



wwPDB EM Validation Summary Report ⓘ

Aug 27, 2026 – 11:55 AM EDT

PDB ID : 10LL / pdb_000010ll
EMDB ID : EMD-75269
Title : Native flagellar filament from Leptospira interrogans flaB1- KO mutant strain
Authors : Brady, M.R.; San Martin, F.; Sindelar, C.V.; Buschiazzi, A.
Deposited on : 2026-01-26
Resolution : 4.30 Å(reported)
Based on initial model : .

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev133
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
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) : 2.50

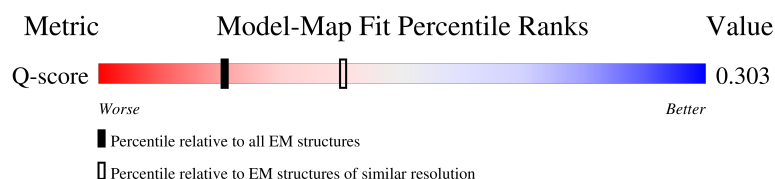
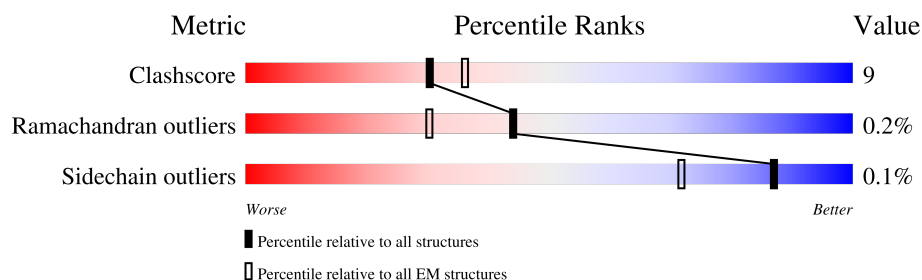
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

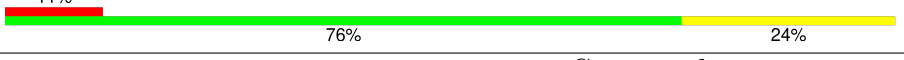
The reported resolution of this entry is 4.30 Å.

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	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	4585 (3.80 - 4.80)

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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A4	282	
1	A5	282	
1	A6	282	
1	A7	282	

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Mol	Chain	Length	Quality of chain
1	A8	282	
1	A9	282	
1	B3	282	
1	B4	282	
1	B5	282	
1	B6	282	
1	B7	282	
1	B8	282	
1	C3	282	
1	C4	282	
1	C5	282	
1	C6	282	
1	C7	282	
1	C8	282	
1	D3	282	
1	D4	282	
1	D5	282	
1	D6	282	
1	D7	282	
1	E2	282	
1	E3	282	
1	E4	282	
1	E5	282	
1	E6	282	
1	E7	282	

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Mol	Chain	Length	Quality of chain
1	F2	282	
1	F3	282	
1	F4	282	
1	F5	282	
1	F6	282	
1	G1	282	
1	G2	282	
1	G6	282	
1	G7	282	
1	G8	282	
1	G9	282	
1	H6	282	
1	H7	282	
1	H8	282	
1	H9	282	
1	I5	282	
1	I6	282	
1	I7	282	
1	I8	282	
1	I9	282	
1	J5	282	
1	J6	282	
1	J7	282	
1	J8	282	
1	J9	282	

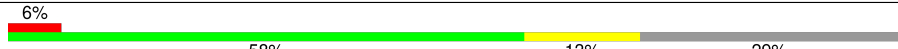
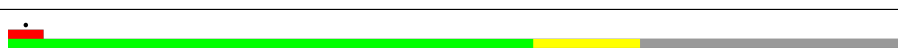
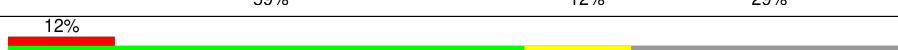
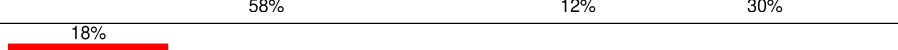
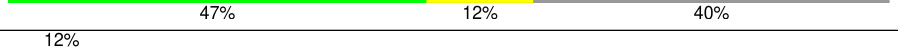
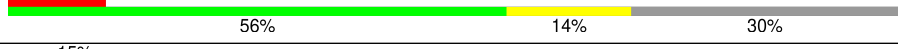
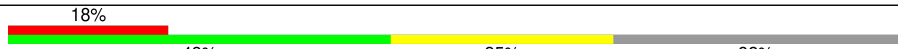
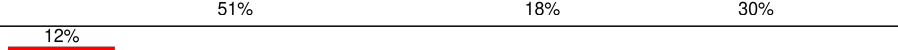
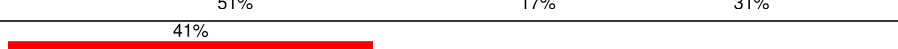
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Mol	Chain	Length	Quality of chain
1	K4	282	
1	K5	282	
1	K6	282	
1	K7	282	
1	K8	282	
1	K9	282	
1	h0	282	
1	h1	282	
1	i0	282	
1	j0	282	
2	L2	306	
2	L3	306	
2	L4	306	
2	L5	306	
2	L6	306	
2	M1	306	
2	M2	306	
2	M3	306	
2	M4	306	
2	M5	306	
2	N2	306	
2	N3	306	
2	N4	306	
2	N5	306	
2	N6	306	

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Mol	Chain	Length	Quality of chain
2	O1	306	
2	O2	306	
2	O3	306	
2	O4	306	
2	O5	306	
2	P2	306	
2	P3	306	
2	P4	306	
2	P5	306	
2	P6	306	
3	Q1	276	
3	Q2	276	
3	Q3	276	
3	Q4	276	
3	R2	276	
3	R3	276	
3	R4	276	
3	R5	276	
3	S2	276	
3	S3	276	
3	S4	276	
3	S5	276	
3	S6	276	
4	T1	315	
4	T2	315	

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Mol	Chain	Length	Quality of chain
4	T3	315	
4	T4	315	
4	t1	315	
4	t2	315	
4	t3	315	
4	t4	315	
5	U3	331	
5	U4	331	
5	U5	331	
5	U6	331	
5	U7	331	
6	V1	239	
6	V2	239	
6	V3	239	
6	V4	239	
6	V5	239	
6	X1	239	
6	X2	239	
6	X3	239	
6	X4	239	
6	X5	239	
7	Y1	282	
7	Y2	282	
7	Y3	282	
7	Y4	282	

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Mol	Chain	Length	Quality of chain
7	Y5	282	
8	Z1	369	
8	Z2	369	
8	Z3	369	
8	Z4	369	
9	a2	237	
9	a3	237	
9	a4	237	
9	a5	237	
10	b2	278	
10	b3	278	
10	b4	278	
10	b5	278	
11	c1	146	
11	c2	146	
11	c3	146	

2 Entry composition

There are 13 unique types of molecules in this entry. The entry contains 253413 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 Flagellin.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A4	179	Total	C	N	O	S	0	0
			1379	857	250	259	13		
1	A5	281	Total	C	N	O	S	0	0
			2193	1354	400	424	15		
1	A6	281	Total	C	N	O	S	0	0
			2193	1354	400	424	15		
1	A7	281	Total	C	N	O	S	0	0
			2193	1354	400	424	15		
1	A8	240	Total	C	N	O	S	0	0
			1872	1147	342	371	12		
1	A9	145	Total	C	N	O	S	0	0
			1130	704	201	221	4		
1	B3	103	Total	C	N	O	S	0	0
			798	488	147	155	8		
1	B4	248	Total	C	N	O	S	0	0
			1945	1204	357	369	15		
1	B5	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	B6	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	B7	276	Total	C	N	O	S	0	0
			2150	1326	393	417	14		
1	B8	195	Total	C	N	O	S	0	0
			1526	944	279	295	8		
1	C3	116	Total	C	N	O	S	0	0
			902	554	168	172	8		
1	C4	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	C5	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	C6	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	C7	247	Total	C	N	O	S	0	0
			1930	1188	351	379	12		

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	C8	153	Total	C	N	O	S	0	0
			1189	741	210	234	4		
1	D3	221	Total	C	N	O	S	0	0
			1733	1069	315	334	15		
1	D4	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	D5	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	D6	280	Total	C	N	O	S	0	0
			2183	1348	398	422	15		
1	D7	203	Total	C	N	O	S	0	0
			1585	978	290	308	9		
1	E2	116	Total	C	N	O	S	0	0
			903	554	168	173	8		
1	E3	280	Total	C	N	O	S	0	0
			2186	1350	399	422	15		
1	E4	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	E5	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	E6	253	Total	C	N	O	S	0	0
			1975	1214	362	387	12		
1	E7	159	Total	C	N	O	S	0	0
			1240	770	222	243	5		
1	F2	206	Total	C	N	O	S	0	0
			1621	1001	298	307	15		
1	F3	281	Total	C	N	O	S	0	0
			2193	1354	400	424	15		
1	F4	280	Total	C	N	O	S	0	0
			2182	1348	396	423	15		
1	F5	281	Total	C	N	O	S	0	0
			2190	1354	397	424	15		
1	F6	215	Total	C	N	O	S	0	0
			1670	1026	306	328	10		
1	G1	258	Total	C	N	O	S	0	0
			2012	1240	367	392	13		
1	G2	167	Total	C	N	O	S	0	0
			1313	814	240	253	6		
1	G6	116	Total	C	N	O	S	0	0
			902	554	168	172	8		
1	G7	273	Total	C	N	O	S	0	0
			2128	1315	391	407	15		

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	G8	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	G9	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	H6	198	Total	C	N	O	S	0	0
			1557	963	284	295	15		
1	H7	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	H8	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	H9	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	I5	116	Total	C	N	O	S	0	0
			906	556	168	173	9		
1	I6	269	Total	C	N	O	S	0	0
			2104	1303	384	402	15		
1	I7	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	I8	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	I9	266	Total	C	N	O	S	0	0
			2069	1275	377	403	14		
1	J5	190	Total	C	N	O	S	0	0
			1490	922	271	283	14		
1	J6	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	J7	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	J8	282	Total	C	N	O	S	0	0
			2201	1360	401	425	15		
1	J9	232	Total	C	N	O	S	0	0
			1807	1108	332	355	12		
1	K4	113	Total	C	N	O	S	0	0
			882	541	164	169	8		
1	K5	257	Total	C	N	O	S	0	0
			2012	1246	366	385	15		
1	K6	281	Total	C	N	O	S	0	0
			2193	1354	400	424	15		
1	K7	280	Total	C	N	O	S	0	0
			2186	1350	399	422	15		
1	K8	269	Total	C	N	O	S	0	0
			2093	1290	382	407	14		

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	K9	185	Total	C	N	O	S	0	0
			1446	897	262	280	7		
1	h0	224	Total	C	N	O	S	0	0
			1737	1066	317	343	11		
1	h1	102	Total	C	N	O	S	0	0
			782	481	140	160	1		
1	i0	176	Total	C	N	O	S	0	0
			1379	854	251	267	7		
1	j0	122	Total	C	N	O	S	0	0
			931	576	166	188	1		

- Molecule 2 is a protein called Flagellar Coiling Protein FcpA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	L2	208	Total	C	N	O	S	0	0
			1682	1080	298	302	2		
2	L3	217	Total	C	N	O	S	0	0
			1772	1140	314	316	2		
2	L4	217	Total	C	N	O	S	0	0
			1772	1140	314	316	2		
2	L5	217	Total	C	N	O	S	0	0
			1772	1140	314	316	2		
2	L6	166	Total	C	N	O	S	0	0
			1363	878	244	239	2		
2	M1	75	Total	C	N	O		0	0
			607	387	109	111			
2	M2	221	Total	C	N	O	S	0	0
			1803	1160	319	322	2		
2	M3	221	Total	C	N	O	S	0	0
			1803	1160	319	322	2		
2	M4	221	Total	C	N	O	S	0	0
			1803	1160	319	322	2		
2	M5	204	Total	C	N	O	S	0	0
			1678	1078	299	299	2		
2	N2	190	Total	C	N	O	S	0	0
			1549	998	272	277	2		
2	N3	217	Total	C	N	O	S	0	0
			1771	1141	314	314	2		
2	N4	217	Total	C	N	O	S	0	0
			1771	1141	314	314	2		
2	N5	217	Total	C	N	O	S	0	0
			1771	1141	314	314	2		

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Mol	Chain	Residues	Atoms					AltConf	Trace
2	N6	170	Total	C	N	O	S	0	0
			1394	897	250	245	2		
2	O1	63	Total	C	N	O		0	0
			507	323	90	94			
2	O2	216	Total	C	N	O	S	0	0
			1759	1132	313	312	2		
2	O3	217	Total	C	N	O	S	0	0
			1771	1141	314	314	2		
2	O4	217	Total	C	N	O	S	0	0
			1771	1141	314	314	2		
2	O5	213	Total	C	N	O	S	0	0
			1741	1121	310	308	2		
2	P2	183	Total	C	N	O	S	0	0
			1480	957	258	263	2		
2	P3	215	Total	C	N	O	S	0	0
			1754	1130	312	310	2		
2	P4	215	Total	C	N	O	S	0	0
			1754	1130	312	310	2		
2	P5	215	Total	C	N	O	S	0	0
			1754	1130	312	310	2		
2	P6	177	Total	C	N	O	S	0	0
			1459	940	262	255	2		

- Molecule 3 is a protein called Flagellar Coiling Protein FcpB.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	Q1	159	Total	C	N	O	S	0	0
			1322	845	233	238	6		
3	Q2	188	Total	C	N	O	S	0	0
			1567	997	274	289	7		
3	Q3	196	Total	C	N	O	S	0	0
			1633	1037	287	302	7		
3	Q4	192	Total	C	N	O	S	0	0
			1601	1018	280	296	7		
3	R2	183	Total	C	N	O	S	0	0
			1524	964	267	287	6		
3	R3	202	Total	C	N	O	S	0	0
			1677	1062	294	314	7		
3	R4	190	Total	C	N	O	S	0	0
			1588	1010	277	294	7		
3	R5	190	Total	C	N	O	S	0	0
			1585	1005	277	296	7		

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Mol	Chain	Residues	Atoms					AltConf	Trace
3	S2	146	Total	C	N	O	S	0	0
			1228	784	214	225	5		
3	S3	187	Total	C	N	O	S	0	0
			1556	990	273	286	7		
3	S4	192	Total	C	N	O	S	0	0
			1602	1021	281	293	7		
3	S5	190	Total	C	N	O	S	0	0
			1581	1005	277	292	7		
3	S6	185	Total	C	N	O	S	0	0
			1541	981	270	283	7		

- Molecule 4 is a protein called Flagellar filament sheath protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	T1	256	Total	C	N	O	S	0	0
			2033	1297	346	386	4		
4	T2	270	Total	C	N	O	S	0	0
			2141	1362	365	410	4		
4	T3	270	Total	C	N	O	S	0	0
			2141	1362	365	410	4		
4	T4	256	Total	C	N	O	S	0	0
			2035	1296	344	391	4		
4	t1	271	Total	C	N	O	S	0	0
			2150	1368	367	411	4		
4	t2	270	Total	C	N	O	S	0	0
			2141	1362	365	410	4		
4	t3	270	Total	C	N	O	S	0	0
			2141	1362	365	410	4		
4	t4	268	Total	C	N	O	S	0	0
			2125	1351	363	408	3		

- Molecule 5 is a protein called AraC family transcriptional regulator.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	U3	258	Total	C	N	O	S	0	0
			2084	1331	356	389	8		
5	U4	260	Total	C	N	O	S	0	0
			2099	1339	359	393	8		
5	U5	260	Total	C	N	O	S	0	0
			2099	1339	359	393	8		
5	U6	260	Total	C	N	O	S	0	0
			2099	1339	359	393	8		

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Mol	Chain	Residues	Atoms					AltConf	Trace
5	U7	259	Total	C	N	O	S	0	0
			2085	1332	354	391	8		

- Molecule 6 is a protein called Flagellar filament outer layer protein FlaA.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	V1	173	Total	C	N	O	S	0	0
			1422	913	255	253	1		
6	V2	197	Total	C	N	O	S	0	0
			1621	1040	287	293	1		
6	V3	196	Total	C	N	O	S	0	0
			1613	1036	286	290	1		
6	V4	196	Total	C	N	O	S	0	0
			1613	1036	286	290	1		
6	V5	196	Total	C	N	O	S	0	0
			1613	1036	286	290	1		
6	X1	181	Total	C	N	O	S	0	0
			1484	949	265	269	1		
6	X2	197	Total	C	N	O	S	0	0
			1621	1040	287	293	1		
6	X3	197	Total	C	N	O	S	0	0
			1621	1040	287	293	1		
6	X4	197	Total	C	N	O	S	0	0
			1621	1040	287	293	1		
6	X5	194	Total	C	N	O	S	0	0
			1604	1031	283	289	1		

- Molecule 7 is a protein called LIC_12075 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	Y1	101	Total	C	N	O	S	0	0
			834	541	135	154	4		
7	Y2	222	Total	C	N	O	S	0	0
			1844	1177	316	346	5		
7	Y3	225	Total	C	N	O	S	0	0
			1876	1197	322	352	5		
7	Y4	224	Total	C	N	O	S	0	0
			1872	1195	321	351	5		
7	Y5	222	Total	C	N	O	S	0	0
			1854	1184	318	347	5		

- Molecule 8 is a protein called FlaA2-associated protein FlaAP.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	Z1	255	Total	C	N	O	S	0	0
			2173	1383	393	391	6		
8	Z2	255	Total	C	N	O	S	0	0
			2173	1383	393	391	6		
8	Z3	254	Total	C	N	O	S	0	0
			2162	1377	389	390	6		
8	Z4	255	Total	C	N	O	S	0	0
			2173	1383	393	391	6		

- Molecule 9 is a protein called DUF4468 domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	a2	172	Total	C	N	O	S	0	0
			1421	901	253	266	1		
9	a3	178	Total	C	N	O	S	0	0
			1460	924	260	275	1		
9	a4	178	Total	C	N	O	S	0	0
			1460	924	260	275	1		
9	a5	178	Total	C	N	O	S	0	0
			1460	924	260	275	1		

- Molecule 10 is a protein called LIC_13212 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	b2	240	Total	C	N	O	S	0	0
			1972	1261	336	369	6		
10	b3	240	Total	C	N	O	S	0	0
			1971	1261	336	368	6		
10	b4	240	Total	C	N	O	S	0	0
			1971	1261	336	368	6		
10	b5	240	Total	C	N	O	S	0	0
			1971	1261	336	368	6		

- Molecule 11 is a protein called Lipoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	c1	101	Total	C	N	O	S	0	0
			867	569	133	163	2		
11	c2	103	Total	C	N	O	S	0	0
			882	578	136	166	2		
11	c3	103	Total	C	N	O	S	0	0
			882	578	136	166	2		

- Molecule 12 is CALCIUM ION (CCD ID: CA) (formula: Ca) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms	AltConf
12	T1	1	Total Ca 1 1	0
12	T2	1	Total Ca 1 1	0
12	T3	1	Total Ca 1 1	0
12	T4	1	Total Ca 1 1	0
12	V1	1	Total Ca 1 1	0
12	V2	1	Total Ca 1 1	0
12	V3	1	Total Ca 1 1	0
12	V4	1	Total Ca 1 1	0
12	V5	1	Total Ca 1 1	0
12	X1	1	Total Ca 1 1	0
12	X2	1	Total Ca 1 1	0
12	X3	1	Total Ca 1 1	0
12	X4	1	Total Ca 1 1	0
12	X5	1	Total Ca 1 1	0
12	t1	1	Total Ca 1 1	0
12	t2	1	Total Ca 1 1	0
12	t3	1	Total Ca 1 1	0
12	t4	1	Total Ca 1 1	0

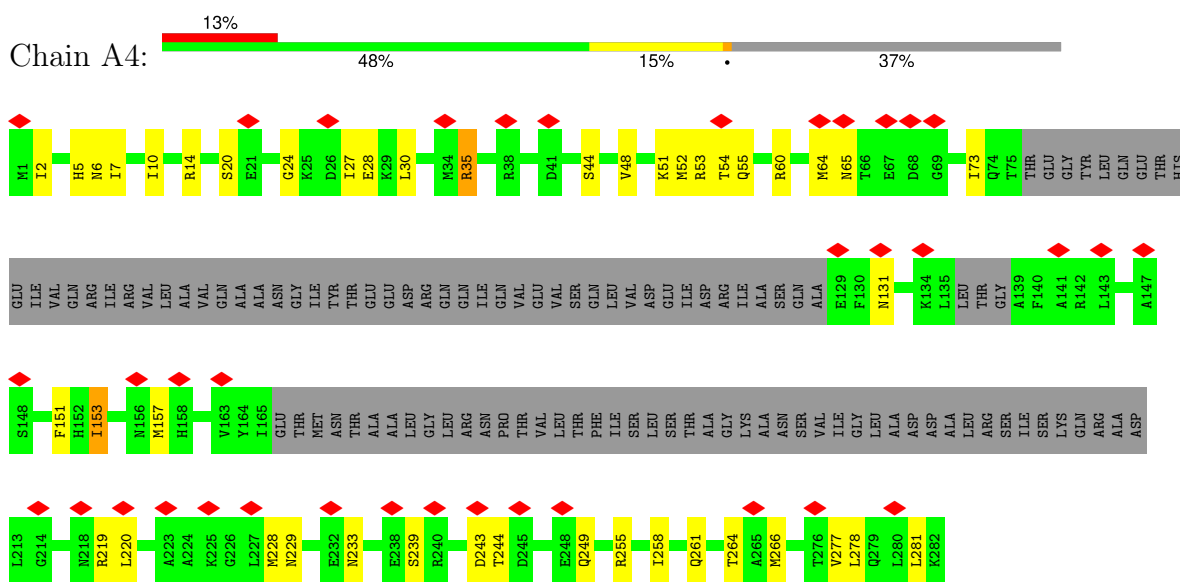
- Molecule 13 is water.

Mol	Chain	Residues	Atoms		AltConf
13	T1	2	Total 2	O 2	0
13	T2	2	Total 2	O 2	0
13	T3	2	Total 2	O 2	0
13	T4	2	Total 2	O 2	0
13	V1	2	Total 2	O 2	0
13	V2	2	Total 2	O 2	0
13	V3	2	Total 2	O 2	0
13	V4	2	Total 2	O 2	0
13	V5	2	Total 2	O 2	0
13	X1	2	Total 2	O 2	0
13	X2	2	Total 2	O 2	0
13	X3	2	Total 2	O 2	0
13	X4	2	Total 2	O 2	0
13	X5	2	Total 2	O 2	0
13	t1	2	Total 2	O 2	0
13	t2	2	Total 2	O 2	0
13	t3	2	Total 2	O 2	0
13	t4	2	Total 2	O 2	0

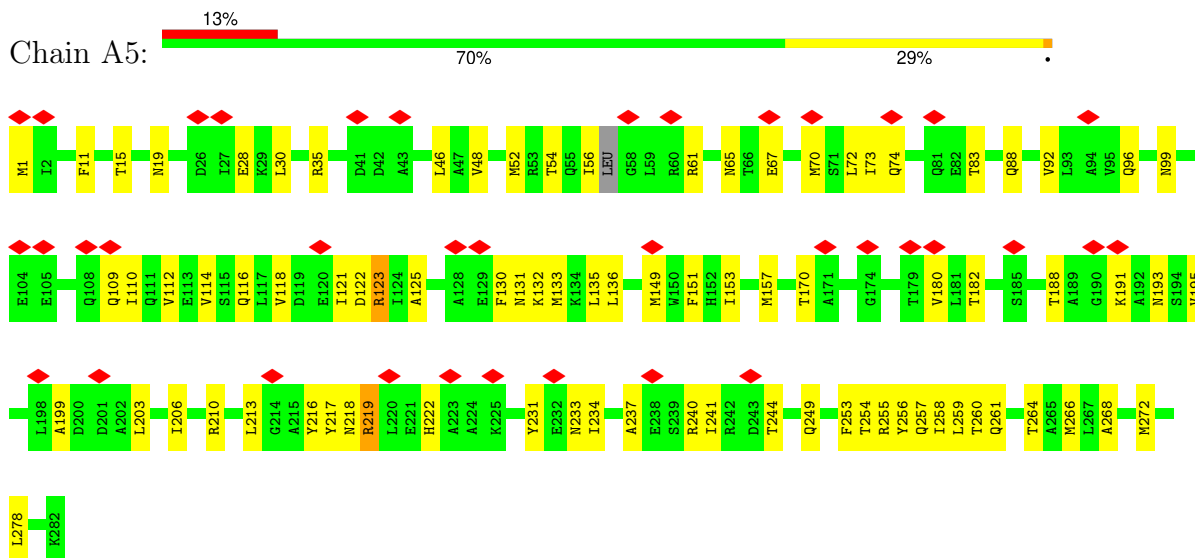
3 Residue-property plots [i](#)

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

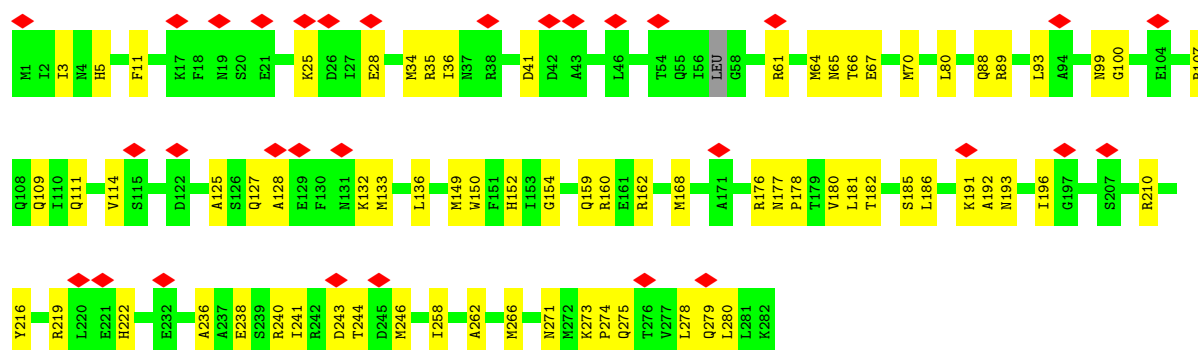
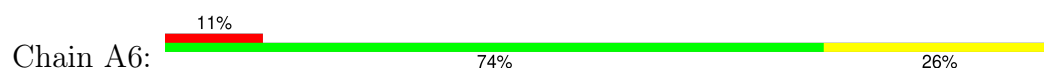
• Molecule 1: Flagellin



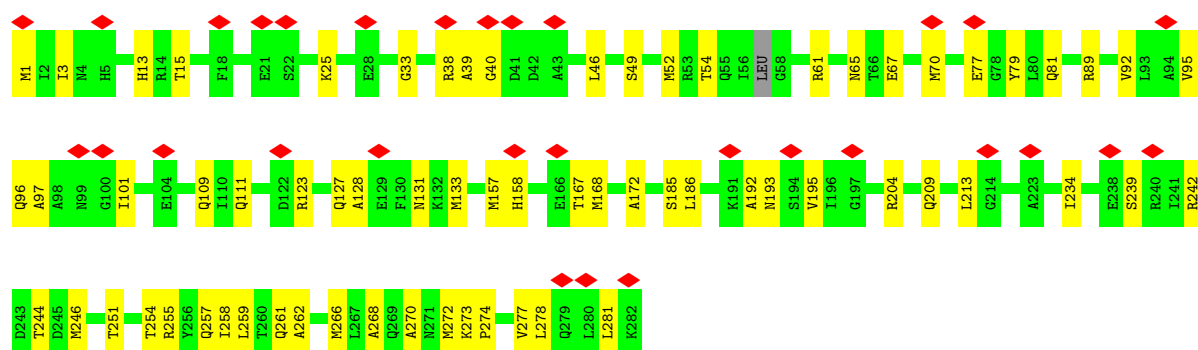
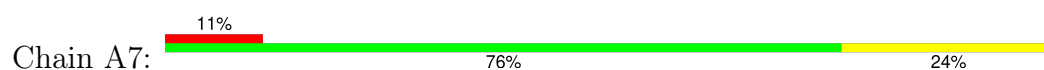
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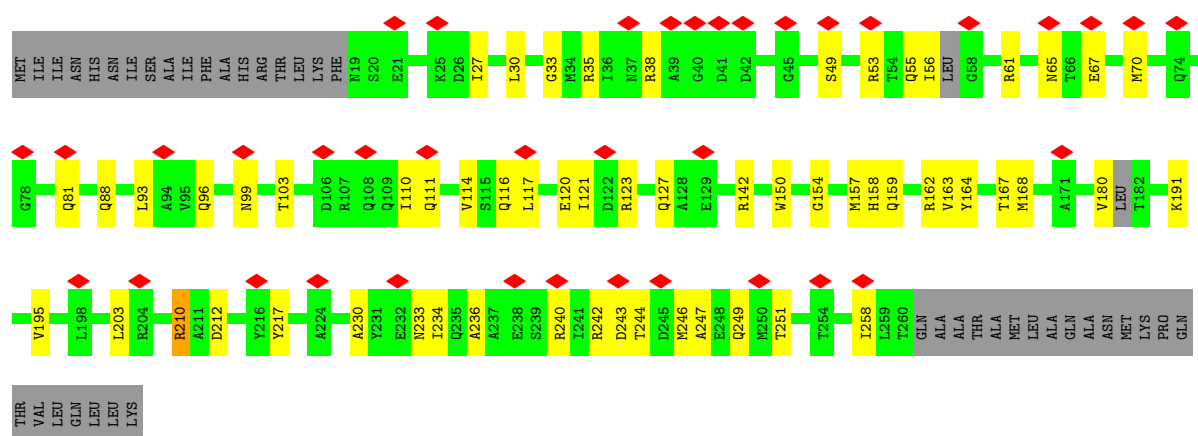
• Molecule 1: Flagellin



• Molecule 1: Flagellin

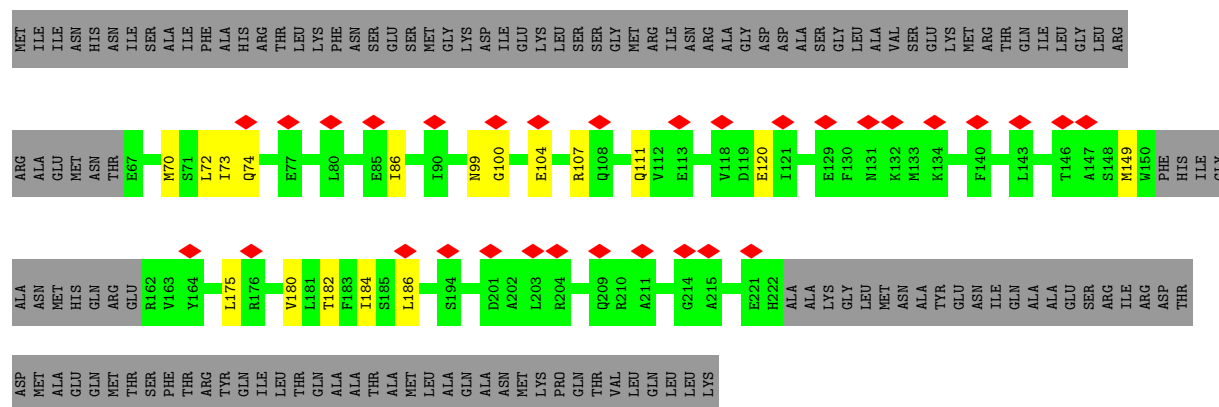


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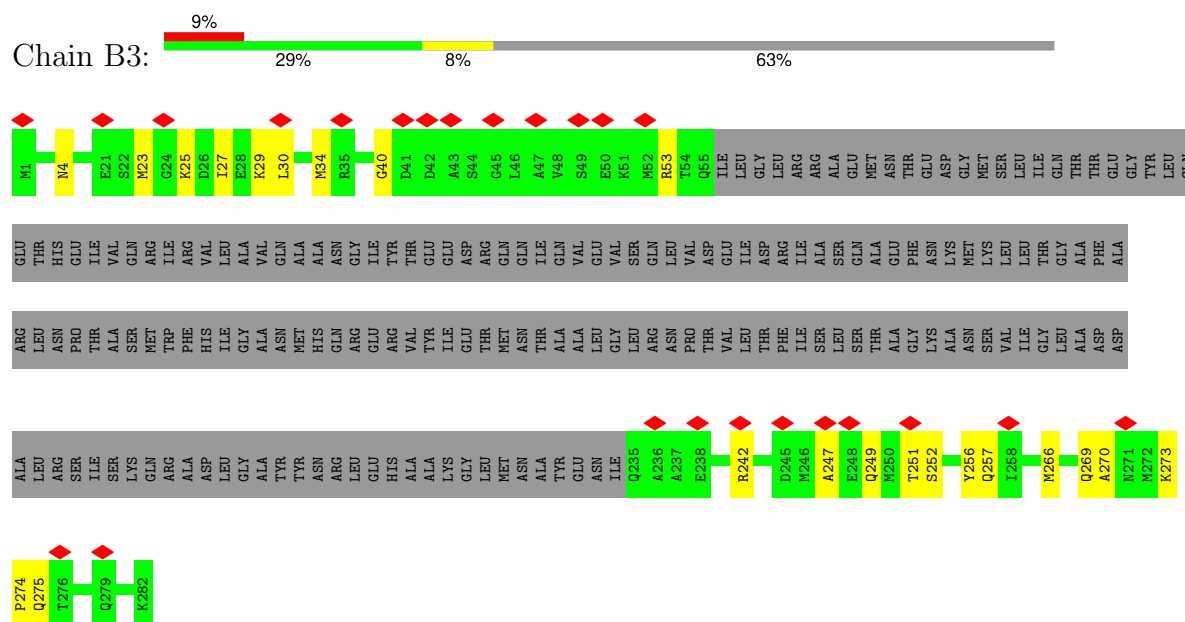


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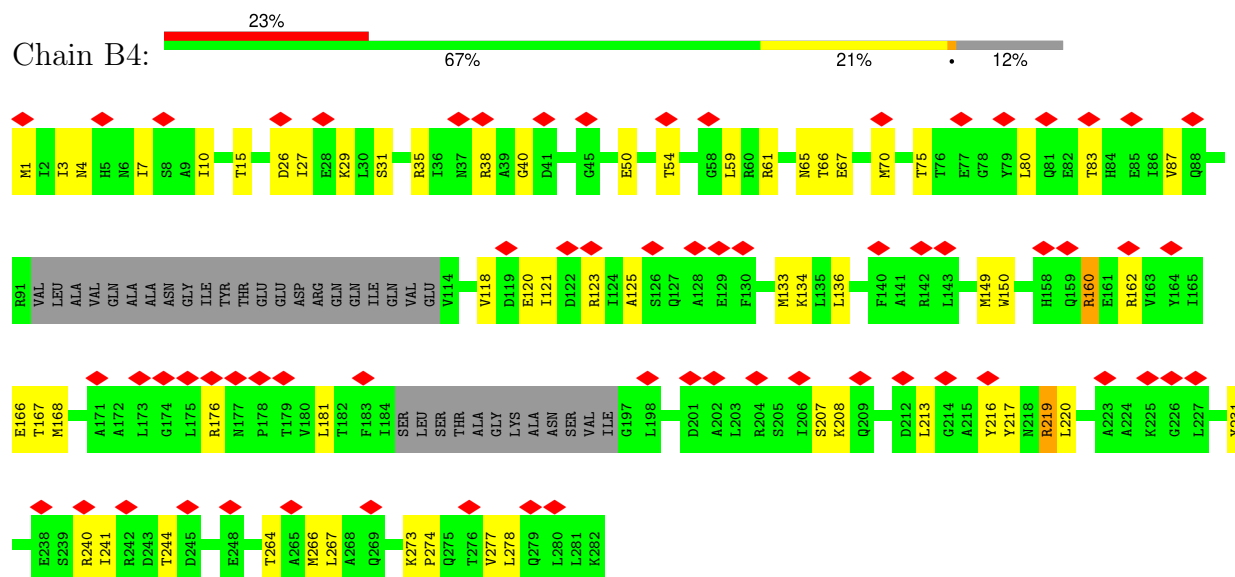




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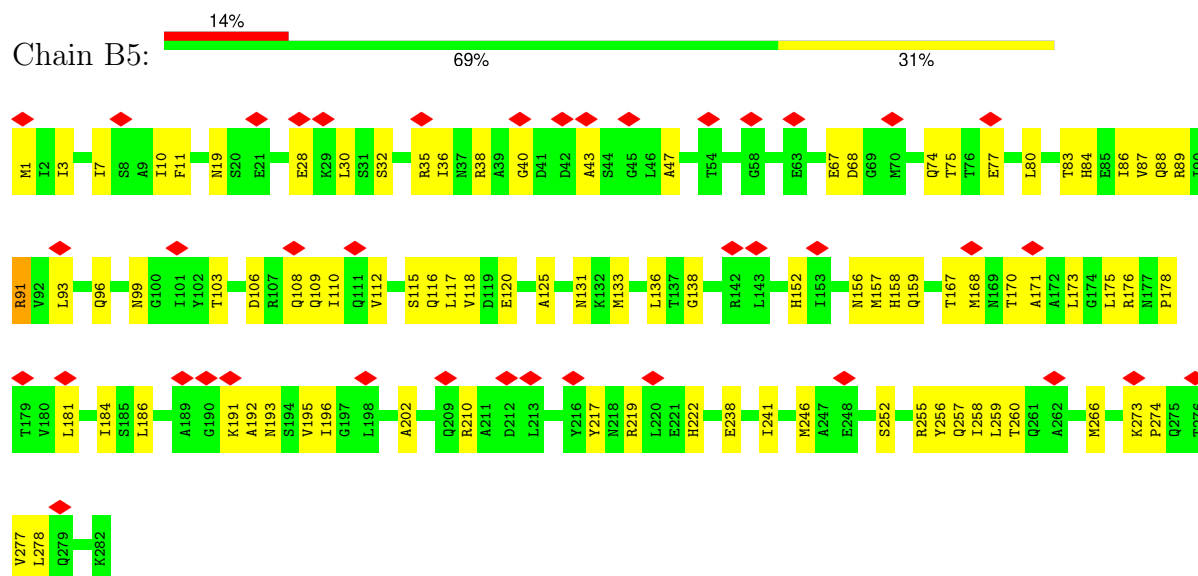


• Molecule 1: Flagellin



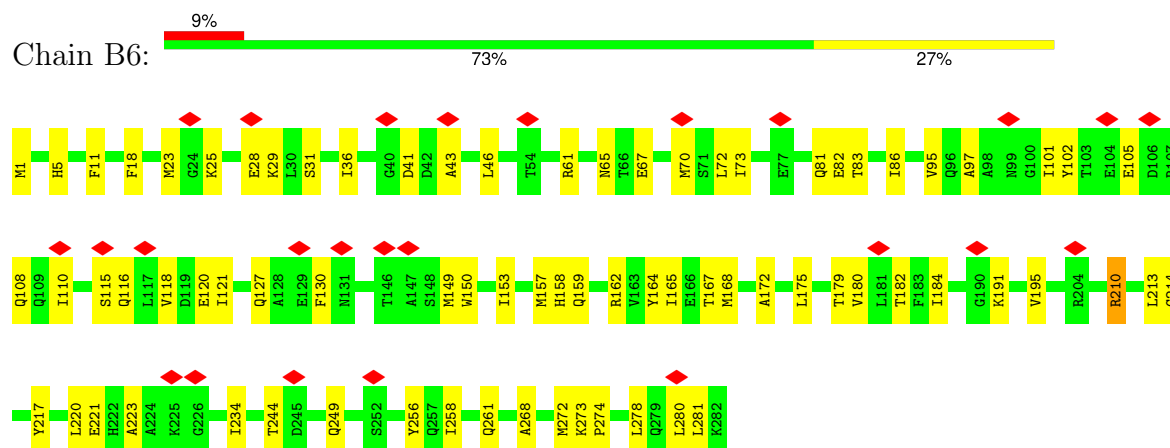
- Molecule 1: Flagellin

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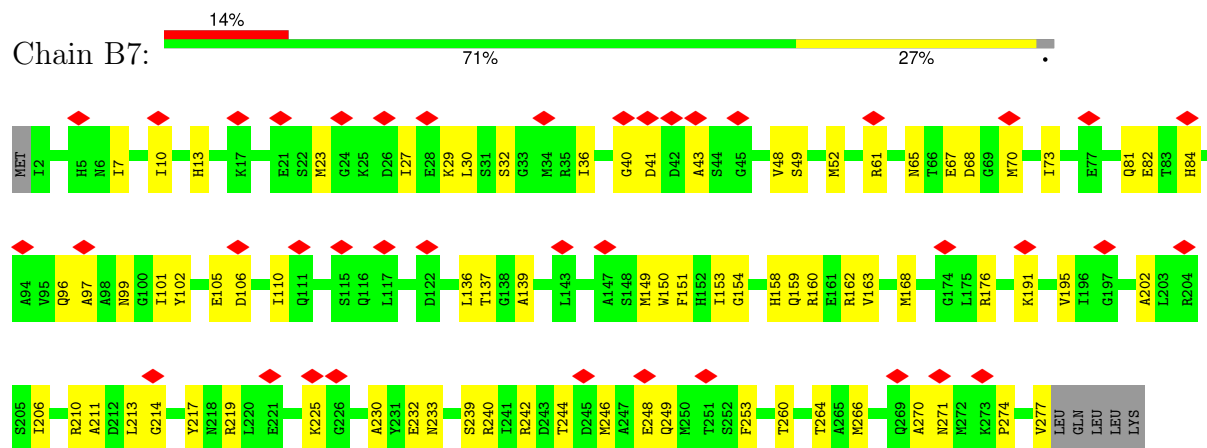
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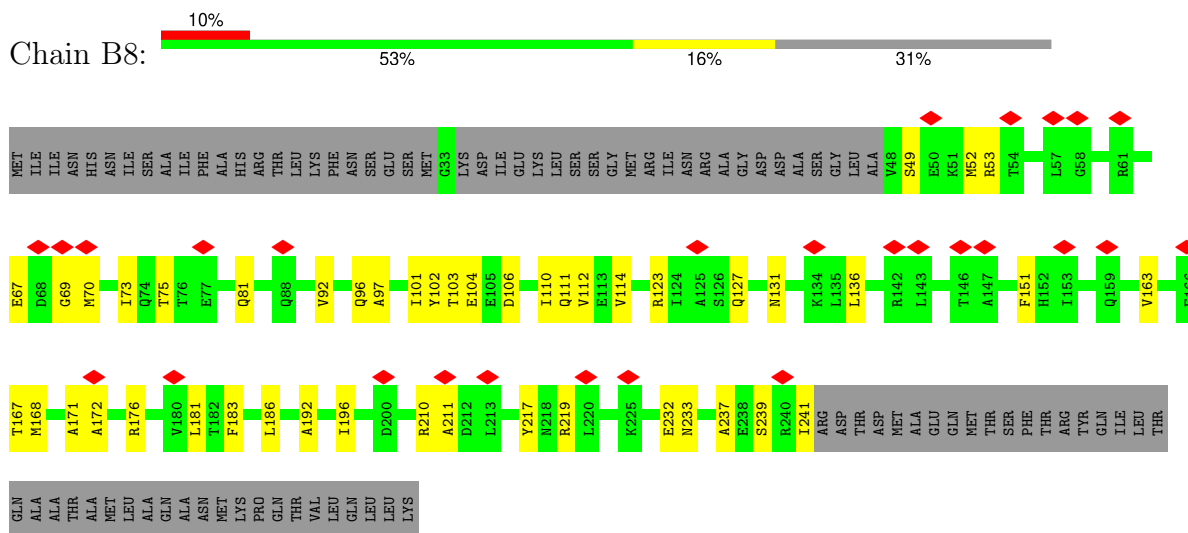


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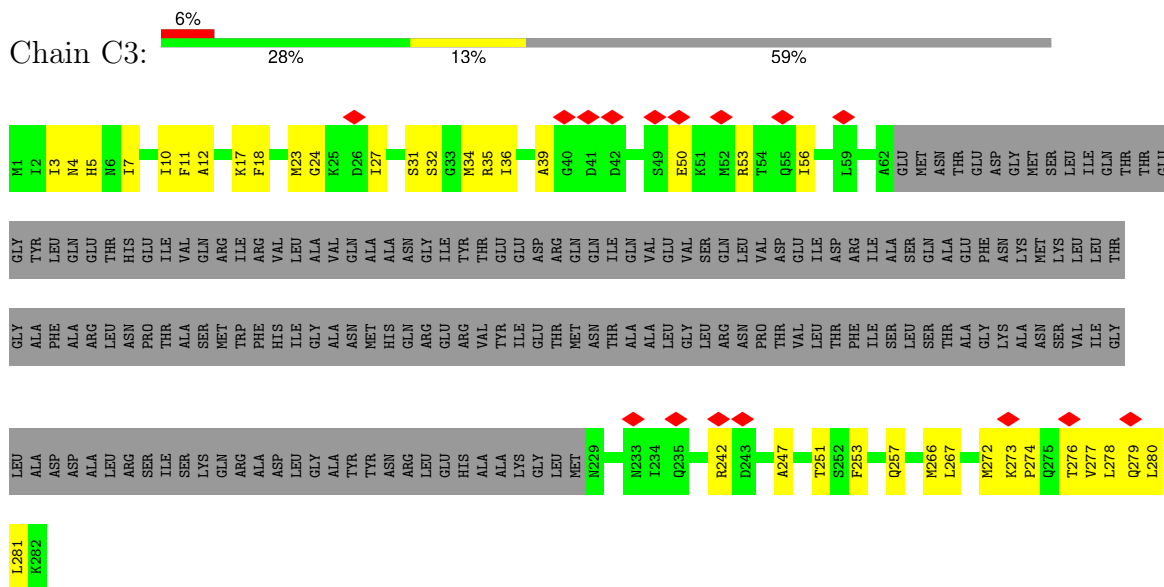
Chain B7:



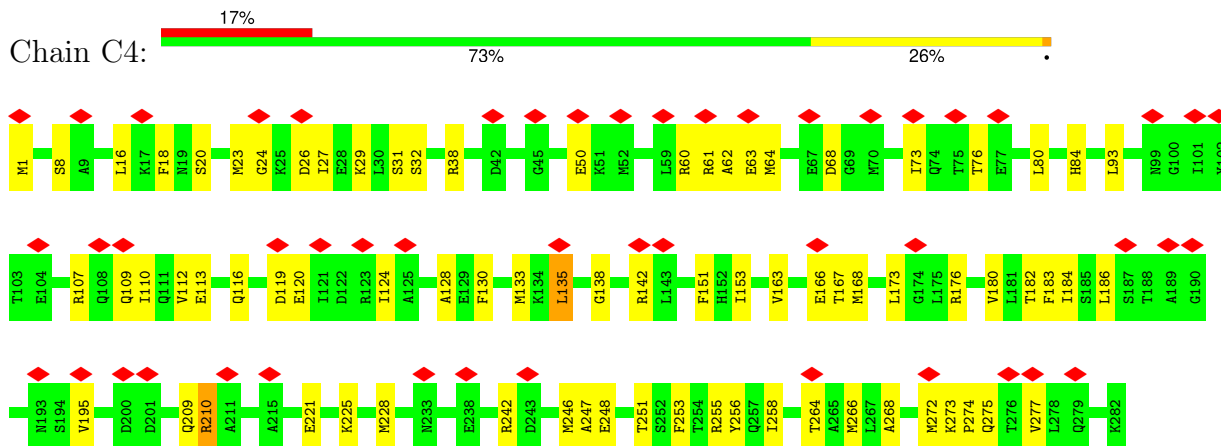
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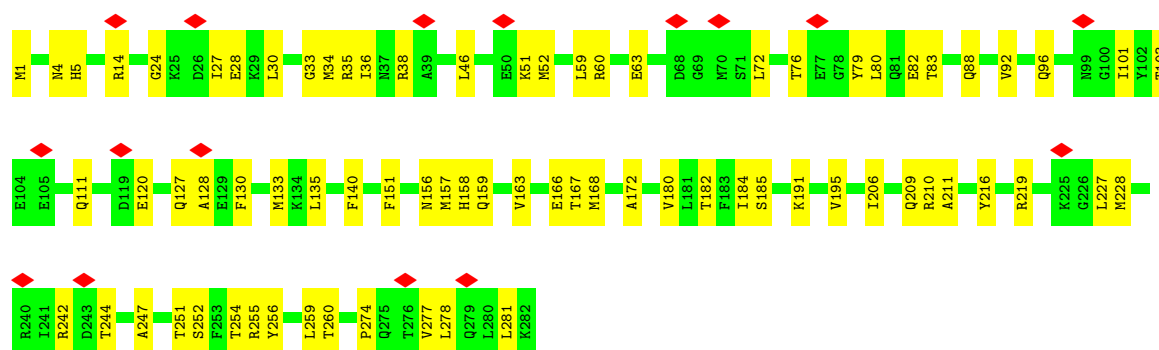
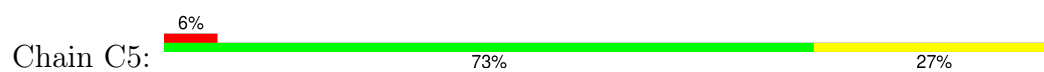
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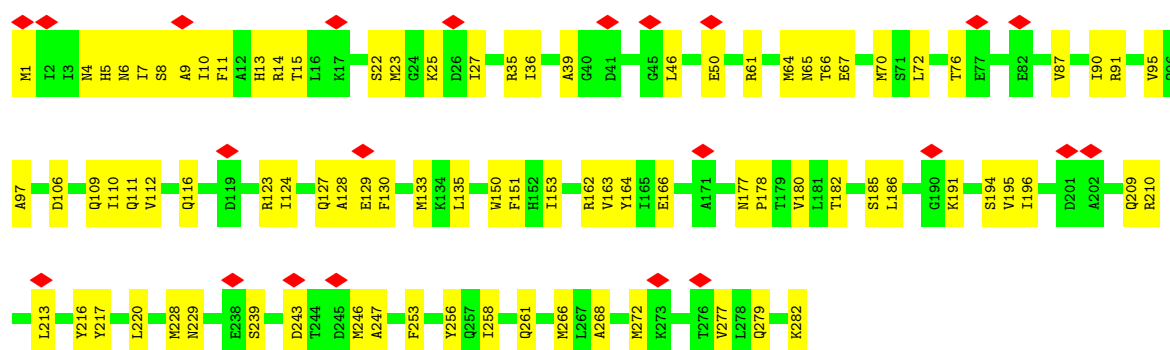
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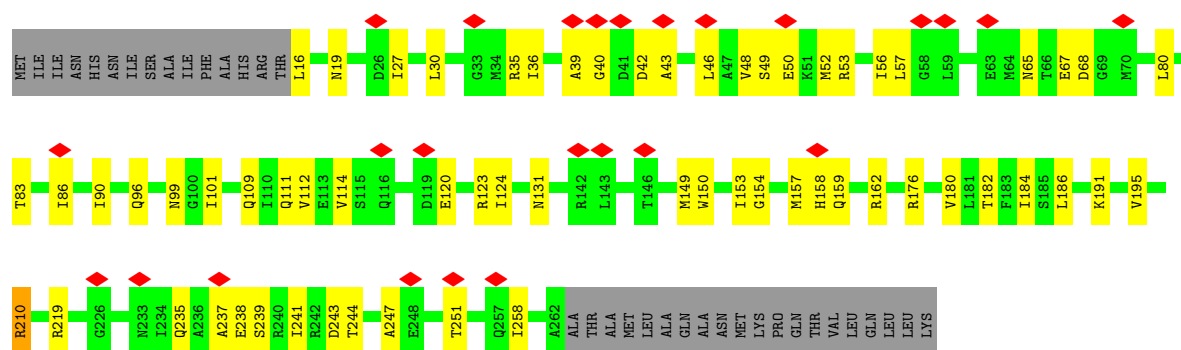
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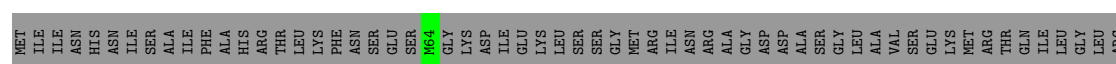
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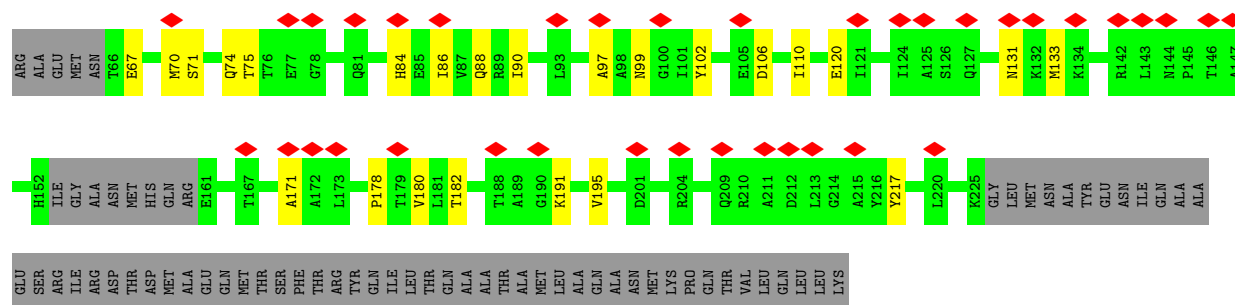


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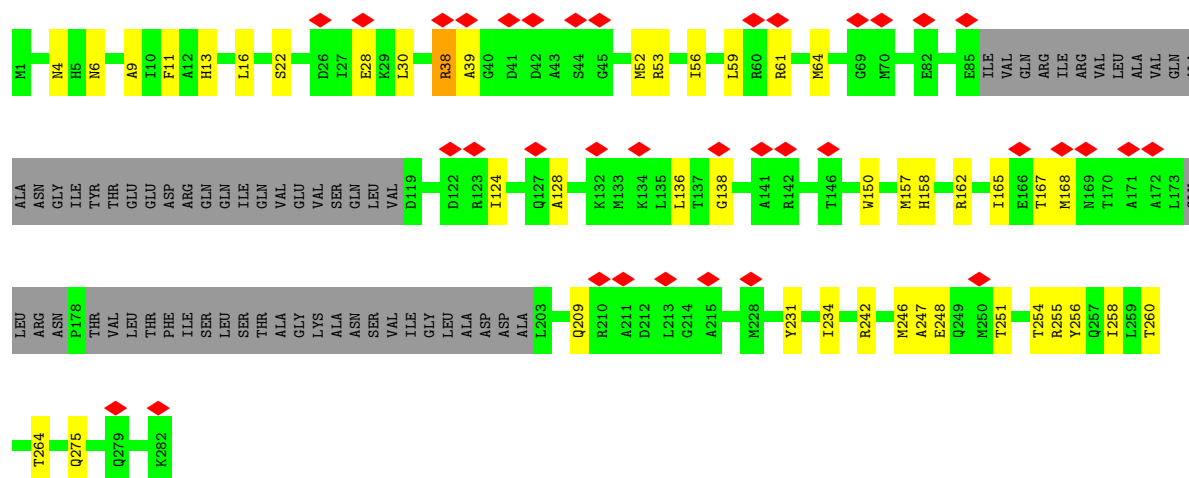


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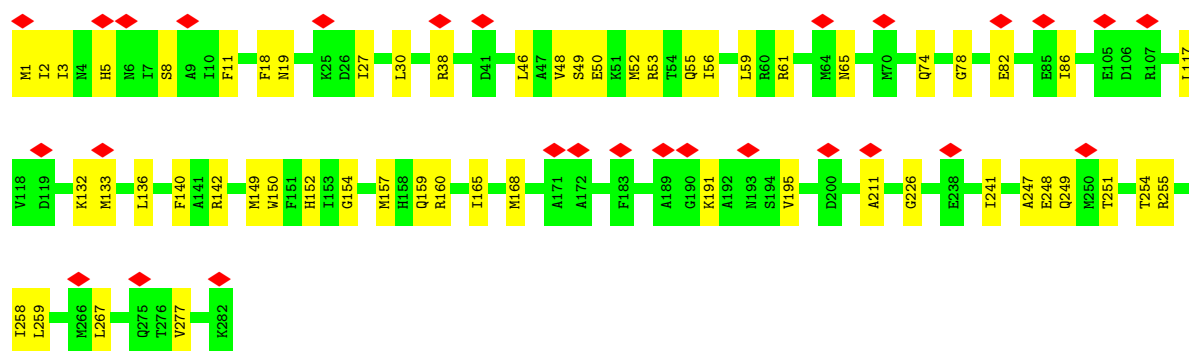
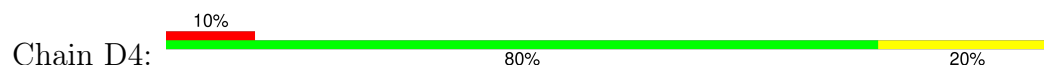




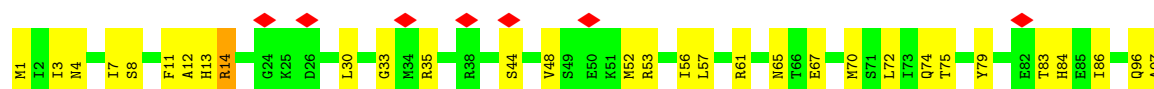
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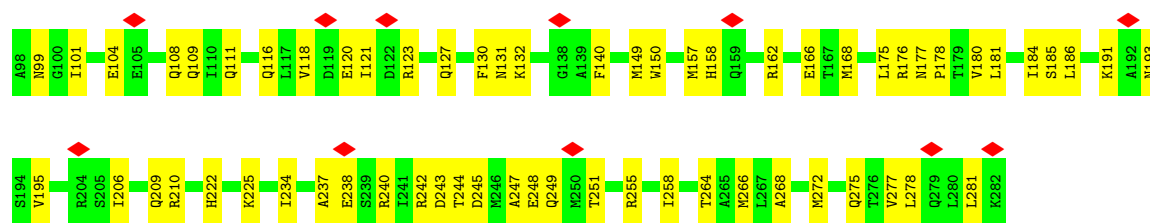


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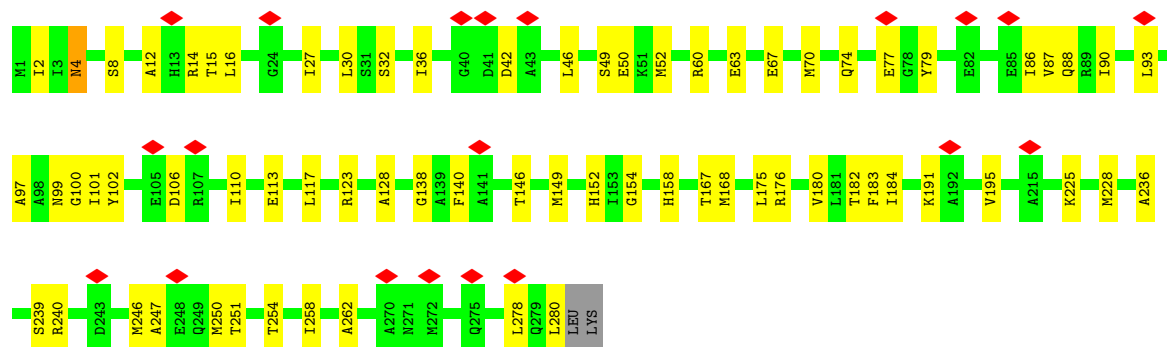
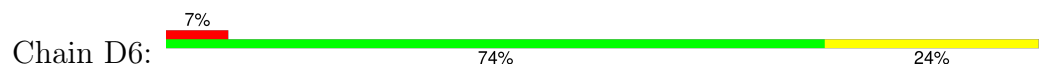


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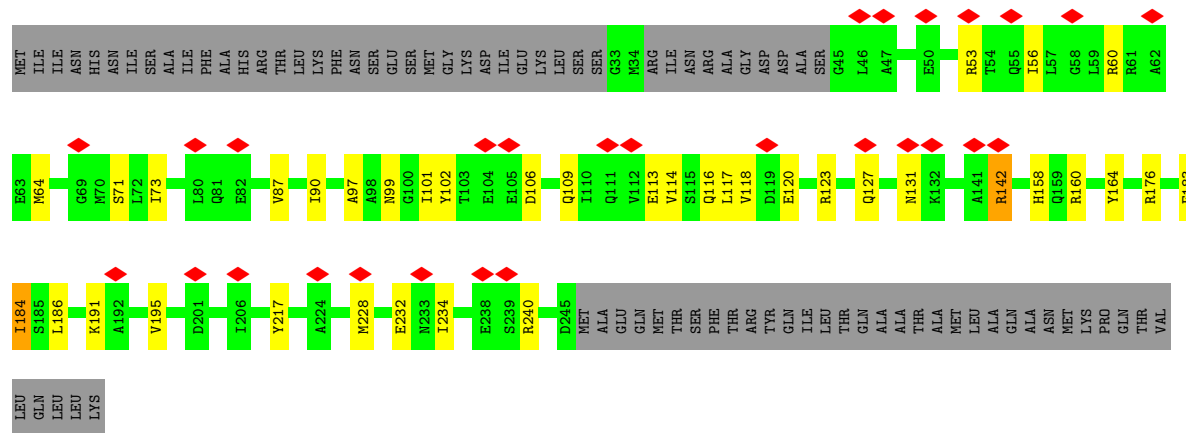




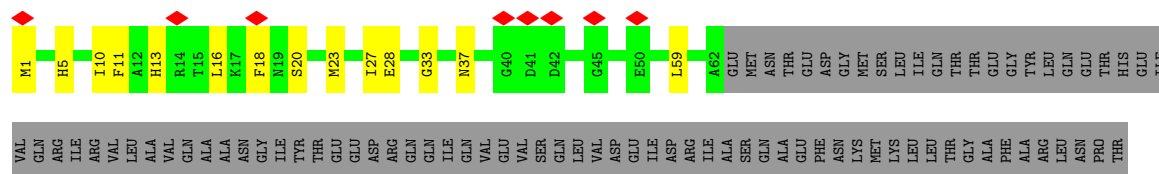
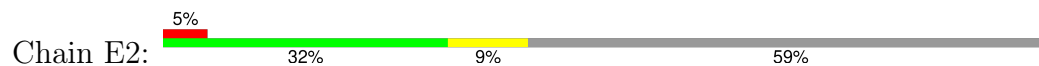
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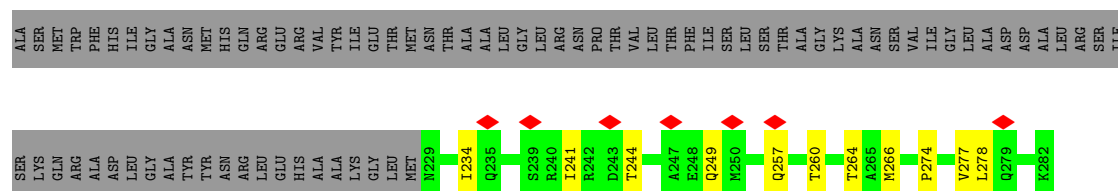


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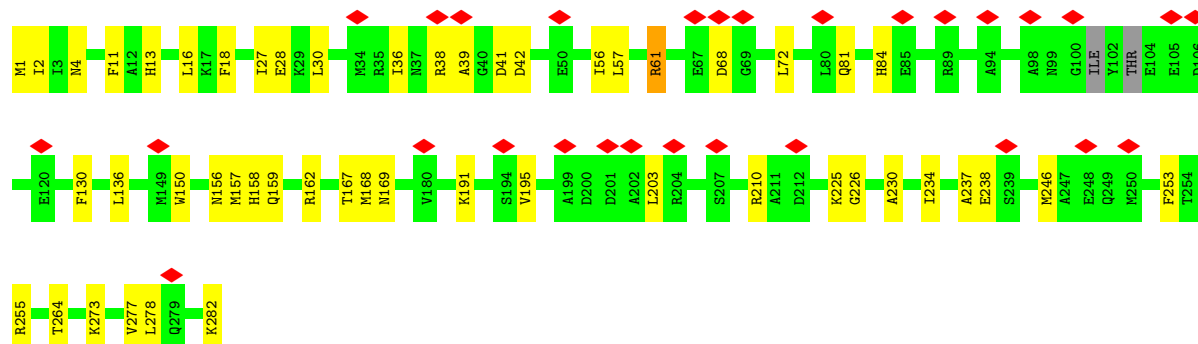
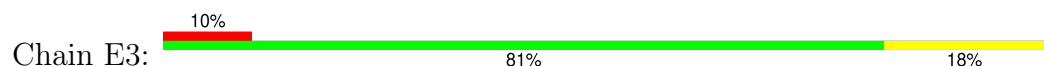


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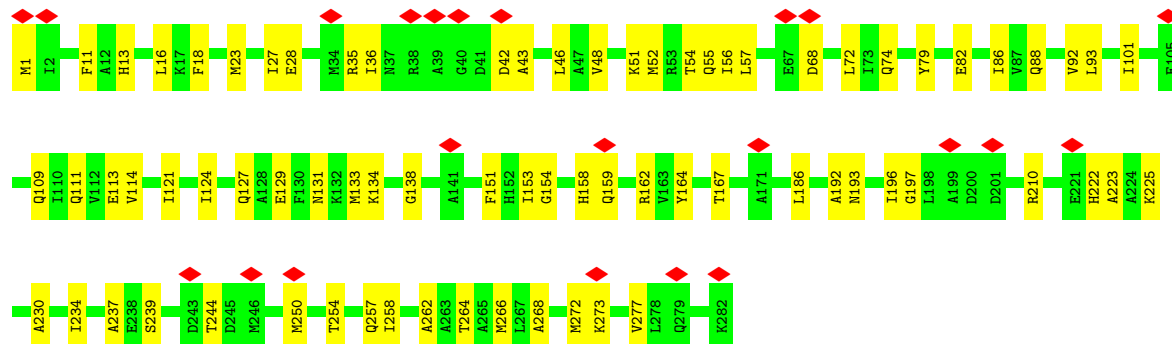




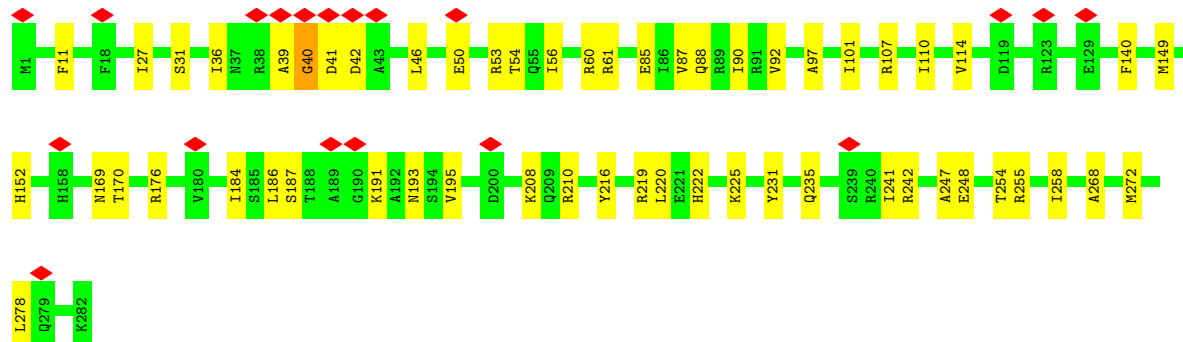
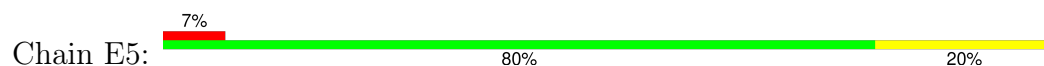
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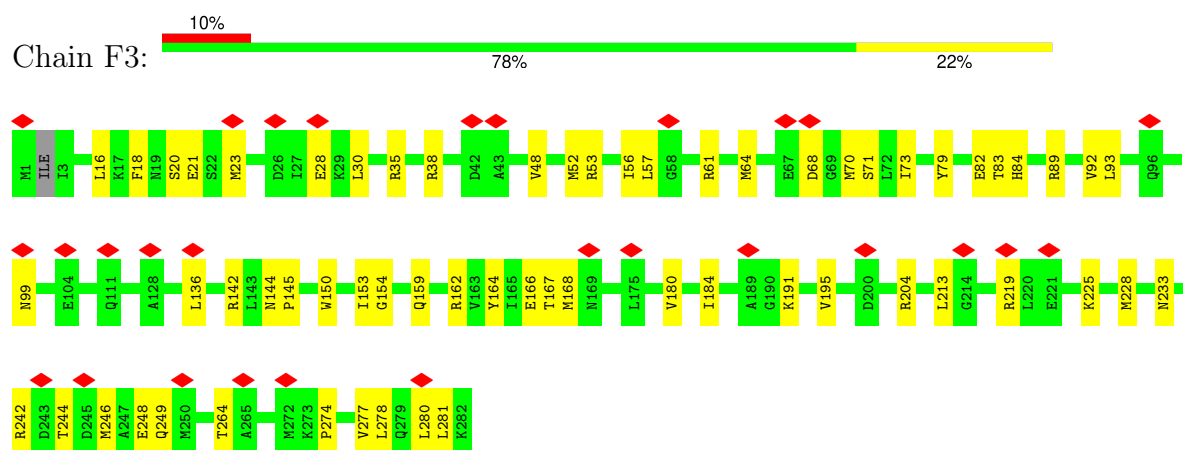


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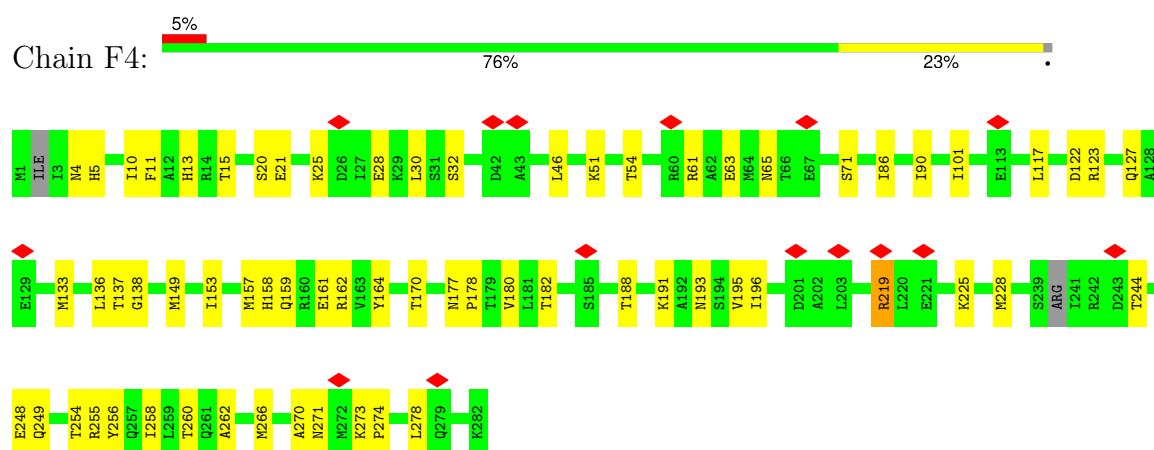


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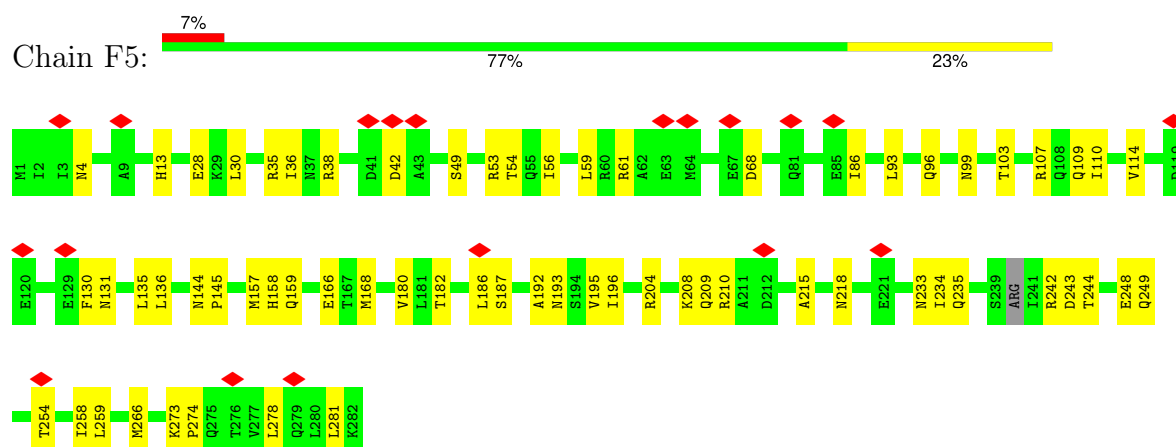




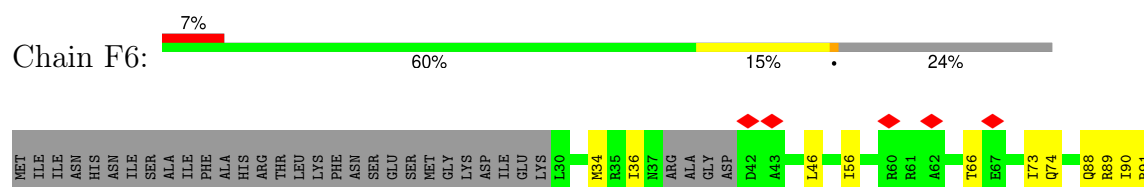
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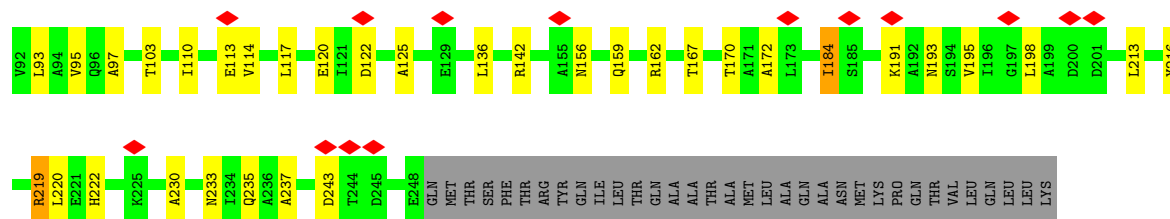


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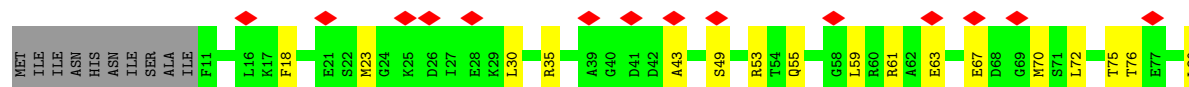


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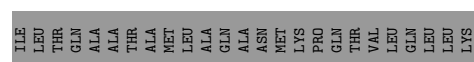
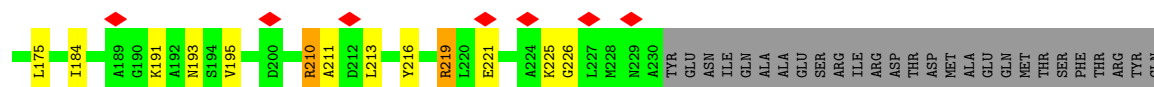
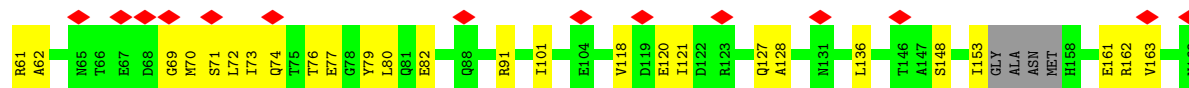
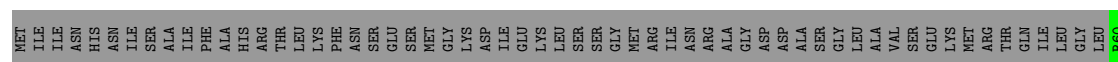




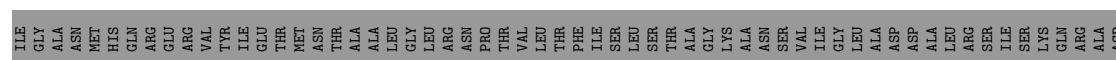
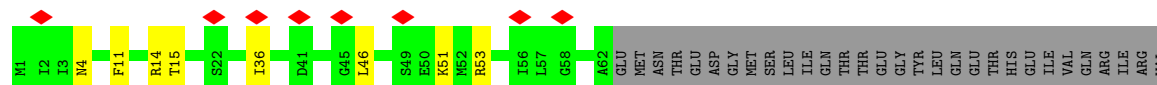
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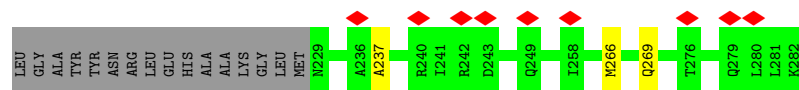


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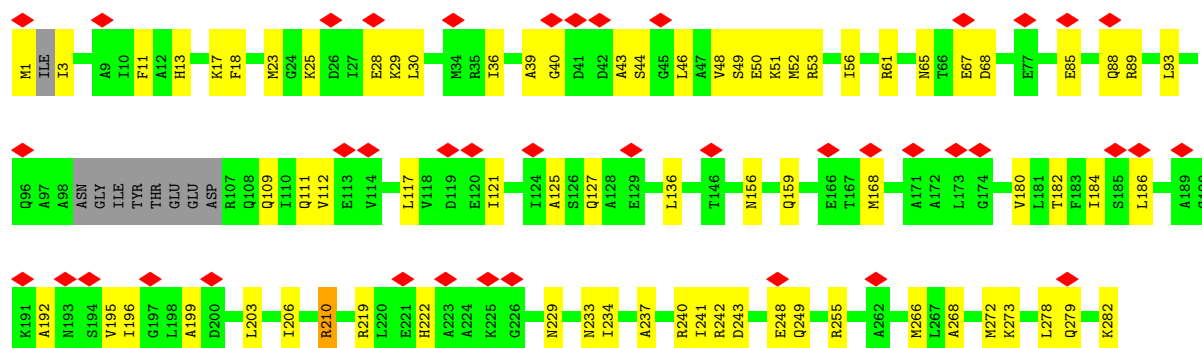
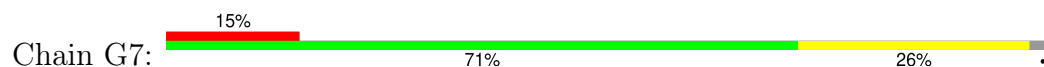


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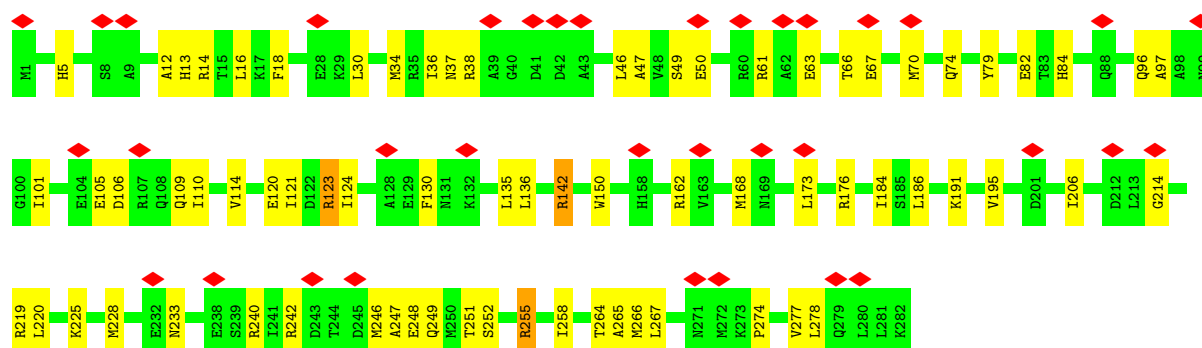
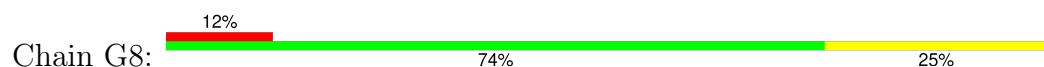




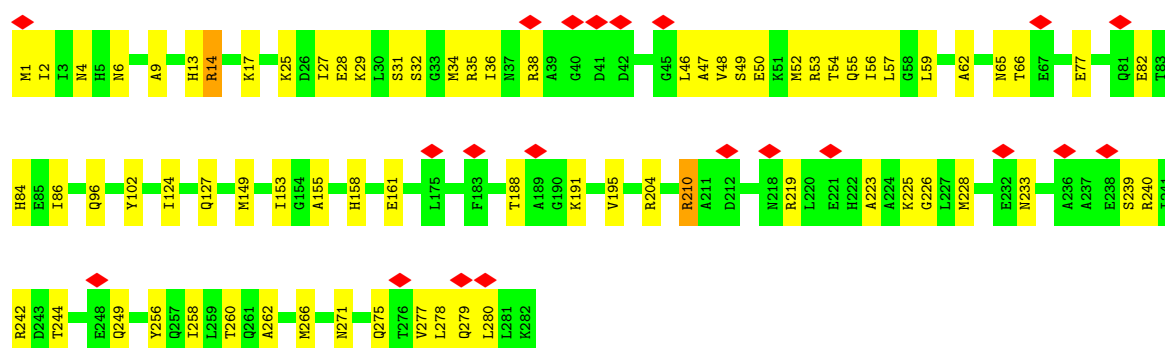
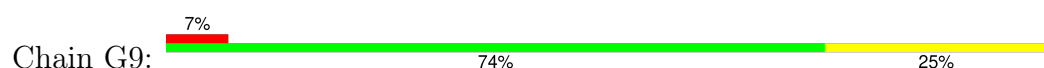
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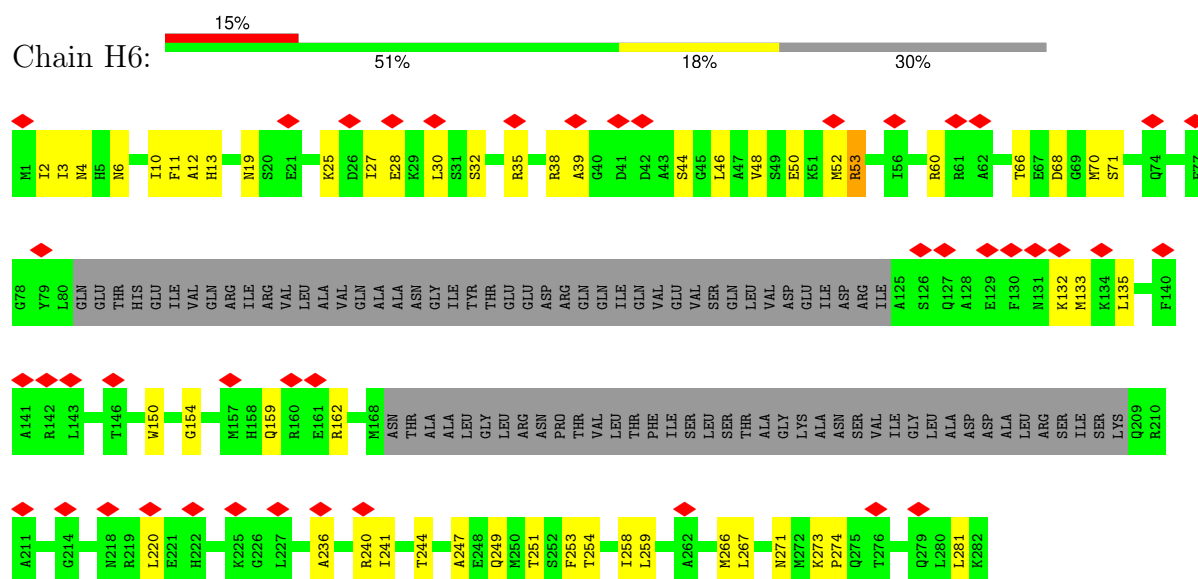
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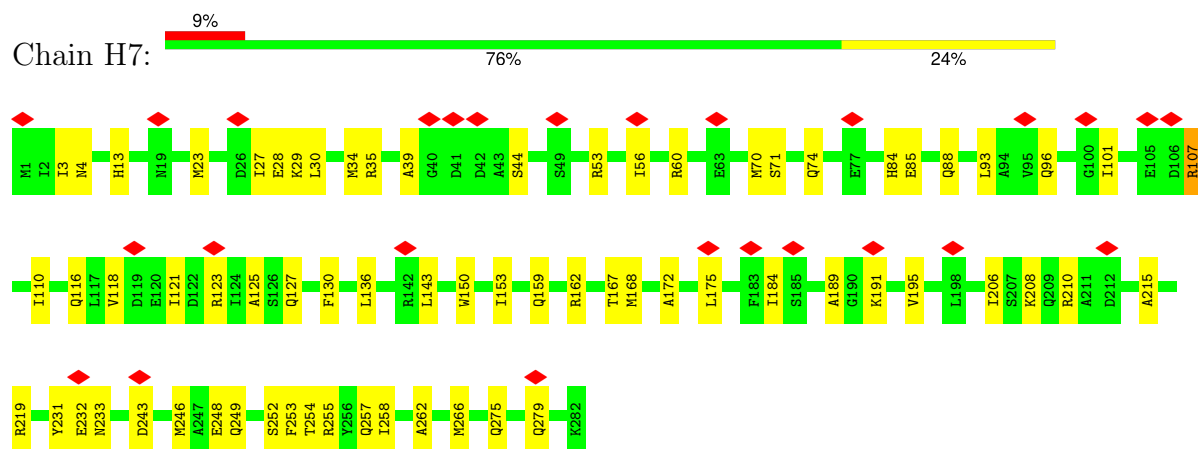
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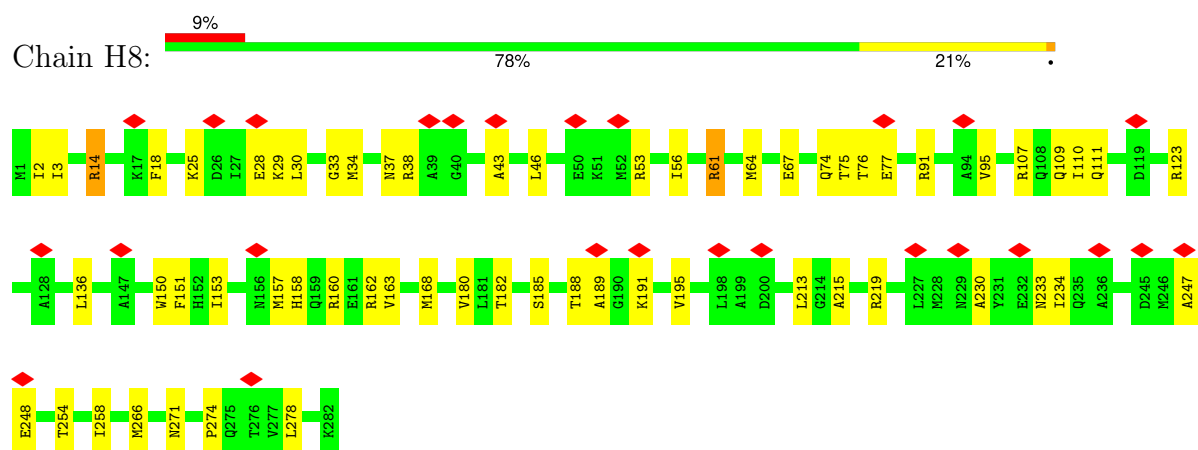
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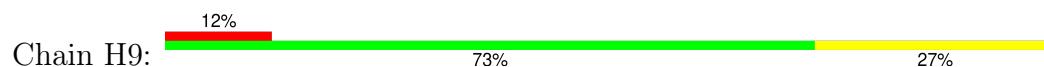
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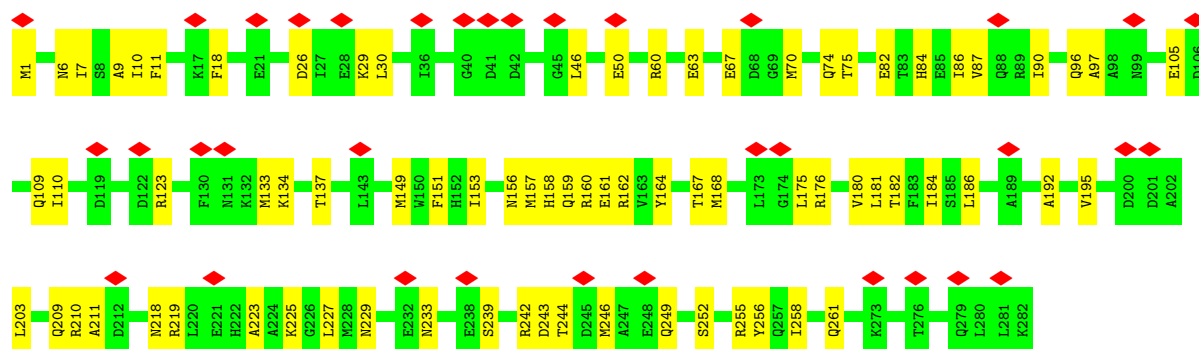


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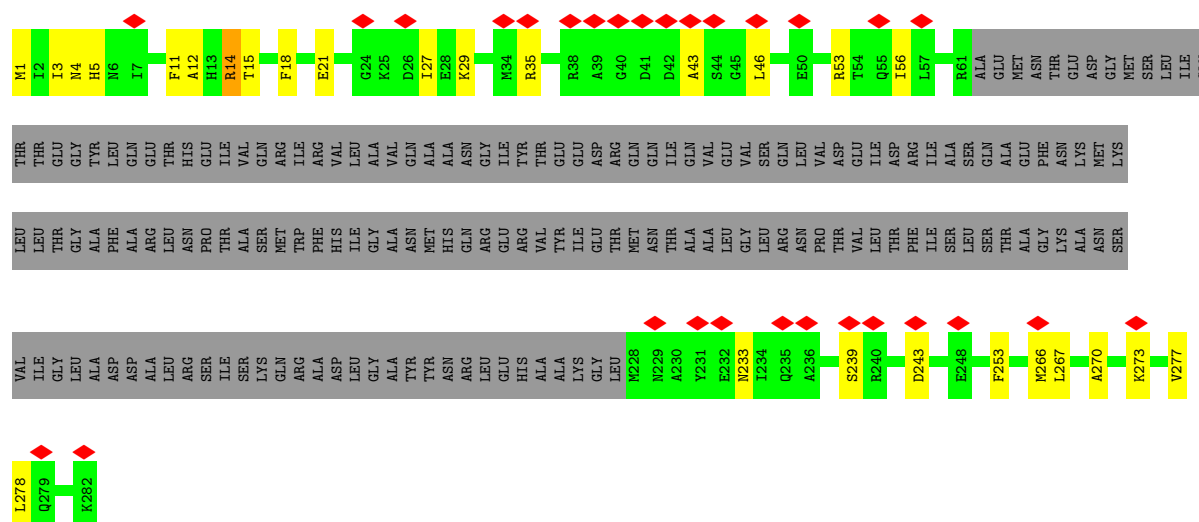
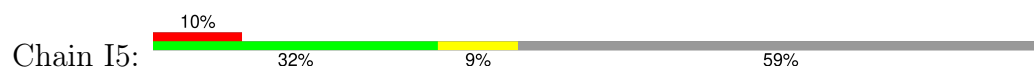


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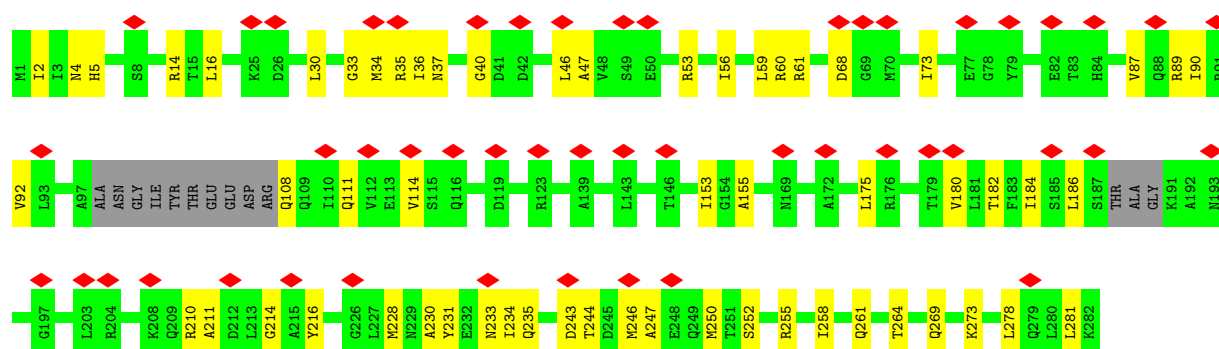
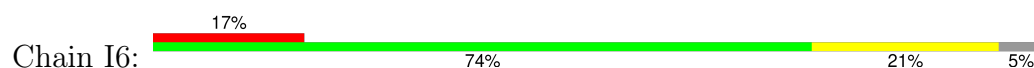




- Molecule 1: Flagellin

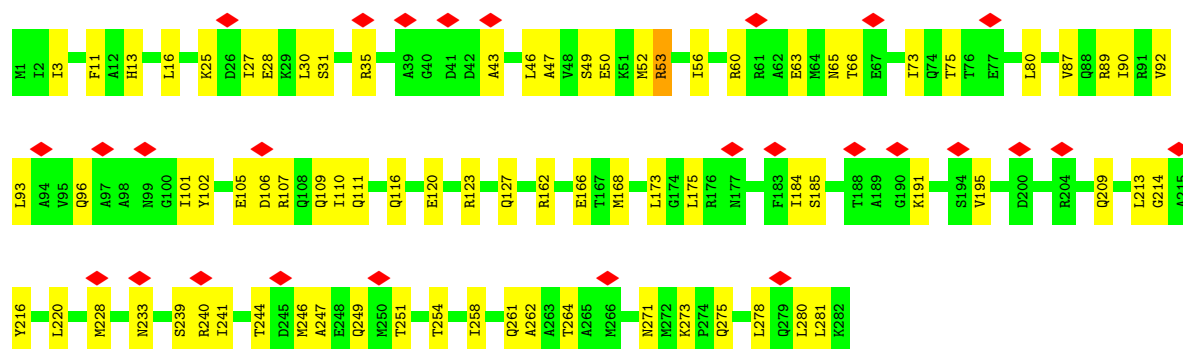


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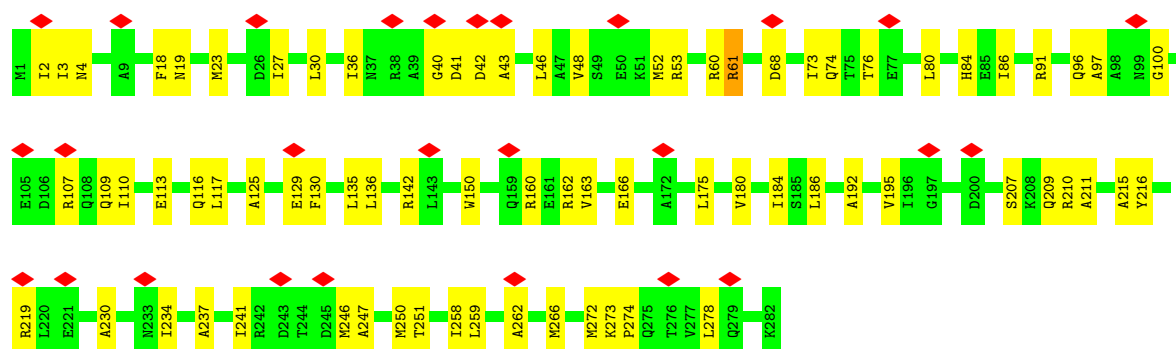


- Molecule 1: Flagellin

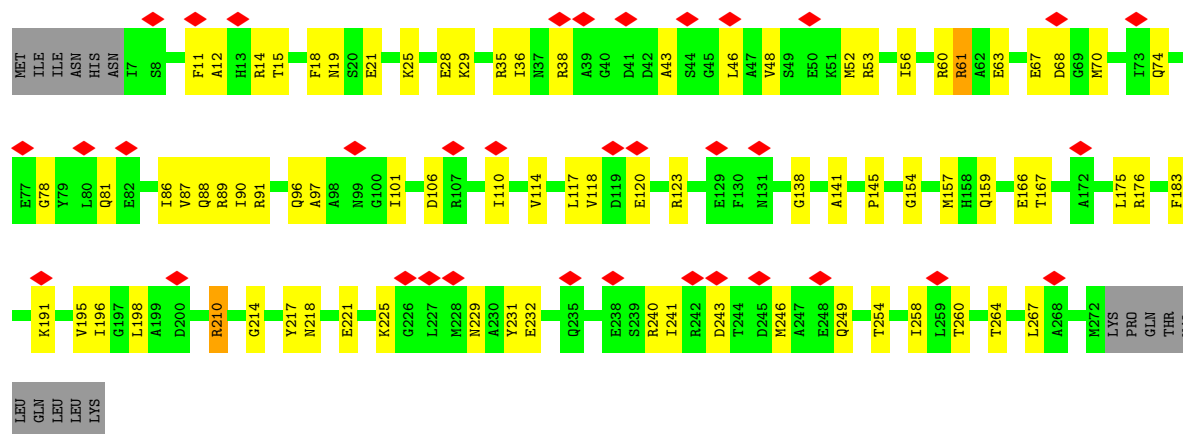




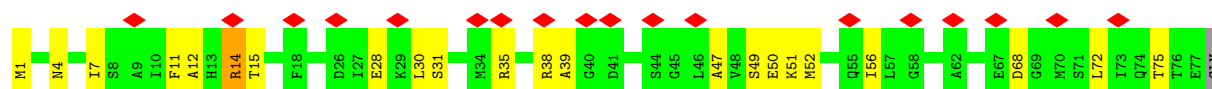
• Molecule 1: Flagellin

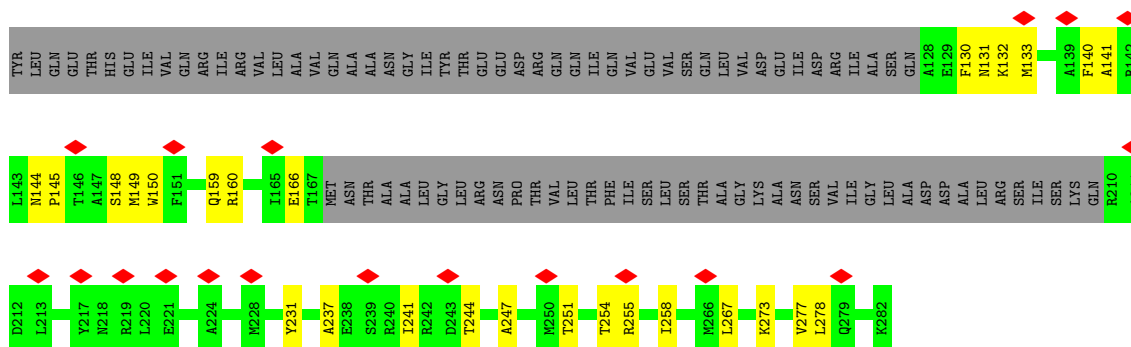


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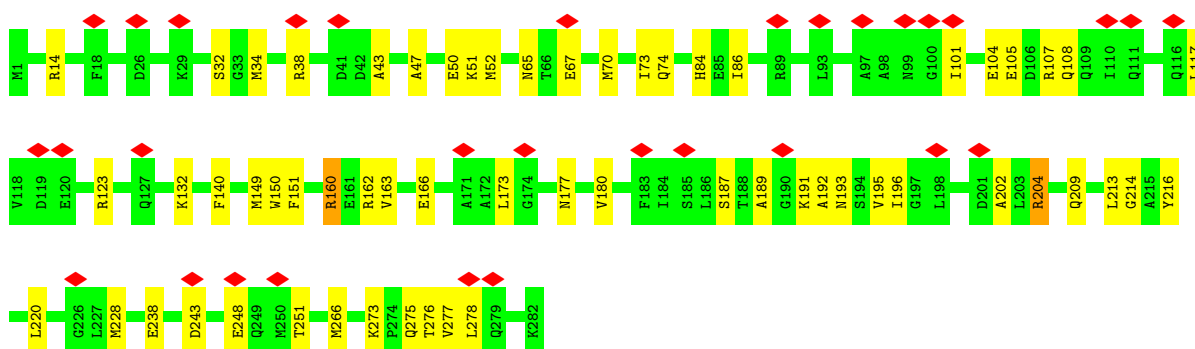
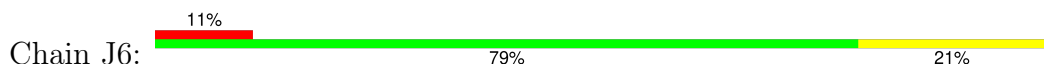


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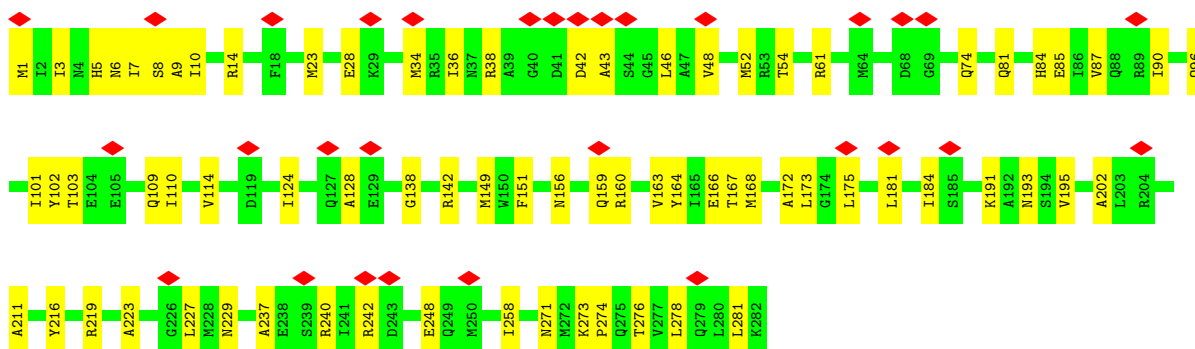
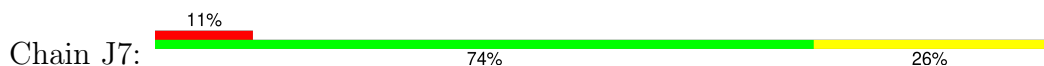




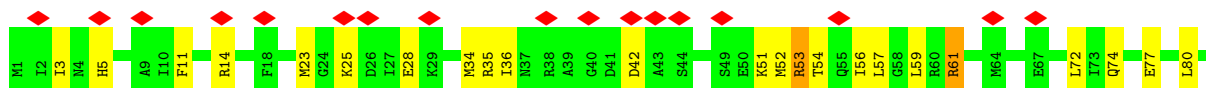
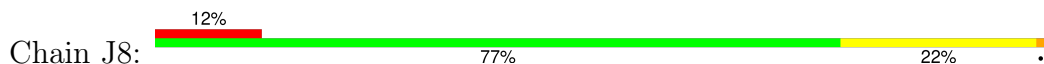
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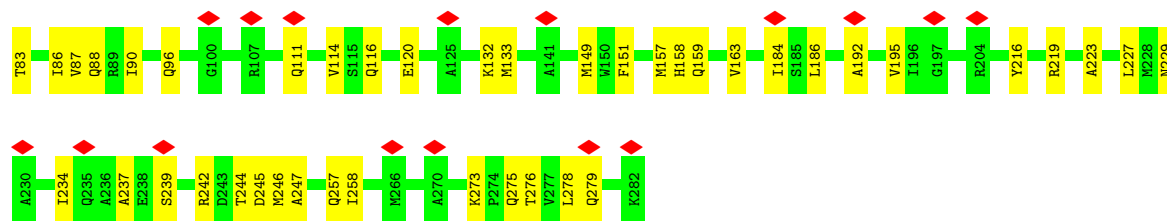


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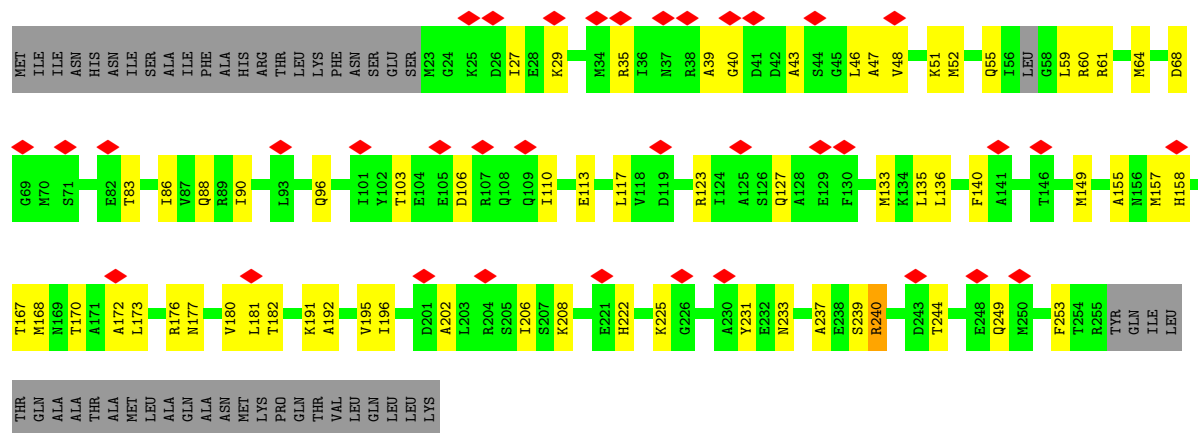


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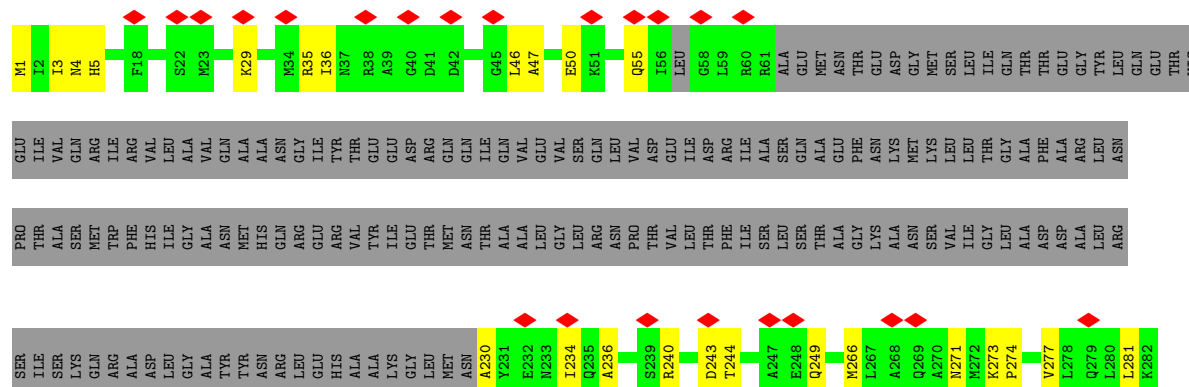
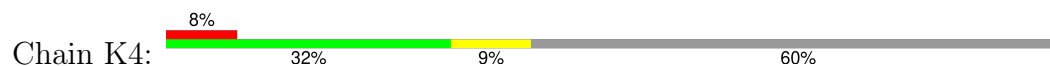




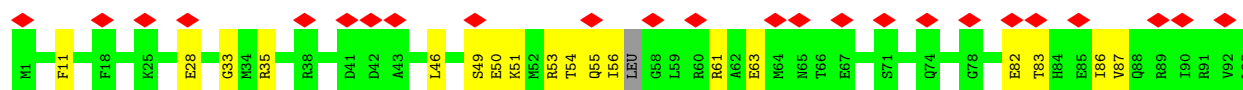
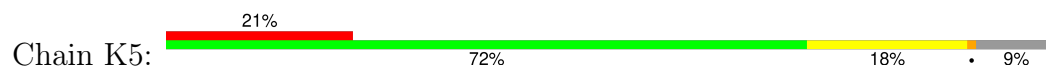
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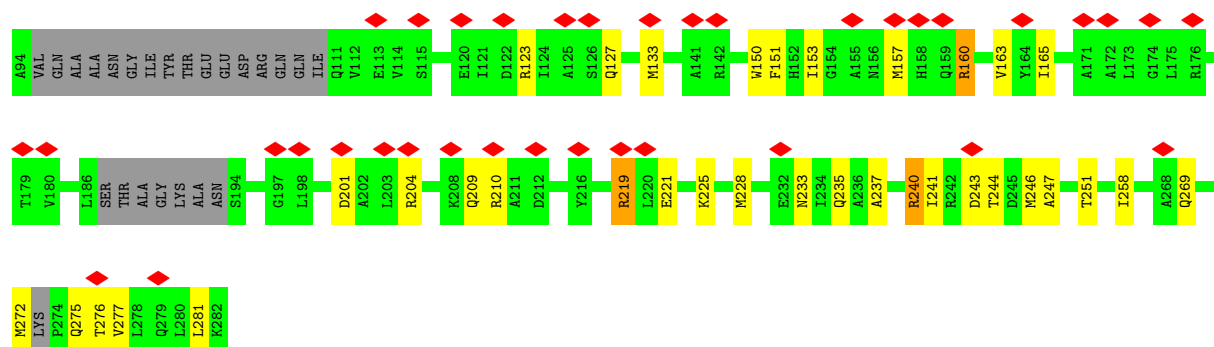


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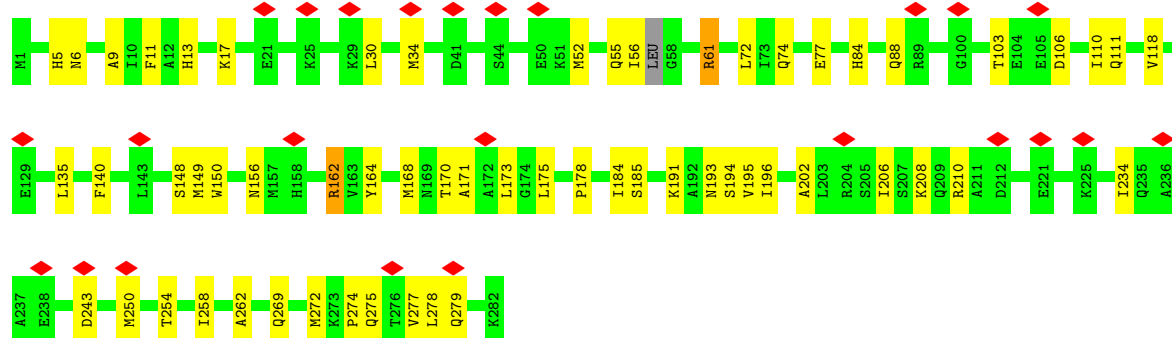
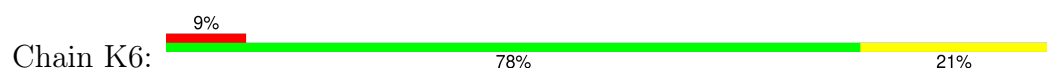


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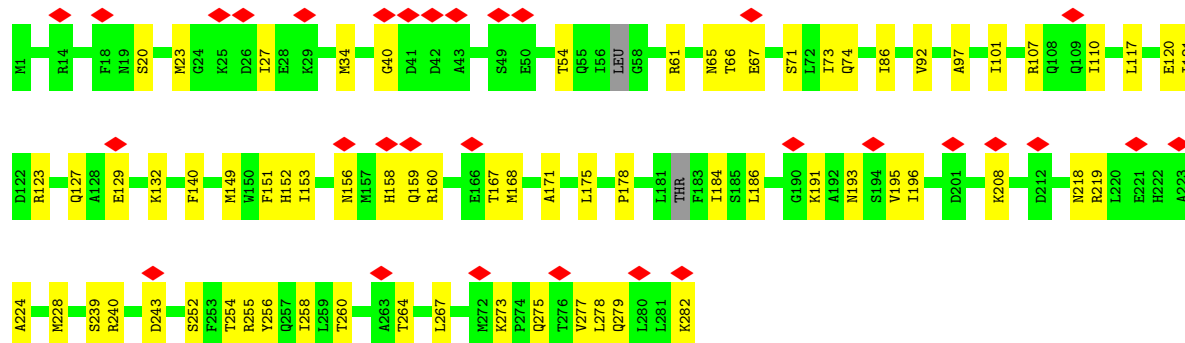
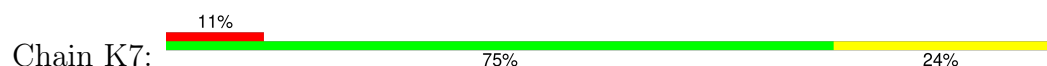




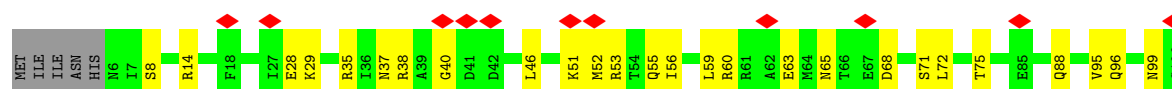
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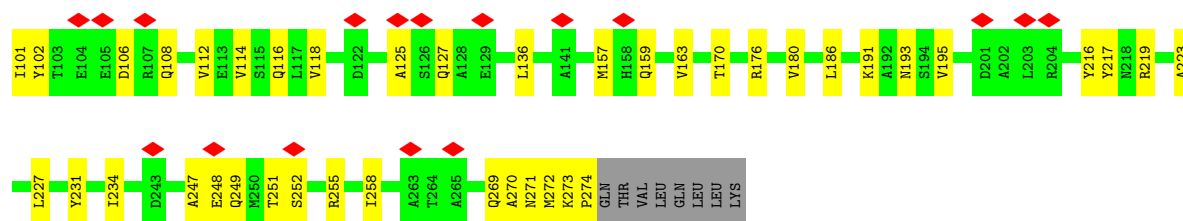


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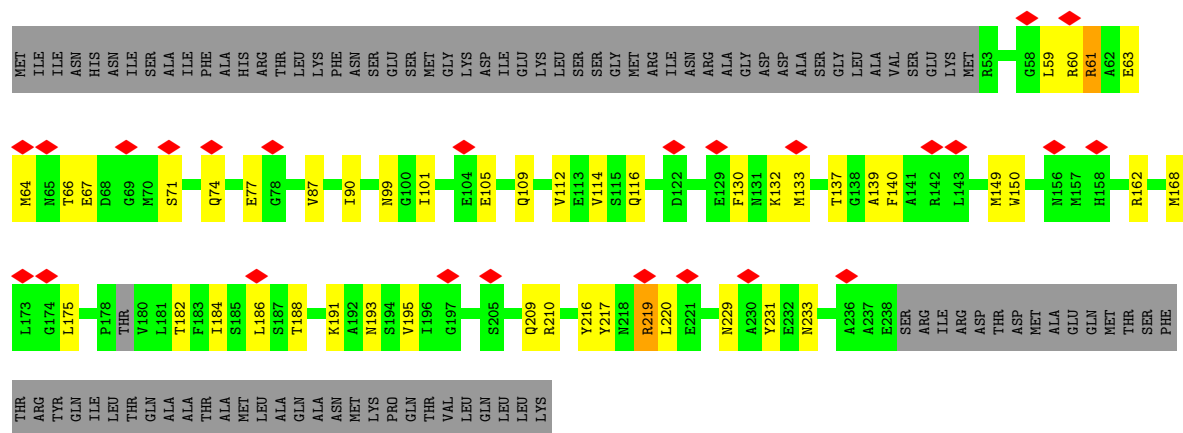


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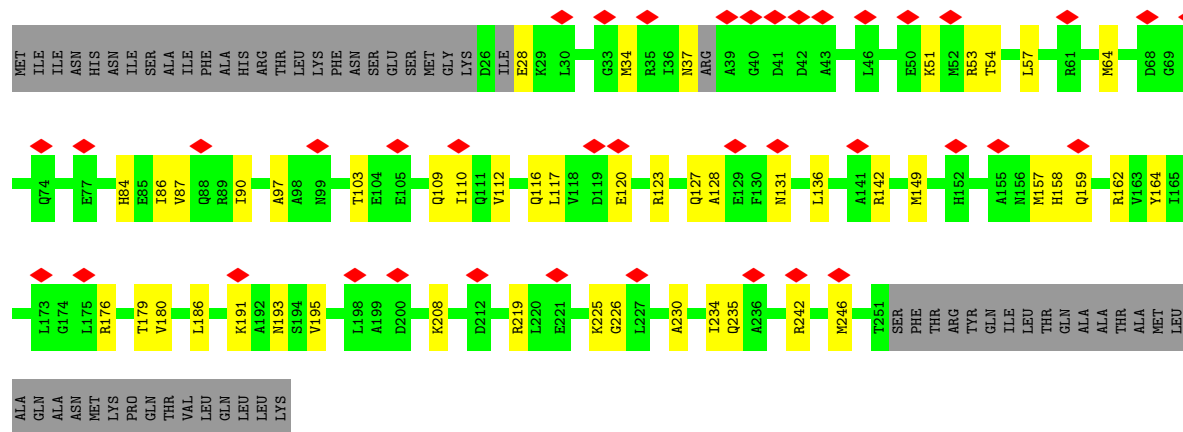




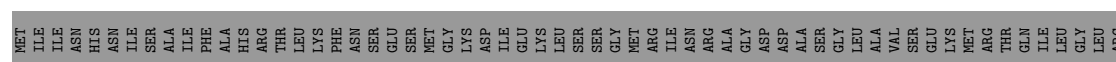
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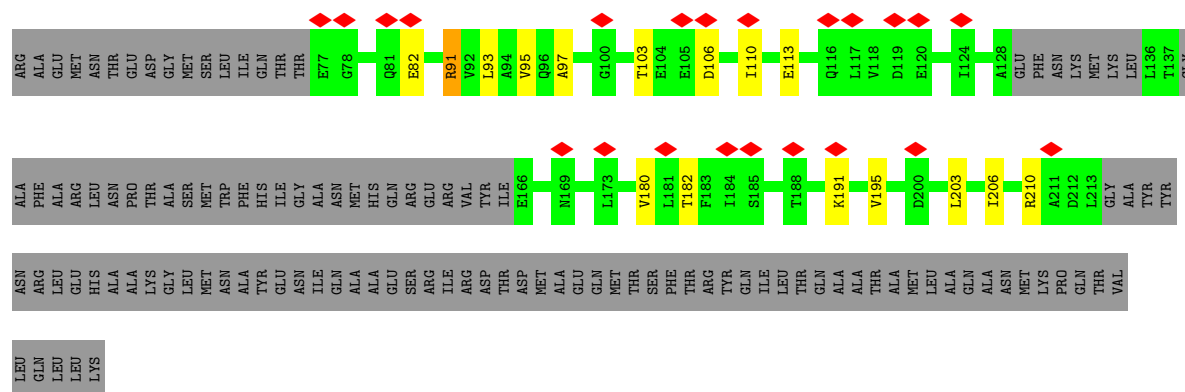


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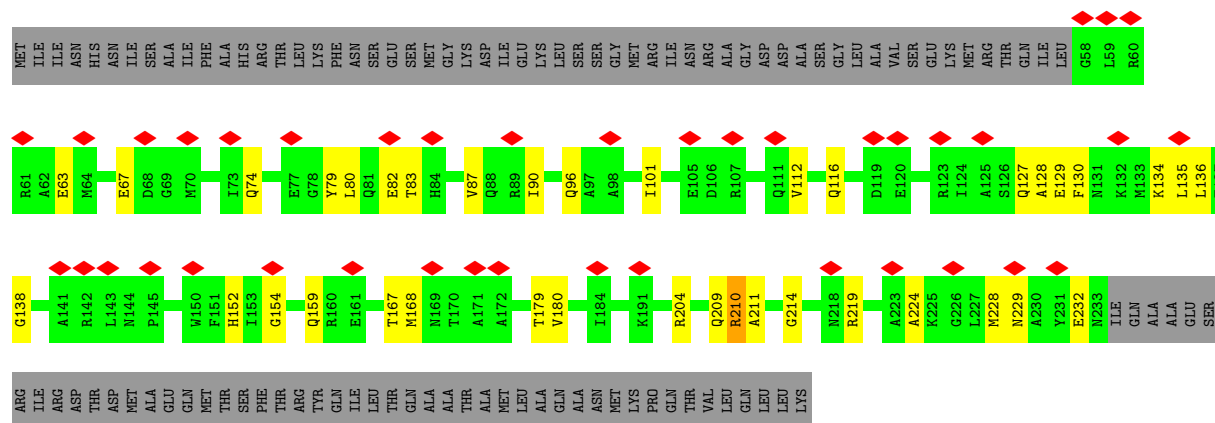


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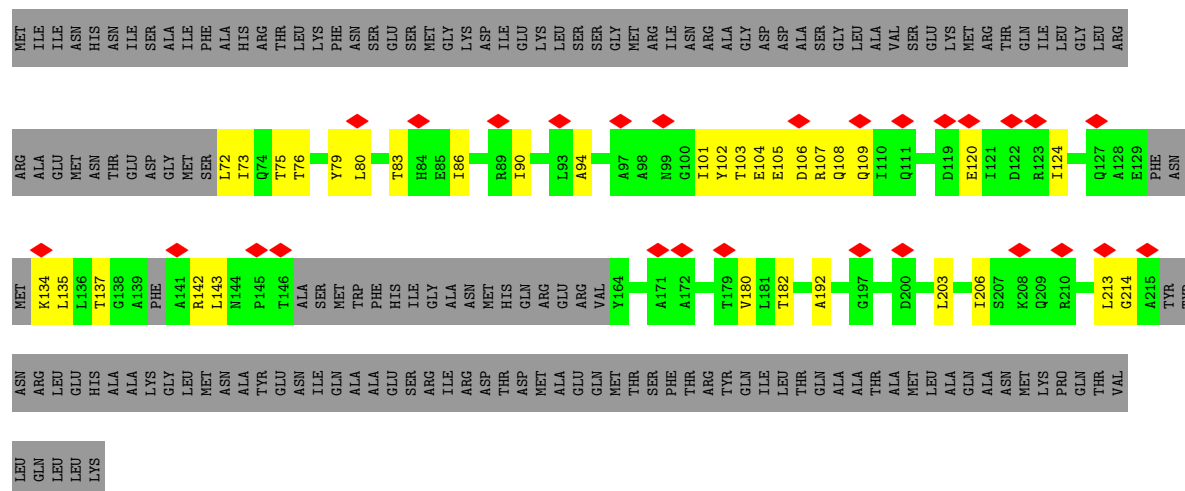
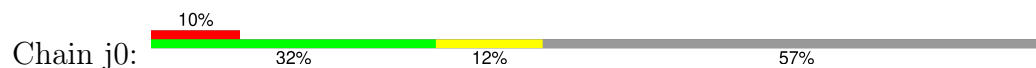




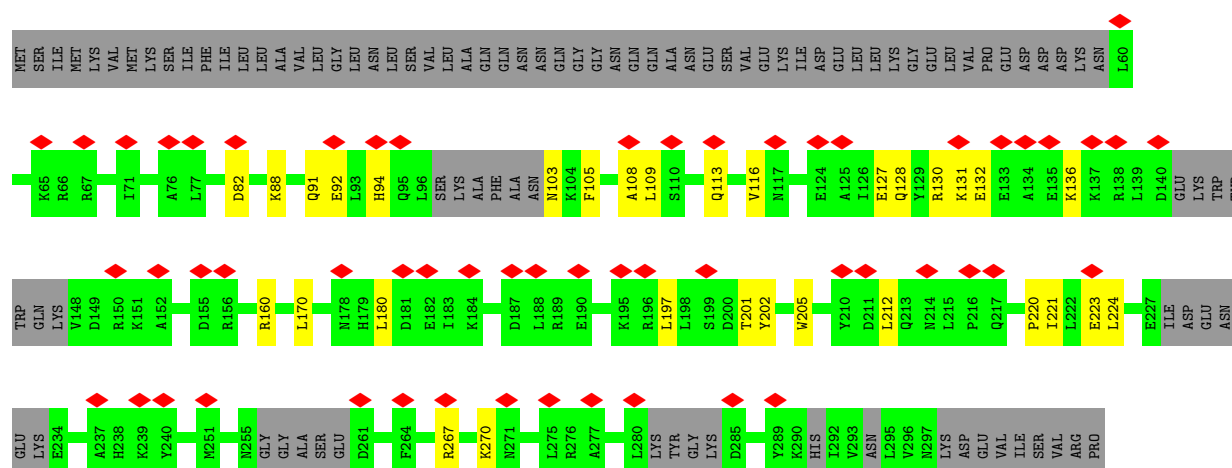
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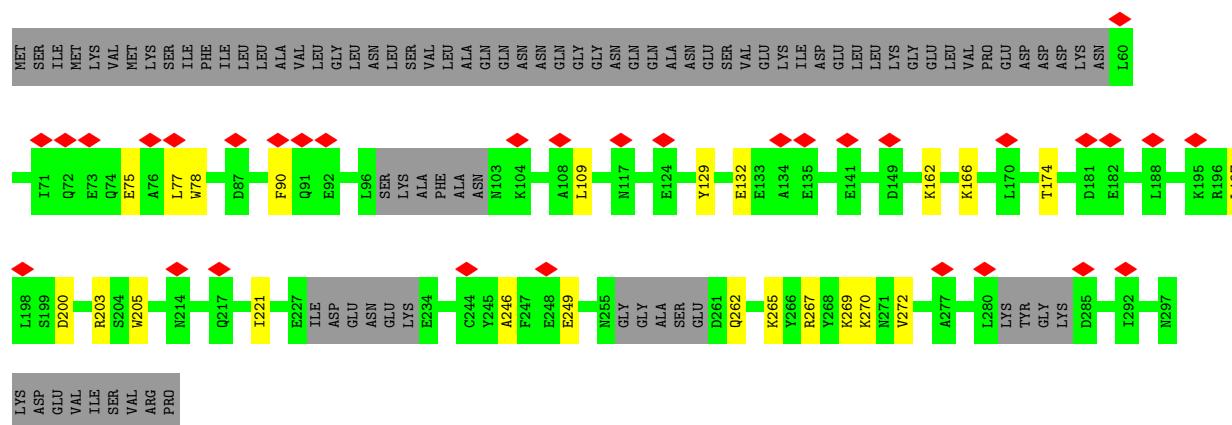
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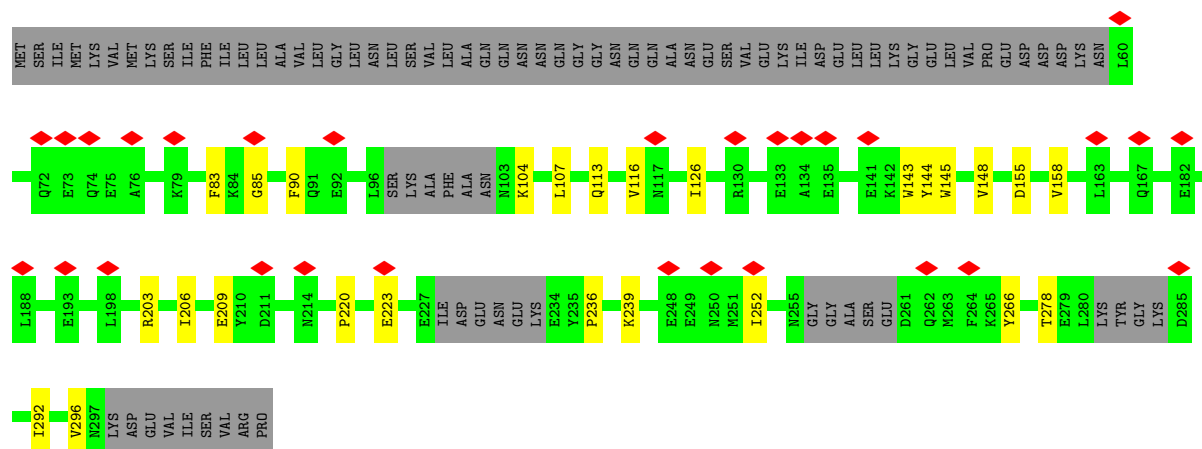
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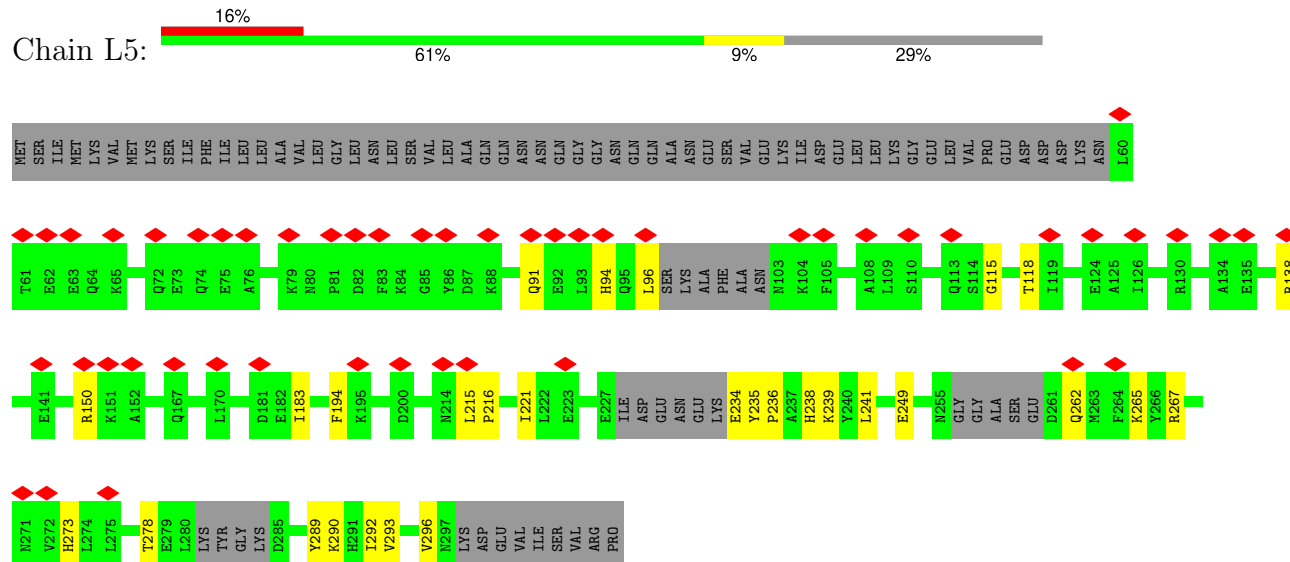
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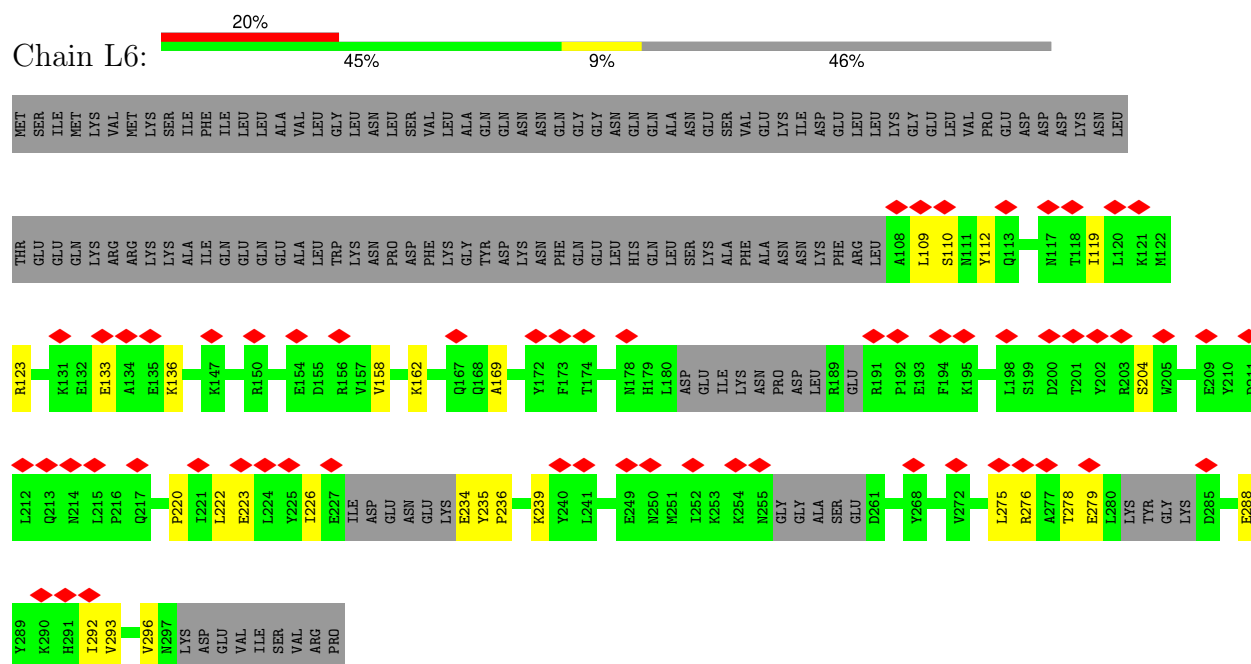
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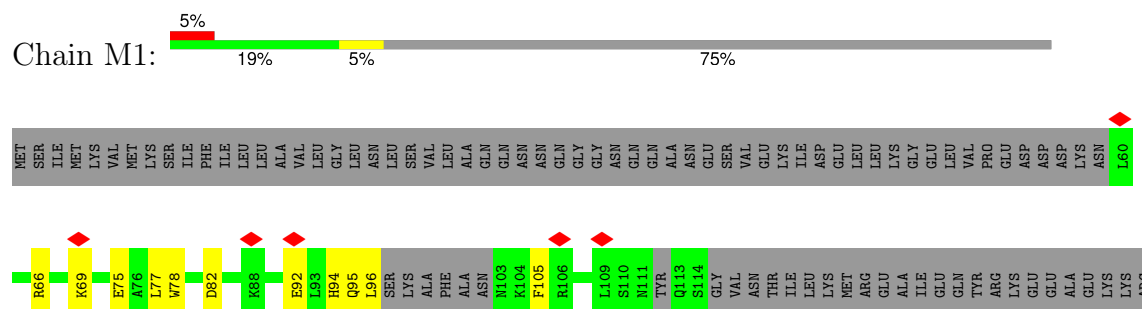
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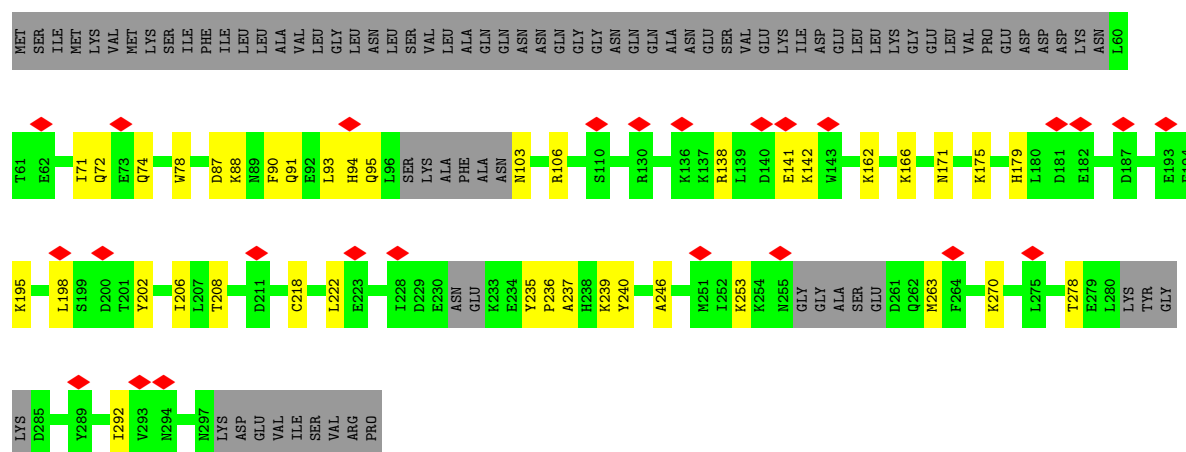
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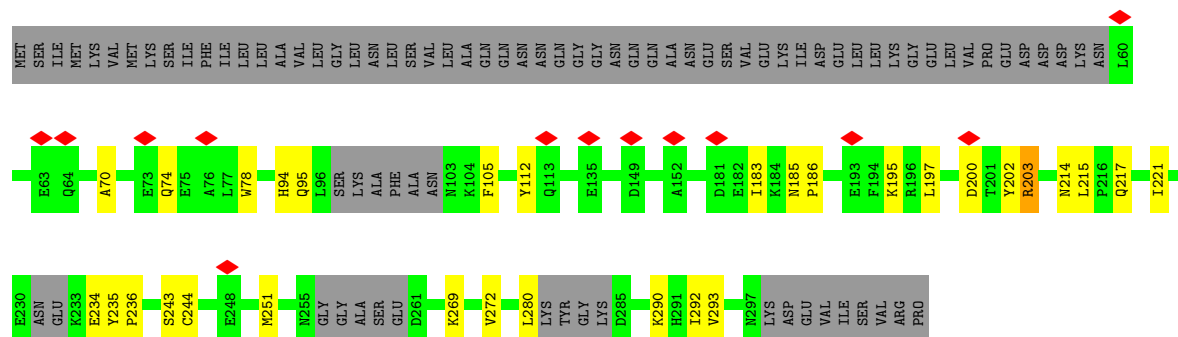
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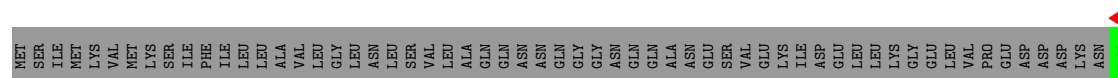
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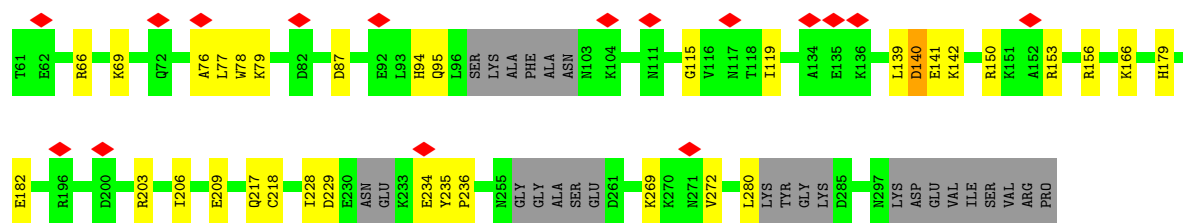


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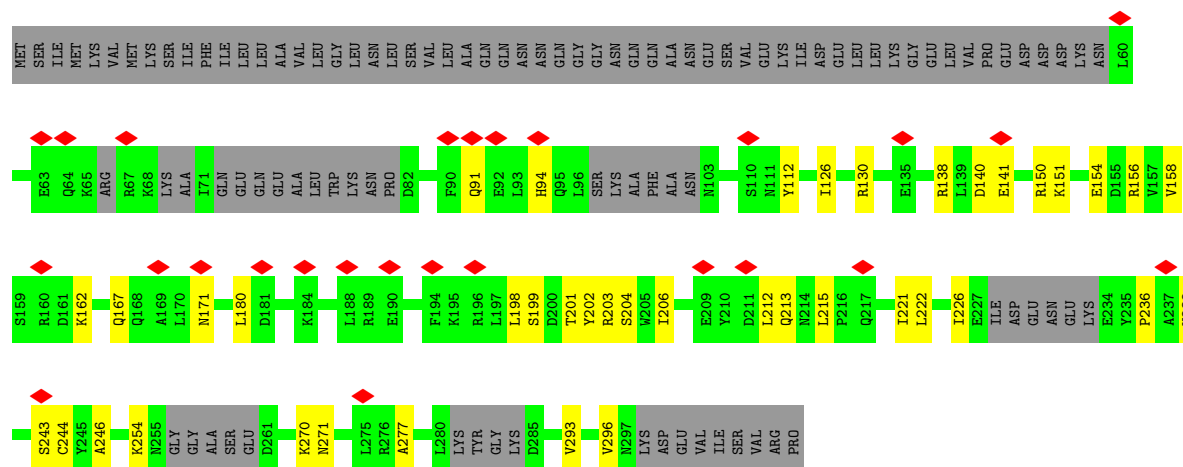


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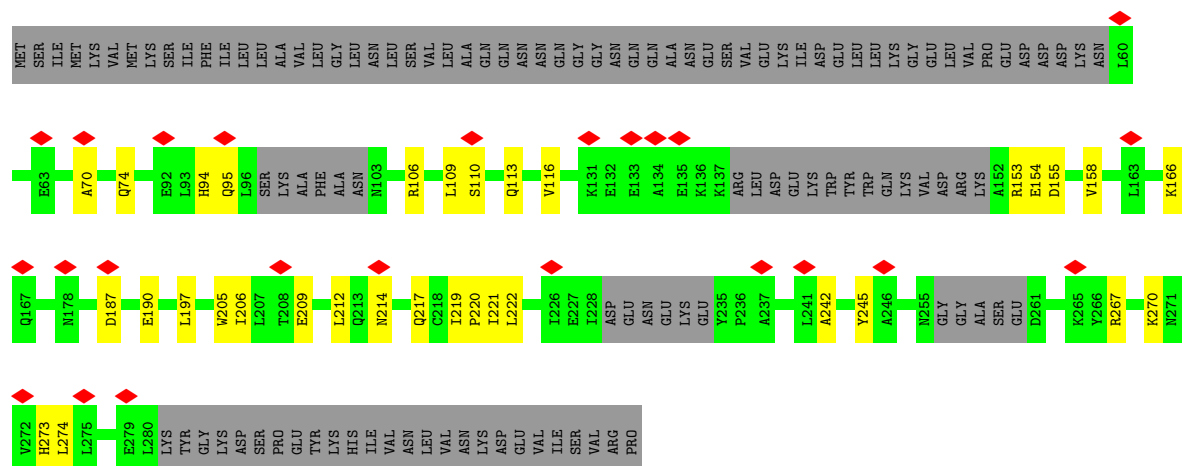




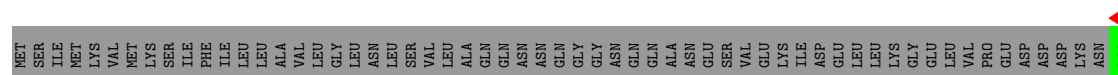
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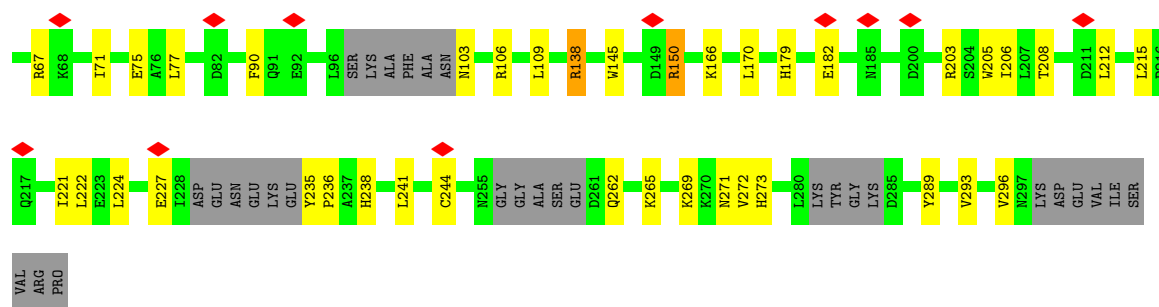


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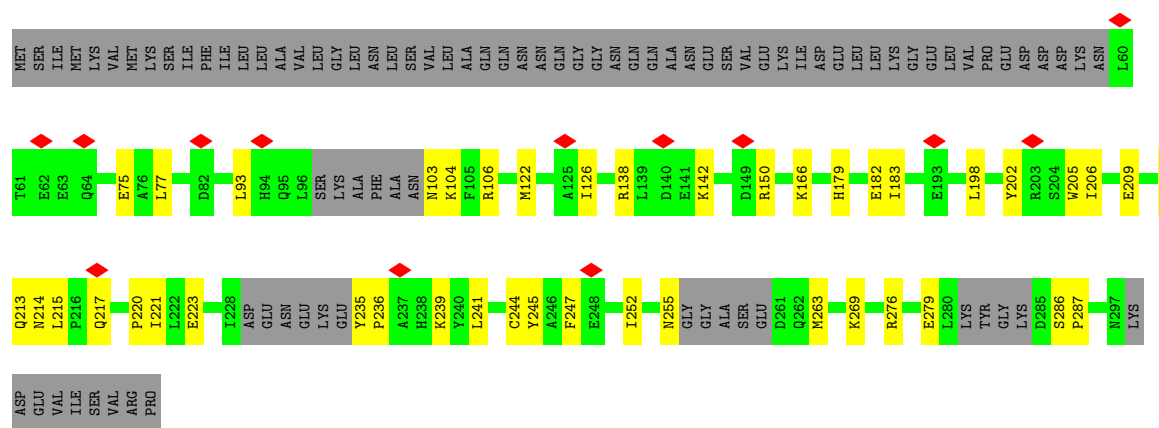
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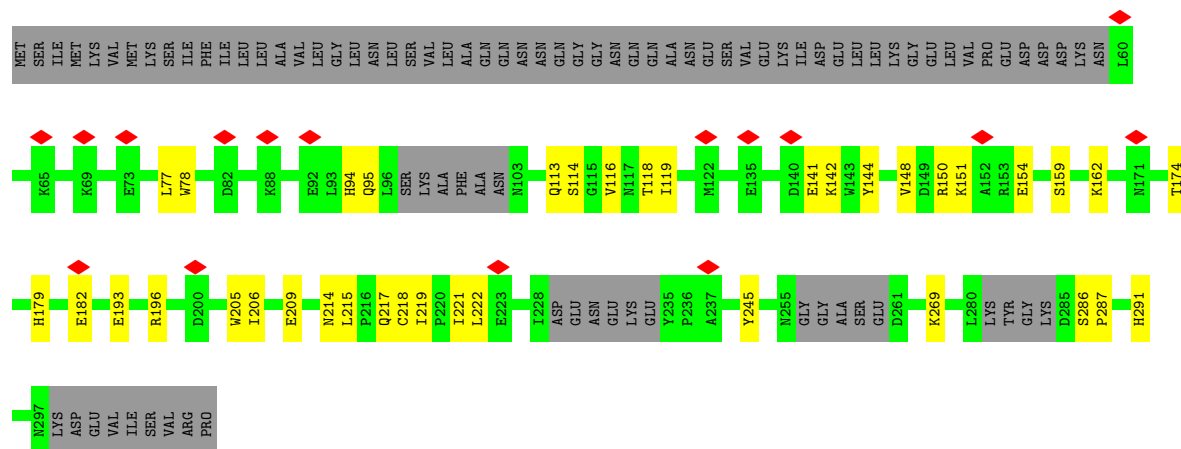
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Chain N4: 57% 14% 29%



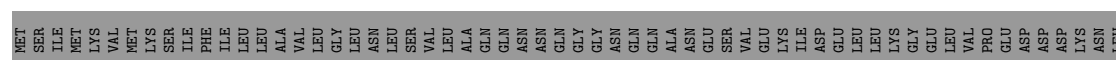
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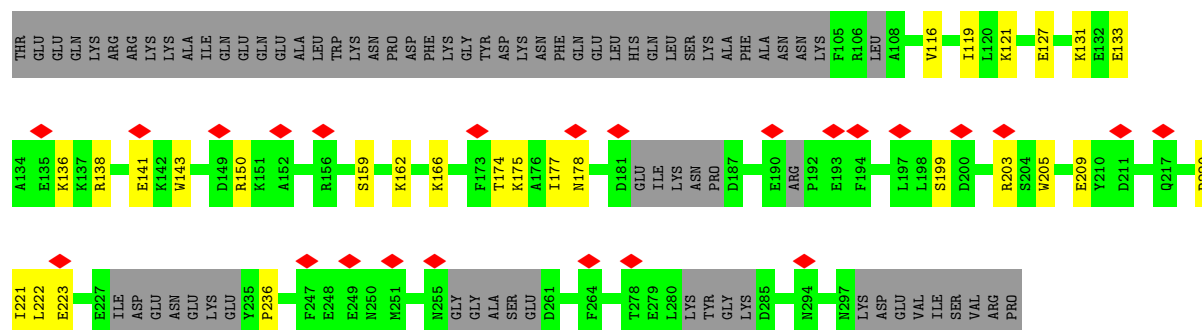
Chain N5: 5% 58% 12% 29%



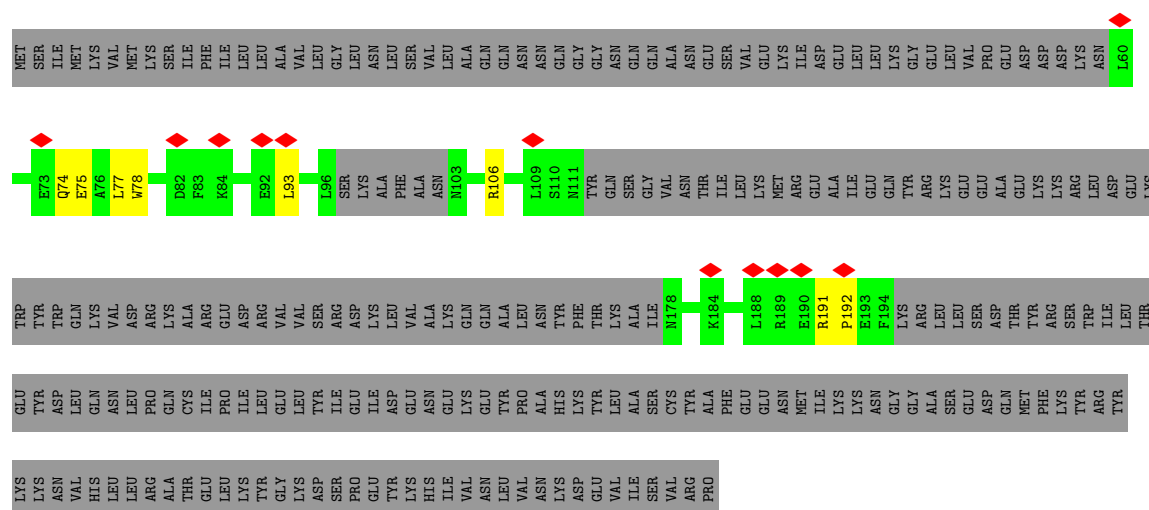
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Chain N6: 8% 47% 9% 44%

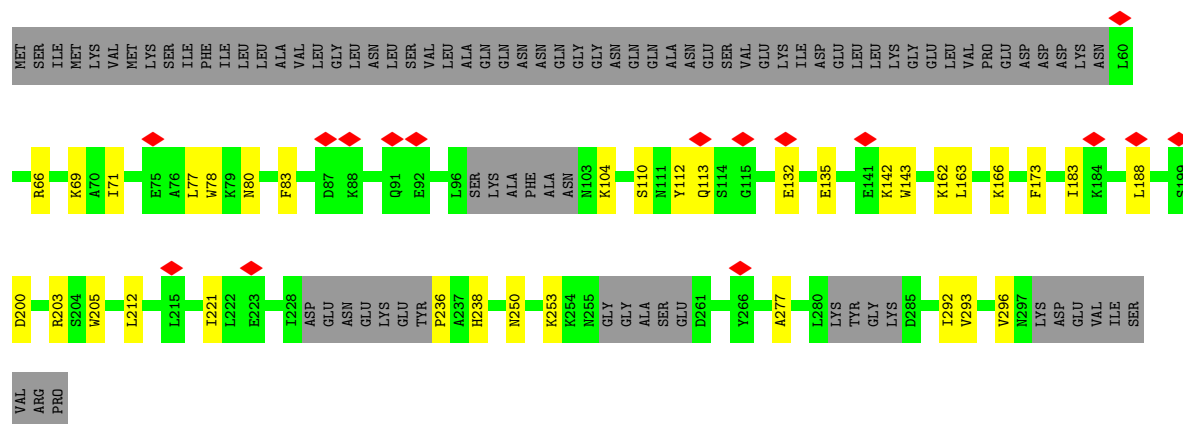




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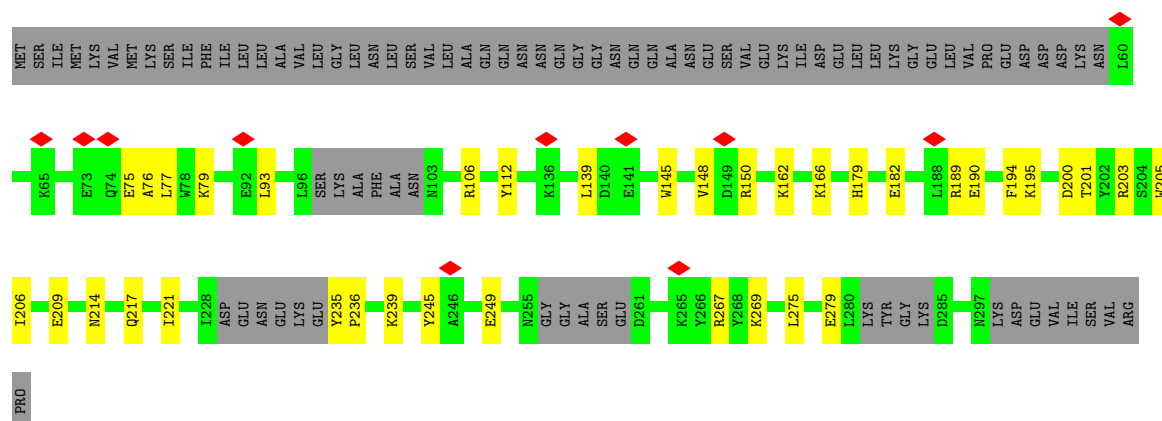
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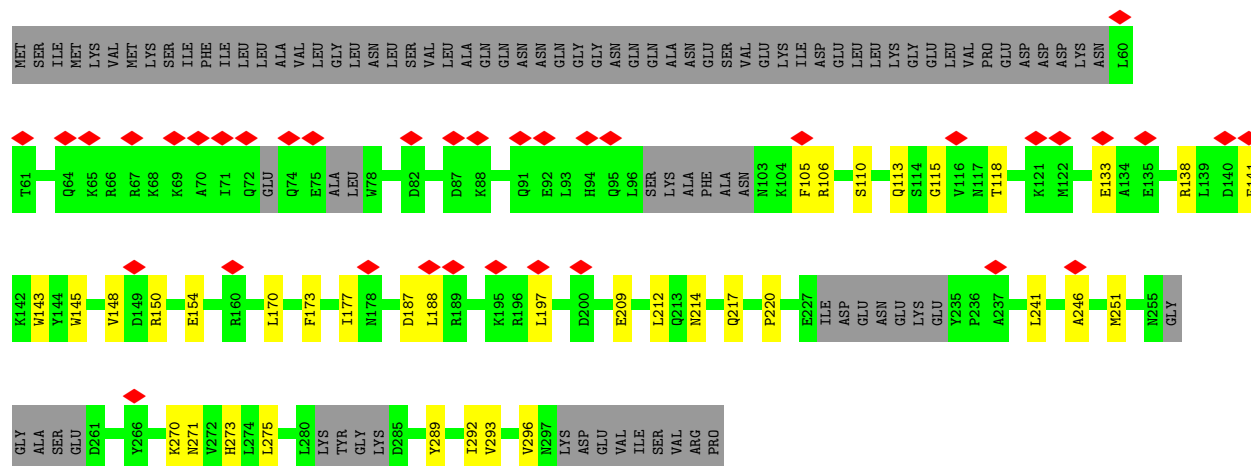
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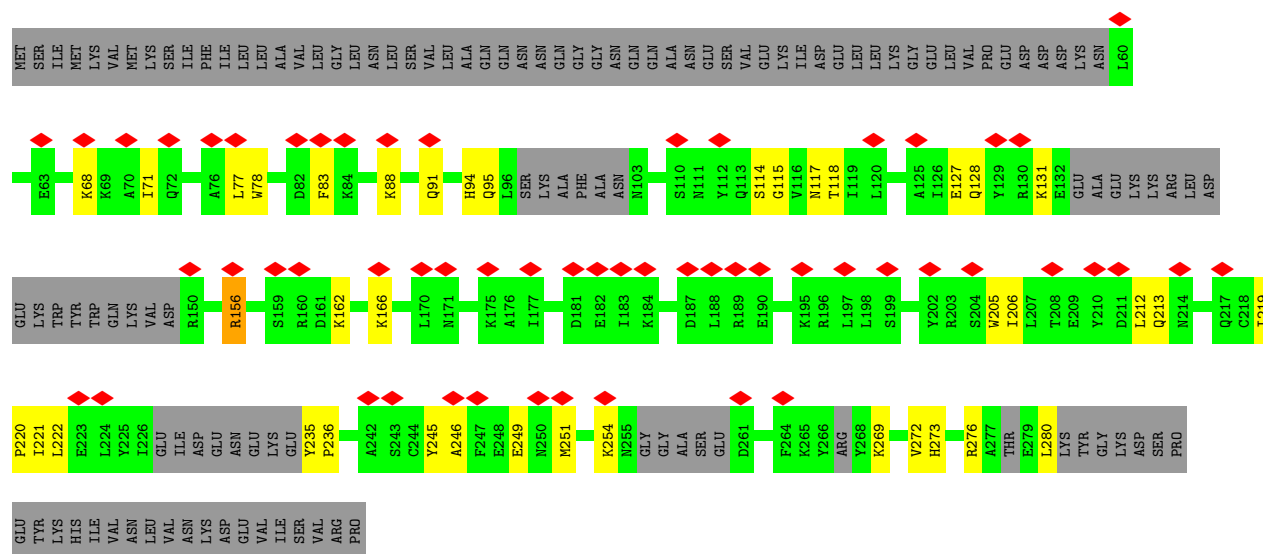
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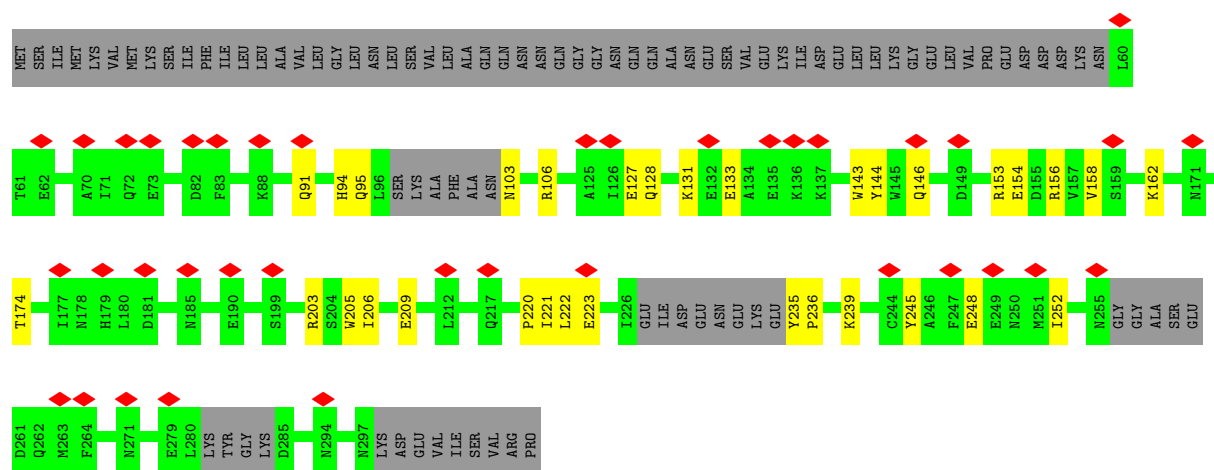
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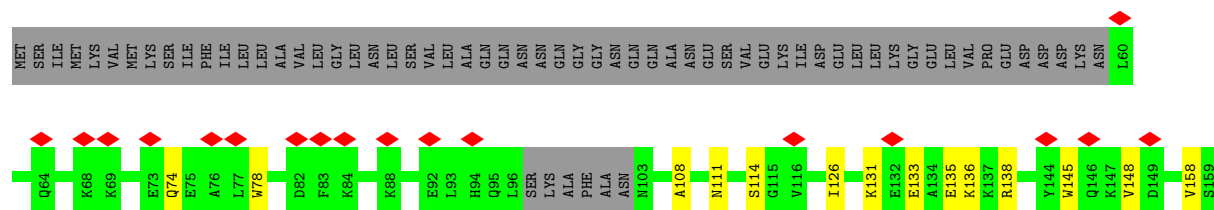
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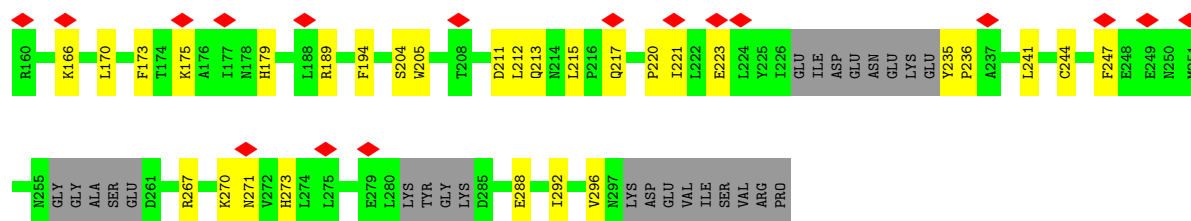


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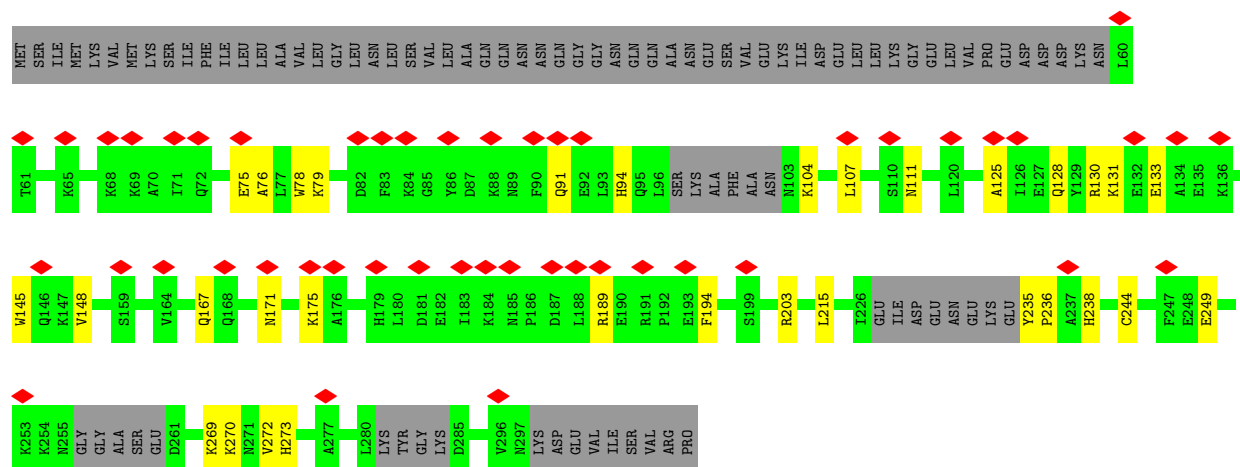


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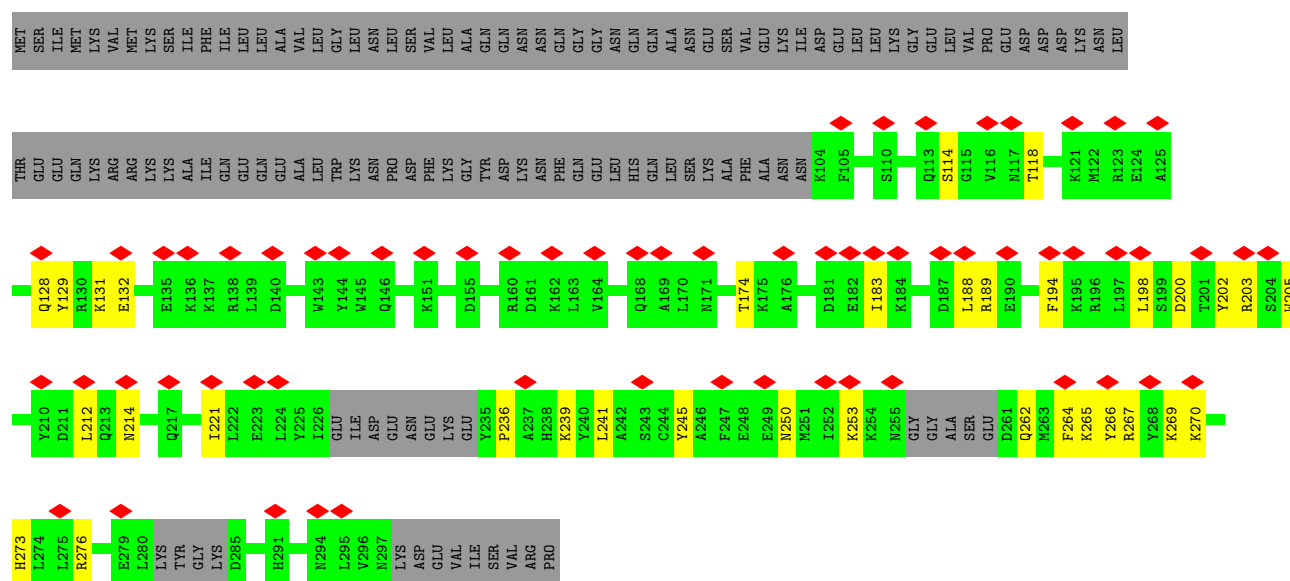




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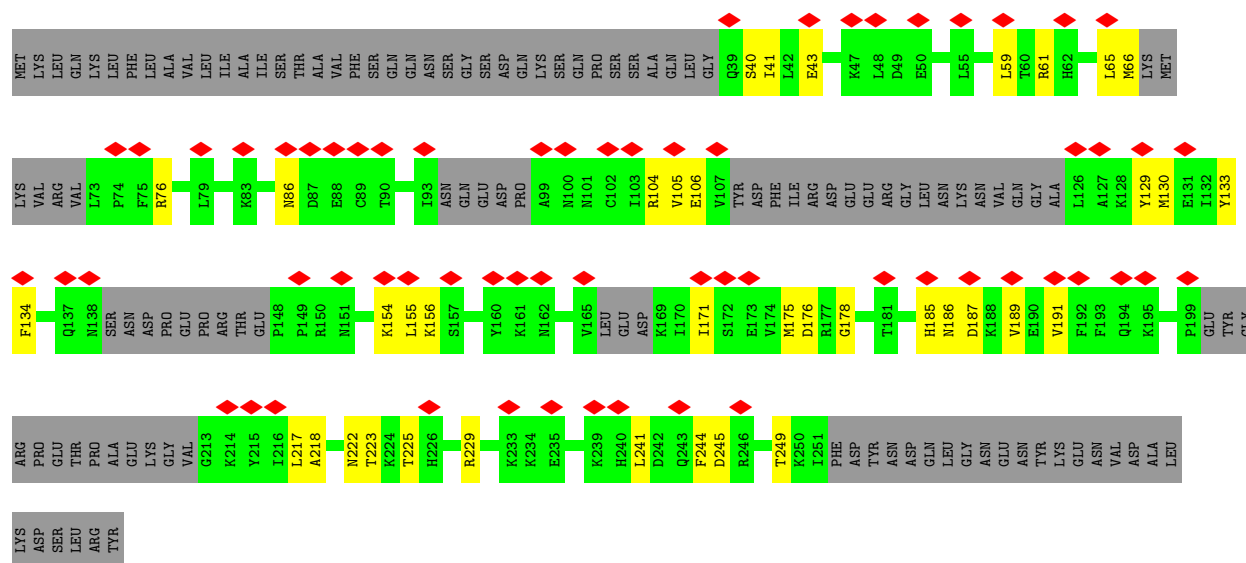


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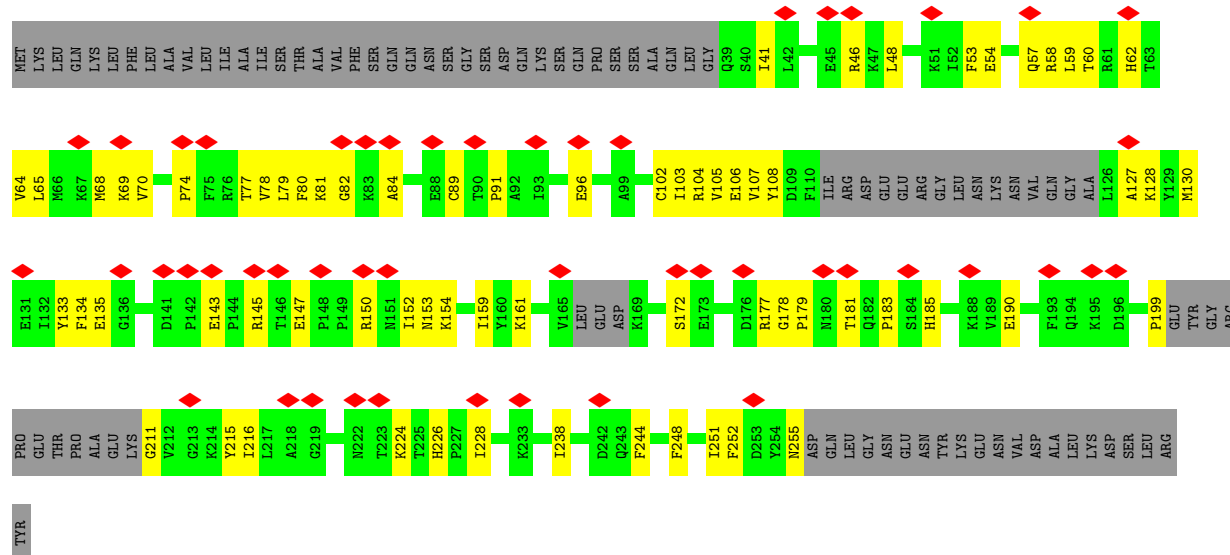
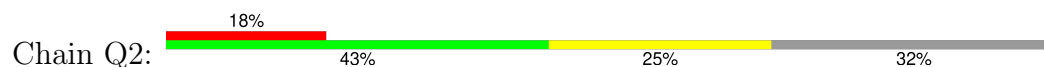


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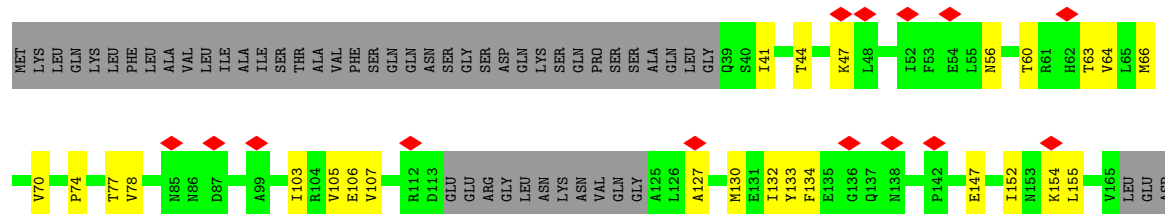


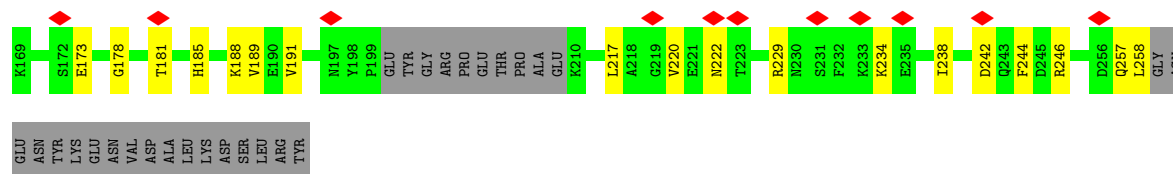


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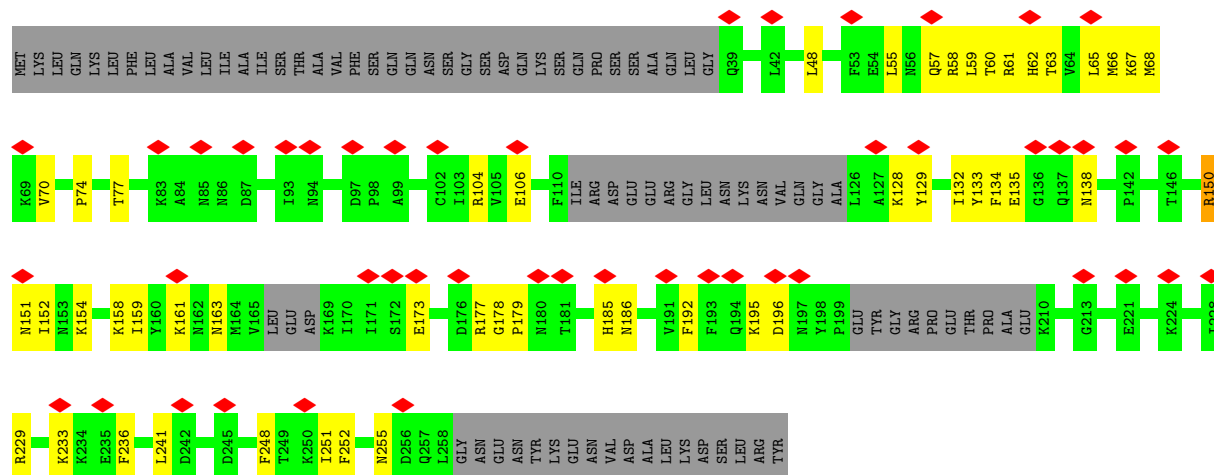


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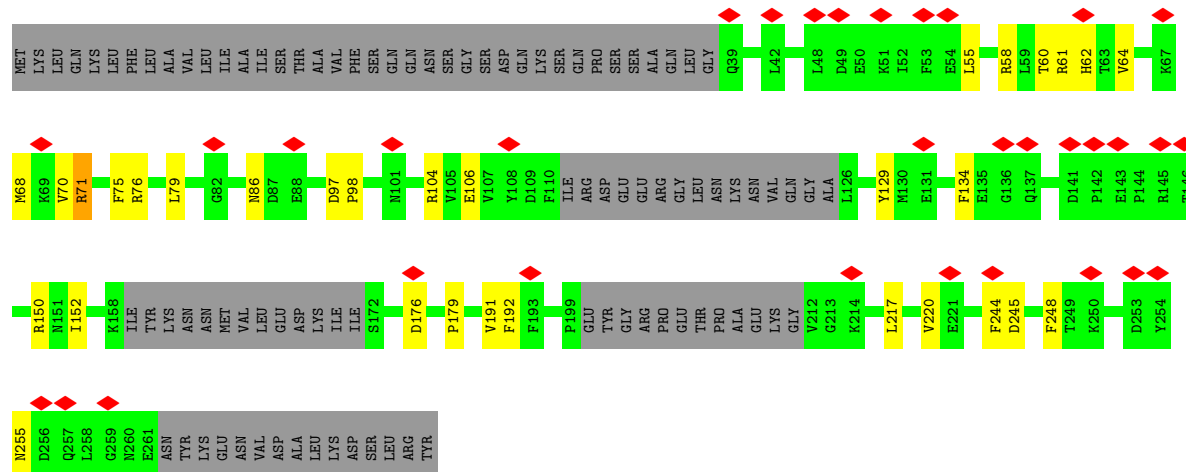




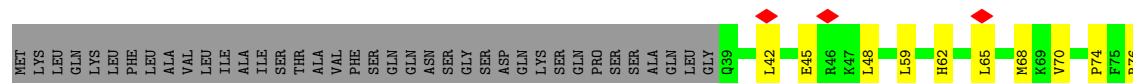
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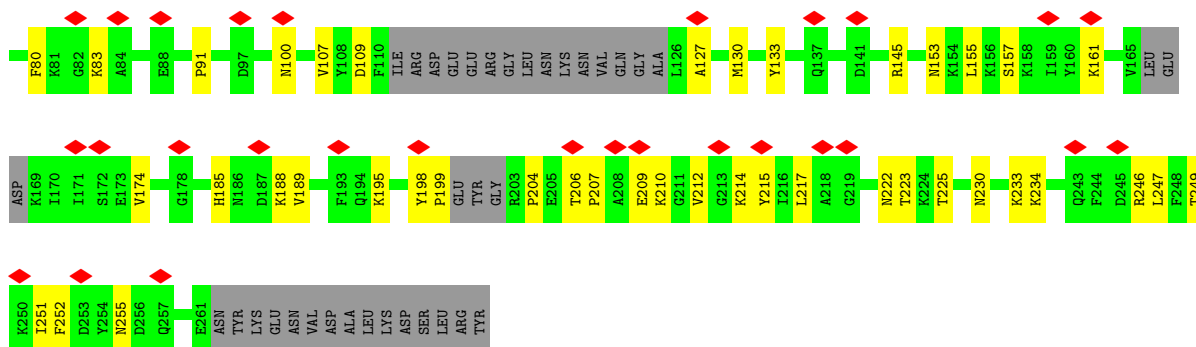


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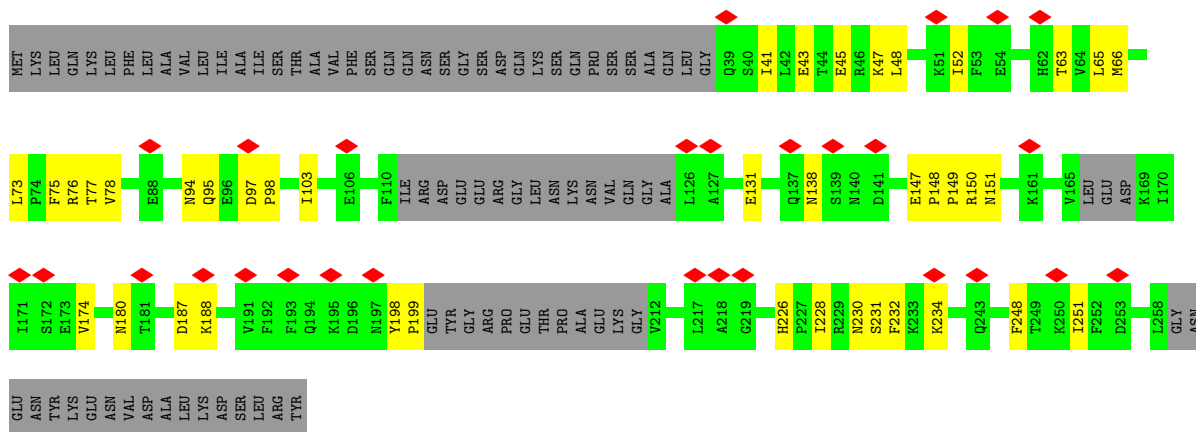


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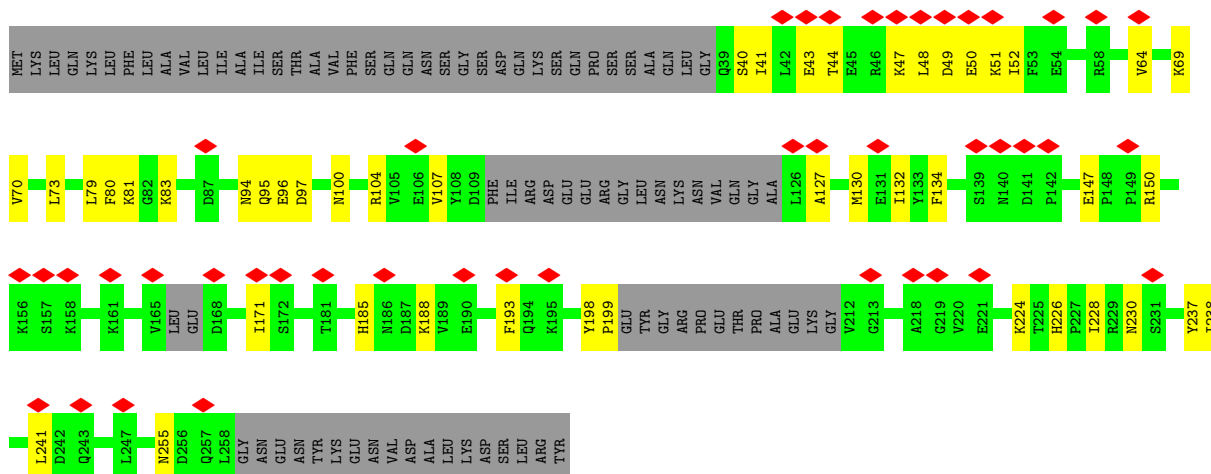




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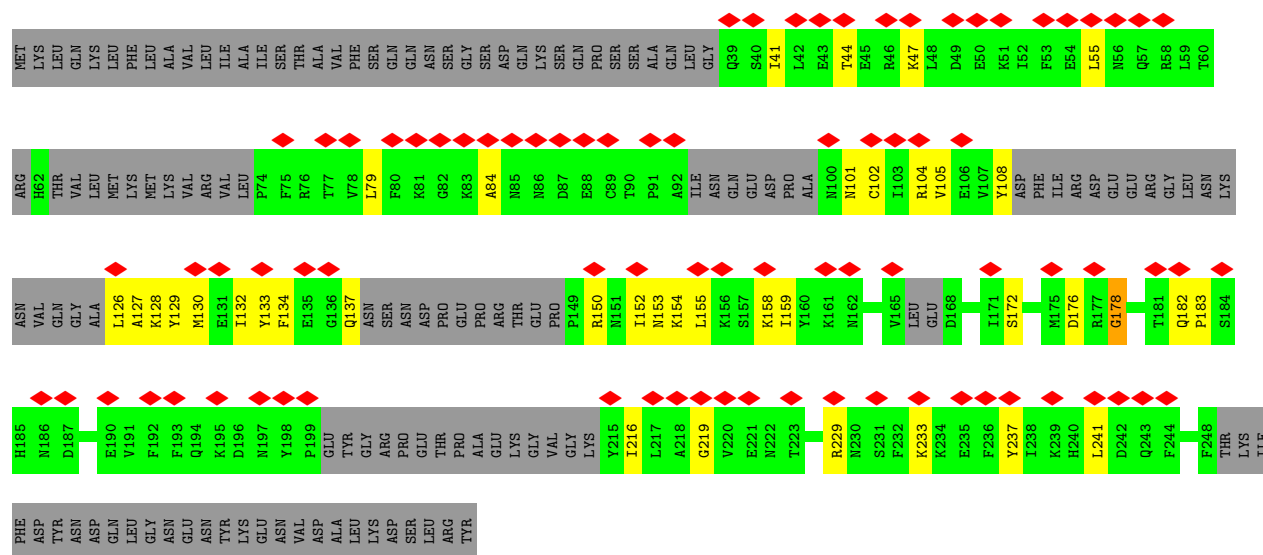


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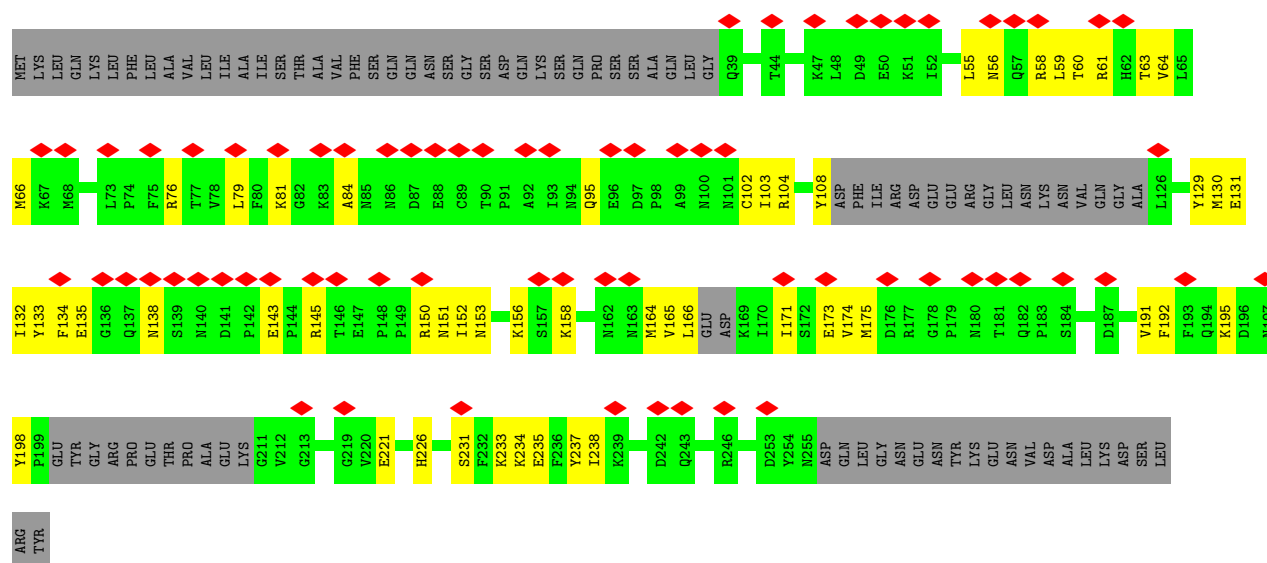


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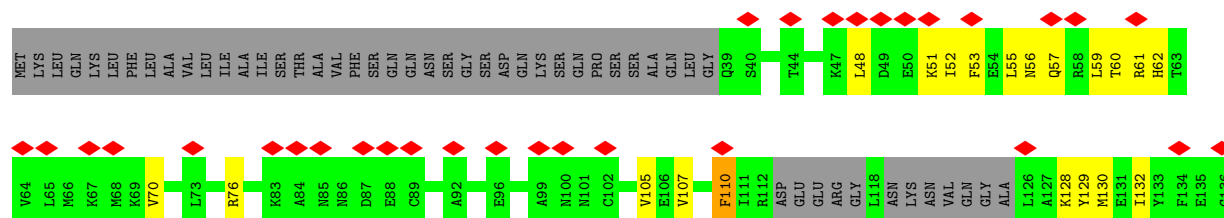


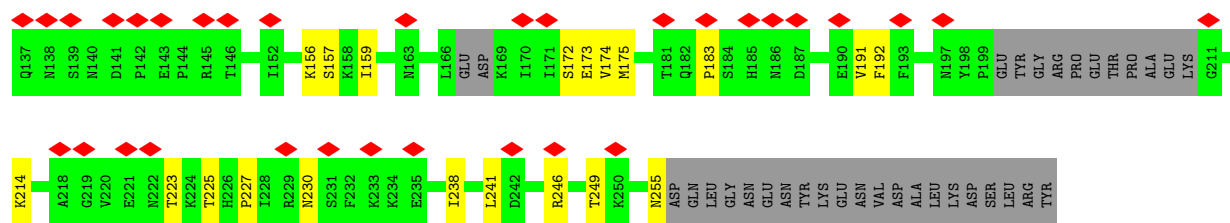


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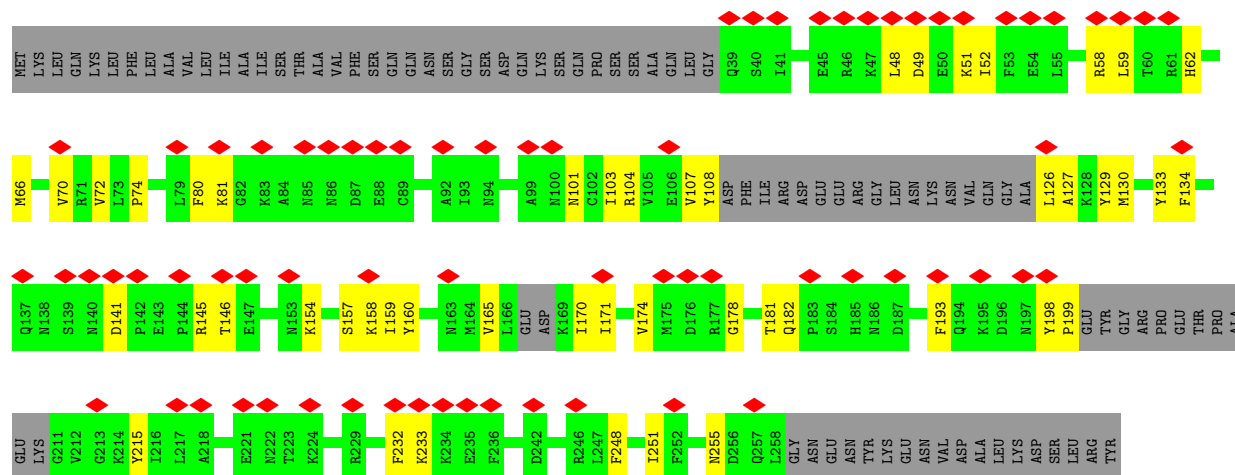


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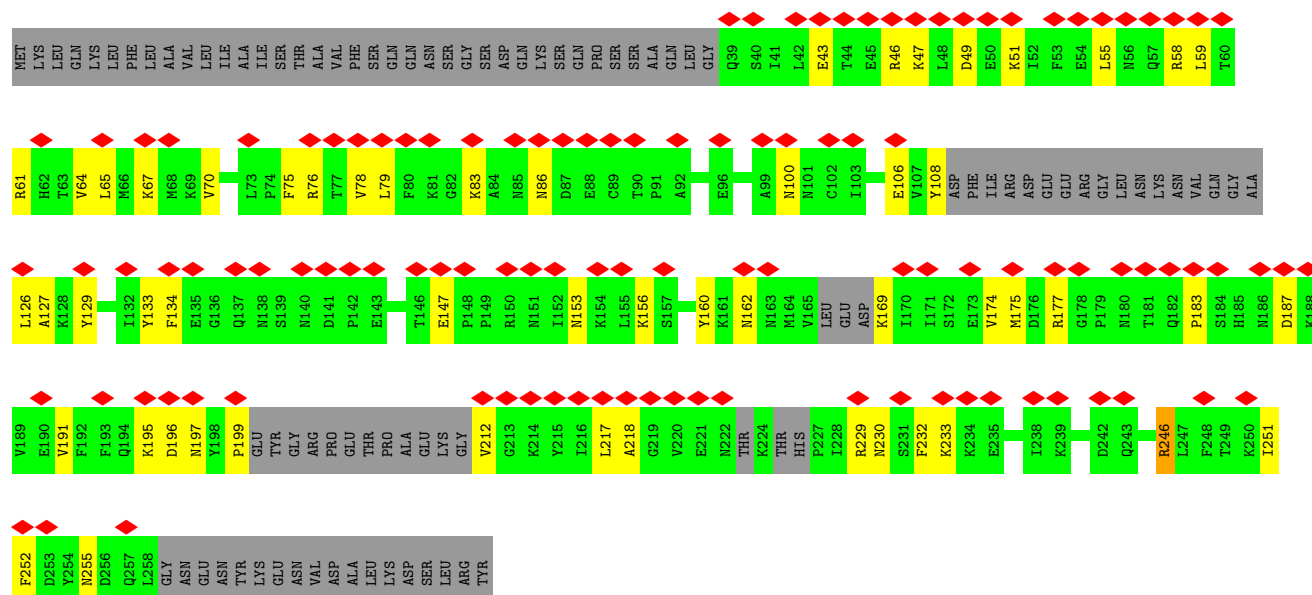
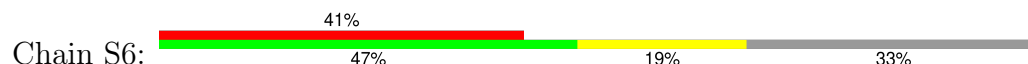




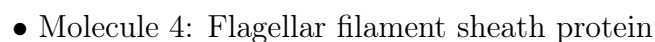
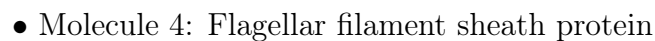
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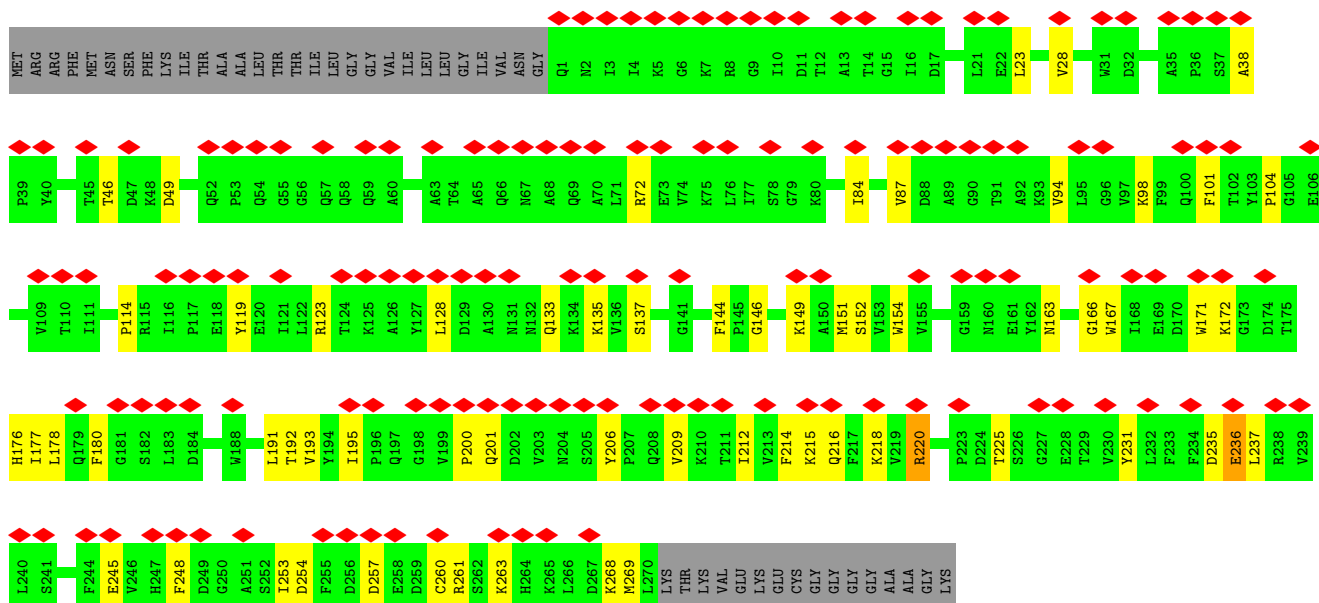


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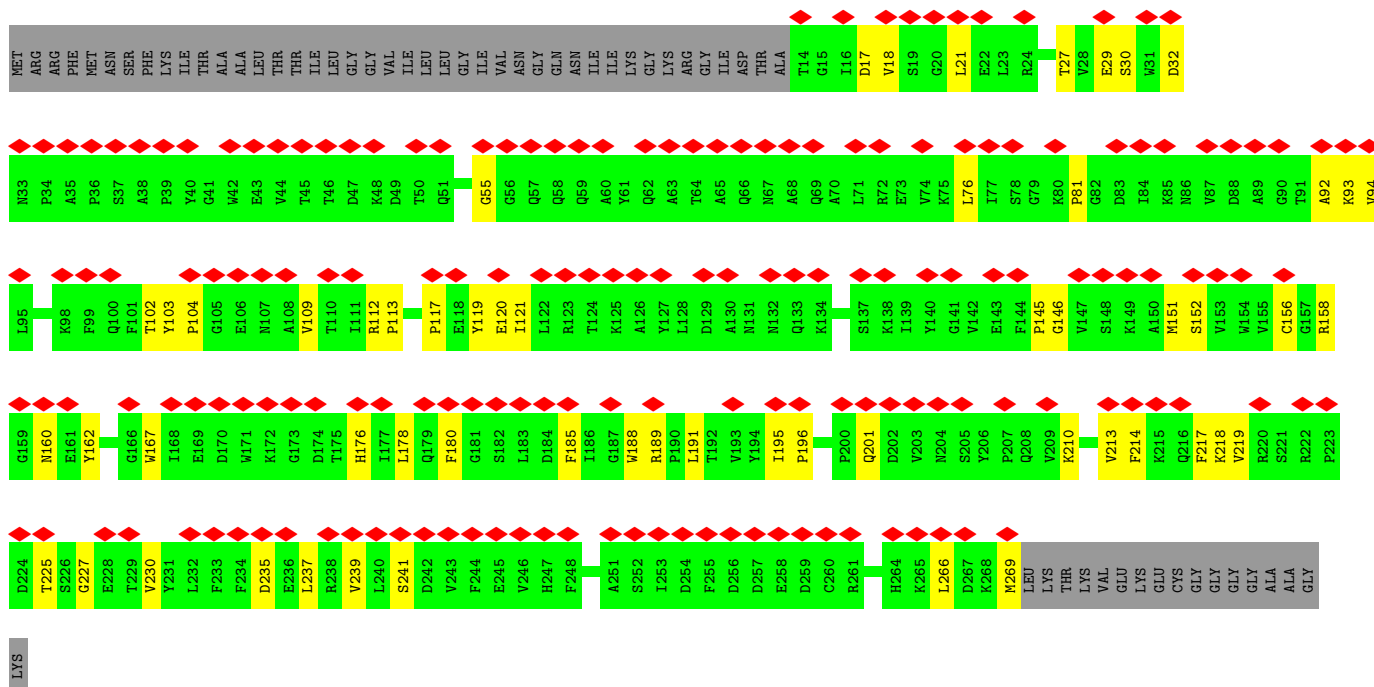


• Molecule 4: Flagellar filament sheath protein

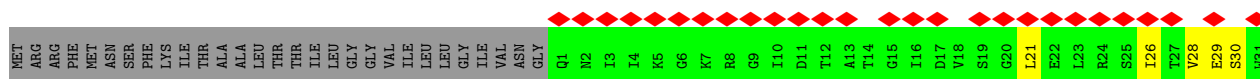


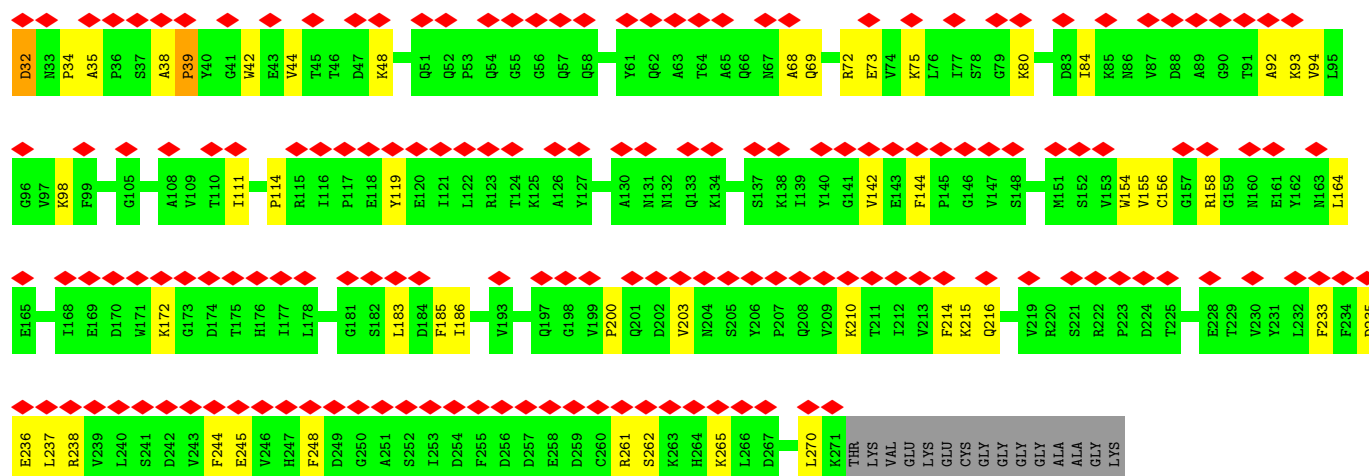


• Molecule 4: Flagellar filament sheath protein

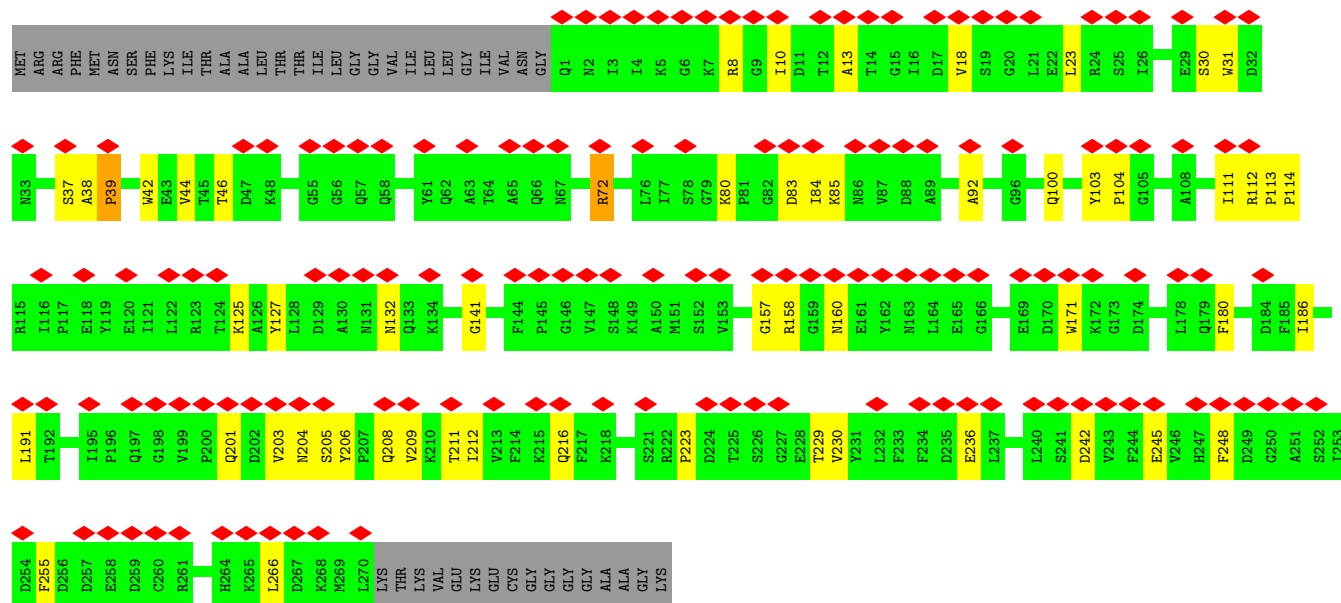


• Molecule 4: Flagellar filament sheath protein

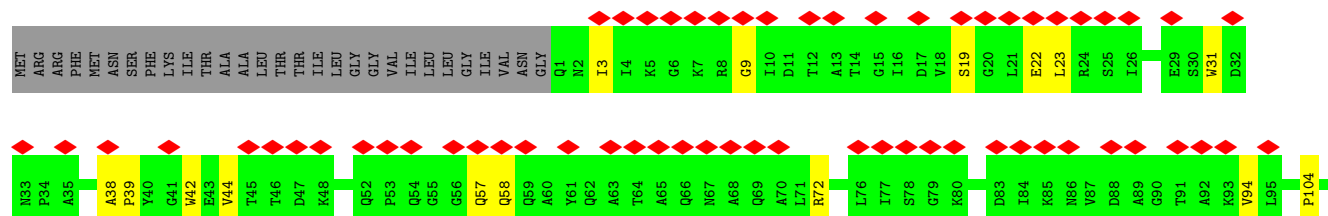


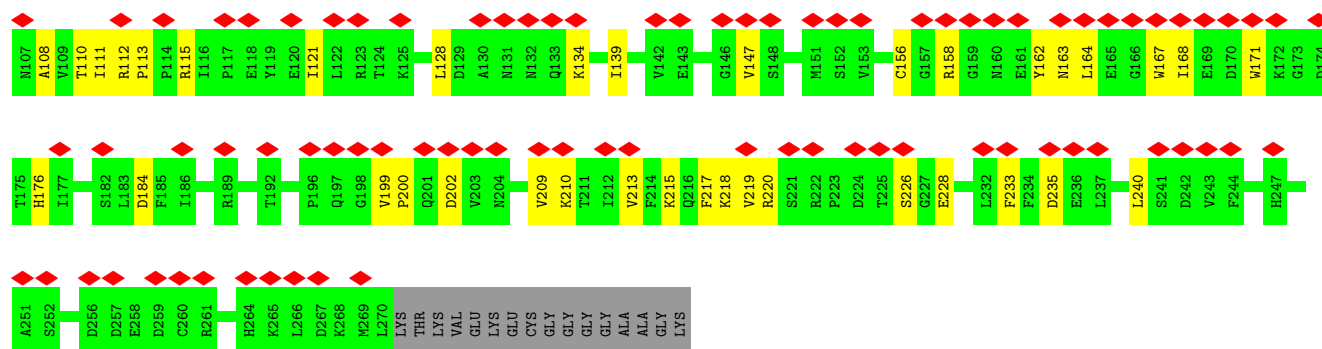


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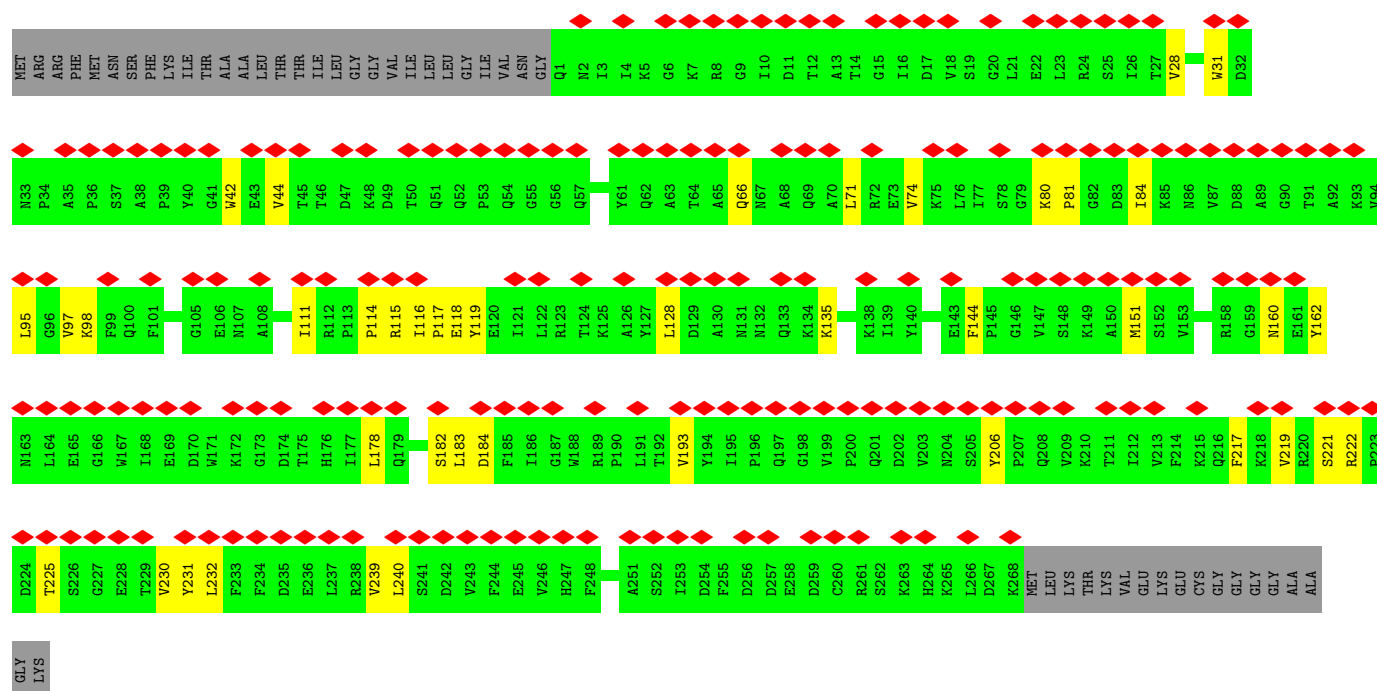
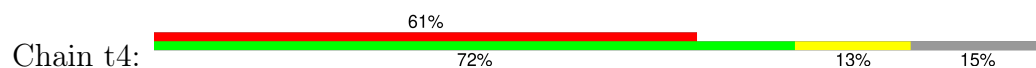


• Molecule 4: Flagellar filament sheath protein

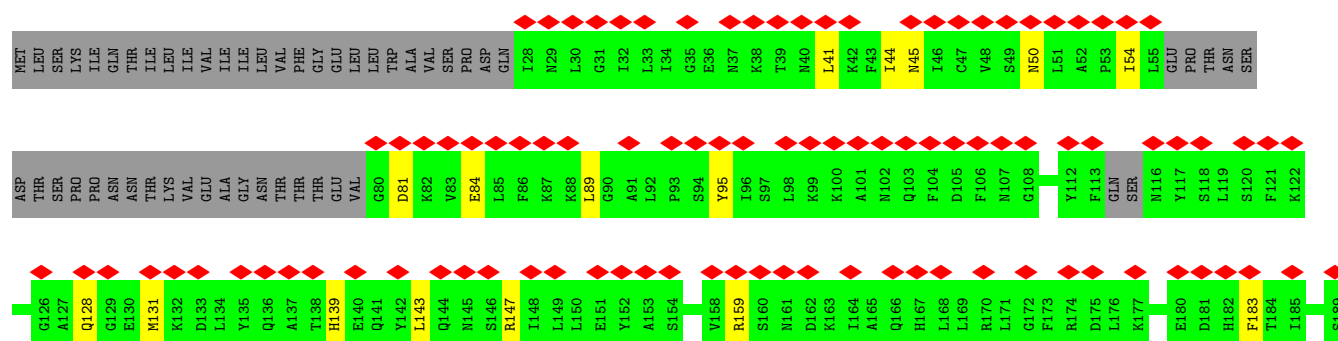




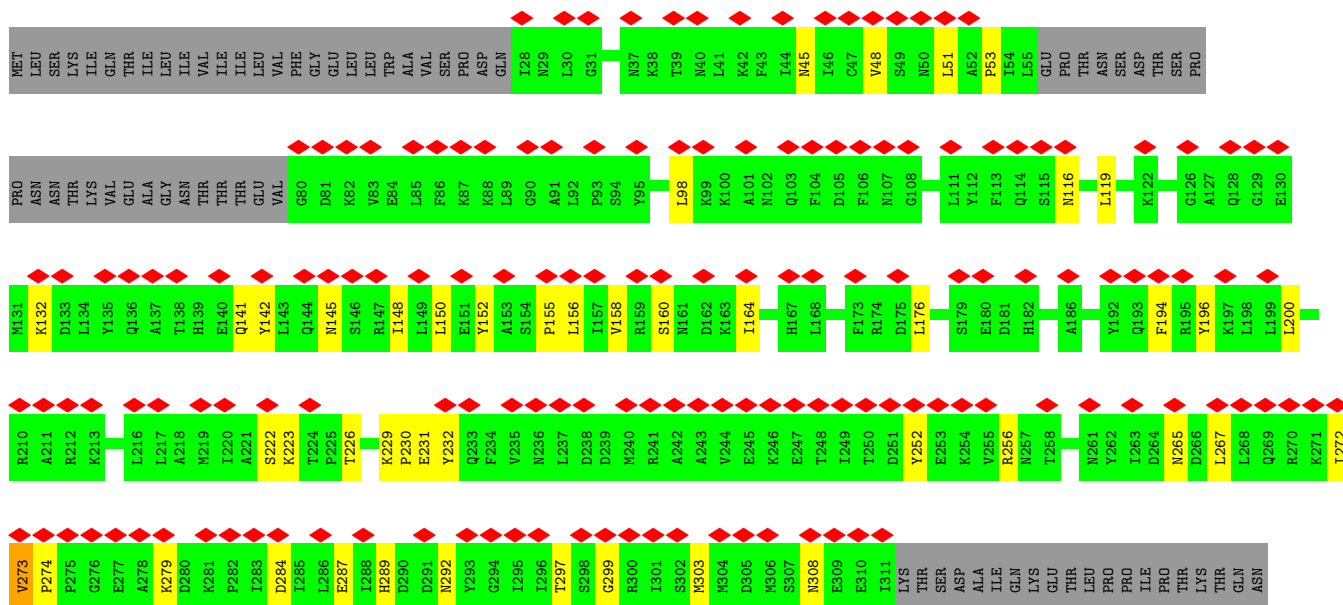
• Molecule 4: Flagellar filament sheath protein



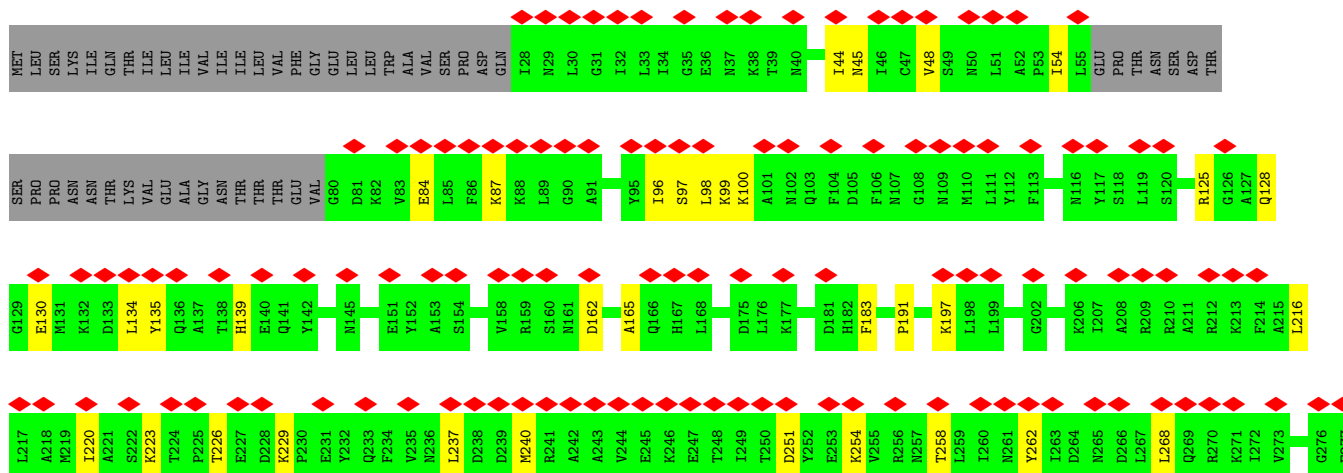
• Molecule 5: AraC family transcriptional regulator



- Molecule 5: AraC family transcriptional regulator

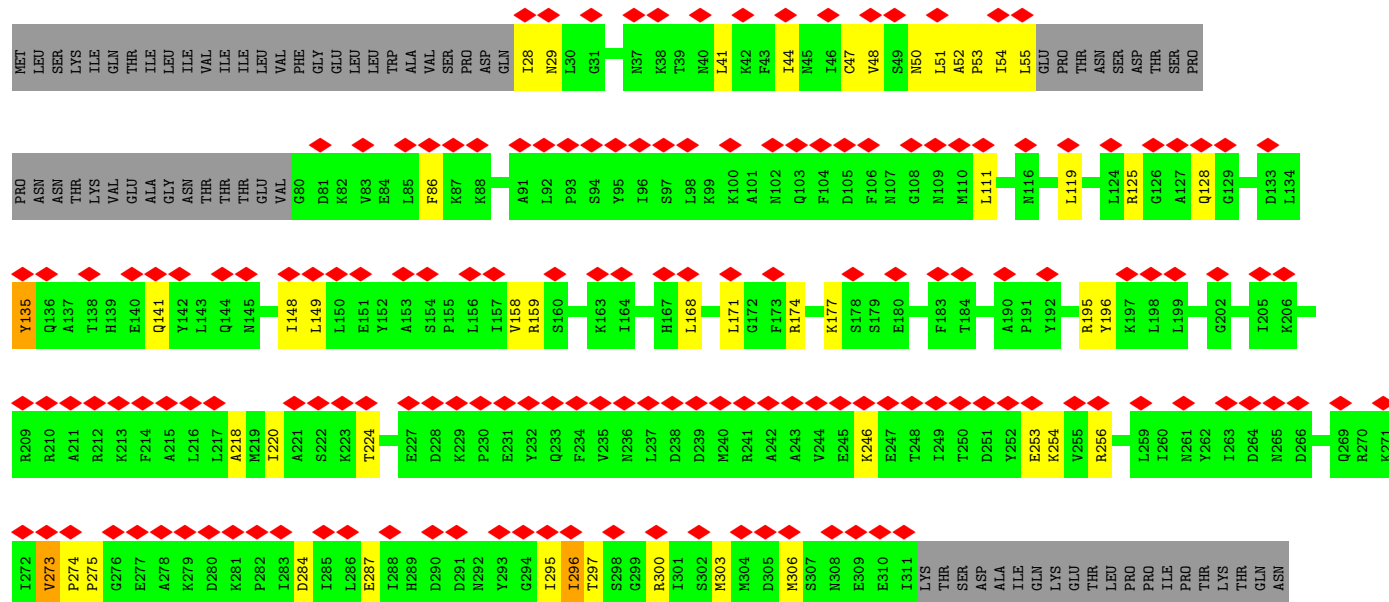


- Molecule 5: AraC family transcriptional regulator

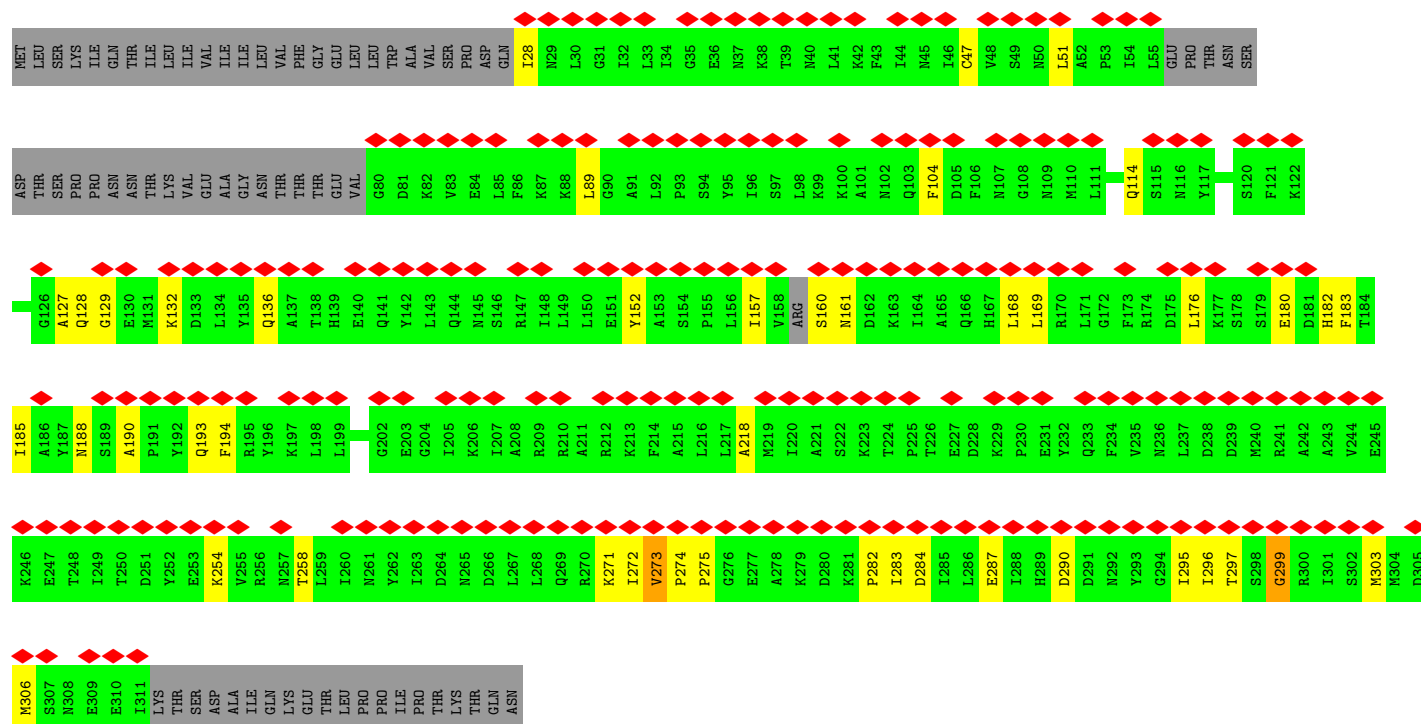




• Molecule 5: AraC family transcriptional regulator

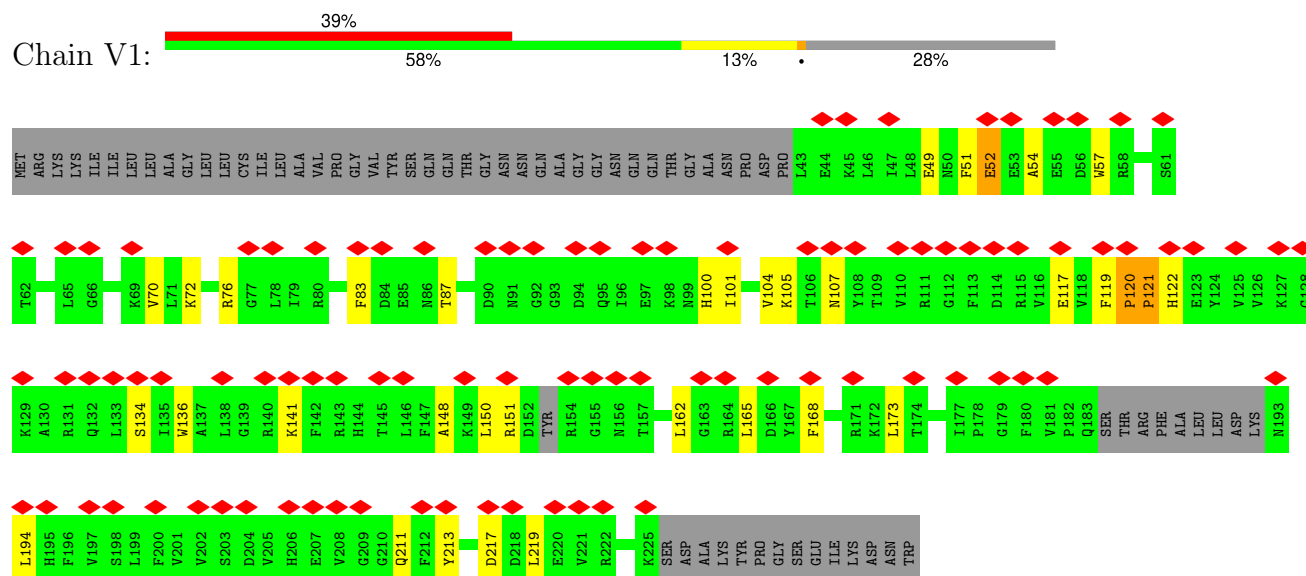


• Molecule 5: AraC family transcriptional regulator



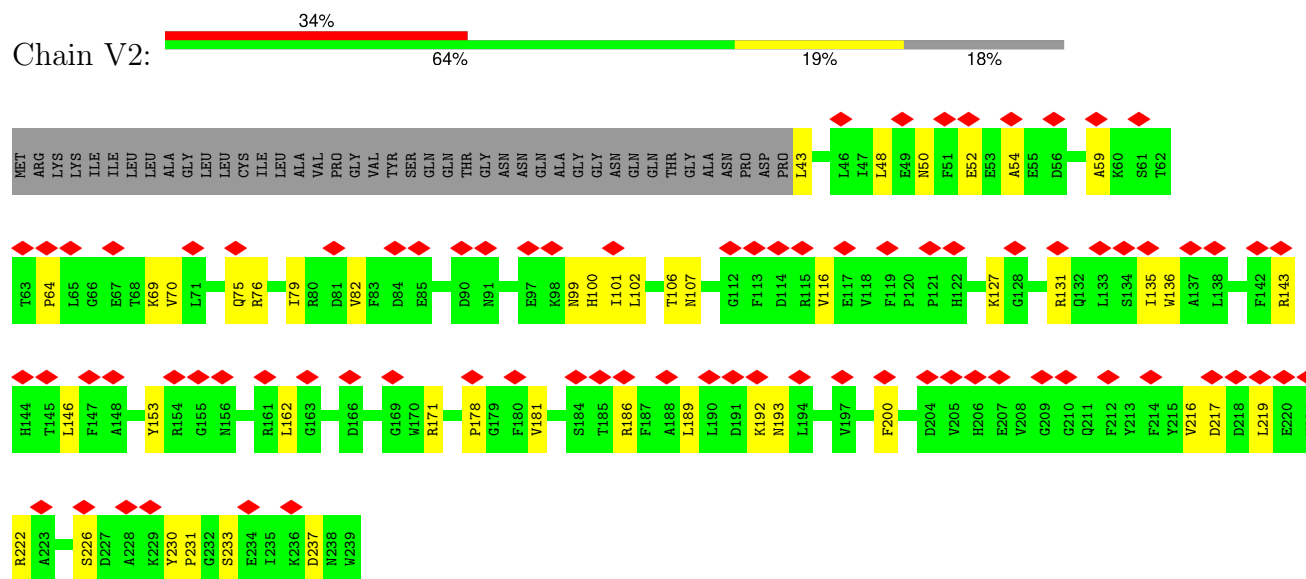
- Molecule 6: Flagellar filament outer layer protein FlaA

Chain V1:



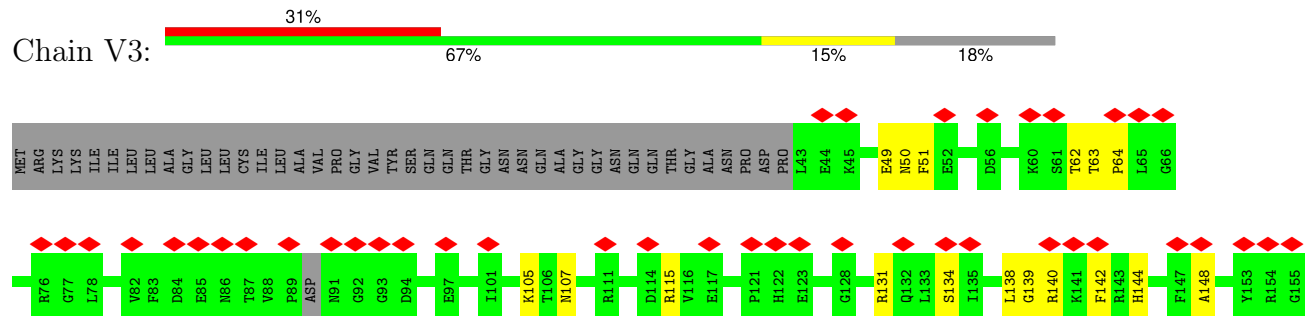
- Molecule 6: Flagellar filament outer layer protein FlaA

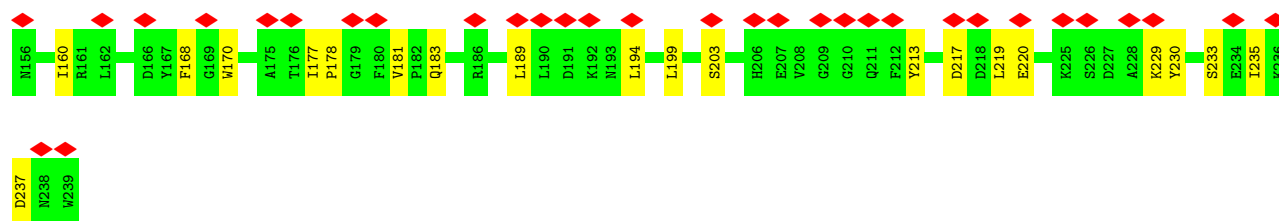
Chain V2:



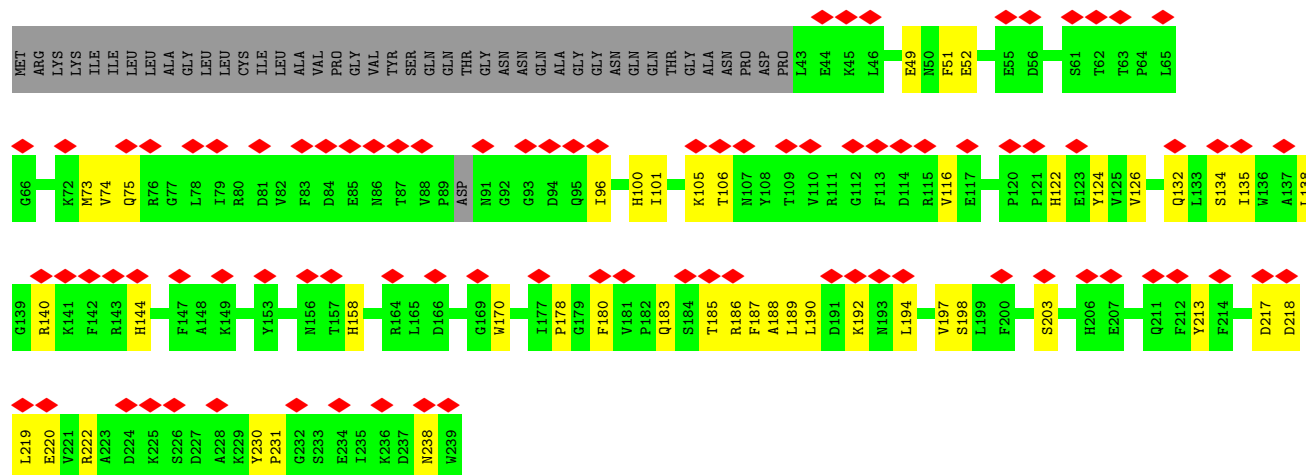
- Molecule 6: Flagellar filament outer layer protein FlaA

Chain V3:

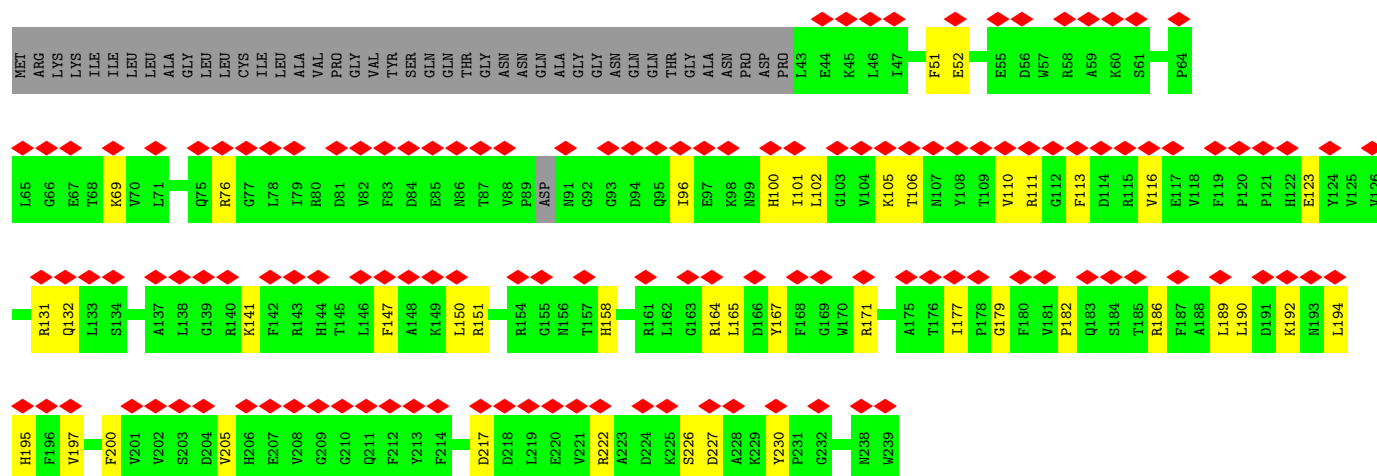




• Molecule 6: Flagellar filament outer layer protein FlaA

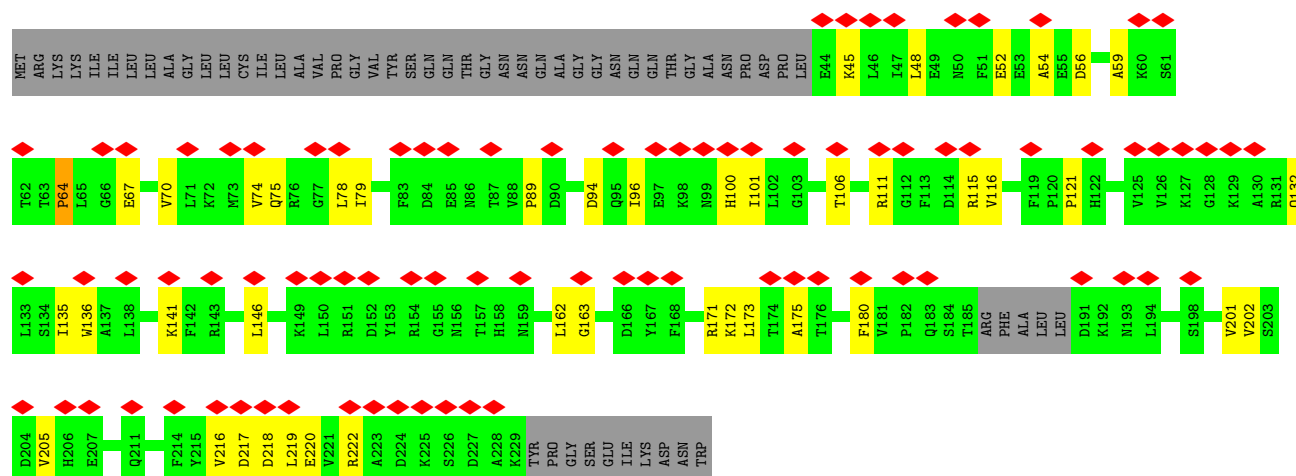


• Molecule 6: Flagellar filament outer layer protein FlaA

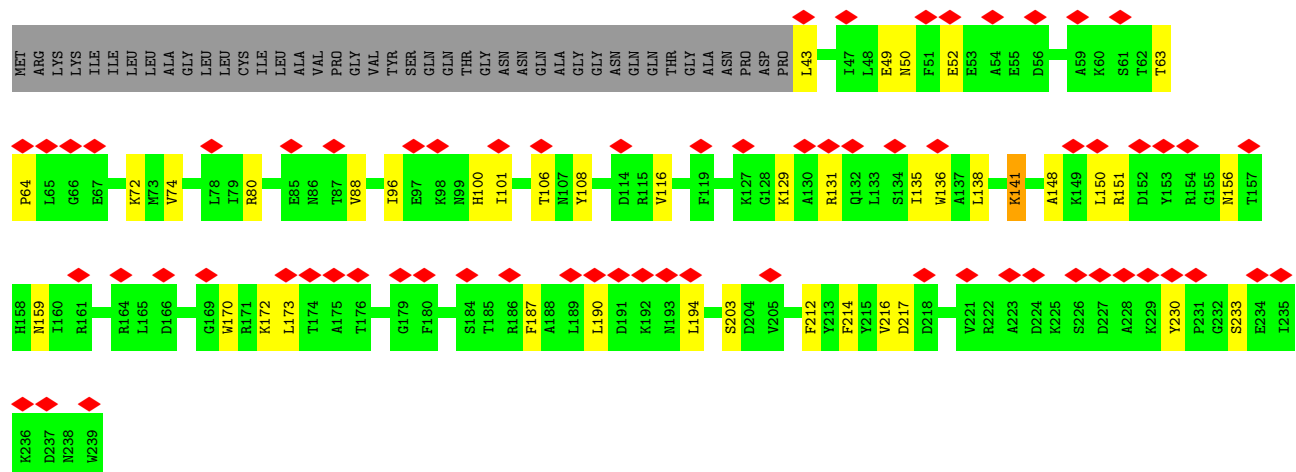


• Molecule 6: Flagellar filament outer layer protein FlaA

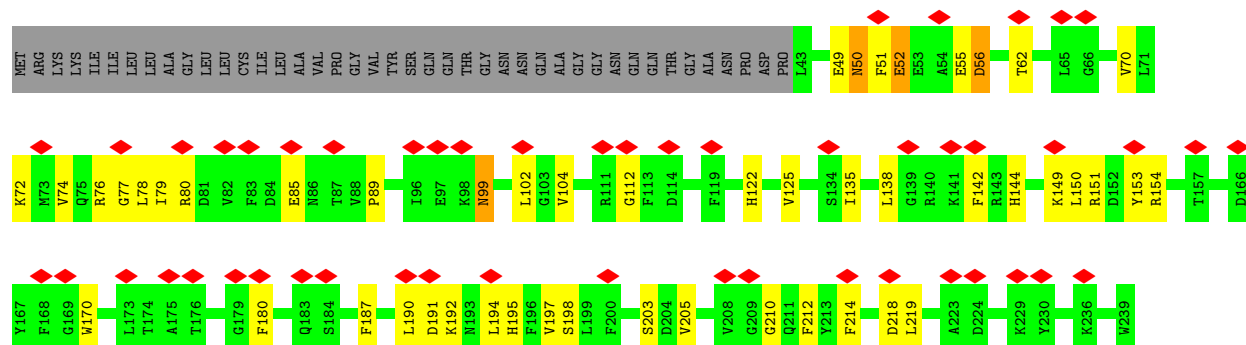




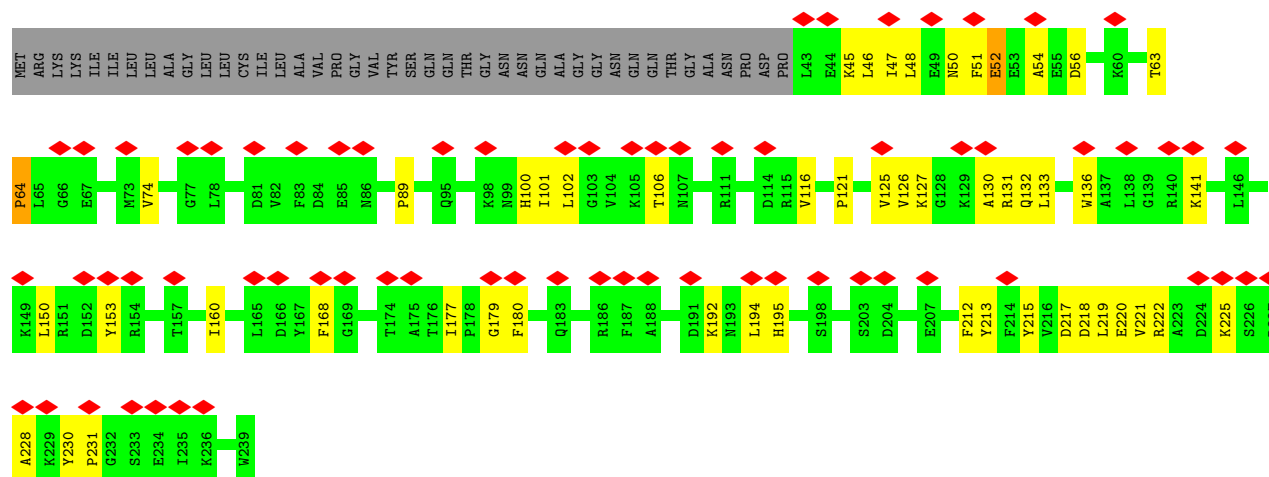
• Molecule 6: Flagellar filament outer layer protein FlaA



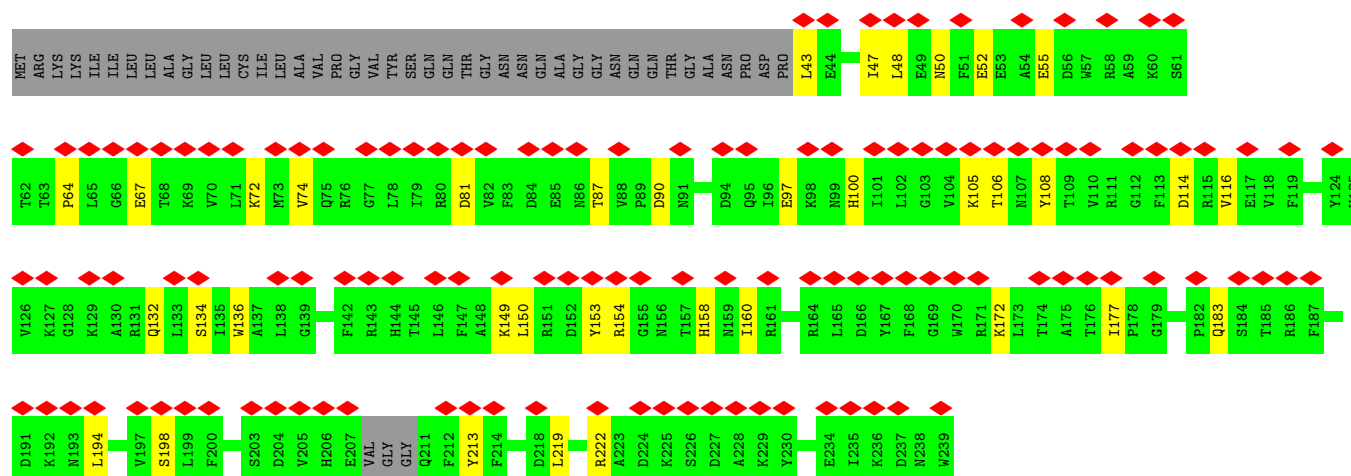
• Molecule 6: Flagellar filament outer layer protein FlaA



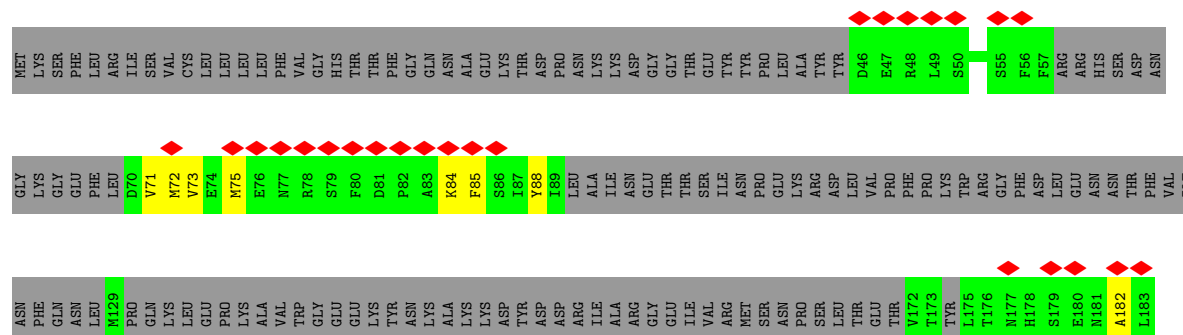
• Molecule 6: Flagellar filament outer layer protein FlaA

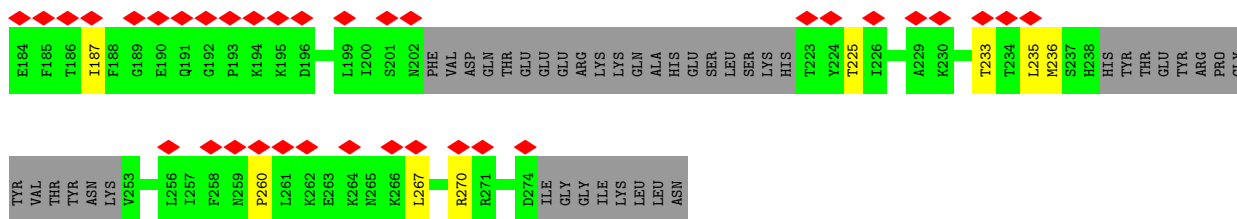


• Molecule 6: Flagellar filament outer layer protein FlaA

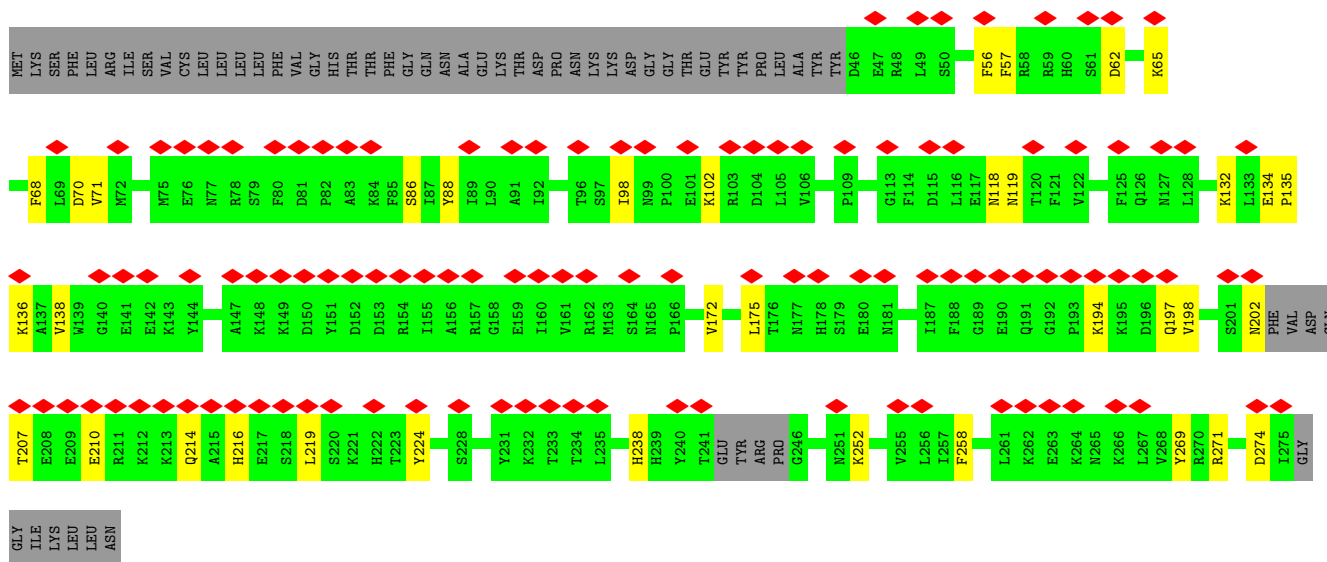
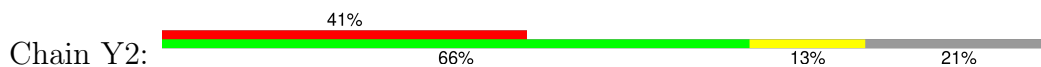


• Molecule 7: LIC_12075 protein

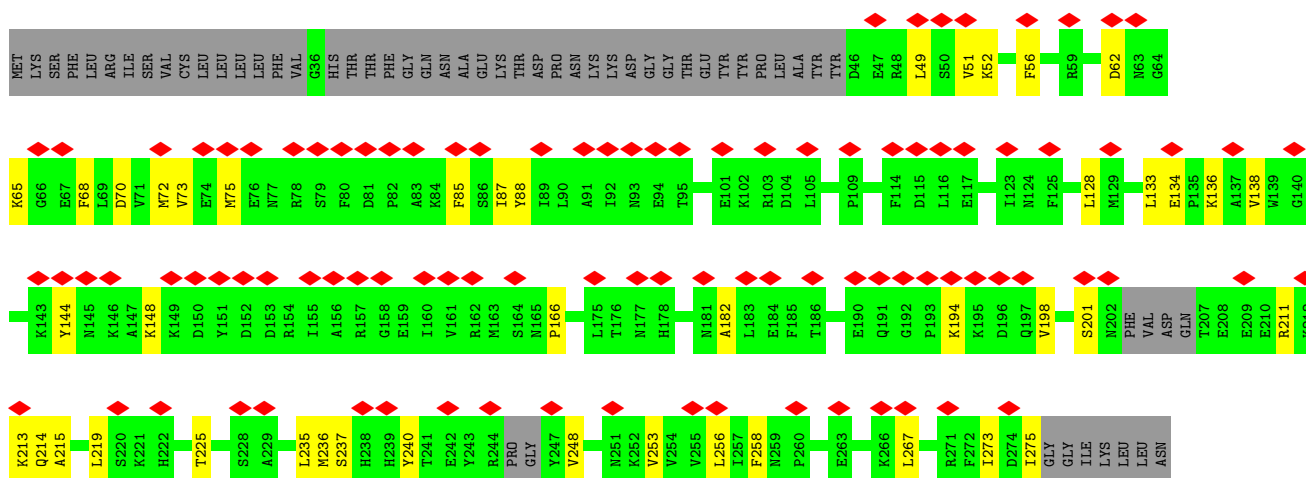




• Molecule 7: LIC_12075 protein

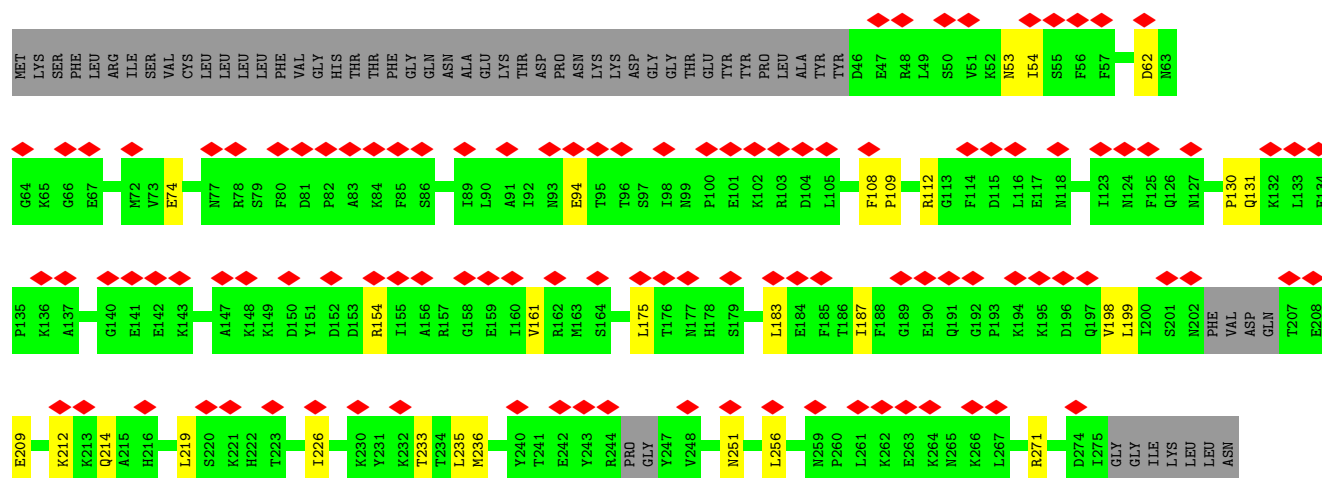


• Molecule 7: LIC_12075 protein

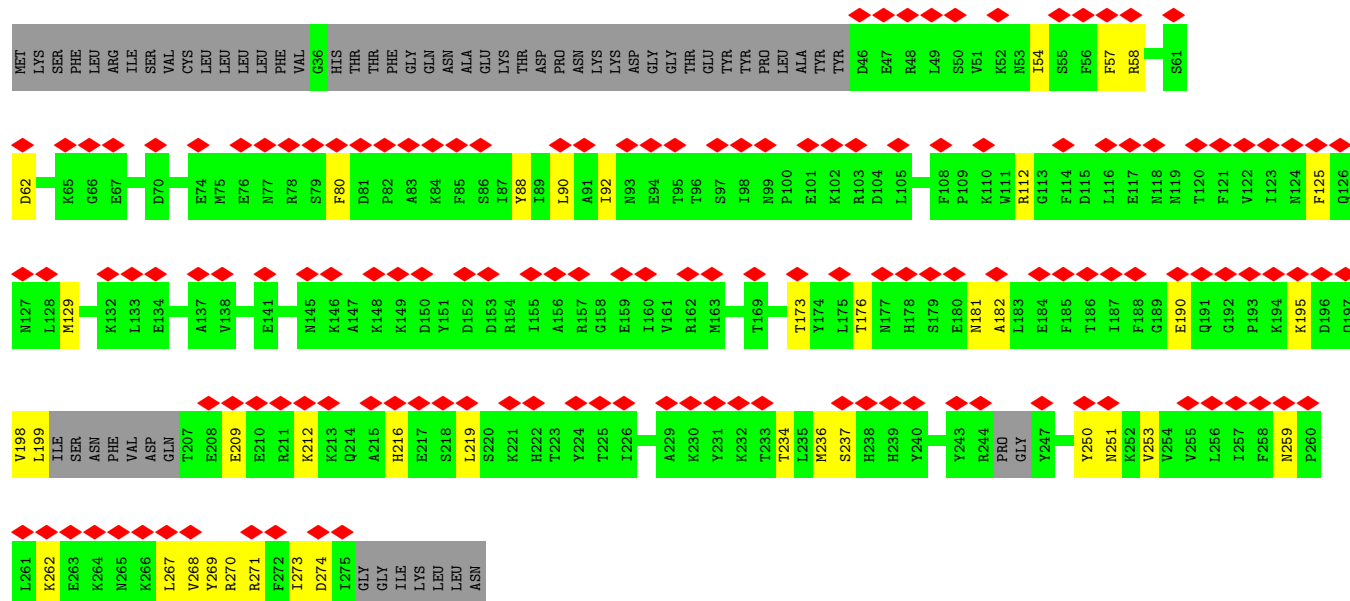


• Molecule 7: LIC_12075 protein

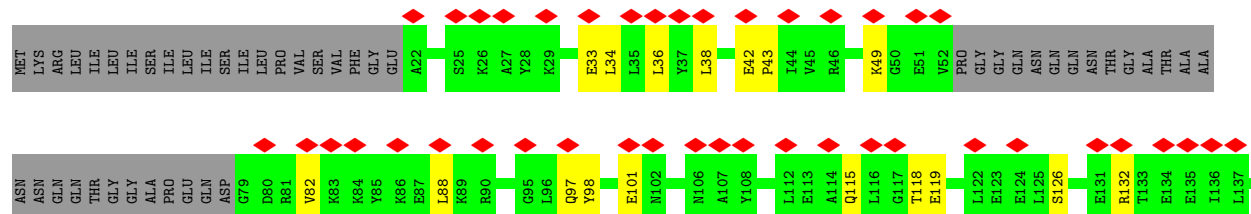


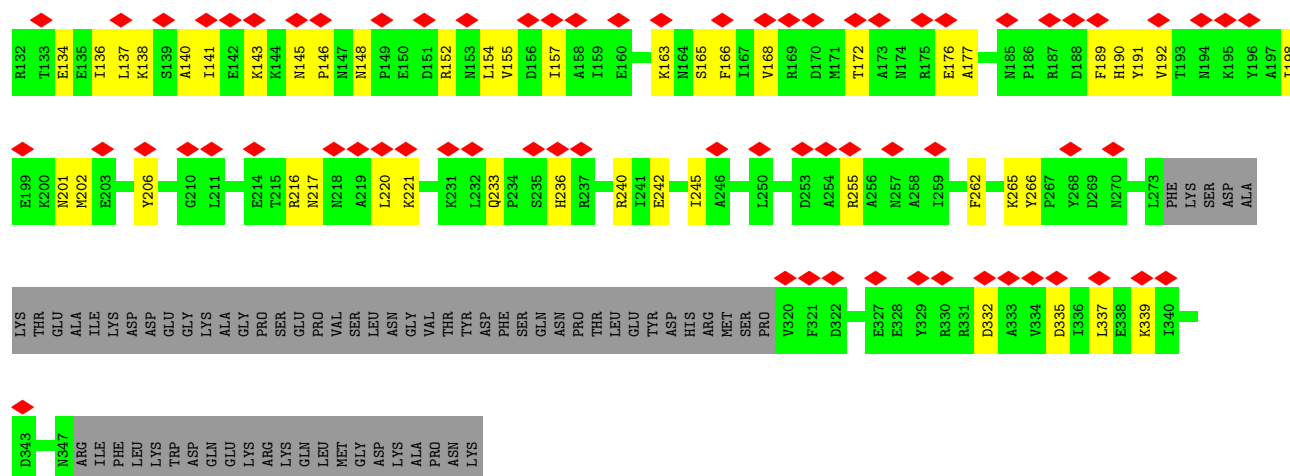


• Molecule 7: LIC_12075 protein

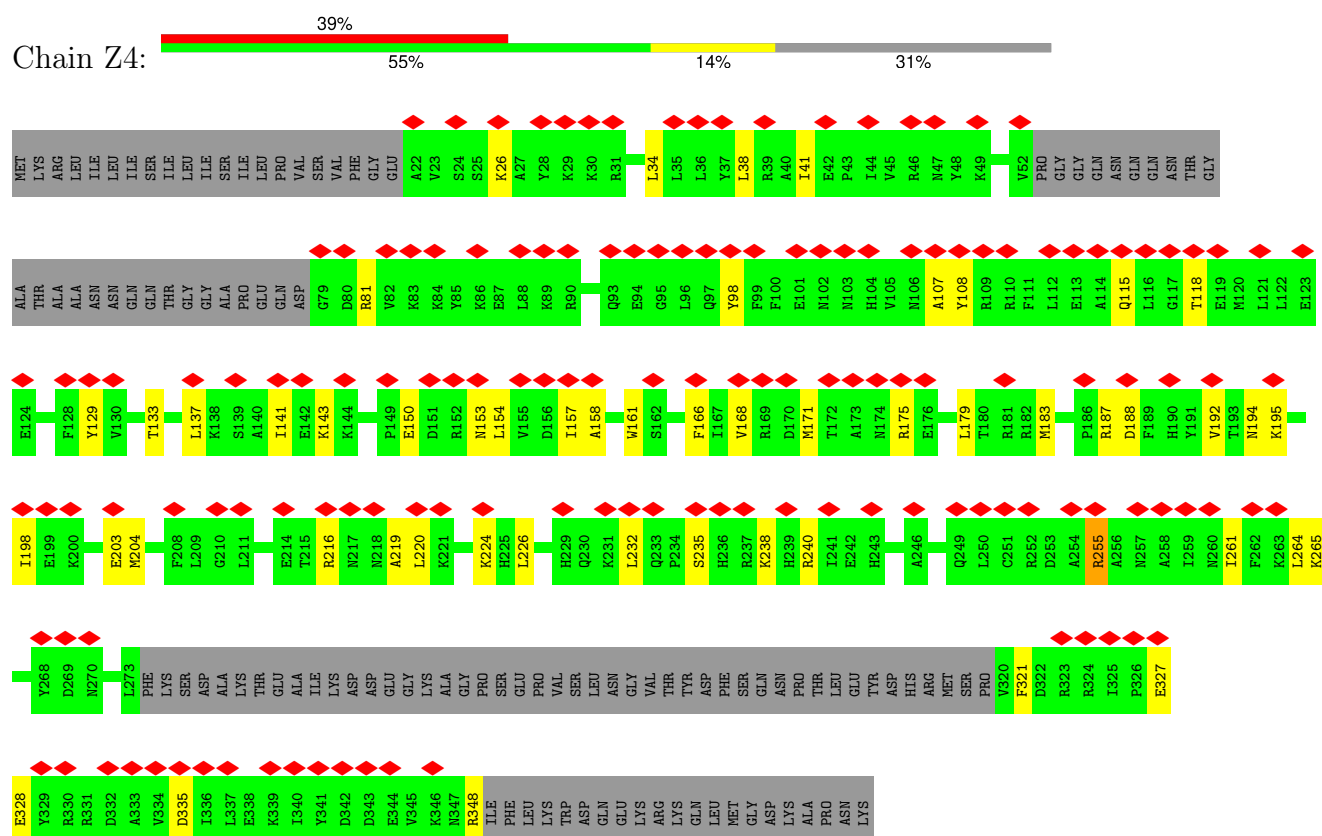


• Molecule 8: FlaA2-associated protein FlaAP

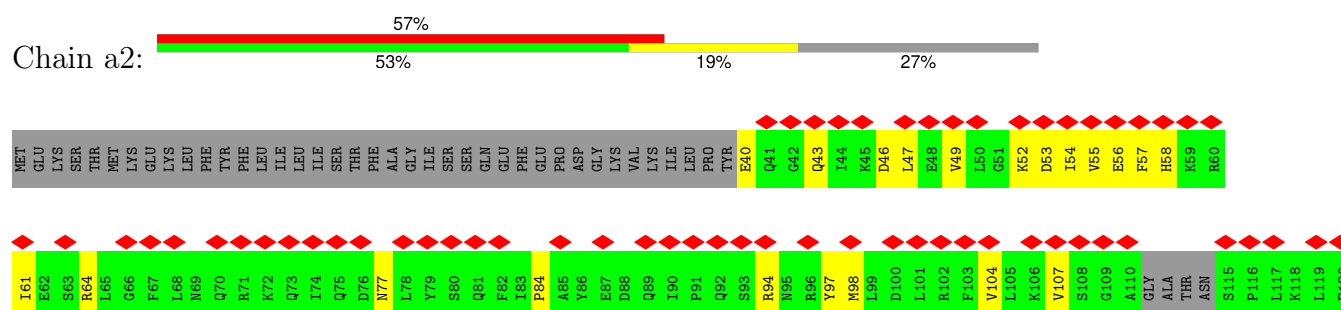


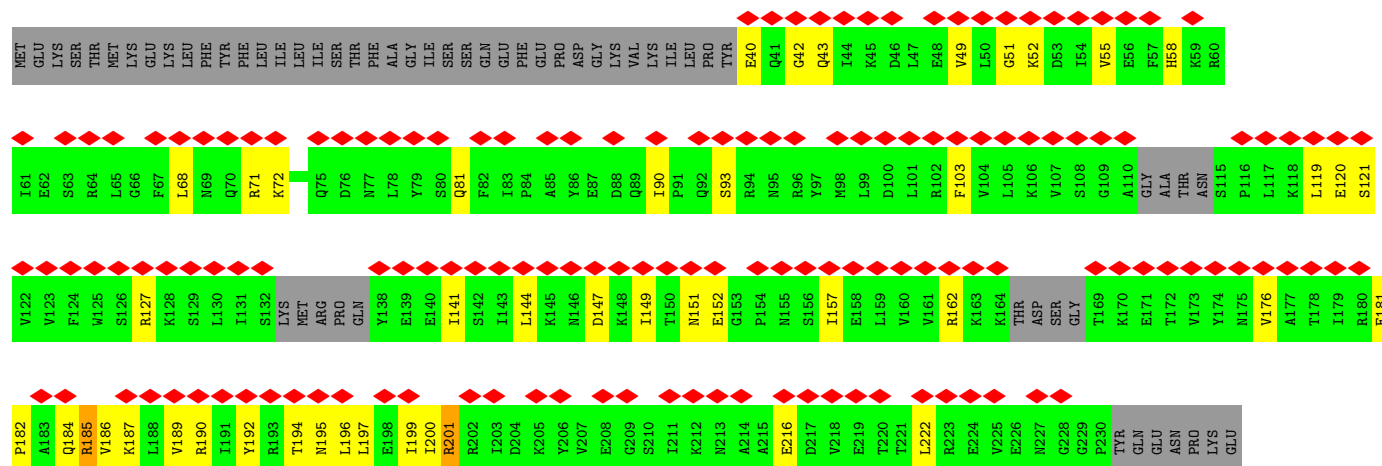


• Molecule 8: FlaA2-associated protein FlaAP

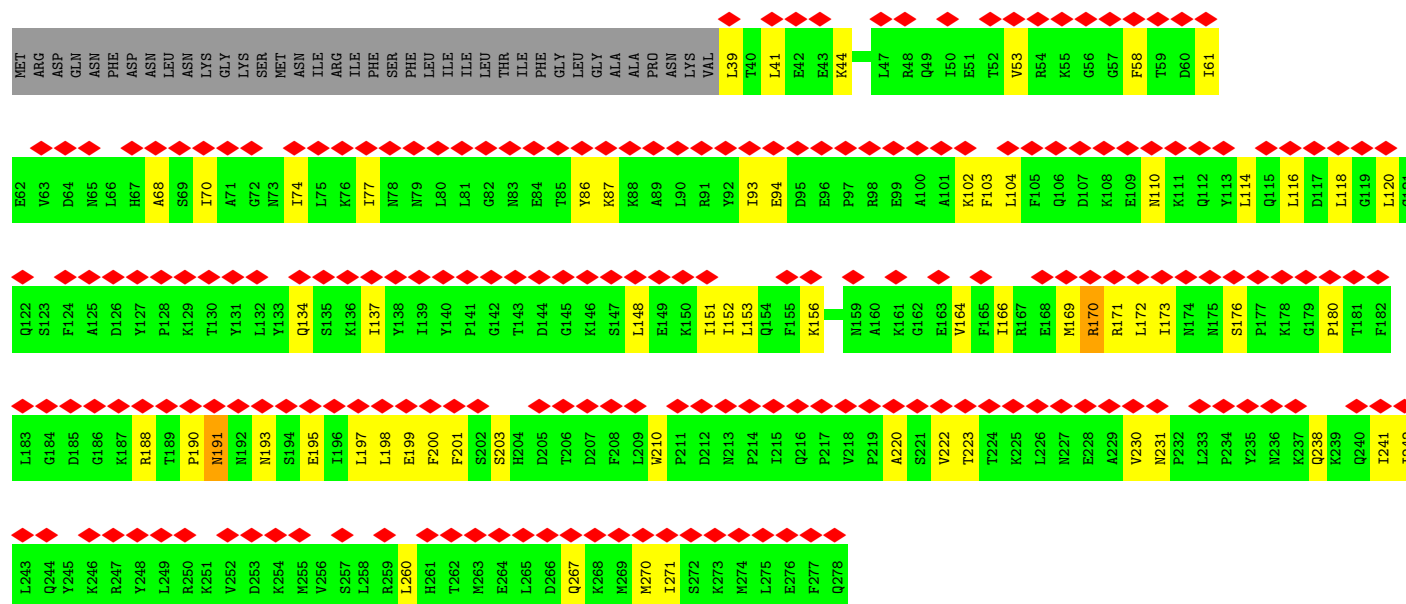
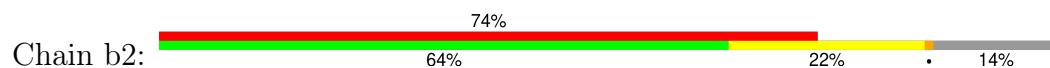


• Molecule 9: DUF4468 domain-containing protein

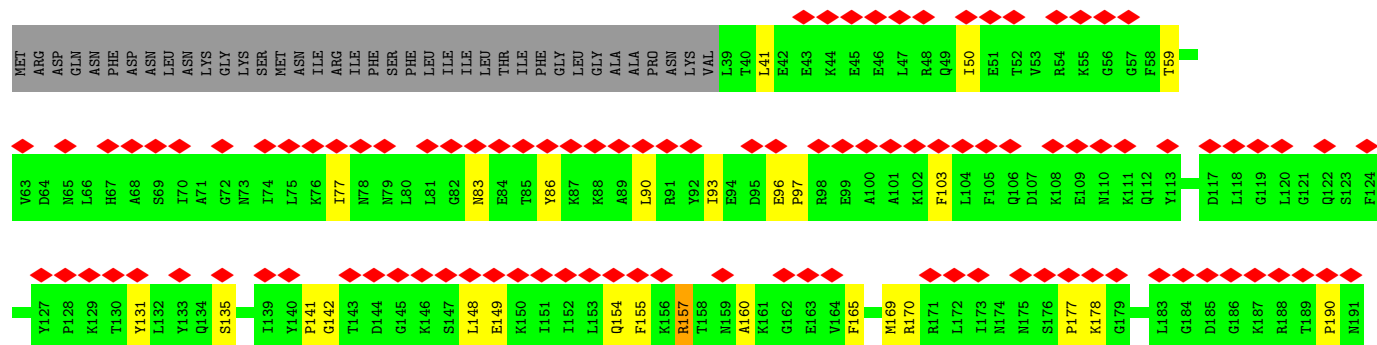




• Molecule 10: LIC_13212 protein

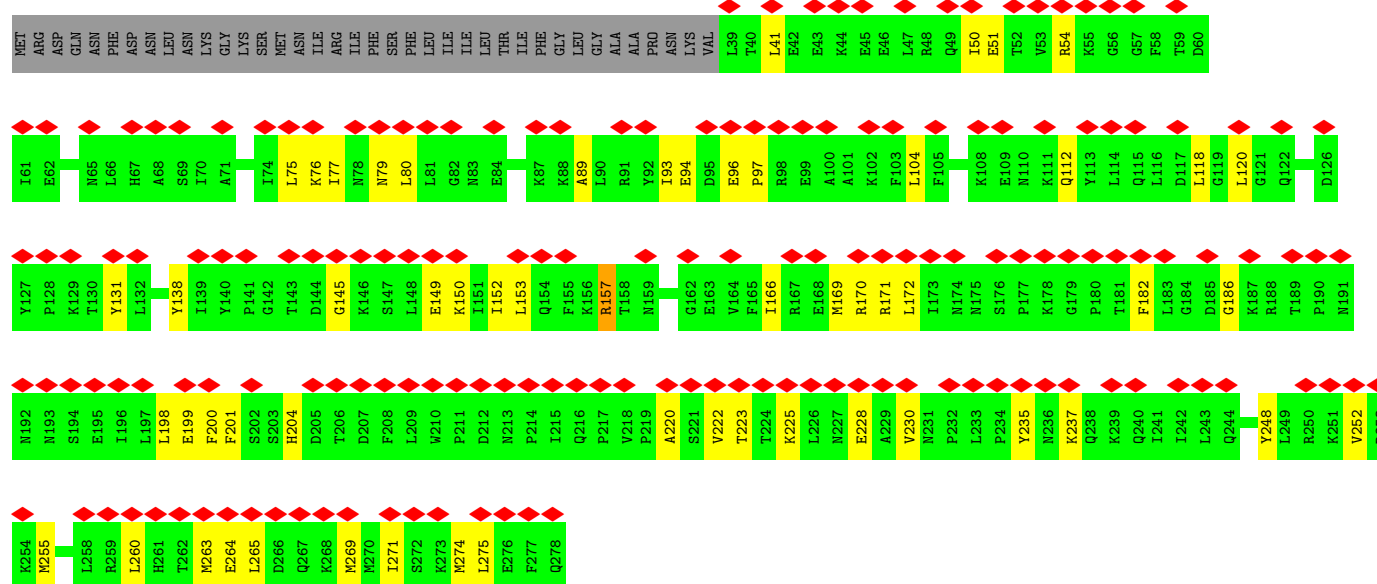


• Molecule 10: LIC_13212 protein

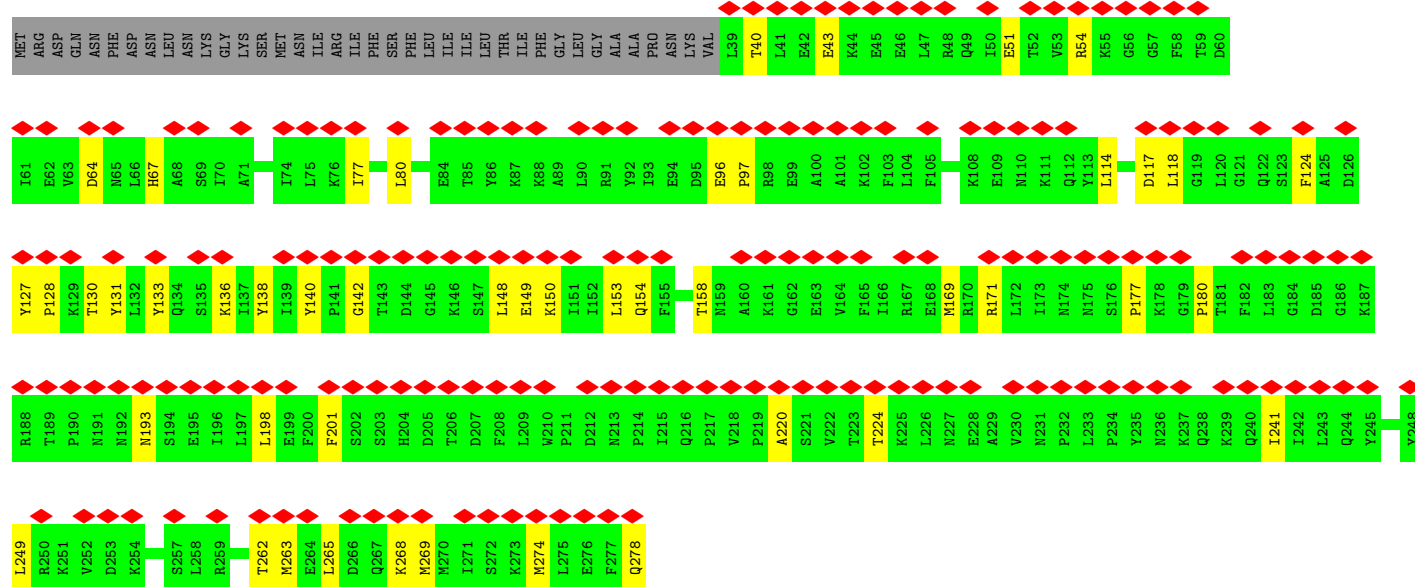




• Molecule 10: LIC_13212 protein

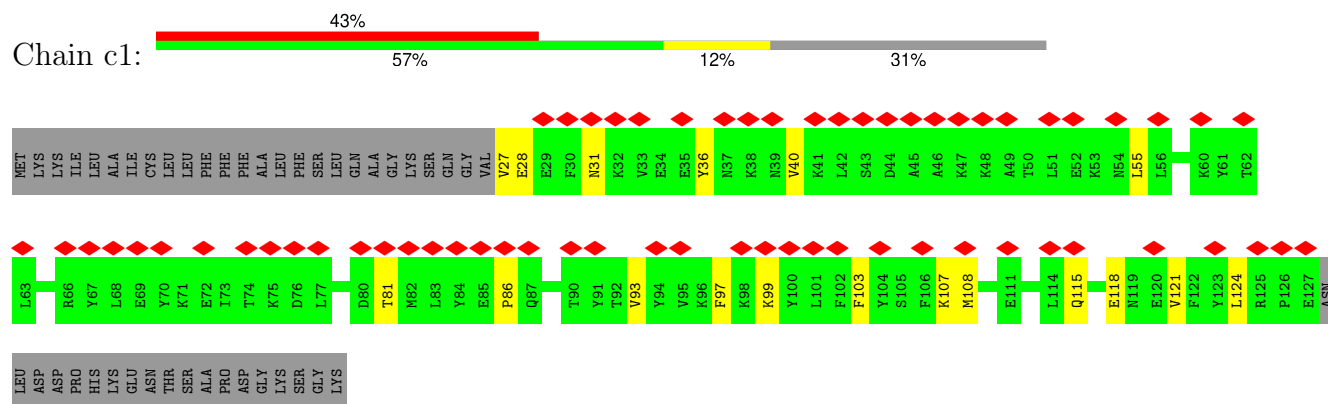


• Molecule 10: LIC_13212 protein



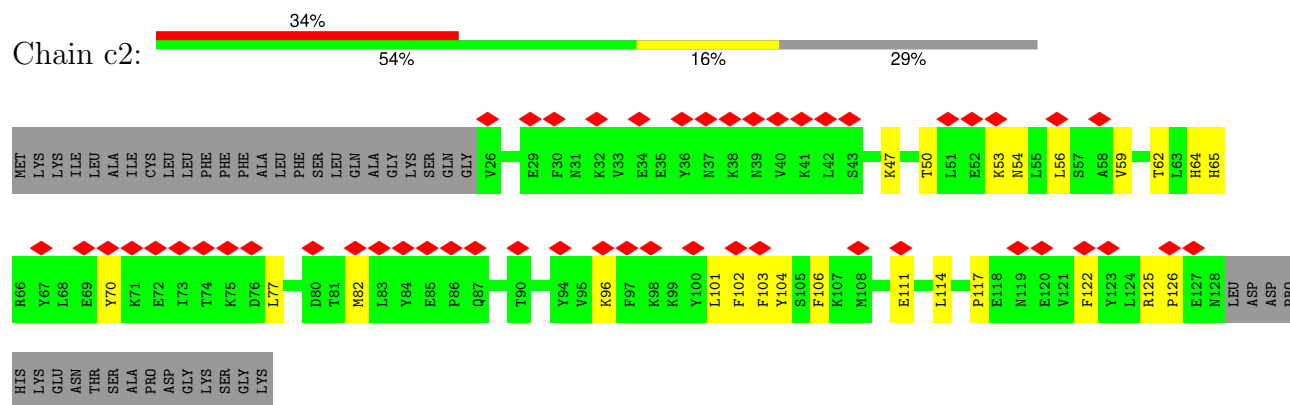
• Molecule 11: Lipoprotein

Chain c1:



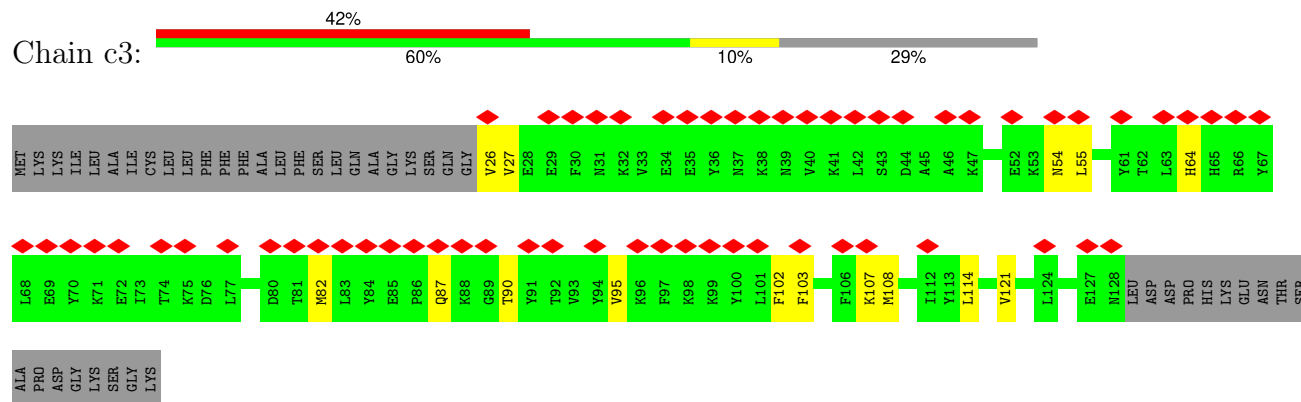
• Molecule 11: Lipoprotein

Chain c2:



• Molecule 11: Lipoprotein

Chain c3:



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	53501	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	61.5	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2600	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.405	Depositor
Minimum map value	-0.227	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.037	Depositor
Recommended contour level	0.04	Depositor
Map size (Å)	273.408, 273.408, 273.408	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.068, 1.068, 1.068	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section:
CA

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	A4	0.19	0/1395	0.50	0/1870
1	A5	0.21	0/2216	0.57	1/2980 (0.0%)
1	A6	0.20	0/2216	0.51	0/2980
1	A7	0.21	0/2216	0.55	0/2980
1	A8	0.20	0/1889	0.49	0/2538
1	A9	0.16	0/1142	0.44	0/1544
1	B3	0.18	0/803	0.43	0/1071
1	B4	0.20	0/1966	0.53	0/2639
1	B5	0.20	0/2225	0.53	0/2994
1	B6	0.18	0/2225	0.53	0/2994
1	B7	0.21	0/2174	0.54	0/2928
1	B8	0.17	0/1542	0.46	0/2077
1	C3	0.21	0/908	0.52	0/1214
1	C4	0.20	0/2225	0.55	0/2994
1	C5	0.18	0/2225	0.50	0/2994
1	C6	0.20	0/2225	0.50	0/2994
1	C7	0.21	0/1950	0.58	1/2623 (0.0%)
1	C8	0.18	0/1201	0.47	0/1621
1	D3	0.19	0/1752	0.52	0/2345
1	D4	0.18	0/2225	0.49	0/2994
1	D5	0.21	0/2225	0.55	0/2994
1	D6	0.19	0/2207	0.52	0/2972
1	D7	0.19	0/1601	0.52	0/2156
1	E2	0.20	0/909	0.50	0/1214
1	E3	0.19	0/2208	0.51	0/2967
1	E4	0.21	0/2225	0.56	0/2994
1	E5	0.18	0/2225	0.48	0/2994
1	E6	0.20	0/1996	0.55	0/2686
1	E7	0.16	0/1253	0.45	0/1689
1	F2	0.19	0/1639	0.56	0/2193
1	F3	0.19	0/2216	0.53	0/2980
1	F4	0.20	0/2204	0.54	0/2963

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	F5	0.19	0/2213	0.47	0/2977
1	F6	0.18	0/1686	0.48	0/2270
1	G1	0.19	0/2034	0.52	0/2737
1	G2	0.18	0/1328	0.50	0/1791
1	G6	0.18	0/908	0.50	0/1214
1	G7	0.20	0/2149	0.53	0/2887
1	G8	0.21	0/2225	0.53	0/2994
1	G9	0.20	0/2225	0.52	0/2994
1	H6	0.20	0/1575	0.55	0/2108
1	H7	0.19	0/2225	0.48	0/2994
1	H8	0.19	0/2225	0.51	0/2994
1	H9	0.20	0/2225	0.52	0/2994
1	I5	0.20	0/912	0.51	0/1217
1	I6	0.19	0/2125	0.53	0/2855
1	I7	0.19	0/2225	0.50	0/2994
1	I8	0.20	0/2225	0.55	1/2994 (0.0%)
1	I9	0.19	0/2091	0.51	0/2814
1	J5	0.19	0/1507	0.55	0/2018
1	J6	0.19	0/2225	0.52	0/2994
1	J7	0.20	0/2225	0.54	0/2994
1	J8	0.20	0/2225	0.56	0/2994
1	J9	0.18	0/1824	0.55	0/2451
1	K4	0.19	0/887	0.50	0/1182
1	K5	0.19	0/2031	0.52	0/2725
1	K6	0.18	0/2216	0.48	0/2980
1	K7	0.18	0/2208	0.48	0/2967
1	K8	0.19	0/2116	0.52	0/2848
1	K9	0.18	0/1462	0.54	1/1972 (0.1%)
1	h0	0.17	0/1752	0.47	0/2356
1	h1	0.15	0/784	0.42	0/1059
1	i0	0.18	0/1396	0.54	0/1884
1	j0	0.17	0/934	0.49	0/1262
2	L2	0.16	0/1709	0.44	0/2292
2	L3	0.17	0/1808	0.47	0/2433
2	L4	0.17	0/1808	0.50	0/2433
2	L5	0.16	0/1808	0.47	0/2433
2	L6	0.15	0/1388	0.47	0/1864
2	M1	0.16	0/615	0.55	0/821
2	M2	0.17	0/1839	0.54	0/2474
2	M3	0.18	0/1839	0.46	0/2474
2	M4	0.17	0/1839	0.51	0/2474
2	M5	0.18	0/1708	0.51	0/2291
2	N2	0.17	0/1577	0.49	0/2117

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
2	N3	0.18	0/1807	0.46	0/2432
2	N4	0.19	0/1807	0.51	0/2432
2	N5	0.18	0/1807	0.49	0/2432
2	N6	0.17	0/1420	0.46	0/1904
2	O1	0.13	0/516	0.46	0/692
2	O2	0.17	0/1794	0.47	0/2413
2	O3	0.17	0/1807	0.47	0/2432
2	O4	0.19	0/1807	0.50	0/2432
2	O5	0.17	0/1775	0.45	0/2385
2	P2	0.16	0/1506	0.46	0/2021
2	P3	0.18	0/1790	0.50	0/2409
2	P4	0.17	0/1790	0.48	0/2409
2	P5	0.16	0/1790	0.45	0/2409
2	P6	0.17	0/1489	0.45	0/2004
3	Q1	0.18	0/1343	0.52	0/1795
3	Q2	0.20	0/1598	0.58	0/2147
3	Q3	0.18	0/1664	0.58	0/2235
3	Q4	0.17	0/1632	0.59	0/2192
3	R2	0.16	0/1554	0.54	0/2089
3	R3	0.17	0/1710	0.57	0/2299
3	R4	0.17	0/1619	0.50	0/2176
3	R5	0.16	0/1615	0.54	0/2171
3	S2	0.16	0/1248	0.50	0/1665
3	S3	0.18	0/1586	0.54	0/2131
3	S4	0.16	0/1632	0.54	0/2191
3	S5	0.16	0/1611	0.51	0/2165
3	S6	0.17	0/1568	0.55	0/2102
4	T1	0.14	0/2078	0.48	0/2815
4	T2	0.15	0/2192	0.52	0/2974
4	T3	0.15	0/2192	0.60	1/2974 (0.0%)
4	T4	0.15	0/2086	0.53	0/2833
4	t1	0.18	0/2201	0.67	2/2985 (0.1%)
4	t2	0.16	0/2192	0.54	0/2974
4	t3	0.15	0/2192	0.55	1/2974 (0.0%)
4	t4	0.15	0/2176	0.52	0/2953
5	U3	0.16	0/2119	0.46	0/2851
5	U4	0.17	0/2135	0.49	1/2874 (0.0%)
5	U5	0.18	0/2135	0.47	0/2874
5	U6	0.17	0/2135	0.45	0/2874
5	U7	0.20	0/2120	0.56	7/2853 (0.2%)
6	V1	0.16	0/1454	0.57	1/1961 (0.1%)
6	V2	0.16	0/1661	0.60	0/2243
6	V3	0.16	0/1652	0.55	2/2229 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
6	V4	0.16	0/1652	0.56	0/2229
6	V5	0.16	0/1652	0.58	0/2229
6	X1	0.18	0/1518	0.65	0/2048
6	X2	0.17	0/1661	0.57	0/2243
6	X3	0.19	0/1661	0.68	6/2243 (0.3%)
6	X4	0.19	0/1661	0.60	1/2243 (0.0%)
6	X5	0.15	0/1643	0.54	0/2217
7	Y1	0.13	0/845	0.43	0/1129
7	Y2	0.14	0/1884	0.46	0/2537
7	Y3	0.14	0/1916	0.49	0/2578
7	Y4	0.14	0/1913	0.49	0/2576
7	Y5	0.14	0/1894	0.52	0/2548
8	Z1	0.17	0/2215	0.47	0/2972
8	Z2	0.17	0/2215	0.50	0/2972
8	Z3	0.17	0/2204	0.49	0/2958
8	Z4	0.17	0/2215	0.49	0/2972
9	a2	0.16	0/1437	0.49	0/1928
9	a3	0.18	0/1477	0.53	0/1983
9	a4	0.17	0/1477	0.48	0/1983
9	a5	0.18	0/1477	0.55	0/1983
10	b2	0.18	0/2010	0.52	0/2705
10	b3	0.16	0/2009	0.54	0/2705
10	b4	0.16	0/2009	0.52	0/2705
10	b5	0.16	0/2009	0.53	0/2705
11	c1	0.15	0/889	0.46	0/1199
11	c2	0.16	0/904	0.52	0/1220
11	c3	0.14	0/904	0.43	0/1220
All	All	0.18	0/257310	0.52	26/346231 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A4	0	2
1	A5	0	1
1	A7	0	1
1	A8	0	2
1	B3	0	1
1	B4	0	3
1	B5	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	B6	0	1
1	B7	0	1
1	B8	0	1
1	C4	0	2
1	C6	0	1
1	C7	0	2
1	D3	0	3
1	D4	0	1
1	D5	0	2
1	D7	0	1
1	E3	0	1
1	E5	0	3
1	F2	0	2
1	F3	0	2
1	F4	0	2
1	F6	0	3
1	G1	0	4
1	G2	0	3
1	G6	0	1
1	G7	0	1
1	G8	0	5
1	G9	0	2
1	H6	0	2
1	H7	0	1
1	H8	0	3
1	I5	0	1
1	I6	0	1
1	I7	0	2
1	I8	0	1
1	I9	0	2
1	J5	0	1
1	J6	0	3
1	J8	0	2
1	J9	0	1
1	K5	0	4
1	K6	0	2
1	K7	0	1
1	K8	0	1
1	K9	0	1
1	h0	0	2
1	h1	0	1
1	i0	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
2	L2	0	1
2	M3	0	1
2	N2	0	1
2	N3	0	2
2	O4	0	1
2	O5	0	1
2	P2	0	1
2	P3	0	1
3	Q1	0	1
3	Q2	0	1
3	Q3	0	1
3	Q4	0	3
3	R2	0	1
3	S2	0	2
3	S5	0	1
3	S6	0	1
4	T3	0	2
4	t1	0	1
4	t2	0	1
7	Y4	0	1
7	Y5	0	1
8	Z1	0	2
8	Z2	0	1
8	Z3	0	2
8	Z4	0	3
9	a5	0	2
10	b2	0	1
10	b3	0	1
10	b4	0	1
All	All	0	127

There are no bond length outliers.

The worst 5 of 26 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	t1	32	ASP	CA-C-N	-8.32	113.35	122.59
4	t1	32	ASP	C-N-CA	-8.32	113.35	122.59
5	U7	160	SER	O-C-N	7.58	135.14	123.00
6	X3	52	GLU	CA-CB-CG	7.47	129.03	114.10
1	K9	219	ARG	CA-CB-CG	7.08	128.26	114.10

There are no chirality outliers.

5 of 127 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A4	14	ARG	Sidechain
1	A4	35	ARG	Sidechain
1	A5	123	ARG	Sidechain
1	A7	123	ARG	Sidechain
1	A8	61	ARG	Sidechain

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	A4	1379	0	1352	37	0
1	A5	2193	0	2209	86	0
1	A6	2193	0	2209	64	0
1	A7	2193	0	2209	59	0
1	A8	1872	0	1857	50	0
1	A9	1130	0	1131	15	0
1	B3	798	0	815	22	0
1	B4	1945	0	1961	60	0
1	B5	2201	0	2221	74	0
1	B6	2201	0	2221	66	0
1	B7	2150	0	2155	70	0
1	B8	1526	0	1529	37	0
1	C3	902	0	925	34	0
1	C4	2201	0	2221	65	0
1	C5	2201	0	2221	71	0
1	C6	2201	0	2221	79	0
1	C7	1930	0	1927	63	0
1	C8	1189	0	1182	16	0
1	D3	1733	0	1724	34	0
1	D4	2201	0	2219	55	0
1	D5	2201	0	2219	82	0
1	D6	2183	0	2195	60	0
1	D7	1585	0	1583	29	0
1	E2	903	0	925	21	0
1	E3	2186	0	2201	47	0
1	E4	2201	0	2221	70	0
1	E5	2201	0	2219	43	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E6	1975	0	1969	61	0
1	E7	1240	0	1228	20	0
1	F2	1621	0	1620	40	0
1	F3	2193	0	2209	58	0
1	F4	2182	0	2195	59	0
1	F5	2190	0	2207	65	0
1	F6	1670	0	1659	36	0
1	G1	2012	0	2008	57	0
1	G2	1313	0	1312	32	0
1	G6	902	0	925	10	0
1	G7	2128	0	2154	60	0
1	G8	2201	0	2220	62	0
1	G9	2201	0	2219	64	0
1	H6	1557	0	1559	45	0
1	H7	2201	0	2219	70	0
1	H8	2201	0	2219	57	0
1	H9	2201	0	2221	65	0
1	I5	906	0	929	30	0
1	I6	2104	0	2134	55	0
1	I7	2201	0	2221	70	0
1	I8	2201	0	2221	80	0
1	I9	2069	0	2070	76	0
1	J5	1490	0	1490	46	0
1	J6	2201	0	2221	54	0
1	J7	2201	0	2221	73	0
1	J8	2201	0	2221	62	0
1	J9	1807	0	1801	52	0
1	K4	882	0	900	21	0
1	K5	2012	0	2031	56	0
1	K6	2193	0	2207	49	0
1	K7	2186	0	2201	63	0
1	K8	2093	0	2096	58	0
1	K9	1446	0	1439	35	0
1	h0	1737	0	1725	39	0
1	h1	782	0	790	12	0
1	i0	1379	0	1371	43	0
1	j0	931	0	948	23	0
2	L2	1682	0	1608	21	0
2	L3	1772	0	1682	16	0
2	L4	1772	0	1682	19	0
2	L5	1772	0	1682	19	0
2	L6	1363	0	1314	18	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	M1	607	0	570	13	0
2	M2	1803	0	1714	32	0
2	M3	1803	0	1714	22	0
2	M4	1803	0	1714	24	0
2	M5	1678	0	1596	32	0
2	N2	1549	0	1494	23	0
2	N3	1771	0	1687	26	0
2	N4	1771	0	1687	33	0
2	N5	1771	0	1687	27	0
2	N6	1394	0	1332	23	0
2	O1	507	0	460	6	0
2	O2	1759	0	1679	28	0
2	O3	1771	0	1687	32	0
2	O4	1771	0	1687	28	0
2	O5	1741	0	1652	25	0
2	P2	1480	0	1414	30	0
2	P3	1754	0	1670	33	0
2	P4	1754	0	1670	30	0
2	P5	1754	0	1670	24	0
2	P6	1459	0	1412	24	0
3	Q1	1322	0	1339	21	0
3	Q2	1567	0	1561	46	0
3	Q3	1633	0	1630	26	0
3	Q4	1601	0	1597	32	0
3	R2	1524	0	1498	18	0
3	R3	1677	0	1663	30	0
3	R4	1588	0	1581	25	0
3	R5	1585	0	1576	26	0
3	S2	1228	0	1216	26	0
3	S3	1556	0	1559	27	0
3	S4	1602	0	1606	27	0
3	S5	1581	0	1582	34	0
3	S6	1541	0	1542	35	0
4	T1	2033	0	2006	25	0
4	T2	2141	0	2101	38	0
4	T3	2141	0	2101	40	0
4	T4	2035	0	1979	40	0
4	t1	2150	0	2114	46	0
4	t2	2141	0	2101	37	0
4	t3	2141	0	2101	37	0
4	t4	2125	0	2081	27	0
5	U3	2084	0	2112	21	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	U4	2099	0	2126	27	0
5	U5	2099	0	2126	25	0
5	U6	2099	0	2126	30	0
5	U7	2085	0	2107	27	0
6	V1	1422	0	1412	28	0
6	V2	1621	0	1602	30	0
6	V3	1613	0	1597	24	0
6	V4	1613	0	1597	33	0
6	V5	1613	0	1597	32	0
6	X1	1484	0	1467	34	0
6	X2	1621	0	1602	24	0
6	X3	1621	0	1602	28	0
6	X4	1621	0	1602	39	0
6	X5	1604	0	1584	24	0
7	Y1	834	0	837	12	0
7	Y2	1844	0	1826	26	0
7	Y3	1876	0	1853	23	0
7	Y4	1872	0	1851	16	0
7	Y5	1854	0	1831	26	0
8	Z1	2173	0	2184	23	0
8	Z2	2173	0	2184	42	0
8	Z3	2162	0	2171	48	0
8	Z4	2173	0	2184	36	0
9	a2	1421	0	1472	31	0
9	a3	1460	0	1506	24	0
9	a4	1460	0	1506	26	0
9	a5	1460	0	1506	27	0
10	b2	1972	0	2003	54	0
10	b3	1971	0	2001	44	0
10	b4	1971	0	2005	49	0
10	b5	1971	0	2003	36	0
11	c1	867	0	860	14	0
11	c2	882	0	875	15	0
11	c3	882	0	875	11	0
12	T1	1	0	0	0	0
12	T2	1	0	0	0	0
12	T3	1	0	0	0	0
12	T4	1	0	0	0	0
12	V1	1	0	0	0	0
12	V2	1	0	0	0	0
12	V3	1	0	0	0	0
12	V4	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
12	V5	1	0	0	0	0
12	X1	1	0	0	0	0
12	X2	1	0	0	0	0
12	X3	1	0	0	0	0
12	X4	1	0	0	0	0
12	X5	1	0	0	0	0
12	t1	1	0	0	0	0
12	t2	1	0	0	0	0
12	t3	1	0	0	0	0
12	t4	1	0	0	0	0
13	T1	2	0	0	1	0
13	T2	2	0	0	1	0
13	T3	2	0	0	0	0
13	T4	2	0	0	1	0
13	V1	2	0	0	0	0
13	V2	2	0	0	0	0
13	V3	2	0	0	0	0
13	V4	2	0	0	0	0
13	V5	2	0	0	0	0
13	X1	2	0	0	0	0
13	X2	2	0	0	1	0
13	X3	2	0	0	0	0
13	X4	2	0	0	0	0
13	X5	2	0	0	1	0
13	t1	2	0	0	1	0
13	t2	2	0	0	2	0
13	t3	2	0	0	0	0
13	t4	2	0	0	0	0
All	All	253413	0	251942	4533	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 9.

The worst 5 of 4533 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)
6:X4:133:LEU:HD23	6:X4:177:ILE:HD11	1.44	0.99
4:T4:76:LEU:HD21	4:T4:93:LYS:HD3	1.49	0.94
1:K5:54:THR:HA	1:K6:88:GLN:HE22	1.33	0.92
3:S5:133:TYR:HD2	3:S5:154:LYS:HD3	1.37	0.90
4:T2:133:GLN:HE22	4:T2:135:LYS:HB2	1.35	0.90

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	A4	171/282 (61%)	164 (96%)	7 (4%)	0	100	100
1	A5	277/282 (98%)	265 (96%)	11 (4%)	1 (0%)	30	66
1	A6	277/282 (98%)	265 (96%)	12 (4%)	0	100	100
1	A7	277/282 (98%)	269 (97%)	7 (2%)	1 (0%)	30	66
1	A8	234/282 (83%)	226 (97%)	8 (3%)	0	100	100
1	A9	141/282 (50%)	135 (96%)	6 (4%)	0	100	100
1	B3	99/282 (35%)	98 (99%)	1 (1%)	0	100	100
1	B4	242/282 (86%)	235 (97%)	7 (3%)	0	100	100
1	B5	280/282 (99%)	269 (96%)	11 (4%)	0	100	100
1	B6	280/282 (99%)	274 (98%)	6 (2%)	0	100	100
1	B7	274/282 (97%)	266 (97%)	8 (3%)	0	100	100
1	B8	192/282 (68%)	187 (97%)	5 (3%)	0	100	100
1	C3	112/282 (40%)	109 (97%)	3 (3%)	0	100	100
1	C4	280/282 (99%)	272 (97%)	7 (2%)	1 (0%)	30	66
1	C5	280/282 (99%)	273 (98%)	7 (2%)	0	100	100
1	C6	280/282 (99%)	273 (98%)	7 (2%)	0	100	100
1	C7	245/282 (87%)	234 (96%)	11 (4%)	0	100	100
1	C8	148/282 (52%)	141 (95%)	7 (5%)	0	100	100
1	D3	214/282 (76%)	200 (94%)	14 (6%)	0	100	100
1	D4	280/282 (99%)	269 (96%)	11 (4%)	0	100	100
1	D5	280/282 (99%)	266 (95%)	13 (5%)	1 (0%)	30	66
1	D6	278/282 (99%)	264 (95%)	13 (5%)	1 (0%)	30	66

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	D7	199/282 (71%)	193 (97%)	6 (3%)	0	100	100
1	E2	112/282 (40%)	108 (96%)	4 (4%)	0	100	100
1	E3	275/282 (98%)	259 (94%)	16 (6%)	0	100	100
1	E4	280/282 (99%)	269 (96%)	11 (4%)	0	100	100
1	E5	280/282 (99%)	272 (97%)	7 (2%)	1 (0%)	30	66
1	E6	251/282 (89%)	240 (96%)	11 (4%)	0	100	100
1	E7	154/282 (55%)	151 (98%)	3 (2%)	0	100	100
1	F2	200/282 (71%)	189 (94%)	10 (5%)	1 (0%)	24	62
1	F3	278/282 (99%)	271 (98%)	7 (2%)	0	100	100
1	F4	275/282 (98%)	264 (96%)	10 (4%)	1 (0%)	30	66
1	F5	277/282 (98%)	267 (96%)	10 (4%)	0	100	100
1	F6	211/282 (75%)	207 (98%)	4 (2%)	0	100	100
1	G1	256/282 (91%)	248 (97%)	8 (3%)	0	100	100
1	G2	163/282 (58%)	157 (96%)	6 (4%)	0	100	100
1	G6	112/282 (40%)	109 (97%)	3 (3%)	0	100	100
1	G7	268/282 (95%)	259 (97%)	9 (3%)	0	100	100
1	G8	280/282 (99%)	273 (98%)	7 (2%)	0	100	100
1	G9	280/282 (99%)	273 (98%)	7 (2%)	0	100	100
1	H6	192/282 (68%)	186 (97%)	6 (3%)	0	100	100
1	H7	280/282 (99%)	271 (97%)	9 (3%)	0	100	100
1	H8	280/282 (99%)	272 (97%)	8 (3%)	0	100	100
1	H9	280/282 (99%)	267 (95%)	13 (5%)	0	100	100
1	I5	112/282 (40%)	111 (99%)	1 (1%)	0	100	100
1	I6	263/282 (93%)	253 (96%)	10 (4%)	0	100	100
1	I7	280/282 (99%)	272 (97%)	8 (3%)	0	100	100
1	I8	280/282 (99%)	272 (97%)	8 (3%)	0	100	100
1	I9	264/282 (94%)	256 (97%)	8 (3%)	0	100	100
1	J5	184/282 (65%)	175 (95%)	9 (5%)	0	100	100
1	J6	280/282 (99%)	269 (96%)	11 (4%)	0	100	100
1	J7	280/282 (99%)	269 (96%)	10 (4%)	1 (0%)	30	66
1	J8	280/282 (99%)	266 (95%)	14 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	J9	228/282 (81%)	220 (96%)	8 (4%)	0	100	100
1	K4	107/282 (38%)	104 (97%)	3 (3%)	0	100	100
1	K5	247/282 (88%)	242 (98%)	5 (2%)	0	100	100
1	K6	277/282 (98%)	270 (98%)	7 (2%)	0	100	100
1	K7	274/282 (97%)	266 (97%)	8 (3%)	0	100	100
1	K8	267/282 (95%)	259 (97%)	8 (3%)	0	100	100
1	K9	181/282 (64%)	176 (97%)	5 (3%)	0	100	100
1	h0	219/282 (78%)	209 (95%)	10 (5%)	0	100	100
1	h1	96/282 (34%)	94 (98%)	2 (2%)	0	100	100
1	i0	174/282 (62%)	169 (97%)	5 (3%)	0	100	100
1	j0	114/282 (40%)	111 (97%)	3 (3%)	0	100	100
2	L2	192/306 (63%)	182 (95%)	10 (5%)	0	100	100
2	L3	207/306 (68%)	199 (96%)	8 (4%)	0	100	100
2	L4	207/306 (68%)	197 (95%)	10 (5%)	0	100	100
2	L5	207/306 (68%)	200 (97%)	7 (3%)	0	100	100
2	L6	155/306 (51%)	153 (99%)	2 (1%)	0	100	100
2	M1	65/306 (21%)	59 (91%)	6 (9%)	0	100	100
2	M2	211/306 (69%)	204 (97%)	7 (3%)	0	100	100
2	M3	211/306 (69%)	202 (96%)	9 (4%)	0	100	100
2	M4	211/306 (69%)	201 (95%)	8 (4%)	2 (1%)	14	49
2	M5	189/306 (62%)	186 (98%)	2 (1%)	1 (0%)	24	62
2	N2	180/306 (59%)	178 (99%)	2 (1%)	0	100	100
2	N3	207/306 (68%)	199 (96%)	8 (4%)	0	100	100
2	N4	207/306 (68%)	199 (96%)	8 (4%)	0	100	100
2	N5	207/306 (68%)	198 (96%)	9 (4%)	0	100	100
2	N6	156/306 (51%)	154 (99%)	2 (1%)	0	100	100
2	O1	57/306 (19%)	53 (93%)	4 (7%)	0	100	100
2	O2	206/306 (67%)	198 (96%)	8 (4%)	0	100	100
2	O3	207/306 (68%)	204 (99%)	3 (1%)	0	100	100
2	O4	207/306 (68%)	198 (96%)	9 (4%)	0	100	100
2	O5	199/306 (65%)	194 (98%)	5 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	P2	169/306 (55%)	163 (96%)	6 (4%)	0	100	100
2	P3	205/306 (67%)	197 (96%)	8 (4%)	0	100	100
2	P4	205/306 (67%)	196 (96%)	9 (4%)	0	100	100
2	P5	205/306 (67%)	197 (96%)	8 (4%)	0	100	100
2	P6	169/306 (55%)	167 (99%)	2 (1%)	0	100	100
3	Q1	145/276 (52%)	134 (92%)	8 (6%)	3 (2%)	5	30
3	Q2	180/276 (65%)	166 (92%)	13 (7%)	1 (1%)	21	58
3	Q3	188/276 (68%)	171 (91%)	15 (8%)	2 (1%)	11	45
3	Q4	184/276 (67%)	169 (92%)	15 (8%)	0	100	100
3	R2	175/276 (63%)	155 (89%)	19 (11%)	1 (1%)	21	58
3	R3	194/276 (70%)	175 (90%)	17 (9%)	2 (1%)	12	47
3	R4	182/276 (66%)	167 (92%)	12 (7%)	3 (2%)	7	37
3	R5	182/276 (66%)	167 (92%)	15 (8%)	0	100	100
3	S2	131/276 (48%)	117 (89%)	13 (10%)	1 (1%)	16	52
3	S3	179/276 (65%)	165 (92%)	14 (8%)	0	100	100
3	S4	183/276 (66%)	164 (90%)	18 (10%)	1 (0%)	24	62
3	S5	182/276 (66%)	168 (92%)	14 (8%)	0	100	100
3	S6	174/276 (63%)	160 (92%)	12 (7%)	2 (1%)	11	45
4	T1	248/315 (79%)	222 (90%)	26 (10%)	0	100	100
4	T2	268/315 (85%)	245 (91%)	20 (8%)	3 (1%)	11	45
4	T3	268/315 (85%)	243 (91%)	23 (9%)	2 (1%)	18	55
4	T4	254/315 (81%)	237 (93%)	16 (6%)	1 (0%)	30	66
4	t1	269/315 (85%)	246 (91%)	22 (8%)	1 (0%)	30	66
4	t2	268/315 (85%)	244 (91%)	20 (8%)	4 (2%)	8	38
4	t3	268/315 (85%)	241 (90%)	24 (9%)	3 (1%)	11	45
4	t4	266/315 (84%)	250 (94%)	16 (6%)	0	100	100
5	U3	252/331 (76%)	243 (96%)	7 (3%)	2 (1%)	16	52
5	U4	256/331 (77%)	246 (96%)	7 (3%)	3 (1%)	10	42
5	U5	256/331 (77%)	246 (96%)	8 (3%)	2 (1%)	16	52
5	U6	256/331 (77%)	246 (96%)	7 (3%)	3 (1%)	10	42
5	U7	253/331 (76%)	244 (96%)	6 (2%)	3 (1%)	10	42

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	V1	167/239 (70%)	147 (88%)	18 (11%)	2 (1%)	10	42
6	V2	195/239 (82%)	170 (87%)	24 (12%)	1 (0%)	24	62
6	V3	192/239 (80%)	174 (91%)	18 (9%)	0	100	100
6	V4	192/239 (80%)	168 (88%)	23 (12%)	1 (0%)	24	62
6	V5	192/239 (80%)	178 (93%)	13 (7%)	1 (0%)	24	62
6	X1	177/239 (74%)	155 (88%)	20 (11%)	2 (1%)	11	45
6	X2	195/239 (82%)	173 (89%)	20 (10%)	2 (1%)	12	47
6	X3	195/239 (82%)	164 (84%)	28 (14%)	3 (2%)	8	38
6	X4	195/239 (82%)	174 (89%)	20 (10%)	1 (0%)	24	62
6	X5	190/239 (80%)	163 (86%)	27 (14%)	0	100	100
7	Y1	88/282 (31%)	86 (98%)	2 (2%)	0	100	100
7	Y2	216/282 (77%)	202 (94%)	14 (6%)	0	100	100
7	Y3	218/282 (77%)	205 (94%)	11 (5%)	2 (1%)	14	49
7	Y4	218/282 (77%)	202 (93%)	16 (7%)	0	100	100
7	Y5	215/282 (76%)	202 (94%)	13 (6%)	0	100	100
8	Z1	249/369 (68%)	242 (97%)	7 (3%)	0	100	100
8	Z2	249/369 (68%)	240 (96%)	9 (4%)	0	100	100
8	Z3	248/369 (67%)	238 (96%)	9 (4%)	1 (0%)	30	66
8	Z4	249/369 (68%)	244 (98%)	5 (2%)	0	100	100
9	a2	164/237 (69%)	156 (95%)	7 (4%)	1 (1%)	21	58
9	a3	170/237 (72%)	159 (94%)	11 (6%)	0	100	100
9	a4	170/237 (72%)	164 (96%)	6 (4%)	0	100	100
9	a5	170/237 (72%)	159 (94%)	10 (6%)	1 (1%)	21	58
10	b2	238/278 (86%)	221 (93%)	16 (7%)	1 (0%)	30	66
10	b3	238/278 (86%)	220 (92%)	17 (7%)	1 (0%)	30	66
10	b4	238/278 (86%)	220 (92%)	18 (8%)	0	100	100
10	b5	238/278 (86%)	221 (93%)	16 (7%)	1 (0%)	30	66
11	c1	99/146 (68%)	95 (96%)	4 (4%)	0	100	100
11	c2	101/146 (69%)	94 (93%)	7 (7%)	0	100	100
11	c3	101/146 (69%)	95 (94%)	6 (6%)	0	100	100
All	All	30800/41235 (75%)	29262 (95%)	1462 (5%)	76 (0%)	44	77

5 of 76 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	M4	140	ASP
5	U6	273	VAL
5	U7	299	GLY
6	V1	120	PRO
6	V1	121	PRO

5.3.2 Protein sidechains ⓘ

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	A4	139/233 (60%)	135 (97%)	4 (3%)	37	58
1	A5	232/233 (100%)	232 (100%)	0	100	100
1	A6	232/233 (100%)	232 (100%)	0	100	100
1	A7	232/233 (100%)	232 (100%)	0	100	100
1	A8	198/233 (85%)	198 (100%)	0	100	100
1	A9	120/233 (52%)	120 (100%)	0	100	100
1	B3	86/233 (37%)	86 (100%)	0	100	100
1	B4	205/233 (88%)	205 (100%)	0	100	100
1	B5	233/233 (100%)	233 (100%)	0	100	100
1	B6	233/233 (100%)	233 (100%)	0	100	100
1	B7	227/233 (97%)	227 (100%)	0	100	100
1	B8	160/233 (69%)	160 (100%)	0	100	100
1	C3	96/233 (41%)	96 (100%)	0	100	100
1	C4	233/233 (100%)	233 (100%)	0	100	100
1	C5	233/233 (100%)	233 (100%)	0	100	100
1	C6	233/233 (100%)	233 (100%)	0	100	100
1	C7	204/233 (88%)	203 (100%)	1 (0%)	81	81
1	C8	125/233 (54%)	125 (100%)	0	100	100
1	D3	181/233 (78%)	181 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	D4	233/233 (100%)	233 (100%)	0	100	100
1	D5	233/233 (100%)	233 (100%)	0	100	100
1	D6	231/233 (99%)	231 (100%)	0	100	100
1	D7	166/233 (71%)	165 (99%)	1 (1%)	78	80
1	E2	96/233 (41%)	96 (100%)	0	100	100
1	E3	231/233 (99%)	231 (100%)	0	100	100
1	E4	233/233 (100%)	233 (100%)	0	100	100
1	E5	233/233 (100%)	233 (100%)	0	100	100
1	E6	208/233 (89%)	207 (100%)	1 (0%)	81	81
1	E7	130/233 (56%)	130 (100%)	0	100	100
1	F2	168/233 (72%)	167 (99%)	1 (1%)	78	80
1	F3	232/233 (100%)	232 (100%)	0	100	100
1	F4	231/233 (99%)	231 (100%)	0	100	100
1	F5	232/233 (100%)	232 (100%)	0	100	100
1	F6	175/233 (75%)	174 (99%)	1 (1%)	78	80
1	G1	211/233 (91%)	211 (100%)	0	100	100
1	G2	138/233 (59%)	138 (100%)	0	100	100
1	G6	96/233 (41%)	96 (100%)	0	100	100
1	G7	225/233 (97%)	225 (100%)	0	100	100
1	G8	233/233 (100%)	233 (100%)	0	100	100
1	G9	233/233 (100%)	233 (100%)	0	100	100
1	H6	162/233 (70%)	162 (100%)	0	100	100
1	H7	233/233 (100%)	233 (100%)	0	100	100
1	H8	233/233 (100%)	233 (100%)	0	100	100
1	H9	233/233 (100%)	233 (100%)	0	100	100
1	I5	97/233 (42%)	97 (100%)	0	100	100
1	I6	224/233 (96%)	224 (100%)	0	100	100
1	I7	233/233 (100%)	233 (100%)	0	100	100
1	I8	233/233 (100%)	233 (100%)	0	100	100
1	I9	217/233 (93%)	217 (100%)	0	100	100
1	J5	155/233 (66%)	155 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	J6	233/233 (100%)	233 (100%)	0	100	100
1	J7	233/233 (100%)	233 (100%)	0	100	100
1	J8	233/233 (100%)	233 (100%)	0	100	100
1	J9	190/233 (82%)	190 (100%)	0	100	100
1	K4	94/233 (40%)	94 (100%)	0	100	100
1	K5	214/233 (92%)	214 (100%)	0	100	100
1	K6	232/233 (100%)	232 (100%)	0	100	100
1	K7	231/233 (99%)	231 (100%)	0	100	100
1	K8	220/233 (94%)	220 (100%)	0	100	100
1	K9	150/233 (64%)	150 (100%)	0	100	100
1	h0	182/233 (78%)	182 (100%)	0	100	100
1	h1	85/233 (36%)	85 (100%)	0	100	100
1	i0	144/233 (62%)	144 (100%)	0	100	100
1	j0	100/233 (43%)	100 (100%)	0	100	100
2	L2	161/278 (58%)	161 (100%)	0	100	100
2	L3	169/278 (61%)	169 (100%)	0	100	100
2	L4	169/278 (61%)	168 (99%)	1 (1%)	78	80
2	L5	169/278 (61%)	169 (100%)	0	100	100
2	L6	131/278 (47%)	131 (100%)	0	100	100
2	M1	59/278 (21%)	59 (100%)	0	100	100
2	M2	172/278 (62%)	172 (100%)	0	100	100
2	M3	172/278 (62%)	172 (100%)	0	100	100
2	M4	172/278 (62%)	172 (100%)	0	100	100
2	M5	162/278 (58%)	162 (100%)	0	100	100
2	N2	149/278 (54%)	149 (100%)	0	100	100
2	N3	169/278 (61%)	169 (100%)	0	100	100
2	N4	169/278 (61%)	169 (100%)	0	100	100
2	N5	169/278 (61%)	169 (100%)	0	100	100
2	N6	134/278 (48%)	134 (100%)	0	100	100
2	O1	48/278 (17%)	48 (100%)	0	100	100
2	O2	168/278 (60%)	168 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	O3	169/278 (61%)	169 (100%)	0	100	100
2	O4	169/278 (61%)	169 (100%)	0	100	100
2	O5	166/278 (60%)	166 (100%)	0	100	100
2	P2	141/278 (51%)	140 (99%)	1 (1%)	76	79
2	P3	167/278 (60%)	167 (100%)	0	100	100
2	P4	167/278 (60%)	167 (100%)	0	100	100
2	P5	167/278 (60%)	167 (100%)	0	100	100
2	P6	142/278 (51%)	142 (100%)	0	100	100
3	Q1	149/252 (59%)	149 (100%)	0	100	100
3	Q2	177/252 (70%)	177 (100%)	0	100	100
3	Q3	184/252 (73%)	184 (100%)	0	100	100
3	Q4	181/252 (72%)	181 (100%)	0	100	100
3	R2	172/252 (68%)	171 (99%)	1 (1%)	78	80
3	R3	189/252 (75%)	189 (100%)	0	100	100
3	R4	180/252 (71%)	180 (100%)	0	100	100
3	R5	180/252 (71%)	180 (100%)	0	100	100
3	S2	138/252 (55%)	138 (100%)	0	100	100
3	S3	176/252 (70%)	176 (100%)	0	100	100
3	S4	181/252 (72%)	181 (100%)	0	100	100
3	S5	179/252 (71%)	179 (100%)	0	100	100
3	S6	174/252 (69%)	174 (100%)	0	100	100
4	T1	221/264 (84%)	221 (100%)	0	100	100
4	T2	232/264 (88%)	232 (100%)	0	100	100
4	T3	232/264 (88%)	232 (100%)	0	100	100
4	T4	221/264 (84%)	221 (100%)	0	100	100
4	t1	233/264 (88%)	233 (100%)	0	100	100
4	t2	232/264 (88%)	232 (100%)	0	100	100
4	t3	232/264 (88%)	232 (100%)	0	100	100
4	t4	230/264 (87%)	230 (100%)	0	100	100
5	U3	228/296 (77%)	228 (100%)	0	100	100
5	U4	230/296 (78%)	230 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	U5	230/296 (78%)	230 (100%)	0	100	100
5	U6	230/296 (78%)	229 (100%)	1 (0%)	84	82
5	U7	228/296 (77%)	228 (100%)	0	100	100
6	V1	152/205 (74%)	152 (100%)	0	100	100
6	V2	173/205 (84%)	173 (100%)	0	100	100
6	V3	172/205 (84%)	172 (100%)	0	100	100
6	V4	172/205 (84%)	172 (100%)	0	100	100
6	V5	172/205 (84%)	172 (100%)	0	100	100
6	X1	159/205 (78%)	159 (100%)	0	100	100
6	X2	173/205 (84%)	173 (100%)	0	100	100
6	X3	173/205 (84%)	172 (99%)	1 (1%)	78	80
6	X4	173/205 (84%)	173 (100%)	0	100	100
6	X5	171/205 (83%)	171 (100%)	0	100	100
7	Y1	96/258 (37%)	96 (100%)	0	100	100
7	Y2	206/258 (80%)	206 (100%)	0	100	100
7	Y3	209/258 (81%)	209 (100%)	0	100	100
7	Y4	209/258 (81%)	209 (100%)	0	100	100
7	Y5	206/258 (80%)	206 (100%)	0	100	100
8	Z1	231/327 (71%)	231 (100%)	0	100	100
8	Z2	231/327 (71%)	231 (100%)	0	100	100
8	Z3	230/327 (70%)	230 (100%)	0	100	100
8	Z4	231/327 (71%)	231 (100%)	0	100	100
9	a2	160/217 (74%)	160 (100%)	0	100	100
9	a3	164/217 (76%)	164 (100%)	0	100	100
9	a4	164/217 (76%)	164 (100%)	0	100	100
9	a5	164/217 (76%)	163 (99%)	1 (1%)	78	80
10	b2	219/252 (87%)	219 (100%)	0	100	100
10	b3	219/252 (87%)	219 (100%)	0	100	100
10	b4	219/252 (87%)	219 (100%)	0	100	100
10	b5	219/252 (87%)	219 (100%)	0	100	100
11	c1	96/133 (72%)	96 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
11	c2	98/133 (74%)	98 (100%)	0	100	100
11	c3	98/133 (74%)	98 (100%)	0	100	100
All	All	26759/35653 (75%)	26744 (100%)	15 (0%)	87	88

5 of 15 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	F2	38	ARG
6	X3	56	ASP
1	F6	184	ILE
9	a5	216	GLU
3	R2	64	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 616 such sidechains are listed below:

Mol	Chain	Res	Type
3	S6	243	GLN
9	a5	81	GLN
4	T4	201	GLN
3	S6	153	ASN
6	X2	195	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 18 ligands modelled in this entry, 18 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

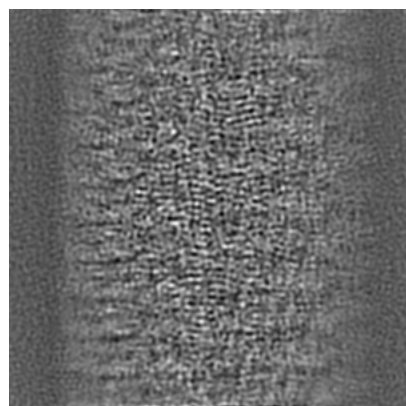
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-75269. These allow visual inspection of the internal detail of the map and identification of artifacts.

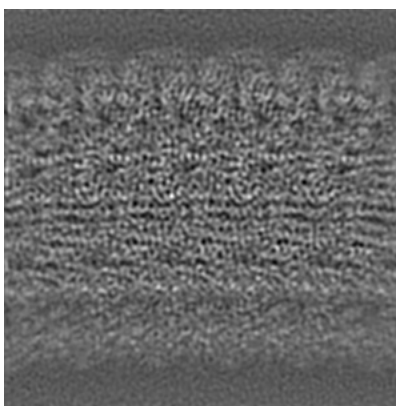
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

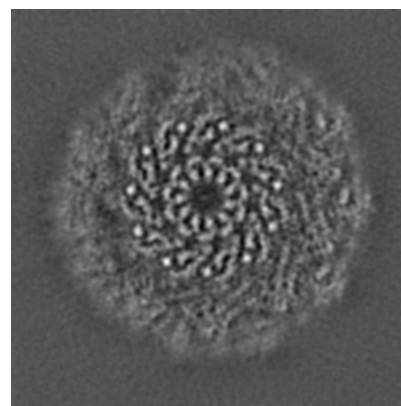
6.1.1 Primary map



X

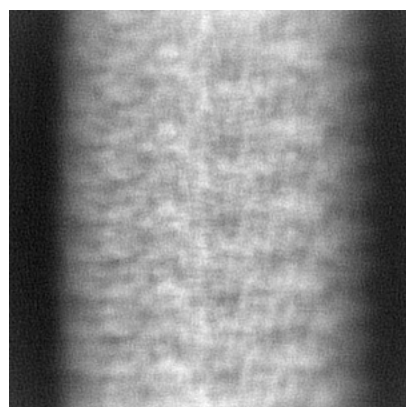


Y

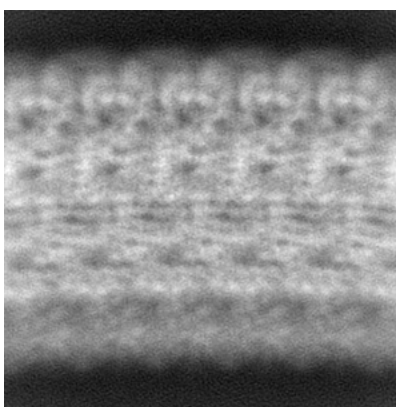


Z

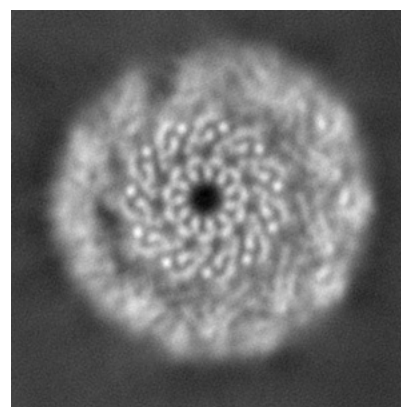
6.1.2 Raw map



X



Y

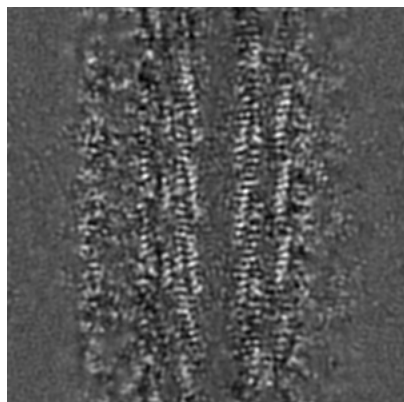


Z

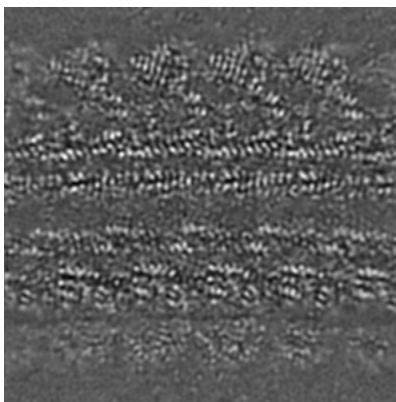
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

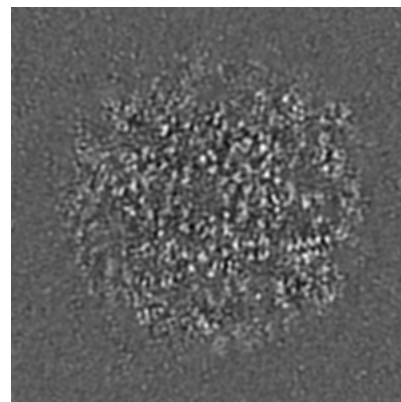
6.2.1 Primary map



X Index: 128

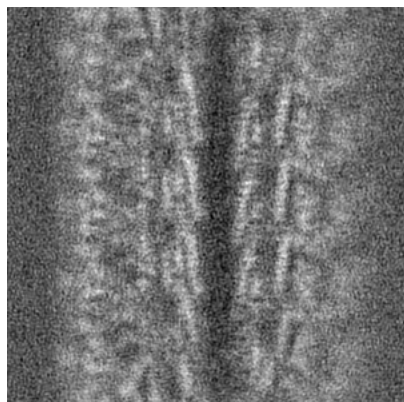


Y Index: 128

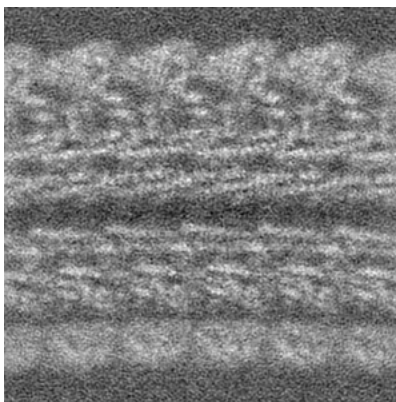


Z Index: 128

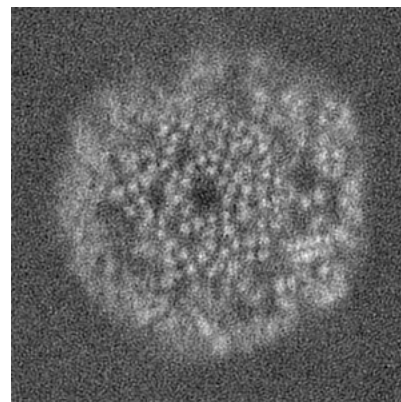
6.2.2 Raw map



X Index: 128



Y Index: 128

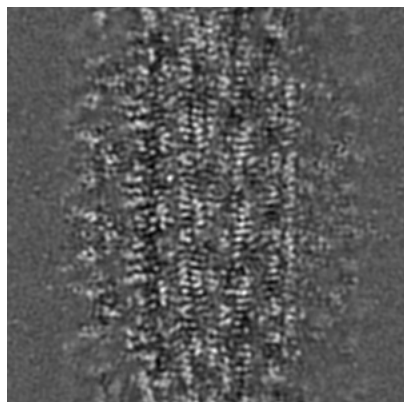


Z Index: 128

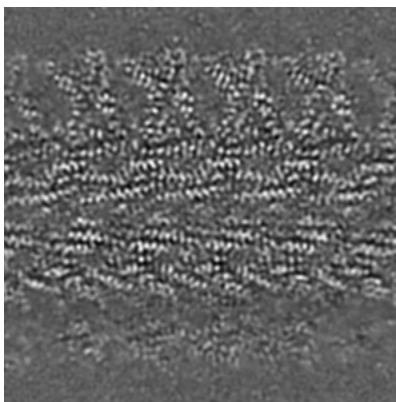
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

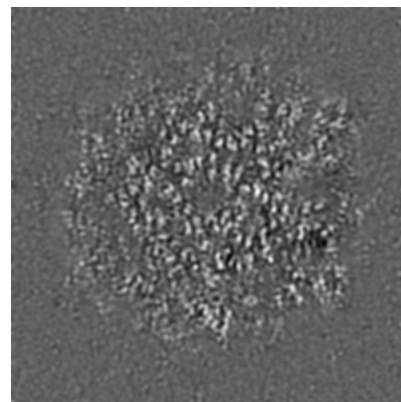
6.3.1 Primary map



X Index: 137

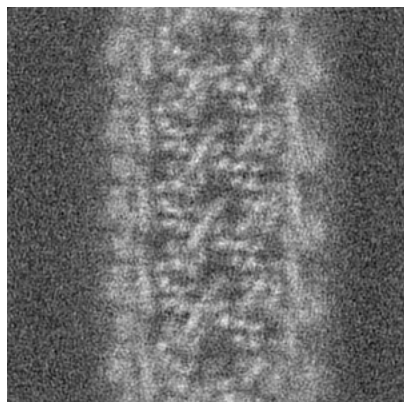


Y Index: 123

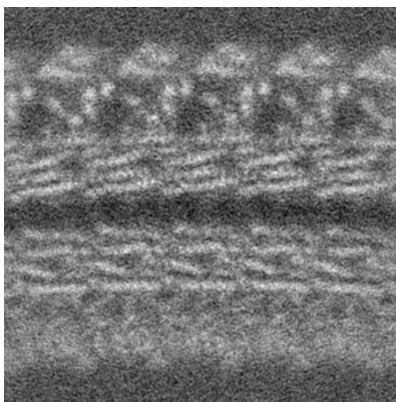


Z Index: 122

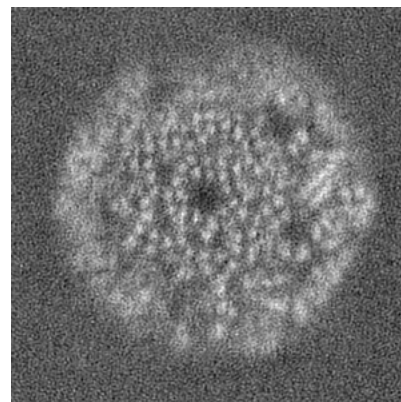
6.3.2 Raw map



X Index: 199



Y Index: 140

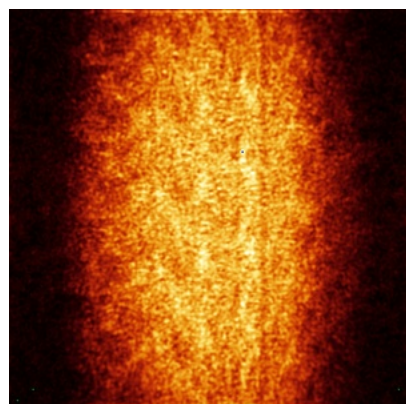


Z Index: 154

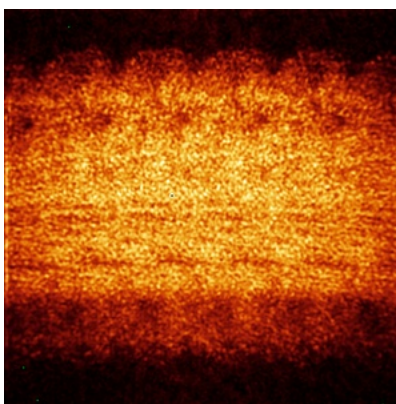
The images above show the largest variance slices of the map in three orthogonal directions.

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

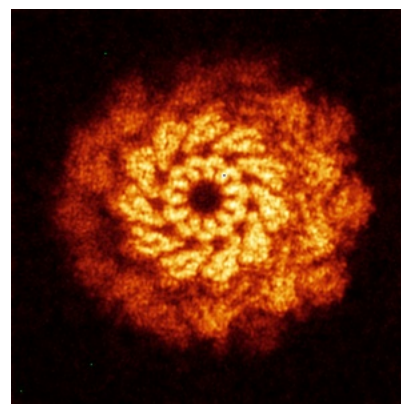
6.4.1 Primary map



X

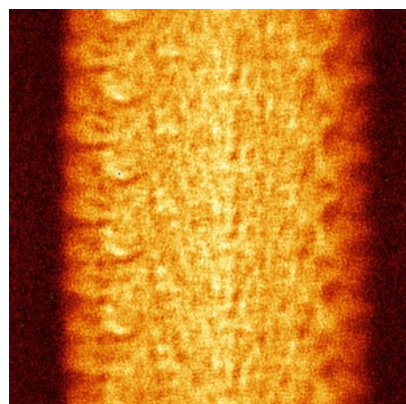


Y

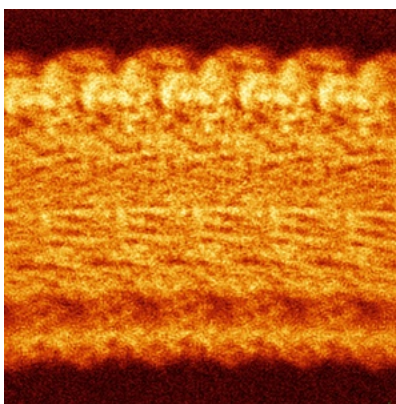


Z

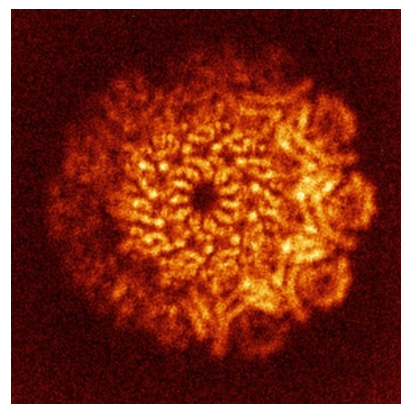
6.4.2 Raw map



X



Y

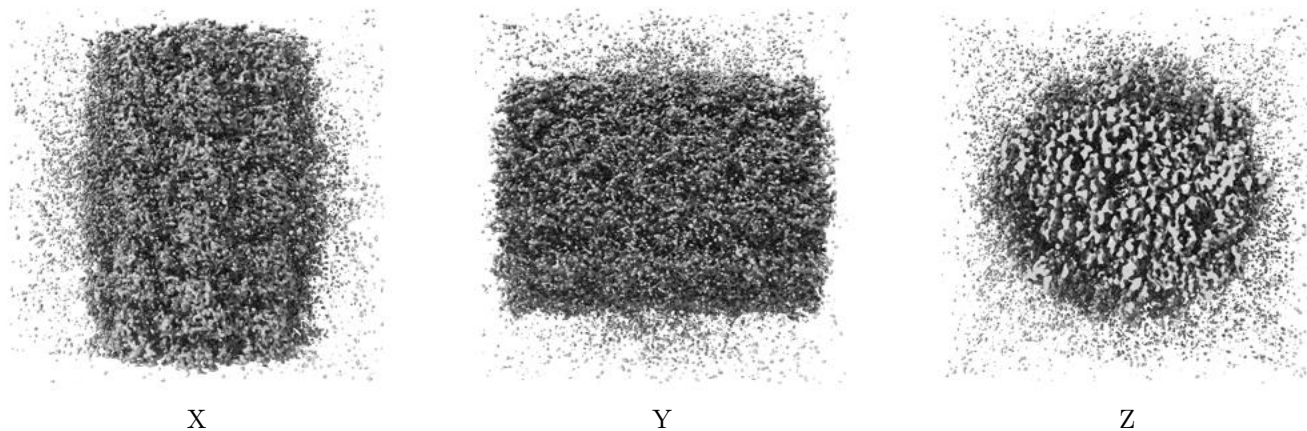


Z

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

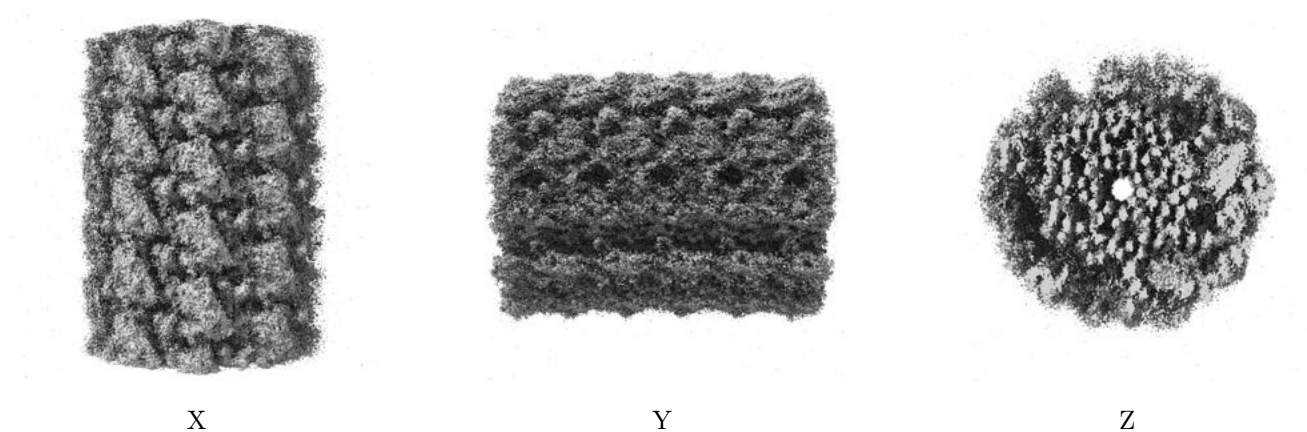
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.04. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

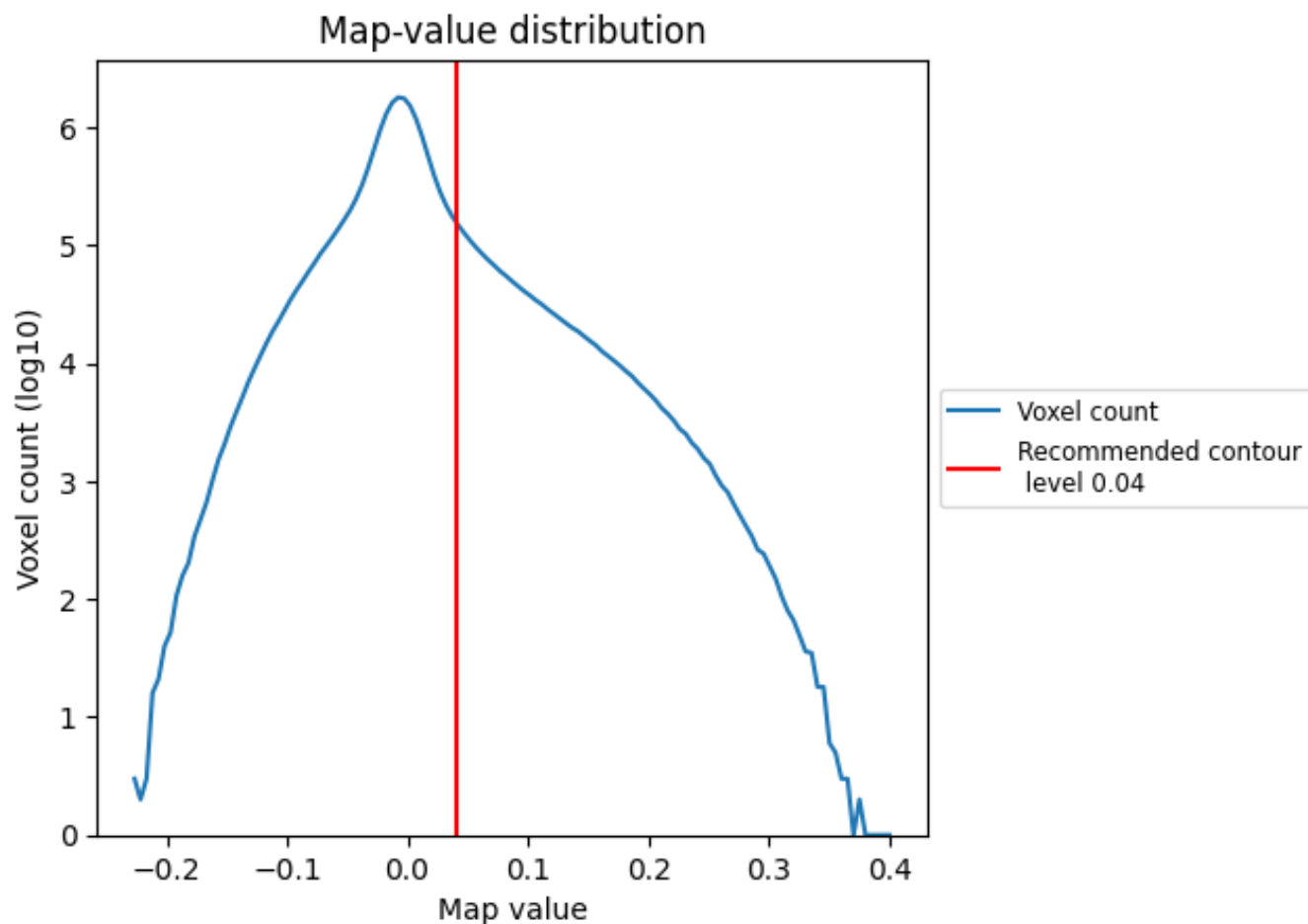
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

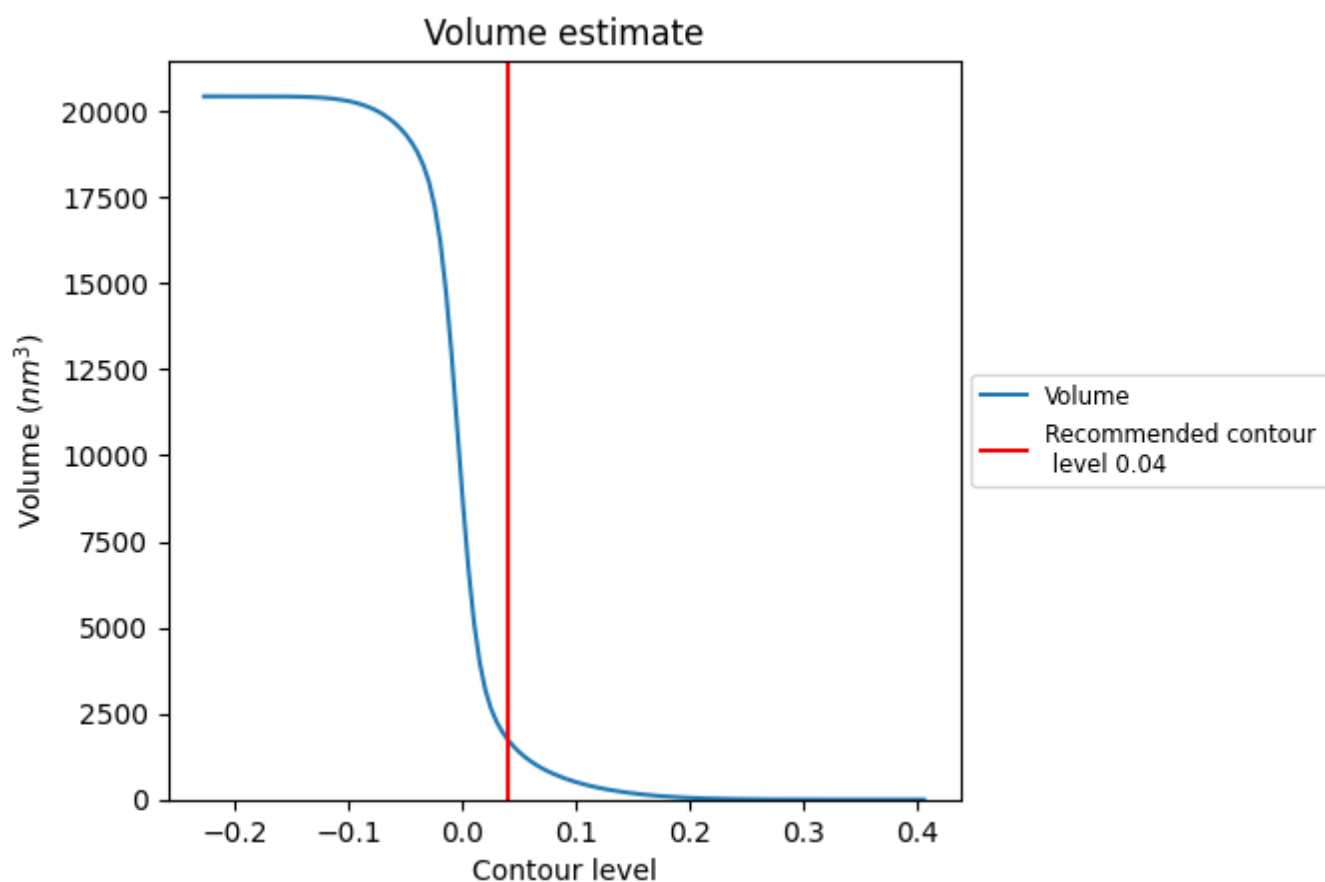
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

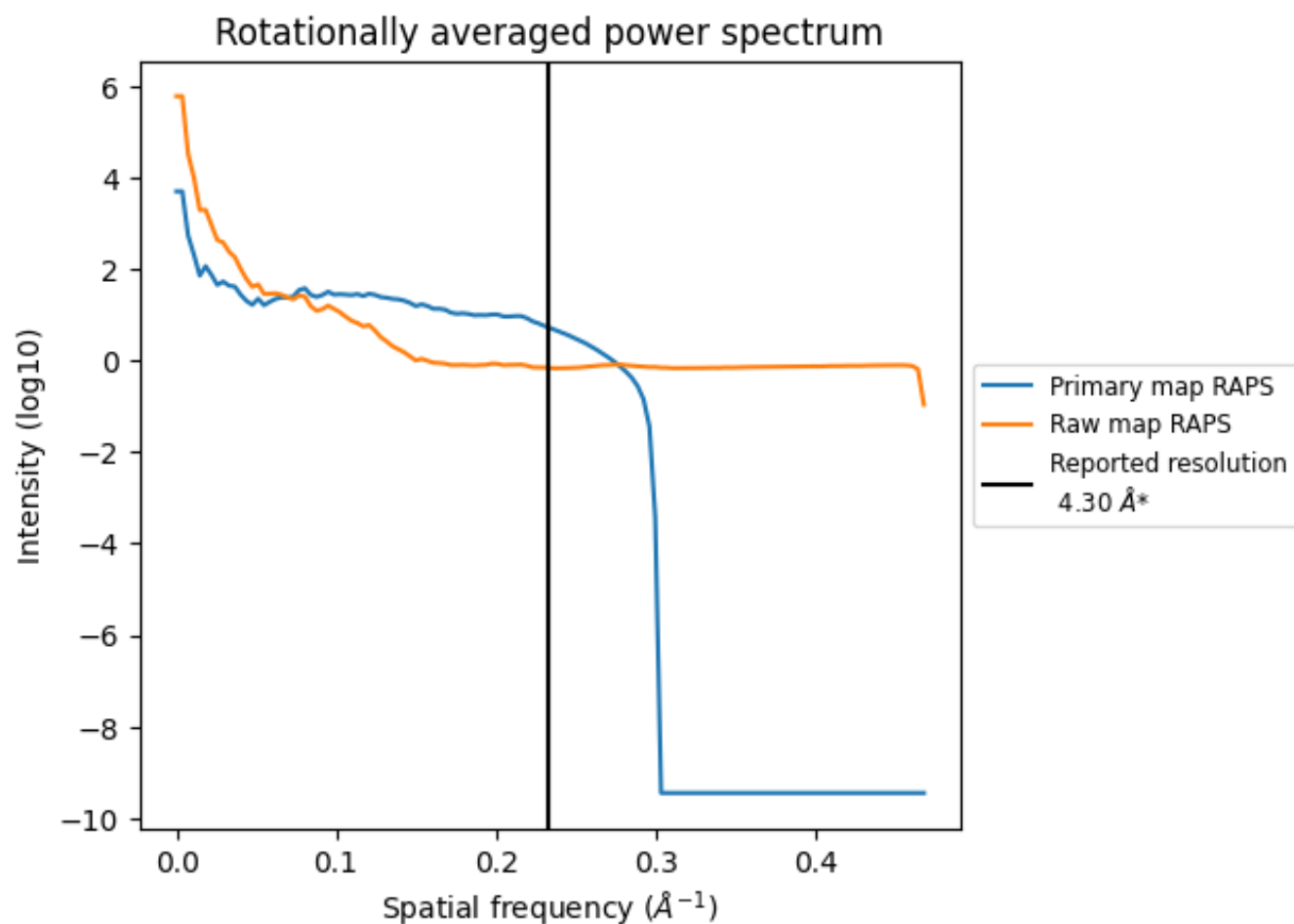
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1743 nm³; this corresponds to an approximate mass of 1574 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 ⓘ

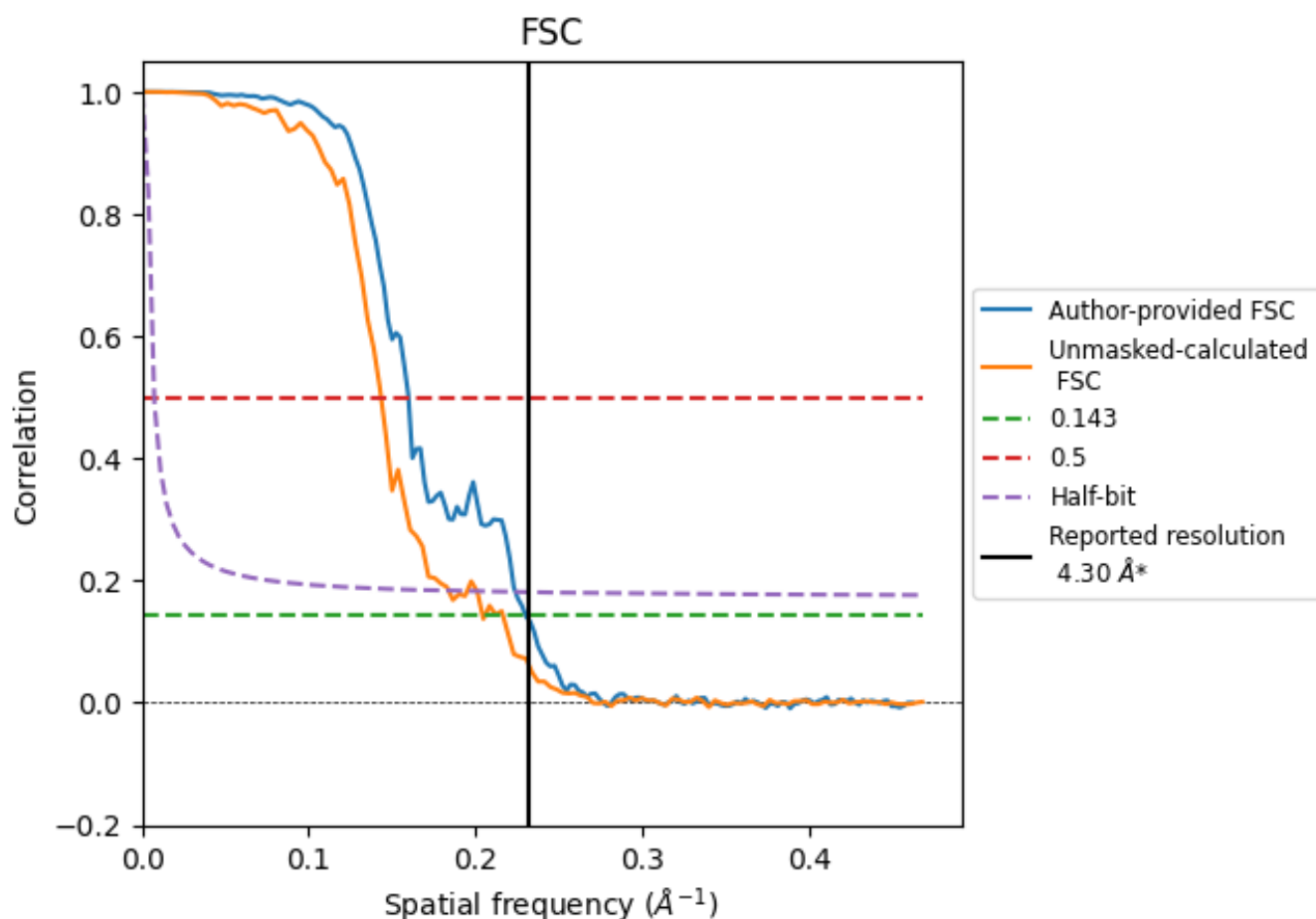


*Reported resolution corresponds to spatial frequency of 0.233 $\text{\AA}^{-1}$

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of $0.233 \text{ \AA}^{-1}$

8.2 Resolution estimates [i](#)

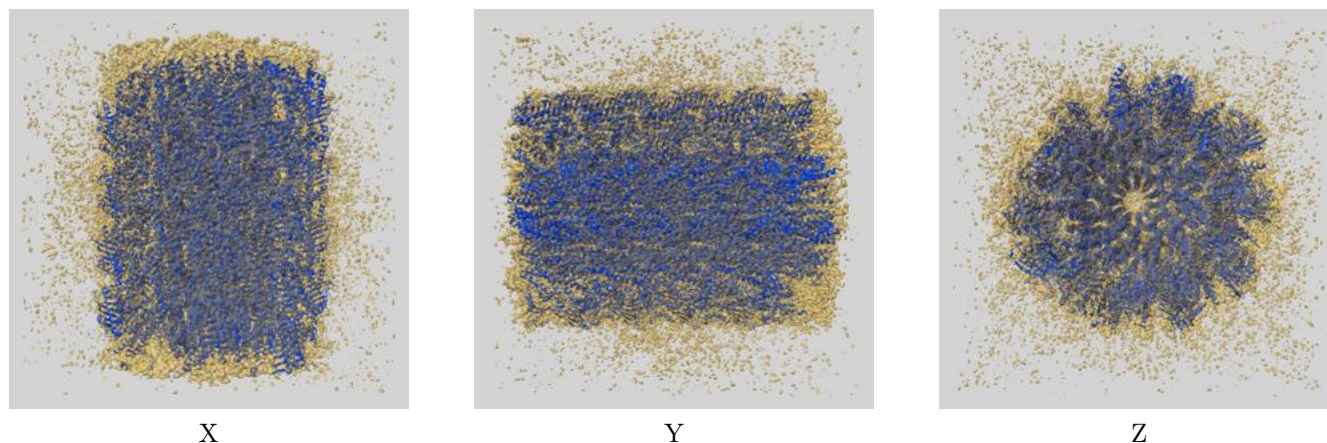
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.30	-	-
Author-provided FSC curve	4.34	6.26	4.45
Unmasked-calculated*	4.89	6.97	5.44

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.89 differs from the reported value 4.3 by more than 10 %

9 Map-model fit [i](#)

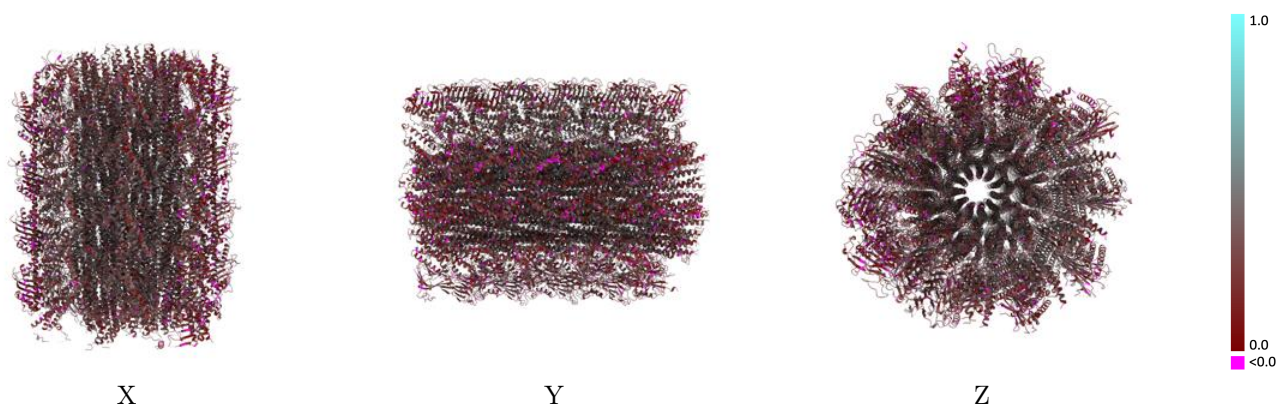
This section contains information regarding the fit between EMDB map EMD-75269 and PDB model 10LL. Per-residue inclusion information can be found in section [3](#) on page [19](#).

9.1 Map-model overlay [i](#)



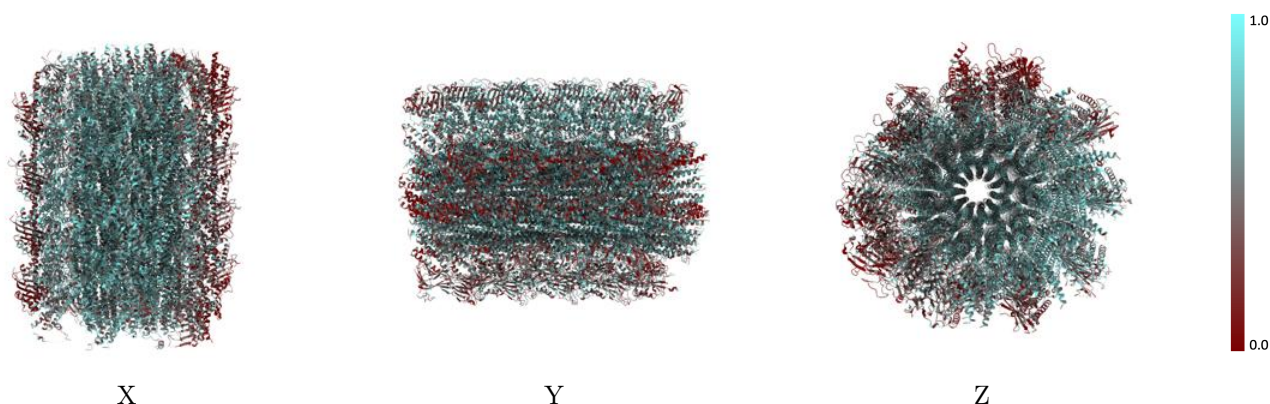
The images above show the 3D surface view of the map at the recommended contour level 0.04 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



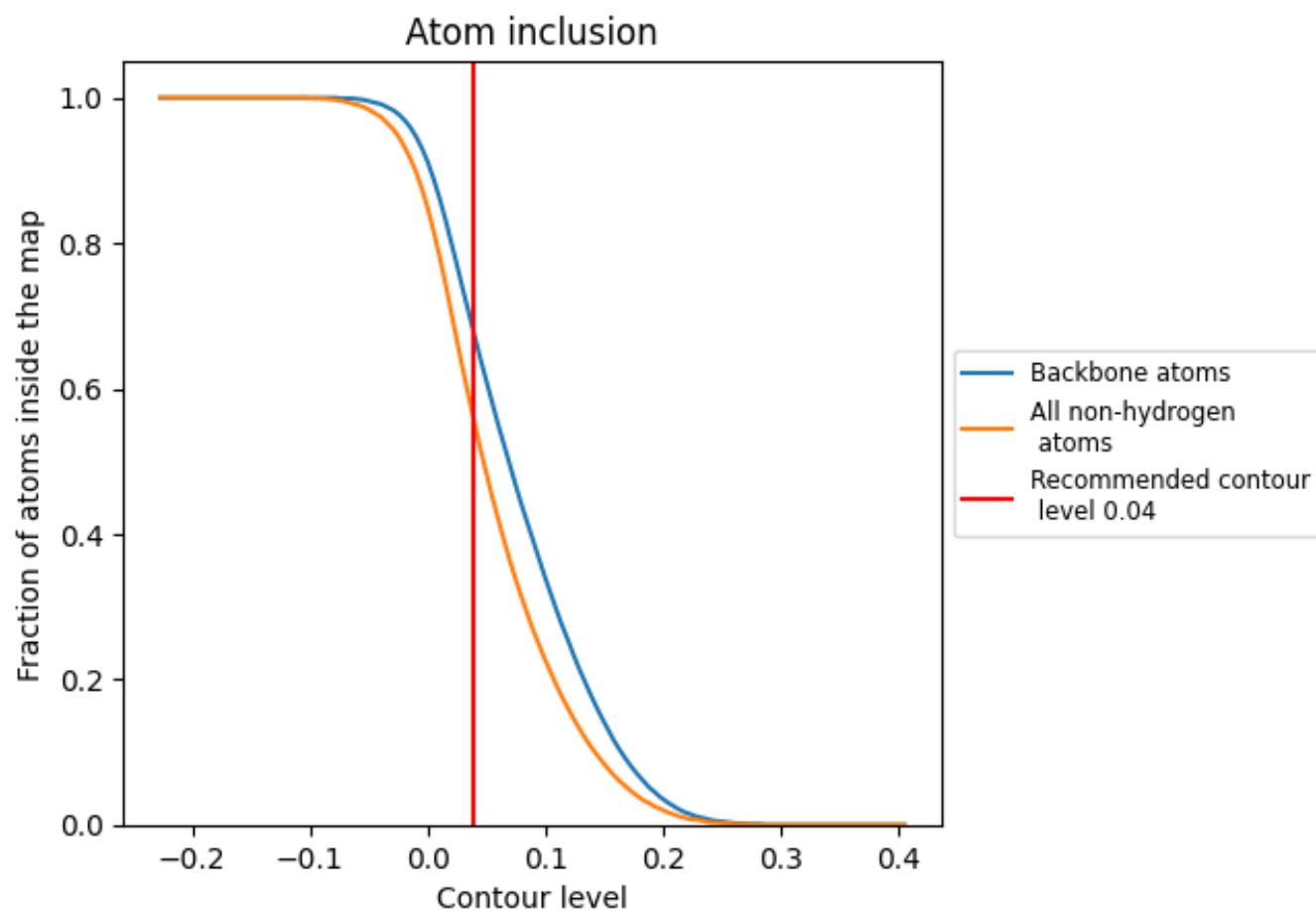
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.04).

9.4 Atom inclusion [i](#)



At the recommended contour level, 67% of all backbone atoms, 55% 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 (0.04) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5530	 0.3030
A4	 0.5980	 0.2820
A5	 0.6430	 0.3350
A6	 0.6610	 0.3550
A7	 0.6630	 0.3560
A8	 0.6420	 0.3370
A9	 0.5910	 0.2920
B3	 0.5880	 0.2920
B4	 0.5770	 0.2870
B5	 0.6340	 0.3190
B6	 0.6760	 0.3390
B7	 0.6560	 0.3380
B8	 0.6390	 0.3200
C3	 0.6280	 0.3170
C4	 0.6340	 0.3230
C5	 0.6870	 0.3600
C6	 0.6920	 0.3740
C7	 0.6630	 0.3370
C8	 0.5730	 0.2890
D3	 0.6400	 0.3360
D4	 0.6860	 0.3580
D5	 0.7050	 0.3800
D6	 0.6840	 0.3730
D7	 0.6760	 0.3470
E2	 0.6230	 0.3330
E3	 0.6690	 0.3500
E4	 0.6790	 0.3750
E5	 0.6830	 0.3710
E6	 0.6880	 0.3610
E7	 0.6500	 0.3430
F2	 0.6380	 0.3280
F3	 0.6750	 0.3670
F4	 0.7000	 0.3730
F5	 0.6880	 0.3640
F6	 0.6670	 0.3550



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Chain	Atom inclusion	Q-score
G1	 0.6950	 0.3600
G2	 0.6360	 0.3350
G6	 0.6470	 0.3330
G7	 0.6450	 0.3410
G8	 0.6700	 0.3650
G9	 0.6930	 0.3740
H6	 0.5990	 0.3150
H7	 0.6440	 0.3380
H8	 0.6850	 0.3660
H9	 0.6680	 0.3630
I5	 0.5870	 0.3040
I6	 0.6190	 0.3100
I7	 0.6720	 0.3490
I8	 0.6500	 0.3420
I9	 0.6300	 0.3220
J5	 0.6040	 0.3230
J6	 0.6740	 0.3460
J7	 0.6690	 0.3420
J8	 0.6570	 0.3390
J9	 0.6280	 0.3010
K4	 0.6200	 0.3010
K5	 0.5930	 0.3010
K6	 0.6530	 0.3430
K7	 0.6700	 0.3540
K8	 0.6560	 0.3240
K9	 0.6350	 0.3130
L2	 0.5750	 0.2840
L3	 0.6450	 0.3150
L4	 0.6660	 0.3340
L5	 0.5940	 0.3030
L6	 0.4810	 0.2570
M1	 0.6580	 0.3150
M2	 0.6720	 0.3410
M3	 0.7130	 0.3710
M4	 0.7110	 0.3660
M5	 0.6480	 0.3390
N2	 0.6400	 0.3230
N3	 0.7210	 0.3670
N4	 0.7150	 0.3710
N5	 0.7030	 0.3440
N6	 0.6330	 0.3180
O1	 0.6370	 0.3420

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Chain	Atom inclusion	Q-score
O2	 0.6810	 0.3340
O3	 0.7130	 0.3600
O4	 0.7140	 0.3540
O5	 0.6350	 0.3120
P2	 0.5200	 0.2750
P3	 0.6270	 0.3270
P4	 0.6420	 0.3340
P5	 0.6100	 0.3080
P6	 0.4990	 0.2600
Q1	 0.4860	 0.2570
Q2	 0.5580	 0.2820
Q3	 0.6540	 0.3280
Q4	 0.5870	 0.3000
R2	 0.5940	 0.2970
R3	 0.6350	 0.3090
R4	 0.6310	 0.3090
R5	 0.5720	 0.2970
S2	 0.3790	 0.2220
S3	 0.4930	 0.2650
S4	 0.5330	 0.2840
S5	 0.4830	 0.2520
S6	 0.3580	 0.2200
T1	 0.2380	 0.2010
T2	 0.3540	 0.2270
T3	 0.3650	 0.2410
T4	 0.2910	 0.2400
U3	 0.2600	 0.1980
U4	 0.3760	 0.2350
U5	 0.3700	 0.2360
U6	 0.3420	 0.2230
U7	 0.2060	 0.1870
V1	 0.3790	 0.2500
V2	 0.4840	 0.2820
V3	 0.5060	 0.2950
V4	 0.4430	 0.2750
V5	 0.2840	 0.2270
X1	 0.4510	 0.2740
X2	 0.5300	 0.3050
X3	 0.5510	 0.3180
X4	 0.4870	 0.2720
X5	 0.3240	 0.2400
Y1	 0.3630	 0.2820

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Chain	Atom inclusion	Q-score
Y2	 0.4010	 0.2660
Y3	 0.4740	 0.2780
Y4	 0.4380	 0.2550
Y5	 0.3240	 0.2290
Z1	 0.4480	 0.2720
Z2	 0.4820	 0.2770
Z3	 0.4840	 0.2790
Z4	 0.3820	 0.2350
a2	 0.2470	 0.1840
a3	 0.3270	 0.2090
a4	 0.3020	 0.2030
a5	 0.1910	 0.1610
b2	 0.1580	 0.1890
b3	 0.2890	 0.2020
b4	 0.3070	 0.2180
b5	 0.2190	 0.1900
c1	 0.3370	 0.2350
c2	 0.4160	 0.2540
c3	 0.3540	 0.2230
h0	 0.6410	 0.3440
h1	 0.5990	 0.3030
i0	 0.5830	 0.2760
j0	 0.6050	 0.2780
t1	 0.3090	 0.2250
t2	 0.3840	 0.2480
t3	 0.3900	 0.2360
t4	 0.2790	 0.2090