



Full wwPDB EM Validation Report ⓘ

Nov 14, 2023 – 02:02 AM EST

PDB ID : 8TO0
EMDB ID : EMD-41431
Title : 48-nm repeating structure of doublets from mouse sperm flagella
Authors : Chen, Z.; Shiozak, M.; Hass, K.M.; Skinner, W.; Zhao, S.; Guo, C.; Polacco, B.J.; Yu, Z.; Krogan, N.J.; Kaake, R.M.; Vale, R.D.; Agard, D.A.
Deposited on : 2023-08-02
Resolution : 7.70 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

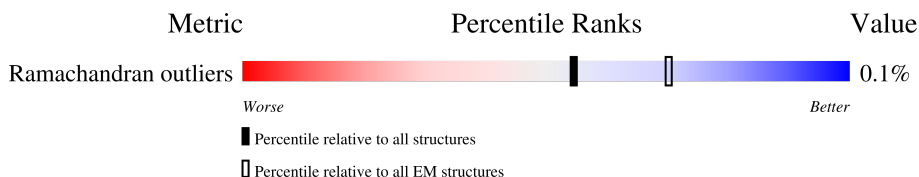
EMDB validation analysis : 0.0.1.dev70
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

1 Overall quality at a glance i

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

The reported resolution of this entry is 7.70 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023

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 $\leq 5\%$. 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	0	228	
1	7	228	
2	I	418	
2	J	418	
2	K	418	
2	L	418	
2	M	418	
3	A5	451	
3	A7	451	
3	A9	451	
3	AM	451	

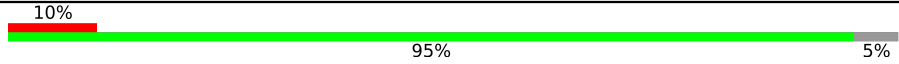
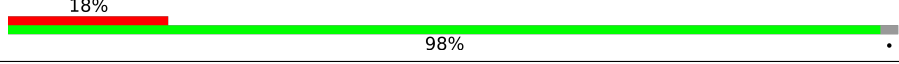
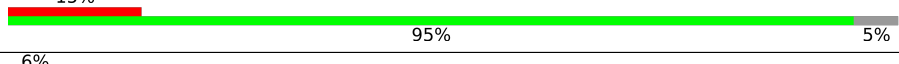
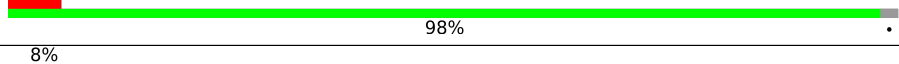
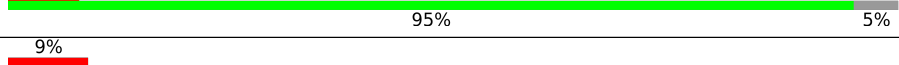
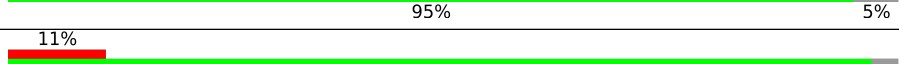
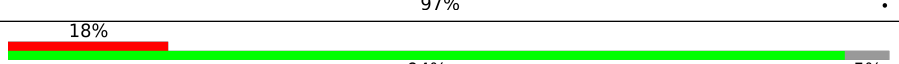
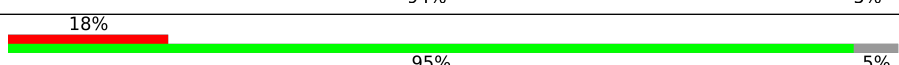
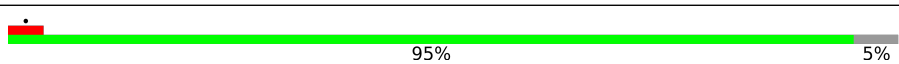
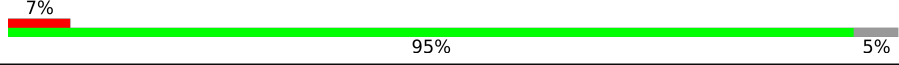
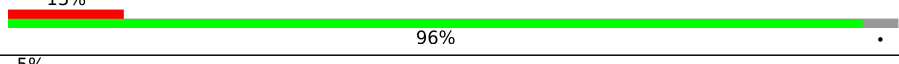
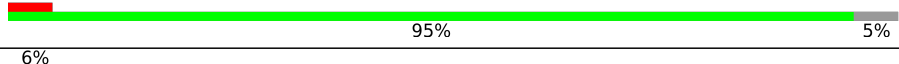
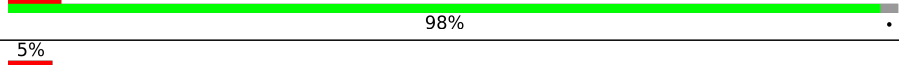
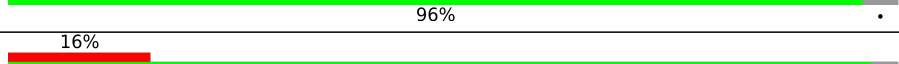
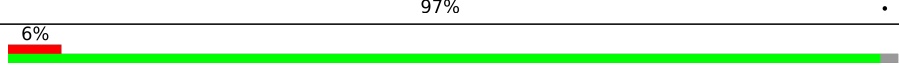
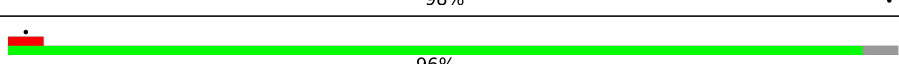
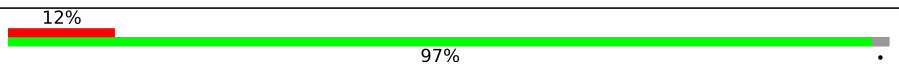
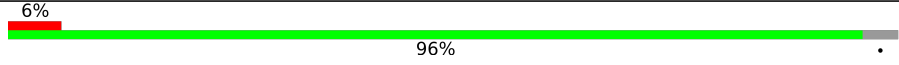
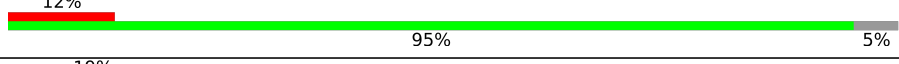
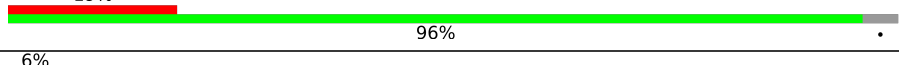
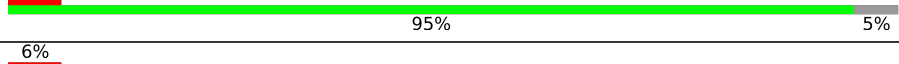
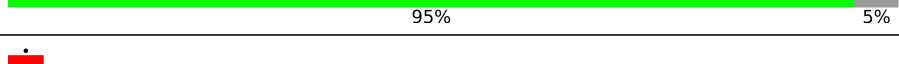
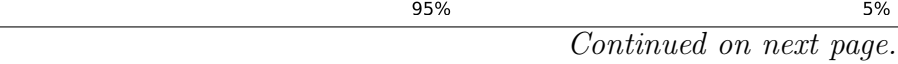


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Mol	Chain	Length	Quality of chain
3	AO	451	15% 97%
3	AQ	451	5% 97%
3	AS	451	5% 97%
3	AU	451	7% 97%
3	AW	451	8% 97%
3	AY	451	7% 97%
3	Aj	451	21% 88% 12%
3	Al	451	16% 95% 5%
3	An	451	9% 95% 5%
3	Ap	451	7% 96% .
3	Ar	451	10% 95% 5%
3	At	451	12% 95% 5%
3	Av	451	8% 95% 5%
3	B0	451	14% 96% .
3	B2	451	5% 95% 5%
3	B4	451	18% 86% 14%
3	B8	451	22% 95% 5%
3	BA	451	12% 96% ..
3	BC	451	13% 97% .
3	BE	451	11% 95% 5%
3	BO	451	20% 96% .
3	BQ	451	15% 94% 6%
3	BS	451	6% 94% 6%
3	BU	451	14% 94% 5%
3	BW	451	13% 94% 6%

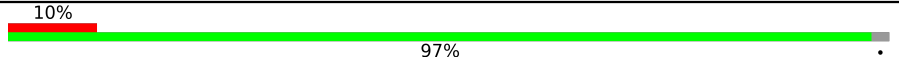
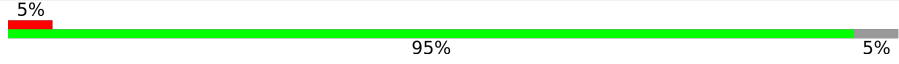
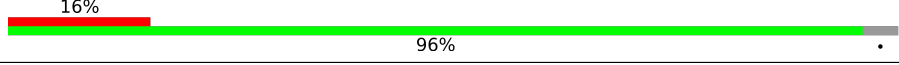
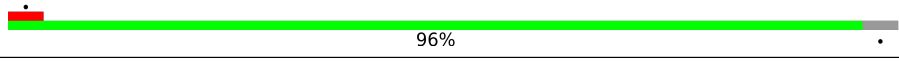
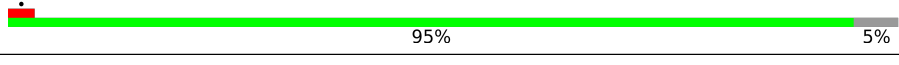
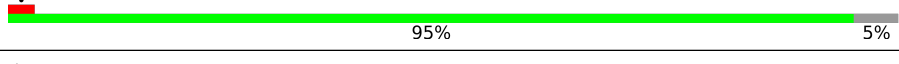
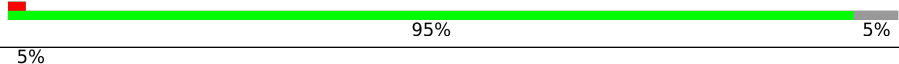
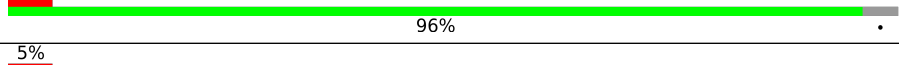
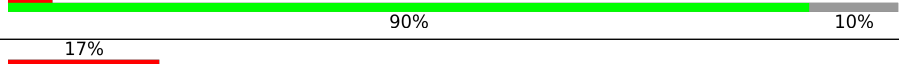
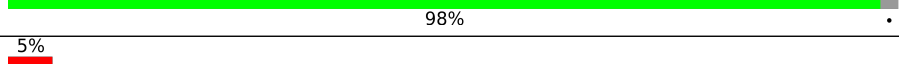
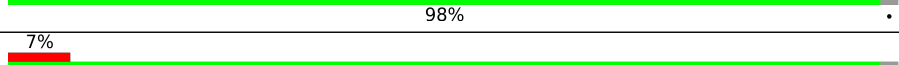
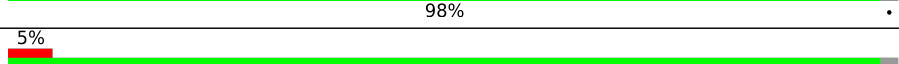
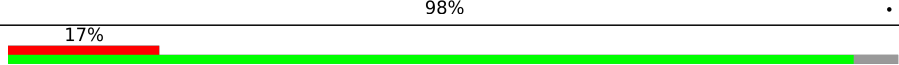
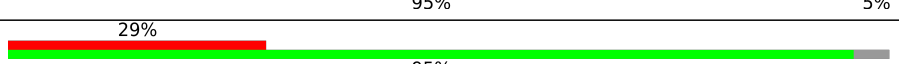
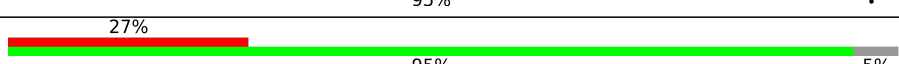
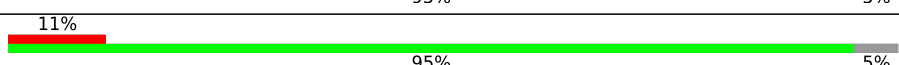
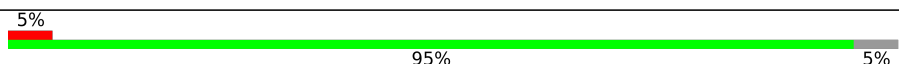
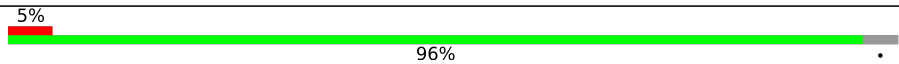
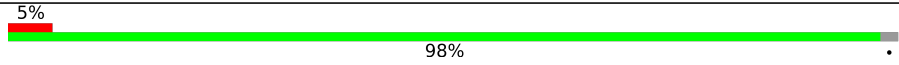
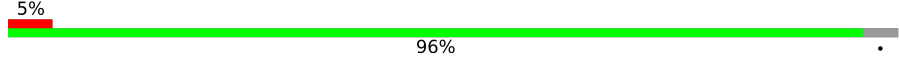
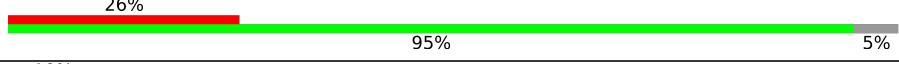
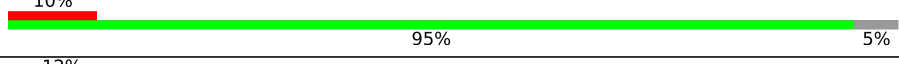
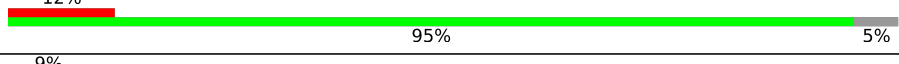
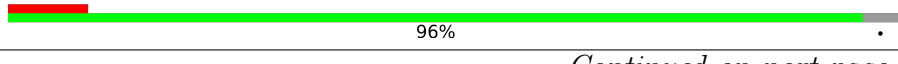

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Mol	Chain	Length	Quality of chain
3	BY	451	
3	Bc	451	
3	Be	451	
3	Bg	451	
3	Bi	451	
3	Bk	451	
3	Bm	451	
3	Br	451	
3	Bt	451	
3	Bv	451	
3	Bx	451	
3	Bz	451	
3	C0	451	
3	C1	451	
3	C3	451	
3	C8	451	
3	CB	451	
3	CD	451	
3	CF	451	
3	CH	451	
3	CJ	451	
3	CN	451	
3	CP	451	
3	CR	451	
3	CT	451	

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Mol	Chain	Length	Quality of chain
3	CV	451	
3	CX	451	
3	Cc	451	
3	Ce	451	
3	Cg	451	
3	Ci	451	
3	Ck	451	
3	Cm	451	
3	Co	451	
3	Cs	451	
3	Cu	451	
3	Cw	451	
3	Cy	451	
3	D2	451	
3	D5	451	
3	D7	451	
3	D9	451	
3	DB	451	
3	DD	451	
3	DF	451	
3	DH	451	
3	DM	451	
3	DO	451	
3	DQ	451	
3	DS	451	

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Mol	Chain	Length	Quality of chain
3	DU	451	11% 96% .
3	DW	451	12% 95% 5%
3	Db	451	27% 95% 5%
3	Dd	451	20% 95% 5%
3	Df	451	12% 96% .
3	Dh	451	12% 96% .
3	Dj	451	20% 96% .
3	Dl	451	11% 96% .
3	Dp	451	30% 95% 5%
3	Dr	451	24% 96% .
3	Dt	451	14% 96% .
3	Dv	451	12% 95% 5%
3	Dx	451	19% 95% 5%
3	Dz	451	15% 95% 5%
3	E3	451	22% 96% .
3	E5	451	11% 96% .
3	E7	451	12% 96% .
3	E9	451	12% 96% .
3	EA	451	11% 95% .
3	EC	451	20% 95% 5%
3	EE	451	20% 96% .
3	EG	451	16% 96% .
3	EJ	451	27% 95% 5%
3	EL	451	23% 96% .
3	EN	451	14% 95% 5%

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Mol	Chain	Length	Quality of chain
3	EP	451	11% 95% 5%
3	ER	451	16% 96% .
3	ET	451	17% 95% .
3	EV	451	11% 95% 5%
3	EY	451	31% 95% 5%
3	Ea	451	22% 95% 5%
3	Ec	451	10% 96% .
3	Ee	451	9% 96% .
3	Eg	451	12% 95% 5%
3	Ei	451	15% 96% .
3	Ek	451	13% 96% .
3	Eo	451	20% 95% 5%
3	Eq	451	14% 96% .
3	Es	451	10% 95% 5%
3	Eu	451	12% 95% 5%
3	Ew	451	17% 96% .
3	Ey	451	11% 95% 5%
3	FA	451	15% 96% .
3	FC	451	10% 96% .
3	FG	451	19% 98% .
3	FI	451	8% 96% .
3	FK	451	8% 97% .
3	FM	451	8% 96% .
3	FO	451	10% 98% .
3	FQ	451	. 95% 5%

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Mol	Chain	Length	Quality of chain
3	FU	451	15% 97%
3	FW	451	5% 96%
3	FY	451	97%
3	Fa	451	96%
3	Fc	451	7% 97%
3	Fe	451	96%
3	N	451	12% 97%
3	P	451	98%
3	R	451	96%
3	T	451	5% 98%
3	V	451	98%
3	X	451	6% 97%
3	Z	451	97%
3	n	451	16% 95% 5%
3	p	451	11% 98%
3	r	451	7% 96%
3	t	451	6% 98%
3	v	451	5% 95% 5%
3	x	451	6% 97%
3	z	451	5% 95% 5%
4	A0	445	5% 95%
4	A4	445	18% 96%
4	A6	445	16% 96%
4	A8	445	9% 96%
4	AN	445	13% 96%

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Mol	Chain	Length	Quality of chain
4	AP	445	7% 96%
4	AR	445	96%
4	AT	445	96%
4	AV	445	9%
4	AX	445	95%
4	Ak	445	19%
4	Am	445	12%
4	Ao	445	96%
4	Aq	445	95%
4	As	445	9%
4	Au	445	7%
4	Aw	445	16% 87% 13%
4	B1	445	10%
4	B3	445	8%
4	B7	445	19% 83% 17%
4	B9	445	18%
4	BB	445	12%
4	BD	445	11%
4	BF	445	19%
4	BN	445	19%
4	BP	445	15%
4	BR	445	11%
4	BT	445	8%
4	BV	445	13%
4	BX	445	14%

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Mol	Chain	Length	Quality of chain
4	BZ	445	17% 96%
4	Bb	445	18% 96%
4	Bd	445	13% 96%
4	Bf	445	10% 96%
4	Bh	445	10% 96%
4	Bj	445	10% 96%
4	Bl	445	10% 96%
4	Bn	445	14% 96%
4	Bq	445	19% 96%
4	Bs	445	14% 96%
4	Bu	445	11% 96%
4	Bw	445	7% 96%
4	By	445	7% 96%
4	C2	445	6% 96%
4	C4	445	6% 96%
4	C7	445	16% 96%
4	C9	445	7% 96%
4	CA	445	6% 96%
4	CC	445	6% 96%
4	CE	445	6% 96%
4	CG	445	9% 96%
4	CI	445	6% 96%
4	CM	445	18% 96%
4	CO	445	10% 96%
4	CQ	445	5% 96%

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Mol	Chain	Length	Quality of chain
4	CS	445	5% 96%
4	CU	445	96%
4	CW	445	7% 96%
4	CY	445	96%
4	Cb	445	22% 91% 9%
4	Cd	445	7% 96%
4	Cf	445	96%
4	Ch	445	6% 96%
4	Cj	445	96%
4	Cl	445	96%
4	Cn	445	96%
4	Cr	445	16% 96%
4	Ct	445	5% 96%
4	Cv	445	5% 96%
4	Cx	445	96%
4	Cz	445	96%
4	D0	445	13% 96%
4	D1	445	9% 96%
4	D6	445	27% 96%
4	D8	445	18% 96%
4	DA	445	96%
4	DC	445	96%
4	DE	445	96%
4	DG	445	95%
4	DI	445	5% 96%

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Mol	Chain	Length	Quality of chain
4	DL	445	28% 96%
4	DN	445	24% 96%
4	DP	445	9% 96%
4	DR	445	8% 96%
4	DT	445	6% 96%
4	DV	445	10% 96%
4	DX	445	6% 96%
4	Da	445	31% 92% 8%
4	Dc	445	24% 96%
4	De	445	8% 95% 5%
4	Dg	445	9% 96%
4	Di	445	10% 96%
4	Dk	445	10% 96%
4	Dm	445	8% 95% 5%
4	Dq	445	28% 96%
4	Ds	445	15% 96%
4	Du	445	12% 96%
4	Dw	445	10% 96%
4	Dy	445	18% 96%
4	E0	445	15% 96%
4	E2	445	23% 96%
4	E4	445	20% 96%
4	E6	445	10% 96%
4	E8	445	10% 96%
4	EB	445	10% 96%

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Mol	Chain	Length	Quality of chain
4	ED	445	21% 96%
4	EF	445	11% 96%
4	EK	445	18% 96%
4	EM	445	19% 96%
4	EO	445	10% 96%
4	EQ	445	9% 96%
4	ES	445	18% 96%
4	EU	445	10% 96%
4	EZ	445	19% 96%
4	Eb	445	18% 96%
4	Ed	445	9% 96%
4	Ef	445	9% 96%
4	Eh	445	13% 96%
4	Ej	445	12% 96%
4	En	445	21% 96%
4	Ep	445	22% 96%
4	Er	445	8% 96%
4	Et	445	11% 96%
4	Ev	445	14% 96%
4	Ex	445	10% 96%
4	FB	445	9% 96%
4	FD	445	9% 96%
4	FF	445	17% 96%
4	FH	445	9% 96%
4	FJ	445	7% 96%

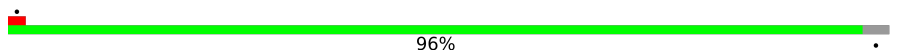




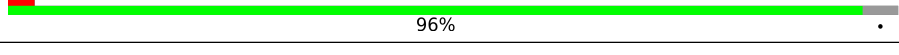
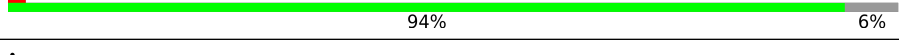
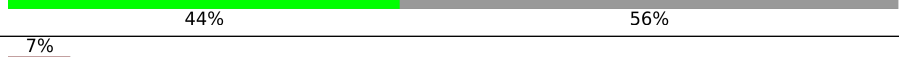
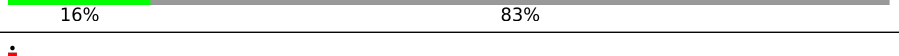


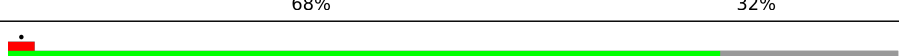


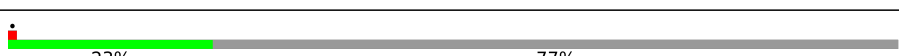
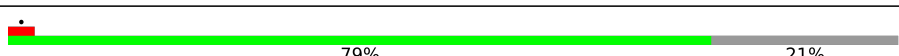





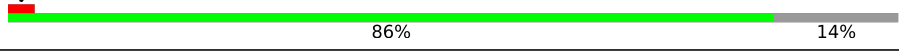



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Mol	Chain	Length	Quality of chain
4	FL	445	5% 96%
4	FN	445	7% 96%
4	FP	445	5% 96%
4	FR	445	8% 96%
4	FT	445	15% 96%
4	FV	445	9% 96%
4	FX	445	• 96%
4	FZ	445	5% 96%
4	Fb	445	• 96%
4	Fd	445	• 96%
4	Ff	445	• 96%
4	O	445	11% 98%
4	Q	445	• 98%
4	S	445	• 98%
4	U	445	• 98%
4	W	445	• 98%
4	Y	445	• 98%
4	o	445	12% 96%
4	q	445	• 96%
4	s	445	5% 96%
4	u	445	• 96%
4	w	445	• 96%
4	y	445	5% 96%
5	b	430	• 44% 56%
5	e	430	• 97%

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Mol	Chain	Length	Quality of chain
5	f	430	 96%
5	g	430	 89% 11%
5	h	430	 11% 89%
5	i	430	 12% 88%
5	j	430	 83% 17%
5	k	430	 96%
5	l	430	 94% 6%
5	m	430	 44% 56%
6	1	853	 7% 16% 83%
6	2	853	 20% 78%
7	AC	490	 6% 94%
7	AD	490	 68% 32%
7	AE	490	 80% 20%
7	AF	490	 80% 20%
7	AG	490	 44% 56%
7	AH	490	 23% 77%
7	AI	490	 79% 21%
7	AJ	490	 84% 16%
7	AK	490	 83% 17%
7	AL	490	 23% 77%
7	BI	490	 6% 28% 72%
7	BJ	490	 86% 14%
7	BK	490	 86% 14%
7	BL	490	 77% 23%
7	BM	490	 20% 80%


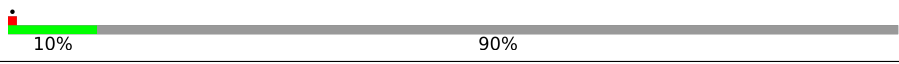
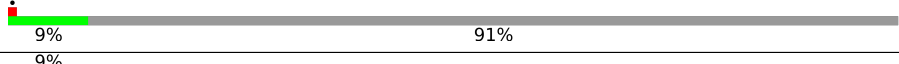
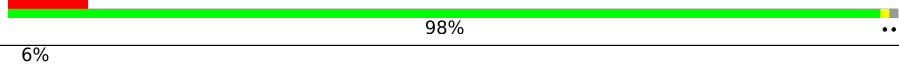

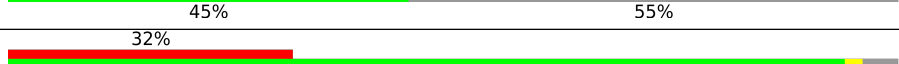
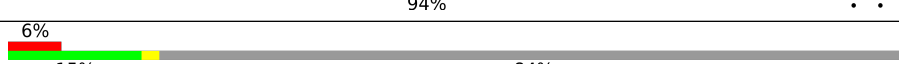
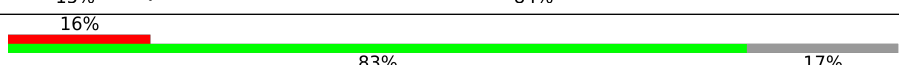
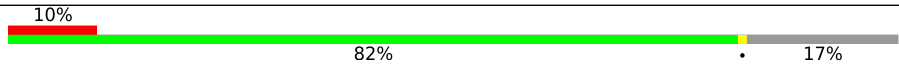


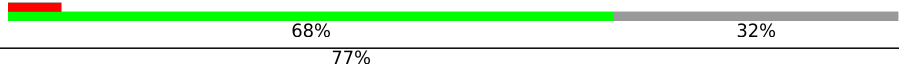
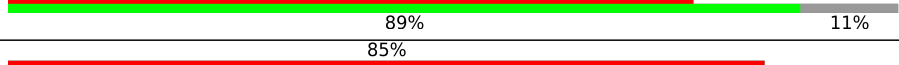

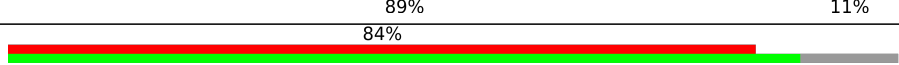
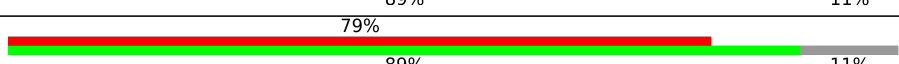
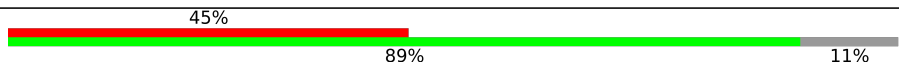

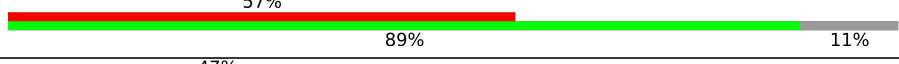
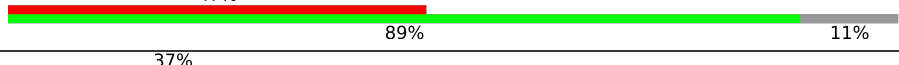

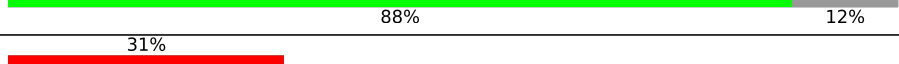
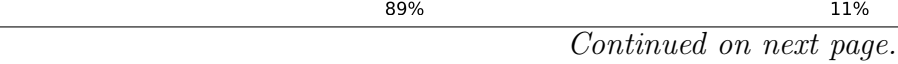


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Mol	Chain	Length	Quality of chain
8	A	491	33% 65%
8	a	491	5% 72% 28%
9	Aa	447	5% 65% 35%
9	Ab	447	5% 95% 5%
9	Ac	447	5% 95% 5%
9	Ad	447	71% 29%
9	Af	447	5% 70% 30%
9	Ag	447	5% 92% 7%
9	Ah	447	5% 92% 8%
9	Ai	447	5% 65% 35%
10	3	514	5% 58% 40%
10	4	514	5% 39% 61%
11	A1	206	11% 60% 38%
11	A2	206	9% 69% 30%
11	A3	206	19% 69% 30%
11	Az	206	12% 33% 67%
12	AB	101	86% 14%
13	5	395	12% 90% 9%
13	6	395	8% 90% 9%
14	B6	273	20% 55% 44%
14	C6	273	13% 55% 44%
14	CL	273	10% 55% 44%
14	Ca	273	12% 55% 44%
14	Cq	273	9% 55% 44%
14	DK	273	8% 56% 43%

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Mol	Chain	Length	Quality of chain
15	AZ	470	
16	D4	377	
16	DZ	377	
16	Do	377	
16	EI	377	
16	EX	377	
17	8	196	
17	9	196	
18	Ay	303	
18	BH	303	
19	E1	648	
19	Em	648	
19	FE	648	
20	F0	168	
20	F1	168	
20	F2	168	
20	F3	168	
20	F4	168	
20	F5	168	
20	F6	168	
20	F7	168	
20	F8	168	
20	F9	168	
20	GA	168	
20	GB	168	

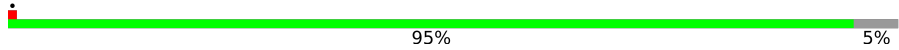


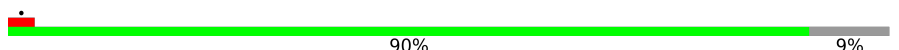


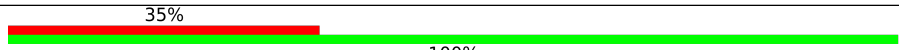
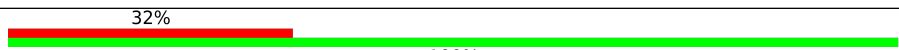
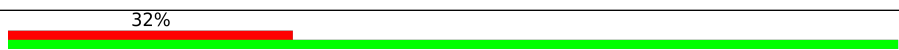
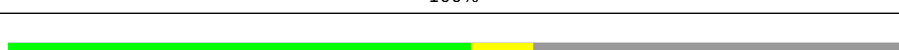


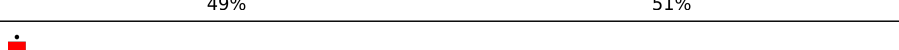
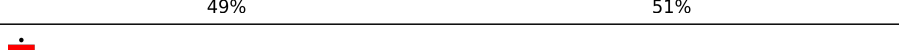
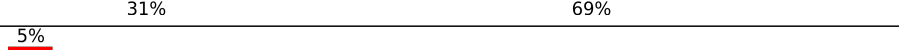
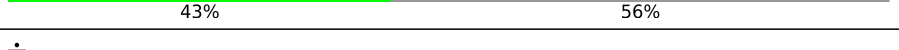
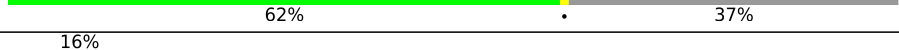


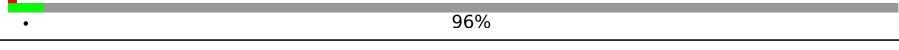

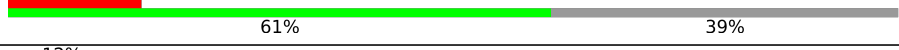
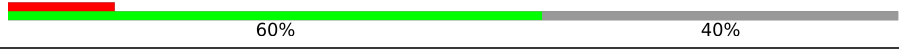


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Mol	Chain	Length	Quality of chain	
20	GC	168	74%	11%
20	GD	168	86%	12%
20	GE	168	72%	11%
20	GF	168	84%	13%
20	GG	168	83%	14%
20	GH	168	66%	11%
20	GI	168	70%	11%
20	GJ	168	74%	11%
20	GK	168	29%	11%
20	GL	168	59%	11%
20	GM	168	78%	11%
20	GN	168	88%	11%
20	GO	168	88%	11%
20	GP	168	89%	11%
20	GQ	168	90%	10%
21	FS	750	21%	26%
21	Fg	750	10%	15%
21	Fo	750	12%	15%
21	Fv	750	6%	40%
22	Fh	193	12%	5%
22	Fi	193	95%	5%
22	Fj	193	95%	5%
22	Fk	193	95%	5%
22	Fl	193	95%	5%
22	Fm	193	95%	5%

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Mol	Chain	Length	Quality of chain
22	Fn	193	 95% 5%
23	Fp	241	 12% 90% 9%
23	Fq	241	 5% 90% 9%
23	Fr	241	 90% 9%
23	Fs	241	 6% 90% 9%
23	Ft	241	 5% 90% 9%
24	Fx	185	 35% 100%
24	Fy	185	 32% 100%
24	Fz	185	 32% 100%
25	G	122	 52% 7% 42%
26	GR	557	 49% 51%
26	GS	557	 49% 51%
26	GT	557	 49% 51%
26	GU	557	 31% 69%
26	GV	557	 5% 43% 56%
26	GW	557	 62% 37%
26	GX	557	 16% 62% 38%
26	GY	557	 52% 48%
26	GZ	557	 96%
26	Ga	557	 20% 80%
26	Gb	557	 15% 61% 39%
26	Gc	557	 12% 60% 40%
26	Gd	557	 25% 59% 41%
26	Ge	557	 10% 90%
26	Gf	557	 5% 95%









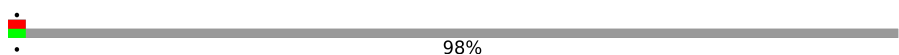

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Mol	Chain	Length	Quality of chain
26	Gg	557	52% 48%
26	Gh	557	57% 43%
26	Gi	557	57% 42%
26	Gj	557	34% 66%
26	z0	557	48% 52%
26	z1	557	48% 52%
26	z3	557	7% 45% 54%
26	z4	557	5% 33% 67%
27	AA	551	10% 59% 41%
27	Ax	551	11% 39% 61%
27	B	551	10% 90%
27	c	551	8% 91%
27	d	551	43% 57%
28	BG	620	14% 97%
28	Ba	620	8% 97%
28	Bo	620	10% 97%
29	B5	255	9% 56% 44%
29	CK	255	11% 89% 10%
29	CZ	255	9% 89% 10%
29	Cp	255	9% 90% 10%
30	C5	189	14% 60% 40%
30	DJ	189	6% 59% 40%
30	DY	189	62% 38%
31	D3	547	18% 82%
31	Dn	547	11% 69% 31%

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Mol	Chain	Length	Quality of chain
32	EH	168	 46% 54%
32	EW	168	 46% 54%
32	EI	168	 47% 53%
33	Ez	1516	 12% 88%
34	C	499	 34% 65%
34	D	499	 60% 39%
34	E	499	 60% 39%
34	F	499	 56% 43%
34	H	499	 98%
35	Fw	167	 11% 45% 54%

2 Entry composition [i](#)

There are 35 unique types of molecules in this entry. The entry contains 673884 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 Cilia- and flagella-associated protein 95.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
1	0	40	160	80	40	40	0	0
1	7	113	452	226	113	113	0	0

- Molecule 2 is a protein called Tektin-1.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	L	334	1336	668	334	334	0	0
2	M	32	128	64	32	32	0	0
2	I	222	888	444	222	222	0	0
2	J	396	1584	792	396	396	0	0
2	K	393	1572	786	393	393	0	0

- Molecule 3 is a protein called Detyrosinated tubulin alpha-1A chain.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	N	438	1752	876	438	438	0	0
3	P	440	1760	880	440	440	0	0
3	R	435	1740	870	435	435	0	0
3	T	440	1760	880	440	440	0	0
3	V	440	1760	880	440	440	0	0
3	X	440	1760	880	440	440	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
3	Z	439	Total	C	N	O	0	0
			1756	878	439	439		
3	n	430	Total	C	N	O	0	0
			1720	860	430	430		
3	p	440	Total	C	N	O	0	0
			1760	880	440	440		
3	r	433	Total	C	N	O	0	0
			1732	866	433	433		
3	t	440	Total	C	N	O	0	0
			1760	880	440	440		
3	v	430	Total	C	N	O	0	0
			1720	860	430	430		
3	x	439	Total	C	N	O	0	0
			1756	878	439	439		
3	z	430	Total	C	N	O	0	0
			1720	860	430	430		
3	BQ	425	Total	C	N	O	0	0
			1700	850	425	425		
3	BS	426	Total	C	N	O	0	0
			1704	852	426	426		
3	BU	427	Total	C	N	O	0	0
			1708	854	427	427		
3	BW	424	Total	C	N	O	0	0
			1696	848	424	424		
3	BY	429	Total	C	N	O	0	0
			1716	858	429	429		
3	AW	439	Total	C	N	O	0	0
			1756	878	439	439		
3	AY	439	Total	C	N	O	0	0
			1756	878	439	439		
3	Aj	399	Total	C	N	O	0	0
			1596	798	399	399		
3	Al	429	Total	C	N	O	0	0
			1716	858	429	429		
3	An	430	Total	C	N	O	0	0
			1720	860	430	430		
3	Ap	431	Total	C	N	O	0	0
			1724	862	431	431		
3	Ar	429	Total	C	N	O	0	0
			1716	858	429	429		
3	At	430	Total	C	N	O	0	0
			1720	860	430	430		

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Mol	Chain	Residues	Atoms				AltConf	Trace
3	Av	430	Total	C	N	O	0	0
			1720	860	430	430		
3	A5	439	Total	C	N	O	0	0
			1756	878	439	439		
3	A7	441	Total	C	N	O	0	0
			1764	882	441	441		
3	A9	437	Total	C	N	O	0	0
			1748	874	437	437		
3	BA	436	Total	C	N	O	0	0
			1744	872	436	436		
3	BC	440	Total	C	N	O	0	0
			1760	880	440	440		
3	BE	428	Total	C	N	O	0	0
			1712	856	428	428		
3	BO	431	Total	C	N	O	0	0
			1724	862	431	431		
3	CX	430	Total	C	N	O	0	0
			1720	860	430	430		
3	Cc	432	Total	C	N	O	0	0
			1728	864	432	432		
3	Ce	431	Total	C	N	O	0	0
			1724	862	431	431		
3	Cg	430	Total	C	N	O	0	0
			1720	860	430	430		
3	Ci	428	Total	C	N	O	0	0
			1712	856	428	428		
3	Bc	440	Total	C	N	O	0	0
			1760	880	440	440		
3	Be	430	Total	C	N	O	0	0
			1720	860	430	430		
3	Bg	440	Total	C	N	O	0	0
			1760	880	440	440		
3	Bi	429	Total	C	N	O	0	0
			1716	858	429	429		
3	Bk	429	Total	C	N	O	0	0
			1716	858	429	429		
3	Bm	439	Total	C	N	O	0	0
			1756	878	439	439		
3	Br	427	Total	C	N	O	0	0
			1708	854	427	427		
3	Bt	430	Total	C	N	O	0	0
			1720	860	430	430		

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	Bv	430	Total 1720	C 860	N 430	O 430	0	0
3	Bx	430	Total 1720	C 860	N 430	O 430	0	0
3	Bz	431	Total 1724	C 862	N 431	O 431	0	0
3	B2	429	Total 1716	C 858	N 429	O 429	0	0
3	B4	386	Total 1544	C 772	N 386	O 386	0	0
3	B8	429	Total 1716	C 858	N 429	O 429	0	0
3	B0	432	Total 1728	C 864	N 432	O 432	0	0
3	CB	440	Total 1760	C 880	N 440	O 440	0	0
3	CD	432	Total 1728	C 864	N 432	O 432	0	0
3	CF	440	Total 1760	C 880	N 440	O 440	0	0
3	CH	431	Total 1724	C 862	N 431	O 431	0	0
3	CJ	427	Total 1708	C 854	N 427	O 427	0	0
3	CN	432	Total 1728	C 864	N 432	O 432	0	0
3	CP	430	Total 1720	C 860	N 430	O 430	0	0
3	CR	428	Total 1712	C 856	N 428	O 428	0	0
3	CT	429	Total 1716	C 858	N 429	O 429	0	0
3	CV	440	Total 1760	C 880	N 440	O 440	0	0
3	Dj	432	Total 1728	C 864	N 432	O 432	0	0
3	Dl	431	Total 1724	C 862	N 431	O 431	0	0
3	Dp	430	Total 1720	C 860	N 430	O 430	0	0
3	Dr	432	Total 1728	C 864	N 432	O 432	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
3	Ck	430	Total	C	N	O	0	0
			1720	860	430	430		
3	Cm	432	Total	C	N	O	0	0
			1728	864	432	432		
3	Co	408	Total	C	N	O	0	0
			1632	816	408	408		
3	Cs	440	Total	C	N	O	0	0
			1760	880	440	440		
3	Cu	440	Total	C	N	O	0	0
			1760	880	440	440		
3	Cw	440	Total	C	N	O	0	0
			1760	880	440	440		
3	Cy	440	Total	C	N	O	0	0
			1760	880	440	440		
3	C1	440	Total	C	N	O	0	0
			1760	880	440	440		
3	C3	431	Total	C	N	O	0	0
			1724	862	431	431		
3	C8	439	Total	C	N	O	0	0
			1756	878	439	439		
3	C0	429	Total	C	N	O	0	0
			1716	858	429	429		
3	DB	430	Total	C	N	O	0	0
			1720	860	430	430		
3	DD	431	Total	C	N	O	0	0
			1724	862	431	431		
3	DF	440	Total	C	N	O	0	0
			1760	880	440	440		
3	DH	431	Total	C	N	O	0	0
			1724	862	431	431		
3	DM	430	Total	C	N	O	0	0
			1720	860	430	430		
3	DO	429	Total	C	N	O	0	0
			1716	858	429	429		
3	DQ	430	Total	C	N	O	0	0
			1720	860	430	430		
3	DS	432	Total	C	N	O	0	0
			1728	864	432	432		
3	DU	432	Total	C	N	O	0	0
			1728	864	432	432		
3	DW	430	Total	C	N	O	0	0
			1720	860	430	430		

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Mol	Chain	Residues	Atoms				AltConf	Trace
3	Db	428	Total	C	N	O	0	0
			1712	856	428	428		
3	Dd	429	Total	C	N	O	0	0
			1716	858	429	429		
3	Df	433	Total	C	N	O	0	0
			1732	866	433	433		
3	Dh	433	Total	C	N	O	0	0
			1732	866	433	433		
3	Es	430	Total	C	N	O	0	0
			1720	860	430	430		
3	Eu	430	Total	C	N	O	0	0
			1720	860	430	430		
3	Ew	432	Total	C	N	O	0	0
			1728	864	432	432		
3	Ey	430	Total	C	N	O	0	0
			1720	860	430	430		
3	E3	433	Total	C	N	O	0	0
			1732	866	433	433		
3	Dt	431	Total	C	N	O	0	0
			1724	862	431	431		
3	Dv	430	Total	C	N	O	0	0
			1720	860	430	430		
3	Dx	427	Total	C	N	O	0	0
			1708	854	427	427		
3	Dz	430	Total	C	N	O	0	0
			1720	860	430	430		
3	D2	430	Total	C	N	O	0	0
			1720	860	430	430		
3	D5	431	Total	C	N	O	0	0
			1724	862	431	431		
3	D7	430	Total	C	N	O	0	0
			1720	860	430	430		
3	D9	430	Total	C	N	O	0	0
			1720	860	430	430		
3	EA	431	Total	C	N	O	0	0
			1724	862	431	431		
3	EC	429	Total	C	N	O	0	0
			1716	858	429	429		
3	EE	431	Total	C	N	O	0	0
			1724	862	431	431		
3	EG	431	Total	C	N	O	0	0
			1724	862	431	431		

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	EJ	429	Total 1716	C 858	N 429	O 429	0	0
3	EL	432	Total 1728	C 864	N 432	O 432	0	0
3	EN	428	Total 1712	C 856	N 428	O 428	0	0
3	EP	430	Total 1720	C 860	N 430	O 430	0	0
3	ER	431	Total 1724	C 862	N 431	O 431	0	0
3	ET	431	Total 1724	C 862	N 431	O 431	0	0
3	EV	428	Total 1712	C 856	N 428	O 428	0	0
3	EY	430	Total 1720	C 860	N 430	O 430	0	0
3	Ea	430	Total 1720	C 860	N 430	O 430	0	0
3	Ec	431	Total 1724	C 862	N 431	O 431	0	0
3	Ee	431	Total 1724	C 862	N 431	O 431	0	0
3	Eg	427	Total 1708	C 854	N 427	O 427	0	0
3	Ei	432	Total 1728	C 864	N 432	O 432	0	0
3	Ek	431	Total 1724	C 862	N 431	O 431	0	0
3	Eo	430	Total 1720	C 860	N 430	O 430	0	0
3	Eq	432	Total 1728	C 864	N 432	O 432	0	0
3	E5	432	Total 1728	C 864	N 432	O 432	0	0
3	AM	438	Total 1752	C 876	N 438	O 438	0	0
3	E7	433	Total 1732	C 866	N 433	O 433	0	0
3	E9	433	Total 1732	C 866	N 433	O 433	0	0
3	FA	433	Total 1732	C 866	N 433	O 433	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
3	FC	431	Total	C	N	O	0	0
			1724	862	431	431		
3	FG	440	Total	C	N	O	0	0
			1760	880	440	440		
3	FI	433	Total	C	N	O	0	0
			1732	866	433	433		
3	FK	440	Total	C	N	O	0	0
			1760	880	440	440		
3	FM	433	Total	C	N	O	0	0
			1732	866	433	433		
3	FO	440	Total	C	N	O	0	0
			1760	880	440	440		
3	FQ	430	Total	C	N	O	0	0
			1720	860	430	430		
3	FU	440	Total	C	N	O	0	0
			1760	880	440	440		
3	FW	431	Total	C	N	O	0	0
			1724	862	431	431		
3	FY	439	Total	C	N	O	0	0
			1756	878	439	439		
3	Fa	431	Total	C	N	O	0	0
			1724	862	431	431		
3	Fc	438	Total	C	N	O	0	0
			1752	876	438	438		
3	Fe	431	Total	C	N	O	0	0
			1724	862	431	431		
3	AO	438	Total	C	N	O	0	0
			1752	876	438	438		
3	AQ	438	Total	C	N	O	0	0
			1752	876	438	438		
3	AS	439	Total	C	N	O	0	0
			1756	878	439	439		
3	AU	439	Total	C	N	O	0	0
			1756	878	439	439		

- Molecule 4 is a protein called Tubulin beta-4B chain.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	O	436	Total	C	N	O	0	0
			1744	872	436	436		
4	Q	436	Total	C	N	O	0	0
			1744	872	436	436		

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	S	436	Total 1744	C 872	N 436	O 436	0	0
4	U	436	Total 1744	C 872	N 436	O 436	0	0
4	W	436	Total 1744	C 872	N 436	O 436	0	0
4	Y	435	Total 1740	C 870	N 435	O 435	0	0
4	o	427	Total 1708	C 854	N 427	O 427	0	0
4	q	427	Total 1708	C 854	N 427	O 427	0	0
4	s	427	Total 1708	C 854	N 427	O 427	0	0
4	u	427	Total 1708	C 854	N 427	O 427	0	0
4	w	427	Total 1708	C 854	N 427	O 427	0	0
4	y	425	Total 1700	C 850	N 425	O 425	0	0
4	BR	426	Total 1704	C 852	N 426	O 426	0	0
4	BT	426	Total 1704	C 852	N 426	O 426	0	0
4	BV	426	Total 1704	C 852	N 426	O 426	0	0
4	BX	425	Total 1700	C 850	N 425	O 425	0	0
4	BZ	427	Total 1708	C 854	N 427	O 427	0	0
4	AV	427	Total 1708	C 854	N 427	O 427	0	0
4	AX	425	Total 1700	C 850	N 425	O 425	0	0
4	Ak	426	Total 1704	C 852	N 426	O 426	0	0
4	Am	426	Total 1704	C 852	N 426	O 426	0	0
4	Ao	426	Total 1704	C 852	N 426	O 426	0	0
4	Aq	426	Total 1704	C 852	N 426	O 426	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
4	As	426	Total 1704	C 852	N 426	O 426	0	0
4	Au	425	Total 1700	C 850	N 425	O 425	0	0
4	Aw	387	Total 1548	C 774	N 387	O 387	0	0
4	A4	426	Total 1704	C 852	N 426	O 426	0	0
4	A6	426	Total 1704	C 852	N 426	O 426	0	0
4	A8	426	Total 1704	C 852	N 426	O 426	0	0
4	A0	427	Total 1708	C 854	N 427	O 427	0	0
4	BB	426	Total 1704	C 852	N 426	O 426	0	0
4	BD	425	Total 1700	C 850	N 425	O 425	0	0
4	BF	426	Total 1704	C 852	N 426	O 426	0	0
4	BN	426	Total 1704	C 852	N 426	O 426	0	0
4	BP	427	Total 1708	C 854	N 427	O 427	0	0
4	CY	426	Total 1704	C 852	N 426	O 426	0	0
4	Cb	403	Total 1612	C 806	N 403	O 403	0	0
4	Cd	427	Total 1708	C 854	N 427	O 427	0	0
4	Cf	427	Total 1708	C 854	N 427	O 427	0	0
4	Ch	429	Total 1716	C 858	N 429	O 429	0	0
4	Bb	427	Total 1708	C 854	N 427	O 427	0	0
4	Bd	427	Total 1708	C 854	N 427	O 427	0	0
4	Bf	427	Total 1708	C 854	N 427	O 427	0	0
4	Bh	427	Total 1708	C 854	N 427	O 427	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	Bj	427	Total 1708	C 854	N 427	O 427	0	0
4	Bl	425	Total 1700	C 850	N 425	O 425	0	0
4	Bn	427	Total 1708	C 854	N 427	O 427	0	0
4	Bs	427	Total 1708	C 854	N 427	O 427	0	0
4	Bu	427	Total 1708	C 854	N 427	O 427	0	0
4	Bw	427	Total 1708	C 854	N 427	O 427	0	0
4	By	427	Total 1708	C 854	N 427	O 427	0	0
4	B1	425	Total 1700	C 850	N 425	O 425	0	0
4	B3	427	Total 1708	C 854	N 427	O 427	0	0
4	B7	369	Total 1476	C 738	N 369	O 369	0	0
4	B9	427	Total 1708	C 854	N 427	O 427	0	0
4	CA	427	Total 1708	C 854	N 427	O 427	0	0
4	CC	427	Total 1708	C 854	N 427	O 427	0	0
4	CE	427	Total 1708	C 854	N 427	O 427	0	0
4	CG	426	Total 1704	C 852	N 426	O 426	0	0
4	CI	428	Total 1712	C 856	N 428	O 428	0	0
4	CM	426	Total 1704	C 852	N 426	O 426	0	0
4	CO	427	Total 1708	C 854	N 427	O 427	0	0
4	CQ	426	Total 1704	C 852	N 426	O 426	0	0
4	CS	426	Total 1704	C 852	N 426	O 426	0	0
4	CU	426	Total 1704	C 852	N 426	O 426	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	CW	426	Total 1704	C 852	N 426	O 426	0	0
4	Di	427	Total 1708	C 854	N 427	O 427	0	0
4	Dk	427	Total 1708	C 854	N 427	O 427	0	0
4	Dm	424	Total 1696	C 848	N 424	O 424	0	0
4	Dq	427	Total 1708	C 854	N 427	O 427	0	0
4	Ds	427	Total 1708	C 854	N 427	O 427	0	0
4	Cj	426	Total 1704	C 852	N 426	O 426	0	0
4	Cl	429	Total 1716	C 858	N 429	O 429	0	0
4	Cn	427	Total 1708	C 854	N 427	O 427	0	0
4	Cr	427	Total 1708	C 854	N 427	O 427	0	0
4	Ct	427	Total 1708	C 854	N 427	O 427	0	0
4	Cv	427	Total 1708	C 854	N 427	O 427	0	0
4	Cx	427	Total 1708	C 854	N 427	O 427	0	0
4	Cz	427	Total 1708	C 854	N 427	O 427	0	0
4	C2	426	Total 1704	C 852	N 426	O 426	0	0
4	C4	427	Total 1708	C 854	N 427	O 427	0	0
4	C7	426	Total 1704	C 852	N 426	O 426	0	0
4	C9	426	Total 1704	C 852	N 426	O 426	0	0
4	DA	427	Total 1708	C 854	N 427	O 427	0	0
4	DC	427	Total 1708	C 854	N 427	O 427	0	0
4	DE	426	Total 1704	C 852	N 426	O 426	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	DG	426	Total 1704	C 852	N 426	O 426	0	0
4	DI	426	Total 1704	C 852	N 426	O 426	0	0
4	DL	427	Total 1708	C 854	N 427	O 427	0	0
4	DN	427	Total 1708	C 854	N 427	O 427	0	0
4	DP	427	Total 1708	C 854	N 427	O 427	0	0
4	DR	427	Total 1708	C 854	N 427	O 427	0	0
4	DT	427	Total 1708	C 854	N 427	O 427	0	0
4	DV	427	Total 1708	C 854	N 427	O 427	0	0
4	DX	425	Total 1700	C 850	N 425	O 425	0	0
4	Dc	425	Total 1700	C 850	N 425	O 425	0	0
4	De	424	Total 1696	C 848	N 424	O 424	0	0
4	Dg	425	Total 1700	C 850	N 425	O 425	0	0
4	Er	427	Total 1708	C 854	N 427	O 427	0	0
4	Et	427	Total 1708	C 854	N 427	O 427	0	0
4	Ev	427	Total 1708	C 854	N 427	O 427	0	0
4	Ex	426	Total 1704	C 852	N 426	O 426	0	0
4	Du	427	Total 1708	C 854	N 427	O 427	0	0
4	Dw	427	Total 1708	C 854	N 427	O 427	0	0
4	Dy	427	Total 1708	C 854	N 427	O 427	0	0
4	D1	425	Total 1700	C 850	N 425	O 425	0	0
4	D6	427	Total 1708	C 854	N 427	O 427	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	D8	427	Total 1708	C 854	N 427	O 427	0	0
4	D0	428	Total 1712	C 856	N 428	O 428	0	0
4	EB	427	Total 1708	C 854	N 427	O 427	0	0
4	ED	427	Total 1708	C 854	N 427	O 427	0	0
4	EF	426	Total 1704	C 852	N 426	O 426	0	0
4	EK	427	Total 1708	C 854	N 427	O 427	0	0
4	EM	427	Total 1708	C 854	N 427	O 427	0	0
4	EO	427	Total 1708	C 854	N 427	O 427	0	0
4	EQ	427	Total 1708	C 854	N 427	O 427	0	0
4	ES	427	Total 1708	C 854	N 427	O 427	0	0
4	EU	426	Total 1704	C 852	N 426	O 426	0	0
4	EZ	427	Total 1708	C 854	N 427	O 427	0	0
4	Eb	427	Total 1708	C 854	N 427	O 427	0	0
4	Ed	428	Total 1712	C 856	N 428	O 428	0	0
4	Ef	427	Total 1708	C 854	N 427	O 427	0	0
4	Eh	427	Total 1708	C 854	N 427	O 427	0	0
4	Ej	426	Total 1704	C 852	N 426	O 426	0	0
4	Ep	427	Total 1708	C 854	N 427	O 427	0	0
4	E4	427	Total 1708	C 854	N 427	O 427	0	0
4	E6	427	Total 1708	C 854	N 427	O 427	0	0
4	E8	428	Total 1712	C 856	N 428	O 428	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	E0	427	Total 1708	C 854	N 427	O 427	0	0
4	FB	426	Total 1704	C 852	N 426	O 426	0	0
4	FD	427	Total 1708	C 854	N 427	O 427	0	0
4	FH	427	Total 1708	C 854	N 427	O 427	0	0
4	FJ	427	Total 1708	C 854	N 427	O 427	0	0
4	FL	427	Total 1708	C 854	N 427	O 427	0	0
4	FN	427	Total 1708	C 854	N 427	O 427	0	0
4	FP	426	Total 1704	C 852	N 426	O 426	0	0
4	FR	427	Total 1708	C 854	N 427	O 427	0	0
4	FV	427	Total 1708	C 854	N 427	O 427	0	0
4	FX	426	Total 1704	C 852	N 426	O 426	0	0
4	AN	426	Total 1704	C 852	N 426	O 426	0	0
4	FZ	426	Total 1704	C 852	N 426	O 426	0	0
4	Fb	426	Total 1704	C 852	N 426	O 426	0	0
4	Fd	426	Total 1704	C 852	N 426	O 426	0	0
4	Ff	426	Total 1704	C 852	N 426	O 426	0	0
4	AP	426	Total 1704	C 852	N 426	O 426	0	0
4	Bq	426	Total 1704	C 852	N 426	O 426	0	0
4	Da	411	Total 1644	C 822	N 411	O 411	0	0
4	En	427	Total 1708	C 854	N 427	O 427	0	0
4	E2	428	Total 1712	C 856	N 428	O 428	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
4	FF	427	Total	C	N	O	0	0
			1708	854	427	427		
4	FT	427	Total	C	N	O	0	0
			1708	854	427	427		
4	AR	427	Total	C	N	O	0	0
			1708	854	427	427		
4	AT	427	Total	C	N	O	0	0
			1708	854	427	427		

- Molecule 5 is a protein called Tektin-2.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	b	191	Total	C	N	O	0	0
			764	382	191	191		
5	e	416	Total	C	N	O	0	0
			1664	832	416	416		
5	f	416	Total	C	N	O	0	0
			1664	832	416	416		
5	g	383	Total	C	N	O	0	0
			1532	766	383	383		
5	h	48	Total	C	N	O	0	0
			192	96	48	48		
5	i	51	Total	C	N	O	0	0
			204	102	51	51		
5	j	358	Total	C	N	O	0	0
			1432	716	358	358		
5	k	414	Total	C	N	O	0	0
			1656	828	414	414		
5	l	403	Total	C	N	O	0	0
			1612	806	403	403		
5	m	191	Total	C	N	O	0	0
			764	382	191	191		

- Molecule 6 is a protein called EF-hand domain-containing family member B.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	1	141	Total	C	N	O	0	0
			564	282	141	141		
6	2	190	Total	C	N	O	0	0
			760	380	190	190		

- Molecule 7 is a protein called Tektin-3.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	AC	31	Total	C	N	O	0	0
			124	62	31	31		
7	AD	334	Total	C	N	O	0	0
			1336	668	334	334		
7	AE	394	Total	C	N	O	0	0
			1576	788	394	394		
7	AF	394	Total	C	N	O	0	0
			1576	788	394	394		
7	AG	215	Total	C	N	O	0	0
			860	430	215	215		
7	AH	113	Total	C	N	O	0	0
			452	226	113	113		
7	AI	385	Total	C	N	O	0	0
			1540	770	385	385		
7	AJ	413	Total	C	N	O	0	0
			1652	826	413	413		
7	AK	407	Total	C	N	O	0	0
			1628	814	407	407		
7	BI	139	Total	C	N	O	0	0
			556	278	139	139		
7	BJ	421	Total	C	N	O	0	0
			1684	842	421	421		
7	BK	421	Total	C	N	O	0	0
			1684	842	421	421		
7	BL	378	Total	C	N	O	0	0
			1512	756	378	378		
7	BM	99	Total	C	N	O	0	0
			396	198	99	99		
7	AL	112	Total	C	N	O	0	0
			448	224	112	112		

- Molecule 8 is a protein called Meiosis-specific nuclear structural protein 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	a	354	Total	C	N	O	0	0
			1416	708	354	354		
8	A	170	Total	C	N	O	0	0
			680	340	170	170		

- Molecule 9 is a protein called Tektin-4.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	Aa	292	Total	C	N	O	0	0
			1168	584	292	292		

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Mol	Chain	Residues	Atoms				AltConf	Trace
9	Ab	425	Total	C	N	O	0	0
			1700	850	425	425		
9	Ac	425	Total	C	N	O	0	0
			1700	850	425	425		
9	Ad	316	Total	C	N	O	0	0
			1264	632	316	316		
9	Af	314	Total	C	N	O	0	0
			1256	628	314	314		
9	Ag	414	Total	C	N	O	0	0
			1656	828	414	414		
9	Ah	413	Total	C	N	O	0	0
			1652	826	413	413		
9	Ai	291	Total	C	N	O	0	0
			1164	582	291	291		

- Molecule 10 is a protein called Cilia- and flagella-associated protein 53.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	3	306	Total	C	N	O	0	0
			1224	612	306	306		
10	4	201	Total	C	N	O	0	0
			804	402	201	201		

- Molecule 11 is a protein called Tektin bundle-interacting protein 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	Az	68	Total	C	N	O	0	0
			272	136	68	68		
11	A1	127	Total	C	N	O	0	0
			508	254	127	127		
11	A2	144	Total	C	N	O	0	0
			576	288	144	144		
11	A3	144	Total	C	N	O	0	0
			576	288	144	144		

- Molecule 12 is a protein called Cilia- and flagella-associated protein 141.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	AB	87	Total	C	N	O	0	0
			348	174	87	87		

- Molecule 13 is a protein called Nucleoside diphosphate kinase 7.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	5	358	Total	C	N	O	0	0
			1432	716	358	358		
13	6	358	Total	C	N	O	0	0
			1432	716	358	358		

- Molecule 14 is a protein called Protein FAM166B.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	B6	152	Total	C	N	O	0	0
			608	304	152	152		
14	CL	152	Total	C	N	O	0	0
			608	304	152	152		
14	Ca	152	Total	C	N	O	0	0
			608	304	152	152		
14	Cq	152	Total	C	N	O	0	0
			608	304	152	152		
14	C6	152	Total	C	N	O	0	0
			608	304	152	152		
14	DK	155	Total	C	N	O	0	0
			620	310	155	155		

- Molecule 15 is a protein called Sperm-associated antigen 8.

Mol	Chain	Residues	Atoms				AltConf	Trace
15	AZ	147	Total	C	N	O	0	0
			588	294	147	147		

- Molecule 16 is a protein called RIB43A-like with coiled-coils protein 2.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	Do	373	Total	C	N	O	0	0
			1492	746	373	373		
16	DZ	33	Total	C	N	O	0	0
			132	66	33	33		
16	D4	39	Total	C	N	O	0	0
			156	78	39	39		
16	EI	222	Total	C	N	O	0	0
			888	444	222	222		
16	EX	170	Total	C	N	O	0	0
			680	340	170	170		

- Molecule 17 is a protein called Cilia- and flagella-associated protein 107.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	8	188	Total	C	N	O	0	0
			752	376	188	188		
17	9	32	Total	C	N	O	0	0
			128	64	32	32		

- Molecule 18 is a protein called Cilia- and flagella-associated protein 161.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	Ay	251	Total	C	N	O	0	0
			1004	502	251	251		
18	BH	251	Total	C	N	O	0	0
			1004	502	251	251		

- Molecule 19 is a protein called EF-hand domain-containing protein 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	E1	442	Total	C	N	O	0	0
			1768	884	442	442		
19	Em	442	Total	C	N	O	0	0
			1768	884	442	442		
19	FE	442	Total	C	N	O	0	0
			1768	884	442	442		

- Molecule 20 is a protein called Sperm acrosome-associated protein 9.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	F1	150	Total	C	N	O	0	0
			600	300	150	150		
20	F2	150	Total	C	N	O	0	0
			600	300	150	150		
20	F3	150	Total	C	N	O	0	0
			600	300	150	150		
20	F4	150	Total	C	N	O	0	0
			600	300	150	150		
20	F5	150	Total	C	N	O	0	0
			600	300	150	150		
20	F6	150	Total	C	N	O	0	0
			600	300	150	150		
20	F7	149	Total	C	N	O	0	0
			596	298	149	149		
20	F8	150	Total	C	N	O	0	0
			600	300	150	150		

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Mol	Chain	Residues	Atoms			AltConf	Trace
20	F9	150	Total 600	C 300	N 150	O 150	0 0
20	F0	150	Total 600	C 300	N 150	O 150	0 0
20	GA	148	Total 592	C 296	N 148	O 148	0 0
20	GB	150	Total 600	C 300	N 150	O 150	0 0
20	GC	150	Total 600	C 300	N 150	O 150	0 0
20	GD	148	Total 592	C 296	N 148	O 148	0 0
20	GE	150	Total 600	C 300	N 150	O 150	0 0
20	GF	146	Total 584	C 292	N 146	O 146	0 0
20	GG	145	Total 580	C 290	N 145	O 145	0 0
20	GH	150	Total 600	C 300	N 150	O 150	0 0
20	GI	150	Total 600	C 300	N 150	O 150	0 0
20	GJ	149	Total 596	C 298	N 149	O 149	0 0
20	GK	149	Total 596	C 298	N 149	O 149	0 0
20	GL	150	Total 600	C 300	N 150	O 150	0 0
20	GM	150	Total 600	C 300	N 150	O 150	0 0
20	GN	150	Total 600	C 300	N 150	O 150	0 0
20	GO	149	Total 596	C 298	N 149	O 149	0 0
20	GP	149	Total 596	C 298	N 149	O 149	0 0
20	GQ	152	Total 608	C 304	N 152	O 152	0 0

- Molecule 21 is a protein called EF-hand domain-containing family member C2.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	Fg	636	Total	C	N	O	0	0
			2544	1272	636	636		
21	FS	553	Total	C	N	O	0	0
			2212	1106	553	553		
21	Fo	636	Total	C	N	O	0	0
			2544	1272	636	636		
21	Fv	449	Total	C	N	O	0	0
			1796	898	449	449		

- Molecule 22 is a protein called Cilia- and flagella-associated protein 20.

Mol	Chain	Residues	Atoms				AltConf	Trace
22	Fh	184	Total	C	N	O	0	0
			736	368	184	184		
22	Fi	184	Total	C	N	O	0	0
			736	368	184	184		
22	Fj	184	Total	C	N	O	0	0
			736	368	184	184		
22	Fk	184	Total	C	N	O	0	0
			736	368	184	184		
22	Fl	184	Total	C	N	O	0	0
			736	368	184	184		
22	Fm	184	Total	C	N	O	0	0
			736	368	184	184		
22	Fn	184	Total	C	N	O	0	0
			736	368	184	184		

- Molecule 23 is a protein called Parkin coregulated gene protein homolog.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	Fp	219	Total	C	N	O	0	0
			876	438	219	219		
23	Fq	219	Total	C	N	O	0	0
			876	438	219	219		
23	Fr	219	Total	C	N	O	0	0
			876	438	219	219		
23	Fs	219	Total	C	N	O	0	0
			876	438	219	219		
23	Ft	219	Total	C	N	O	0	0
			876	438	219	219		

- Molecule 24 is a protein called Dual specificity protein phosphatase 3.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	Fx	185	Total	C	N	O	0	0
			740	370	185	185		
24	Fy	185	Total	C	N	O	0	0
			740	370	185	185		
24	Fz	185	Total	C	N	O	0	0
			740	370	185	185		

- Molecule 25 is a protein called Piercer of microtubule wall 2 protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
25	G	71	Total	C	N	O	0	0
			284	142	71	71		

- Molecule 26 is a protein called Tektin-5.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	GR	274	Total	C	N	O	0	0
			1096	548	274	274		
26	GS	274	Total	C	N	O	0	0
			1096	548	274	274		
26	GT	274	Total	C	N	O	0	0
			1096	548	274	274		
26	GU	171	Total	C	N	O	0	0
			684	342	171	171		
26	GV	244	Total	C	N	O	0	0
			976	488	244	244		
26	GW	349	Total	C	N	O	0	0
			1396	698	349	349		
26	GX	346	Total	C	N	O	0	0
			1384	692	346	346		
26	GY	288	Total	C	N	O	0	0
			1152	576	288	288		
26	GZ	23	Total	C	N	O	0	0
			92	46	23	23		
26	Ga	114	Total	C	N	O	0	0
			456	228	114	114		
26	Gb	342	Total	C	N	O	0	0
			1368	684	342	342		
26	Gc	333	Total	C	N	O	0	0
			1332	666	333	333		
26	Gd	327	Total	C	N	O	0	0
			1308	654	327	327		
26	Ge	58	Total	C	N	O	0	0
			232	116	58	58		

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Mol	Chain	Residues	Atoms				AltConf	Trace
26	z0	270	Total	C	N	O	0	0
			1080	540	270	270		
26	z1	268	Total	C	N	O	0	0
			1072	536	268	268		
26	z3	254	Total	C	N	O	0	0
			1016	508	254	254		
26	z4	184	Total	C	N	O	0	0
			736	368	184	184		
26	Gf	29	Total	C	N	O	0	0
			116	58	29	29		
26	Gg	292	Total	C	N	O	0	0
			1168	584	292	292		
26	Gh	320	Total	C	N	O	0	0
			1280	640	320	320		
26	Gi	321	Total	C	N	O	0	0
			1284	642	321	321		
26	Gj	190	Total	C	N	O	0	0
			760	380	190	190		

- Molecule 27 is a protein called Cilia- and flagella-associated protein 45.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	B	57	Total	C	N	O	0	0
			228	114	57	57		
27	AA	327	Total	C	N	O	0	0
			1308	654	327	327		
27	c	48	Total	C	N	O	0	0
			192	96	48	48		
27	Ax	215	Total	C	N	O	0	0
			860	430	215	215		
27	d	238	Total	C	N	O	0	0
			952	476	238	238		

- Molecule 28 is a protein called Cilia- and flagella-associated protein 52.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	BG	605	Total	C	N	O	0	0
			2420	1210	605	605		
28	Ba	605	Total	C	N	O	0	0
			2420	1210	605	605		
28	Bo	605	Total	C	N	O	0	0
			2420	1210	605	605		

- Molecule 29 is a protein called Enkurin.

Mol	Chain	Residues	Atoms				AltConf	Trace
29	B5	142	Total	C	N	O	0	0
			568	284	142	142		
29	CK	229	Total	C	N	O	0	0
			916	458	229	229		
29	CZ	229	Total	C	N	O	0	0
			916	458	229	229		
29	Cp	229	Total	C	N	O	0	0
			916	458	229	229		

- Molecule 30 is a protein called Protein Flattop.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	C5	114	Total	C	N	O	0	0
			456	228	114	114		
30	DJ	113	Total	C	N	O	0	0
			452	226	113	113		
30	DY	118	Total	C	N	O	0	0
			472	236	118	118		

- Molecule 31 is a protein called Cilia- and flagella- associated protein 210.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	Dn	378	Total	C	N	O	0	0
			1512	756	378	378		
31	D3	100	Total	C	N	O	0	0
			400	200	100	100		

- Molecule 32 is a protein called Cilia- and flagella-associated protein 276.

Mol	Chain	Residues	Atoms				AltConf	Trace
32	EH	77	Total	C	N	O	0	0
			308	154	77	77		
32	EW	77	Total	C	N	O	0	0
			308	154	77	77		
32	El	79	Total	C	N	O	0	0
			316	158	79	79		

- Molecule 33 is a protein called EF-hand calcium-binding domain-containing protein 6.

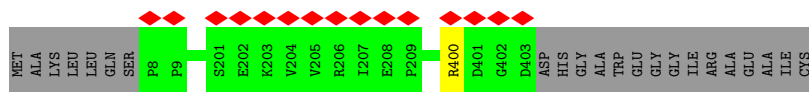
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
33	Ez	178	712	356	178	178	0	0

- Molecule 34 is a protein called Coiled-coil domain-containing protein 105.

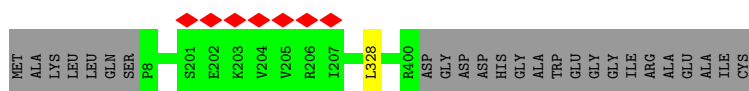
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
34	C	173	692	346	173	173	0	0
34	D	302	1208	604	302	302	0	0
34	E	302	1208	604	302	302	0	0
34	F	282	1128	564	282	282	0	0
34	H	9	36	18	9	9	0	0

- Molecule 35 is a protein called Piercer of microtubule wall 1 protein.

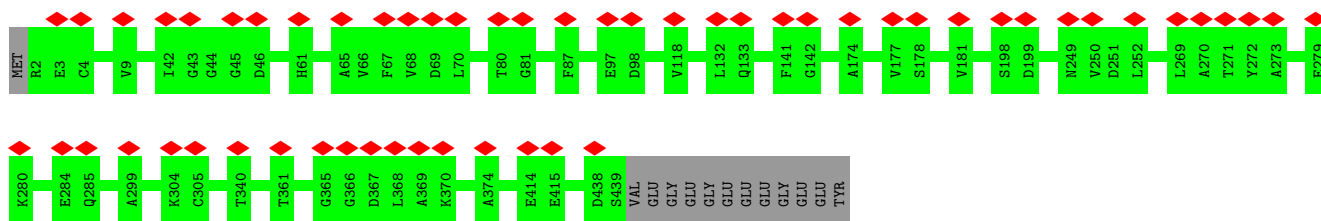
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
35	Fw	76	304	152	76	76	0	0



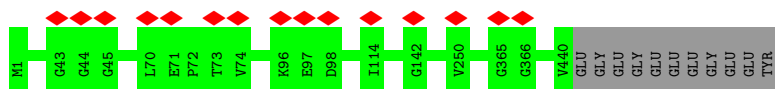
• Molecule 2: Tektin-1



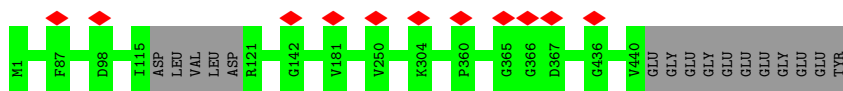
• Molecule 3: Detyrosinated tubulin alpha-1A chain



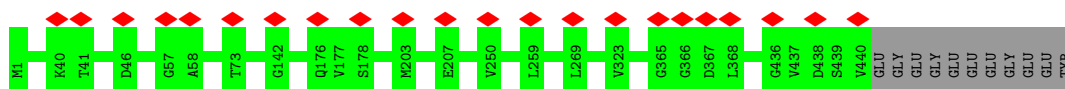
• Molecule 3: Detyrosinated tubulin alpha-1A chain



• Molecule 3: Detyrosinated tubulin alpha-1A chain

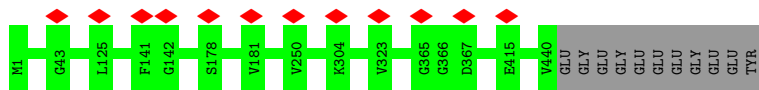


• Molecule 3: Detyrosinated tubulin alpha-1A chain

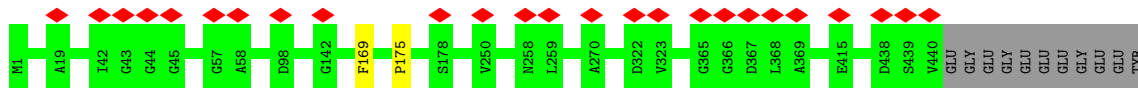


• Molecule 3: Detyrosinated tubulin alpha-1A chain

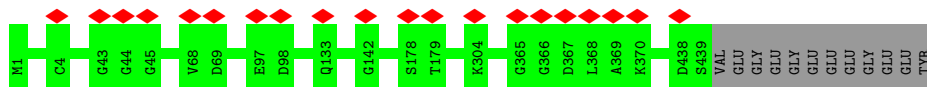




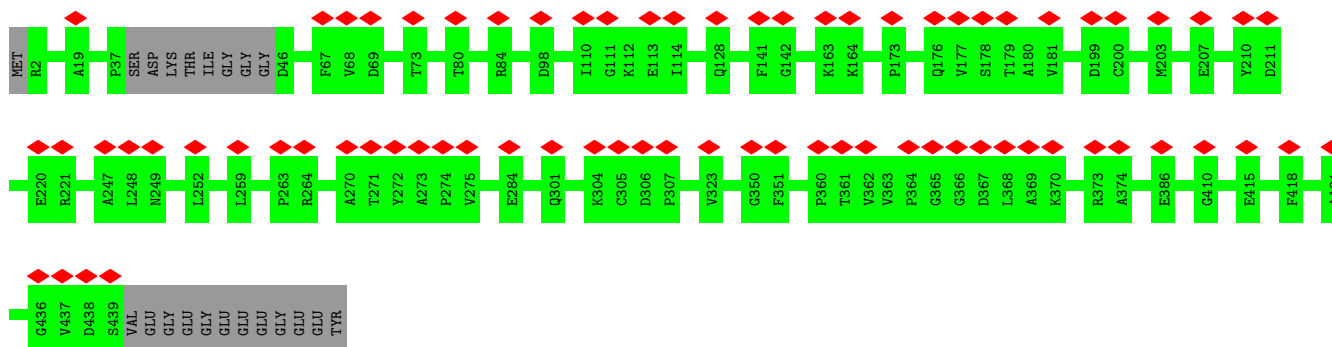
- Molecule 3: Detyrosinated tubulin alpha-1A chain



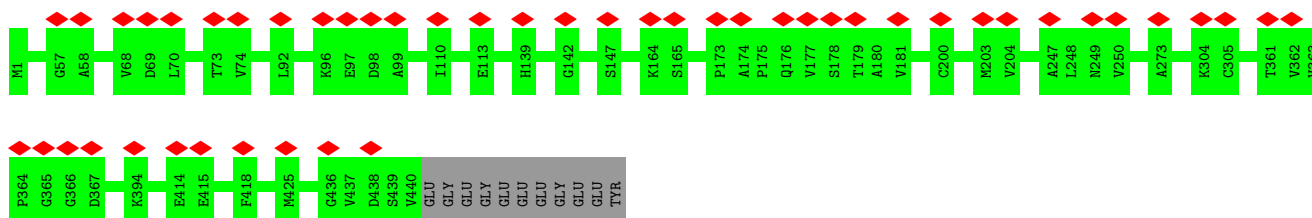
- Molecule 3: Detyrosinated tubulin alpha-1A chain



- Molecule 3: Detyrosinated tubulin alpha-1A chain

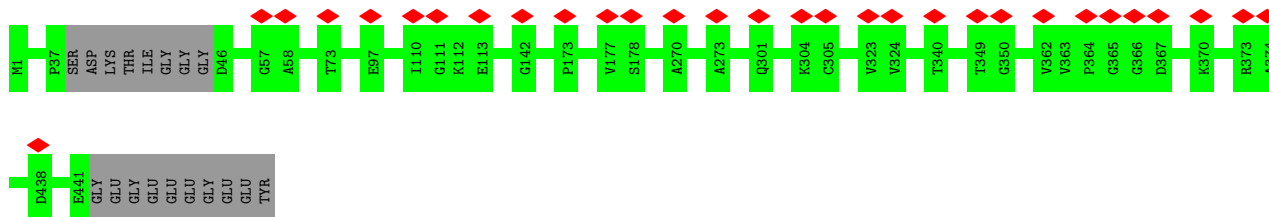


- Molecule 3: Detyrosinated tubulin alpha-1A chain

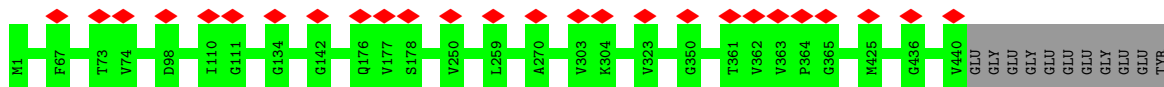


- Molecule 3: Detyrosinated tubulin alpha-1A chain

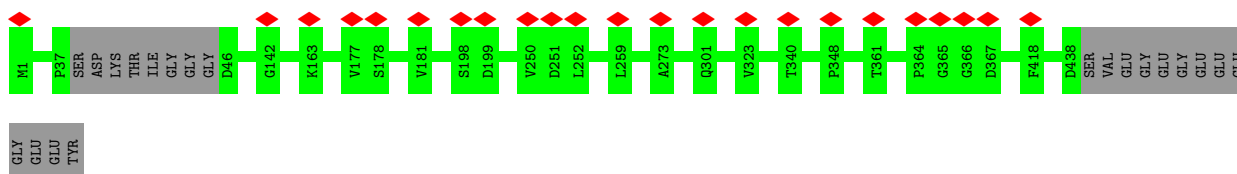




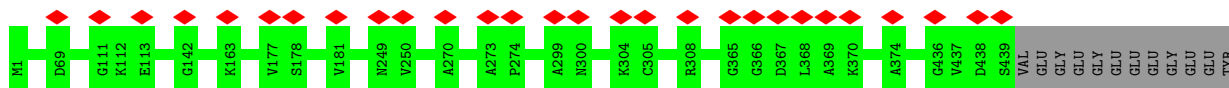
• Molecule 3: Detyrosinated tubulin alpha-1A chain



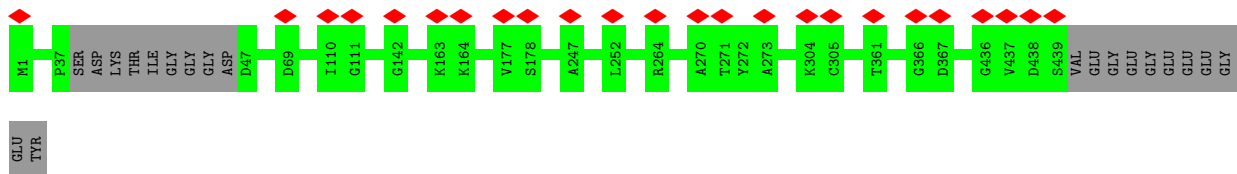
• Molecule 3: Detyrosinated tubulin alpha-1A chain



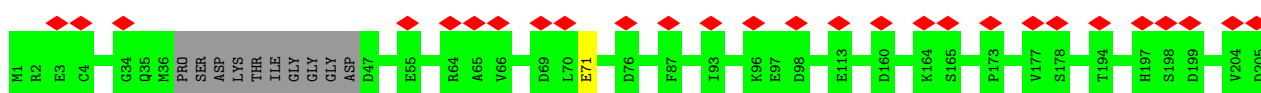
• Molecule 3: Detyrosinated tubulin alpha-1A chain

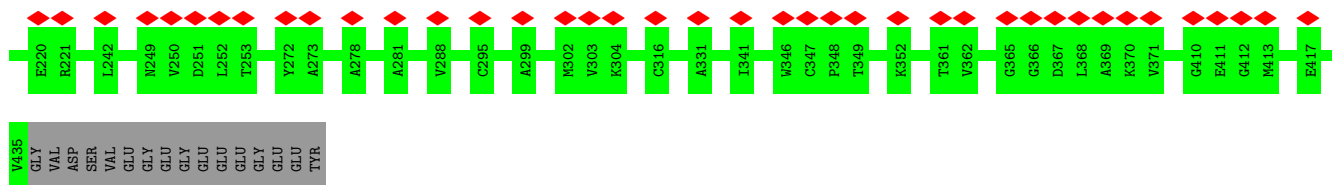


• Molecule 3: Detyrosinated tubulin alpha-1A chain

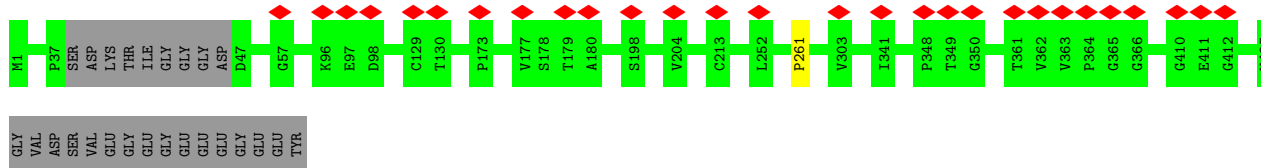


• Molecule 3: Detyrosinated tubulin alpha-1A chain

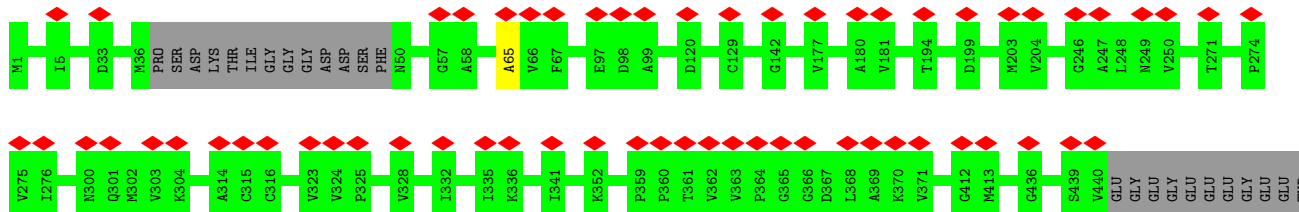




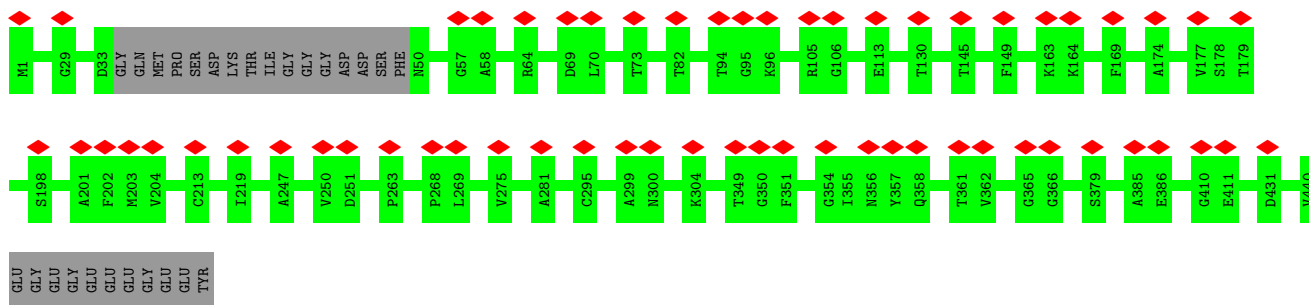
• Molecule 3: Detyrosinated tubulin alpha-1A chain



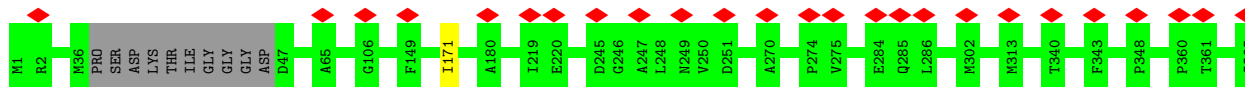
• Molecule 3: Detyrosinated tubulin alpha-1A chain

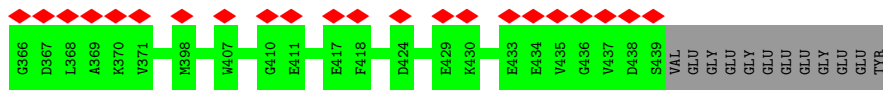


• Molecule 3: Detyrosinated tubulin alpha-1A chain

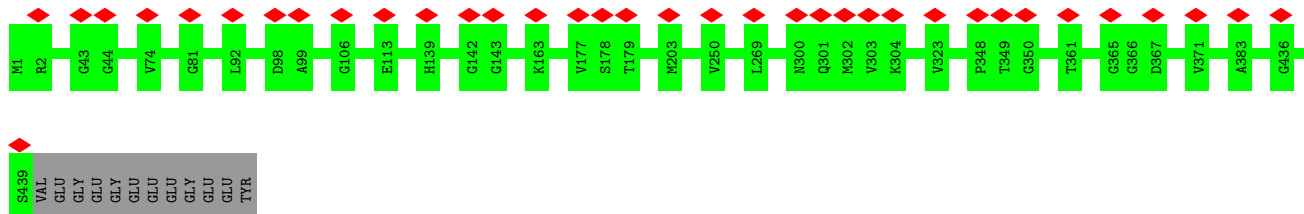


• Molecule 3: Detyrosinated tubulin alpha-1A chain

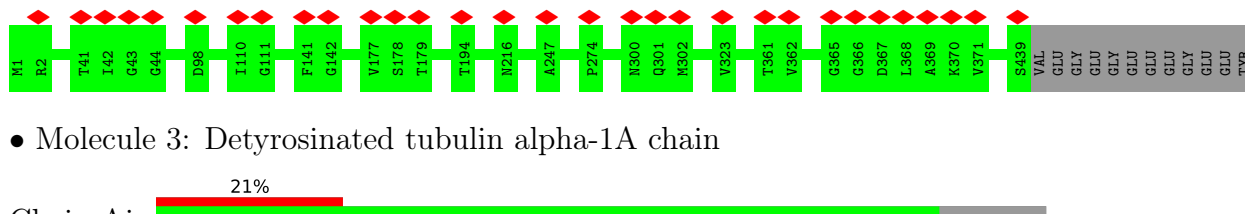




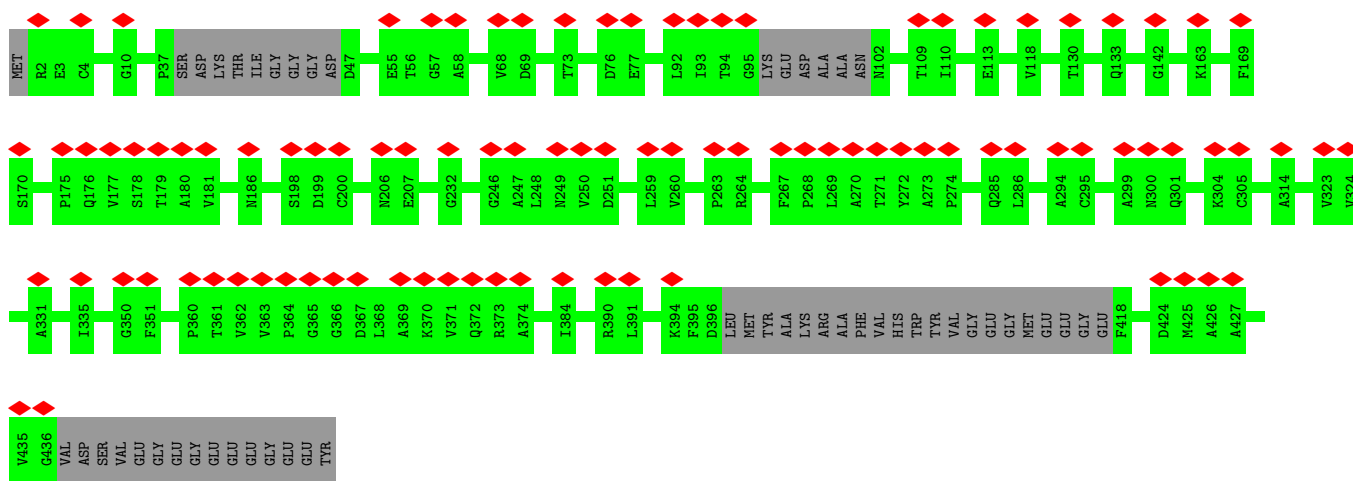
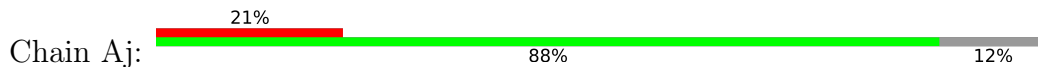
• Molecule 3: Detyrosinated tubulin alpha-1A chain



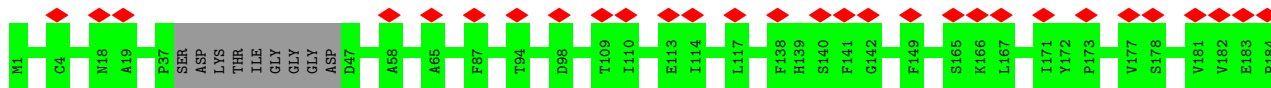
• Molecule 3: Detyrosinated tubulin alpha-1A chain

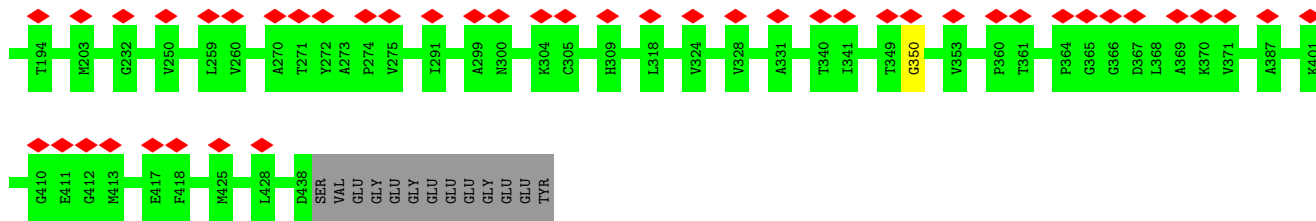


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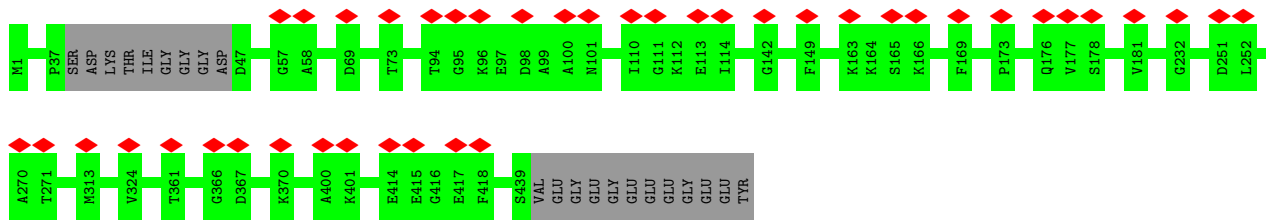


• Molecule 3: Detyrosinated tubulin alpha-1A chain

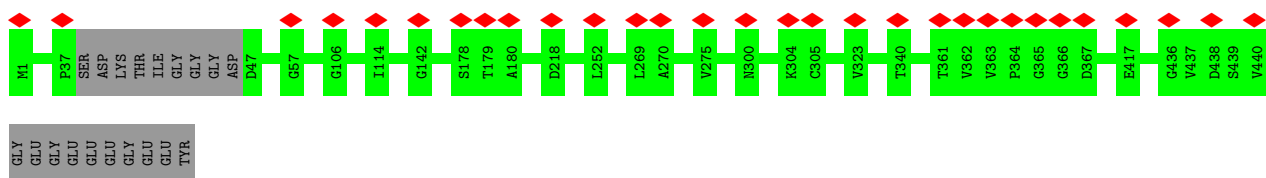




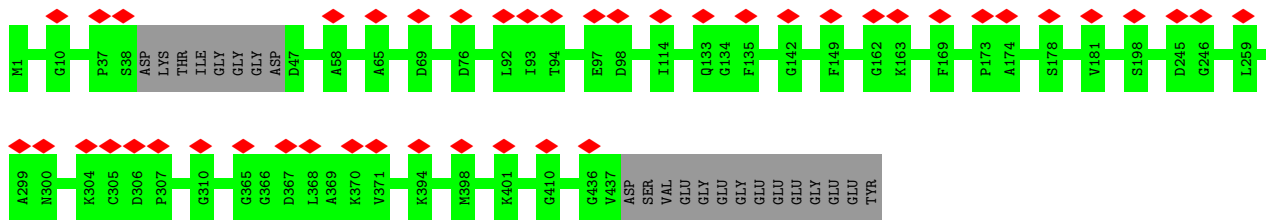
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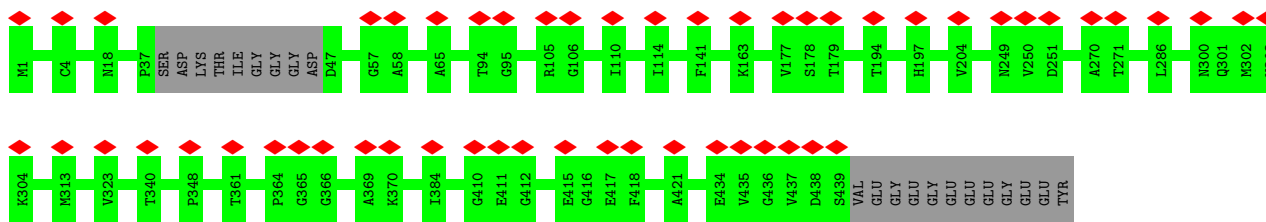
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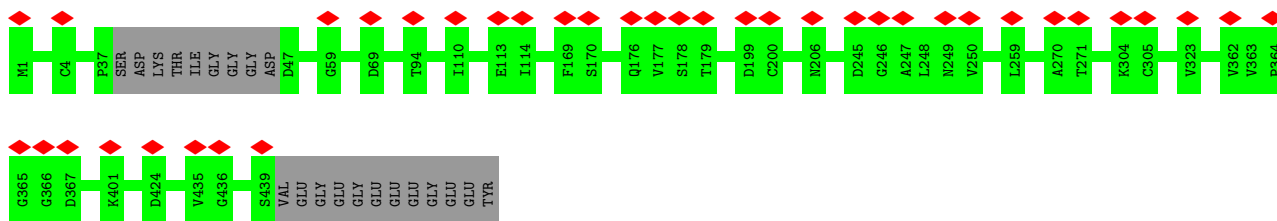
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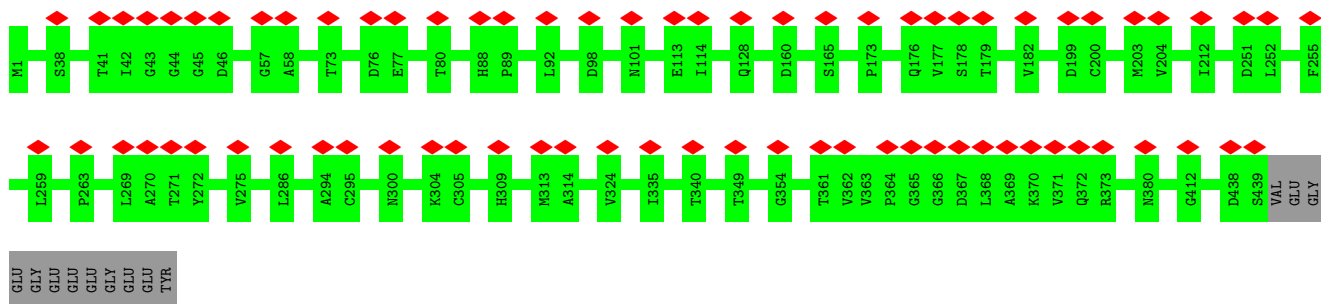
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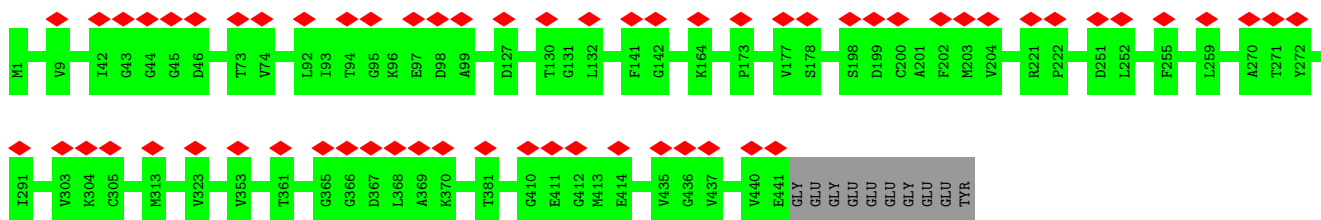
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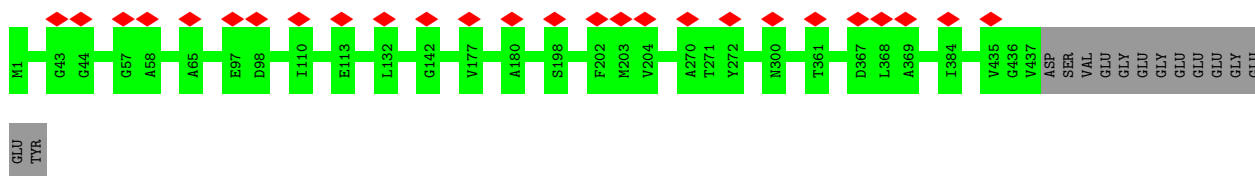
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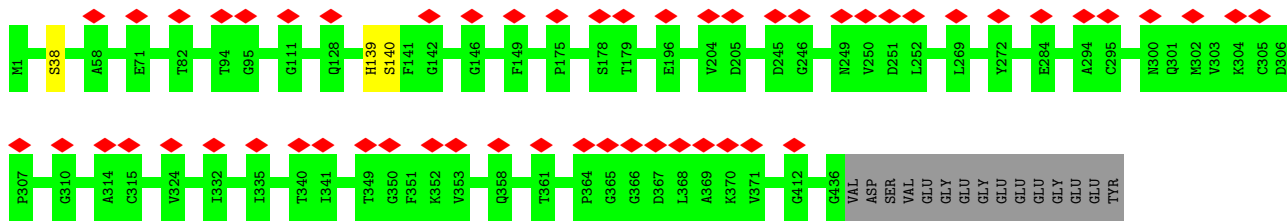


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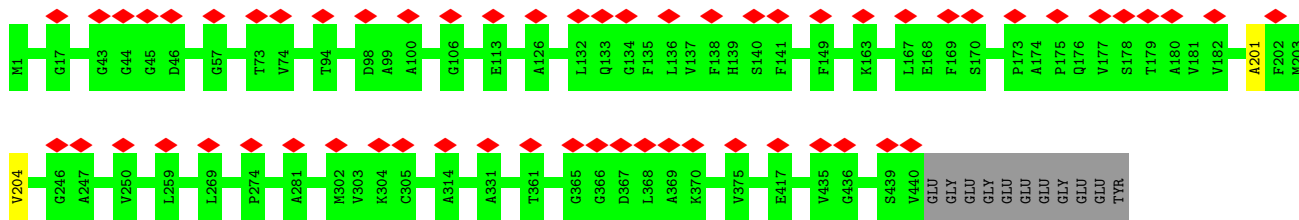


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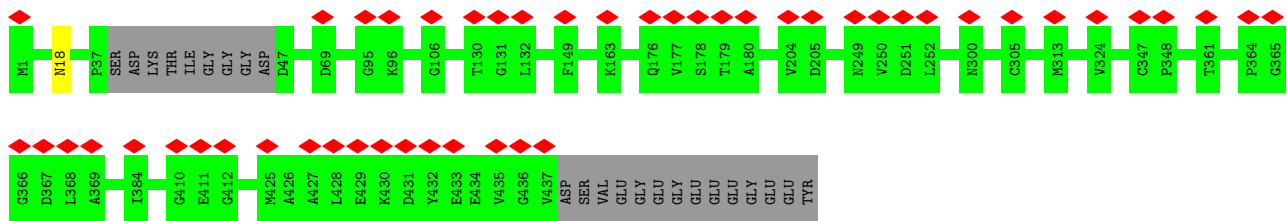




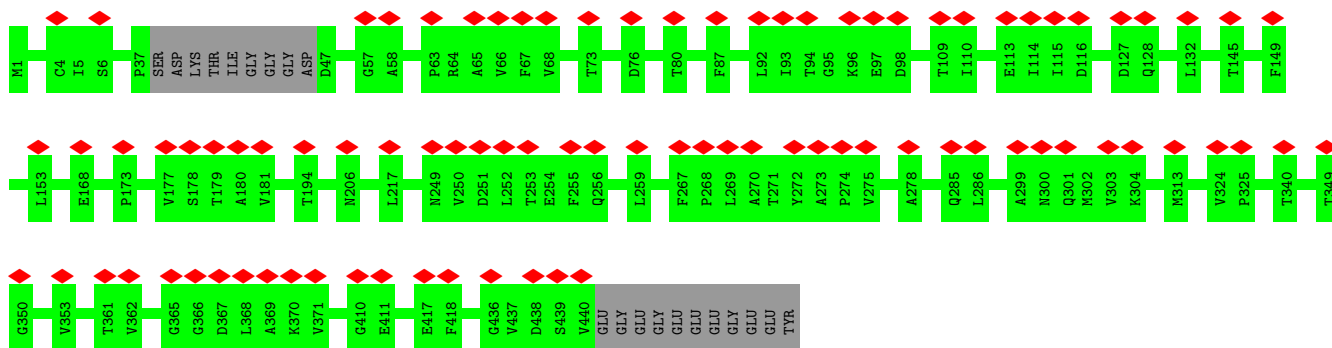
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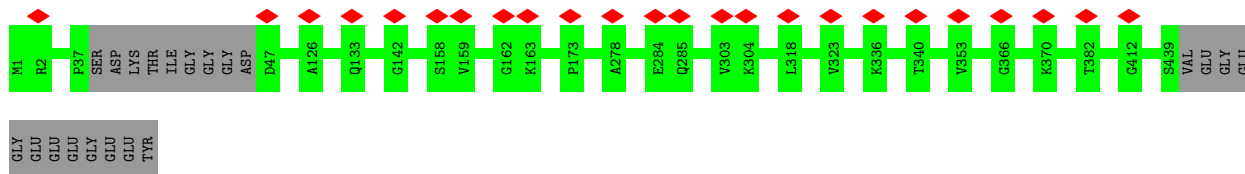


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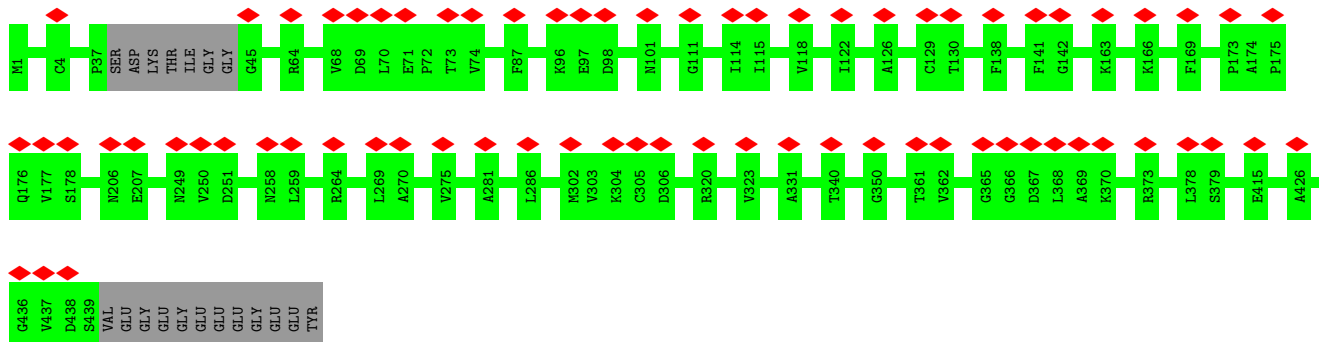


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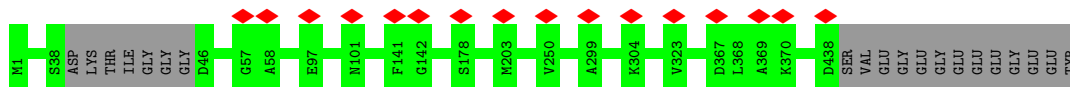




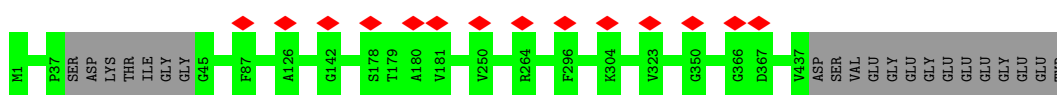
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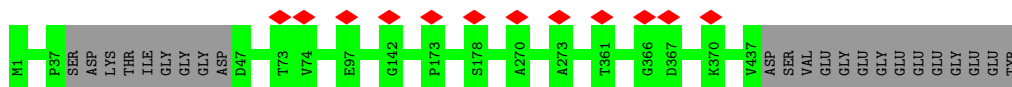
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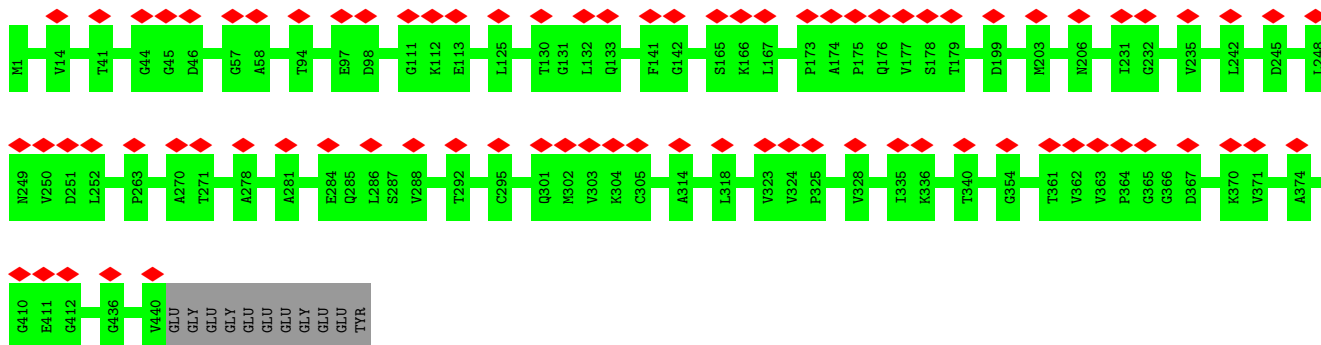


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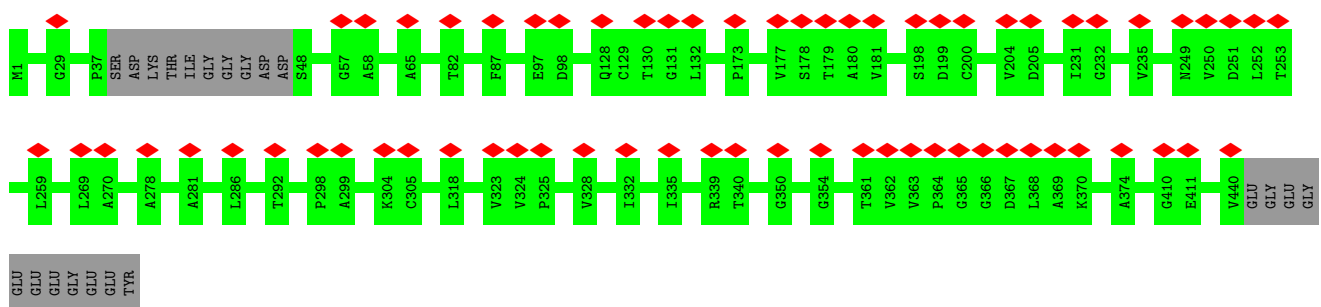


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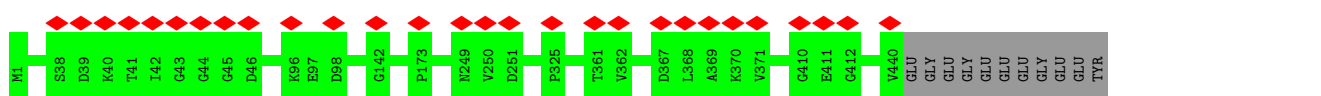




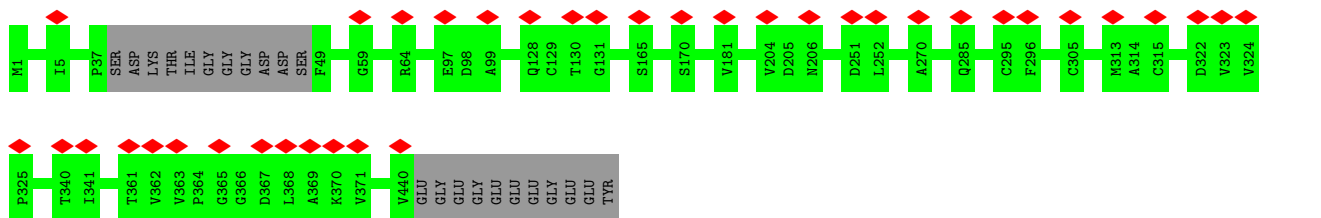
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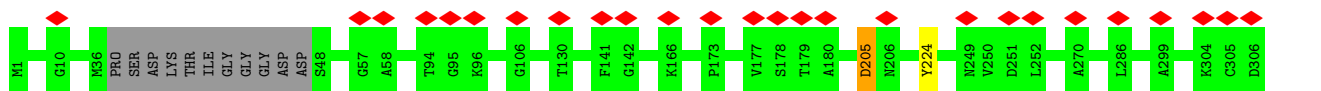
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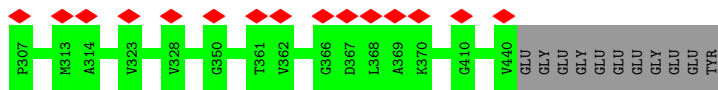


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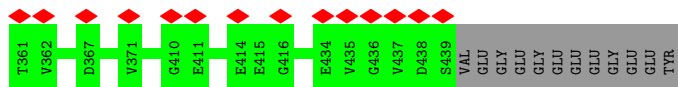
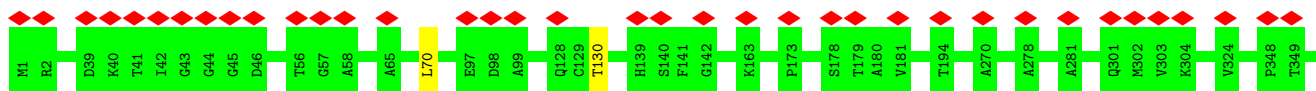


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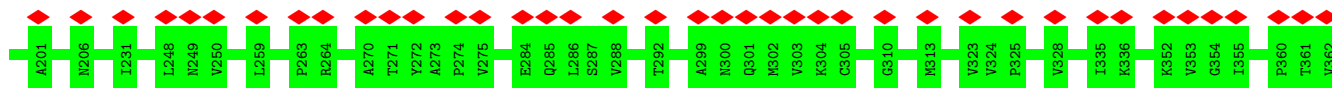
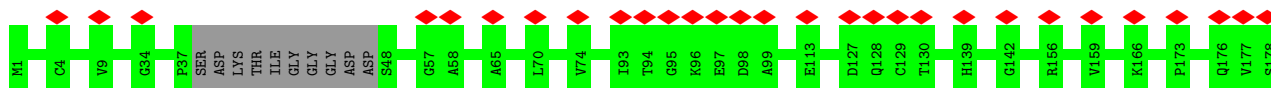




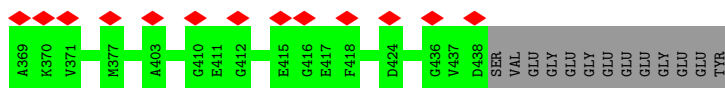
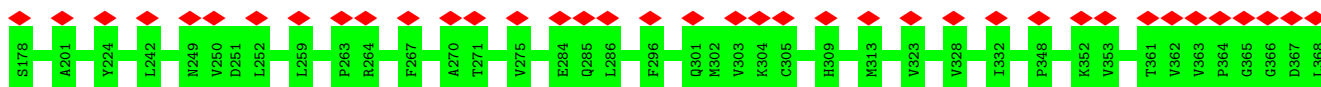
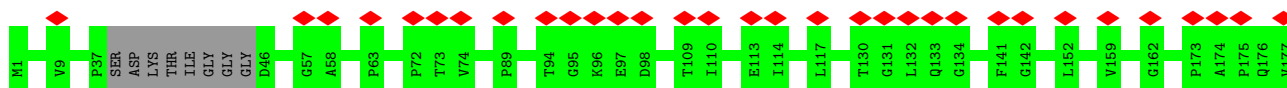
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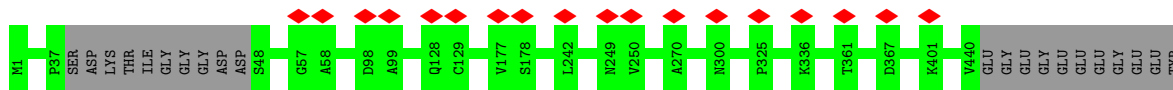


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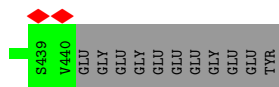
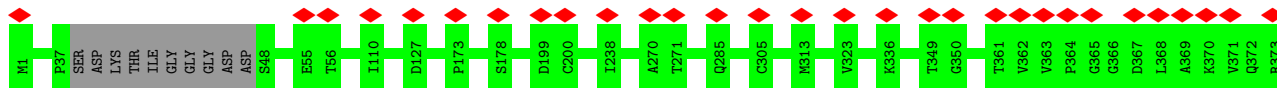


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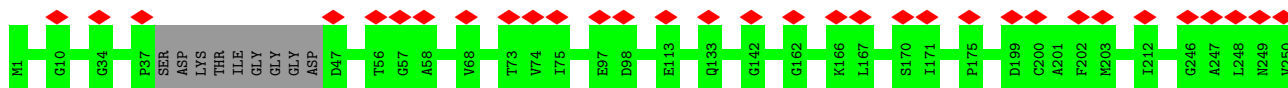




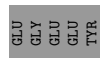
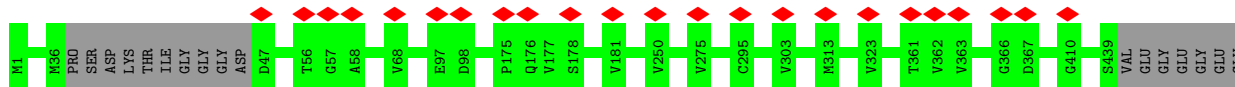
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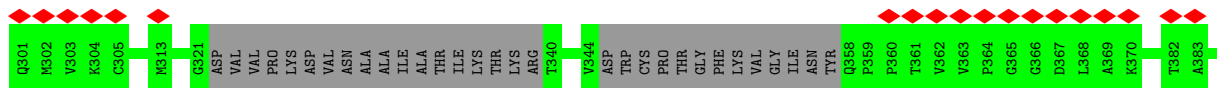
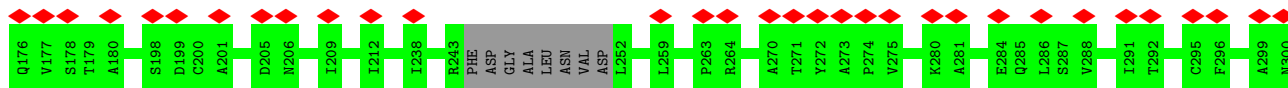
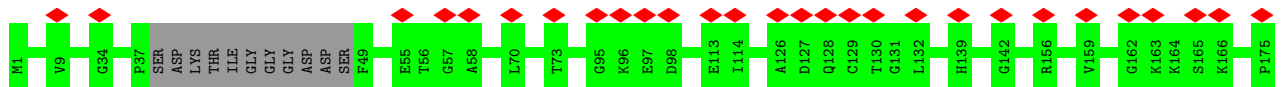
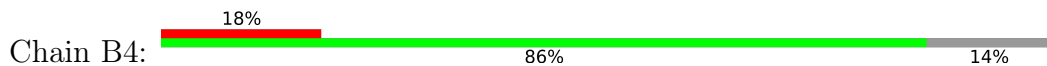
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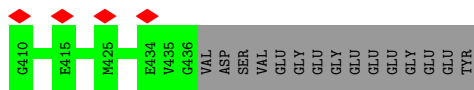


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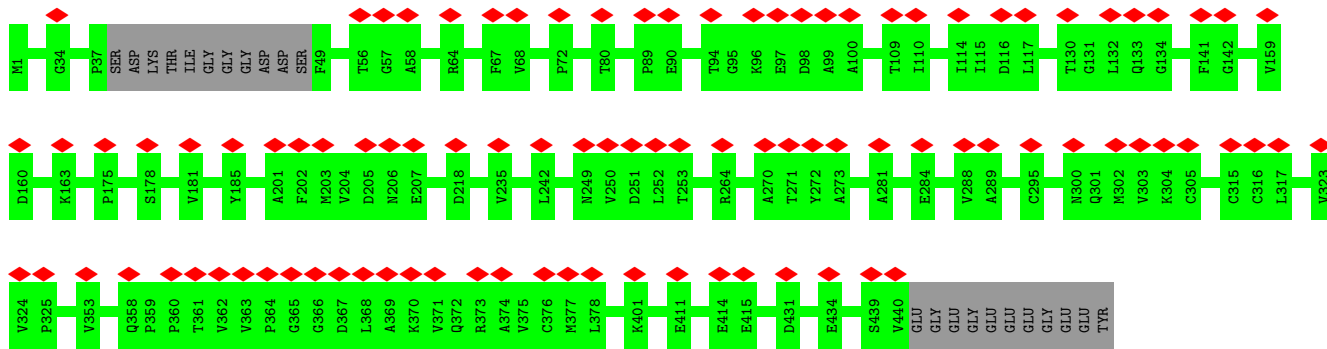


• Molecule 3: Detyrosinated tubulin alpha-1A chain

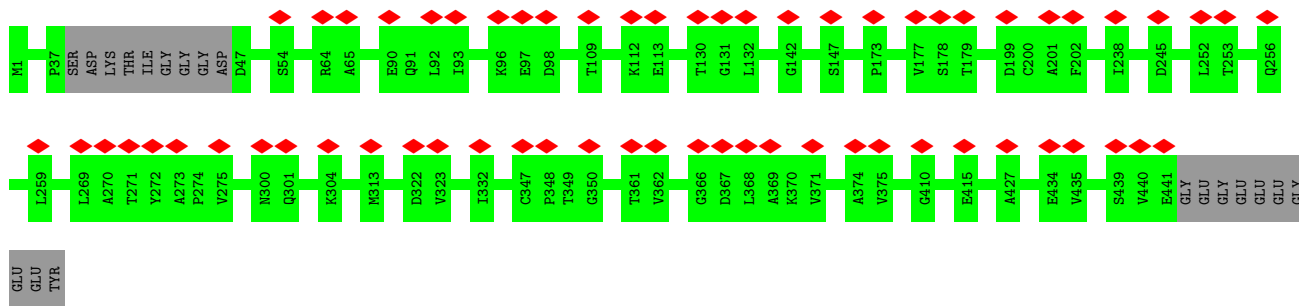




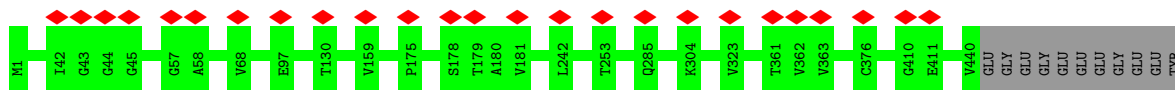
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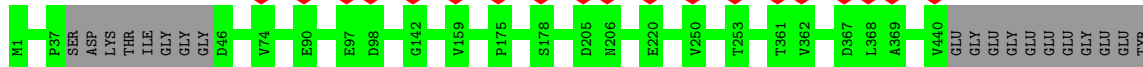
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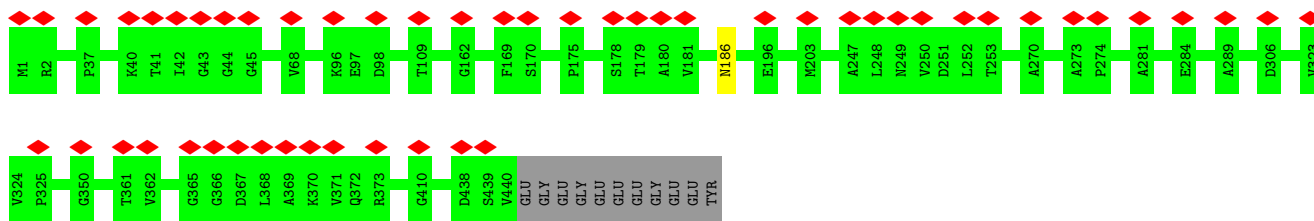


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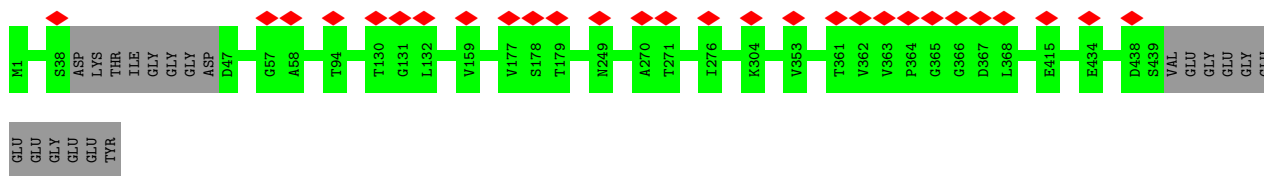


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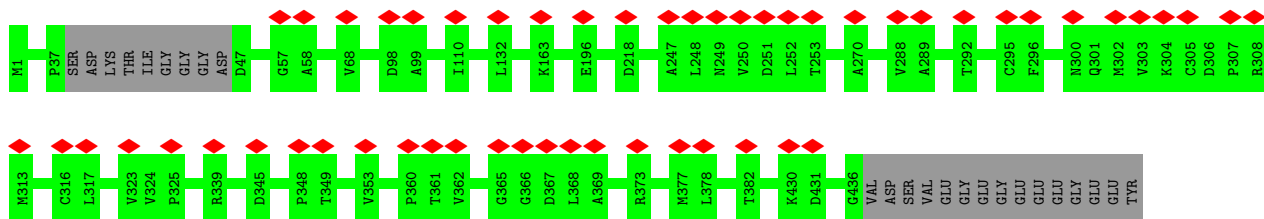




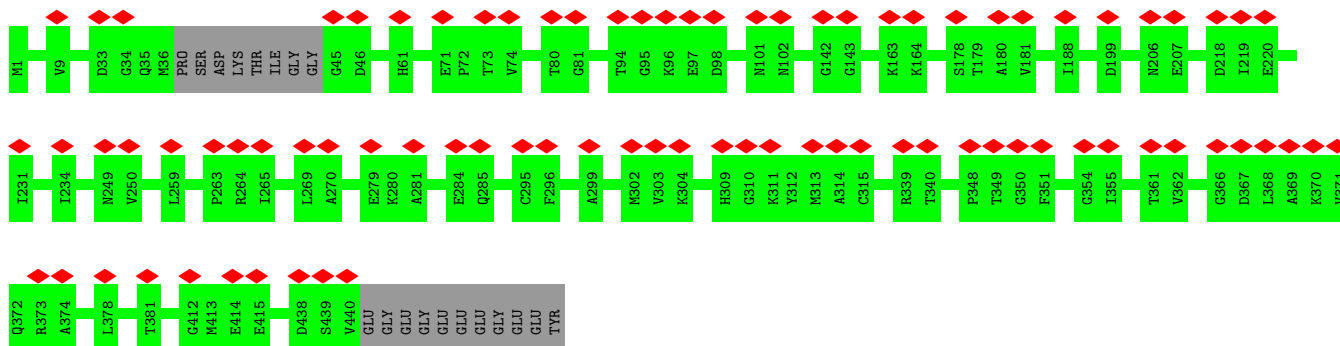
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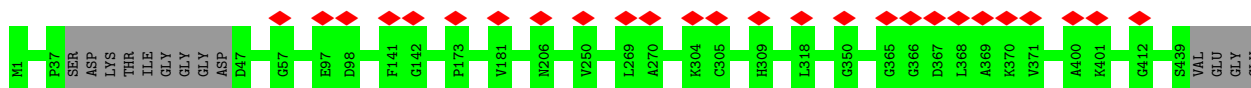
- Molecule 3: Detyrosinated tubulin alpha-1A chain



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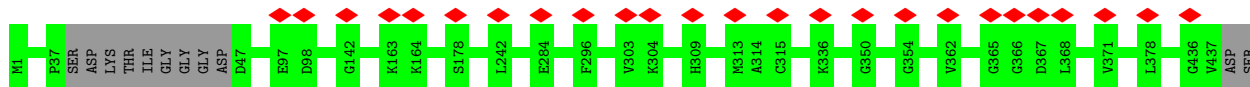


- Molecule 3: Detyrosinated tubulin alpha-1A chain



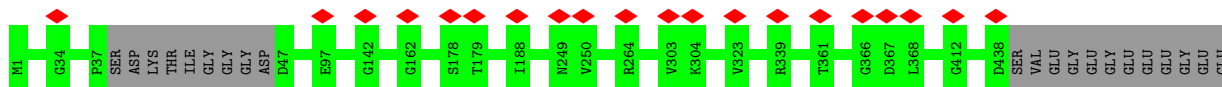
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GLU
GLU
GLU
GLY
GLU
GLU
TYR

• Molecule 3: Detyrosinated tubulin alpha-1A chain



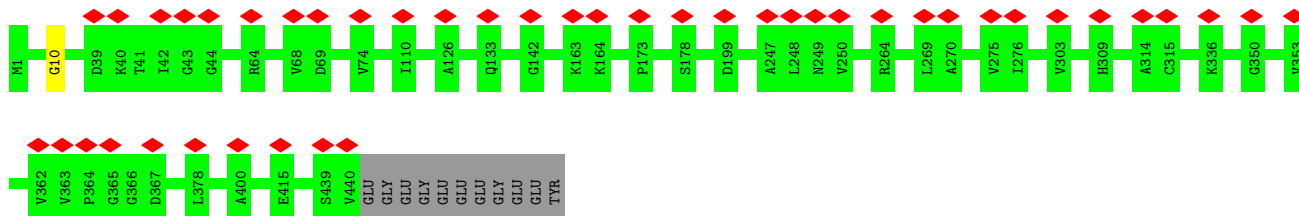
VAL
GLU
GLY
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GLU
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• Molecule 3: Detyrosinated tubulin alpha-1A chain

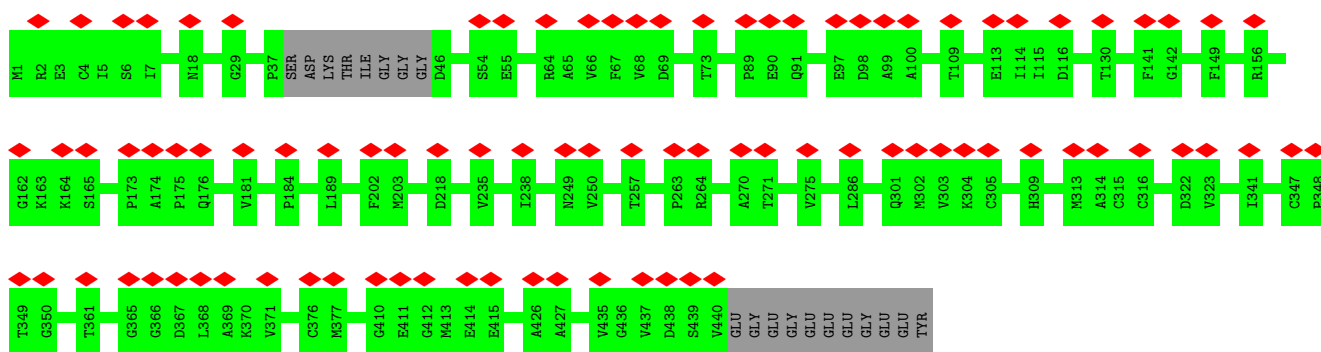


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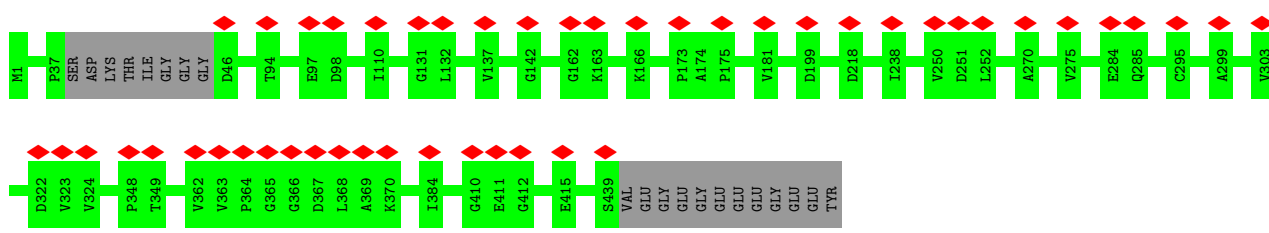
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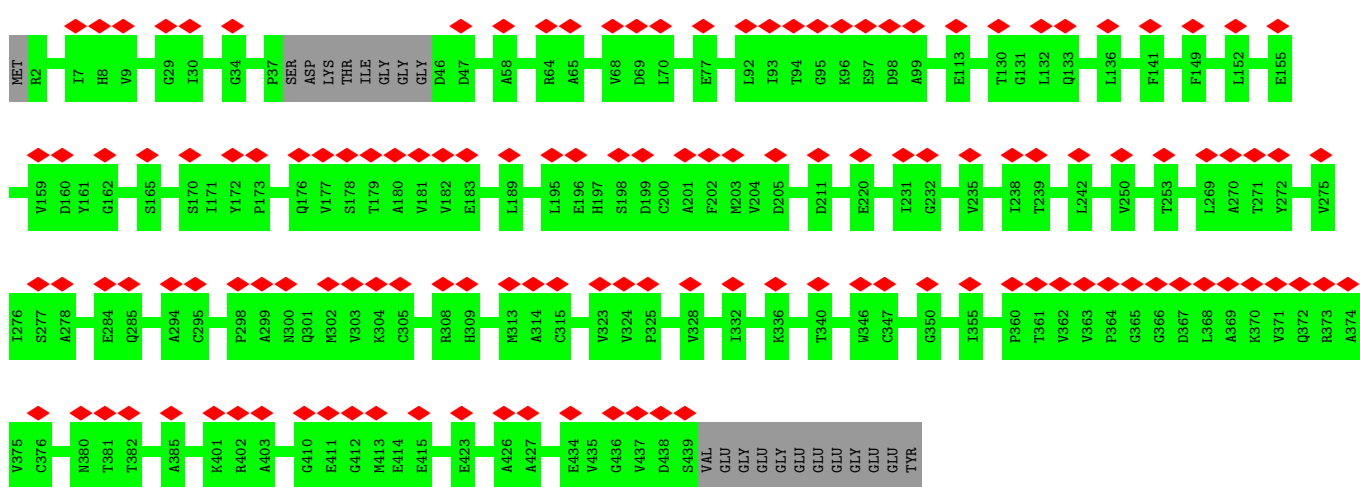
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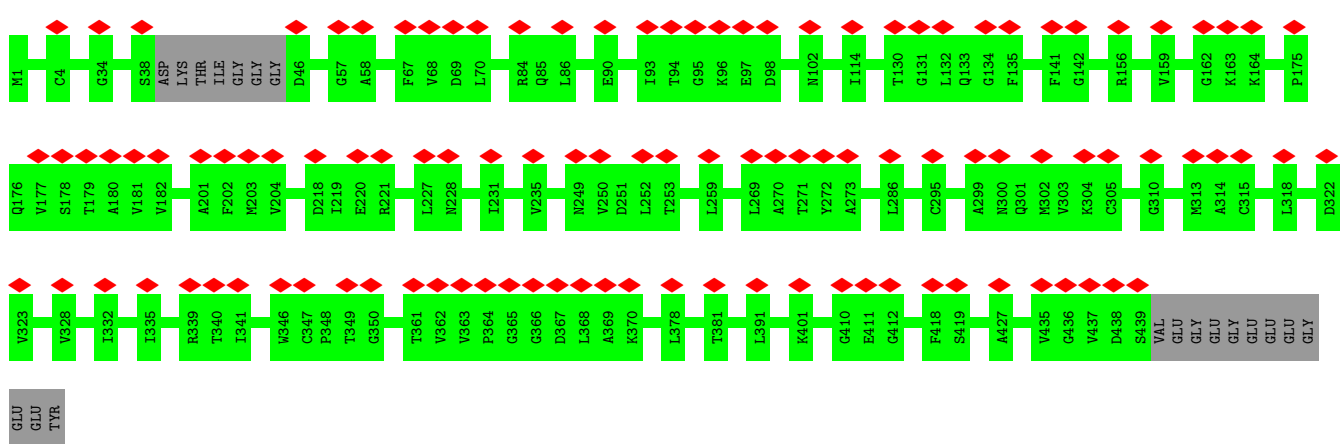
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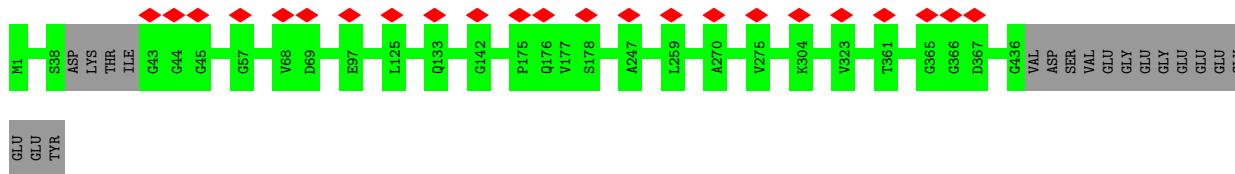


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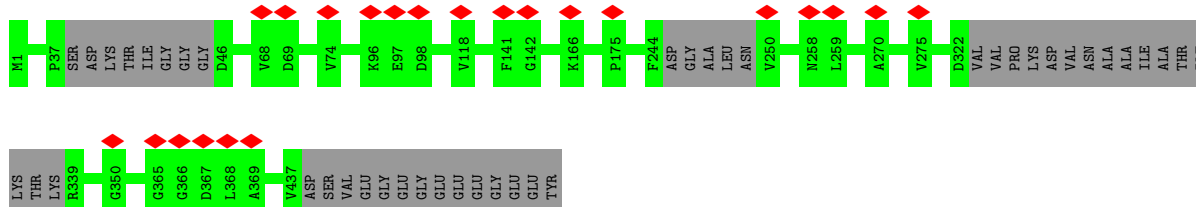
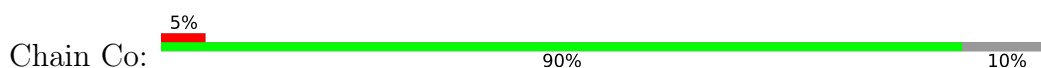




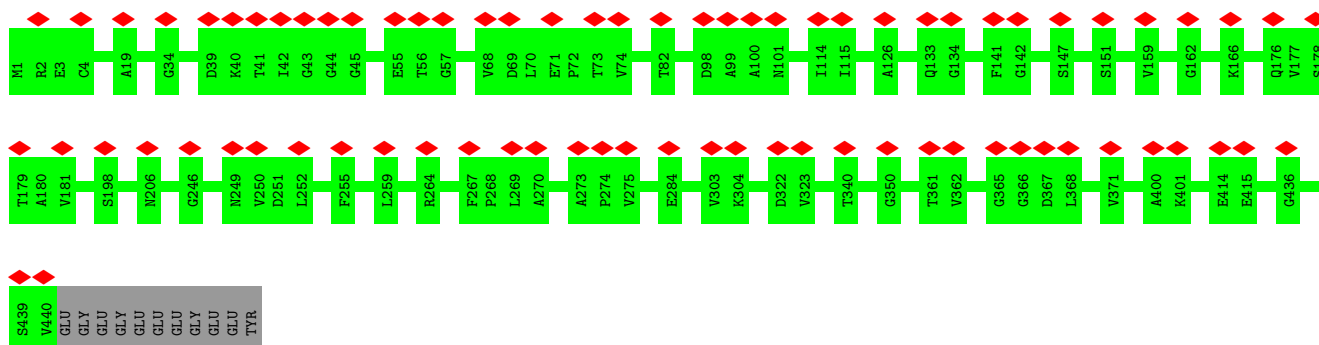
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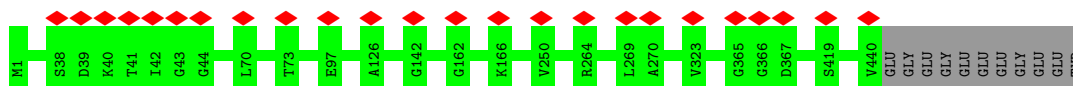
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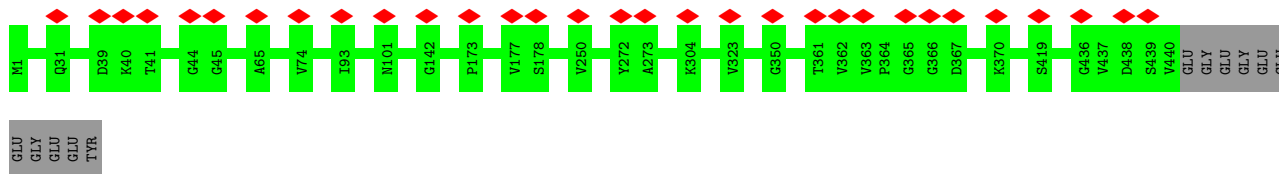


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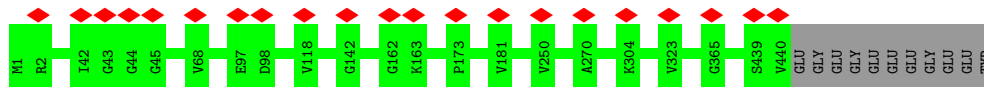


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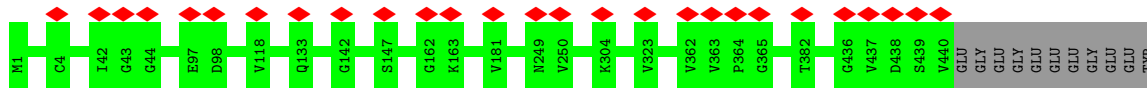




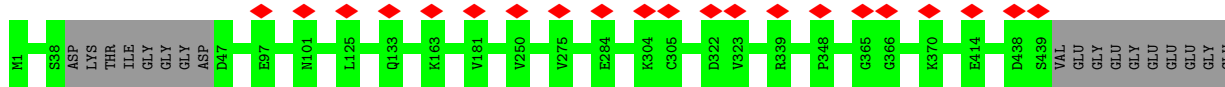
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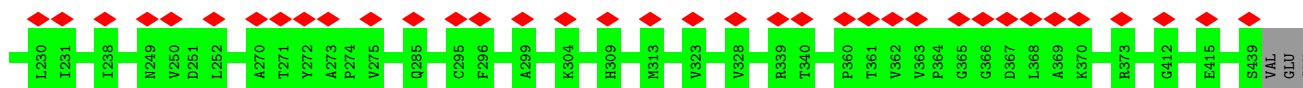
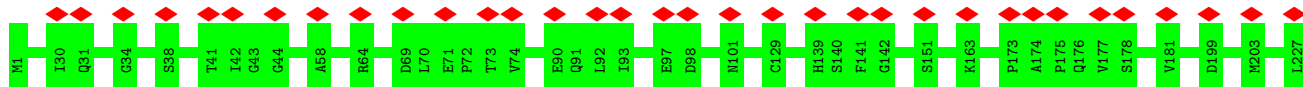
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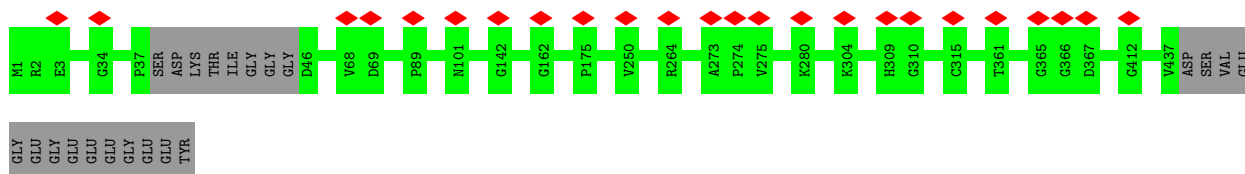


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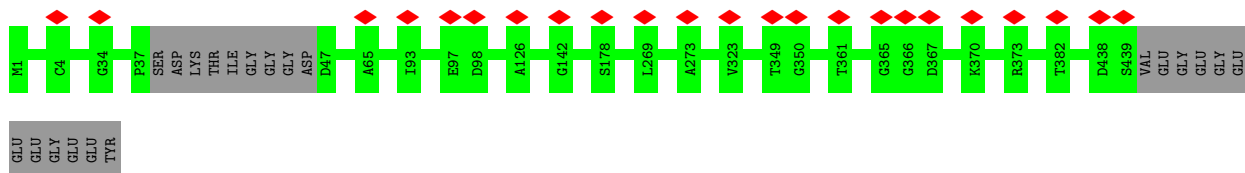


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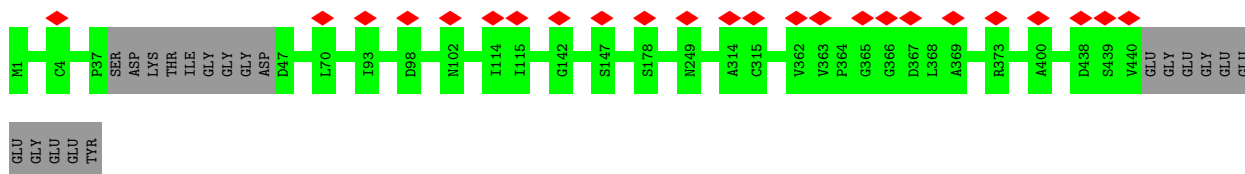




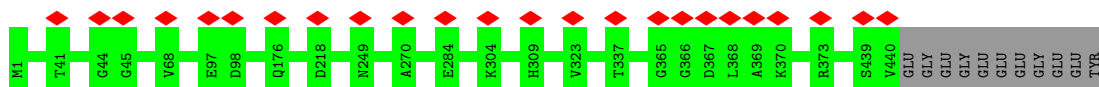
• Molecule 3: Detyrosinated tubulin alpha-1A chain



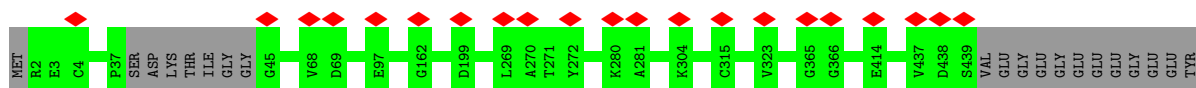
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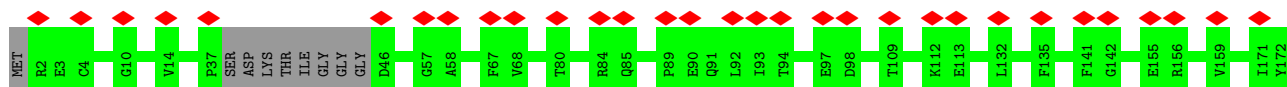
• Molecule 3: Detyrosinated tubulin alpha-1A chain

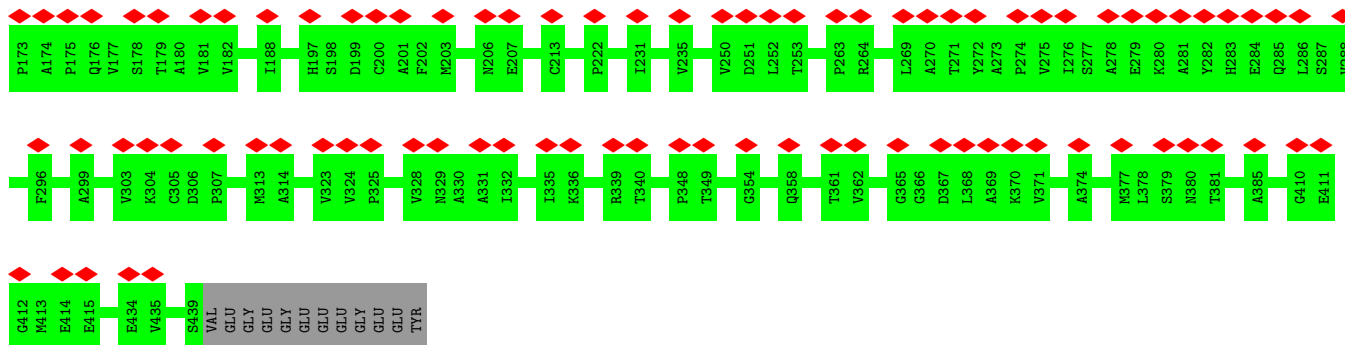


• Molecule 3: Detyrosinated tubulin alpha-1A chain

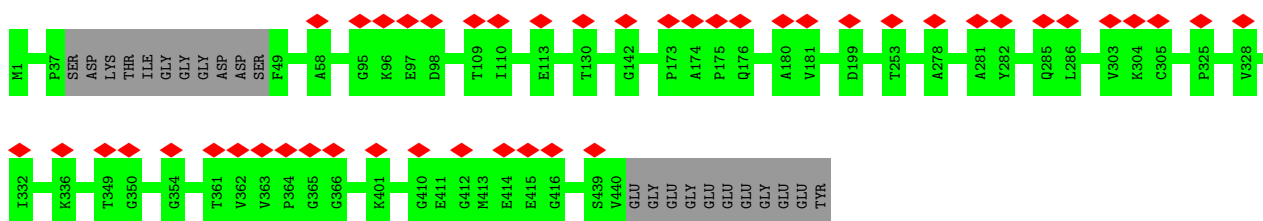


• Molecule 3: Detyrosinated tubulin alpha-1A chain

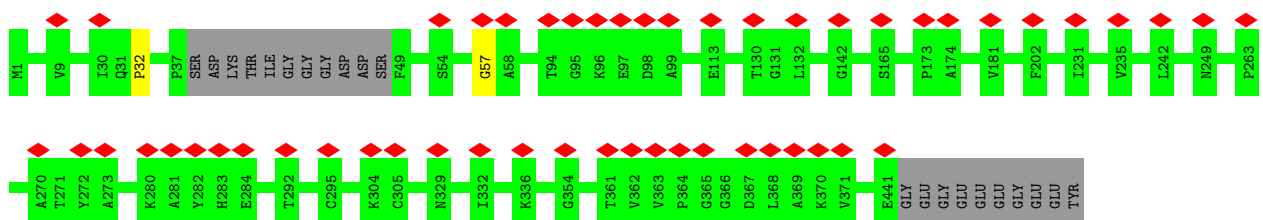




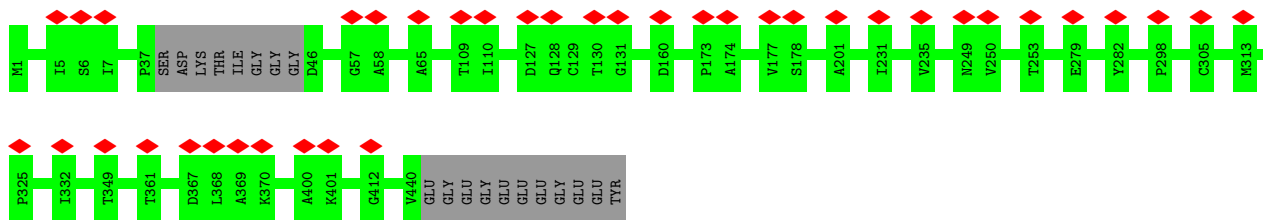
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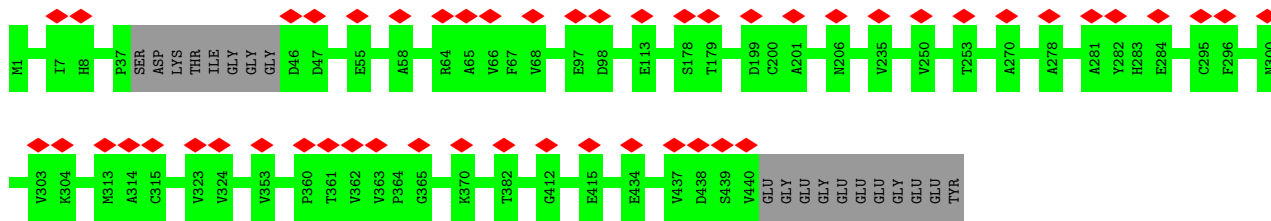


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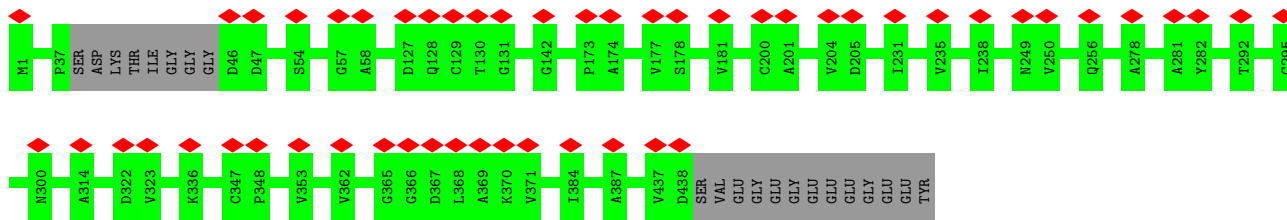


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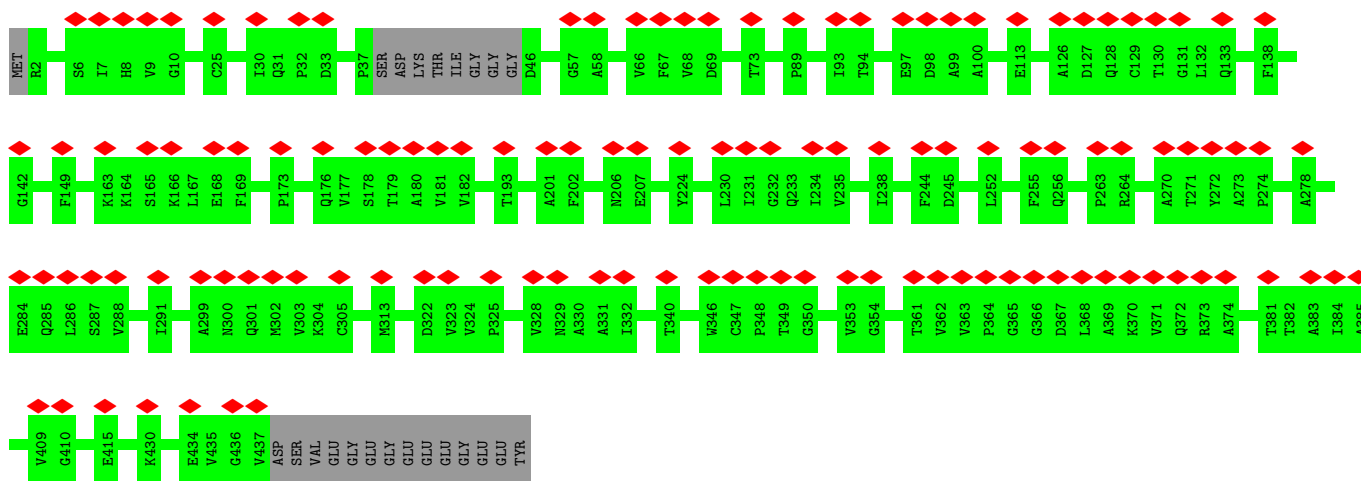




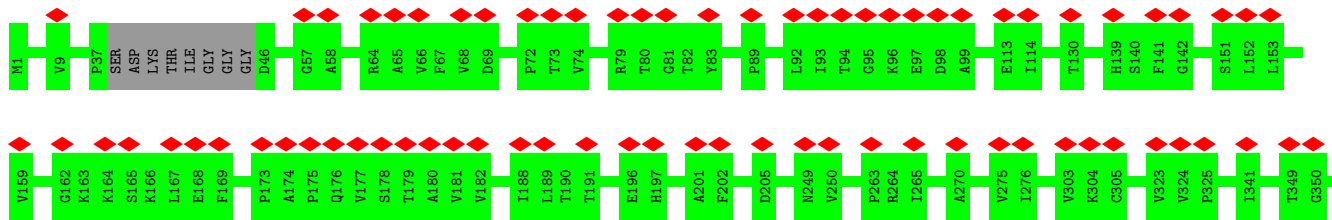
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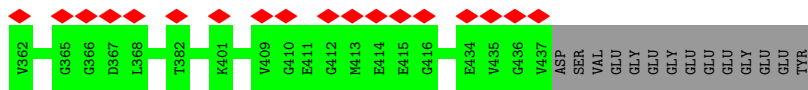


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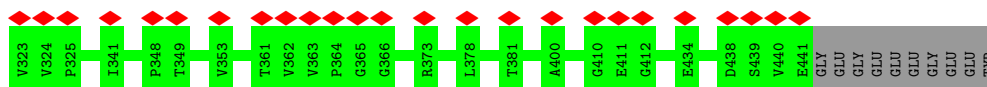


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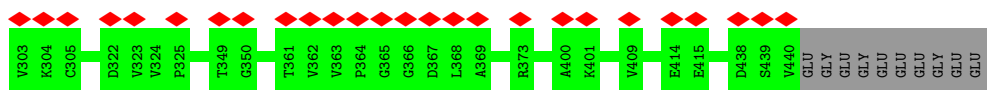
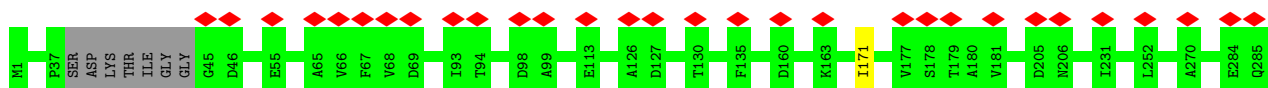




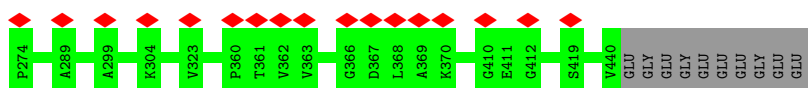
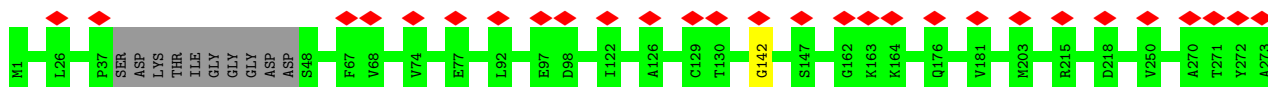
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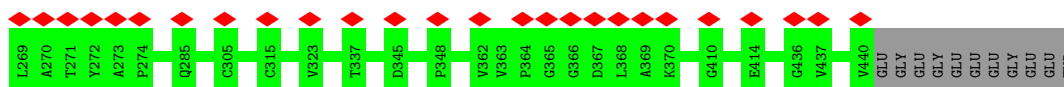
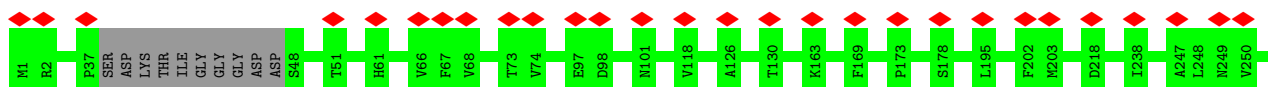
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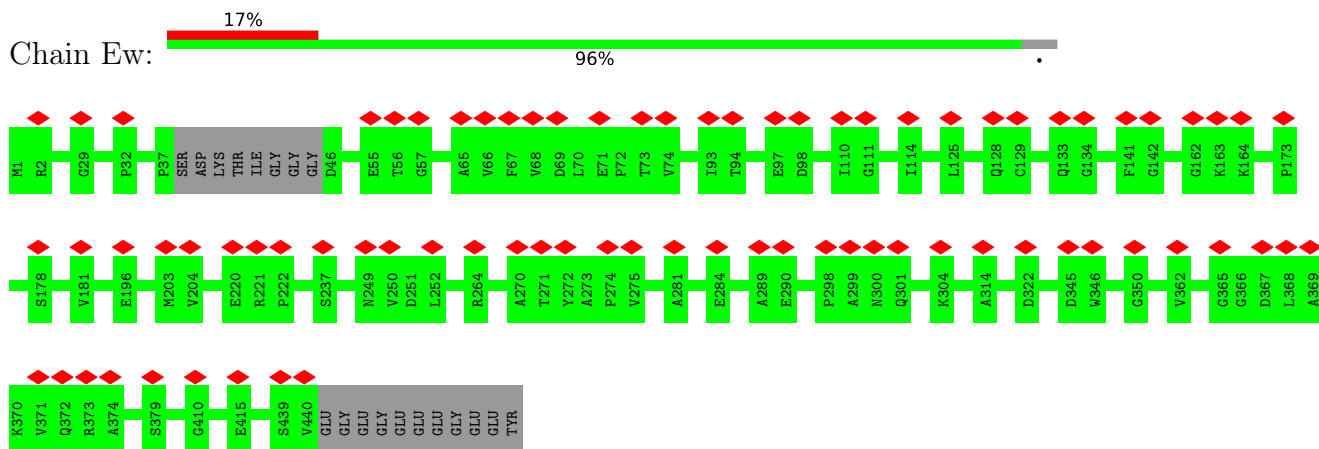
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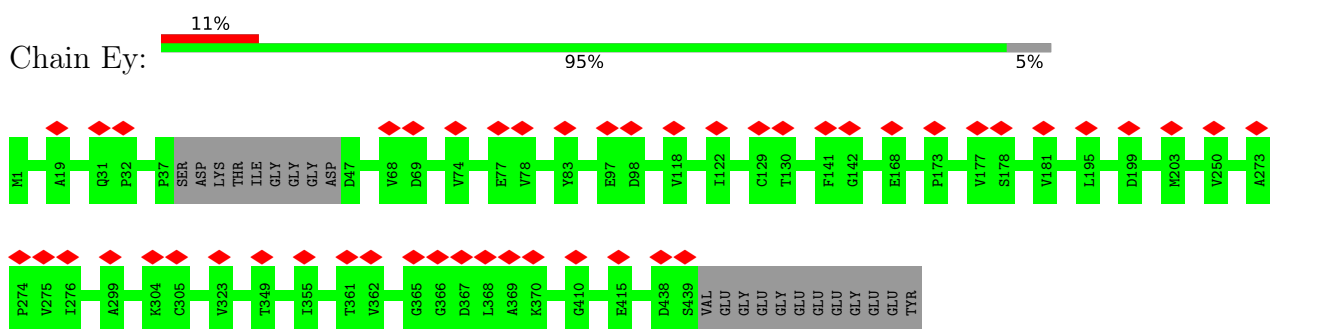
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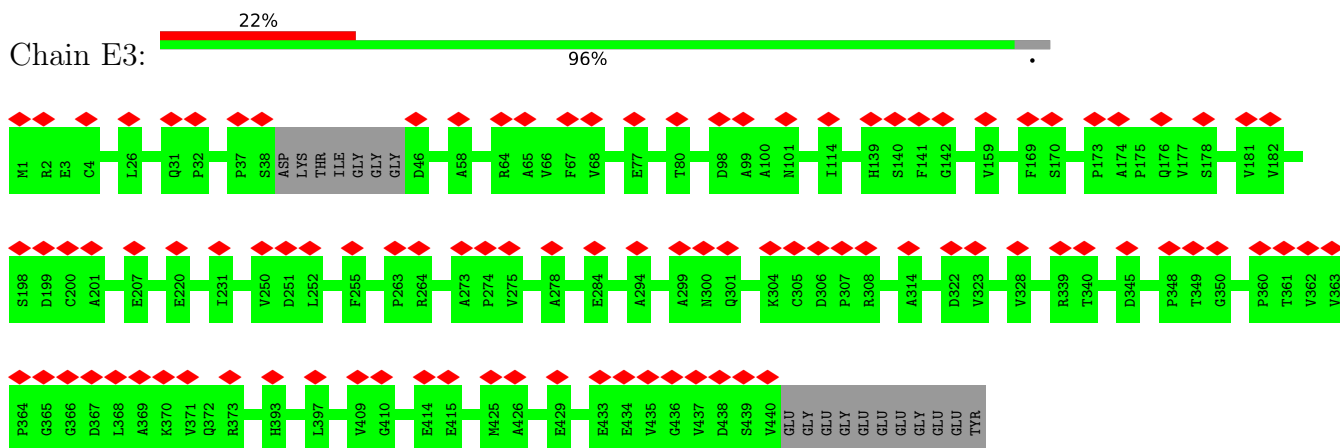
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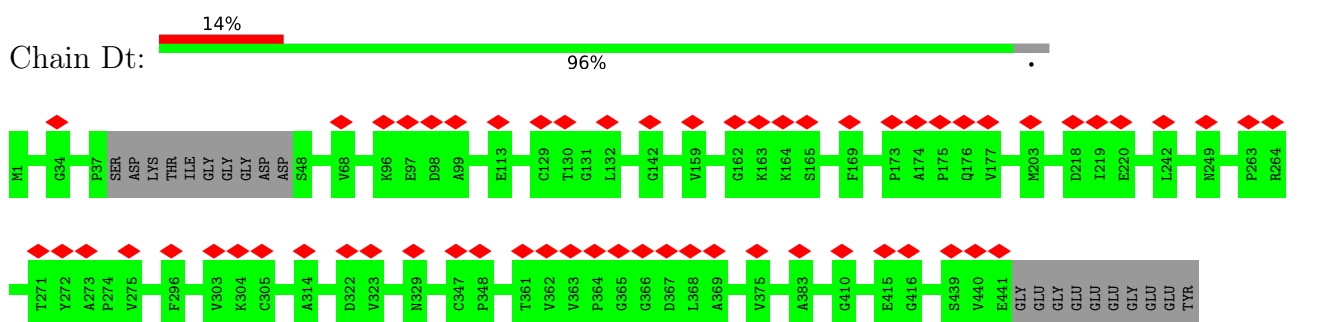
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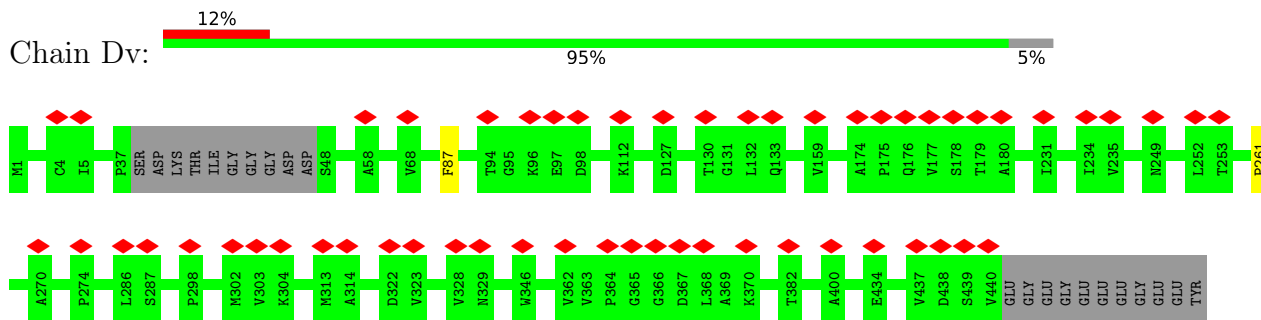
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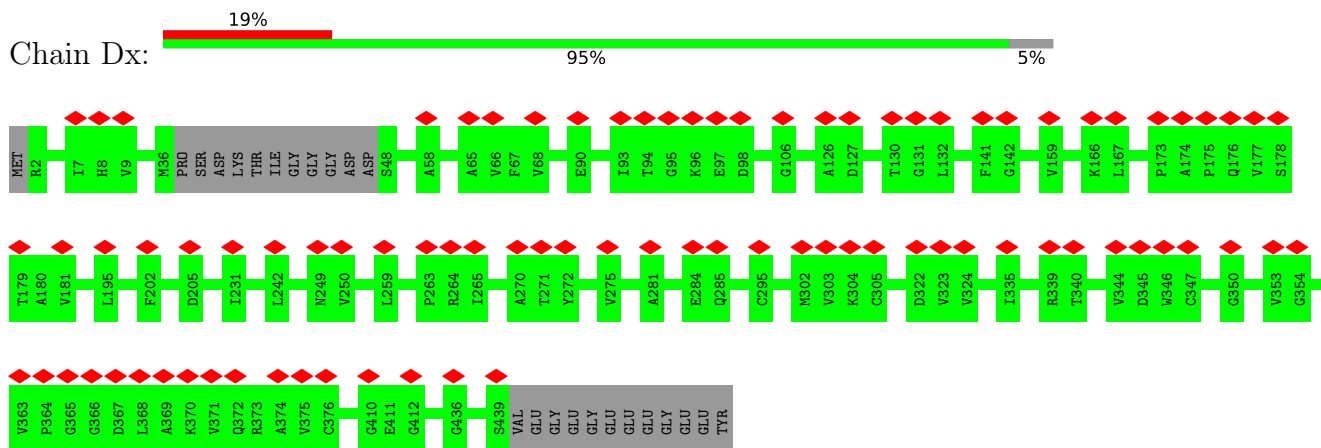
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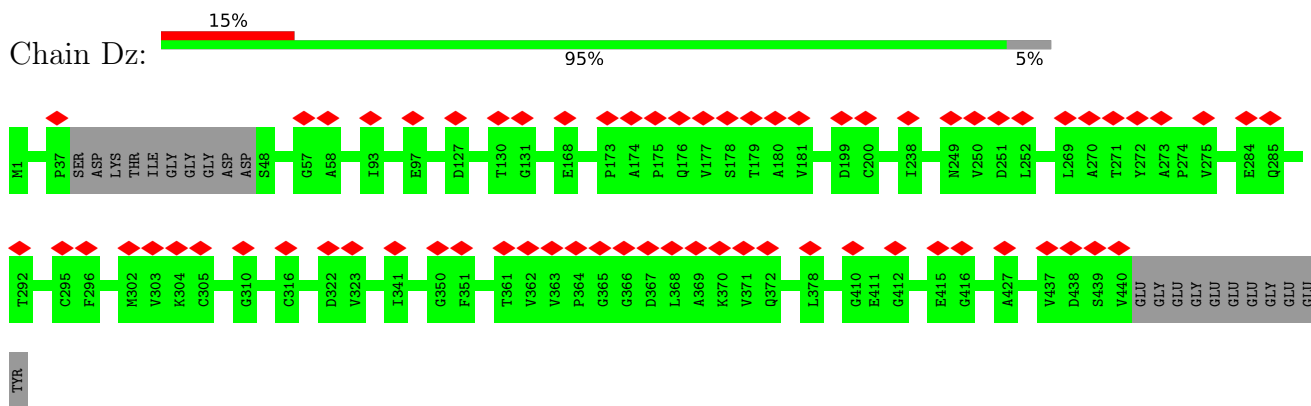
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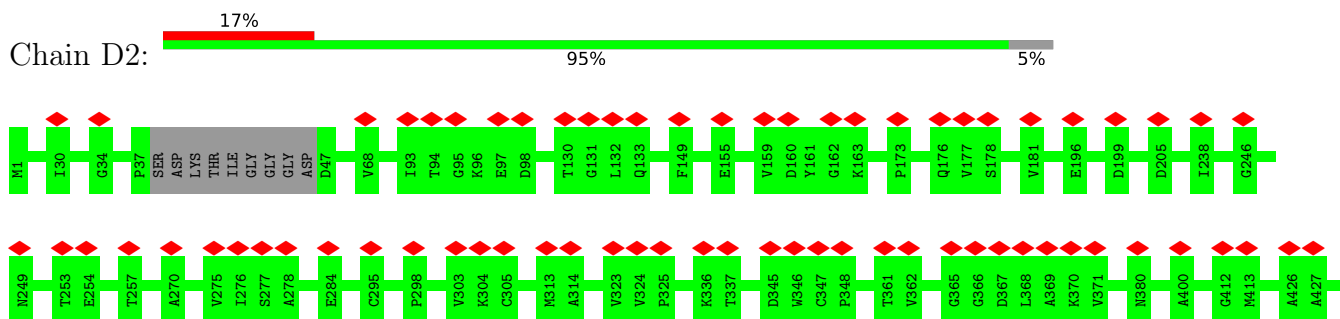
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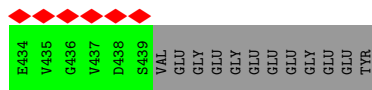


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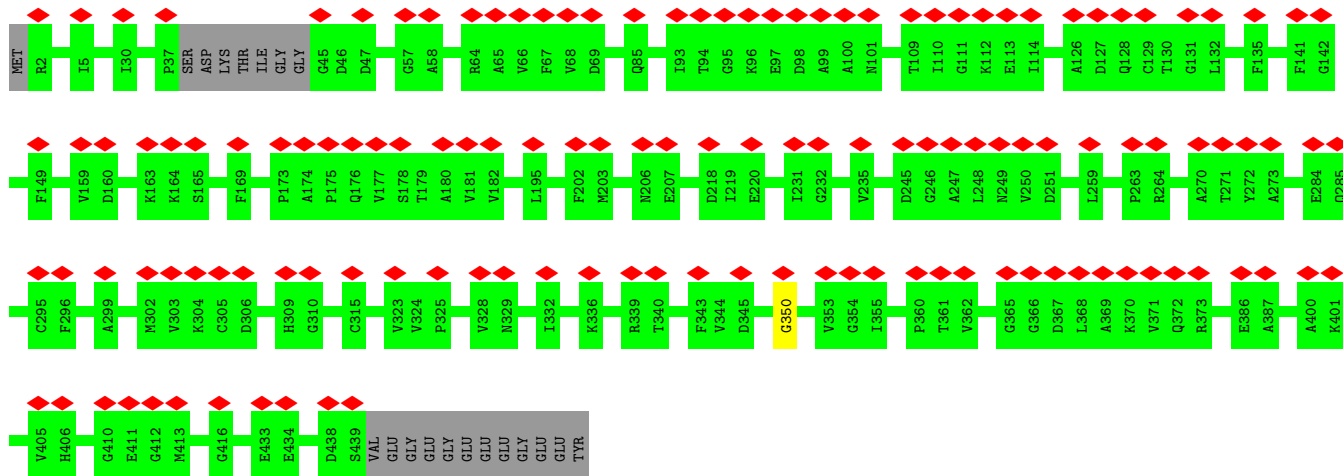


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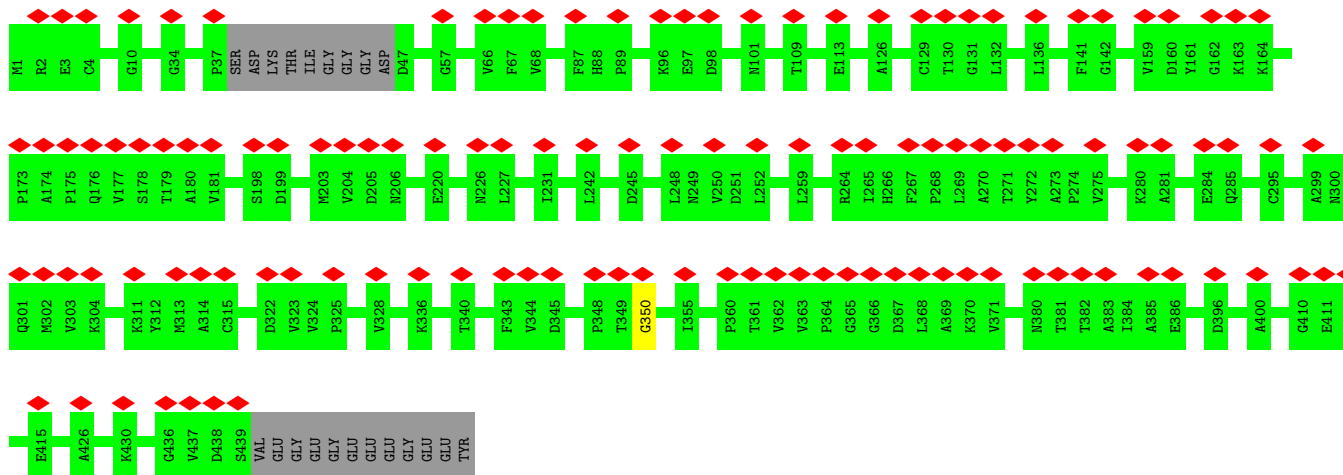




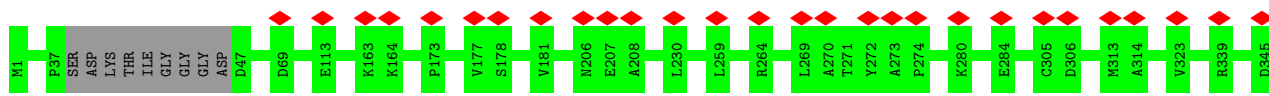
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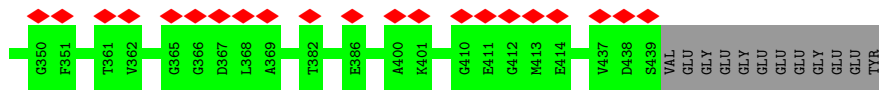


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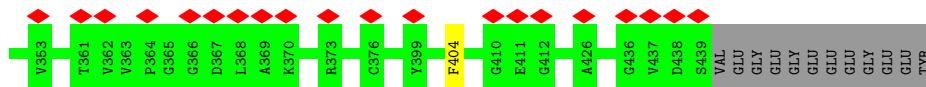
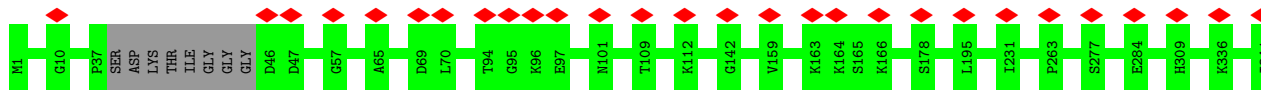


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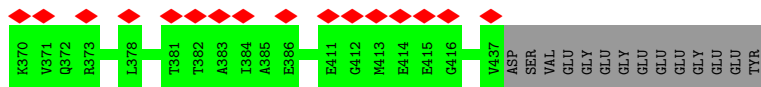
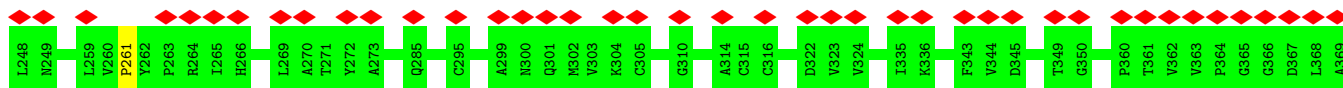
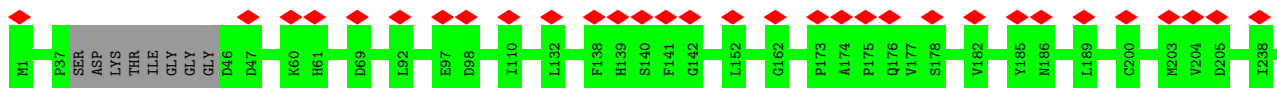




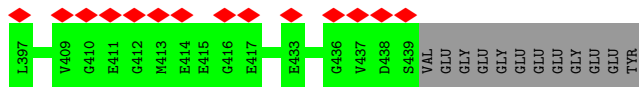
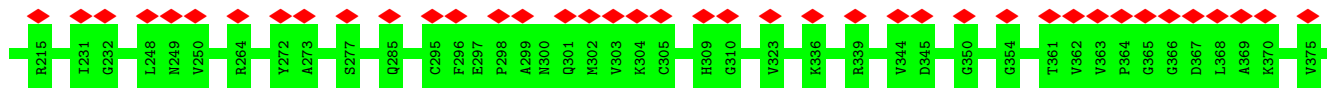
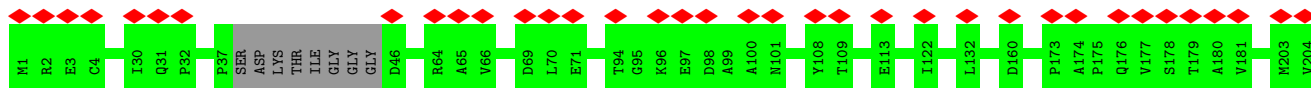
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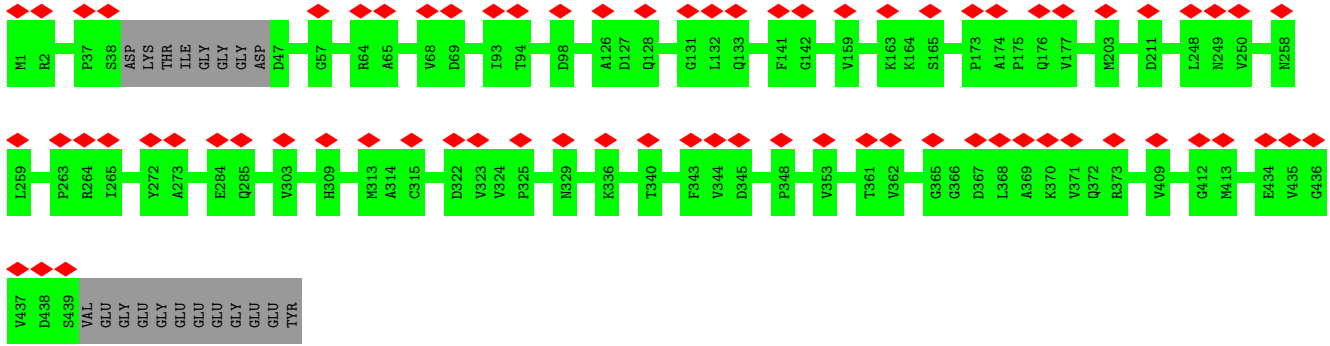


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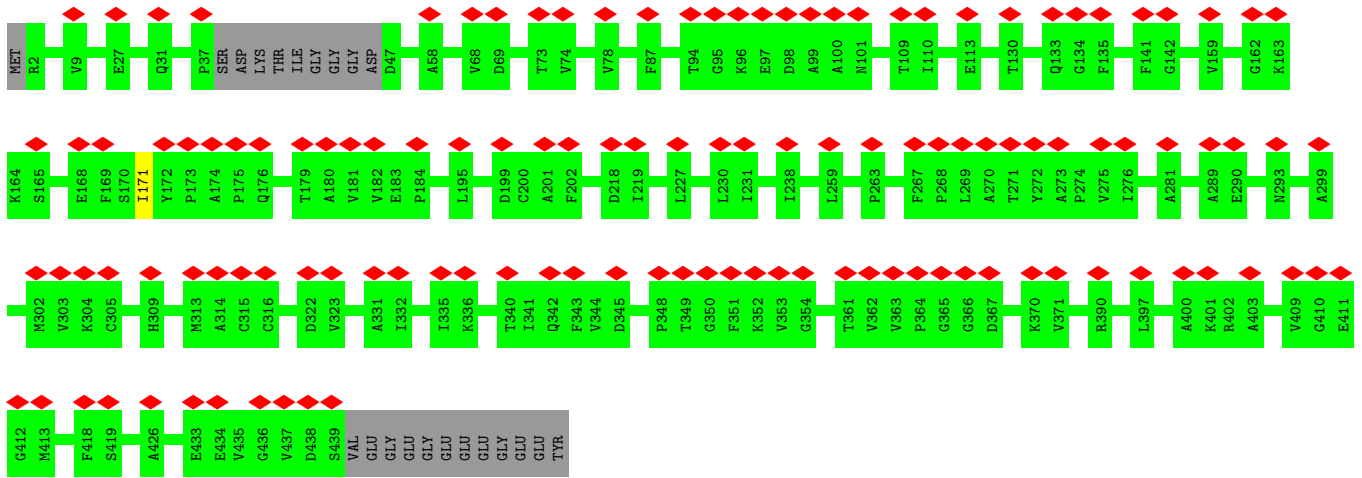


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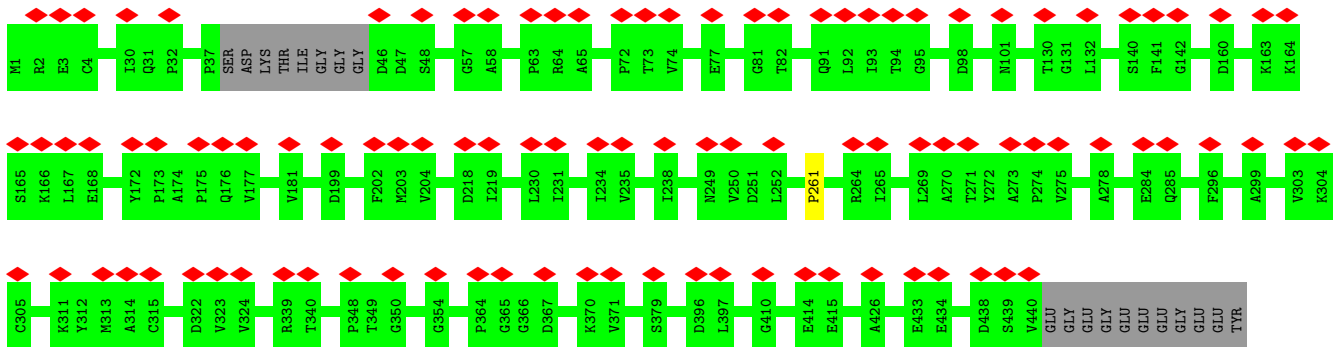




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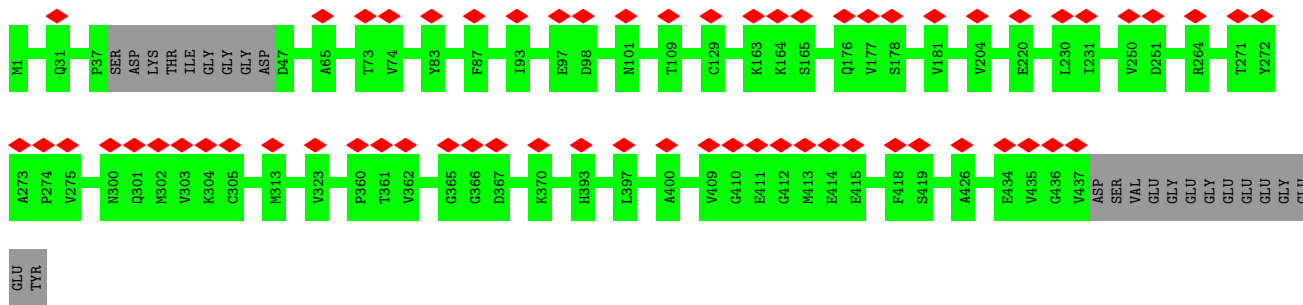


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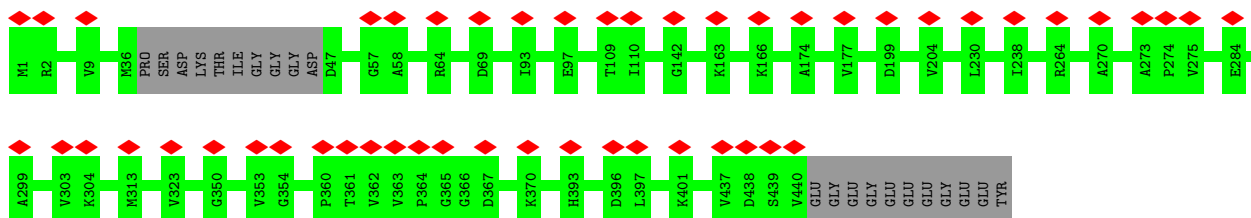


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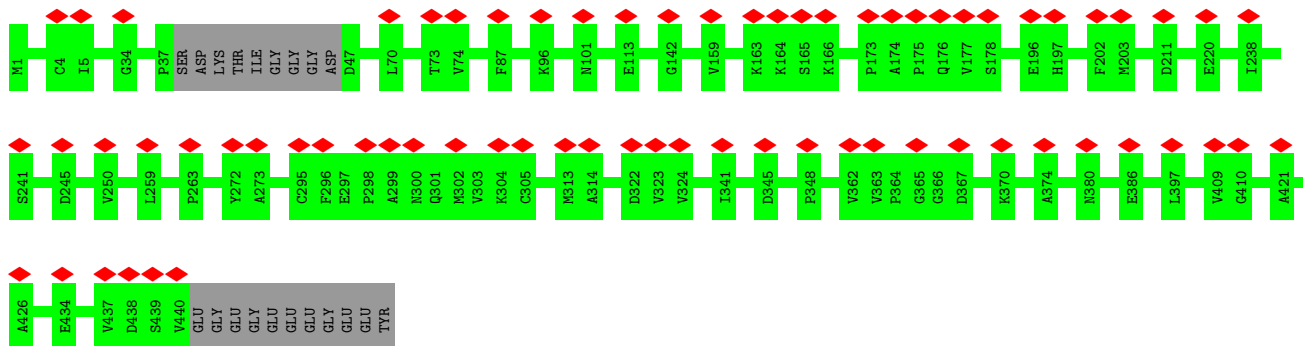




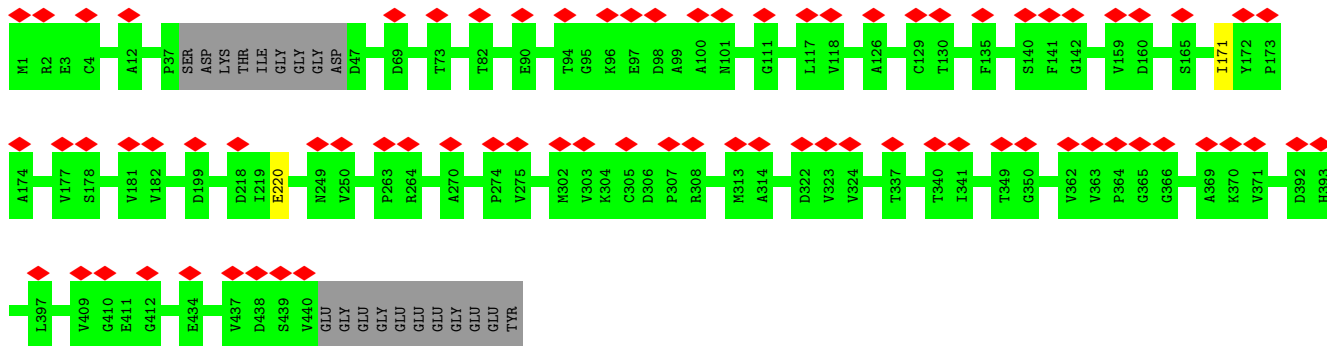
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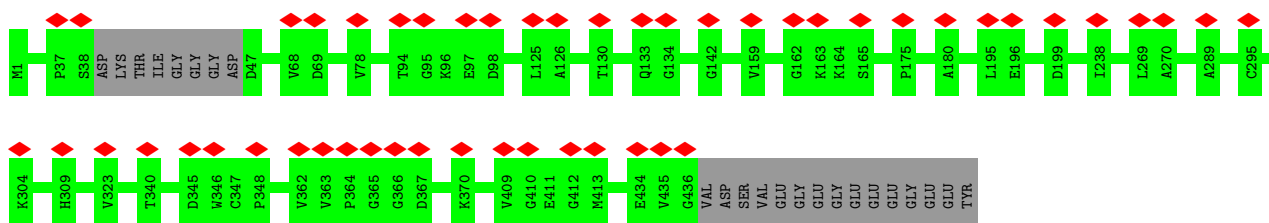
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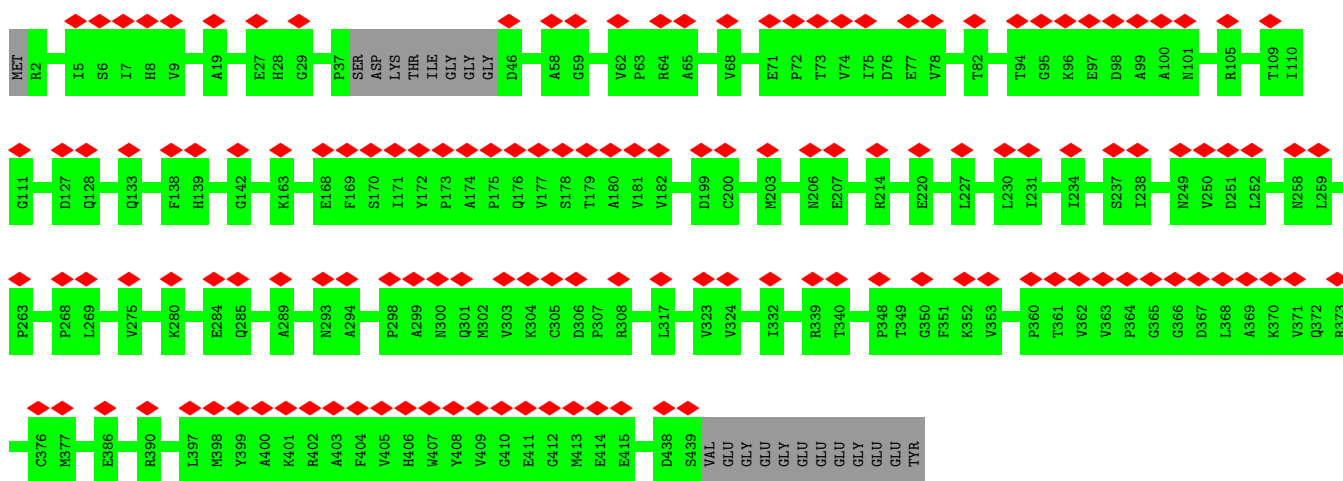
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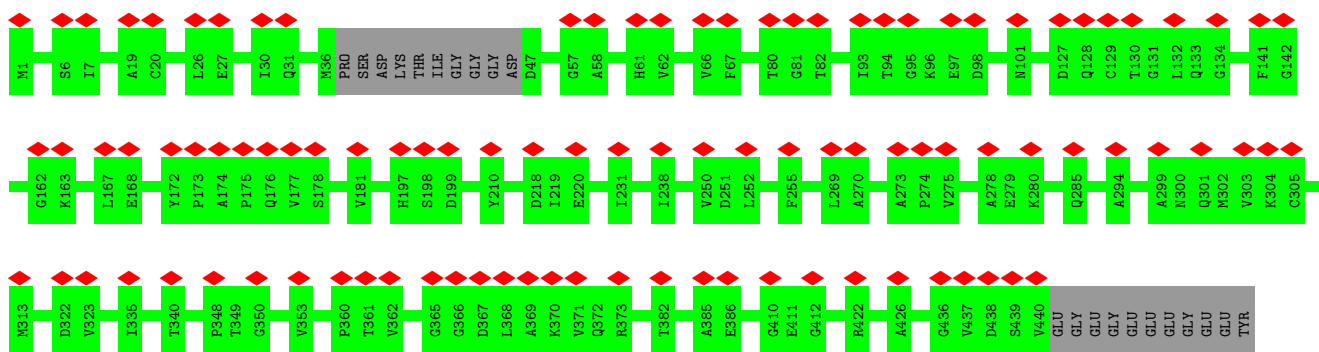
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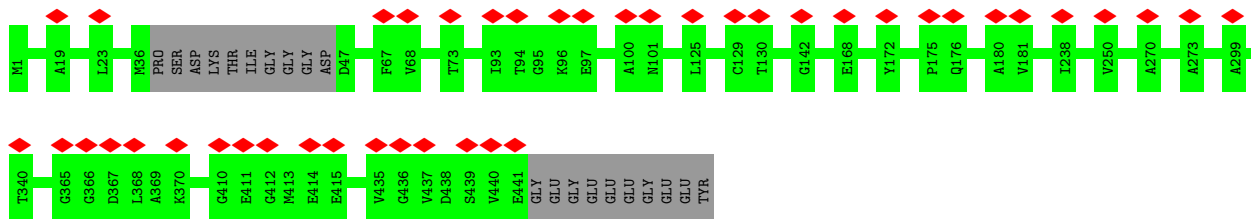


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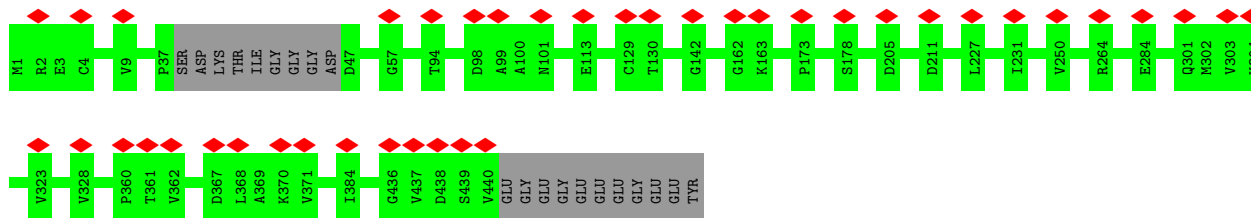


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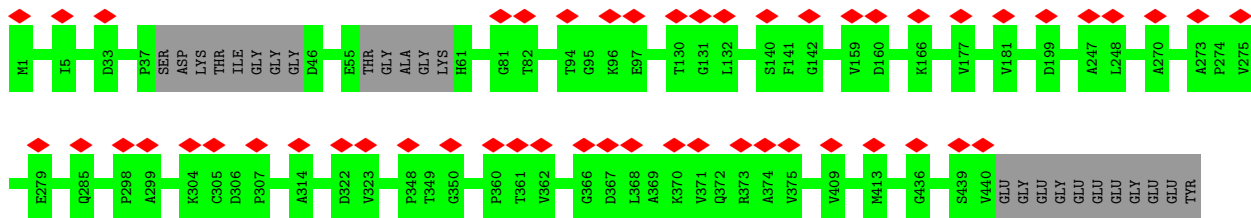




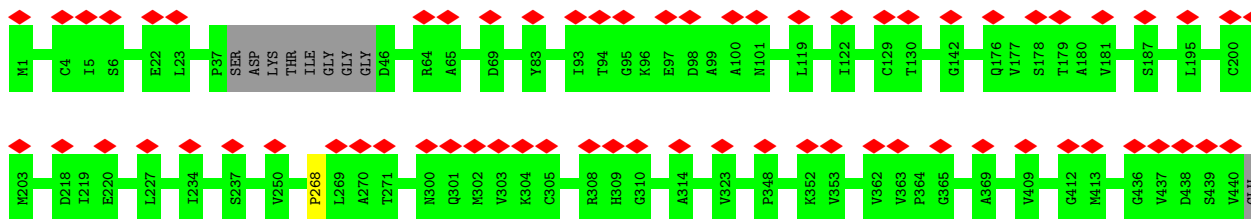
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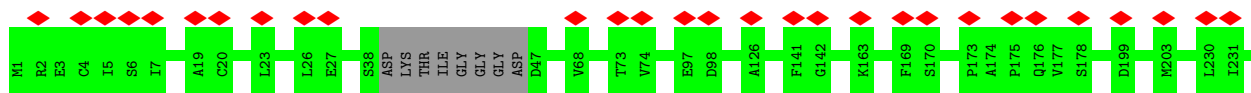
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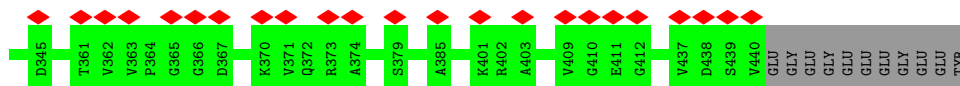
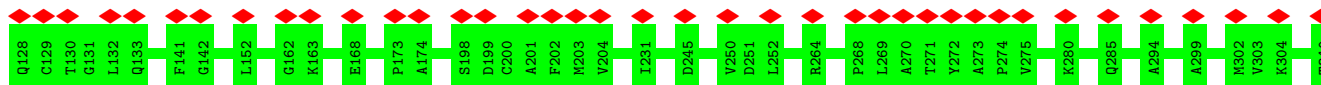
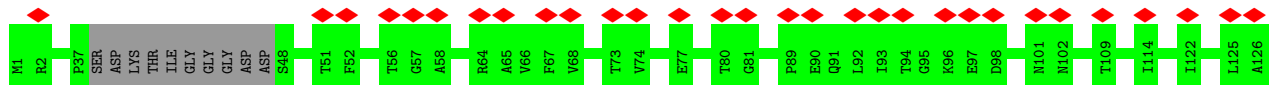


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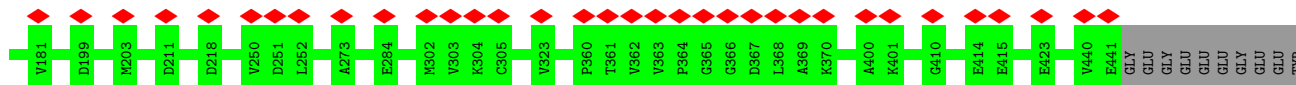
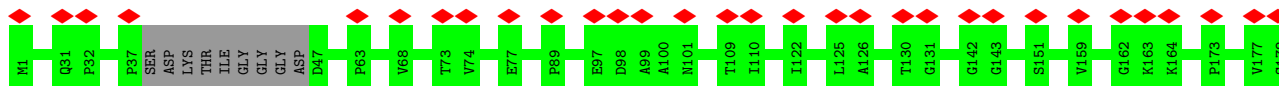




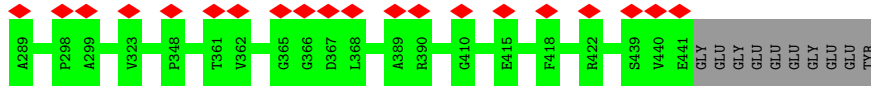
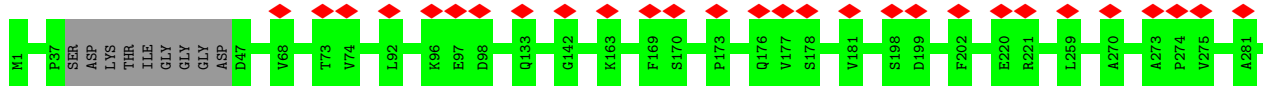
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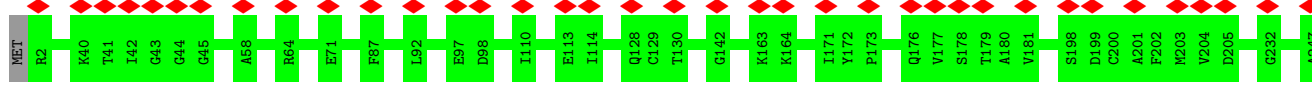
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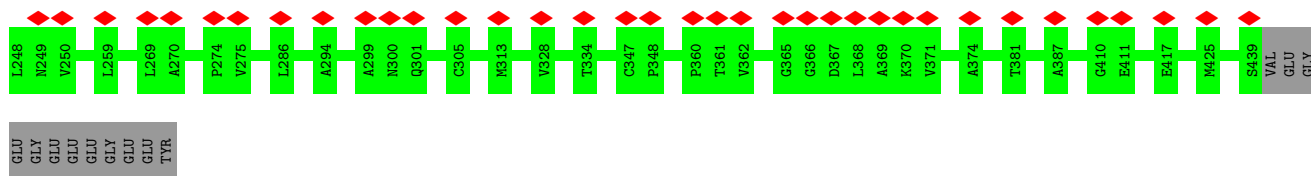


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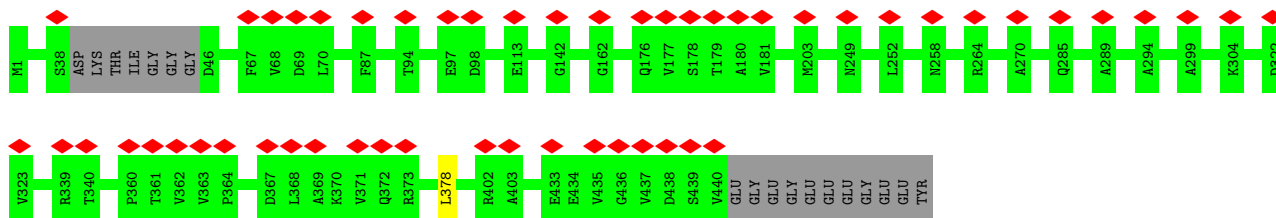


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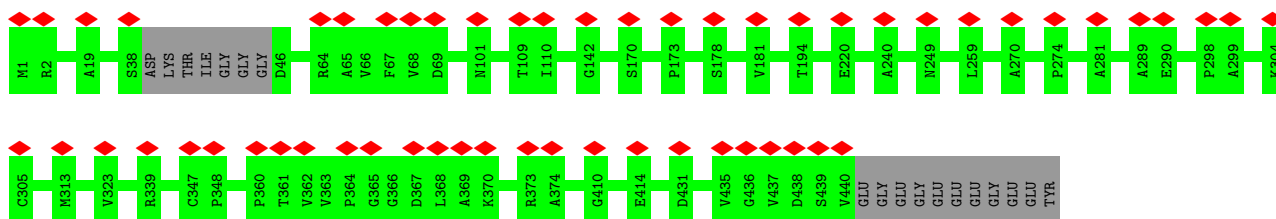




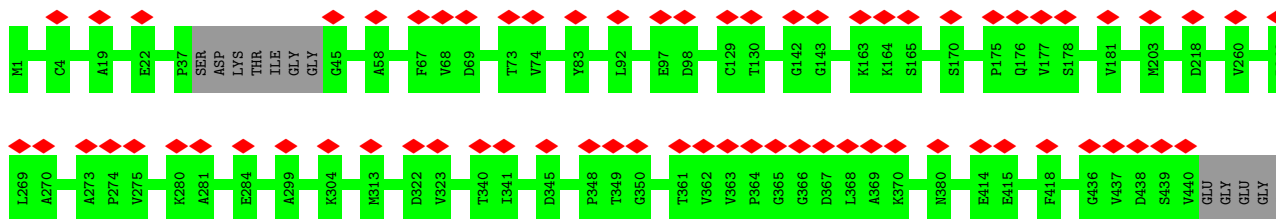
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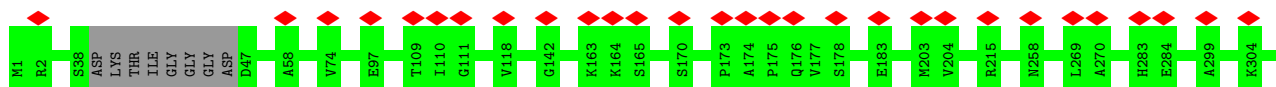


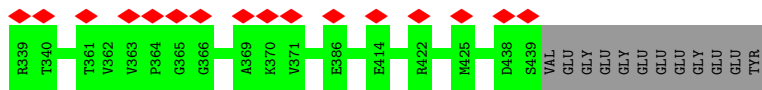
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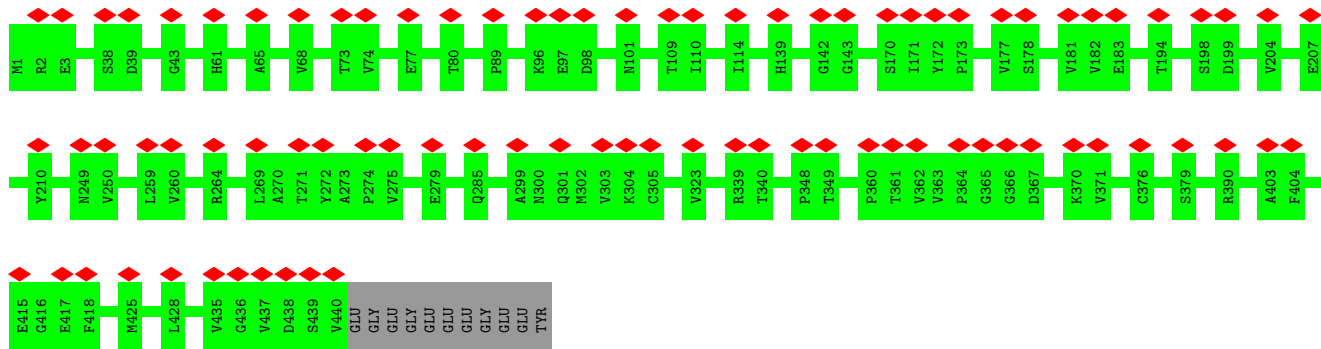
GLY
GLU
GLU
TYR

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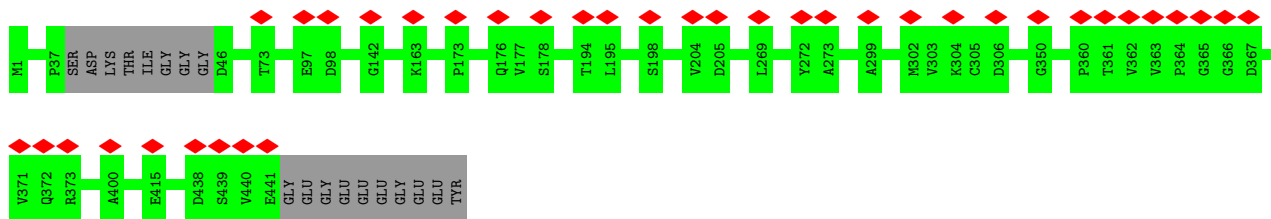




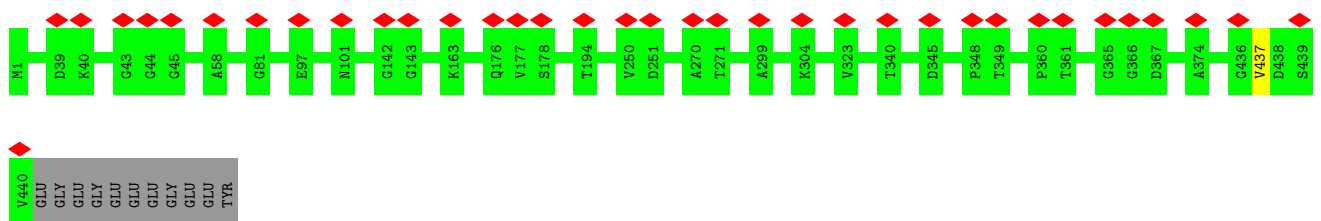
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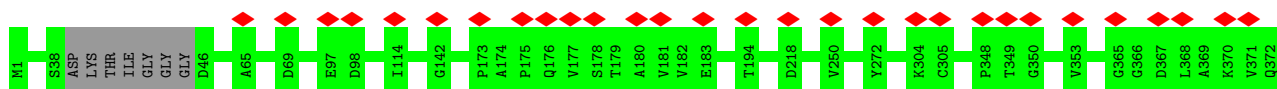
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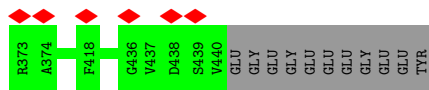


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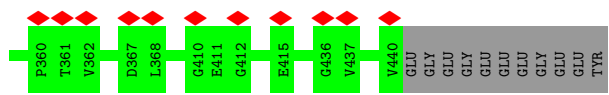
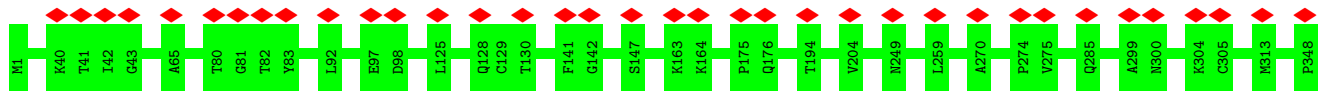


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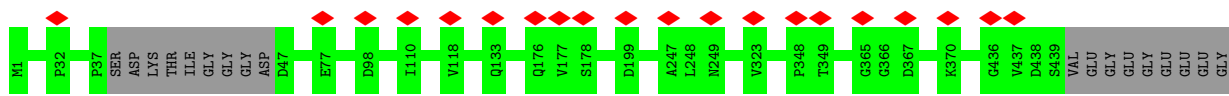




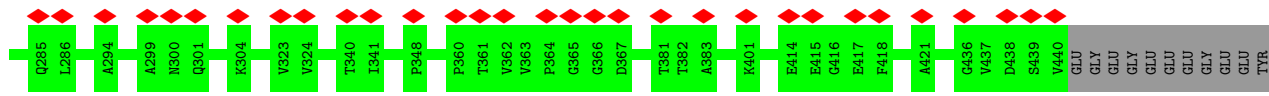
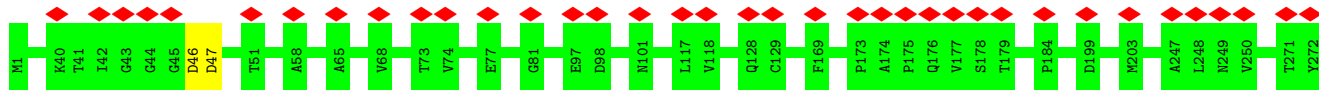
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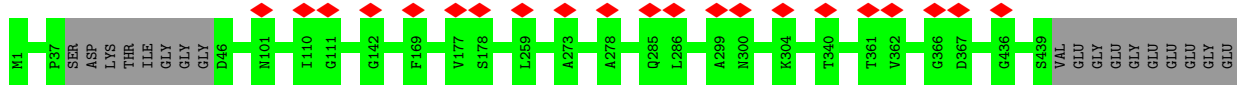
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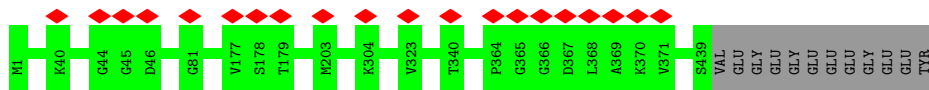


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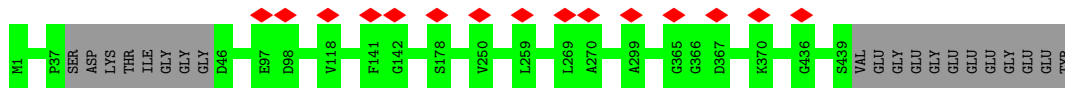


• Molecule 3: Detyrosinated tubulin alpha-1A chain

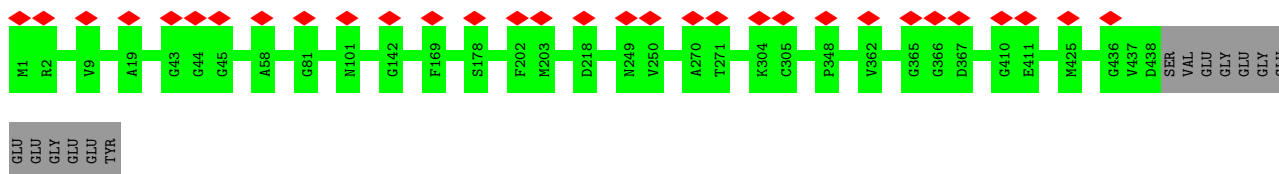




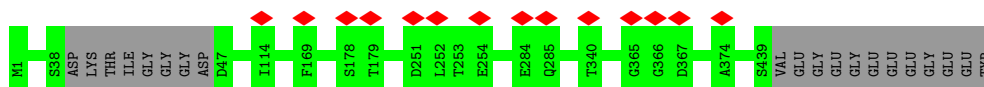
• Molecule 3: Detyrosinated tubulin alpha-1A chain



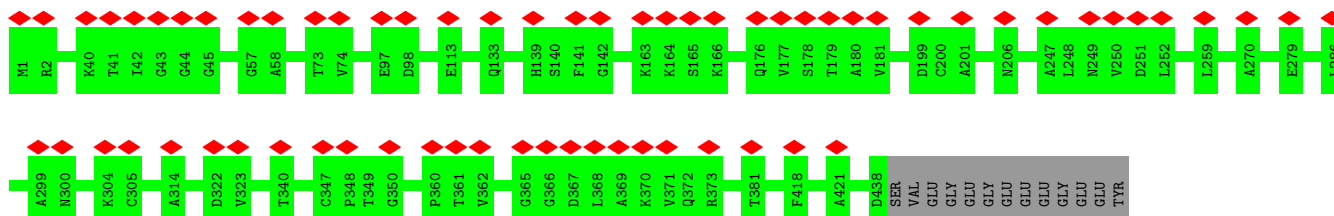
• Molecule 3: Detyrosinated tubulin alpha-1A chain



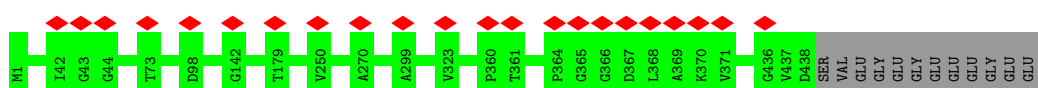
• Molecule 3: Detyrosinated tubulin alpha-1A chain



• Molecule 3: Detyrosinated tubulin alpha-1A chain

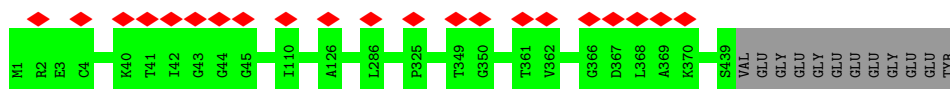


• Molecule 3: Detyrosinated tubulin alpha-1A chain



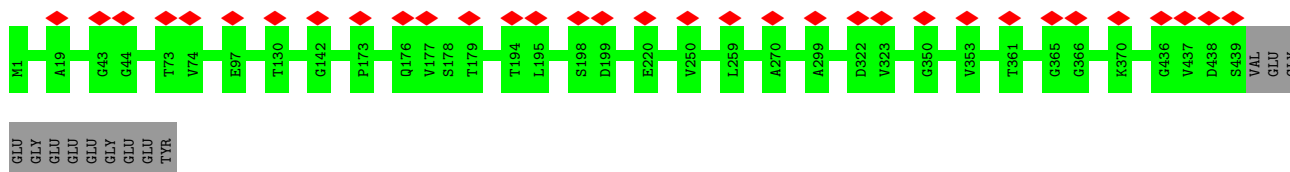
• Molecule 3: Detyrosinated tubulin alpha-1A chain

Chain AS:  5% 97%



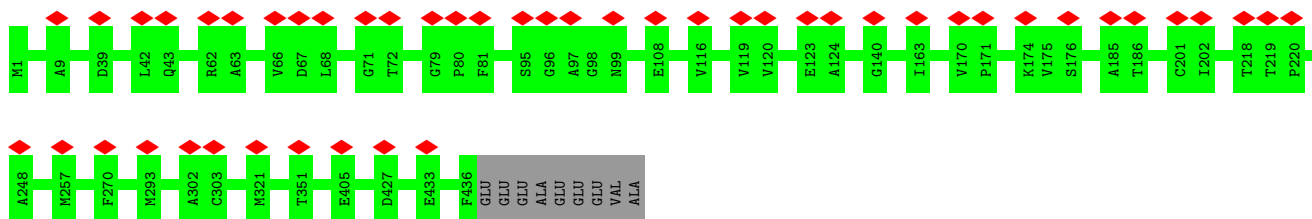
• Molecule 3: Detyrosinated tubulin alpha-1A chain

Chain AU:  7% 97%



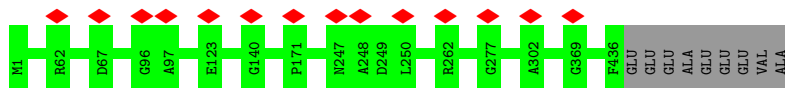
• Molecule 4: Tubulin beta-4B chain

Chain O:  11% 98%



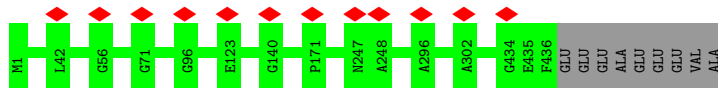
• Molecule 4: Tubulin beta-4B chain

Chain Q:  1% 98%



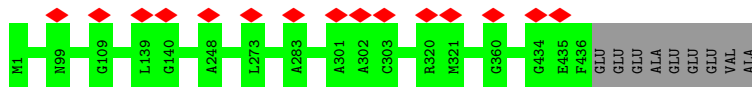
• Molecule 4: Tubulin beta-4B chain

Chain S:  1% 98%



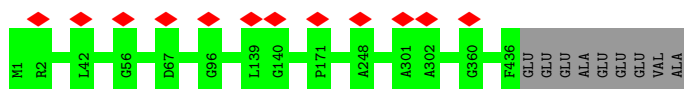
• Molecule 4: Tubulin beta-4B chain

Chain U:  1% 98%



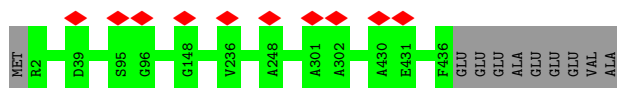
• Molecule 4: Tubulin beta-4B chain

Chain W:  98%



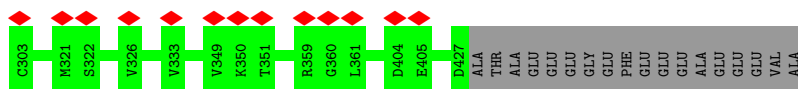
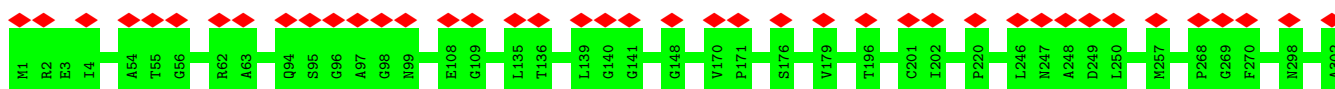
- Molecule 4: Tubulin beta-4B chain

Chain Y:  98%



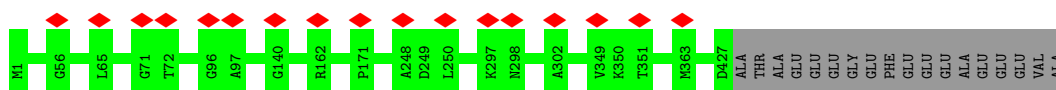
- Molecule 4: Tubulin beta-4B chain

Chain o:  12%  96%



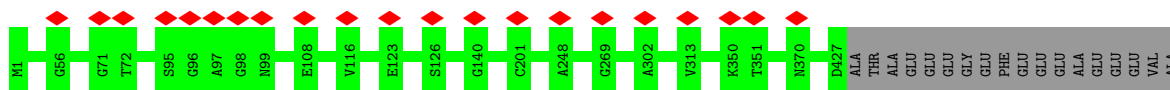
- Molecule 4: Tubulin beta-4B chain

Chain q:  96%



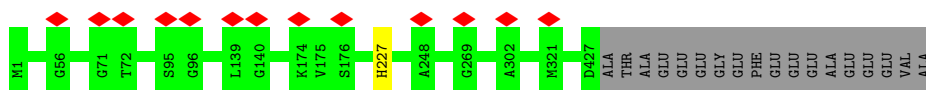
- Molecule 4: Tubulin beta-4B chain

Chain s:  5%  96%



- Molecule 4: Tubulin beta-4B chain

Chain u:  96%

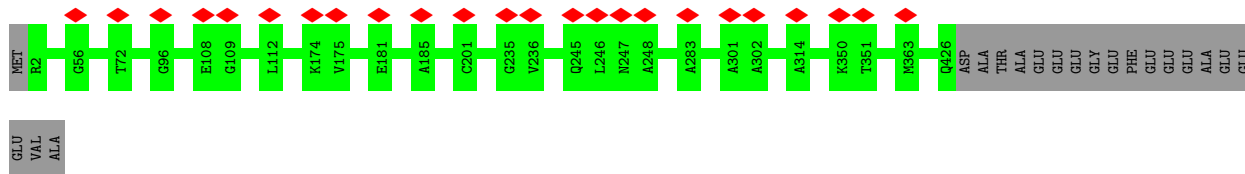


- Molecule 4: Tubulin beta-4B chain

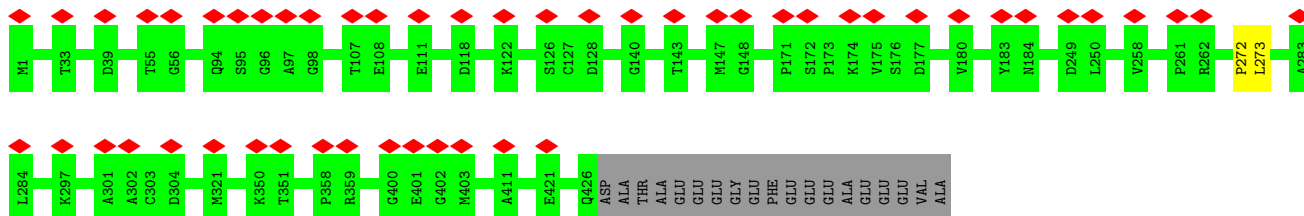
Chain w:  96%



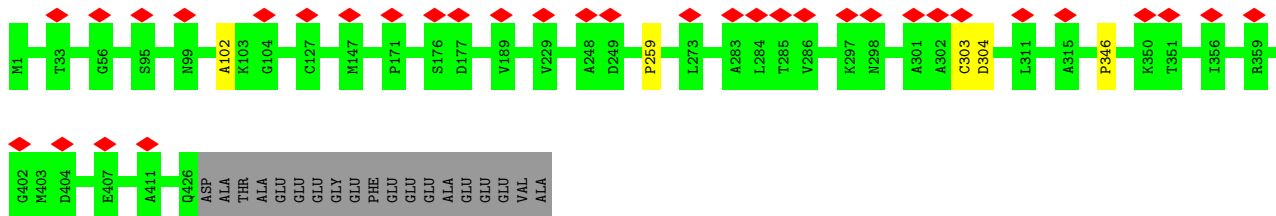
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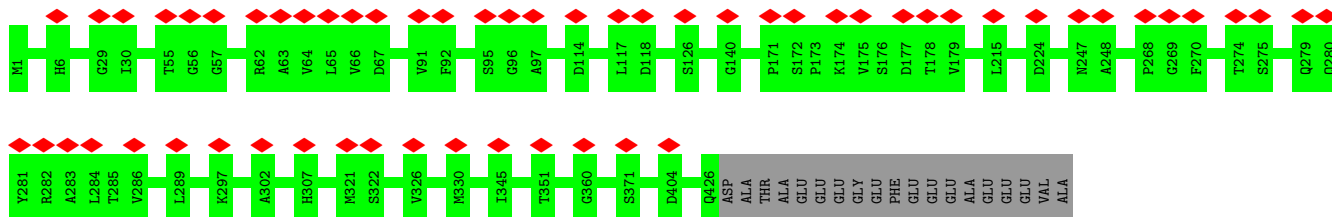
• Molecule 4: Tubulin beta-4B chain



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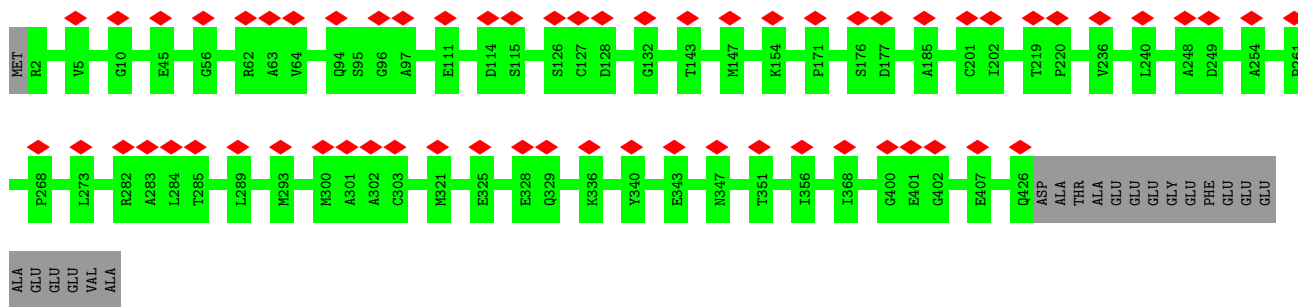


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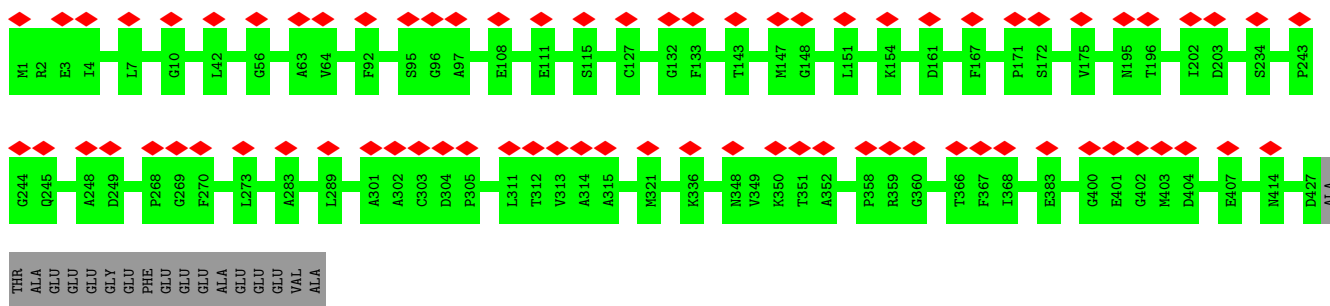


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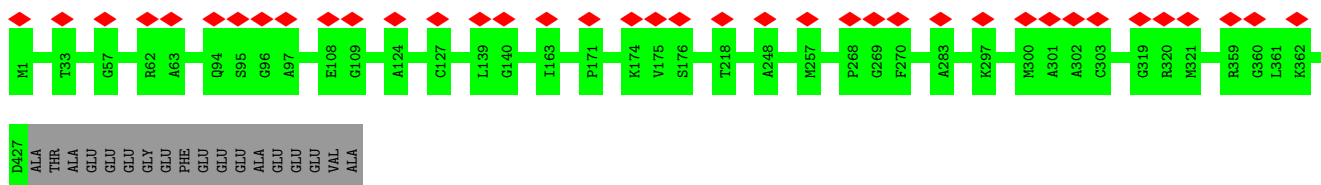




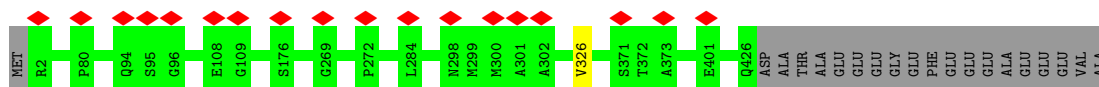
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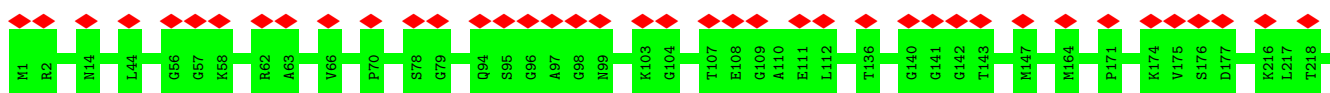
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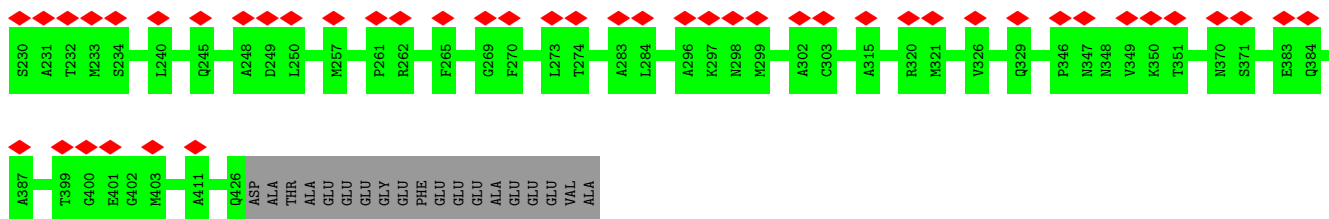


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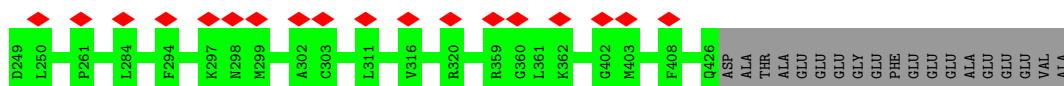
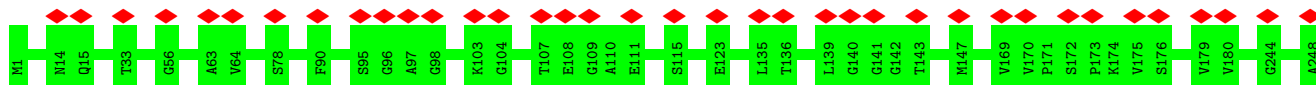


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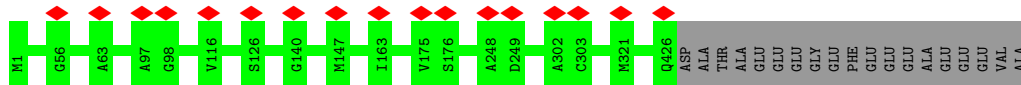




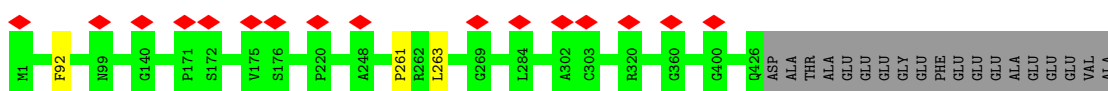
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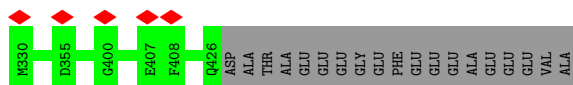
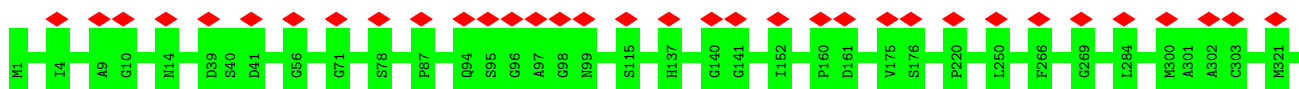
• Molecule 4: Tubulin beta-4B chain



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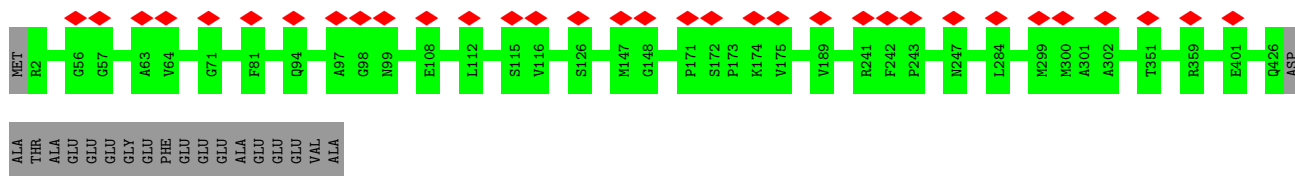


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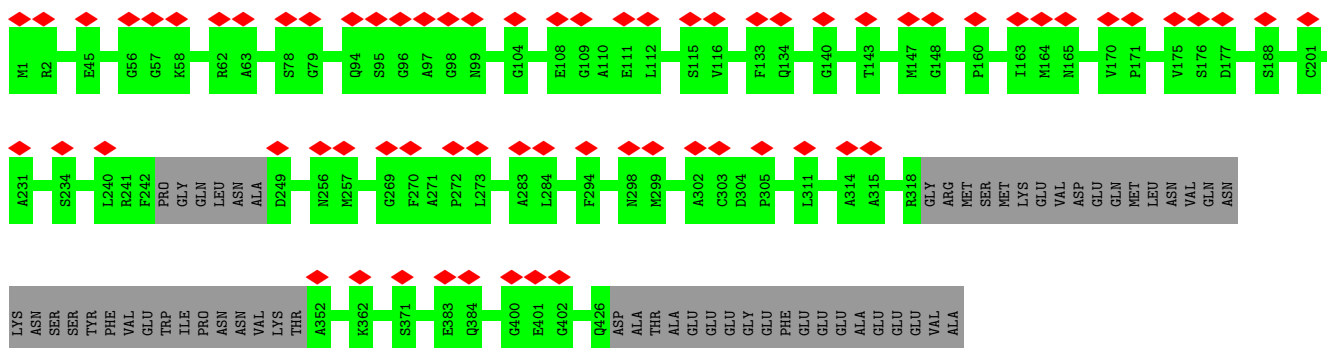
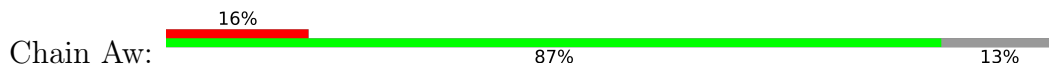


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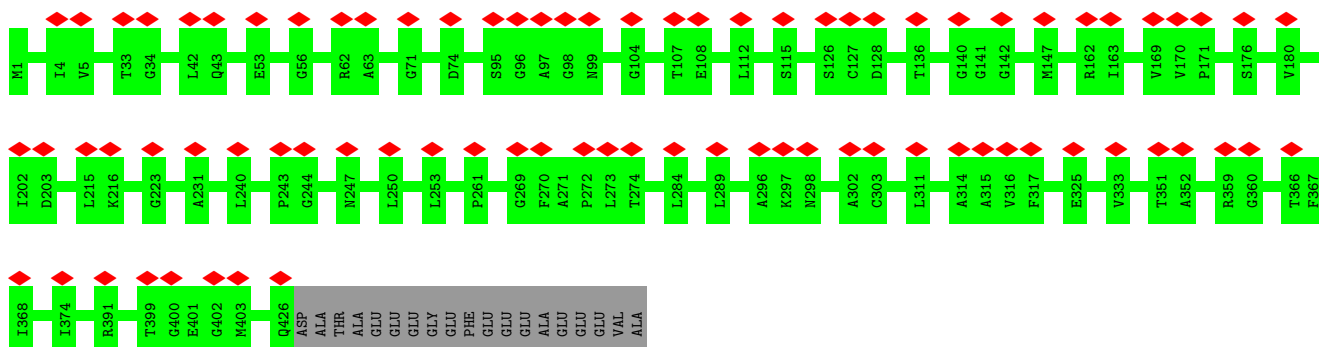




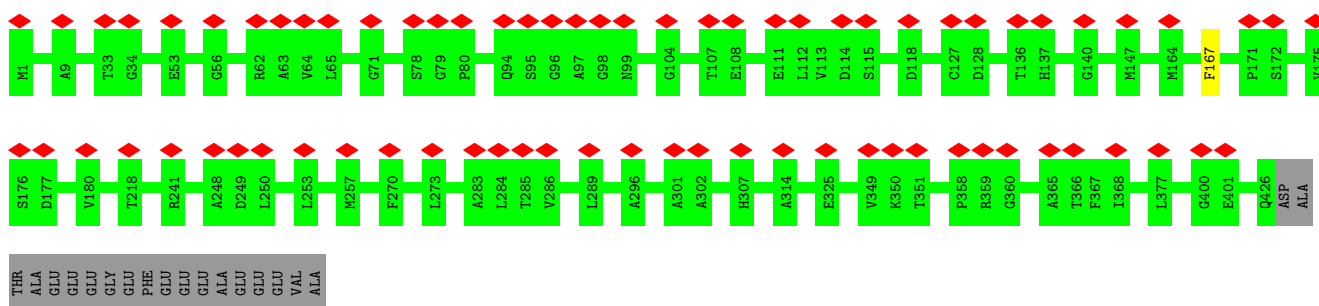
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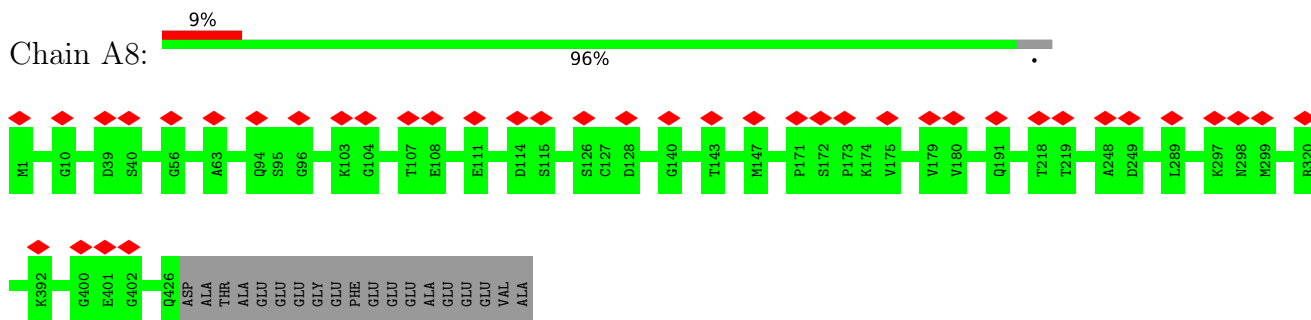
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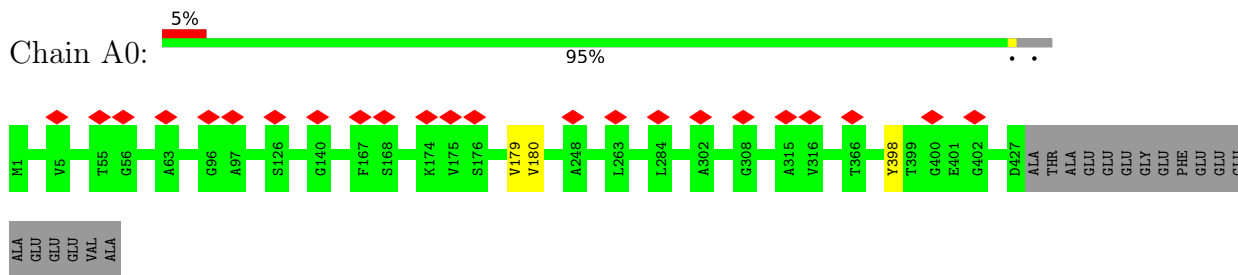
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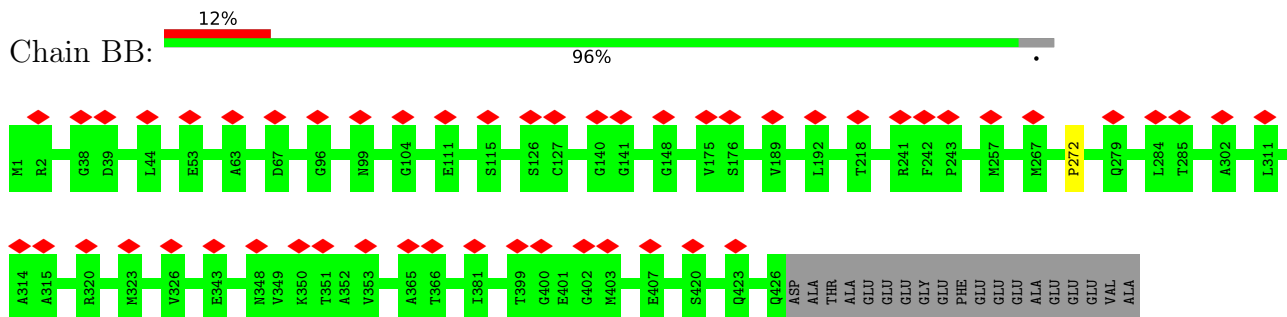
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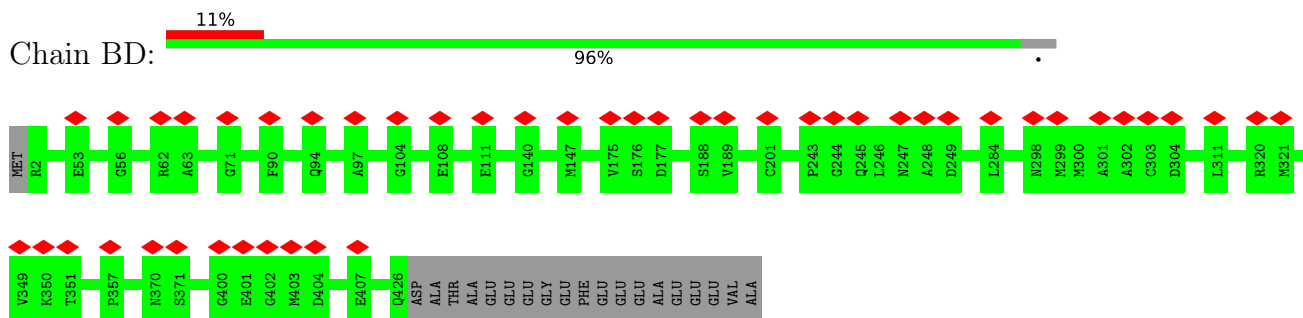
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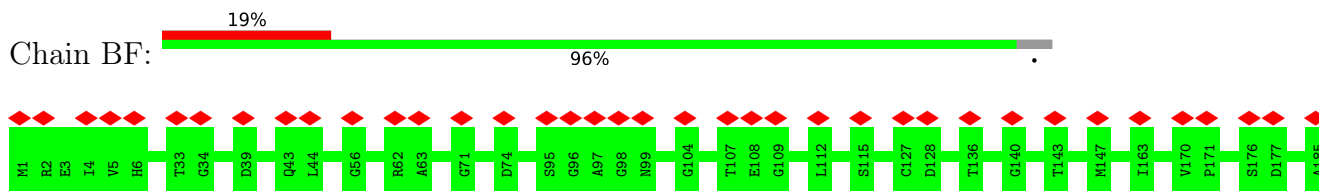
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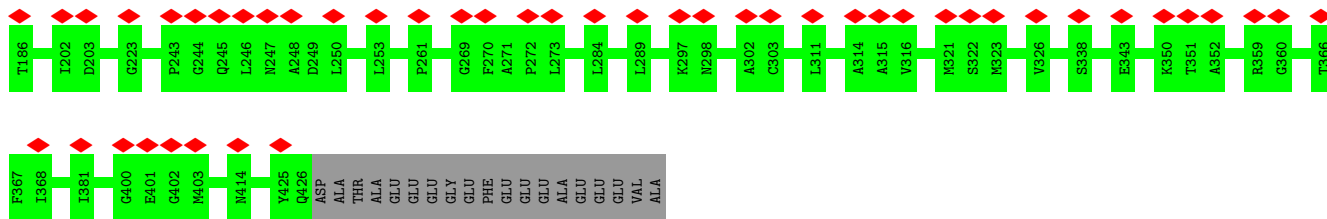


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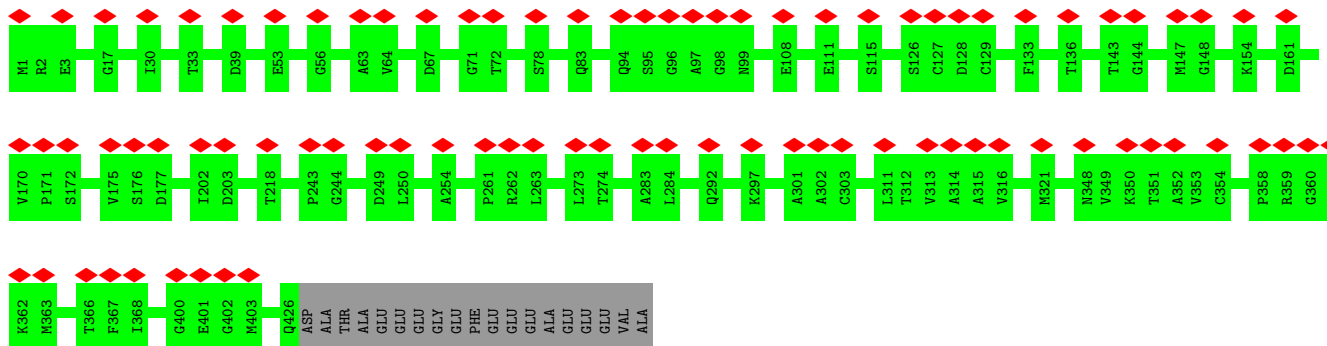


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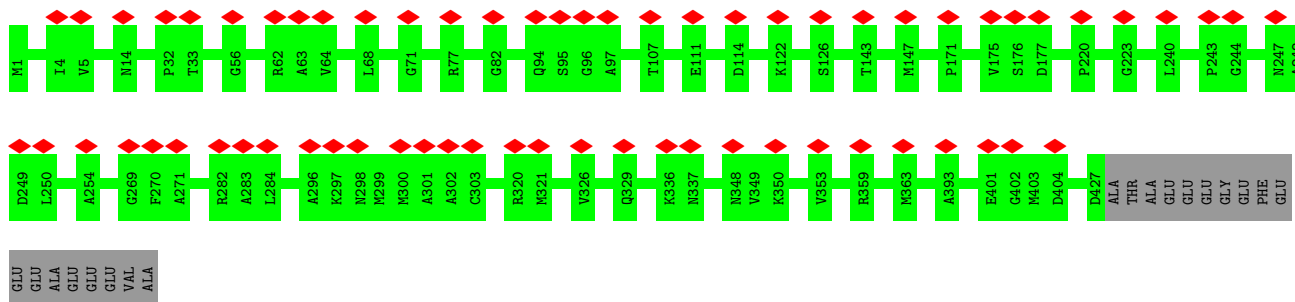




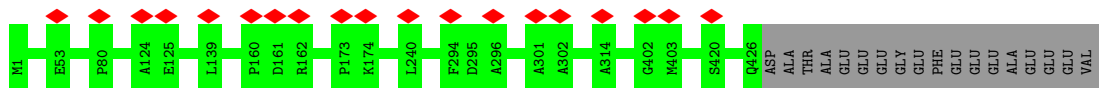
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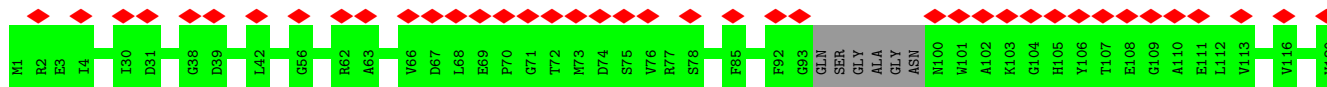
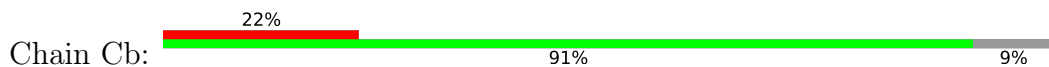
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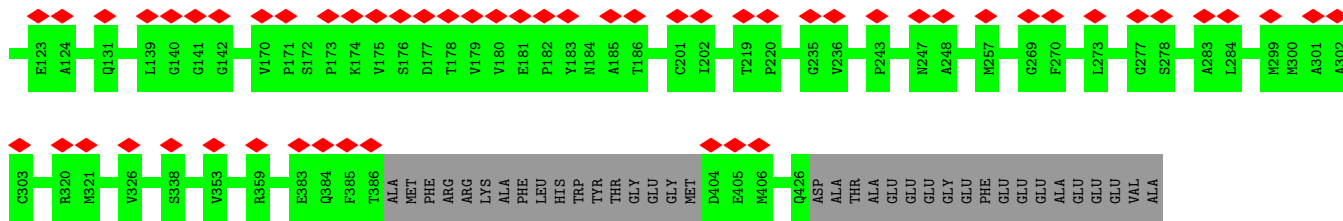


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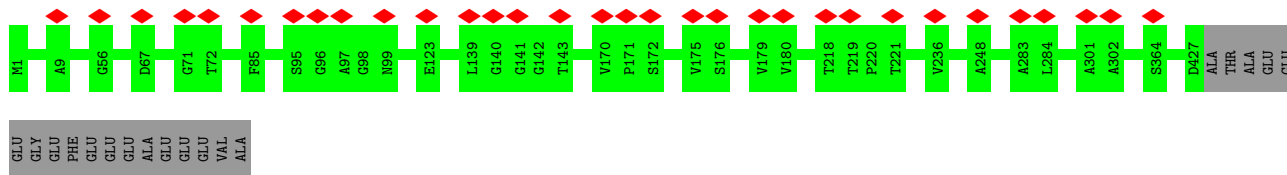


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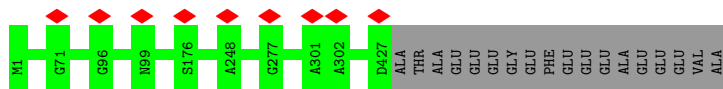




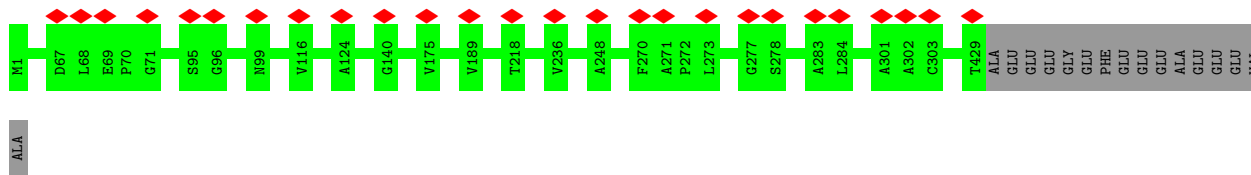
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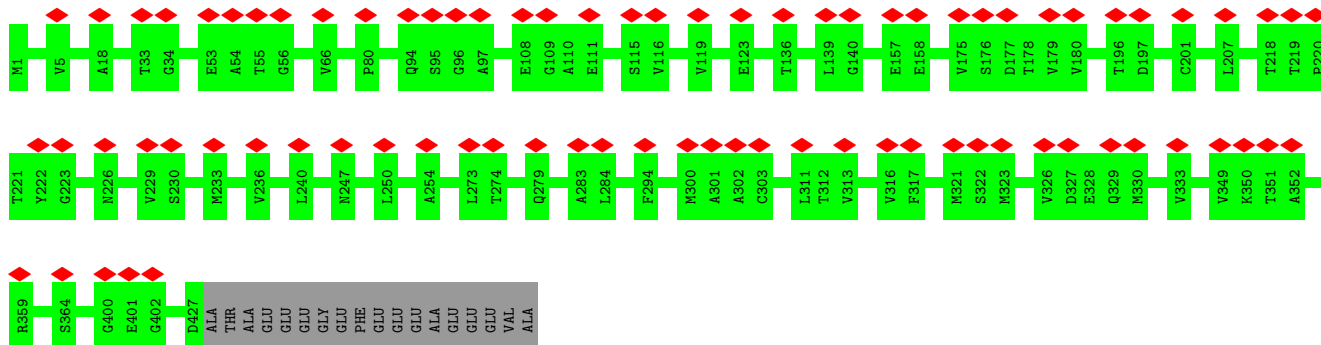
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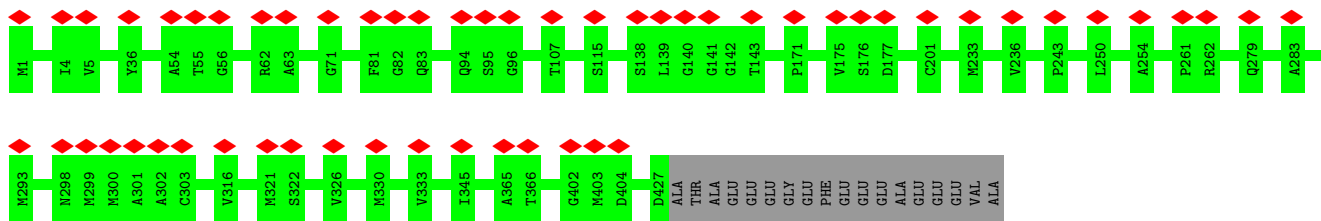
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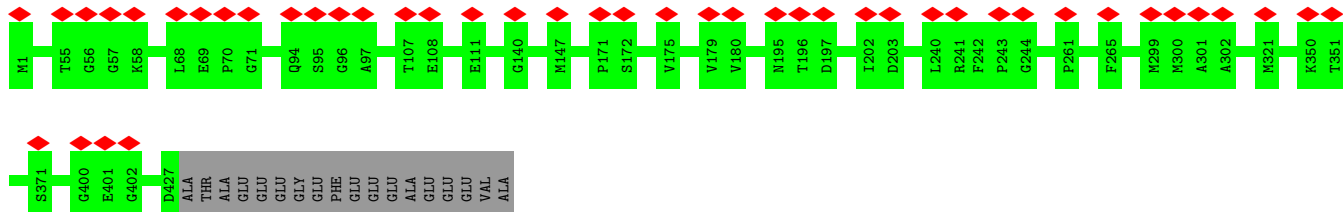
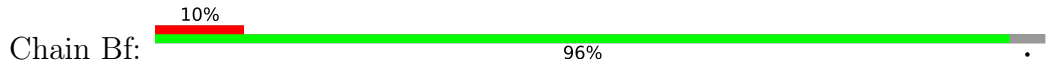
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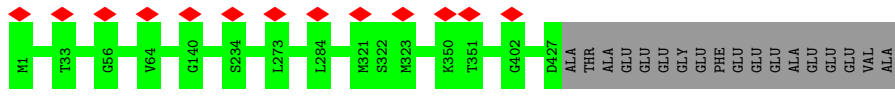
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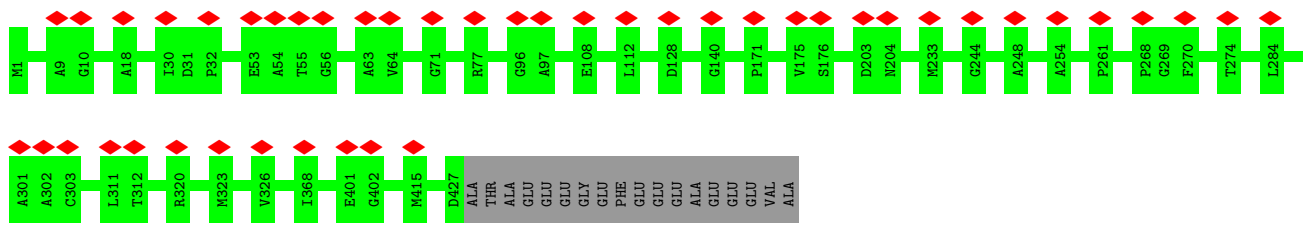
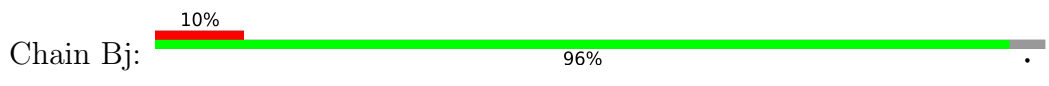
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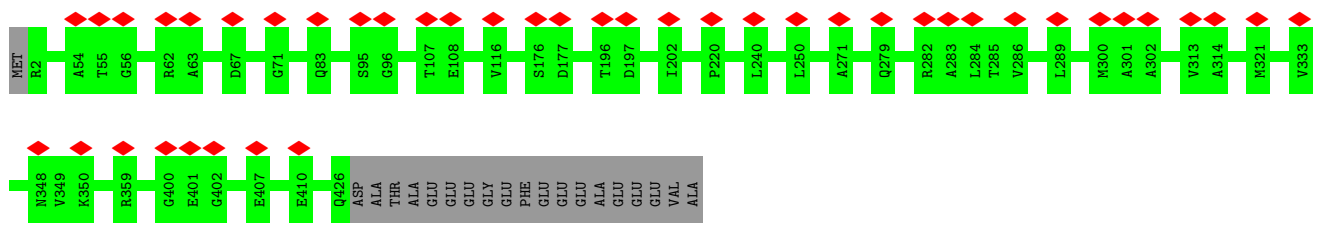
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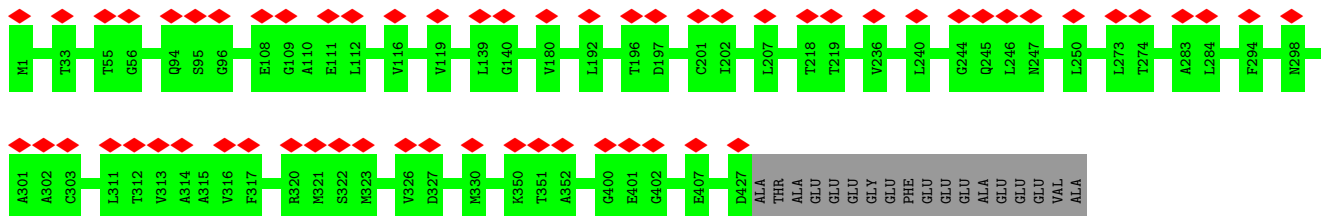
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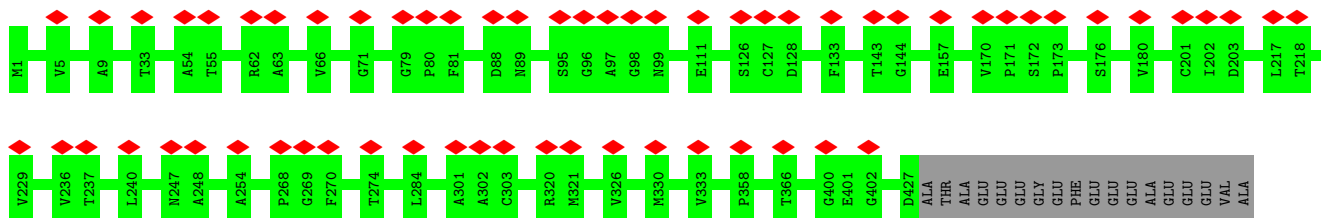
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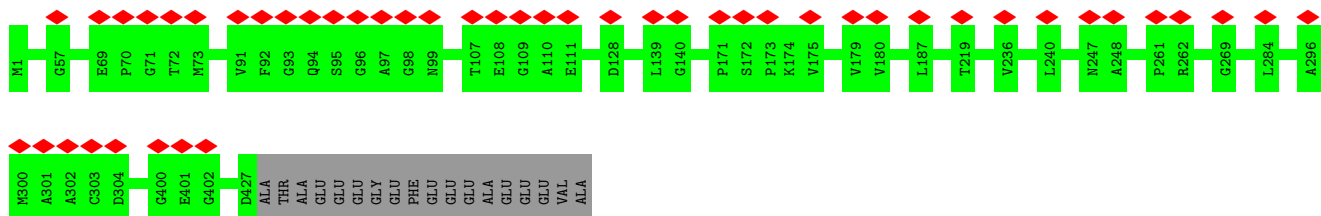
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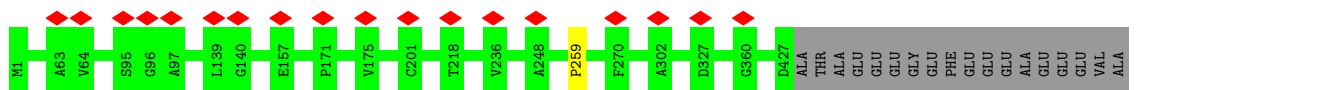
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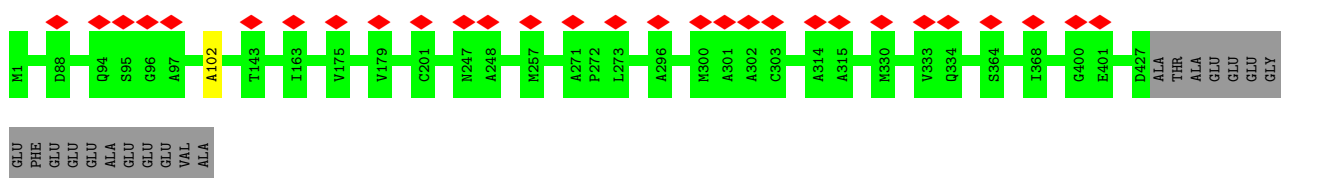
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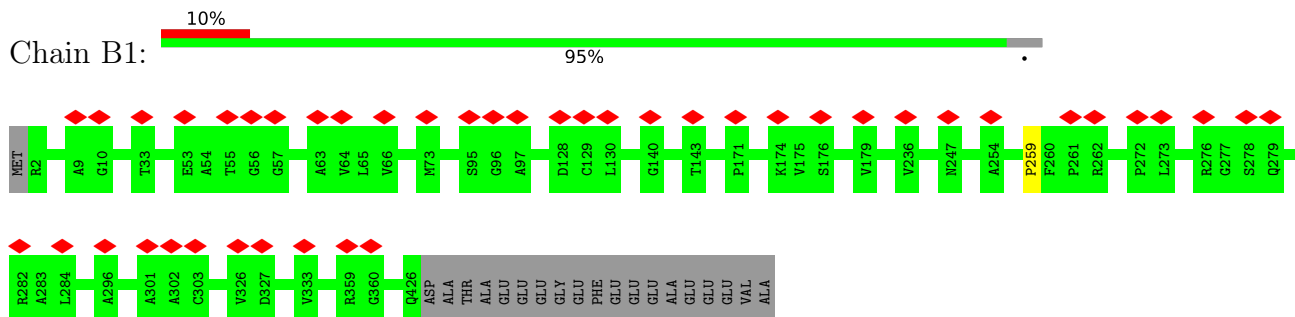
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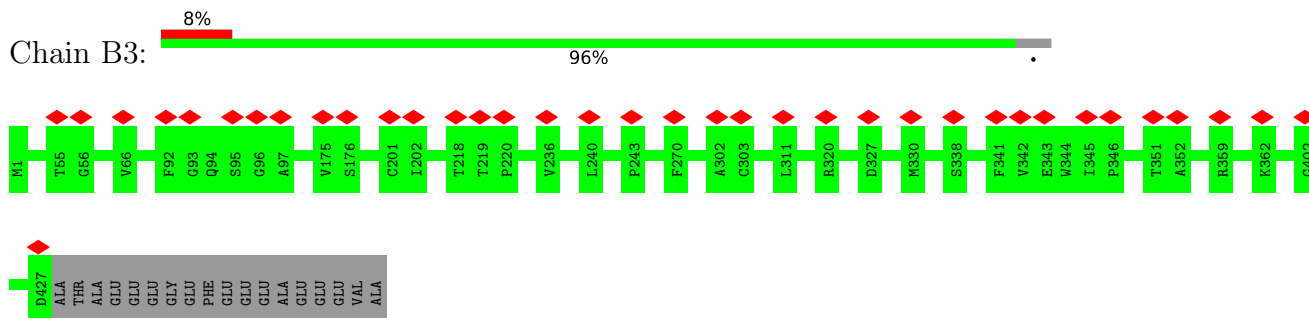
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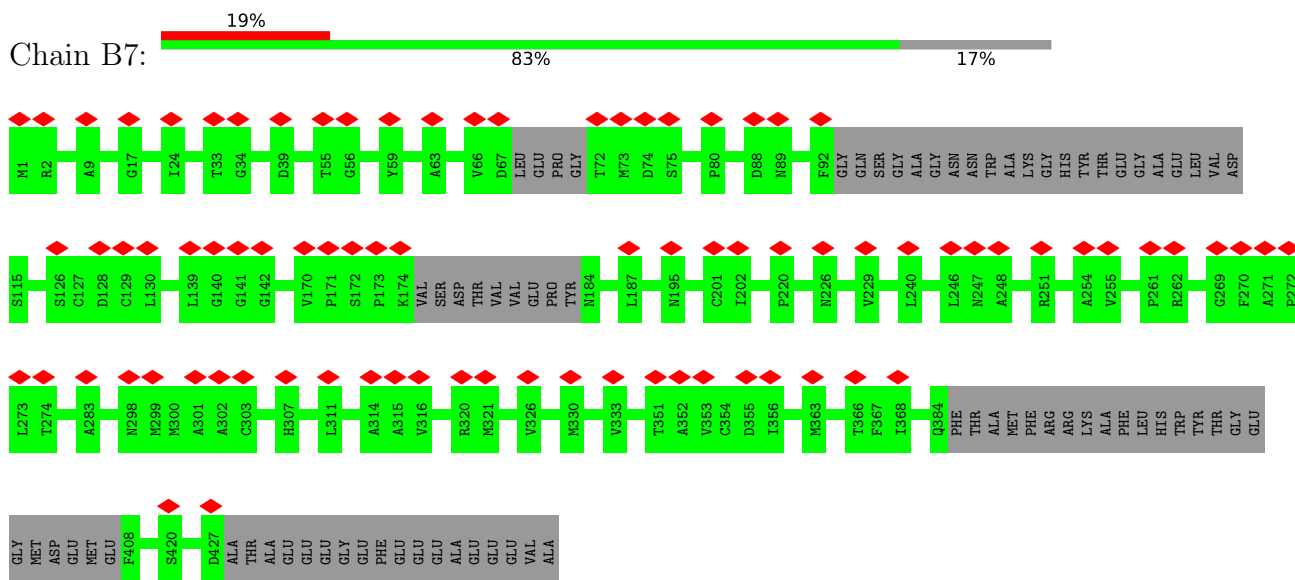
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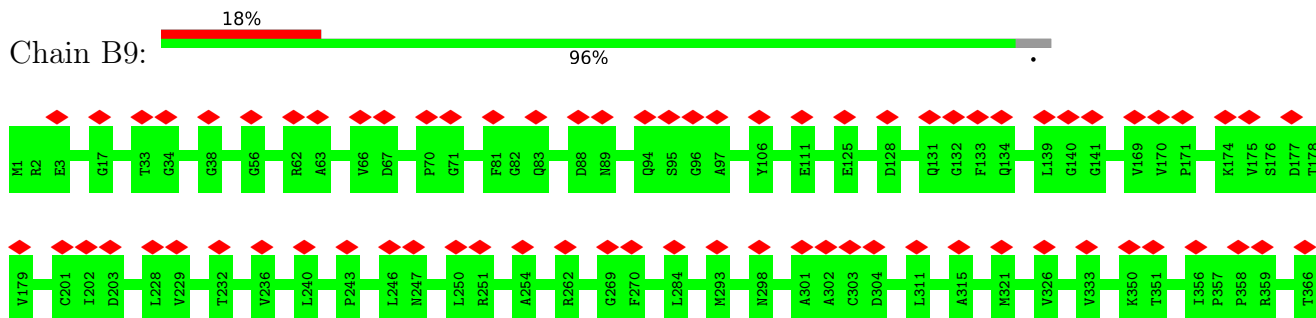
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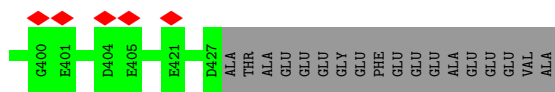


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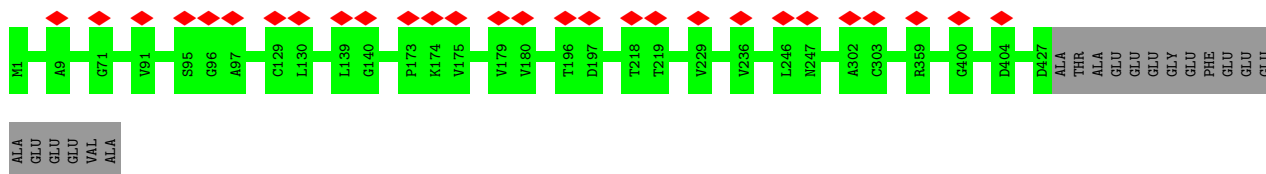


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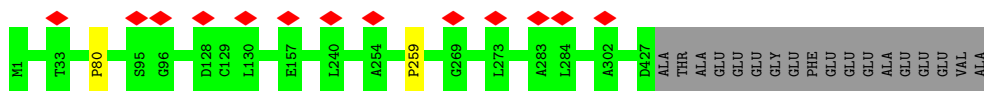




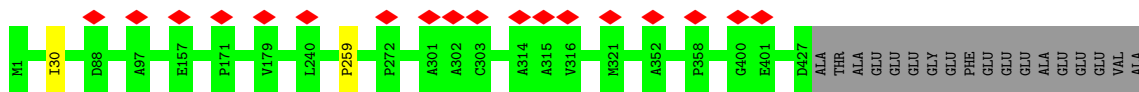
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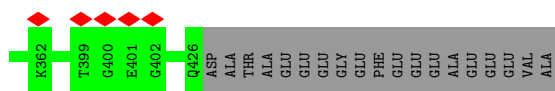
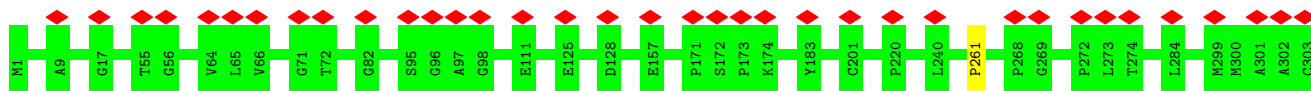
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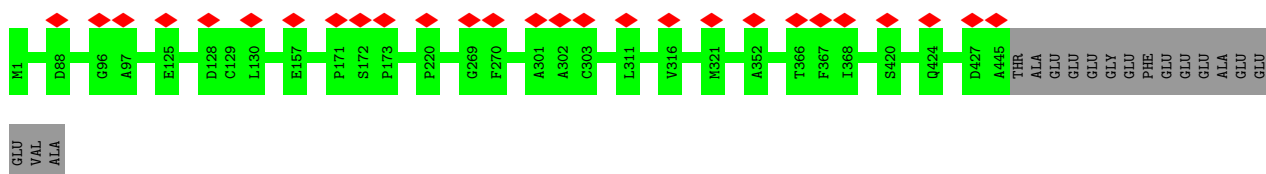
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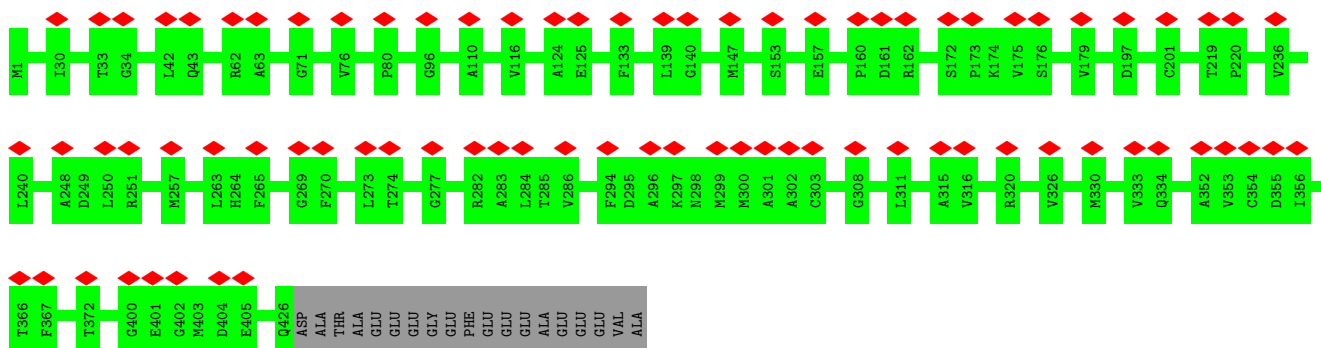
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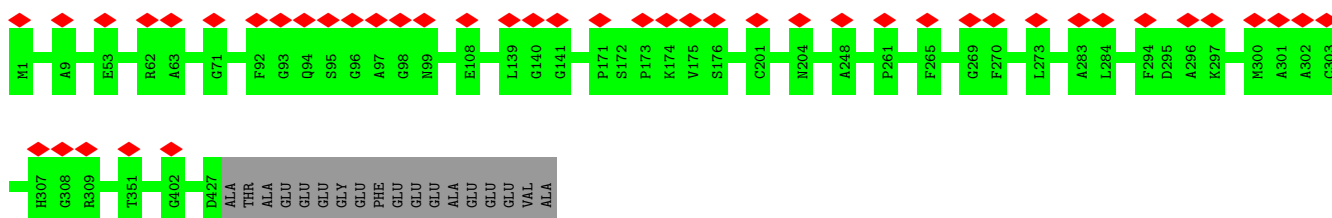
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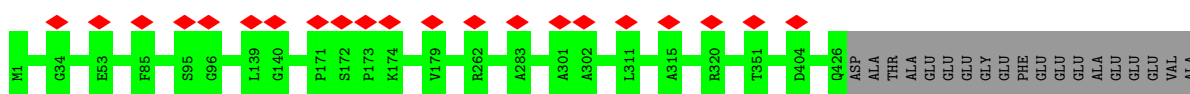
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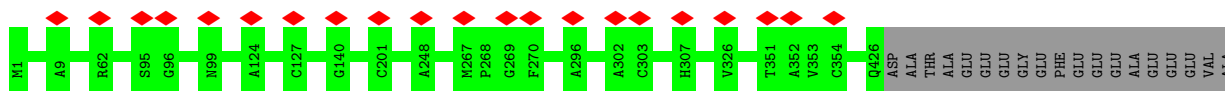
• Molecule 4: Tubulin beta-4B chain



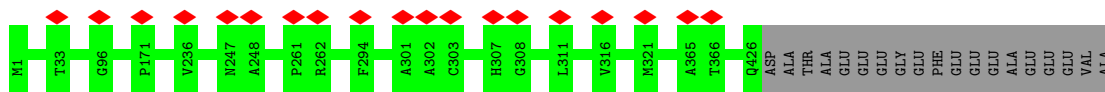
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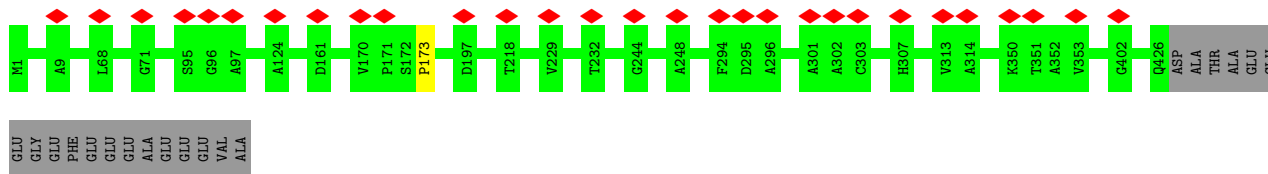


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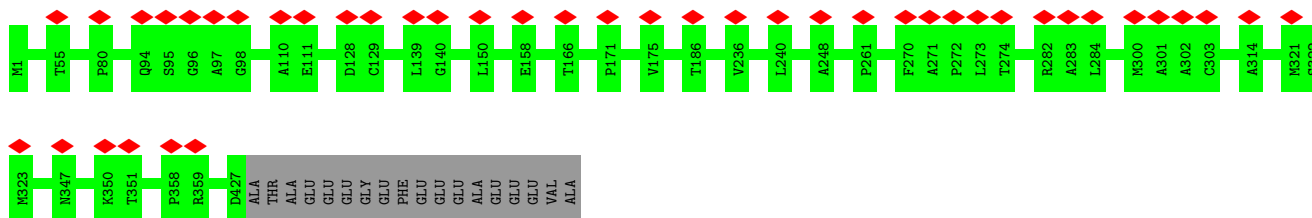


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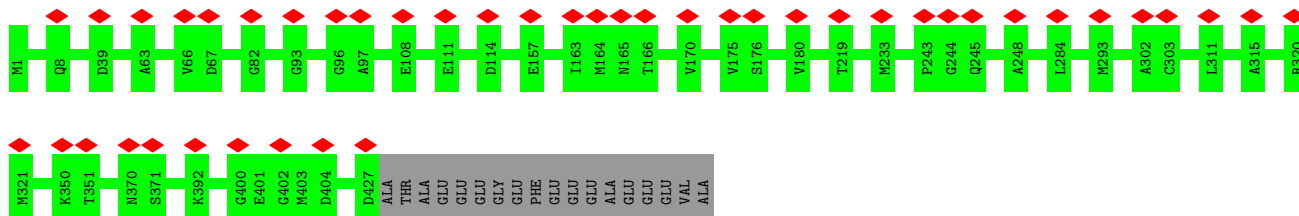




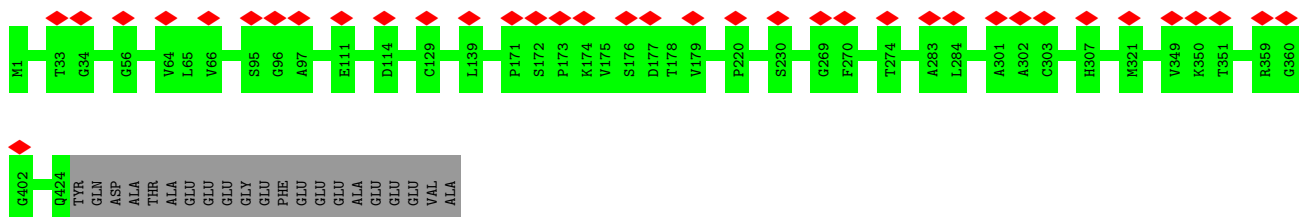
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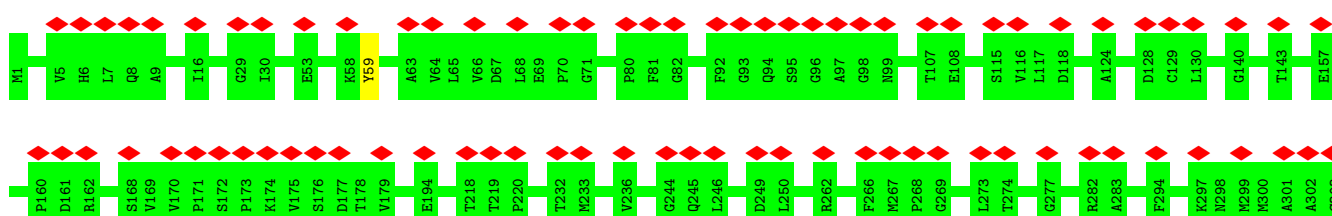
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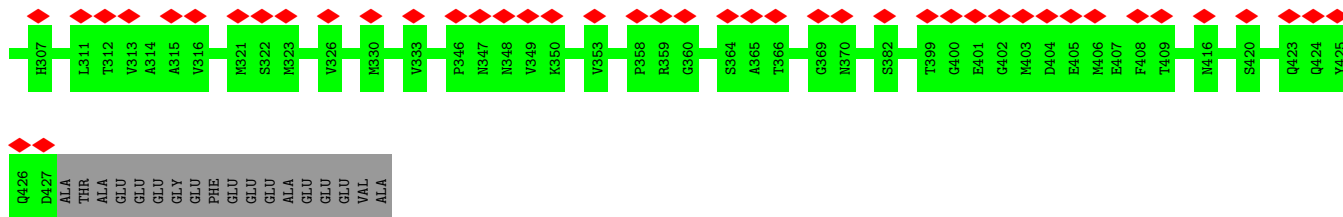


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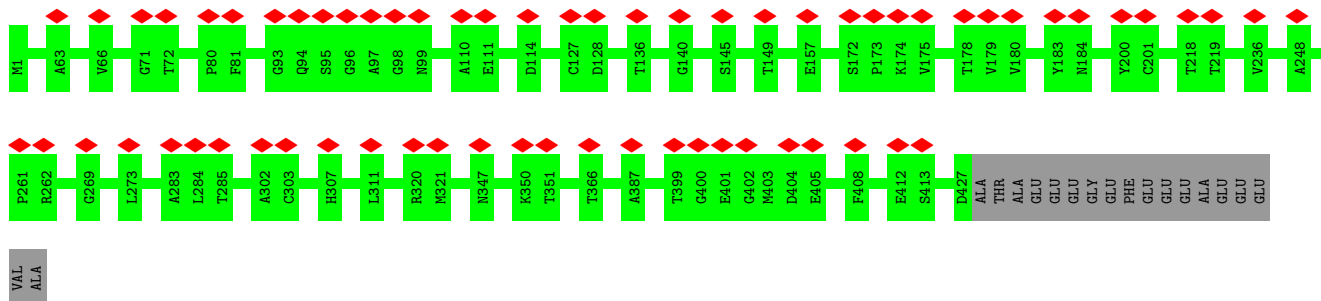


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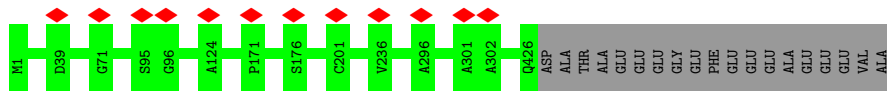




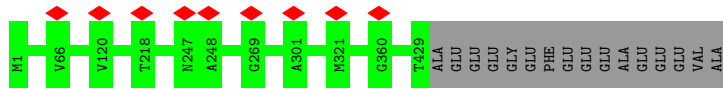
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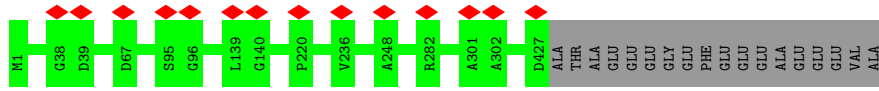
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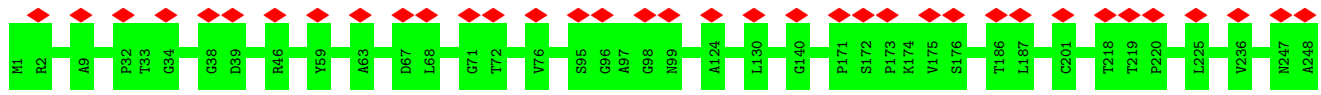
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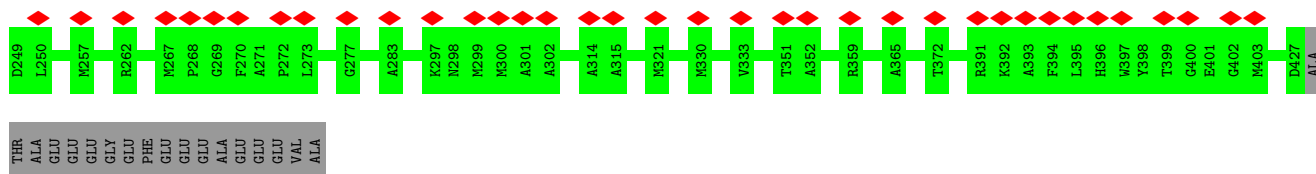


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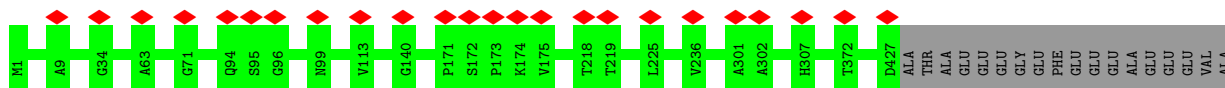


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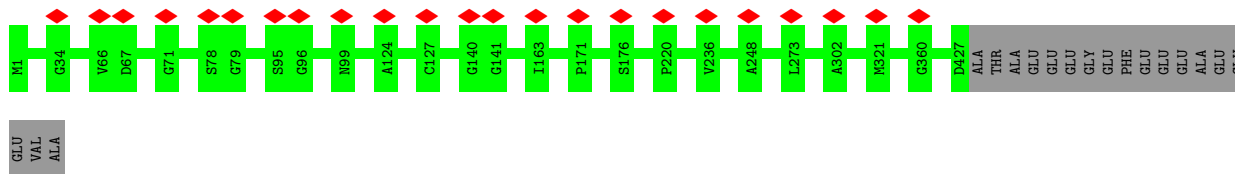




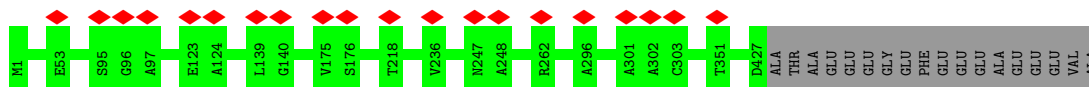
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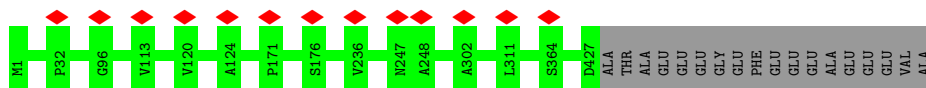
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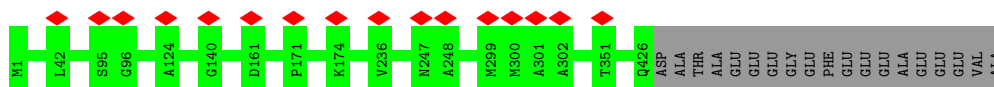
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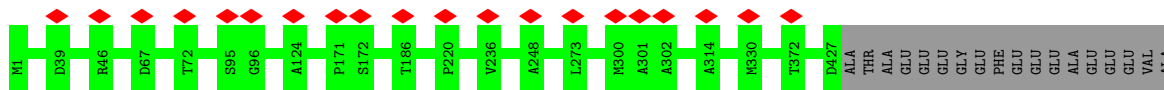


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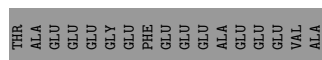
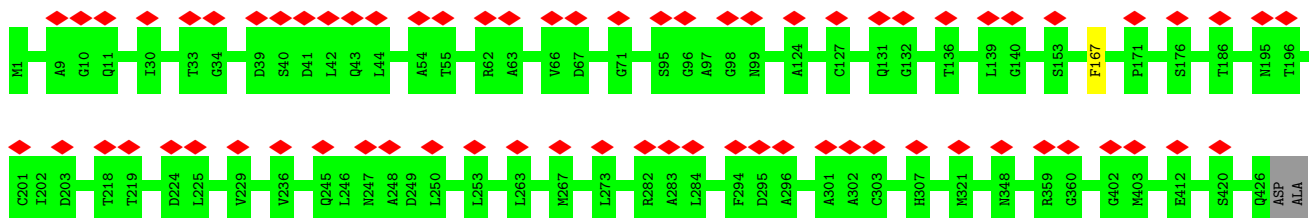


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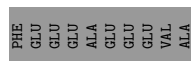
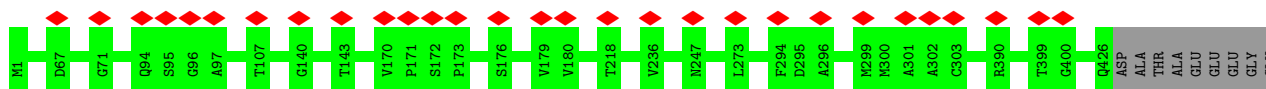




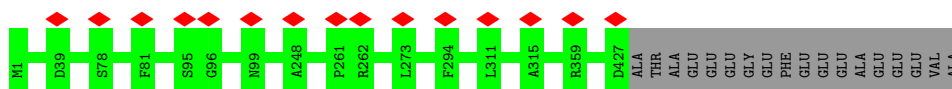
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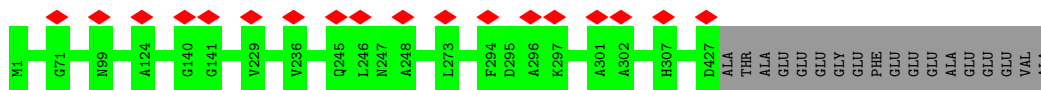
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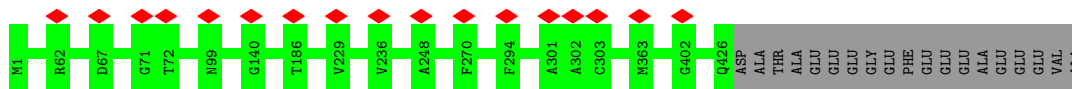
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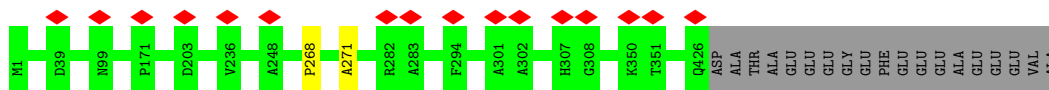


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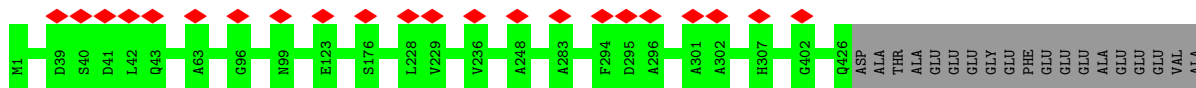
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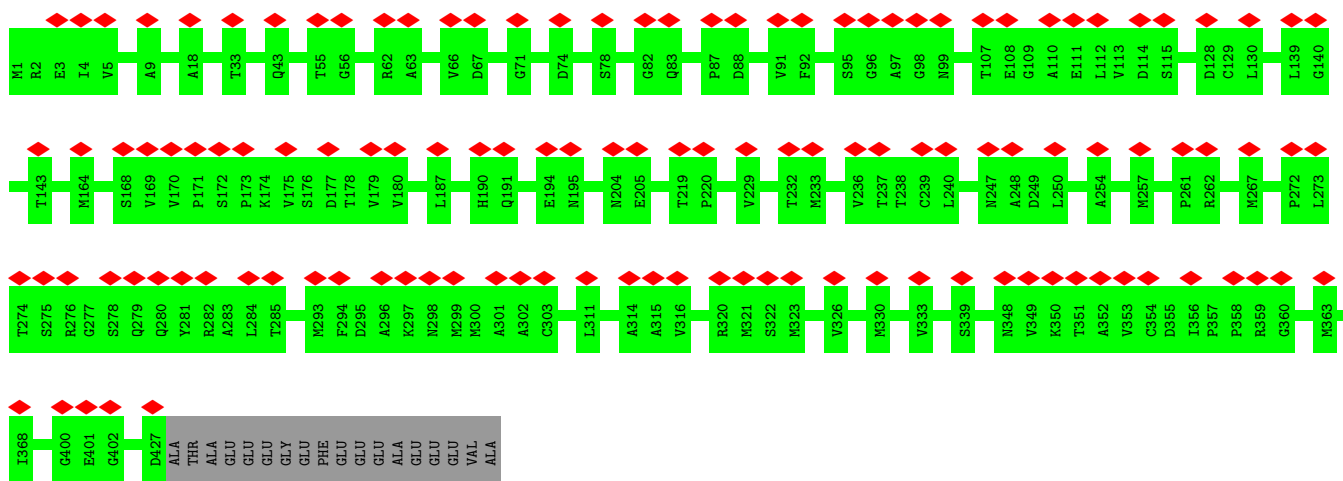
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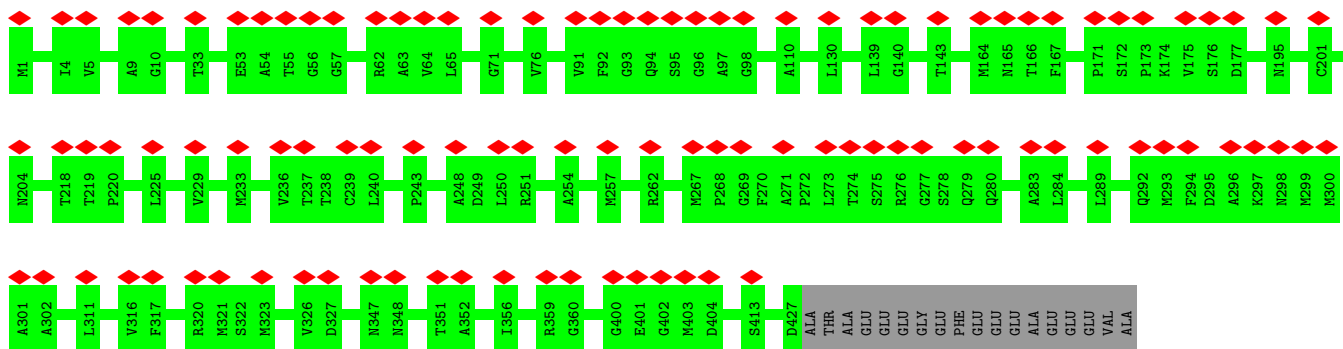
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Chain DL:  96%



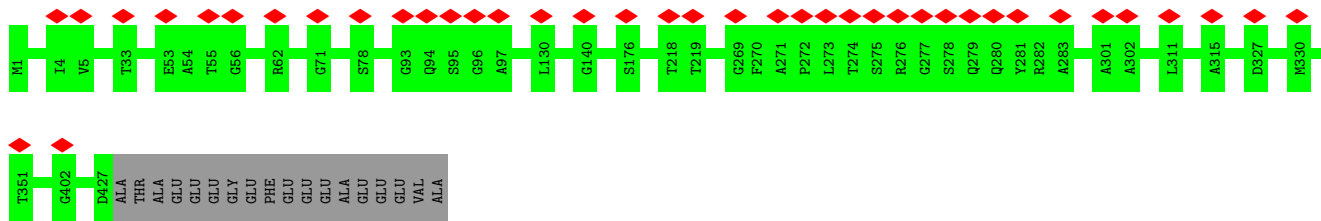
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Chain DN:  96%

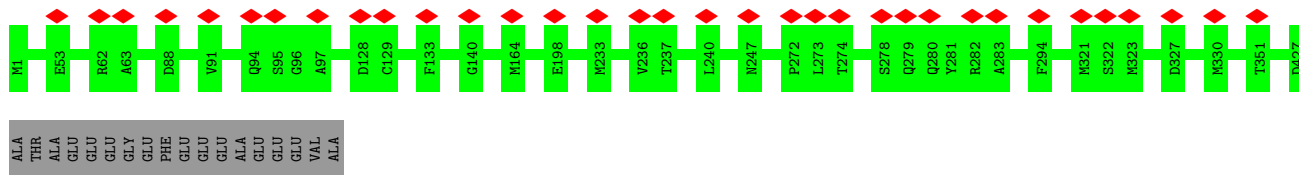


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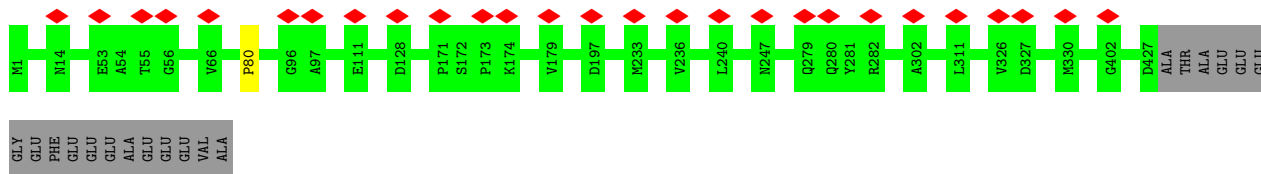
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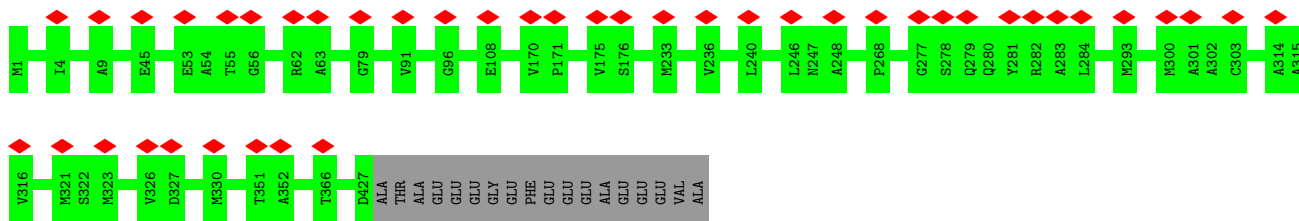
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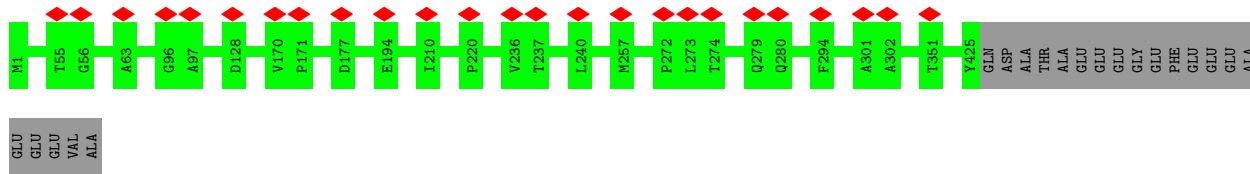
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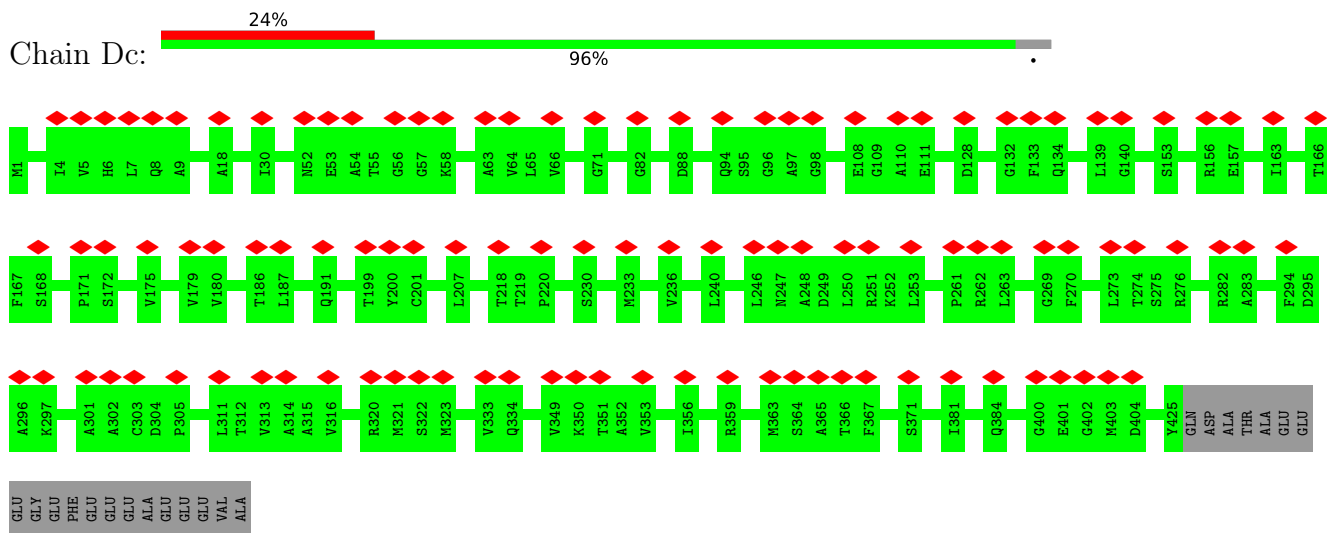
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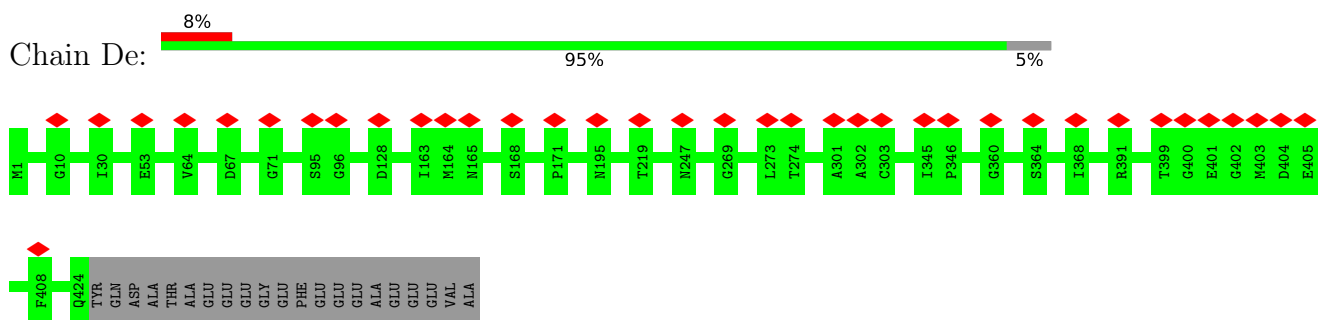
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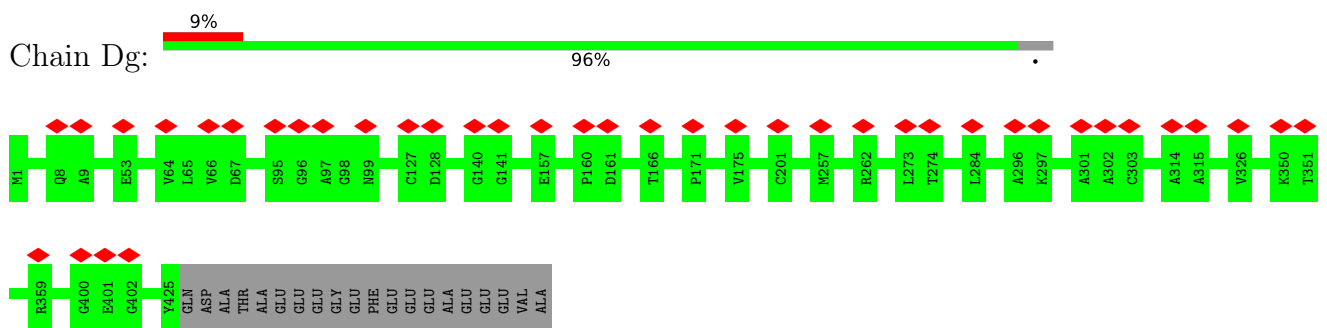
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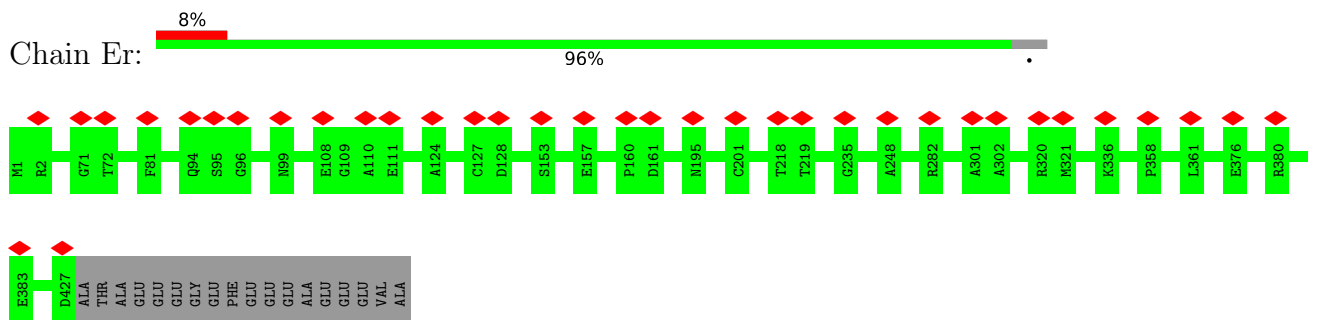
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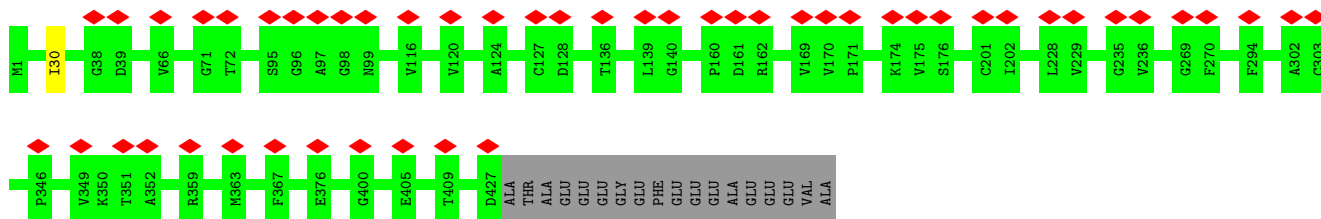
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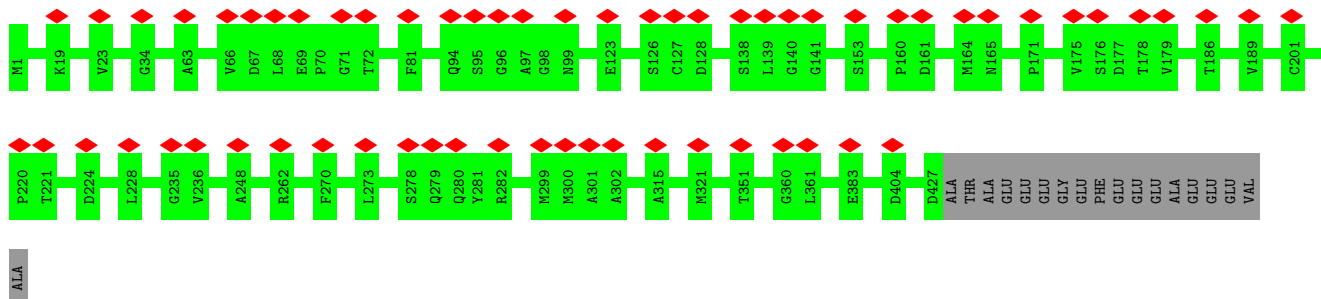
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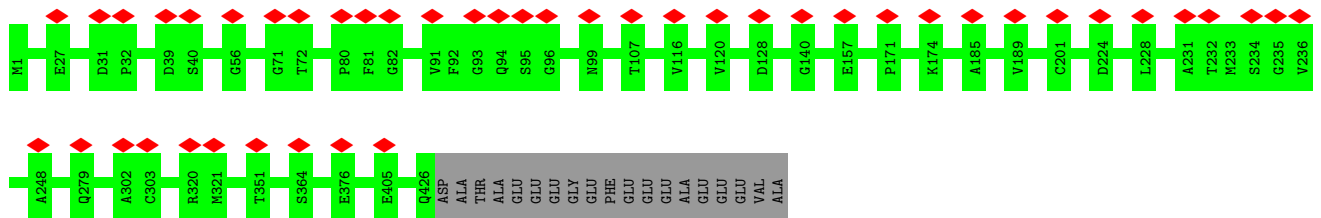
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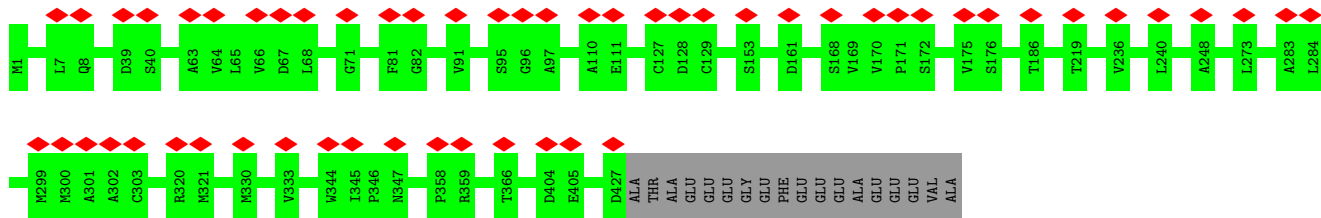
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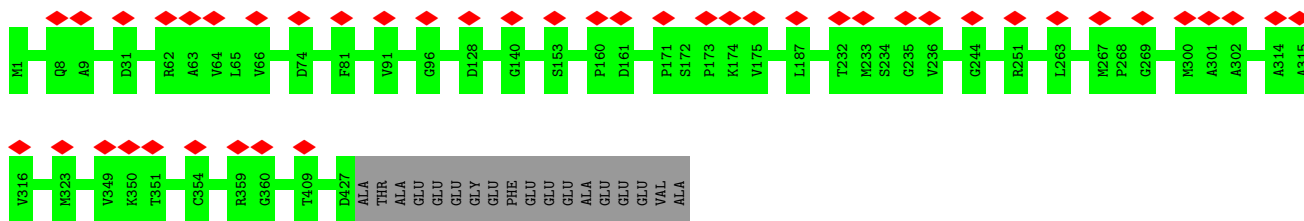


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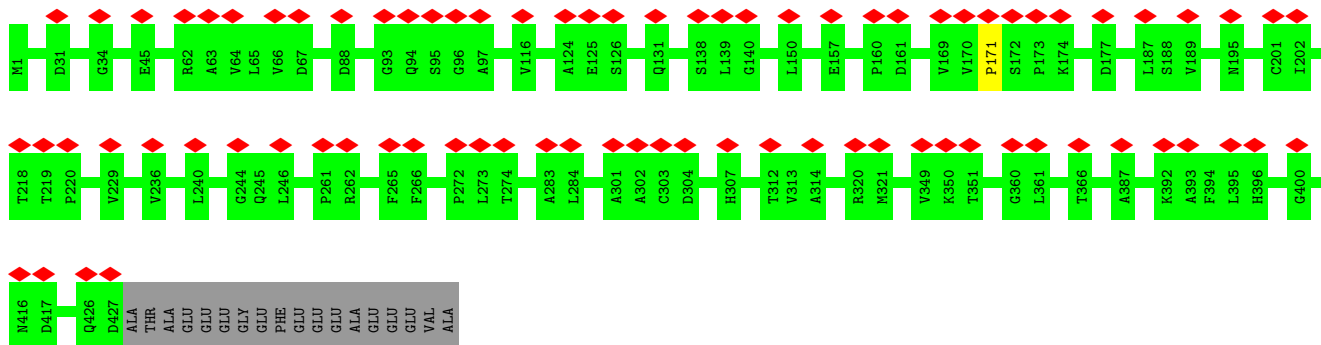


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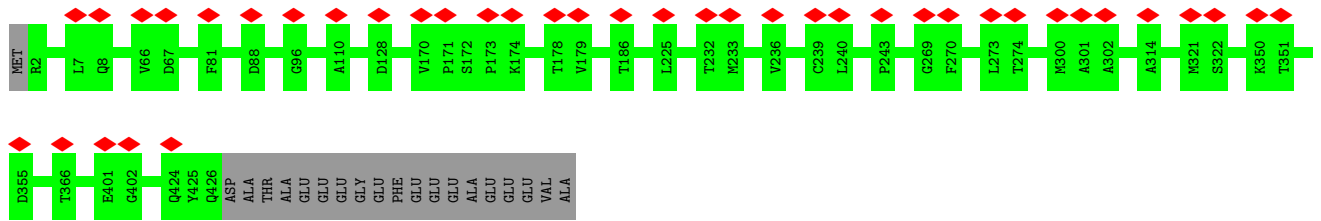




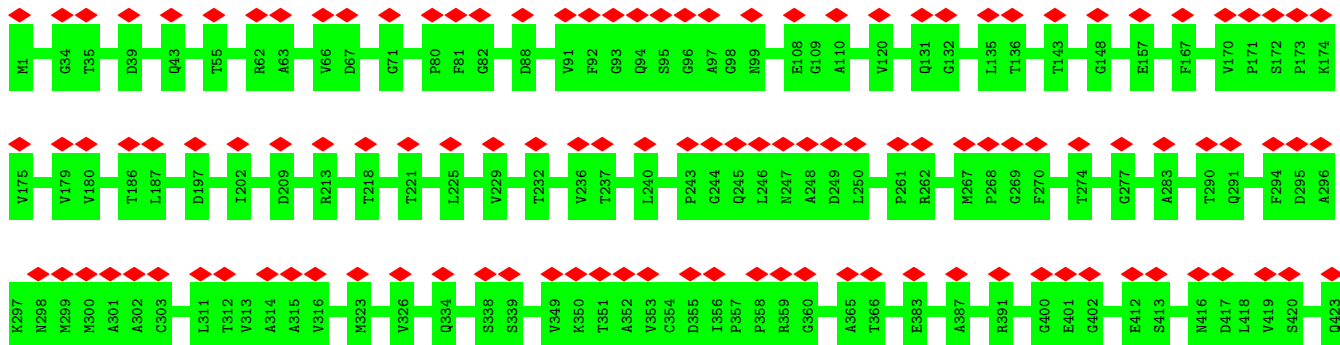
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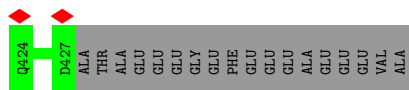


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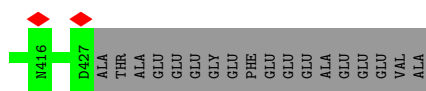
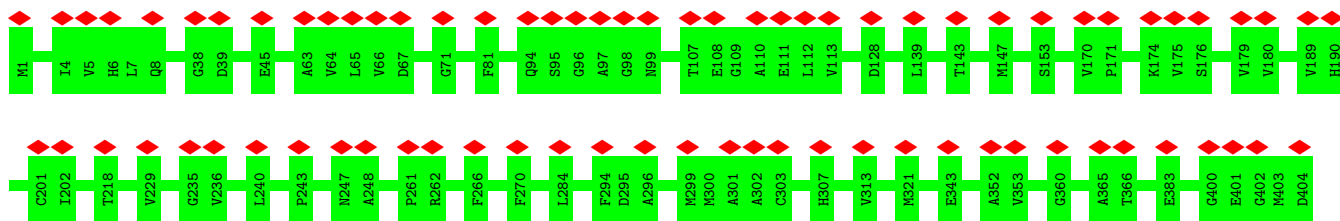


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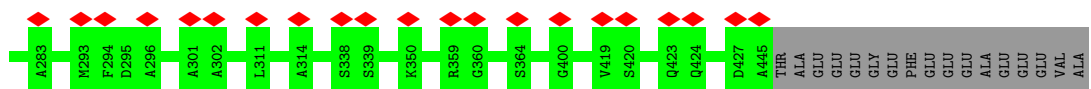
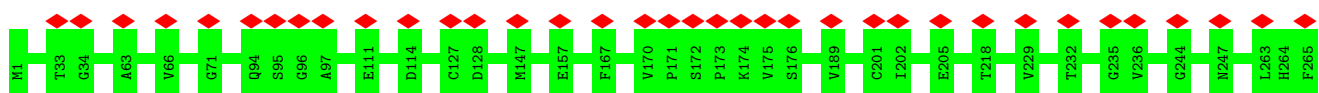




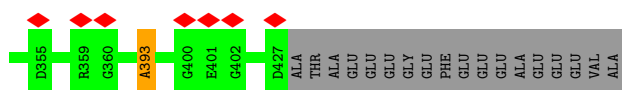
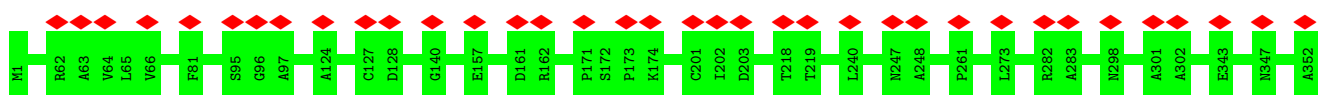
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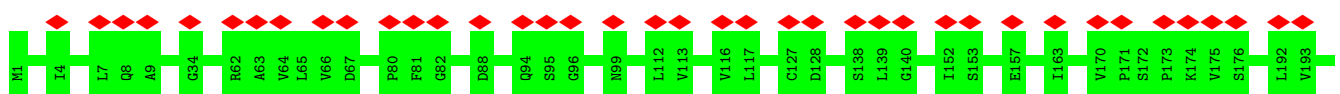
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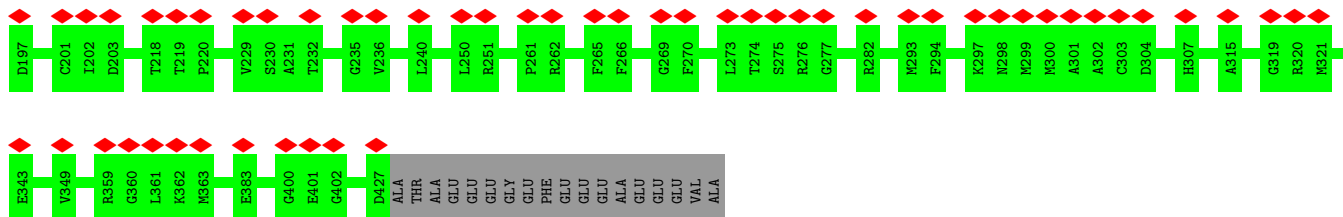


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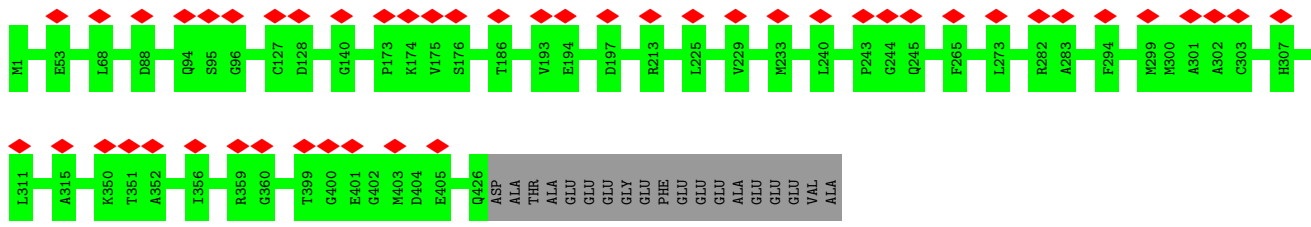


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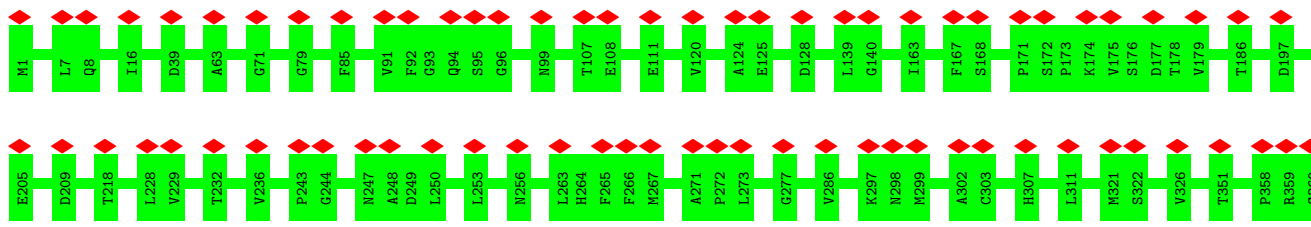




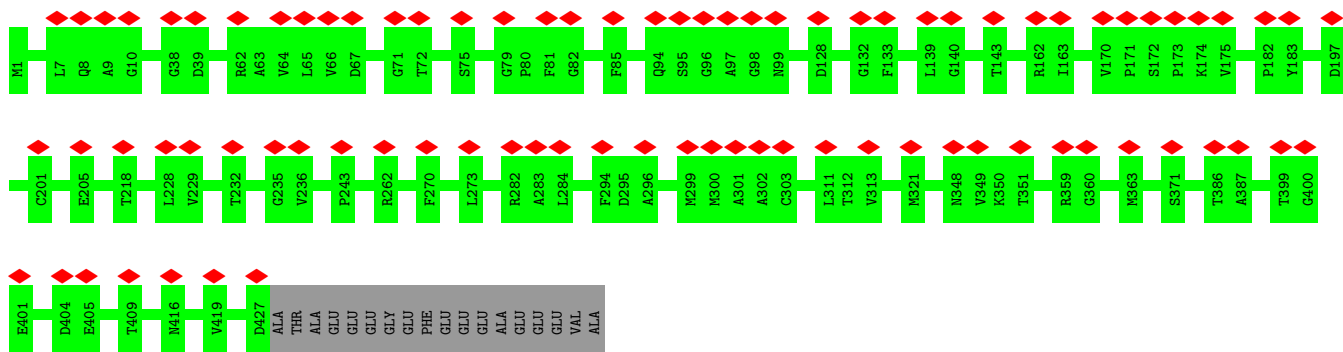
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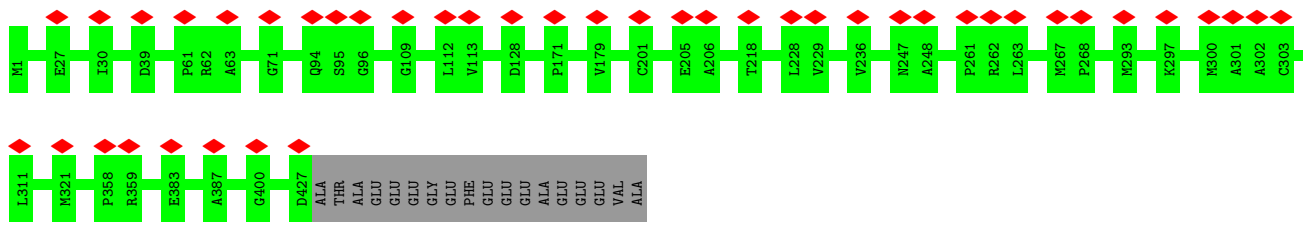
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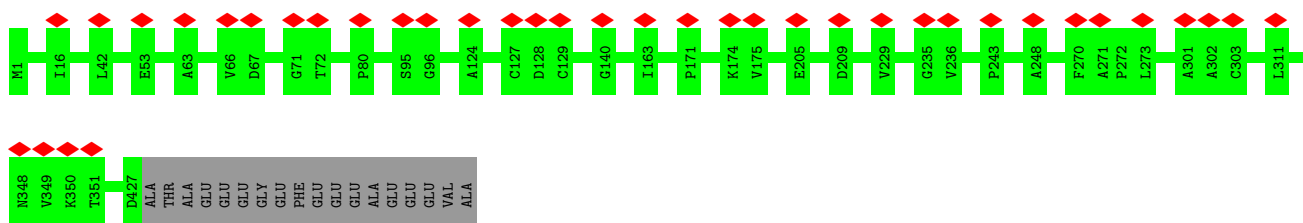
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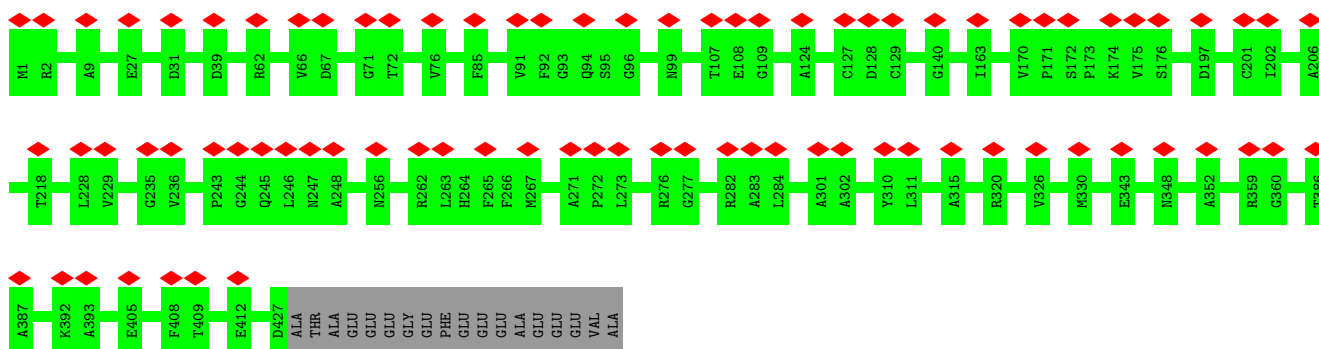
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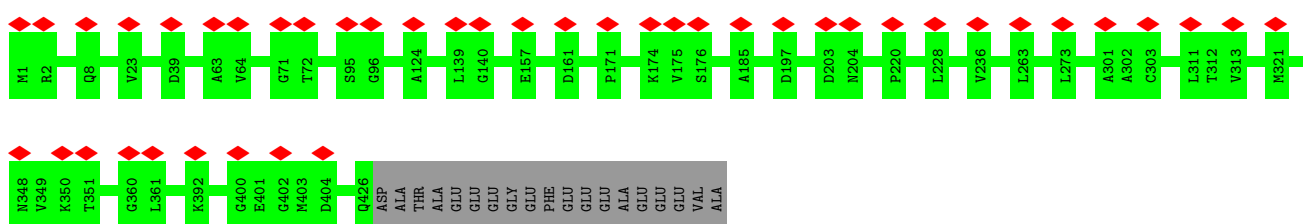
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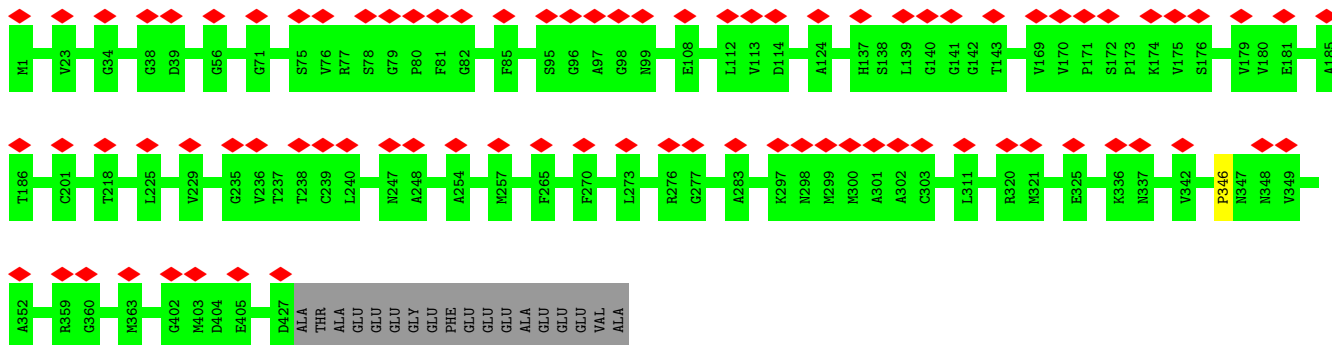


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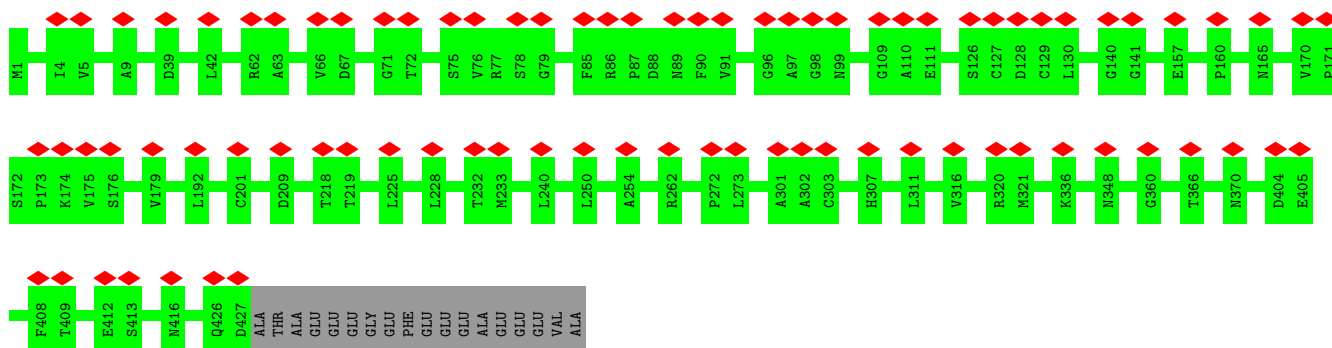


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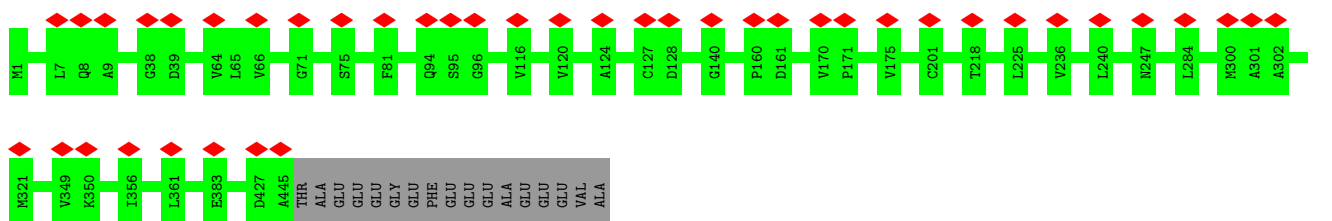




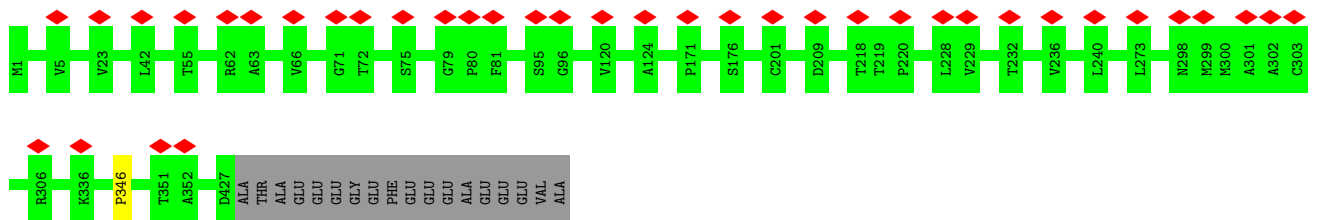
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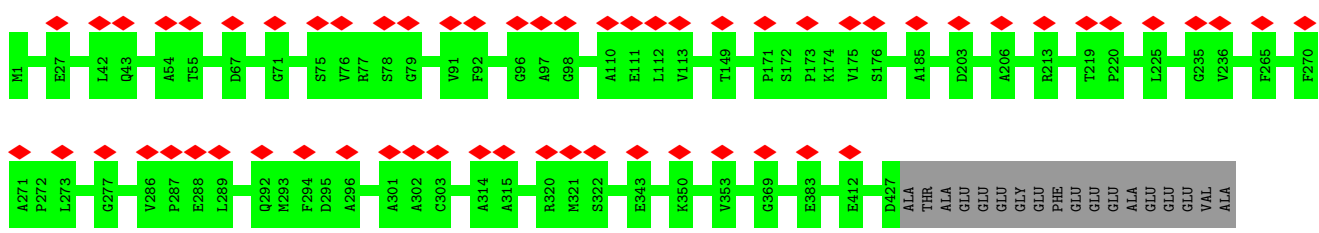
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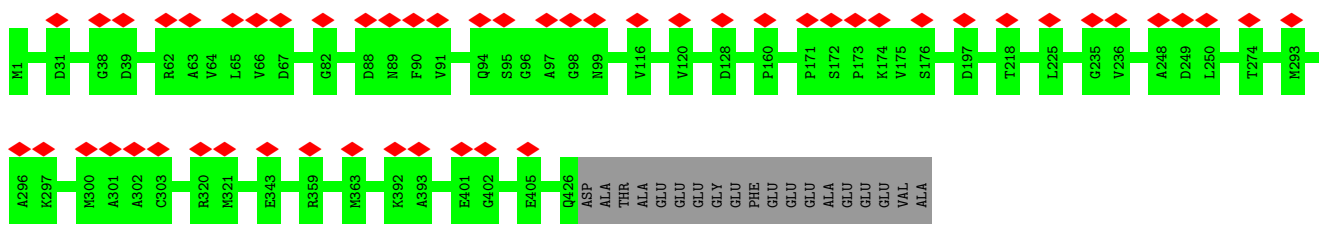
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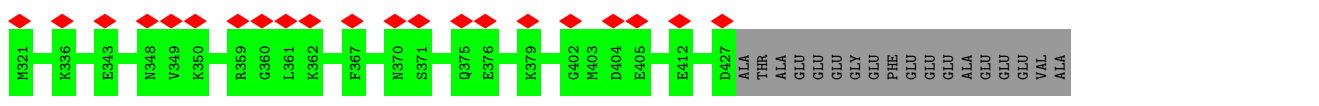
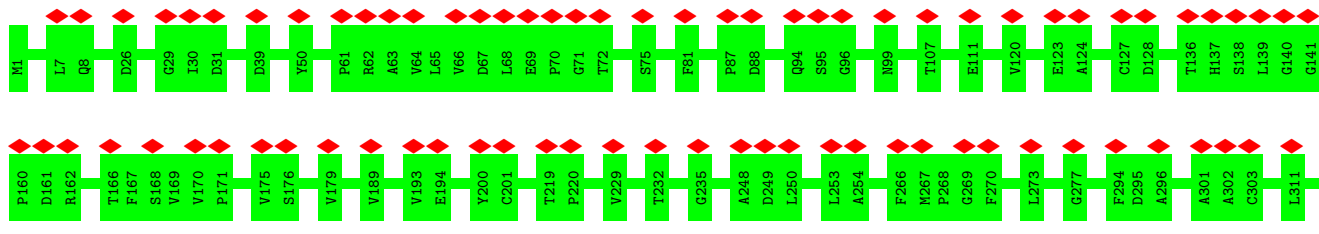
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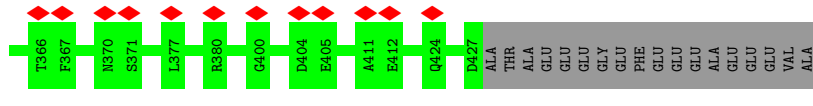
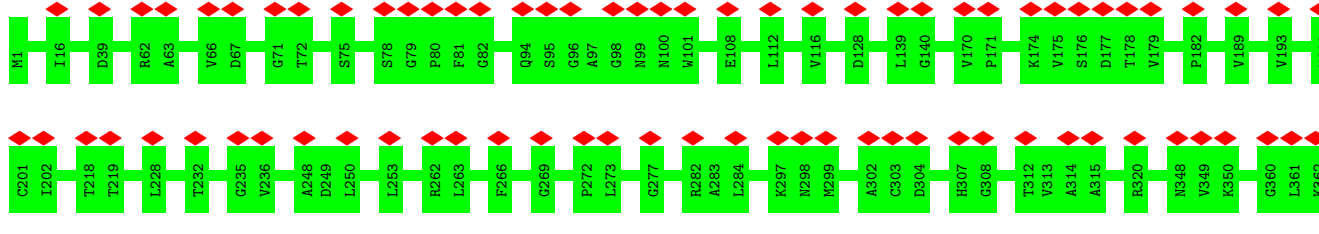
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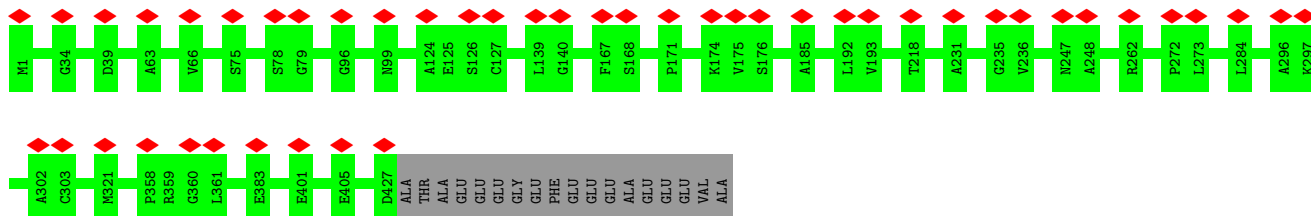
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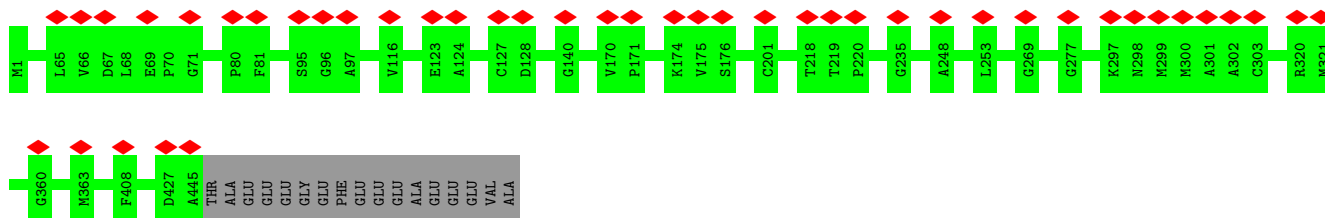
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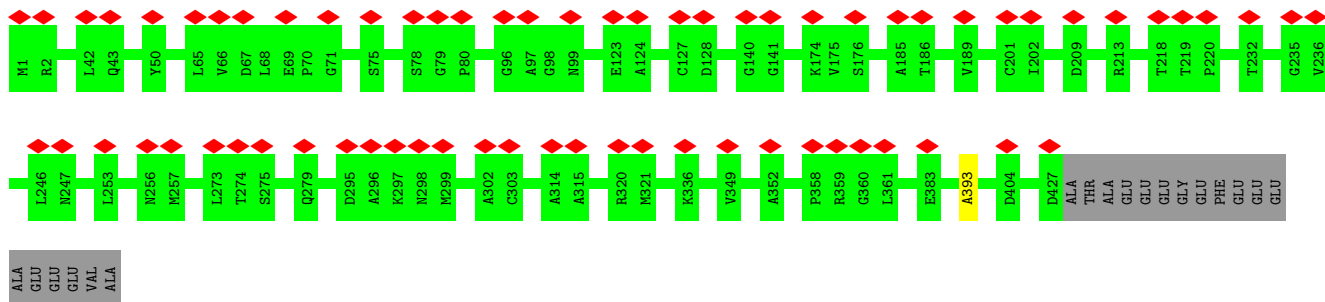
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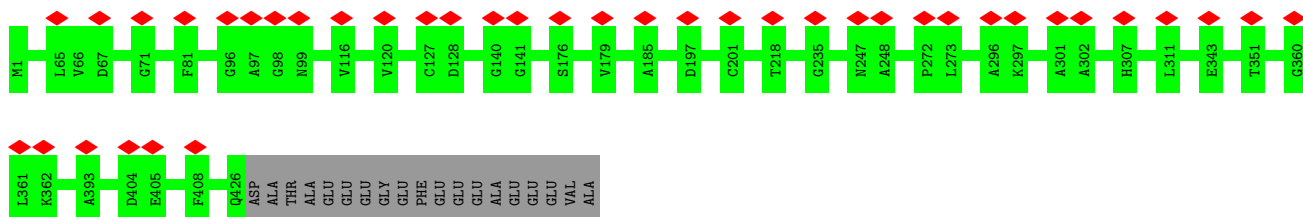
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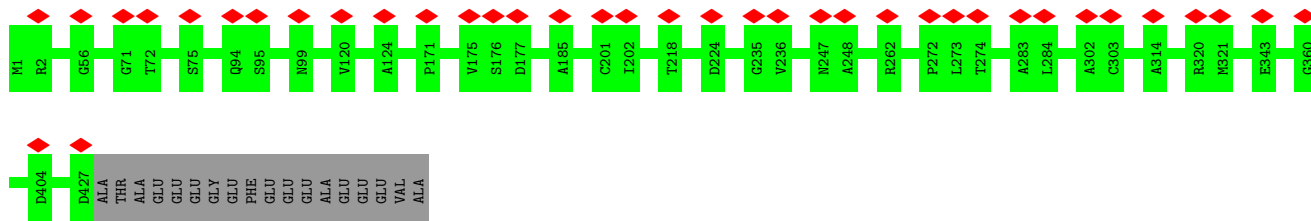


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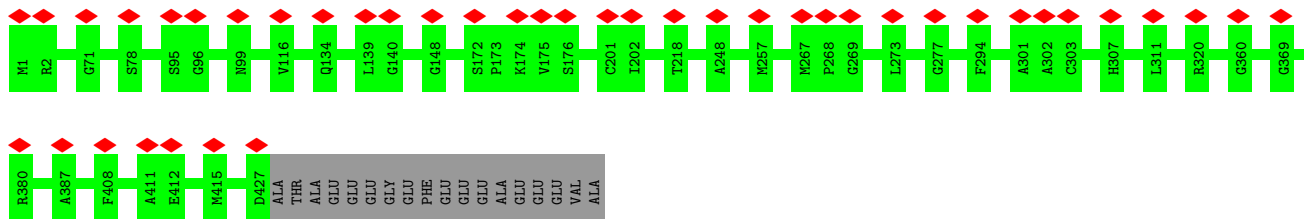


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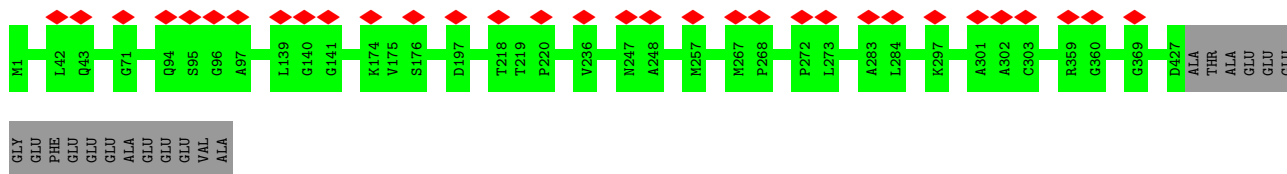




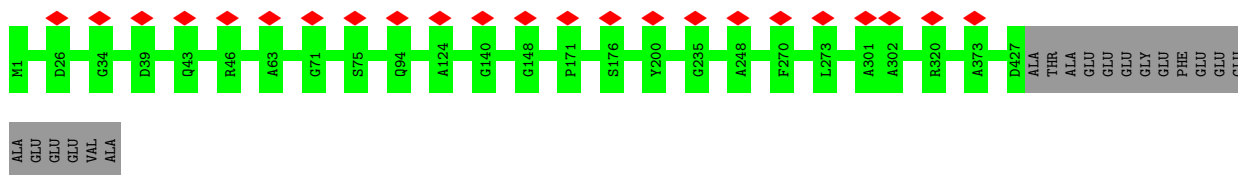
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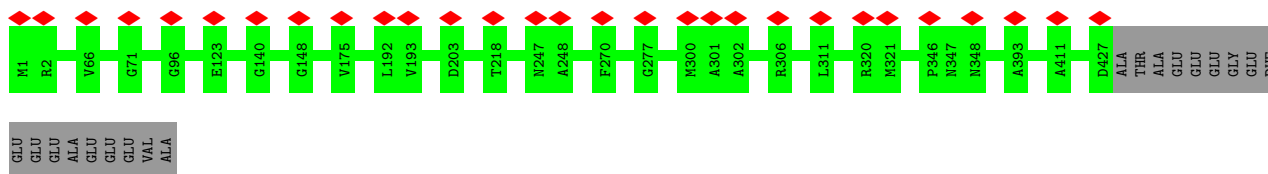
• Molecule 4: Tubulin beta-4B chain



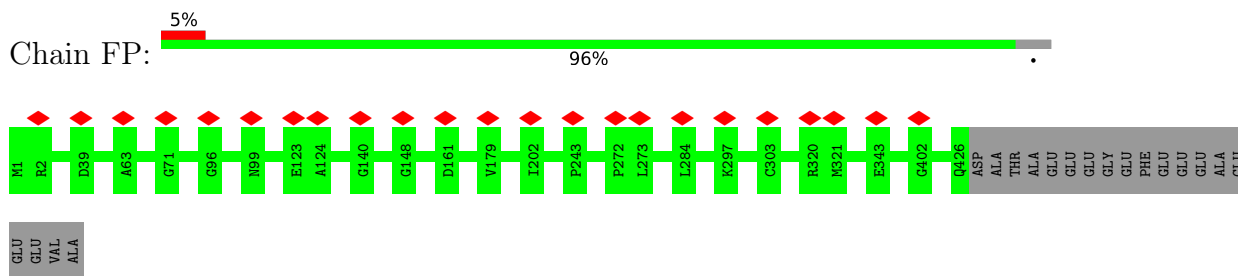
• Molecule 4: Tubulin beta-4B chain



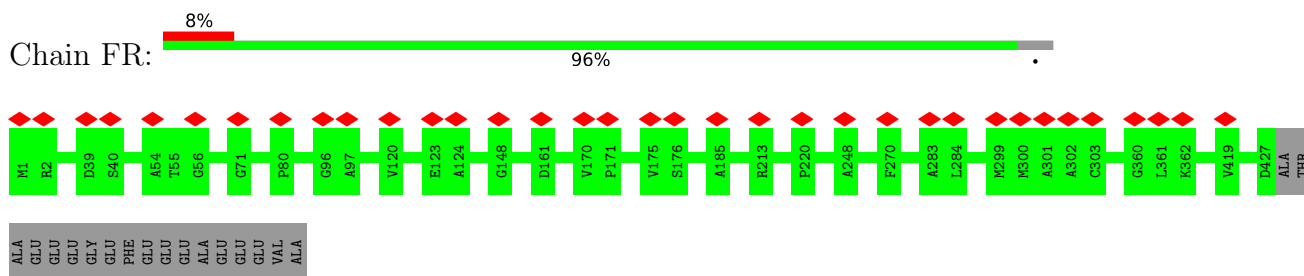
• Molecule 4: Tubulin beta-4B chain



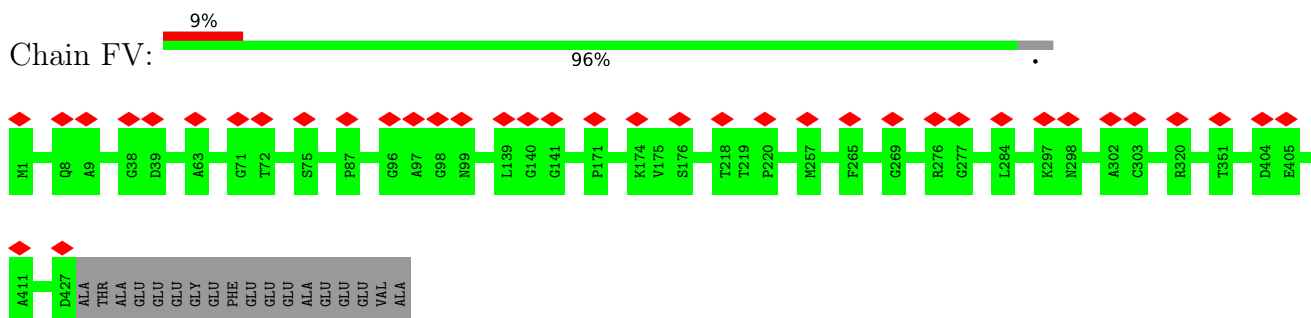
• Molecule 4: Tubulin beta-4B chain



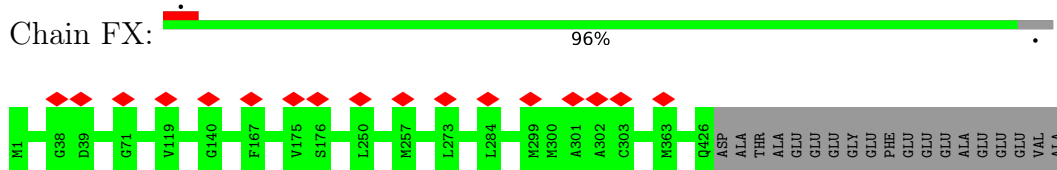
• Molecule 4: Tubulin beta-4B chain



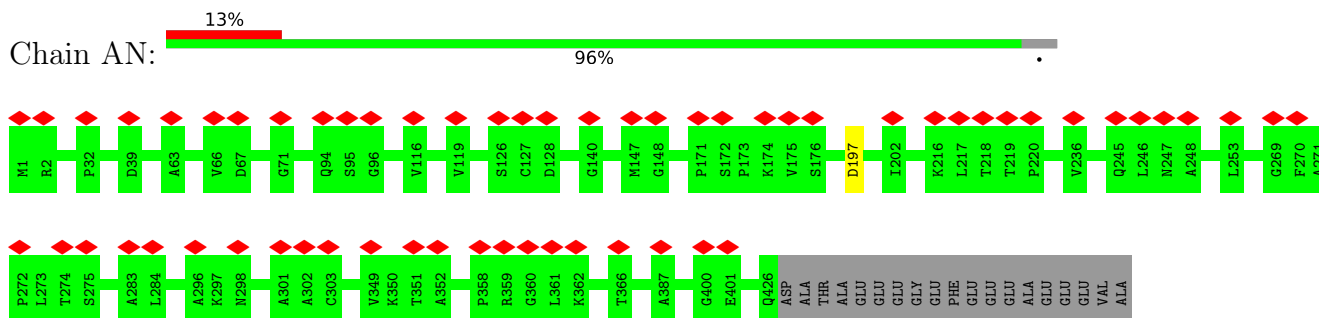
• Molecule 4: Tubulin beta-4B chain



• Molecule 4: Tubulin beta-4B chain

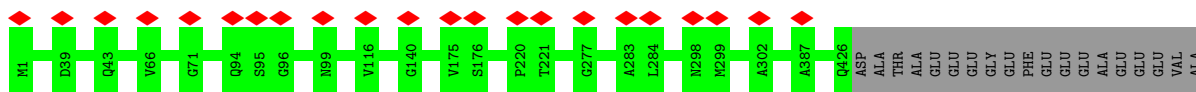


• Molecule 4: Tubulin beta-4B chain

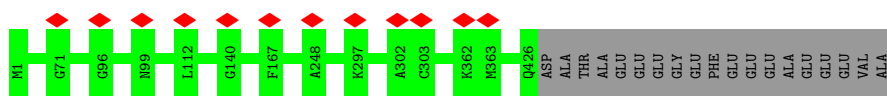


• Molecule 4: Tubulin beta-4B chain

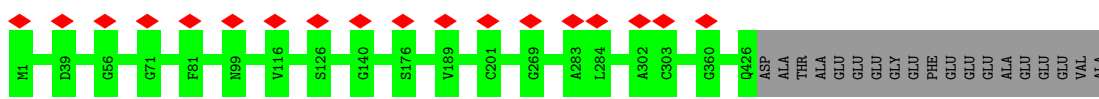




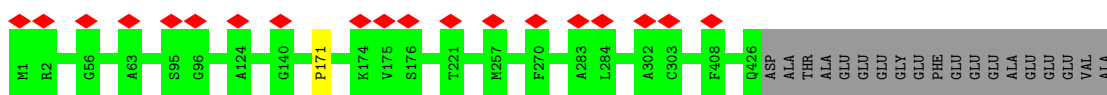
• Molecule 4: Tubulin beta-4B chain



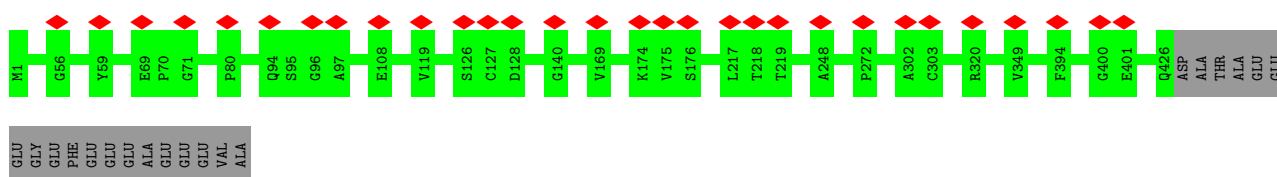
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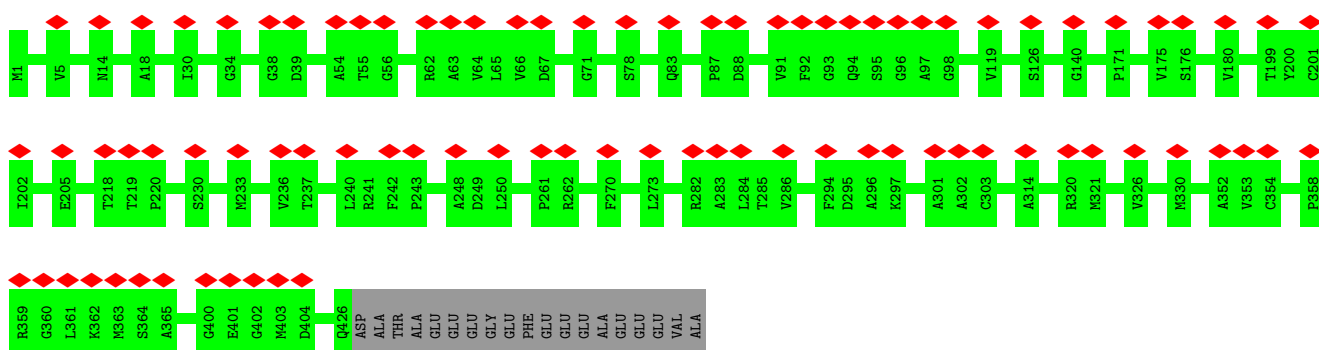
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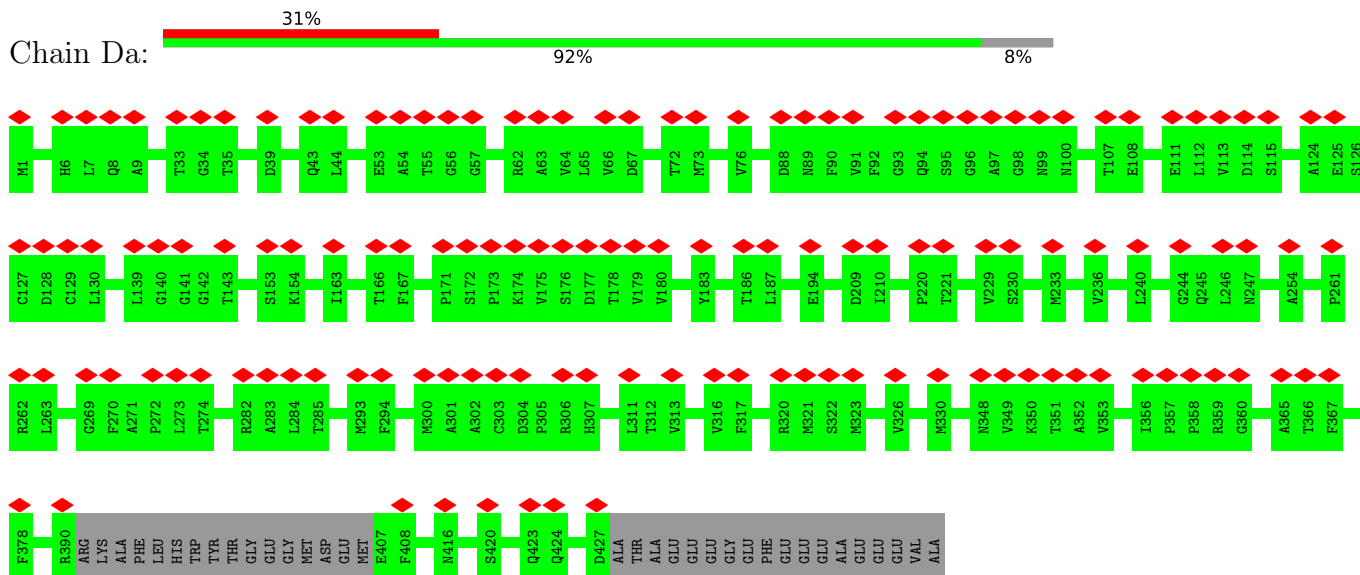
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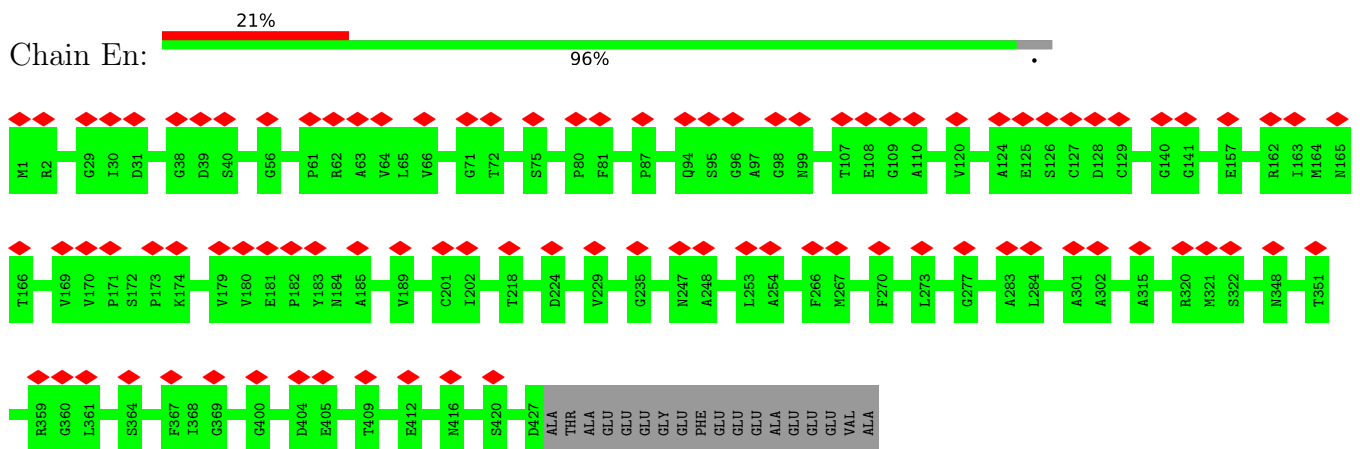
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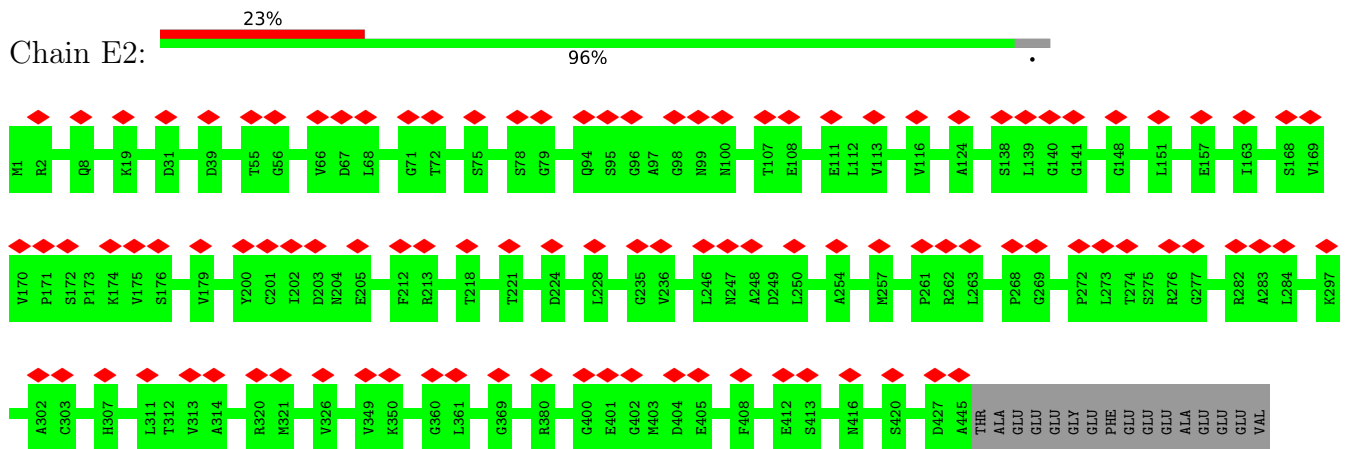
• Molecule 4: Tubulin beta-4B chain



• Molecule 4: Tubulin beta-4B chain

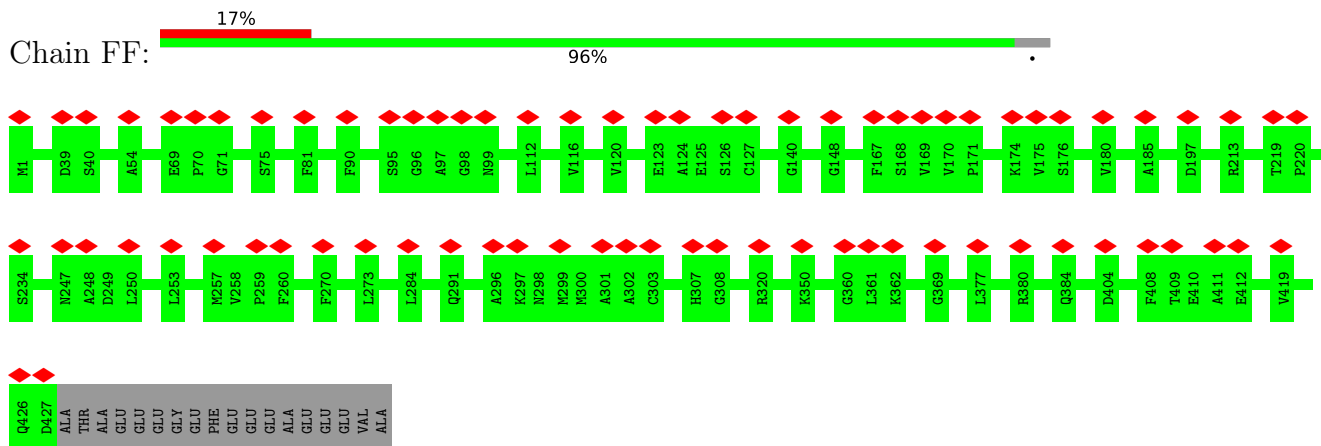


• Molecule 4: Tubulin beta-4B chain

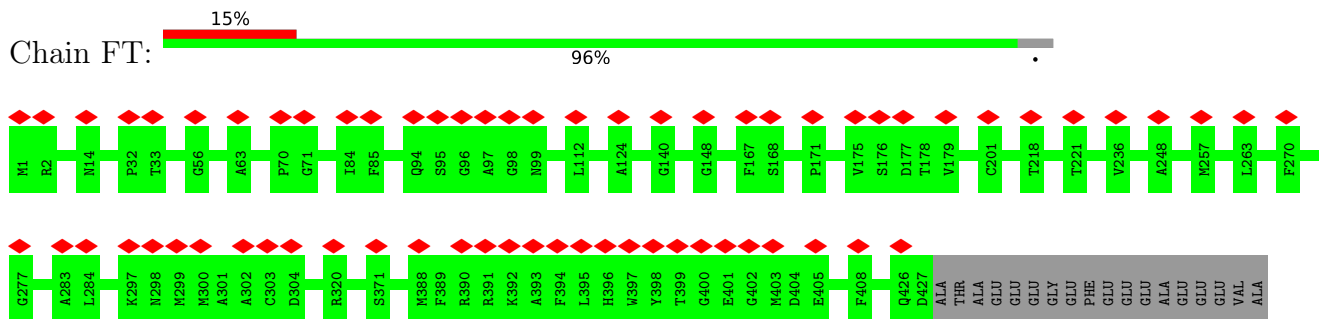


ALA

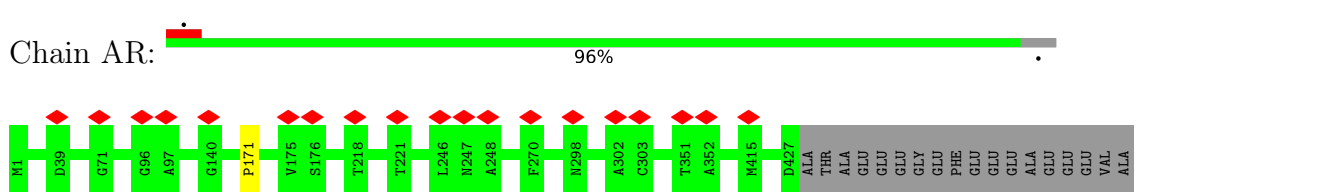
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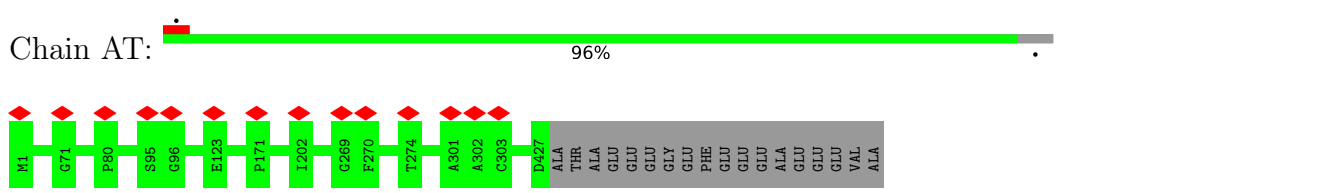
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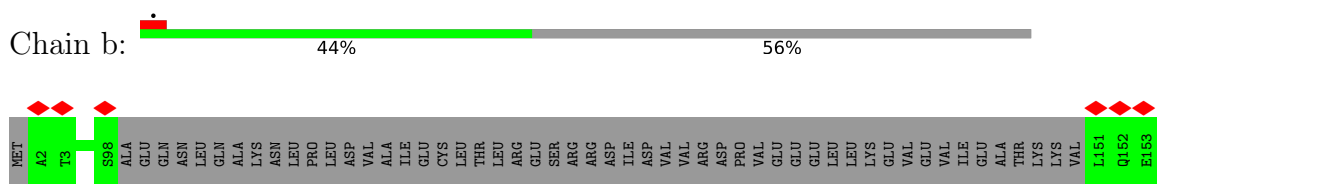
• Molecule 4: Tubulin beta-4B chain

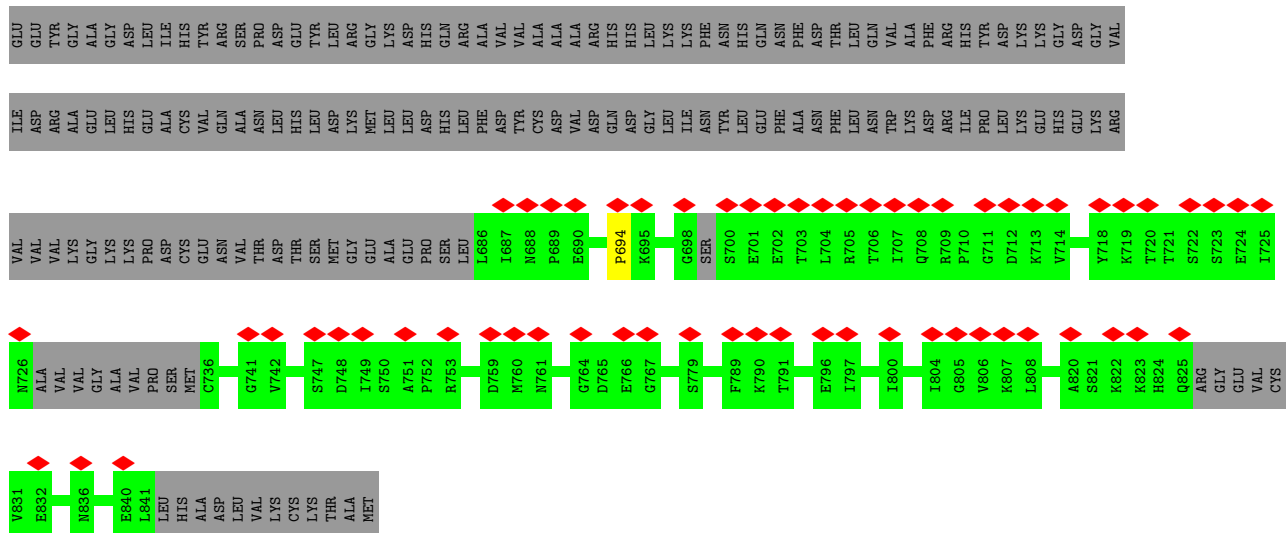


• Molecule 4: Tubulin beta-4B chain

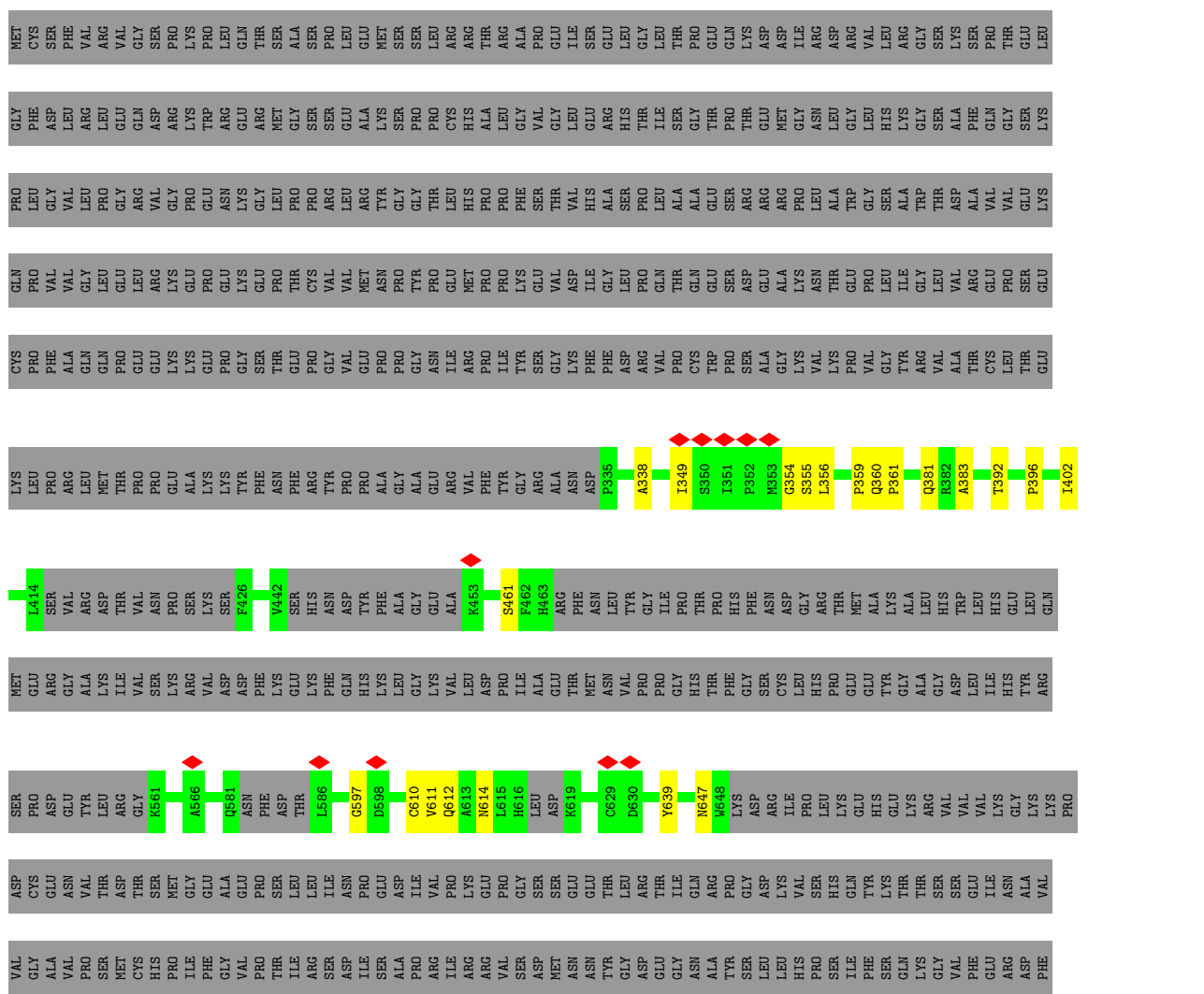


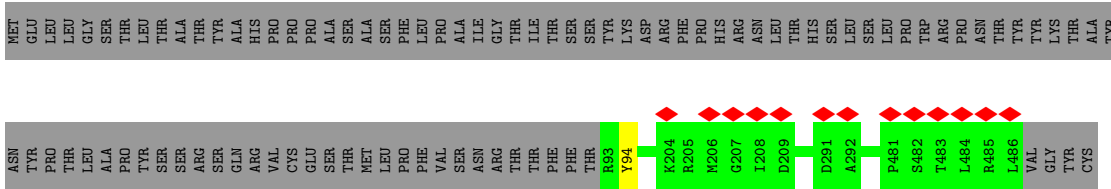
• Molecule 5: Tektin-2



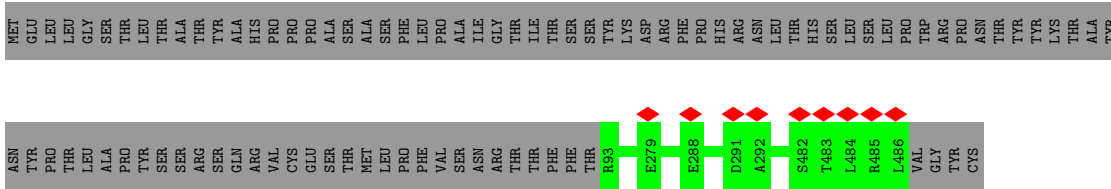
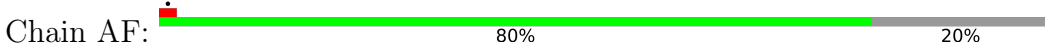


● Molecule 6: EF-hand domain-containing family member B

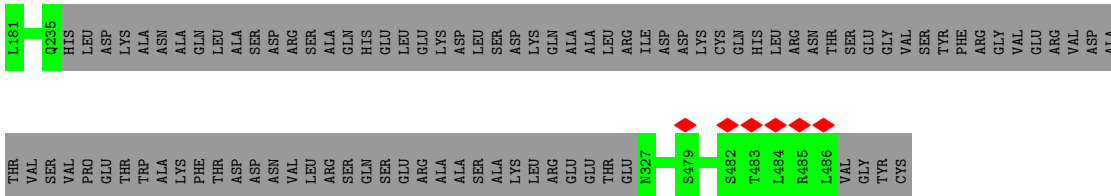
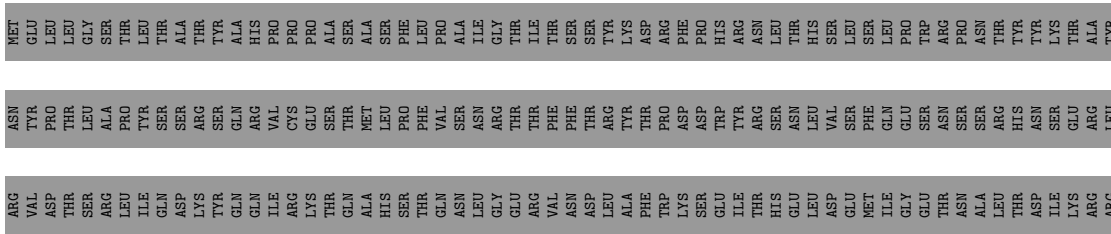




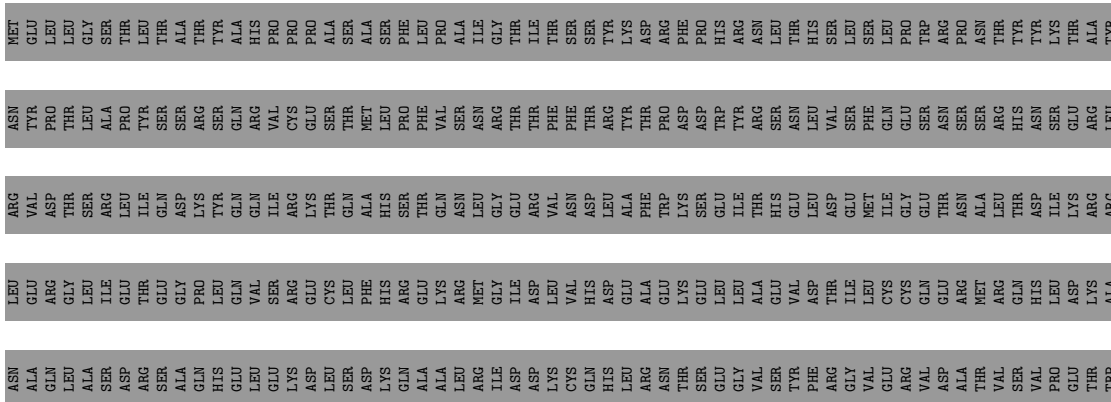
• Molecule 7: Tektin-3

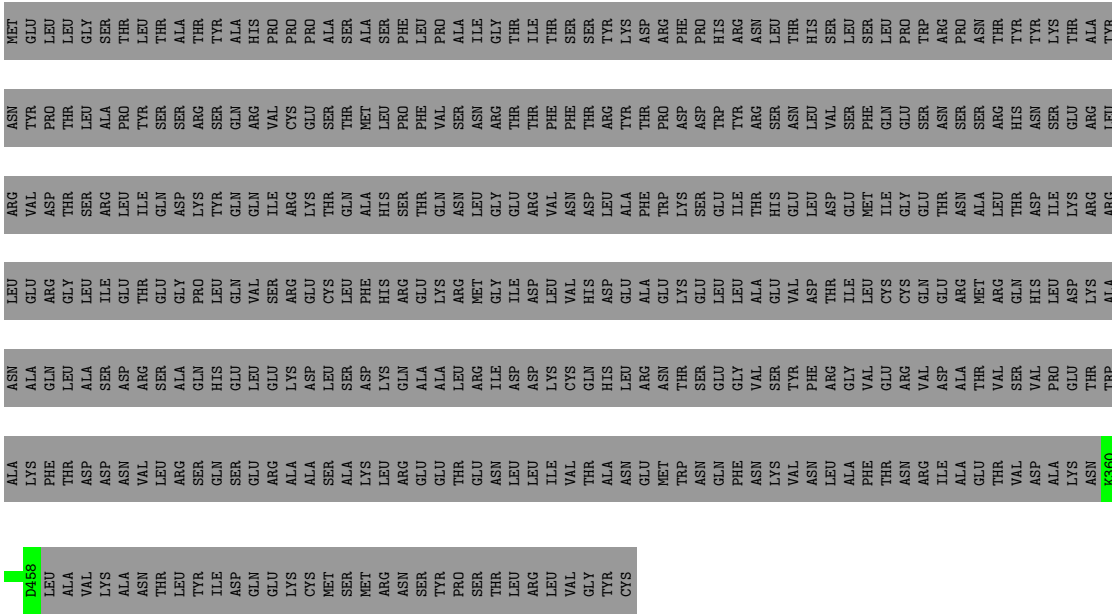


• Molecule 7: Tektin-3

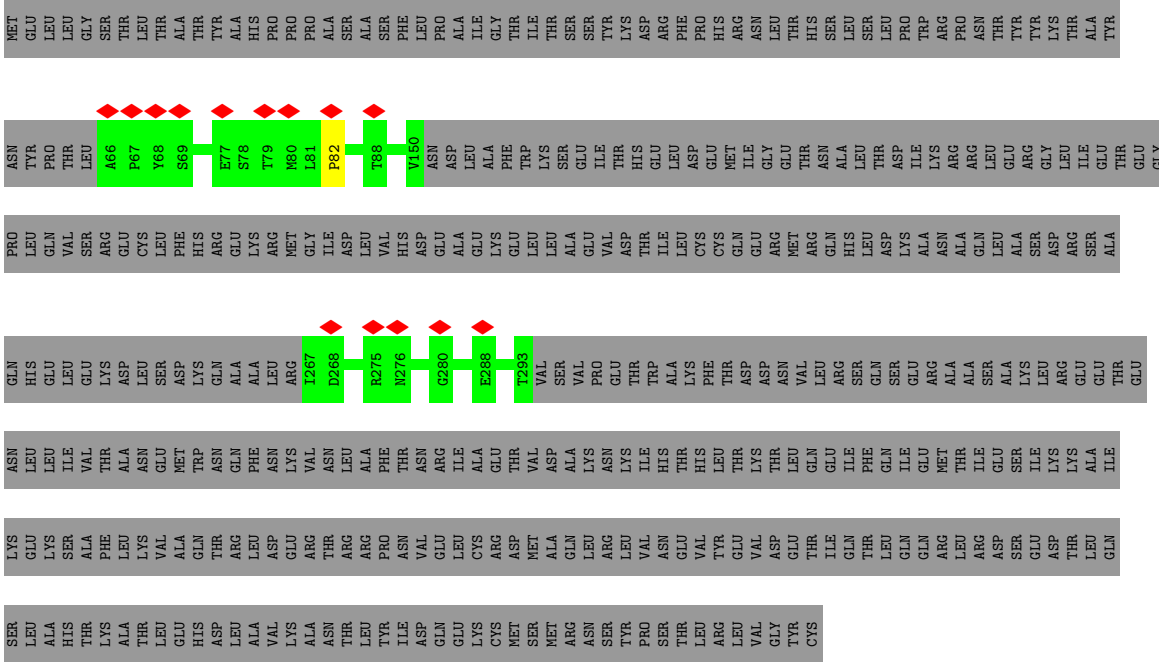


• Molecule 7: Tektin-3

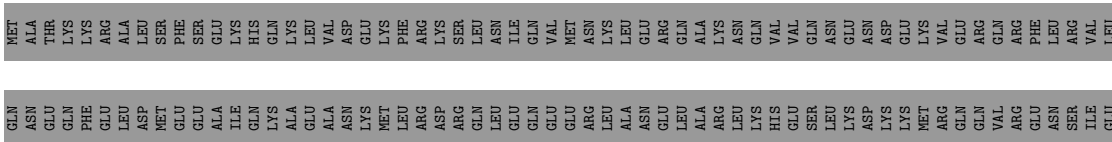


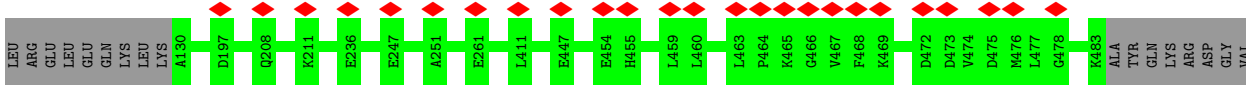


• Molecule 7: Tektin-3

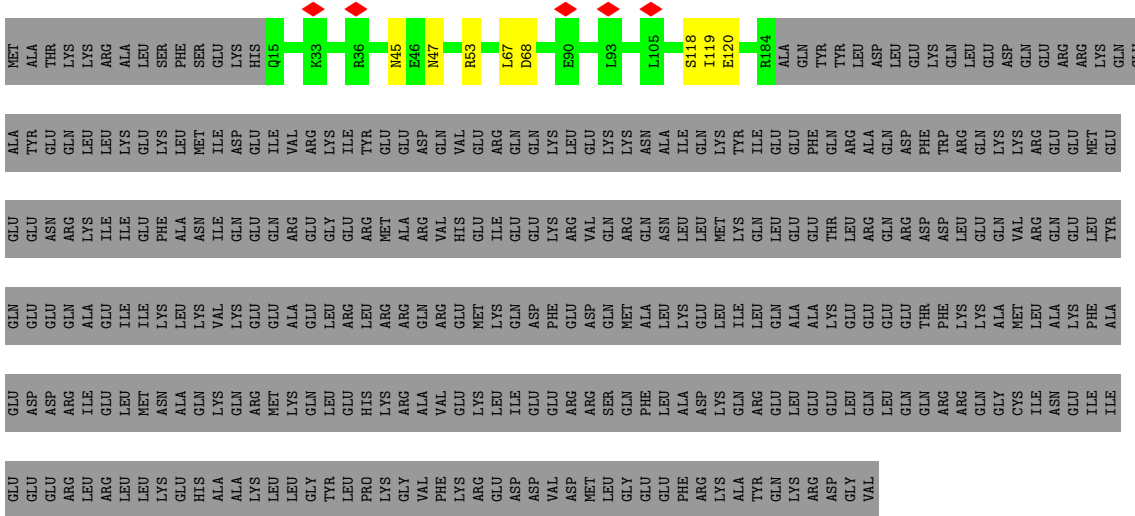


• Molecule 8: Meiosis-specific nuclear structural protein 1

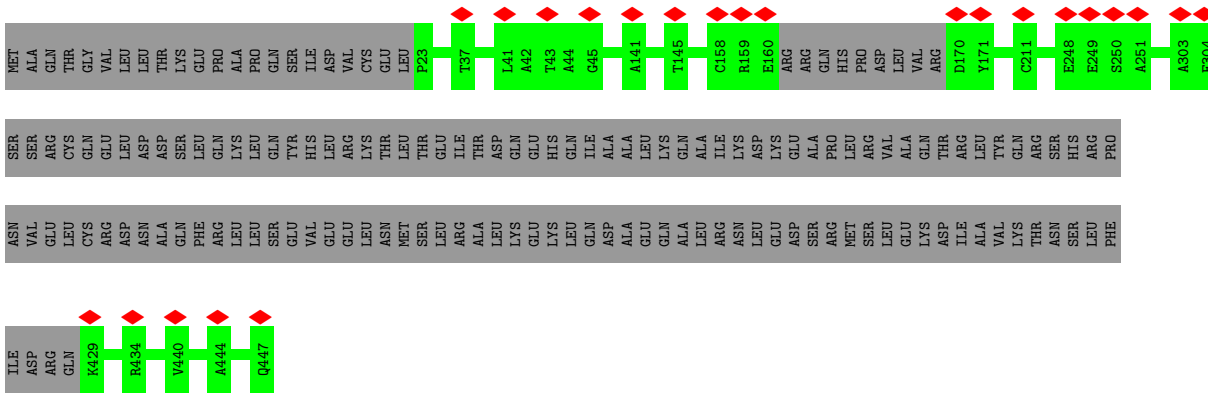




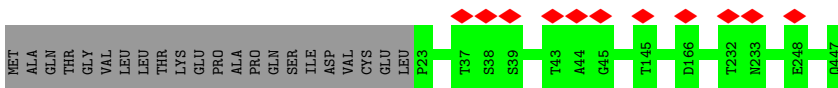
• Molecule 8: Meiosis-specific nuclear structural protein 1



• Molecule 9: Tektin-4

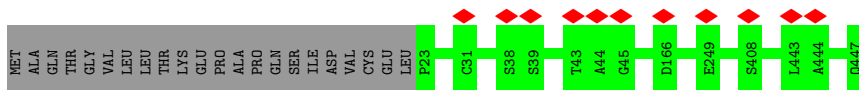


• Molecule 9: Tektin-4

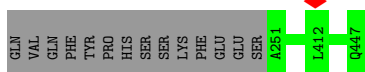
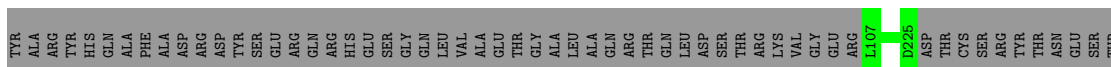
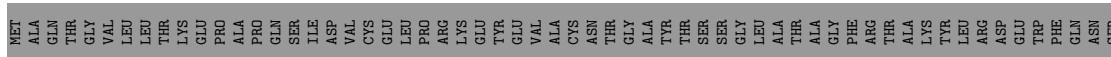


• Molecule 9: Tektin-4

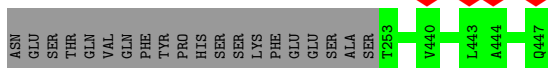
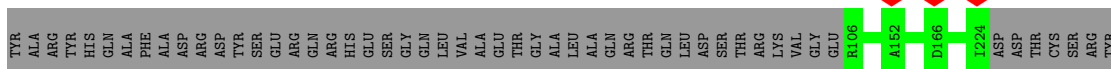
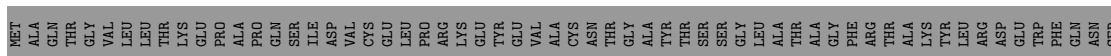




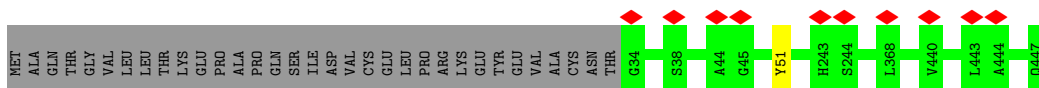
• Molecule 9: Tektin-4



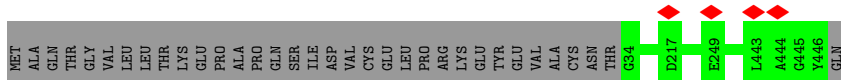
• Molecule 9: Tektin-4



• Molecule 9: Tektin-4

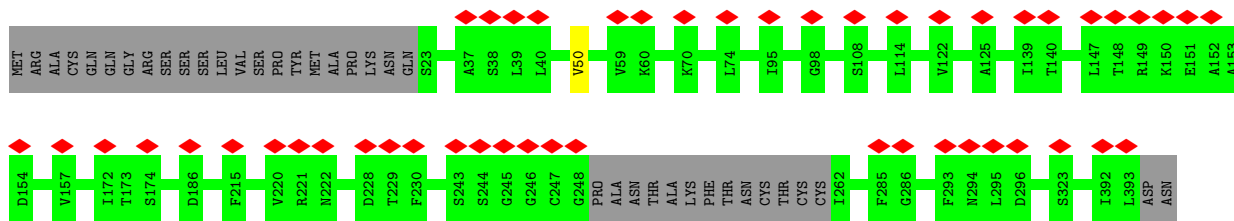
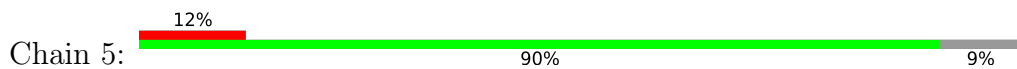


• Molecule 9: Tektin-4

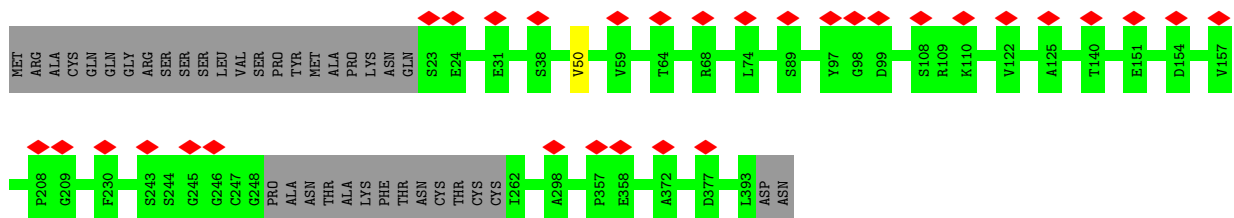
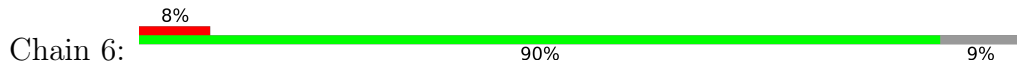


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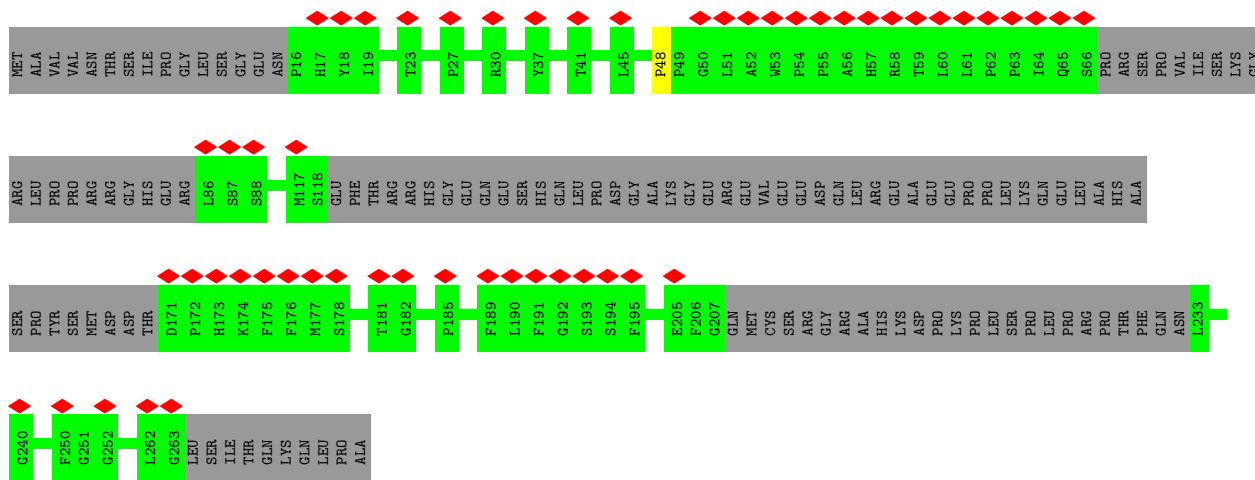




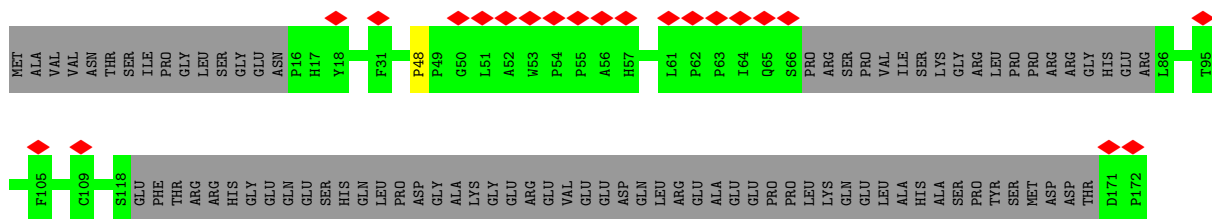
• Molecule 13: Nucleoside diphosphate kinase 7

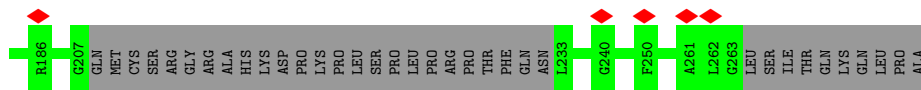


• Molecule 14: Protein FAM166B

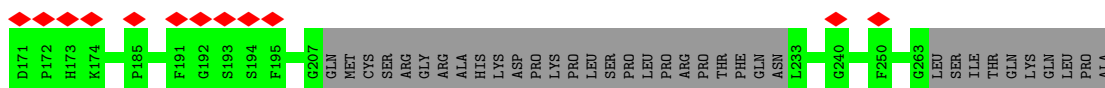
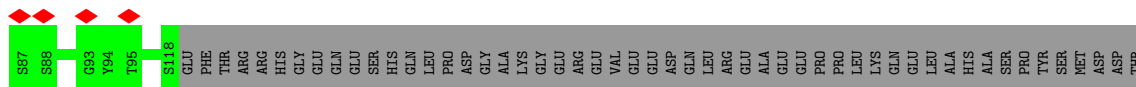
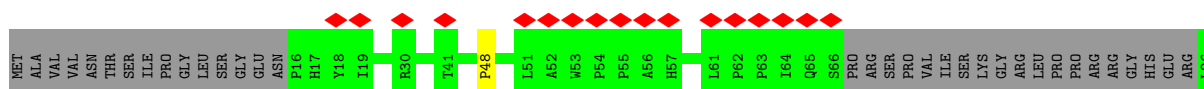


• Molecule 14: Protein FAM166B

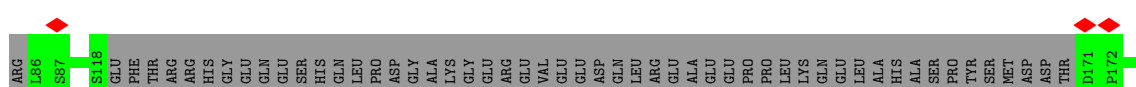




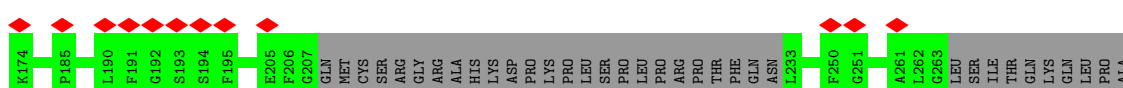
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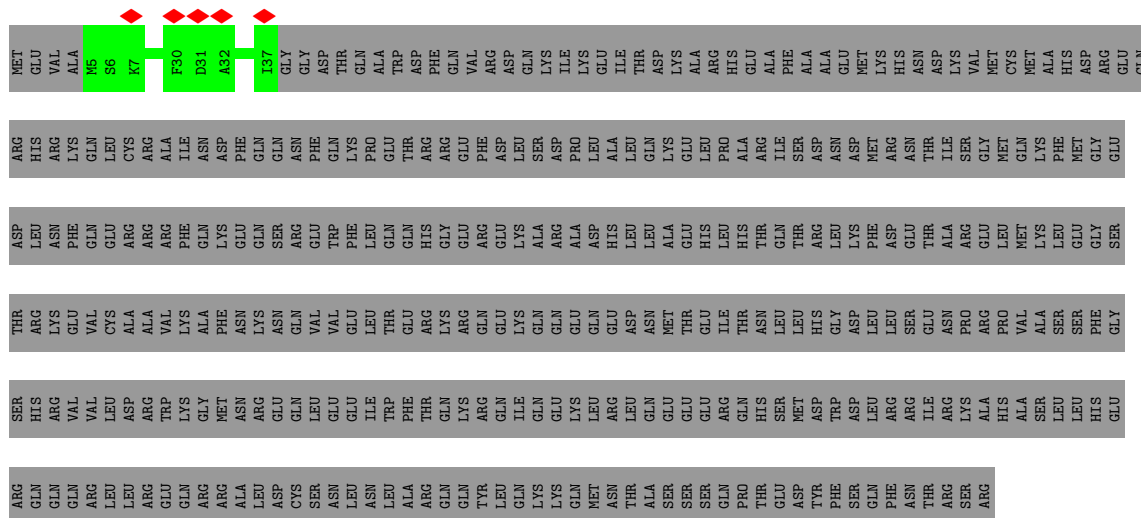
• Molecule 14: Protein FAM166B



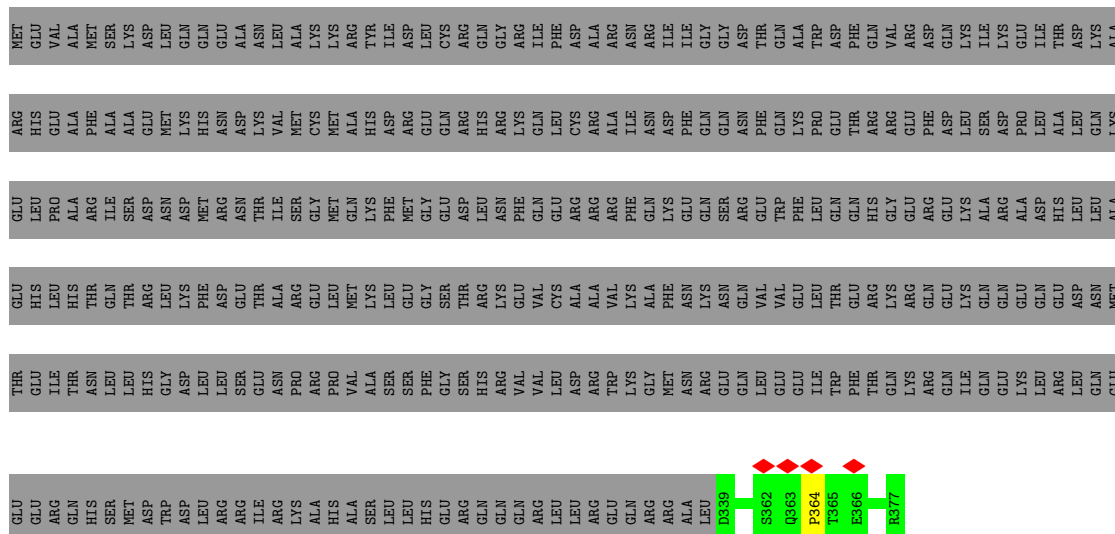
• Molecule 14: Protein FAM166B



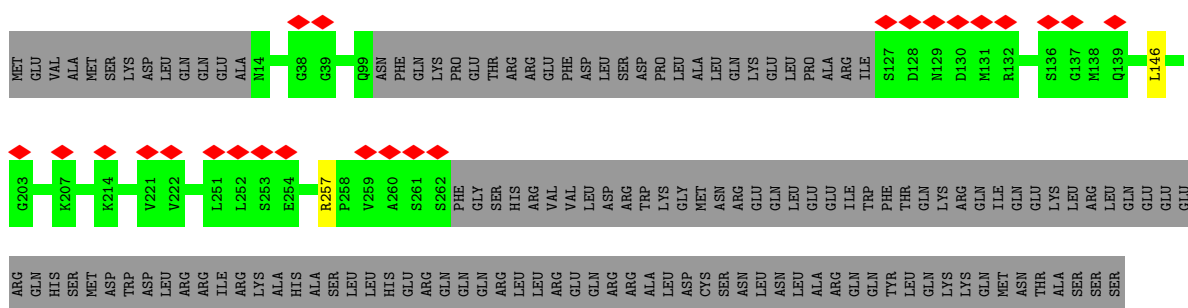
• Molecule 14: Protein FAM166B



• Molecule 16: RIB43A-like with coiled-coils protein 2



• Molecule 16: RIB43A-like with coiled-coils protein 2



GLN
PRO
THR
GLU
ALA
ASP
TYR
PHE
SER
GLN
PHE
ASN
THR
ARG
SER
ARG

• Molecule 16: RIB43A-like with coiled-coils protein 2

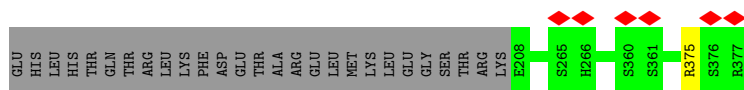
Chain EX:



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

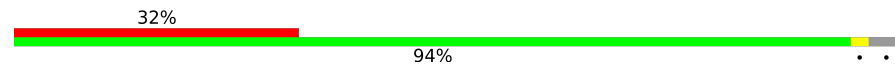
ARG
HIS
GLU
ALA
PHE
ALA
GLU
MET
LEU
GLN
HIS
GLN
HIS
ASN
ASP
LYS
VAL
MET
SER
CYS
MET
LEU
LYS
ARG
ALA
HIS
ASP
MET
ARG
GLU
GLU
CYS
ARG
HIS
ARG
GLY
PHE
LYS
ARG
ILE
GLN
ASN
ARG
ILE
ASP
PHE
ILE
GLY
GLY

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

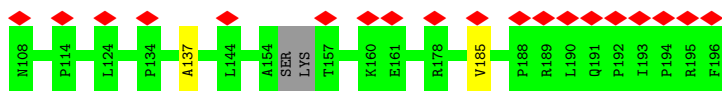


• Molecule 17: Cilia- and flagella-associated protein 107

Chain 8:



MET
ALA
MET
LEU
SER
THR
S7
V8
V9
P10
E11
A12
F13
S14
T15
P16
G17
M18
Q19
I20
SER
E21
K22
K23
Y24
S25
L30
G31
N32
K42
A43
I44
D45
H46
T47
P48
V57
P58
M59
P60
D61
H62
R63
P64
D65
S68
M76
E77
G78
L79
P80
Y81
K82
I85



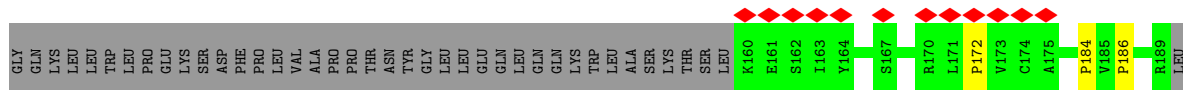
• Molecule 17: Cilia- and flagella-associated protein 107

Chain 9:



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

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

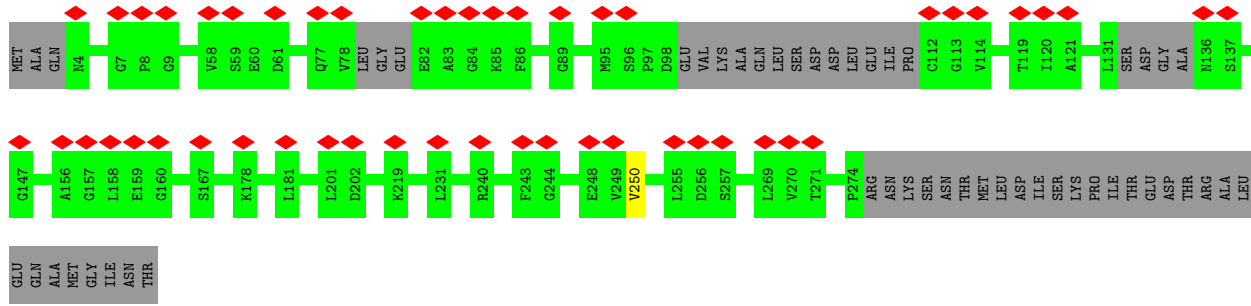


GLN
PRO
ILE
PRO
R196
F196

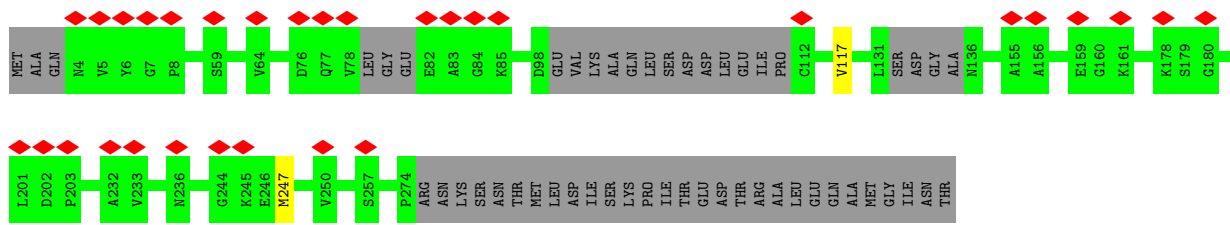
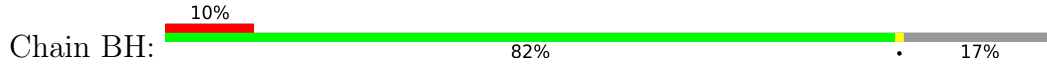
• Molecule 18: Cilia- and flagella-associated protein 161

Chain Ay:

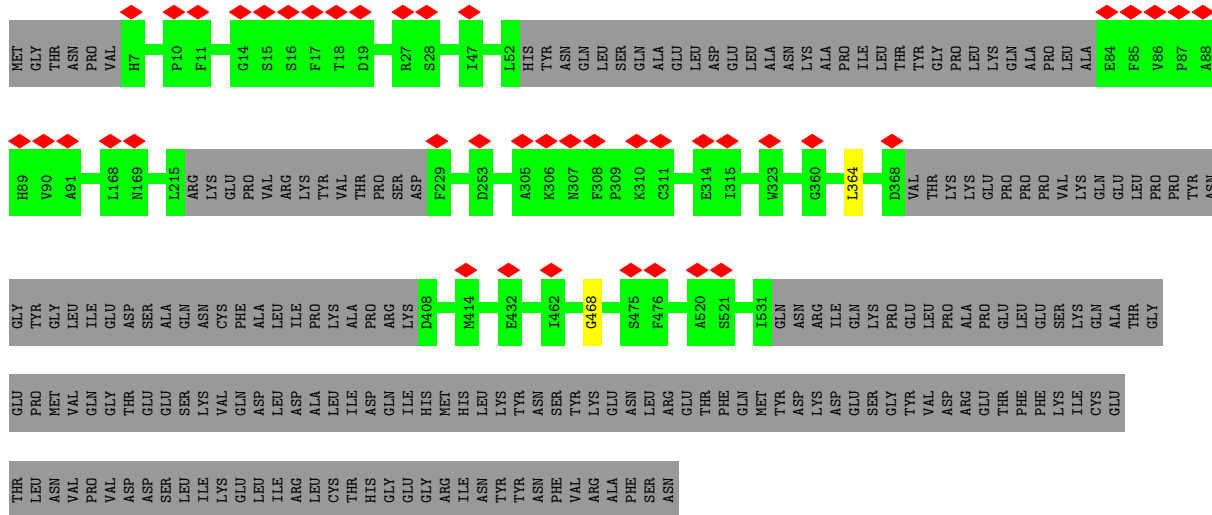




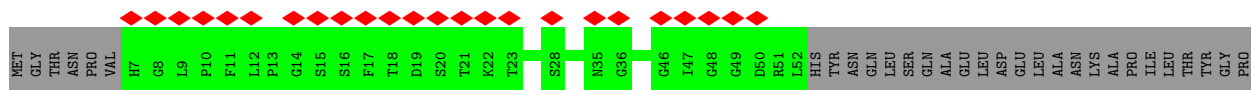
• Molecule 18: Cilia- and flagella-associated protein 161

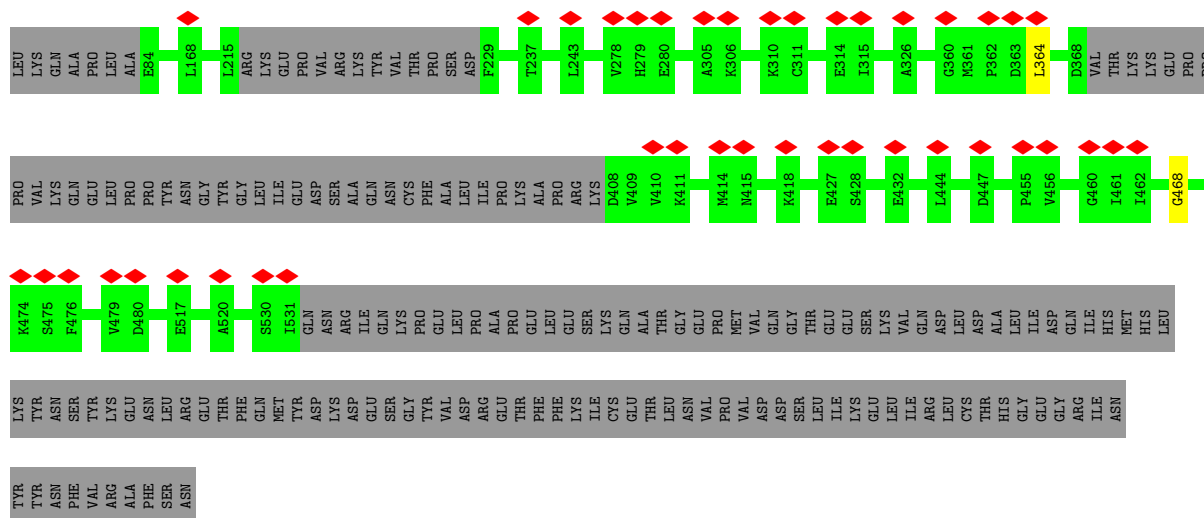


• Molecule 19: EF-hand domain-containing protein 1

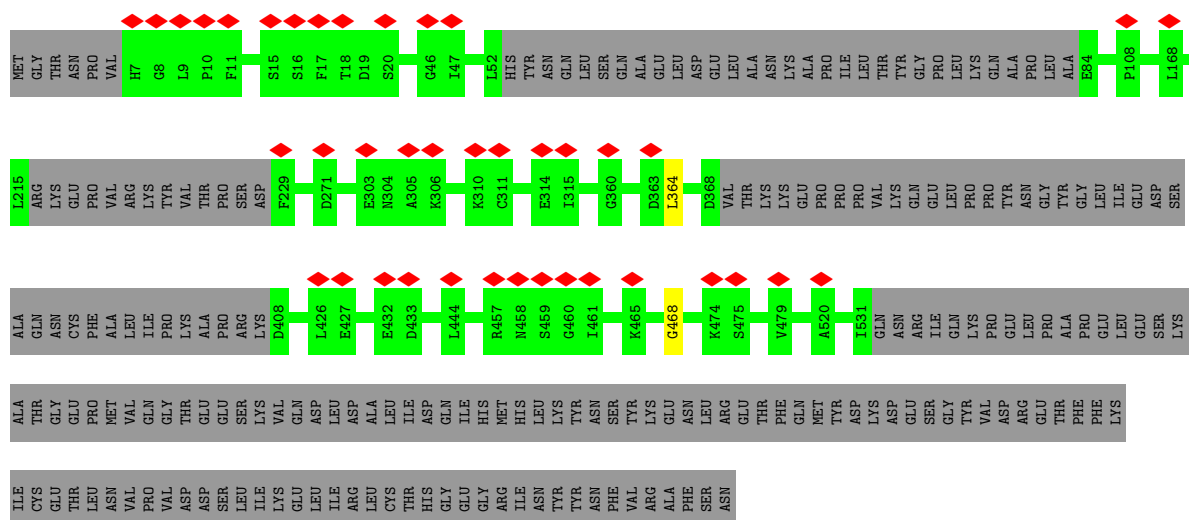


• Molecule 19: EF-hand domain-containing protein 1

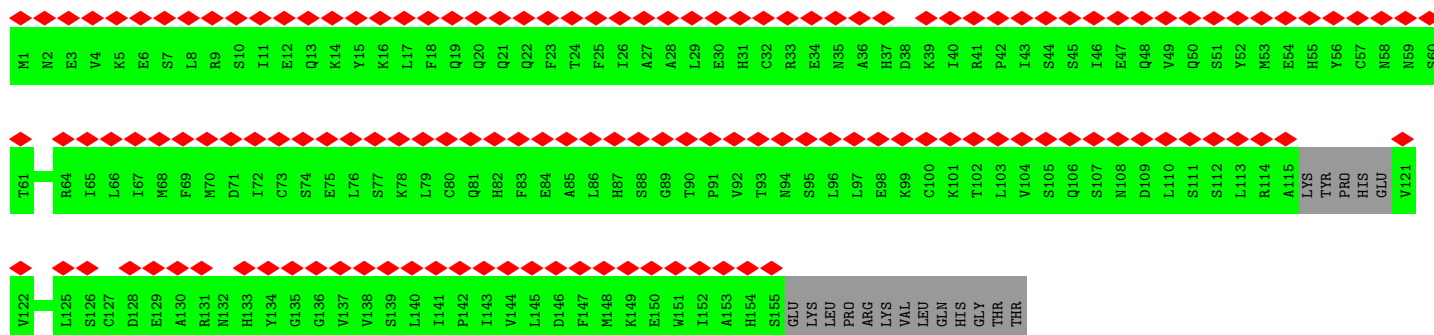
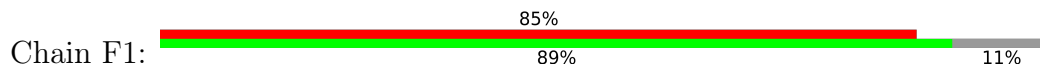




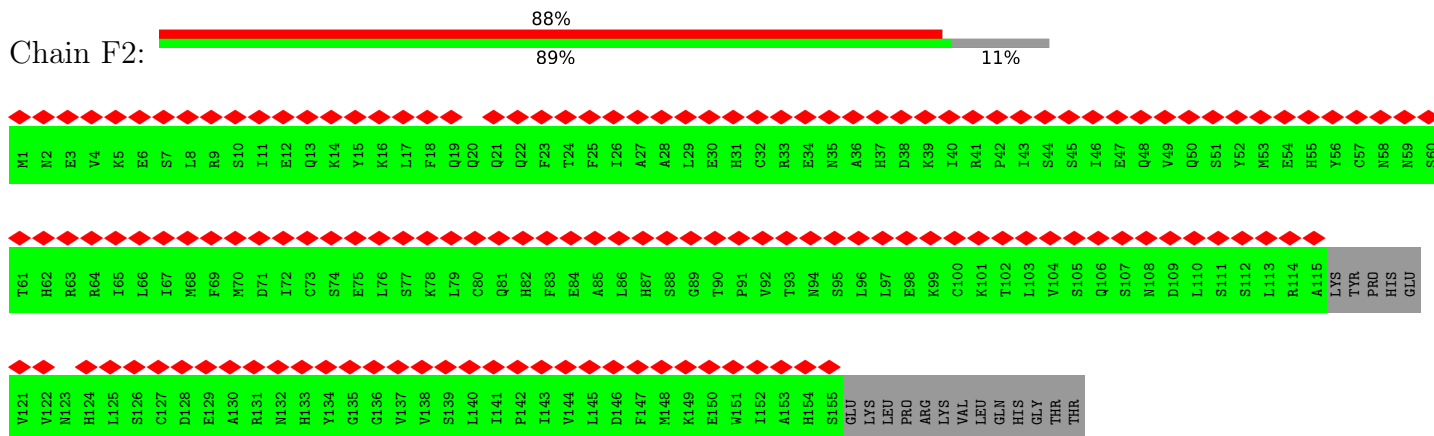
• Molecule 19: EF-hand domain-containing protein 1



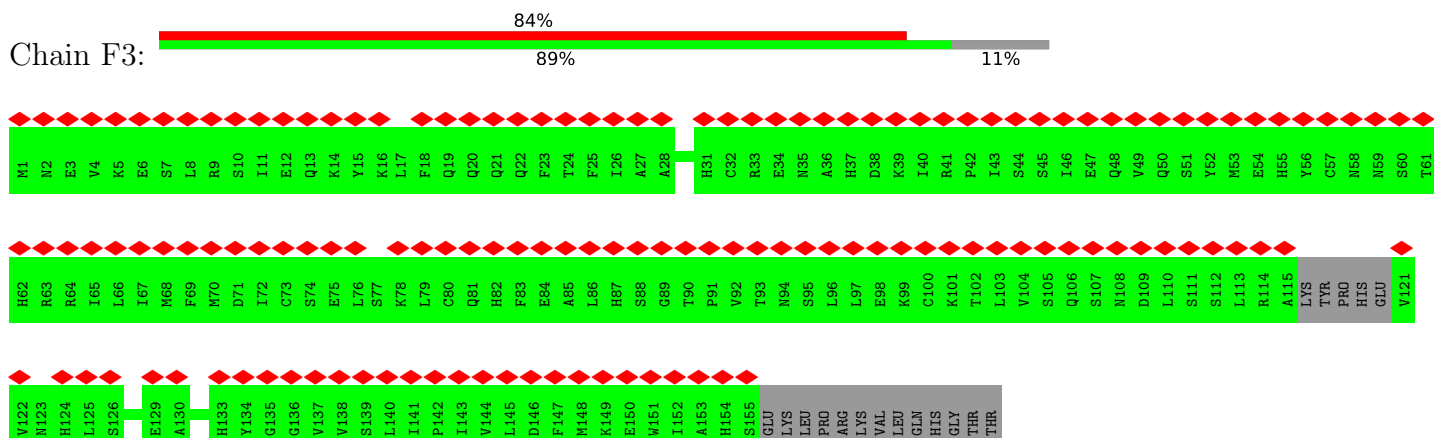
• Molecule 20: Sperm acrosome-associated protein 9



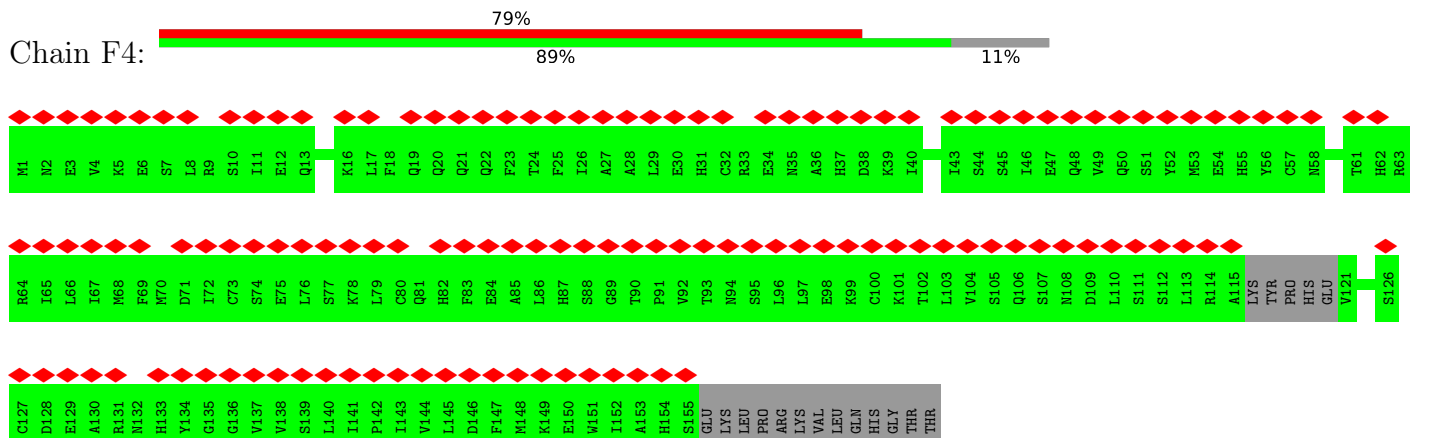
• Molecule 20: Sperm acrosome-associated protein 9



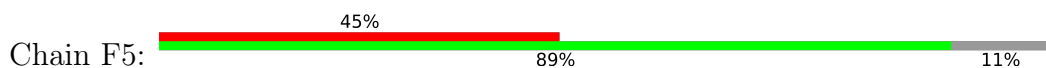
• Molecule 20: Sperm acrosome-associated protein 9

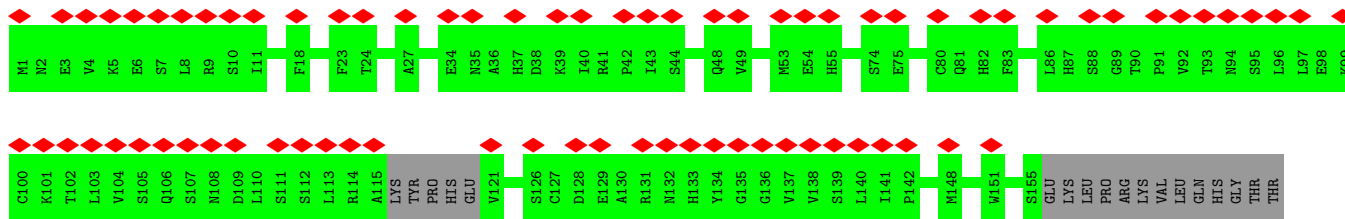


• Molecule 20: Sperm acrosome-associated protein 9

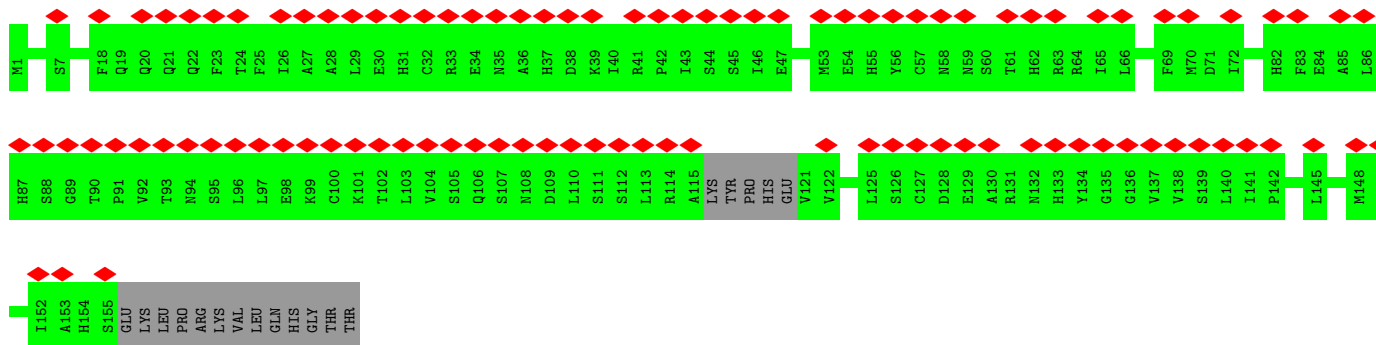
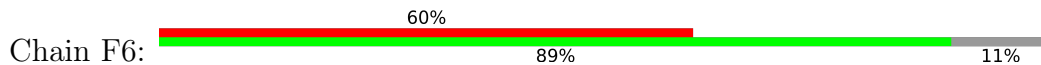


• Molecule 20: Sperm acrosome-associated protein 9

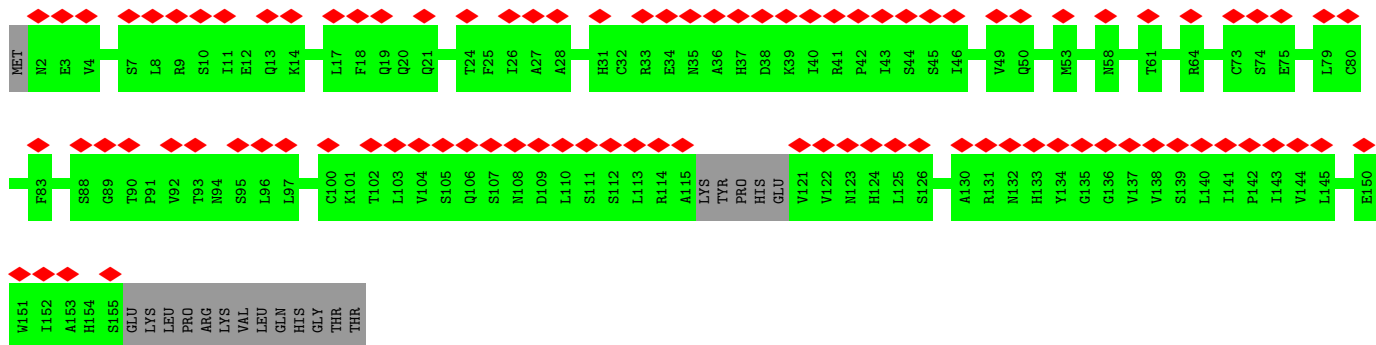
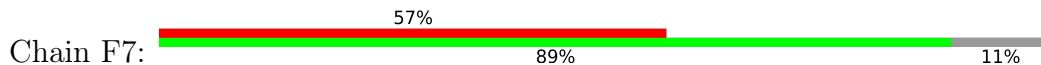




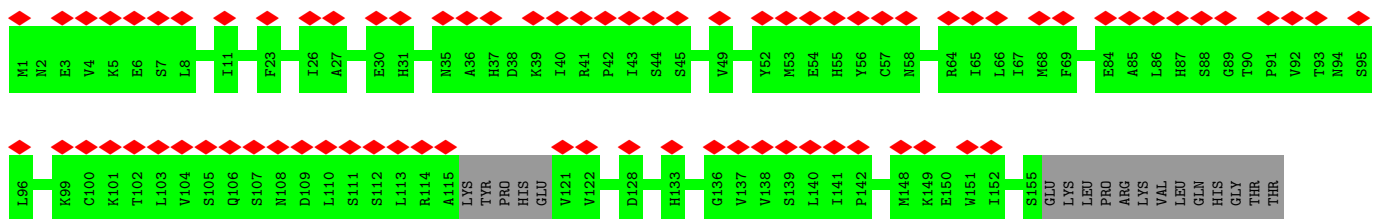
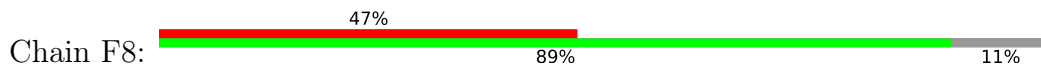
• Molecule 20: Sperm acrosome-associated protein 9



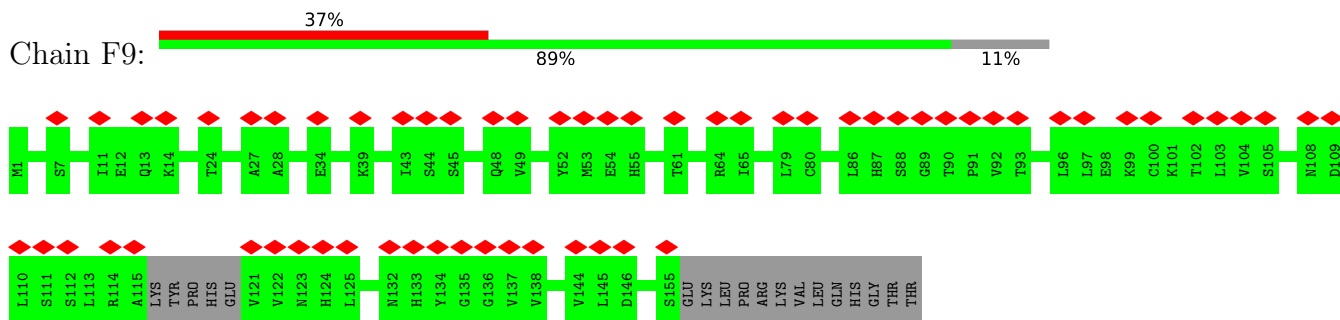
• Molecule 20: Sperm acrosome-associated protein 9



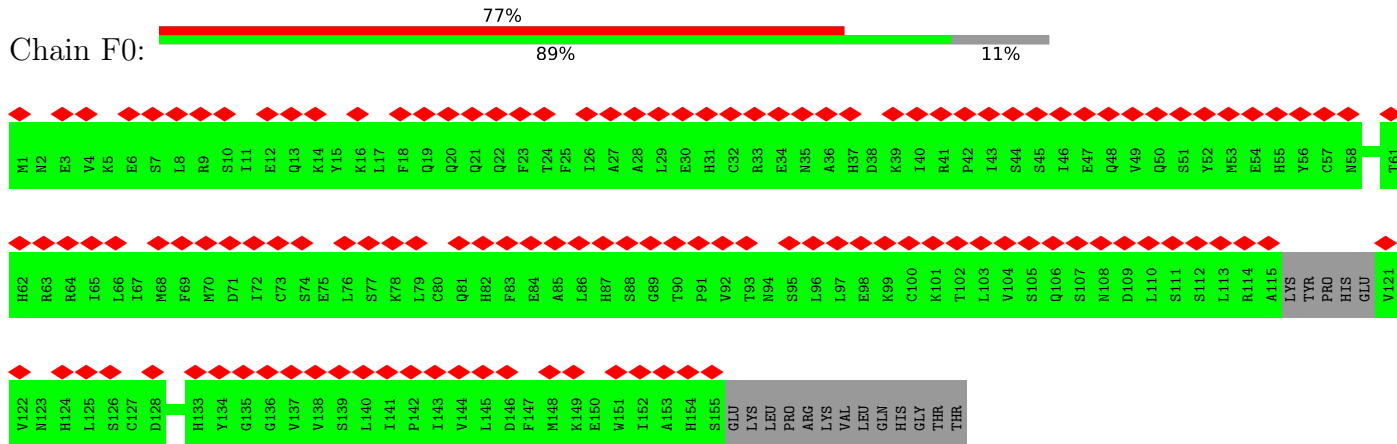
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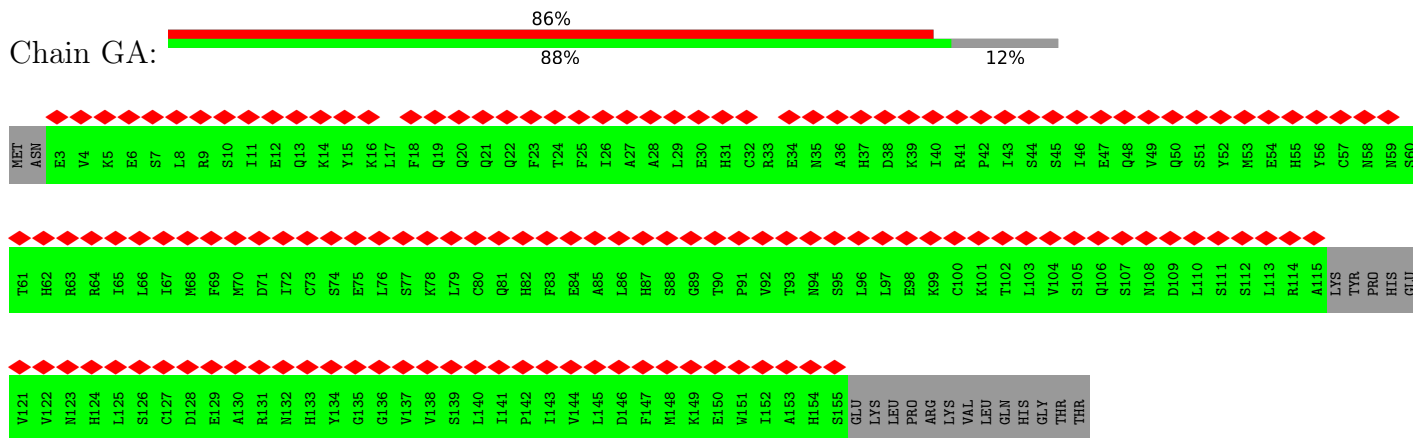
• Molecule 20: Sperm acrosome-associated protein 9



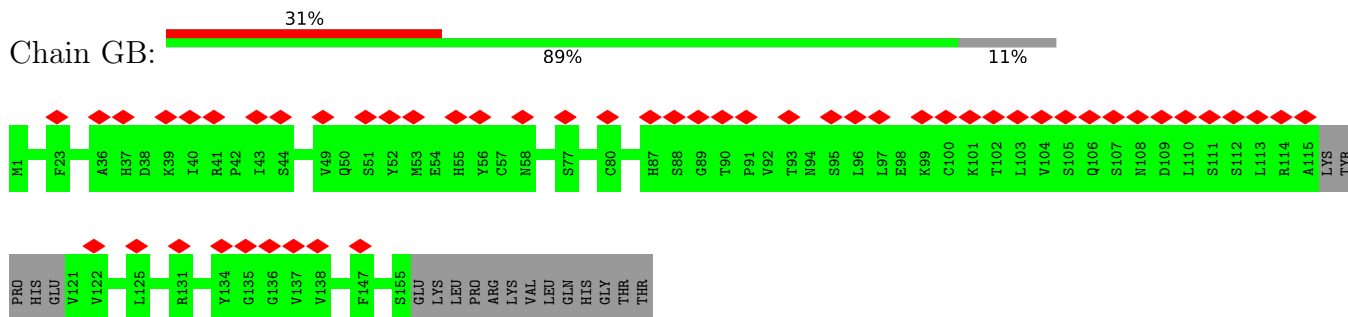
• Molecule 20: Sperm acrosome-associated protein 9



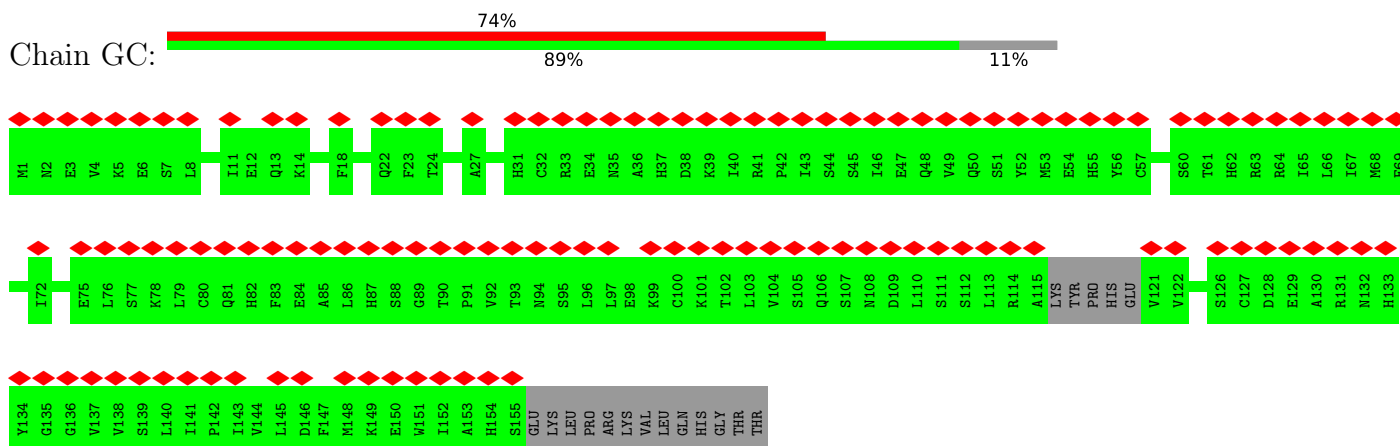
• Molecule 20: Sperm acrosome-associated protein 9



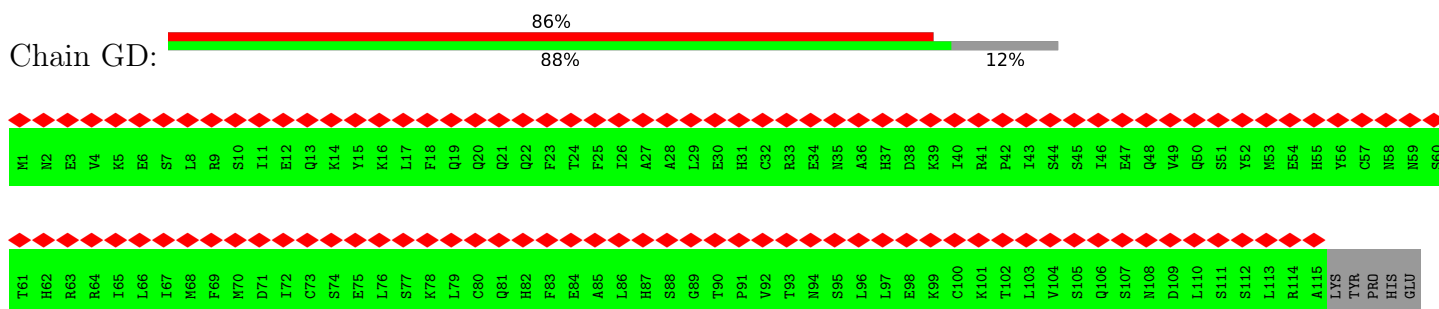
• Molecule 20: Sperm acrosome-associated protein 9



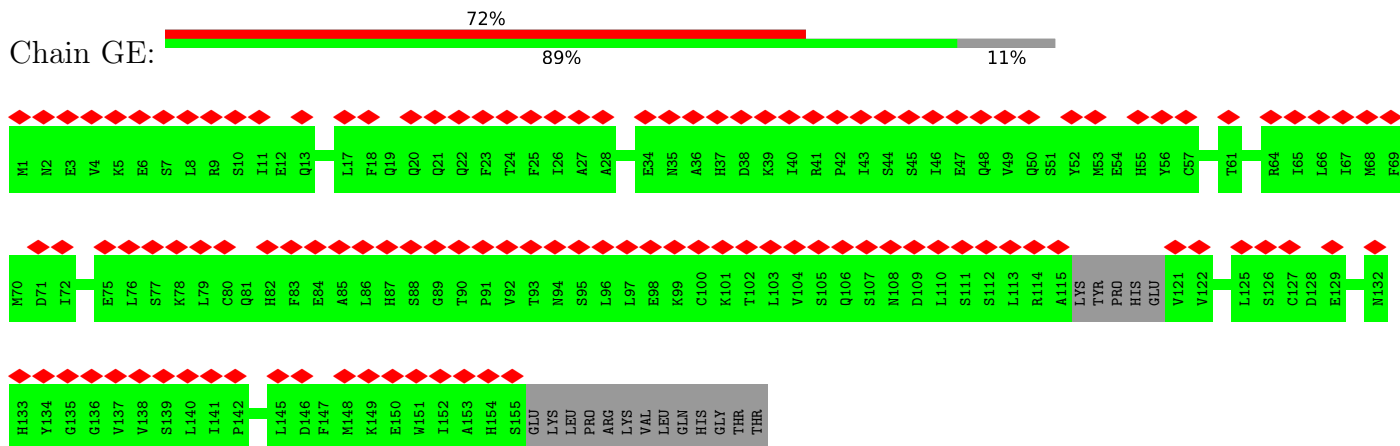
- Molecule 20: Sperm acrosome-associated protein 9



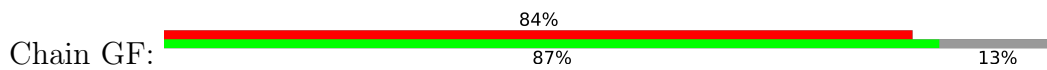
- Molecule 20: Sperm acrosome-associated protein 9

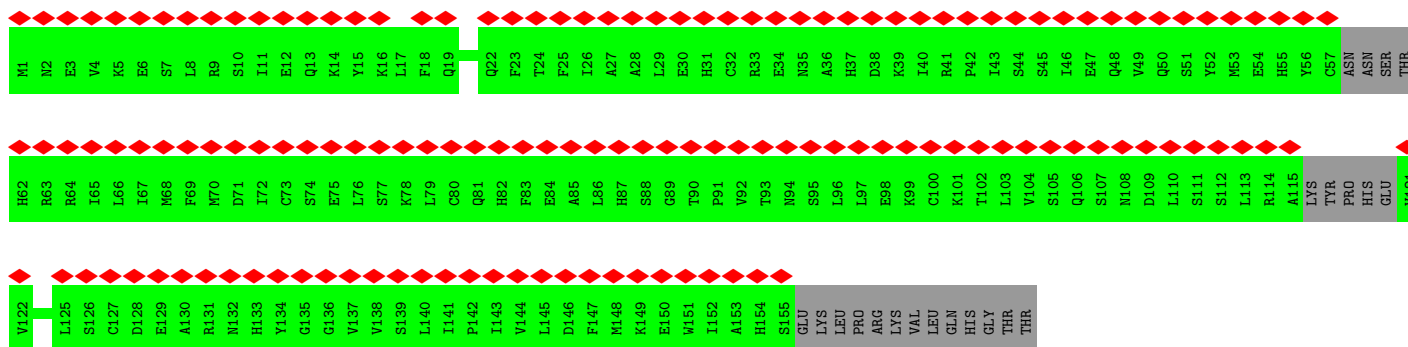


- Molecule 20: Sperm acrosome-associated protein 9

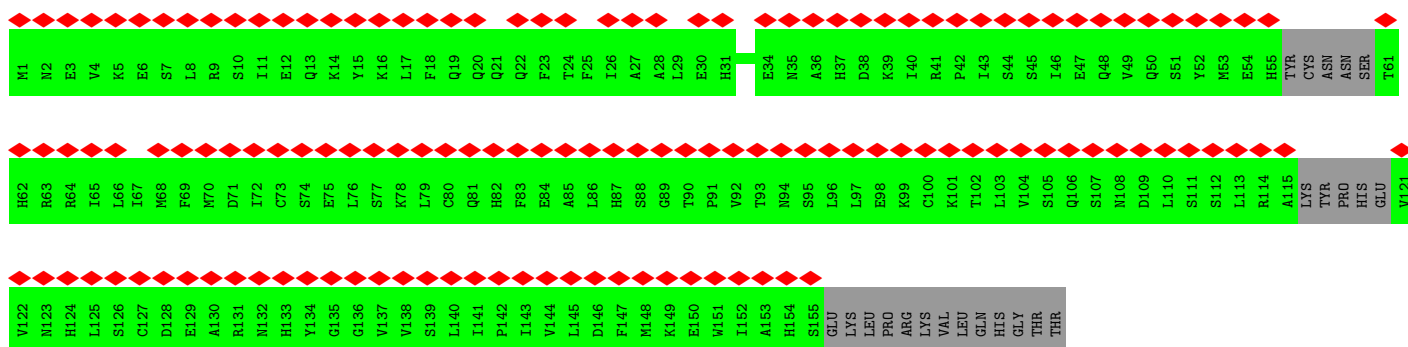
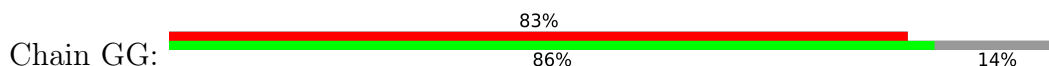


- Molecule 20: Sperm acrosome-associated protein 9

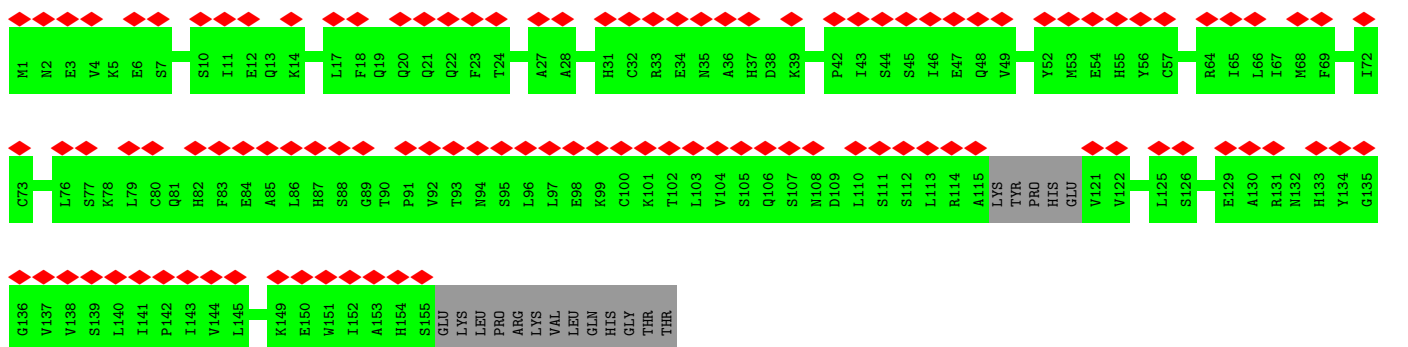
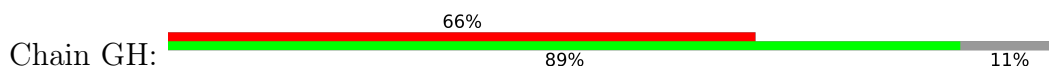




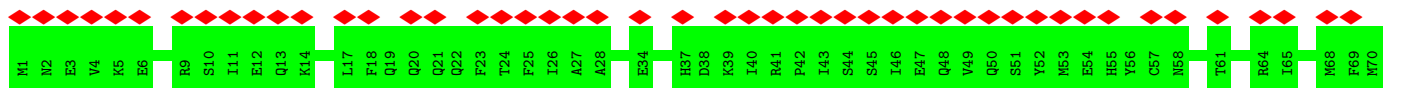
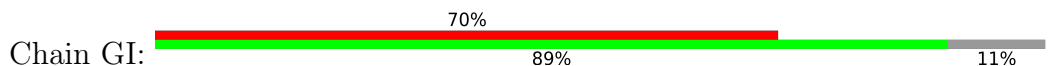
• Molecule 20: Sperm acrosome-associated protein 9

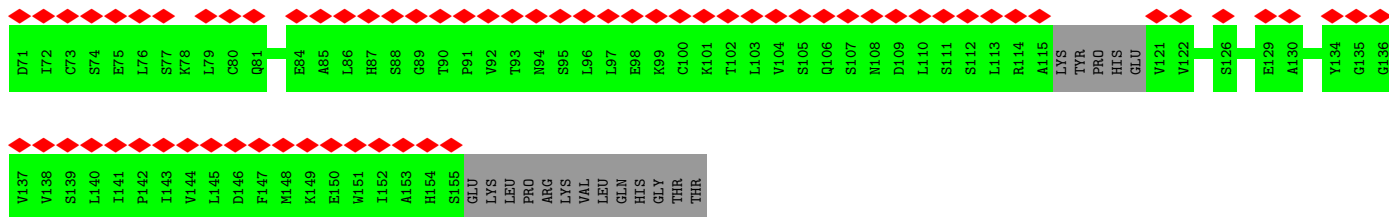


• Molecule 20: Sperm acrosome-associated protein 9

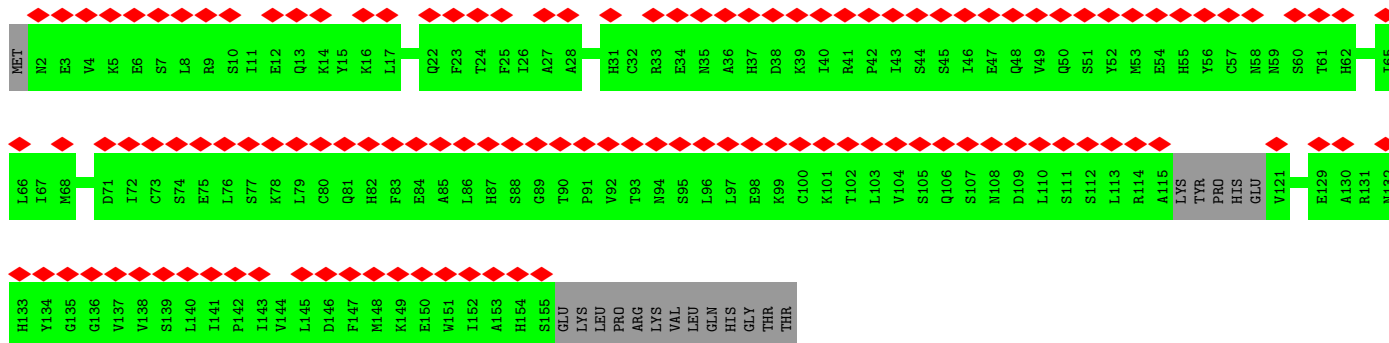
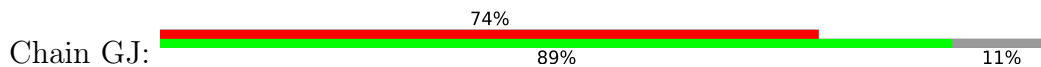


• Molecule 20: Sperm acrosome-associated protein 9

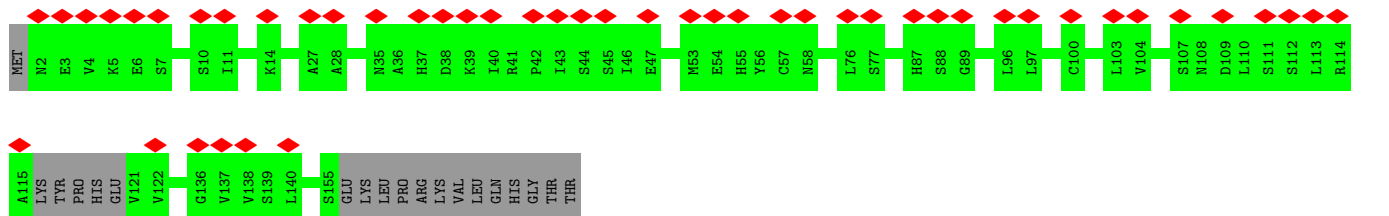
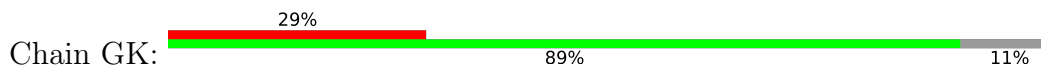




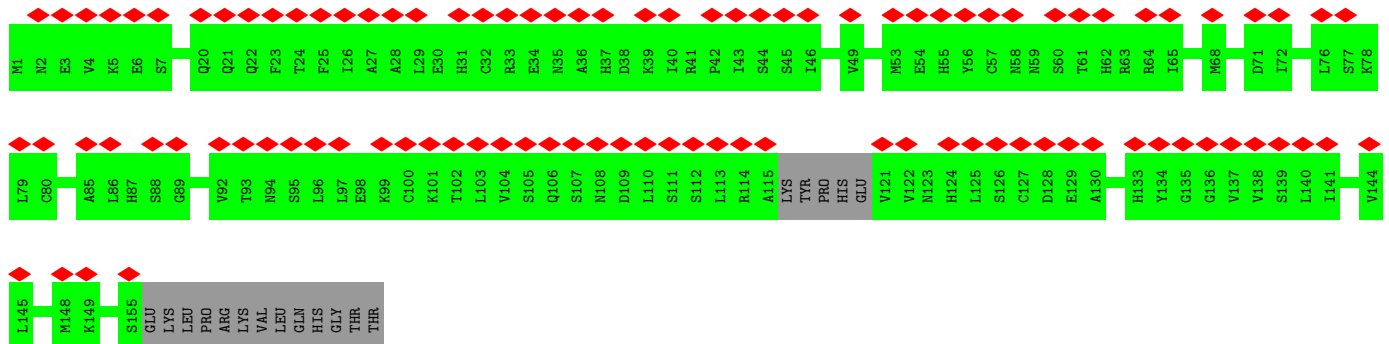
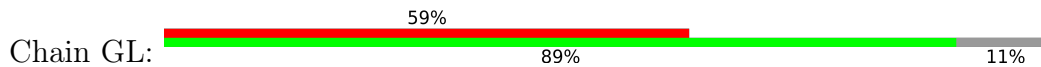
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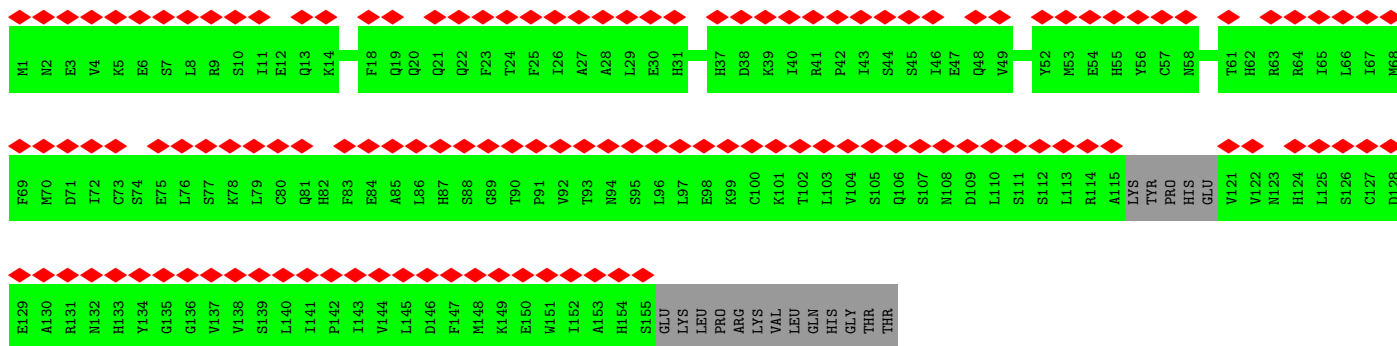
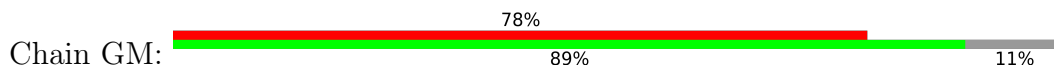
• Molecule 20: Sperm acrosome-associated protein 9



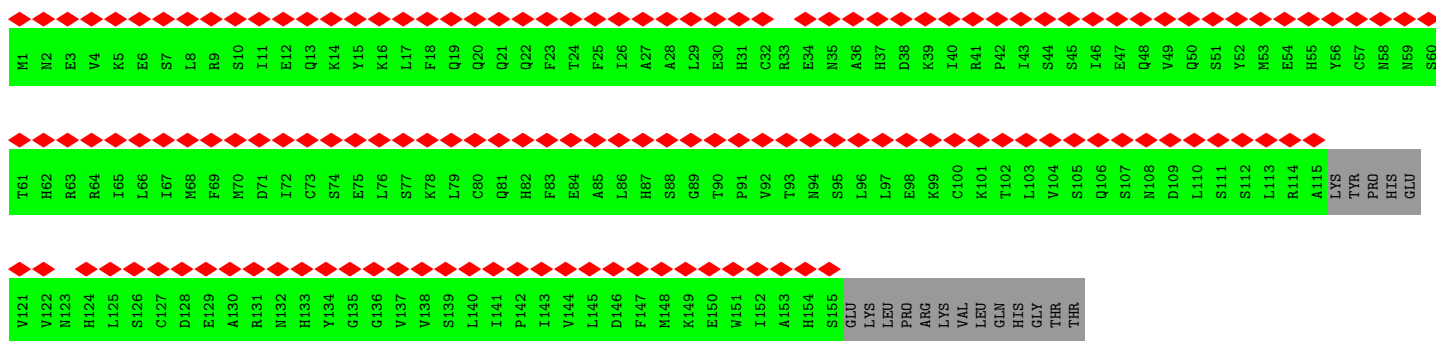
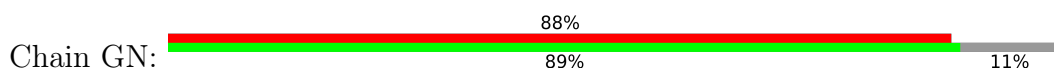
• Molecule 20: Sperm acrosome-associated protein 9



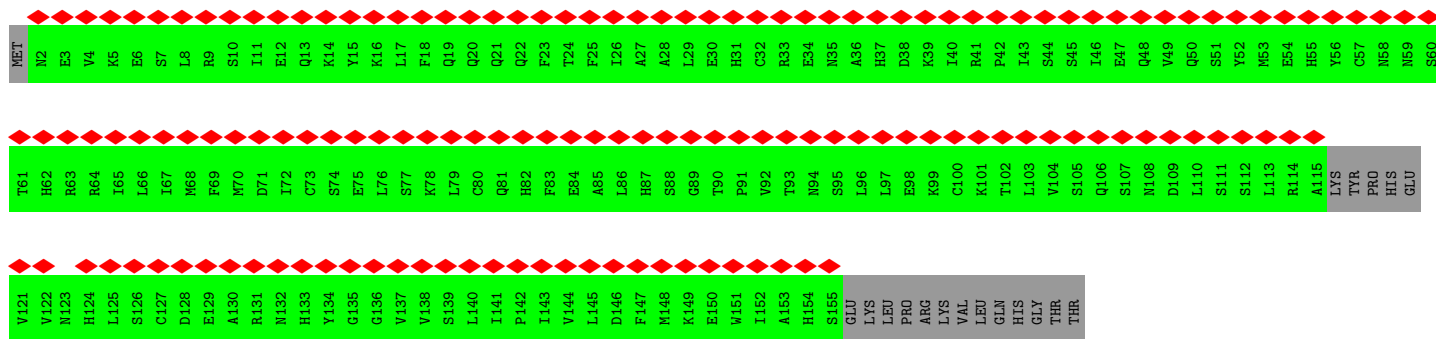
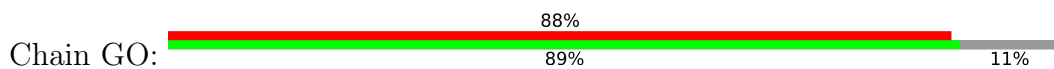
• Molecule 20: Sperm acrosome-associated protein 9



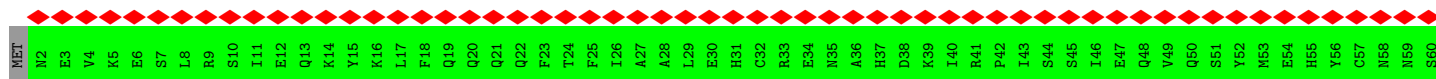
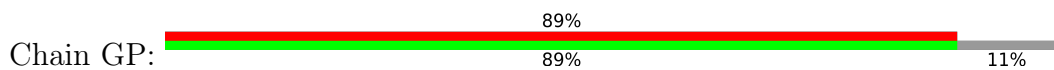
• Molecule 20: Sperm acrosome-associated protein 9



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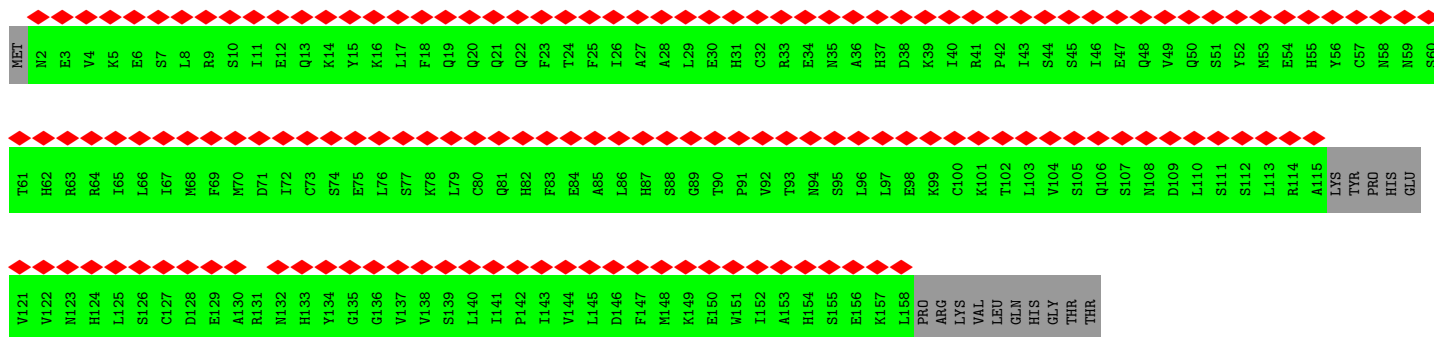
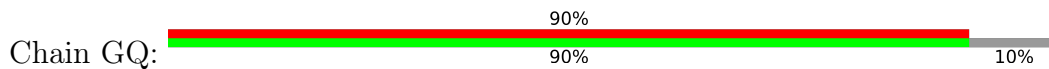


• Molecule 20: Sperm acrosome-associated protein 9

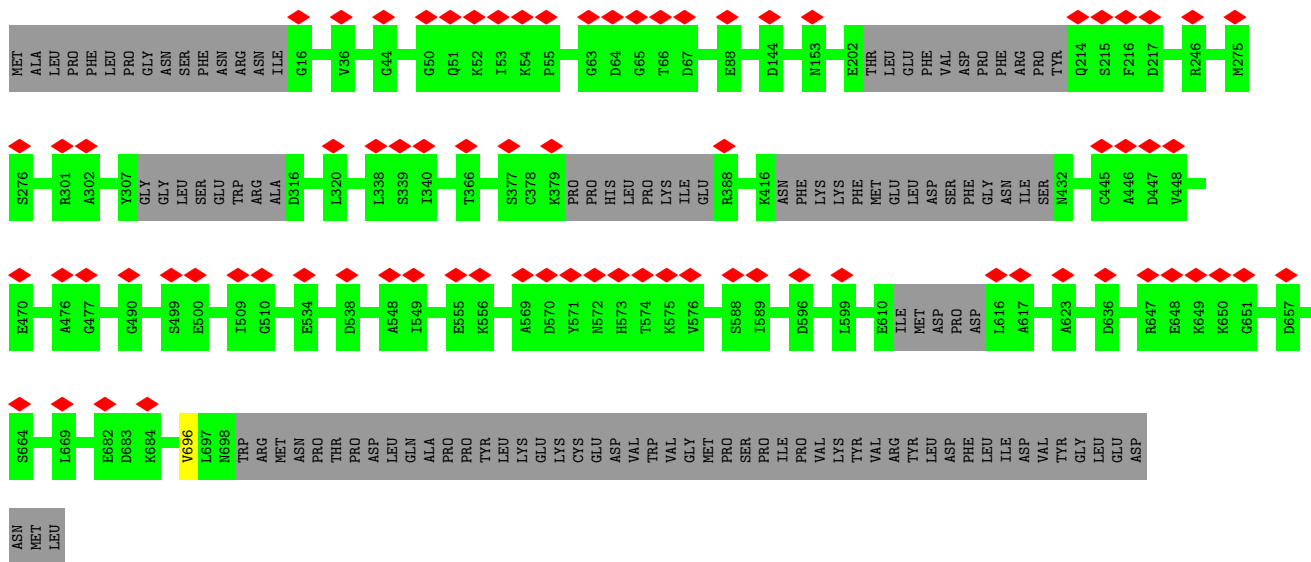
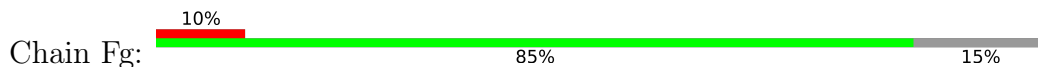




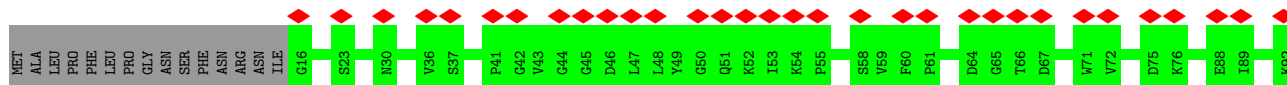
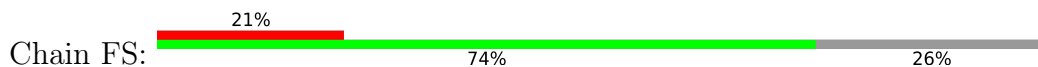
• Molecule 20: Sperm acrosome-associated protein 9

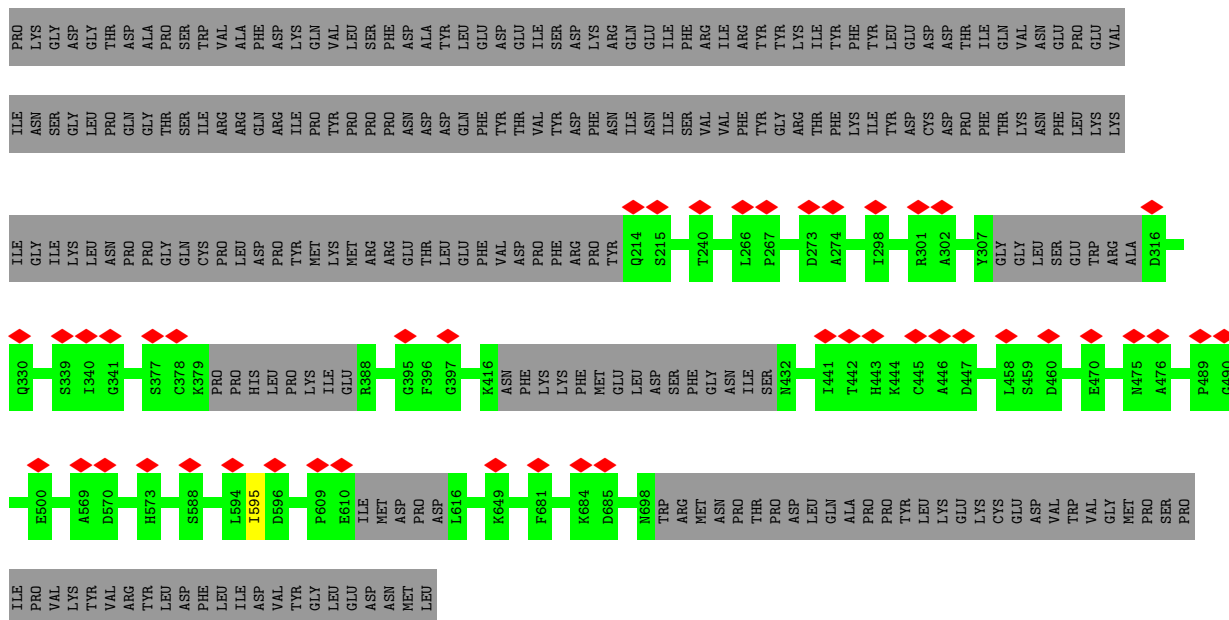


• Molecule 21: EF-hand domain-containing family member C2

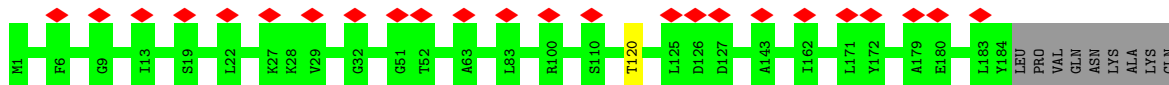


• Molecule 21: EF-hand domain-containing family member C2

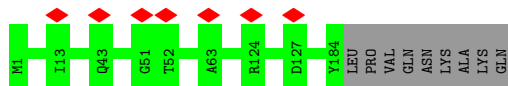




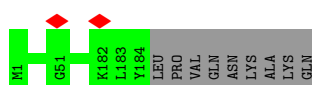
• Molecule 22: Cilia- and flagella-associated protein 20



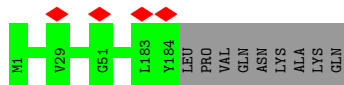
• Molecule 22: Cilia- and flagella-associated protein 20



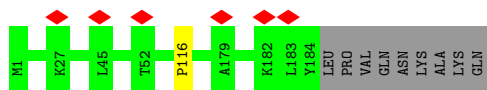
• Molecule 22: Cilia- and flagella-associated protein 20



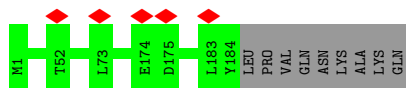
• Molecule 22: Cilia- and flagella-associated protein 20



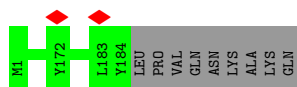
• Molecule 22: Cilia- and flagella-associated protein 20



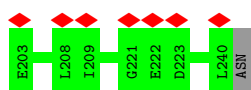
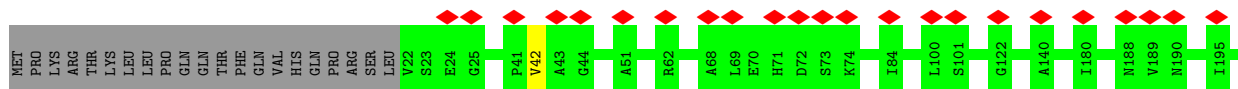
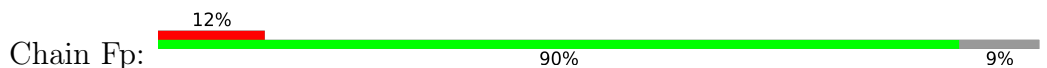
• Molecule 22: Cilia- and flagella-associated protein 20



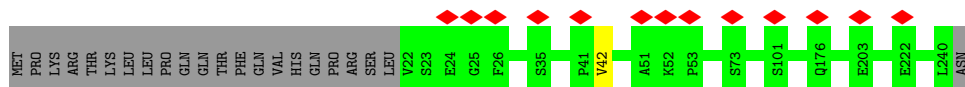
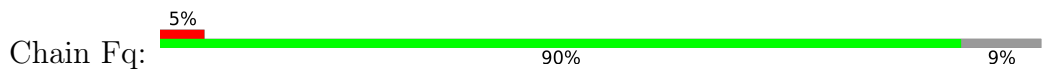
• Molecule 22: Cilia- and flagella-associated protein 20



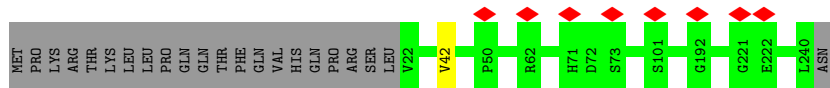
• Molecule 23: Parkin coregulated gene protein homolog



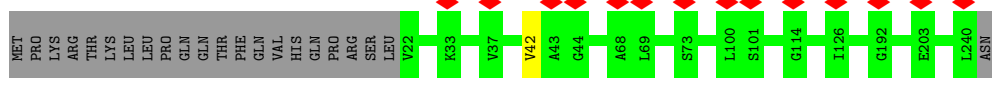
• Molecule 23: Parkin coregulated gene protein homolog



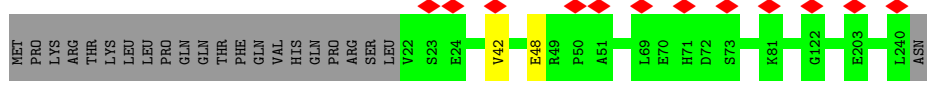
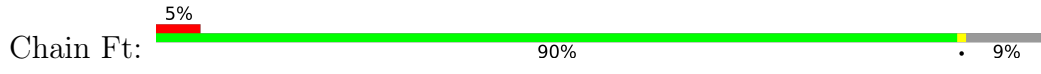
• Molecule 23: Parkin coregulated gene protein homolog



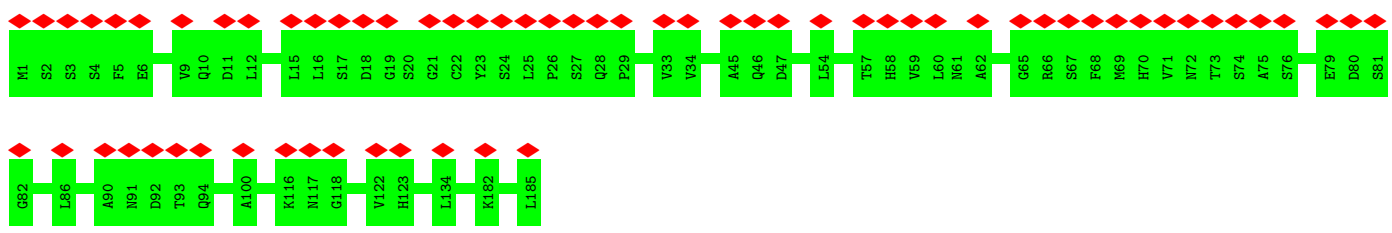
• Molecule 23: Parkin coregulated gene protein homolog



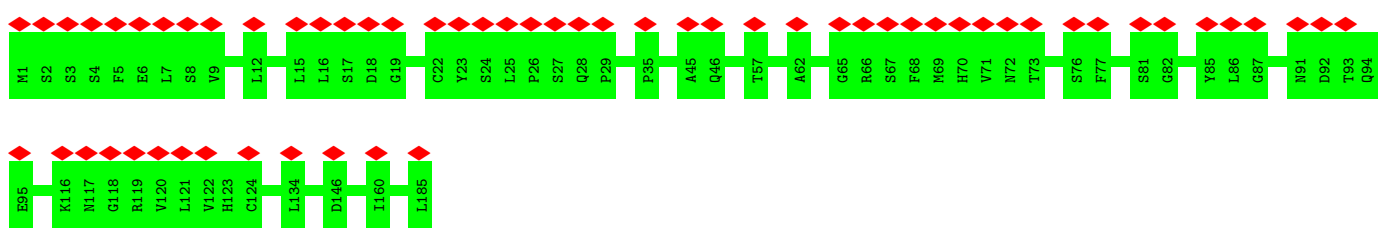
• Molecule 23: Parkin coregulated gene protein homolog



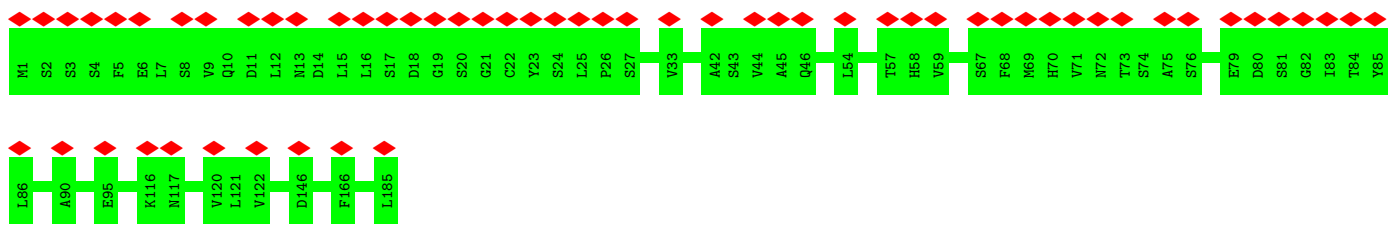
• Molecule 24: Dual specificity protein phosphatase 3



• Molecule 24: Dual specificity protein phosphatase 3

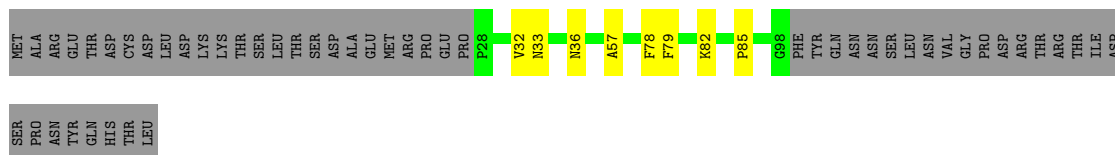


• Molecule 24: Dual specificity protein phosphatase 3

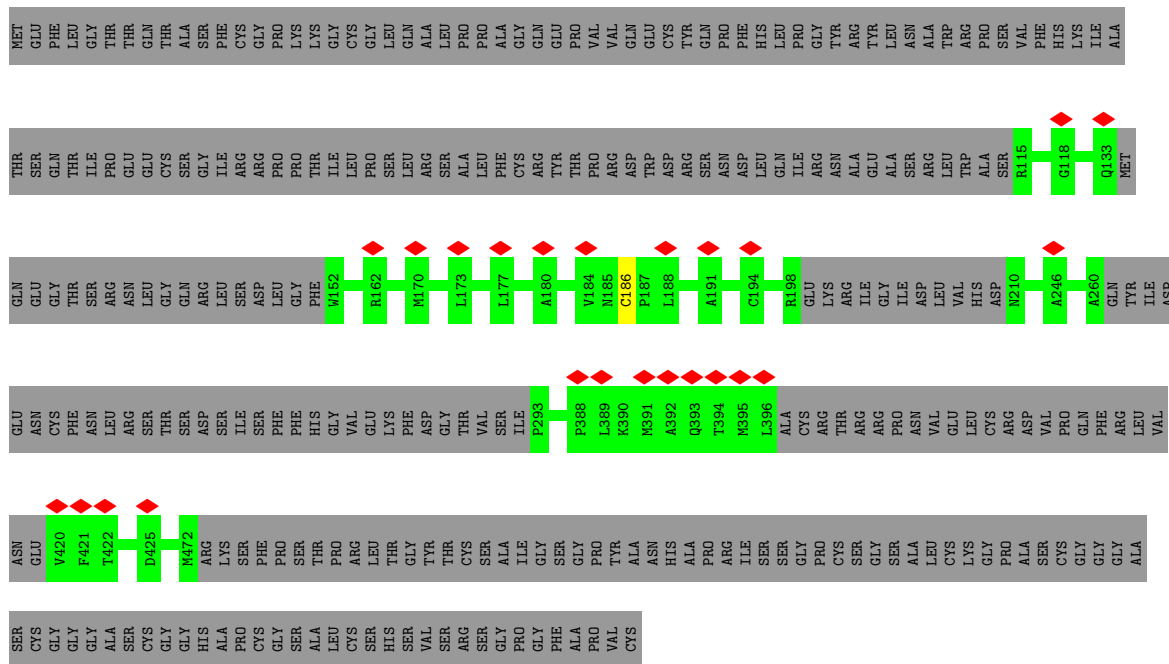


• Molecule 25: Piercer of microtubule wall 2 protein

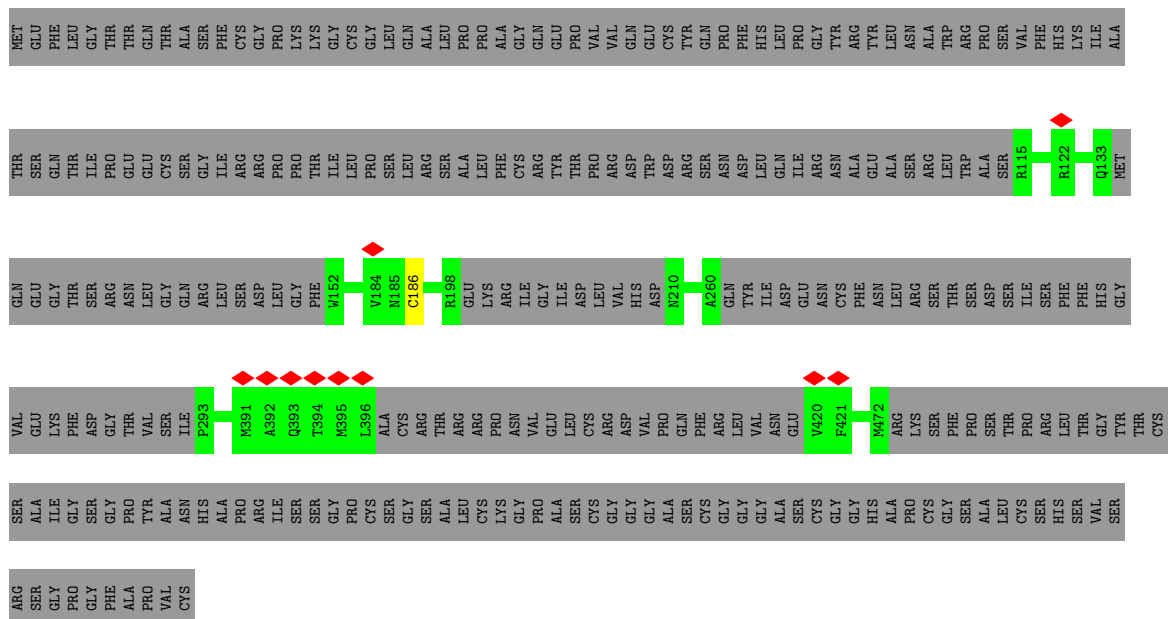


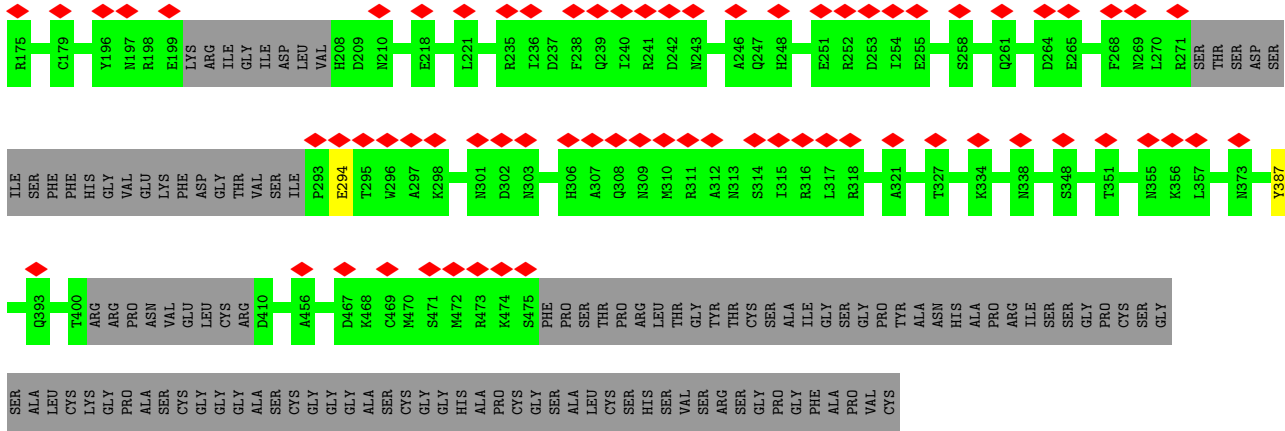


• Molecule 26: Tektin-5

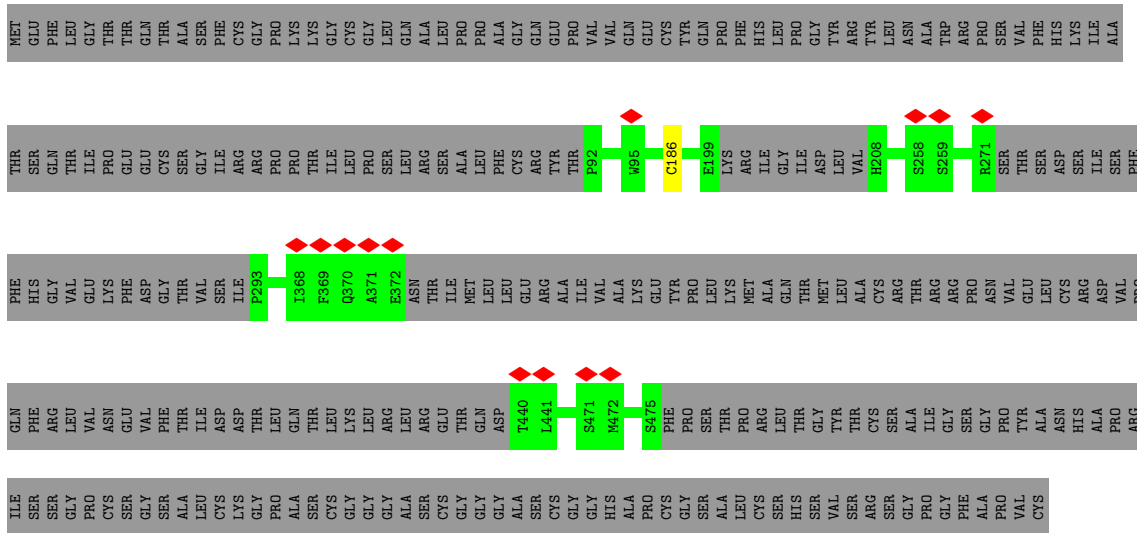


• Molecule 26: Tektin-5

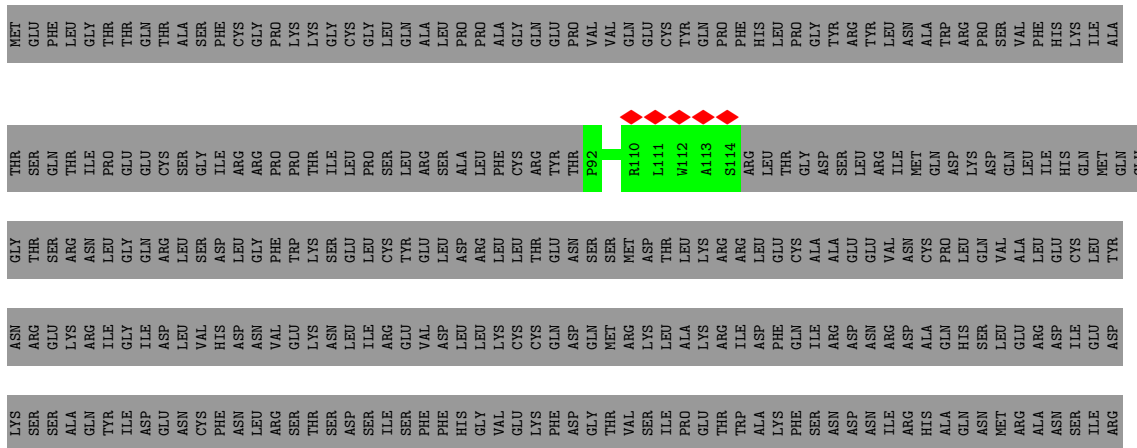


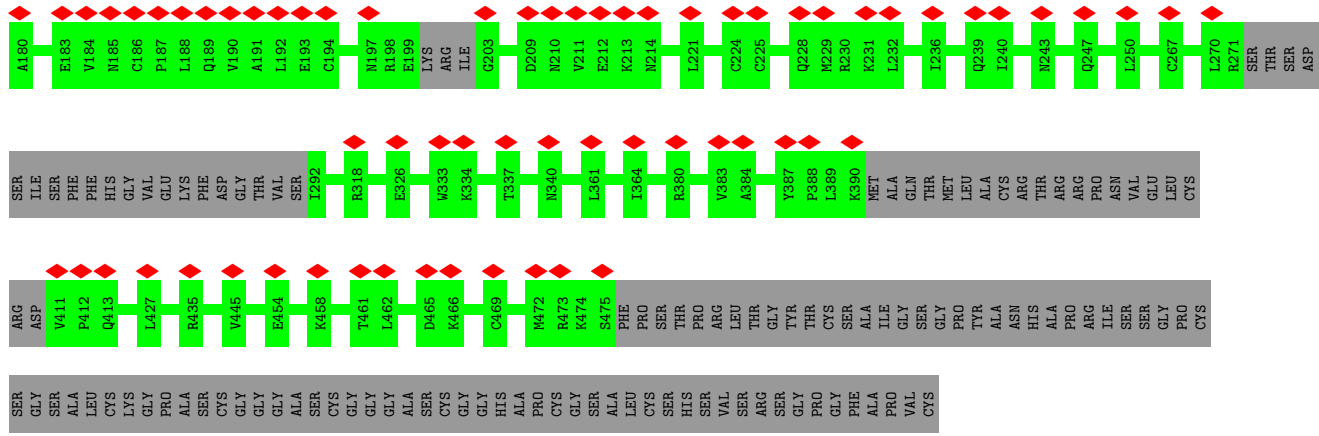


● Molecule 26: Tektin-5

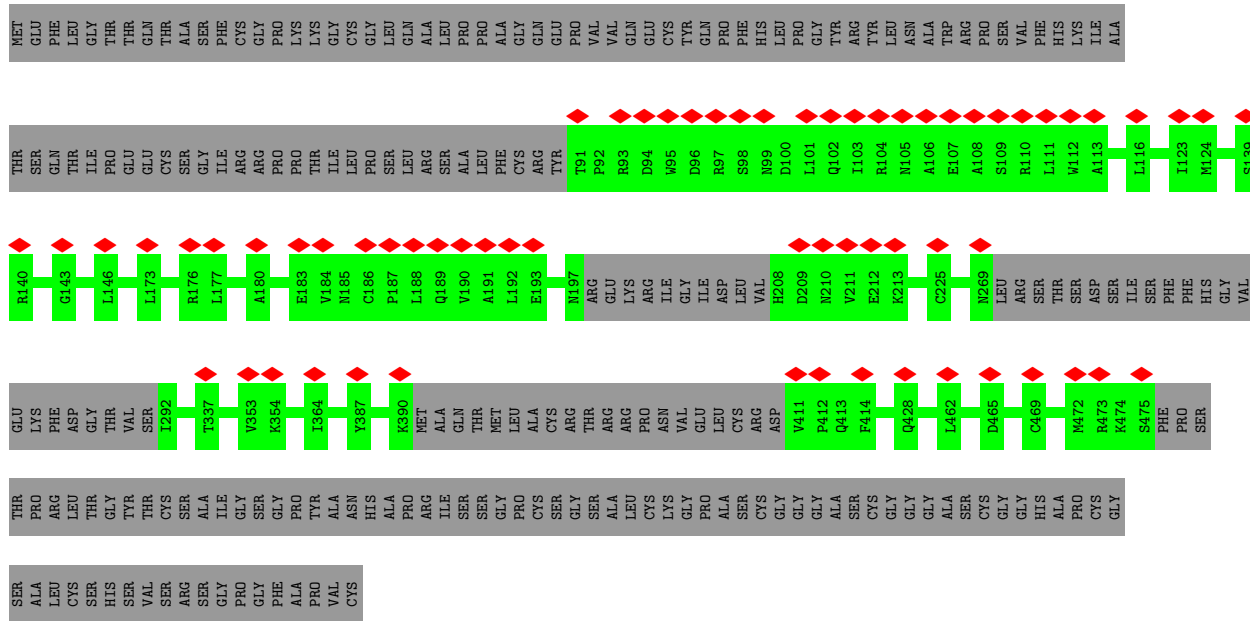


● Molecule 26: Tektin-5

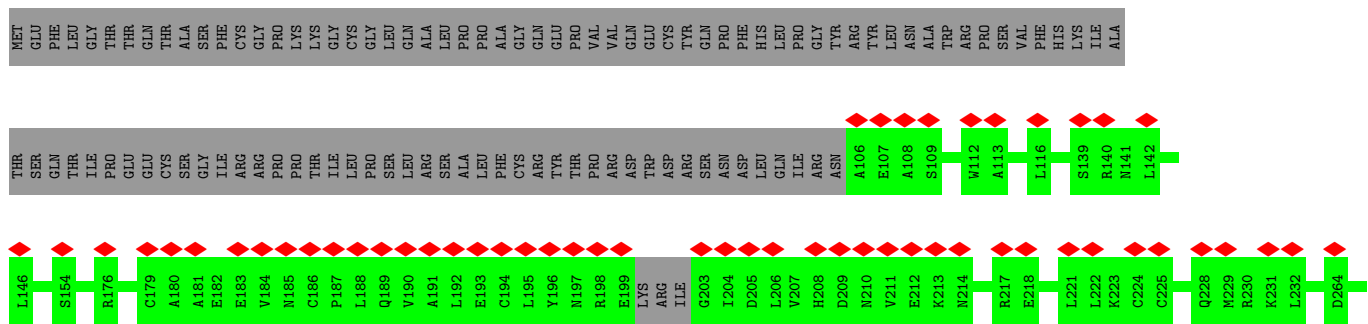




• Molecule 26: Tektin-5



• Molecule 26: Tektin-5



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

• Molecule 28: Cilia- and flagella-associated protein 52



MET	GLU	GLU	GLN	VAL	LEU	PRO	GLU	LEU	ASP	VAL	ALA	GLU	LEU	E15	I20	G21	N28	G29	C32	N65	E56	G64	V67	S68	C69	V70	K74	E75	G76	M87	G88	D92	L107	S108	L109	H110	K111	A118	D123	D133	G150	S151	P152	A153	A154
V158	A161	T162	S163	V164	V165	C169	R170	G180	L187	P190	T201	G202	R206	S210	T211	G212	M213	A214	D215	D216	D217	S218	P234	V245	K246	D247	K260	M261	G262	G263	G267	S268	G269	S278	G300	E301	E333	A334	V335	Q336	D337	I338			
G343	H378	D394	P403	G419	I423	A424	T425	V464	S465	V469	N502	Y510	A527	S543	L544	T580	H581	V582	G583	V584	G585	A619	SER																						

• Molecule 28: Cilia- and flagella-associated protein 52



MET	GLU	GLU	GLN	VAL	LEU	PRO	GLU	LEU	ASP	VAL	ALA	GLU	LEU	E15	A18	V19	I20	G21	T54	F59	H63	G64	S68	K113	D123	S151	P152	V168	G178	M179	L209	S210	T211	G212	D215	D216	D217	P234	G252	V253	S254	L259	K260	M261
G262	T297	L298	R299	G300	G308	I327	A328	G343	G379	I380	P403	T425	R468	L493	A501	N502	G542	S543	L544	S545	G577	G583	V584	G585	G609	A619	SER																	

• Molecule 28: Cilia- and flagella-associated protein 52

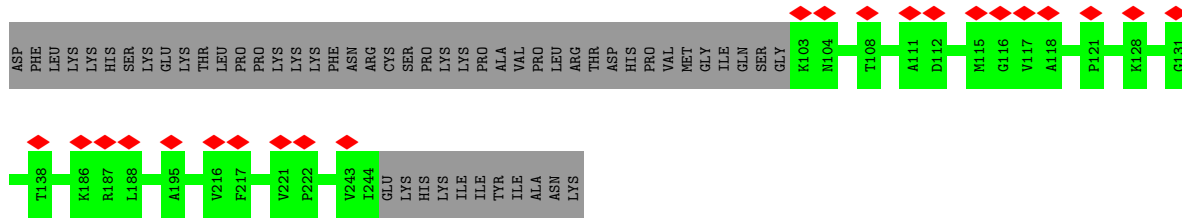


MET	GLU	GLU	GLN	VAL	LEU	PRO	GLU	LEU	ASP	VAL	ALA	GLU	LEU	E15	A18	V19	I20	G21	F22	G64	S68	C69	M87	G88	L117	A153	A154	A161	T162	S163	V164	V175	T176	A177	G178	T201	G202	T211	L222	T225	D247	K248	F249	S254
L269	T297	L298	R299	G300	E301	A334	D337	G343	T344	A345	I380	D381	F382	M383	D395	T421	T425	E474	C485	A501	N502	V508	C509	Y510	E539	L540	E541	G542	S543	L544	S545	V584	G585	A619	SER									

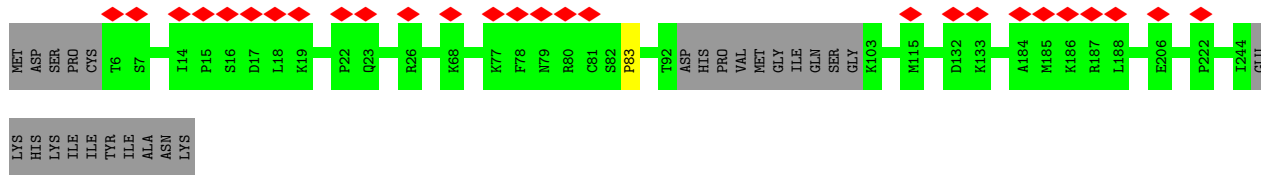
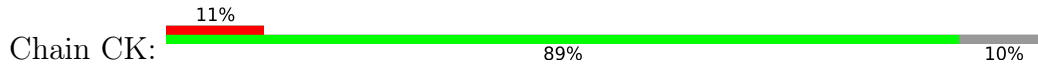
• Molecule 29: Enkurin



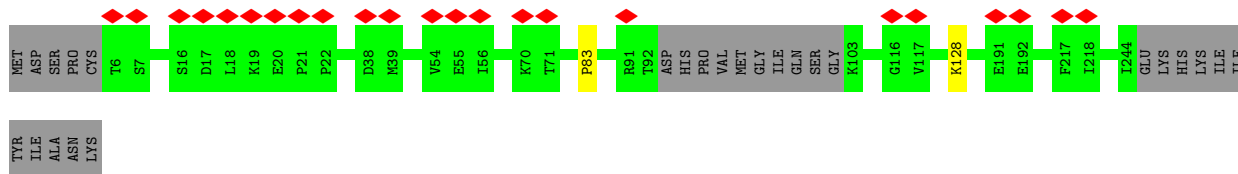
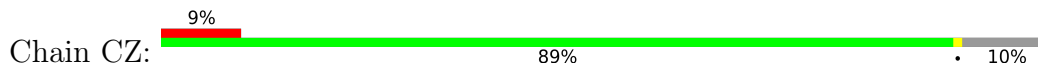
MET	ASP	SER	PRO	CYS	THR	SER	GLU	SER	ILE	TYR	ASN	GLN	LEU	ILE	PRO	SER	LEU	GLY	GLN	HIS	PRO	ARG	ARG	TYR	SER	LEU	PHE	ARG	ALA	THR	ILE	LYS	ASN	ASP	MET	LYS	LYS	PHE	LYS	THR	ALA	MET	LYS	THR	GLY	PRO	ALA	VAL	VAL	ILE	PRO	SER	PRO	LYS
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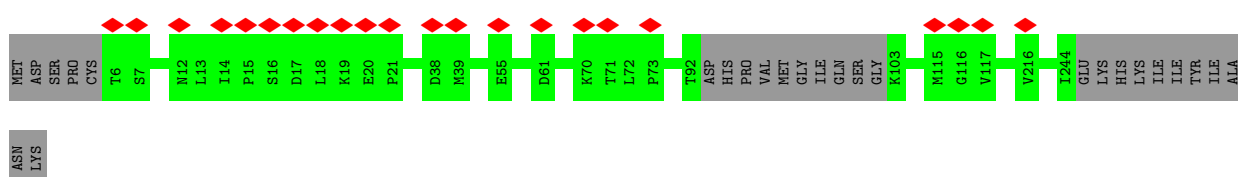
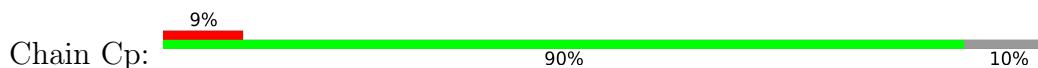
• Molecule 29: Enkurin



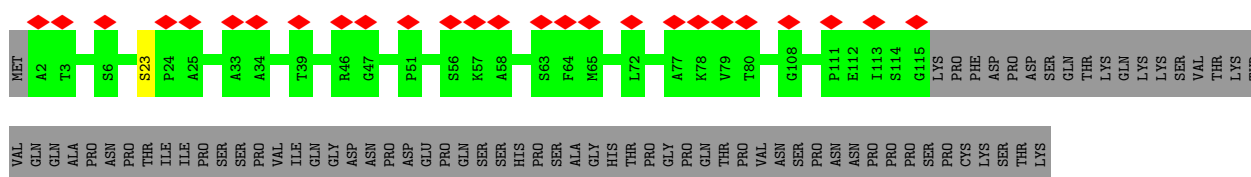
• Molecule 29: Enkurin



• Molecule 29: Enkurin



• Molecule 30: Protein Flattop



• Molecule 30: Protein Flattop



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● Molecule 35: Piercer of microtubule wall 1 protein



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Y87
R88
R91
P99
T100
E103
M104
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S111
F122
S127
H128
E53
Y59
R60
H61
P66

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4 Experimental information

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of subtomograms used	12848	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 ($e^-/\text{\AA}^2$)	100	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	6000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.223	Depositor
Minimum map value	0.000	Depositor
Average map value	0.005	Depositor
Map value standard deviation	0.016	Depositor
Recommended contour level	0.05	Depositor
Map size (\AA)	731.4, 731.4, 731.4	wwPDB
Map dimensions	276, 276, 276	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	2.65, 2.65, 2.65	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0	0.70	0/159	0.66	0/197
1	7	0.29	0/448	0.59	0/553
2	I	0.38	0/886	0.53	0/1104
2	J	0.39	0/1583	0.51	0/1977
2	K	0.38	0/1571	0.49	0/1962
2	L	0.37	0/1334	0.49	0/1664
2	M	0.39	0/127	0.40	0/157
3	A5	0.30	0/1755	0.63	0/2192
3	A7	0.30	0/1763	0.62	0/2202
3	A9	0.32	0/1747	0.66	0/2182
3	AM	0.30	0/1751	0.61	0/2187
3	AO	0.31	0/1751	0.59	0/2187
3	AQ	0.30	0/1751	0.58	0/2187
3	AS	0.33	0/1755	0.62	0/2192
3	AU	0.29	0/1755	0.59	0/2192
3	AW	0.31	0/1755	0.58	0/2192
3	AY	0.29	0/1755	0.57	0/2192
3	Aj	0.30	0/1592	0.62	0/1983
3	Al	0.28	0/1714	0.61	1/2139 (0.0%)
3	An	0.29	0/1718	0.59	0/2144
3	Ap	0.30	0/1722	0.61	0/2149
3	Ar	0.31	0/1714	0.63	0/2139
3	At	0.29	0/1718	0.60	0/2144
3	Av	0.29	0/1718	0.61	0/2144
3	B0	0.29	0/1726	0.57	0/2154
3	B2	0.30	0/1714	0.60	0/2139
3	B4	0.32	0/1539	0.62	0/1915
3	B8	0.29	0/1714	0.56	0/2139
3	BA	0.31	0/1743	0.70	3/2177 (0.1%)
3	BC	0.31	0/1759	0.70	1/2197 (0.0%)
3	BE	0.30	0/1710	0.63	0/2134
3	BO	0.28	0/1722	0.59	0/2149
3	BQ	0.30	0/1698	0.65	1/2119 (0.0%)
3	BS	0.32	0/1702	0.66	0/2124

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
3	BU	0.31	0/1706	0.67	1/2129 (0.0%)
3	BW	0.31	0/1694	0.66	0/2114
3	BY	0.29	0/1714	0.64	1/2139 (0.0%)
3	Bc	0.29	0/1759	0.57	0/2197
3	Be	0.27	0/1718	0.55	0/2144
3	Bg	0.28	0/1759	0.57	0/2197
3	Bi	0.29	0/1714	0.57	0/2139
3	Bk	0.29	0/1714	0.60	1/2139 (0.0%)
3	Bm	0.30	0/1755	0.60	1/2192 (0.0%)
3	Br	0.30	0/1706	0.62	1/2129 (0.0%)
3	Bt	0.28	0/1718	0.56	0/2144
3	Bv	0.28	0/1718	0.57	0/2144
3	Bx	0.29	0/1718	0.56	0/2144
3	Bz	0.27	0/1722	0.58	0/2149
3	C0	0.30	0/1714	0.59	0/2139
3	C1	0.32	0/1759	0.56	0/2197
3	C3	0.32	0/1722	0.57	0/2149
3	C8	0.32	0/1755	0.62	0/2192
3	CB	0.27	0/1759	0.58	0/2197
3	CD	0.30	0/1726	0.62	0/2154
3	CF	0.28	0/1759	0.62	1/2197 (0.0%)
3	CH	0.29	0/1722	0.61	0/2149
3	CJ	0.28	0/1706	0.60	0/2129
3	CN	0.31	0/1726	0.63	0/2154
3	CP	0.30	0/1718	0.59	0/2144
3	CR	0.30	0/1710	0.60	0/2134
3	CT	0.31	0/1714	0.61	0/2139
3	CV	0.31	0/1759	0.65	1/2197 (0.0%)
3	CX	0.31	0/1718	0.61	0/2144
3	Cc	0.33	0/1726	0.62	0/2154
3	Ce	0.32	0/1722	0.59	0/2149
3	Cg	0.31	0/1718	0.57	0/2144
3	Ci	0.33	0/1710	0.58	0/2134
3	Ck	0.31	0/1718	0.58	0/2144
3	Cm	0.33	0/1726	0.60	0/2154
3	Co	0.31	0/1628	0.56	0/2028
3	Cs	0.33	0/1759	0.59	0/2197
3	Cu	0.32	0/1759	0.59	0/2197
3	Cw	0.31	0/1759	0.57	0/2197
3	Cy	0.33	0/1759	0.59	0/2197
3	D2	0.27	0/1718	0.57	0/2144
3	D5	0.26	0/1722	0.60	1/2149 (0.0%)
3	D7	0.27	0/1718	0.60	1/2144 (0.0%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
3	D9	0.27	0/1718	0.56	0/2144
3	DB	0.30	0/1718	0.57	0/2144
3	DD	0.31	0/1722	0.56	0/2149
3	DF	0.29	0/1759	0.60	0/2197
3	DH	0.31	0/1722	0.59	0/2149
3	DM	0.27	0/1718	0.59	0/2144
3	DO	0.29	0/1714	0.60	0/2139
3	DQ	0.29	0/1718	0.65	1/2144 (0.0%)
3	DS	0.27	0/1726	0.62	0/2154
3	DU	0.27	0/1726	0.56	0/2154
3	DW	0.28	0/1718	0.58	0/2144
3	Db	0.28	0/1710	0.59	0/2134
3	Dd	0.27	0/1714	0.58	0/2139
3	Df	0.26	0/1730	0.57	0/2159
3	Dh	0.28	0/1730	0.61	1/2159 (0.0%)
3	Dj	0.27	0/1726	0.55	0/2154
3	Dl	0.27	0/1722	0.57	0/2149
3	Dp	0.25	0/1718	0.56	0/2144
3	Dr	0.30	0/1726	0.60	0/2154
3	Dt	0.29	0/1722	0.60	0/2149
3	Dv	0.27	0/1718	0.60	1/2144 (0.0%)
3	Dx	0.29	0/1706	0.59	0/2129
3	Dz	0.30	0/1718	0.60	0/2144
3	E3	0.27	0/1730	0.57	0/2159
3	E5	0.26	0/1726	0.56	0/2154
3	E7	0.28	0/1730	0.57	1/2159 (0.0%)
3	E9	0.26	0/1730	0.56	0/2159
3	EA	0.28	0/1722	0.61	0/2149
3	EC	0.27	0/1714	0.58	0/2139
3	EE	0.26	0/1722	0.58	0/2149
3	EG	0.27	0/1722	0.56	0/2149
3	EJ	0.27	0/1714	0.62	1/2139 (0.0%)
3	EL	0.28	0/1726	0.59	0/2154
3	EN	0.29	0/1710	0.59	0/2134
3	EP	0.27	0/1718	0.57	0/2144
3	ER	0.27	0/1722	0.57	0/2149
3	ET	0.28	0/1722	0.61	2/2149 (0.1%)
3	EV	0.29	0/1710	0.59	0/2134
3	EY	0.27	0/1718	0.60	0/2144
3	Ea	0.30	0/1718	0.62	0/2144
3	Ec	0.28	0/1722	0.58	0/2149
3	Ee	0.29	0/1722	0.61	0/2149
3	Eg	0.29	0/1705	0.59	0/2126

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
3	Ei	0.27	0/1726	0.61	0/2154
3	Ek	0.28	0/1722	0.56	0/2149
3	Eo	0.26	0/1718	0.60	0/2144
3	Eq	0.26	0/1726	0.57	0/2154
3	Es	0.27	0/1718	0.62	1/2144 (0.0%)
3	Eu	0.27	0/1718	0.58	0/2144
3	Ew	0.30	0/1726	0.61	0/2154
3	Ey	0.28	0/1718	0.61	0/2144
3	FA	0.29	0/1730	0.57	0/2159
3	FC	0.28	0/1722	0.58	0/2149
3	FG	0.28	0/1759	0.58	0/2197
3	FI	0.29	0/1730	0.57	0/2159
3	FK	0.28	0/1759	0.58	0/2197
3	FM	0.28	0/1730	0.57	0/2159
3	FO	0.28	0/1759	0.58	0/2197
3	FQ	0.29	0/1718	0.61	0/2144
3	FU	0.31	0/1759	0.64	1/2197 (0.0%)
3	FW	0.28	0/1722	0.58	0/2149
3	FY	0.30	0/1755	0.59	0/2192
3	Fa	0.30	0/1722	0.59	0/2149
3	Fc	0.30	0/1751	0.58	0/2187
3	Fe	0.31	0/1722	0.61	0/2149
3	N	0.32	0/1751	0.64	0/2187
3	P	0.33	0/1759	0.61	0/2197
3	R	0.30	0/1738	0.58	0/2169
3	T	0.32	0/1759	0.60	0/2197
3	V	0.31	0/1759	0.58	0/2197
3	X	0.35	0/1759	0.61	1/2197 (0.0%)
3	Z	0.30	0/1755	0.58	0/2192
3	n	0.29	0/1718	0.60	0/2144
3	p	0.30	0/1759	0.60	0/2197
3	r	0.30	0/1730	0.58	0/2159
3	t	0.32	0/1759	0.61	0/2197
3	v	0.29	0/1718	0.58	0/2144
3	x	0.31	0/1755	0.61	0/2192
3	z	0.29	0/1718	0.58	0/2144
4	A0	0.32	0/1707	0.65	1/2132 (0.0%)
4	A4	0.28	0/1703	0.59	0/2127
4	A6	0.30	0/1703	0.63	1/2127 (0.0%)
4	A8	0.29	0/1703	0.63	0/2127
4	AN	0.32	0/1703	0.61	0/2127
4	AP	0.31	0/1703	0.57	0/2127
4	AR	0.31	0/1707	0.62	1/2132 (0.0%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
4	AT	0.32	0/1707	0.60	0/2132
4	AV	0.31	0/1707	0.58	0/2132
4	AX	0.31	0/1699	0.56	0/2122
4	Ak	0.29	0/1703	0.60	0/2127
4	Am	0.31	0/1703	0.60	0/2127
4	Ao	0.28	0/1703	0.60	0/2127
4	Aq	0.32	0/1703	0.72	2/2127 (0.1%)
4	As	0.28	0/1703	0.60	0/2127
4	Au	0.29	0/1699	0.59	0/2122
4	Aw	0.29	0/1545	0.57	0/1926
4	B1	0.27	0/1699	0.56	0/2122
4	B3	0.29	0/1707	0.59	0/2132
4	B7	0.29	0/1471	0.60	0/1830
4	B9	0.30	0/1707	0.59	0/2132
4	BB	0.29	0/1703	0.62	0/2127
4	BD	0.30	0/1699	0.63	0/2122
4	BF	0.27	0/1703	0.59	0/2127
4	BN	0.27	0/1703	0.59	0/2127
4	BP	0.28	0/1707	0.62	0/2132
4	BR	0.27	0/1703	0.59	0/2127
4	BT	0.32	0/1703	0.71	3/2127 (0.1%)
4	BV	0.29	0/1703	0.59	0/2127
4	BX	0.29	0/1699	0.62	0/2122
4	BZ	0.26	0/1707	0.55	0/2132
4	Bb	0.30	0/1707	0.58	0/2132
4	Bd	0.28	0/1707	0.55	0/2132
4	Bf	0.27	0/1707	0.55	0/2132
4	Bh	0.30	0/1707	0.59	0/2132
4	Bj	0.27	0/1707	0.57	0/2132
4	Bl	0.27	0/1699	0.54	0/2122
4	Bn	0.30	0/1707	0.56	0/2132
4	Bq	0.29	0/1703	0.56	0/2127
4	Bs	0.28	0/1707	0.57	0/2132
4	Bu	0.27	0/1707	0.54	0/2132
4	Bw	0.30	0/1707	0.57	0/2132
4	By	0.28	0/1707	0.58	1/2132 (0.0%)
4	C2	0.33	0/1703	0.59	0/2127
4	C4	0.32	0/1707	0.56	0/2132
4	C7	0.32	0/1703	0.60	1/2127 (0.0%)
4	C9	0.32	0/1703	0.59	0/2127
4	CA	0.27	0/1707	0.55	0/2132
4	CC	0.30	0/1707	0.59	0/2132
4	CE	0.29	0/1707	0.62	1/2132 (0.0%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
4	CG	0.30	0/1703	0.62	0/2127
4	CI	0.30	0/1711	0.59	0/2137
4	CM	0.28	0/1703	0.58	0/2127
4	CO	0.32	0/1707	0.61	0/2132
4	CQ	0.28	0/1703	0.59	0/2127
4	CS	0.32	0/1703	0.61	0/2127
4	CU	0.29	0/1703	0.57	0/2127
4	CW	0.31	0/1703	0.63	0/2127
4	CY	0.29	0/1703	0.60	0/2127
4	Cb	0.32	0/1609	0.59	0/2006
4	Cd	0.33	0/1707	0.58	0/2132
4	Cf	0.31	0/1707	0.56	0/2132
4	Ch	0.34	0/1715	0.57	0/2142
4	Cj	0.30	0/1703	0.56	0/2127
4	Cl	0.33	0/1715	0.58	0/2142
4	Cn	0.31	0/1707	0.57	0/2132
4	Cr	0.32	0/1707	0.57	0/2132
4	Ct	0.32	0/1707	0.58	0/2132
4	Cv	0.31	0/1707	0.57	0/2132
4	Cx	0.34	0/1707	0.58	0/2132
4	Cz	0.32	0/1707	0.56	0/2132
4	D0	0.26	0/1711	0.58	0/2137
4	D1	0.30	0/1699	0.62	0/2122
4	D6	0.26	0/1707	0.56	0/2132
4	D8	0.27	0/1707	0.57	0/2132
4	DA	0.29	0/1707	0.58	0/2132
4	DC	0.32	0/1707	0.58	0/2132
4	DE	0.30	0/1703	0.56	0/2127
4	DG	0.33	0/1703	0.65	2/2127 (0.1%)
4	DI	0.30	0/1703	0.58	0/2127
4	DL	0.26	0/1707	0.54	0/2132
4	DN	0.29	0/1707	0.59	0/2132
4	DP	0.27	0/1707	0.57	0/2132
4	DR	0.29	0/1707	0.62	0/2132
4	DT	0.27	0/1707	0.56	0/2132
4	DV	0.27	0/1707	0.58	0/2132
4	DX	0.26	0/1699	0.56	0/2122
4	Da	0.29	0/1642	0.60	0/2049
4	Dc	0.27	0/1699	0.60	0/2122
4	De	0.26	0/1695	0.56	0/2117
4	Dg	0.30	0/1699	0.61	0/2122
4	Di	0.26	0/1707	0.55	0/2132
4	Dk	0.27	0/1707	0.57	0/2132

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
4	Dm	0.28	0/1695	0.58	0/2117
4	Dq	0.28	0/1707	0.61	0/2132
4	Ds	0.26	0/1707	0.55	0/2132
4	Du	0.28	0/1707	0.57	0/2132
4	Dw	0.27	0/1707	0.55	0/2132
4	Dy	0.27	0/1707	0.58	1/2132 (0.0%)
4	E0	0.26	0/1707	0.57	1/2132 (0.0%)
4	E2	0.26	0/1711	0.57	0/2137
4	E4	0.28	0/1707	0.56	0/2132
4	E6	0.26	0/1707	0.55	0/2132
4	E8	0.27	0/1711	0.55	0/2137
4	EB	0.26	0/1707	0.59	1/2132 (0.0%)
4	ED	0.28	0/1707	0.57	0/2132
4	EF	0.26	0/1703	0.57	0/2127
4	EK	0.27	0/1707	0.59	0/2132
4	EM	0.26	0/1707	0.55	0/2132
4	EO	0.27	0/1707	0.59	0/2132
4	EQ	0.27	0/1707	0.57	0/2132
4	ES	0.27	0/1707	0.58	0/2132
4	EU	0.28	0/1703	0.57	0/2127
4	EZ	0.27	0/1707	0.59	0/2132
4	Eb	0.27	0/1707	0.57	0/2132
4	Ed	0.28	0/1711	0.58	0/2137
4	Ef	0.28	0/1707	0.58	0/2132
4	Eh	0.28	0/1707	0.58	0/2132
4	Ej	0.27	0/1703	0.58	0/2127
4	En	0.27	0/1707	0.59	0/2132
4	Ep	0.27	0/1707	0.56	0/2132
4	Er	0.26	0/1707	0.56	0/2132
4	Et	0.26	0/1707	0.57	1/2132 (0.0%)
4	Ev	0.27	0/1707	0.58	0/2132
4	Ex	0.26	0/1703	0.58	0/2127
4	FB	0.27	0/1703	0.57	0/2127
4	FD	0.26	0/1707	0.55	0/2132
4	FF	0.30	0/1707	0.58	0/2132
4	FH	0.28	0/1707	0.57	0/2132
4	FJ	0.27	0/1707	0.53	0/2132
4	FL	0.28	0/1707	0.57	0/2132
4	FN	0.27	0/1707	0.54	0/2132
4	FP	0.28	0/1703	0.59	0/2127
4	FR	0.28	0/1707	0.56	0/2132
4	FT	0.29	0/1707	0.60	0/2132
4	FV	0.30	0/1707	0.61	0/2132

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
4	FX	0.27	0/1703	0.57	0/2127
4	FZ	0.30	0/1703	0.58	0/2127
4	Fb	0.28	0/1703	0.56	0/2127
4	Fd	0.29	0/1703	0.58	0/2127
4	Ff	0.29	0/1703	0.62	1/2127 (0.0%)
4	O	0.33	0/1743	0.62	0/2177
4	Q	0.33	0/1743	0.62	0/2177
4	S	0.34	0/1743	0.61	0/2177
4	U	0.32	0/1743	0.61	0/2177
4	W	0.34	0/1743	0.61	0/2177
4	Y	0.32	0/1739	0.57	0/2172
4	o	0.30	0/1707	0.60	0/2132
4	q	0.31	0/1707	0.58	0/2132
4	s	0.31	0/1707	0.59	0/2132
4	u	0.31	0/1707	0.59	1/2132 (0.0%)
4	w	0.29	0/1707	0.58	0/2132
4	y	0.30	0/1699	0.57	0/2122
5	b	0.39	0/762	0.50	0/949
5	e	0.39	0/1663	0.51	0/2077
5	f	0.39	0/1663	0.55	1/2077 (0.0%)
5	g	0.39	0/1531	0.50	0/1912
5	h	0.37	0/191	0.49	0/237
5	i	0.31	0/203	0.46	0/252
5	j	0.38	0/1431	0.49	0/1787
5	k	0.39	0/1655	0.53	0/2067
5	l	0.37	0/1611	0.54	0/2012
5	m	0.37	0/762	0.53	0/949
6	1	0.42	0/560	0.54	0/693
6	2	0.85	0/754	0.76	0/932
7	AC	0.35	0/123	0.39	0/152
7	AD	0.38	0/1334	0.49	0/1664
7	AE	0.39	0/1575	0.52	1/1967 (0.1%)
7	AF	0.37	0/1575	0.50	0/1967
7	AG	0.37	0/858	0.50	0/1069
7	AH	0.37	0/451	0.42	0/562
7	AI	0.40	0/1539	0.47	0/1922
7	AJ	0.41	0/1651	0.48	0/2062
7	AK	0.39	0/1626	0.47	0/2029
7	AL	0.36	0/446	0.50	0/554
7	BI	0.38	0/553	0.56	0/686
7	BJ	0.41	0/1682	0.52	0/2099
7	BK	0.40	0/1682	0.51	0/2099
7	BL	0.40	0/1511	0.48	0/1887

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
7	BM	0.36	0/395	0.50	0/492
8	A	0.84	0/679	0.83	0/847
8	a	0.46	0/1415	0.49	0/1767
9	Aa	0.38	0/1165	0.50	0/1451
9	Ab	0.38	0/1699	0.50	0/2122
9	Ac	0.39	0/1699	0.51	0/2122
9	Ad	0.38	0/1262	0.51	0/1574
9	Af	0.36	0/1254	0.50	0/1564
9	Ag	0.38	0/1655	0.52	0/2067
9	Ah	0.36	0/1651	0.50	0/2062
9	Ai	0.36	0/1162	0.53	0/1449
10	3	0.88	0/1223	0.82	0/1527
10	4	0.44	0/803	0.46	0/1002
11	A1	0.29	0/507	0.69	1/632 (0.2%)
11	A2	0.30	0/575	0.65	0/717
11	A3	0.31	0/575	0.66	0/717
11	Az	0.32	0/271	0.64	0/337
12	AB	0.44	0/347	0.57	0/432
13	5	0.27	0/1430	0.59	0/1784
13	6	0.28	0/1430	0.63	0/1784
14	B6	0.28	0/604	0.62	0/748
14	C6	0.27	0/604	0.62	0/748
14	CL	0.29	0/604	0.65	0/748
14	Ca	0.30	0/604	0.64	0/748
14	Cq	0.30	0/604	0.67	0/748
14	DK	0.28	0/616	0.65	0/763
15	AZ	0.28	0/585	0.60	0/726
16	D4	0.32	0/155	0.60	0/192
16	DZ	0.29	0/131	0.64	0/162
16	Do	0.37	0/1491	0.52	0/1862
16	EI	0.38	0/886	0.52	1/1104 (0.1%)
16	EX	0.35	0/679	0.49	0/847
17	8	0.36	0/750	0.71	0/934
17	9	0.33	0/126	0.57	0/154
18	Ay	0.30	0/1000	0.61	0/1243
18	BH	0.33	0/1000	0.68	0/1243
19	E1	0.37	0/1764	0.64	0/2198
19	Em	0.37	0/1764	0.64	0/2198
19	FE	0.37	0/1764	0.64	0/2198
20	F0	0.33	0/598	0.59	0/744
20	F1	0.33	0/598	0.59	0/744
20	F2	0.33	0/598	0.59	0/744
20	F3	0.33	0/598	0.59	0/744

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
20	F4	0.33	0/598	0.59	0/744
20	F5	0.33	0/598	0.59	0/744
20	F6	0.32	0/598	0.59	0/744
20	F7	0.32	0/594	0.58	0/739
20	F8	0.33	0/598	0.59	0/744
20	F9	0.32	0/598	0.59	0/744
20	GA	0.32	0/590	0.59	0/734
20	GB	0.33	0/598	0.59	0/744
20	GC	0.33	0/598	0.59	0/744
20	GD	0.33	0/590	0.59	0/734
20	GE	0.33	0/598	0.59	0/744
20	GF	0.33	0/581	0.59	0/721
20	GG	0.33	0/577	0.59	0/716
20	GH	0.32	0/598	0.59	0/744
20	GI	0.32	0/598	0.59	0/744
20	GJ	0.32	0/594	0.59	0/739
20	GK	0.32	0/594	0.59	0/739
20	GL	0.33	0/598	0.59	0/744
20	GM	0.32	0/598	0.59	0/744
20	GN	0.33	0/598	0.59	0/744
20	GO	0.32	0/594	0.58	0/739
20	GP	0.32	0/594	0.58	0/739
20	GQ	0.32	0/606	0.58	0/754
21	FS	0.29	0/2207	0.61	0/2750
21	Fg	0.28	0/2538	0.60	0/3162
21	Fo	0.30	0/2538	0.61	0/3162
21	Fv	0.27	0/1791	0.58	0/2230
22	Fh	0.30	0/735	0.68	1/917 (0.1%)
22	Fi	0.30	0/735	0.68	0/917
22	Fj	0.28	0/735	0.64	0/917
22	Fk	0.29	0/735	0.64	0/917
22	Fl	0.28	0/735	0.62	0/917
22	Fm	0.30	0/735	0.65	0/917
22	Fn	0.28	0/735	0.62	0/917
23	Fp	0.31	0/875	0.64	0/1092
23	Fq	0.29	0/875	0.61	0/1092
23	Fr	0.31	0/875	0.62	0/1092
23	Fs	0.28	0/875	0.63	0/1092
23	Ft	0.30	0/875	0.66	1/1092 (0.1%)
24	Fx	0.36	0/739	0.66	0/922
24	Fy	0.36	0/739	0.66	0/922
24	Fz	0.36	0/739	0.66	0/922
25	G	0.77	0/283	0.83	0/352

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
26	GR	0.82	0/1091	0.79	0/1355
26	GS	0.82	0/1091	0.79	0/1355
26	GT	0.82	0/1091	0.79	0/1355
26	GU	0.83	0/679	0.80	0/840
26	GV	0.81	0/972	0.82	0/1208
26	GW	0.79	0/1392	0.83	0/1733
26	GX	0.80	0/1380	0.82	0/1718
26	GY	0.80	0/1148	0.83	0/1428
26	GZ	0.74	0/91	0.79	0/112
26	Ga	0.65	0/453	0.67	0/561
26	Gb	0.76	0/1364	0.74	0/1698
26	Gc	0.75	0/1328	0.74	0/1653
26	Gd	0.77	0/1304	0.75	0/1623
26	Ge	0.81	0/230	0.83	0/284
26	Gf	0.84	0/114	0.92	0/139
26	Gg	0.78	0/1164	0.85	0/1448
26	Gh	0.80	0/1276	0.84	0/1588
26	Gi	0.80	0/1280	0.85	0/1593
26	Gj	0.81	0/757	0.82	0/941
26	z0	0.83	0/1077	0.83	0/1341
26	z1	0.83	0/1068	0.79	0/1328
26	z3	0.84	0/1012	0.78	0/1258
26	z4	0.83	0/733	0.80	0/911
27	AA	0.39	0/1307	0.46	0/1632
27	Ax	0.38	0/859	0.44	0/1072
27	B	0.77	0/227	0.79	0/282
27	c	0.90	0/191	0.95	0/237
27	d	0.76	0/950	0.85	0/1184
28	BG	0.29	0/2419	0.68	1/3022 (0.0%)
28	Ba	0.30	0/2419	0.67	0/3022
28	Bo	0.32	0/2419	0.68	0/3022
29	B5	0.30	0/567	0.54	0/707
29	CK	0.27	0/914	0.54	0/1139
29	CZ	0.27	0/914	0.60	1/1139 (0.1%)
29	Cp	0.30	0/914	0.55	0/1139
30	C5	0.32	0/455	0.68	0/567
30	DJ	0.37	0/450	0.70	1/559 (0.2%)
30	DY	0.33	0/471	0.58	0/587
31	D3	0.40	0/399	0.47	0/497
31	Dn	0.33	0/1508	0.34	0/1878
32	EH	0.33	0/306	0.69	0/379
32	EW	0.29	0/306	0.62	0/379
32	El	0.28	0/314	0.71	0/389

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	Ez	0.24	0/711	0.45	0/887
34	C	0.77	0/688	0.80	0/853
34	D	0.78	0/1203	0.87	0/1495
34	E	0.77	0/1203	0.87	0/1495
34	F	0.77	0/1124	0.88	0/1398
34	H	0.81	0/34	0.81	0/39
35	Fw	0.31	0/303	0.62	0/377
All	All	0.34	0/673084	0.60	53/839955 (0.0%)

There are no bond length outliers.

All (53) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	Ff	171	PRO	C-N-CA	9.61	145.73	121.70
3	BY	171	ILE	C-N-CA	8.59	143.18	121.70
4	Aq	261	PRO	N-CA-C	-8.39	90.30	112.10
3	EJ	171	ILE	C-N-CA	8.00	141.70	121.70
4	A6	167	PHE	N-CA-C	-7.68	90.26	111.00
28	BG	580	THR	N-CA-C	-7.66	90.31	111.00
4	CE	30	ILE	C-N-CA	7.51	140.49	121.70
3	BU	65	ALA	N-CA-C	7.01	129.92	111.00
16	EI	146	LEU	N-CA-C	-6.84	92.54	111.00
4	DG	271	ALA	N-CA-C	6.82	129.40	111.00
4	AR	171	PRO	C-N-CA	6.68	138.40	121.70
3	Bm	70	LEU	C-N-CA	6.67	138.38	121.70
4	BT	259	PRO	C-N-CA	6.58	138.16	121.70
3	CV	10	GLY	N-CA-C	6.55	129.48	113.10
5	f	402	GLU	N-CA-C	-6.42	93.68	111.00
30	DJ	7	ALA	N-CA-C	-6.37	93.81	111.00
3	BC	201	ALA	N-CA-C	6.26	127.89	111.00
3	Dh	171	ILE	C-N-CA	6.25	137.32	121.70
3	FU	46	ASP	C-N-CA	6.20	137.21	121.70
3	DQ	57	GLY	N-CA-C	6.19	128.59	113.10
3	BQ	71	GLU	N-CA-C	-6.16	94.37	111.00
3	BA	139	HIS	N-CA-C	-6.15	94.39	111.00
4	EB	393	ALA	N-CA-C	6.13	127.55	111.00
3	X	169	PHE	N-CA-C	-6.02	94.75	111.00
3	D7	350	GLY	N-CA-C	6.00	128.09	113.10
3	Es	142	GLY	N-CA-C	5.90	127.84	113.10
4	Dy	171	PRO	C-N-CA	5.89	136.42	121.70
4	A0	398	TYR	N-CA-C	5.80	126.67	111.00
3	ET	220	GLU	N-CA-C	-5.69	95.64	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	By	102	ALA	N-CA-C	-5.64	95.77	111.00
4	BT	304	ASP	N-CA-C	-5.64	95.78	111.00
4	DG	268	PRO	N-CA-C	5.58	126.62	112.10
3	Br	412	GLY	N-CA-C	5.57	127.01	113.10
4	E0	393	ALA	N-CA-C	5.57	126.03	111.00
4	u	227	HIS	N-CA-C	-5.56	95.98	111.00
4	C7	167	PHE	N-CA-C	-5.52	96.10	111.00
4	Aq	92	PHE	N-CA-C	5.49	125.81	111.00
3	BA	38	SER	C-N-CA	5.46	135.34	121.70
4	BT	102	ALA	N-CA-C	5.45	125.72	111.00
3	ET	171	ILE	C-N-CA	5.45	135.31	121.70
4	Et	30	ILE	C-N-CA	5.44	135.29	121.70
3	CF	186	ASN	N-CA-C	5.43	125.66	111.00
3	BA	140	SER	N-CA-C	5.36	125.47	111.00
29	CZ	128	LYS	C-N-CA	5.26	134.86	121.70
3	Dv	87	PHE	C-N-CA	-5.26	108.55	121.70
22	Fh	120	THR	C-N-CA	-5.15	108.81	121.70
3	E7	378	LEU	N-CA-C	-5.14	97.13	111.00
3	Al	350	GLY	N-CA-C	5.11	125.88	113.10
3	Bk	205	ASP	N-CA-C	5.05	124.64	111.00
7	AE	94	TYR	C-N-CA	5.05	134.32	121.70
3	D5	350	GLY	N-CA-C	5.01	125.62	113.10
23	Ft	48	GLU	C-N-CA	5.01	134.22	121.70
11	A1	79	LEU	N-CA-C	5.01	124.52	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	0	38/228 (17%)	34 (90%)	4 (10%)	0	100	100
1	7	105/228 (46%)	86 (82%)	12 (11%)	7 (7%)	1	15
2	I	218/418 (52%)	211 (97%)	6 (3%)	1 (0%)	29	69
2	J	394/418 (94%)	382 (97%)	11 (3%)	1 (0%)	41	77
2	K	391/418 (94%)	384 (98%)	6 (2%)	1 (0%)	41	77
2	L	330/418 (79%)	321 (97%)	9 (3%)	0	100	100
2	M	30/418 (7%)	30 (100%)	0	0	100	100
3	A5	437/451 (97%)	394 (90%)	43 (10%)	0	100	100
3	A7	439/451 (97%)	395 (90%)	44 (10%)	0	100	100
3	A9	435/451 (96%)	390 (90%)	45 (10%)	0	100	100
3	AM	436/451 (97%)	406 (93%)	30 (7%)	0	100	100
3	AO	436/451 (97%)	406 (93%)	30 (7%)	0	100	100
3	AQ	436/451 (97%)	398 (91%)	38 (9%)	0	100	100
3	AS	437/451 (97%)	405 (93%)	32 (7%)	0	100	100
3	AU	437/451 (97%)	408 (93%)	29 (7%)	0	100	100
3	AW	437/451 (97%)	408 (93%)	29 (7%)	0	100	100
3	AY	437/451 (97%)	409 (94%)	28 (6%)	0	100	100
3	Aj	391/451 (87%)	357 (91%)	34 (9%)	0	100	100
3	Al	425/451 (94%)	392 (92%)	33 (8%)	0	100	100
3	An	426/451 (94%)	379 (89%)	47 (11%)	0	100	100
3	Ap	427/451 (95%)	378 (88%)	49 (12%)	0	100	100
3	Ar	425/451 (94%)	395 (93%)	30 (7%)	0	100	100
3	At	426/451 (94%)	387 (91%)	39 (9%)	0	100	100
3	Av	426/451 (94%)	399 (94%)	27 (6%)	0	100	100
3	B0	428/451 (95%)	397 (93%)	31 (7%)	0	100	100
3	B2	425/451 (94%)	403 (95%)	22 (5%)	0	100	100
3	B4	376/451 (83%)	354 (94%)	22 (6%)	0	100	100
3	B8	425/451 (94%)	391 (92%)	34 (8%)	0	100	100
3	BA	434/451 (96%)	387 (89%)	47 (11%)	0	100	100
3	BC	438/451 (97%)	383 (87%)	54 (12%)	1 (0%)	47	81
3	BE	424/451 (94%)	378 (89%)	45 (11%)	1 (0%)	47	81
3	BO	427/451 (95%)	394 (92%)	33 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	BQ	421/451 (93%)	372 (88%)	49 (12%)	0	100	100
3	BS	422/451 (94%)	381 (90%)	40 (10%)	1 (0%)	47	81
3	BU	423/451 (94%)	383 (90%)	40 (10%)	0	100	100
3	BW	420/451 (93%)	377 (90%)	43 (10%)	0	100	100
3	BY	425/451 (94%)	384 (90%)	41 (10%)	0	100	100
3	Bc	438/451 (97%)	411 (94%)	27 (6%)	0	100	100
3	Be	426/451 (94%)	408 (96%)	18 (4%)	0	100	100
3	Bg	438/451 (97%)	410 (94%)	28 (6%)	0	100	100
3	Bi	425/451 (94%)	401 (94%)	24 (6%)	0	100	100
3	Bk	425/451 (94%)	395 (93%)	28 (7%)	2 (0%)	29	69
3	Bm	437/451 (97%)	405 (93%)	31 (7%)	1 (0%)	47	81
3	Br	423/451 (94%)	401 (95%)	22 (5%)	0	100	100
3	Bt	426/451 (94%)	401 (94%)	25 (6%)	0	100	100
3	Bv	426/451 (94%)	396 (93%)	30 (7%)	0	100	100
3	Bx	426/451 (94%)	398 (93%)	28 (7%)	0	100	100
3	Bz	427/451 (95%)	392 (92%)	35 (8%)	0	100	100
3	C0	425/451 (94%)	398 (94%)	27 (6%)	0	100	100
3	C1	438/451 (97%)	413 (94%)	25 (6%)	0	100	100
3	C3	427/451 (95%)	398 (93%)	29 (7%)	0	100	100
3	C8	437/451 (97%)	393 (90%)	44 (10%)	0	100	100
3	CB	438/451 (97%)	404 (92%)	34 (8%)	0	100	100
3	CD	428/451 (95%)	380 (89%)	48 (11%)	0	100	100
3	CF	438/451 (97%)	390 (89%)	48 (11%)	0	100	100
3	CH	427/451 (95%)	377 (88%)	50 (12%)	0	100	100
3	CJ	423/451 (94%)	396 (94%)	27 (6%)	0	100	100
3	CN	428/451 (95%)	392 (92%)	36 (8%)	0	100	100
3	CP	426/451 (94%)	398 (93%)	28 (7%)	0	100	100
3	CR	424/451 (94%)	391 (92%)	33 (8%)	0	100	100
3	CT	425/451 (94%)	394 (93%)	31 (7%)	0	100	100
3	CV	438/451 (97%)	399 (91%)	39 (9%)	0	100	100
3	CX	426/451 (94%)	379 (89%)	47 (11%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	Cc	428/451 (95%)	393 (92%)	35 (8%)	0	100	100
3	Ce	427/451 (95%)	394 (92%)	33 (8%)	0	100	100
3	Cg	426/451 (94%)	404 (95%)	22 (5%)	0	100	100
3	Ci	424/451 (94%)	396 (93%)	28 (7%)	0	100	100
3	Ck	426/451 (94%)	405 (95%)	21 (5%)	0	100	100
3	Cm	428/451 (95%)	399 (93%)	29 (7%)	0	100	100
3	Co	400/451 (89%)	371 (93%)	29 (7%)	0	100	100
3	Cs	438/451 (97%)	407 (93%)	31 (7%)	0	100	100
3	Cu	438/451 (97%)	405 (92%)	33 (8%)	0	100	100
3	Cw	438/451 (97%)	407 (93%)	31 (7%)	0	100	100
3	Cy	438/451 (97%)	405 (92%)	33 (8%)	0	100	100
3	D2	426/451 (94%)	401 (94%)	25 (6%)	0	100	100
3	D5	427/451 (95%)	395 (92%)	32 (8%)	0	100	100
3	D7	426/451 (94%)	396 (93%)	30 (7%)	0	100	100
3	D9	426/451 (94%)	397 (93%)	29 (7%)	0	100	100
3	DB	426/451 (94%)	396 (93%)	30 (7%)	0	100	100
3	DD	427/451 (95%)	385 (90%)	42 (10%)	0	100	100
3	DF	438/451 (97%)	398 (91%)	40 (9%)	0	100	100
3	DH	427/451 (95%)	383 (90%)	44 (10%)	0	100	100
3	DM	426/451 (94%)	392 (92%)	34 (8%)	0	100	100
3	DO	425/451 (94%)	391 (92%)	34 (8%)	0	100	100
3	DQ	426/451 (94%)	397 (93%)	28 (7%)	1 (0%)	47	81
3	DS	428/451 (95%)	382 (89%)	46 (11%)	0	100	100
3	DU	428/451 (95%)	391 (91%)	37 (9%)	0	100	100
3	DW	426/451 (94%)	400 (94%)	26 (6%)	0	100	100
3	Db	424/451 (94%)	401 (95%)	23 (5%)	0	100	100
3	Dd	425/451 (94%)	395 (93%)	30 (7%)	0	100	100
3	Df	429/451 (95%)	398 (93%)	31 (7%)	0	100	100
3	Dh	429/451 (95%)	394 (92%)	35 (8%)	0	100	100
3	Dj	428/451 (95%)	397 (93%)	31 (7%)	0	100	100
3	DI	427/451 (95%)	403 (94%)	24 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	Dp	426/451 (94%)	401 (94%)	25 (6%)	0	100	100
3	Dr	428/451 (95%)	392 (92%)	36 (8%)	0	100	100
3	Dt	427/451 (95%)	403 (94%)	24 (6%)	0	100	100
3	Dv	426/451 (94%)	383 (90%)	42 (10%)	1 (0%)	47	81
3	Dx	423/451 (94%)	400 (95%)	23 (5%)	0	100	100
3	Dz	426/451 (94%)	399 (94%)	27 (6%)	0	100	100
3	E3	429/451 (95%)	400 (93%)	29 (7%)	0	100	100
3	E5	428/451 (95%)	400 (94%)	28 (6%)	0	100	100
3	E7	429/451 (95%)	398 (93%)	31 (7%)	0	100	100
3	E9	429/451 (95%)	398 (93%)	31 (7%)	0	100	100
3	EA	427/451 (95%)	393 (92%)	33 (8%)	1 (0%)	47	81
3	EC	425/451 (94%)	394 (93%)	30 (7%)	1 (0%)	47	81
3	EE	427/451 (95%)	391 (92%)	36 (8%)	0	100	100
3	EG	427/451 (95%)	397 (93%)	30 (7%)	0	100	100
3	EJ	425/451 (94%)	394 (93%)	31 (7%)	0	100	100
3	EL	428/451 (95%)	394 (92%)	33 (8%)	1 (0%)	47	81
3	EN	424/451 (94%)	393 (93%)	31 (7%)	0	100	100
3	EP	426/451 (94%)	386 (91%)	40 (9%)	0	100	100
3	ER	427/451 (95%)	397 (93%)	30 (7%)	0	100	100
3	ET	427/451 (95%)	396 (93%)	31 (7%)	0	100	100
3	EV	424/451 (94%)	399 (94%)	25 (6%)	0	100	100
3	EY	426/451 (94%)	394 (92%)	32 (8%)	0	100	100
3	Ea	426/451 (94%)	387 (91%)	39 (9%)	0	100	100
3	Ec	427/451 (95%)	401 (94%)	26 (6%)	0	100	100
3	Ee	427/451 (95%)	389 (91%)	38 (9%)	0	100	100
3	Eg	421/451 (93%)	385 (91%)	36 (9%)	0	100	100
3	Ei	428/451 (95%)	397 (93%)	30 (7%)	1 (0%)	47	81
3	Ek	427/451 (95%)	396 (93%)	31 (7%)	0	100	100
3	Eo	426/451 (94%)	384 (90%)	42 (10%)	0	100	100
3	Eq	428/451 (95%)	392 (92%)	36 (8%)	0	100	100
3	Es	426/451 (94%)	384 (90%)	42 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	Eu	426/451 (94%)	397 (93%)	29 (7%)	0	100	100
3	Ew	428/451 (95%)	400 (94%)	28 (6%)	0	100	100
3	Ey	426/451 (94%)	382 (90%)	44 (10%)	0	100	100
3	FA	429/451 (95%)	406 (95%)	23 (5%)	0	100	100
3	FC	427/451 (95%)	400 (94%)	27 (6%)	0	100	100
3	FG	438/451 (97%)	400 (91%)	38 (9%)	0	100	100
3	FI	429/451 (95%)	401 (94%)	28 (6%)	0	100	100
3	FK	438/451 (97%)	399 (91%)	38 (9%)	1 (0%)	47	81
3	FM	429/451 (95%)	400 (93%)	29 (7%)	0	100	100
3	FO	438/451 (97%)	405 (92%)	33 (8%)	0	100	100
3	FQ	426/451 (94%)	392 (92%)	34 (8%)	0	100	100
3	FU	438/451 (97%)	394 (90%)	43 (10%)	1 (0%)	47	81
3	FW	427/451 (95%)	391 (92%)	36 (8%)	0	100	100
3	FY	437/451 (97%)	403 (92%)	34 (8%)	0	100	100
3	Fa	427/451 (95%)	401 (94%)	26 (6%)	0	100	100
3	Fc	436/451 (97%)	403 (92%)	33 (8%)	0	100	100
3	Fe	427/451 (95%)	397 (93%)	30 (7%)	0	100	100
3	N	436/451 (97%)	399 (92%)	37 (8%)	0	100	100
3	P	438/451 (97%)	407 (93%)	31 (7%)	0	100	100
3	R	431/451 (96%)	405 (94%)	26 (6%)	0	100	100
3	T	438/451 (97%)	413 (94%)	25 (6%)	0	100	100
3	V	438/451 (97%)	408 (93%)	30 (7%)	0	100	100
3	X	438/451 (97%)	410 (94%)	27 (6%)	1 (0%)	47	81
3	Z	437/451 (97%)	418 (96%)	19 (4%)	0	100	100
3	n	426/451 (94%)	390 (92%)	36 (8%)	0	100	100
3	p	438/451 (97%)	409 (93%)	29 (7%)	0	100	100
3	r	429/451 (95%)	396 (92%)	33 (8%)	0	100	100
3	t	438/451 (97%)	399 (91%)	39 (9%)	0	100	100
3	v	426/451 (94%)	390 (92%)	36 (8%)	0	100	100
3	x	437/451 (97%)	393 (90%)	44 (10%)	0	100	100
3	z	426/451 (94%)	389 (91%)	37 (9%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	A0	425/445 (96%)	376 (88%)	47 (11%)	2 (0%)	29	69
4	A4	424/445 (95%)	393 (93%)	31 (7%)	0	100	100
4	A6	424/445 (95%)	383 (90%)	41 (10%)	0	100	100
4	A8	424/445 (95%)	379 (89%)	45 (11%)	0	100	100
4	AN	424/445 (95%)	386 (91%)	37 (9%)	1 (0%)	47	81
4	AP	424/445 (95%)	392 (92%)	32 (8%)	0	100	100
4	AR	425/445 (96%)	392 (92%)	33 (8%)	0	100	100
4	AT	425/445 (96%)	390 (92%)	35 (8%)	0	100	100
4	AV	425/445 (96%)	395 (93%)	30 (7%)	0	100	100
4	AX	423/445 (95%)	397 (94%)	25 (6%)	1 (0%)	47	81
4	Ak	424/445 (95%)	393 (93%)	31 (7%)	0	100	100
4	Am	424/445 (95%)	384 (91%)	40 (9%)	0	100	100
4	Ao	424/445 (95%)	383 (90%)	41 (10%)	0	100	100
4	Aq	424/445 (95%)	375 (88%)	48 (11%)	1 (0%)	47	81
4	As	424/445 (95%)	387 (91%)	37 (9%)	0	100	100
4	Au	423/445 (95%)	392 (93%)	31 (7%)	0	100	100
4	Aw	381/445 (86%)	358 (94%)	23 (6%)	0	100	100
4	B1	423/445 (95%)	395 (93%)	27 (6%)	1 (0%)	47	81
4	B3	425/445 (96%)	399 (94%)	26 (6%)	0	100	100
4	B7	359/445 (81%)	338 (94%)	21 (6%)	0	100	100
4	B9	425/445 (96%)	392 (92%)	33 (8%)	0	100	100
4	BB	424/445 (95%)	386 (91%)	37 (9%)	1 (0%)	47	81
4	BD	423/445 (95%)	378 (89%)	45 (11%)	0	100	100
4	BF	424/445 (95%)	385 (91%)	39 (9%)	0	100	100
4	BN	424/445 (95%)	391 (92%)	33 (8%)	0	100	100
4	BP	425/445 (96%)	388 (91%)	37 (9%)	0	100	100
4	BR	424/445 (95%)	372 (88%)	50 (12%)	2 (0%)	29	69
4	BT	424/445 (95%)	369 (87%)	53 (12%)	2 (0%)	29	69
4	BV	424/445 (95%)	397 (94%)	27 (6%)	0	100	100
4	BX	423/445 (95%)	386 (91%)	37 (9%)	0	100	100
4	BZ	425/445 (96%)	389 (92%)	36 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	Bb	425/445 (96%)	397 (93%)	28 (7%)	0	100	100
4	Bd	425/445 (96%)	399 (94%)	26 (6%)	0	100	100
4	Bf	425/445 (96%)	397 (93%)	28 (7%)	0	100	100
4	Bh	425/445 (96%)	389 (92%)	36 (8%)	0	100	100
4	Bj	425/445 (96%)	397 (93%)	28 (7%)	0	100	100
4	Bl	423/445 (95%)	394 (93%)	29 (7%)	0	100	100
4	Bn	425/445 (96%)	399 (94%)	26 (6%)	0	100	100
4	Bq	424/445 (95%)	397 (94%)	27 (6%)	0	100	100
4	Bs	425/445 (96%)	397 (93%)	28 (7%)	0	100	100
4	Bu	425/445 (96%)	404 (95%)	21 (5%)	0	100	100
4	Bw	425/445 (96%)	393 (92%)	31 (7%)	1 (0%)	47	81
4	By	425/445 (96%)	401 (94%)	24 (6%)	0	100	100
4	C2	424/445 (95%)	398 (94%)	26 (6%)	0	100	100
4	C4	425/445 (96%)	400 (94%)	25 (6%)	0	100	100
4	C7	424/445 (95%)	390 (92%)	34 (8%)	0	100	100
4	C9	424/445 (95%)	384 (91%)	40 (9%)	0	100	100
4	CA	425/445 (96%)	394 (93%)	31 (7%)	0	100	100
4	CC	425/445 (96%)	388 (91%)	35 (8%)	2 (0%)	29	69
4	CE	425/445 (96%)	390 (92%)	34 (8%)	1 (0%)	47	81
4	CG	424/445 (95%)	384 (91%)	39 (9%)	1 (0%)	47	81
4	CI	426/445 (96%)	392 (92%)	34 (8%)	0	100	100
4	CM	424/445 (95%)	383 (90%)	41 (10%)	0	100	100
4	CO	425/445 (96%)	386 (91%)	39 (9%)	0	100	100
4	CQ	424/445 (95%)	393 (93%)	31 (7%)	0	100	100
4	CS	424/445 (95%)	390 (92%)	34 (8%)	0	100	100
4	CU	424/445 (95%)	392 (92%)	32 (8%)	0	100	100
4	CW	424/445 (95%)	376 (89%)	47 (11%)	1 (0%)	47	81
4	CY	424/445 (95%)	390 (92%)	34 (8%)	0	100	100
4	Cb	397/445 (89%)	378 (95%)	19 (5%)	0	100	100
4	Cd	425/445 (96%)	396 (93%)	29 (7%)	0	100	100
4	Cf	425/445 (96%)	398 (94%)	27 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	Ch	427/445 (96%)	406 (95%)	21 (5%)	0	100	100
4	Cj	424/445 (95%)	398 (94%)	26 (6%)	0	100	100
4	Cl	427/445 (96%)	399 (93%)	28 (7%)	0	100	100
4	Cn	425/445 (96%)	411 (97%)	14 (3%)	0	100	100
4	Cr	425/445 (96%)	402 (95%)	23 (5%)	0	100	100
4	Ct	425/445 (96%)	397 (93%)	28 (7%)	0	100	100
4	Cv	425/445 (96%)	400 (94%)	25 (6%)	0	100	100
4	Cx	425/445 (96%)	398 (94%)	27 (6%)	0	100	100
4	Cz	425/445 (96%)	400 (94%)	25 (6%)	0	100	100
4	D0	426/445 (96%)	389 (91%)	37 (9%)	0	100	100
4	D1	423/445 (95%)	394 (93%)	29 (7%)	0	100	100
4	D6	425/445 (96%)	395 (93%)	30 (7%)	0	100	100
4	D8	425/445 (96%)	399 (94%)	26 (6%)	0	100	100
4	DA	425/445 (96%)	391 (92%)	34 (8%)	0	100	100
4	DC	425/445 (96%)	394 (93%)	31 (7%)	0	100	100
4	DE	424/445 (95%)	390 (92%)	34 (8%)	0	100	100
4	DG	424/445 (95%)	386 (91%)	38 (9%)	0	100	100
4	DI	424/445 (95%)	383 (90%)	41 (10%)	0	100	100
4	DL	425/445 (96%)	398 (94%)	27 (6%)	0	100	100
4	DN	425/445 (96%)	384 (90%)	41 (10%)	0	100	100
4	DP	425/445 (96%)	394 (93%)	31 (7%)	0	100	100
4	DR	425/445 (96%)	387 (91%)	38 (9%)	0	100	100
4	DT	425/445 (96%)	392 (92%)	32 (8%)	1 (0%)	47	81
4	DV	425/445 (96%)	395 (93%)	30 (7%)	0	100	100
4	DX	423/445 (95%)	398 (94%)	25 (6%)	0	100	100
4	Da	407/445 (92%)	382 (94%)	25 (6%)	0	100	100
4	Dc	423/445 (95%)	396 (94%)	27 (6%)	0	100	100
4	De	422/445 (95%)	402 (95%)	20 (5%)	0	100	100
4	Dg	423/445 (95%)	390 (92%)	33 (8%)	0	100	100
4	Di	425/445 (96%)	398 (94%)	27 (6%)	0	100	100
4	Dk	425/445 (96%)	397 (93%)	28 (7%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	Dm	422/445 (95%)	390 (92%)	32 (8%)	0	100	100
4	Dq	425/445 (96%)	393 (92%)	31 (7%)	1 (0%)	47	81
4	Ds	425/445 (96%)	395 (93%)	30 (7%)	0	100	100
4	Du	425/445 (96%)	399 (94%)	26 (6%)	0	100	100
4	Dw	425/445 (96%)	396 (93%)	29 (7%)	0	100	100
4	Dy	425/445 (96%)	398 (94%)	27 (6%)	0	100	100
4	E0	425/445 (96%)	391 (92%)	34 (8%)	0	100	100
4	E2	426/445 (96%)	393 (92%)	33 (8%)	0	100	100
4	E4	425/445 (96%)	392 (92%)	33 (8%)	0	100	100
4	E6	425/445 (96%)	395 (93%)	30 (7%)	0	100	100
4	E8	426/445 (96%)	399 (94%)	27 (6%)	0	100	100
4	EB	425/445 (96%)	384 (90%)	40 (9%)	1 (0%)	47	81
4	ED	425/445 (96%)	390 (92%)	35 (8%)	0	100	100
4	EF	424/445 (95%)	399 (94%)	25 (6%)	0	100	100
4	EK	425/445 (96%)	383 (90%)	42 (10%)	0	100	100
4	EM	425/445 (96%)	394 (93%)	31 (7%)	0	100	100
4	EO	425/445 (96%)	389 (92%)	36 (8%)	0	100	100
4	EQ	425/445 (96%)	396 (93%)	29 (7%)	0	100	100
4	ES	425/445 (96%)	396 (93%)	29 (7%)	0	100	100
4	EU	424/445 (95%)	386 (91%)	38 (9%)	0	100	100
4	EZ	425/445 (96%)	385 (91%)	39 (9%)	1 (0%)	47	81
4	Eb	425/445 (96%)	394 (93%)	31 (7%)	0	100	100
4	Ed	426/445 (96%)	393 (92%)	33 (8%)	0	100	100
4	Ef	425/445 (96%)	395 (93%)	29 (7%)	1 (0%)	47	81
4	Eh	425/445 (96%)	397 (93%)	28 (7%)	0	100	100
4	Ej	424/445 (95%)	391 (92%)	33 (8%)	0	100	100
4	En	425/445 (96%)	391 (92%)	34 (8%)	0	100	100
4	Ep	425/445 (96%)	395 (93%)	30 (7%)	0	100	100
4	Er	425/445 (96%)	391 (92%)	34 (8%)	0	100	100
4	Et	425/445 (96%)	405 (95%)	20 (5%)	0	100	100
4	Ev	425/445 (96%)	383 (90%)	42 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	Ex	424/445 (95%)	388 (92%)	36 (8%)	0	100	100
4	FB	424/445 (95%)	384 (91%)	40 (9%)	0	100	100
4	FD	425/445 (96%)	403 (95%)	22 (5%)	0	100	100
4	FF	425/445 (96%)	384 (90%)	41 (10%)	0	100	100
4	FH	425/445 (96%)	393 (92%)	32 (8%)	0	100	100
4	FJ	425/445 (96%)	395 (93%)	30 (7%)	0	100	100
4	FL	425/445 (96%)	398 (94%)	27 (6%)	0	100	100
4	FN	425/445 (96%)	395 (93%)	30 (7%)	0	100	100
4	FP	424/445 (95%)	384 (91%)	40 (9%)	0	100	100
4	FR	425/445 (96%)	399 (94%)	26 (6%)	0	100	100
4	FT	425/445 (96%)	382 (90%)	43 (10%)	0	100	100
4	FV	425/445 (96%)	388 (91%)	37 (9%)	0	100	100
4	FX	424/445 (95%)	396 (93%)	28 (7%)	0	100	100
4	FZ	424/445 (95%)	391 (92%)	33 (8%)	0	100	100
4	Fb	424/445 (95%)	399 (94%)	25 (6%)	0	100	100
4	Fd	424/445 (95%)	387 (91%)	37 (9%)	0	100	100
4	Ff	424/445 (95%)	397 (94%)	27 (6%)	0	100	100
4	O	434/445 (98%)	404 (93%)	30 (7%)	0	100	100
4	Q	434/445 (98%)	402 (93%)	32 (7%)	0	100	100
4	S	434/445 (98%)	409 (94%)	25 (6%)	0	100	100
4	U	434/445 (98%)	404 (93%)	30 (7%)	0	100	100
4	W	434/445 (98%)	408 (94%)	26 (6%)	0	100	100
4	Y	433/445 (97%)	411 (95%)	22 (5%)	0	100	100
4	o	425/445 (96%)	397 (93%)	28 (7%)	0	100	100
4	q	425/445 (96%)	393 (92%)	32 (8%)	0	100	100
4	s	425/445 (96%)	391 (92%)	34 (8%)	0	100	100
4	u	425/445 (96%)	398 (94%)	27 (6%)	0	100	100
4	w	425/445 (96%)	395 (93%)	30 (7%)	0	100	100
4	y	423/445 (95%)	394 (93%)	29 (7%)	0	100	100
5	b	187/430 (44%)	185 (99%)	2 (1%)	0	100	100
5	e	414/430 (96%)	406 (98%)	8 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	f	414/430 (96%)	396 (96%)	17 (4%)	1 (0%)	47	81
5	g	381/430 (89%)	367 (96%)	13 (3%)	1 (0%)	41	77
5	h	46/430 (11%)	44 (96%)	2 (4%)	0	100	100
5	i	49/430 (11%)	46 (94%)	3 (6%)	0	100	100
5	j	356/430 (83%)	354 (99%)	2 (1%)	0	100	100
5	k	412/430 (96%)	400 (97%)	12 (3%)	0	100	100
5	l	401/430 (93%)	390 (97%)	11 (3%)	0	100	100
5	m	187/430 (44%)	181 (97%)	6 (3%)	0	100	100
6	1	133/853 (16%)	128 (96%)	4 (3%)	1 (1%)	19	60
6	2	178/853 (21%)	135 (76%)	22 (12%)	21 (12%)	0	6
7	AC	29/490 (6%)	28 (97%)	1 (3%)	0	100	100
7	AD	330/490 (67%)	320 (97%)	10 (3%)	0	100	100
7	AE	392/490 (80%)	387 (99%)	5 (1%)	0	100	100
7	AF	392/490 (80%)	378 (96%)	14 (4%)	0	100	100
7	AG	211/490 (43%)	203 (96%)	8 (4%)	0	100	100
7	AH	111/490 (23%)	109 (98%)	2 (2%)	0	100	100
7	AI	383/490 (78%)	376 (98%)	7 (2%)	0	100	100
7	AJ	411/490 (84%)	402 (98%)	8 (2%)	1 (0%)	47	81
7	AK	403/490 (82%)	395 (98%)	7 (2%)	1 (0%)	47	81
7	AL	108/490 (22%)	105 (97%)	2 (2%)	1 (1%)	17	57
7	BI	133/490 (27%)	126 (95%)	7 (5%)	0	100	100
7	BJ	417/490 (85%)	402 (96%)	15 (4%)	0	100	100
7	BK	417/490 (85%)	404 (97%)	13 (3%)	0	100	100
7	BL	376/490 (77%)	369 (98%)	7 (2%)	0	100	100
7	BM	97/490 (20%)	92 (95%)	5 (5%)	0	100	100
8	A	168/491 (34%)	145 (86%)	15 (9%)	8 (5%)	2	21
8	a	352/491 (72%)	349 (99%)	3 (1%)	0	100	100
9	Aa	286/447 (64%)	278 (97%)	8 (3%)	0	100	100
9	Ab	423/447 (95%)	408 (96%)	15 (4%)	0	100	100
9	Ac	423/447 (95%)	413 (98%)	10 (2%)	0	100	100
9	Ad	312/447 (70%)	307 (98%)	5 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
9	Af	310/447 (69%)	304 (98%)	6 (2%)	0	100	100
9	Ag	412/447 (92%)	397 (96%)	14 (3%)	1 (0%)	47	81
9	Ah	411/447 (92%)	401 (98%)	10 (2%)	0	100	100
9	Ai	287/447 (64%)	279 (97%)	8 (3%)	0	100	100
10	3	304/514 (59%)	287 (94%)	8 (3%)	9 (3%)	4	28
10	4	199/514 (39%)	199 (100%)	0	0	100	100
11	A1	125/206 (61%)	113 (90%)	10 (8%)	2 (2%)	9	44
11	A2	142/206 (69%)	127 (89%)	13 (9%)	2 (1%)	11	46
11	A3	142/206 (69%)	128 (90%)	12 (8%)	2 (1%)	11	46
11	Az	66/206 (32%)	62 (94%)	4 (6%)	0	100	100
12	AB	85/101 (84%)	85 (100%)	0	0	100	100
13	5	354/395 (90%)	335 (95%)	18 (5%)	1 (0%)	41	77
13	6	354/395 (90%)	331 (94%)	22 (6%)	1 (0%)	41	77
14	B6	144/273 (53%)	138 (96%)	5 (4%)	1 (1%)	22	63
14	C6	144/273 (53%)	135 (94%)	8 (6%)	1 (1%)	22	63
14	CL	144/273 (53%)	130 (90%)	13 (9%)	1 (1%)	22	63
14	Ca	144/273 (53%)	130 (90%)	13 (9%)	1 (1%)	22	63
14	Cq	144/273 (53%)	136 (94%)	7 (5%)	1 (1%)	22	63
14	DK	147/273 (54%)	134 (91%)	11 (8%)	2 (1%)	11	46
15	AZ	141/470 (30%)	127 (90%)	13 (9%)	1 (1%)	22	63
16	D4	37/377 (10%)	33 (89%)	3 (8%)	1 (3%)	5	31
16	DZ	31/377 (8%)	31 (100%)	0	0	100	100
16	Do	371/377 (98%)	357 (96%)	12 (3%)	2 (0%)	29	69
16	EI	218/377 (58%)	213 (98%)	4 (2%)	1 (0%)	29	69
16	EX	168/377 (45%)	165 (98%)	2 (1%)	1 (1%)	25	66
17	8	184/196 (94%)	154 (84%)	27 (15%)	3 (2%)	9	44
17	9	28/196 (14%)	22 (79%)	3 (11%)	3 (11%)	0	8
18	Ay	243/303 (80%)	224 (92%)	18 (7%)	1 (0%)	34	72
18	BH	243/303 (80%)	214 (88%)	27 (11%)	2 (1%)	19	60
19	E1	434/648 (67%)	423 (98%)	9 (2%)	2 (0%)	29	69
19	Em	434/648 (67%)	424 (98%)	8 (2%)	2 (0%)	29	69

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
19	FE	434/648 (67%)	424 (98%)	8 (2%)	2 (0%)	29	69
20	F0	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	F1	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	F2	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	F3	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	F4	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	F5	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	F6	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	F7	145/168 (86%)	143 (99%)	2 (1%)	0	100	100
20	F8	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	F9	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	GA	144/168 (86%)	142 (99%)	2 (1%)	0	100	100
20	GB	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	GC	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	GD	144/168 (86%)	142 (99%)	2 (1%)	0	100	100
20	GE	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	GF	140/168 (83%)	138 (99%)	2 (1%)	0	100	100
20	GG	139/168 (83%)	137 (99%)	2 (1%)	0	100	100
20	GH	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	GI	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	GJ	145/168 (86%)	143 (99%)	2 (1%)	0	100	100
20	GK	145/168 (86%)	143 (99%)	2 (1%)	0	100	100
20	GL	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	GM	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	GN	146/168 (87%)	144 (99%)	2 (1%)	0	100	100
20	GO	145/168 (86%)	143 (99%)	2 (1%)	0	100	100
20	GP	145/168 (86%)	143 (99%)	2 (1%)	0	100	100
20	GQ	148/168 (88%)	146 (99%)	2 (1%)	0	100	100
21	FS	543/750 (72%)	486 (90%)	57 (10%)	0	100	100
21	Fg	624/750 (83%)	559 (90%)	64 (10%)	1 (0%)	47	81
21	Fo	624/750 (83%)	565 (90%)	59 (10%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
21	Fv	439/750 (58%)	397 (90%)	41 (9%)	1 (0%)	47	81
22	Fh	182/193 (94%)	169 (93%)	13 (7%)	0	100	100
22	Fi	182/193 (94%)	162 (89%)	20 (11%)	0	100	100
22	Fj	182/193 (94%)	163 (90%)	19 (10%)	0	100	100
22	Fk	182/193 (94%)	167 (92%)	15 (8%)	0	100	100
22	Fl	182/193 (94%)	168 (92%)	13 (7%)	1 (0%)	29	69
22	Fm	182/193 (94%)	165 (91%)	17 (9%)	0	100	100
22	Fn	182/193 (94%)	168 (92%)	14 (8%)	0	100	100
23	Fp	217/241 (90%)	193 (89%)	23 (11%)	1 (0%)	29	69
23	Fq	217/241 (90%)	196 (90%)	20 (9%)	1 (0%)	29	69
23	Fr	217/241 (90%)	196 (90%)	20 (9%)	1 (0%)	29	69
23	Fs	217/241 (90%)	202 (93%)	14 (6%)	1 (0%)	29	69
23	Ft	217/241 (90%)	201 (93%)	15 (7%)	1 (0%)	29	69
24	Fx	183/185 (99%)	173 (94%)	10 (6%)	0	100	100
24	Fy	183/185 (99%)	173 (94%)	10 (6%)	0	100	100
24	Fz	183/185 (99%)	174 (95%)	9 (5%)	0	100	100
25	G	69/122 (57%)	49 (71%)	12 (17%)	8 (12%)	0	6
26	GR	264/557 (47%)	252 (96%)	11 (4%)	1 (0%)	34	72
26	GS	264/557 (47%)	252 (96%)	11 (4%)	1 (0%)	34	72
26	GT	264/557 (47%)	252 (96%)	11 (4%)	1 (0%)	34	72
26	GU	161/557 (29%)	149 (92%)	11 (7%)	1 (1%)	25	66
26	GV	236/557 (42%)	228 (97%)	6 (2%)	2 (1%)	19	60
26	GW	341/557 (61%)	325 (95%)	13 (4%)	3 (1%)	17	57
26	GX	338/557 (61%)	319 (94%)	17 (5%)	2 (1%)	25	66
26	GY	280/557 (50%)	272 (97%)	7 (2%)	1 (0%)	34	72
26	GZ	21/557 (4%)	20 (95%)	1 (5%)	0	100	100
26	Ga	108/557 (19%)	103 (95%)	5 (5%)	0	100	100
26	Gb	334/557 (60%)	319 (96%)	15 (4%)	0	100	100
26	Gc	325/557 (58%)	310 (95%)	15 (5%)	0	100	100
26	Gd	319/557 (57%)	304 (95%)	15 (5%)	0	100	100
26	Ge	54/557 (10%)	54 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
26	Gf	25/557 (4%)	25 (100%)	0	0	100	100
26	Gg	284/557 (51%)	269 (95%)	15 (5%)	0	100	100
26	Gh	312/557 (56%)	298 (96%)	10 (3%)	4 (1%)	12	48
26	Gi	313/557 (56%)	298 (95%)	12 (4%)	3 (1%)	15	55
26	Gj	184/557 (33%)	175 (95%)	6 (3%)	3 (2%)	9	44
26	z0	264/557 (47%)	257 (97%)	7 (3%)	0	100	100
26	z1	260/557 (47%)	251 (96%)	7 (3%)	2 (1%)	19	60
26	z3	246/557 (44%)	237 (96%)	7 (3%)	2 (1%)	19	60
26	z4	178/557 (32%)	175 (98%)	3 (2%)	0	100	100
27	AA	325/551 (59%)	322 (99%)	3 (1%)	0	100	100
27	Ax	213/551 (39%)	209 (98%)	4 (2%)	0	100	100
27	B	55/551 (10%)	54 (98%)	1 (2%)	0	100	100
27	c	46/551 (8%)	38 (83%)	5 (11%)	3 (6%)	1	16
27	d	234/551 (42%)	219 (94%)	12 (5%)	3 (1%)	12	48
28	BG	603/620 (97%)	538 (89%)	65 (11%)	0	100	100
28	Ba	603/620 (97%)	525 (87%)	77 (13%)	1 (0%)	47	81
28	Bo	603/620 (97%)	535 (89%)	66 (11%)	2 (0%)	41	77
29	B5	140/255 (55%)	133 (95%)	7 (5%)	0	100	100
29	CK	225/255 (88%)	214 (95%)	10 (4%)	1 (0%)	34	72
29	CZ	225/255 (88%)	212 (94%)	12 (5%)	1 (0%)	34	72
29	Cp	225/255 (88%)	218 (97%)	7 (3%)	0	100	100
30	C5	112/189 (59%)	101 (90%)	10 (9%)	1 (1%)	17	57
30	DJ	109/189 (58%)	101 (93%)	8 (7%)	0	100	100
30	DY	116/189 (61%)	107 (92%)	9 (8%)	0	100	100
31	D3	98/547 (18%)	97 (99%)	1 (1%)	0	100	100
31	Dn	370/547 (68%)	368 (100%)	2 (0%)	0	100	100
32	EH	73/168 (44%)	68 (93%)	5 (7%)	0	100	100
32	EW	73/168 (44%)	67 (92%)	6 (8%)	0	100	100
32	El	75/168 (45%)	67 (89%)	8 (11%)	0	100	100
33	Ez	176/1516 (12%)	161 (92%)	15 (8%)	0	100	100
34	C	165/499 (33%)	157 (95%)	5 (3%)	3 (2%)	8	40

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
34	D	292/499 (58%)	276 (94%)	11 (4%)	5 (2%)	9	42
34	E	292/499 (58%)	280 (96%)	8 (3%)	4 (1%)	11	46
34	F	274/499 (55%)	260 (95%)	9 (3%)	5 (2%)	8	40
34	H	5/499 (1%)	4 (80%)	1 (20%)	0	100	100
35	Fw	74/167 (44%)	71 (96%)	2 (3%)	1 (1%)	11	46
All	All	166871/200980 (83%)	155158 (93%)	11513 (7%)	200 (0%)	54	86

All (200) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	1	694	PRO
6	2	359	PRO
6	2	361	PRO
6	2	383	ALA
6	2	396	PRO
6	2	614	ASN
11	A1	72	PRO
11	A2	71	GLU
11	A3	72	PRO
4	A0	180	VAL
13	5	50	VAL
3	Bk	224	TYR
3	Bm	130	THR
14	B6	48	PRO
1	7	127	ASP
1	7	128	PRO
1	7	132	PRO
1	7	142	SER
1	7	143	PRO
1	7	168	PRO
17	8	61	ASP
17	9	172	PRO
17	9	184	PRO
17	9	186	PRO
8	A	118	SER
4	EB	393	ALA
3	Ei	268	PRO
25	G	33	ASN
25	G	79	PHE
25	G	85	PRO

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Mol	Chain	Res	Type
14	CL	48	PRO
14	Ca	48	PRO
14	Cq	48	PRO
14	C6	48	PRO
14	DK	48	PRO
28	Ba	59	PHE
29	CK	83	PRO
29	CZ	83	PRO
27	d	186	GLU
34	C	114	HIS
34	D	114	HIS
34	D	186	PRO
34	E	114	HIS
34	F	186	PRO
5	f	211	ASP
6	2	354	GLY
6	2	381	GLN
6	2	461	SER
6	2	611	VAL
6	2	612	GLN
6	2	639	TYR
6	2	647	ASN
9	Ag	51	TYR
10	3	45	HIS
10	3	120	GLY
10	3	158	ARG
3	Bk	205	ASP
4	CW	173	PRO
4	Dq	59	TYR
17	8	137	ALA
8	A	45	ASN
3	EA	404	PHE
4	AN	197	ASP
23	Fq	42	VAL
23	Fs	42	VAL
23	Ft	42	VAL
25	G	36	ASN
26	Gh	92	PRO
27	d	191	LEU
34	C	126	VAL
34	C	128	ALA
34	E	186	PRO

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Mol	Chain	Res	Type
35	Fw	122	PHE
34	F	114	HIS
2	K	328	LEU
4	BR	273	LEU
6	2	355	SER
6	2	356	LEU
6	2	402	ILE
6	2	597	GLY
6	2	610	CYS
10	3	111	GLU
10	3	112	TYR
10	3	125	GLU
10	3	159	GLU
11	A3	80	PRO
4	BB	272	PRO
3	BC	204	VAL
1	7	167	PRO
3	DQ	32	PRO
19	E1	468	GLY
8	A	47	ASN
8	A	67	LEU
8	A	68	ASP
8	A	119	ILE
8	A	120	GLU
4	EZ	346	PRO
19	Em	468	GLY
18	BH	247	MET
19	FE	468	GLY
3	FU	47	ASP
25	G	57	ALA
25	G	82	LYS
14	DK	90	ILE
16	EX	375	ARG
27	c	106	PRO
27	c	115	ALA
28	Bo	474	GLU
27	d	195	SER
34	F	382	LEU
3	X	175	PRO
5	g	128	VAL
4	BR	272	PRO
4	BT	303	CYS

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Mol	Chain	Res	Type
4	BT	346	PRO
10	3	113	PHE
11	A1	41	PRO
11	A2	39	TRP
3	BE	18	ASN
4	CE	259	PRO
3	Dv	261	PRO
4	Ef	346	PRO
22	F1	116	PRO
23	Fp	42	VAL
25	G	78	PHE
26	GW	185	ASN
26	z1	387	TYR
26	Gh	302	ASP
26	Gh	322	GLU
26	Gi	273	THR
26	Gj	292	ILE
16	D4	364	PRO
34	E	381	PRO
6	2	349	ILE
6	2	360	GLN
4	Aq	263	LEU
4	A0	179	VAL
8	A	53	ARG
3	EC	261	PRO
3	EL	261	PRO
23	Fr	42	VAL
26	GR	186	CYS
26	GS	186	CYS
26	GT	186	CYS
26	GU	186	CYS
26	GX	294	GLU
26	Gh	292	ILE
26	Gi	292	ILE
26	Gj	293	PRO
26	Gj	294	GLU
28	Bo	247	ASP
2	I	400	ARG
2	J	400	ARG
7	AJ	82	PRO
6	2	392	THR
4	CC	259	PRO

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Mol	Chain	Res	Type
18	Ay	250	VAL
26	GY	186	CYS
26	z3	186	CYS
26	z3	387	TYR
26	Gi	293	PRO
16	EI	257	ARG
27	c	122	GLU
16	Do	257	ARG
19	E1	364	LEU
19	Em	364	LEU
19	FE	364	LEU
25	G	32	VAL
26	GV	186	CYS
26	GV	387	TYR
26	GW	387	TYR
26	z1	186	CYS
30	C5	23	SER
4	DT	80	PRO
26	GW	184	VAL
34	F	185	ARG
6	2	338	ALA
10	3	123	ILE
4	B1	259	PRO
13	6	50	VAL
4	CG	261	PRO
15	AZ	379	ALA
16	Do	364	PRO
18	BH	117	VAL
21	Fg	696	VAL
26	GX	387	TYR
34	D	126	VAL
34	D	380	GLY
34	D	381	PRO
7	AK	82	PRO
4	CC	80	PRO
17	8	185	VAL
7	AL	82	PRO
34	E	185	ARG
34	F	380	GLY
3	BS	261	PRO
4	AX	326	VAL
4	Bw	259	PRO

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Mol	Chain	Res	Type
3	FK	437	VAL
21	Fv	595	ILE

5.3.2 Protein sidechains [i](#)

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

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

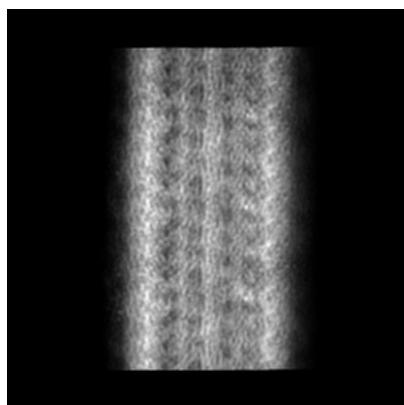
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-41431. These allow visual inspection of the internal detail of the map and identification of artifacts.

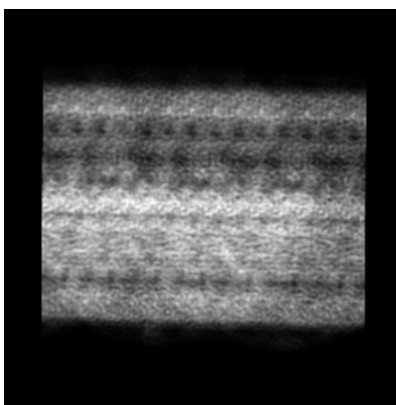
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

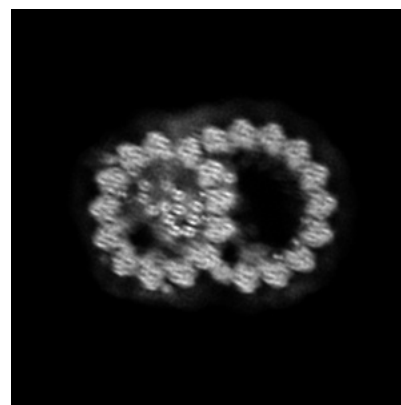
6.1.1 Primary map



X



Y

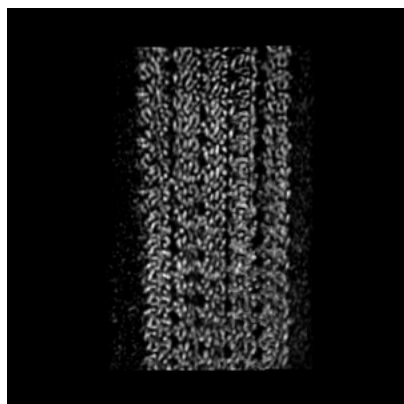


Z

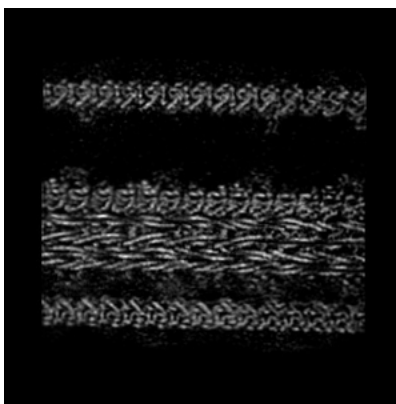
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

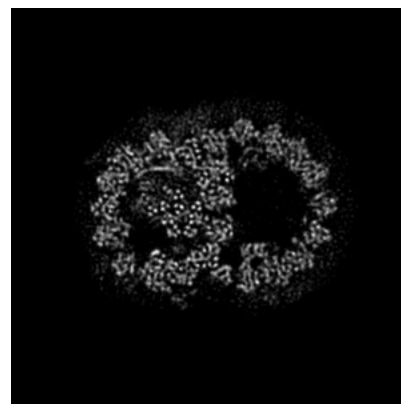
6.2.1 Primary map



X Index: 138



Y Index: 138

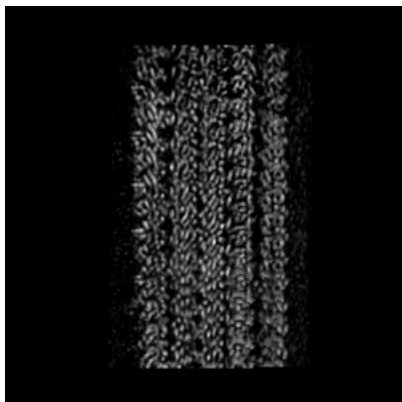


Z Index: 138

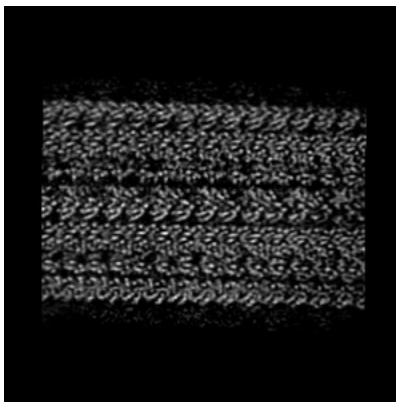
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

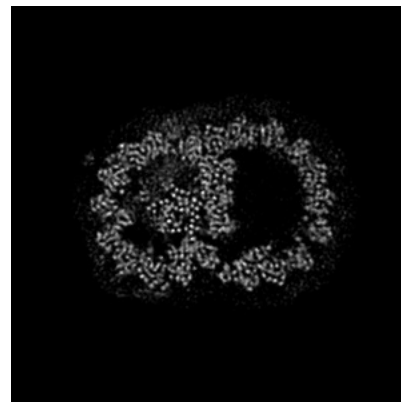
6.3.1 Primary map



X Index: 140



Y Index: 97

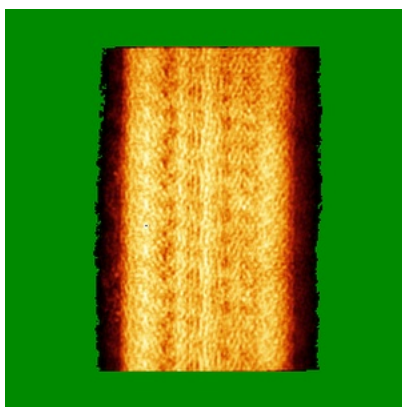


Z Index: 127

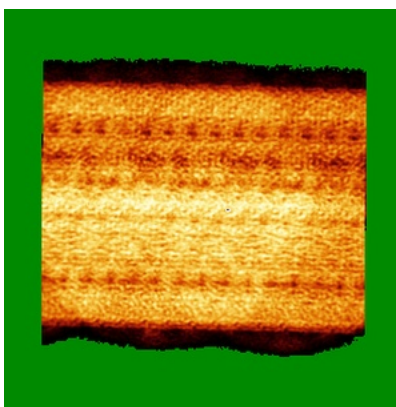
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

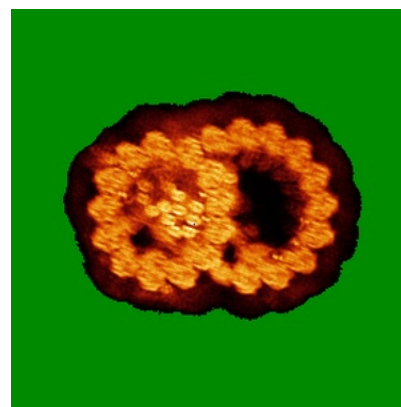
6.4.1 Primary map



X



Y

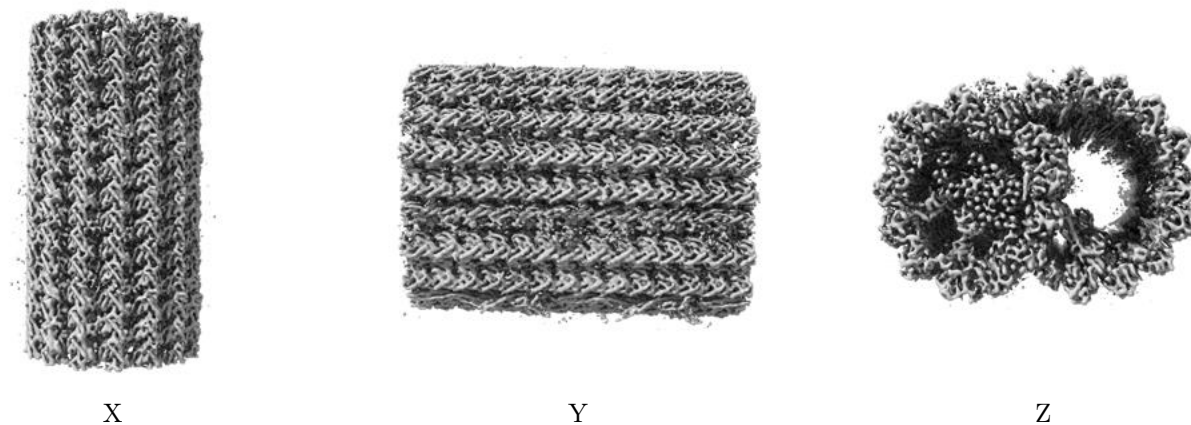


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

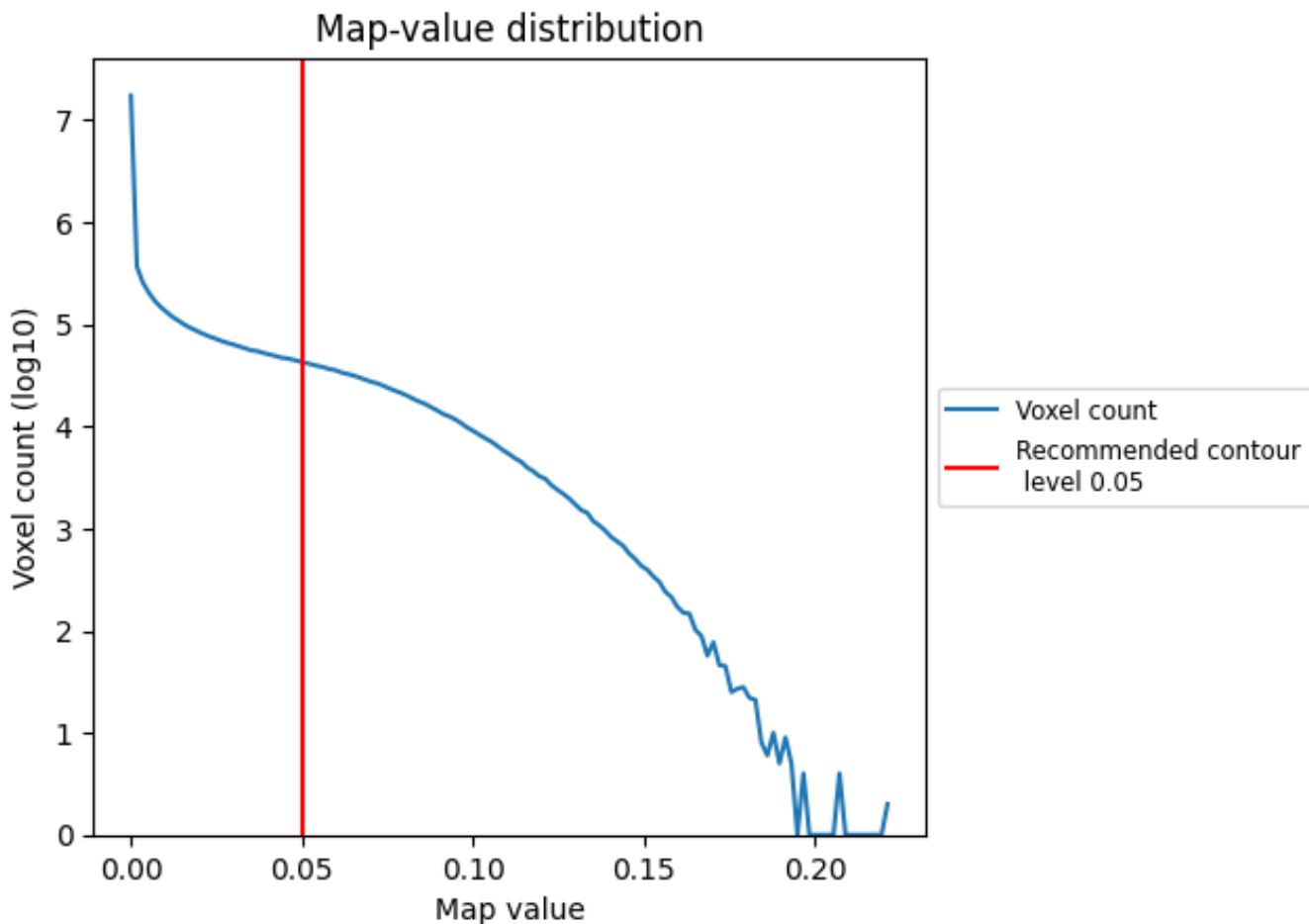
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

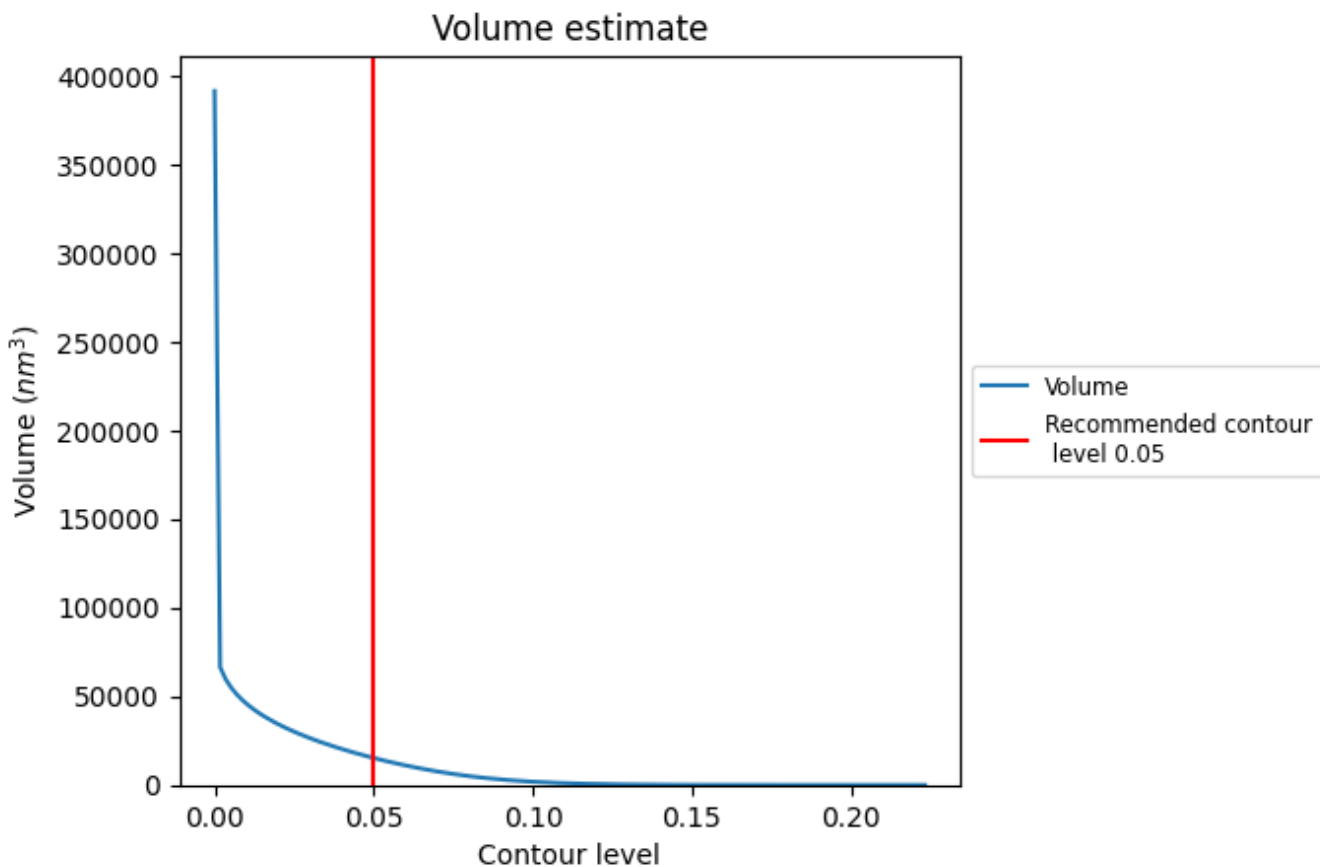
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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.

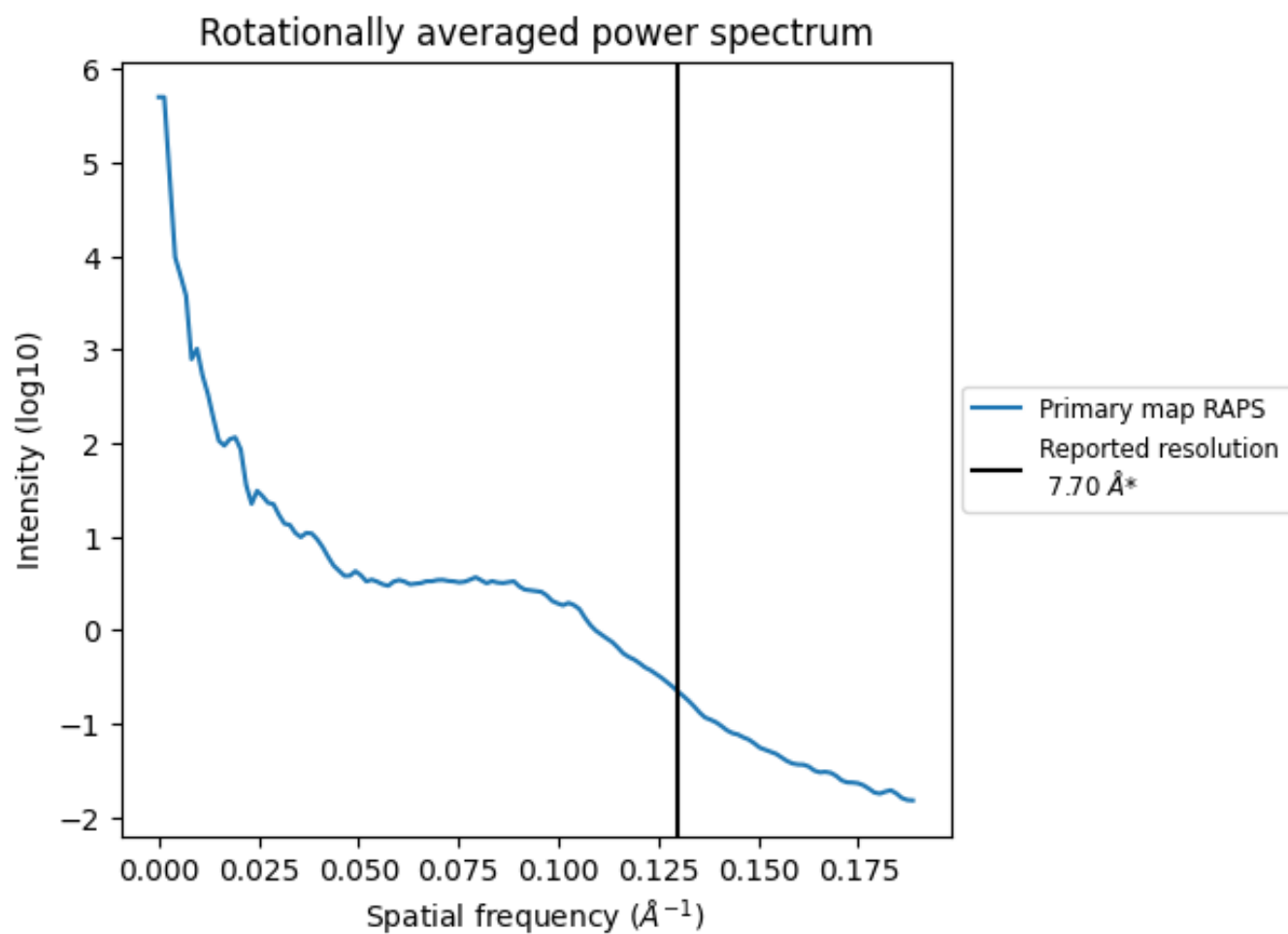
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 15211 nm^3 ; this corresponds to an approximate mass of 13740 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 0.130 Å⁻¹

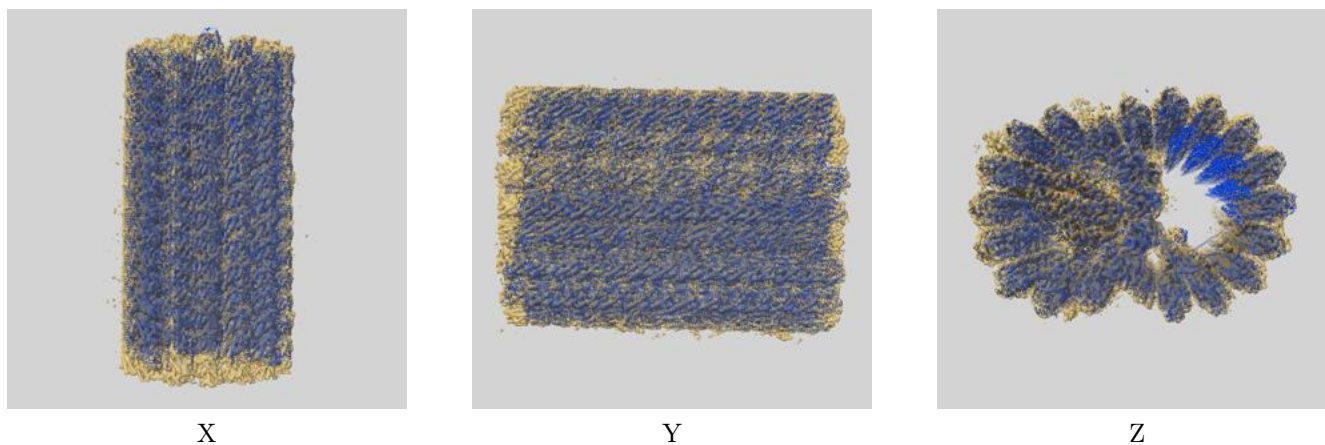
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-41431 and PDB model 8TO0. Per-residue inclusion information can be found in section 3 on page 48.

9.1 Map-model overlay [i](#)

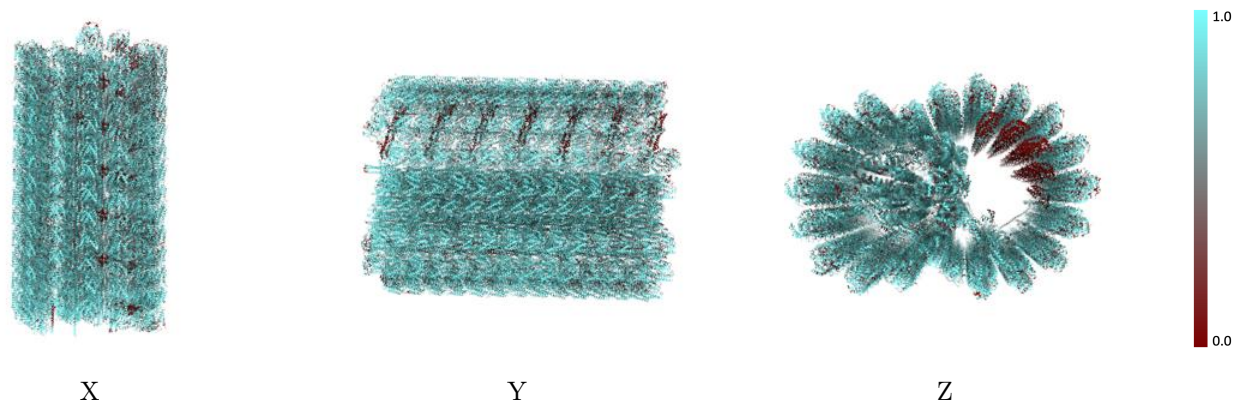


The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)

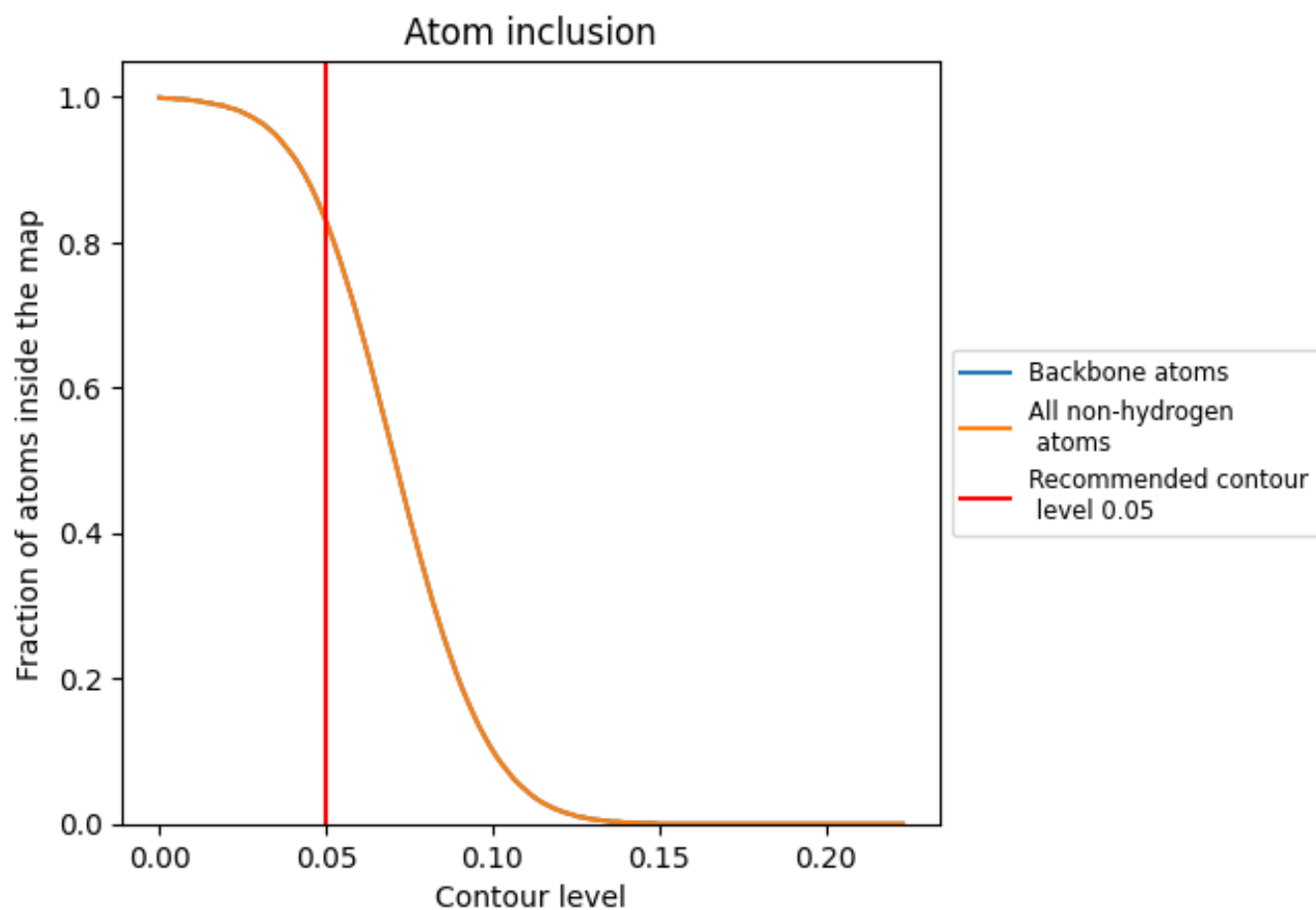
This section was not generated.

9.3 Atom inclusion mapped to coordinate model [i](#)



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 (0.05).




































9.4 Atom inclusion [i](#)



At the recommended contour level, 83% of all backbone atoms, 83% 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 (0.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion
All	 0.8290
0	 0.5500
1	 0.5370
2	 0.9210
3	 0.9460
4	 0.9150
5	 0.8320
6	 0.8740
7	 0.4710
8	 0.6210
9	 0.6020
A	 0.9340
A0	 0.9040
A1	 0.7890
A2	 0.8250
A3	 0.6750
A4	 0.7530
A5	 0.7640
A6	 0.7660
A7	 0.7910
A8	 0.8660
A9	 0.9100
AA	 0.8070
AB	 0.9970
AC	 0.9190
AD	 0.9200
AE	 0.9540
AF	 0.9630
AG	 0.9630
AH	 0.9140
AI	 0.9520
AJ	 0.9610
AK	 0.9720
AL	 0.8530
AM	 0.7680













































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Chain	Atom inclusion
AN	0.7820
AO	0.7860
AP	0.8910
AQ	0.9180
AR	0.9300
AS	0.9080
AT	0.9420
AU	0.8820
AV	0.8640
AW	0.8720
AX	0.9350
AY	0.9090
AZ	0.7280
Aa	0.8970
Ab	0.9540
Ac	0.9550
Ad	0.9870
Af	0.9560
Ag	0.9580
Ah	0.9790
Ai	0.9590
Aj	0.7010
Ak	0.7350
Al	0.7550
Am	0.8080
An	0.8540
Ao	0.9280
Ap	0.8940
Aq	0.9400
Ar	0.8490
As	0.8490
At	0.8260
Au	0.8760
Av	0.8750
Aw	0.7710
Ax	0.6830
Ay	0.7500
Az	0.5660
B	0.9740
B0	0.7900
B1	0.8380
B2	0.9100











































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Chain	Atom inclusion
B3	 0.8810
B4	 0.7290
B5	 0.8050
B6	 0.6090
B7	 0.7180
B8	 0.7120
B9	 0.7340
BA	 0.8120
BB	 0.8080
BC	 0.7980
BD	 0.8310
BE	 0.8360
BF	 0.7450
BG	 0.7830
BH	 0.8290
BI	 0.7460
BJ	 0.9360
BK	 0.9560
BL	 0.9840
BM	 0.9950
BN	 0.7270
BO	 0.7470
BP	 0.7830
BQ	 0.7820
BR	 0.8420
BS	 0.8960
BT	 0.8860
BU	 0.8060
BV	 0.8130
BW	 0.8040
BX	 0.8060
BY	 0.8510
BZ	 0.7630
Ba	 0.8580
Bb	 0.7450
Bc	 0.7440
Bd	 0.7990
Be	 0.7760
Bf	 0.8560
Bg	 0.9040
Bh	 0.9430
Bi	 0.8740

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Chain	Atom inclusion
Bj	 0.8380
Bk	 0.8500
Bl	 0.8450
Bm	 0.8410
Bn	 0.8110
Bo	 0.8580
Bq	 0.7370
Br	 0.7370
Bs	 0.7810
Bt	 0.7530
Bu	 0.8650
Bv	 0.9330
Bw	 0.9210
Bx	 0.8940
By	 0.8790
Bz	 0.8010
C	 0.9020
C0	 0.9070
C1	 0.9280
C2	 0.9340
C3	 0.9120
C4	 0.9240
C5	 0.6890
C6	 0.7160
C7	 0.7680
C8	 0.7780
C9	 0.9000
CA	 0.8990
CB	 0.9090
CC	 0.9340
CD	 0.9260
CE	 0.9300
CF	 0.8100
CG	 0.8690
CH	 0.8970
CI	 0.9050
CJ	 0.8230
CK	 0.8310
CL	 0.7810
CM	 0.7470
CN	 0.7420
CO	 0.8410











































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Chain	Atom inclusion
CP	0.8990
CQ	0.9230
CR	0.9010
CS	0.9150
CT	0.9220
CU	0.9180
CV	0.8560
CW	0.9030
CX	0.9060
CY	0.9230
CZ	0.8590
Ca	0.7400
Cb	0.7100
Cc	0.7700
Cd	0.8830
Ce	0.9320
Cf	0.9390
Cg	0.9320
Ch	0.9090
Ci	0.9430
Cj	0.9450
Ck	0.9640
Cl	0.9380
Cm	0.9090
Cn	0.9270
Co	0.9180
Cp	0.8700
Cq	0.8060
Cr	0.7760
Cs	0.7710
Ct	0.9040
Cu	0.9070
Cv	0.9140
Cw	0.8900
Cx	0.9260
Cy	0.9120
Cz	0.9360
D	0.9950
D0	0.8000
D1	0.8580
D2	0.7780
D3	0.8650











































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Chain	Atom inclusion
D4	 0.8650
D5	 0.6320
D6	 0.6430
D7	 0.6450
D8	 0.7680
D9	 0.8240
DA	 0.9330
DB	 0.9130
DC	 0.9320
DD	 0.9050
DE	 0.9300
DF	 0.9160
DG	 0.9280
DH	 0.9190
DI	 0.9040
DJ	 0.8410
DK	 0.8030
DL	 0.6350
DM	 0.6620
DN	 0.6990
DO	 0.8510
DP	 0.8710
DQ	 0.8360
DR	 0.8790
DS	 0.8730
DT	 0.8920
DU	 0.8210
DV	 0.8570
DW	 0.8460
DX	 0.8870
DY	 0.9490
DZ	 0.7880
Da	 0.6080
Db	 0.6350
Dc	 0.6670
Dd	 0.7330
De	 0.8690
Df	 0.8270
Dg	 0.8680
Dh	 0.8310
Di	 0.8440
Dj	 0.7220











































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Chain	Atom inclusion
Dk	 0.8480
Dl	 0.8280
Dm	 0.8600
Dn	 0.7850
Do	 0.8850
Dp	 0.6190
Dq	 0.6560
Dr	 0.6900
Ds	 0.7870
Dt	 0.8020
Du	 0.8200
Dv	 0.8190
Dw	 0.8450
Dx	 0.7340
Dy	 0.7410
Dz	 0.7920
E	 0.9880
E0	 0.7920
E1	 0.8560
E2	 0.6950
E3	 0.7050
E4	 0.7400
E5	 0.8410
E6	 0.8530
E7	 0.8220
E8	 0.8420
E9	 0.8260
EA	 0.8250
EB	 0.8460
EC	 0.7210
ED	 0.7250
EE	 0.7420
EF	 0.8520
EG	 0.7830
EH	 0.8770
EI	 0.8820
EJ	 0.6490
EK	 0.7480
EL	 0.6890
EM	 0.7370
EN	 0.8040
EO	 0.8450











































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Chain	Atom inclusion
EP	 0.8270
EQ	 0.8570
ER	 0.7620
ES	 0.7520
ET	 0.7710
EU	 0.8340
EV	 0.8400
EW	 0.8640
EX	 0.9400
EY	 0.6150
EZ	 0.7210
Ea	 0.6980
Eb	 0.7390
Ec	 0.8460
Ed	 0.8490
Ee	 0.8590
Ef	 0.8710
Eg	 0.8150
Eh	 0.7860
Ei	 0.7770
Ej	 0.8370
Ek	 0.8390
El	 0.8350
Em	 0.8090
En	 0.7190
Eo	 0.7070
Ep	 0.7210
Eq	 0.7820
Er	 0.8580
Es	 0.8290
Et	 0.8300
Eu	 0.8090
Ev	 0.7980
Ew	 0.7780
Ex	 0.8540
Ey	 0.8350
Ez	 0.6120
F	 0.9420
F0	 0.1220
F1	 0.0350
F2	 0.0100
F3	 0.0470

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Chain	Atom inclusion
F4	 0.1130
F5	 0.4720
F6	 0.3030
F7	 0.3090
F8	 0.4400
F9	 0.5350
FA	 0.7810
FB	 0.8660
FC	 0.8400
FD	 0.8650
FE	 0.8600
FF	 0.7550
FG	 0.7320
FH	 0.8340
FI	 0.8640
FJ	 0.8880
FK	 0.8590
FL	 0.9020
FM	 0.8780
FN	 0.8810
FO	 0.8410
FP	 0.9040
FQ	 0.9080
FR	 0.8820
FS	 0.6540
FT	 0.7760
FU	 0.7940
FV	 0.8640
FW	 0.9020
FX	 0.9210
FY	 0.9080
FZ	 0.9180
Fa	 0.9260
Fb	 0.9370
Fc	 0.8860
Fd	 0.9310
Fe	 0.9390
Ff	 0.9320
Fg	 0.8340
Fh	 0.8110
Fi	 0.9210
Fj	 0.9460











































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Chain	Atom inclusion
Fk	0.9620
Fl	0.9420
Fm	0.9590
Fn	0.9610
Fo	0.8200
Fp	0.8040
Fq	0.8990
Fr	0.9340
Fs	0.8950
Ft	0.9090
Fv	0.8550
Fw	0.6810
Fx	0.5880
Fy	0.6140
Fz	0.6260
G	0.9720
GA	0.0200
GB	0.5850
GC	0.1420
GD	0.0190
GE	0.1750
GF	0.0220
GG	0.0350
GH	0.2050
GI	0.1920
GJ	0.1460
GK	0.6110
GL	0.3200
GM	0.1030
GN	0.0200
GO	0.0150
GP	0.0000
GQ	0.0130
GR	0.8720
GS	0.9450
GT	0.9430
GU	0.8660
GV	0.8300
GW	0.9510
GX	0.7040
GY	0.9270
GZ	0.7610


















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Chain	Atom inclusion
Ga	 0.7670
Gb	 0.7170
Gc	 0.7690
Gd	 0.5470
Ge	 0.8580
Gf	 0.6380
Gg	 0.9680
Gh	 0.9960
Gi	 0.9980
Gj	 0.9460
H	 0.0560
I	 0.9000
J	 0.9500
K	 0.9730
L	 0.9700
M	 0.9770
N	 0.8030
O	 0.8330
P	 0.9370
Q	 0.9320
R	 0.9310
S	 0.9380
T	 0.9110
U	 0.9330
V	 0.9510
W	 0.9550
X	 0.9310
Y	 0.9480
Z	 0.9290
a	 0.8910
b	 0.8990
c	 0.9900
d	 0.9020
e	 0.9680
f	 0.9630
g	 0.9490
h	 0.9950
i	 0.8870
j	 0.9520
k	 0.9490
l	 0.9650
m	 0.9670

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Chain	Atom inclusion
n	 0.7680
o	 0.8080
p	 0.8480
q	 0.9290
r	 0.8840
s	 0.9140
t	 0.9020
u	 0.9330
v	 0.9060
w	 0.8970
x	 0.9070
y	 0.9030
z	 0.8990
z0	 0.9600
z1	 0.9570
z3	 0.8170
z4	 0.7920