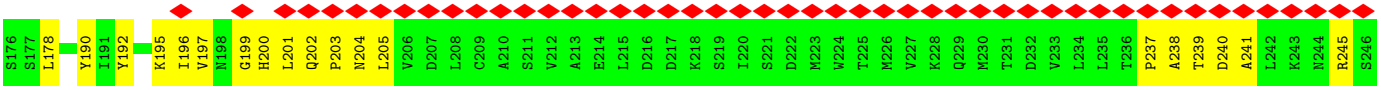
• Molecule 5: NUP98 R3

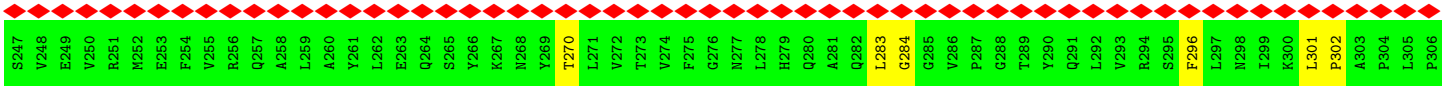
Chain C6:

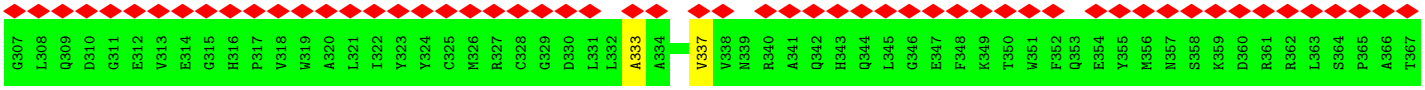


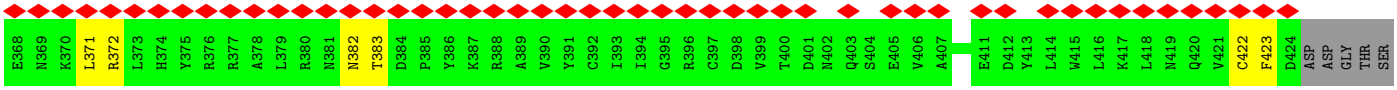
• Molecule 6: NUP93 SOL

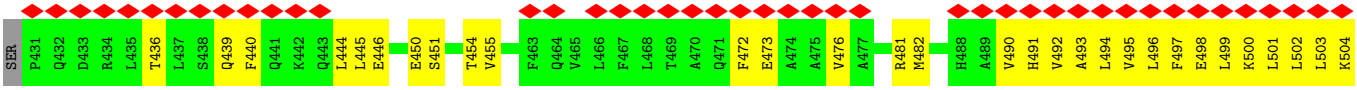
Chain D1:

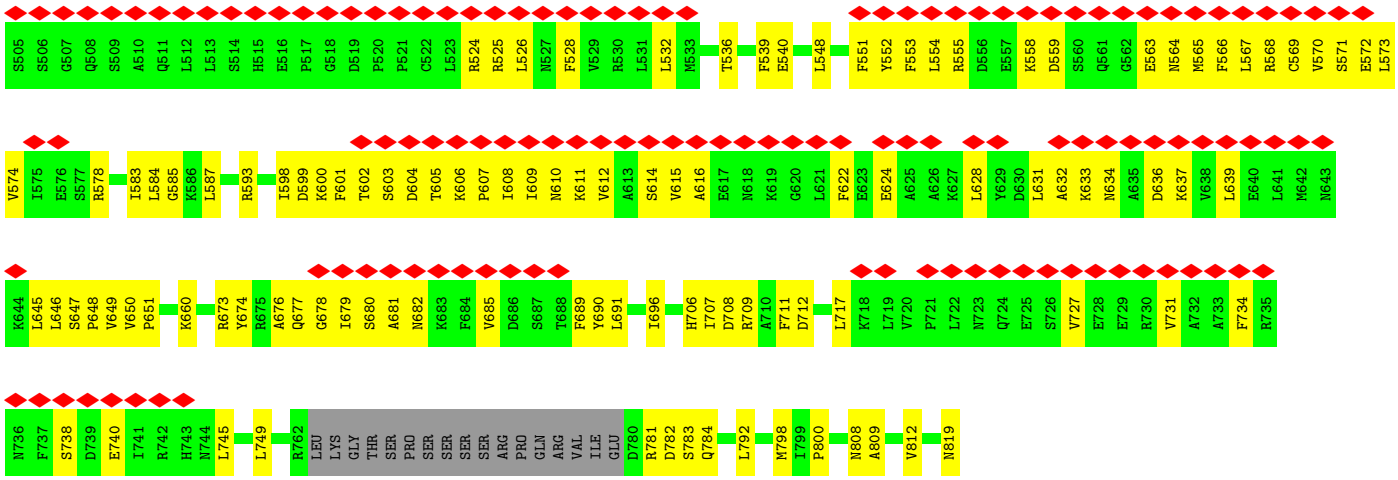






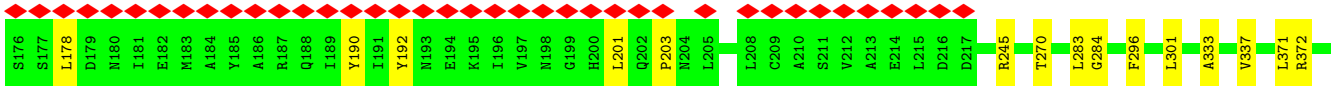


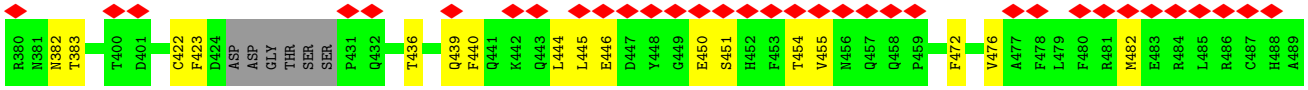


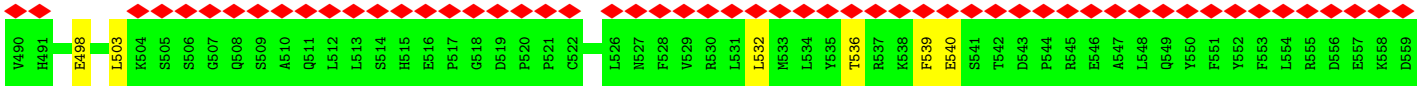


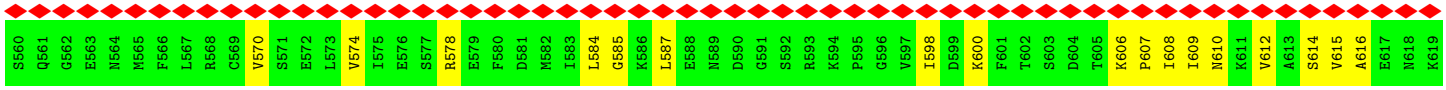
- Molecule 6: NUP93 SOL

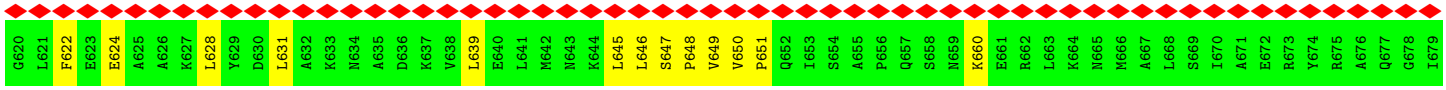
Chain D2:

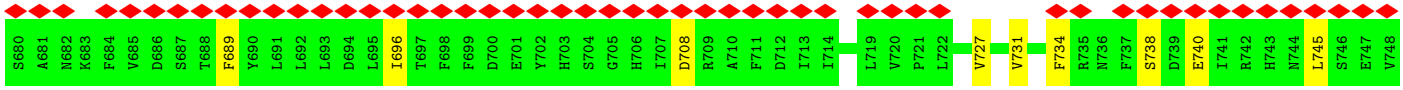


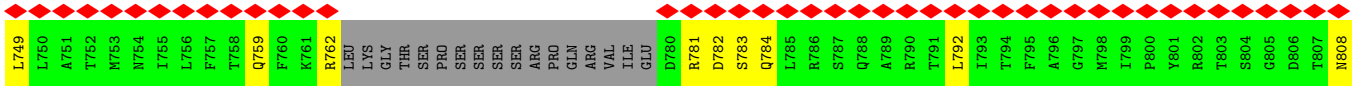


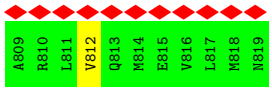






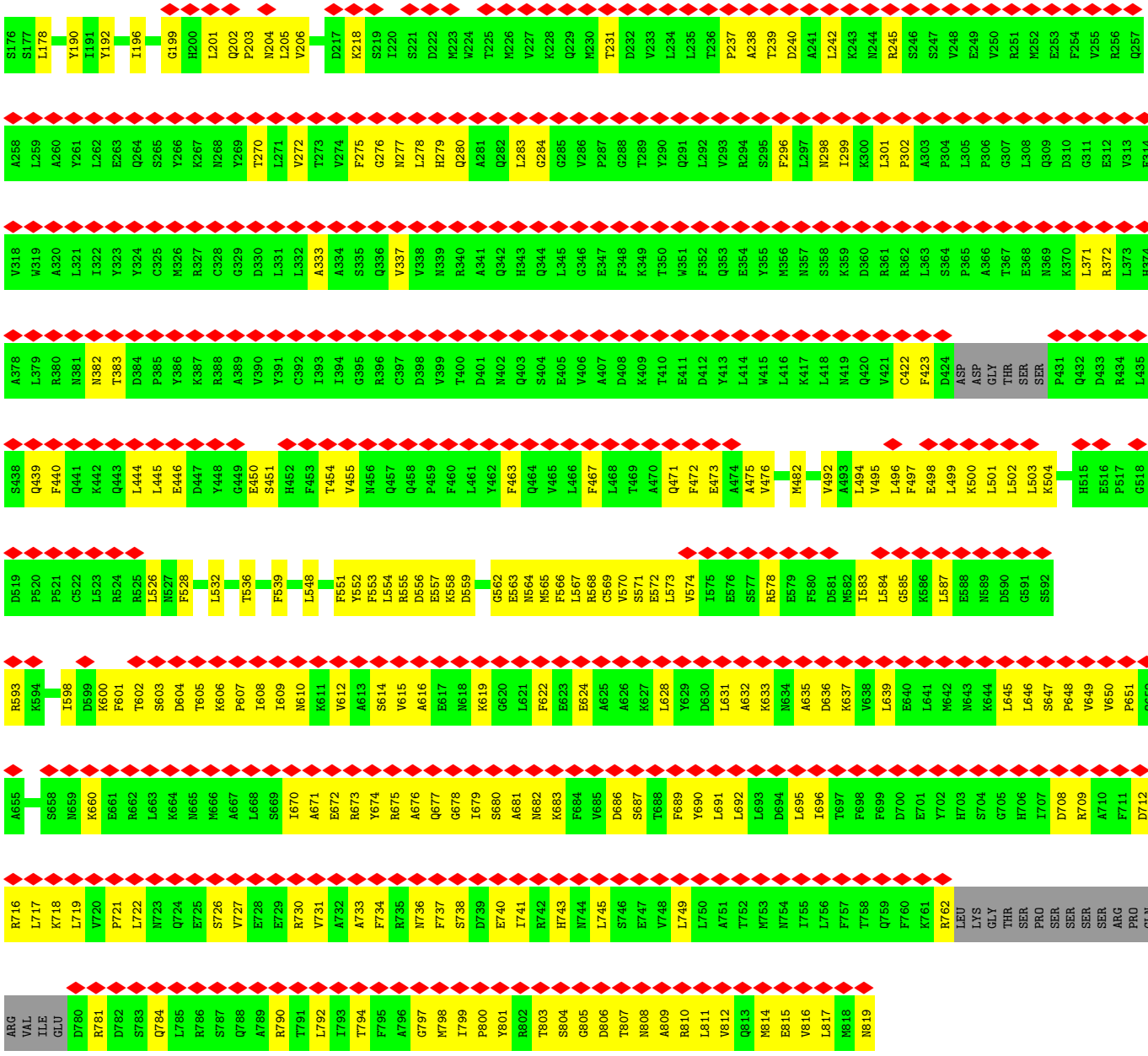






- Molecule 6: NUP93 SOL

Chain D3:



• Molecule 6: NUP93 SOL

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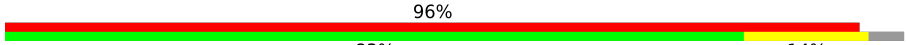

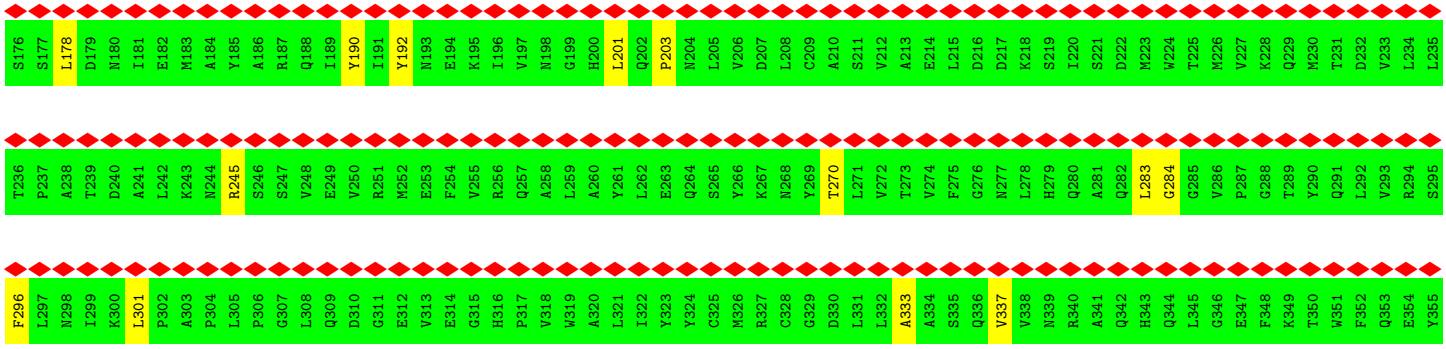

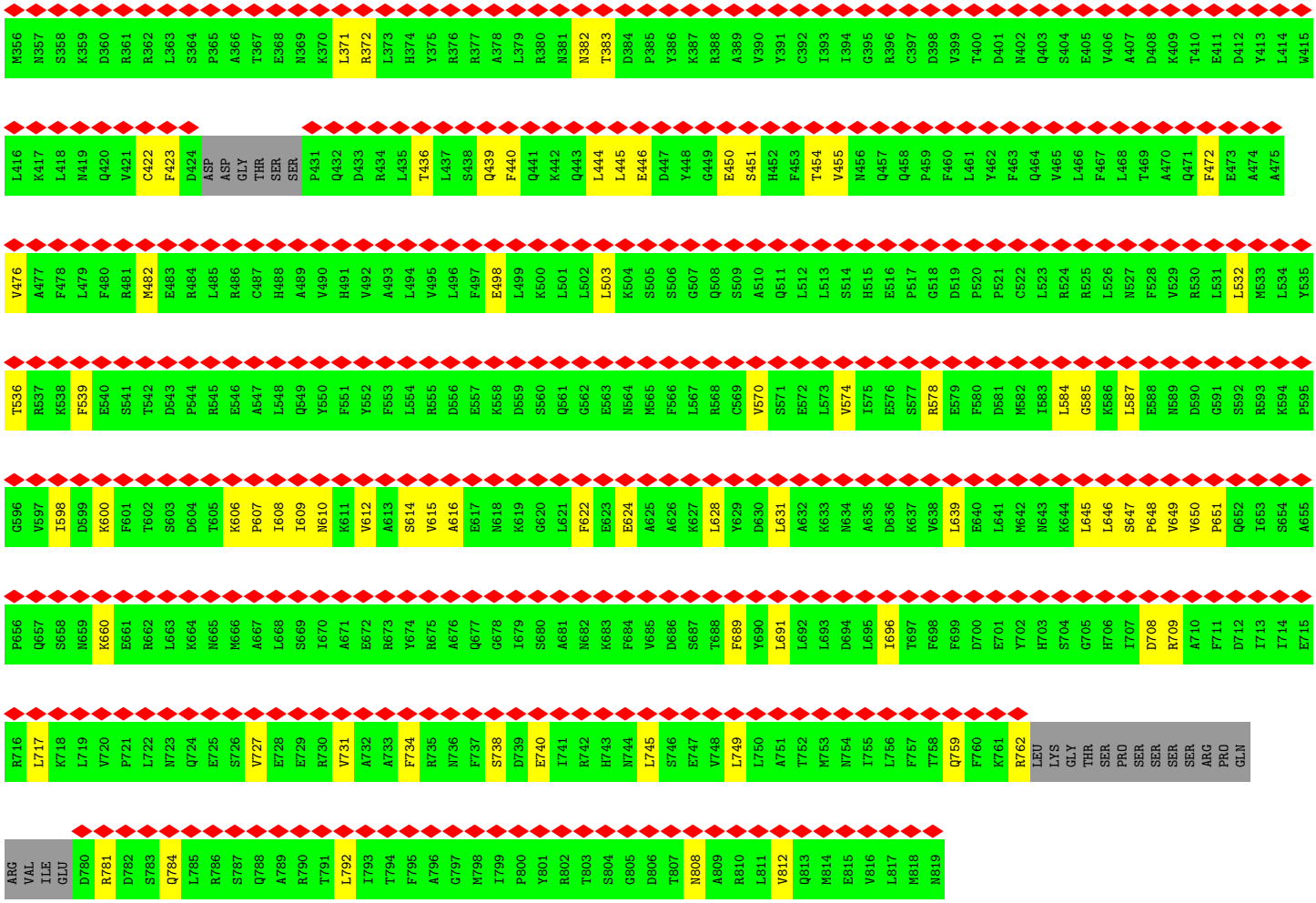

• Molecule 6: NUP93 SOL

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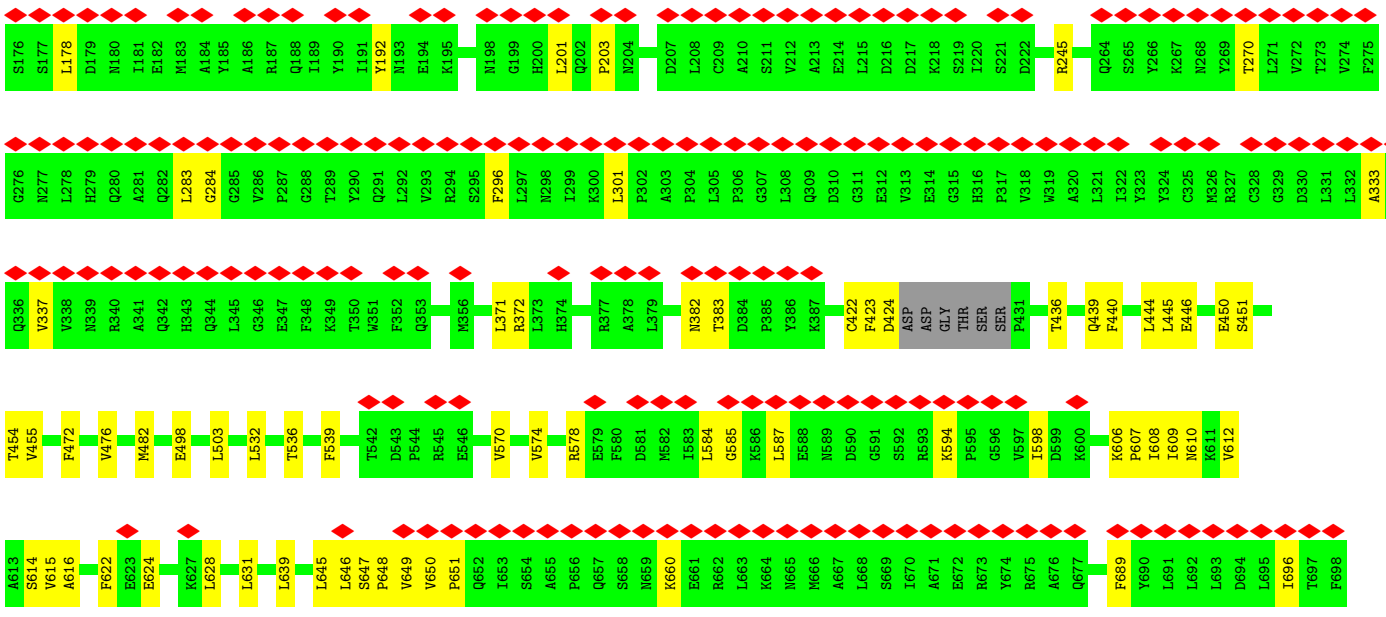
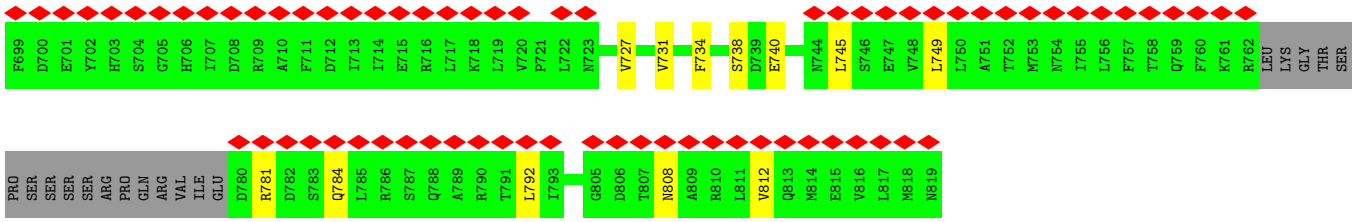
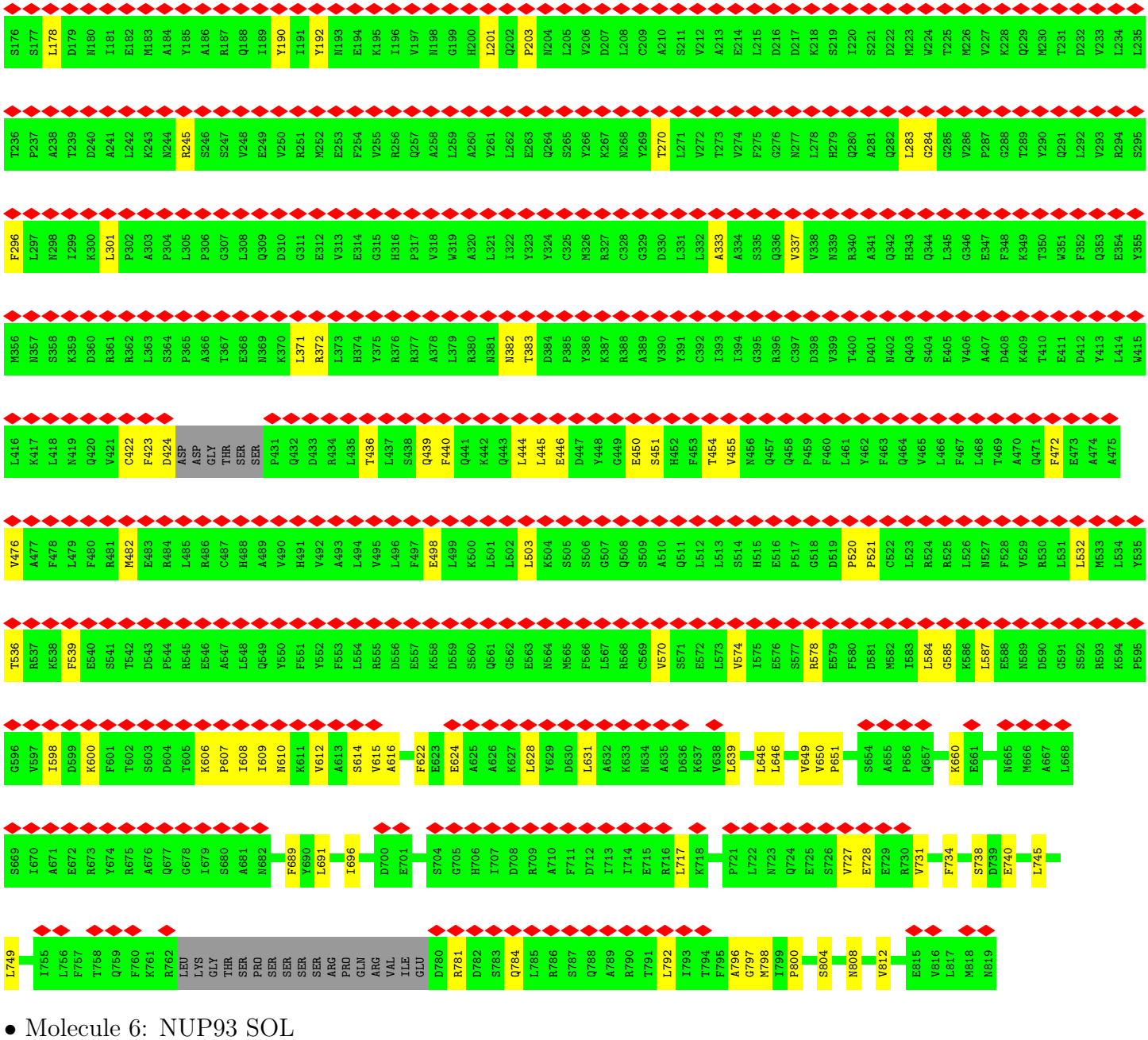




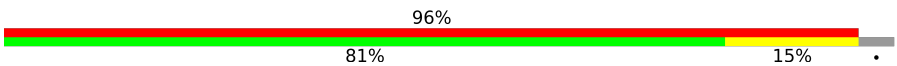
• Molecule 6: NUP93 SOL

Chain D6:



• Molecule 6: NUP93 SOL

Chain D7:



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F296 L297 N298 I299 K300 L301 P302 A303 P304 L305 P306 G307 L308 Q309 D310 G311 E312 V313 E314 G315 H316 P317 V318 W319 A320 L321 I322 Y323 Y324 C325 M326 R327 C328 G329 D330 L331 L332 A333 A334 S335 Q336 V337 V338 N339 L345 G346 E347 F348 K349 T350 W351 F352 Q353 E354 Y355 M356 N357 S358 K359

D360 R361 R362 L363 S364 P365 A366 T367 E368 N369 K370 L371 R372 L373 H374 Y375 R376 R377 A378 L379 R380 N381 N382 T383 D384 P385 Y386 K387 R388 A389 V390 Y391 C392 I393 I394 G395 R396 C397 D398 V399 T400 D401 N402 Q403 S404 E405 V406 A407 D408 K409 T410 E411 D412 Y413 L414 W415 L416 K417 L418 N419

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F480 R481 M482 E483 R484 L485 R486 C487 H488 A489 V490 H491 V492 A493 L494 V495 L496 F497 E498 L499 K500 L501 L502 L503 K504 S505 S506 G507 Q508 S509 A510 Q511 L512 L513 S514 H515 E516 P517 G518 D519 P520 P521 C522 L523 R524 R525 L526 N527 F528 V529 R530 L531 L532 M533 L534 Y535 T536 R537 K538 F539

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K600 F601 T602 S603 D604 T605 K606 P607 I608 I609 N610 K611 V612 A613 S614 V615 A616 E617 N618 K619 G620 L621 F622 E623 E624 A625 A626 K627 L628 Y629 D630 L631 A632 K633 M634 A635 D636 K637 V638 L639 E640 L641 M642 N643 K644 L645 L646 S647 P648 V649 V650 P651 Q652 I653 S654 A655 P656 Q657 S658 N659

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D780 R781 D782 S783 Q784 L785 R786 S787 Q788 A789 R790 T791 L792 I793 T794 F795 A796 G797 M798 I799 P800 Y801 R802 T803 S804 G805 D806 T807 N808 A809 R810 L811 V812 Q813 M814 E815 V816 L817 M818 N819

- Molecule 7: NUP53 R2

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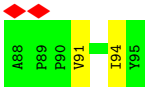
- Molecule 7: NUP53 R2

Chain E2:



• Molecule 7: NUP53 R2

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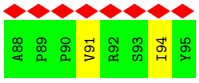

• Molecule 7: NUP53 R2

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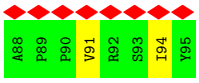
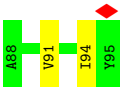


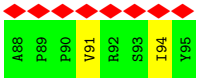
• Molecule 7: NUP53 R2

Chain E5:



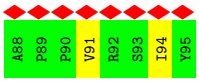
• Molecule 7: NUP53 R2

Chain E6:



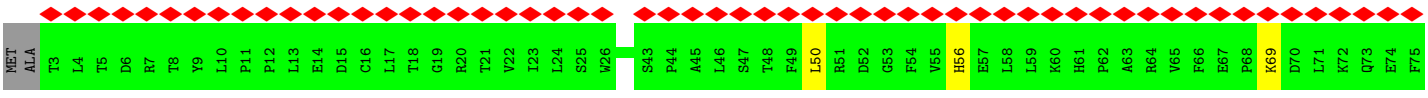
• Molecule 7: NUP53 R2

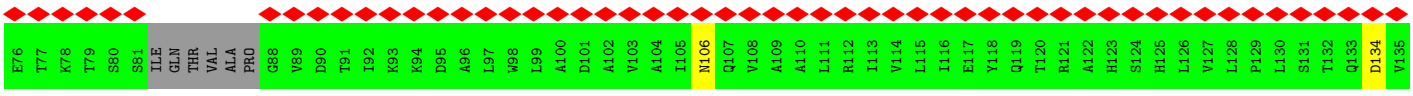
Chain E7:

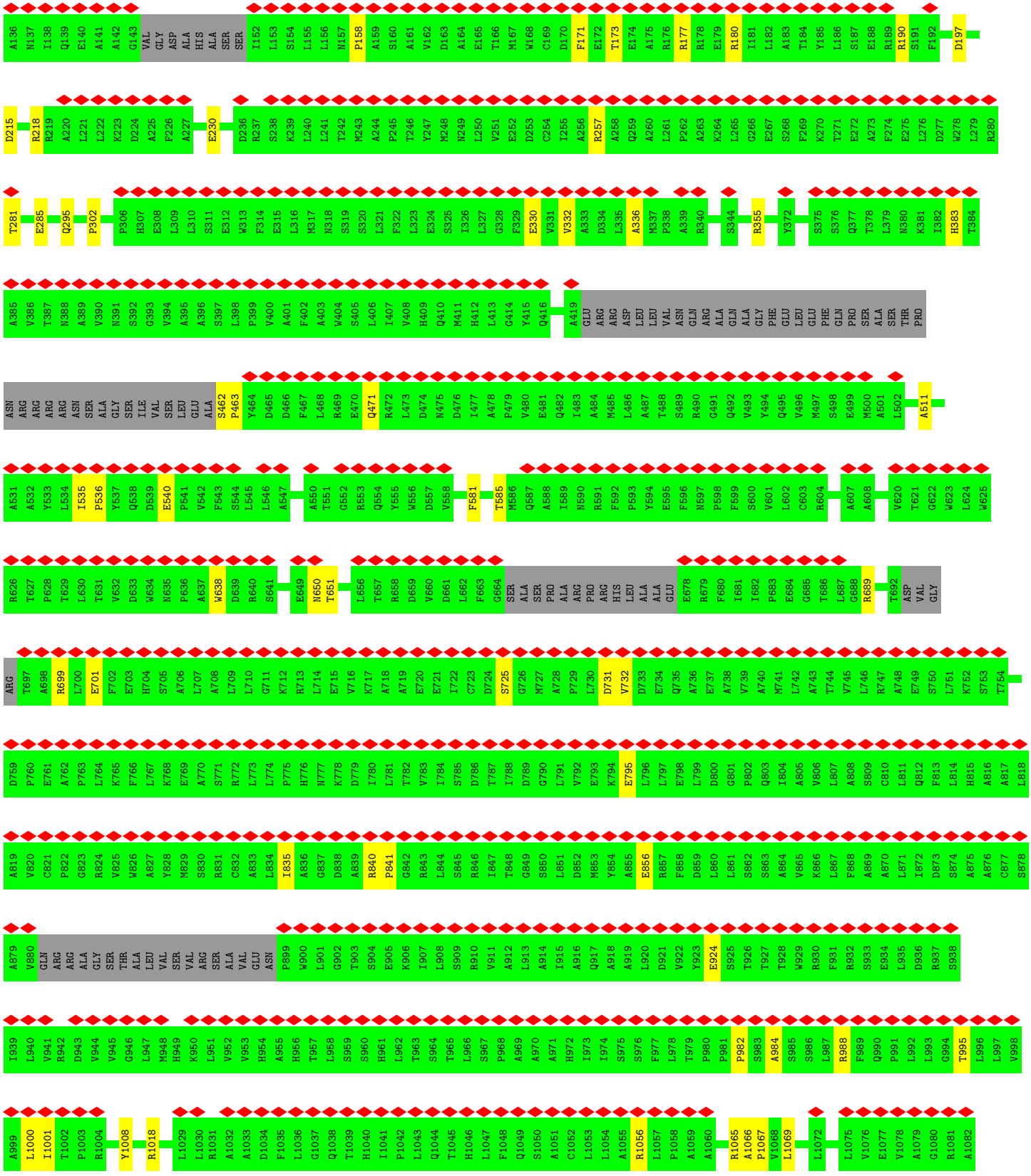


• Molecule 8: NUP188

Chain F1:



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D215 R218 R219 A220 L221 L222 K223 D224 A225 F226 A227 E230 D236 R237 S238 K239 L240 L241 T242 M243 A244 P245 T246 Y247 M248 N249 L250 V251 E252 D253 C254 I255 A256 R257 A258 Q259 A260 L261 P262 A263 K264 L265 G266 E267 S268 F269 K270 T271 E272 A273 F274 E275 L276 D277 W278 L279 R280
T281 E285 Q295 P302 P306 H307 E308 L309 L310 S311 E312 W313 F314 E315 L316 M317 N318 S319 S320 L321 F322 L323 E324 S325 I326 L327 G328 F329 E330 V331 V332 A333 D334 L335 A336 M337 P338 A339 R340 S344 R355 Y372 S376 S376 Q377 T378 L379 N380 K381 I382 H383 T384
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ASN ARG ARG ARG ARG ASN SER ALA GLY SER ILE VAL SER LEU GLU ALA S462 P463 Y464 D465 D466 F467 L468 R469 E470 Q471 R472 L473 D474 N475 D476 I477 A478 P479 V480 E481 Q482 I483 A484 M485 L486 A487 T488 S489 R490 G491 Q492 V493 Y494 Q495 V496 M497 S498 E499 M500 A501 L502 A511
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D759 P760 E761 A762 P763 L764 K765 F766 L767 K768 E769 A770 S771 R772 L773 L774 P775 H776 N777 K778 D779 I780 L781 T782 V783 I784 S785 D786 T787 I788 D789 G790 L791 V792 E793 K794 E795 L796 L797 E798 L799 D800 G801 P802 Q803 I804 A805 V806 L807 A808 S809 C810 L811 Q812 F813 L814 H815 A816 A817 L818
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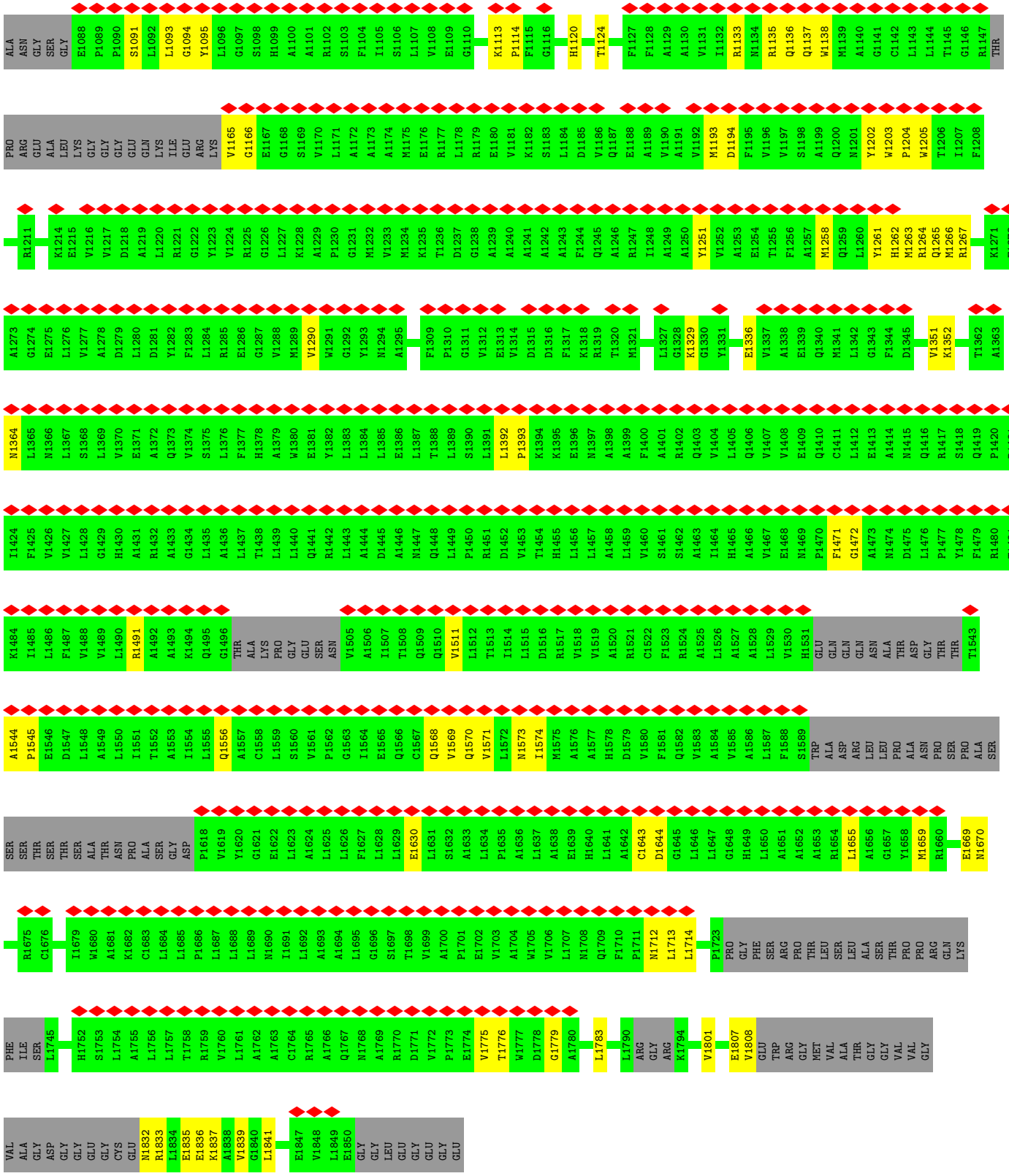
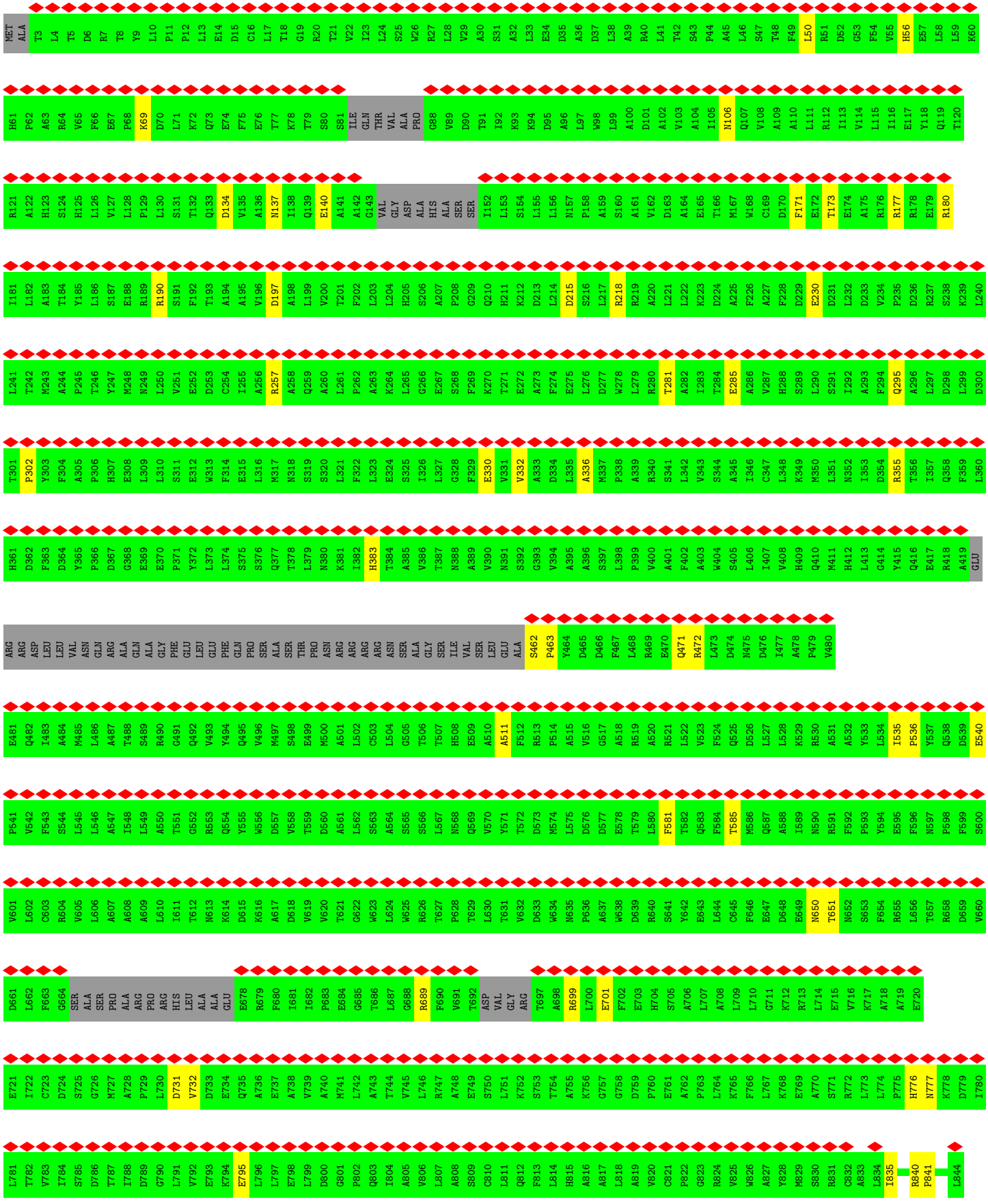


• Molecule 8: NUP188

Chain F2: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H61 P62 A63 R64 V65 F66 E67 P68 K69 D70 L71 K72 Q73 E74 F75 E76 T77 K78 T79 S80 S81 ILE GLN THR VAL ALA PRO G88 V89 D90 T91 I92 K93 K94 D95 A96 L97 W98 L99 A100 D101 A102 V103 A104 I105 N106 Q107 V108 A109 A110 L111 R112 I113 V114 L115 I116 E117 Y118 Q119 T120
R121 A122 H123 S124 H125 L126 V127 L128 P129 L130 S131 T132 Q133 D134 V135 A136 N137 I138 Q139 E140 A141 A142 G143 VAL GLY ASP ALA HIS ALA SER SER I152 L153 S154 L155 L156 N157 P158 A159 S160 A161 V162 D163 A164 E165 T166 M167 W168 C169 D170 F171 E172 T173 E174 A175 R176 R177 R178 E179 R180
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H361 D362 F363 D364 Y365 P366 D367 G368 E369 E370 P371 Y372 L373 L374 S375 S376 Q377 T378 L379 N380 K381 I382 H383 T384 A385 V386 T387 N388 A389 V390 N391 S392 G393 V394 A395 A396 S397 L398 P399 V400 A401 F402 A403 W404 S405 L406 I407 V408 H409 Q410 M411 H412 L413 G414 Y415 Q416 E417 R418 A419 GLU
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E481 Q482 I483 A484 M485 L486 A487 T488 S489 R490 G491 Q492 V493 Y494 Q495 V496 M497 S498 E499 M500 A501 L502 C503 L504 G505 T506 T507 H508 E509 A510 A511 F512 R513 P514 A515 V516 G517 A518 R519 A520 R521 L522 V523 F524 Q525 D526 L527 L528 K529 R530 A531 A532 Y533 L534 I535 P536 Y537 Q538 D539 E540
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V601 L602 C603 R604 V605 L606 A607 A608 A609 L610 I611 T612 N613 K614 D615 K616 A617 D618 V619 V620 T621 G622 W623 L624 W625 R626 T627 P628 T629 L630 T631 V632 D633 W634 N635 P636 A637 W638 D639 R640 S641 Y642 E643 L644 C645 F646 E647 D648 E649 N650 T651 N652 S653 F654 R655 L656 T657 R658 D659 V660
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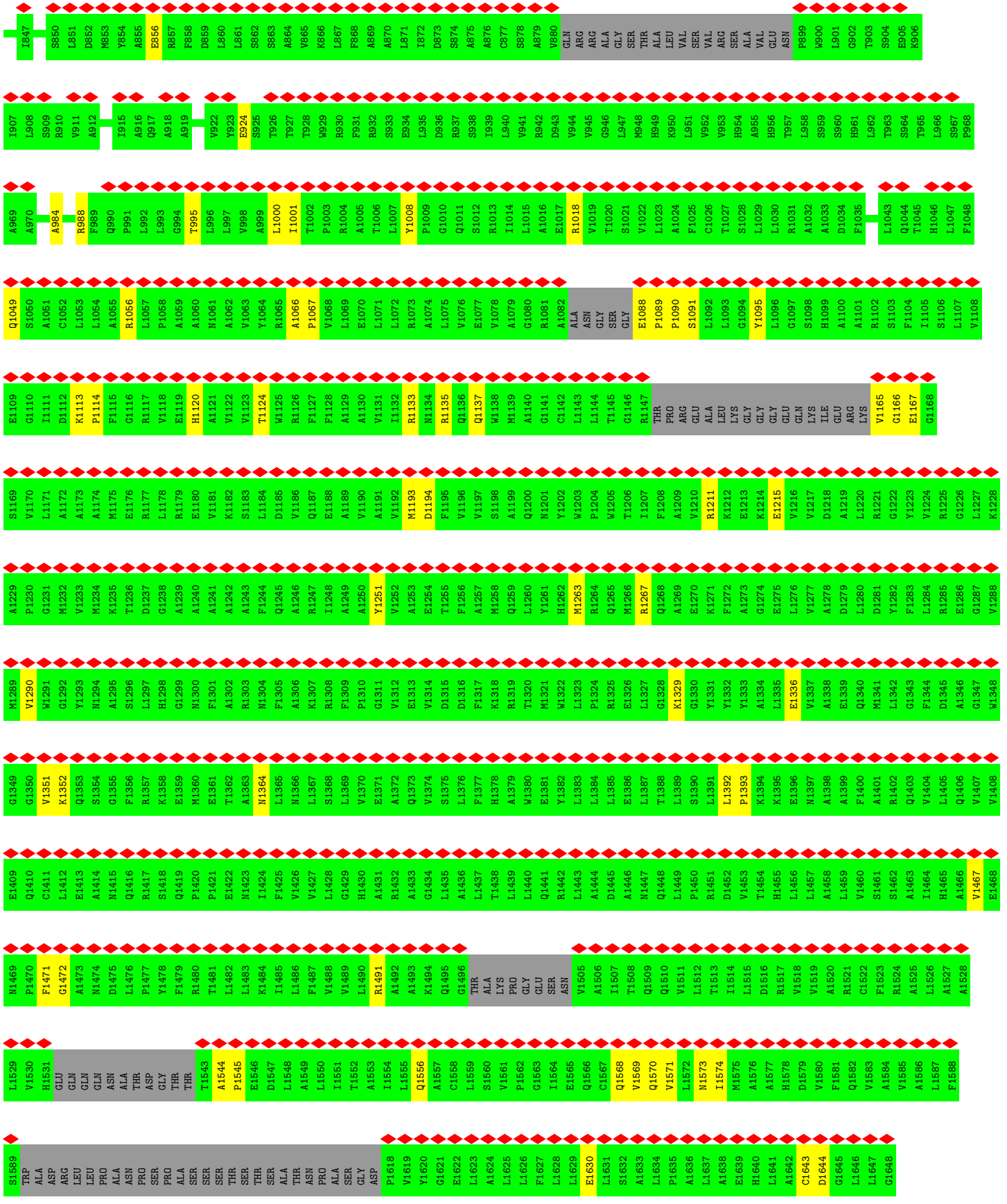
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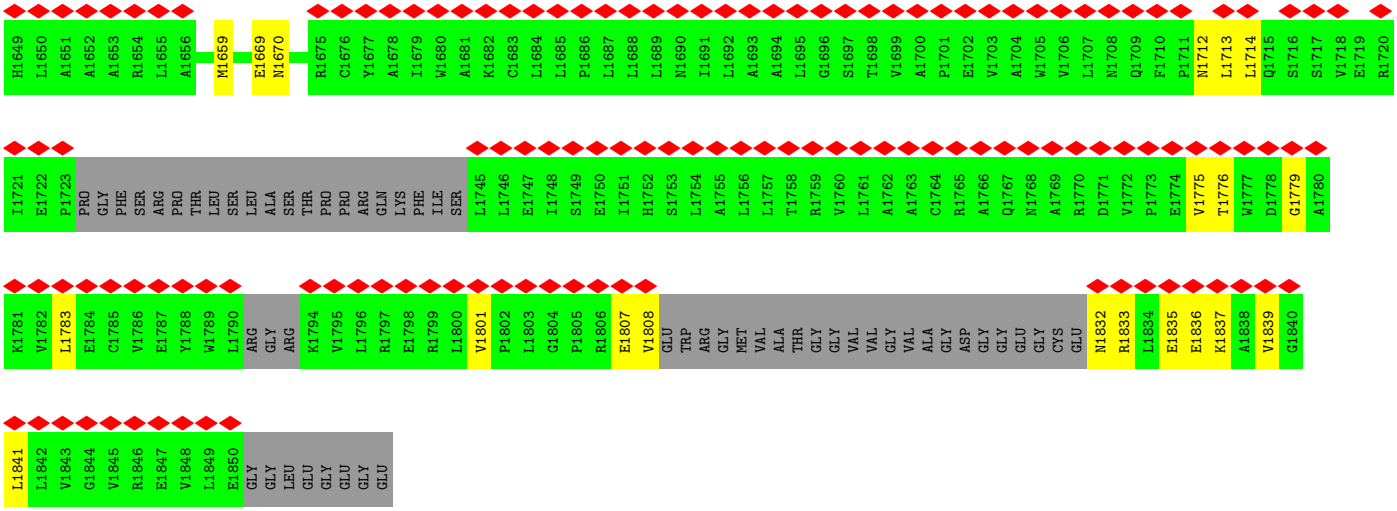

- Molecule 9: NUP93 R2

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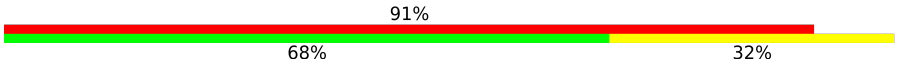

- Molecule 9: NUP93 R2

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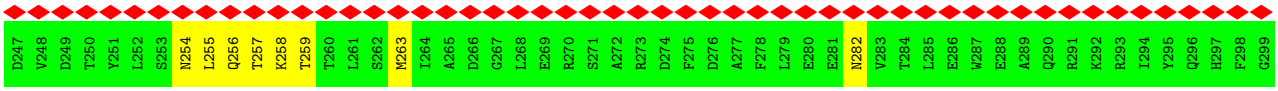

- Molecule 10: NUP98 R2

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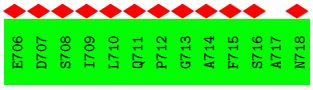

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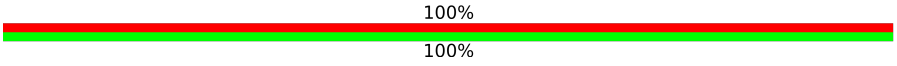

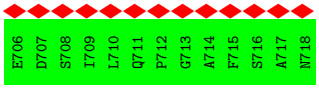

- Molecule 11: NUP205

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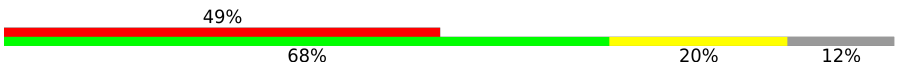

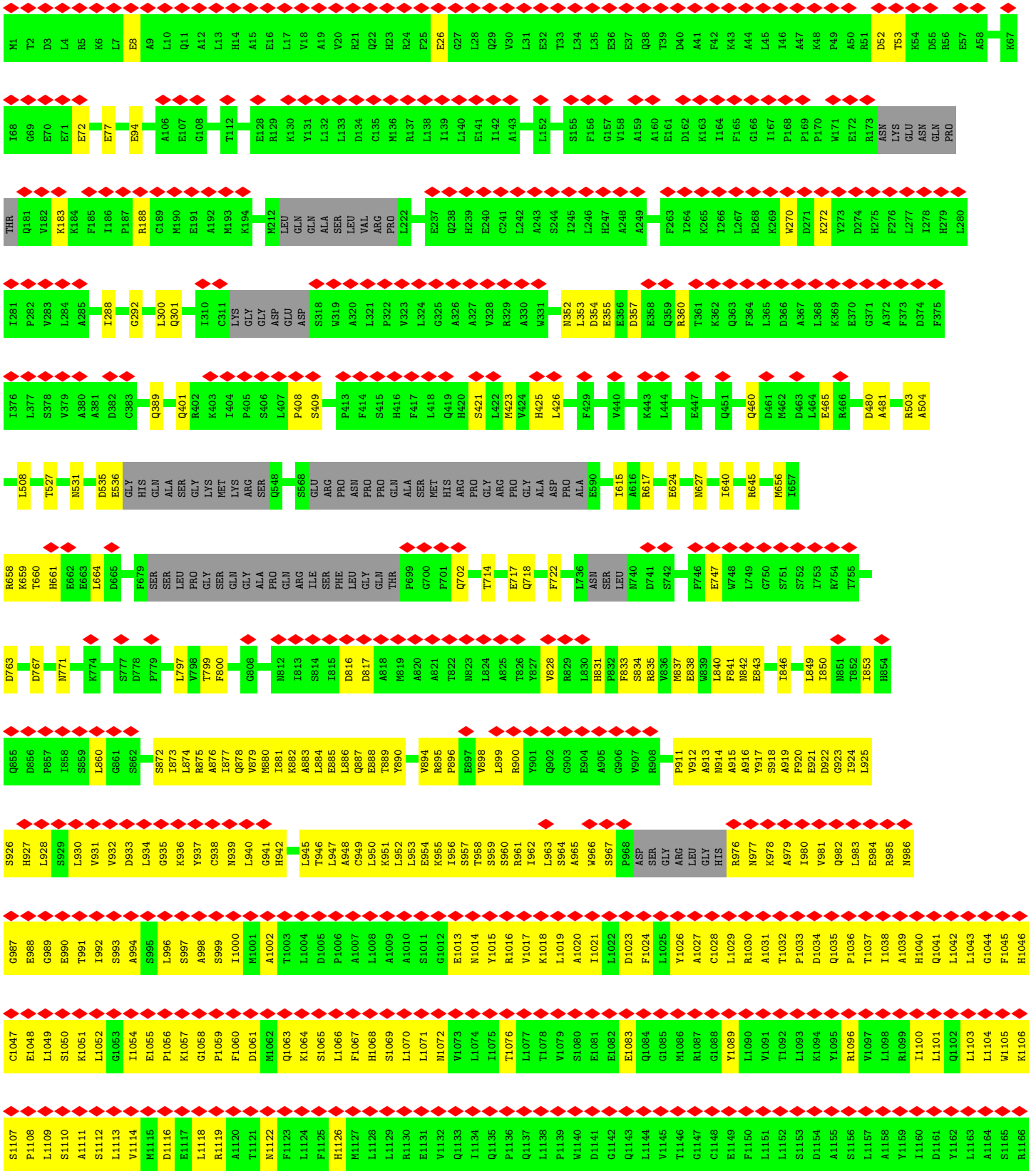
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THR Q181 V182 K183 K184 F185 I186 P187 R188 C189 M190 E191 A192 M193 K194 M212 LEU GLN GLN ALA SER LEU VAL ARG PRO L222 E237 Q238 H239 E240 C241 L242 A243 S244 I245 L246 H247 A248 A249 F263 I264 K265 I266 L267 R268 K269 W270 D271 K272 Y273 D274 H275 F276 L277 I278 H279 L280
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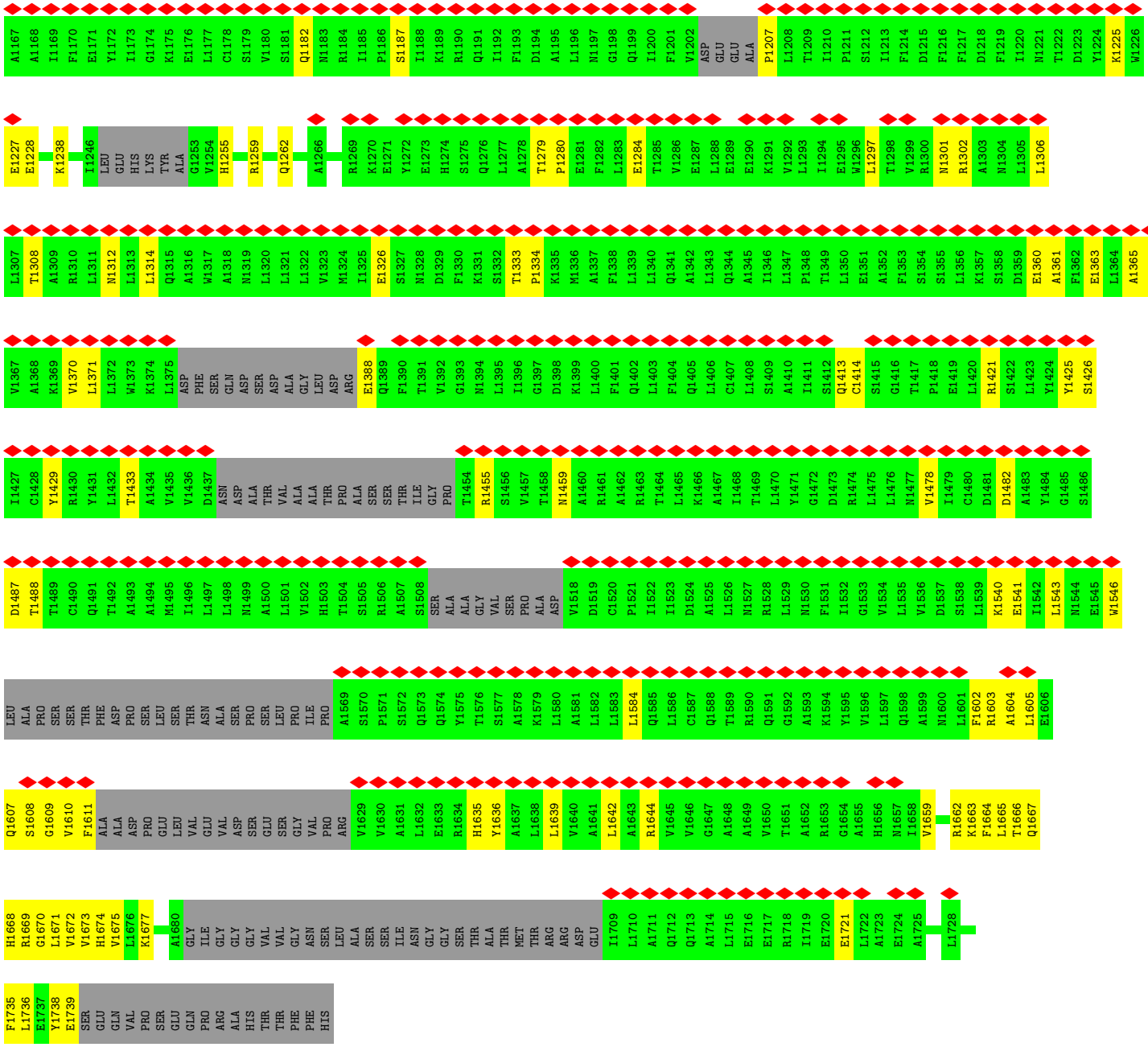

- Molecule 11: NUP205

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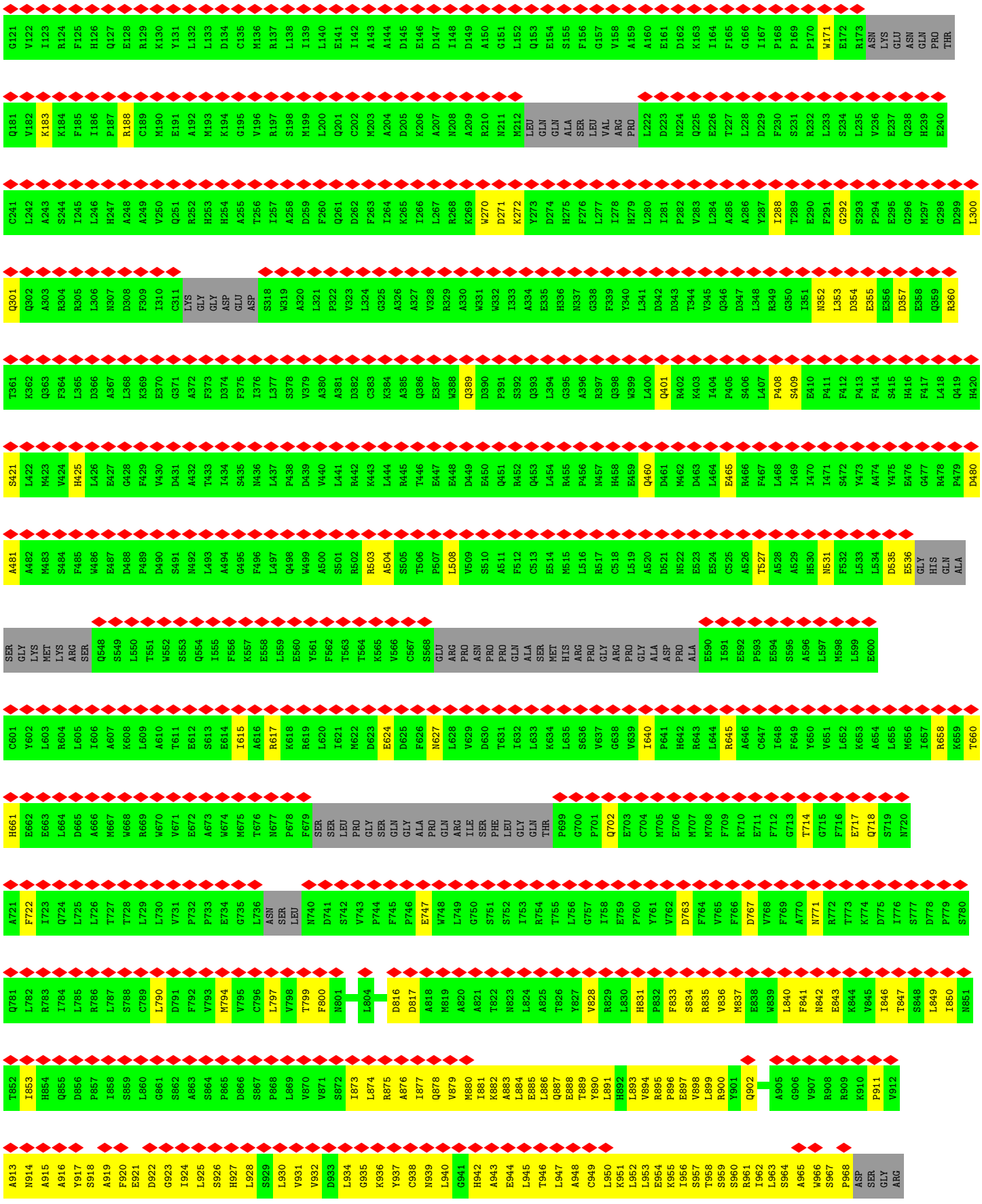
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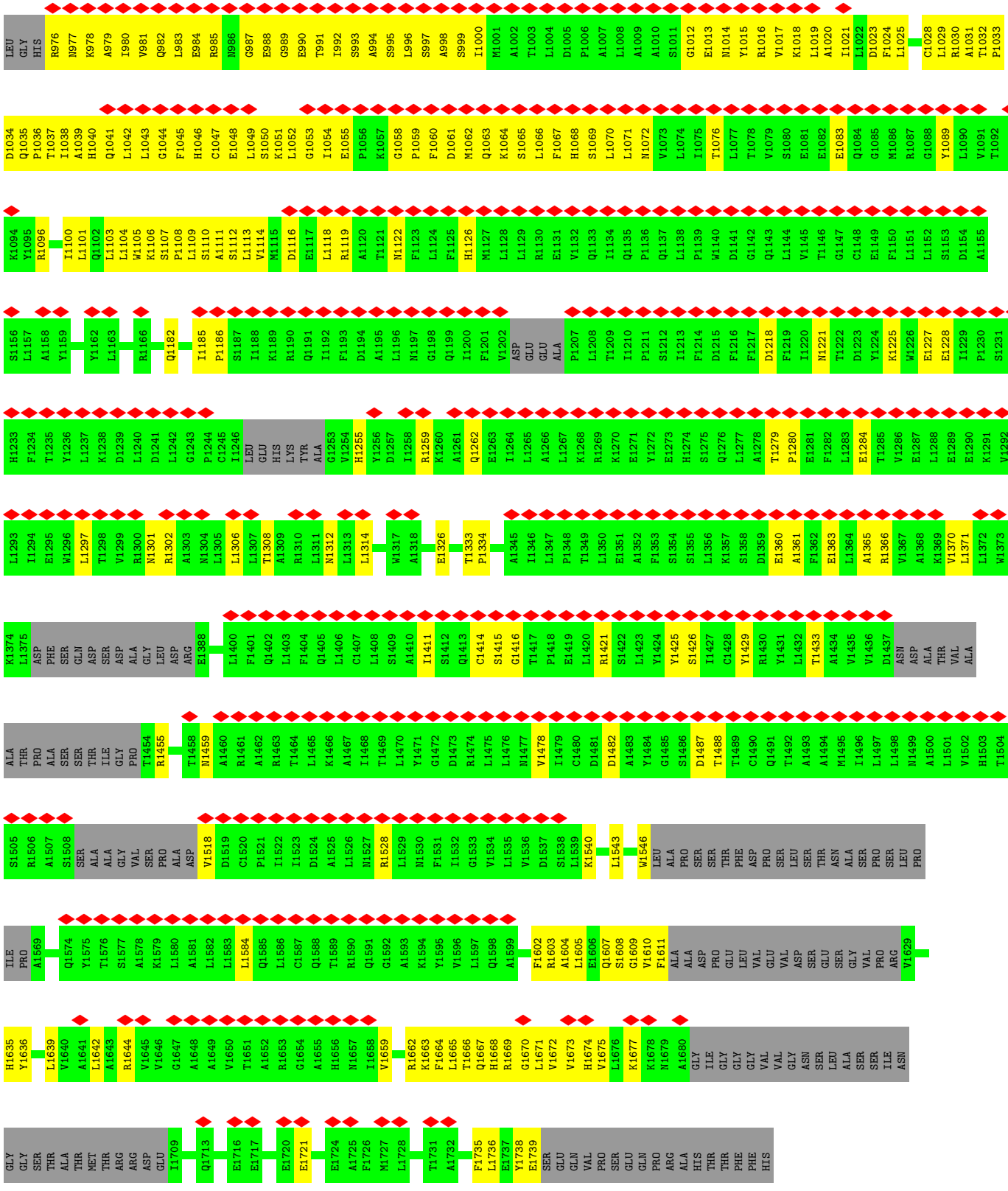

• Molecule 11: NUP205

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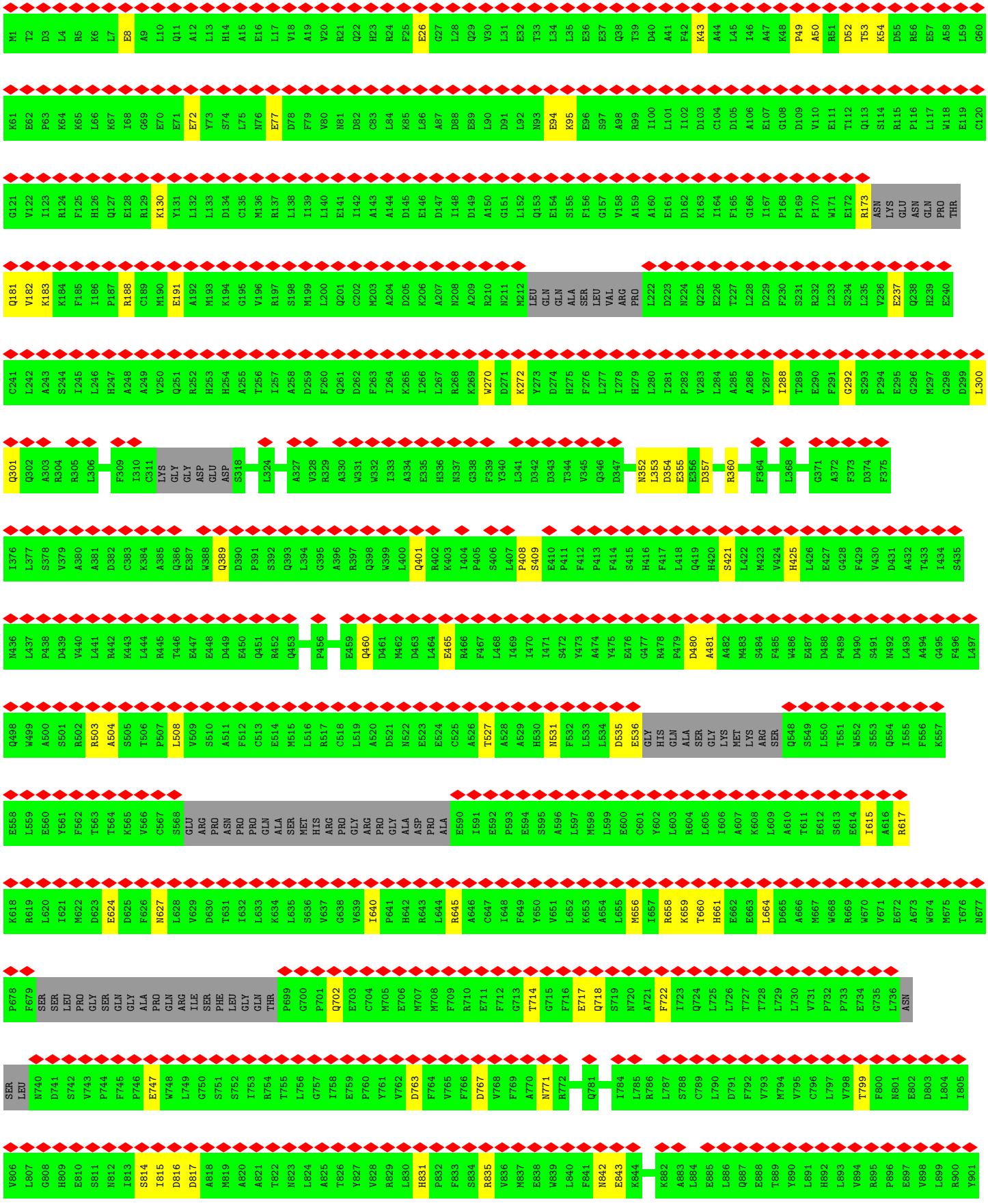
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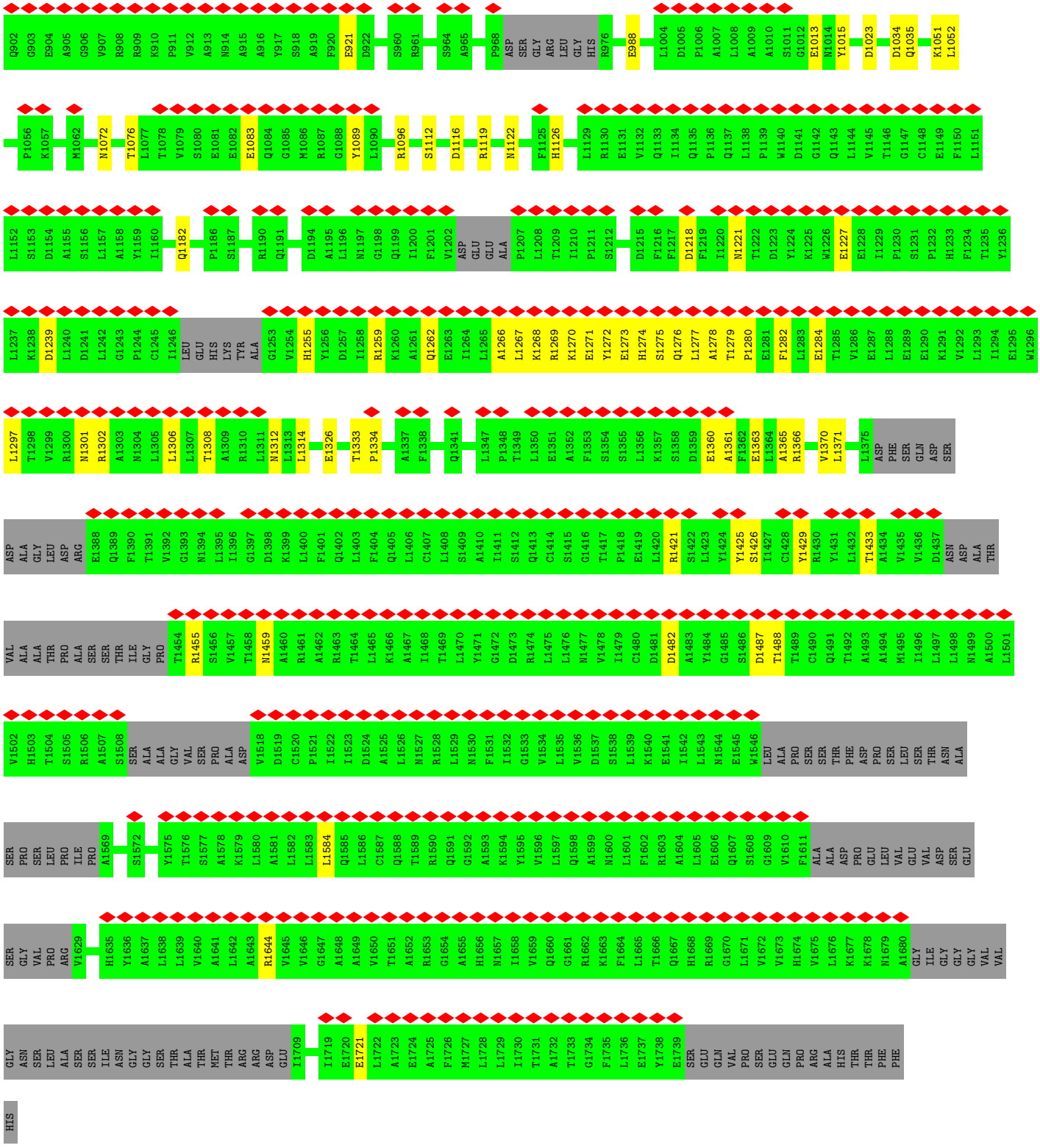
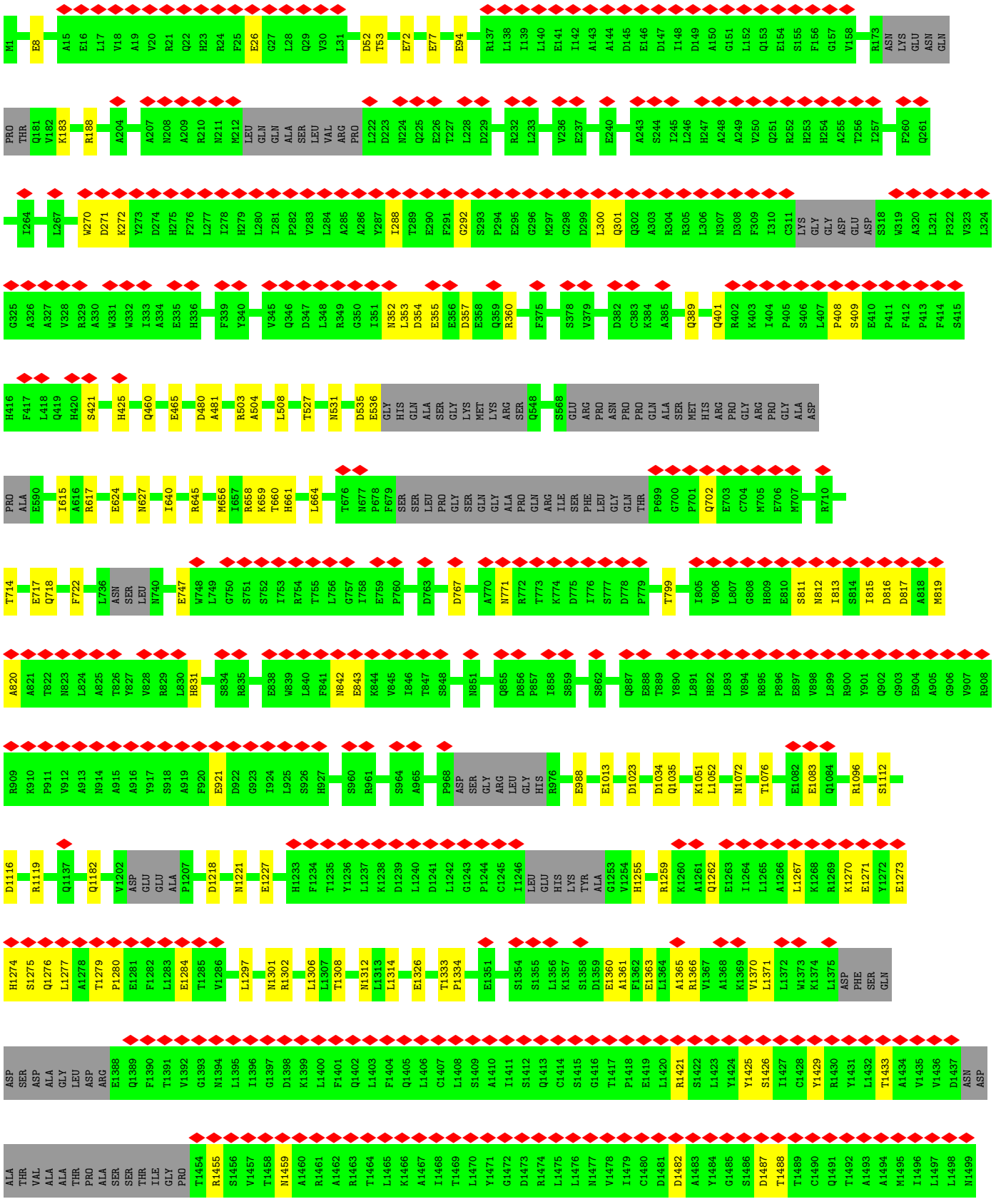


- Molecule 11: NUP205

Chain I4: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ASP SER ASP ALA GLY LEU ASP ARG E1388 Q1389 F1390 T1391 V1392 G1393 N1394 L1395 I1396 G1397 D1398 K1399 L1400 F1401 Q1402 L1403 F1404 Q1405 L1406 C1407 L1408 S1409 A1410 I1411 S1412 Q1413 C1414 S1415 G1416 T1417 P1418 E1419 L1420 R1421 S1422 L1423 Y1424 Y1425 S1426 I1427 C1428 Y1429 R1430 Y1431 L1432 T1433 A1434 M1435 V1436 D1437 ASN ASP
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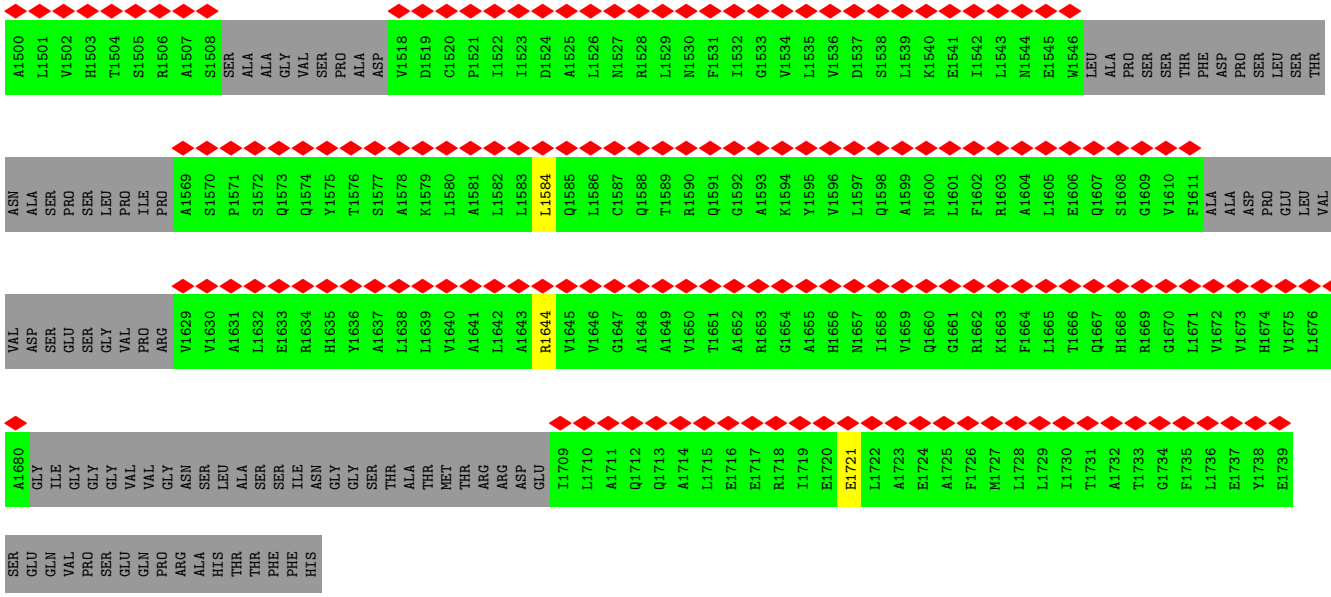
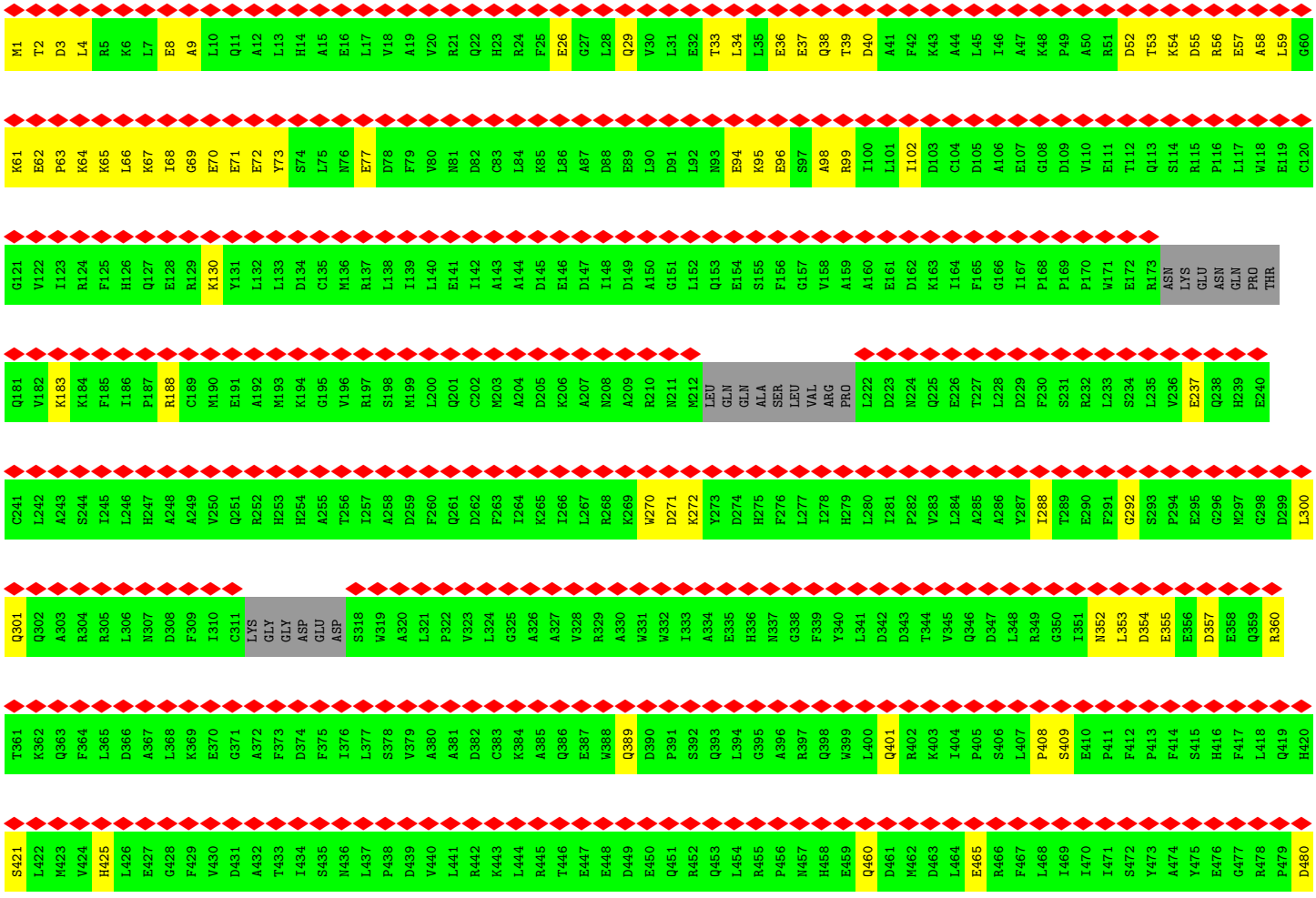
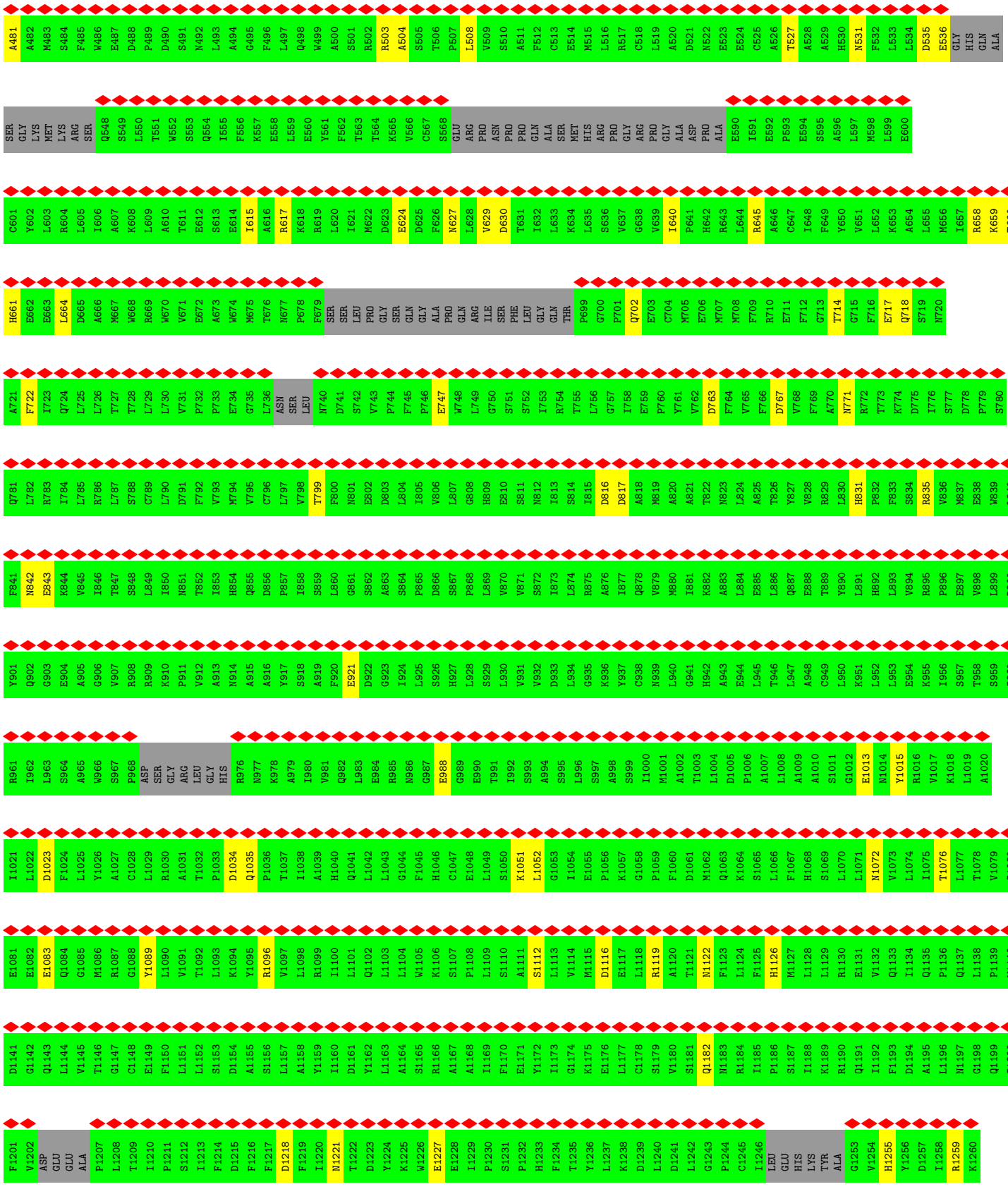


• Molecule 11: NUP205

Chain I5:

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SER GLY LYS MET LYS ARG SER Q548 S549 L550 T551 W552 S553 Q554 I555 F556 K557 E558 L559 E560 Y561 F562 T563 T564 K565 V566 C567 S568 GLU ARG PRO ASN PRO PRO GLN ALA SER MET HIS ARG PRO GLY ARG PRO GLY ALA ASP PRO ALA E590 I591 E592 P593 E594 S595 A596 L597 M598 L599 E600
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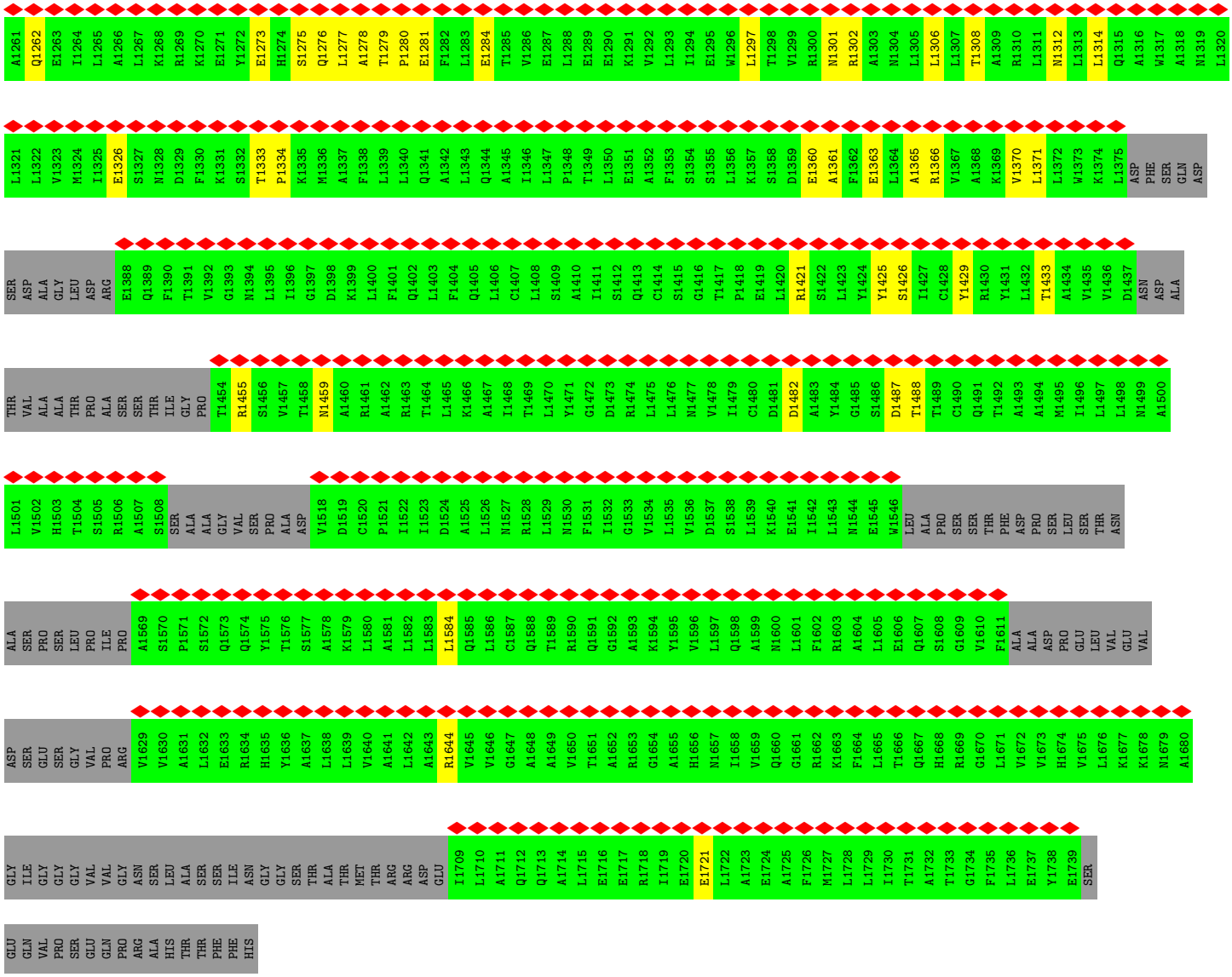

• Molecule 12: NUP93 R2

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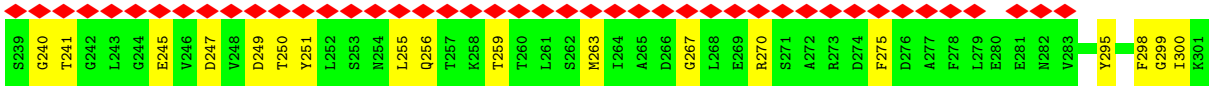

• Molecule 12: NUP93 R2

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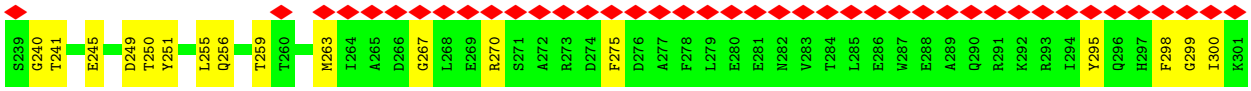

• Molecule 12: NUP93 R2

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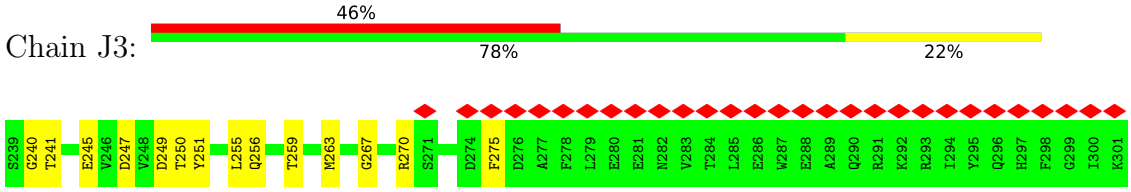
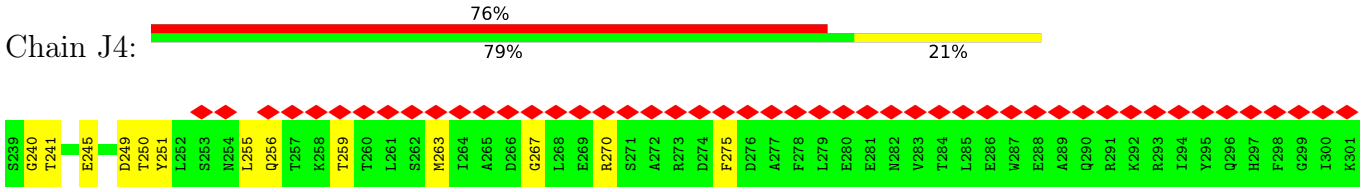


• Molecule 12: NUP93 R2

Chain J4:



• Molecule 12: NUP93 R2

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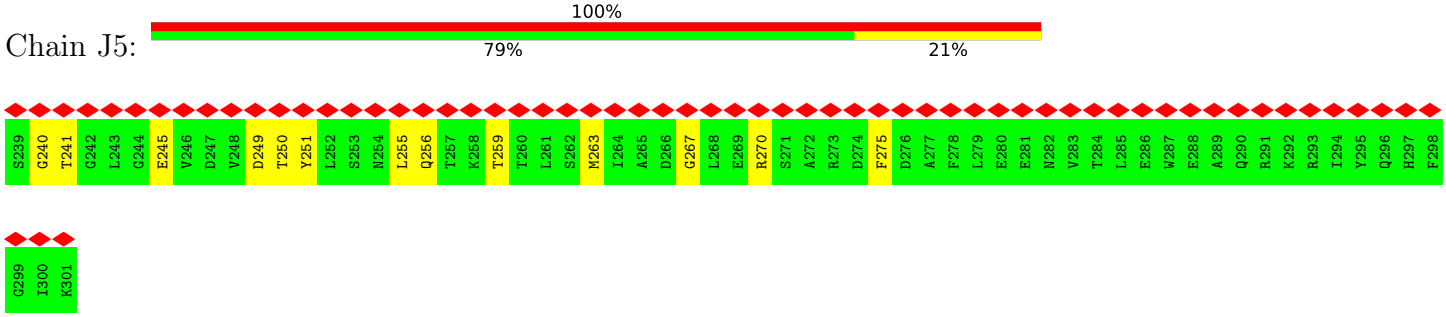
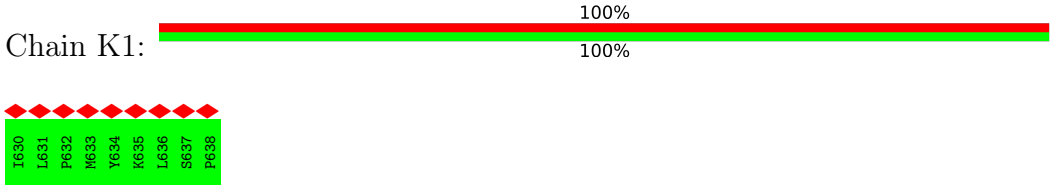


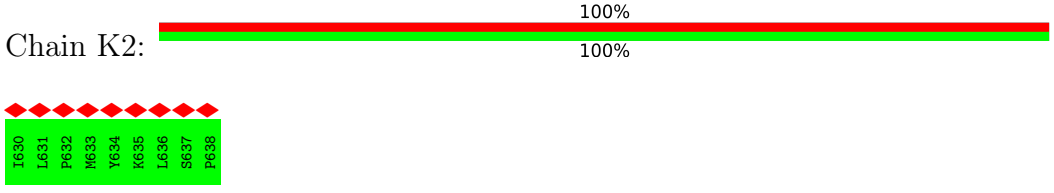
• Molecule 13: NUP98 R1

Chain K1:



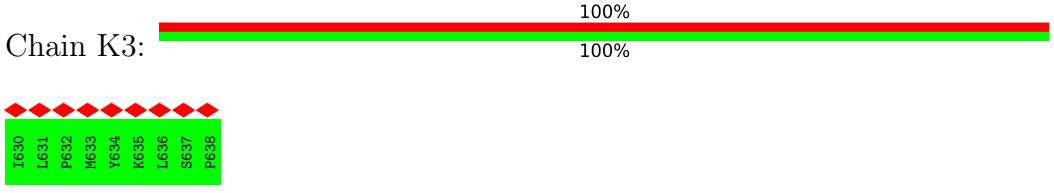
• Molecule 13: NUP98 R1

Chain K2:



• Molecule 13: NUP98 R1

Chain K3:



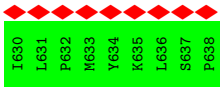
• Molecule 13: NUP98 R1

Chain K4:

There are no outlier residues recorded for this chain.

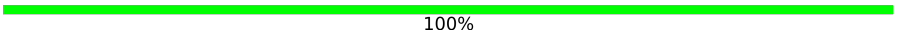
• Molecule 13: NUP98 R1

Chain K5:



• Molecule 14: NUP53 R1

Chain L1:



There are no outlier residues recorded for this chain.

• Molecule 14: NUP53 R1

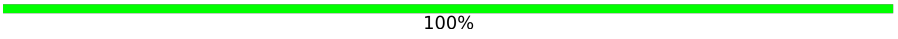
Chain L2:

• Molecule 14: NUP53 R1

Chain L3:

• Molecule 14: NUP53 R1

Chain L4:



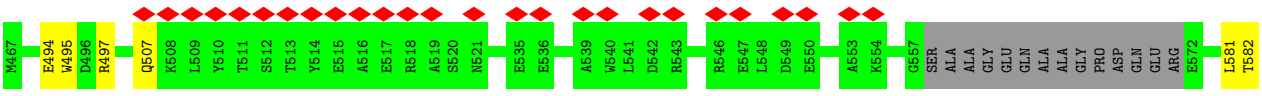
There are no outlier residues recorded for this chain.

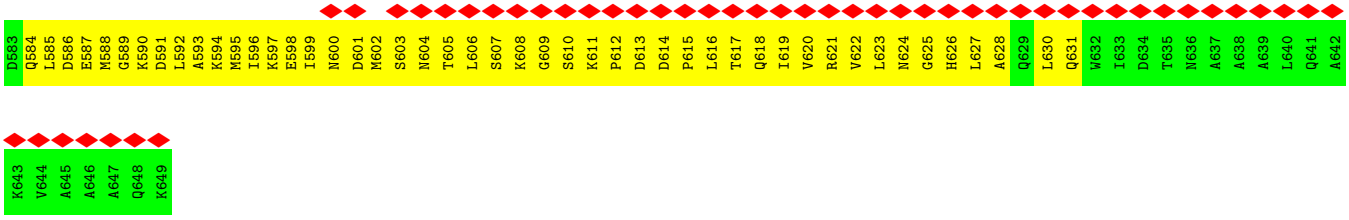
• Molecule 14: NUP53 R1

Chain L5:

• Molecule 15: NUP62

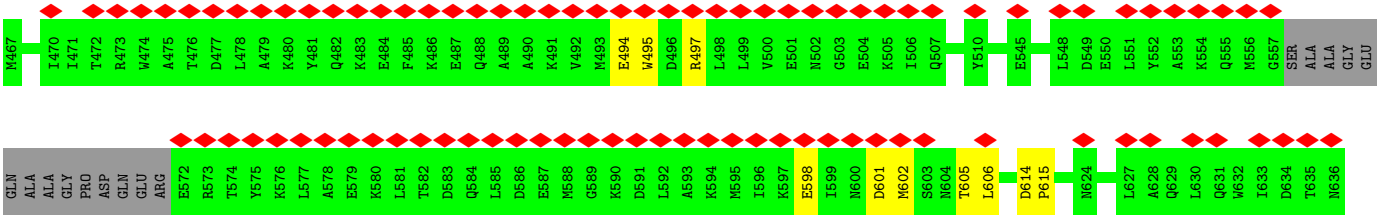
Chain M1:





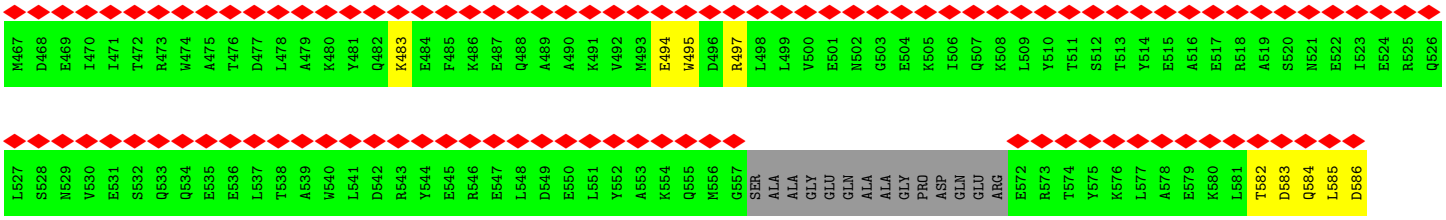
• Molecule 15: NUP62

Chain M2:



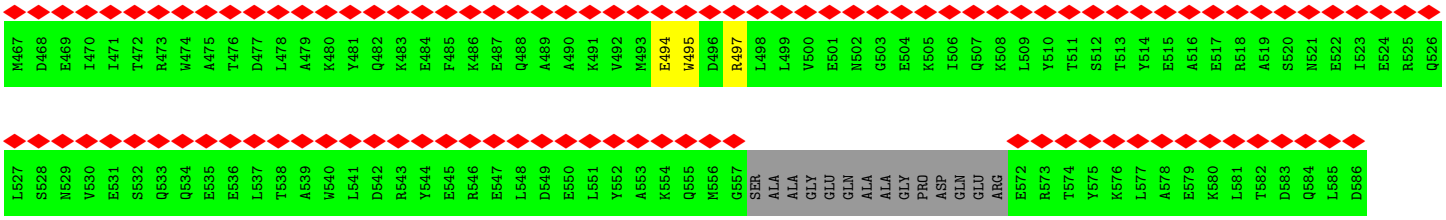
• Molecule 15: NUP62

Chain M3:



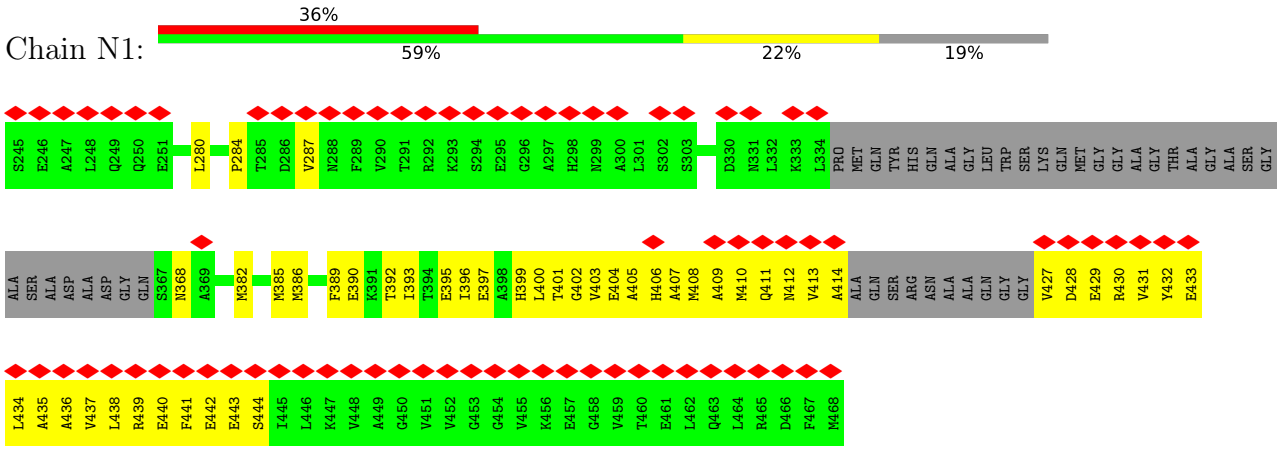
• Molecule 15: NUP62

Chain M4:



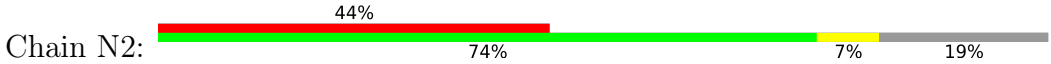
• Molecule 16: NUP58

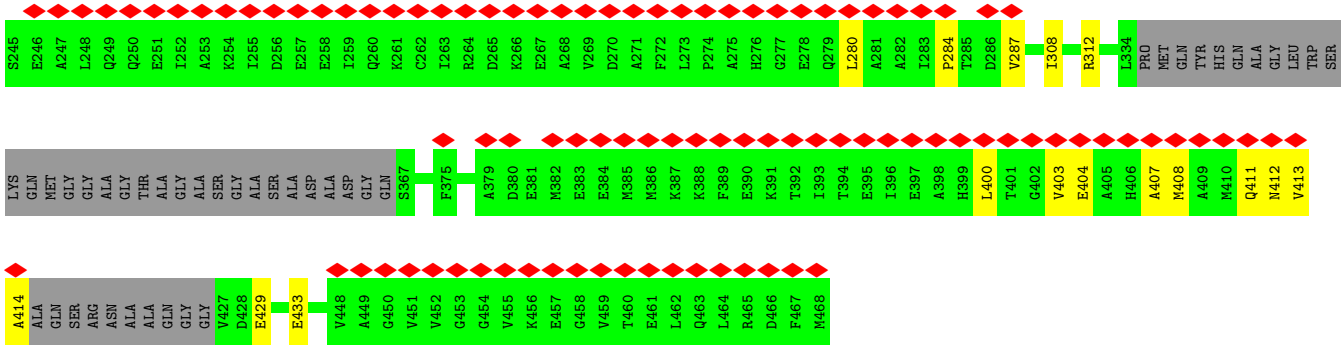
Chain N1:



• Molecule 16: NUP58

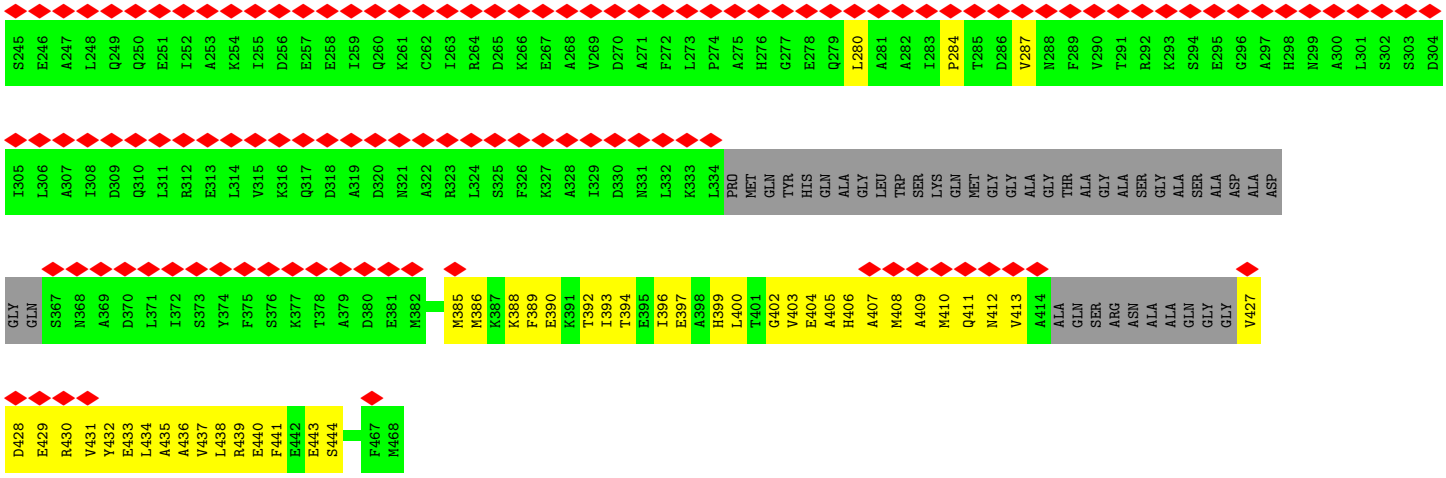
Chain N2:





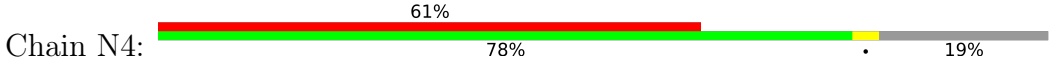
• Molecule 16: NUP58

Chain N3:



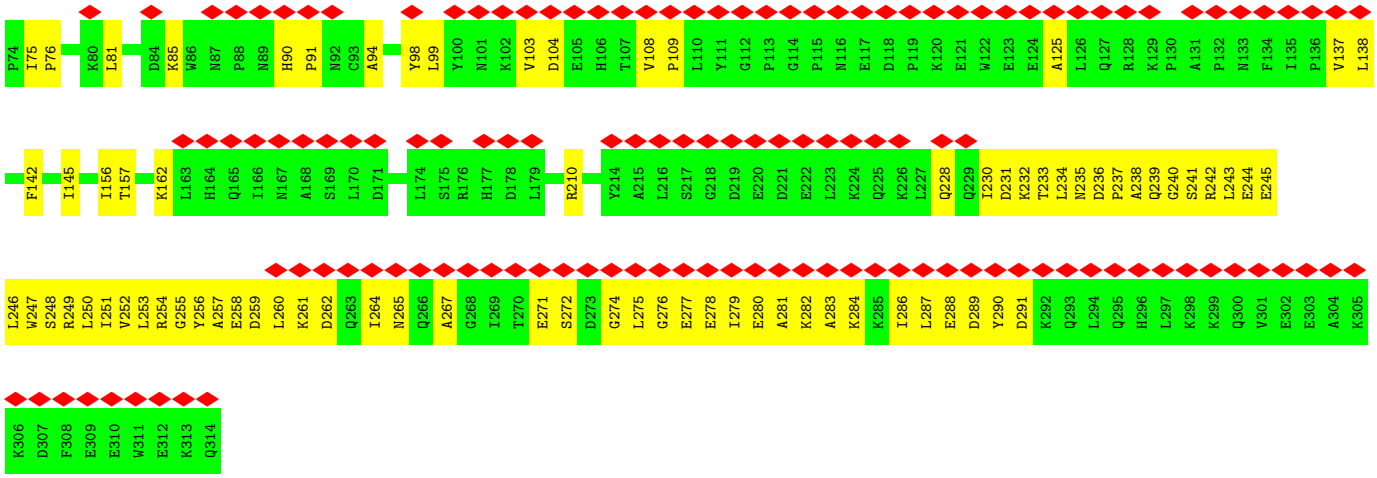
• Molecule 16: NUP58

Chain N4:



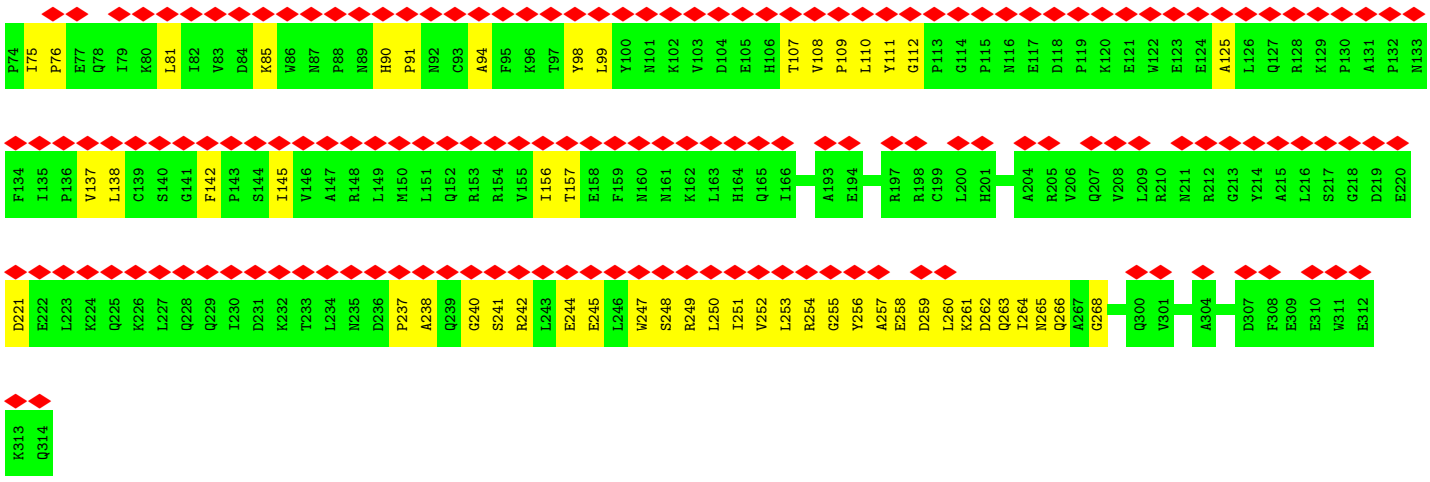
• Molecule 17: NUP54

Chain O1:



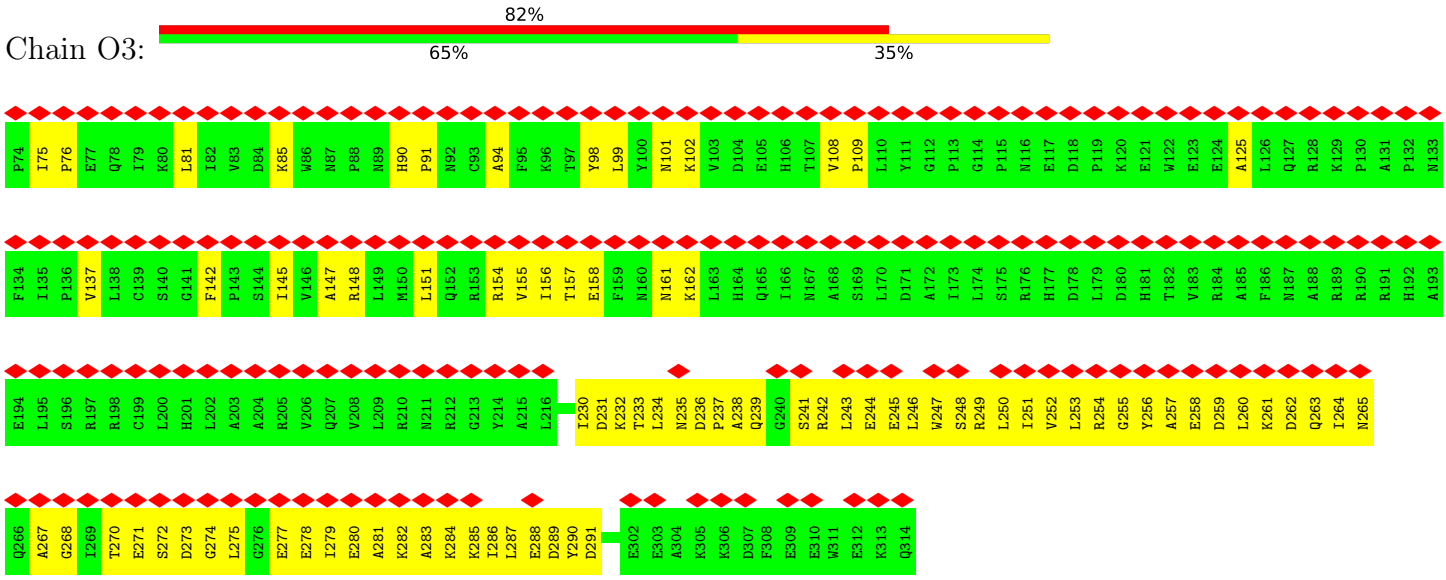
• Molecule 17: NUP54

Chain O2:



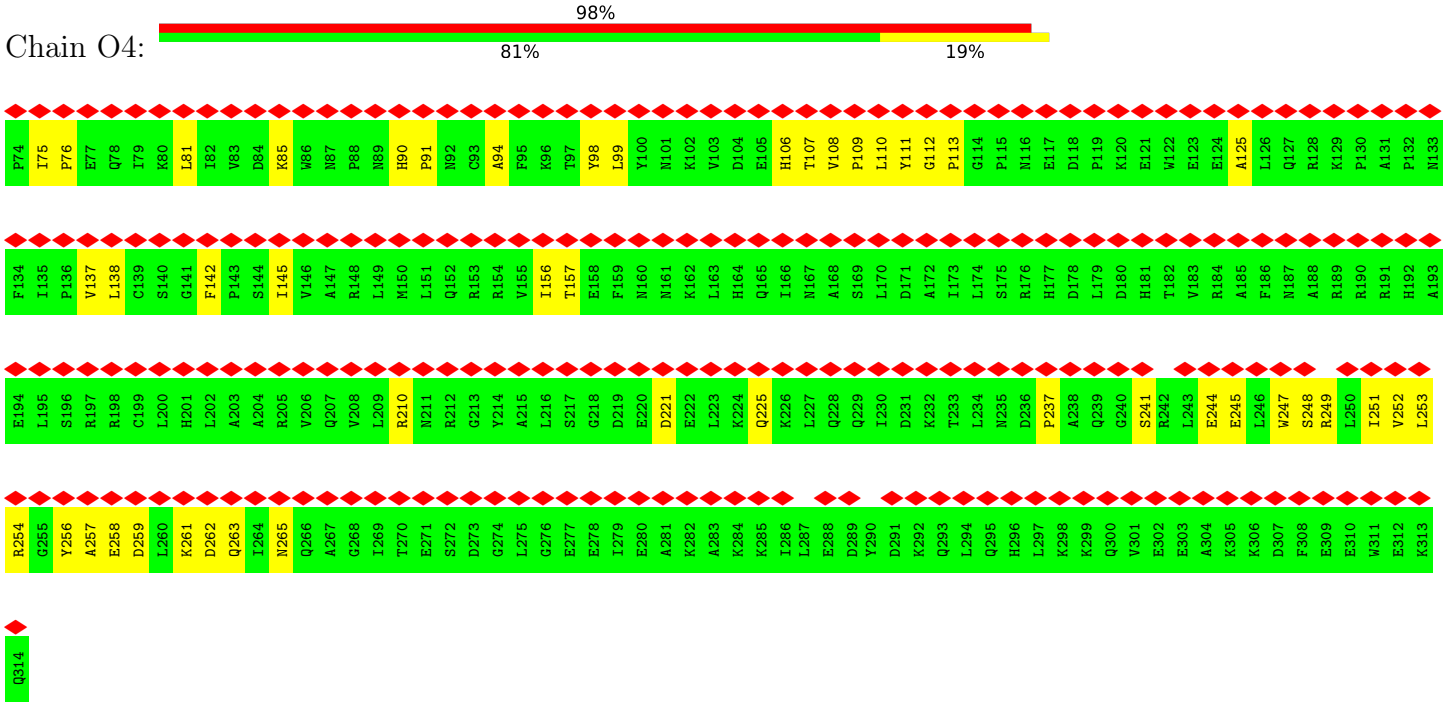
• Molecule 17: NUP54

Chain O3:



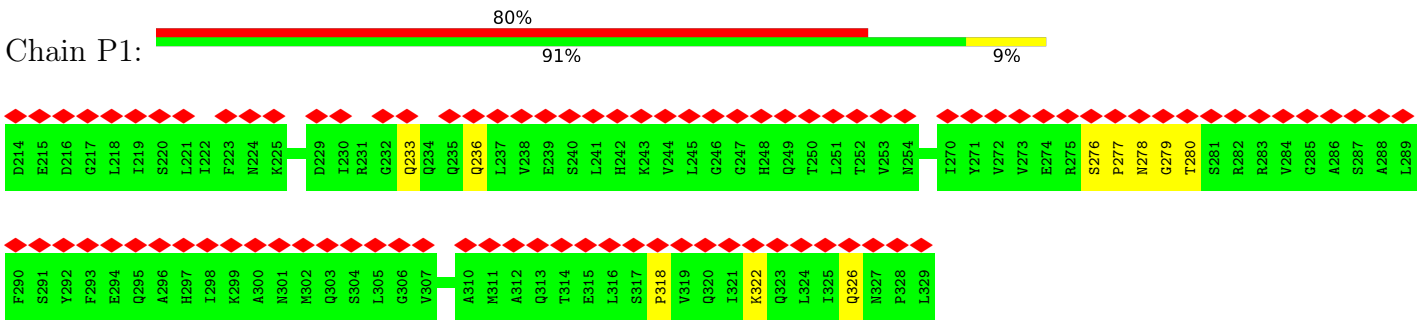
• Molecule 17: NUP54

Chain O4:



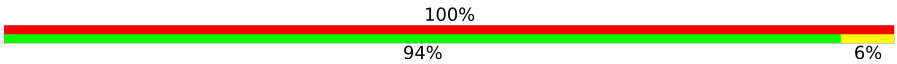
• Molecule 18: NUP54 Ferrodoxin-like domain

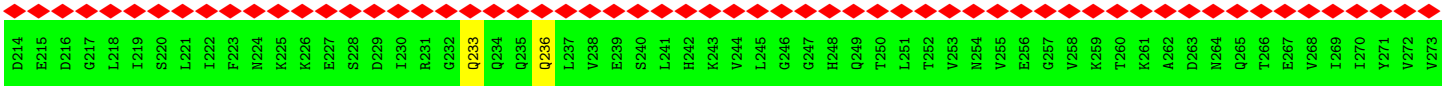
Chain P1:

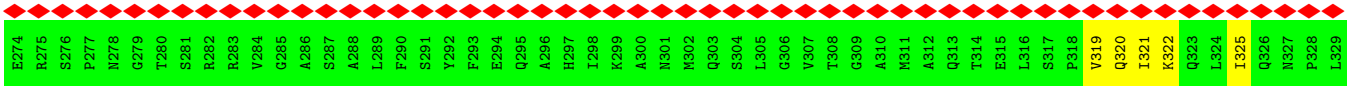


• Molecule 18: NUP54 Ferrodoxin-like domain

Chain P2:

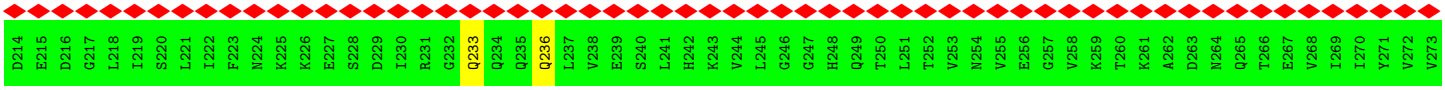


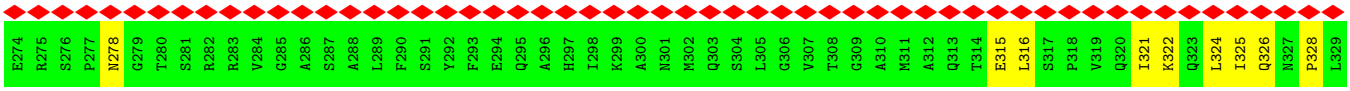




• Molecule 18: NUP54 Ferrodoxin-like domain

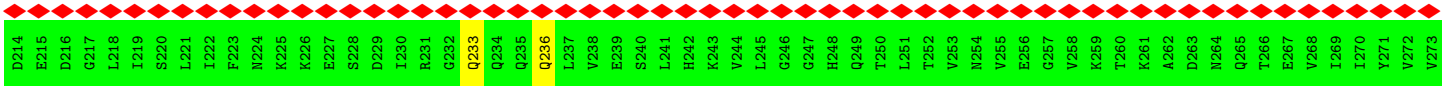
Chain P3:

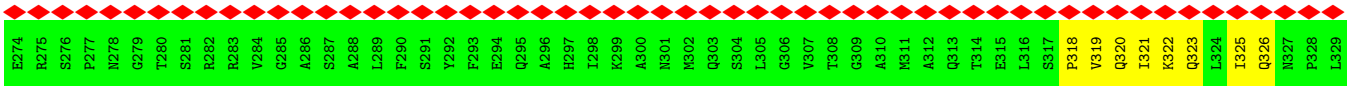




• Molecule 18: NUP54 Ferrodoxin-like domain

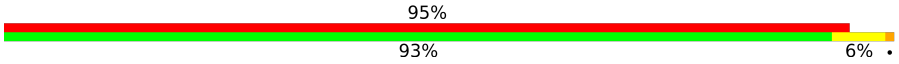
Chain P4:

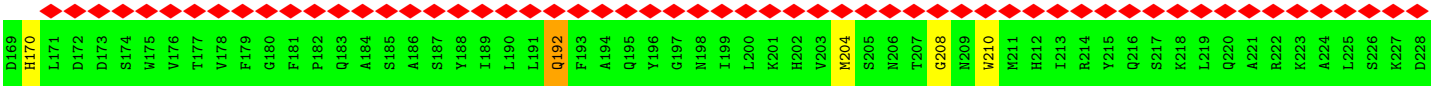


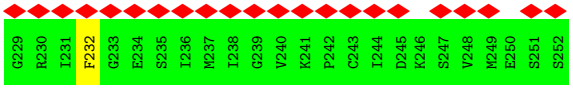


• Molecule 19: NUP54 Ferrodoxin-like domain

Chain Q1:





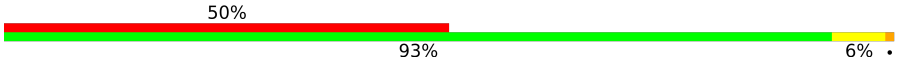


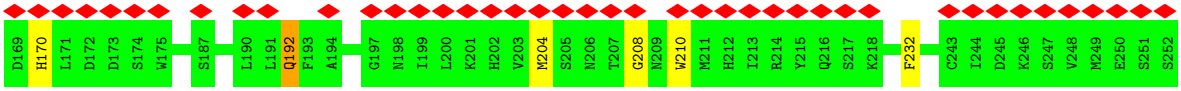
• Molecule 19: NUP54 Ferrodoxin-like domain

Chain Q2:

• Molecule 19: NUP54 Ferrodoxin-like domain

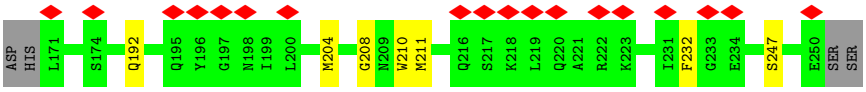
Chain Q3:





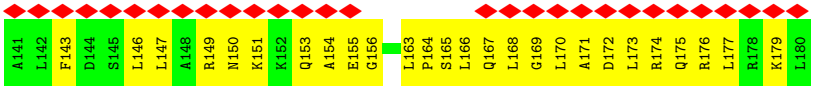
• Molecule 19: NUP54 Ferrodoxin-like domain

Chain Q4:



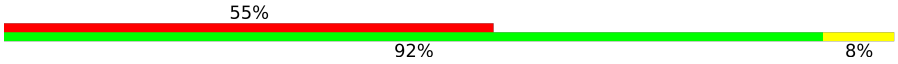
• Molecule 20: NUP93 R1

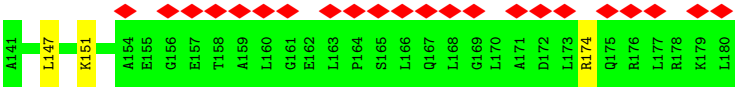
Chain R1:



• Molecule 20: NUP93 R1

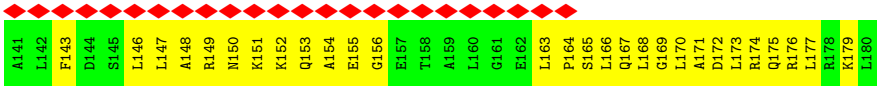
Chain R2:





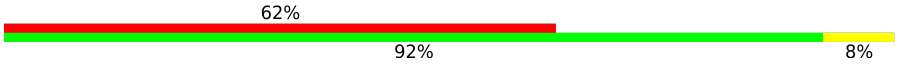
• Molecule 20: NUP93 R1

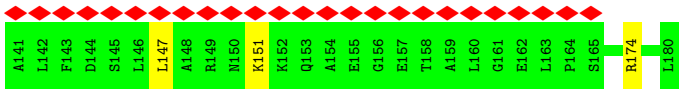
Chain R3:



• Molecule 20: NUP93 R1

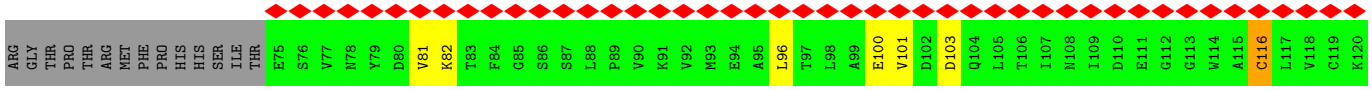
Chain R4:

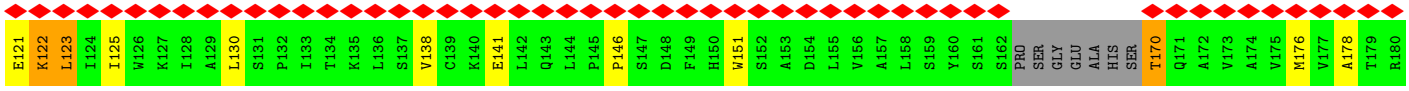


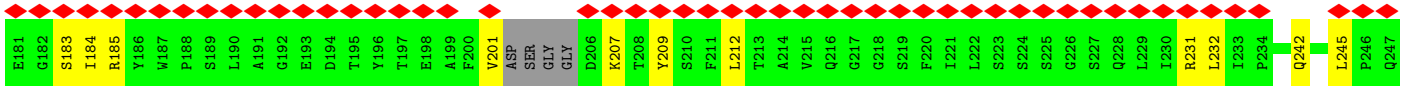


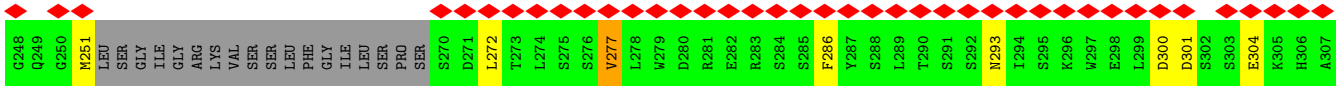
• Molecule 21: NUP133

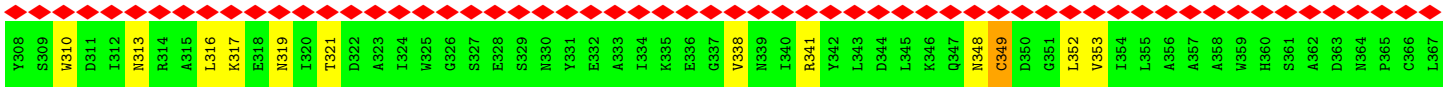
Chain S1:

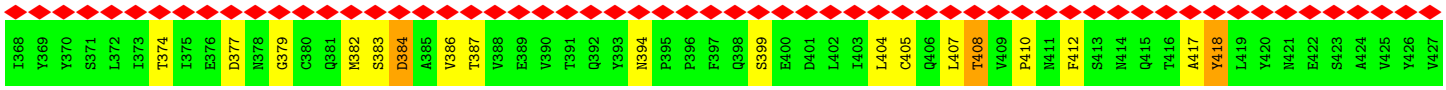


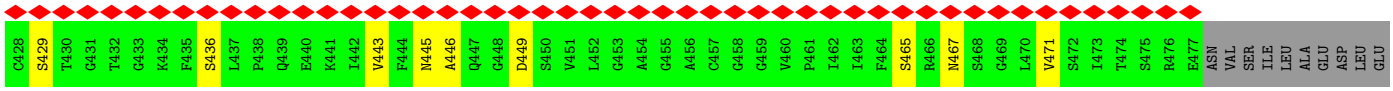


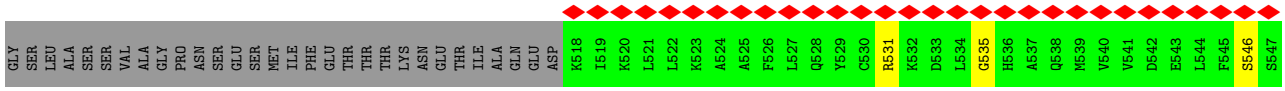


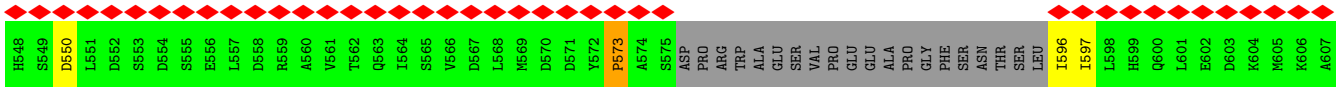


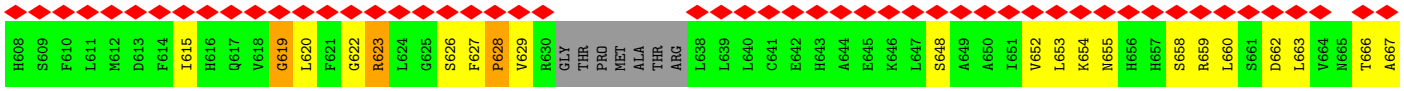


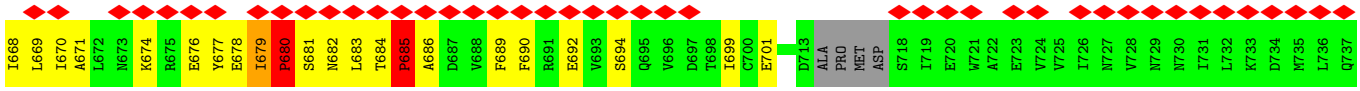


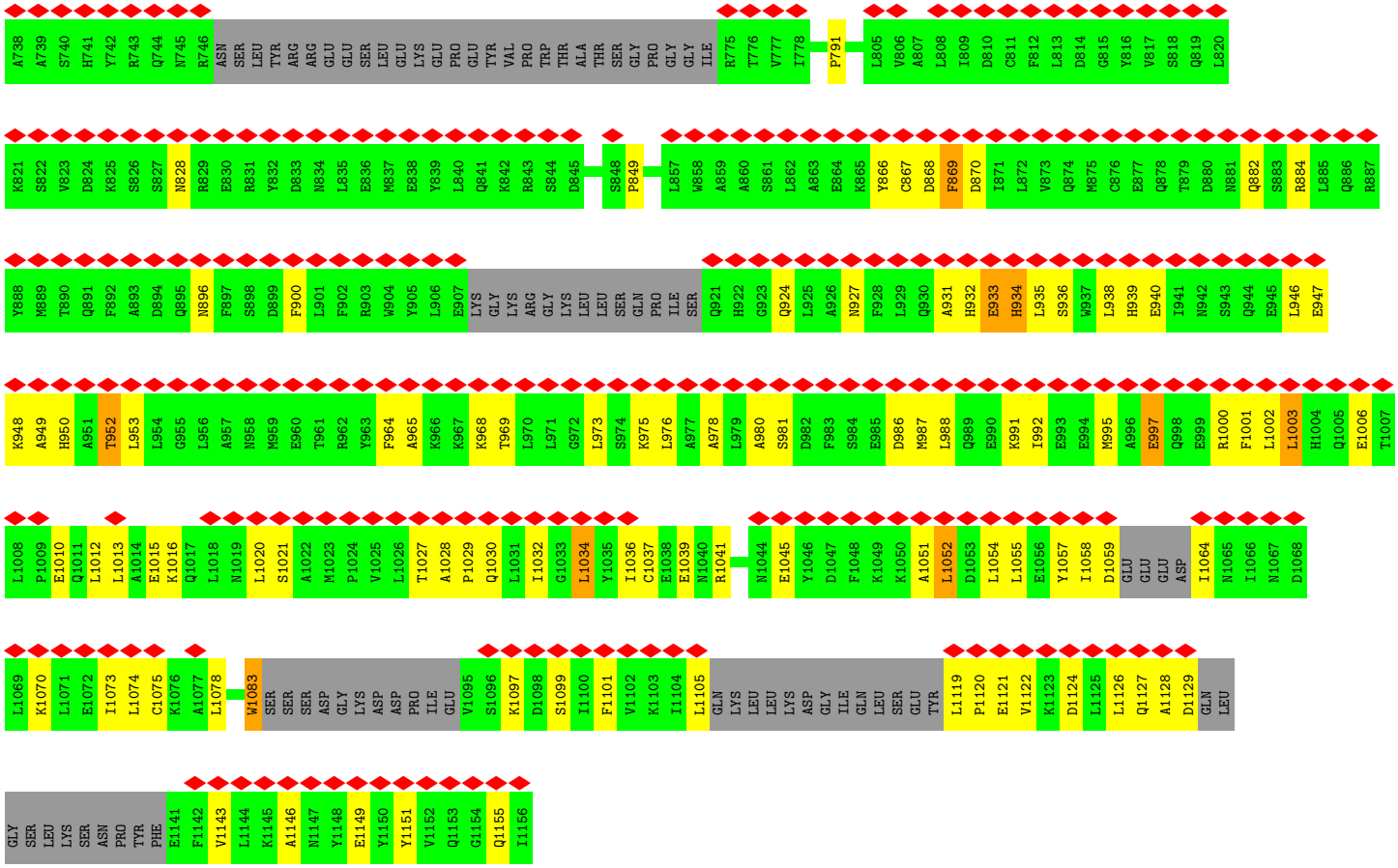






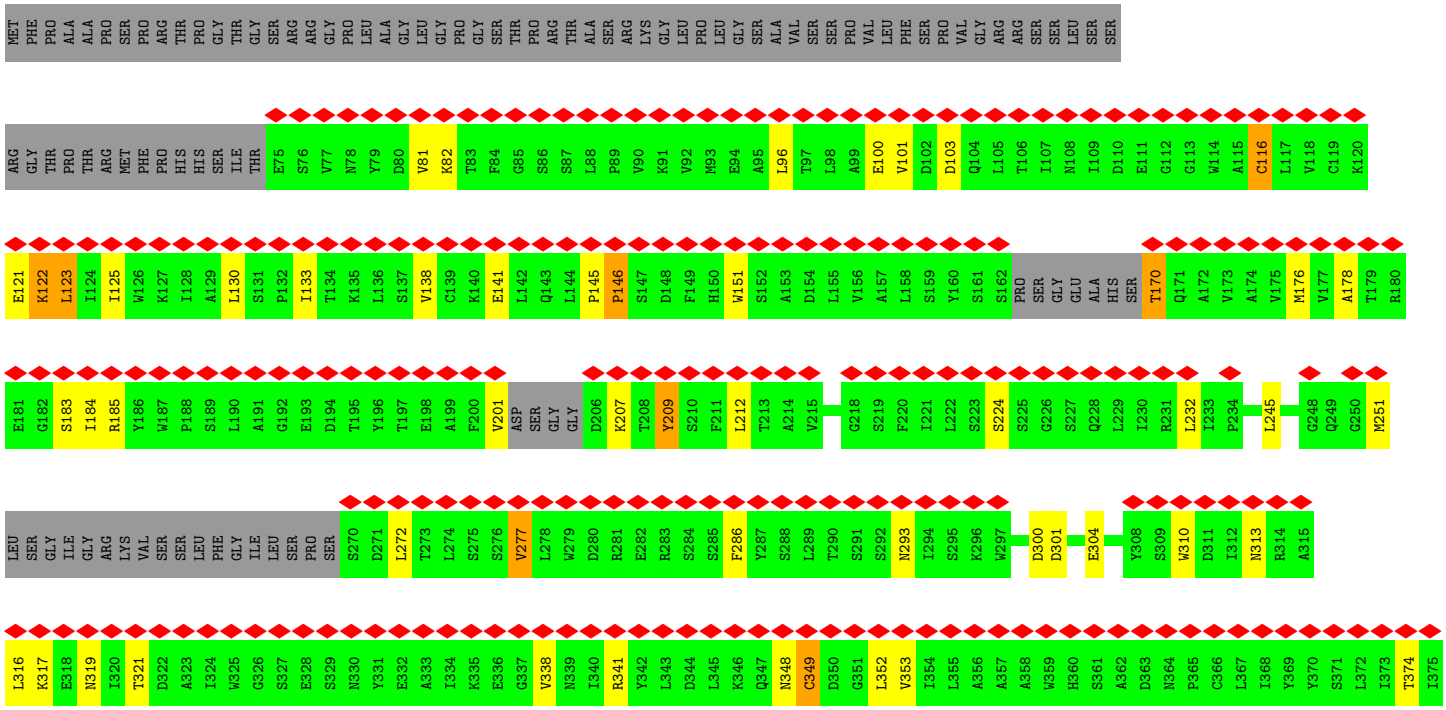


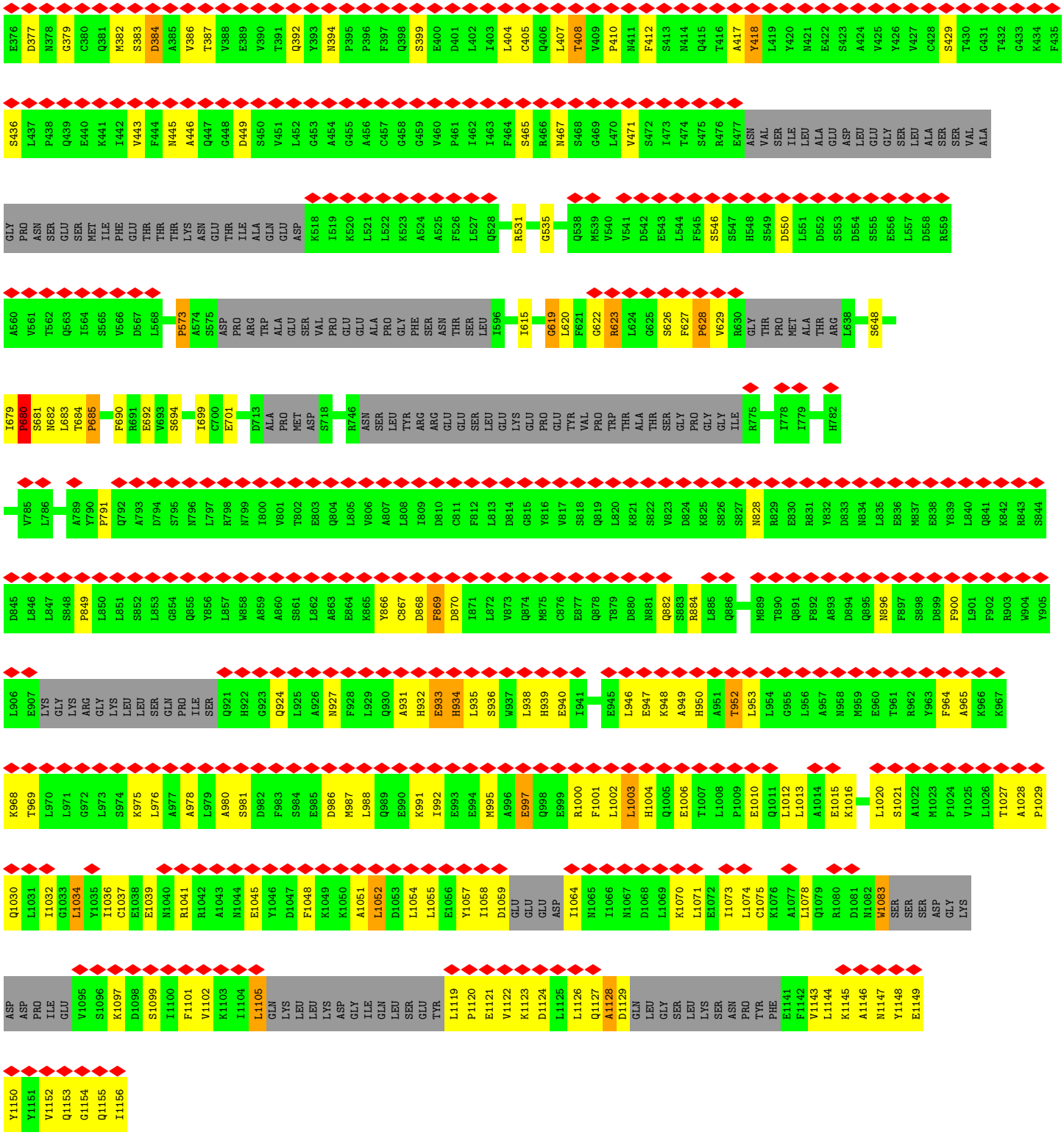




• Molecule 21: NUP133

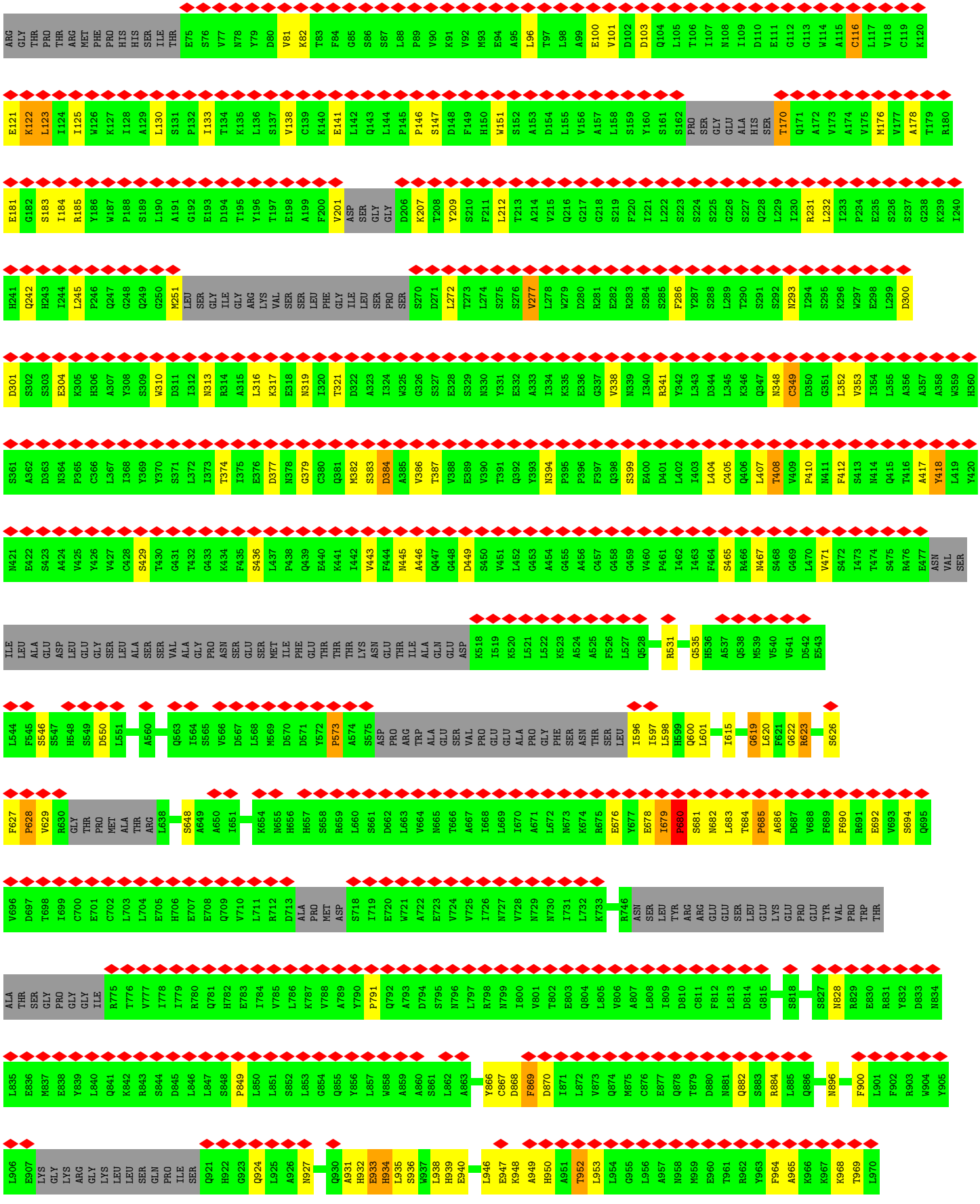
Chain S2:





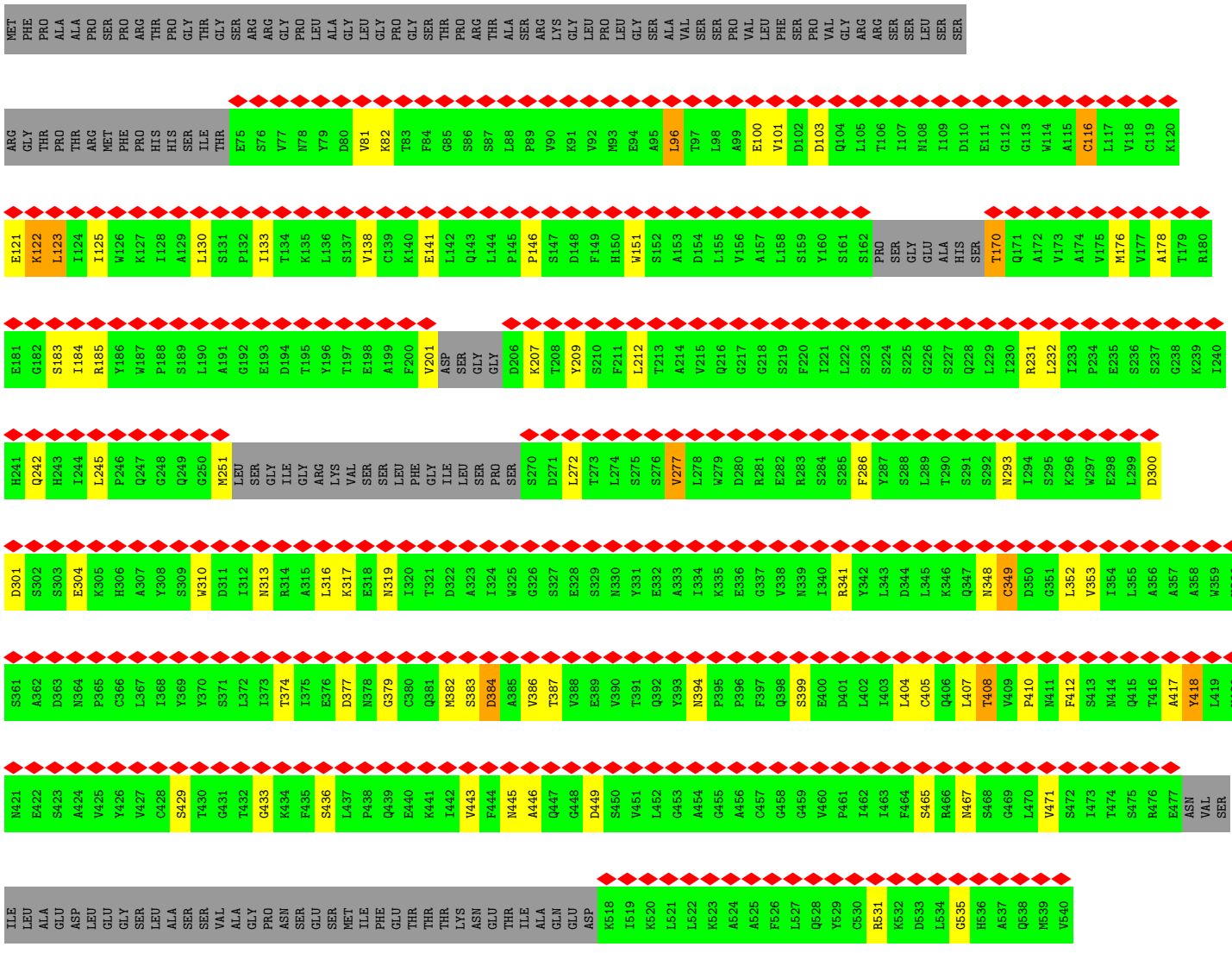
• Molecule 21: NUP133

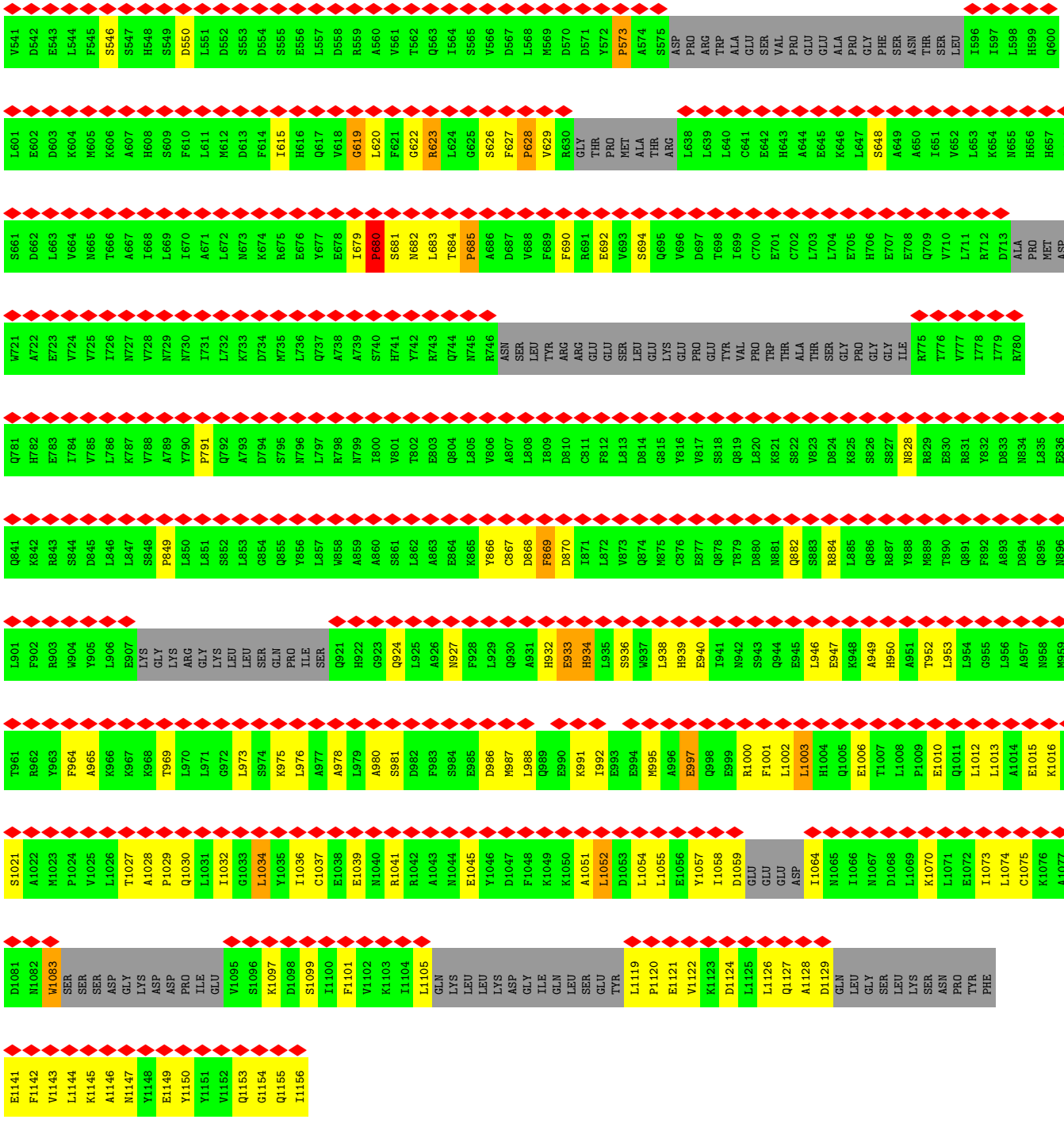
Chain S3:


ARG GLY THR PRO THR ARG MET PHE PRO HIS HIS SER ILE THR E75 S76 V77 N78 Y79 D80 V81 K82 T83 F84 G85 S86 S87 L88 P89 V90 K91 V92 M93 E94 A95 L96 T97 L98 A99 E100 V101 D102 D103 Q104 L105 T106 I107 N108 I109 D110 E111 G112 G113 W114 A115 C116 L117 V118 C119 K120
E121 K122 L123 I124 I125 W126 K127 I128 A129 L130 S131 P132 I133 T134 K135 L136 S137 V138 C139 K140 E141 L142 Q143 L144 P145 P146 S147 D148 F149 H150 W151 S152 A153 D154 L155 V156 A157 L158 S159 Y160 S161 S162 PRO SER GLY GLU ALA HIS SER T170 Q171 A172 V173 A174 V175 M176 V177 A178 T179 R180
E181 G182 S183 I184 R185 Y186 W187 P188 S189 L190 A191 G192 E193 D194 T195 Y196 T197 E198 A199 F200 V201 ASP SER GLY GLY D206 K207 T208 Y209 S210 F211 L212 T213 A214 V215 Q216 G217 G218 S219 F220 I221 L222 S223 S224 S225 G226 S227 Q228 L229 I230 R231 L232 I233 P234 E235 S236 S237 G238 K239 I240
H241 Q242 H243 I244 L245 P246 Q247 G248 Q249 G250 M251 LEU SER GLY ILE GLY ARG LYS VAL SER SER LEU PHE GLY ILE LEU SER PRO SER S270 D271 L272 T273 L274 S275 S276 V277 L278 W279 D280 R281 E282 R283 S284 S285 F286 Y287 S288 L289 T290 S291 S292 N293 I294 S295 K296 W297 E298 L299 D300
D301 S302 S303 E304 K305 H306 A307 Y308 S309 W310 D311 I312 N313 R314 A315 L316 K317 E318 N319 I320 T321 D322 A323 I324 W325 G326 S327 E328 S329 N330 Y331 E332 A333 I334 K335 E336 G337 V338 N339 I340 R341 Y342 L343 D344 L345 K346 Q347 N348 C349 D350 G351 L352 V353 I354 L355 A356 A357 A358 W359 H360
S361 A362 D363 N364 P365 C366 L367 I368 Y369 Y370 S371 L372 I373 T374 I375 E376 D377 N378 G379 C380 Q381 M382 S383 D384 A385 V386 T387 V388 E389 V390 T391 Q392 Y393 N394 P395 P396 F397 Q398 S399 E400 D401 L402 I403 L404 C405 Q406 L407 T408 V409 P410 N411 F412 S413 N414 Q415 T416 A417 Y418 L419 Y420
N421 E422 S423 A424 V425 Y426 V427 C428 S429 T430 G431 T432 G433 K434 F435 S436 L437 P438 Q439 E440 K441 I442 V443 F444 N445 A446 Q447 G448 D449 S450 V451 L452 G453 A454 G455 A456 C457 G458 G459 V460 P461 I462 I463 F464 S465 R466 N467 S468 G469 L470 V471 S472 I473 T474 S475 R476 E477 ASN VAL SER
ILE LEU ALA GLU ASP LEU GLU GLY SER LEU ALA SER SER VAL ALA GLY PRO ASN SER GLU SER MET ILE PHE GLU THR THR THR LYS ASN GLU THR ILE ALA GLN GLU ASP K518 I519 K520 L521 L522 K523 A524 A525 F526 L527 Q528 R531 G535 H536 A537 Q538 M539 V540 V541 D542 E543
L544 F545 S546 S547 H548 S549 D550 L551 A560 Q563 I564 S565 V566 D567 L568 M569 D570 D571 Y572 P573 A574 S575 ASP PRO ARG TRP ALA GLU SER VAL PRO GLU GLU ALA PRO GLY PHE SER ASN THR SER LEU I596 I597 L598 H599 Q600 L601 I615 G619 L620 P621 G622 R623 S626
F627 P628 V629 R630 GLY THR PRO MET ALA THR ARG L638 S648 A649 A650 I651 K654 N655 H656 H657 S658 R659 L660 S661 D662 L663 V664 N665 T666 A667 I668 L669 I670 A671 L672 N673 K674 R675 E676 Y677 E678 I679 P680 S681 N682 L683 T684 P685 A686 D687 V688 F689 F690 R691 E692 V693 S694 Q695
V696 D697 T698 I699 C700 E701 C702 L703 L704 E705 H706 E707 E708 Q709 V710 L711 R712 D713 ALA PRO MET ASP S718 I719 E720 W721 A722 E723 V724 V725 I726 N727 V728 N729 N730 I731 L732 K733 R746 ASN SER LEU TYR ARG ARG GLU GLU SER LEU GLU LYS GLU PRO GLU TYR VAL PRO TRP THR
ALA THR SER GLY PRO GLY GLY ILE R775 T776 V777 I778 I779 R780 Q781 H782 E783 I784 V785 L786 K787 V788 A789 Y790 P791 Q792 A793 D794 S795 N796 L797 R798 N799 I800 V801 T802 E803 Q804 L805 V806 A807 L808 I809 D810 C811 F812 L813 D814 G815 S818 S827 N828 R829 E830 R831 Y832 D833 N834
L835 E836 M837 E838 Y839 L840 Q841 K842 R843 S844 D845 L846 L847 S848 P849 L850 L851 S852 L853 G854 Q855 Y856 L857 W858 A859 A860 S861 L862 A863 Y866 C867 D868 F869 D870 I871 L872 V873 Q874 M875 C876 E877 Q878 T879 D880 N881 Q882 S883 R884 L885 Q886 N896 F900 L901 F902 R903 W904 Y905
L906 E907 LYS GLY LYS ARG GLY LYS LEU LEU SER GLN PRO ILE SER Q921 H922 G923 Q924 L925 A926 N927 Q930 A931 H932 E933 H934 L935 S936 W937 L938 H939 E940 L946 E947 K948 A949 H950 A951 T952 L953 L954 G955 L956 A957 N958 M959 E960 T961 R962 Y963 F964 A965 K966 K967 K968 T969 L970

- Molecule 21: NUP133

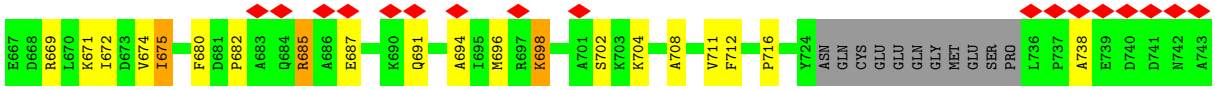
Chain S4:

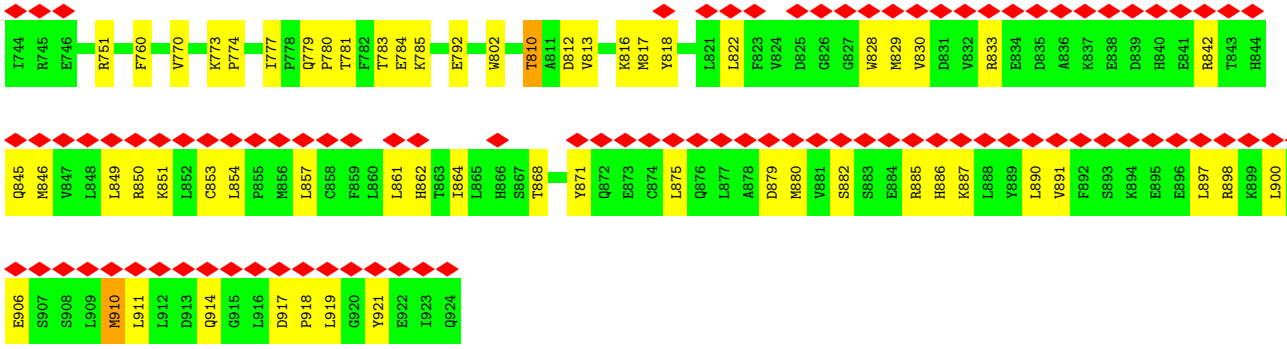




- Molecule 22: NUP107 CTD

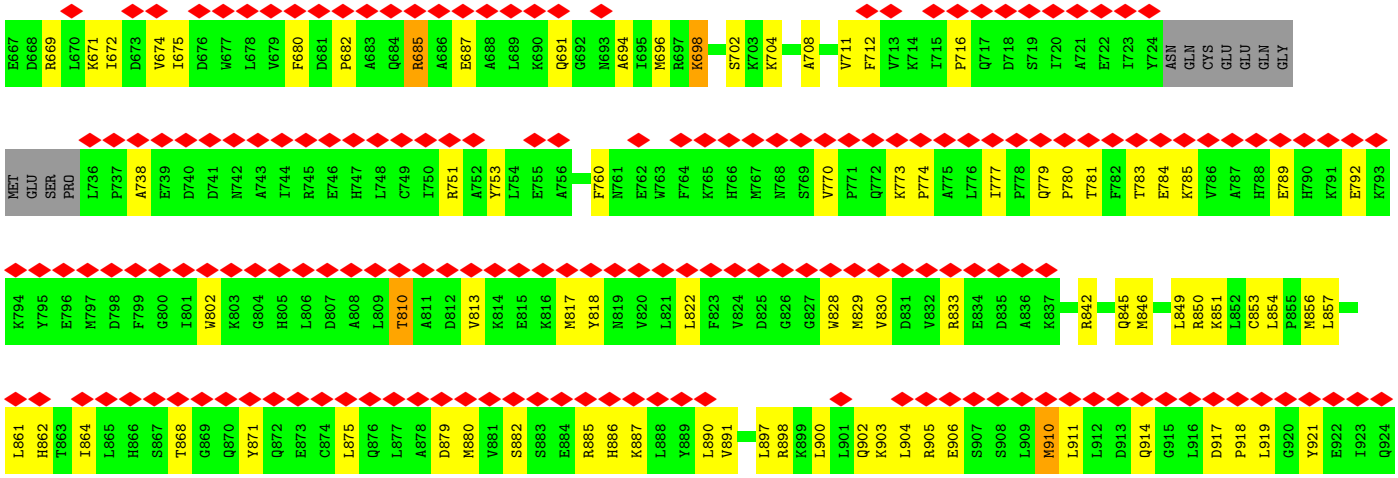
Chain T1:





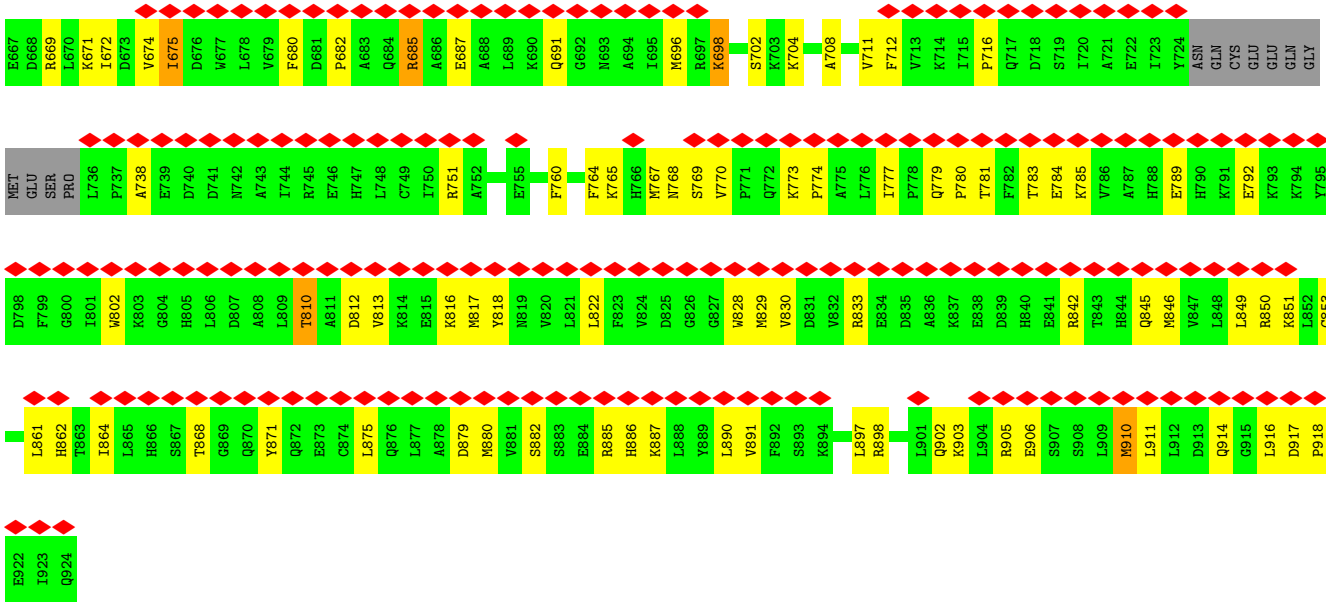
• Molecule 22: NUP107 CTD

Chain T2:



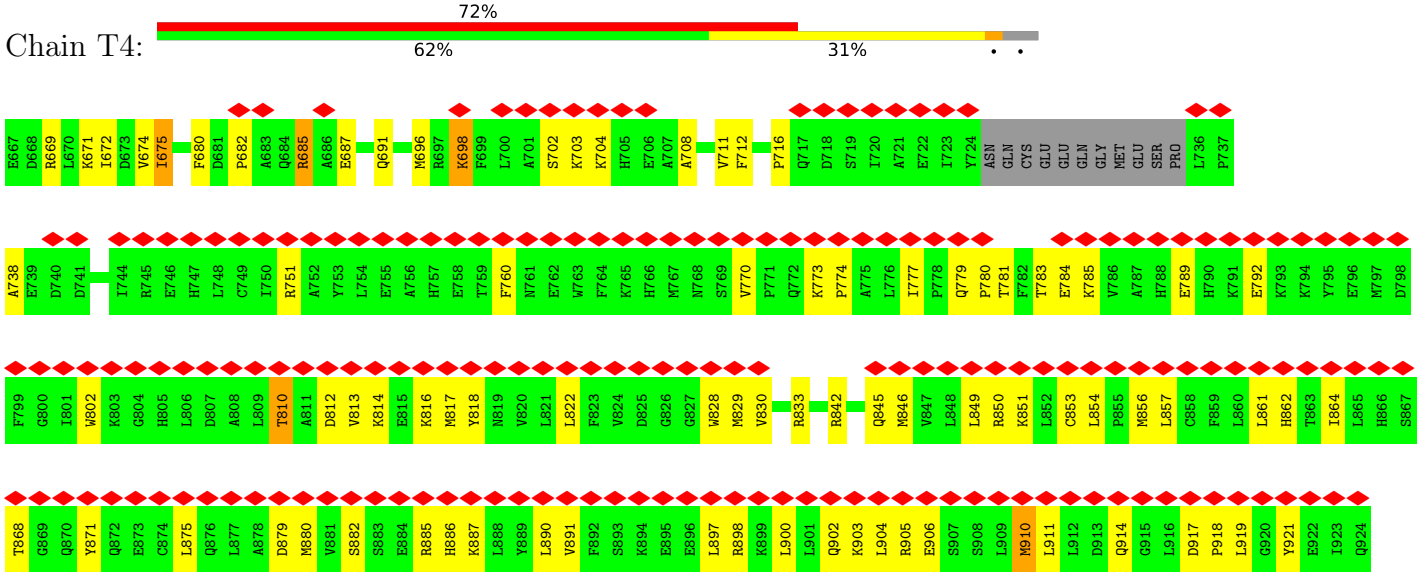
• Molecule 22: NUP107 CTD

Chain T3:



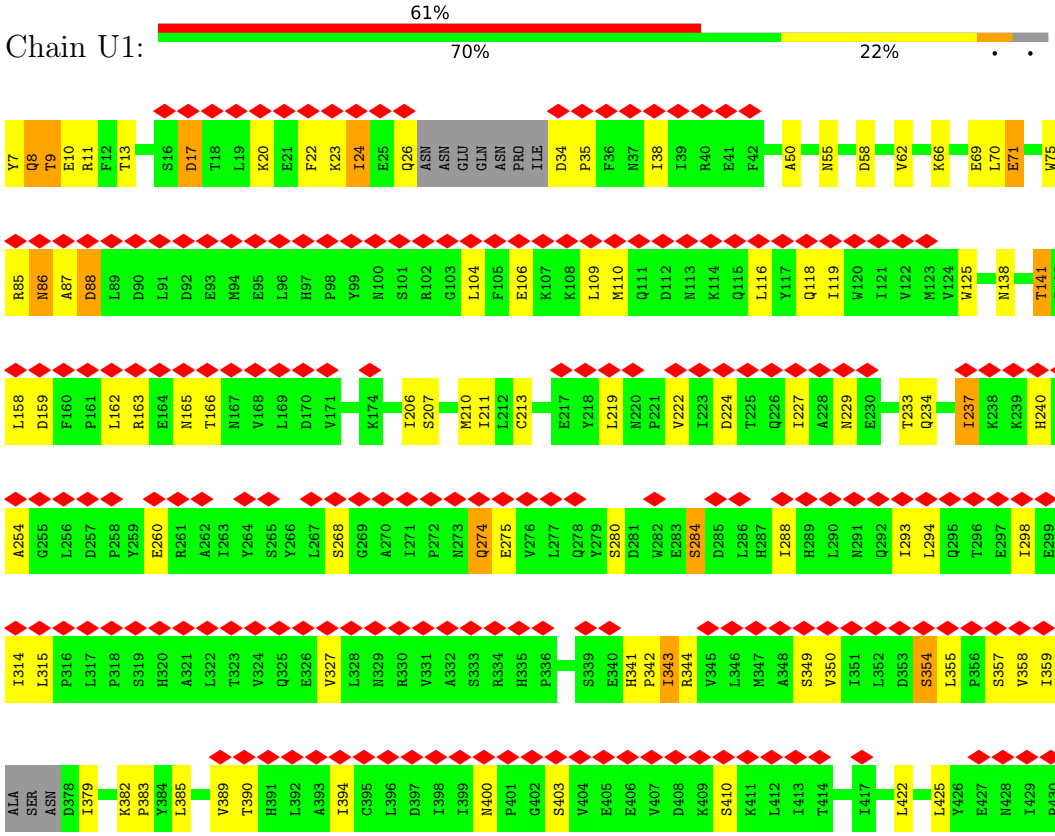
• Molecule 22: NUP107 CTD

Chain T4:



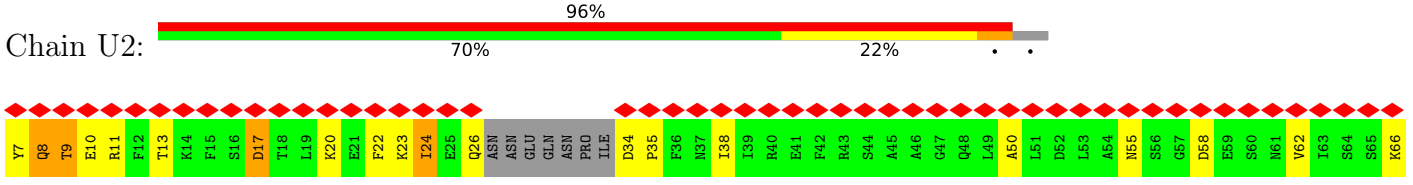
• Molecule 23: NUP107 NTD

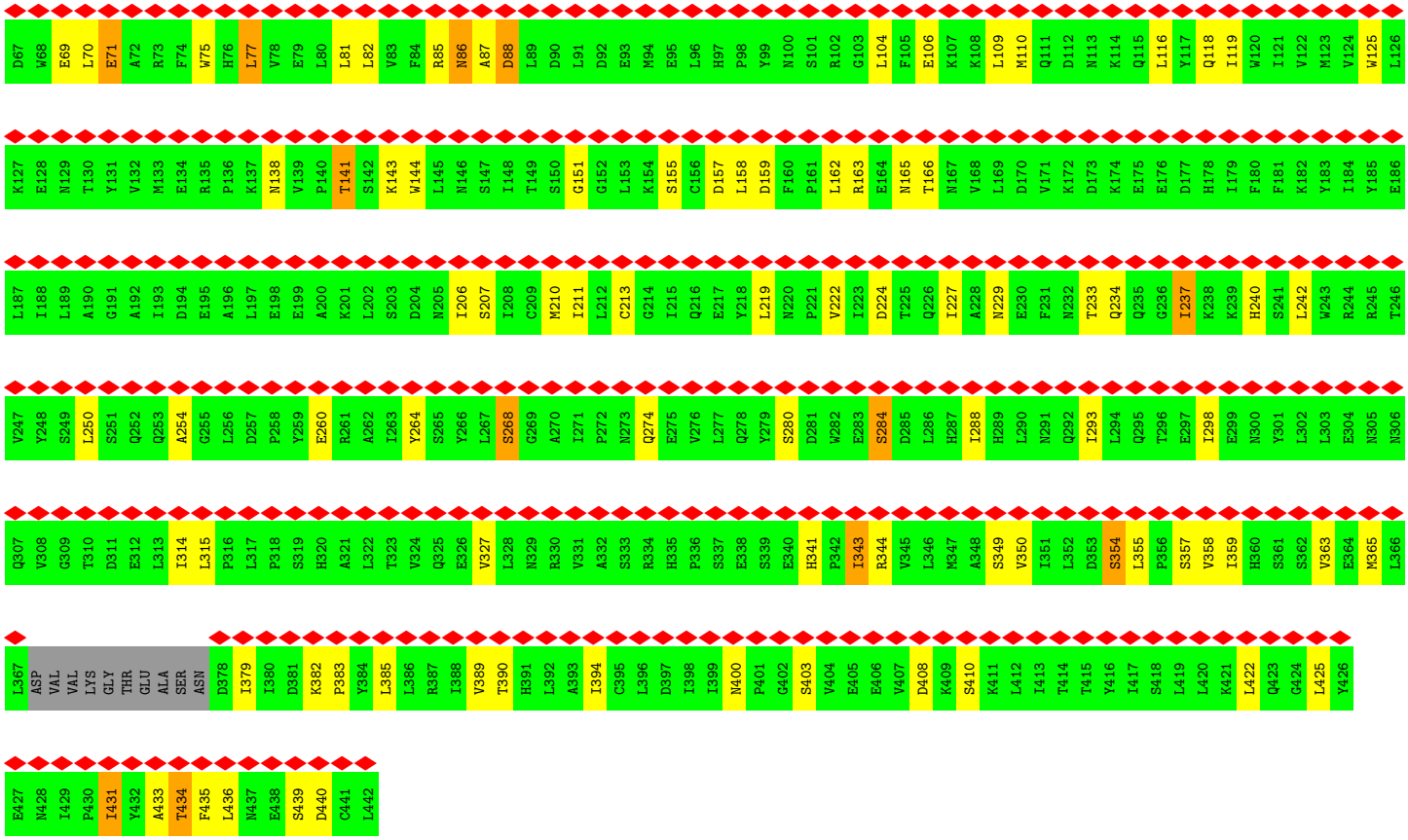
Chain U1:



• Molecule 23: NUP107 NTD

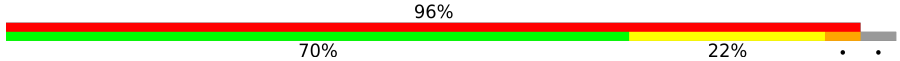
Chain U2:

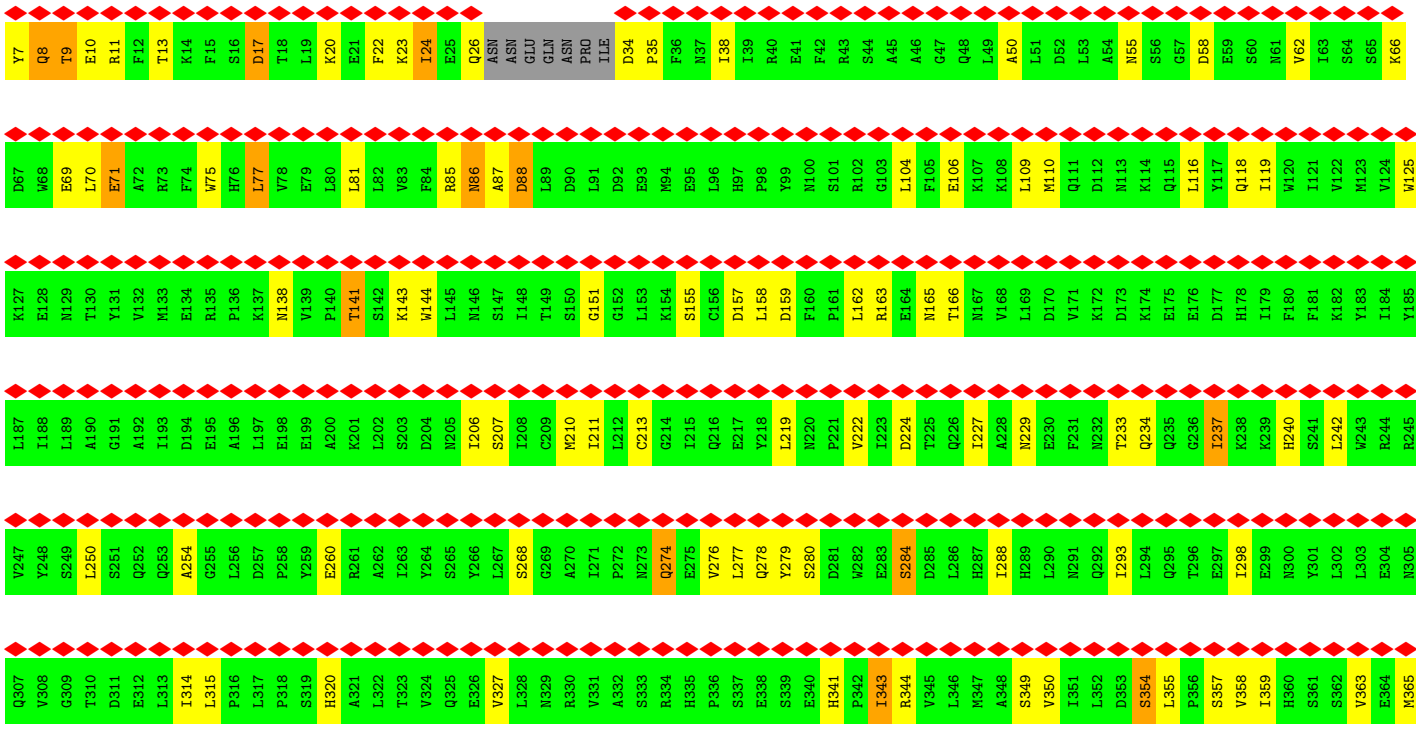


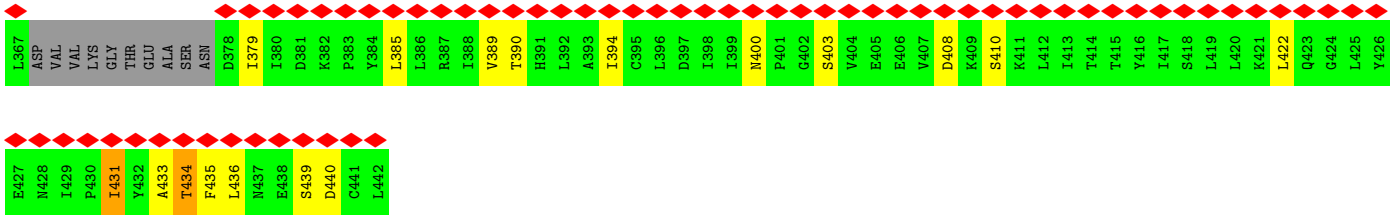


• Molecule 23: NUP107 NTD

Chain U3:

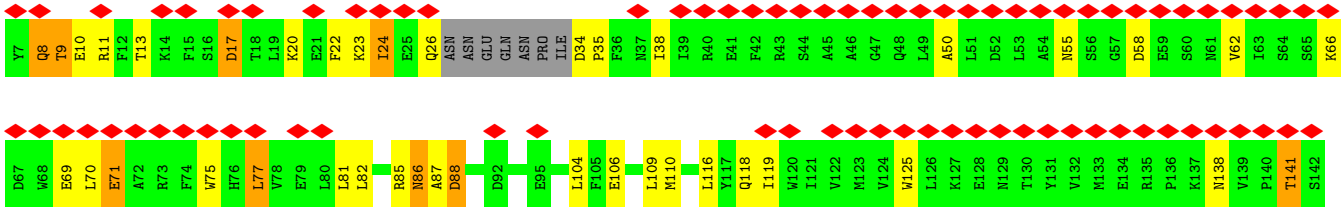






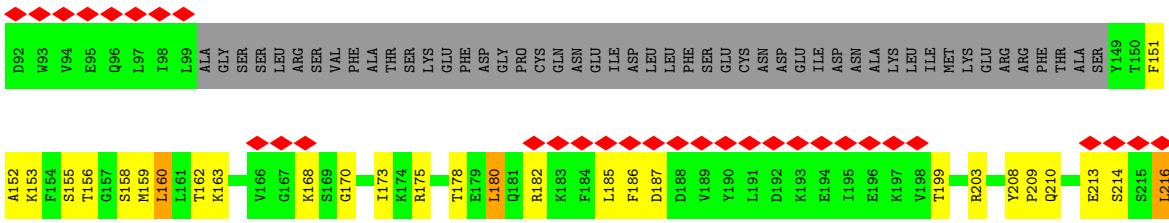
• Molecule 23: NUP107 NTD

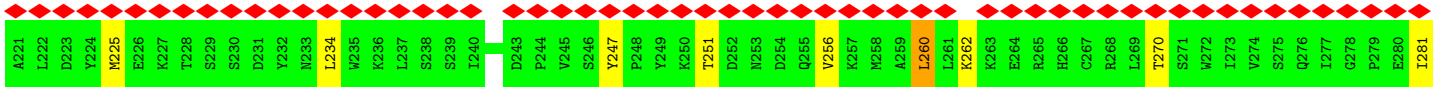
Chain U4:

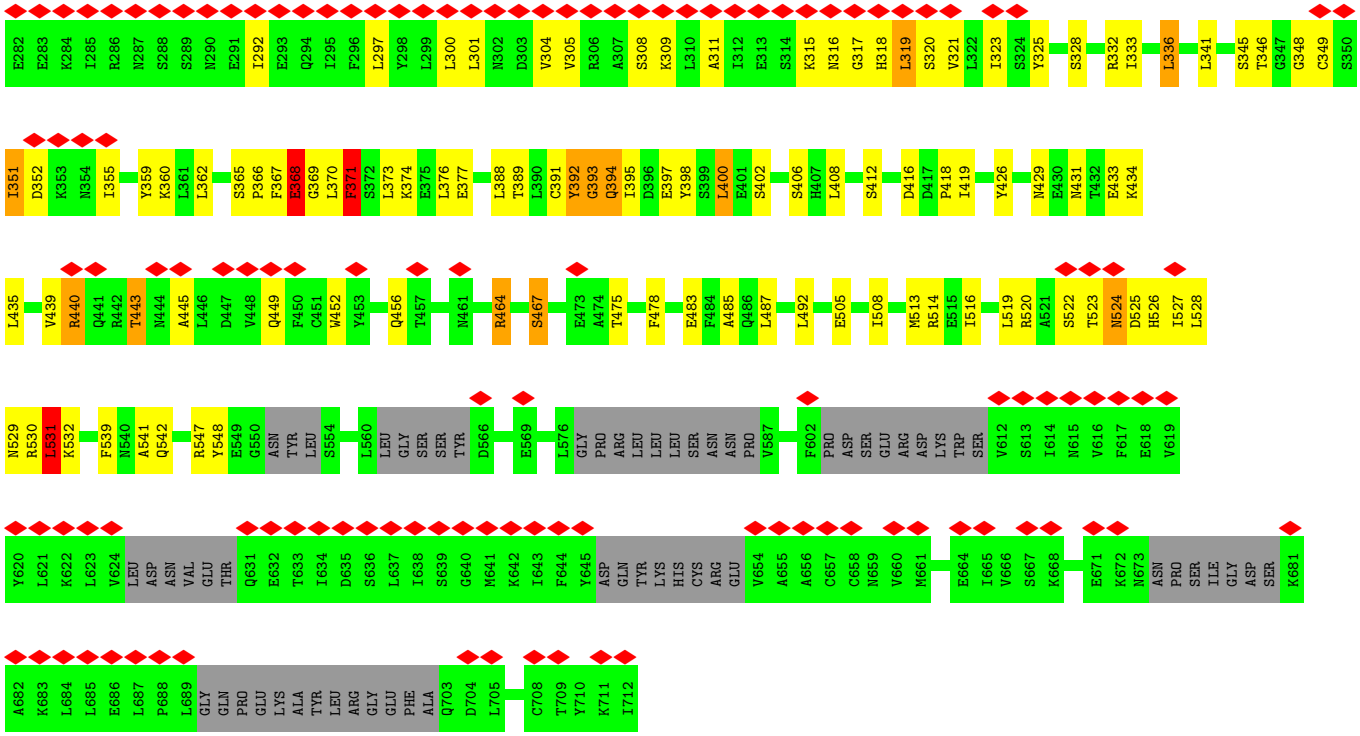


• Molecule 24: NUP96

Chain V1:

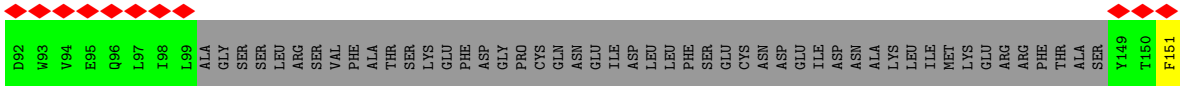


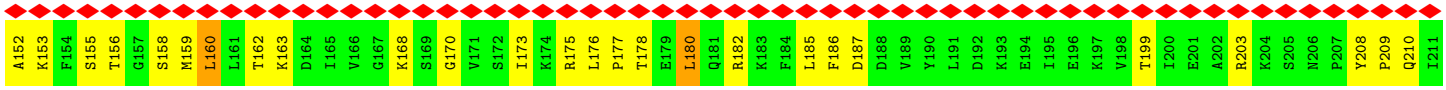


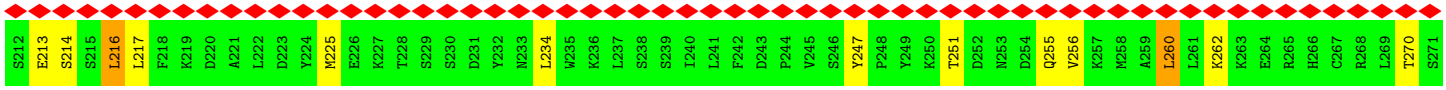


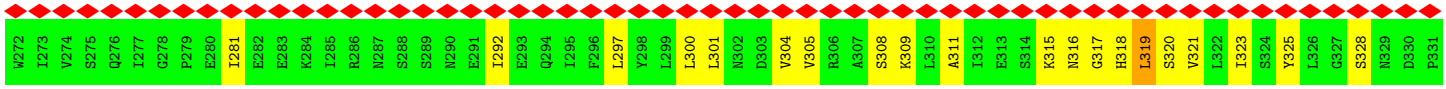
• Molecule 24: NUP96

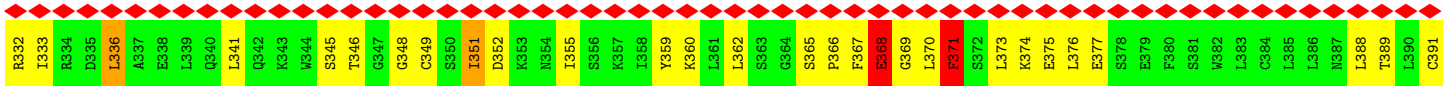
Chain V2:

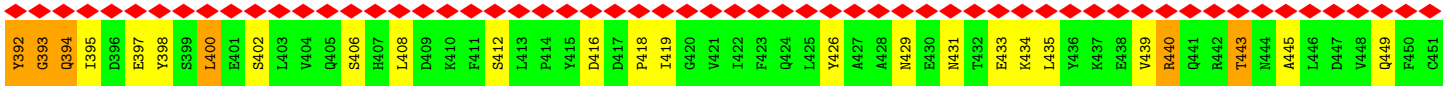


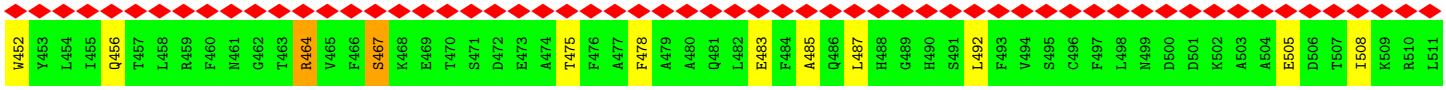


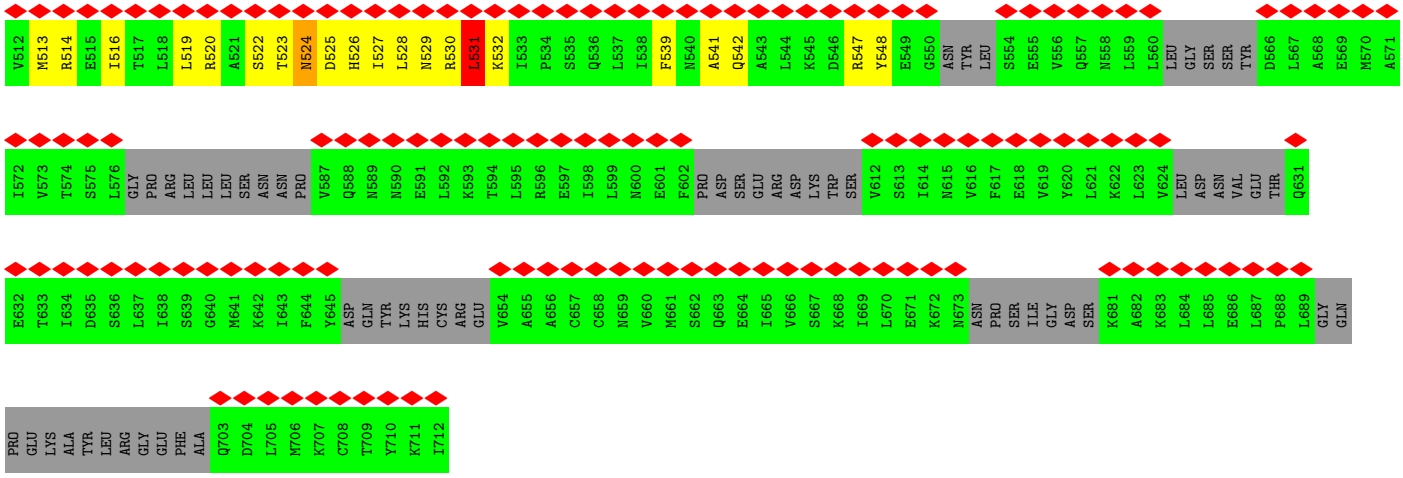






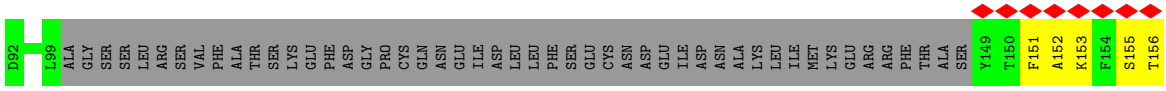


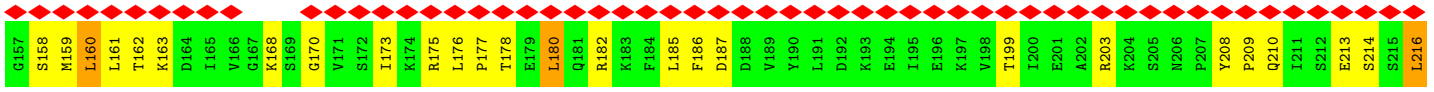


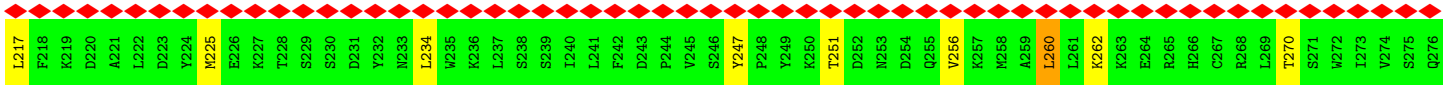


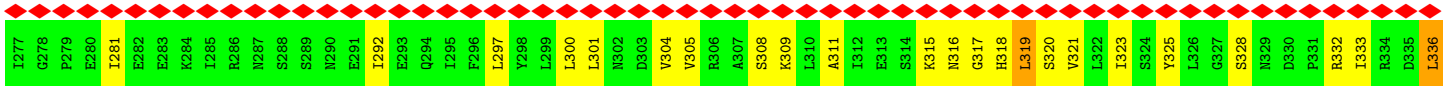
• Molecule 24: NUP96

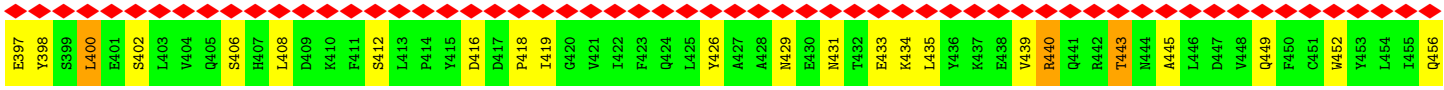
Chain V3:

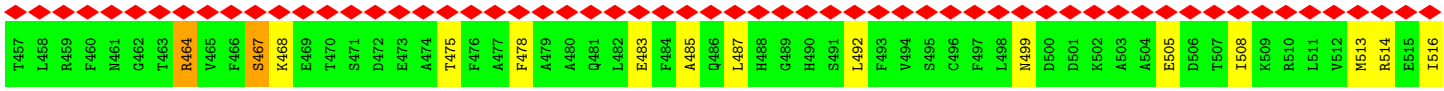


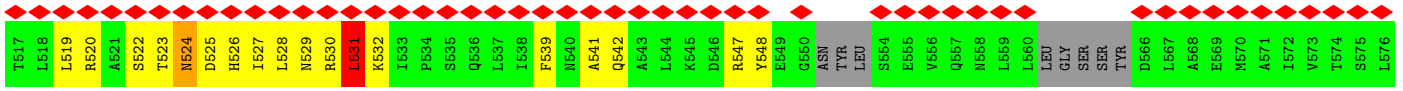


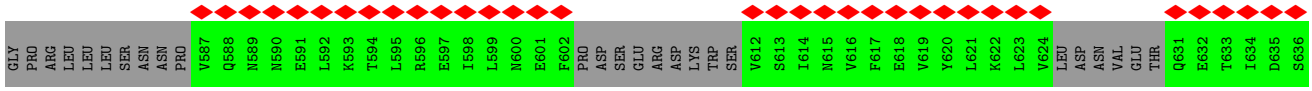


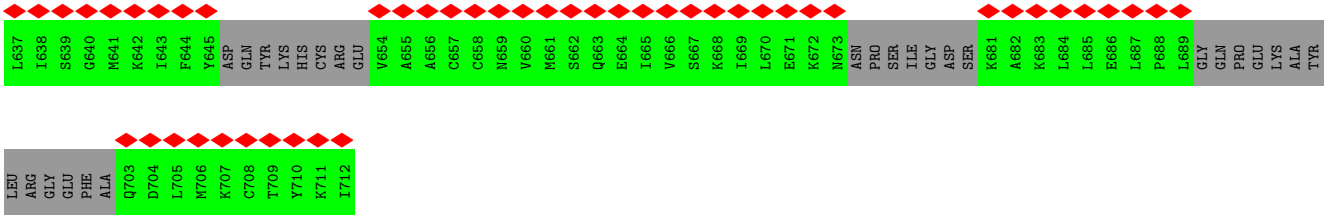






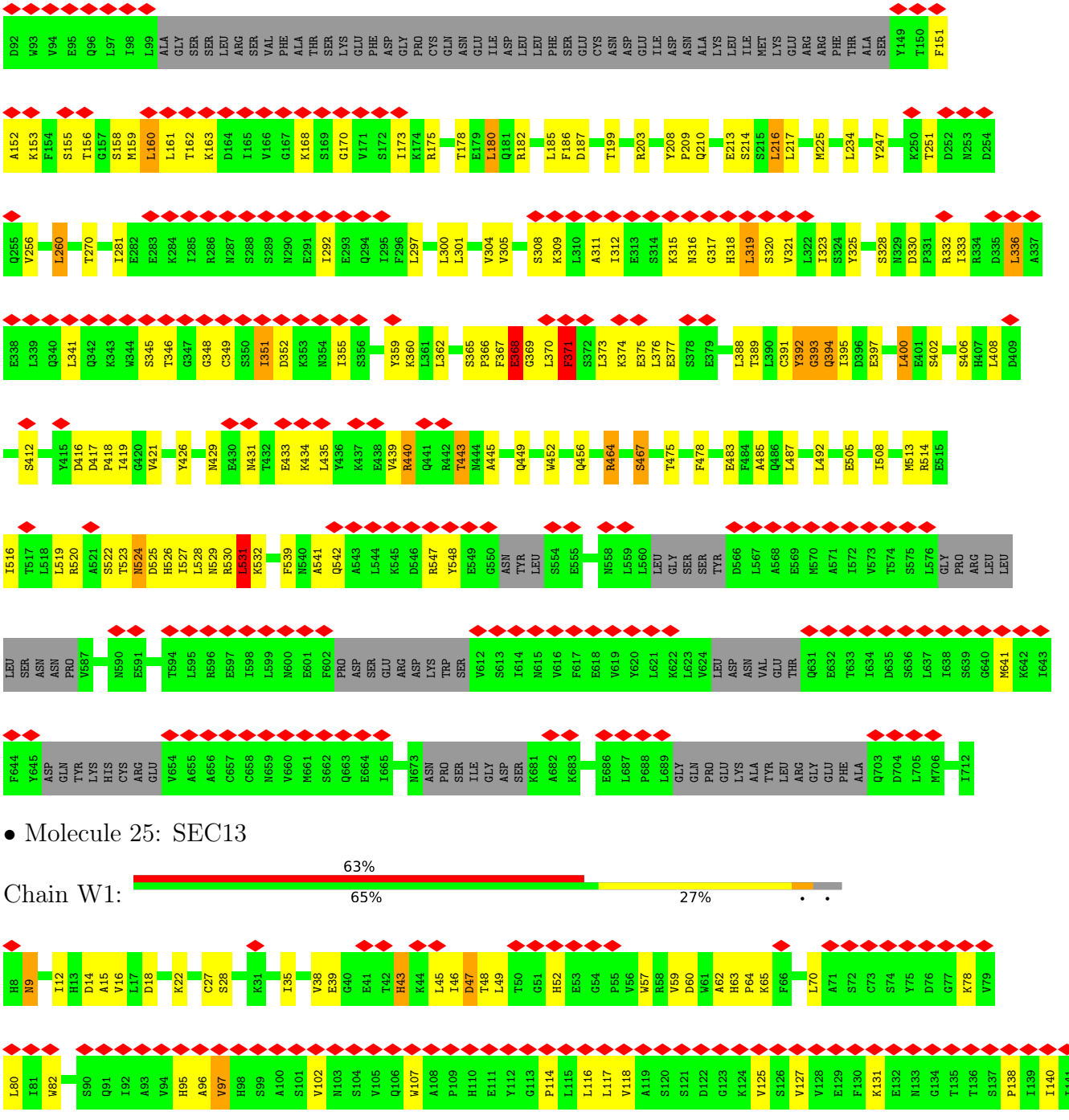






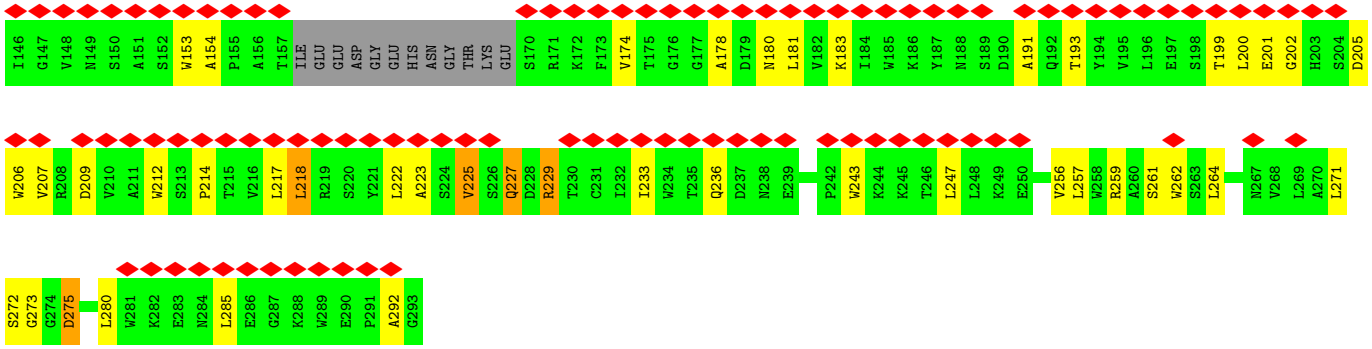
• Molecule 24: NUP96

Chain V4:



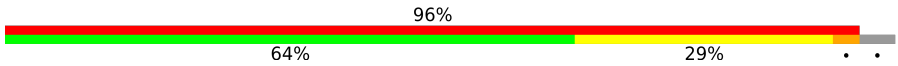
• Molecule 25: SEC13

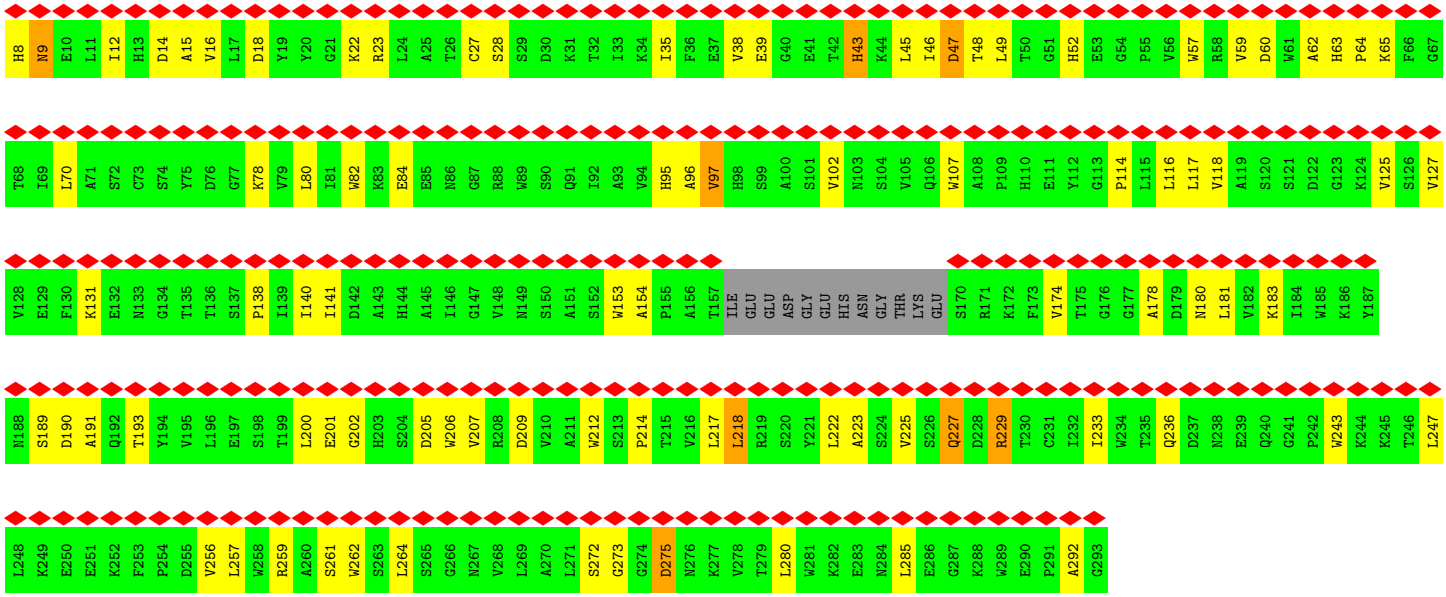
Chain W1:



• Molecule 25: SEC13

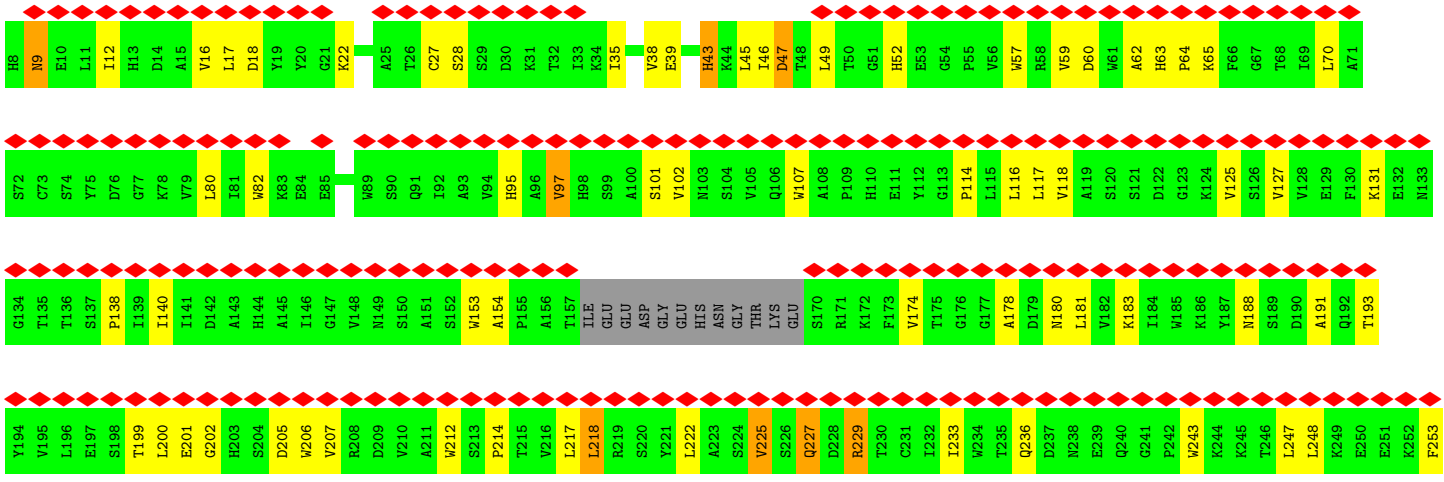
Chain W2:

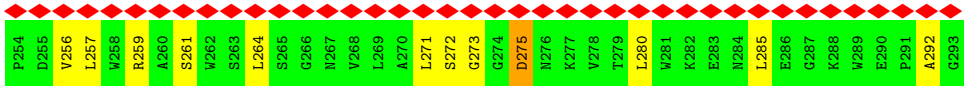




• Molecule 25: SEC13

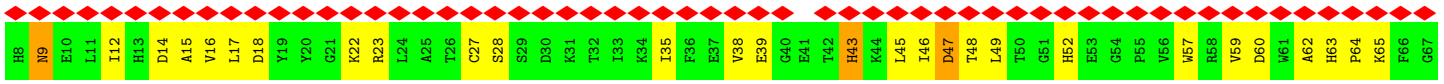
Chain W3:

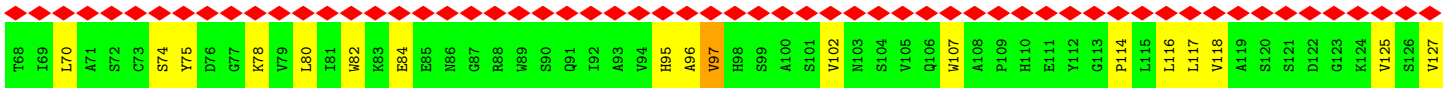


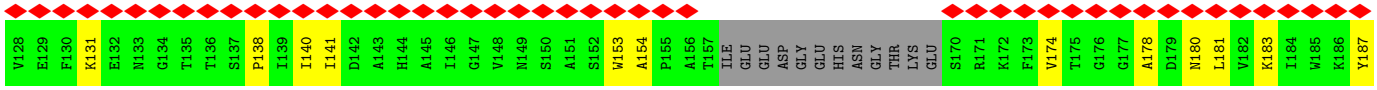


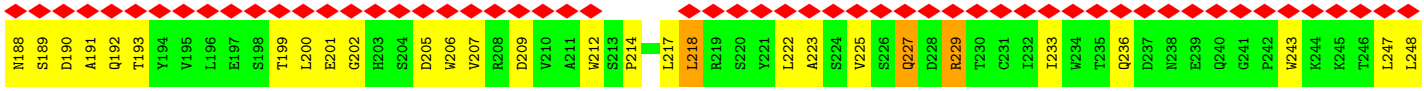
• Molecule 25: SEC13

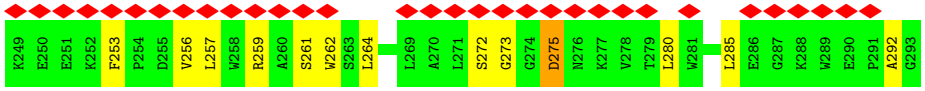
Chain W4:





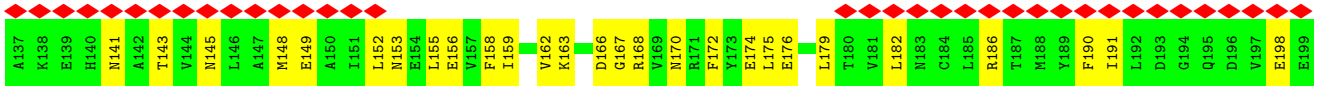


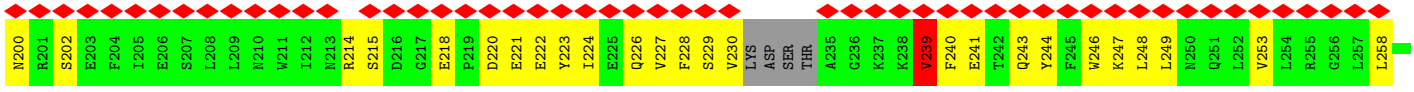


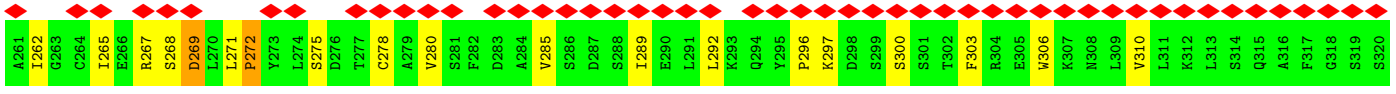


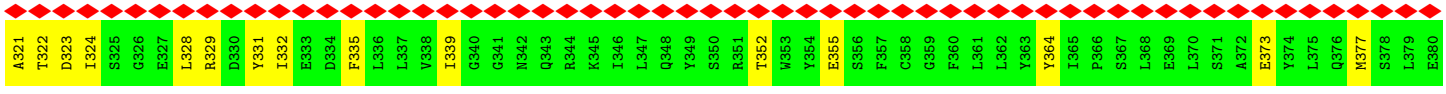
• Molecule 26: NUP75

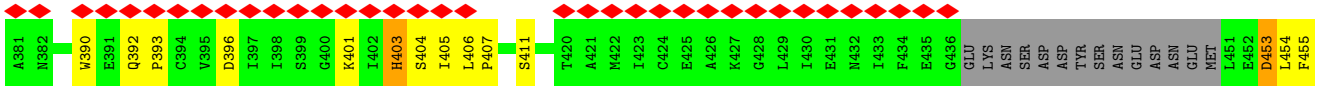
Chain X1:

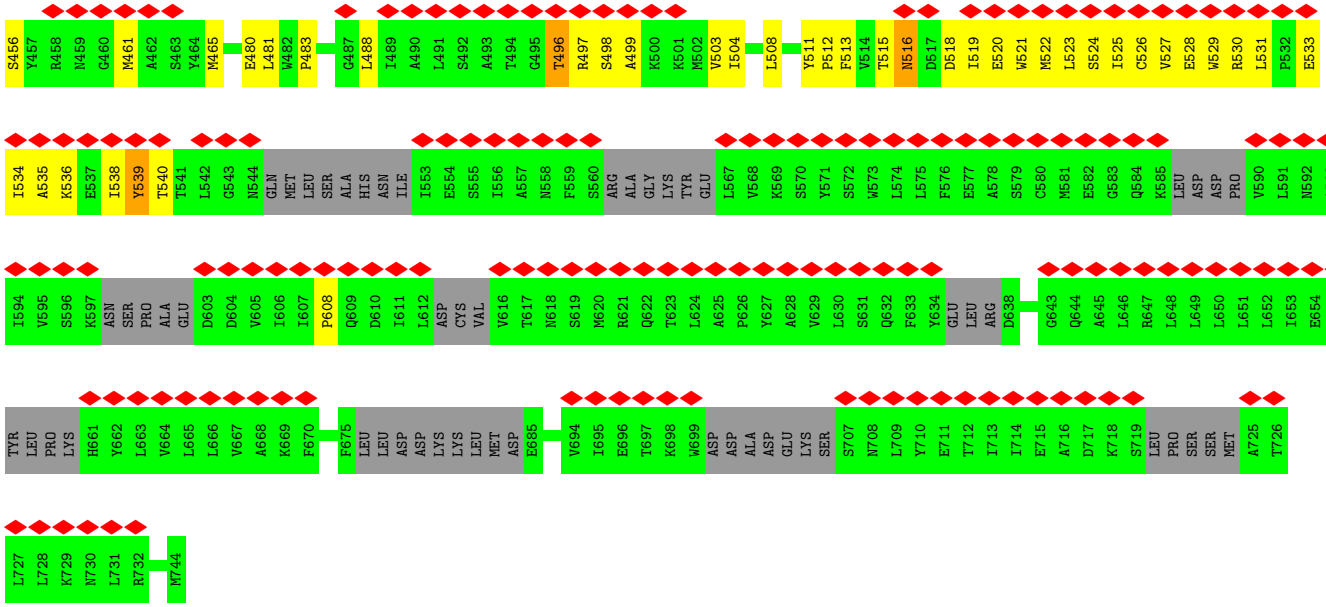






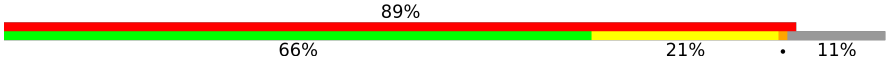


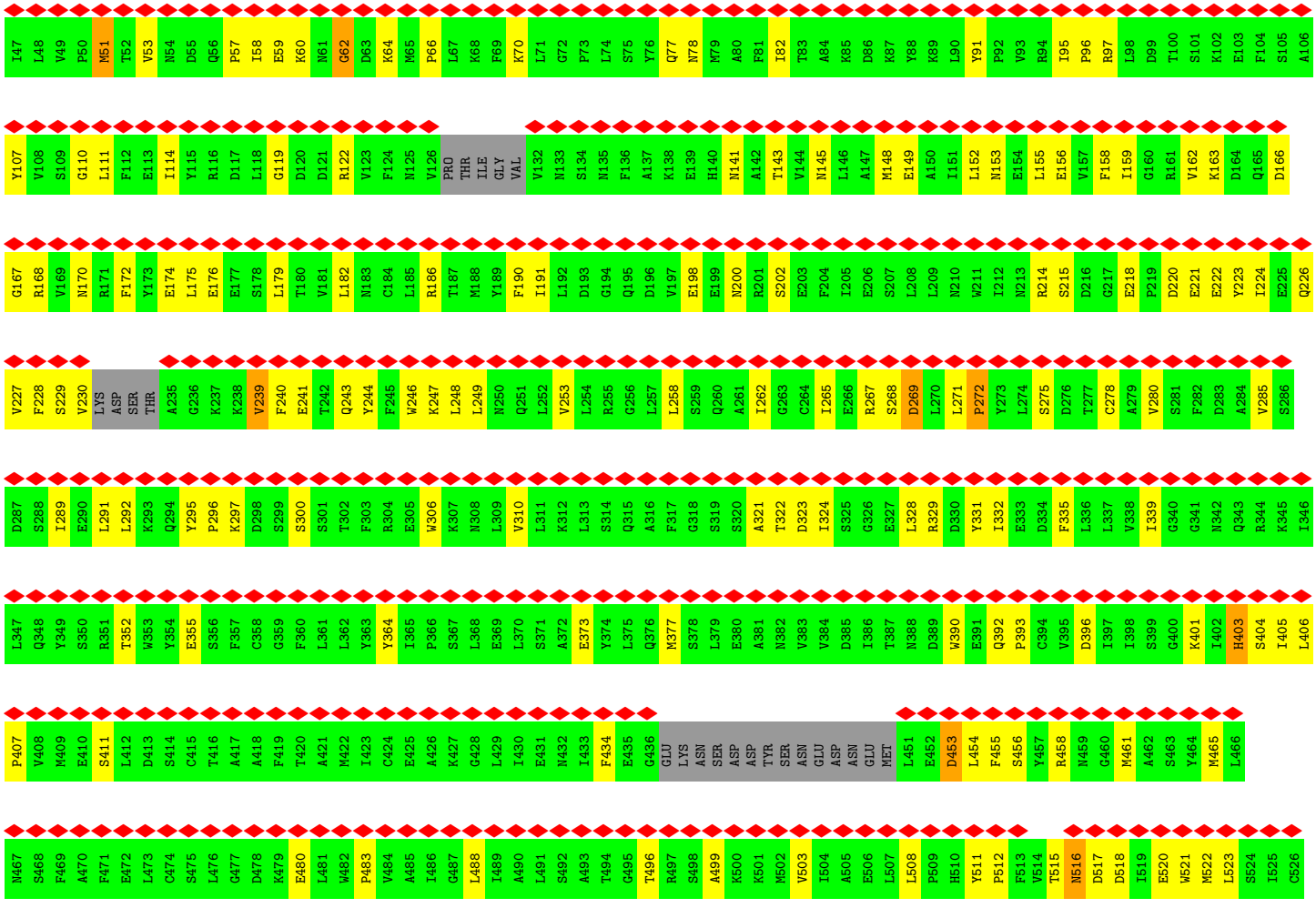


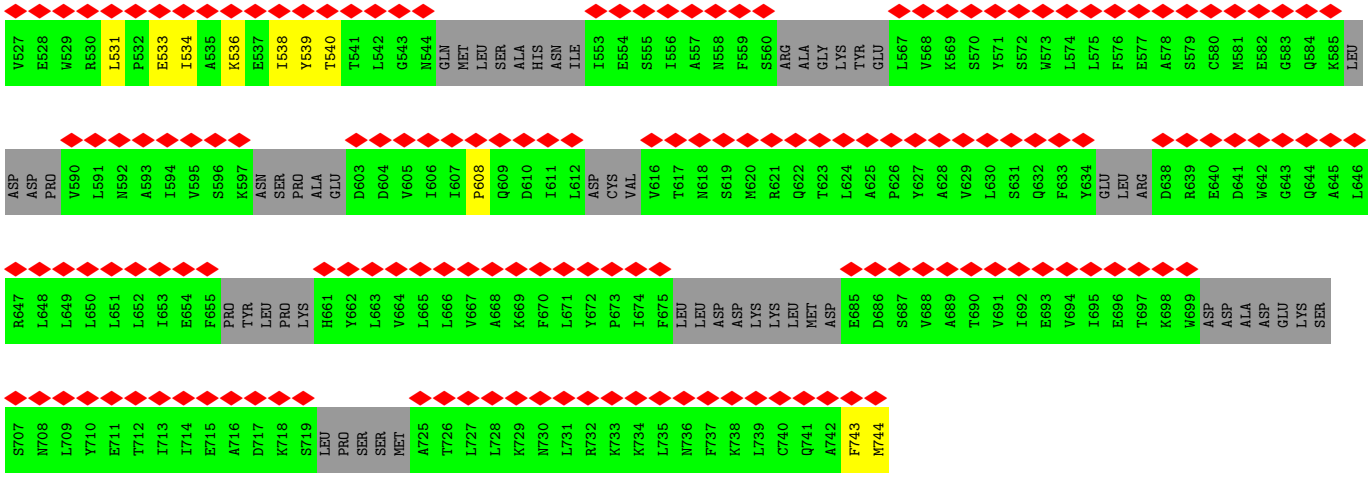


• Molecule 26: NUP75

Chain X2:

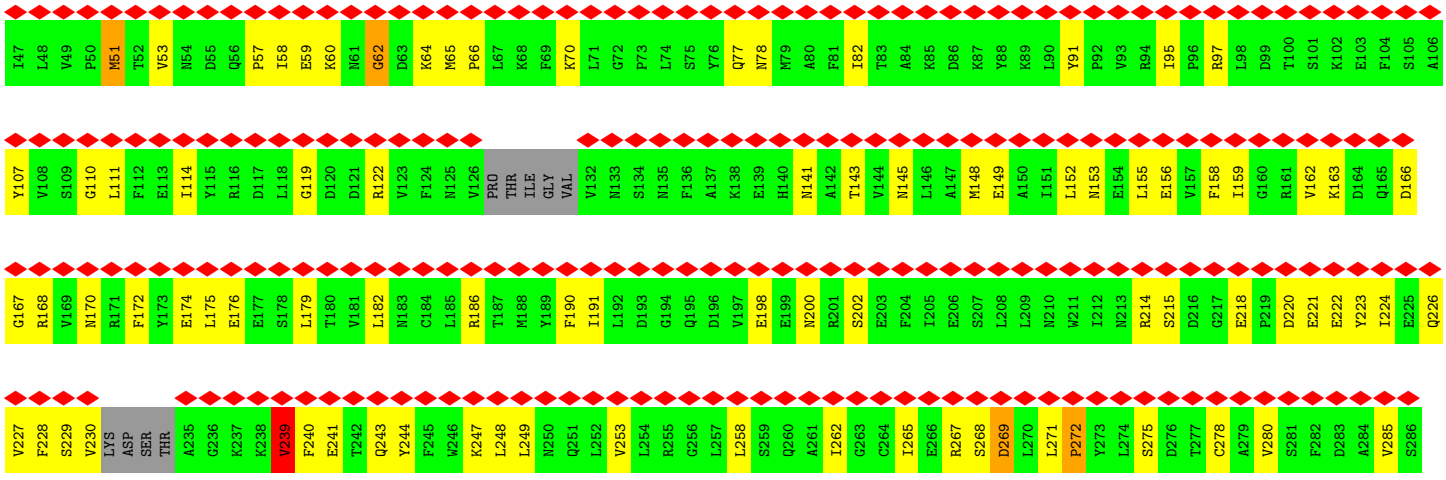


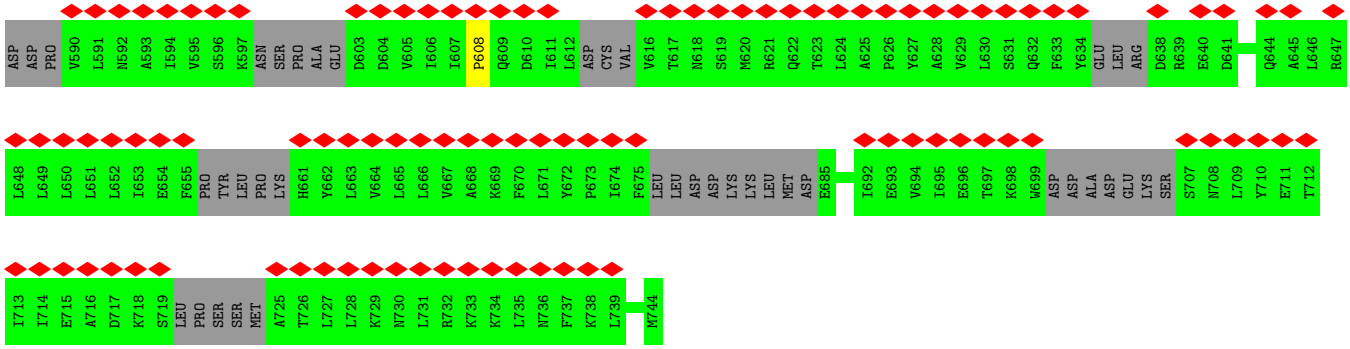




- Molecule 26: NUP75

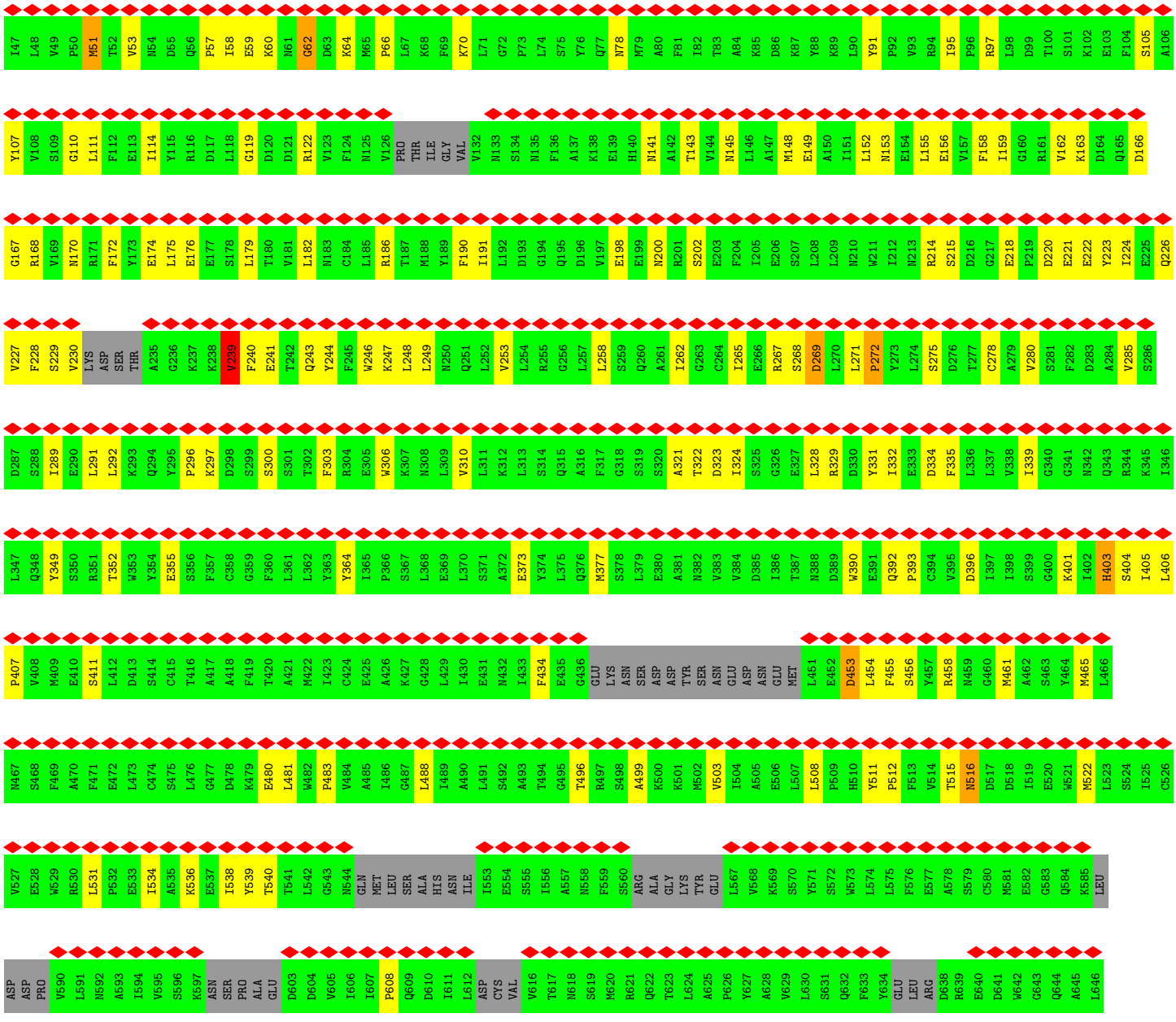
Chain X3:

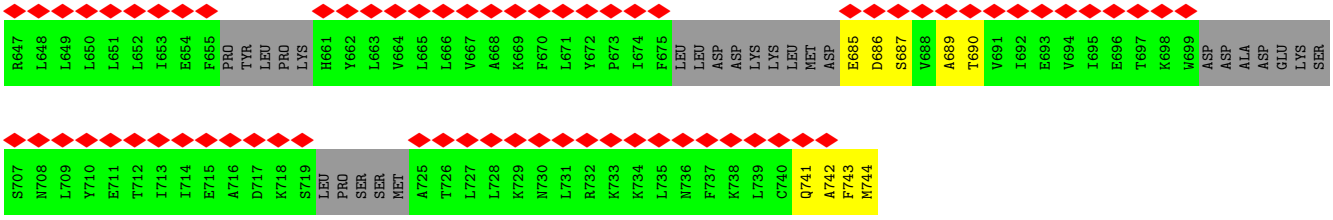




• Molecule 26: NUP75

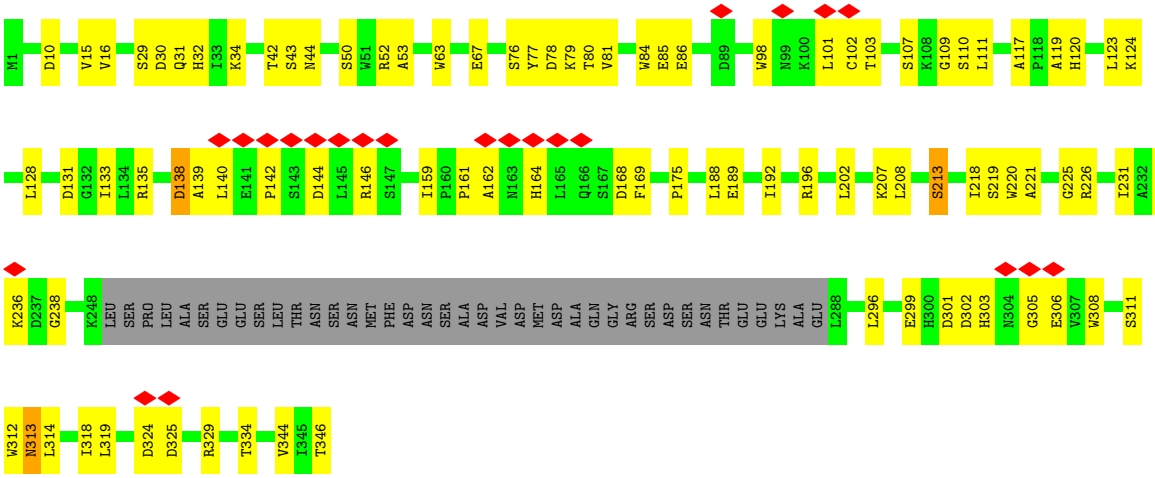
Chain X4:





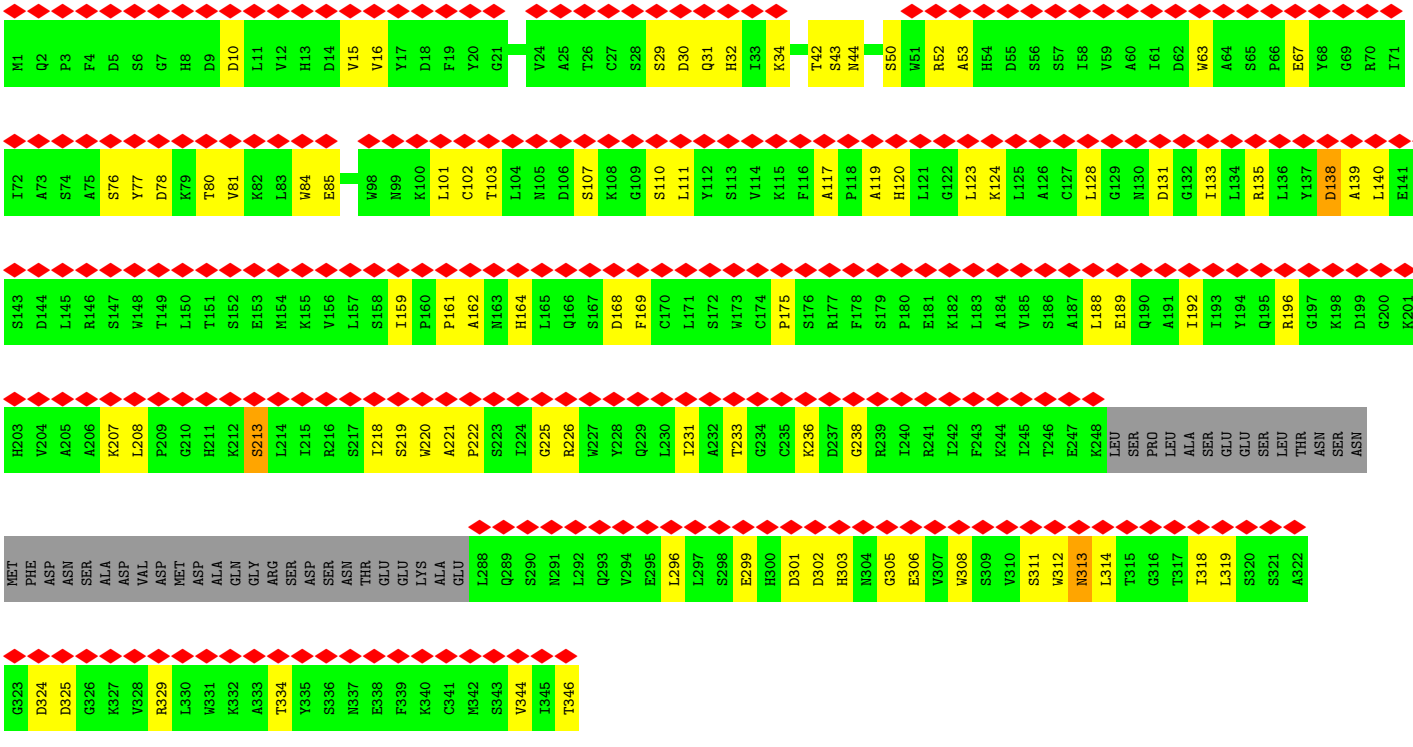
• Molecule 27: SEH1

Chain Y1:



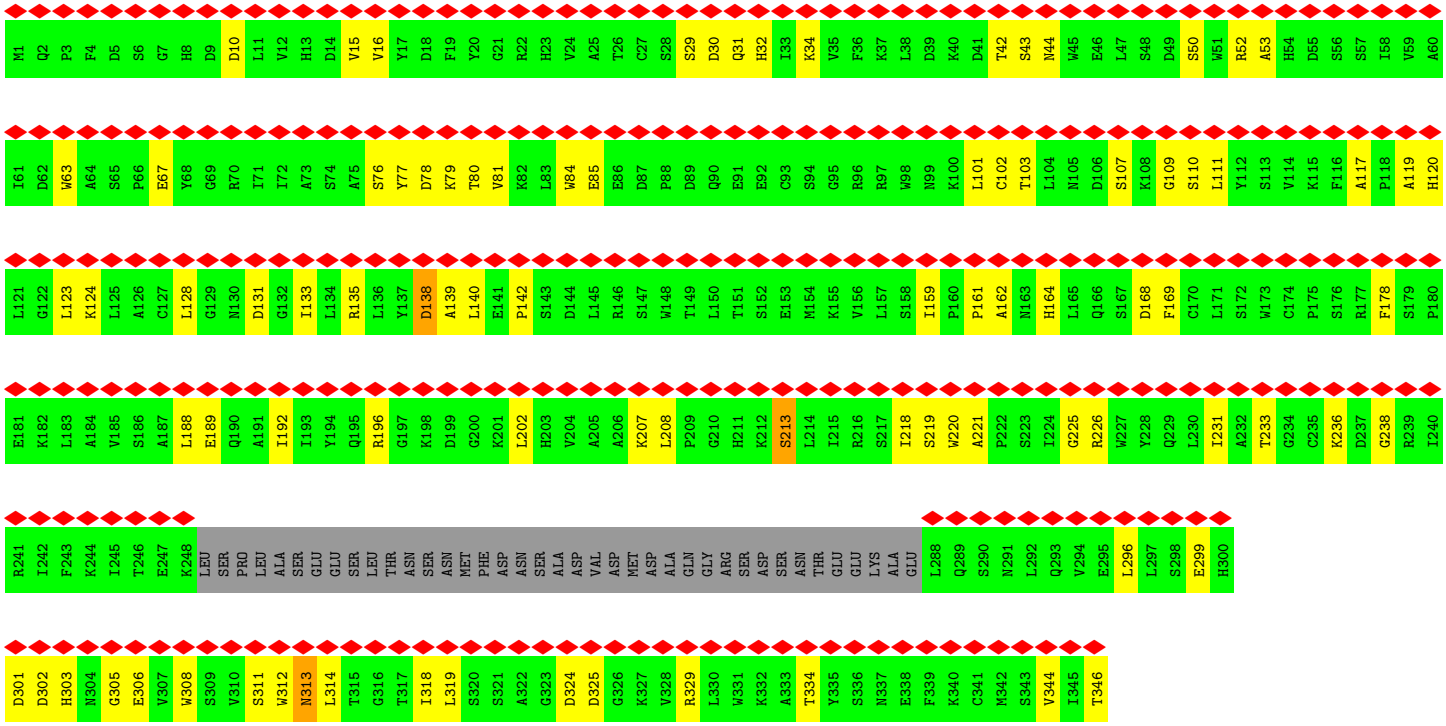
• Molecule 27: SEH1

Chain Y2:



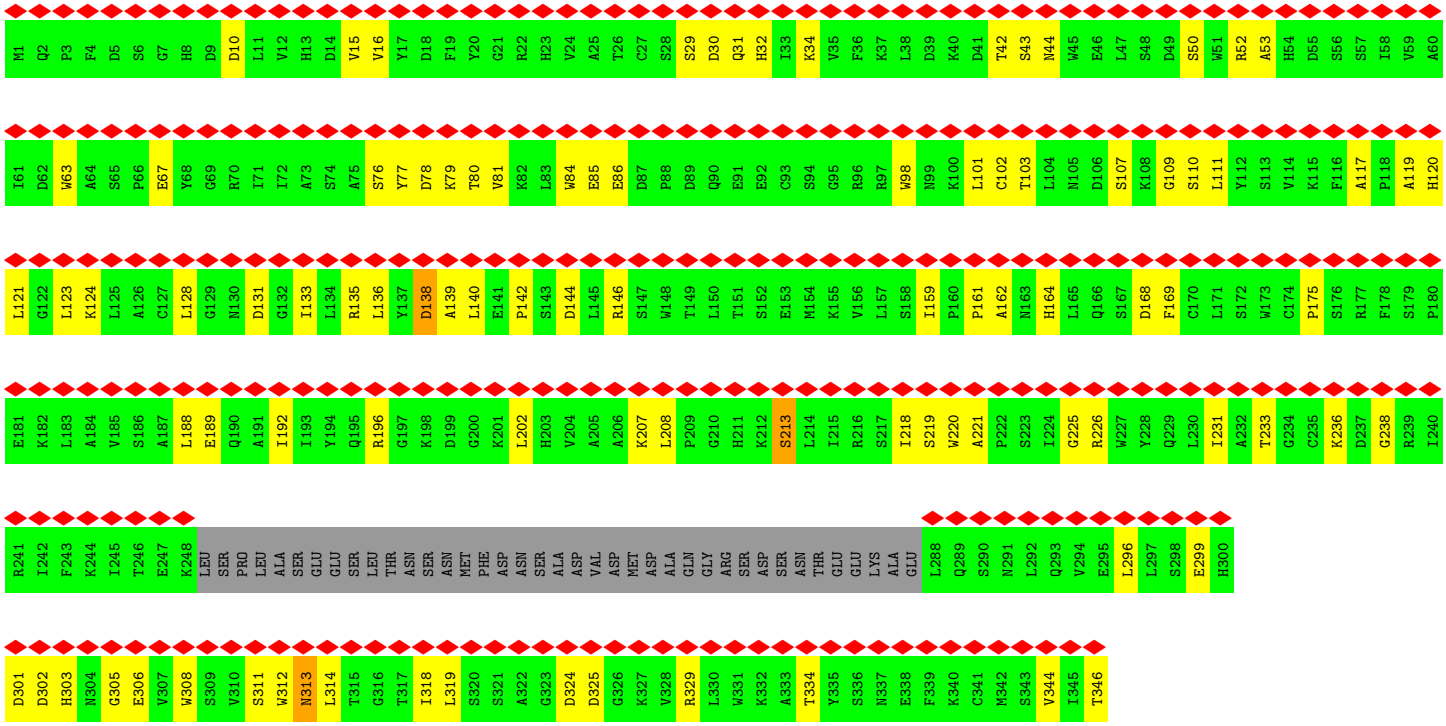
• Molecule 27: SEH1

Chain Y3:



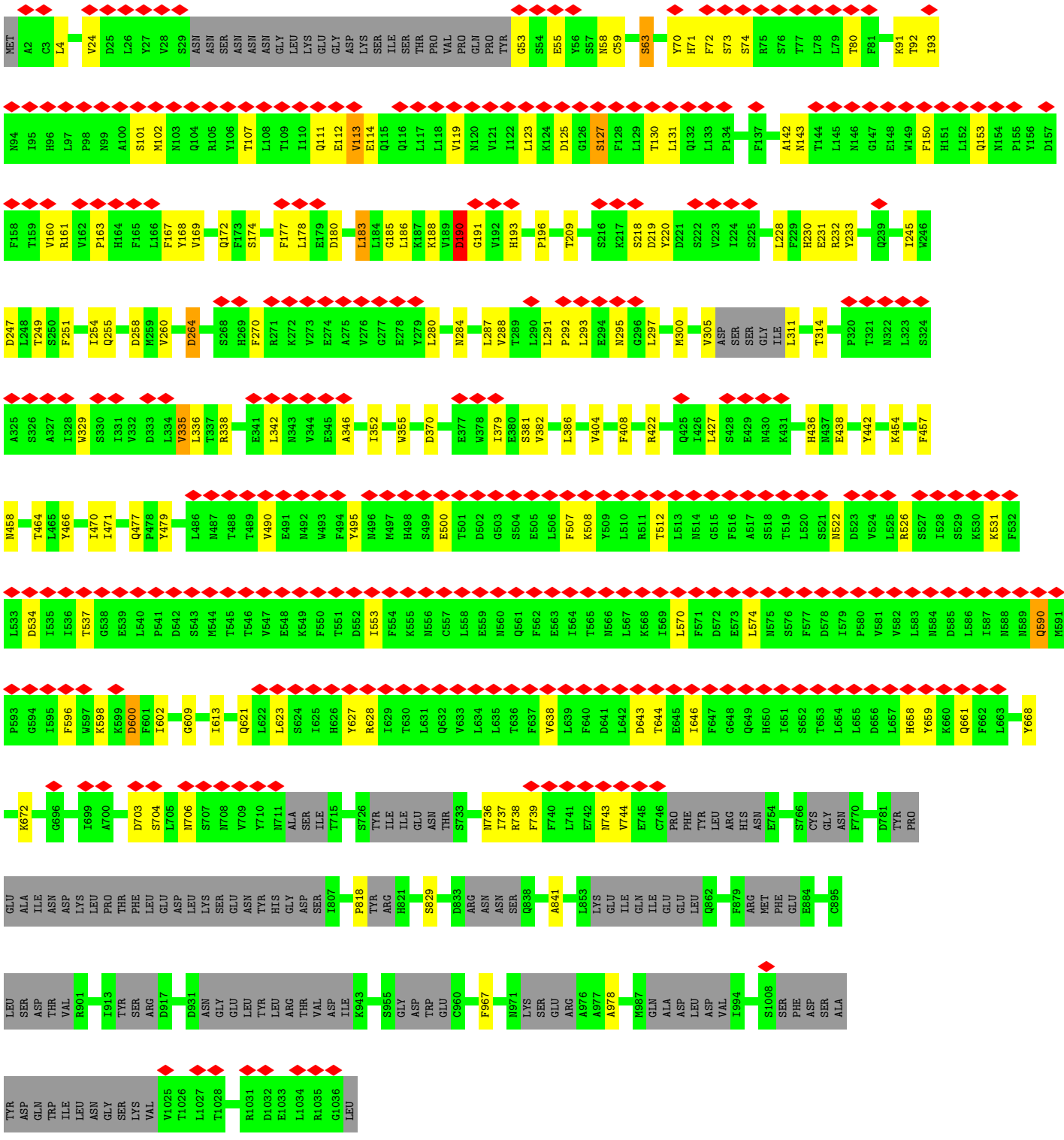
• Molecule 27: SEH1

Chain Y4:



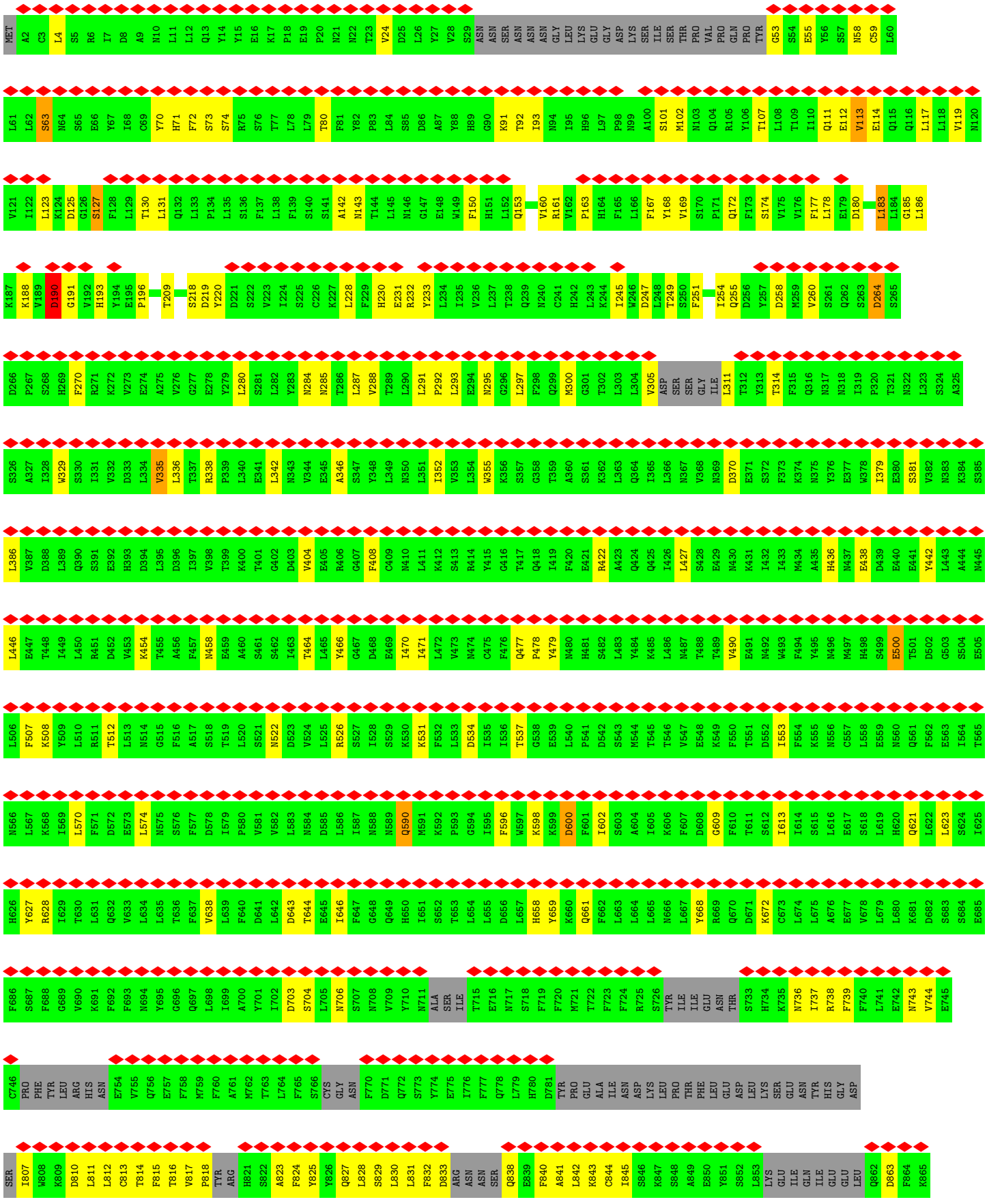
• Molecule 28: NUP160

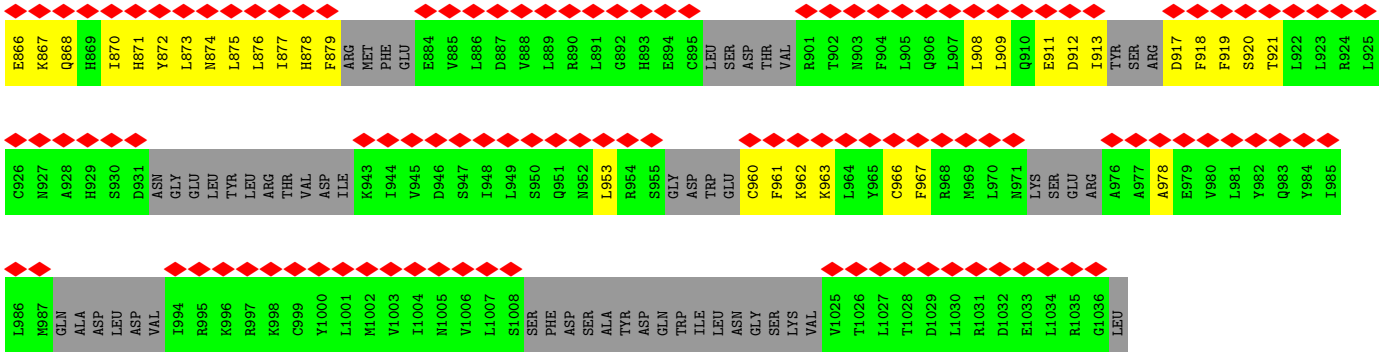
Chain Z1:



• Molecule 28: NUP160

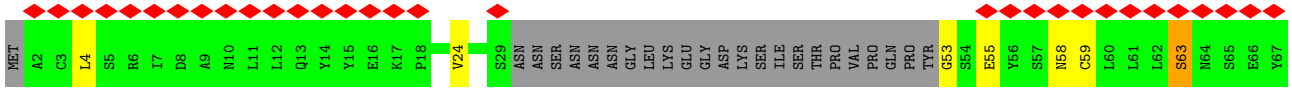
Chain Z2:

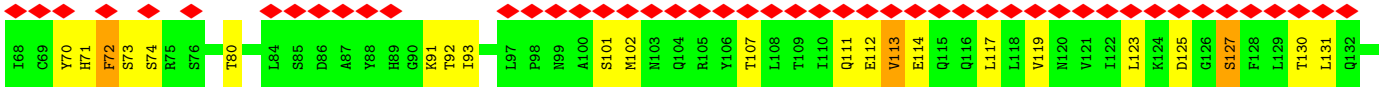

MET A2 C3 L4 S5 R6 I7 D8 A9 N10 L11 L12 Q13 Y14 Y15 E16 K17 P18 E19 P20 N21 N22 T23 V24 D25 L26 Y27 V28 S29 ASN ASN SER ASN ASN ASN GLY LEU LYS GLU GLY ASP LYS SER ILE SER THR PRO VAL PRO GLN PRO TYR G53 S54 E55 Y56 S57 N58 C59 L60
L61 L62 S63 N64 S65 E66 Y67 I68 C69 Y70 H71 F72 S73 S74 R75 S76 T77 L78 L79 T80 F81 Y82 P83 L84 S85 D86 A87 Y88 H89 G90 K91 T92 I93 N94 I95 H96 L97 P98 N99 A100 S101 M102 N103 Q104 R105 Y106 T107 L108 T109 I110 Q111 E112 V113 E114 Q115 Q116 L117 L118 V119 N120
V121 I122 L123 K124 D125 G126 S127 F128 L129 T130 L131 Q132 L133 P134 L135 S136 F137 L138 F139 S140 S141 A142 N143 T144 L145 N146 G147 E148 W149 F150 H151 L152 Q153 V160 R161 V162 P163 H164 F165 L166 F167 Y168 V169 S170 P171 Q172 F173 S174 V175 V176 F177 L178 E179 D180 L183 L184 G185 L186
K187 K188 V189 D190 G191 V192 H193 Y194 E195 P196 T209 S218 D219 Y220 D221 S222 V223 I224 S225 C226 K227 L228 F229 H230 E231 R232 Y233 L234 I235 V236 L237 T238 Q239 N240 C241 H242 L243 K244 I245 W246 D247 L248 T249 S250 F251 I254 Q255 D256 Y257 D258 M259 V260 S261 Q262 S263 D264 S265
D266 P267 S268 H269 F270 R271 K272 V273 E274 A275 Y276 G277 E278 Y279 L280 S281 L282 Y283 N284 N285 T286 L287 V288 T289 L290 L291 P292 L293 E294 N295 G296 L297 F298 Q299 M300 G301 T302 L303 L304 V305 ASP SER SER GLY ILE L311 T312 Y313 T314 F315 Q316 N317 N318 I319 P320 T321 N322 L323 S324 A325
S326 A327 I328 W329 S330 I331 V332 D333 L334 V335 L336 T337 R338 P339 L340 E341 L342 N343 V344 E345 A346 S347 Y348 L349 N350 L351 I352 V353 L354 W355 K356 S357 G358 T359 A360 S361 K362 L363 Q364 I365 L366 N367 V368 N369 D370 E371 S372 F373 K374 N375 Y376 E377 W378 I379 E380 S381 V382 N383 K384 S385
L386 V387 D388 L389 Q390 S391 E392 H393 D394 L395 D396 I397 V398 T399 K400 T401 G402 D403 V404 E405 R406 G407 F408 C409 N410 L411 K412 S413 R414 Y415 G416 T417 Q418 I419 F420 E421 R422 A423 Q424 Q425 I426 L427 S428 E429 N430 K431 I432 I433 M434 A435 H436 N437 E438 D439 E440 E441 Y442 L443 A444 N445
L446 E447 T448 I449 L450 R451 D452 V453 K454 T455 A456 F457 N458 E459 A460 S461 S462 I463 T464 L465 Y466 G467 D468 E469 I470 I471 L472 V473 N474 C475 F476 Q477 P478 Y479 N480 H481 S482 L483 Y484 K485 L486 N487 T488 T489 V490 E491 N492 W493 F494 Y495 N496 M497 H498 S499 E500 T501 D502 G503 S504 E505
L506 F507 K508 Y509 L510 R511 T512 L513 N514 G515 F516 A517 S518 T519 L520 S521 N522 D523 V524 L525 R526 S527 I528 S529 K530 K531 F532 L533 D534 I535 I536 T537 G538 E539 L540 P541 D542 S543 M544 T545 T546 V547 E548 K549 F550 T551 D552 I553 F554 K555 N556 C557 L558 E559 N560 Q561 F562 E563 I564 T565
N566 L567 K568 I569 L570 F571 D572 E573 L574 N575 S576 F577 D578 I579 P580 V581 V582 L583 N584 D585 L586 I587 N588 N589 Q590 M591 K592 P593 G594 I595 F596 W597 K598 K599 D600 F601 I602 S603 A604 I605 K606 F607 D608 G609 F610 T611 S612 I613 I614 S615 L616 E617 S618 L619 H620 Q621 L622 L623 S624 I625
H626 Y627 R628 I629 T630 L631 Q632 V633 L634 L635 T636 F637 V638 L639 F640 D641 L642 D643 T644 E645 I646 F647 G648 Q649 H650 I651 S652 T653 L654 L655 D656 L657 H658 Y659 K660 Q661 F662 L663 L664 L665 N666 L667 Y668 R669 Q670 D671 K672 C673 L674 L675 A676 E677 V678 L679 L680 K681 D682 S683 S684 E685
F686 S687 F688 G689 V690 K691 F692 F693 N694 Y695 G696 Q697 L698 I699 A700 Y701 I702 D703 S704 L705 N706 S707 N708 V709 Y710 N711 ALA SER ILE T715 E716 N717 S718 F719 F720 M721 T722 F723 F724 R725 S726 TYR ILE ILE GLU ASN THR S733 H734 K735 N736 I737 R738 F739 F740 L741 E742 N743 V744 E745
C746 PRO PHE TYR LEU ARG HIS ASN E754 V755 Q756 E757 F758 M759 F760 A761 M762 T763 L764 F765 S766 CYS GLY ASN F770 D771 Q772 S773 Y774 E775 I776 F777 Q778 L779 H780 D781 TYR PRO GLU ALA ILE ASN ASP LYS LEU PRO THR PHE LEU GLU ASP LEU LYS SER GLU GLU ASN TYR HIS GLY ASP
SER I807 W808 K809 D810 L811 L812 C813 T814 F815 T816 V817 P818 TYR ARG H821 S822 A823 F824 Y825 Y826 Q827 L828 S829 L830 L831 F832 D833 ARG ASN ASN SER Q838 E839 F840 A841 L842 K843 C844 I845 S846 K847 S848 A849 E850 Y851 S852 L853 LYS GLU ILE GLN ILE GLU GLY GLU LEU Q962 D863 F864 K865

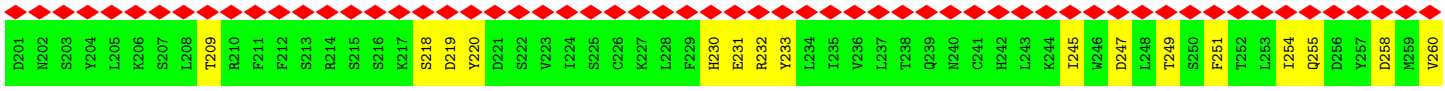


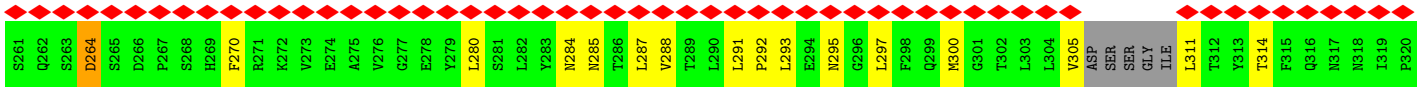
- Molecule 28: NUP160

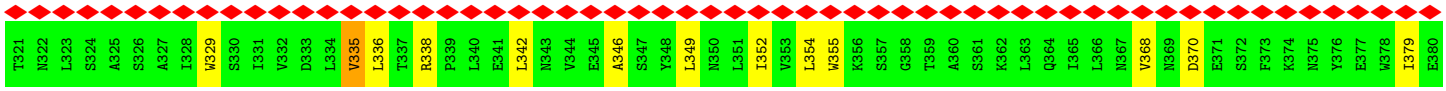
Chain Z3:

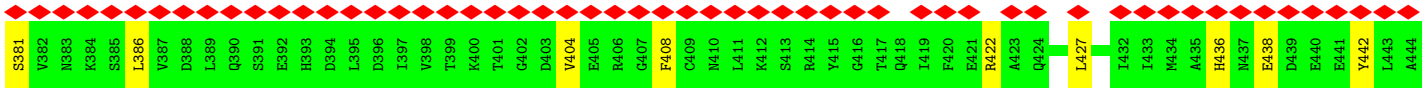


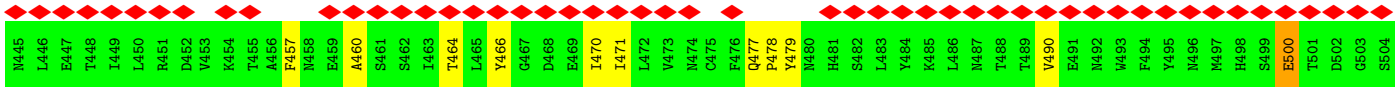


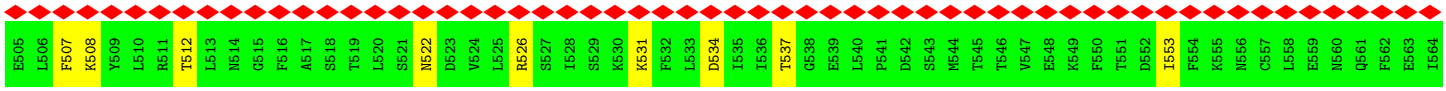


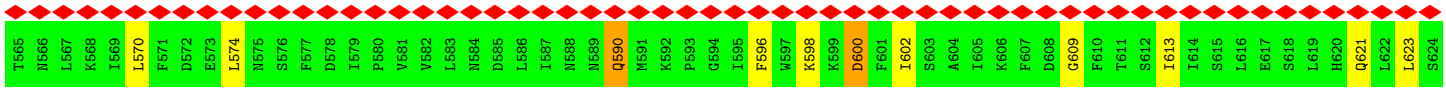


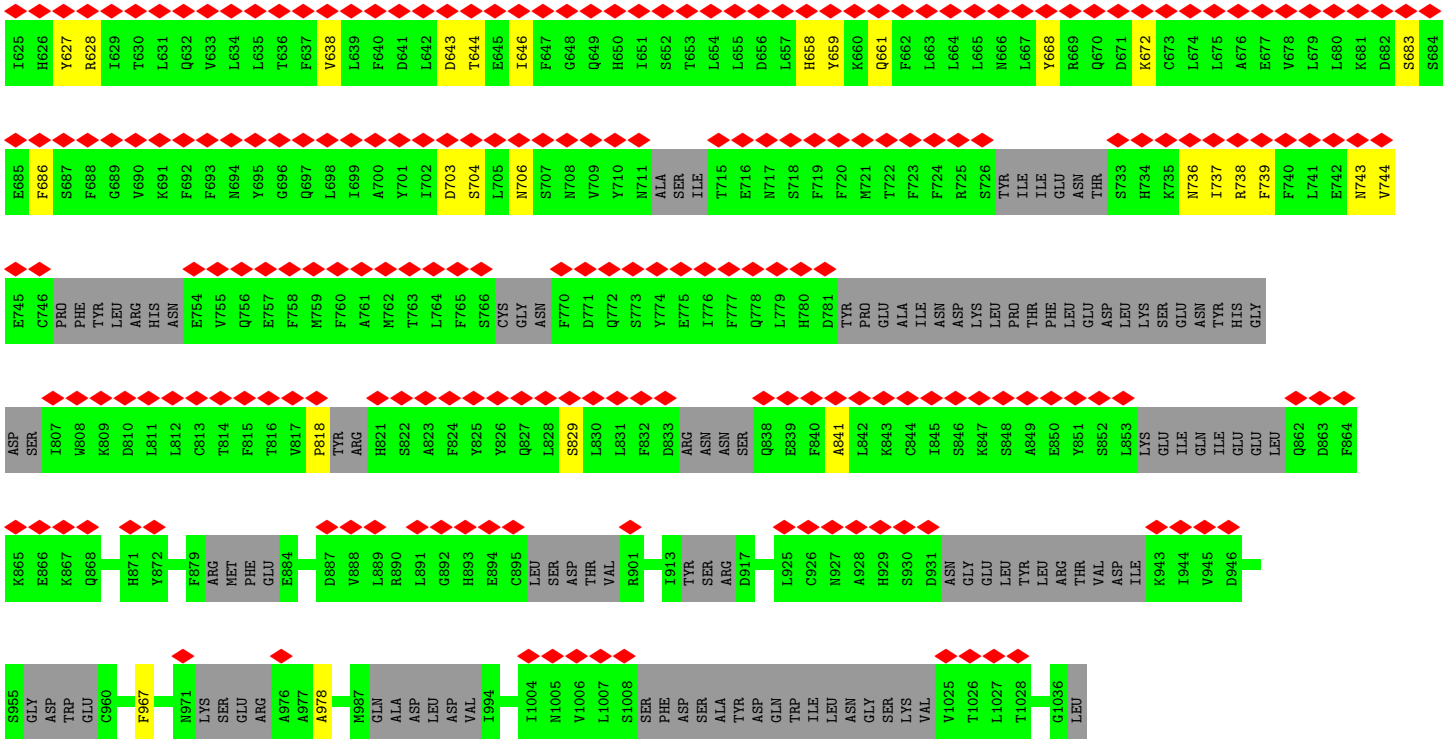






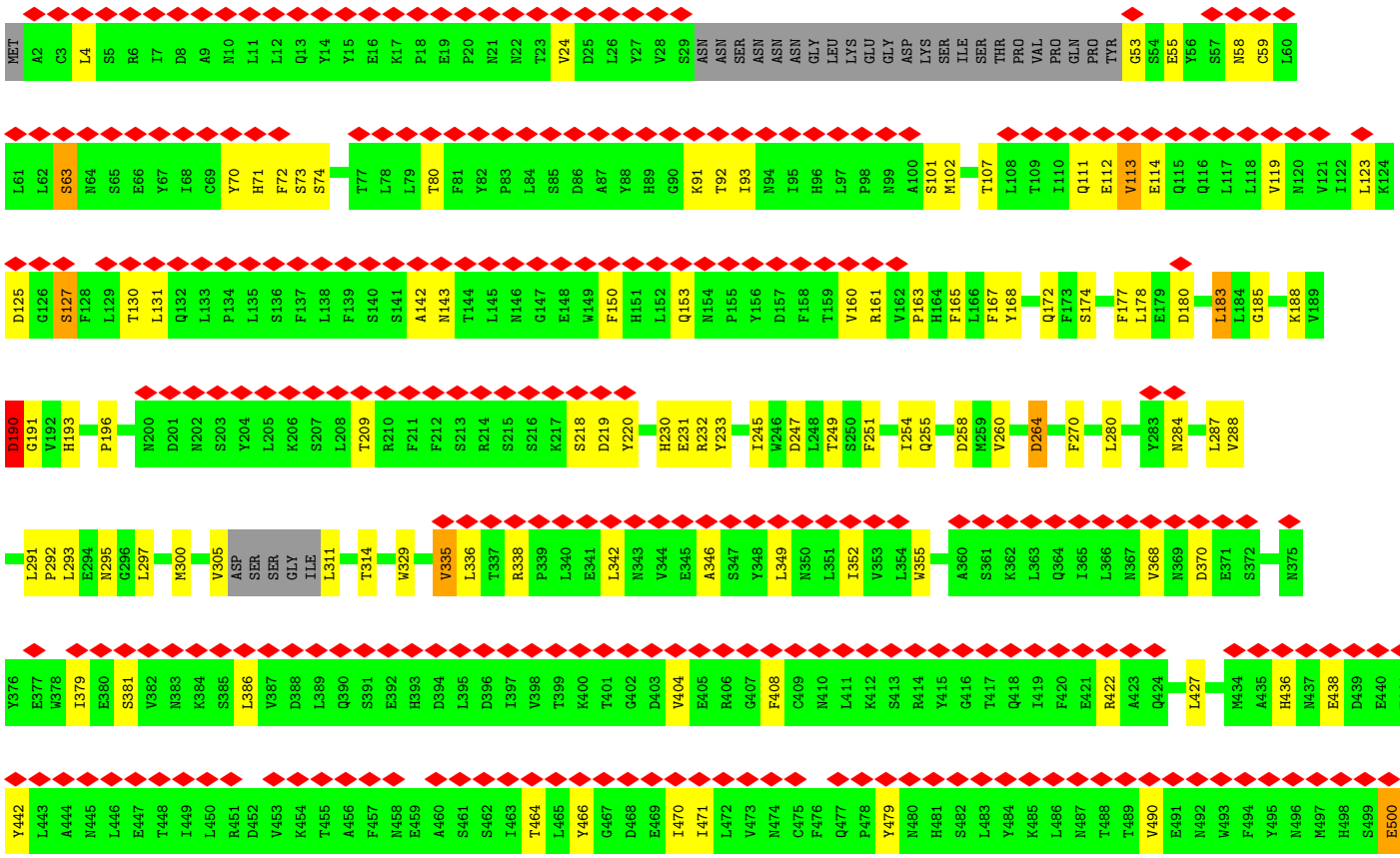


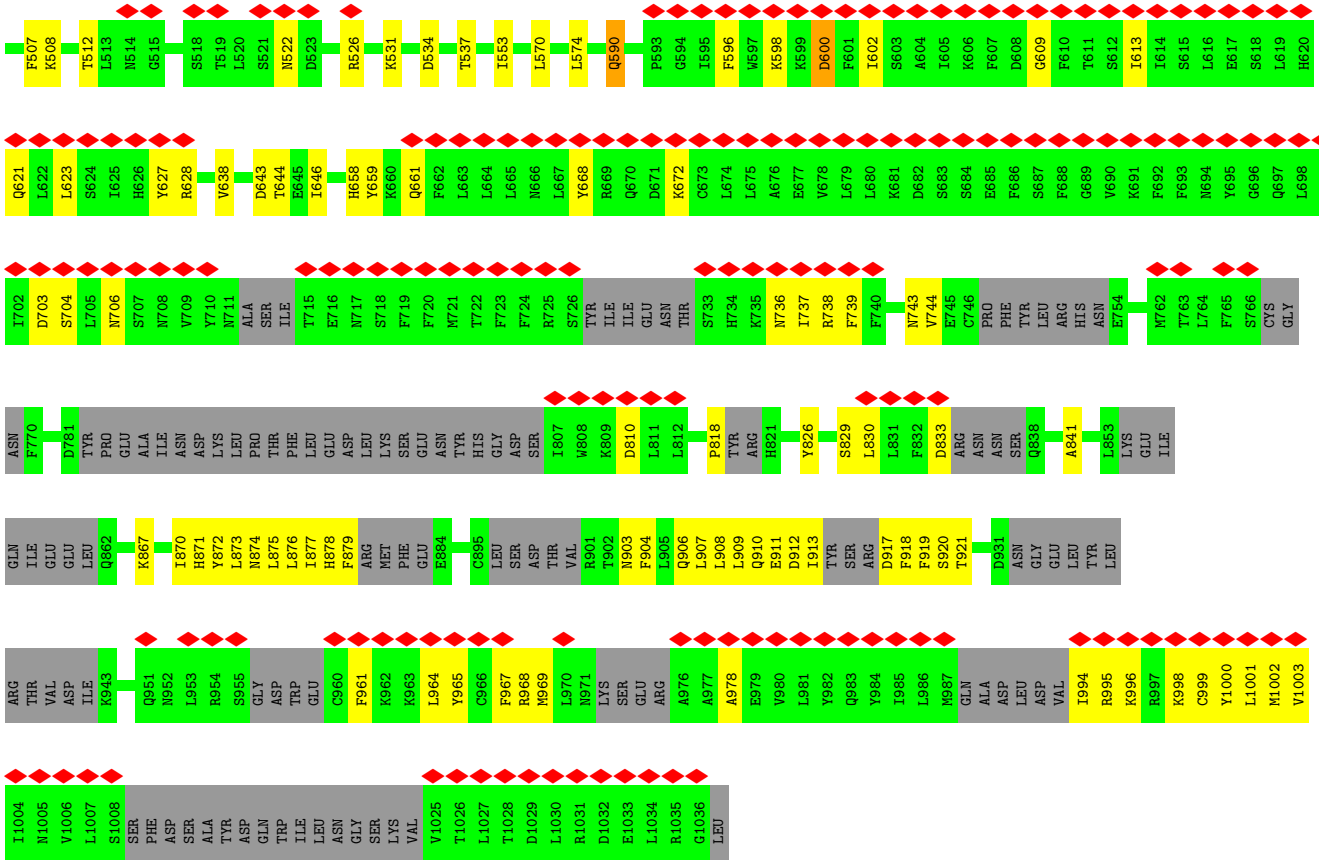




• Molecule 28: NUP160

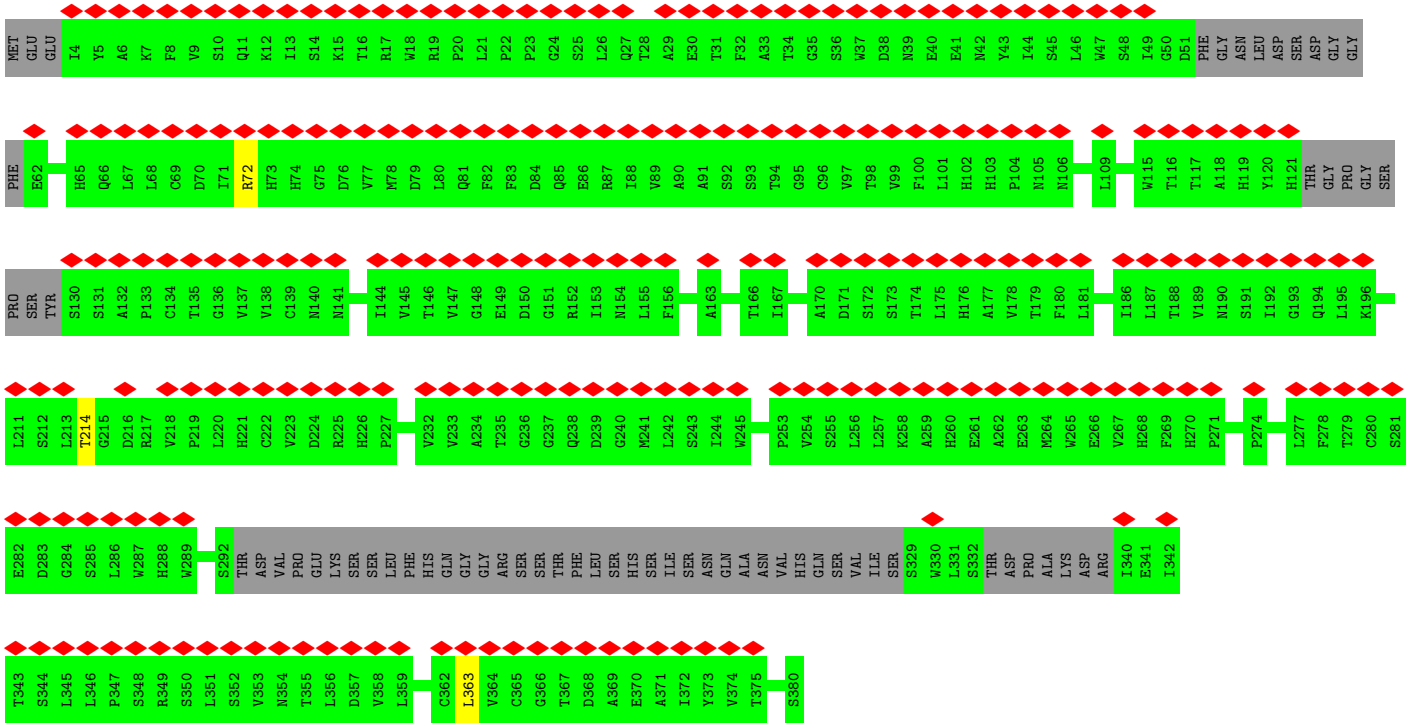
Chain Z4:





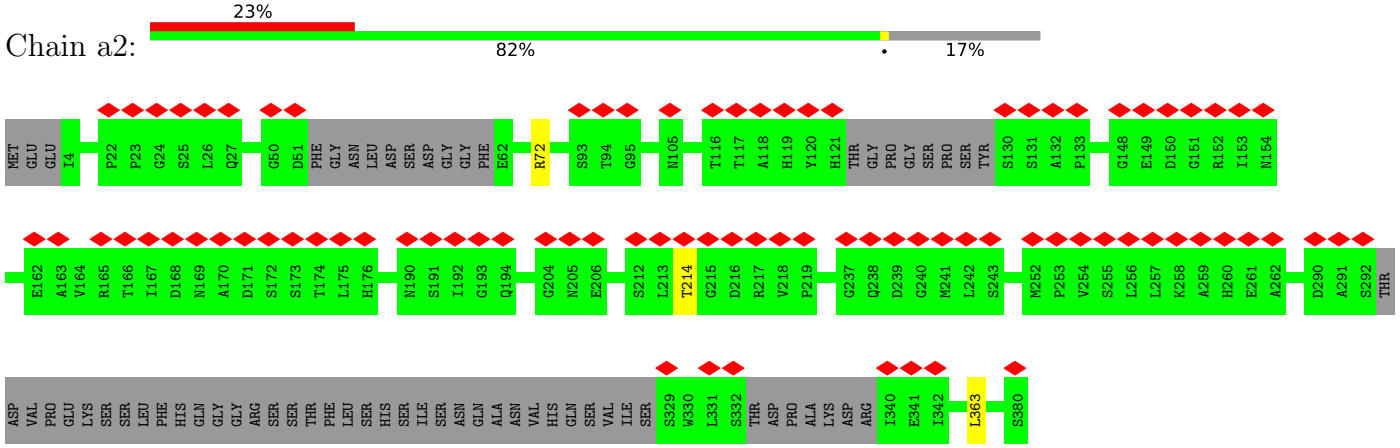
• Molecule 29: NUP43

Chain a1:



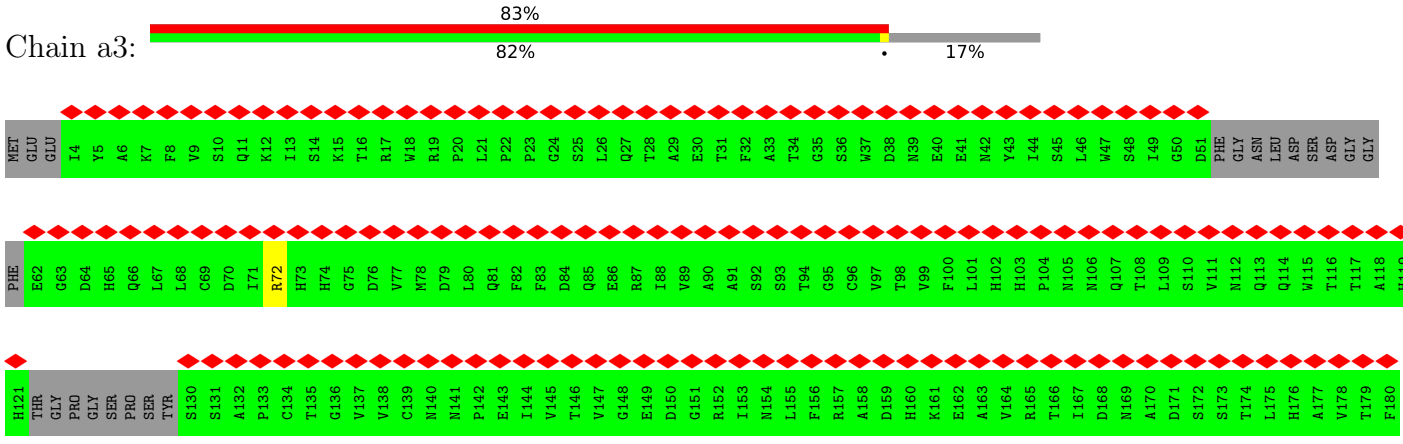
• Molecule 29: NUP43

Chain a2:



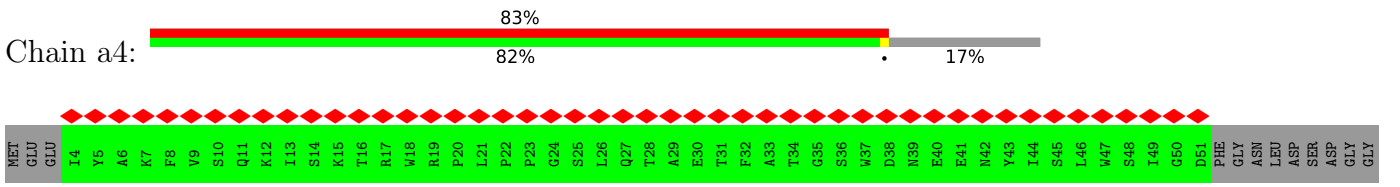
• Molecule 29: NUP43

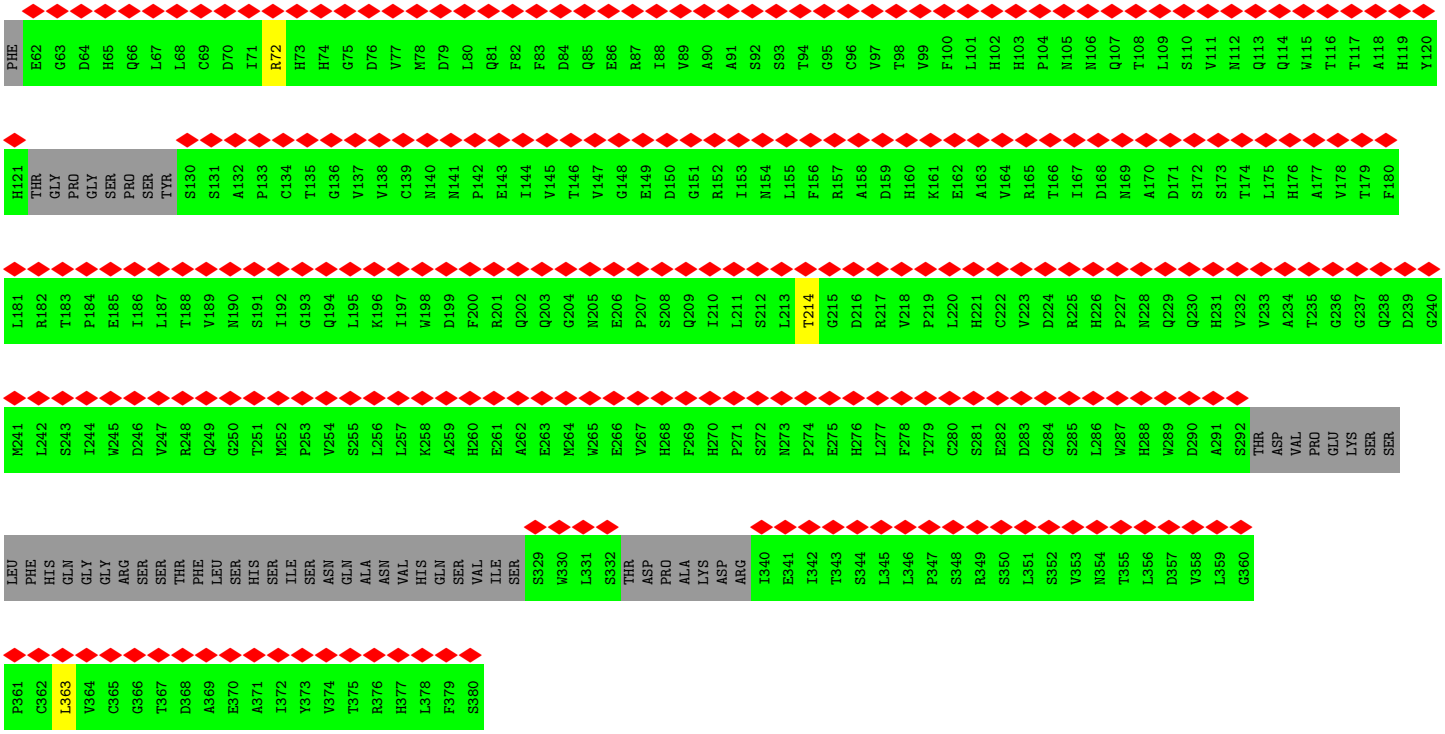
Chain a3:



• Molecule 29: NUP43

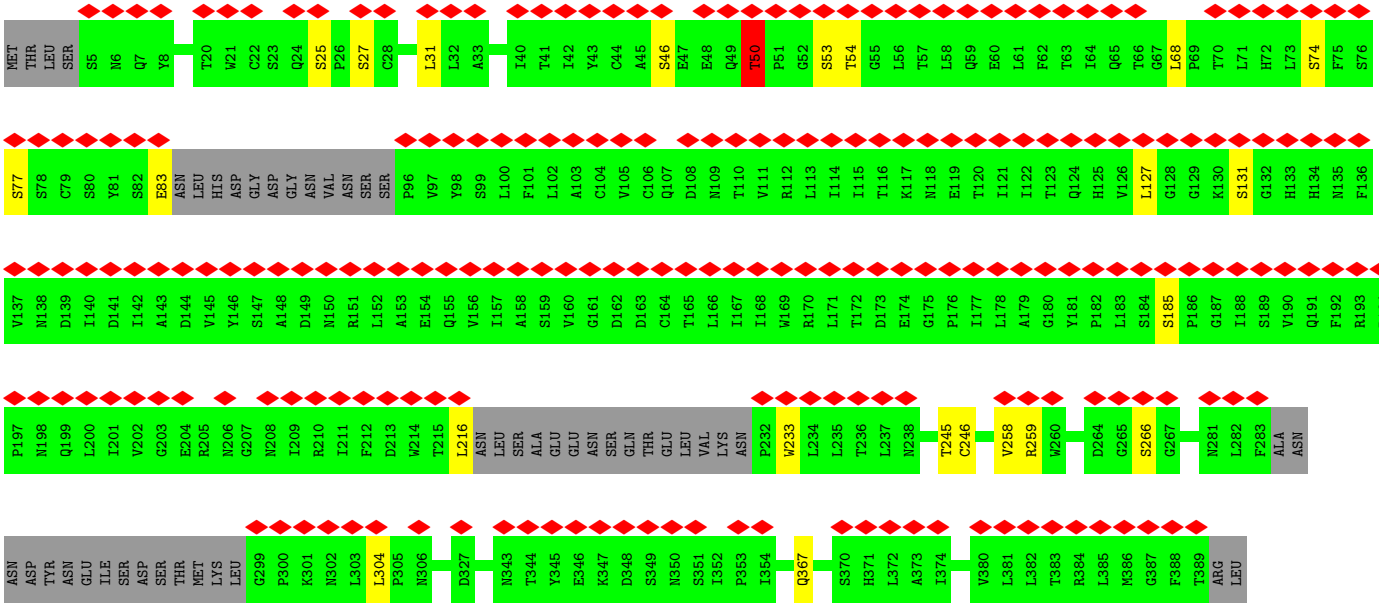
Chain a4:





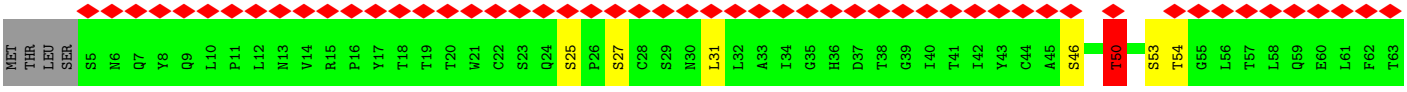
• Molecule 30: NUP37

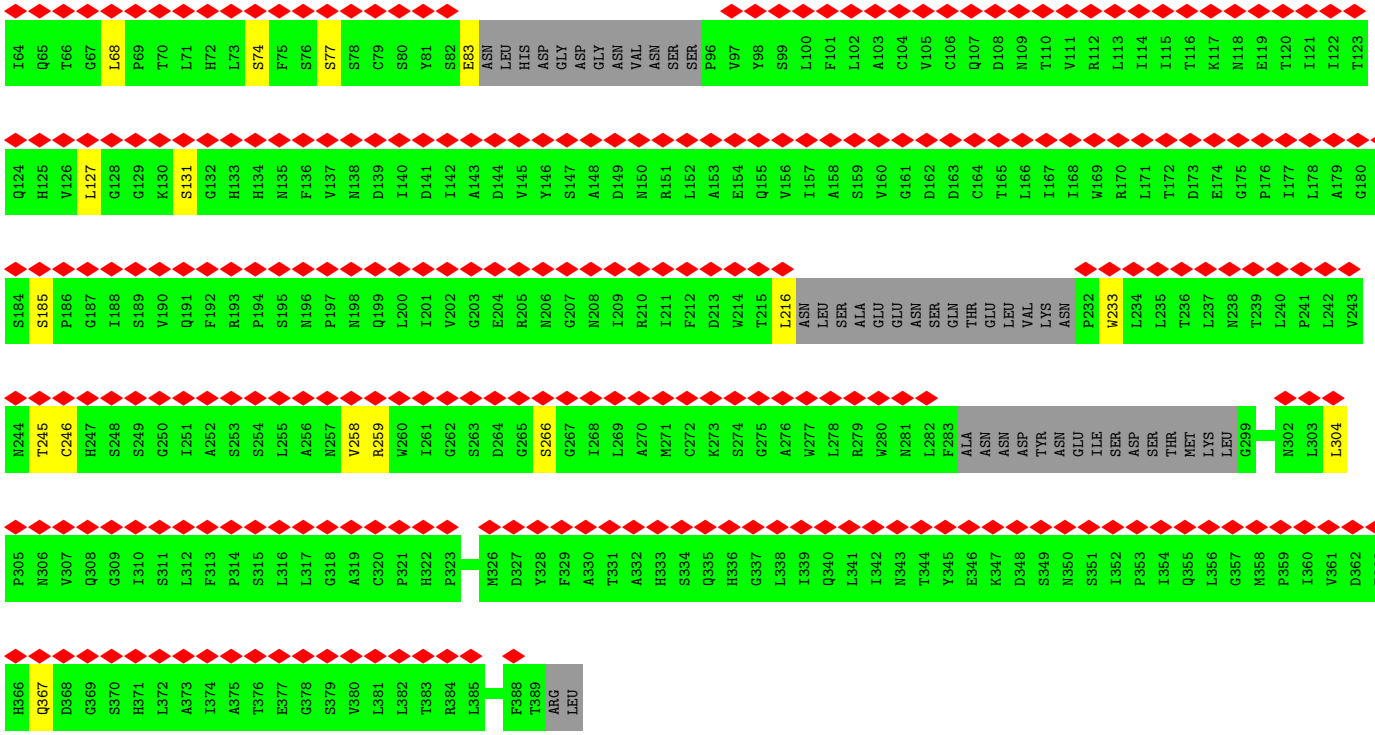
Chain b1:



• Molecule 30: NUP37

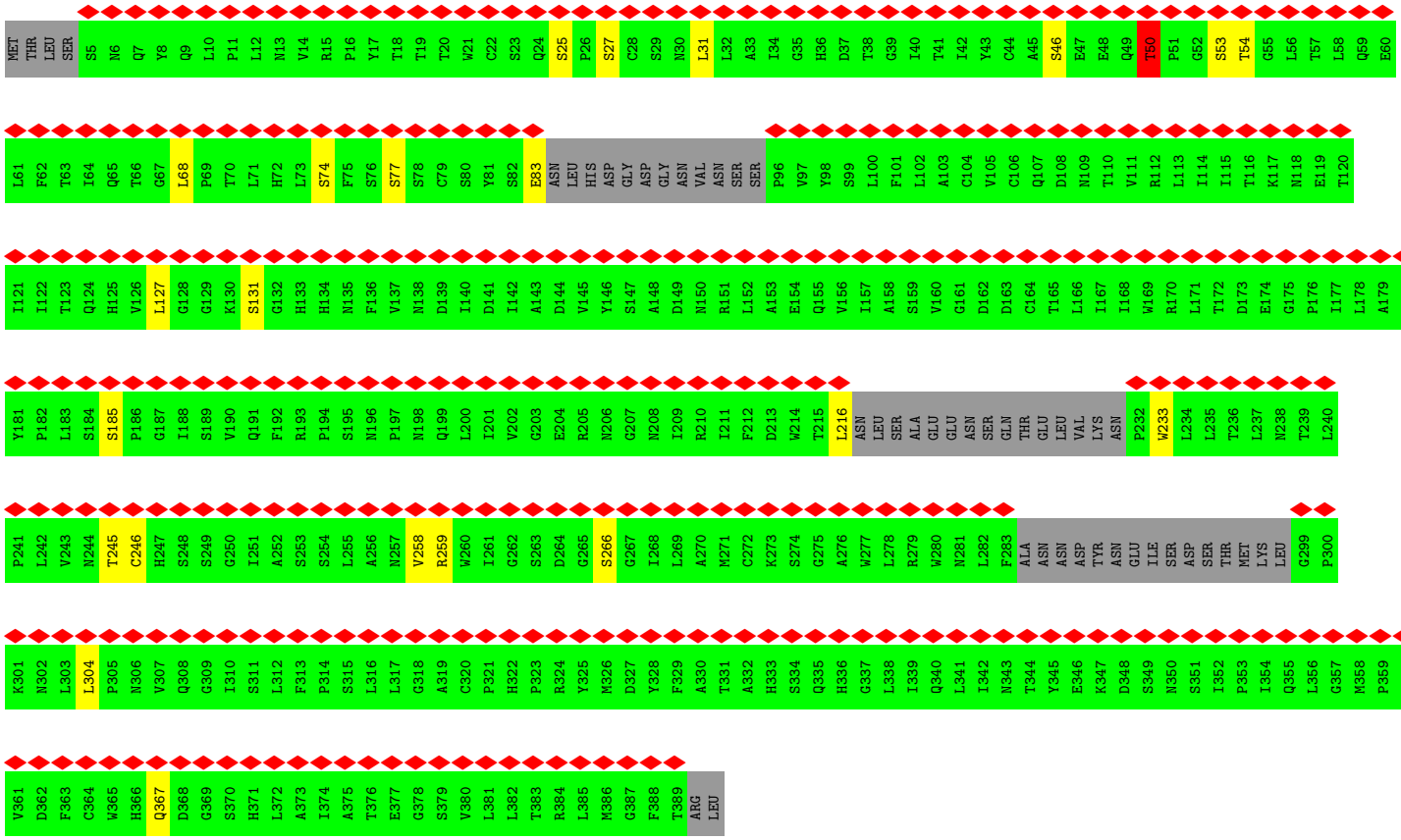
Chain b2:





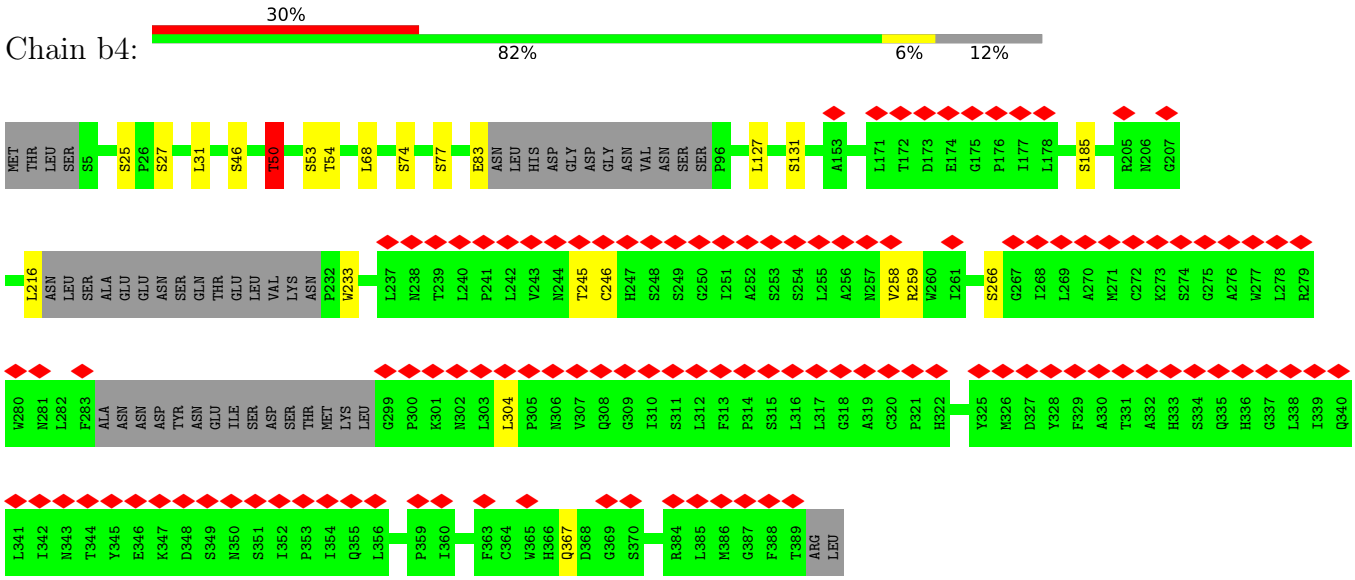
- Molecule 30: NUP37

Chain b3:



• Molecule 30: NUP37

Chain b4:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, Not provided	
Number of subtomograms used	792	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	140	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	4500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.524	Depositor
Minimum map value	-0.301	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.036	Depositor
Recommended contour level	0.07	Depositor
Map size (Å)	1987.2001, 1987.2001, 1987.2001	wwPDB
Map dimensions	144, 144, 144	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	13.8, 13.8, 13.8	Depositor

5 Model quality

5.1 Standard geometry

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	A1	0.28	1/9926 (0.0%)	0.44	0/13474
1	A3	0.29	1/9926 (0.0%)	0.44	0/13474
2	A2	0.25	0/10133	0.45	0/13731
2	A4	0.25	0/10133	0.45	0/13731
3	A5	0.26	1/10216 (0.0%)	0.43	0/13838
3	A6	0.26	1/10216 (0.0%)	0.43	0/13838
4	B1	0.25	0/112	0.48	0/149
4	B2	0.25	0/112	0.48	0/149
4	B3	0.25	0/112	0.48	0/149
4	B4	0.25	0/112	0.48	0/149
4	B5	0.26	0/112	0.48	0/149
4	B6	0.26	0/112	0.48	0/149
5	C1	0.39	0/140	0.50	0/188
5	C2	0.30	0/160	0.53	0/214
5	C3	0.39	0/140	0.50	0/188
5	C4	0.31	0/160	0.53	0/214
5	C5	0.39	0/140	0.50	0/188
5	C6	0.39	0/140	0.50	0/188
6	D1	0.27	0/5130	0.43	0/6930
6	D2	0.27	0/5130	0.43	0/6930
6	D3	0.27	0/5130	0.43	0/6930
6	D4	0.27	0/5130	0.43	0/6930
6	D5	0.27	0/5130	0.43	0/6930
6	D6	0.28	0/5130	0.43	0/6930
6	D7	0.27	0/5130	0.43	0/6930
7	E1	0.25	0/65	0.41	0/89
7	E2	0.25	0/65	0.41	0/89
7	E3	0.25	0/65	0.42	0/89
7	E4	0.24	0/65	0.41	0/89
7	E5	0.24	0/65	0.42	0/89
7	E6	0.24	0/65	0.41	0/89
7	E7	0.24	0/65	0.42	0/89
8	F1	0.24	0/13031	0.39	0/17717
8	F2	0.24	0/13031	0.39	0/17717

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
9	G1	0.23	0/445	0.38	0/600
9	G2	0.23	0/445	0.38	0/600
10	H1	0.26	0/95	0.37	0/128
10	H2	0.26	0/95	0.37	0/128
11	I1	0.23	0/12541	0.36	0/16980
11	I2	0.23	0/12541	0.35	0/16980
11	I3	0.23	0/12541	0.36	0/16980
11	I4	0.23	0/12541	0.36	0/16980
11	I5	0.23	0/12541	0.36	0/16980
12	J1	0.23	0/511	0.37	0/688
12	J2	0.24	0/511	0.37	0/688
12	J3	0.23	0/511	0.37	0/688
12	J4	0.23	0/511	0.37	0/688
12	J5	0.23	0/511	0.37	0/688
13	K1	0.23	0/75	0.40	0/101
13	K2	0.23	0/75	0.39	0/101
13	K3	0.23	0/75	0.39	0/101
13	K4	0.24	0/75	0.39	0/101
13	K5	0.24	0/75	0.40	0/101
14	L1	0.29	0/15	0.16	0/18
14	L2	0.29	0/15	0.17	0/18
14	L3	0.26	0/15	0.19	0/18
14	L4	0.28	0/15	0.19	0/18
14	L5	0.30	0/15	0.18	0/18
15	M1	0.26	0/1388	0.39	0/1866
15	M2	0.26	0/1388	0.40	0/1866
15	M3	0.26	0/1388	0.39	0/1866
15	M4	0.26	0/1388	0.39	0/1866
16	N1	0.24	0/1413	0.38	0/1898
16	N2	0.25	0/1413	0.38	0/1898
16	N3	0.24	0/1413	0.38	0/1898
16	N4	0.25	0/1413	0.38	0/1898
17	O1	0.26	0/2011	0.41	0/2715
17	O2	0.26	0/2011	0.41	0/2715
17	O3	0.26	0/2011	0.41	0/2715
17	O4	0.26	0/2011	0.41	0/2715
18	P1	0.37	0/910	0.51	0/1228
18	P2	0.37	0/910	0.51	0/1228
18	P3	0.37	0/910	0.51	0/1228
18	P4	0.37	0/910	0.51	0/1228
19	Q1	0.50	0/672	0.59	0/898
19	Q2	0.49	0/629	0.61	0/842
19	Q3	0.50	0/672	0.59	0/898

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
19	Q4	0.49	0/629	0.61	0/842
20	R1	0.23	0/312	0.38	0/416
20	R2	0.23	0/312	0.38	0/416
20	R3	0.23	0/312	0.38	0/416
20	R4	0.23	0/312	0.38	0/416
21	S1	0.84	6/6081 (0.1%)	0.83	18/8304 (0.2%)
21	S2	0.84	6/6081 (0.1%)	0.83	19/8304 (0.2%)
21	S3	0.84	6/6081 (0.1%)	0.83	18/8304 (0.2%)
21	S4	0.84	6/6081 (0.1%)	0.83	18/8304 (0.2%)
22	T1	0.24	0/2037	0.41	0/2749
22	T2	0.24	0/2037	0.41	0/2749
22	T3	0.24	0/2037	0.41	0/2749
22	T4	0.24	0/2037	0.41	0/2749
23	U1	0.36	0/3472	0.64	2/4714 (0.0%)
23	U2	0.36	0/3472	0.64	2/4714 (0.0%)
23	U3	0.36	0/3472	0.64	2/4714 (0.0%)
23	U4	0.36	0/3472	0.64	2/4714 (0.0%)
24	V1	0.37	0/3860	0.66	2/5224 (0.0%)
24	V2	0.37	0/3860	0.66	2/5224 (0.0%)
24	V3	0.37	0/3860	0.66	2/5224 (0.0%)
24	V4	0.37	0/3860	0.66	2/5224 (0.0%)
25	W1	0.32	0/2220	0.62	0/3028
25	W2	0.32	0/2220	0.62	0/3028
25	W3	0.32	0/2220	0.62	0/3028
25	W4	0.32	0/2220	0.62	0/3028
26	X1	0.31	0/4602	0.58	2/6246 (0.0%)
26	X2	0.31	0/4602	0.58	2/6246 (0.0%)
26	X3	0.31	0/4602	0.58	2/6246 (0.0%)
26	X4	0.31	0/4602	0.58	2/6246 (0.0%)
27	Y1	0.28	0/2499	0.64	0/3388
27	Y2	0.28	0/2499	0.64	0/3388
27	Y3	0.28	0/2499	0.64	0/3388
27	Y4	0.28	0/2499	0.64	0/3388
28	Z1	0.33	0/6730	0.55	1/9158 (0.0%)
28	Z2	0.33	0/6730	0.55	1/9158 (0.0%)
28	Z3	0.33	0/6730	0.55	1/9158 (0.0%)
28	Z4	0.33	0/6730	0.55	1/9158 (0.0%)
29	a1	0.78	0/2723	0.78	0/3715
29	a2	0.78	0/2723	0.78	0/3715
29	a3	0.78	0/2723	0.78	0/3715
29	a4	0.78	0/2723	0.78	0/3715
30	b1	0.33	0/2702	0.65	0/3689
30	b2	0.33	0/2702	0.65	0/3689

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
30	b3	0.33	0/2702	0.65	0/3689
30	b4	0.33	0/2702	0.65	0/3689
All	All	0.37	28/365761 (0.0%)	0.52	101/495950 (0.0%)

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	A1	0	2
1	A3	0	2
2	A2	0	1
2	A4	0	1
23	U1	0	1
23	U2	0	1
23	U3	0	1
23	U4	0	1
24	V1	0	2
24	V2	0	2
24	V3	0	2
24	V4	0	2
28	Z1	0	2
28	Z2	0	2
28	Z3	0	2
28	Z4	0	2
30	b1	0	3
30	b2	0	3
30	b3	0	3
30	b4	0	3
All	All	0	38

The worst 5 of 28 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A1	891	GLY	C-N	7.13	1.50	1.34
1	A3	891	GLY	C-N	7.09	1.50	1.34
21	S1	151	TRP	CE3-CZ3	7.06	1.50	1.38
21	S2	151	TRP	CE3-CZ3	7.04	1.50	1.38
21	S3	151	TRP	CE3-CZ3	7.04	1.50	1.38

The worst 5 of 101 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
21	S1	685	PRO	N-CA-CB	8.59	113.61	103.30
21	S2	685	PRO	N-CA-CB	8.59	113.61	103.30
21	S4	685	PRO	N-CA-CB	8.59	113.60	103.30
21	S3	685	PRO	N-CA-CB	8.54	113.55	103.30
21	S3	377	ASP	CB-CG-OD2	8.04	125.53	118.30

There are no chirality outliers.

5 of 38 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A1	891	GLY	Mainchain
1	A1	976	LEU	Peptide
2	A2	699	SER	Peptide
1	A3	891	GLY	Mainchain
1	A3	976	LEU	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	A1	9730	0	9629	529	0
1	A3	9730	0	9573	2325	0
2	A2	9946	0	9774	1854	0
2	A4	9946	0	9656	5008	0
3	A5	10030	0	9892	1550	0
3	A6	10030	0	9732	6034	0
4	B1	111	0	127	1	0
4	B2	111	0	127	24	0
4	B3	111	0	127	1	0
4	B4	111	0	127	25	0
4	B5	111	0	122	38	0
4	B6	111	0	118	184	0
5	C1	138	0	144	26	0
5	C2	157	0	157	350	0
5	C3	138	0	144	8	0
5	C4	157	0	164	64	0
5	C5	138	0	144	23	0
5	C6	138	0	144	22	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	D1	5034	0	4999	1029	0
6	D2	5034	0	5029	82	0
6	D3	5034	0	4965	1769	0
6	D4	5034	0	5030	91	0
6	D5	5034	0	5030	58	0
6	D6	5034	0	5027	85	0
6	D7	5034	0	5027	126	0
7	E1	63	0	65	2	0
7	E2	63	0	65	2	0
7	E3	63	0	65	2	0
7	E4	63	0	65	2	0
7	E5	63	0	65	2	0
7	E6	63	0	65	2	0
7	E7	63	0	65	2	0
8	F1	12779	0	12916	379	0
8	F2	12779	0	12917	133	0
9	G1	438	0	404	211	0
9	G2	438	0	412	73	0
10	H1	94	0	84	0	0
10	H2	94	0	84	0	0
11	I1	12307	0	12271	3172	0
11	I2	12307	0	12280	3234	0
11	I3	12307	0	12354	443	0
11	I4	12307	0	12360	241	0
11	I5	12307	0	12347	527	0
12	J1	504	0	485	54	0
12	J2	504	0	485	55	0
12	J3	504	0	487	32	0
12	J4	504	0	487	30	0
12	J5	504	0	487	31	0
13	K1	73	0	82	0	0
13	K2	73	0	82	0	0
13	K3	73	0	82	0	0
13	K4	73	0	82	0	0
13	K5	73	0	82	0	0
14	L1	15	0	11	0	0
14	L2	15	0	11	0	0
14	L3	15	0	11	0	0
14	L4	15	0	11	0	0
14	L5	15	0	11	0	0
15	M1	1372	0	1333	715	0
15	M2	1372	0	1361	52	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
15	M3	1372	0	1332	573	0
15	M4	1372	0	1363	4	0
16	N1	1401	0	1375	720	0
16	N2	1401	0	1397	74	0
16	N3	1401	0	1383	611	0
16	N4	1401	0	1398	10	0
17	O1	1971	0	1943	906	0
17	O2	1971	0	1962	418	0
17	O3	1971	0	1935	1232	0
17	O4	1971	0	1961	236	0
18	P1	900	0	910	60	0
18	P2	900	0	910	42	0
18	P3	900	0	908	147	0
18	P4	900	0	907	119	0
19	Q1	658	0	645	3	0
19	Q2	616	0	600	3	0
19	Q3	658	0	645	3	0
19	Q4	616	0	600	3	0
20	R1	311	0	315	348	0
20	R2	311	0	334	2	0
20	R3	311	0	313	463	0
20	R4	311	0	334	2	0
21	S1	6013	0	4979	319	0
21	S2	6013	0	4980	325	0
21	S3	6013	0	4983	236	0
21	S4	6013	0	4979	233	0
22	T1	1993	0	1981	65	0
22	T2	1993	0	1981	68	0
22	T3	1993	0	1981	99	0
22	T4	1993	0	1981	71	0
23	U1	3404	0	3378	84	0
23	U2	3404	0	3378	81	0
23	U3	3404	0	3377	135	0
23	U4	3404	0	3378	79	0
24	V1	3805	0	3499	105	0
24	V2	3805	0	3499	109	0
24	V3	3805	0	3499	106	0
24	V4	3805	0	3499	110	0
25	W1	2160	0	2096	63	0
25	W2	2160	0	2096	75	0
25	W3	2160	0	2096	63	0
25	W4	2160	0	2096	125	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
26	X1	4535	0	4064	370	0
26	X2	4535	0	4071	156	0
26	X3	4535	0	4068	232	0
26	X4	4535	0	4071	146	0
27	Y1	2438	0	2378	55	0
27	Y2	2438	0	2378	52	0
27	Y3	2438	0	2378	63	0
27	Y4	2438	0	2378	56	0
28	Z1	6622	0	5893	80	0
28	Z2	6622	0	5883	487	0
28	Z3	6622	0	5893	83	0
28	Z4	6622	0	5885	305	0
29	a1	2587	0	2488	0	0
29	a2	2587	0	2488	0	0
29	a3	2587	0	2486	0	0
29	a4	2587	0	2488	0	0
30	b1	2638	0	2573	0	0
30	b2	2638	0	2573	0	0
30	b3	2638	0	2573	0	0
30	b4	2638	0	2573	0	0
All	All	358888	0	346270	22519	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 36.

The worst 5 of 22519 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)
11:I2:950:LEU:HD11	16:N3:410:MET:SD	1.20	1.72
3:A6:444:ARG:HG2	6:D3:737:PHE:CZ	1.21	1.69
2:A4:886:PHE:CZ	3:A6:176:LEU:HG	1.26	1.68
11:I1:833:PHE:CD2	17:O1:238:ALA:HA	1.27	1.68
2:A4:770:GLY:CA	3:A6:469:PHE:CD2	1.74	1.68

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	A1	1211/1316 (92%)	1172 (97%)	39 (3%)	0	100	100
1	A3	1211/1316 (92%)	1172 (97%)	39 (3%)	0	100	100
2	A2	1255/1328 (94%)	1183 (94%)	54 (4%)	18 (1%)	11	46
2	A4	1255/1328 (94%)	1182 (94%)	55 (4%)	18 (1%)	11	46
3	A5	1258/1330 (95%)	1224 (97%)	34 (3%)	0	100	100
3	A6	1258/1330 (95%)	1224 (97%)	34 (3%)	0	100	100
4	B1	12/14 (86%)	11 (92%)	1 (8%)	0	100	100
4	B2	12/14 (86%)	11 (92%)	1 (8%)	0	100	100
4	B3	12/14 (86%)	11 (92%)	1 (8%)	0	100	100
4	B4	12/14 (86%)	11 (92%)	1 (8%)	0	100	100
4	B5	12/14 (86%)	11 (92%)	1 (8%)	0	100	100
4	B6	12/14 (86%)	11 (92%)	1 (8%)	0	100	100
5	C1	15/19 (79%)	11 (73%)	4 (27%)	0	100	100
5	C2	17/19 (90%)	12 (71%)	5 (29%)	0	100	100
5	C3	15/19 (79%)	11 (73%)	4 (27%)	0	100	100
5	C4	17/19 (90%)	12 (71%)	5 (29%)	0	100	100
5	C5	15/19 (79%)	11 (73%)	4 (27%)	0	100	100
5	C6	15/19 (79%)	11 (73%)	4 (27%)	0	100	100
6	D1	615/644 (96%)	604 (98%)	11 (2%)	0	100	100
6	D2	615/644 (96%)	604 (98%)	11 (2%)	0	100	100
6	D3	615/644 (96%)	604 (98%)	11 (2%)	0	100	100
6	D4	615/644 (96%)	604 (98%)	11 (2%)	0	100	100
6	D5	615/644 (96%)	604 (98%)	11 (2%)	0	100	100
6	D6	615/644 (96%)	604 (98%)	11 (2%)	0	100	100
6	D7	615/644 (96%)	604 (98%)	11 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	E1	6/8 (75%)	6 (100%)	0	0	100	100
7	E2	6/8 (75%)	6 (100%)	0	0	100	100
7	E3	6/8 (75%)	6 (100%)	0	0	100	100
7	E4	6/8 (75%)	6 (100%)	0	0	100	100
7	E5	6/8 (75%)	6 (100%)	0	0	100	100
7	E6	6/8 (75%)	6 (100%)	0	0	100	100
7	E7	6/8 (75%)	6 (100%)	0	0	100	100
8	F1	1611/1858 (87%)	1589 (99%)	22 (1%)	0	100	100
8	F2	1611/1858 (87%)	1589 (99%)	22 (1%)	0	100	100
9	G1	51/53 (96%)	51 (100%)	0	0	100	100
9	G2	51/53 (96%)	51 (100%)	0	0	100	100
10	H1	11/13 (85%)	7 (64%)	4 (36%)	0	100	100
10	H2	11/13 (85%)	7 (64%)	4 (36%)	0	100	100
11	I1	1508/1756 (86%)	1491 (99%)	17 (1%)	0	100	100
11	I2	1508/1756 (86%)	1491 (99%)	17 (1%)	0	100	100
11	I3	1508/1756 (86%)	1491 (99%)	17 (1%)	0	100	100
11	I4	1508/1756 (86%)	1491 (99%)	17 (1%)	0	100	100
11	I5	1508/1756 (86%)	1491 (99%)	17 (1%)	0	100	100
12	J1	61/63 (97%)	61 (100%)	0	0	100	100
12	J2	61/63 (97%)	61 (100%)	0	0	100	100
12	J3	61/63 (97%)	61 (100%)	0	0	100	100
12	J4	61/63 (97%)	61 (100%)	0	0	100	100
12	J5	61/63 (97%)	61 (100%)	0	0	100	100
13	K1	7/9 (78%)	5 (71%)	2 (29%)	0	100	100
13	K2	7/9 (78%)	5 (71%)	2 (29%)	0	100	100
13	K3	7/9 (78%)	5 (71%)	2 (29%)	0	100	100
13	K4	7/9 (78%)	5 (71%)	2 (29%)	0	100	100
13	K5	7/9 (78%)	5 (71%)	2 (29%)	0	100	100
15	M1	165/183 (90%)	158 (96%)	7 (4%)	0	100	100
15	M2	165/183 (90%)	158 (96%)	7 (4%)	0	100	100
15	M3	165/183 (90%)	158 (96%)	7 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
15	M4	165/183 (90%)	158 (96%)	7 (4%)	0	100	100
16	N1	174/222 (78%)	172 (99%)	2 (1%)	0	100	100
16	N2	174/222 (78%)	172 (99%)	2 (1%)	0	100	100
16	N3	174/222 (78%)	172 (99%)	2 (1%)	0	100	100
16	N4	174/222 (78%)	172 (99%)	2 (1%)	0	100	100
17	O1	239/241 (99%)	213 (89%)	26 (11%)	0	100	100
17	O2	239/241 (99%)	212 (89%)	27 (11%)	0	100	100
17	O3	239/241 (99%)	213 (89%)	26 (11%)	0	100	100
17	O4	239/241 (99%)	213 (89%)	26 (11%)	0	100	100
18	P1	115/116 (99%)	114 (99%)	1 (1%)	0	100	100
18	P2	115/116 (99%)	114 (99%)	1 (1%)	0	100	100
18	P3	115/116 (99%)	114 (99%)	1 (1%)	0	100	100
18	P4	115/116 (99%)	114 (99%)	1 (1%)	0	100	100
19	Q1	83/84 (99%)	81 (98%)	2 (2%)	0	100	100
19	Q2	79/84 (94%)	77 (98%)	2 (2%)	0	100	100
19	Q3	83/84 (99%)	81 (98%)	2 (2%)	0	100	100
19	Q4	79/84 (94%)	77 (98%)	2 (2%)	0	100	100
20	R1	38/40 (95%)	31 (82%)	7 (18%)	0	100	100
20	R2	38/40 (95%)	31 (82%)	7 (18%)	0	100	100
20	R3	38/40 (95%)	31 (82%)	7 (18%)	0	100	100
20	R4	38/40 (95%)	31 (82%)	7 (18%)	0	100	100
21	S1	874/1156 (76%)	784 (90%)	74 (8%)	16 (2%)	8	40
21	S2	874/1156 (76%)	784 (90%)	74 (8%)	16 (2%)	8	40
21	S3	874/1156 (76%)	784 (90%)	74 (8%)	16 (2%)	8	40
21	S4	874/1156 (76%)	784 (90%)	74 (8%)	16 (2%)	8	40
22	T1	243/258 (94%)	235 (97%)	8 (3%)	0	100	100
22	T2	243/258 (94%)	234 (96%)	9 (4%)	0	100	100
22	T3	243/258 (94%)	234 (96%)	9 (4%)	0	100	100
22	T4	243/258 (94%)	234 (96%)	9 (4%)	0	100	100
23	U1	413/436 (95%)	368 (89%)	34 (8%)	11 (3%)	5	31
23	U2	413/436 (95%)	368 (89%)	34 (8%)	11 (3%)	5	31

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
23	U3	413/436 (95%)	368 (89%)	34 (8%)	11 (3%)	5	31
23	U4	413/436 (95%)	368 (89%)	34 (8%)	11 (3%)	5	31
24	V1	491/621 (79%)	451 (92%)	30 (6%)	10 (2%)	7	38
24	V2	491/621 (79%)	451 (92%)	30 (6%)	10 (2%)	7	38
24	V3	491/621 (79%)	451 (92%)	30 (6%)	10 (2%)	7	38
24	V4	491/621 (79%)	451 (92%)	30 (6%)	10 (2%)	7	38
25	W1	270/286 (94%)	228 (84%)	36 (13%)	6 (2%)	6	35
25	W2	270/286 (94%)	228 (84%)	36 (13%)	6 (2%)	6	35
25	W3	270/286 (94%)	228 (84%)	36 (13%)	6 (2%)	6	35
25	W4	270/286 (94%)	228 (84%)	36 (13%)	6 (2%)	6	35
26	X1	592/698 (85%)	531 (90%)	51 (9%)	10 (2%)	9	42
26	X2	592/698 (85%)	531 (90%)	51 (9%)	10 (2%)	9	42
26	X3	592/698 (85%)	532 (90%)	50 (8%)	10 (2%)	9	42
26	X4	592/698 (85%)	532 (90%)	50 (8%)	10 (2%)	9	42
27	Y1	303/346 (88%)	266 (88%)	31 (10%)	6 (2%)	7	38
27	Y2	303/346 (88%)	266 (88%)	31 (10%)	6 (2%)	7	38
27	Y3	303/346 (88%)	266 (88%)	31 (10%)	6 (2%)	7	38
27	Y4	303/346 (88%)	266 (88%)	31 (10%)	6 (2%)	7	38
28	Z1	858/1037 (83%)	798 (93%)	50 (6%)	10 (1%)	13	50
28	Z2	858/1037 (83%)	798 (93%)	49 (6%)	11 (1%)	12	48
28	Z3	858/1037 (83%)	798 (93%)	49 (6%)	11 (1%)	12	48
28	Z4	858/1037 (83%)	798 (93%)	49 (6%)	11 (1%)	12	48
29	a1	334/380 (88%)	325 (97%)	9 (3%)	0	100	100
29	a2	334/380 (88%)	325 (97%)	9 (3%)	0	100	100
29	a3	334/380 (88%)	325 (97%)	9 (3%)	0	100	100
29	a4	334/380 (88%)	325 (97%)	9 (3%)	0	100	100
30	b1	335/391 (86%)	315 (94%)	19 (6%)	1 (0%)	41	77
30	b2	335/391 (86%)	315 (94%)	19 (6%)	1 (0%)	41	77
30	b3	335/391 (86%)	315 (94%)	19 (6%)	1 (0%)	41	77
30	b4	335/391 (86%)	315 (94%)	19 (6%)	1 (0%)	41	77
All	All	45287/51678 (88%)	42910 (95%)	2058 (4%)	319 (1%)	26	63

5 of 319 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	A2	521	ASN
2	A2	1024	ASP
2	A2	1305	ALA
2	A2	1342	SER
2	A2	1345	SER

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	A1	1061/1111 (96%)	1053 (99%)	8 (1%)	81 89
1	A3	1061/1111 (96%)	1053 (99%)	8 (1%)	81 89
2	A2	1073/1107 (97%)	991 (92%)	82 (8%)	13 37
2	A4	1073/1107 (97%)	991 (92%)	82 (8%)	13 37
3	A5	1087/1111 (98%)	1076 (99%)	11 (1%)	76 86
3	A6	1087/1111 (98%)	1076 (99%)	11 (1%)	76 86
4	B1	12/12 (100%)	12 (100%)	0	100 100
4	B2	12/12 (100%)	12 (100%)	0	100 100
4	B3	12/12 (100%)	12 (100%)	0	100 100
4	B4	12/12 (100%)	12 (100%)	0	100 100
4	B5	12/12 (100%)	12 (100%)	0	100 100
4	B6	12/12 (100%)	12 (100%)	0	100 100
5	C1	17/19 (90%)	17 (100%)	0	100 100
5	C2	19/19 (100%)	19 (100%)	0	100 100
5	C3	17/19 (90%)	17 (100%)	0	100 100
5	C4	19/19 (100%)	19 (100%)	0	100 100
5	C5	17/19 (90%)	17 (100%)	0	100 100
5	C6	17/19 (90%)	17 (100%)	0	100 100
6	D1	554/575 (96%)	554 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
6	D2	554/575 (96%)	554 (100%)	0	100	100
6	D3	554/575 (96%)	554 (100%)	0	100	100
6	D4	554/575 (96%)	554 (100%)	0	100	100
6	D5	554/575 (96%)	554 (100%)	0	100	100
6	D6	554/575 (96%)	554 (100%)	0	100	100
6	D7	554/575 (96%)	554 (100%)	0	100	100
7	E1	7/7 (100%)	7 (100%)	0	100	100
7	E2	7/7 (100%)	7 (100%)	0	100	100
7	E3	7/7 (100%)	7 (100%)	0	100	100
7	E4	7/7 (100%)	7 (100%)	0	100	100
7	E5	7/7 (100%)	7 (100%)	0	100	100
7	E6	7/7 (100%)	7 (100%)	0	100	100
7	E7	7/7 (100%)	7 (100%)	0	100	100
8	F1	1350/1512 (89%)	1350 (100%)	0	100	100
8	F2	1350/1512 (89%)	1350 (100%)	0	100	100
9	G1	47/47 (100%)	47 (100%)	0	100	100
9	G2	47/47 (100%)	47 (100%)	0	100	100
10	H1	10/10 (100%)	10 (100%)	0	100	100
10	H2	10/10 (100%)	10 (100%)	0	100	100
11	I1	1340/1509 (89%)	1339 (100%)	1 (0%)	93	97
11	I2	1340/1509 (89%)	1339 (100%)	1 (0%)	93	97
11	I3	1340/1509 (89%)	1339 (100%)	1 (0%)	93	97
11	I4	1340/1509 (89%)	1339 (100%)	1 (0%)	93	97
11	I5	1340/1509 (89%)	1339 (100%)	1 (0%)	93	97
12	J1	54/54 (100%)	54 (100%)	0	100	100
12	J2	54/54 (100%)	54 (100%)	0	100	100
12	J3	54/54 (100%)	54 (100%)	0	100	100
12	J4	54/54 (100%)	54 (100%)	0	100	100
12	J5	54/54 (100%)	54 (100%)	0	100	100
13	K1	9/9 (100%)	9 (100%)	0	100	100
13	K2	9/9 (100%)	9 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
13	K3	9/9 (100%)	9 (100%)	0	100	100
13	K4	9/9 (100%)	9 (100%)	0	100	100
13	K5	9/9 (100%)	9 (100%)	0	100	100
14	L1	1/1 (100%)	1 (100%)	0	100	100
14	L2	1/1 (100%)	1 (100%)	0	100	100
14	L3	1/1 (100%)	1 (100%)	0	100	100
14	L4	1/1 (100%)	1 (100%)	0	100	100
14	L5	1/1 (100%)	1 (100%)	0	100	100
15	M1	146/154 (95%)	146 (100%)	0	100	100
15	M2	146/154 (95%)	146 (100%)	0	100	100
15	M3	146/154 (95%)	146 (100%)	0	100	100
15	M4	146/154 (95%)	146 (100%)	0	100	100
16	N1	150/173 (87%)	150 (100%)	0	100	100
16	N2	150/173 (87%)	150 (100%)	0	100	100
16	N3	150/173 (87%)	150 (100%)	0	100	100
16	N4	150/173 (87%)	150 (100%)	0	100	100
17	O1	213/213 (100%)	213 (100%)	0	100	100
17	O2	213/213 (100%)	213 (100%)	0	100	100
17	O3	213/213 (100%)	213 (100%)	0	100	100
17	O4	213/213 (100%)	213 (100%)	0	100	100
18	P1	101/100 (101%)	101 (100%)	0	100	100
18	P2	101/100 (101%)	101 (100%)	0	100	100
18	P3	101/100 (101%)	101 (100%)	0	100	100
18	P4	101/100 (101%)	101 (100%)	0	100	100
19	Q1	70/69 (101%)	66 (94%)	4 (6%)	20	45
19	Q2	63/69 (91%)	62 (98%)	1 (2%)	62	79
19	Q3	70/69 (101%)	66 (94%)	4 (6%)	20	45
19	Q4	63/69 (91%)	62 (98%)	1 (2%)	62	79
20	R1	32/32 (100%)	32 (100%)	0	100	100
20	R2	32/32 (100%)	32 (100%)	0	100	100
20	R3	32/32 (100%)	32 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
20	R4	32/32 (100%)	32 (100%)	0	100	100
21	S1	488/1013 (48%)	463 (95%)	25 (5%)	24	48
21	S2	488/1013 (48%)	463 (95%)	25 (5%)	24	48
21	S3	488/1013 (48%)	463 (95%)	25 (5%)	24	48
21	S4	488/1013 (48%)	463 (95%)	25 (5%)	24	48
22	T1	211/231 (91%)	206 (98%)	5 (2%)	49	69
22	T2	211/231 (91%)	206 (98%)	5 (2%)	49	69
22	T3	211/231 (91%)	206 (98%)	5 (2%)	49	69
22	T4	211/231 (91%)	206 (98%)	5 (2%)	49	69
23	U1	387/402 (96%)	367 (95%)	20 (5%)	23	48
23	U2	387/402 (96%)	367 (95%)	20 (5%)	23	48
23	U3	387/402 (96%)	367 (95%)	20 (5%)	23	48
23	U4	387/402 (96%)	367 (95%)	20 (5%)	23	48
24	V1	367/567 (65%)	332 (90%)	35 (10%)	8	27
24	V2	367/567 (65%)	332 (90%)	35 (10%)	8	27
24	V3	367/567 (65%)	332 (90%)	35 (10%)	8	27
24	V4	367/567 (65%)	332 (90%)	35 (10%)	8	27
25	W1	233/243 (96%)	224 (96%)	9 (4%)	32	56
25	W2	233/243 (96%)	224 (96%)	9 (4%)	32	56
25	W3	233/243 (96%)	223 (96%)	10 (4%)	29	53
25	W4	233/243 (96%)	224 (96%)	9 (4%)	32	56
26	X1	424/628 (68%)	414 (98%)	10 (2%)	49	69
26	X2	424/628 (68%)	414 (98%)	10 (2%)	49	69
26	X3	424/628 (68%)	414 (98%)	10 (2%)	49	69
26	X4	424/628 (68%)	414 (98%)	10 (2%)	49	69
27	Y1	269/303 (89%)	261 (97%)	8 (3%)	41	63
27	Y2	269/303 (89%)	261 (97%)	8 (3%)	41	63
27	Y3	269/303 (89%)	261 (97%)	8 (3%)	41	63
27	Y4	269/303 (89%)	261 (97%)	8 (3%)	41	63
28	Z1	639/972 (66%)	616 (96%)	23 (4%)	35	59
28	Z2	639/972 (66%)	616 (96%)	23 (4%)	35	59

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
28	Z3	639/972 (66%)	616 (96%)	23 (4%)	35	59
28	Z4	639/972 (66%)	616 (96%)	23 (4%)	35	59
29	a1	293/335 (88%)	288 (98%)	5 (2%)	60	78
29	a2	293/335 (88%)	288 (98%)	5 (2%)	60	78
29	a3	293/335 (88%)	288 (98%)	5 (2%)	60	78
29	a4	293/335 (88%)	288 (98%)	5 (2%)	60	78
30	b1	299/343 (87%)	278 (93%)	21 (7%)	15	40
30	b2	299/343 (87%)	278 (93%)	21 (7%)	15	40
30	b3	299/343 (87%)	278 (93%)	21 (7%)	15	40
30	b4	299/343 (87%)	278 (93%)	21 (7%)	15	40
All	All	37655/45033 (84%)	36793 (98%)	862 (2%)	53	70

5 of 862 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
24	V2	341	LEU
25	W2	229	ARG
30	b2	25	SER
24	V2	440	ARG
24	V2	336	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 231 such sidechains are listed below:

Mol	Chain	Res	Type
21	S3	319	ASN
30	b1	333	HIS
23	U2	97	HIS
30	b1	135	ASN
28	Z3	255	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

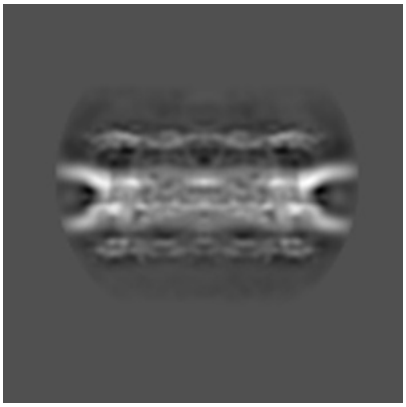
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-11967. These allow visual inspection of the internal detail of the map and identification of artifacts.

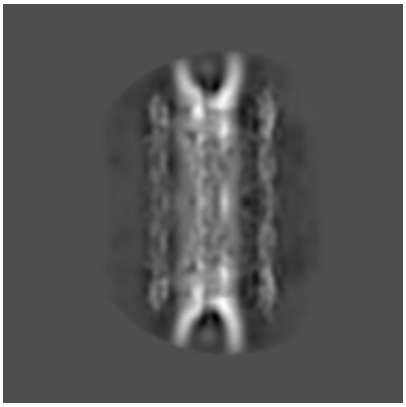
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

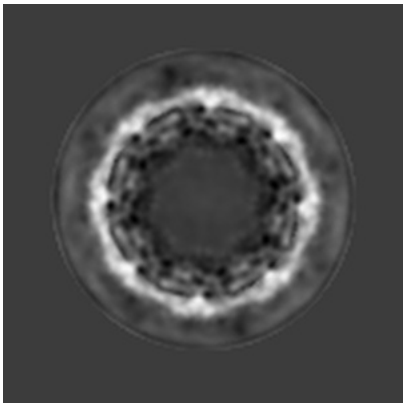
6.1.1 Primary map



X



Y



Z

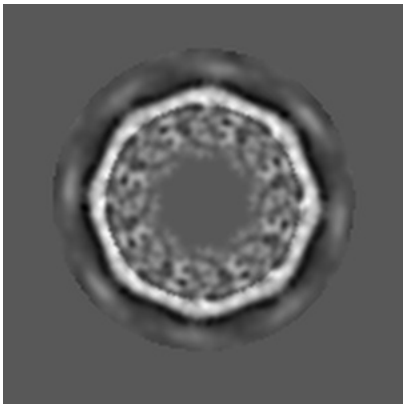
The images above show the map projected in three orthogonal directions.

6.2 Central slices

6.2.1 Primary map

X Index: 72

Y Index: 72

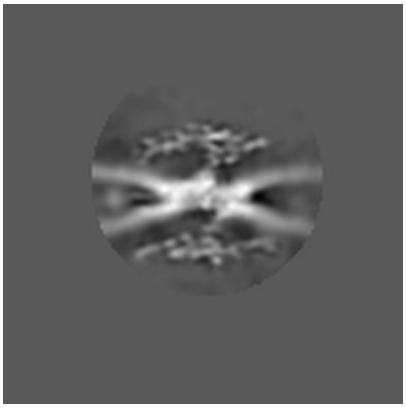


Z Index: 72

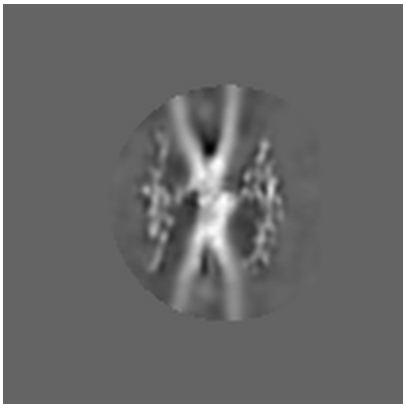
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

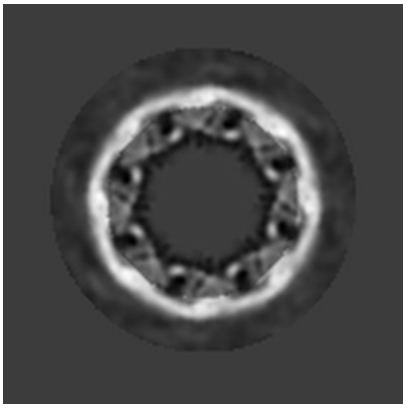
6.3.1 Primary map



X Index: 36



Y Index: 108



Z Index: 78

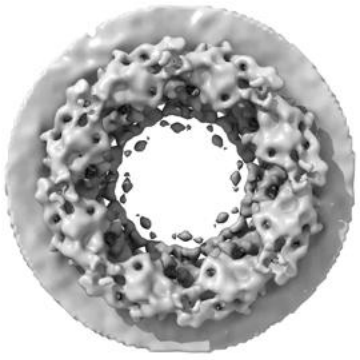
The images above show the largest variance slices of the map in three orthogonal directions.

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

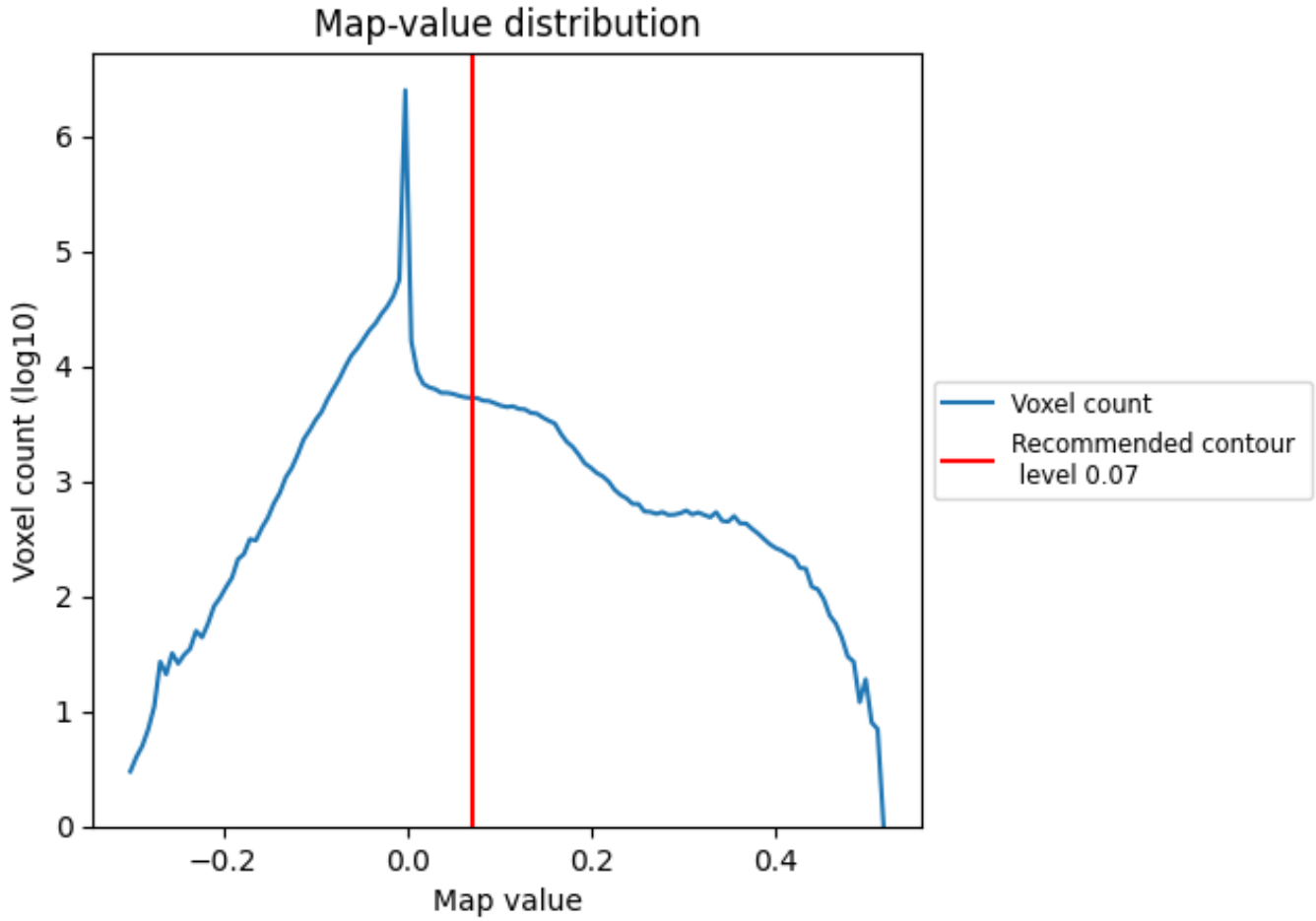
6.5 Mask visualisation (i)

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

7 Map analysis

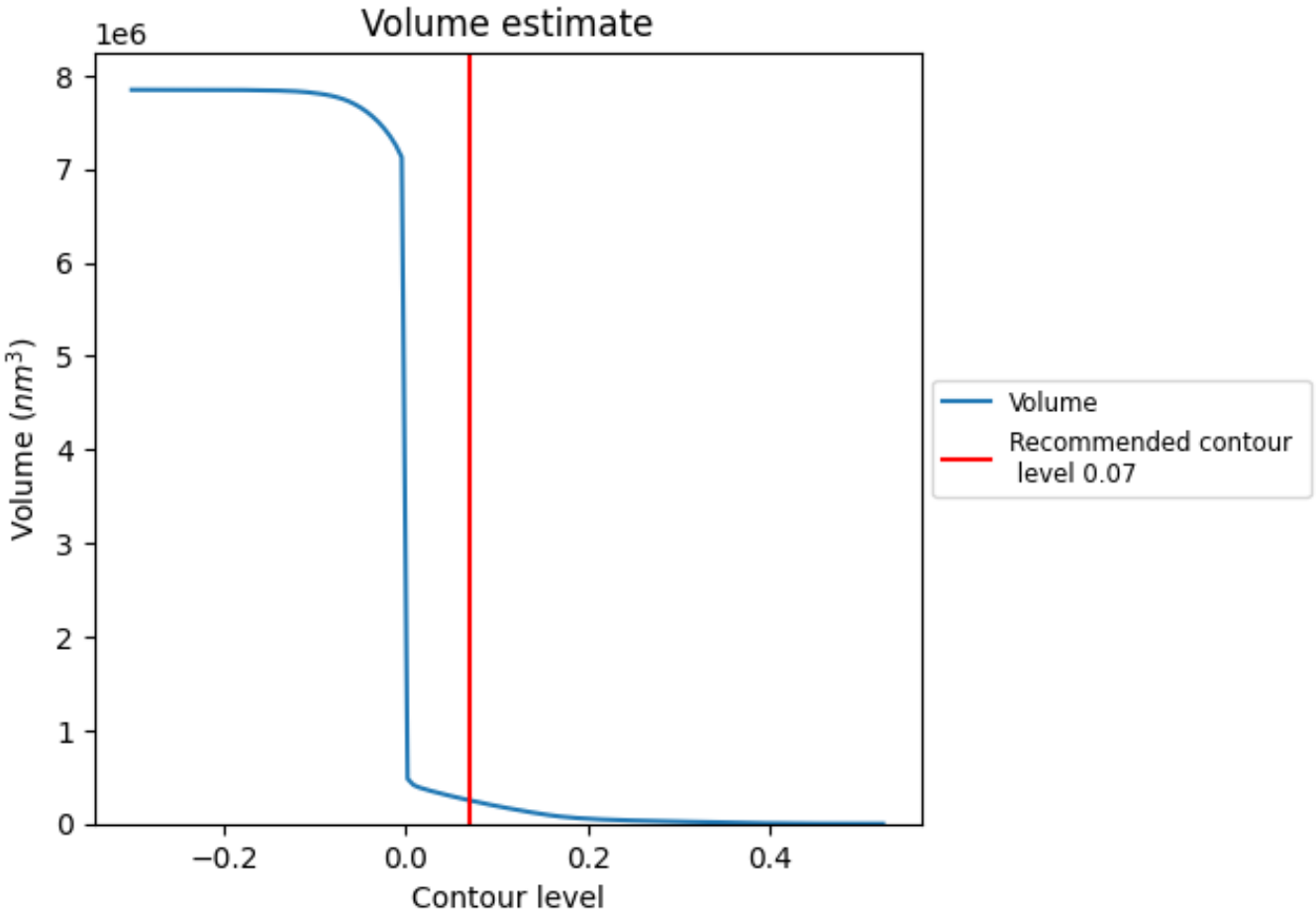
This section contains the results of statistical analysis of the map.

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.

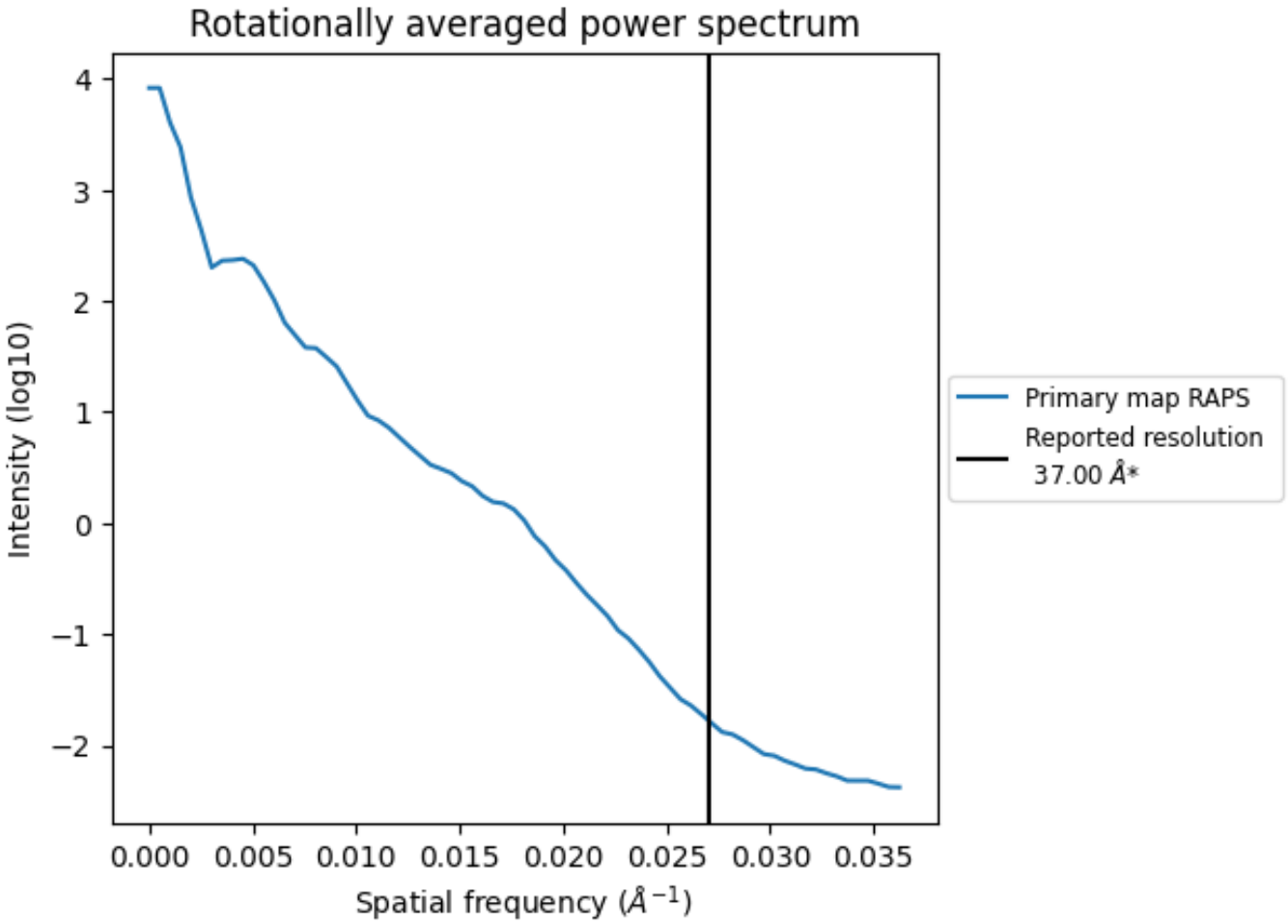
7.2 Volume estimate (i)



The volume at the recommended contour level is 250411 nm^3; this corresponds to an approximate mass of 226203 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 0.027 Å^{-1}

8 Fourier-Shell correlation

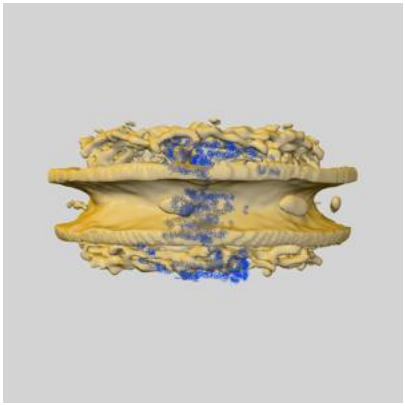
This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit

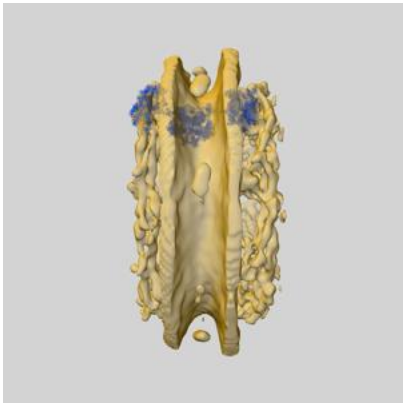
This section contains information regarding the fit between EMDB map EMD-11967 and PDB model 7TBK. Per-residue inclusion information can be found in section 3 on page 17.

9.1 Map-model overlays

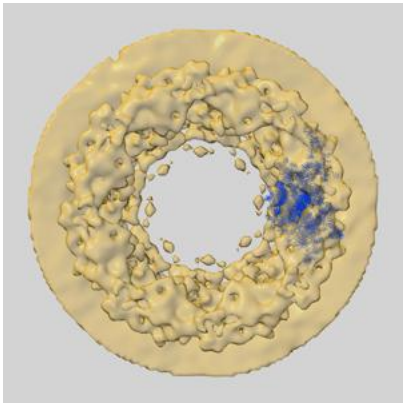
9.1.1 Map-model overlay



X

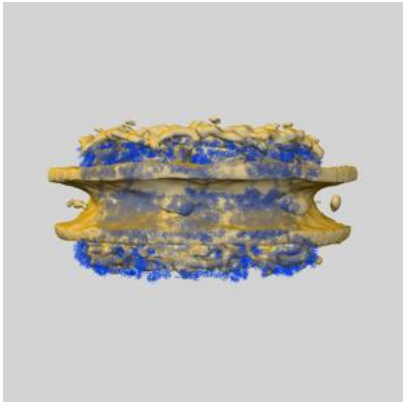


Y

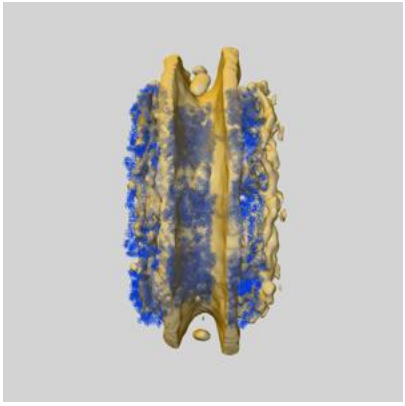


Z

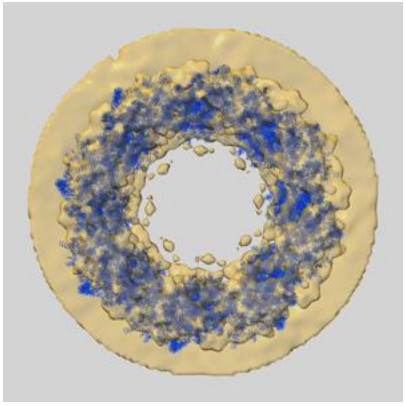
9.1.2 Map-model assembly overlay



X



Y



Z

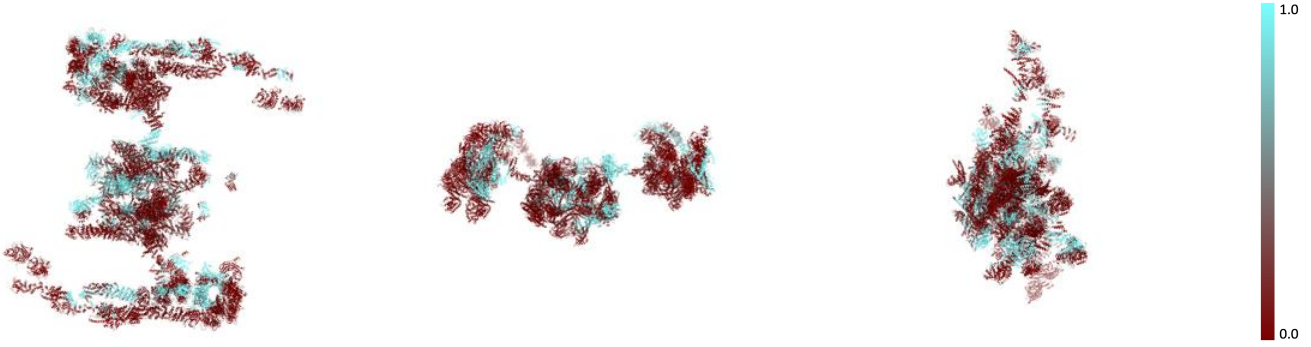
The images above show the 3D surface view of the map at the recommended contour level 0.07 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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.

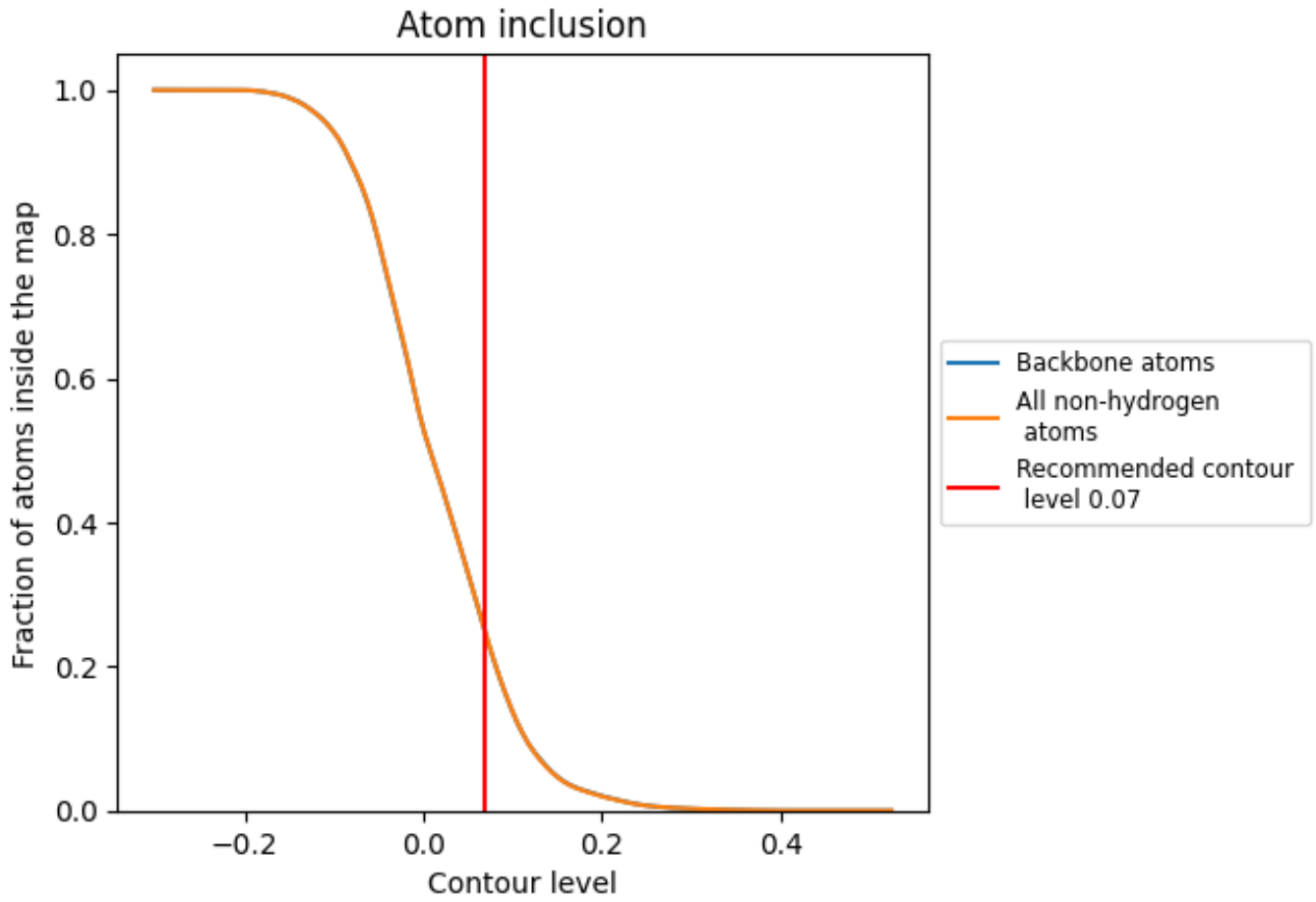
9.3 Atom inclusion mapped to coordinate model



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 (0.07).

9.4 Atom inclusion (i)



At the recommended contour level, 25% of all backbone atoms, 25% 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 (0.07) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.2458	-0.0040
A1	0.6042	0.0060
A2	0.4364	-0.0060
A3	0.1583	-0.0070
A4	0.0936	-0.0080
A5	0.4657	-0.0130
A6	0.1094	0.0020
B1	0.2110	-0.0340
B2	1.0000	0.0600
B3	0.0000	-0.0480
B4	0.0000	-0.0250
B5	0.9817	0.0030
B6	0.0000	0.0230
C1	1.0000	0.0130
C2	0.7226	-0.0560
C3	0.0000	0.0310
C4	0.8258	0.0830
C5	0.7353	0.0160
C6	0.0000	-0.0060
D1	0.3738	0.0130
D2	0.4242	0.0040
D3	0.2123	-0.0180
D4	0.0000	0.0010
D5	0.5656	0.0120
D6	0.1530	-0.0060
D7	0.0089	-0.0410
E1	0.7500	0.0310
E2	0.7000	0.0010
E3	0.0000	-0.0090
E4	0.0000	0.0130
E5	0.8167	0.0230
E6	0.0000	-0.0450
E7	0.0000	-0.0300
F1	0.2335	-0.0000
F2	0.0390	-0.0200

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Chain	Atom inclusion	Q-score
G1	0.1101	-0.0010
G2	0.0000	-0.0520
H1	0.0638	-0.0260
H2	0.0000	-0.0020
I1	0.4411	0.0030
I2	0.1600	0.0050
I3	0.2318	-0.0020
I4	0.6064	0.0080
I5	0.0000	-0.0090
J1	0.3225	-0.0120
J2	0.3205	-0.0080
J3	0.5030	0.0220
J4	0.2211	-0.0060
J5	0.0000	0.0420
K1	0.0000	-0.0460
K2	0.0000	-0.0150
K3	0.0417	-0.0040
K4	1.0000	0.0160
K5	0.0000	-0.0190
L1	1.0000	-0.0560
L2	0.0000	-0.0040
L3	0.0000	0.0010
L4	1.0000	0.0020
L5	0.0000	-0.0120
M1	0.5520	0.0270
M2	0.3886	0.0090
M3	0.1731	-0.0070
M4	0.0973	-0.0020
N1	0.5495	0.0300
N2	0.4513	-0.0000
N3	0.3235	-0.0000
N4	0.2383	0.0000
O1	0.4369	0.0200
O2	0.3108	-0.0040
O3	0.1661	-0.0060
O4	0.0171	-0.0250
P1	0.2002	-0.0060
P2	0.0034	-0.0140
P3	0.0000	-0.0070
P4	0.0000	-0.0010
Q1	0.0343	-0.0260
Q2	0.3239	-0.0100

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Chain	Atom inclusion	Q-score
Q3	0.4782	0.0110
Q4	0.7608	0.0450
R1	0.2409	-0.0060
R2	0.4422	-0.0130
R3	0.4125	0.0460
R4	0.3861	0.0190
S1	0.1021	-0.0130
S2	0.2025	-0.0010
S3	0.1140	-0.0060
S4	0.0029	-0.0200
T1	0.5173	0.0000
T2	0.2740	0.0140
T3	0.2010	-0.0070
T4	0.2240	-0.0020
U1	0.3669	0.0040
U2	0.0000	-0.0220
U3	0.0000	-0.0270
U4	0.3645	0.0110
V1	0.5805	0.0200
V2	0.0000	-0.0260
V3	0.0195	-0.0340
V4	0.6611	0.0360
W1	0.3294	-0.0120
W2	0.0000	-0.0310
W3	0.0895	-0.0130
W4	0.0650	-0.0150
X1	0.3162	-0.0060
X2	0.0034	-0.0240
X3	0.0188	-0.0090
X4	0.0069	-0.0370
Y1	0.9159	0.0300
Y2	0.1017	0.0060
Y3	0.0000	0.0010
Y4	0.0000	0.0210
Z1	0.5984	0.0080
Z2	0.0753	-0.0150
Z3	0.1361	-0.0090
Z4	0.4495	0.0080
a1	0.2026	-0.0150
a2	0.7299	0.0350
a3	0.0000	-0.0130
a4	0.0021	-0.0330

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Chain	Atom inclusion	Q-score
b1	0.3272	0.0130
b2	0.0481	-0.0230
b3	0.0000	-0.0360
b4	0.6493	0.0080