wwPDB EM Validation Summary Report (i)

Dec 2, 2025 – 03:20 am GMT

PDB ID	:	6SGB / pdb_00006sgb
EMDB ID	:	EMD-10180
Title	:	mt-SSU assemblosome of Trypanosoma brucei
Authors	:	Saurer, M.; Ramrath, D.J.F.; Niemann, M.; Calderaro, S.; Prange, C.; Mattei, S.; Scaiola, A.; Leitner, A.; Bieri, P.; Horn, E.K.; Leibundgut, M.; Boehringer, D.; Schneider, A.; Ban, N.
Deposited on	:	2019-08-03
Resolution	:	3.30 Å(reported)

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

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

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

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

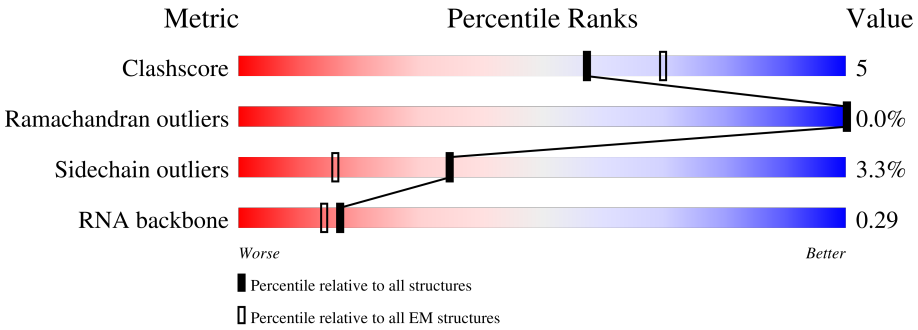
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

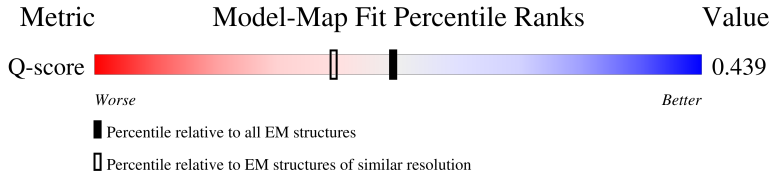
1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.30 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	15087 (2.80 - 3.80)

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

Mol	Chain	Length	Quality of chain
1	CE	435	15% 79% 11% • 10%
2	CF	160	• 84% 15% •
3	CH	282	7% 67% 11% 21%

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Mol	Chain	Length	Quality of chain
4	CK	326	15% 58% 6% 35%
5	CO	429	5% 72% 11% 17%
6	CP	188	81% 14%
7	CQ	336	10% 53% 11% 35%
8	CR	320	12% 41% 7% 52%
9	Ca	602	14% 72% 13% 15%
10	Cb	311	12% 42% 7% 51%
11	Cd	440	35% 7% 58%
12	Cj	257	76% 12% 12%
13	Cn	250	6% 10% 89%
14	Cp	187	6% 83% 12% 5%
15	DD	812	6% 86% 11%
16	DI	407	6% 81% 14%
17	DL	307	9% 59% 7% 34%
18	DO	282	15% 65% 7% 28%
19	DP	274	71% 6% 23%
20	DR	270	82% 12% 6%
21	DU	228	19% 83% 12%
22	DZ	94	10% 26% 5% 68%
23	F2	1024	7% 78% 11% 11%
24	F3	966	13% 81% 11% 8%
25	F5	754	36% 56% 8% 36%
26	F6	676	19% 58% 9% 33%
27	F7	679	8% 84% 13%
28	F8	726	12% 62% 9% 29%

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Mol	Chain	Length	Quality of chain
29	F9	608	7% 31% 5% 64%
30	FA	642	30% 76% 13% 10%
31	FB	579	5% 53% 11% 35%
31	FC	579	10% 41% 12% 46%
32	FE	553	8% 65% 13% 22%
33	FJ	362	22% 85% 12%
34	FM	370	8% 76% 12% 12%
34	FN	370	23% 72% 13% 14%
35	FO	334	5% 81% 16%
36	FP	349	10% 89% 10%
37	FQ	307	16% 72% 11% 16%
37	FR	307	19% 66% 12% 21%
37	FS	307	29% 77% 13% 10%
37	FT	307	18% 64% 11% 24%
37	FU	307	31% 74% 13% 12%
38	FW	263	6% 84% 10% 6%
39	FX	239	85% 7% 8%
40	FY	188	36% 72% 12% 15%
41	FZ	178	72% 68% 6% 25%
42	Fa	171	16% 81% 13% 5%
43	Fb	151	30% 73% 12% 15%
44	Fc	148	15% 47% 9% 43%
45	Fd	143	6% 57% 10% 33%
46	UA	21	67% 76% 24%
47	UB	27	81% 81% 19%

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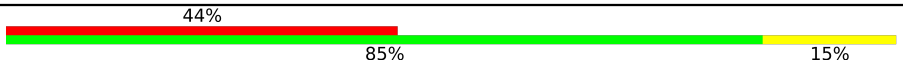
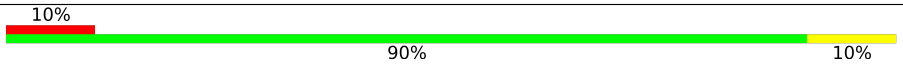
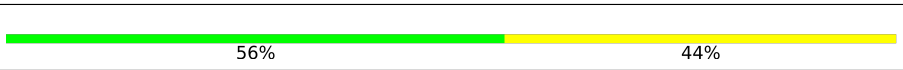
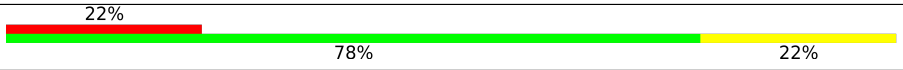
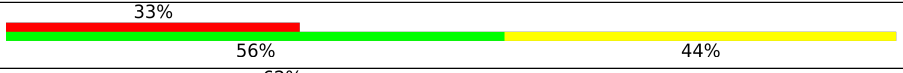
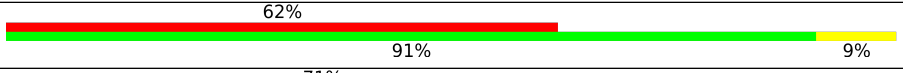
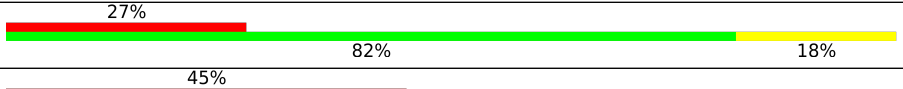
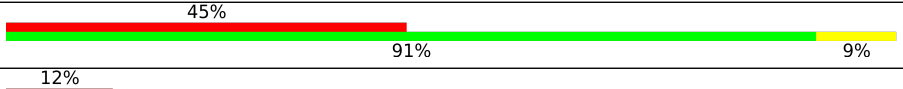
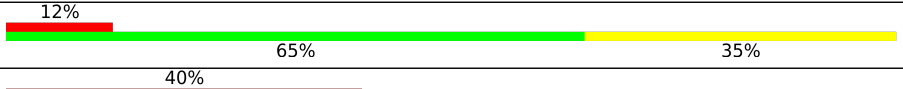
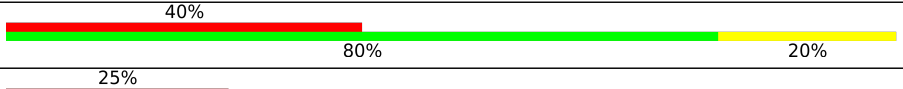
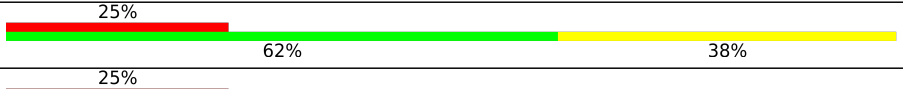
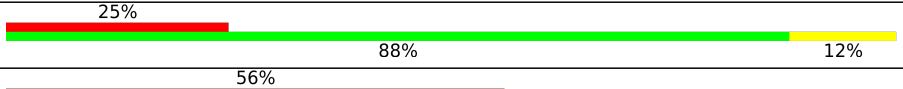
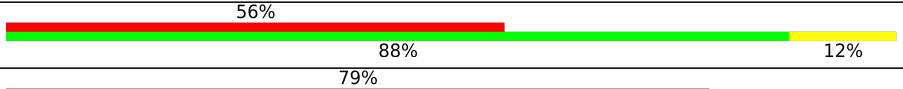
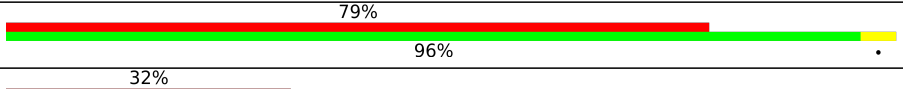
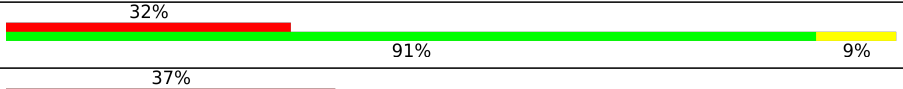
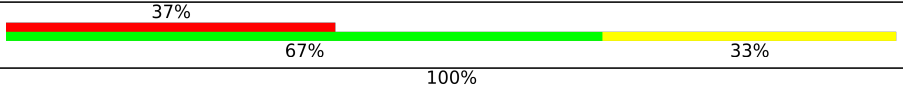
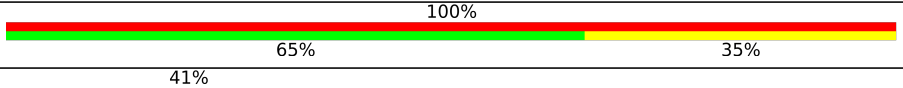
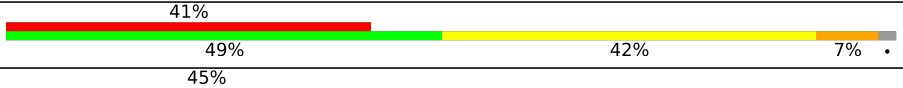
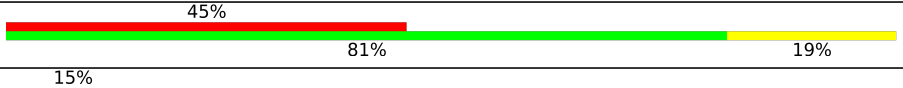
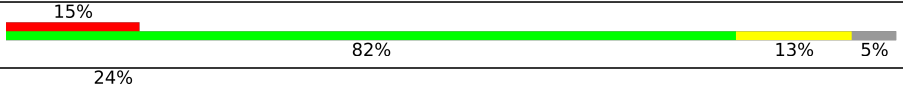
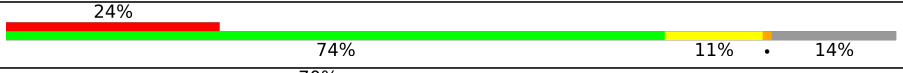
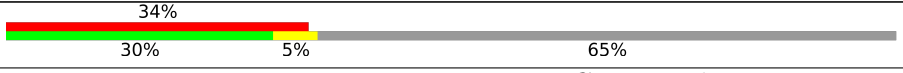
Mol	Chain	Length	Quality of chain
47	Uk	27	
48	UC	10	
49	UD	9	
49	UM	9	
49	UQ	9	
49	Uf	9	
50	UE	45	
50	UP	45	
51	UF	11	
51	Um	11	
52	UG	17	
53	UH	5	
54	UI	8	
54	UN	8	
55	UJ	16	
56	UK	24	
57	UL	22	
58	UO	30	
59	UY	468	
60	CA	620	
61	CC	74	
62	CI	443	
63	CJ	817	
64	CN	166	
65	CS	244	

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Mol	Chain	Length	Quality of chain
66	Cg	498	15% 85% 12%
67	Ci	181	28% 69% 12% 19%
68	Ck	874	26% 62% 11% 27%
69	DB	1181	31% 48% 9% 43%
70	DC	1165	53% 77% 10% 12%
71	DE	747	63% 66% 12% 21%
72	DF	666	24% 64% 10% 26%
73	DG	631	18% 73% 16% 10%
74	DH	581	22% 70% 11% 19%
75	DJ	396	17% 68% 9% 22%
76	DK	324	34% 64% 11% 24%
77	DT	247	16% 75% 14% 11%
78	DV	183	31% 73% 13% 14%
79	DW	179	28% 58% 13% 26%
80	DX	169	58% 58% 10% 32%
81	DY	163	37% 80% 14% 6%
82	F1	1041	21% 72% 13% 15%
83	F4	811	36% 55% 10% 33%
84	FD	579	20% 59% 8% 32%
85	FF	474	18% 71% 14% 14%
86	FG	463	6% 30% 6% 63%
87	FH	457	17% 57% 11% 31%
88	FI	445	21% 67% 11% 22%
89	FK	372	15% 49% 7% 44%
90	FL	353	13% 76% 14% 9%

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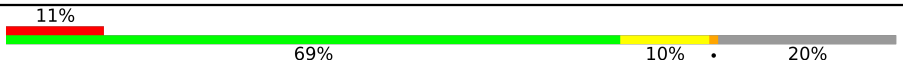
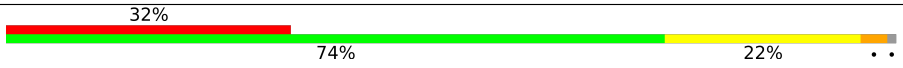
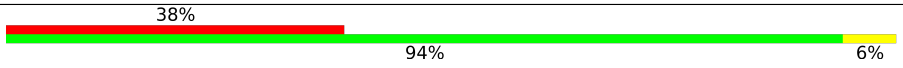
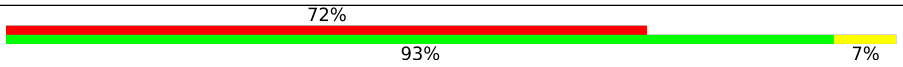
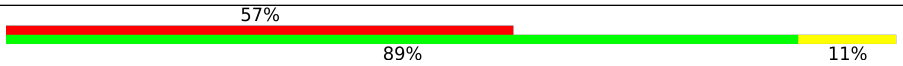
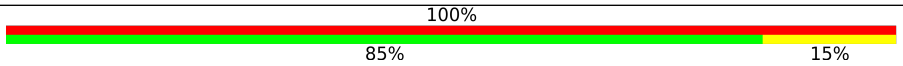
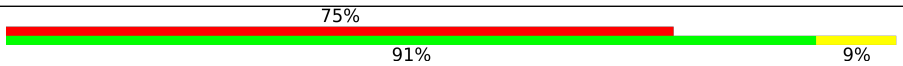
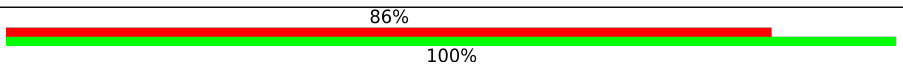
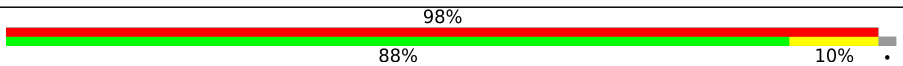
Mol	Chain	Length	Quality of chain
91	FV	264	
92	Fe	123	
93	Ua	47	
94	Ub	42	
95	Uc	12	
96	Ud	59	
97	Ue	29	
98	Ug	167	
99	Uh	255	
100	Ui	32	
101	Uj	19	
102	Ul	14	
103	Ux	110	

2 Entry composition (i)

There are 110 unique types of molecules in this entry. The entry contains 240624 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 uS5m.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	CE	392	3147	1992	579	561	15	0	0

- Molecule 2 is a protein called bS6m.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	CF	159	1317	835	234	242	6	0	0

- Molecule 3 is a protein called uS8m.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	CH	222	1824	1144	349	321	10	0	0

- Molecule 4 is a protein called uS11m.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	CK	211	1721	1084	316	311	10	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
CK	3	ARG	GLN	conflict	UNP Q389T7

- Molecule 5 is a protein called uS15m.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	CO	358	2979	1891	557	514	17	0	0

- Molecule 6 is a protein called bS16m.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	CP	180	Total	C	N	O	S	0	0
			1489	956	274	250	9		

- Molecule 7 is a protein called uS17m.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	CQ	219	Total	C	N	O	S	0	0
			1805	1151	340	306	8		

- Molecule 8 is a protein called bS18m.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	CR	153	Total	C	N	O	S	0	0
			1274	821	233	218	2		

- Molecule 9 is a protein called mS22.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	Ca	512	Total	C	N	O	S	0	0
			4340	2778	770	771	21		

- Molecule 10 is a protein called mS23.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	Cb	153	Total	C	N	O	S	0	0
			1274	819	232	217	6		

- Molecule 11 is a protein called mS26.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	Cd	185	Total	C	N	O	S	0	0
			1616	1032	297	279	8		

- Molecule 12 is a protein called mS34.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	Cj	226	Total	C	N	O	S	0	0
			1792	1138	310	340	4		

- Molecule 13 is a protein called mS38.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	Cn	27	Total	C	N	O	0	0
			234	155	44	35		

- Molecule 14 is a protein called mS41.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	Cp	178	Total	C	N	O	S	0	0
			1506	952	272	277	5		

- Molecule 15 is a protein called mS51 (KRIPP1).

Mol	Chain	Residues	Atoms					AltConf	Trace
15	DD	786	Total	C	N	O	S	0	0
			6488	4110	1168	1169	41		

- Molecule 16 is a protein called mS56.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	DI	390	Total	C	N	O	S	0	0
			3182	2020	554	594	14		

- Molecule 17 is a protein called mS59.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	DL	203	Total	C	N	O	S	0	0
			1656	1059	296	291	10		

- Molecule 18 is a protein called mS62 (KRIPP14).

Mol	Chain	Residues	Atoms					AltConf	Trace
18	DO	204	Total	C	N	O	S	0	0
			1648	1031	300	307	10		

- Molecule 19 is a protein called mS63 (KRIPP16).

Mol	Chain	Residues	Atoms					AltConf	Trace
19	DP	212	Total	C	N	O	S	0	0
			1800	1156	321	314	9		

- Molecule 20 is a protein called mS65.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	DR	254	Total	C	N	O	S	0	0
			2042	1313	373	346	10		

- Molecule 21 is a protein called mS68.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	DU	219	Total	C	N	O	S	0	0
			1738	1095	308	331	4		

- Molecule 22 is a protein called mS73.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	DZ	30	Total	C	N	O	S	0	0
			254	167	41	45	1		

- Molecule 23 is a protein called mt-SAF2 (KRIPP2).

Mol	Chain	Residues	Atoms					AltConf	Trace
23	F2	915	Total	C	N	O	S	0	0
			7274	4570	1281	1384	39		

- Molecule 24 is a protein called mt-SAF3.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	F3	888	Total	C	N	O	S	0	0
			6879	4302	1222	1303	52		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F3	44	THR	ALA	conflict	UNP Q38E61
F3	190	VAL	ILE	conflict	UNP Q38E61
F3	303	ALA	SER	conflict	UNP Q38E61
F3	418	ASP	ASN	conflict	UNP Q38E61

- Molecule 25 is a protein called mt-SAF5.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	F5	480	Total	C	N	O	S	0	0
			3474	2167	646	647	14		

- Molecule 26 is a protein called mt-SAF6.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	F6	456	Total	C	N	O	S	0	0
			3646	2311	635	686	14		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F6	285	ARG	HIS	conflict	UNP Q38FQ8
F6	291	ILE	THR	conflict	UNP Q38FQ8
F6	602	ALA	VAL	conflict	UNP Q38FQ8
F6	676	CYS	PHE	conflict	UNP Q38FQ8

- Molecule 27 is a protein called mt-SAF7 (KRIPP10).

Mol	Chain	Residues	Atoms					AltConf	Trace
27	F7	662	Total	C	N	O	S	0	0
			5225	3322	918	950	35		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F7	36	ILE	THR	conflict	UNP Q57UW6
F7	470	GLU	LYS	conflict	UNP Q57UW6
F7	474	VAL	ALA	conflict	UNP Q57UW6

- Molecule 28 is a protein called mt-SAF8.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	F8	513	Total	C	N	O	S	0	0
			3934	2493	721	701	19		

- Molecule 29 is a protein called mt-SAF9.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	F9	216	Total	C	N	O	S	0	0
			1755	1088	325	337	5		

- Molecule 30 is a protein called mt-SAF10.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	FA	579	Total	C	N	O	S	0	0
			4421	2801	785	813	22		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
FA	173	ALA	THR	conflict	UNP Q386U1
FA	352	TYR	HIS	conflict	UNP Q386U1

- Molecule 31 is a protein called mt-SAF11.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	FB	377	Total	C	N	O	S	0	0
			3055	1928	574	543	10		
31	FC	311	Total	C	N	O	S	0	0
			2572	1629	488	447	8		

- Molecule 32 is a protein called mt-SAF13.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	FE	434	Total	C	N	O	S	0	0
			3523	2268	611	626	18		

- Molecule 33 is a protein called mt-SAF18.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	FJ	353	Total	C	N	O	S	0	0
			2917	1843	550	516	8		

- Molecule 34 is a protein called mt-SAF21.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	FM	326	Total	C	N	O	S	0	0
			2449	1515	449	465	20		
34	FN	319	Total	C	N	O	S	0	0
			2392	1478	436	458	20		

- Molecule 35 is a protein called mt-SAF22 (KRIPP17).

Mol	Chain	Residues	Atoms					AltConf	Trace
35	FO	324	Total	C	N	O	S	0	0
			2671	1674	509	474	14		

- Molecule 36 is a protein called mt-SAF23.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	FP	348	Total	C	N	O	S	0	0
			2643	1682	464	487	10		

- Molecule 37 is a protein called mt-SAF24.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	FQ	257	Total	C	N	O	S	0	0
			2003	1265	358	373	7		
37	FR	243	Total	C	N	O	S	0	0
			1923	1217	344	355	7		
37	FS	277	Total	C	N	O	S	0	0
			2198	1389	397	404	8		
37	FT	233	Total	C	N	O	S	0	0
			1854	1177	331	339	7		
37	FU	270	Total	C	N	O	S	0	0
			2105	1331	380	386	8		

- Molecule 38 is a protein called mt-SAF26.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	FW	247	Total	C	N	O	S	0	0
			2034	1272	384	371	7		

- Molecule 39 is a protein called mt-SAF27 (KRIPP11).

Mol	Chain	Residues	Atoms					AltConf	Trace
39	FX	220	Total	C	N	O	S	0	0
			1741	1093	318	316	14		

- Molecule 40 is a protein called mt-SAF28.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	FY	160	Total	C	N	O	S	0	0
			1289	819	229	235	6		

- Molecule 41 is a protein called mt-SAF29.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	FZ	133	Total	C	N	O	S	0	0
			973	605	181	185	2		

- Molecule 42 is a protein called mt-SAF30.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	Fa	163	Total	C	N	O	S	0	0
			1323	860	236	223	4		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Fa	73	ALA	VAL	conflict	UNP Q57VU7

- Molecule 43 is a protein called mt-SAF31.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	Fb	129	Total	C	N	O	S	0	0
			1091	701	198	184	8		

- Molecule 44 is a protein called mt-SAF32.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	Fc	84	Total	C	N	O	S	0	0
			669	427	106	135	1		

- Molecule 45 is a protein called mt-SAF33.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	Fd	96	Total	C	N	O	S	0	0
			758	481	147	122	8		

- Molecule 46 is a protein called UNK-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
46	UA	21	Total	C	N	O	0	0
			126	84	21	21		

- Molecule 47 is a protein called UNK-B, UNK-k.

Mol	Chain	Residues	Atoms				AltConf	Trace
47	UB	27	Total	C	N	O	0	0
			162	108	27	27		
47	Uk	27	Total	C	N	O	0	0
			162	108	27	27		

- Molecule 48 is a protein called UNK-C.

Mol	Chain	Residues	Atoms				AltConf	Trace
48	UC	10	Total	C	N	O	0	0
			60	40	10	10		

- Molecule 49 is a protein called UNK-D, UNK-M, UNK-Q, UNK-f.

Mol	Chain	Residues	Atoms				AltConf	Trace
49	UD	9	Total	C	N	O	0	0
			54	36	9	9		
49	UM	9	Total	C	N	O	0	0
			54	36	9	9		
49	UQ	9	Total	C	N	O	0	0
			54	36	9	9		
49	Uf	9	Total	C	N	O	0	0
			54	36	9	9		

- Molecule 50 is a protein called UNK-E, UNK-P.

Mol	Chain	Residues	Atoms				AltConf	Trace
50	UE	45	Total	C	N	O	0	0
			270	180	45	45		
50	UP	45	Total	C	N	O	0	0
			270	180	45	45		

- Molecule 51 is a protein called UNK-F, UNK-m.

Mol	Chain	Residues	Atoms				AltConf	Trace
51	UF	11	Total	C	N	O	0	0
			66	44	11	11		
51	Um	11	Total	C	N	O	0	0
			66	44	11	11		

- Molecule 52 is a protein called UNK-G.

Mol	Chain	Residues	Atoms				AltConf	Trace
52	UG	17	Total	C	N	O	0	0
			102	68	17	17		

- Molecule 53 is a protein called UNK-H.

Mol	Chain	Residues	Atoms				AltConf	Trace
53	UH	5	Total	C	N	O	0	0
			30	20	5	5		

- Molecule 54 is a protein called UNK-I, UNK-N.

Mol	Chain	Residues	Atoms				AltConf	Trace
54	UI	8	Total	C	N	O	0	0
			48	32	8	8		
54	UN	8	Total	C	N	O	0	0
			48	32	8	8		

- Molecule 55 is a protein called UNK-J.

Mol	Chain	Residues	Atoms				AltConf	Trace
55	UJ	16	Total	C	N	O	0	0
			96	64	16	16		

- Molecule 56 is a protein called UNK-K.

Mol	Chain	Residues	Atoms				AltConf	Trace
56	UK	24	Total	C	N	O	0	0
			144	96	24	24		

- Molecule 57 is a protein called UNK-L.

Mol	Chain	Residues	Atoms				AltConf	Trace
57	UL	22	Total	C	N	O	0	0
			132	88	22	22		

- Molecule 58 is a protein called UNK-O.

Mol	Chain	Residues	Atoms				AltConf	Trace
58	UO	30	Total	C	N	O	0	0
			180	120	30	30		

- Molecule 59 is a protein called UNK-Y.

Mol	Chain	Residues	Atoms				AltConf	Trace
59	UY	468	Total	C	N	O	0	0
			2808	1872	468	468		

- Molecule 60 is a RNA chain called 9S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	CA	609	Total	C	N	O	P	0	0
			11352	5038	1602	4102	610		

- Molecule 61 is a protein called mS3m.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	CC	74	Total	C	N	O	S	0	0
			646	451	96	98	1		

- Molecule 62 is a protein called uS9m.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	CI	423	Total	C	N	O	S	0	0
			3357	2108	601	631	17		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
CI	370	ALA	VAL	conflict	UNP Q57W62

- Molecule 63 is a protein called uS10m.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	CJ	701	Total	C	N	O	S	0	0
			5709	3605	1017	1064	23		

- Molecule 64 is a protein called uS14m.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	CN	153	Total	C	N	O	S	0	0
			1285	820	242	216	7		

- Molecule 65 is a protein called uS19m.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	CS	85	Total	C	N	O	S	0	0
			708	463	121	121	3		

- Molecule 66 is a protein called mS29.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	Cg	484	Total	C	N	O	S	0	0
			3922	2511	688	703	20		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Cg	181	VAL	ALA	conflict	UNP Q585C2
Cg	498	ARG	MET	conflict	UNP Q585C2

- Molecule 67 is a protein called mS33.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	Ci	147	Total	C	N	O	S	0	0
			1222	770	226	218	8		

- Molecule 68 is a protein called mS35.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	Ck	638	Total	C	N	O	S	0	0
			5123	3220	927	953	23		

There are 5 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Ck	107	SER	LEU	conflict	UNP Q387C7
Ck	144	PHE	LEU	conflict	UNP Q387C7
Ck	253	TYR	PHE	conflict	UNP Q387C7
Ck	339	GLU	VAL	conflict	UNP Q387C7
Ck	871	GLY	GLU	conflict	UNP Q387C7

- Molecule 69 is a protein called mS49.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	DB	679	Total	C	N	O	S	0	0
			5688	3558	1062	1047	21		

- Molecule 70 is a protein called mS50.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	DC	1028	Total	C	N	O	S	0	0
			8223	5194	1453	1546	30		

- Molecule 71 is a protein called mS52.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	DE	590	Total	C	N	O	S	0	0
			4639	2957	832	834	16		

- Molecule 72 is a protein called mS53.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	DF	491	Total	C	N	O	S	0	0
			3967	2496	745	703	23		

- Molecule 73 is a protein called mS54.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	DG	566	Total	C	N	O	S	0	0
			4575	2875	835	834	31		

- Molecule 74 is a protein called mS55 (KRIPP8).

Mol	Chain	Residues	Atoms					AltConf	Trace
74	DH	472	Total	C	N	O	S	0	0
			3849	2417	720	693	19		

- Molecule 75 is a protein called mS57.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	DJ	308	Total	C	N	O	S	0	0
			2521	1612	446	450	13		

- Molecule 76 is a protein called mS58.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	DK	245	Total	C	N	O	S	0	0
			1929	1213	349	362	5		

- Molecule 77 is a protein called mS67.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	DT	221	Total	C	N	O	S	0	0
			1912	1231	334	337	10		

- Molecule 78 is a protein called mS69.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	DV	157	Total	C	N	O	S	0	0
			1323	840	248	231	4		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
DV	163	ALA	THR	conflict	UNP Q57UZ6

- Molecule 79 is a protein called mS70.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	DW	133	Total	C	N	O	S	0	0
			1140	730	216	190	4		

- Molecule 80 is a protein called mS71.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	DX	115	Total	C	N	O	S	0	0
			967	612	182	166	7		

- Molecule 81 is a protein called mS72.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	DY	154	Total	C	N	O	S	0	0
			1295	829	247	214	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
DY	34	HIS	ASP	conflict	UNP Q57YD4

- Molecule 82 is a protein called mt-SAF1 (RSM22).

Mol	Chain	Residues	Atoms					AltConf	Trace
82	F1	889	Total	C	N	O	S	0	0
			7194	4493	1372	1289	40		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F1	707	SER	GLY	conflict	UNP Q385R2
F1	973	THR	MET	conflict	UNP Q385R2

- Molecule 83 is a protein called mt-SAF4.

Mol	Chain	Residues	Atoms					AltConf	Trace
83	F4	541	Total	C	N	O	S	0	0
			4382	2783	775	802	22		

- Molecule 84 is a protein called mt-SAF12 (KRIPP18).

Mol	Chain	Residues	Atoms					AltConf	Trace
84	FD	394	Total	C	N	O	S	0	0
			3135	2004	546	566	19		

- Molecule 85 is a protein called mt-SAF14.

Mol	Chain	Residues	Atoms					AltConf	Trace
85	FF	408	Total	C	N	O	S	0	0
			3265	2052	586	603	24		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
FF	70	ALA	PRO	conflict	UNP Q57W60
FF	179	PHE	LEU	conflict	UNP Q57W60

- Molecule 86 is a protein called mt-SAF15.

Mol	Chain	Residues	Atoms					AltConf	Trace
86	FG	169	Total	C	N	O	S	0	0
			1359	852	260	240	7		

- Molecule 87 is a protein called mt-SAF16.

Mol	Chain	Residues	Atoms					AltConf	Trace
87	FH	317	Total	C	N	O	S	0	0
			2486	1555	440	471	20		

- Molecule 88 is a protein called mt-SAF17.

Mol	Chain	Residues	Atoms					AltConf	Trace
88	FI	348	Total	C	N	O	S	0	0
			2786	1726	510	537	13		

- Molecule 89 is a protein called mt-SAF19.

Mol	Chain	Residues	Atoms					AltConf	Trace
89	FK	208	Total	C	N	O	S	0	0
			1699	1084	284	325	6		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
FK	38	HIS	ARG	conflict	UNP Q57XS8

- Molecule 90 is a protein called mt-SAF20.

Mol	Chain	Residues	Atoms					AltConf	Trace
90	FL	320	Total	C	N	O	S	0	0
			2555	1609	470	459	17		

- Molecule 91 is a protein called mt-SAF25.

Mol	Chain	Residues	Atoms					AltConf	Trace
91	FV	210	Total	C	N	O	S	0	0
			1636	1039	283	303	11		

- Molecule 92 is a protein called mt-SAF34.

Mol	Chain	Residues	Atoms					AltConf	Trace
92	Fe	122	Total	C	N	O	S	0	0
			1033	642	200	184	7		

- Molecule 93 is a protein called UNK-a.

Mol	Chain	Residues	Atoms				AltConf	Trace
93	Ua	47	Total	C	N	O	0	0
			282	188	47	47		

- Molecule 94 is a protein called UNK-b.

Mol	Chain	Residues	Atoms				AltConf	Trace
94	Ub	42	Total	C	N	O	0	0
			252	168	42	42		

- Molecule 95 is a protein called UNK-c.

Mol	Chain	Residues	Atoms				AltConf	Trace
95	Uc	12	Total	C	N	O	0	0
			72	48	12	12		

- Molecule 96 is a protein called UNK-d.

Mol	Chain	Residues	Atoms				AltConf	Trace
96	Ud	59	Total 354	C 236	N 59	O 59	0	0

- Molecule 97 is a protein called UNK-e.

Mol	Chain	Residues	Atoms				AltConf	Trace
97	Ue	29	Total 174	C 116	N 29	O 29	0	0

- Molecule 98 is a protein called UNK-g.

Mol	Chain	Residues	Atoms				AltConf	Trace
98	Ug	167	Total 1002	C 668	N 167	O 167	0	0

- Molecule 99 is a protein called UNK-h.

Mol	Chain	Residues	Atoms				AltConf	Trace
99	Uh	255	Total 1530	C 1020	N 255	O 255	0	0

- Molecule 100 is a protein called UNK-i.

Mol	Chain	Residues	Atoms				AltConf	Trace
100	Ui	32	Total 192	C 128	N 32	O 32	0	0

- Molecule 101 is a protein called UNK-j.

Mol	Chain	Residues	Atoms				AltConf	Trace
101	Uj	19	Total 114	C 76	N 19	O 19	0	0

- Molecule 102 is a protein called UNK-l.

Mol	Chain	Residues	Atoms				AltConf	Trace
102	Ul	14	Total 84	C 56	N 14	O 14	0	0

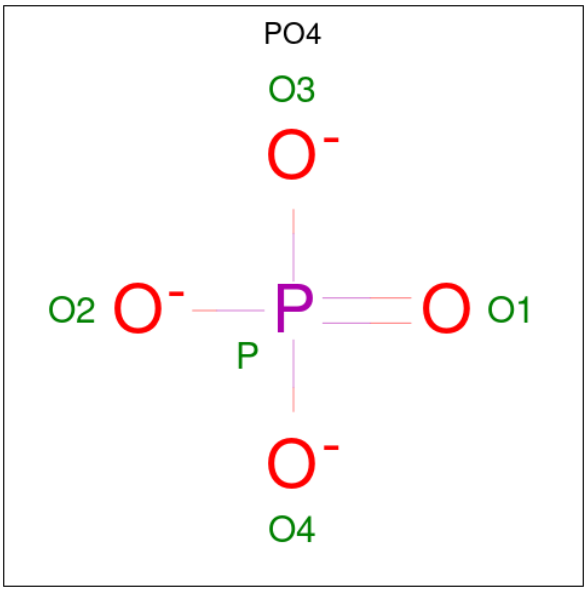
- Molecule 103 is a protein called UNK-x.

Mol	Chain	Residues	Atoms				AltConf	Trace
103	Ux	108	Total 648	C 432	N 108	O 108	0	0

- Molecule 104 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

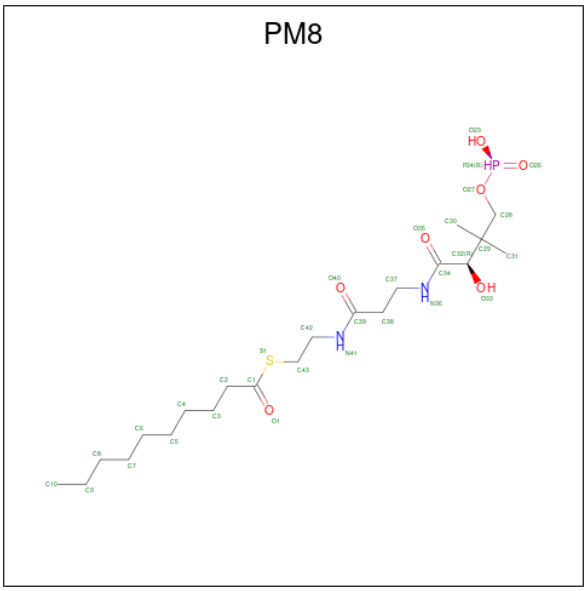
Mol	Chain	Residues	Atoms		AltConf
104	FP	1	Total 1	Mg 1	0
104	FW	1	Total 1	Mg 1	0
104	CA	2	Total 2	Mg 2	0
104	Cg	1	Total 1	Mg 1	0

- Molecule 105 is PHOSPHATE ION (CCD ID: PO4) (formula: O_4P).



Mol	Chain	Residues	Atoms			AltConf
105	FW	1	Total 5	O 4	P 1	0

- Molecule 106 is S-(2-{[N-(2-HYDROXY-4-{[HYDROXY(OXIDO)PHOSPHINO]OXY}-3,3-DIMETHYLBUTANOYL)-BETA-ALANYL]AMINO}ETHYL) DECANETHIOATE (CCD ID: PM8) (formula: $C_{21}H_{41}N_2O_7PS$).

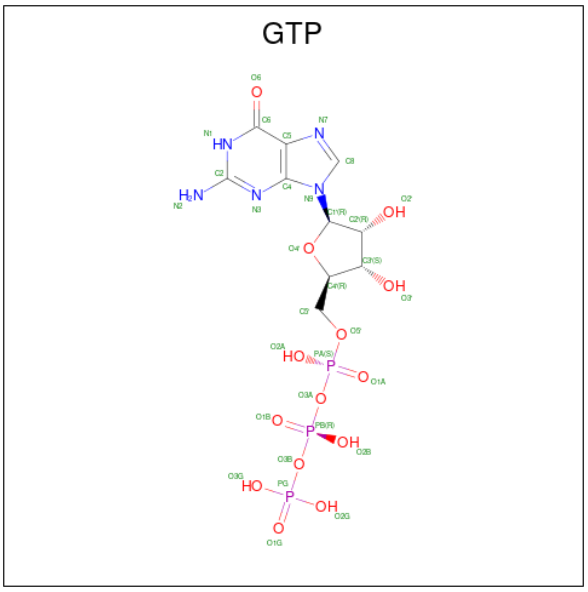


Mol	Chain	Residues	Atoms						AltConf
106	Fc	1	Total	C	N	O	P	S	0
			32	21	2	7	1	1	

- Molecule 107 is ZINC ION (CCD ID: ZN) (formula: Zn).

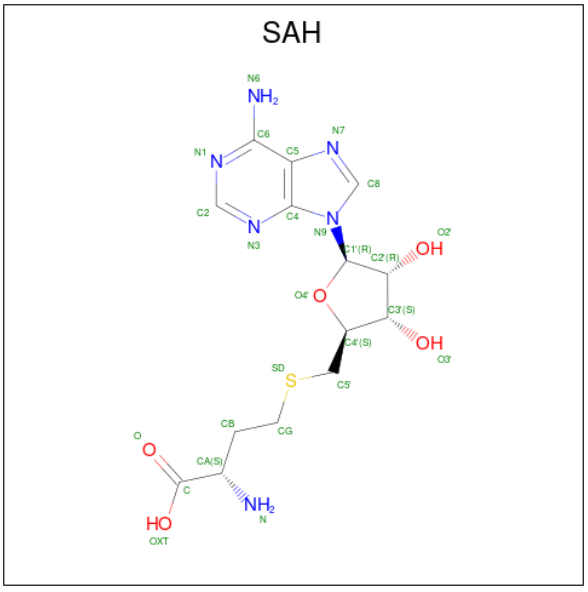
Mol	Chain	Residues	Atoms		AltConf
107	Fd	1	Total	Zn	0
			1	1	
107	F1	1	Total	Zn	0
			1	1	
107	FG	1	Total	Zn	0
			1	1	
107	FL	2	Total	Zn	0
			2	2	
107	Fe	1	Total	Zn	0
			1	1	

- Molecule 108 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



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

- Molecule 109 is S-ADENOSYL-L-HOMOCYSTEINE (CCD ID: SAH) (formula: $C_{14}H_{20}N_6O_5S$).



Mol	Chain	Residues	Atoms					AltConf
109	F1	1	Total	C	N	O	S	0
			26	14	6	5	1	
109	FF	1	Total	C	N	O	S	0
			26	14	6	5	1	

- Molecule 110 is water.

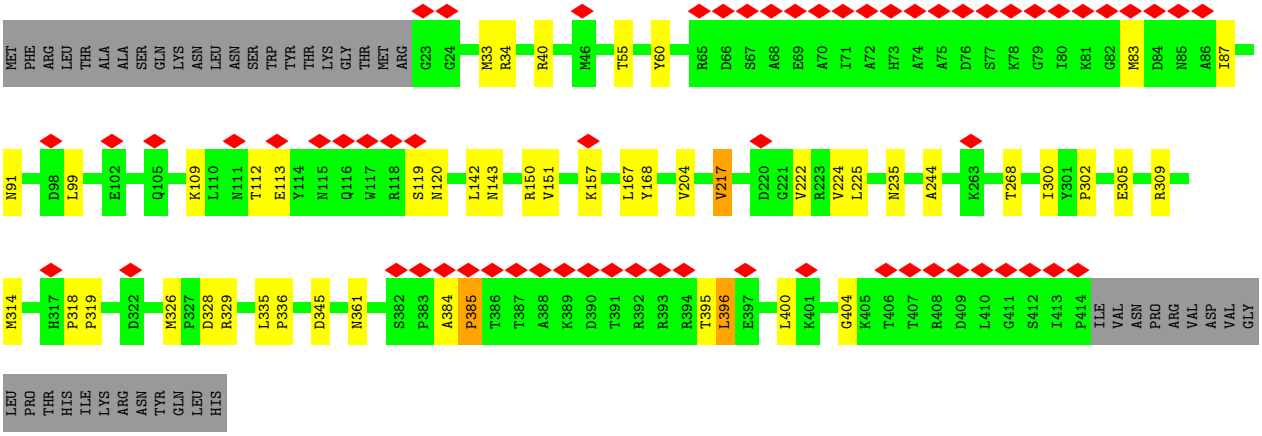
Mol	Chain	Residues	Atoms		AltConf
110	Cg	3	Total	O	0
			3	3	

3 Residue-property plots (i)

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

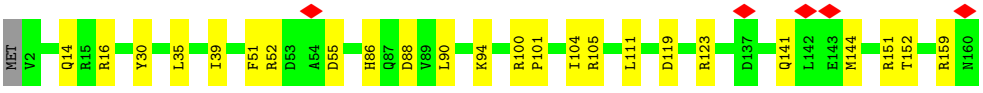
• Molecule 1: uS5m

Chain CE:



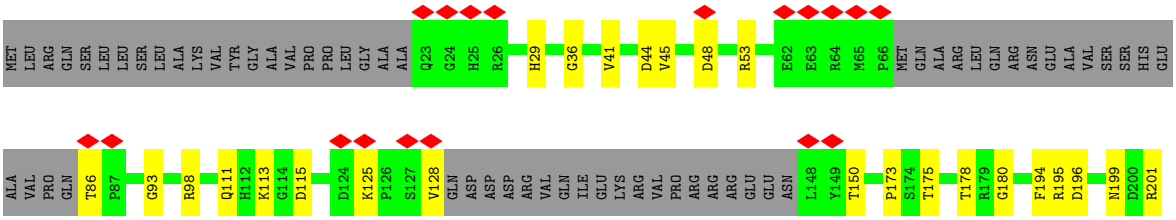
• Molecule 2: bS6m

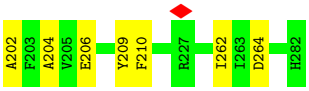
Chain CF:



• Molecule 3: uS8m

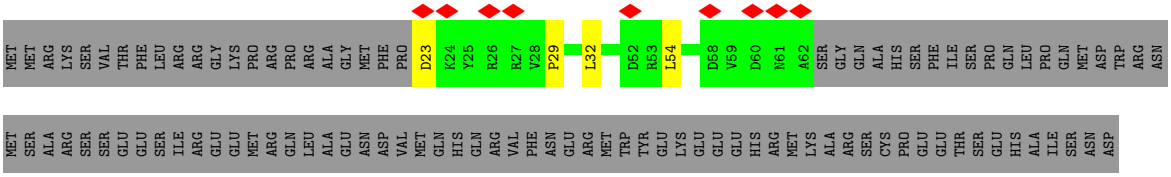
Chain CH:





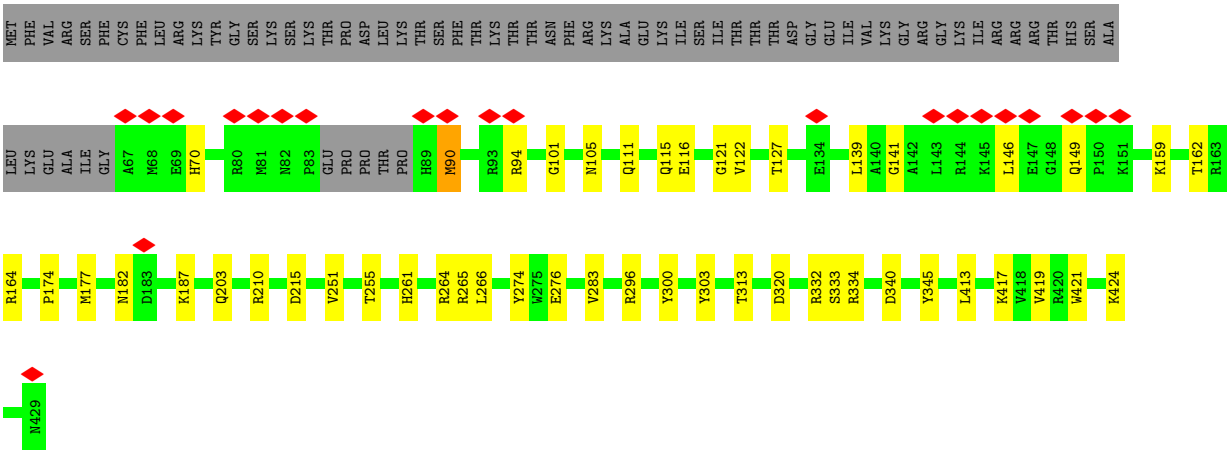
• Molecule 4: uS11m

Chain CK:



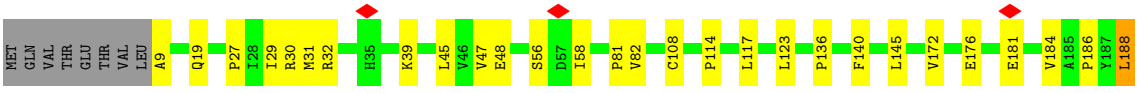
• Molecule 5: uS15m

Chain CO:



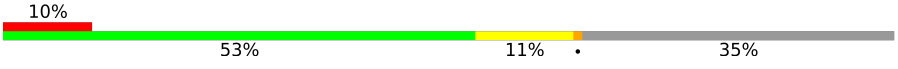
• Molecule 6: bS16m

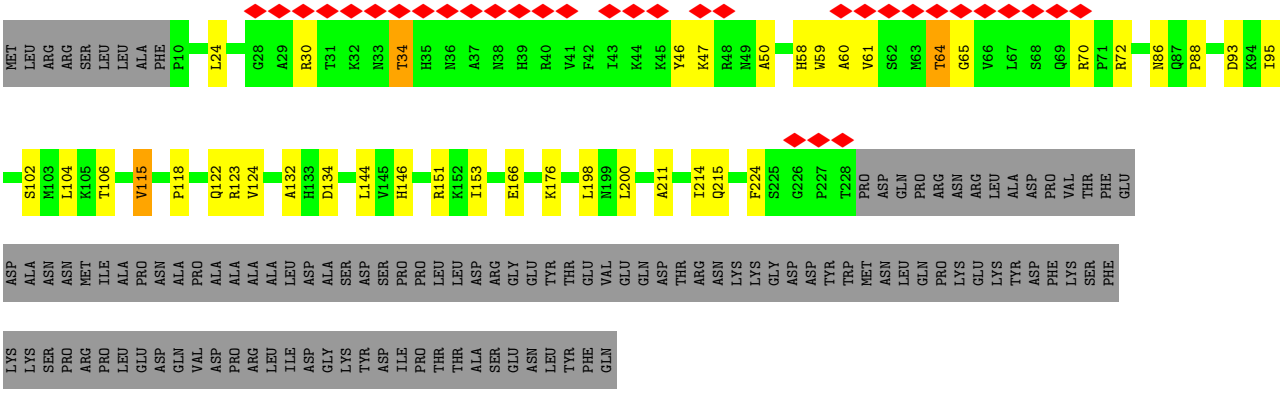
Chain CP:



• Molecule 7: uS17m

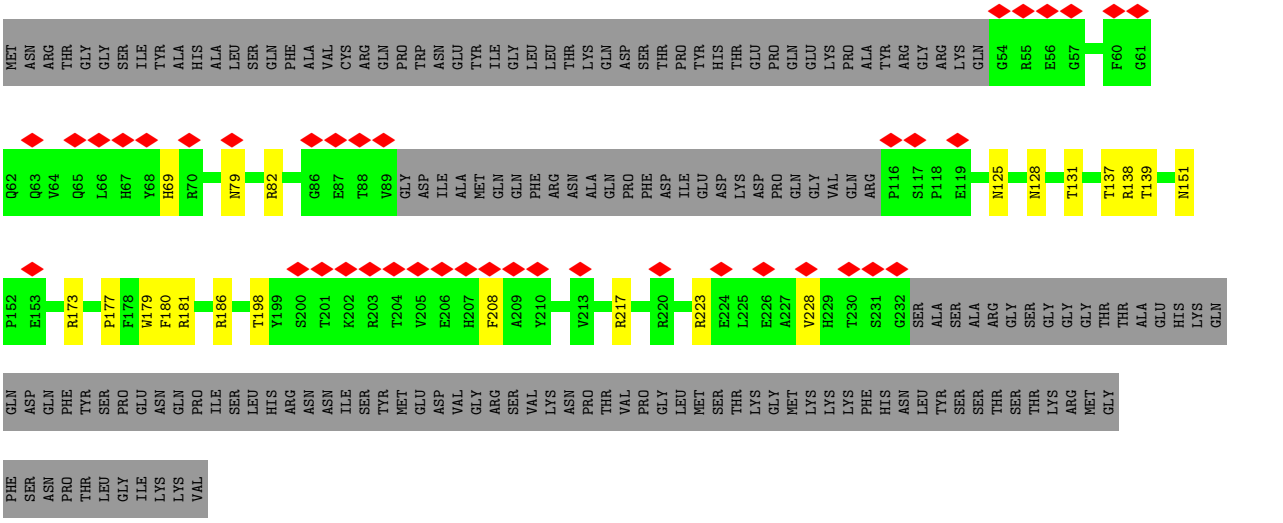
Chain CQ:





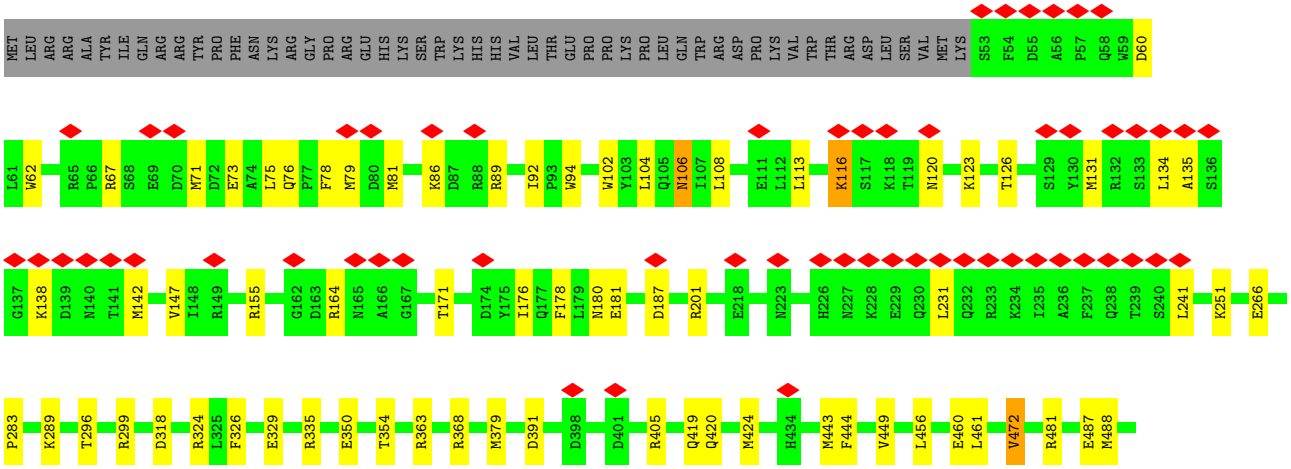
• Molecule 8: bS18m

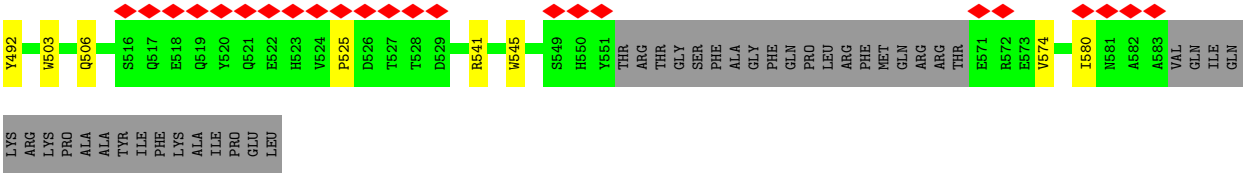
Chain CR:



• Molecule 9: mS22

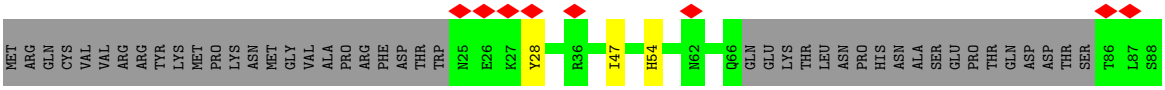
Chain Ca:

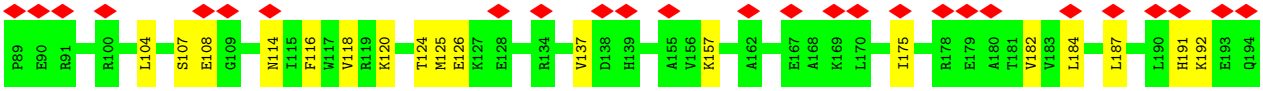


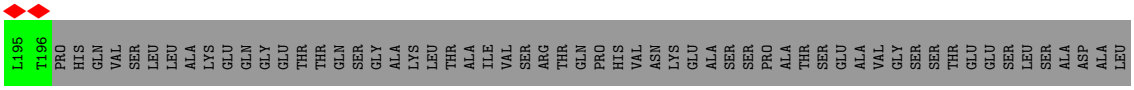


• Molecule 10: mS23

Chain Cb:

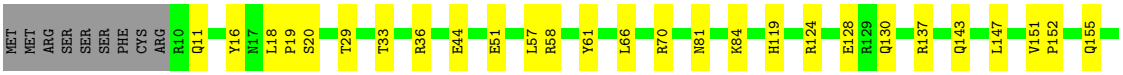


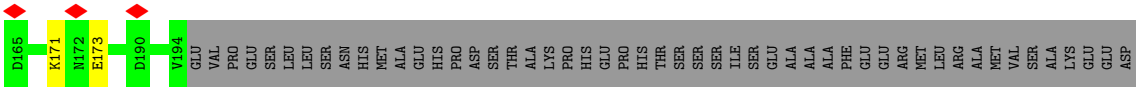


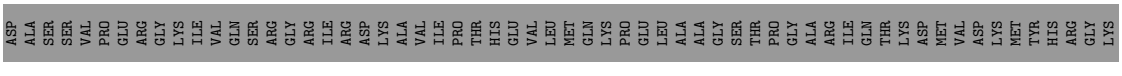


• Molecule 11: mS26

Chain Cd:

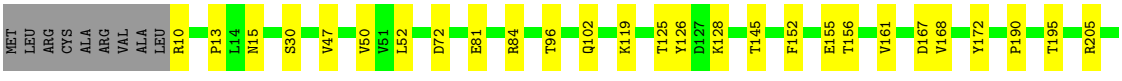






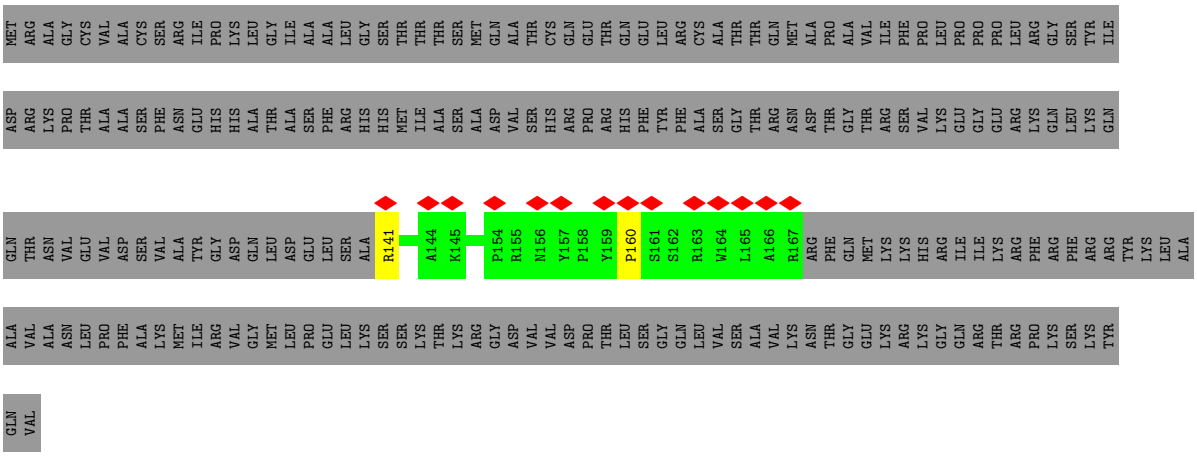
• Molecule 12: mS34

Chain Cj:



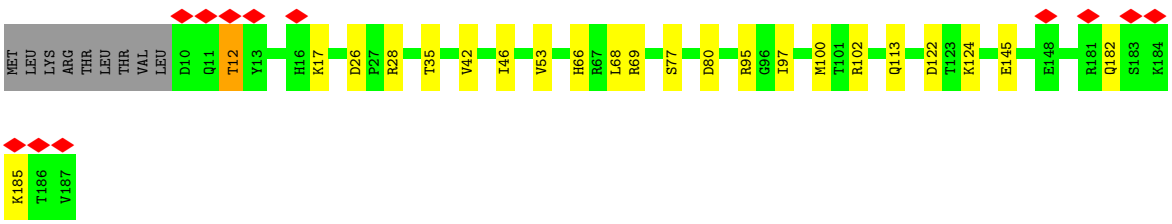
• Molecule 13: mS38

Chain Cn:



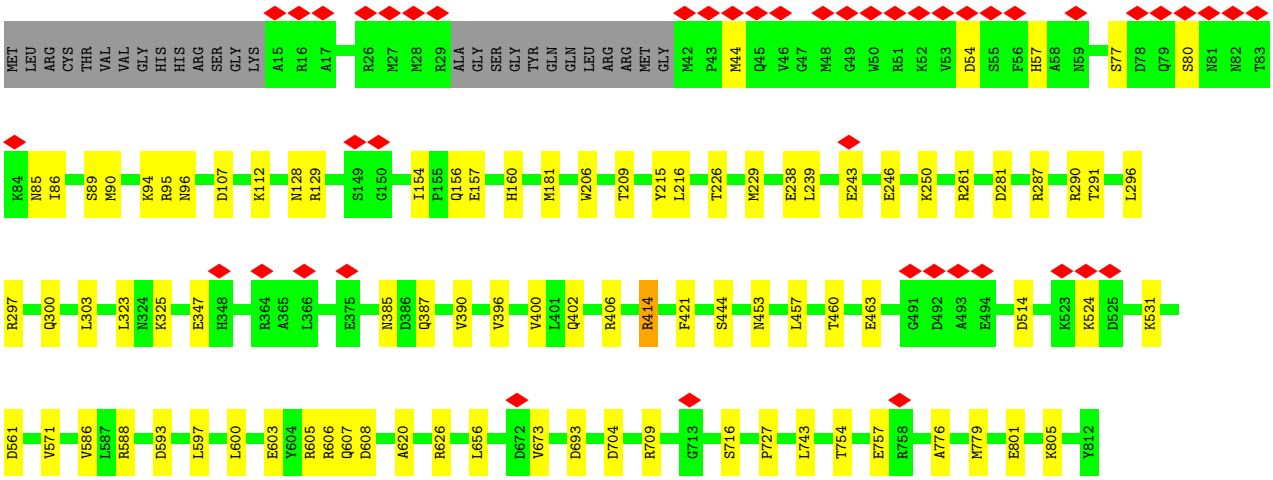
• Molecule 14: mS41

Chain Cp:



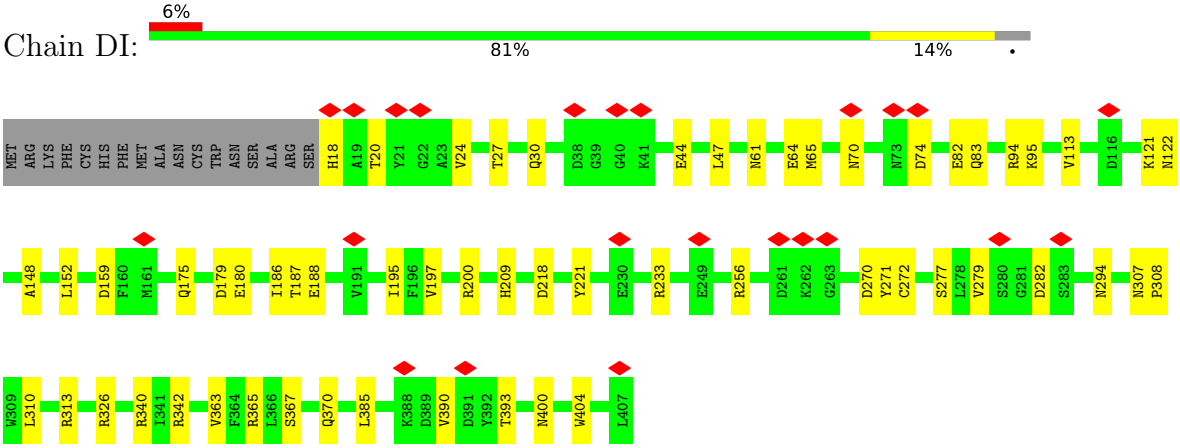
• Molecule 15: mS51 (KRIPP1)

Chain DD:



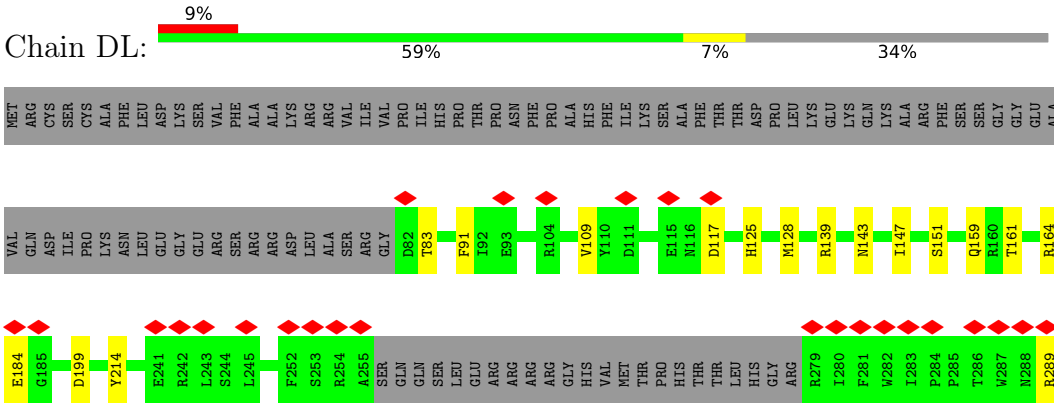
• Molecule 16: mS56

Chain DI:



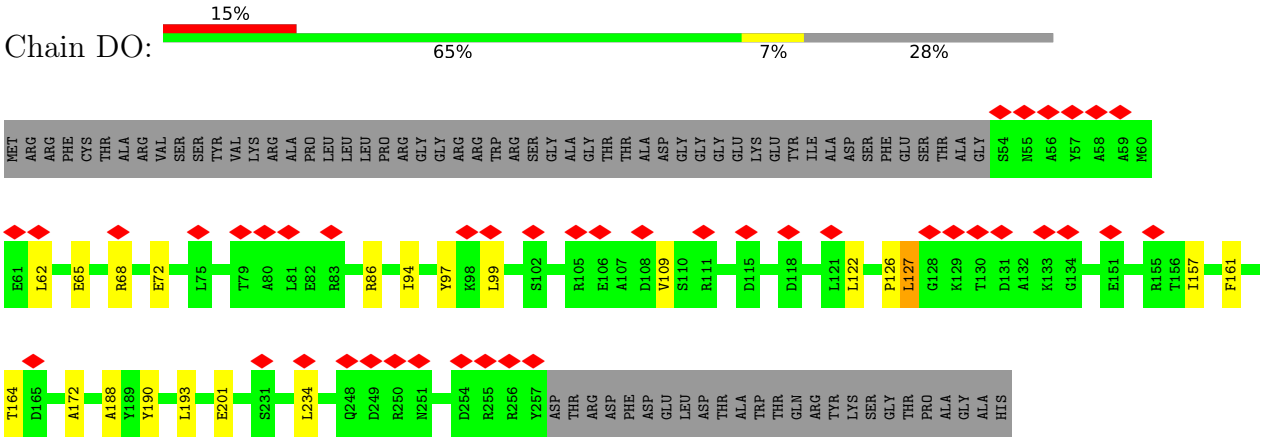
• Molecule 17: mS59

Chain DL:



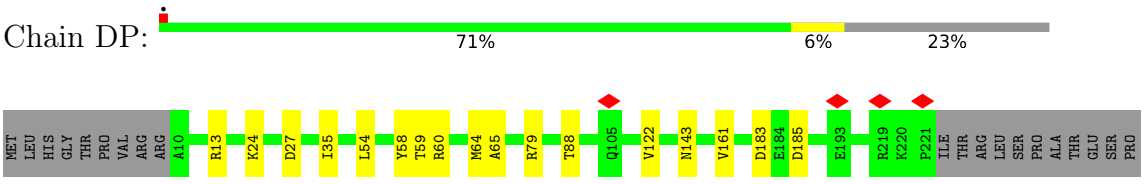
• Molecule 18: mS62 (KRIPP14)

Chain DO:



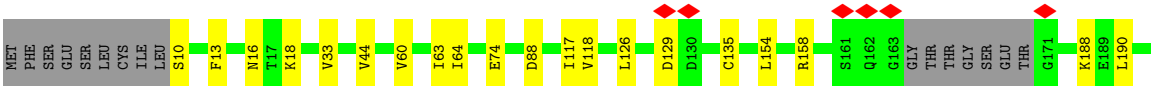
• Molecule 19: mS63 (KRIPP16)

Chain DP:



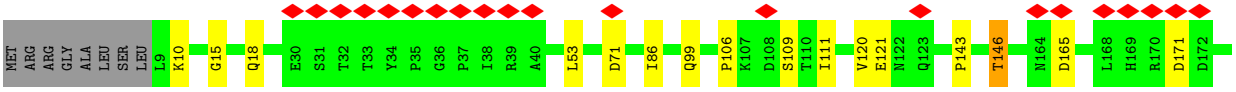
• Molecule 20: mS65

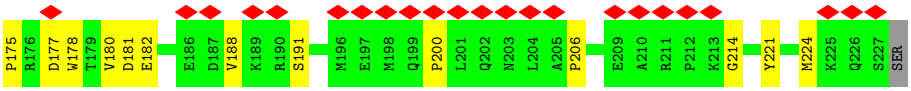
Chain DR:



• Molecule 21: mS68

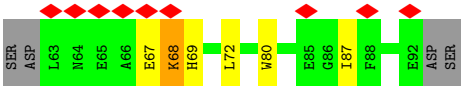
Chain DU:





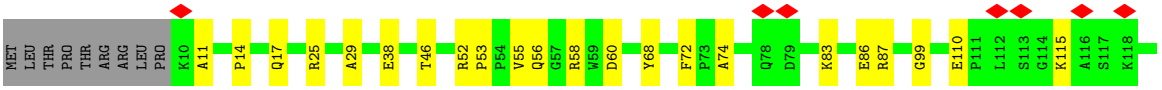
• Molecule 22: mS73

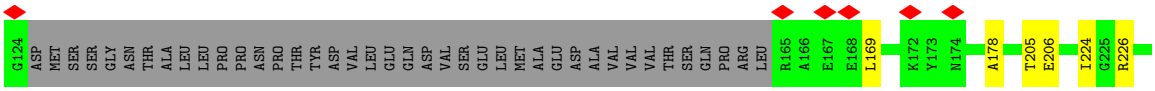
Chain DZ:

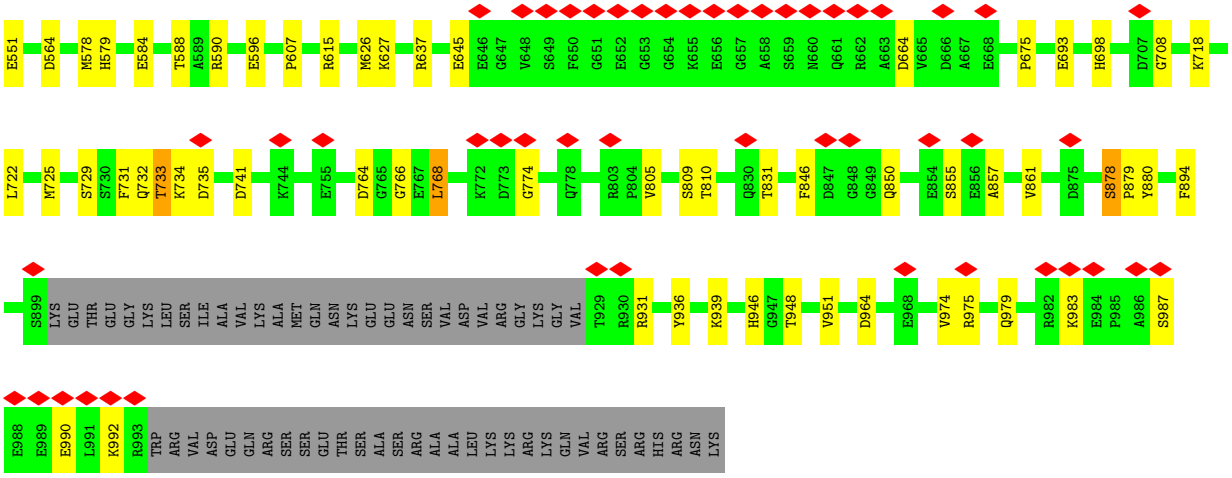


• Molecule 23: mt-SAF2 (KRIPP2)

Chain F2:

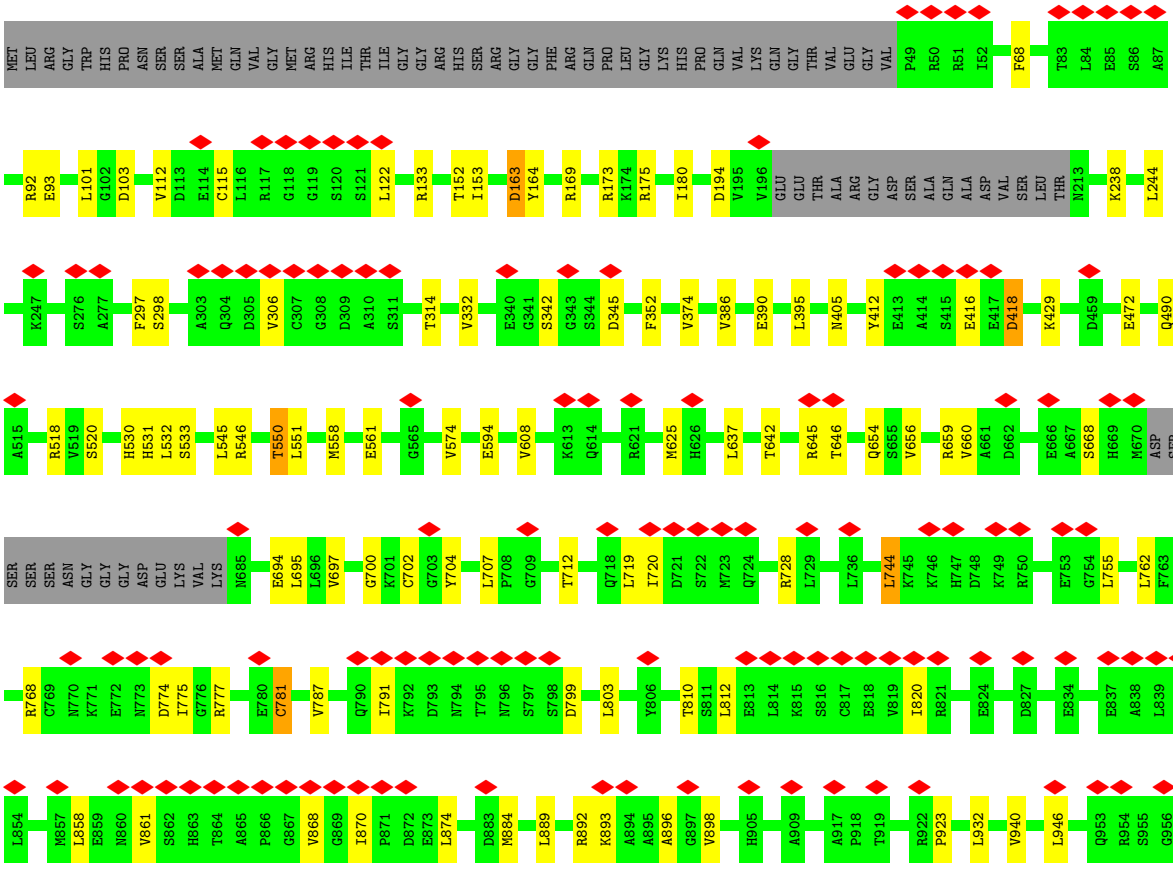






• Molecule 24: mt-SAF3

Chain F3:

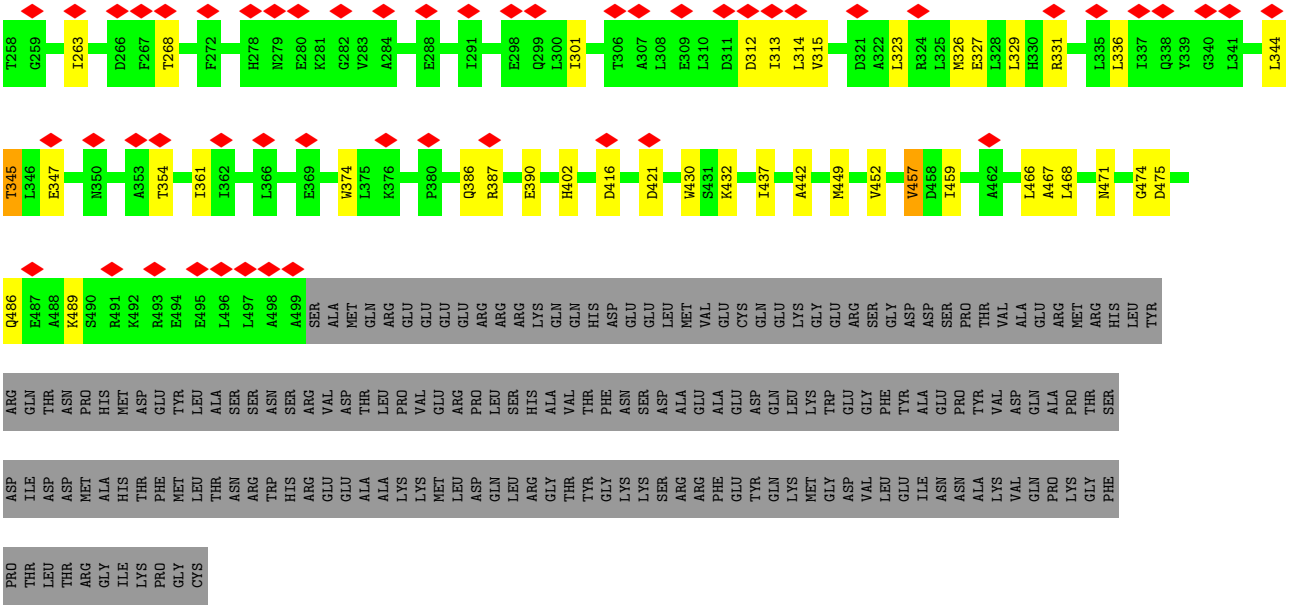


• Molecule 25: mt-SAF5

Chain F5:

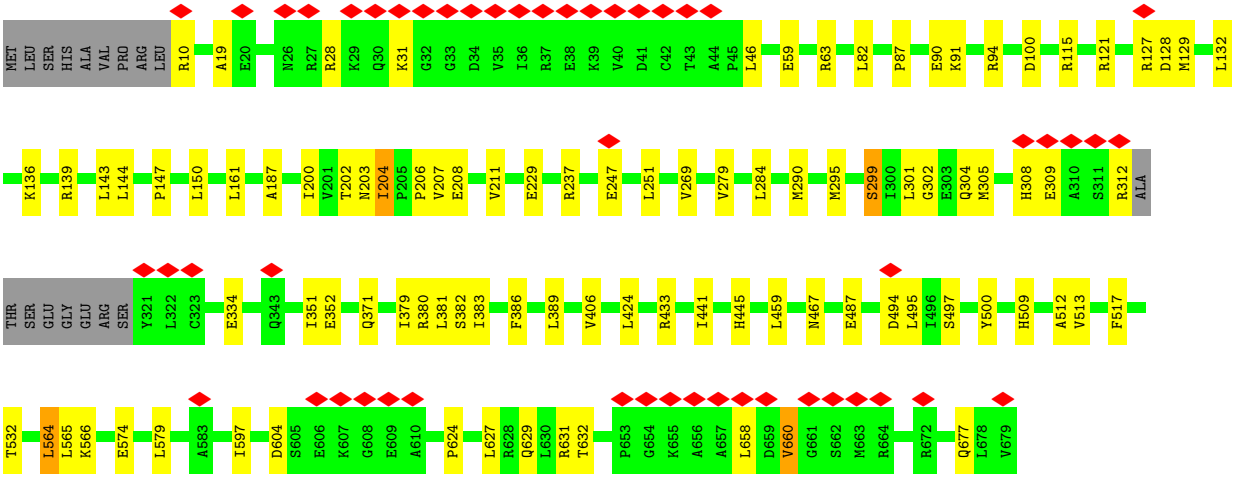
• Molecule 26: mt-SAF6

Chain F6:



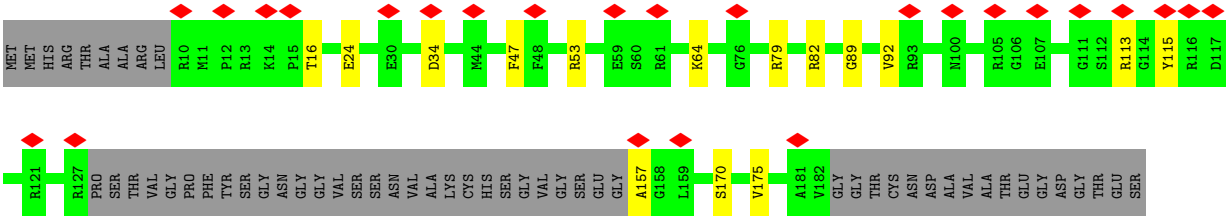
• Molecule 27: mt-SAF7 (KRIPP10)

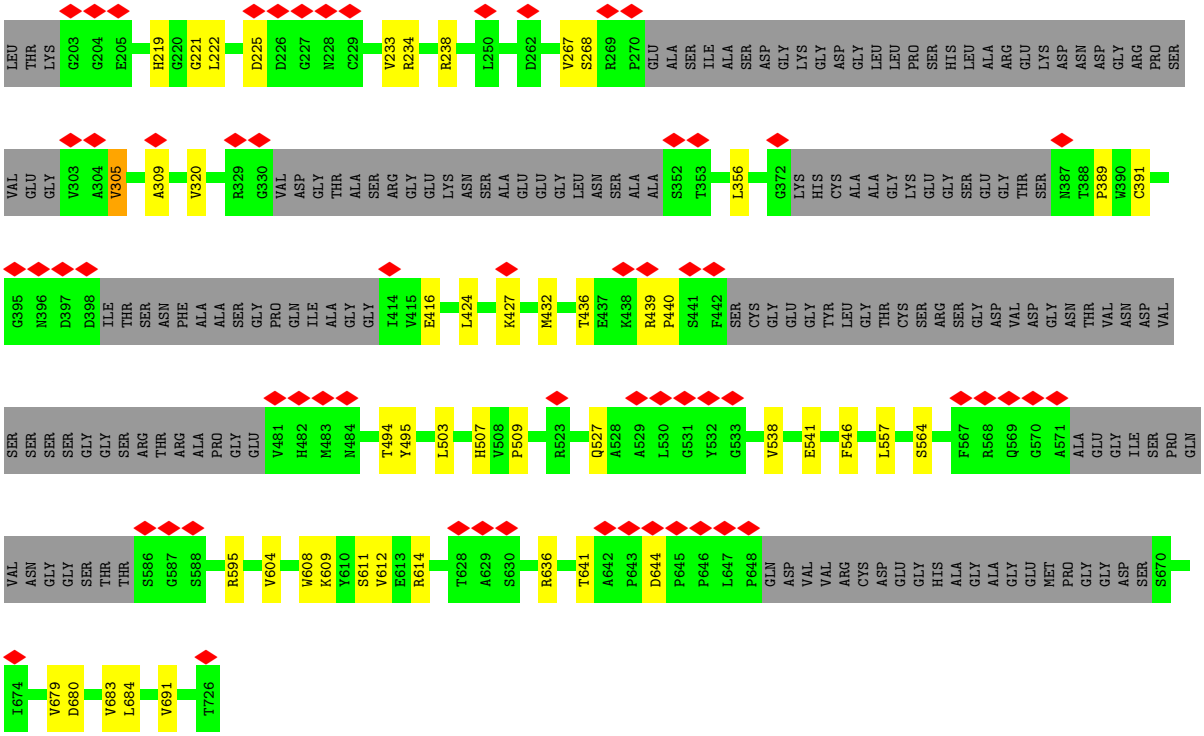
Chain F7:



• Molecule 28: mt-SAF8

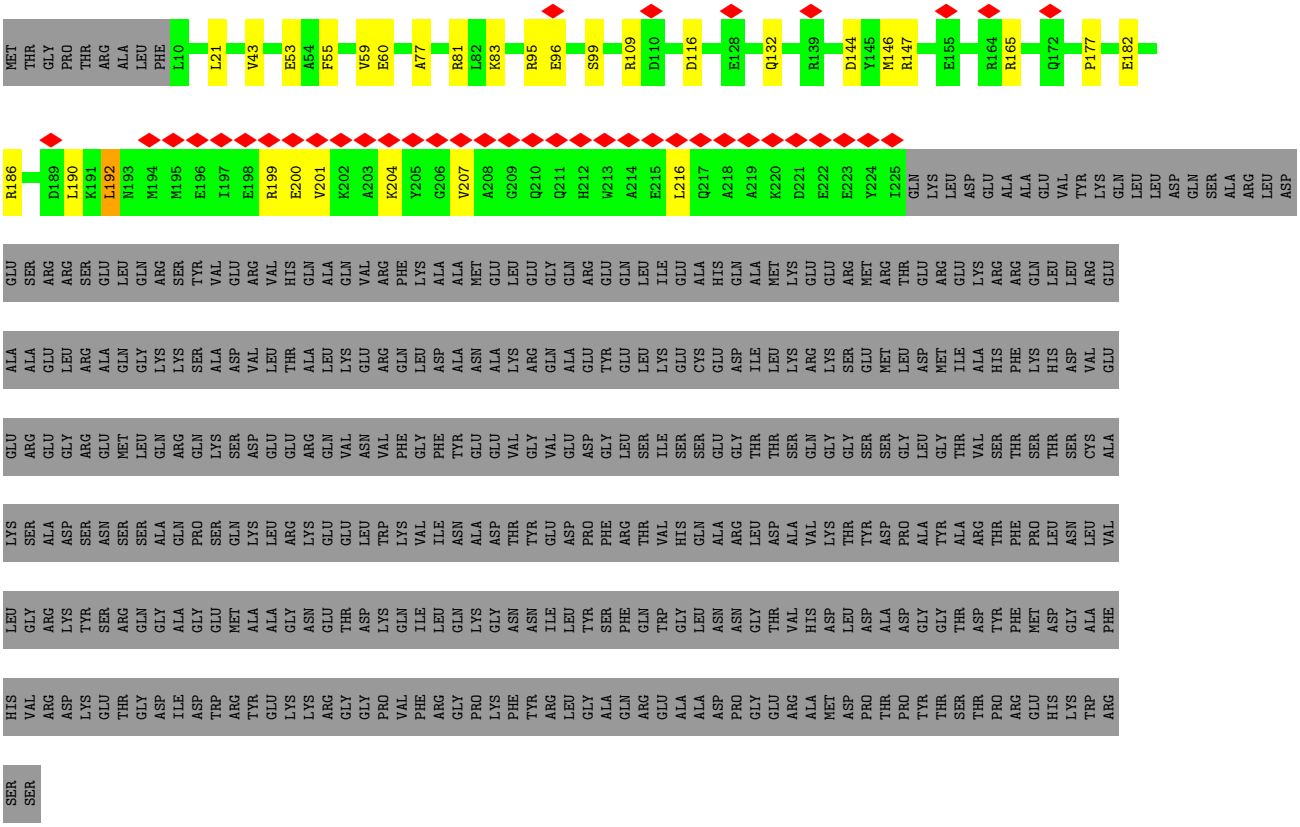
Chain F8:





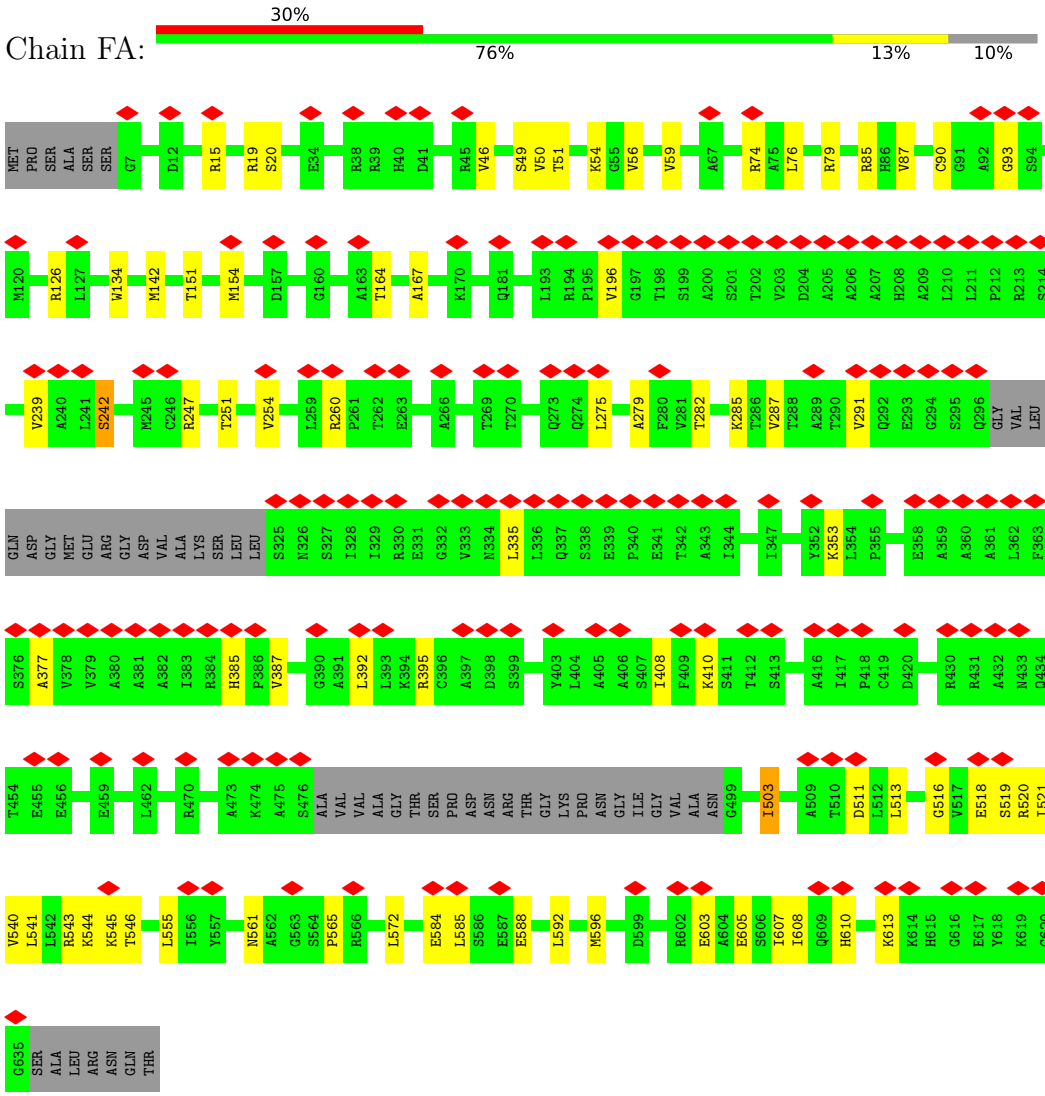
• Molecule 29: mt-SAF9

Chain F9:



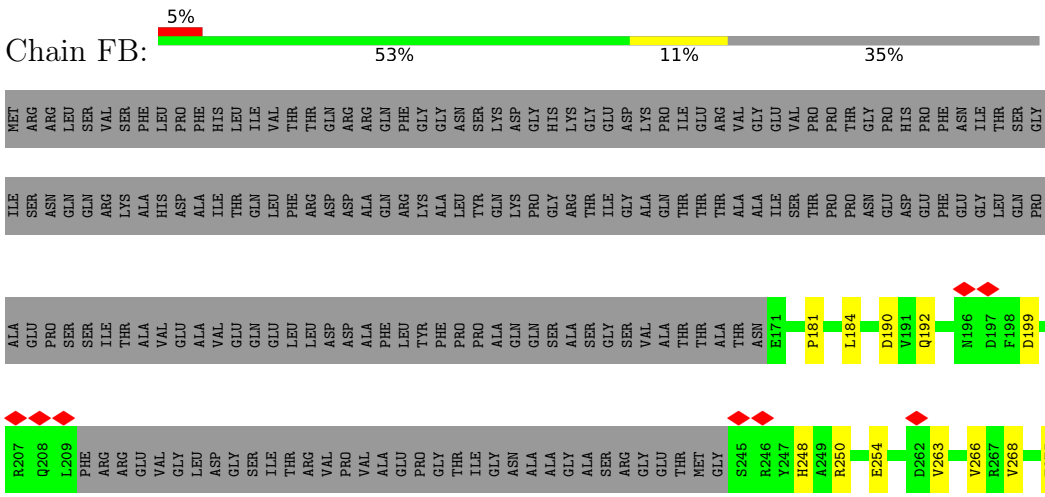
• Molecule 30: mt-SAF10

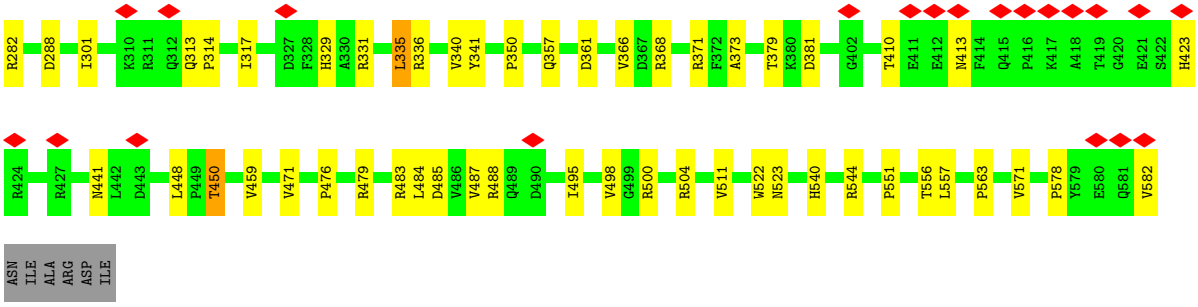
Chain FA:



• Molecule 31: mt-SAF11

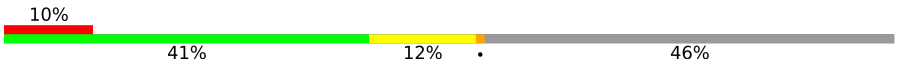
Chain FB:

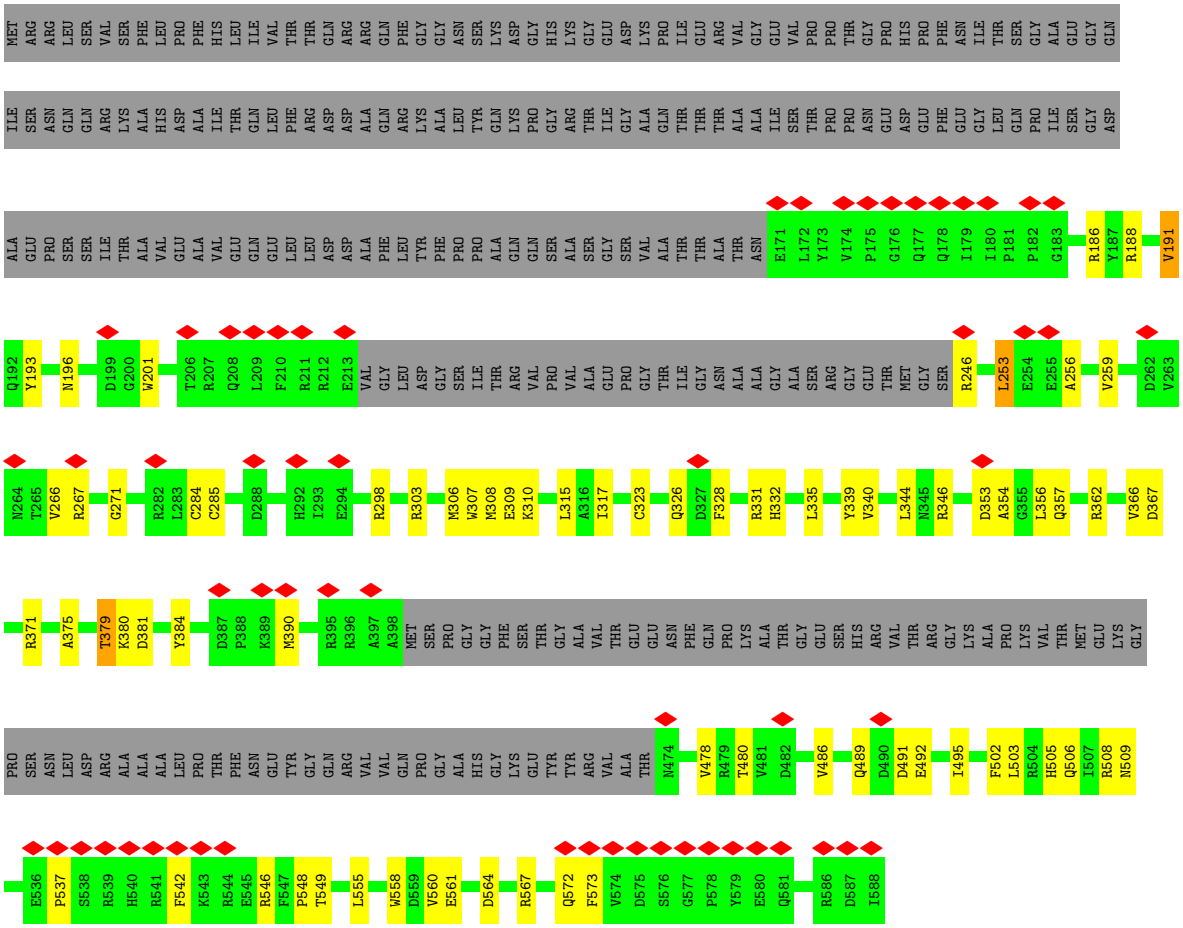




• Molecule 31: mt-SAF11

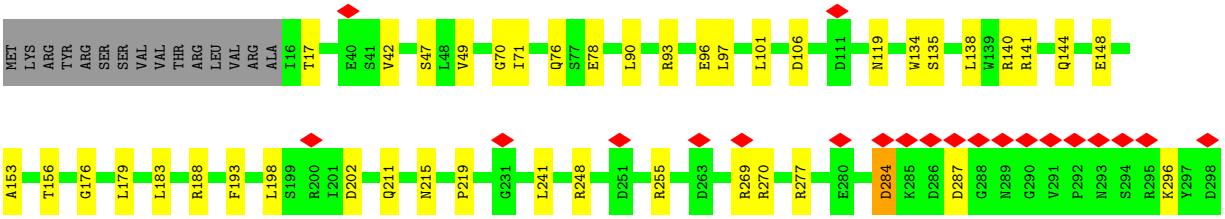
Chain FC:

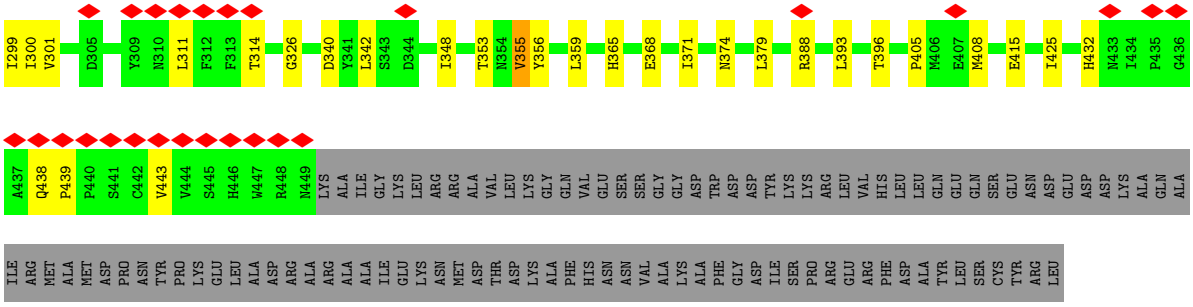




• Molecule 32: mt-SAF13

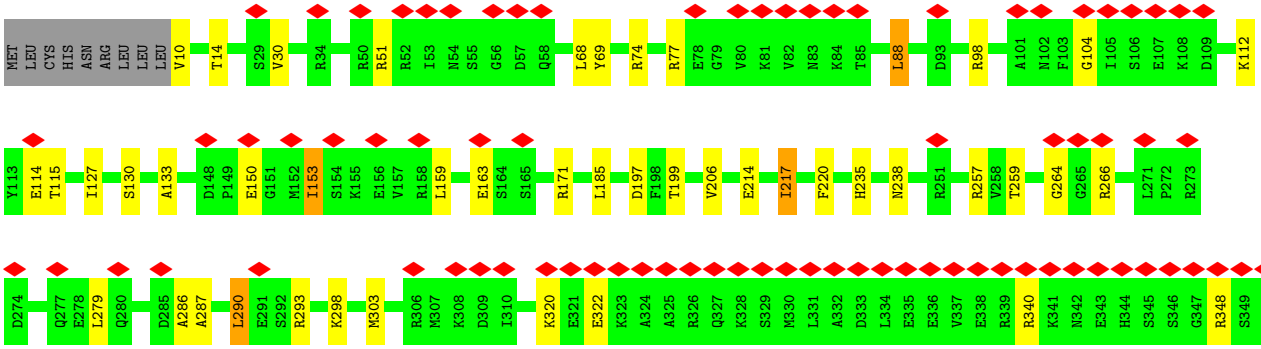
Chain FE:





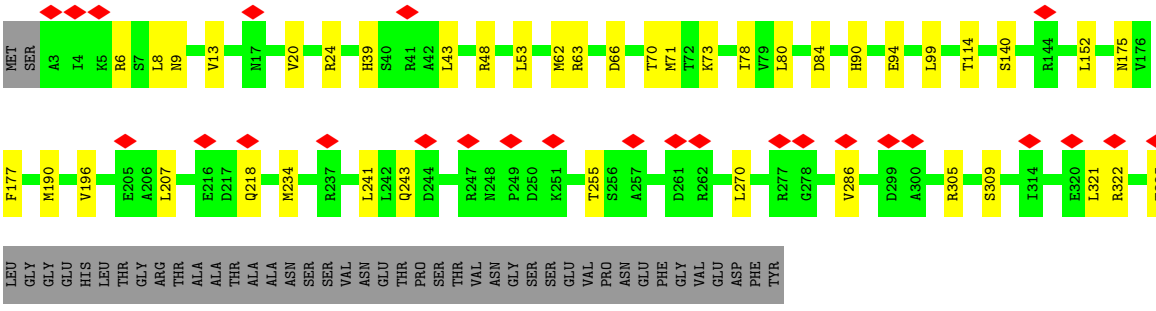
• Molecule 33: mt-SAF18

Chain FJ:



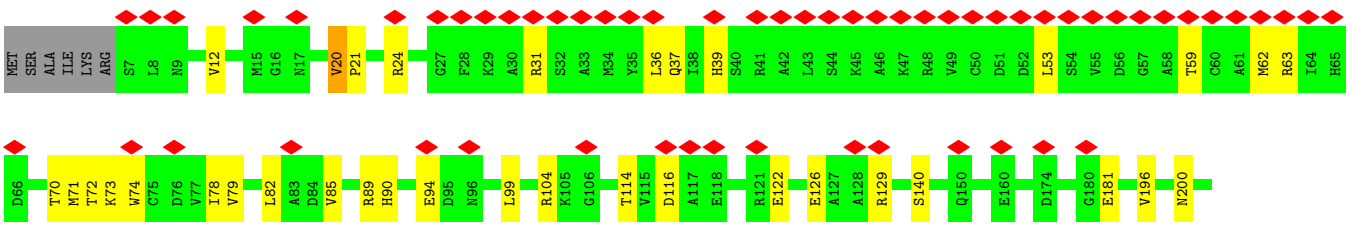
• Molecule 34: mt-SAF21

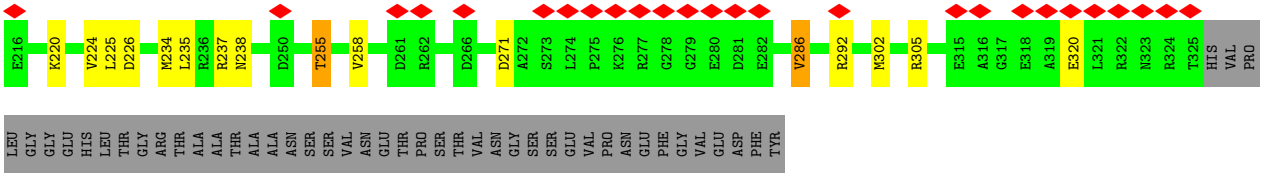
Chain FM:



• Molecule 34: mt-SAF21

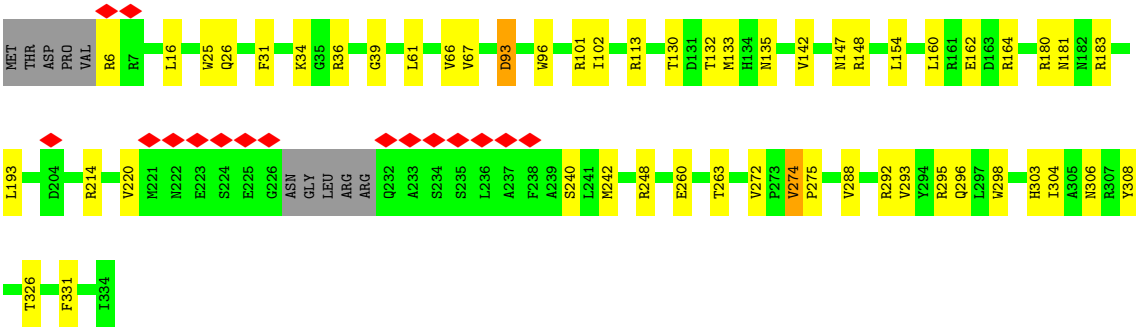
Chain FN:





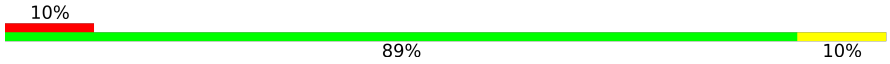
• Molecule 35: mt-SAF22 (KRIPP17)

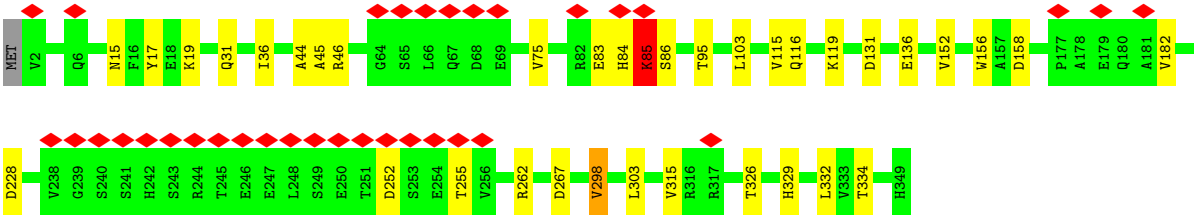
Chain FO:



• Molecule 36: mt-SAF23

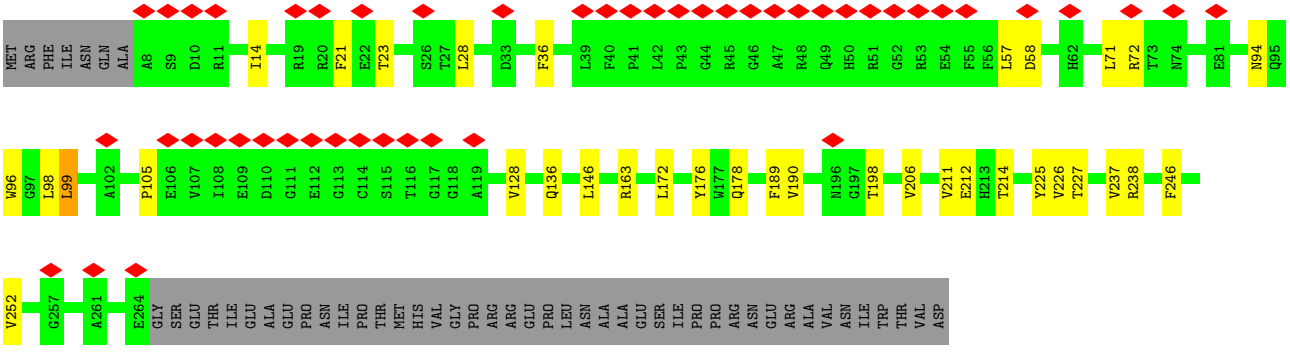
Chain FP:





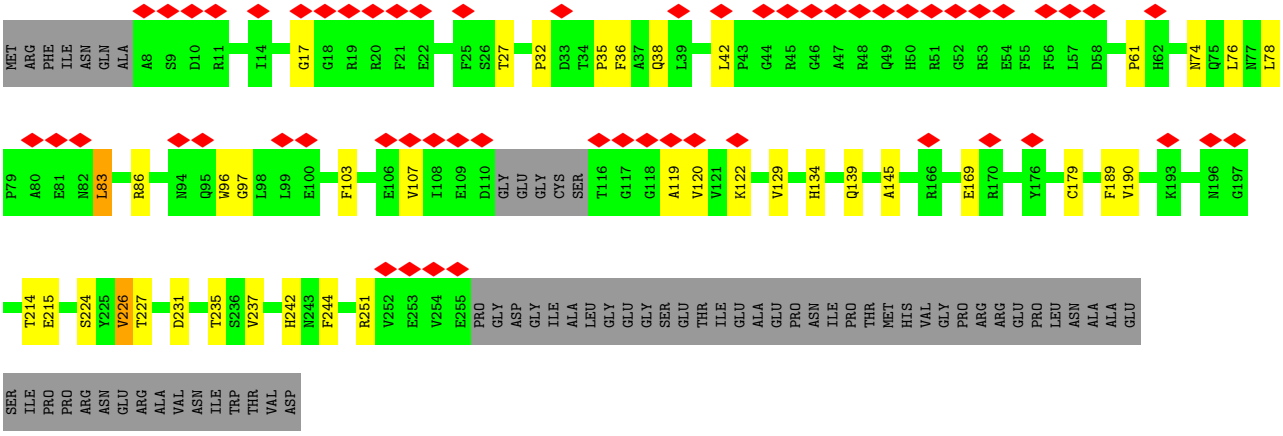
• Molecule 37: mt-SAF24

Chain FQ:



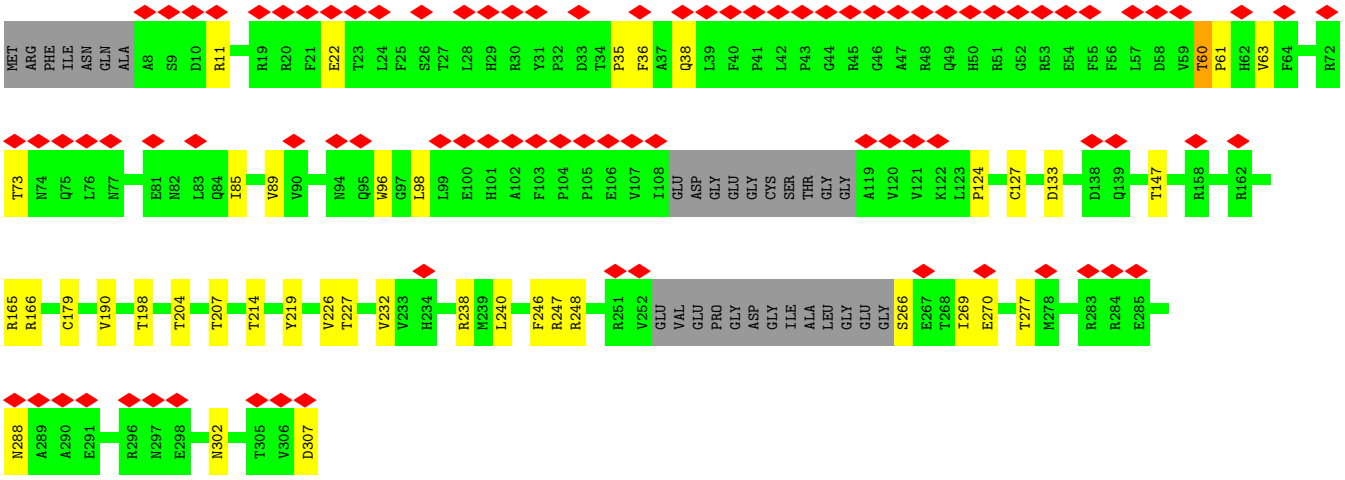
• Molecule 37: mt-SAF24

Chain FR:



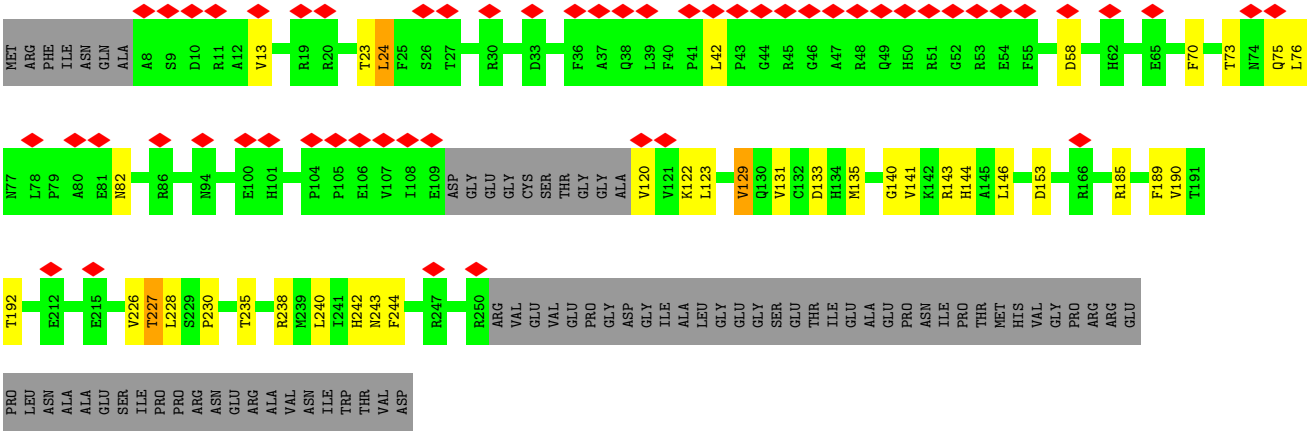
• Molecule 37: mt-SAF24

Chain FS:



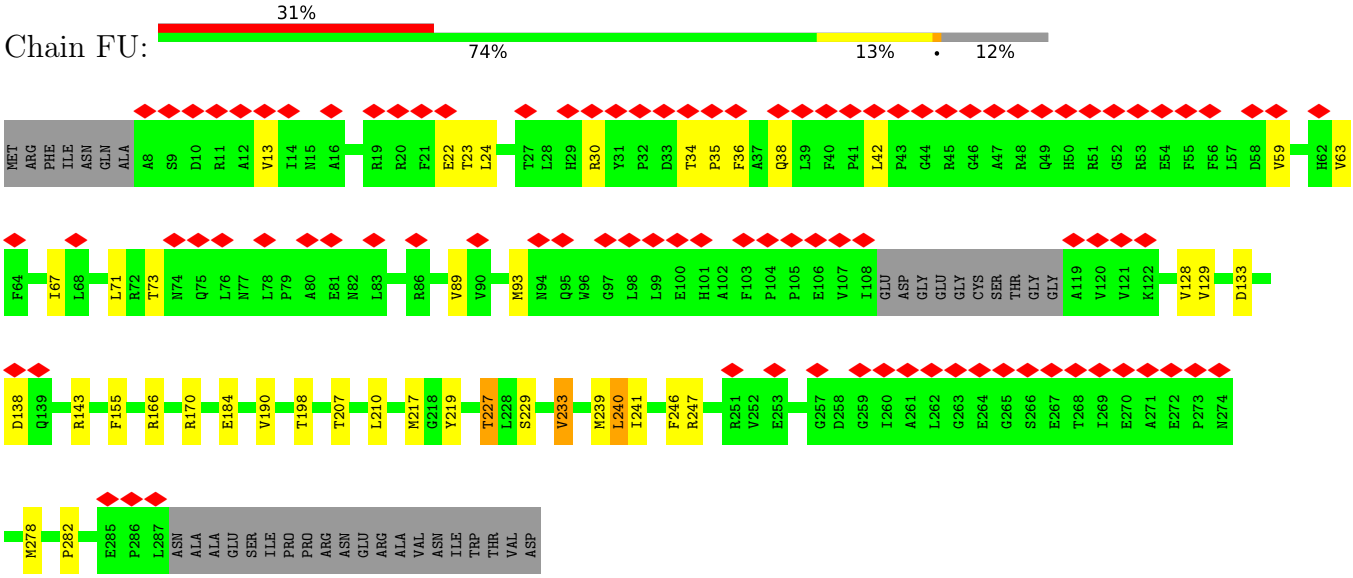
• Molecule 37: mt-SAF24

Chain FT:



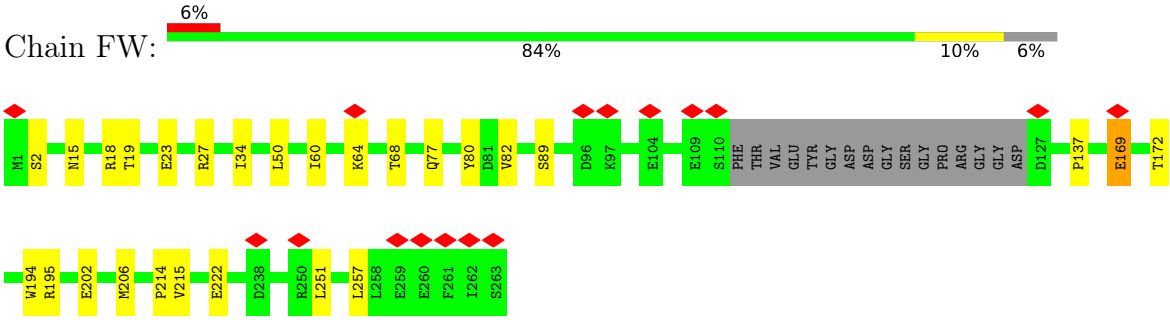
• Molecule 37: mt-SAF24

Chain FU:



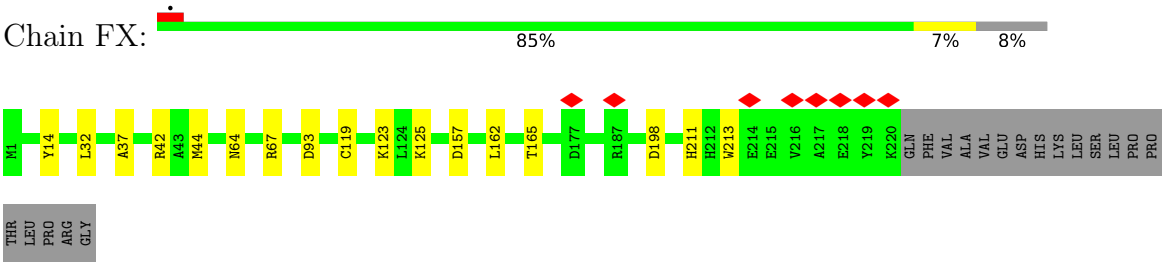
• Molecule 38: mt-SAF26

Chain FW:



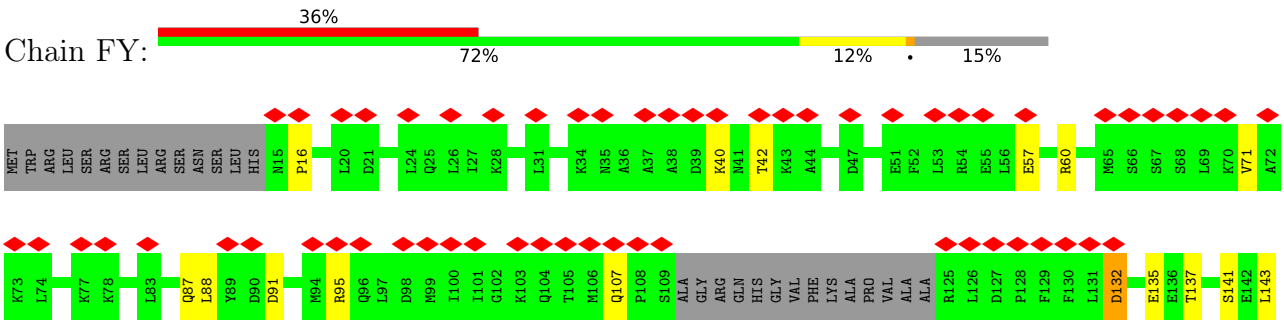
• Molecule 39: mt-SAF27 (KRIPP11)

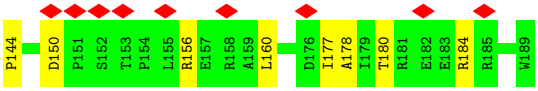
Chain FX:



• Molecule 40: mt-SAF28

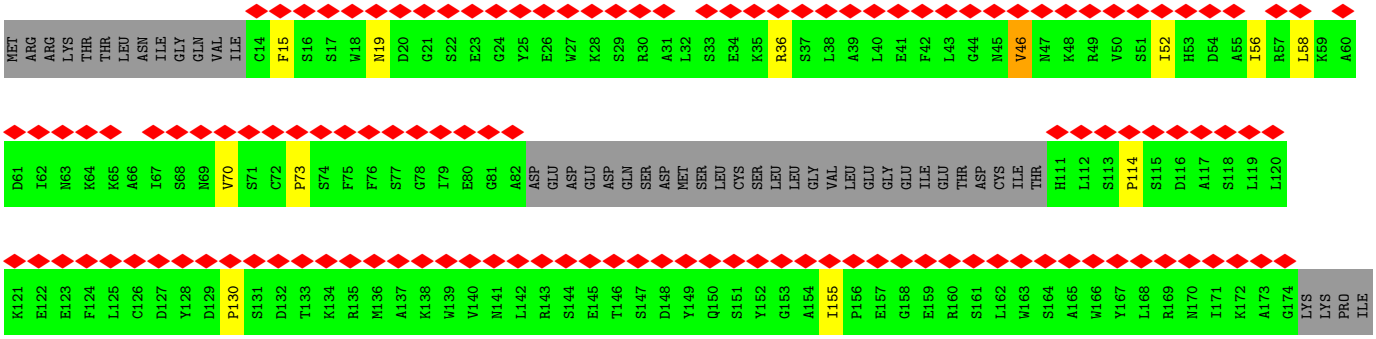
Chain FY:





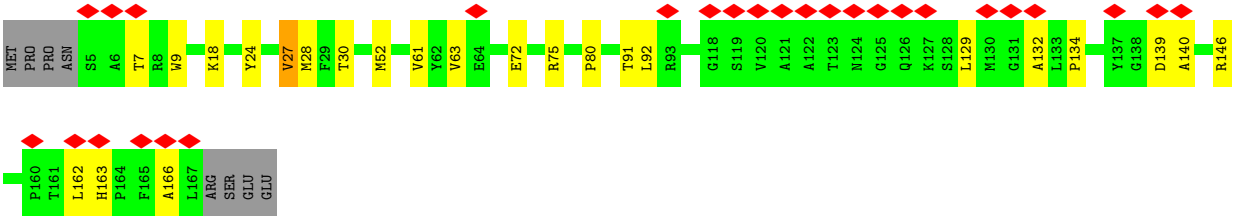
• Molecule 41: mt-SAF29

Chain FZ:



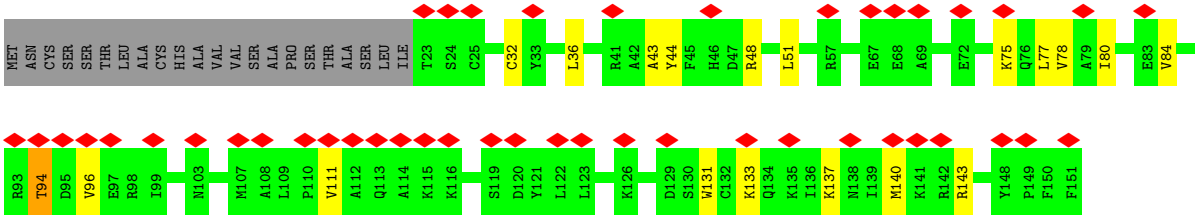
• Molecule 42: mt-SAF30

Chain Fa:



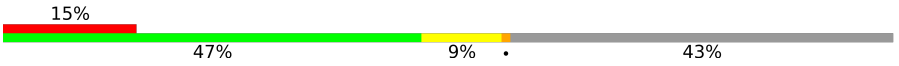
• Molecule 43: mt-SAF31

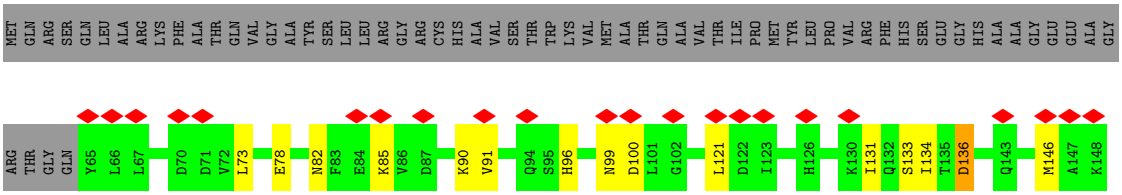
Chain Fb:



• Molecule 44: mt-SAF32

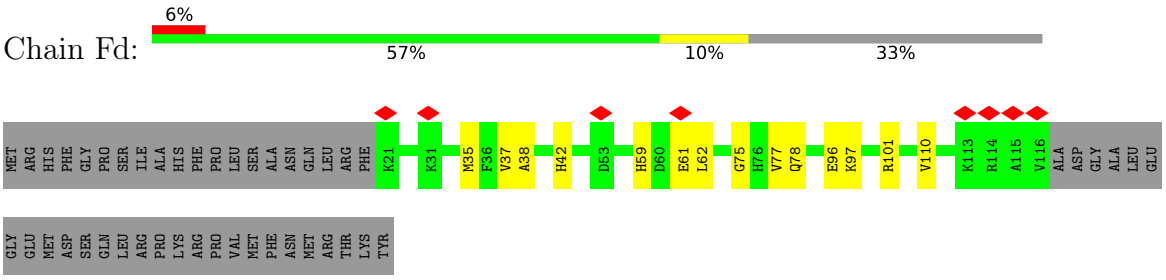
Chain Fc:





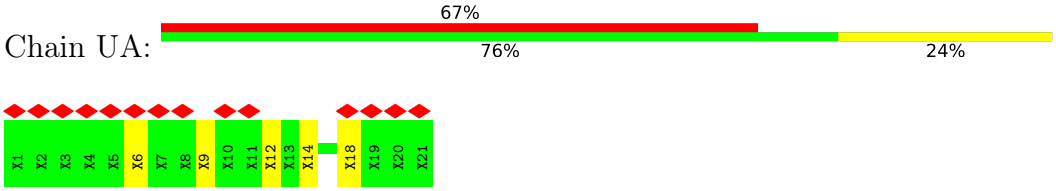
• Molecule 45: mt-SAF33

Chain Fd:



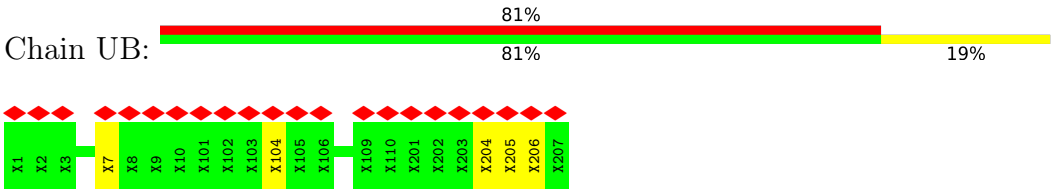
• Molecule 46: UNK-A

Chain UA:



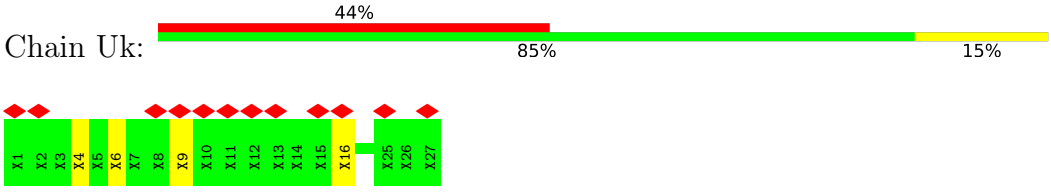
• Molecule 47: UNK-B, UNK-k

Chain UB:



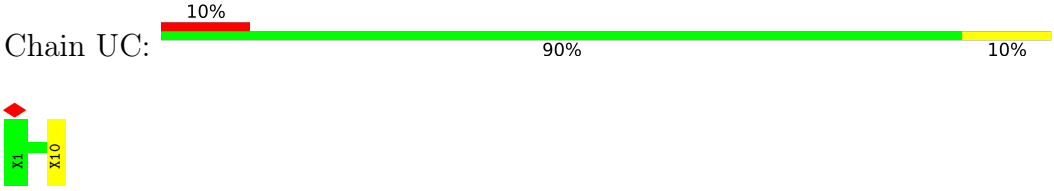
• Molecule 47: UNK-B, UNK-k

Chain Uk:



• Molecule 48: UNK-C

Chain UC:

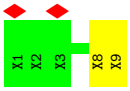


• Molecule 49: UNK-D, UNK-M, UNK-Q, UNK-f

Chain UD:

• Molecule 49: UNK-D, UNK-M, UNK-Q, UNK-f

Chain UM:



• Molecule 49: UNK-D, UNK-M, UNK-Q, UNK-f

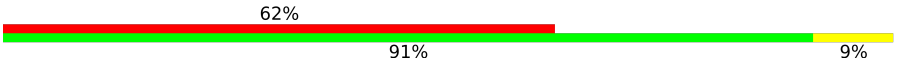
Chain UQ:

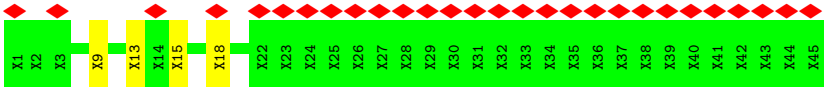
• Molecule 49: UNK-D, UNK-M, UNK-Q, UNK-f

Chain Uf:

• Molecule 50: UNK-E, UNK-P

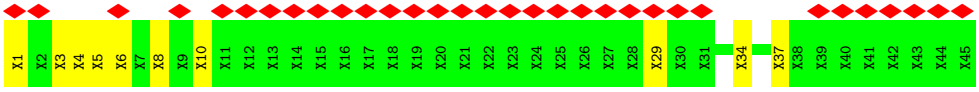
Chain UE:





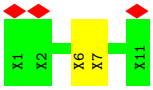
• Molecule 50: UNK-E, UNK-P

Chain UP:



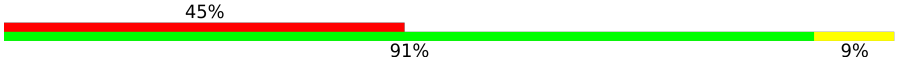
• Molecule 51: UNK-F, UNK-m

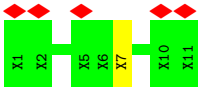
Chain UF:



• Molecule 51: UNK-F, UNK-m

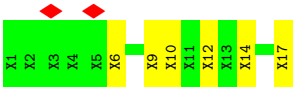
Chain Um:





• Molecule 52: UNK-G

Chain UG:

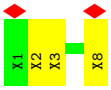


• Molecule 53: UNK-H

Chain UH:

• Molecule 54: UNK-I, UNK-N

Chain UI:



• Molecule 54: UNK-I, UNK-N

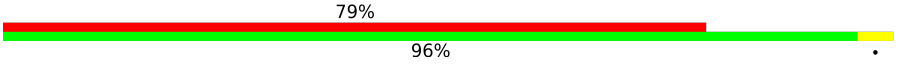
Chain UN:

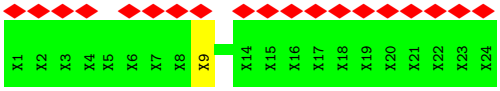
• Molecule 55: UNK-J

Chain UJ:

• Molecule 56: UNK-K

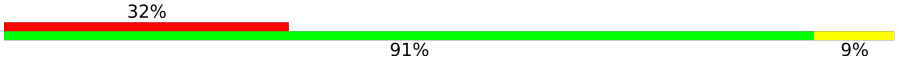
Chain UK:

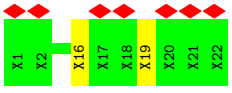




• Molecule 57: UNK-L

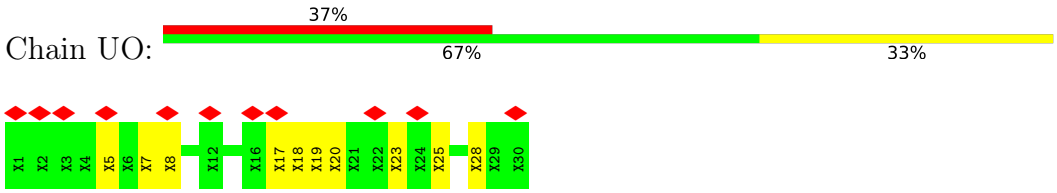
Chain UL:





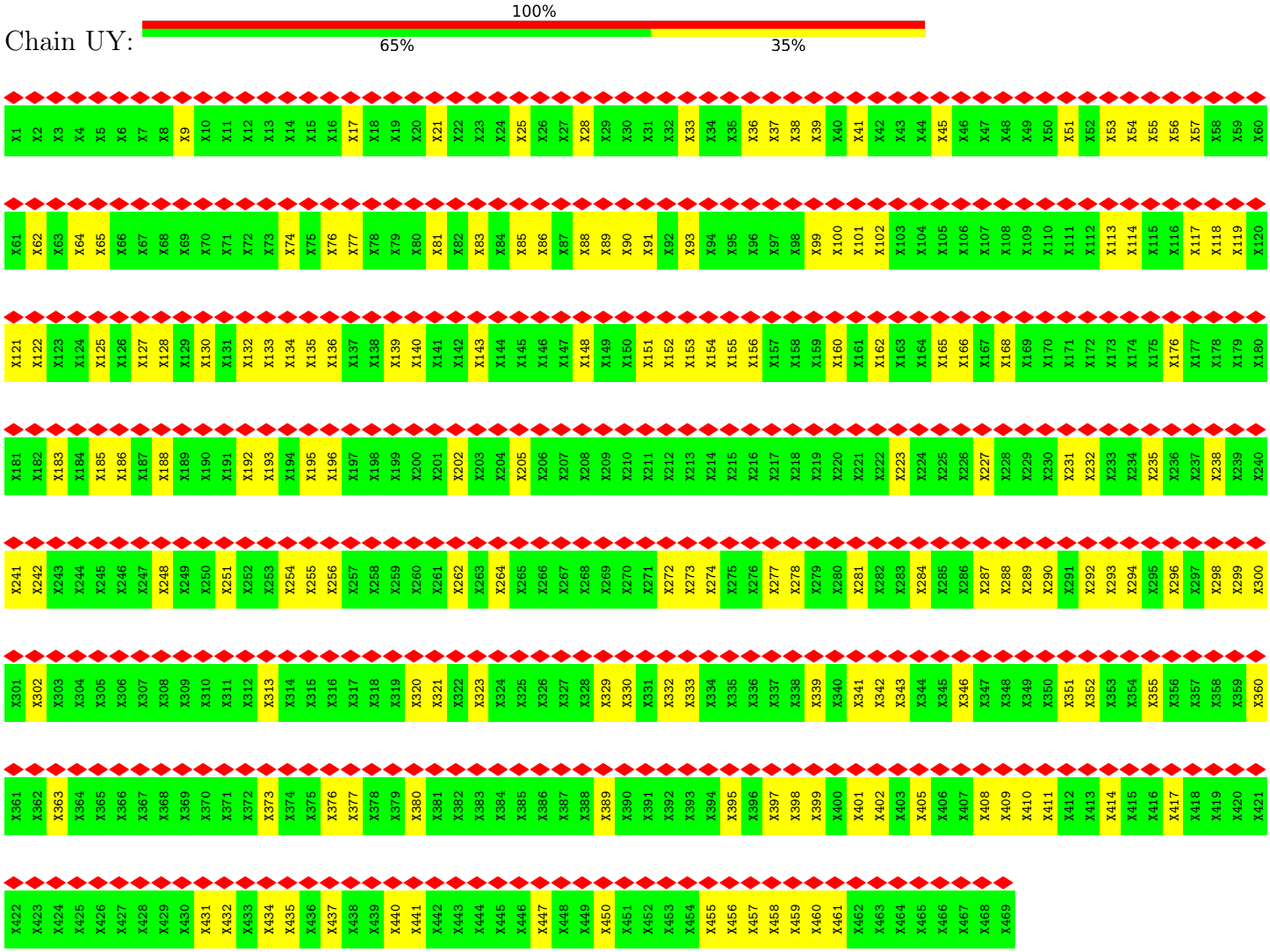
• Molecule 58: UNK-O

Chain UO:



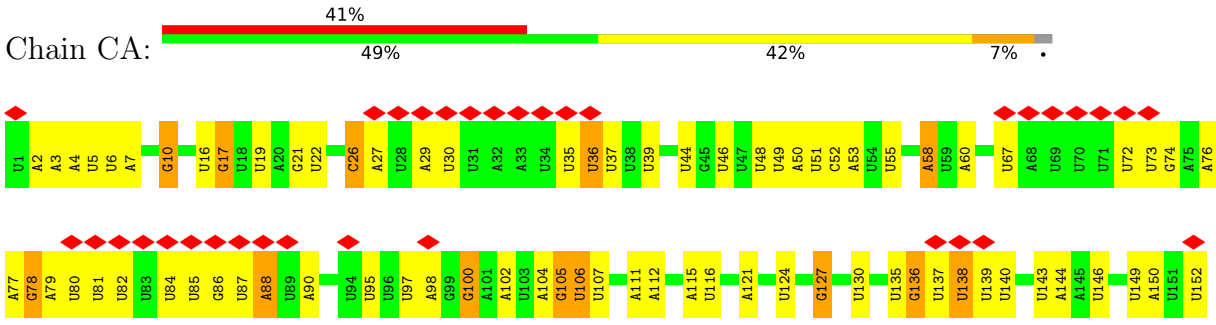
• Molecule 59: UNK-Y

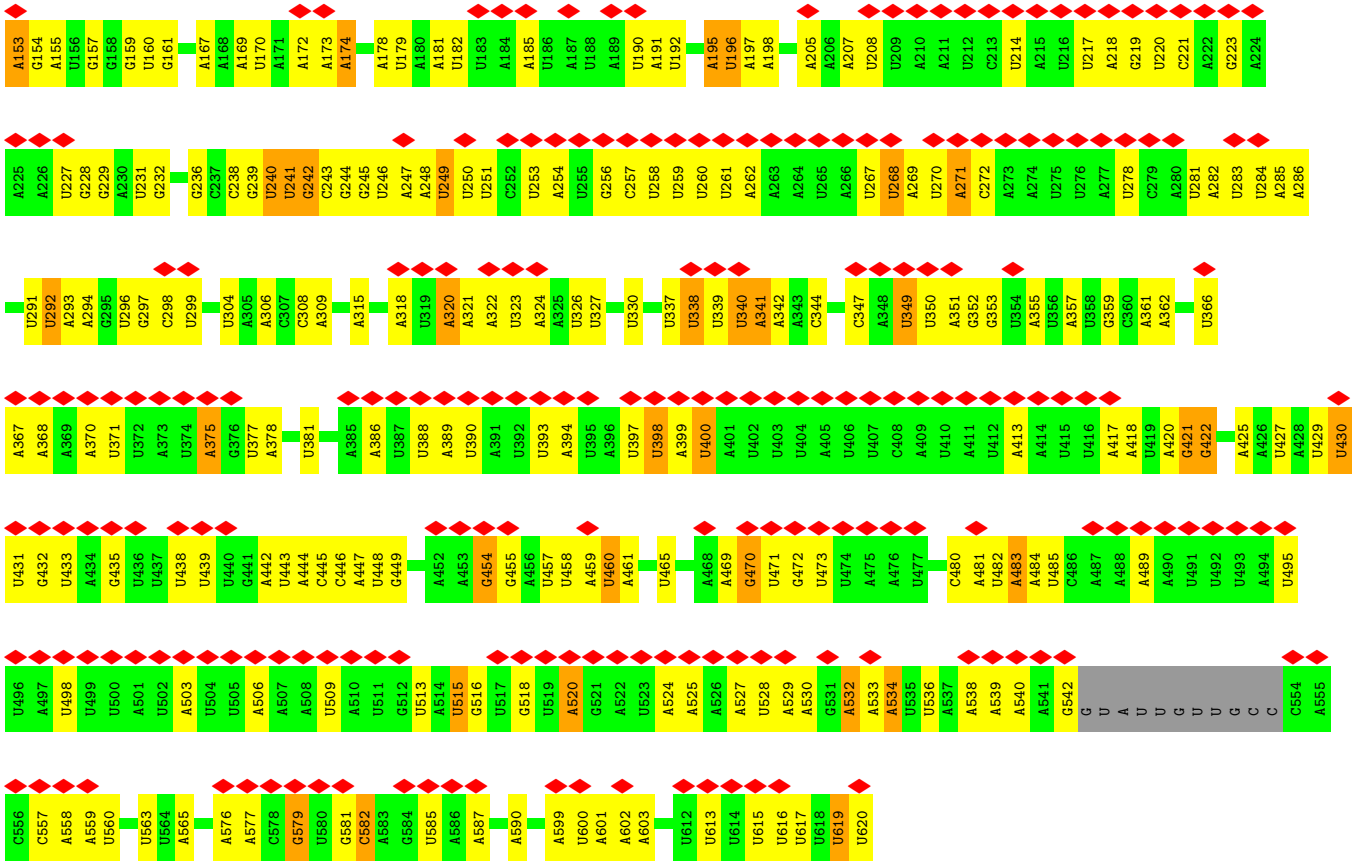
Chain UY:



• Molecule 60: 9S rRNA

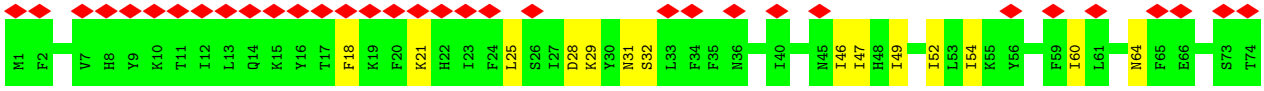
Chain CA:





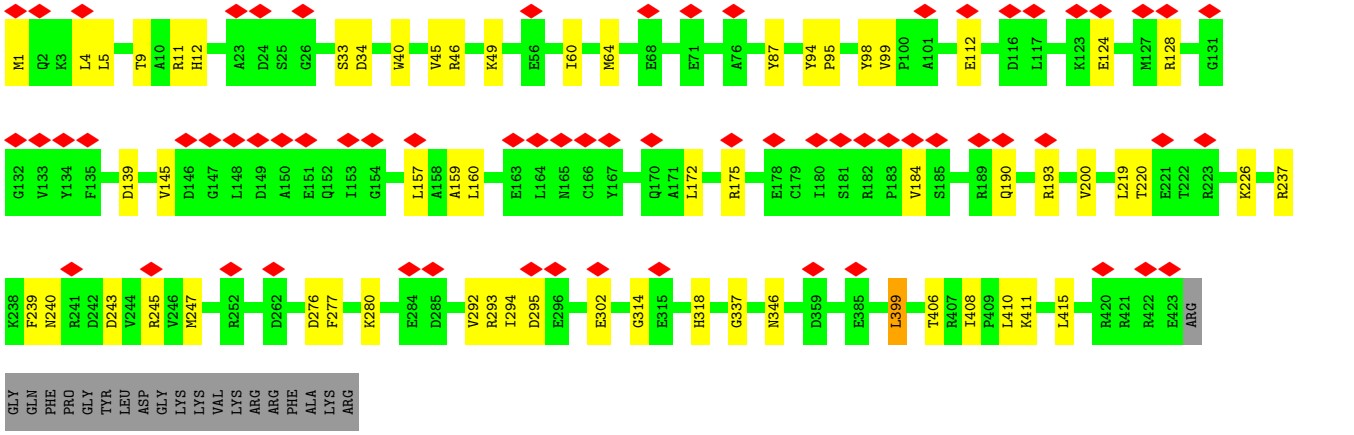
• Molecule 61: mS3m

Chain CC:



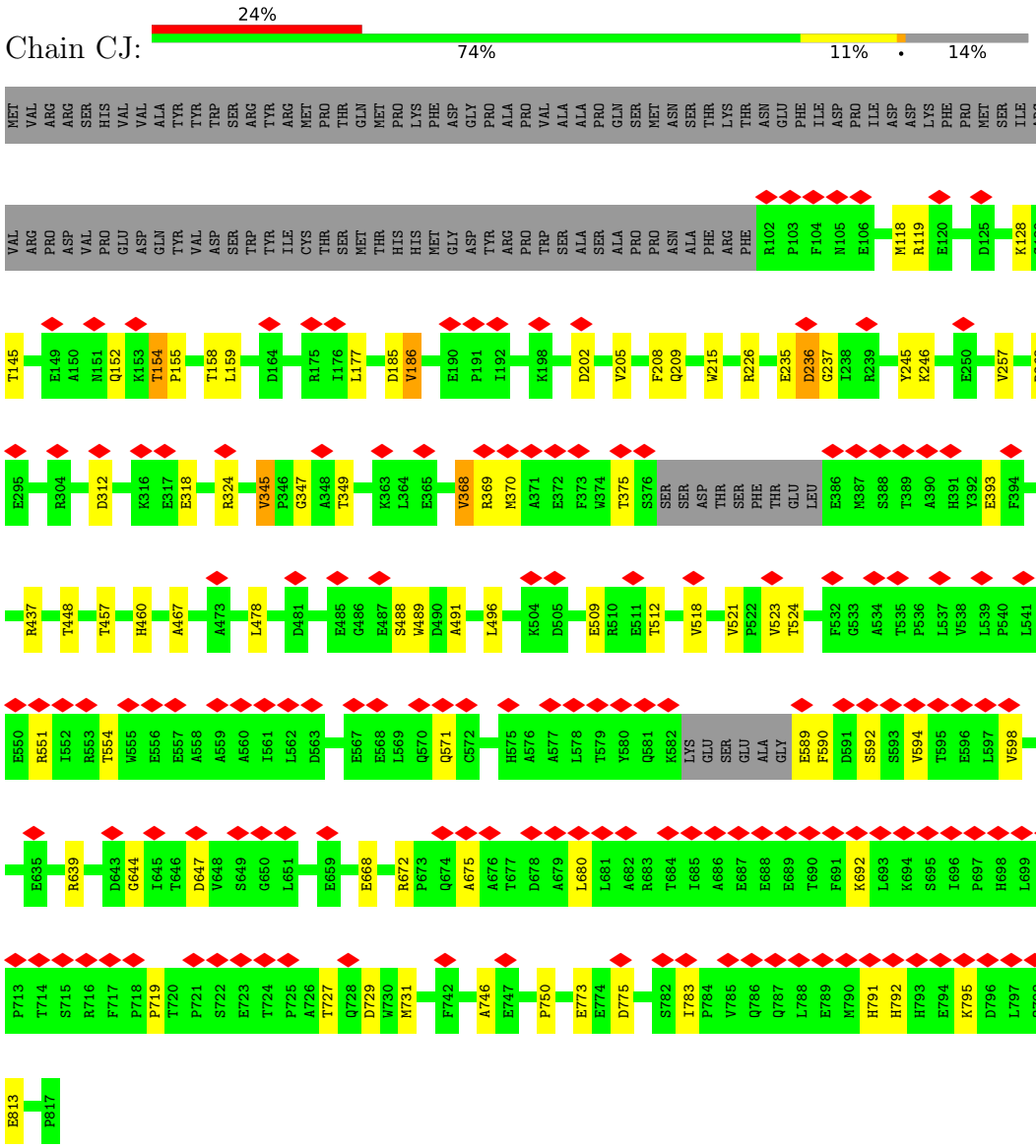
• Molecule 62: uS9m

Chain CI:



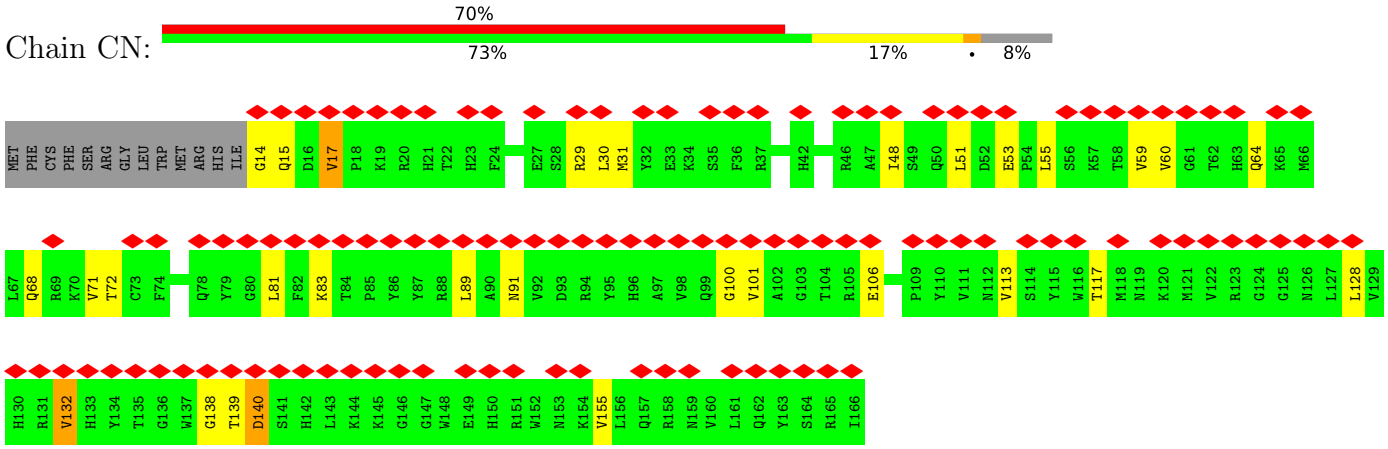
- Molecule 63: uS10m

Chain CJ:



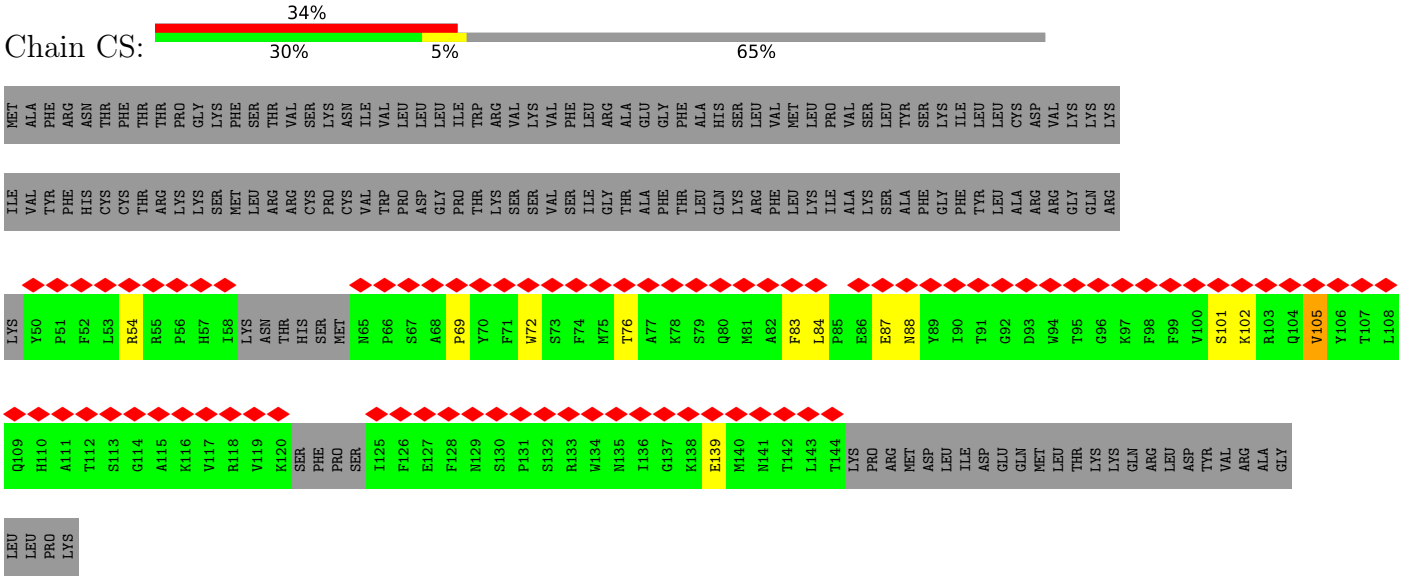
- Molecule 64: uS14m

Chain CN:



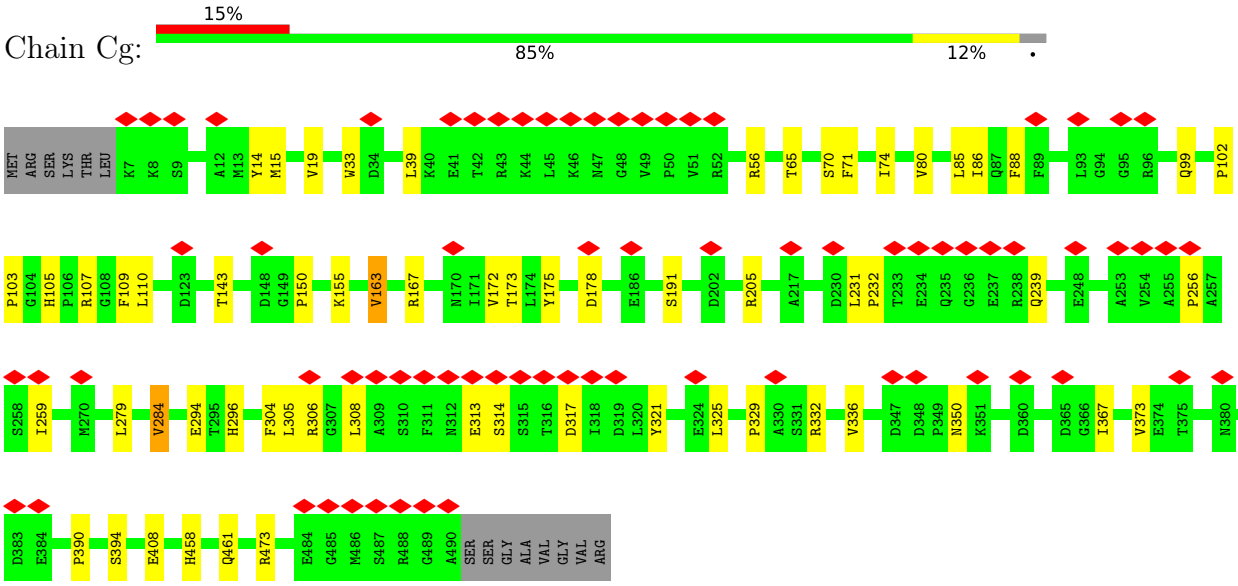
- Molecule 65: uS19m

Chain CS:



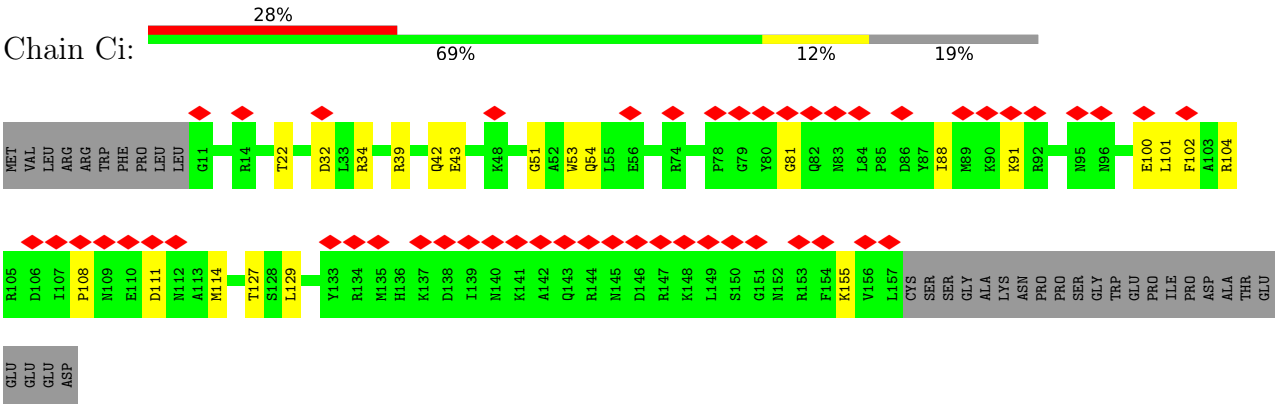
• Molecule 66: mS29

Chain Cg:



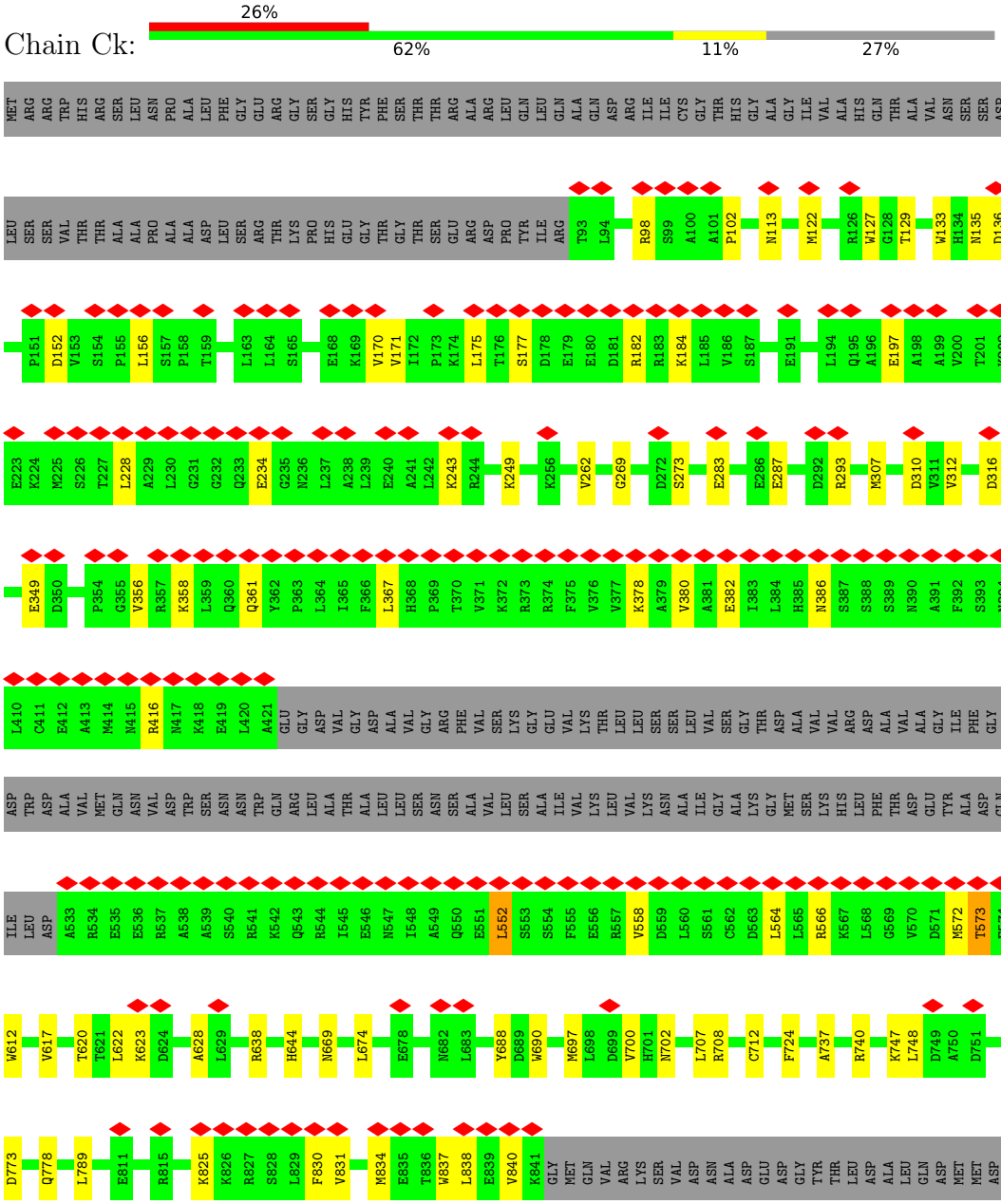
• Molecule 67: mS33

Chain Ci:



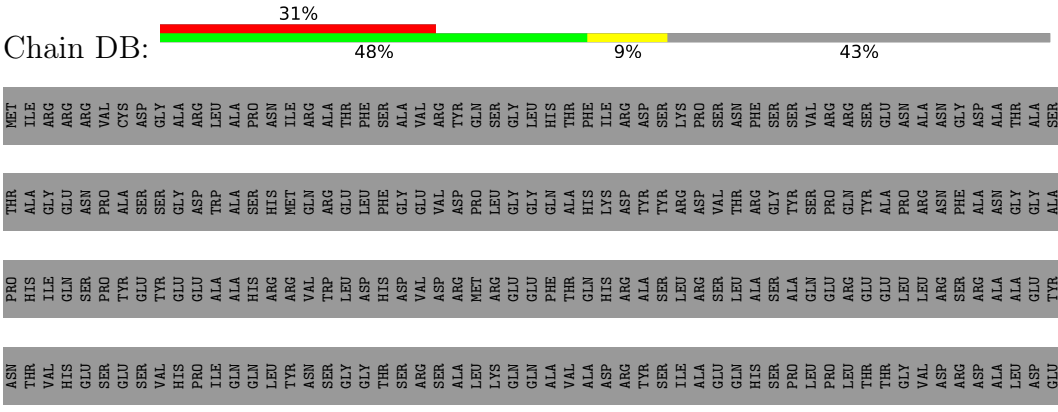
• Molecule 68: mS35

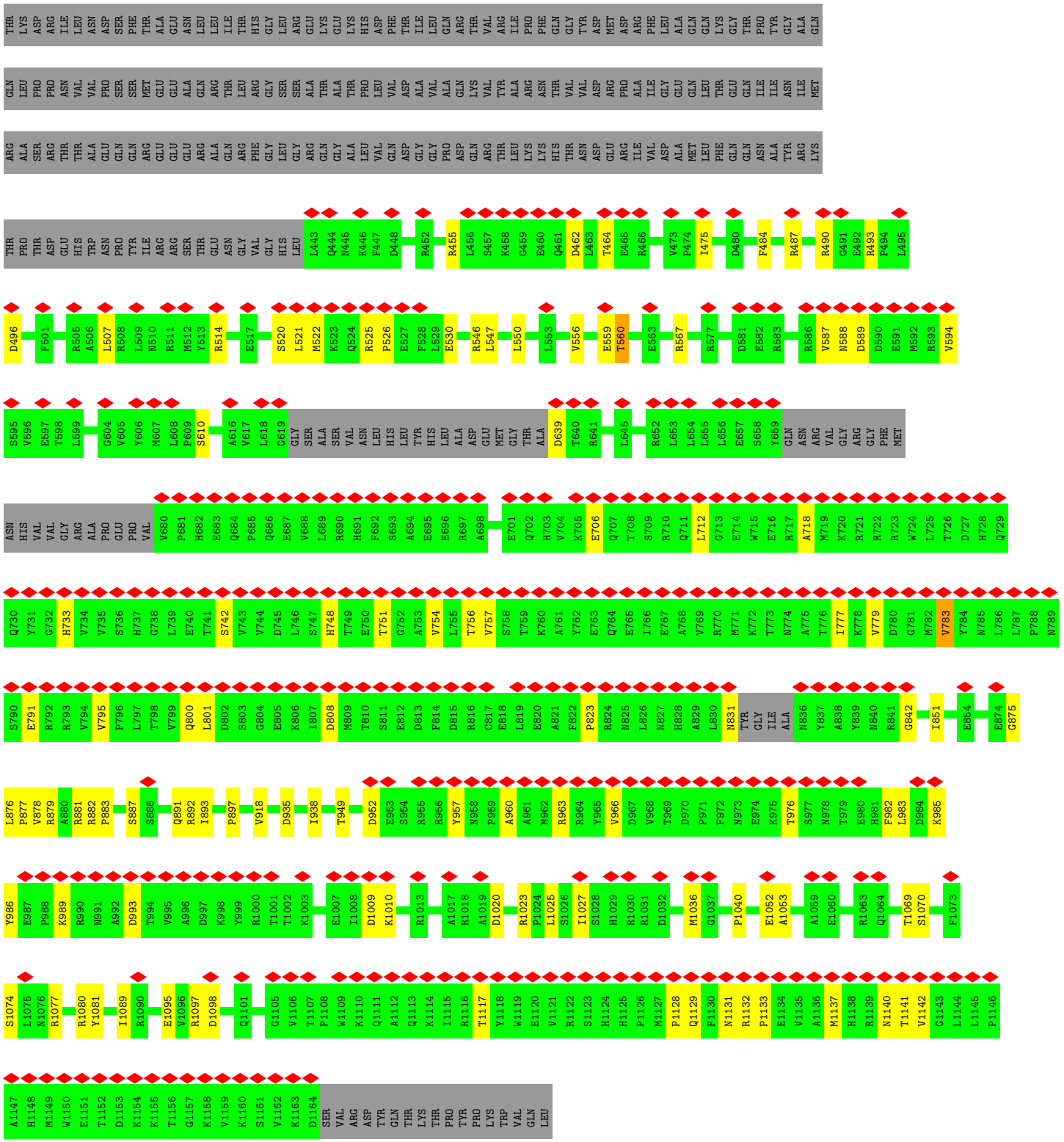
Chain Ck:



- Molecule 69: mS49

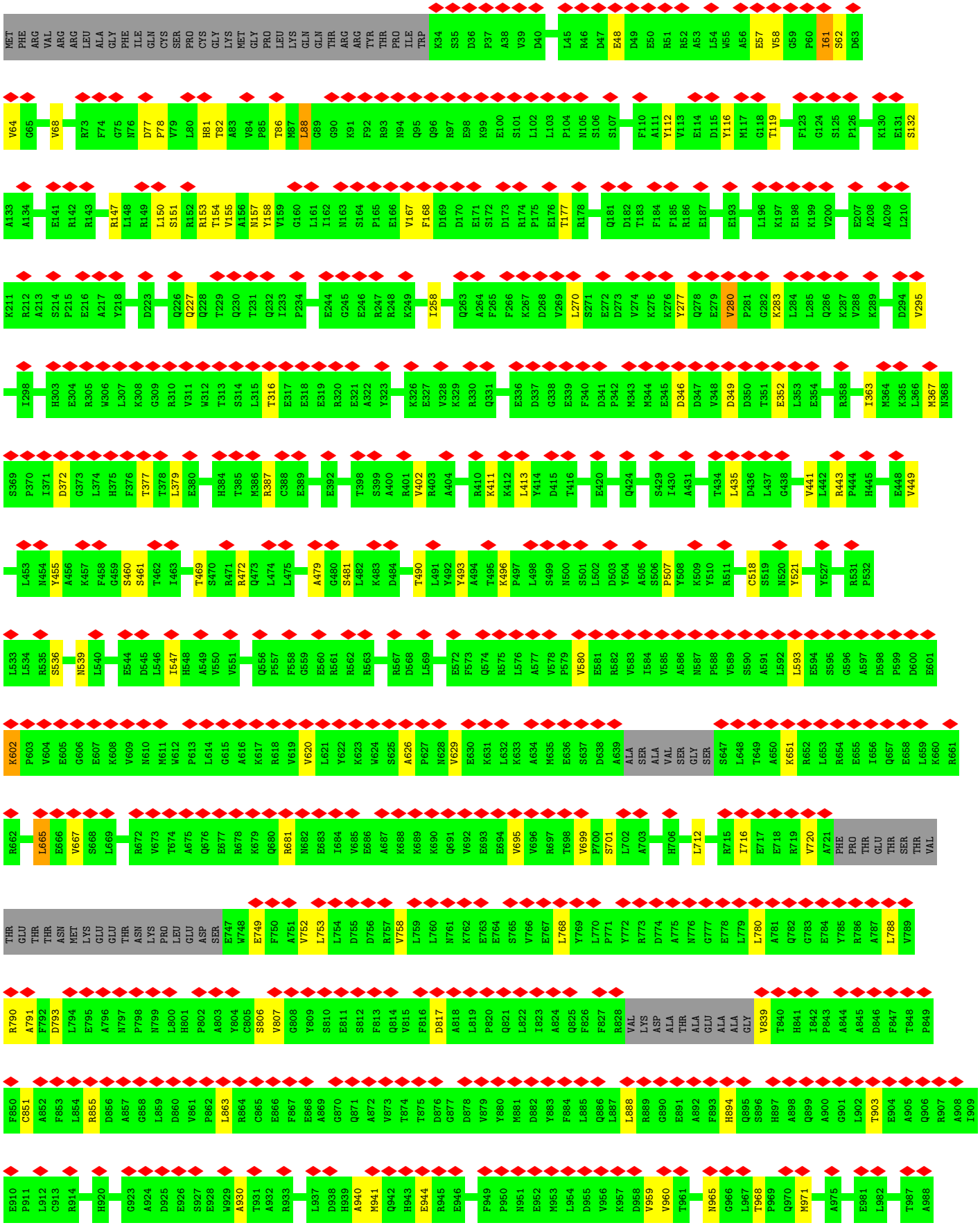
Chain DB:

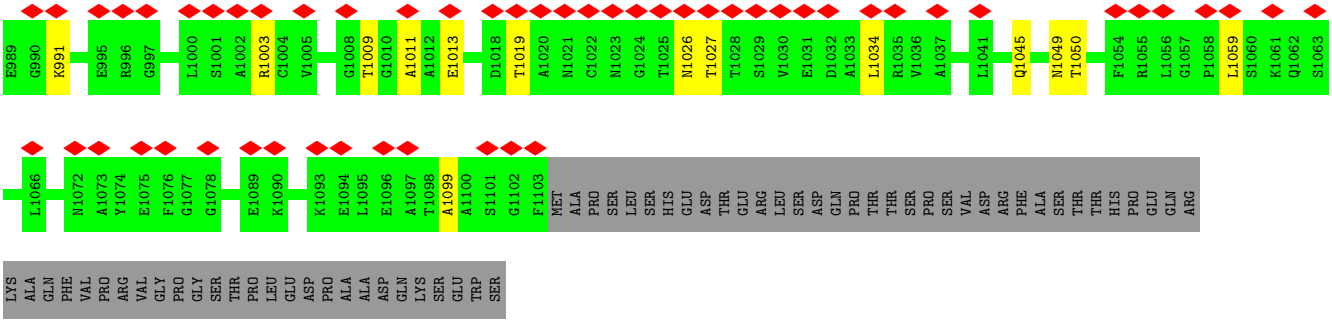




• Molecule 70: mS50

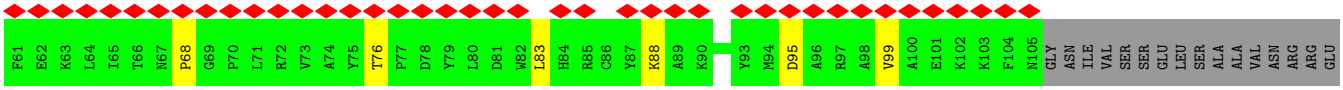
Chain DC:

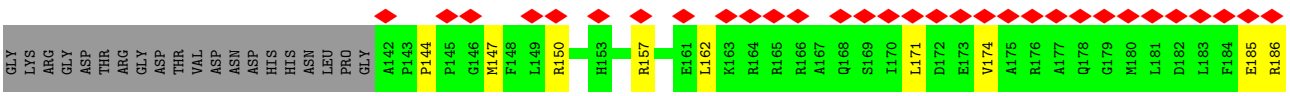

MET PHE ARG VAL ARG ARG LEU ALA GLY PHE ILE GLN CYS SER PRO CYS GLY LYS MET GLY PRO LEU LYS GLN GLN THR ARG ARG TYR THR PRO ILE TRP K34 S35 D36 P37 A38 V39 D40 L45 R46 D47 E48 D49 E50 R51 R52 A53 L54 W55 A56 E57 V58 G59 P60 I61 S62 D63
V64 G65 V68 R73 F74 G75 N76 D77 P78 V79 L80 H81 T82 A83 V84 P85 T86 M87 L88 G89 G90 K91 F92 R93 N94 Q95 Q96 R97 E98 K99 E100 S101 L102 L103 P104 N105 S106 S107 F110 A111 Y112 V113 E114 D115 Y116 M117 G118 T119 F123 G124 S125 P126 K130 E131 S132
A133 A134 E141 R142 R143 R147 L148 R149 L150 S151 R152 R153 T154 V155 A156 N157 Y158 V159 G160 L161 I162 N163 S164 P165 E166 V167 F168 D169 D170 E171 S172 D173 R174 P175 E176 T177 R178 Q181 D182 T183 F184 F185 R186 E187 E193 L196 K197 E198 K199 V200 E207 A208 A209 L210
K211 R212 A213 S214 P215 E216 A217 Y218 D223 Q226 Q227 Q228 T229 Q230 T231 Q232 I233 P234 E244 G245 E246 R247 R248 K249 I258 Q263 A264 F265 F266 K267 D268 V269 L270 S271 E272 D273 V274 K275 K276 Y277 Q278 E279 V280 P281 G282 K283 L284 L285 Q286 K287 V288 K289 D294 V295
I298 H303 E304 R305 W306 L307 K308 G309 R310 V311 W312 T313 S314 L315 T316 E317 E318 E319 R320 E321 A322 Y323 K326 E327 V328 K329 R330 Q331 E336 D337 G338 E339 F340 D341 P342 M343 M344 E345 D346 D347 V348 D349 D350 T351 E352 L353 E354 R358 I363 M364 K365 L366 M367 N368
S369 P370 I371 D372 G373 L374 H375 F376 T377 T378 L379 E380 H384 T385 M386 R387 C388 E389 E392 T398 S399 A400 R401 V402 R403 A404 R410 K411 K412 L413 Y414 D415 T416 E420 Q424 S429 I430 A431 T434 L435 D436 L437 G438 V441 L442 R443 P444 H445 E448 V449
L453 N454 Y455 A456 K457 F458 G459 S460 S461 T462 I463 T469 S470 R471 R472 Q473 L474 L475 A479 G480 S481 L482 K483 D484 T490 L491 Y492 Y493 A494 T495 K496 P497 L498 S499 N500 S501 L502 D503 Y504 A505 S506 P507 Y508 K509 Y510 R511 C518 S519 N520 Y521 Y527 R531 P532
L533 L534 R535 S536 N539 L540 E544 D545 L546 I547 H548 A549 V550 V551 Q556 P557 F558 G559 E560 R561 R562 R563 R567 D568 L569 E572 F573 Q574 R575 L576 A577 V578 P579 V580 E581 R582 V583 I584 V585 A586 N587 P588 V589 S590 A591 L592 L593 E594 S595 G596 A597 D598 P599 D600 E601
K602 P603 V604 E605 G606 E607 K608 V609 N610 M611 W612 P613 L614 G615 A616 K617 R618 V619 V620 L621 Y622 K623 W624 S625 A626 P627 N628 V629 E630 K631 L632 K633 A634 M635 E636 S637 D638 A639 ALA SER ALA VAL SER GLY SER S647 L648 T649 A650 K651 R652 L653 R654 E655 I656 Q657 E658 L659 K660 R661
R662 L665 E666 V667 S668 L669 R672 V673 T674 A675 Q676 E677 R678 K679 Q680 R681 N682 E683 I684 V685 E686 A687 K688 K689 K690 Q691 V692 E693 E694 V695 V696 R697 T698 V699 P700 S701 L702 A703 H706 L712 R715 I716 E717 E718 R719 V720 A721 PHE PRO THR GLU THR SER THR VAL
THR GLU THR THR ASN MET LYS GLU GLU THR ASN LYS PRO LEU GLU ASP SER E747 W748 E749 F750 A751 V752 L753 L754 D755 D756 R757 V758 L759 L760 N761 K762 E763 E764 S765 V766 E767 L768 Y769 L770 P771 Y772 R773 D774 A775 N776 G777 E778 L779 L780 A781 Q782 G783 E784 Y785 R786 A787 L788 V789
R790 A791 F792 D793 L794 E795 A796 N797 P798 N799 L800 H801 P802 A803 Y804 C805 S806 V807 G808 Y809 S810 E811 S812 F813 Q814 V815 F816 D817 A818 L819 P820 Q821 L822 I823 A824 Q825 F826 F827 R828 VAL LYS ASP ALA THR ALA GLU ALA ALA GLY V839 T840 H841 I842 P843 A844 A845 D846 F847 T848 P849
F850 C851 A852 P853 L854 R855 D856 A857 G858 L859 D860 V861 P862 L863 R864 C865 E866 F867 E868 A869 G870 Q871 A872 V873 T874 T875 D876 G877 D878 V879 Y880 M881 D882 Y883 F884 L885 Q886 L887 L888 R889 G890 E891 A892 F893 H894 Q895 S896 H897 A898 Q899 A900 G901 L902 T903 E904 A905 Q906 R907 A908 I909
E910 P911 L912 C913 R914 H920 G923 A924 D925 E926 S927 E928 W929 A930 T931 A932 R933 L937 D938 H939 A940 M941 Q942 H943 E944 R945 E946 F949 P950 N951 E952 M953 L954 D955 V956 K957 D958 V959 V960 T961 N965 G966 L967 T968 P969 Q970 M971 A975 E981 L982 T987 A988

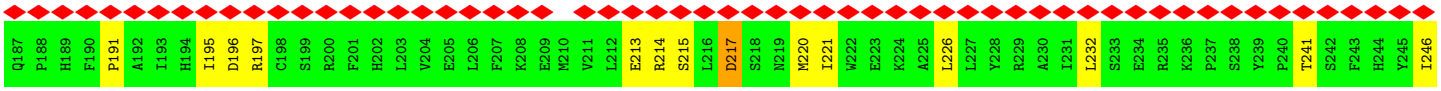


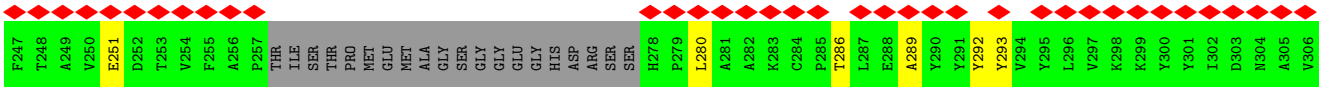
• Molecule 71: mS52

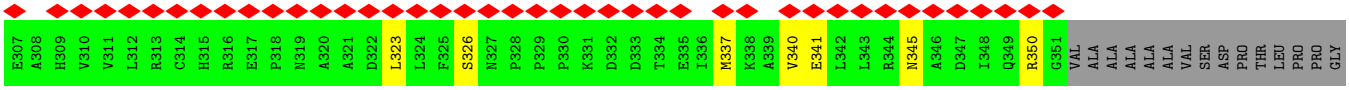
Chain DE:

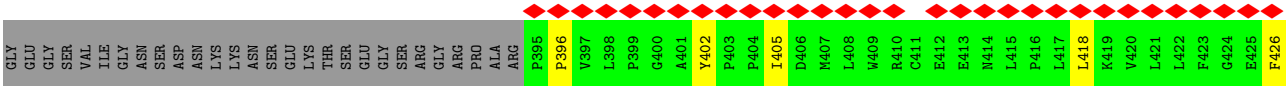


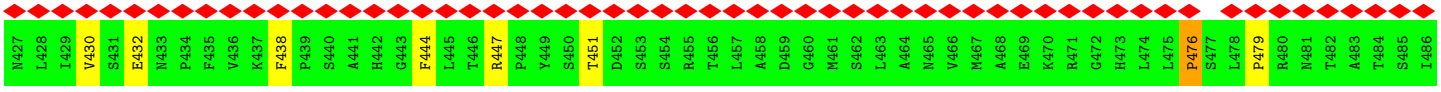


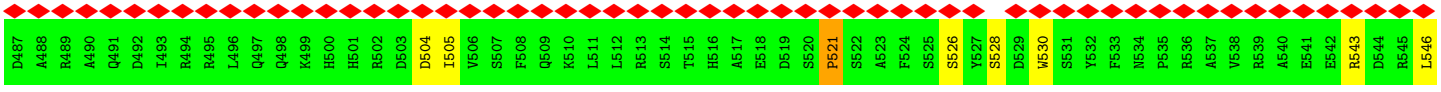


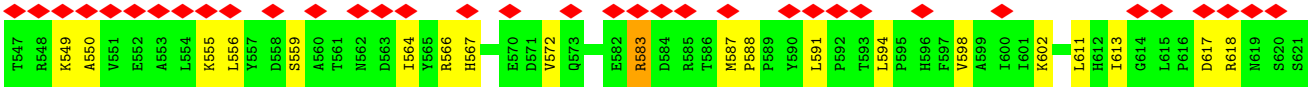


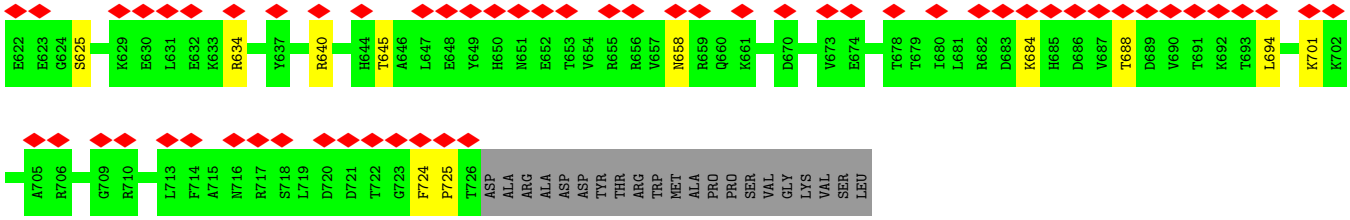






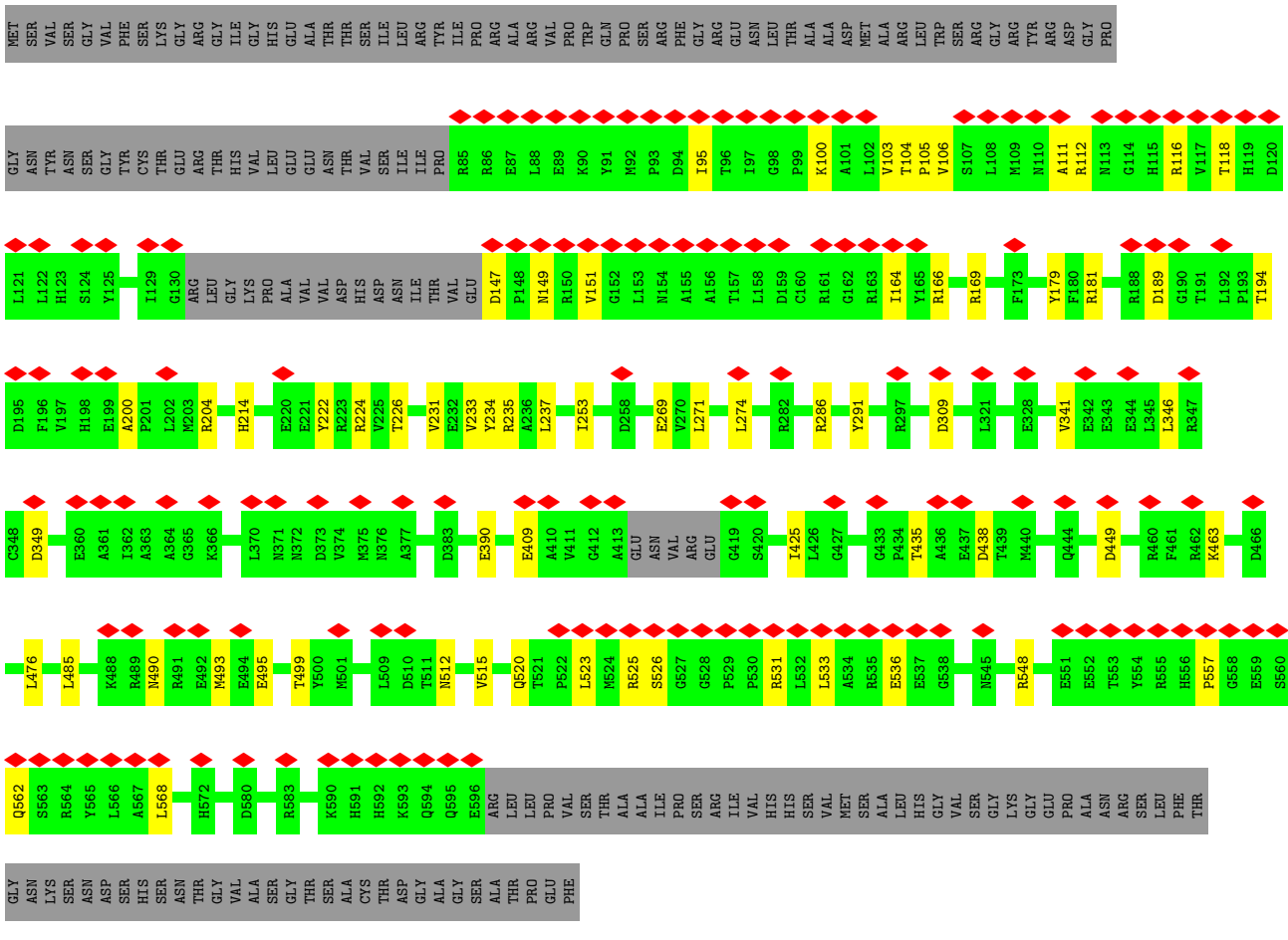






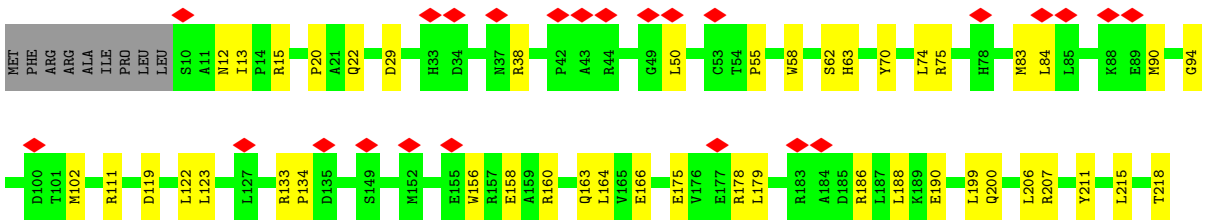
- Molecule 72: mS53

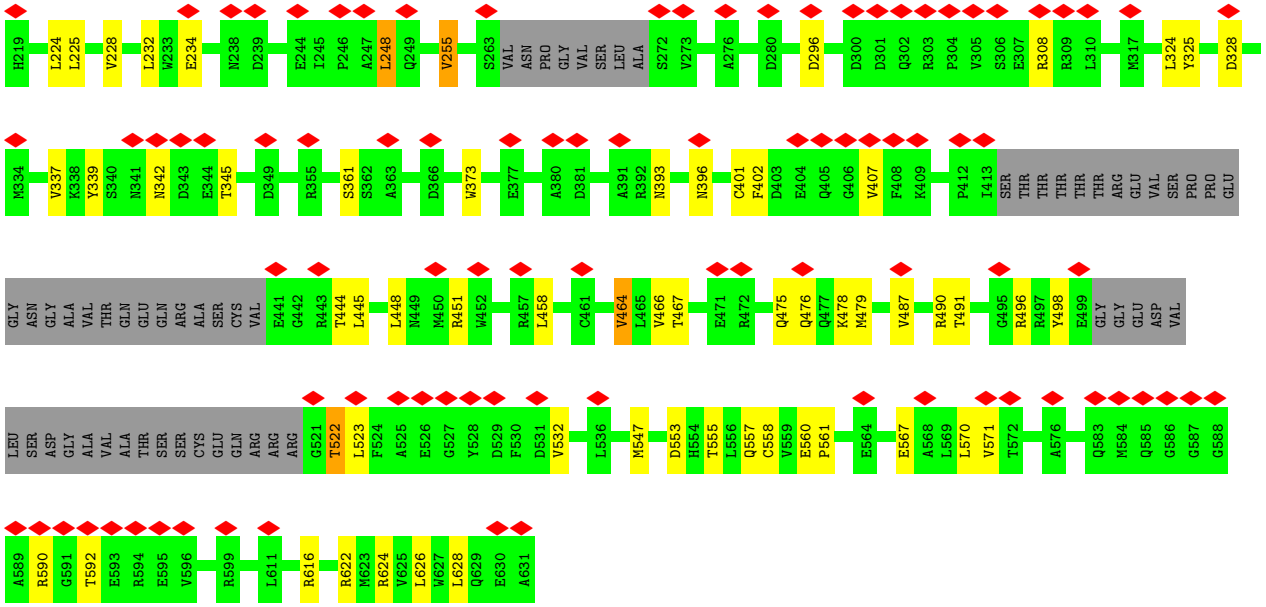
Chain DF:



- Molecule 73: mS54

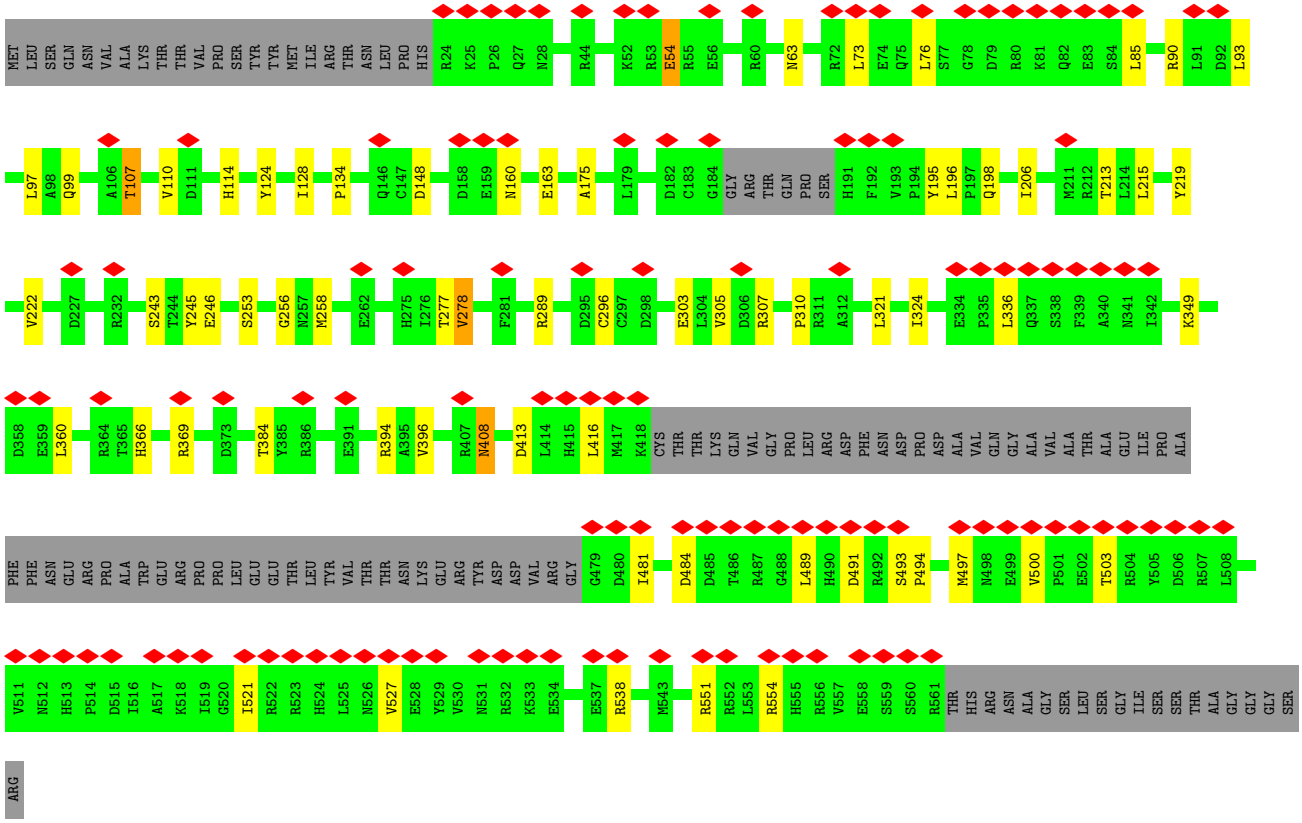
Chain DG:





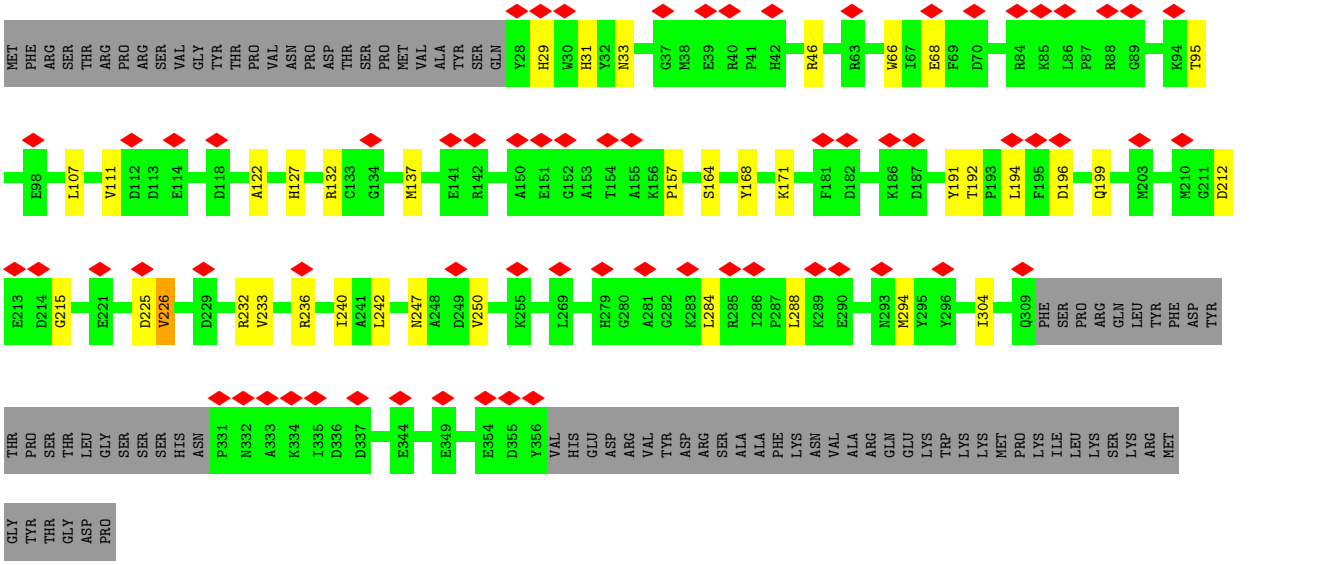
• Molecule 74: mS55 (KRIPP8)

Chain DH:



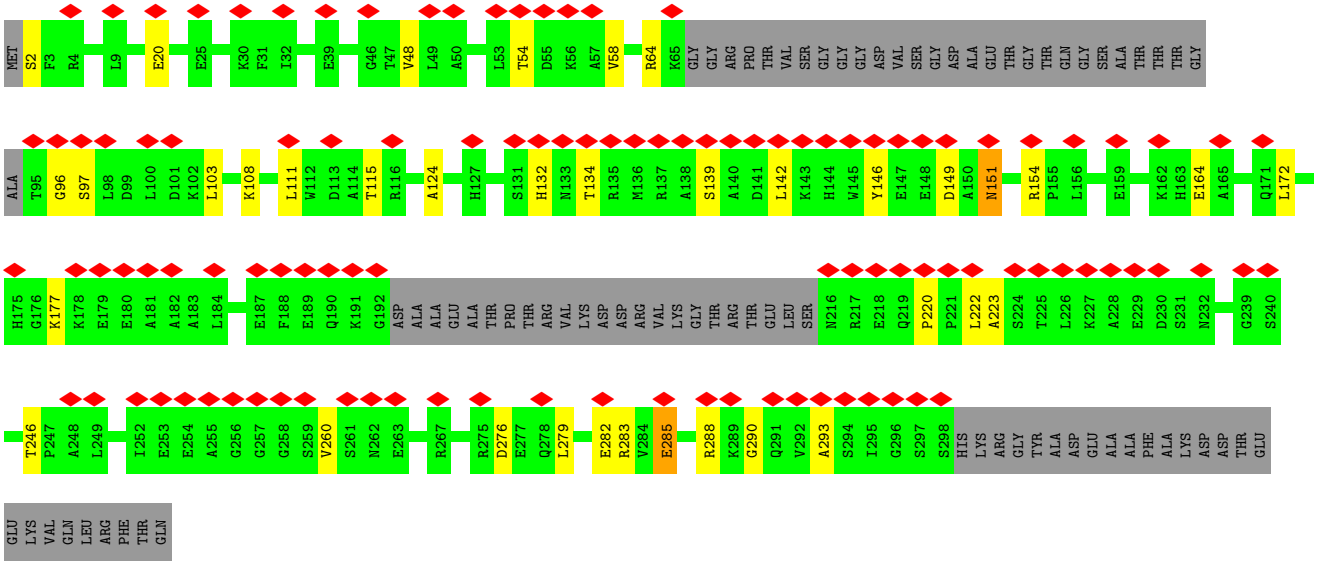
• Molecule 75: mS57

Chain DJ:



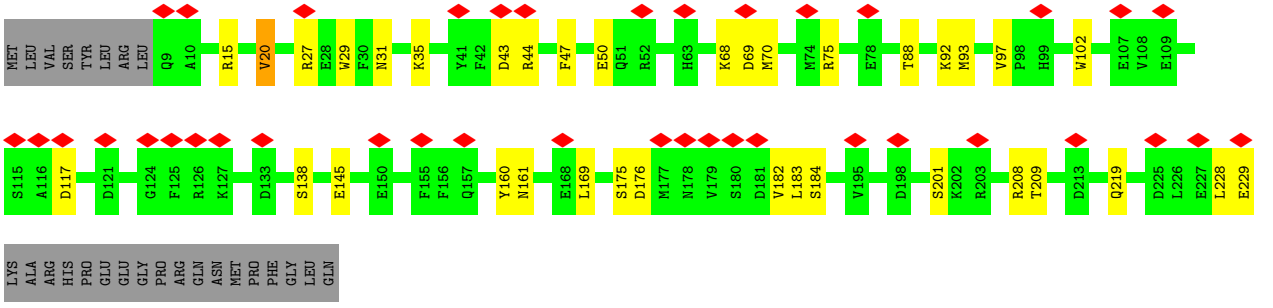
• Molecule 76: mS58

Chain DK:



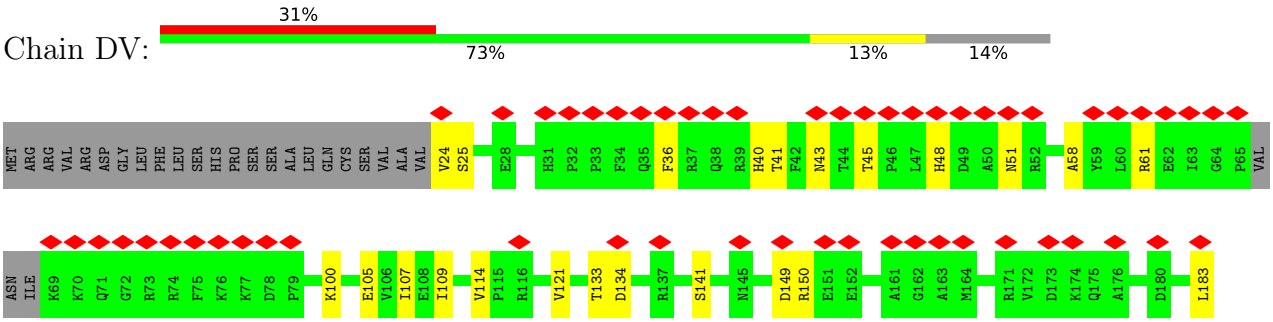
• Molecule 77: mS67

Chain DT:



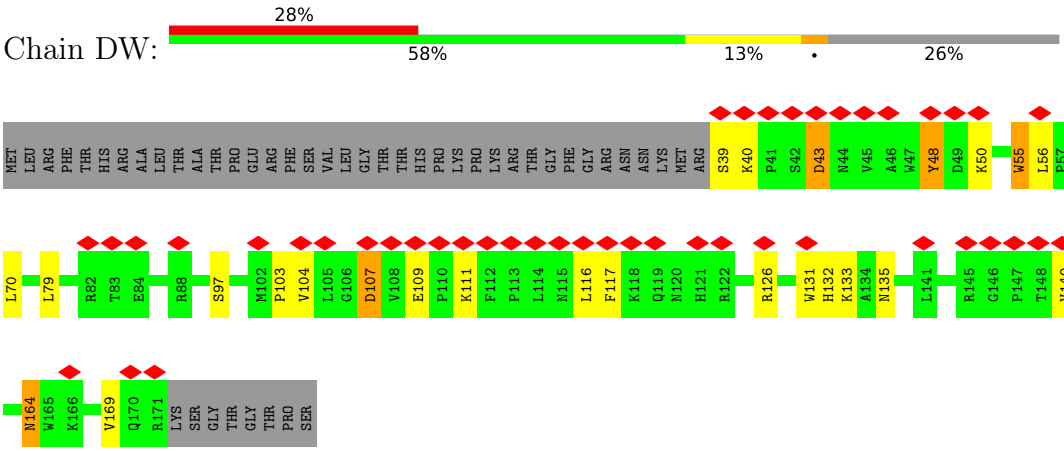
- Molecule 78: mS69

Chain DV:



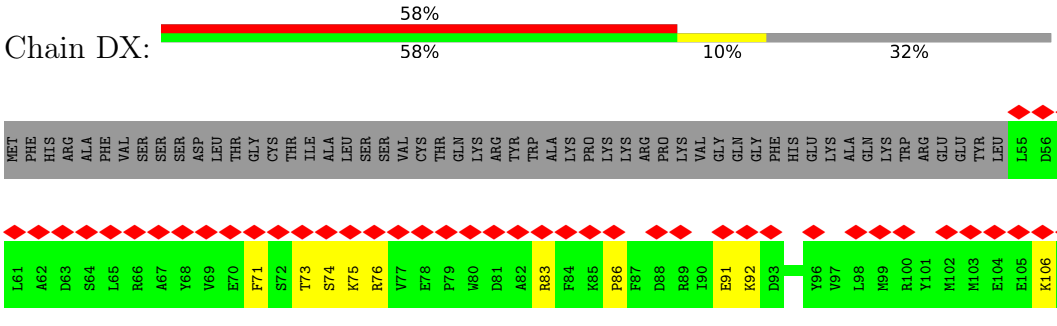
- Molecule 79: mS70

Chain DW:



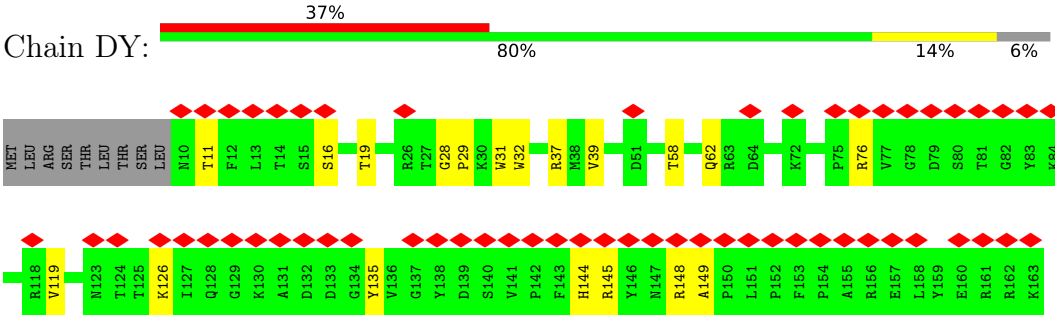
- Molecule 80: mS71

Chain DX:



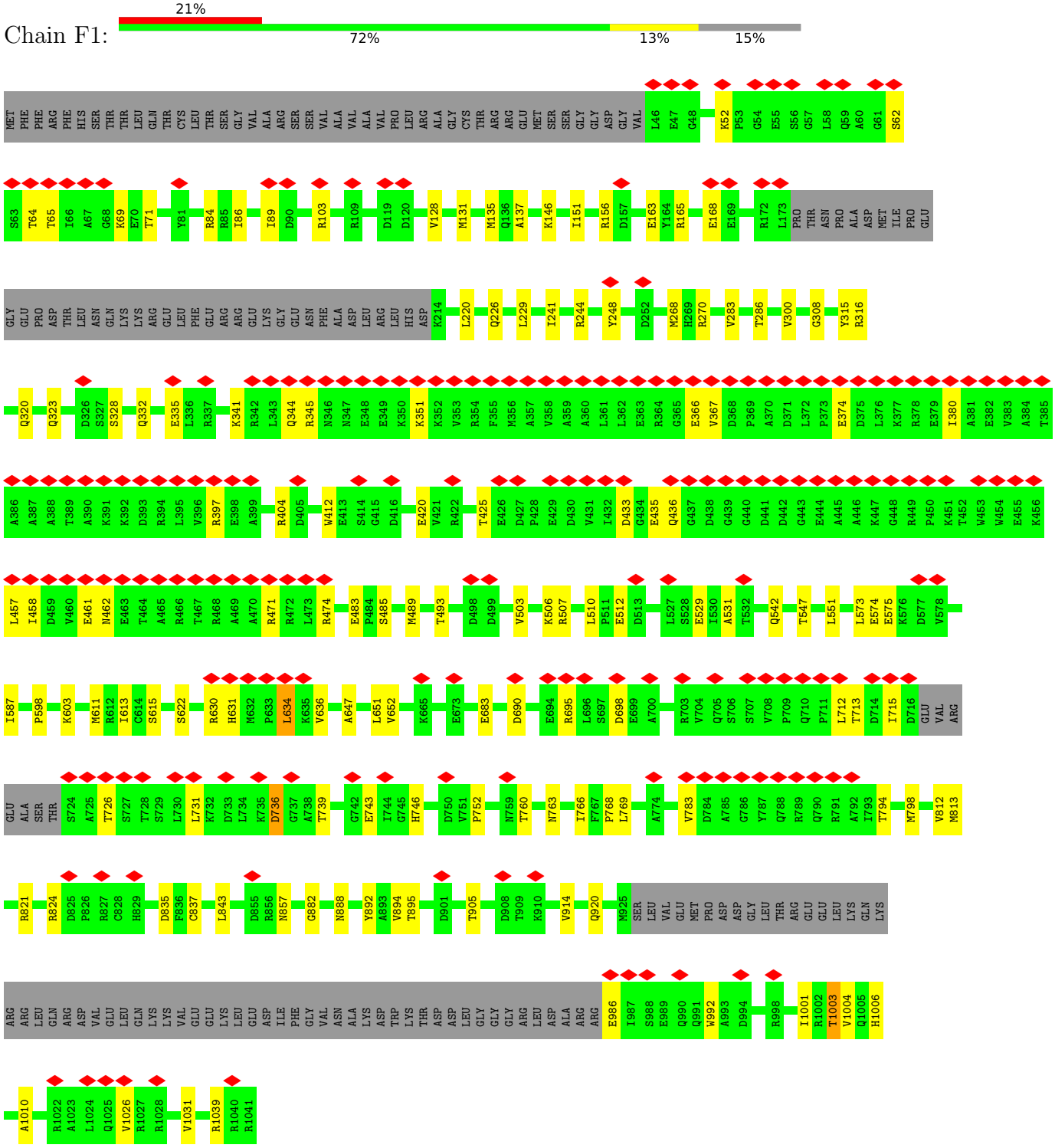
- Molecule 81: mS72

Chain DY:



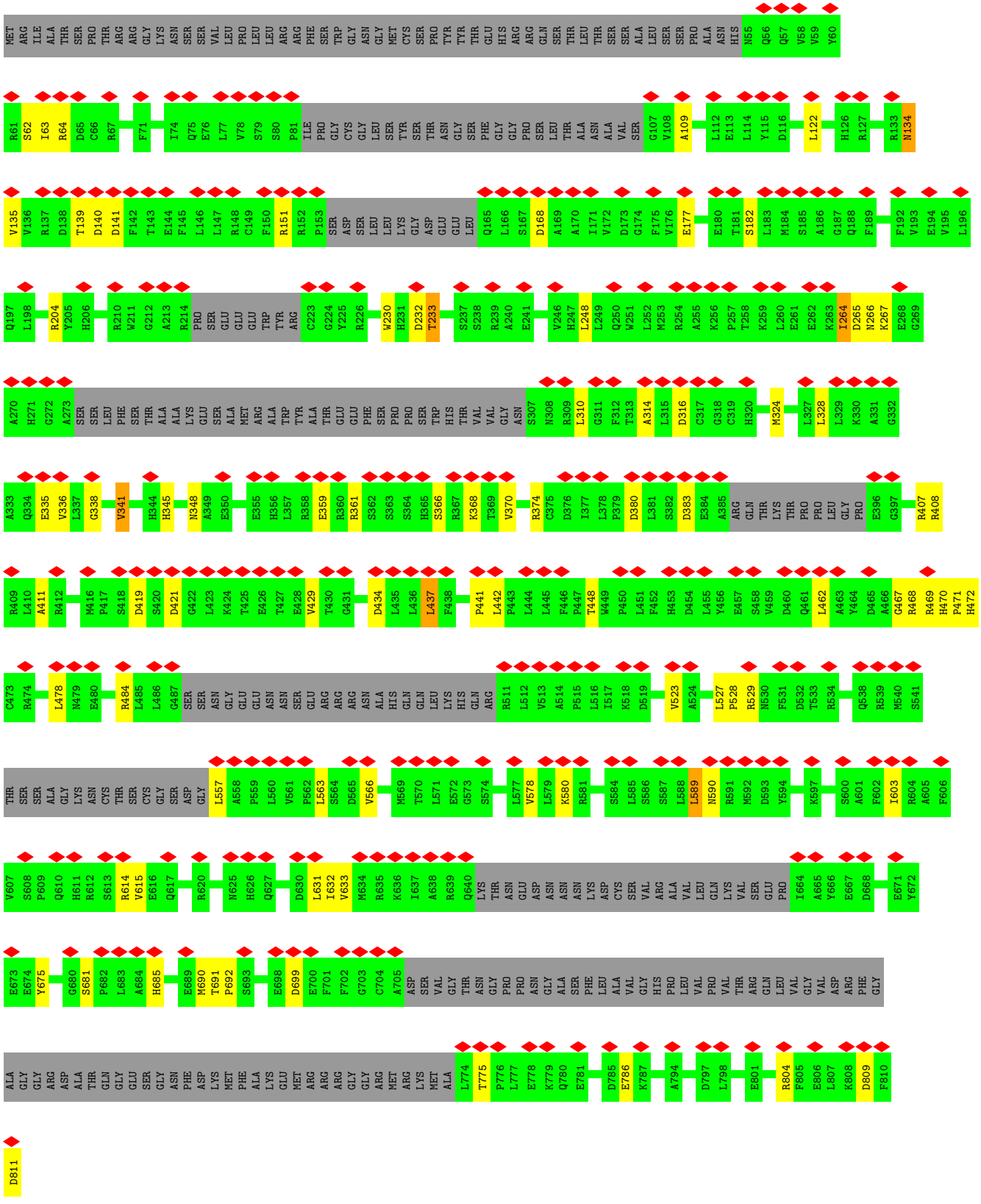
• Molecule 82: mt-SAF1 (RSM22)

Chain F1:

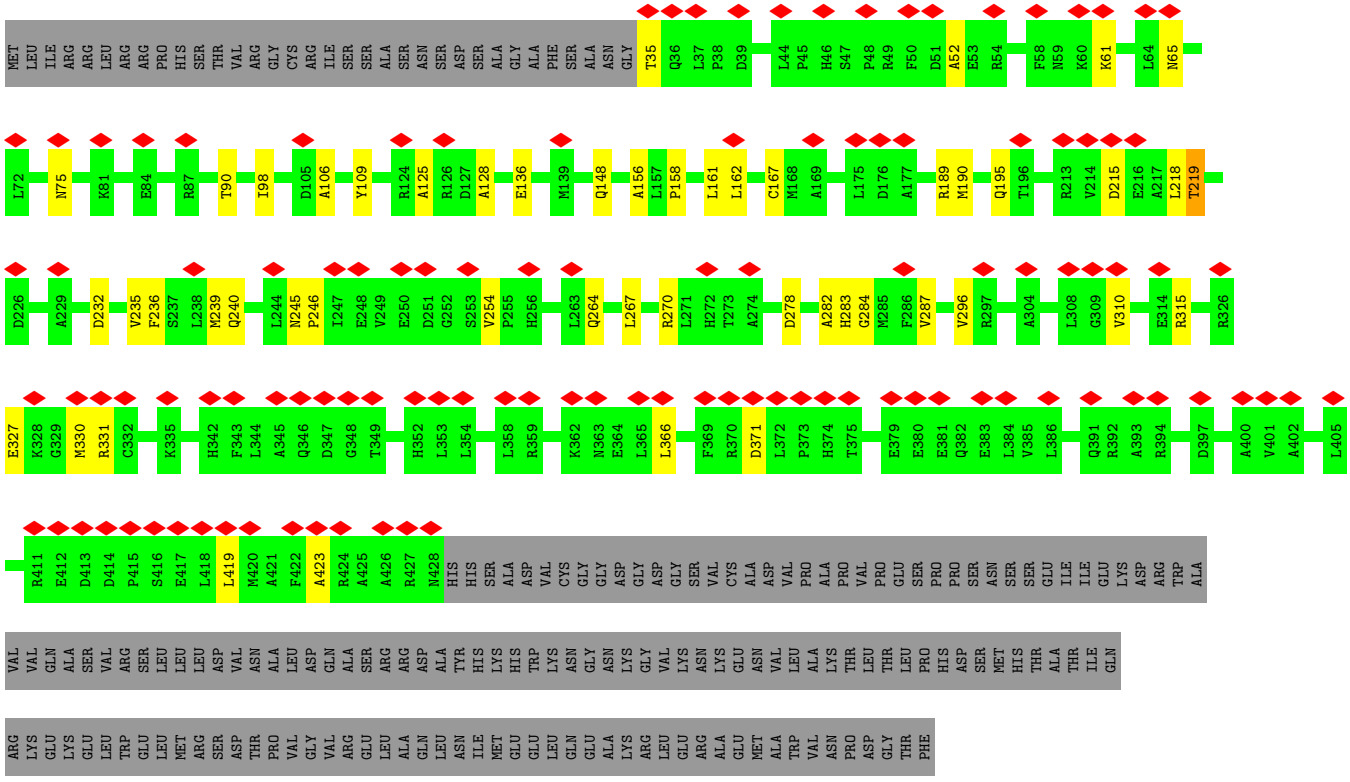


• Molecule 83: mt-SAF4

Chain F4:

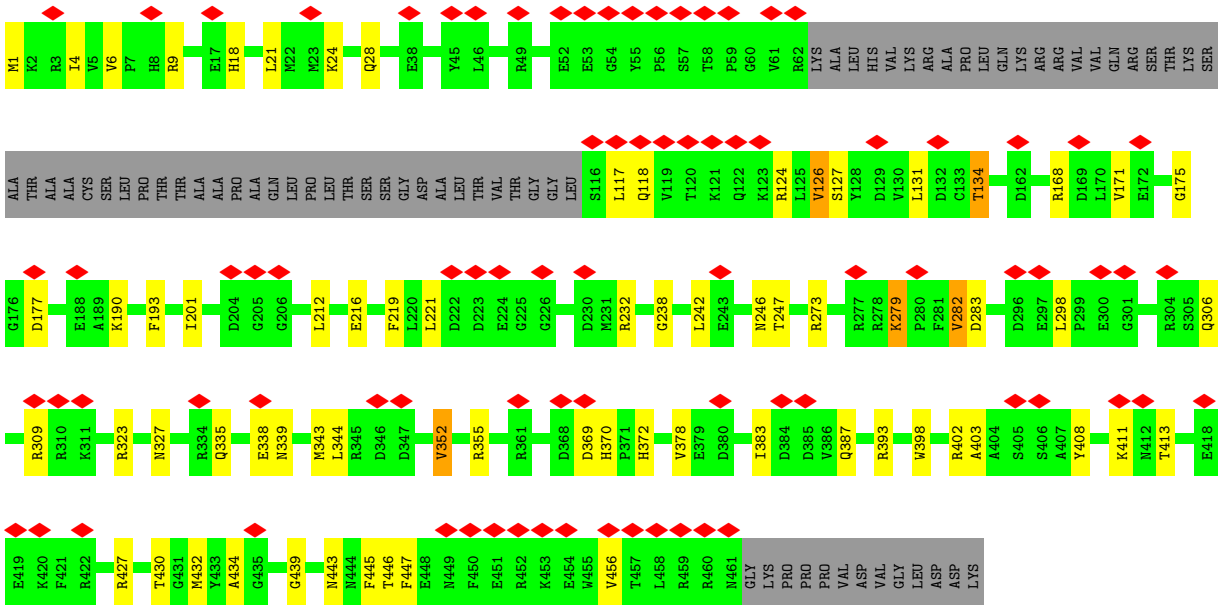


• Molecule 84: mt-SAF12 (KRIPP18)



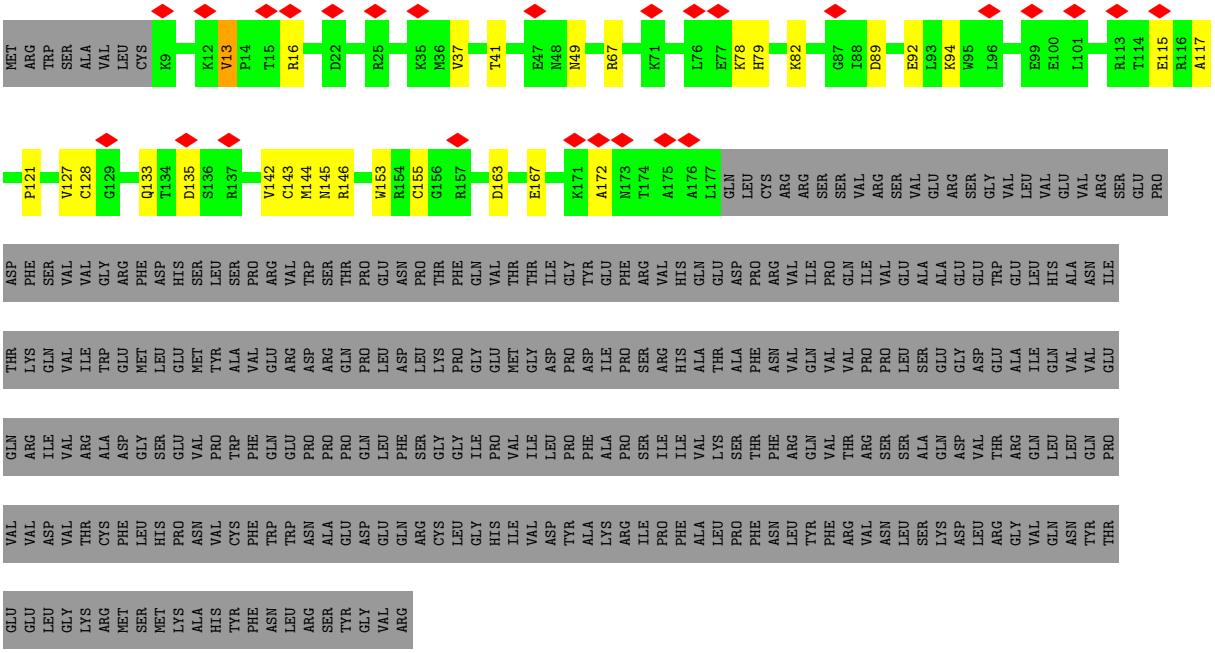
• Molecule 85: mt-SAF14

Chain FF:



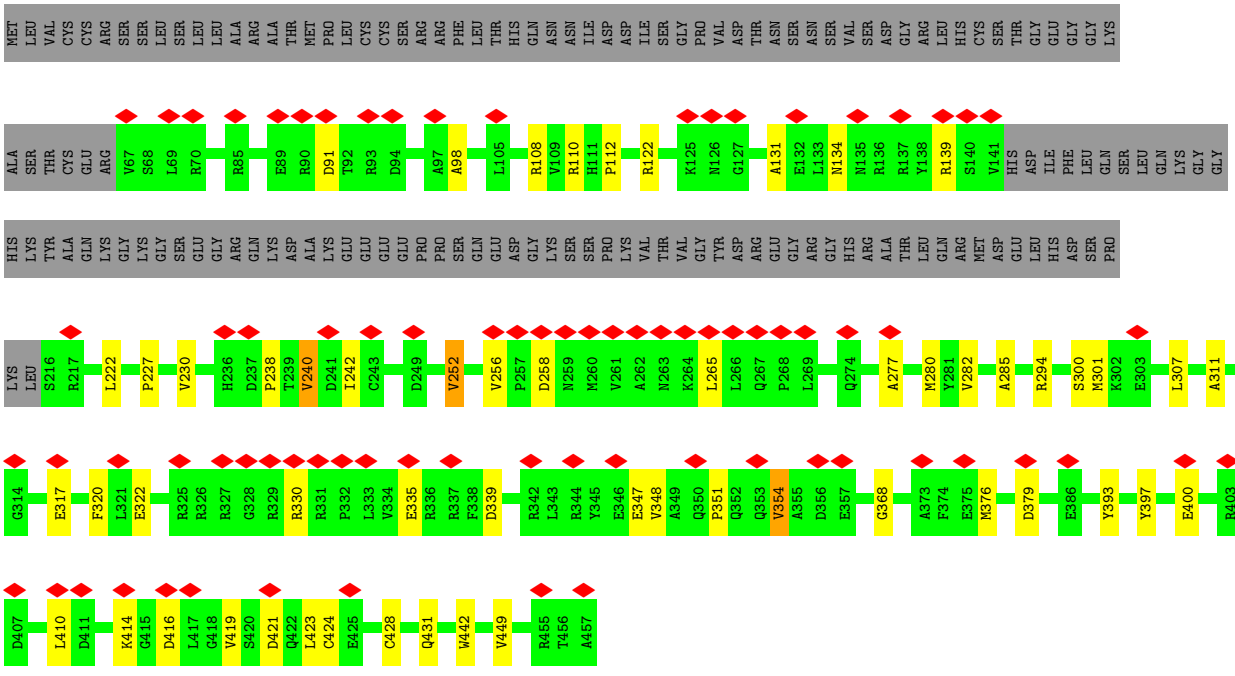
• Molecule 86: mt-SAF15

Chain FG:



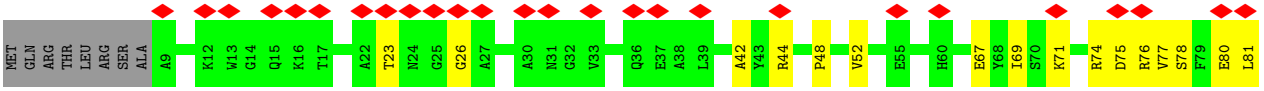
• Molecule 87: mt-SAF16

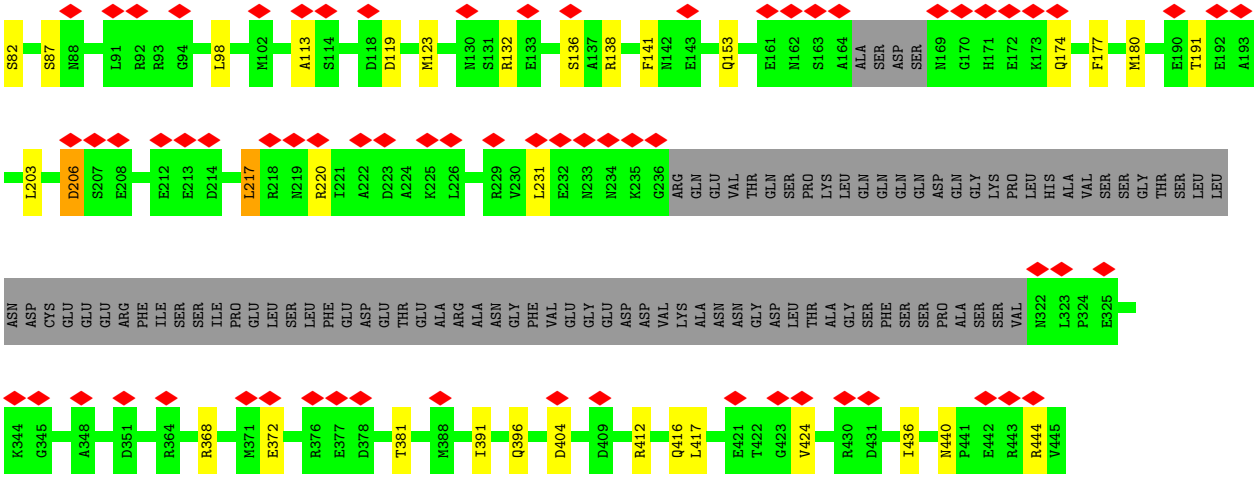
Chain FH:



• Molecule 88: mt-SAF17

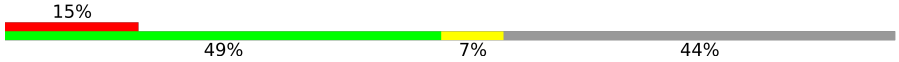
Chain FI:

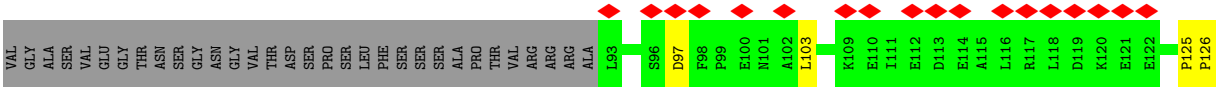


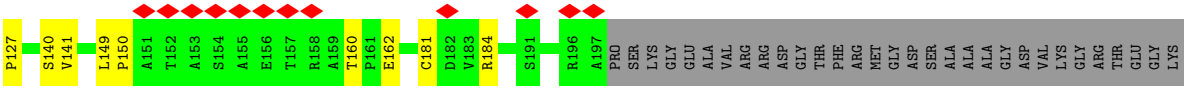


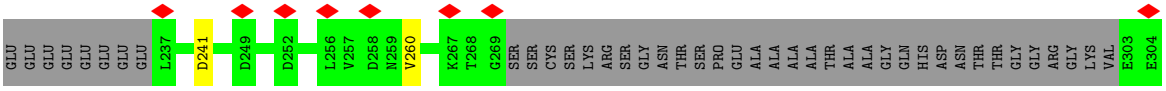
• Molecule 89: mt-SAF19

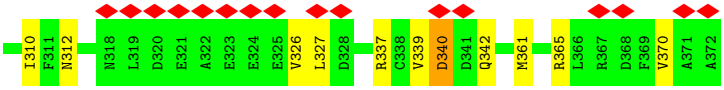
Chain FK:





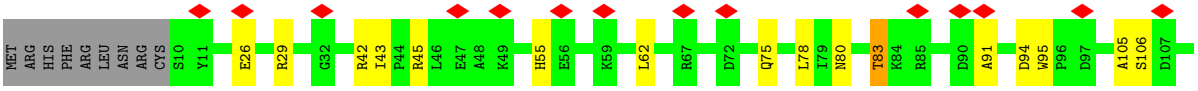


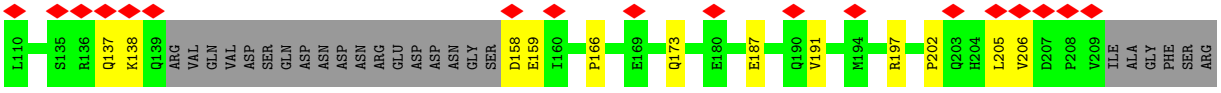


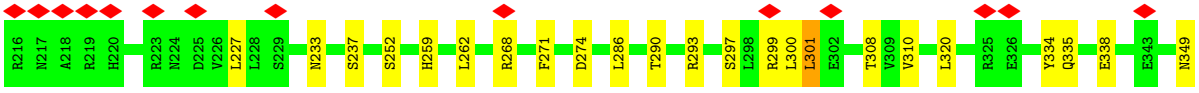


• Molecule 90: mt-SAF20

Chain FL:

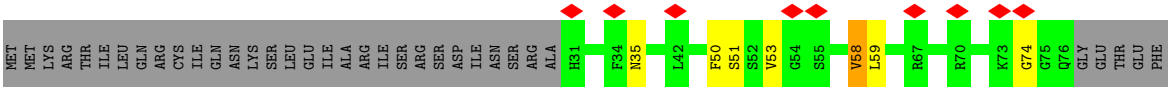


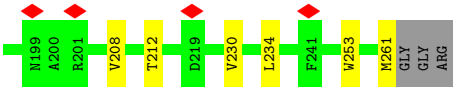




• Molecule 91: mt-SAF25

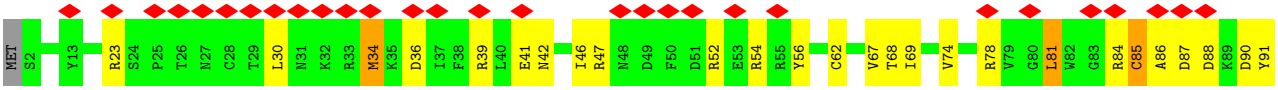
Chain FV:

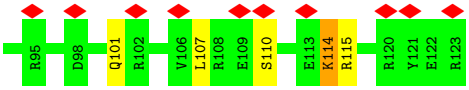




• Molecule 92: mt-SAF34

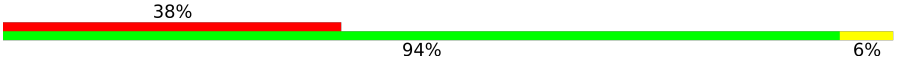
Chain Fe:

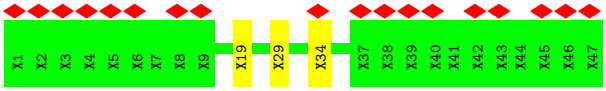




• Molecule 93: UNK-a

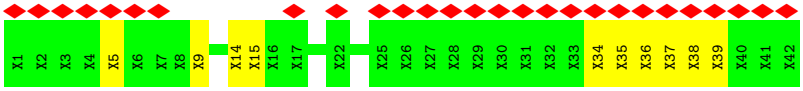
Chain Ua:





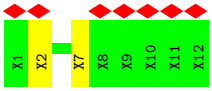
• Molecule 94: UNK-b

Chain Ub:



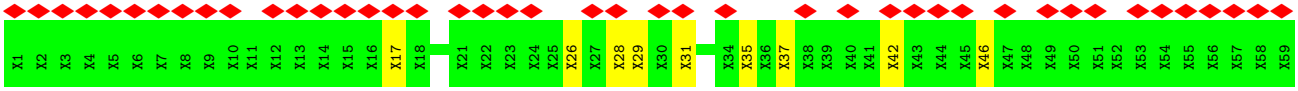
• Molecule 95: UNK-c

Chain Uc:



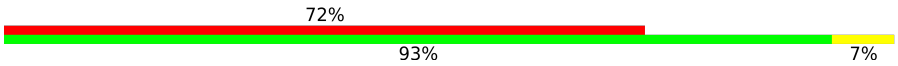
• Molecule 96: UNK-d

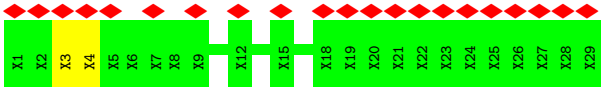
Chain Ud:



• Molecule 97: UNK-e

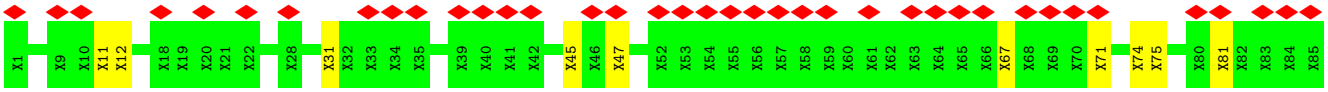
Chain Ue:

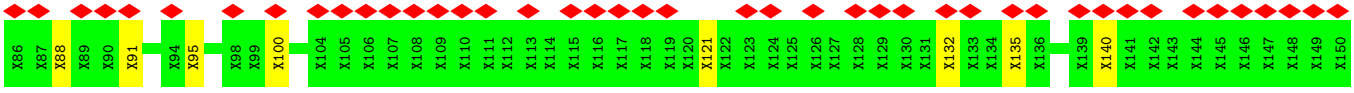


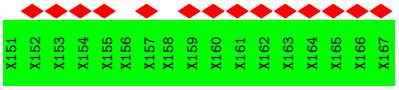


• Molecule 98: UNK-g

Chain Ug:

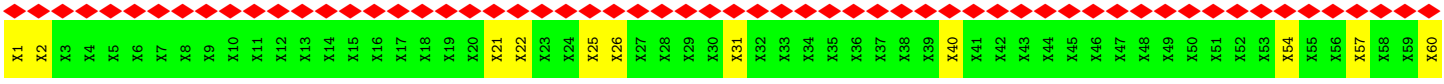


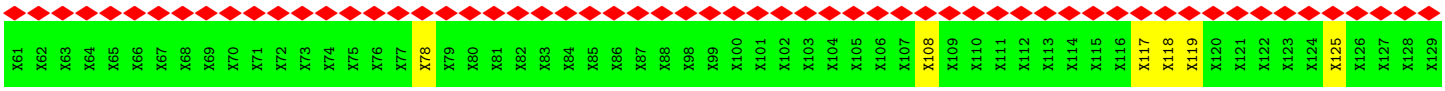


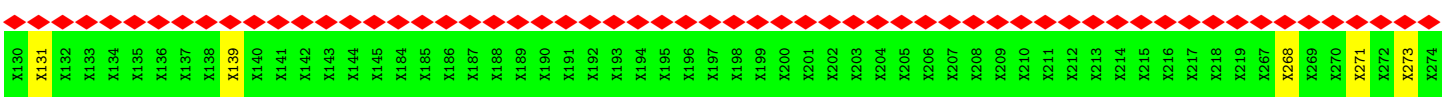


• Molecule 99: UNK-h

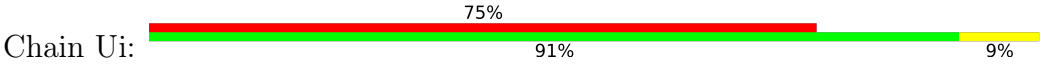
Chain Uh:

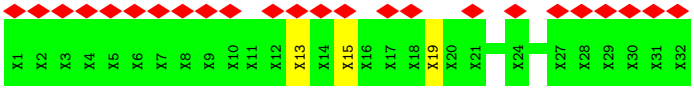




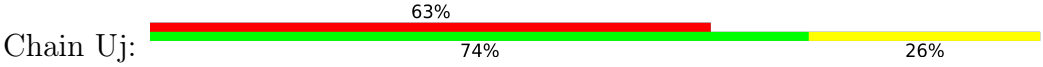


• Molecule 100: UNK-i

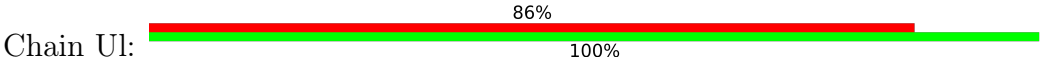


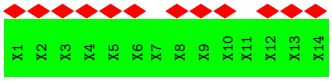


• Molecule 101: UNK-j

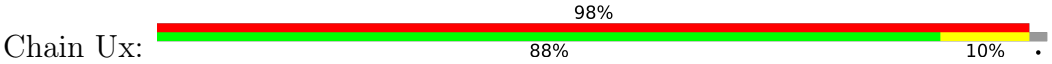


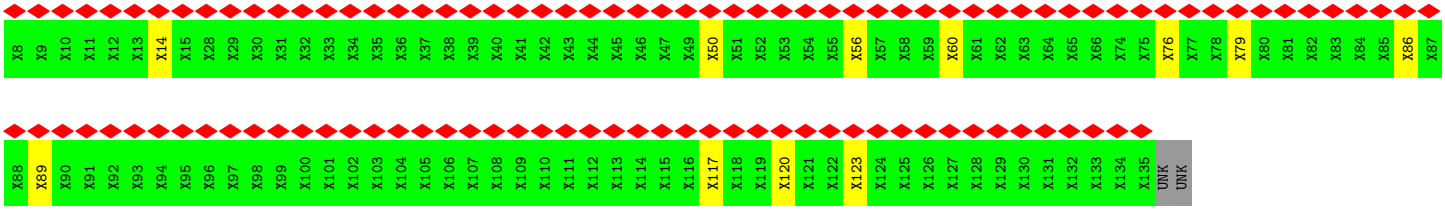
• Molecule 102: UNK-l





• Molecule 103: UNK-x





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	104838	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION; On the fly in RELION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	100719	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.613	Depositor
Minimum map value	-0.285	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.021	Depositor
Recommended contour level	0.09	Depositor
Map size (Å)	444.8, 444.8, 444.8	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.39, 1.39, 1.39	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: MG, SAH, ZN, GTP, PO4, UBD, PM8

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	CE	0.16	0/3226	0.42	1/4364 (0.0%)
2	CF	0.14	0/1344	0.35	0/1813
3	CH	0.17	0/1864	0.41	0/2511
4	CK	0.17	0/1760	0.43	0/2372
5	CO	0.16	0/3057	0.39	0/4121
6	CP	0.18	0/1533	0.44	0/2074
7	CQ	0.17	0/1856	0.40	0/2509
8	CR	0.15	0/1315	0.43	0/1785
9	Ca	0.17	0/4474	0.42	1/6052 (0.0%)
10	Cb	0.17	0/1304	0.41	0/1751
11	Cd	0.23	0/1662	0.36	0/2234
12	Cj	0.15	0/1842	0.38	0/2511
13	Cn	0.20	0/245	0.51	0/333
14	Cp	0.14	0/1551	0.35	0/2103
15	DD	0.16	0/6678	0.38	0/9051
16	DI	0.14	0/3248	0.35	0/4401
17	DL	0.16	0/1699	0.40	0/2293
18	DO	0.12	0/1680	0.33	0/2265
19	DP	0.14	0/1854	0.36	0/2511
20	DR	0.16	0/2107	0.42	0/2871
21	DU	0.17	0/1780	0.51	2/2416 (0.1%)
22	DZ	0.14	0/263	0.33	0/355
23	F2	0.17	0/7432	0.40	2/10042 (0.0%)
24	F3	0.16	0/6999	0.41	4/9472 (0.0%)
25	F5	0.18	0/3533	0.45	3/4798 (0.1%)
26	F6	0.17	0/3728	0.45	0/5060
27	F7	0.18	0/5342	0.45	0/7236
28	F8	0.15	0/4025	0.37	0/5450
29	F9	0.15	0/1785	0.36	0/2399
30	FA	0.19	0/4507	0.46	0/6139
31	FB	0.16	0/3132	0.39	0/4248
31	FC	0.16	0/2635	0.41	0/3572

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
32	FE	0.15	0/3629	0.37	0/4935
33	FJ	0.22	0/2986	0.47	0/4030
34	FM	0.17	0/2489	0.39	0/3365
34	FN	0.14	0/2430	0.37	0/3285
35	FO	0.17	0/2733	0.42	0/3692
36	FP	0.16	0/2710	0.42	2/3709 (0.1%)
37	FQ	0.16	0/2048	0.36	0/2786
37	FR	0.14	0/1966	0.34	0/2673
37	FS	0.14	0/2249	0.35	0/3063
37	FT	0.15	0/1897	0.34	0/2580
37	FU	0.15	0/2154	0.37	0/2933
38	FW	0.14	0/2077	0.36	0/2805
39	FX	0.15	0/1783	0.39	0/2410
40	FY	0.19	0/1321	0.45	0/1788
41	FZ	0.14	0/989	0.49	3/1336 (0.2%)
42	Fa	0.15	0/1363	0.40	0/1853
43	Fb	0.14	0/1123	0.40	0/1513
44	Fc	0.11	0/679	0.29	0/923
45	Fd	0.16	0/779	0.38	0/1054
60	CA	0.16	0/12605	0.36	1/19567 (0.0%)
61	CC	0.15	0/666	0.37	0/900
62	CI	0.13	0/3424	0.36	0/4626
63	CJ	0.15	0/5865	0.40	0/7974
64	CN	0.12	0/1323	0.33	0/1790
65	CS	0.12	0/731	0.35	0/987
66	Cg	0.14	0/4043	0.35	0/5489
67	Ci	0.12	0/1256	0.36	0/1695
68	Ck	0.14	0/5215	0.37	0/7050
69	DB	0.14	0/5830	0.40	2/7889 (0.0%)
70	DC	0.14	0/8409	0.36	0/11399
71	DE	0.13	0/4756	0.39	3/6462 (0.0%)
72	DF	0.15	0/4056	0.41	0/5493
73	DG	0.13	0/4674	0.35	0/6333
74	DH	0.15	0/3935	0.41	2/5321 (0.0%)
75	DJ	0.13	0/2591	0.38	0/3508
76	DK	0.13	0/1965	0.37	0/2652
77	DT	0.13	0/1982	0.38	0/2686
78	DV	0.15	0/1358	0.39	0/1836
79	DW	0.24	0/1182	0.47	0/1613
80	DX	0.15	0/993	0.41	0/1336
81	DY	0.15	0/1337	0.39	0/1814
82	F1	0.16	0/7334	0.40	1/9883 (0.0%)
83	F4	0.14	0/4483	0.40	0/6061

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
84	FD	0.13	0/3216	0.36	0/4380
85	FF	0.15	0/3335	0.41	0/4498
86	FG	0.14	0/1386	0.40	0/1869
87	FH	0.14	0/2537	0.35	0/3442
88	FI	0.13	0/2834	0.36	0/3821
89	FK	0.13	0/1748	0.33	0/2378
90	FL	0.15	0/2613	0.38	0/3538
91	FV	0.13	0/1680	0.36	0/2281
92	Fe	0.16	0/1057	0.46	0/1421
All	All	0.15	0/237284	0.39	27/323837 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
15	DD	0	1
24	F3	0	1
27	F7	0	1
28	F8	0	1
36	FP	0	1
38	FW	0	1
74	DH	0	1
79	DW	0	1
85	FF	0	1
92	Fe	0	1
All	All	0	10

There are no bond length outliers.

The worst 5 of 27 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	Ca	525	PRO	N-CA-CB	10.94	110.56	103.23
1	CE	385	PRO	N-CA-CB	8.12	111.78	103.25
21	DU	206	PRO	N-CA-CB	7.99	110.39	103.36
21	DU	200	PRO	N-CA-CB	7.55	110.36	103.19
25	F5	521	PRO	N-CA-CB	7.35	110.21	103.08

There are no chirality outliers.

5 of 10 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
15	DD	414	ARG	Peptide
24	F3	490	GLN	Peptide
27	F7	381	LEU	Peptide
28	F8	644	ASP	Peptide
36	FP	84	HIS	Peptide

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	CE	3147	0	3091	31	0
2	CF	1317	0	1309	18	0
3	CH	1824	0	1800	21	0
4	CK	1721	0	1689	15	0
5	CO	2979	0	2974	31	0
6	CP	1489	0	1510	19	0
7	CQ	1805	0	1811	32	0
8	CR	1274	0	1223	11	0
9	Ca	4340	0	4127	52	0
10	Cb	1274	0	1287	10	0
11	Cd	1616	0	1568	23	0
12	Cj	1792	0	1744	21	0
13	Cn	234	0	222	2	0
14	Cp	1506	0	1467	14	0
15	DD	6488	0	6251	67	0
16	DI	3182	0	3153	38	0
17	DL	1656	0	1632	13	0
18	DO	1648	0	1615	11	0
19	DP	1800	0	1765	12	0
20	DR	2042	0	2043	22	0
21	DU	1738	0	1640	18	0
22	DZ	254	0	230	4	0
23	F2	7274	0	7113	66	0
24	F3	6879	0	6854	54	0
25	F5	3474	0	3070	30	0
26	F6	3646	0	3608	40	0
27	F7	5225	0	5177	61	0
28	F8	3934	0	3908	32	0
29	F9	1755	0	1709	18	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
30	FA	4421	0	4534	43	0
31	FB	3055	0	3011	39	0
31	FC	2572	0	2544	42	0
32	FE	3523	0	3460	44	0
33	FJ	2917	0	2966	31	0
34	FM	2449	0	2440	24	0
34	FN	2392	0	2375	26	0
35	FO	2671	0	2636	44	0
36	FP	2643	0	2554	20	0
37	FQ	2003	0	1928	20	0
37	FR	1923	0	1862	21	0
37	FS	2198	0	2142	21	0
37	FT	1854	0	1802	23	0
37	FU	2105	0	2031	20	0
38	FW	2034	0	2035	17	0
39	FX	1741	0	1693	12	0
40	FY	1289	0	1291	19	0
41	FZ	973	0	869	8	0
42	Fa	1323	0	1336	12	0
43	Fb	1091	0	1085	11	0
44	Fc	669	0	663	8	0
45	Fd	758	0	764	8	0
46	UA	126	0	128	5	0
47	UB	162	0	169	5	0
47	Uk	162	0	164	3	0
48	UC	60	0	63	1	0
49	UD	54	0	57	5	0
49	UM	54	0	58	4	0
49	UQ	54	0	56	2	0
49	Uf	54	0	56	4	0
50	UE	270	0	272	2	0
50	UP	270	0	272	10	0
51	UF	66	0	70	3	0
51	Um	66	0	68	1	0
52	UG	102	0	104	5	0
53	UH	30	0	32	1	0
54	UI	48	0	50	4	0
54	UN	48	0	50	1	0
55	UJ	96	0	99	3	0
56	UK	144	0	146	1	0
57	UL	132	0	135	2	0
58	UO	180	0	183	9	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
59	UY	2808	0	2852	113	0
60	CA	11352	0	5672	102	0
61	CC	646	0	682	9	0
62	CI	3357	0	3310	42	0
63	CJ	5709	0	5508	63	0
64	CN	1285	0	1264	17	0
65	CS	708	0	688	9	0
66	Cg	3922	0	3811	40	0
67	Ci	1222	0	1192	16	0
68	Ck	5123	0	5154	55	0
69	DB	5688	0	5497	67	0
70	DC	8223	0	8043	65	0
71	DE	4639	0	4417	47	0
72	DF	3967	0	3957	39	0
73	DG	4575	0	4490	63	0
74	DH	3849	0	3811	39	0
75	DJ	2521	0	2464	20	0
76	DK	1929	0	1928	25	0
77	DT	1912	0	1787	22	0
78	DV	1323	0	1308	16	0
79	DW	1140	0	1117	17	0
80	DX	967	0	956	12	0
81	DY	1295	0	1290	20	0
82	F1	7194	0	7263	71	0
83	F4	4382	0	4291	54	0
84	FD	3135	0	3117	29	0
85	FF	3265	0	3204	46	0
86	FG	1359	0	1375	19	0
87	FH	2486	0	2430	32	0
88	FI	2786	0	2712	35	0
89	FK	1699	0	1589	17	0
90	FL	2555	0	2530	33	0
91	FV	1636	0	1567	18	0
92	Fe	1033	0	1004	17	0
93	Ua	282	0	285	3	0
94	Ub	252	0	255	9	0
95	Uc	72	0	75	3	0
96	Ud	354	0	356	8	0
97	Ue	174	0	176	4	0
98	Ug	1002	0	1025	11	0
99	Uh	1530	0	1558	30	0
100	Ui	192	0	194	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
101	Uj	114	0	117	5	0
102	Ul	84	0	86	0	0
103	Ux	648	0	656	6	0
104	CA	2	0	0	0	0
104	Cg	1	0	0	0	0
104	FP	1	0	0	0	0
104	FW	1	0	0	0	0
105	FW	5	0	0	1	0
106	Fc	32	0	39	1	0
107	F1	1	0	0	0	0
107	FG	1	0	0	0	0
107	FL	2	0	0	0	0
107	Fd	1	0	0	0	0
107	Fe	1	0	0	0	0
108	Cg	32	0	12	3	0
109	F1	26	0	19	2	0
109	FF	26	0	19	2	0
110	Cg	3	0	0	0	0
All	All	240624	0	230995	2162	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

The worst 5 of 2162 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:FY:87:GLN:HG2	97:Ue:4:UNK:HA	1.55	0.89
59:UY:355:UNK:HG1	60:CA:579:G:H5'	1.56	0.88
27:F7:206:PRO:HB3	59:UY:193:UNK:HB1	1.56	0.87
35:FO:148:ARG:HH21	54:UI:2:UNK:HB1	1.42	0.84
59:UY:9:UNK:HG1	59:UY:461:UNK:HB2	1.59	0.83

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	CE	390/435 (90%)	375 (96%)	13 (3%)	2 (0%)	25	56
2	CF	157/160 (98%)	151 (96%)	6 (4%)	0	100	100
3	CH	216/282 (77%)	211 (98%)	5 (2%)	0	100	100
4	CK	205/326 (63%)	190 (93%)	15 (7%)	0	100	100
5	CO	354/429 (82%)	345 (98%)	9 (2%)	0	100	100
6	CP	178/188 (95%)	170 (96%)	8 (4%)	0	100	100
7	CQ	217/336 (65%)	209 (96%)	8 (4%)	0	100	100
8	CR	149/320 (47%)	141 (95%)	8 (5%)	0	100	100
9	Ca	508/602 (84%)	490 (96%)	18 (4%)	0	100	100
10	Cb	149/311 (48%)	145 (97%)	4 (3%)	0	100	100
11	Cd	183/440 (42%)	182 (100%)	1 (0%)	0	100	100
12	Cj	224/257 (87%)	219 (98%)	5 (2%)	0	100	100
13	Cn	25/250 (10%)	23 (92%)	2 (8%)	0	100	100
14	Cp	176/187 (94%)	171 (97%)	5 (3%)	0	100	100
15	DD	782/812 (96%)	756 (97%)	26 (3%)	0	100	100
16	DI	388/407 (95%)	378 (97%)	10 (3%)	0	100	100
17	DL	199/307 (65%)	192 (96%)	7 (4%)	0	100	100
18	DO	202/282 (72%)	200 (99%)	2 (1%)	0	100	100
19	DP	210/274 (77%)	206 (98%)	4 (2%)	0	100	100
20	DR	250/270 (93%)	241 (96%)	9 (4%)	0	100	100
21	DU	217/228 (95%)	203 (94%)	14 (6%)	0	100	100
22	DZ	28/94 (30%)	27 (96%)	1 (4%)	0	100	100
23	F2	909/1024 (89%)	886 (98%)	23 (2%)	0	100	100
24	F3	882/966 (91%)	857 (97%)	25 (3%)	0	100	100
25	F5	474/754 (63%)	461 (97%)	12 (2%)	1 (0%)	44	71
26	F6	450/676 (67%)	436 (97%)	14 (3%)	0	100	100
27	F7	658/679 (97%)	615 (94%)	41 (6%)	2 (0%)	37	66
28	F8	493/726 (68%)	475 (96%)	18 (4%)	0	100	100
29	F9	214/608 (35%)	213 (100%)	1 (0%)	0	100	100
30	FA	573/642 (89%)	553 (96%)	20 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
31	FB	373/579 (64%)	363 (97%)	10 (3%)	0	100	100
31	FC	305/579 (53%)	294 (96%)	11 (4%)	0	100	100
32	FE	432/553 (78%)	416 (96%)	16 (4%)	0	100	100
33	FJ	351/362 (97%)	333 (95%)	18 (5%)	0	100	100
34	FM	324/370 (88%)	320 (99%)	4 (1%)	0	100	100
34	FN	317/370 (86%)	311 (98%)	6 (2%)	0	100	100
35	FO	320/334 (96%)	306 (96%)	14 (4%)	0	100	100
36	FP	346/349 (99%)	332 (96%)	13 (4%)	1 (0%)	37	66
37	FQ	255/307 (83%)	250 (98%)	5 (2%)	0	100	100
37	FR	239/307 (78%)	234 (98%)	5 (2%)	0	100	100
37	FS	271/307 (88%)	261 (96%)	10 (4%)	0	100	100
37	FT	229/307 (75%)	224 (98%)	5 (2%)	0	100	100
37	FU	266/307 (87%)	258 (97%)	8 (3%)	0	100	100
38	FW	243/263 (92%)	237 (98%)	6 (2%)	0	100	100
39	FX	218/239 (91%)	211 (97%)	7 (3%)	0	100	100
40	FY	156/188 (83%)	145 (93%)	11 (7%)	0	100	100
41	FZ	129/178 (72%)	125 (97%)	4 (3%)	0	100	100
42	Fa	161/171 (94%)	158 (98%)	3 (2%)	0	100	100
43	Fb	127/151 (84%)	124 (98%)	3 (2%)	0	100	100
44	Fc	82/148 (55%)	82 (100%)	0	0	100	100
45	Fd	94/143 (66%)	93 (99%)	1 (1%)	0	100	100
61	CC	72/74 (97%)	70 (97%)	2 (3%)	0	100	100
62	CI	421/443 (95%)	409 (97%)	12 (3%)	0	100	100
63	CJ	695/817 (85%)	659 (95%)	33 (5%)	3 (0%)	30	61
64	CN	151/166 (91%)	149 (99%)	2 (1%)	0	100	100
65	CS	79/244 (32%)	77 (98%)	2 (2%)	0	100	100
66	Cg	482/498 (97%)	461 (96%)	21 (4%)	0	100	100
67	Ci	145/181 (80%)	143 (99%)	2 (1%)	0	100	100
68	Ck	634/874 (72%)	606 (96%)	28 (4%)	0	100	100
69	DB	671/1181 (57%)	651 (97%)	20 (3%)	0	100	100
70	DC	1020/1165 (88%)	997 (98%)	23 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
71	DE	582/747 (78%)	566 (97%)	14 (2%)	2 (0%)	37	66
72	DF	485/666 (73%)	466 (96%)	19 (4%)	0	100	100
73	DG	558/631 (88%)	546 (98%)	12 (2%)	0	100	100
74	DH	466/581 (80%)	447 (96%)	19 (4%)	0	100	100
75	DJ	304/396 (77%)	298 (98%)	6 (2%)	0	100	100
76	DK	239/324 (74%)	229 (96%)	10 (4%)	0	100	100
77	DT	219/247 (89%)	211 (96%)	8 (4%)	0	100	100
78	DV	153/183 (84%)	147 (96%)	6 (4%)	0	100	100
79	DW	131/179 (73%)	120 (92%)	11 (8%)	0	100	100
80	DX	113/169 (67%)	106 (94%)	7 (6%)	0	100	100
81	DY	152/163 (93%)	149 (98%)	3 (2%)	0	100	100
82	F1	881/1041 (85%)	849 (96%)	32 (4%)	0	100	100
83	F4	521/811 (64%)	497 (95%)	24 (5%)	0	100	100
84	FD	392/579 (68%)	384 (98%)	8 (2%)	0	100	100
85	FF	404/474 (85%)	388 (96%)	15 (4%)	1 (0%)	44	71
86	FG	167/463 (36%)	162 (97%)	5 (3%)	0	100	100
87	FH	313/457 (68%)	303 (97%)	10 (3%)	0	100	100
88	FI	342/445 (77%)	333 (97%)	9 (3%)	0	100	100
89	FK	202/372 (54%)	202 (100%)	0	0	100	100
90	FL	314/353 (89%)	299 (95%)	15 (5%)	0	100	100
91	FV	206/264 (78%)	198 (96%)	8 (4%)	0	100	100
92	Fe	120/123 (98%)	113 (94%)	7 (6%)	0	100	100
All	All	26932/35095 (77%)	26033 (97%)	887 (3%)	12 (0%)	100	100

5 of 12 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	CE	385	PRO
36	FP	85	LYS
63	CJ	592	SER
71	DE	521	PRO
1	CE	384	ALA

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	CE	325/372 (87%)	315 (97%)	10 (3%)	35 61
2	CF	143/144 (99%)	141 (99%)	2 (1%)	62 78
3	CH	195/246 (79%)	191 (98%)	4 (2%)	48 70
4	CK	184/284 (65%)	177 (96%)	7 (4%)	28 56
5	CO	314/377 (83%)	306 (98%)	8 (2%)	42 67
6	CP	160/168 (95%)	156 (98%)	4 (2%)	42 67
7	CQ	194/297 (65%)	187 (96%)	7 (4%)	30 57
8	CR	130/279 (47%)	124 (95%)	6 (5%)	23 52
9	Ca	449/543 (83%)	438 (98%)	11 (2%)	44 68
10	Cb	132/267 (49%)	123 (93%)	9 (7%)	13 38
11	Cd	168/381 (44%)	167 (99%)	1 (1%)	84 90
12	Cj	193/219 (88%)	187 (97%)	6 (3%)	35 61
13	Cn	22/210 (10%)	22 (100%)	0	100 100
14	Cp	166/175 (95%)	161 (97%)	5 (3%)	36 62
15	DD	691/711 (97%)	686 (99%)	5 (1%)	81 88
16	DI	350/365 (96%)	343 (98%)	7 (2%)	50 71
17	DL	173/263 (66%)	171 (99%)	2 (1%)	67 80
18	DO	170/229 (74%)	166 (98%)	4 (2%)	44 68
19	DP	191/239 (80%)	188 (98%)	3 (2%)	58 76
20	DR	221/235 (94%)	213 (96%)	8 (4%)	30 57
21	DU	179/201 (89%)	176 (98%)	3 (2%)	56 74
22	DZ	25/84 (30%)	23 (92%)	2 (8%)	10 32
23	F2	763/867 (88%)	740 (97%)	23 (3%)	36 62
24	F3	748/809 (92%)	719 (96%)	29 (4%)	27 55
25	F5	293/642 (46%)	278 (95%)	15 (5%)	20 48
26	F6	401/590 (68%)	387 (96%)	14 (4%)	31 58

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
27	F7	554/577 (96%)	540 (98%)	14 (2%)	42	67
28	F8	410/561 (73%)	399 (97%)	11 (3%)	40	65
29	F9	175/504 (35%)	171 (98%)	4 (2%)	45	68
30	FA	477/526 (91%)	453 (95%)	24 (5%)	20	48
31	FB	322/483 (67%)	309 (96%)	13 (4%)	27	55
31	FC	272/483 (56%)	260 (96%)	12 (4%)	24	52
32	FE	386/486 (79%)	378 (98%)	8 (2%)	48	70
33	FJ	314/323 (97%)	303 (96%)	11 (4%)	31	58
34	FM	257/292 (88%)	249 (97%)	8 (3%)	35	61
34	FN	251/292 (86%)	238 (95%)	13 (5%)	19	47
35	FO	281/290 (97%)	273 (97%)	8 (3%)	38	64
36	FP	270/286 (94%)	266 (98%)	4 (2%)	60	77
37	FQ	211/264 (80%)	203 (96%)	8 (4%)	28	56
37	FR	206/264 (78%)	198 (96%)	8 (4%)	27	55
37	FS	238/264 (90%)	227 (95%)	11 (5%)	23	52
37	FT	200/264 (76%)	190 (95%)	10 (5%)	20	48
37	FU	222/264 (84%)	210 (95%)	12 (5%)	18	46
38	FW	223/234 (95%)	219 (98%)	4 (2%)	54	74
39	FX	178/195 (91%)	178 (100%)	0	100	100
40	FY	141/163 (86%)	136 (96%)	5 (4%)	31	58
41	FZ	86/156 (55%)	84 (98%)	2 (2%)	45	68
42	Fa	141/149 (95%)	136 (96%)	5 (4%)	31	58
43	Fb	117/135 (87%)	114 (97%)	3 (3%)	41	66
44	Fc	78/127 (61%)	74 (95%)	4 (5%)	20	48
45	Fd	79/119 (66%)	77 (98%)	2 (2%)	42	67
61	CC	73/73 (100%)	69 (94%)	4 (6%)	18	45
62	CI	355/371 (96%)	349 (98%)	6 (2%)	56	74
63	CJ	619/723 (86%)	601 (97%)	18 (3%)	37	63
64	CN	138/150 (92%)	129 (94%)	9 (6%)	14	40
65	CS	76/220 (34%)	74 (97%)	2 (3%)	41	66
66	Cg	426/437 (98%)	414 (97%)	12 (3%)	38	64

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
67	Ci	130/160 (81%)	128 (98%)	2 (2%)	60 77
68	Ck	557/747 (75%)	537 (96%)	20 (4%)	30 57
69	DB	613/1030 (60%)	588 (96%)	25 (4%)	26 54
70	DC	867/985 (88%)	836 (96%)	31 (4%)	30 57
71	DE	464/644 (72%)	443 (96%)	21 (4%)	23 52
72	DF	417/560 (74%)	403 (97%)	14 (3%)	32 59
73	DG	490/543 (90%)	472 (96%)	18 (4%)	29 56
74	DH	413/504 (82%)	401 (97%)	12 (3%)	37 63
75	DJ	267/347 (77%)	261 (98%)	6 (2%)	47 69
76	DK	203/261 (78%)	194 (96%)	9 (4%)	24 52
77	DT	205/228 (90%)	199 (97%)	6 (3%)	37 63
78	DV	142/165 (86%)	137 (96%)	5 (4%)	31 58
79	DW	124/163 (76%)	113 (91%)	11 (9%)	8 28
80	DX	102/149 (68%)	102 (100%)	0	100 100
81	DY	137/146 (94%)	135 (98%)	2 (2%)	60 77
82	F1	764/895 (85%)	724 (95%)	40 (5%)	19 47
83	F4	479/703 (68%)	459 (96%)	20 (4%)	25 53
84	FD	338/494 (68%)	331 (98%)	7 (2%)	48 70
85	FF	348/400 (87%)	338 (97%)	10 (3%)	37 63
86	FG	147/414 (36%)	143 (97%)	4 (3%)	40 65
87	FH	270/390 (69%)	261 (97%)	9 (3%)	33 60
88	FI	297/380 (78%)	287 (97%)	10 (3%)	32 59
89	FK	181/308 (59%)	175 (97%)	6 (3%)	33 60
90	FL	279/309 (90%)	271 (97%)	8 (3%)	37 63
91	FV	184/231 (80%)	175 (95%)	9 (5%)	21 49
92	Fe	114/115 (99%)	104 (91%)	10 (9%)	8 28
All	All	23288/30143 (77%)	22523 (97%)	765 (3%)	35 60

5 of 765 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
68	Ck	367	LEU
73	DG	464	VAL

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Mol	Chain	Res	Type
69	DB	587	VAL
68	Ck	356	VAL
70	DC	839	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 475 such sidechains are listed below:

Mol	Chain	Res	Type
37	FS	213	HIS
87	FH	352	GLN
64	CN	99	GLN
85	FF	370	HIS
92	Fe	42	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
60	CA	606/620 (97%)	241 (39%)	7 (1%)

5 of 241 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
60	CA	3	A
60	CA	4	A
60	CA	5	U
60	CA	6	U
60	CA	7	A

5 of 7 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
60	CA	285	A
60	CA	296	U
60	CA	483	A
60	CA	349	U
60	CA	173	A

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
60	UBD	CA	620	-	23,25,26	0.63	0	31,37,40	0.62	1 (3%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
60	UBD	CA	620	-	-	2/12/30/31	0/2/2/2

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
60	CA	620	UBD	O4P-P2-O5P	2.35	119.86	110.68

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
60	CA	620	UBD	O4'-C4'-C5'-O5'
60	CA	620	UBD	C3'-O3'-P2-O4P

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 16 ligands modelled in this entry, 11 are monoatomic - leaving 5 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
106	PM8	Fc	201	44	25,31,31	0.76	1 (4%)	30,38,38	0.91	1 (3%)
109	SAH	F1	1102	-	24,28,28	1.21	3 (12%)	25,40,40	1.73	5 (20%)
109	SAH	FF	501	-	24,28,28	1.20	3 (12%)	25,40,40	1.78	5 (20%)
108	GTP	Cg	501	104	26,34,34	1.13	2 (7%)	32,54,54	1.60	7 (21%)
105	PO4	FW	301	-	4,4,4	0.99	0	6,6,6	0.45	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
109	SAH	F1	1102	-	-	3/11/31/31	0/3/3/3
108	GTP	Cg	501	104	-	5/18/38/38	0/3/3/3
109	SAH	FF	501	-	-	1/11/31/31	0/3/3/3
106	PM8	Fc	201	44	-	2/36/38/38	-

The worst 5 of 9 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
108	Cg	501	GTP	C5-C6	-4.12	1.39	1.47
109	F1	1102	SAH	C2-N3	3.91	1.38	1.32
109	FF	501	SAH	C2-N3	3.91	1.38	1.32
106	Fc	201	PM8	C2-C1	2.58	1.53	1.50
109	F1	1102	SAH	C2-N1	2.43	1.38	1.33

The worst 5 of 18 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
109	F1	1102	SAH	N3-C2-N1	-5.48	120.11	128.68
109	FF	501	SAH	N3-C2-N1	-5.47	120.13	128.68
109	FF	501	SAH	C5'-SD-CG	-4.45	88.92	102.27
109	F1	1102	SAH	C5'-SD-CG	-3.99	90.28	102.27
108	Cg	501	GTP	PA-O3A-PB	-3.95	119.28	132.83

There are no chirality outliers.

5 of 11 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
108	Cg	501	GTP	C5'-O5'-PA-O3A
108	Cg	501	GTP	C5'-O5'-PA-O1A
108	Cg	501	GTP	C5'-O5'-PA-O2A
108	Cg	501	GTP	C3'-C4'-C5'-O5'
106	Fc	201	PM8	C37-C38-C39-O40

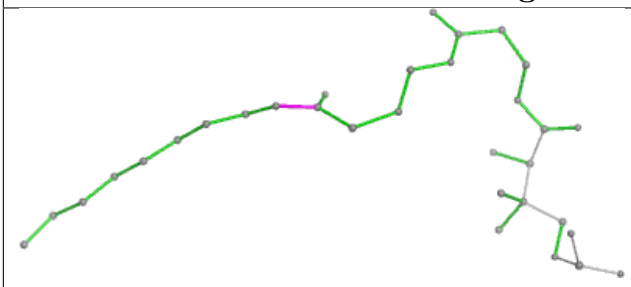
There are no ring outliers.

5 monomers are involved in 9 short contacts:

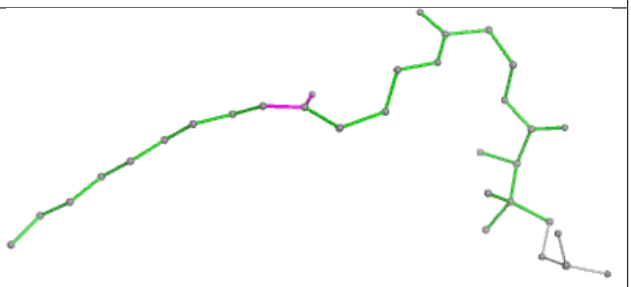
Mol	Chain	Res	Type	Clashes	Symm-Clashes
106	Fc	201	PM8	1	0
109	F1	1102	SAH	2	0
109	FF	501	SAH	2	0
108	Cg	501	GTP	3	0
105	FW	301	PO4	1	0

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

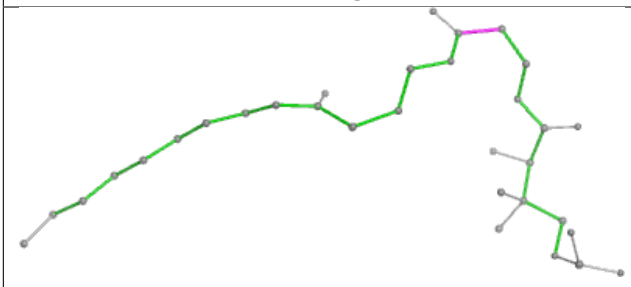
Ligand PM8 Fc 201



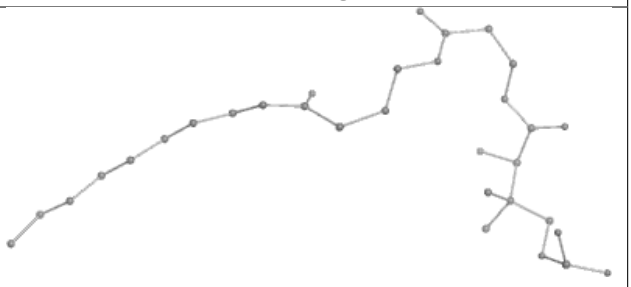
Bond lengths



Bond angles

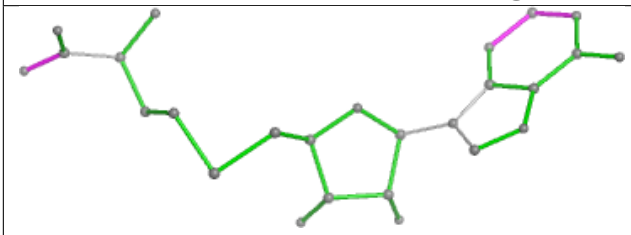


Torsions

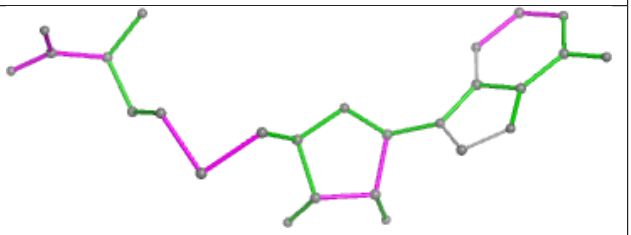


Rings

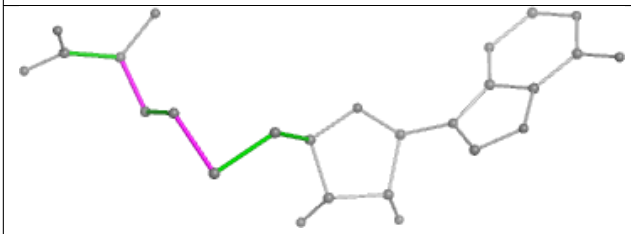
Ligand SAH F1 1102



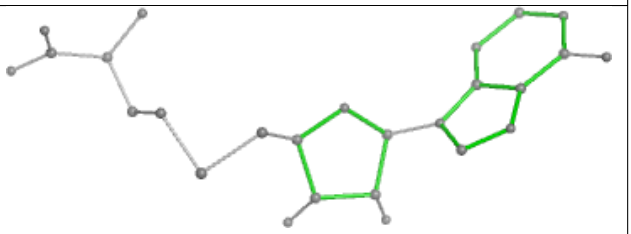
Bond lengths



Bond angles

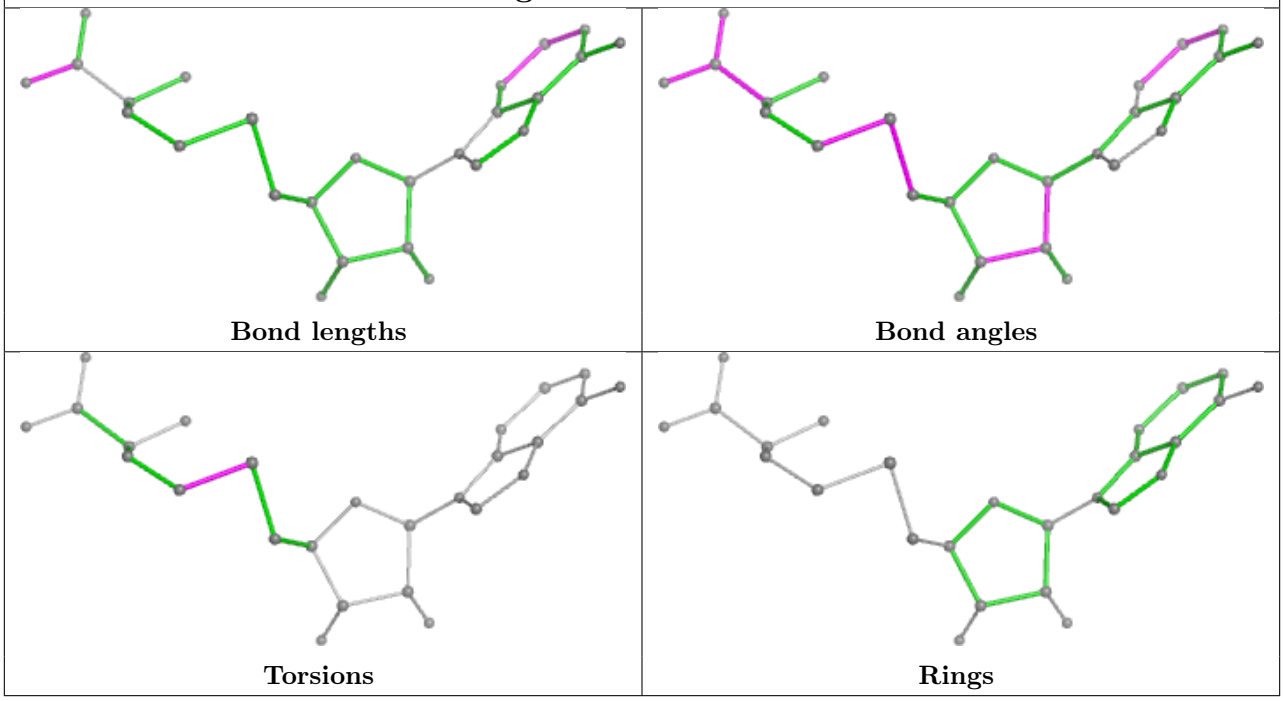


Torsions

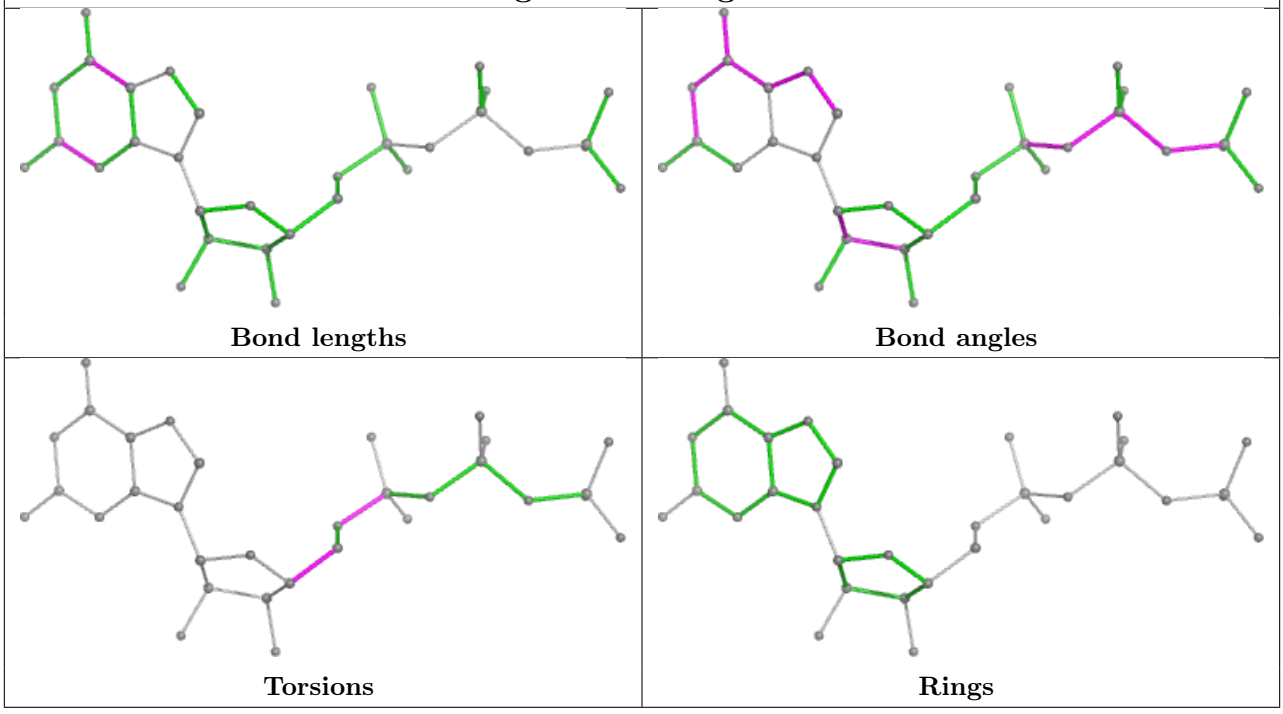


Rings

Ligand SAH FF 501



Ligand GTP Cg 501



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
59	UY	13
99	Uh	11
98	Ug	10
103	Ux	3
47	UB	2
60	CA	1

The worst 5 of 40 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	UY	347:UNK	C	348:UNK	N	76.88
1	UY	439:UNK	C	440:UNK	N	65.92
1	Uh	219:UNK	C	267:UNK	N	52.49
1	Uh	13:UNK	C	14:UNK	N	49.20
1	UB	10:UNK	C	101:UNK	N	45.40

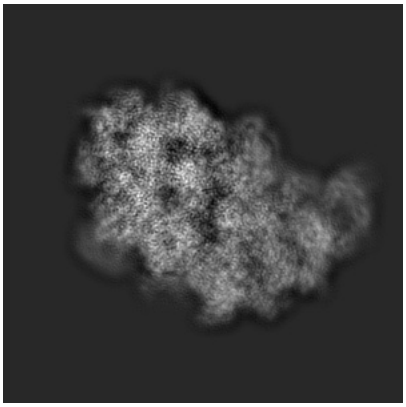
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-10180. These allow visual inspection of the internal detail of the map and identification of artifacts.

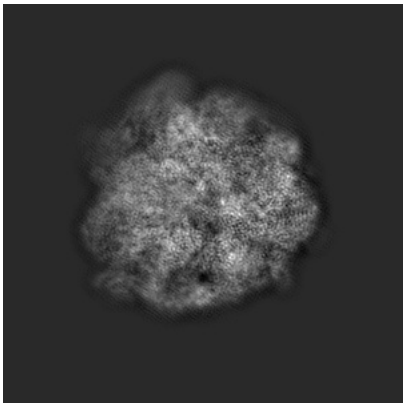
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

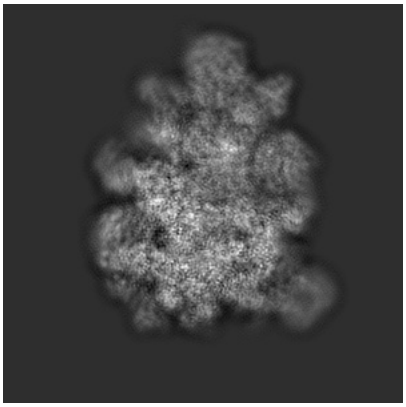
6.1.1 Primary map



X



Y

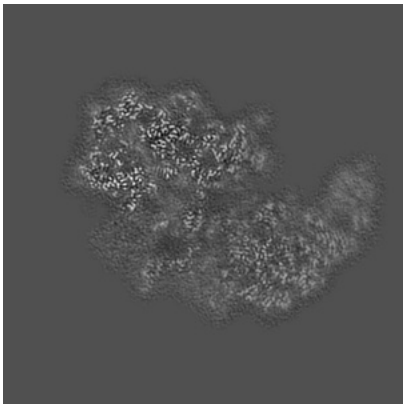


Z

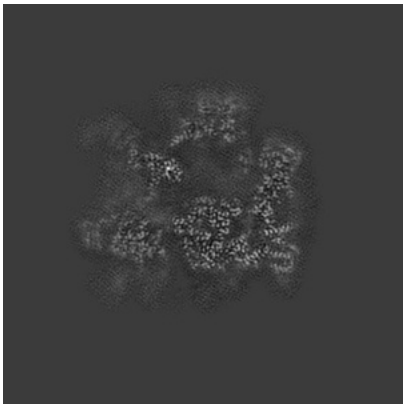
The images above show the map projected in three orthogonal directions.

6.2 Central slices

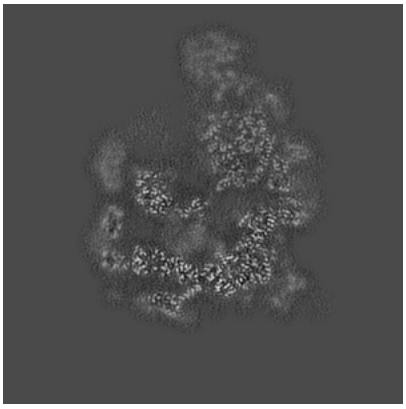
6.2.1 Primary map



X Index: 160



Y Index: 160

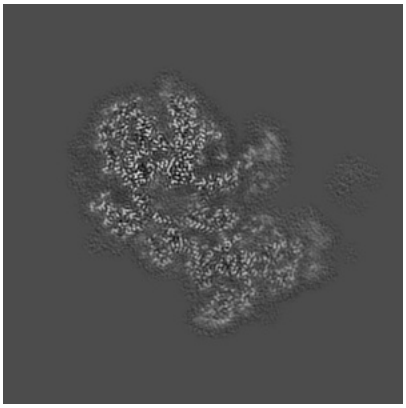


Z Index: 160

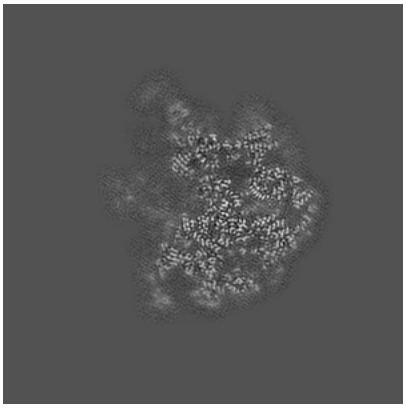
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

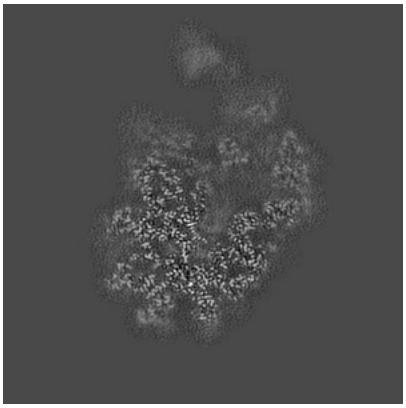
6.3.1 Primary map



X Index: 137



Y Index: 109

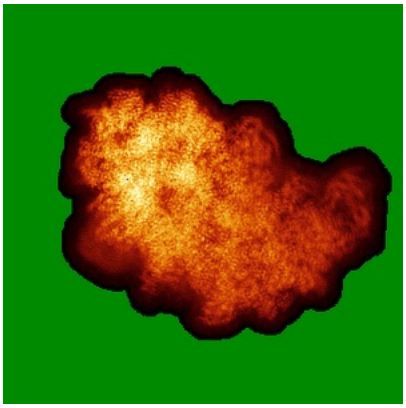


Z Index: 181

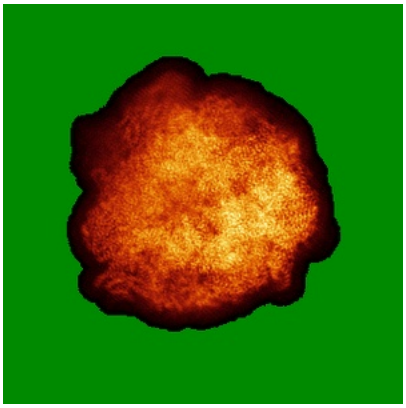
The images above show the largest variance slices of the map in three orthogonal directions.

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

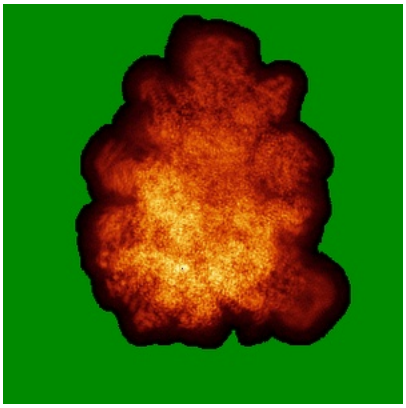
6.4.1 Primary map



X



Y

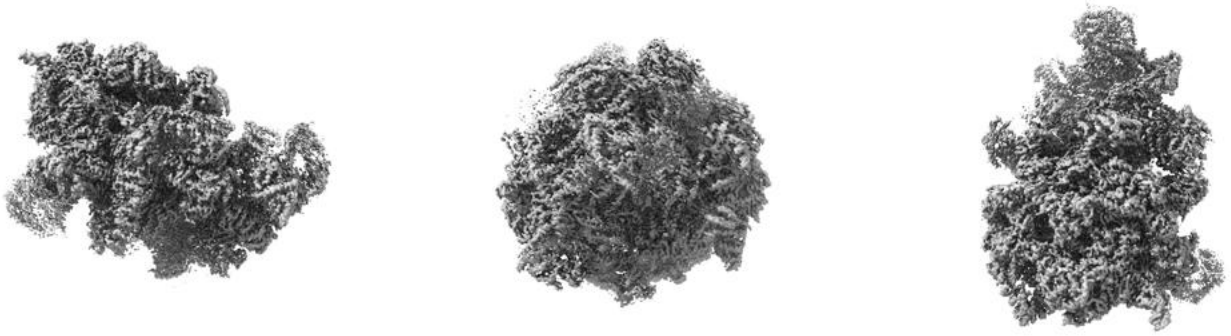


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.09. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

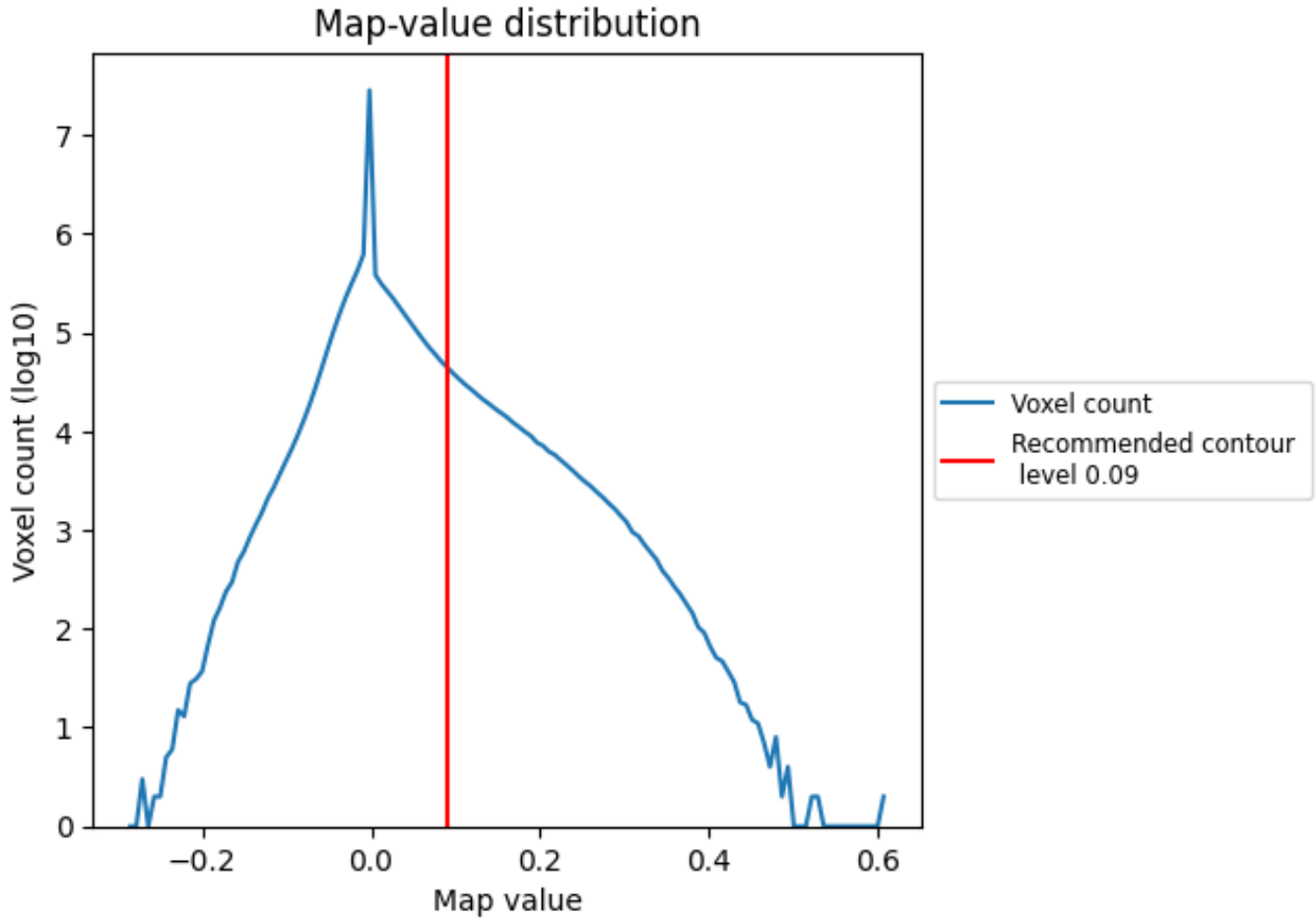
6.6 Mask visualisation (i)

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

7 Map analysis

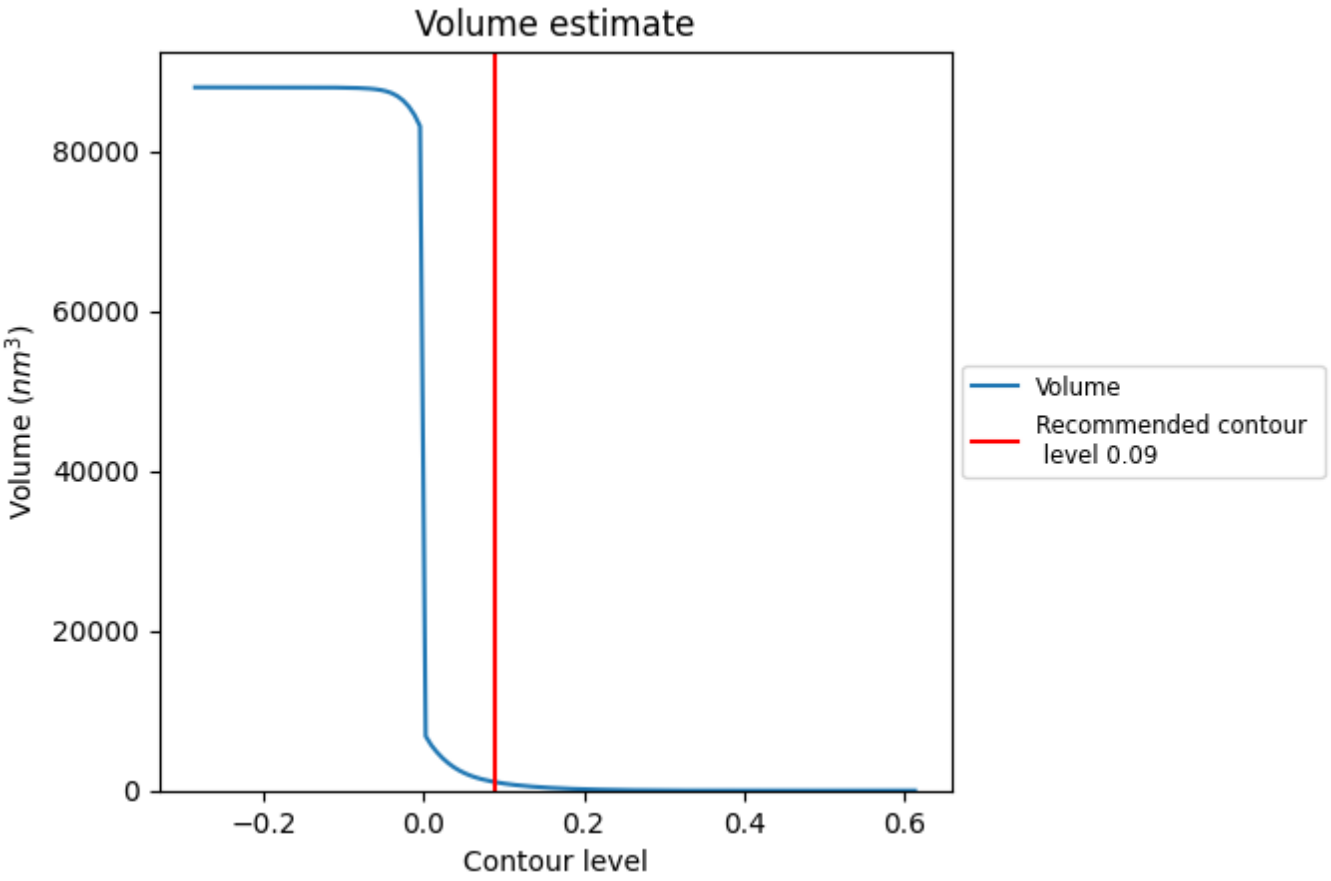
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

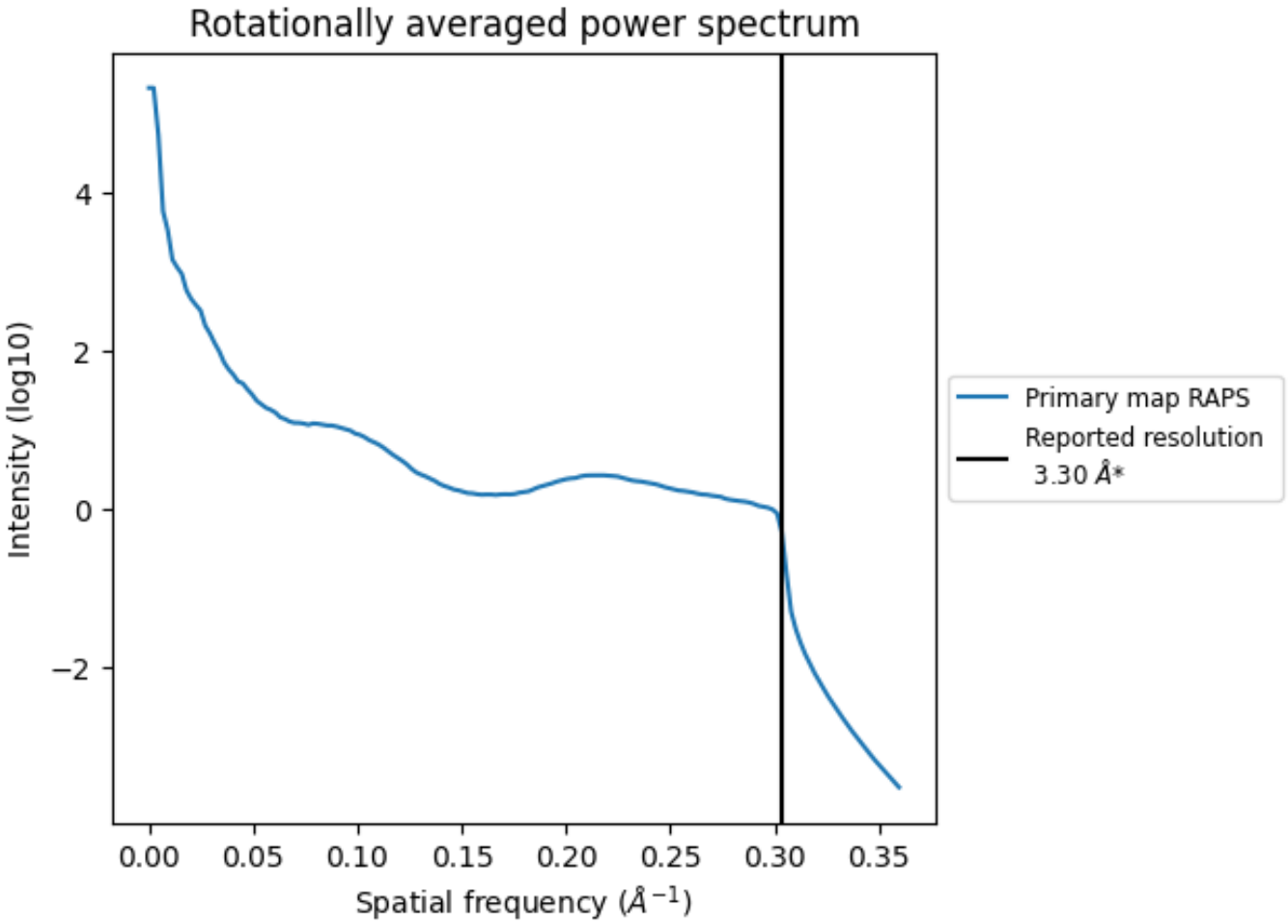
7.2 Volume estimate (i)



The volume at the recommended contour level is 1051 nm^3; this corresponds to an approximate mass of 949 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 0.303 Å^{-1}

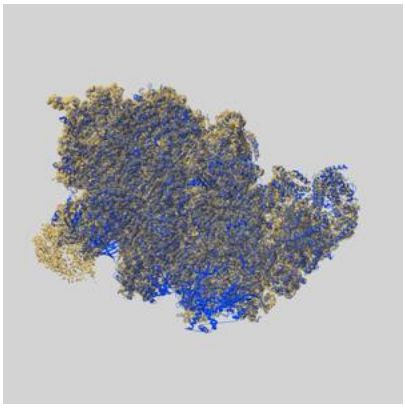
8 Fourier-Shell correlation

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

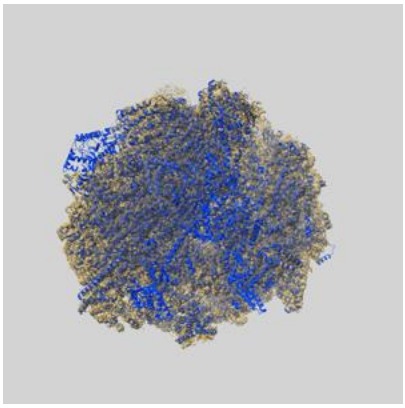
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-10180 and PDB model 6SGB. Per-residue inclusion information can be found in section 3 on page 29.

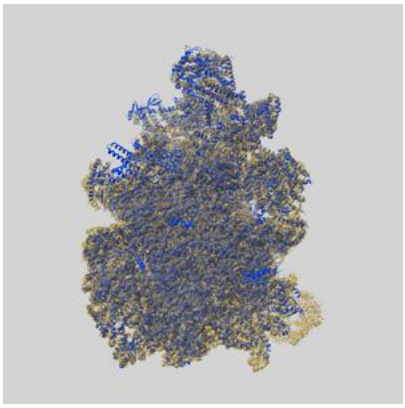
9.1 Map-model overlay



X



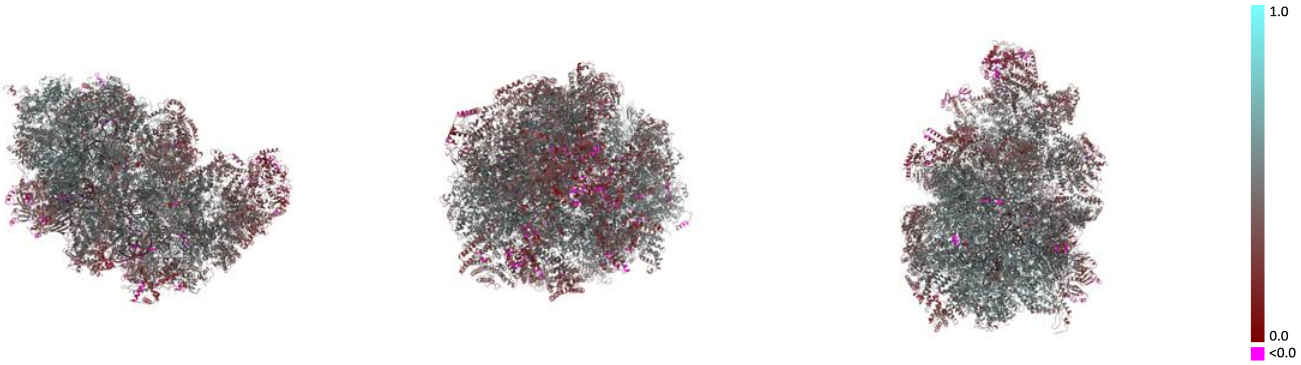
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.09 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

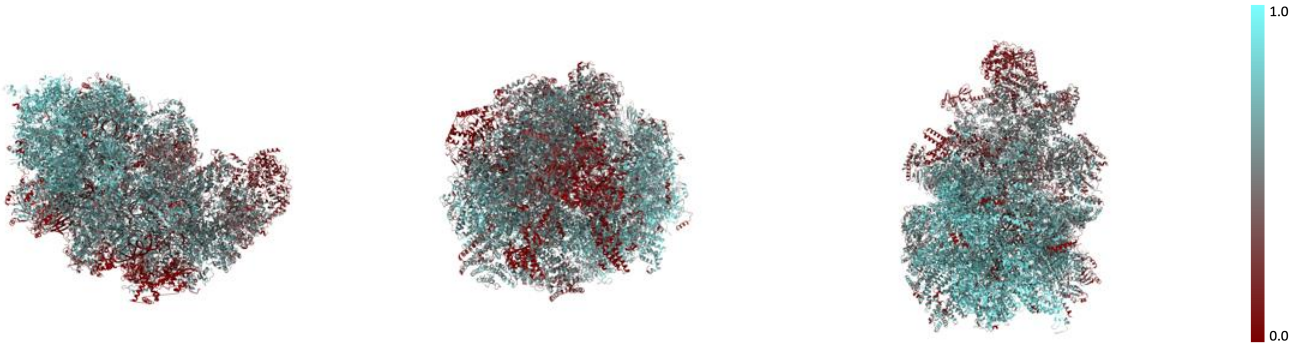
9.2 Q-score mapped to coordinate model



X Y Z

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

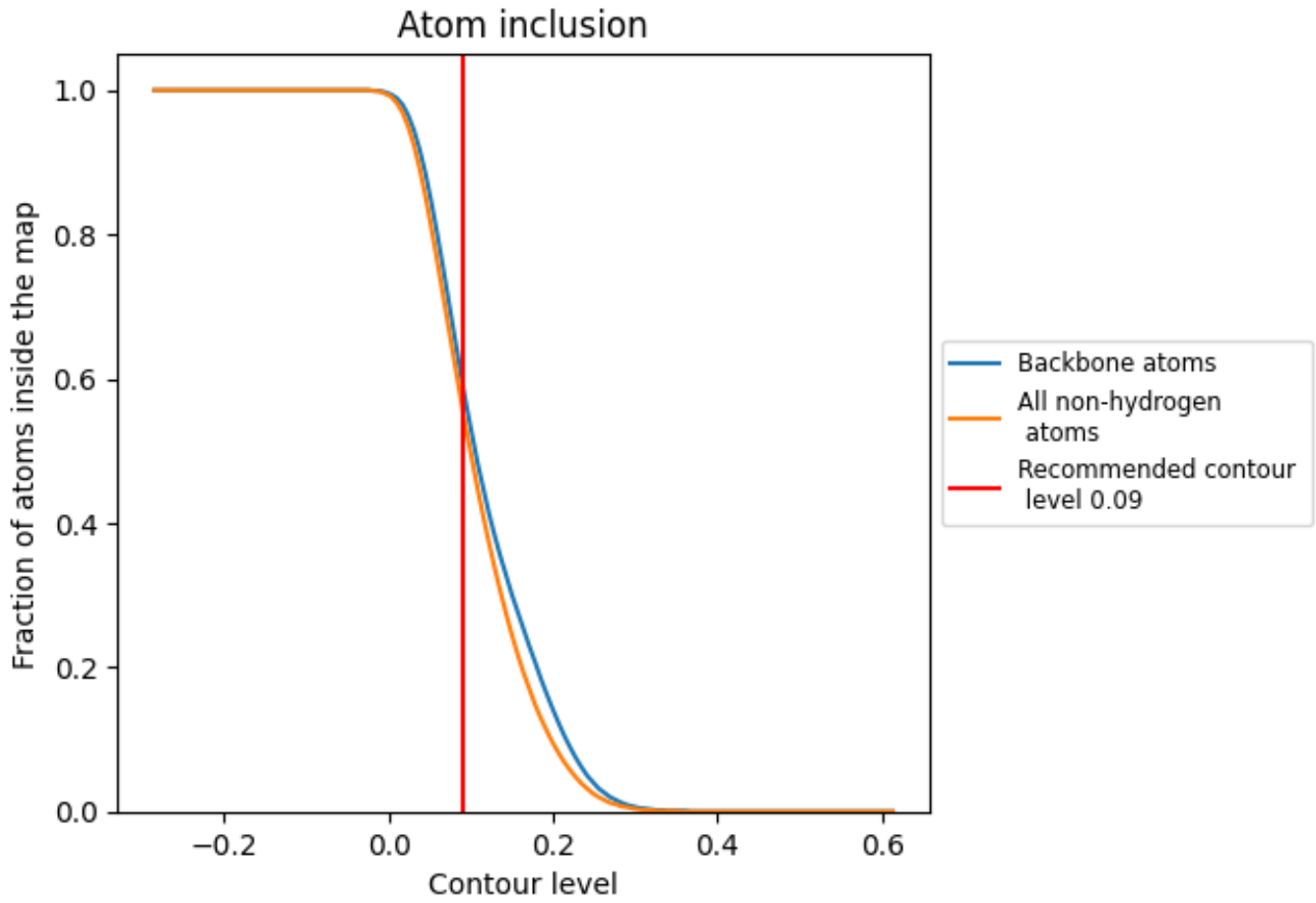
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.09).

9.4 Atom inclusion (i)



At the recommended contour level, 59% of all backbone atoms, 56% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.09) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5570	0.4390
CA	0.5680	0.3950
CC	0.4030	0.4580
CE	0.6660	0.5010
CF	0.7270	0.5020
CH	0.7430	0.5320
CI	0.6270	0.4750
CJ	0.5470	0.4650
CK	0.5810	0.4280
CN	0.2610	0.4540
CO	0.7470	0.5240
CP	0.7950	0.5350
CQ	0.7050	0.5330
CR	0.5780	0.4330
CS	0.0090	0.3310
Ca	0.6690	0.4820
Cb	0.5570	0.4100
Cd	0.7920	0.5140
Cg	0.6230	0.4630
Ci	0.5060	0.4880
Cj	0.8280	0.5330
Ck	0.4810	0.3990
Cn	0.3710	0.4230
Cp	0.7320	0.5110
DB	0.3630	0.3750
DC	0.3520	0.3270
DD	0.7860	0.5270
DE	0.2110	0.2450
DF	0.5020	0.4460
DG	0.5740	0.4040
DH	0.5160	0.4690
DI	0.7380	0.4930
DJ	0.5580	0.4450
DK	0.4150	0.4110
DL	0.6590	0.5020

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Chain	Atom inclusion	Q-score
DO	0.6010	0.4040
DP	0.8120	0.4880
DR	0.8120	0.5200
DT	0.5780	0.4970
DU	0.6660	0.4940
DV	0.5120	0.4570
DW	0.5020	0.4300
DX	0.1750	0.3900
DY	0.4940	0.4530
DZ	0.5020	0.4430
F1	0.5610	0.4700
F2	0.7170	0.4830
F3	0.6660	0.4390
F4	0.4000	0.3780
F5	0.3750	0.3270
F6	0.5400	0.3490
F7	0.7250	0.4830
F8	0.6430	0.4750
F9	0.6180	0.4850
FA	0.4950	0.4040
FB	0.7010	0.5080
FC	0.6290	0.4310
FD	0.5060	0.4300
FE	0.6910	0.5100
FF	0.5670	0.4750
FG	0.6250	0.4950
FH	0.5390	0.4560
FI	0.5050	0.4660
FJ	0.5850	0.4700
FK	0.5560	0.4710
FL	0.6010	0.5180
FM	0.6810	0.4770
FN	0.5260	0.3790
FO	0.7810	0.5300
FP	0.7500	0.4830
FQ	0.6330	0.4440
FR	0.5860	0.4360
FS	0.5320	0.4180
FT	0.6010	0.4180
FU	0.5180	0.3810
FV	0.5880	0.4660
FW	0.7340	0.5020

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Chain	Atom inclusion	Q-score
FX	0.7800	0.4820
FY	0.4670	0.3860
FZ	0.1280	0.3860
Fa	0.6370	0.5130
Fb	0.5360	0.3440
Fc	0.5160	0.3280
Fd	0.7300	0.4900
Fe	0.4810	0.4460
UA	0.3180	0.2380
UB	0.2040	0.3200
UC	0.7330	0.4270
UD	0.8520	0.5070
UE	0.2930	0.2610
UF	0.5610	0.4540
UG	0.7260	0.4700
UH	0.4000	0.4990
UI	0.6250	0.4210
UJ	0.3540	0.3170
UK	0.2430	0.3550
UL	0.5230	0.3640
UM	0.5740	0.4650
UN	0.5210	0.3820
UO	0.4440	0.2880
UP	0.2890	0.2850
UQ	0.4440	0.3130
UY	0.0030	0.2760
Ua	0.4430	0.4270
Ub	0.2540	0.4040
Uc	0.2780	0.4630
Ud	0.2820	0.3520
Ue	0.2760	0.3380
Uf	0.4810	0.5010
Ug	0.3720	0.2800
Uh	0.0200	0.2690
Ui	0.2290	0.2920
Uj	0.2980	0.3120
Uk	0.4010	0.4570
Ul	0.1790	0.2220
Um	0.3940	0.4370
Ux	0.0110	0.2830