



wwPDB EM Validation Summary Report ⓘ

Dec 22, 2022 – 02:08 am GMT

PDB ID : 7Z4B
EMDB ID : EMD-14492
Title : Bacteriophage SU10 virion (C1)
Authors : Siborova, M.; Fuzik, T.; Prochazkova, M.; Novacek, J.; Plevka, P.
Deposited on : 2022-03-03
Resolution : 7.40 Å (reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ 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.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

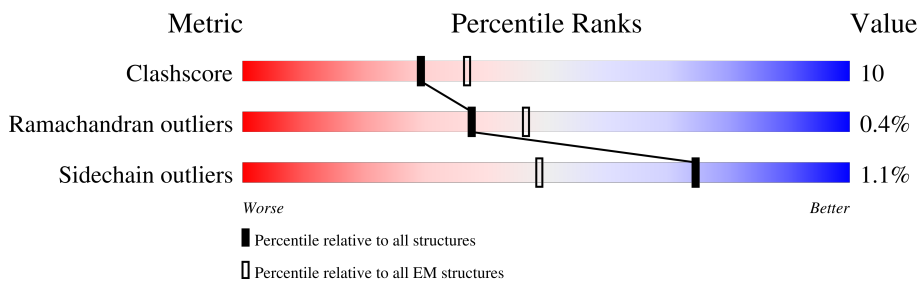
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 7.40 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	AA	352	<div style="display: flex; justify-content: space-between;"> 25% 86% 12% </div>
1	AB	352	<div style="display: flex; justify-content: space-between;"> 26% 88% 10% </div>
1	AC	352	<div style="display: flex; justify-content: space-between;"> 21% 83% 14% </div>
1	AD	352	<div style="display: flex; justify-content: space-between;"> 28% 87% 11% </div>
1	AE	352	<div style="display: flex; justify-content: space-between;"> 28% 87% 12% </div>
1	AF	352	<div style="display: flex; justify-content: space-between;"> 29% 86% 12% </div>
1	AG	352	<div style="display: flex; justify-content: space-between;"> 30% 86% 13% </div>
1	AH	352	<div style="display: flex; justify-content: space-between;"> 29% 88% 10% </div>

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Mol	Chain	Length	Quality of chain
1	AI	352	28% 89% 9%
1	AJ	352	29% 88% 10%
1	AK	352	30% 81% 17%
1	AL	352	28% 90% 9%
1	AM	352	24% 76% 21%
1	AN	352	24% 87% 11%
1	AO	352	25% 84% 14%
1	AP	352	37% 72% 26%
1	AQ	352	28% 86% 13%
1	AR	352	28% 86% 12%
1	AS	352	32% 80% 18%
1	AT	352	28% 87% 11%
1	AU	352	28% 86% 12%
1	AV	352	28% 86% 13%
1	AW	352	30% 82% 16%
1	AX	352	27% 88% 11%
1	AY	352	49% 87% 11%
1	AZ	352	41% 88% 11%
1	BA	352	44% 83% 15%
1	BB	352	34% 86% 12%
1	BC	352	29% 87% 11%
1	BD	352	29% 88% 11%
1	BE	352	30% 85% 14%
1	BF	352	69% 86% 13%
1	BG	352	35% 89% 9%

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Mol	Chain	Length	Quality of chain
1	BH	352	32% 89% 10%
1	BI	352	49% 72% 26%
1	BJ	352	37% 89% 9%
1	BK	352	25% 78% 20%
1	BL	352	54% 86% 12%
1	BM	352	38% 83% 14%
1	BN	352	32% 78% 20%
1	BO	352	40% 86% 13%
1	BP	352	30% 86% 12%
1	BQ	352	41% 86% 13%
1	BR	352	45% 86% 12%
1	BS	352	30% 87% 11%
1	BT	352	33% 86% 12%
1	BU	352	56% 80% 18%
1	BV	352	28% 87% 11%
1	BW	352	30% 82% 16%
1	BX	352	23% 79% 20%
1	BY	352	22% 81% 17%
1	BZ	352	21% 84% 14%
1	CA	352	22% 80% 17%
1	CB	352	22% 84% 14%
1	CC	352	23% 86% 12%
1	CD	352	26% 82% 15%
1	CE	352	21% 80% 18%
1	CF	352	28% 84% 14%

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Mol	Chain	Length	Quality of chain
1	CG	352	34% 82% 16%
1	CH	352	24% 88% 10%
1	CI	352	24% 86% 12%
1	CJ	352	24% 87% 12%
1	CK	352	37% 83% 16%
1	CL	352	32% 79% 18%
1	CM	352	19% 85% 13%
1	CN	352	32% 78% 19%
1	CO	352	35% 81% 16%
1	CP	352	34% 84% 14%
1	CQ	352	19% 81% 17%
1	CR	352	37% 83% 15%
1	CS	352	37% 73% 26%
1	CT	352	24% 85% 13%
1	CU	352	17% 79% 19%
1	CV	352	30% 84% 15%
1	CW	352	41% 78% 21%
1	CX	352	21% 90% 9%
1	CY	352	31% 83% 16%
1	CZ	352	34% 77% 22%
1	DA	352	36% 82% 16%
1	DB	352	49% 80% 19%
1	DC	352	47% 83% 15%
1	DD	352	42% 72% 25%
1	DE	352	41% 84% 14%


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Mol	Chain	Length	Quality of chain
1	DF	352	39% 82% 16%
1	DG	352	38% 82% 16%
1	DH	352	35% 80% 18%
1	DI	352	41% 88% 11%
1	DJ	352	32% 81% 17%
1	DK	352	46% 82% 16%
1	DL	352	30% 86% 13%
1	DM	352	36% 82% 16%
1	DN	352	33% 84% 15%
1	DO	352	33% 84% 14%
1	DP	352	34% 78% 20%
1	DQ	352	49% 86% 13%
2	DR	267	97% 85% 13%
2	DS	267	96% 87% 10%
2	DT	267	96% 87% 9%
3	DU	250	81% 38% 45% 5% 11%
3	DV	250	84% 34% 47% 6% 11%
4	DW	1005	88% 71% 18% 9%
5	DX	786	10% 5% 89%
5	DY	786	10% 90%
5	DZ	786	9% 5% 91%
6	EA	322	95% 89% 7%
6	EB	322	96% 91% 7%
6	EC	322	98% 89% 8%
7	ED	747	77% 55% 22% 19%

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Mol	Chain	Length	Quality of chain
7	EE	747	 <p>77% 56% 21% 19%</p>

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 284597 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 Major head protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	AA	347	2685	1684	470	521	10	0	0
1	AB	347	2685	1684	470	521	10	0	0
1	AC	344	2663	1671	466	516	10	0	0
1	AD	347	2685	1684	470	521	10	0	0
1	AE	346	2677	1680	468	519	10	0	0
1	AF	346	2676	1678	468	520	10	0	0
1	AG	347	2685	1684	470	521	10	0	0
1	AH	347	2685	1684	470	521	10	0	0
1	AI	347	2685	1684	470	521	10	0	0
1	AJ	347	2685	1684	470	521	10	0	0
1	AK	347	2685	1684	470	521	10	0	0
1	AL	347	2685	1684	470	521	10	0	0
1	AM	344	2663	1671	466	516	10	0	0
1	AN	344	2663	1671	466	516	10	0	0
1	AO	344	2663	1671	466	516	10	0	0
1	AP	347	2685	1684	470	521	10	0	0
1	AQ	347	2685	1684	470	521	10	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	AR	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	AS	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	AT	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	AU	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	AV	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	AW	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	AX	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	AY	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	AZ	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BA	344	Total	C	N	O	S	0	0
			2663	1671	466	516	10		
1	BB	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BC	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	BD	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	BE	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BF	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BG	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BH	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BI	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BJ	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BK	344	Total	C	N	O	S	0	0
			2663	1671	466	516	10		
1	BL	344	Total	C	N	O	S	0	0
			2663	1671	466	516	10		

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	BM	344	Total	C	N	O	S	0	0
			2663	1671	466	516	10		
1	BN	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BO	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BP	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BQ	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	BR	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	BS	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	BT	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	BU	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	BV	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	BW	345	Total	C	N	O	S	0	0
			2672	1676	467	519	10		
1	BX	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	BY	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	BZ	345	Total	C	N	O	S	0	0
			2670	1675	467	518	10		
1	CA	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	CB	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	CC	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	CD	343	Total	C	N	O	S	0	0
			2657	1668	465	514	10		
1	CE	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	CF	342	Total	C	N	O	S	0	0
			2644	1656	464	514	10		
1	CG	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	CH	347	2685	1684	470	521	10	0	0
1	CI	346	2676	1678	468	520	10	0	0
1	CJ	347	2685	1684	470	521	10	0	0
1	CK	347	2685	1684	470	521	10	0	0
1	CL	343	2654	1665	464	515	10	0	0
1	CM	346	2676	1678	468	520	10	0	0
1	CN	342	2644	1656	464	514	10	0	0
1	CO	341	2637	1651	463	513	10	0	0
1	CP	345	2668	1674	466	518	10	0	0
1	CQ	346	2676	1678	468	520	10	0	0
1	CR	345	2670	1675	467	518	10	0	0
1	CS	347	2685	1684	470	521	10	0	0
1	CT	346	2677	1680	468	519	10	0	0
1	CU	346	2676	1678	468	520	10	0	0
1	CV	347	2685	1684	470	521	10	0	0
1	CW	346	2677	1680	468	519	10	0	0
1	CX	346	2676	1678	468	520	10	0	0
1	CY	347	2685	1684	470	521	10	0	0
1	CZ	347	2685	1684	470	521	10	0	0
1	DA	346	2677	1680	468	519	10	0	0
1	DB	347	2685	1684	470	521	10	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	DC	345	Total	C	N	O	S	0	0
			2670	1675	467	518	10		
1	DD	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	DE	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	DF	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	DG	343	Total	C	N	O	S	0	0
			2657	1668	465	514	10		
1	DH	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	DI	347	Total	C	N	O	S	0	0
			2685	1684	470	521	10		
1	DJ	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	DK	343	Total	C	N	O	S	0	0
			2654	1665	464	515	10		
1	DL	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	DM	345	Total	C	N	O	S	0	0
			2668	1674	466	518	10		
1	DN	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	DO	346	Total	C	N	O	S	0	0
			2677	1680	468	519	10		
1	DP	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		
1	DQ	346	Total	C	N	O	S	0	0
			2676	1678	468	520	10		

- Molecule 2 is a protein called Putative structural protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	DR	263	Total	C	N	O	S	0	0
			1420	809	289	317	5		
2	DS	263	Total	C	N	O	S	0	0
			1424	812	289	317	6		
2	DT	263	Total	C	N	O	S	0	0
			1424	812	289	317	6		

- Molecule 3 is a protein called Adaptor.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	DU	222	Total	C	N	O	S	0	0
			1813	1171	292	345	5		
3	DV	222	Total	C	N	O	S	0	0
			1813	1171	292	345	5		

- Molecule 4 is a protein called Surface protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	DW	910	Total	C	N	O	S	0	0
			7063	4465	1178	1404	16		

- Molecule 5 is a protein called Putative tail fiber.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	DX	87	Total	C	N	O	S	0	0
			683	430	112	139	2		
5	DY	80	Total	C	N	O	S	0	0
			628	397	102	127	2		
5	DZ	68	Total	C	N	O	S	0	0
			545	347	87	109	2		

- Molecule 6 is a protein called Putative tail tip fiber protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	EA	322	Total	C	N	O	0	0
			1289	644	322	323		
6	EB	322	Total	C	N	O	0	0
			1289	644	322	323		
6	EC	322	Total	C	N	O	0	0
			1289	644	322	323		

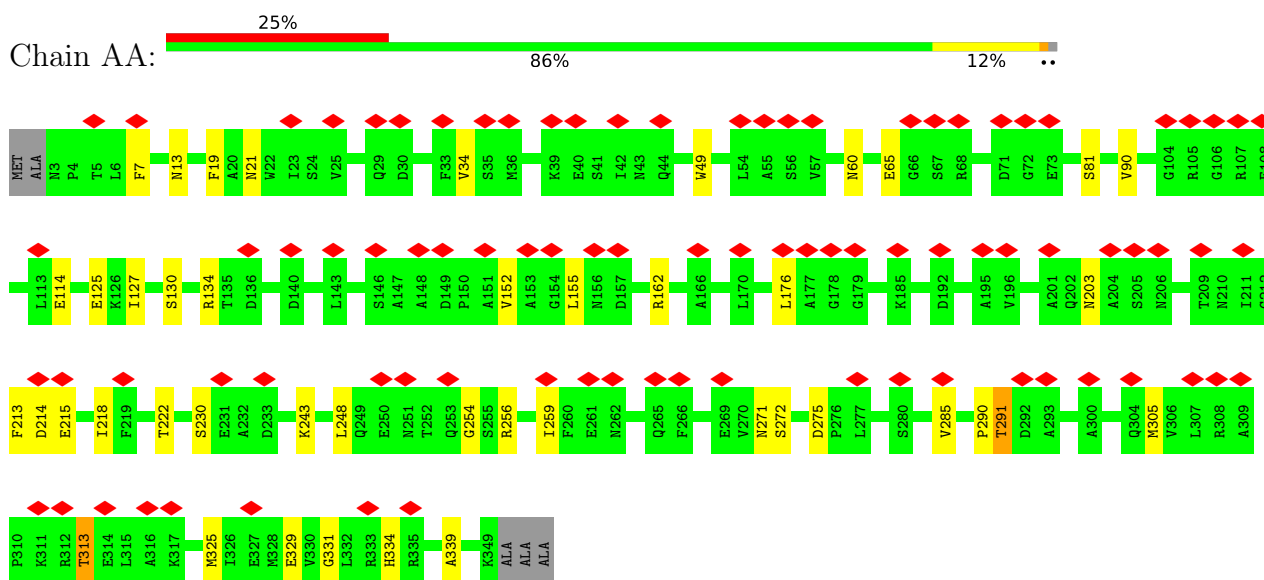
- Molecule 7 is a protein called Portal protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	ED	604	Total	C	N	O	S	0	0
			4838	3038	835	942	23		
7	EE	604	Total	C	N	O	S	0	0
			4838	3038	835	942	23		

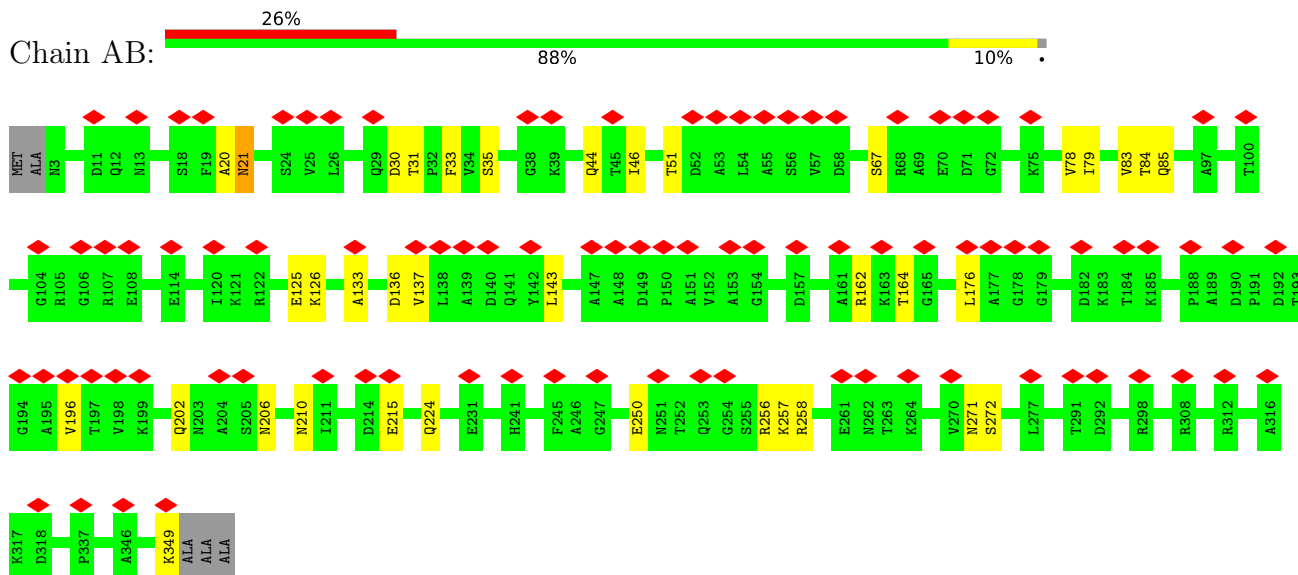
3 Residue-property plots

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.

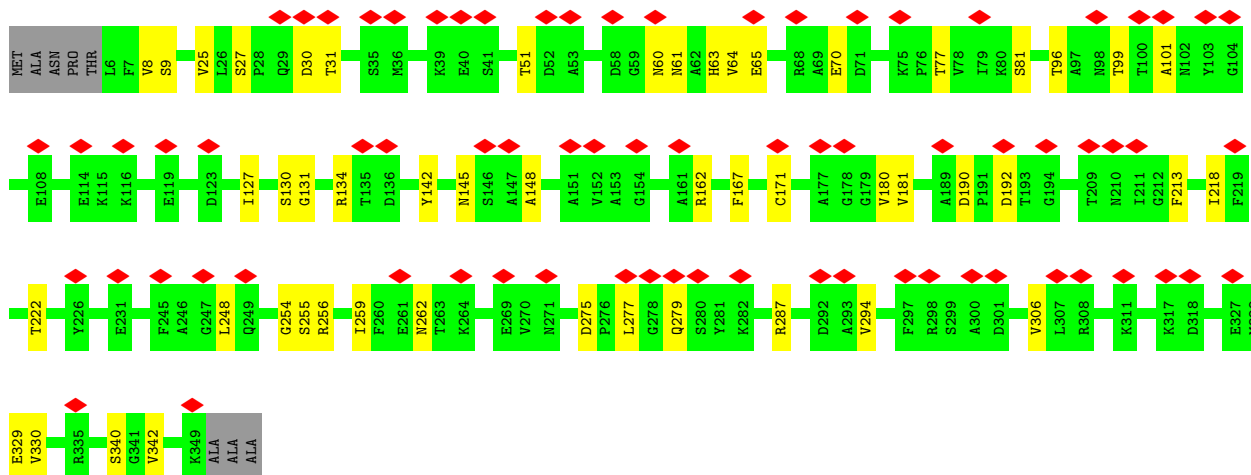
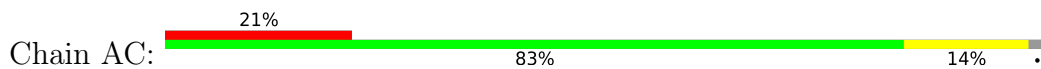
- Molecule 1: Major head protein



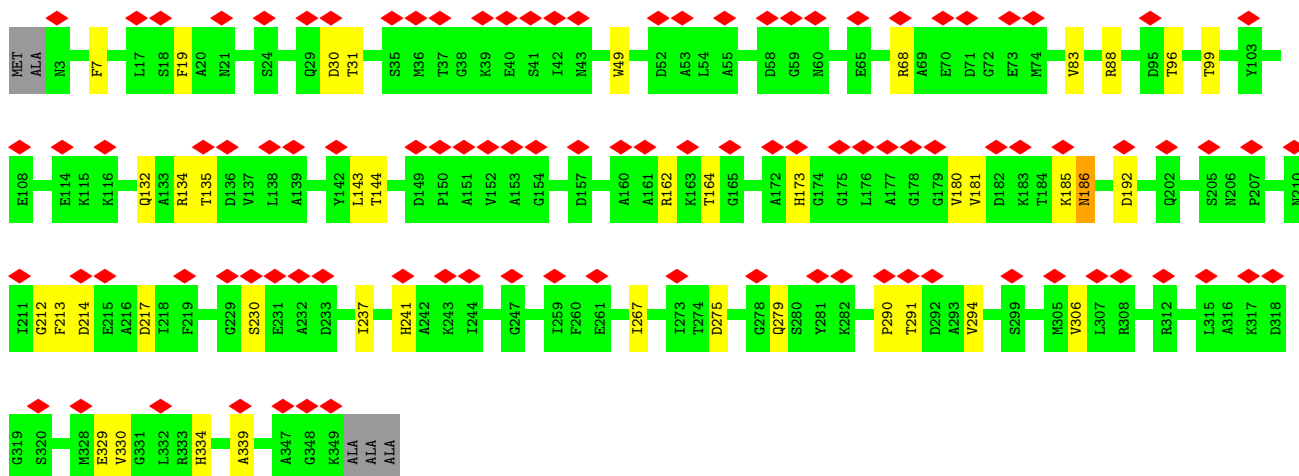
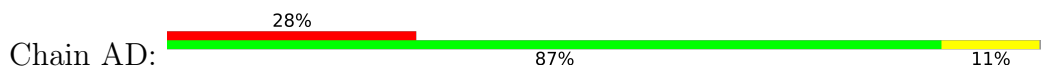
- Molecule 1: Major head protein



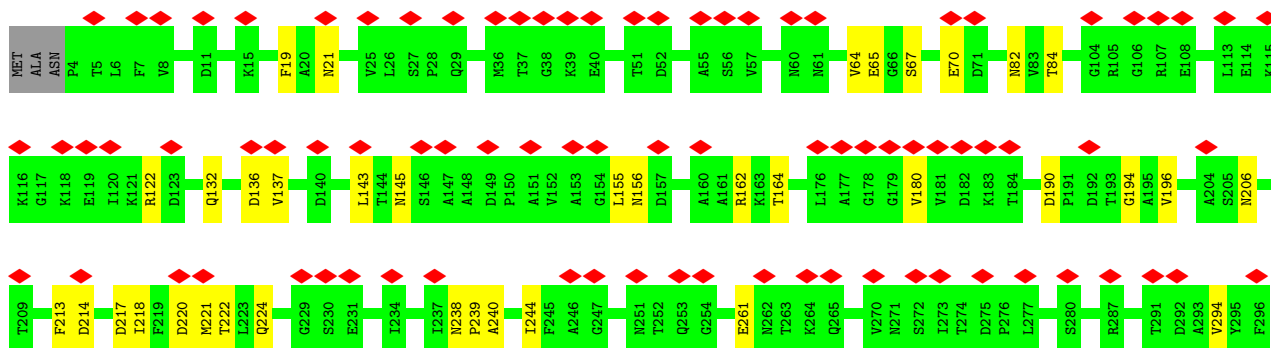
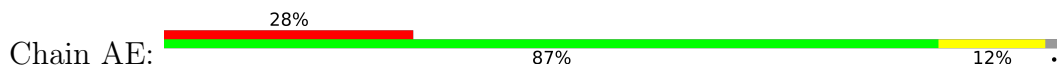
- Molecule 1: Major head protein

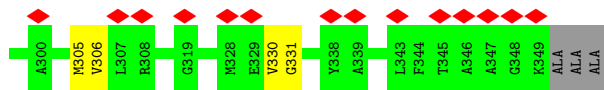


• Molecule 1: Major head protein

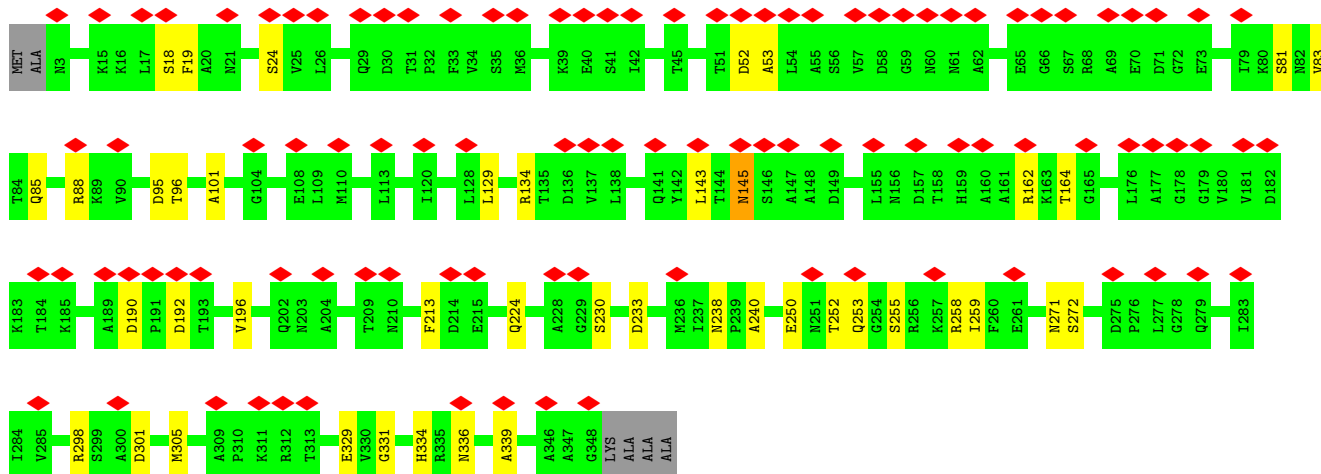
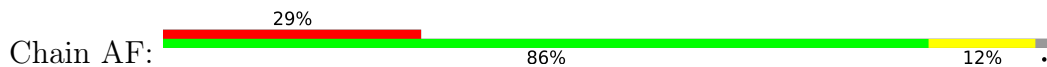


• Molecule 1: Major head protein

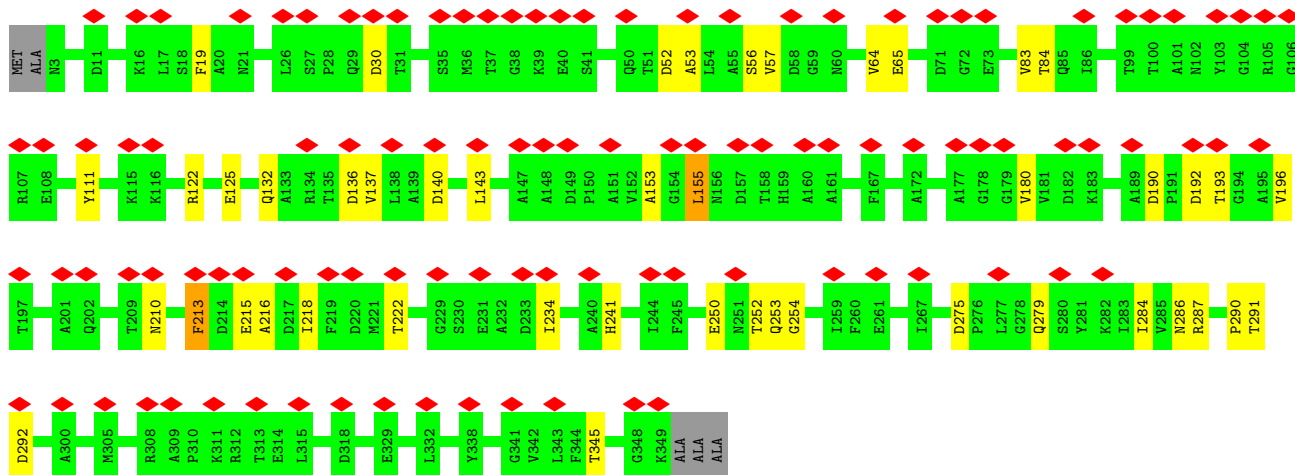
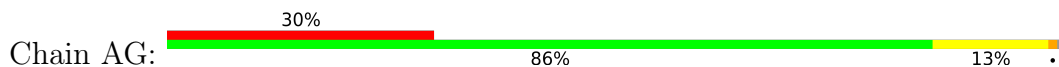




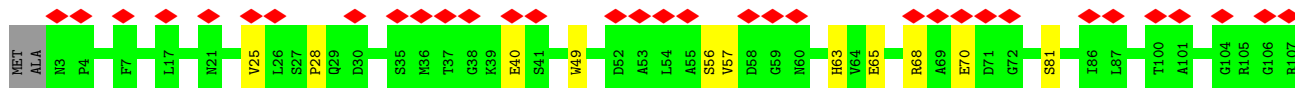
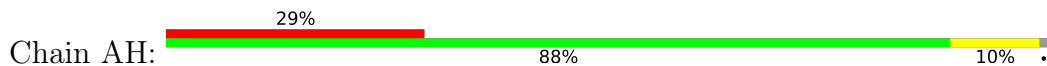
• Molecule 1: Major head protein

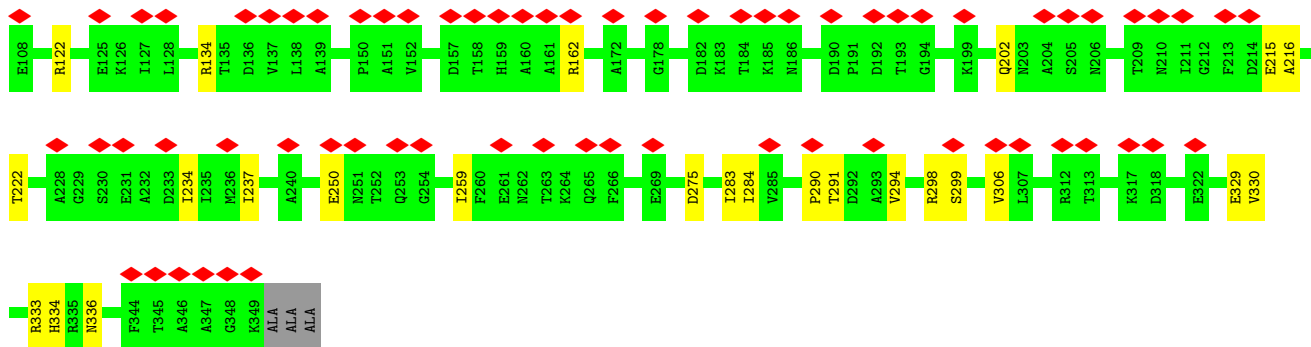


• Molecule 1: Major head protein

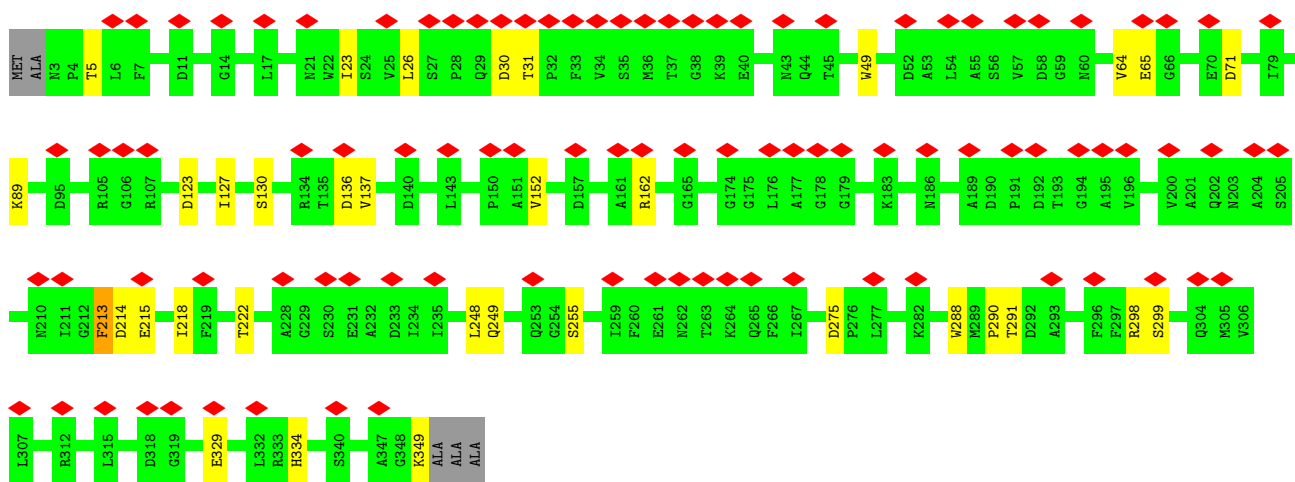
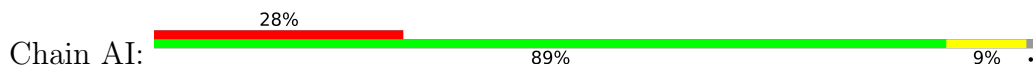


• Molecule 1: Major head protein

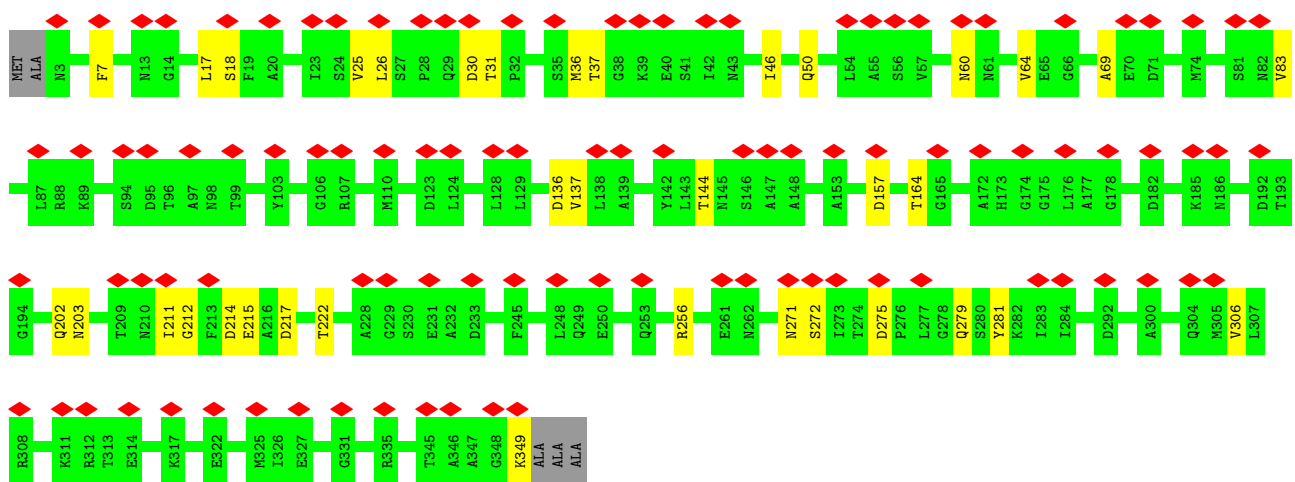
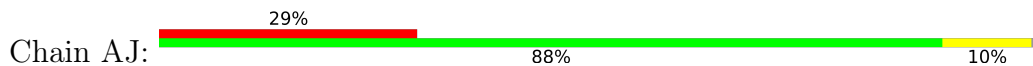




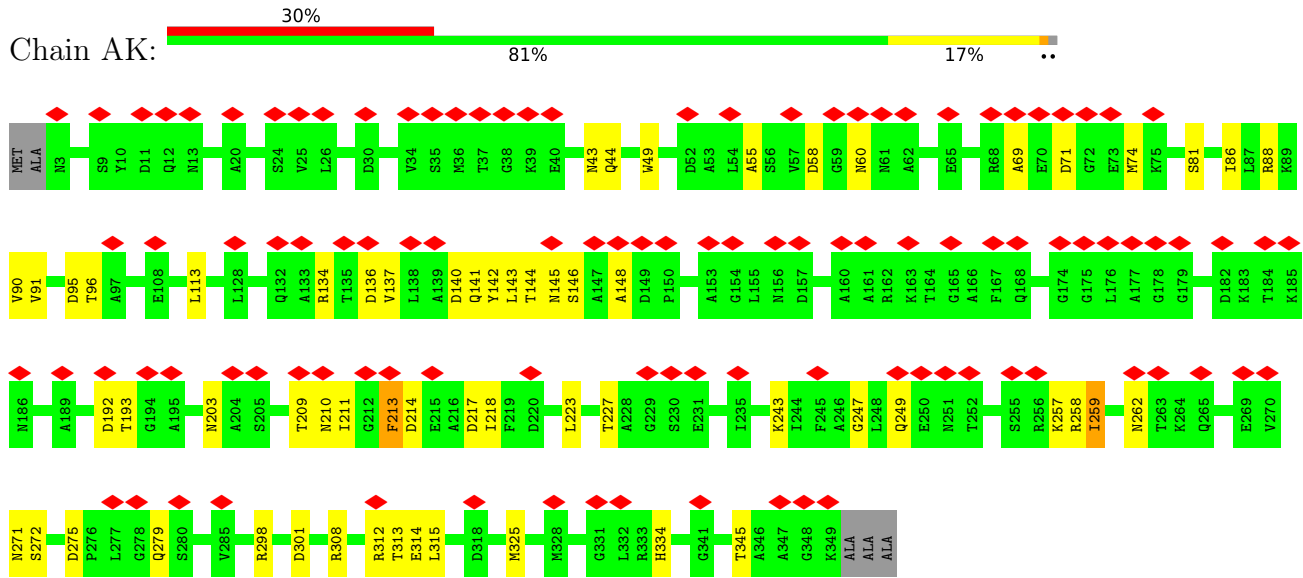
• Molecule 1: Major head protein



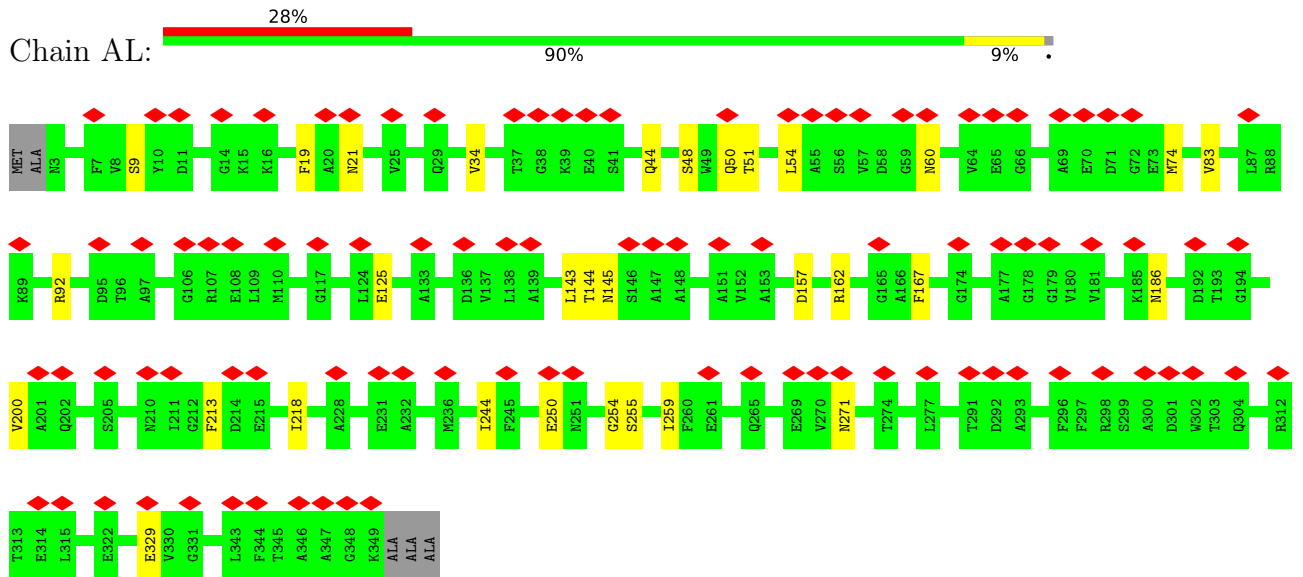
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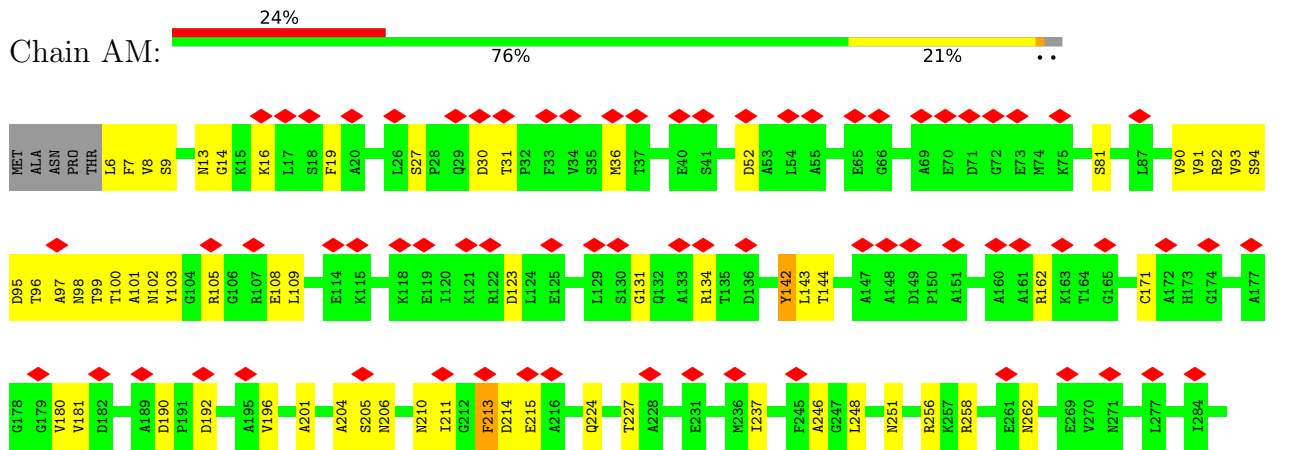
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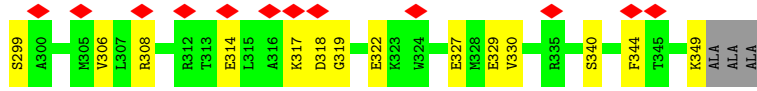


• Molecule 1: Major head protein

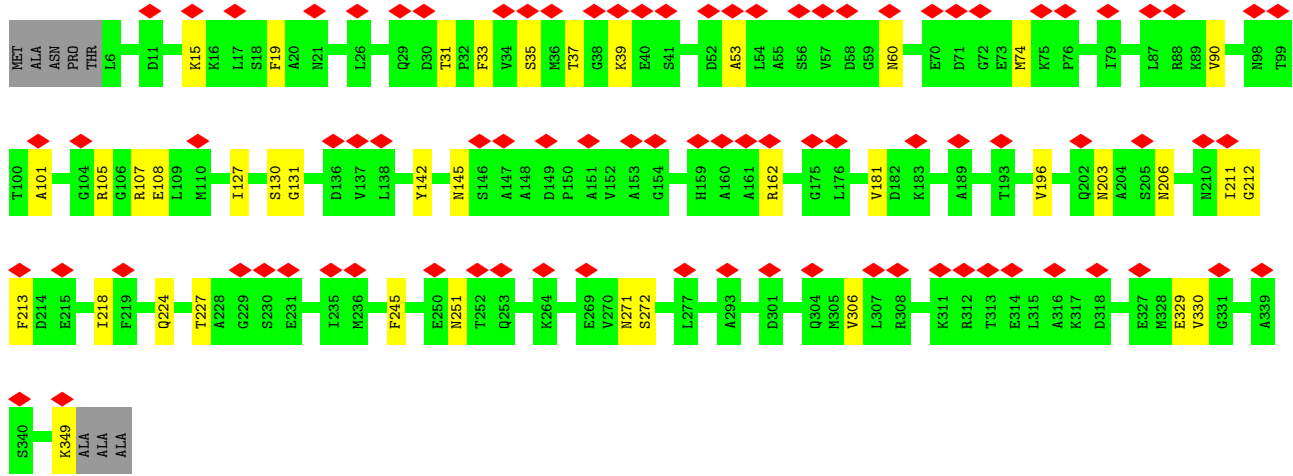
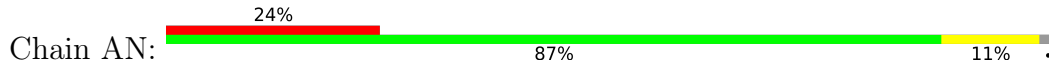


• Molecule 1: Major head protein

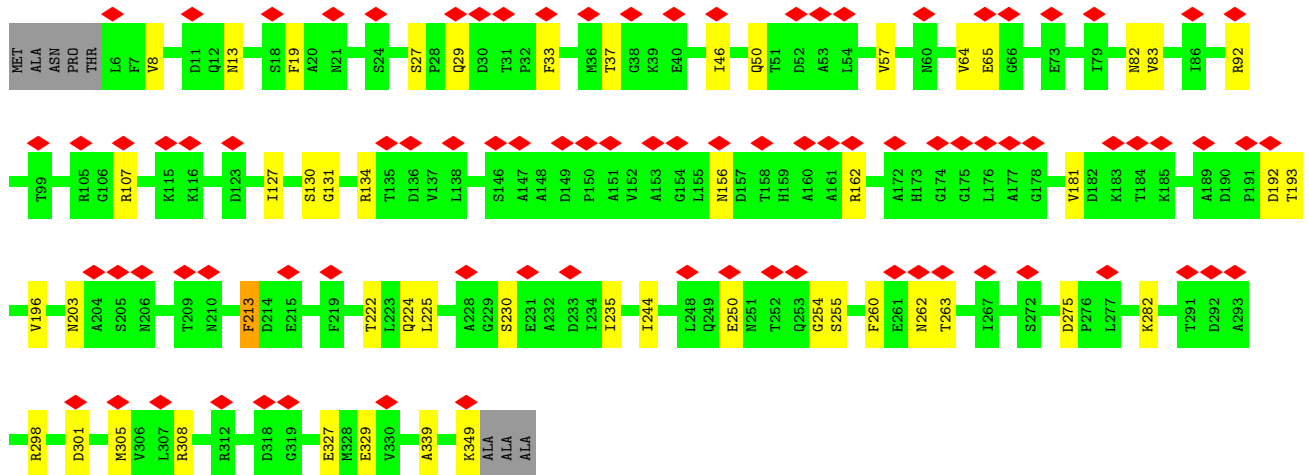
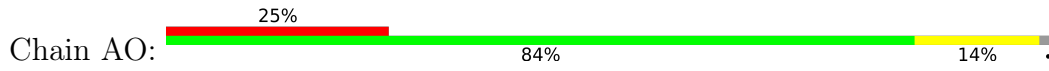




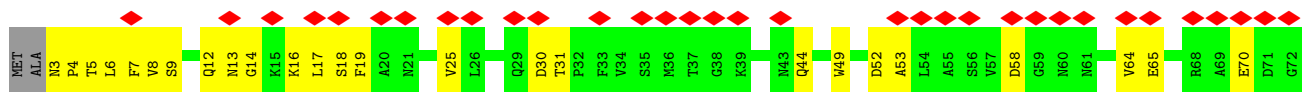
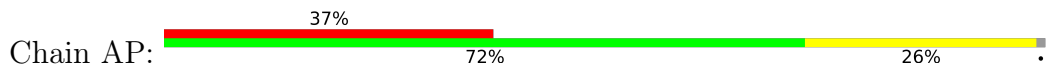
• Molecule 1: Major head protein

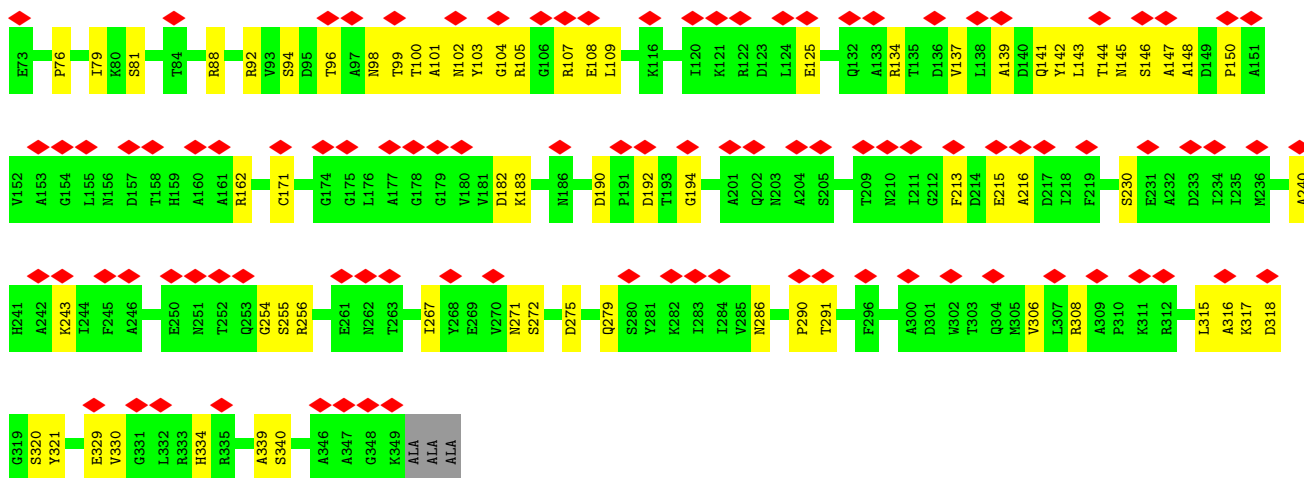


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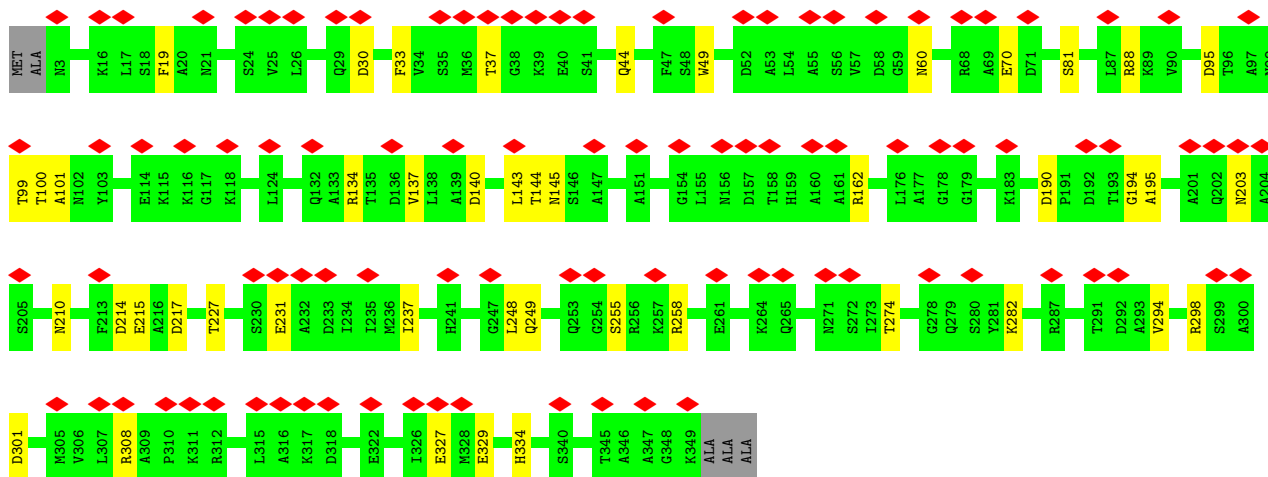
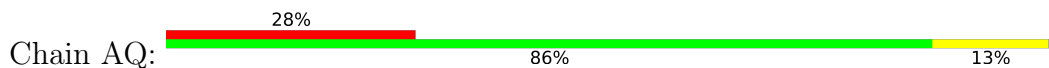


• Molecule 1: Major head protein

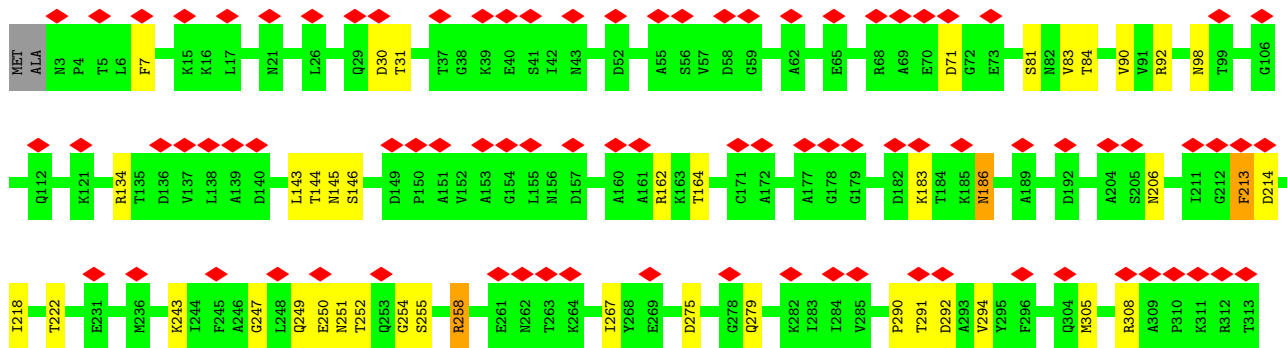
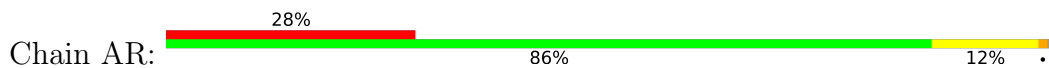


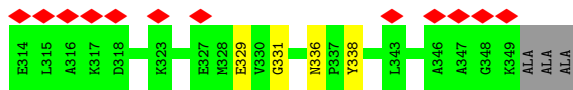


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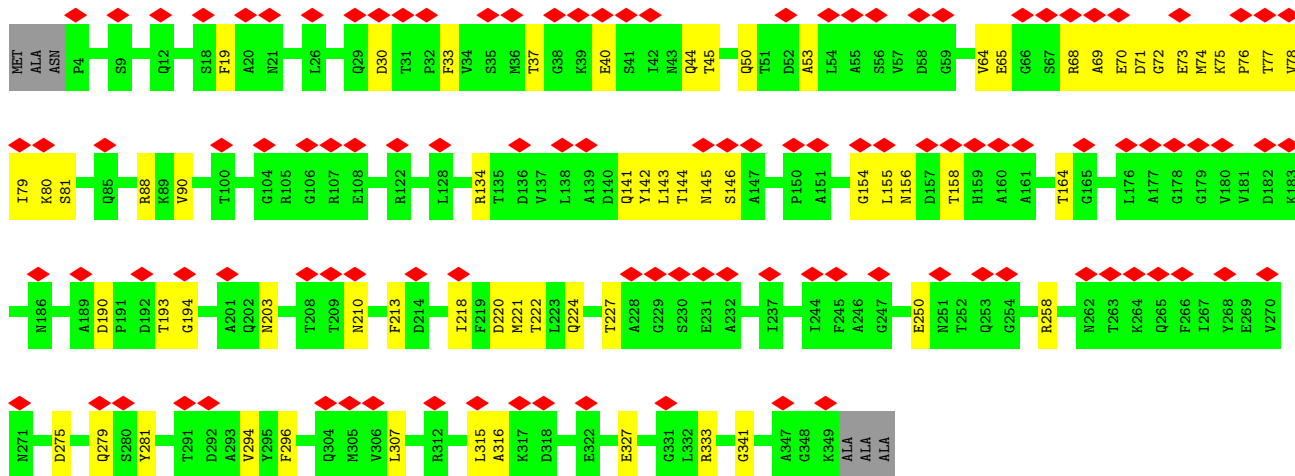
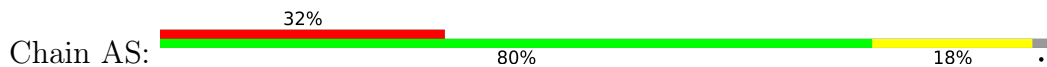


• Molecule 1: Major head protein

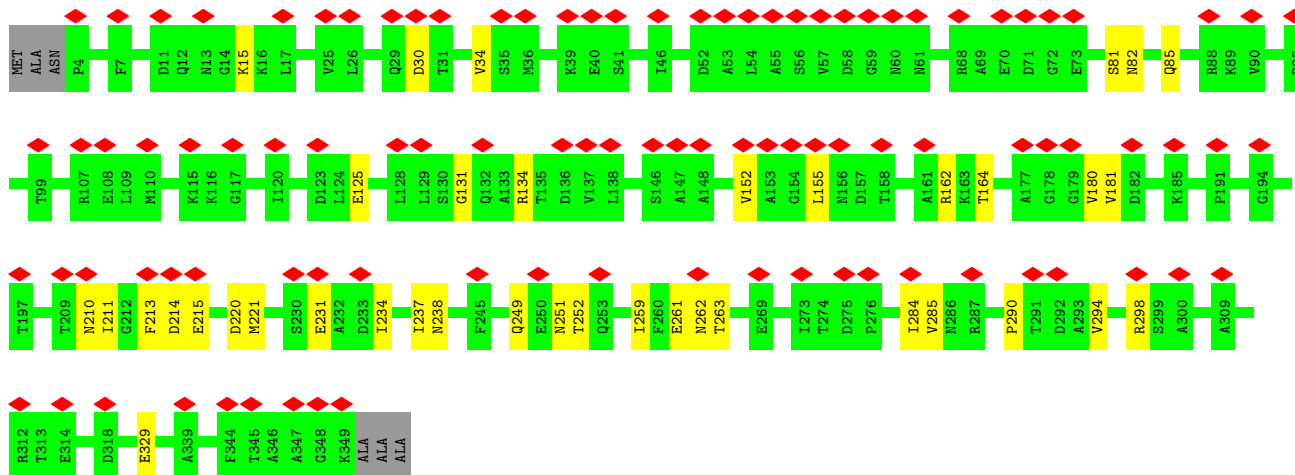
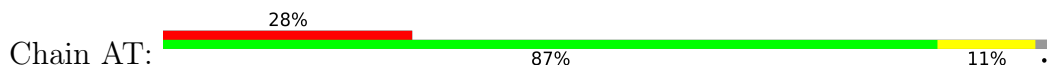




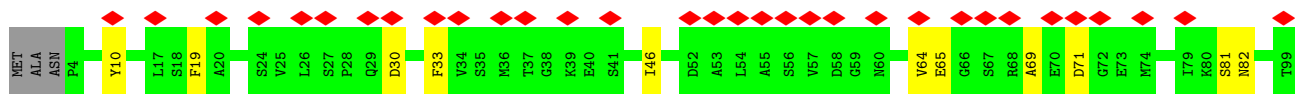
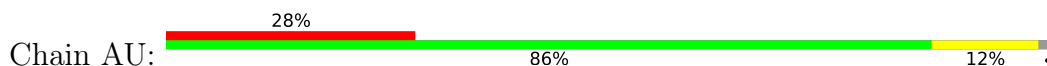
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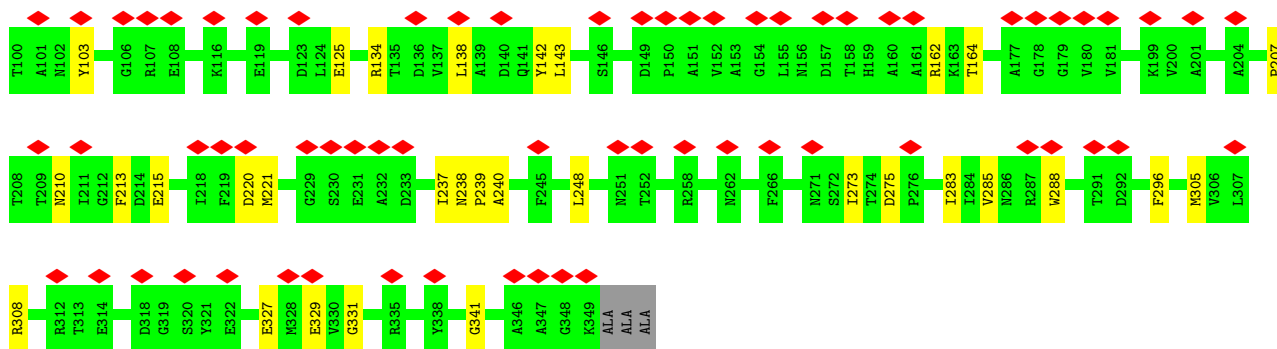


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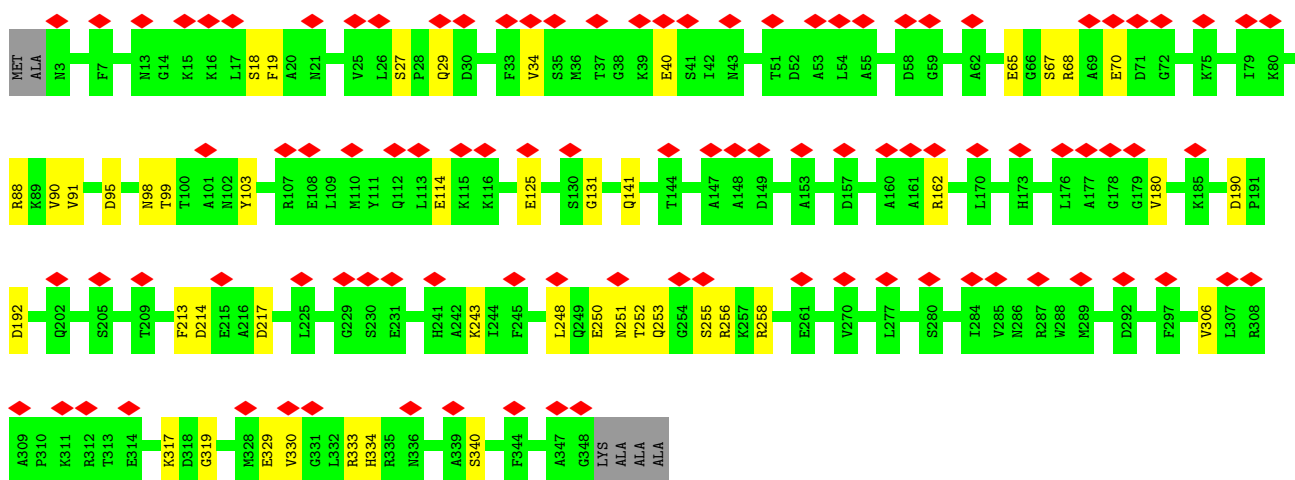
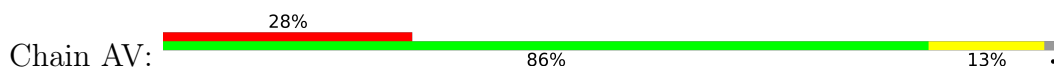


• Molecule 1: Major head protein

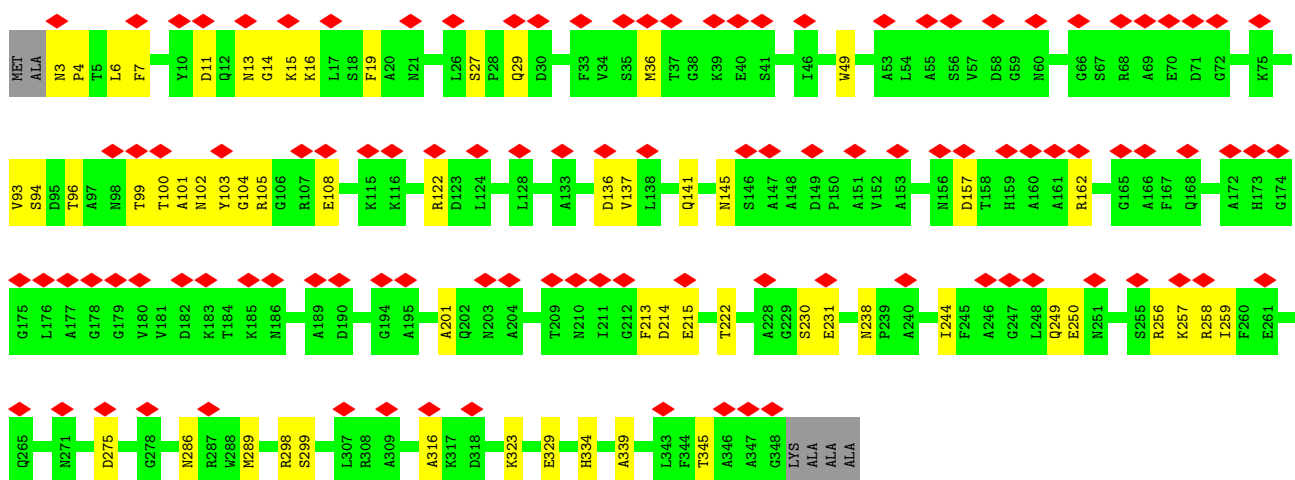
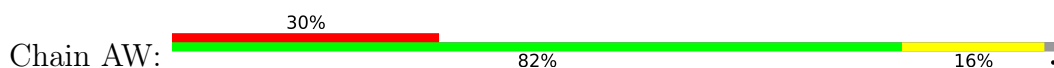




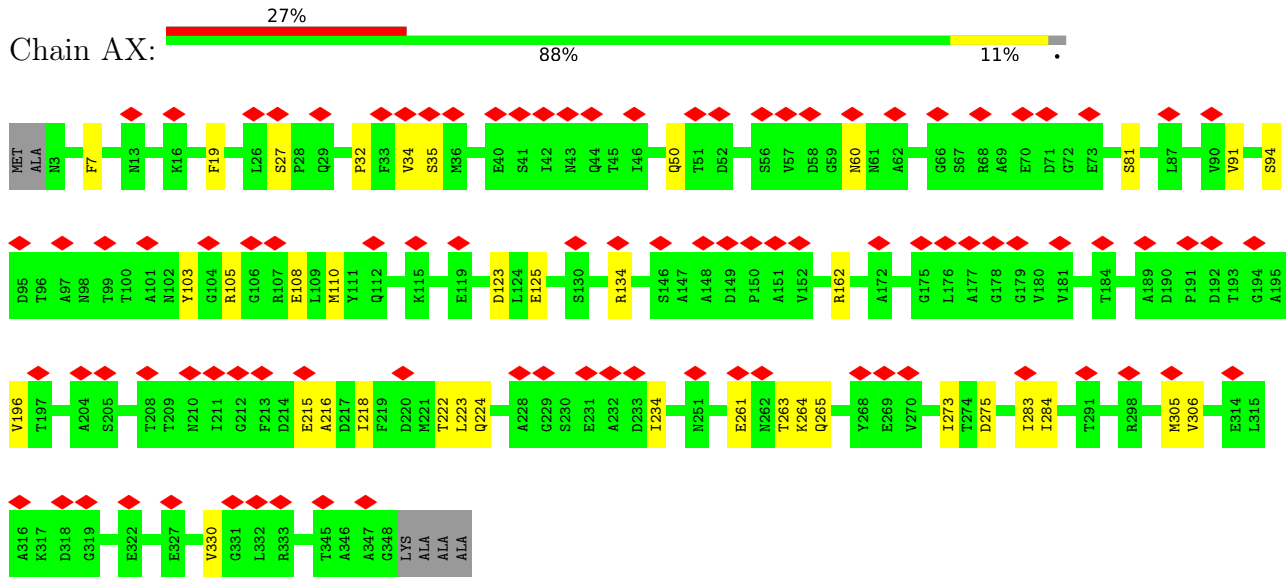
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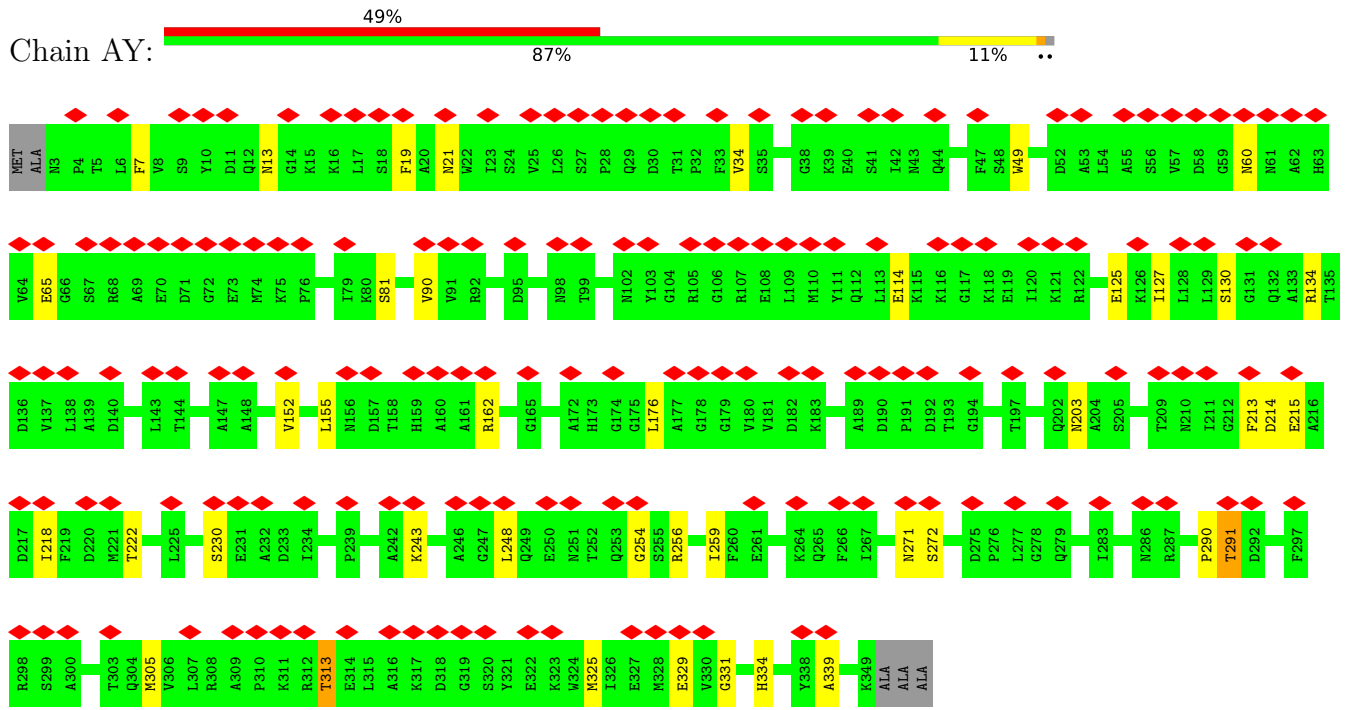
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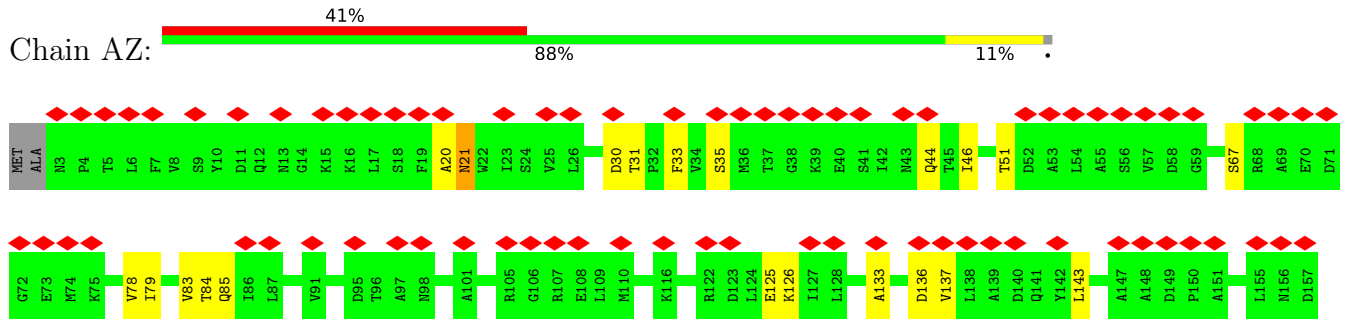
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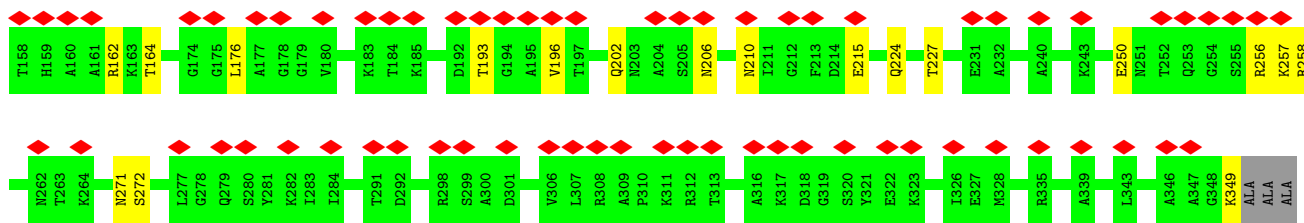


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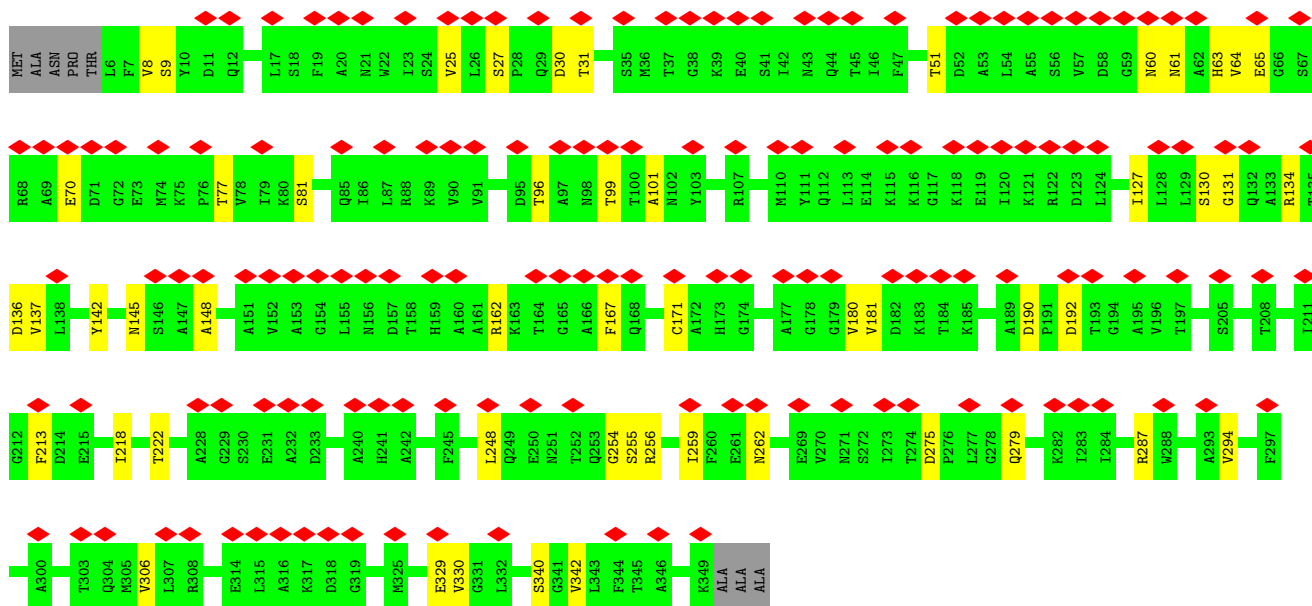
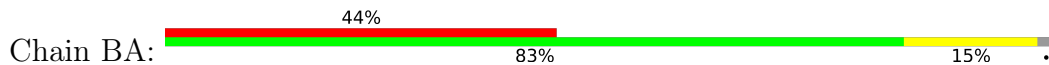


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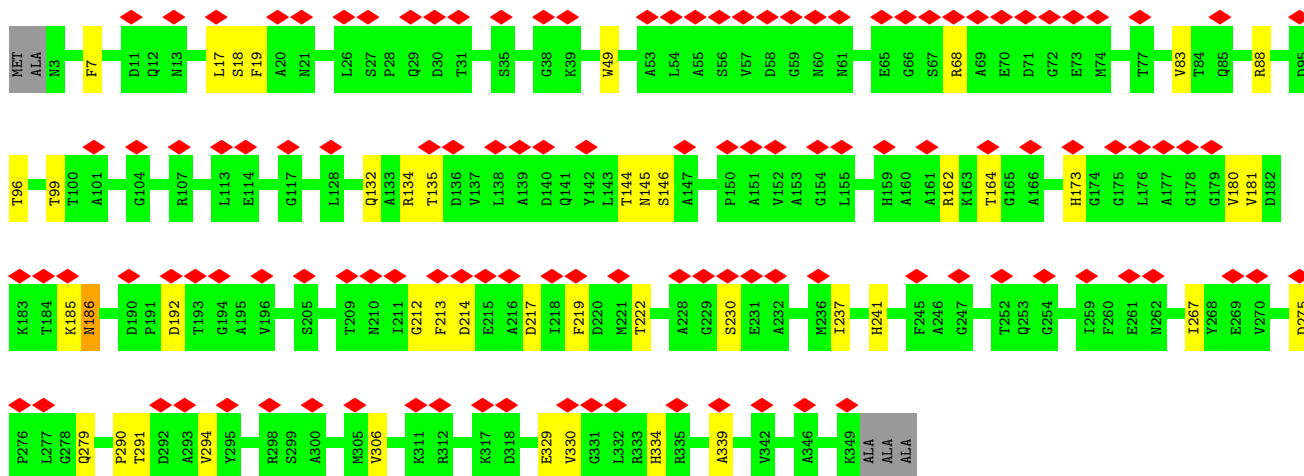
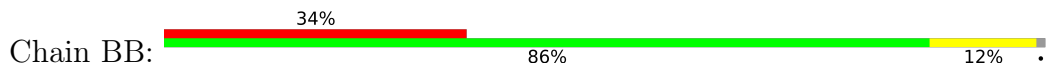




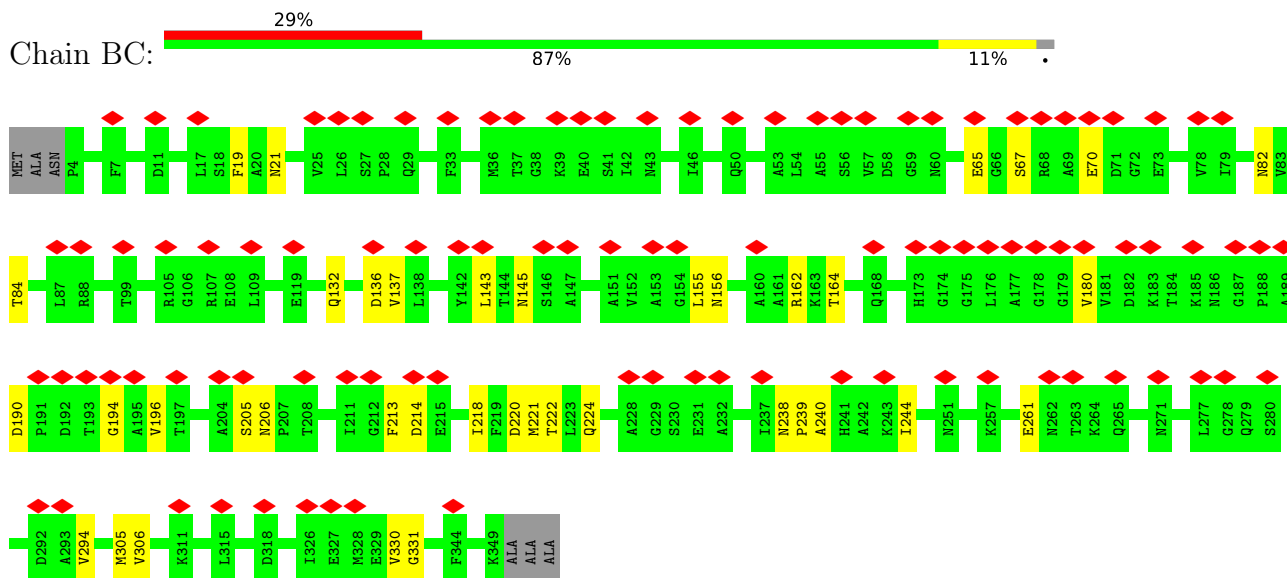
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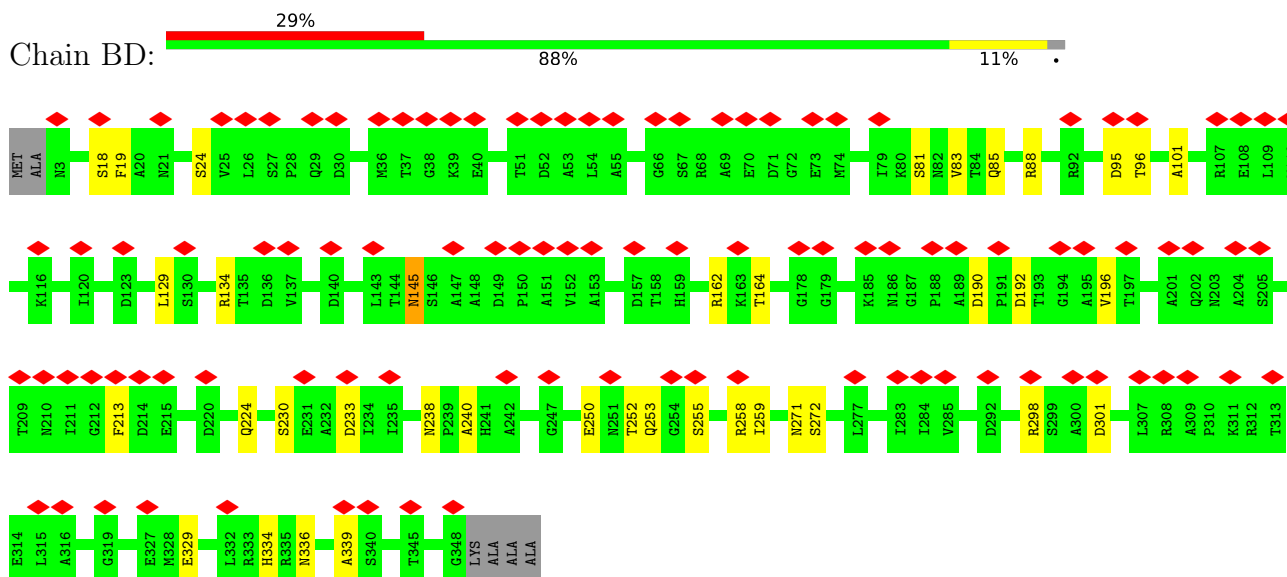
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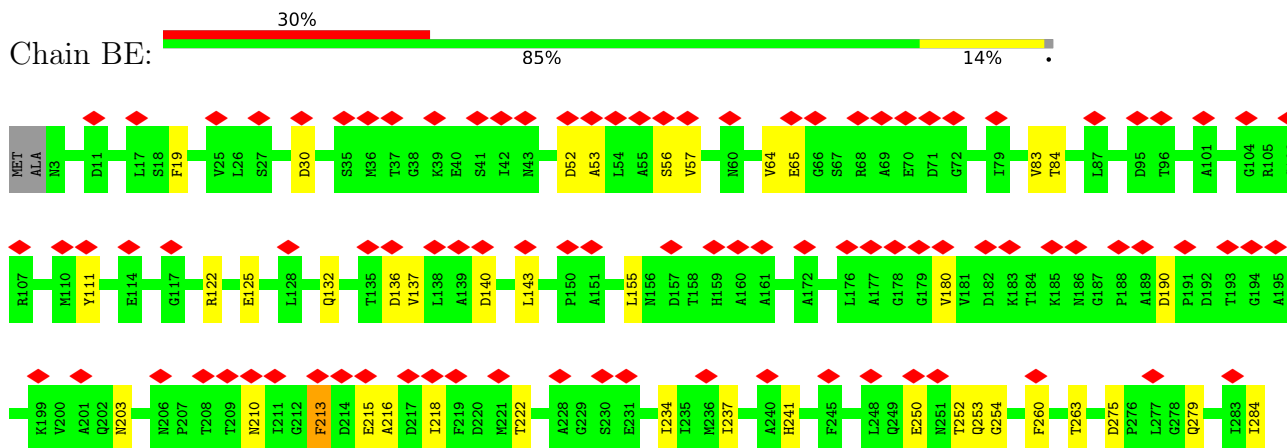
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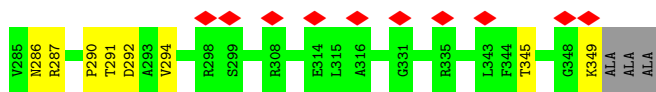


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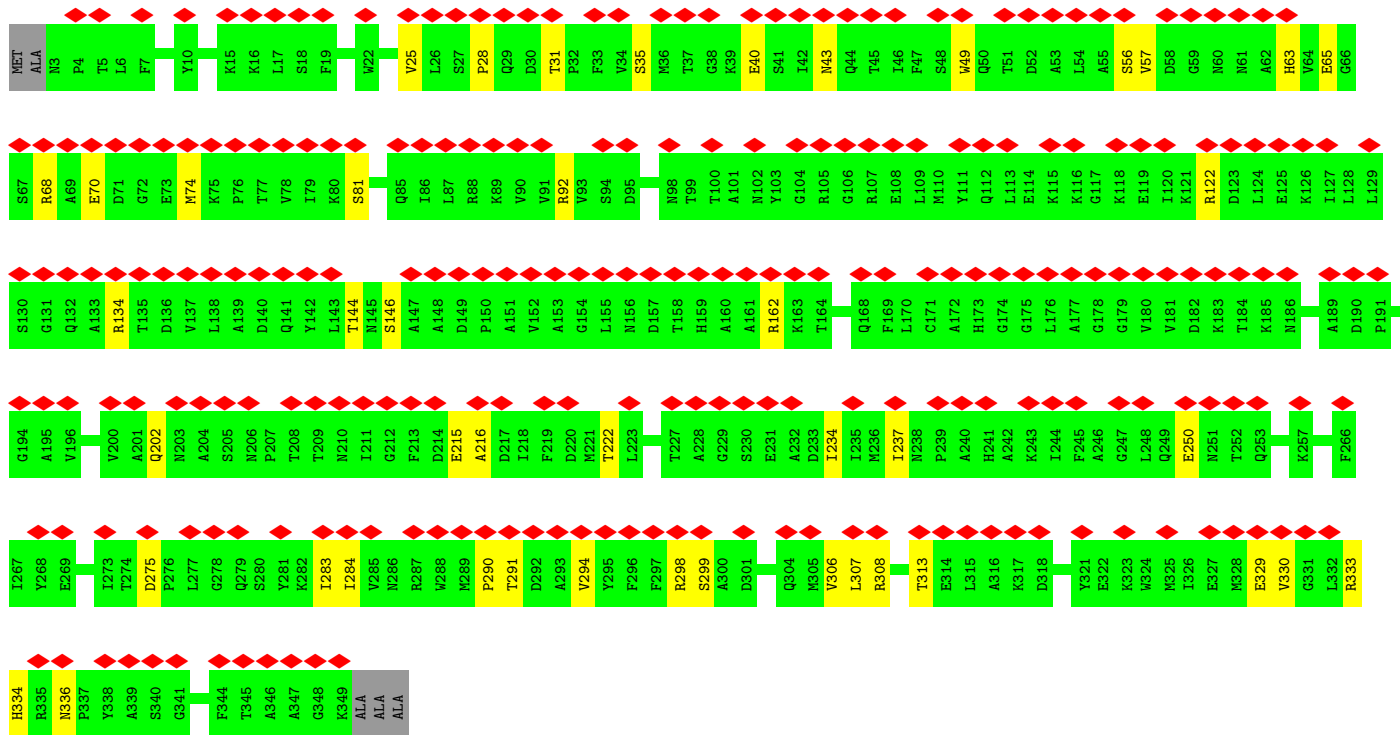
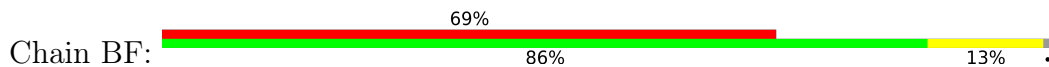


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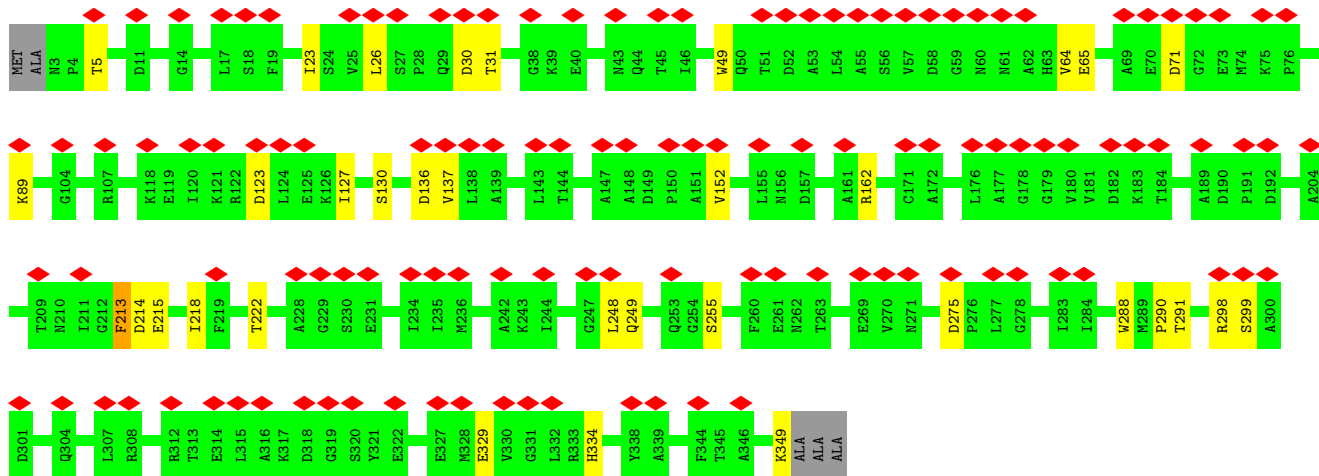
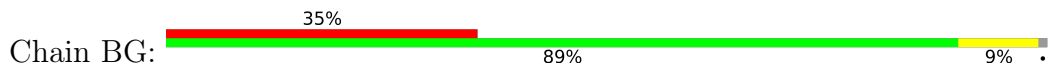




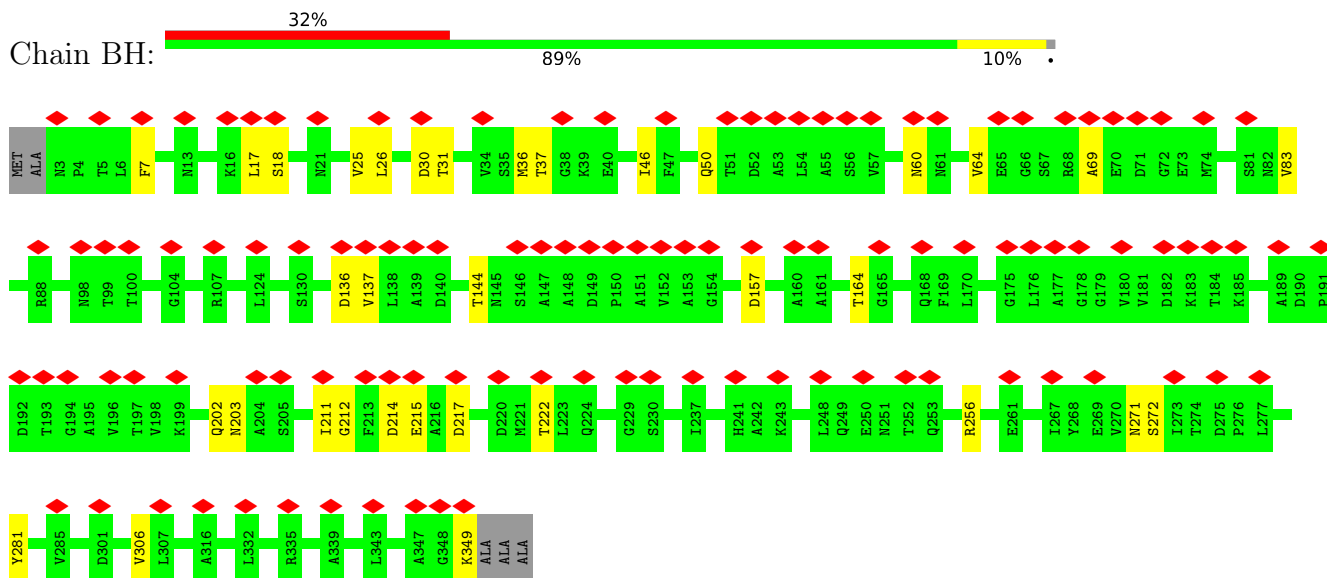
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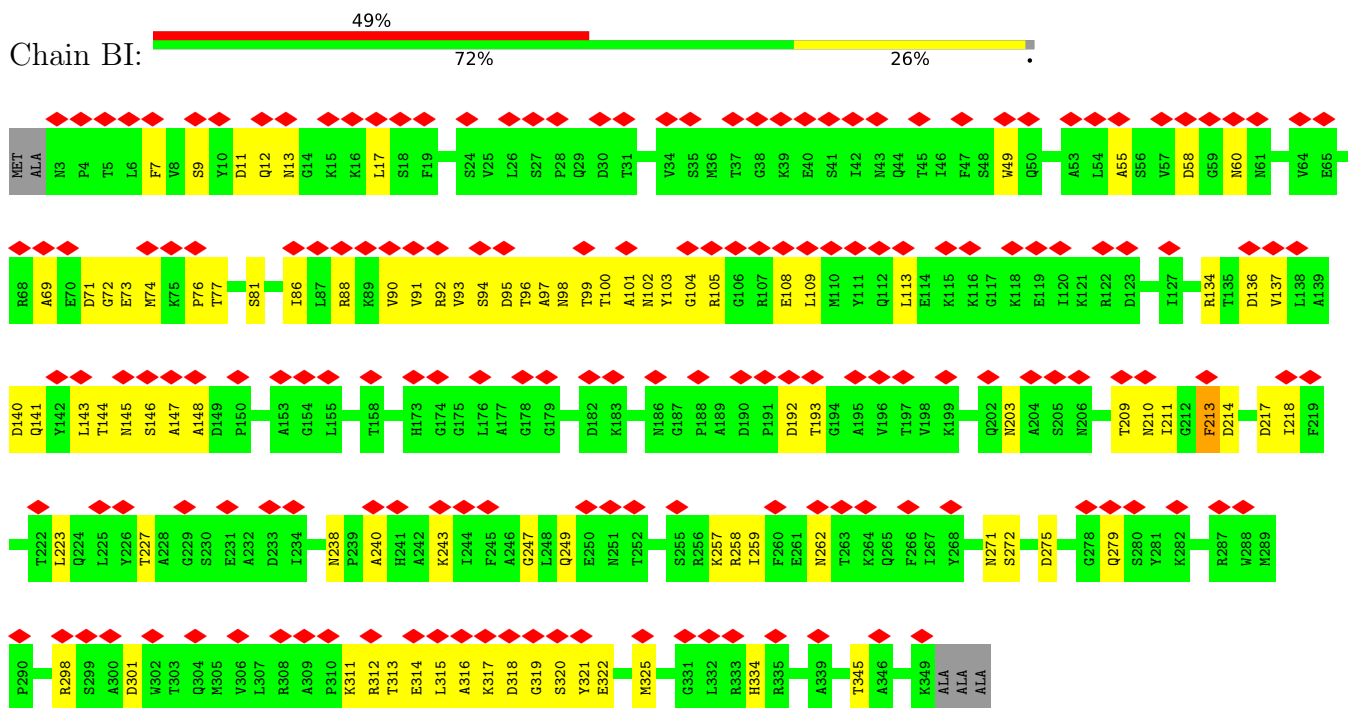
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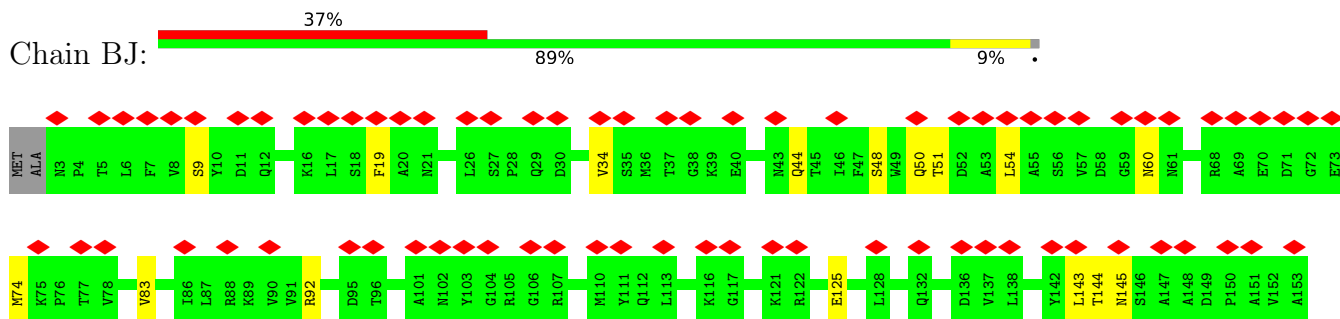
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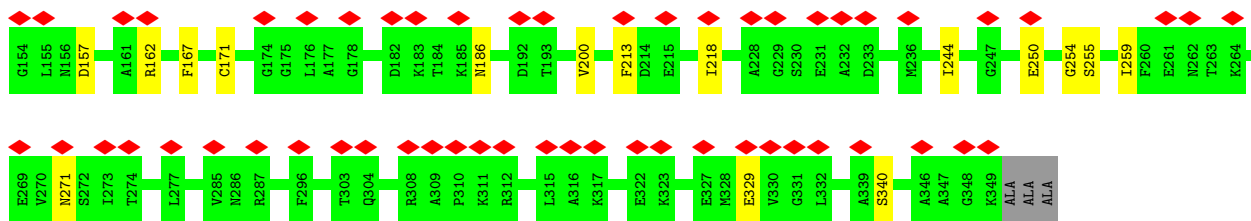


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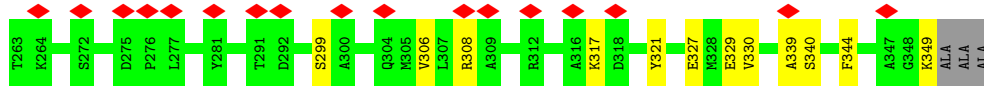
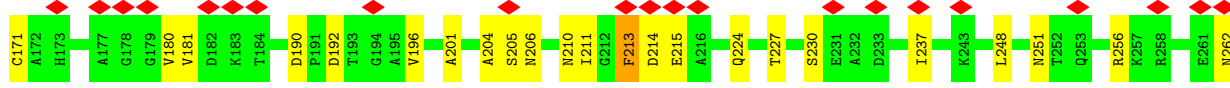
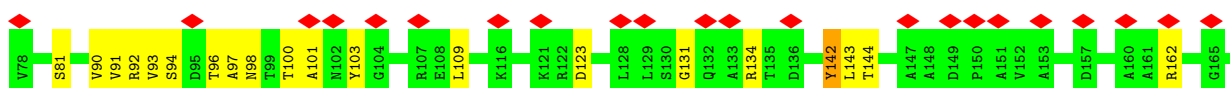
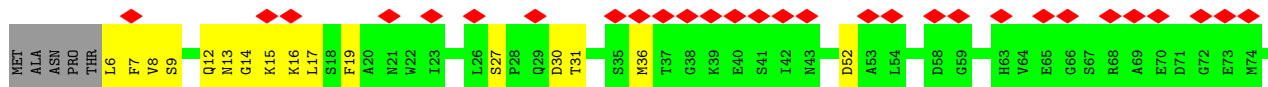
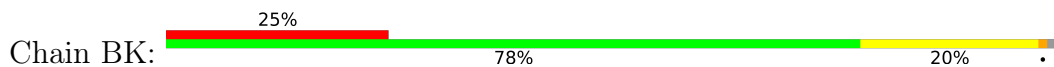


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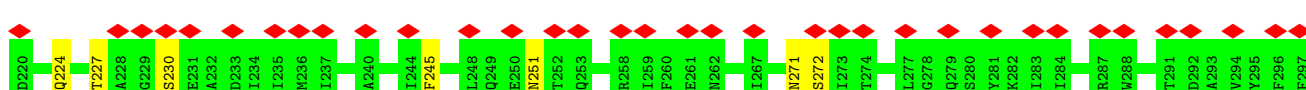
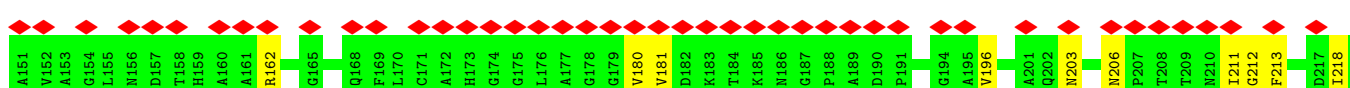
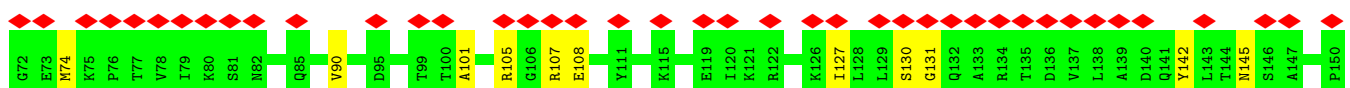
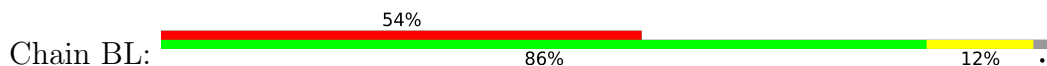




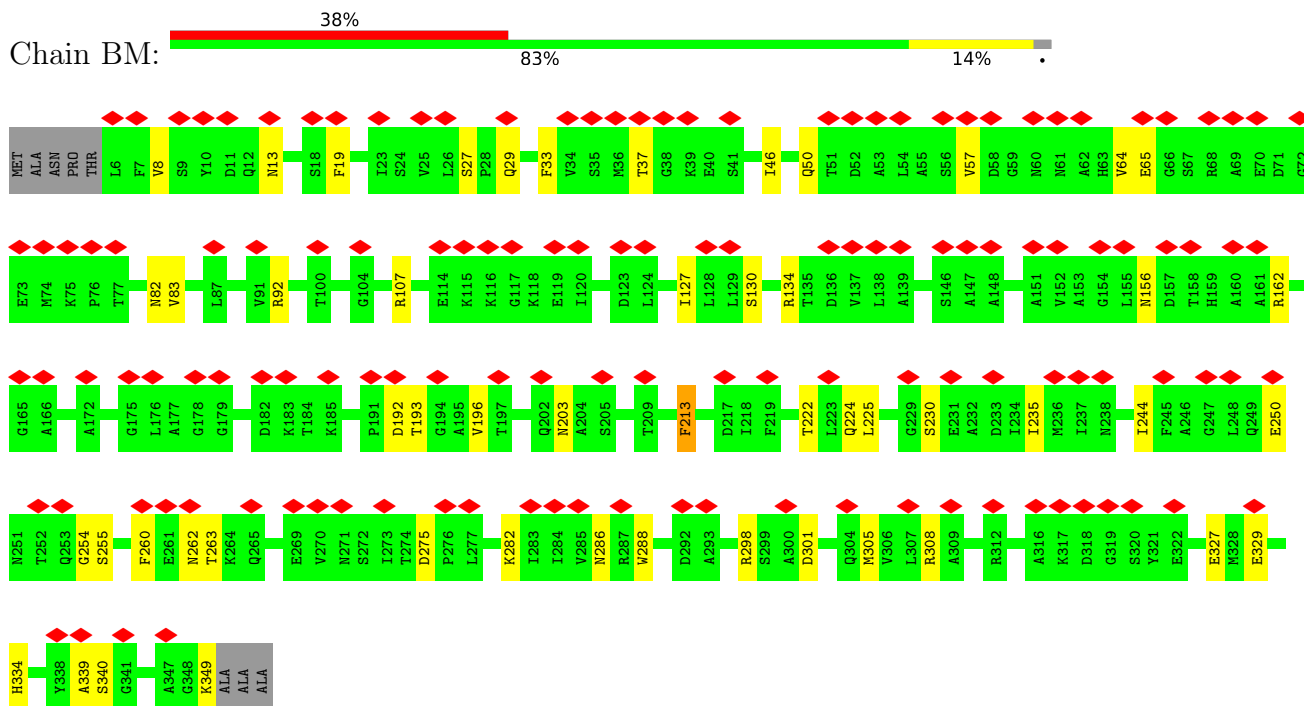
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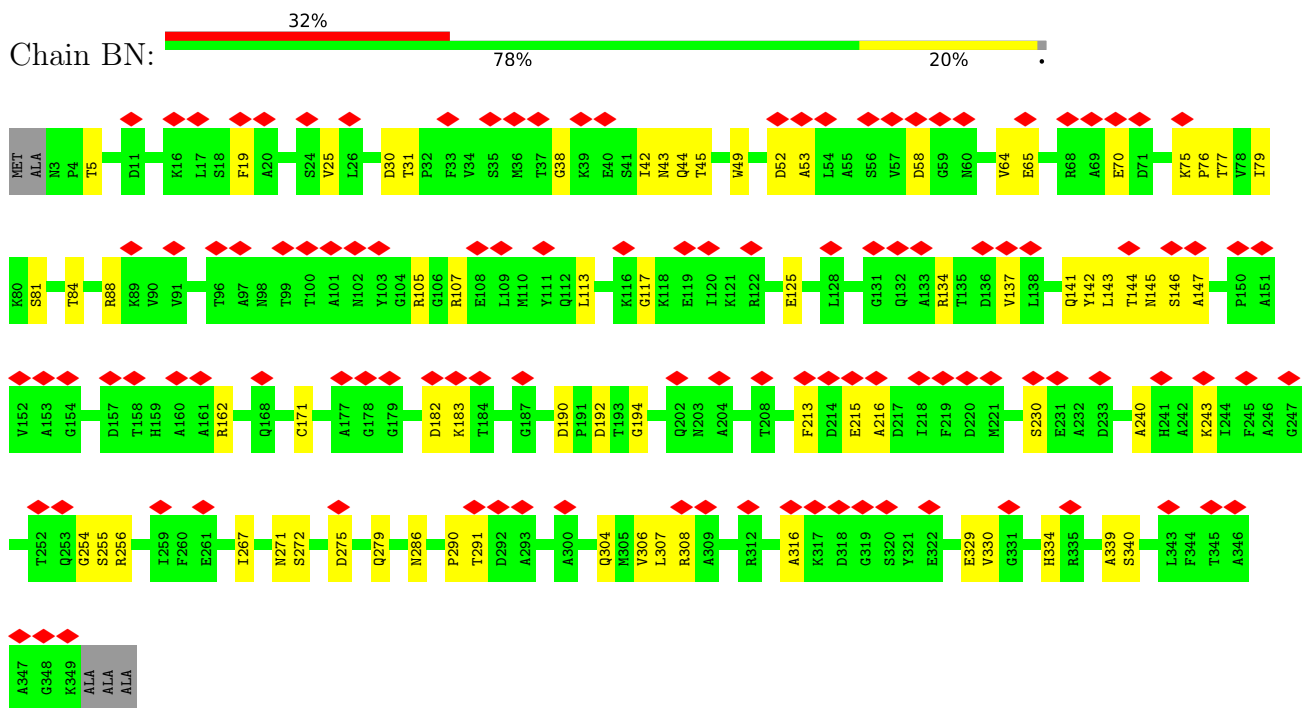
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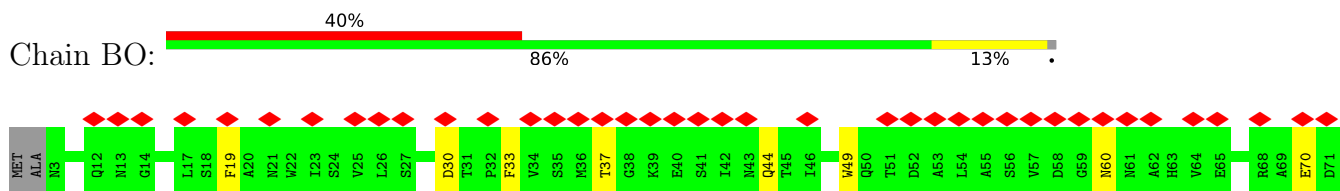
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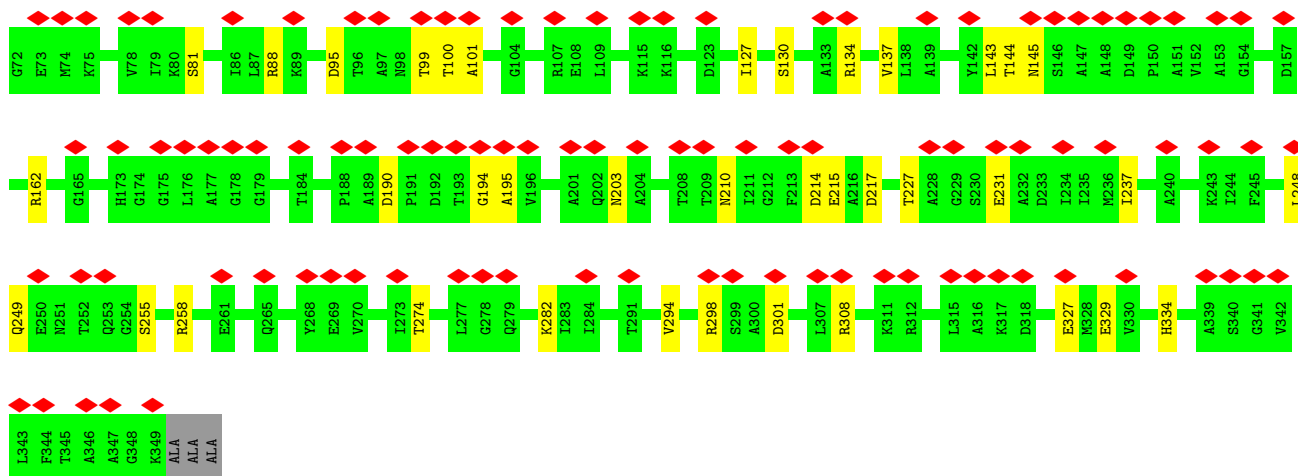


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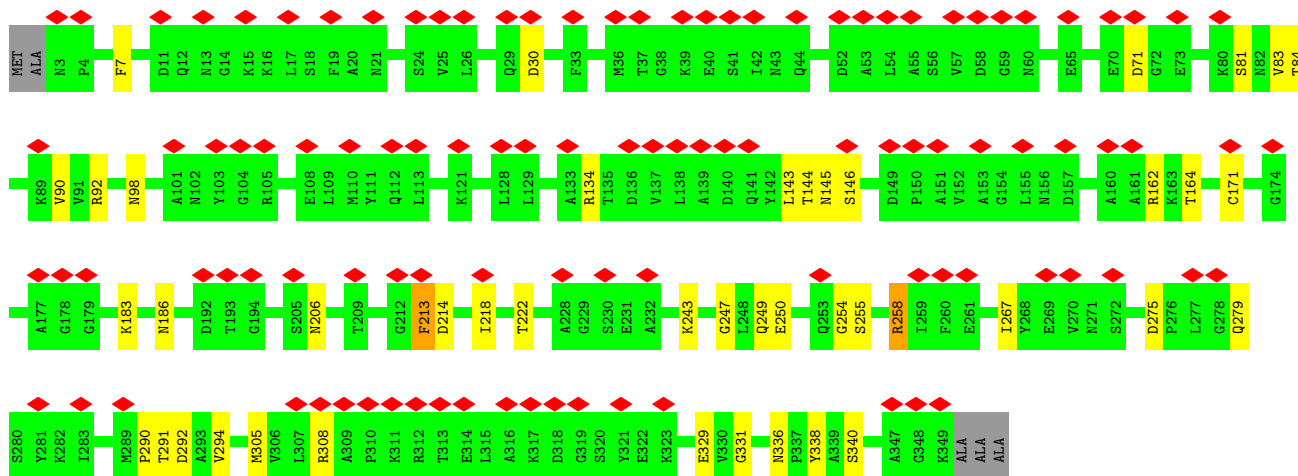
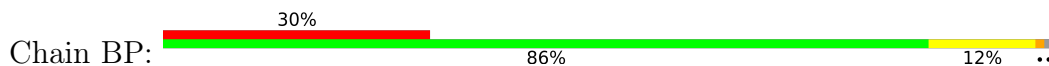


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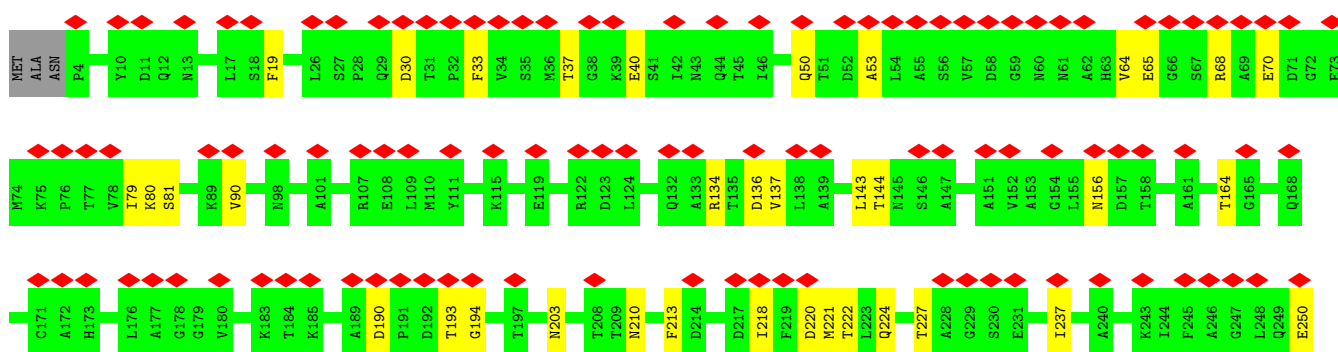
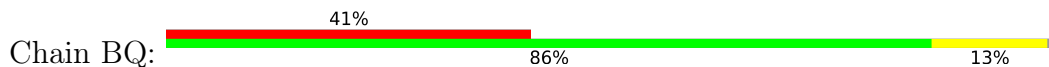


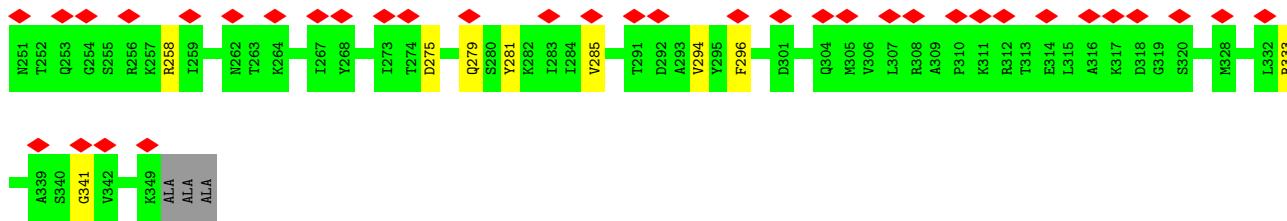


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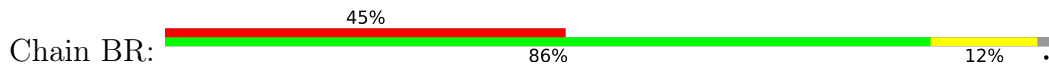


• Molecule 1: Major head protein

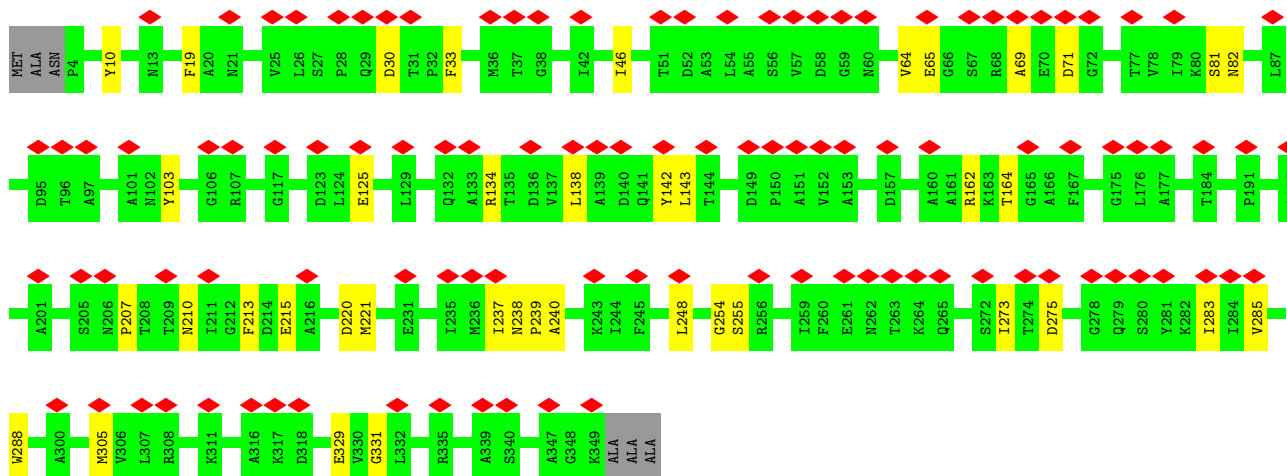
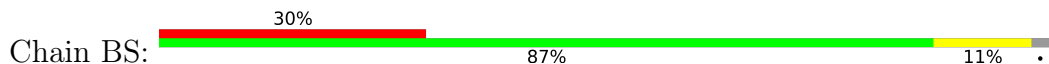




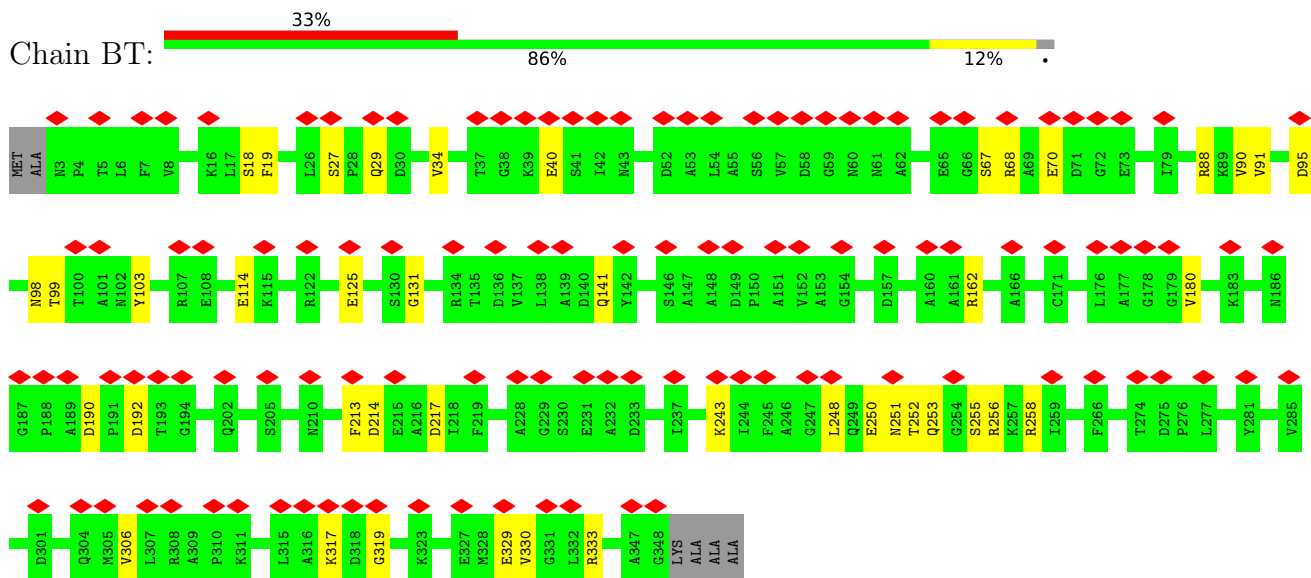
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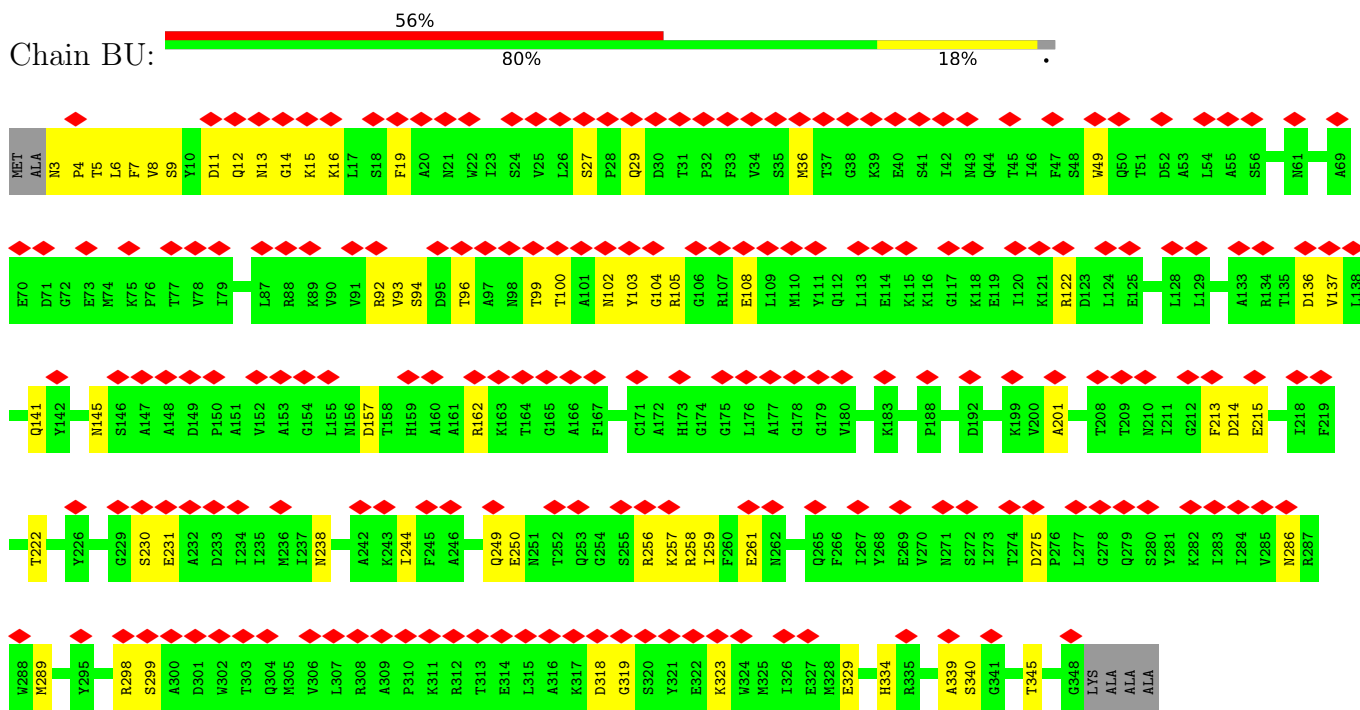
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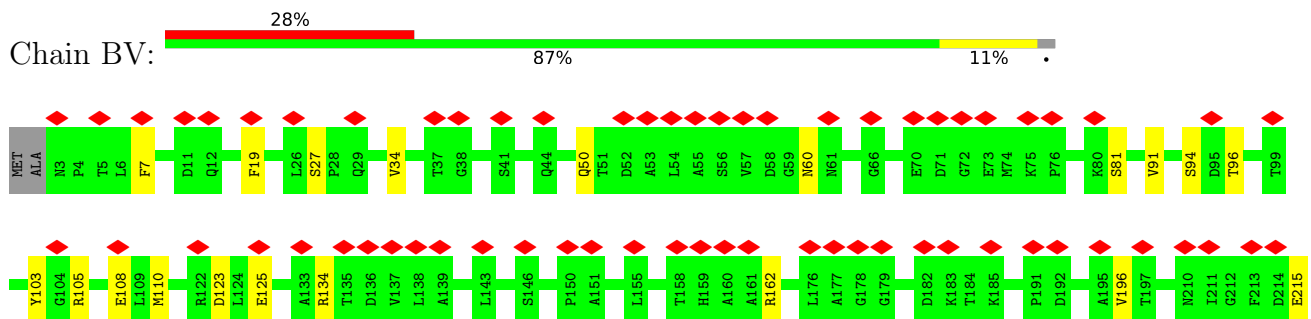
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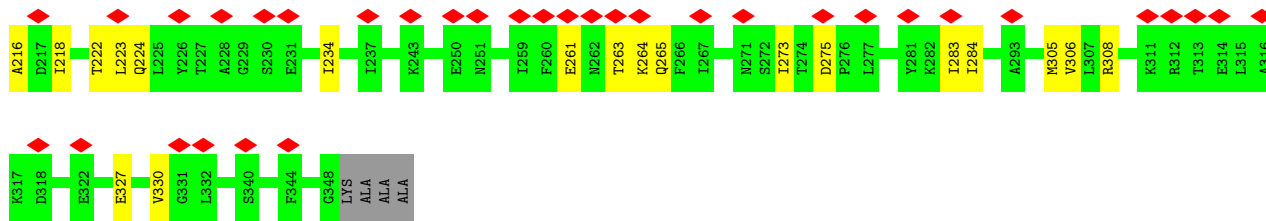


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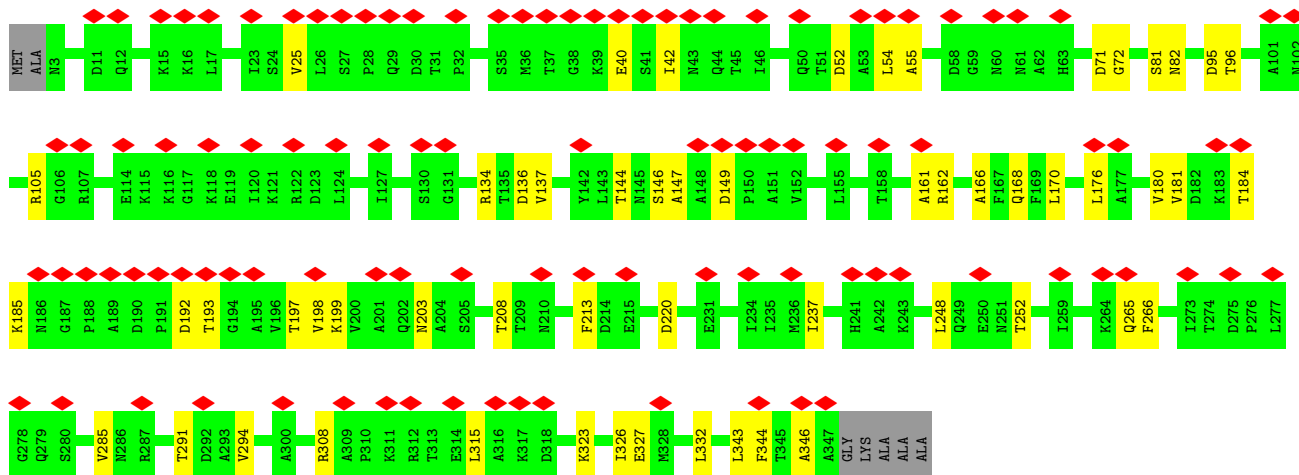
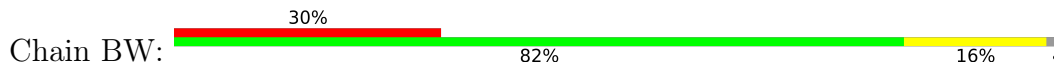


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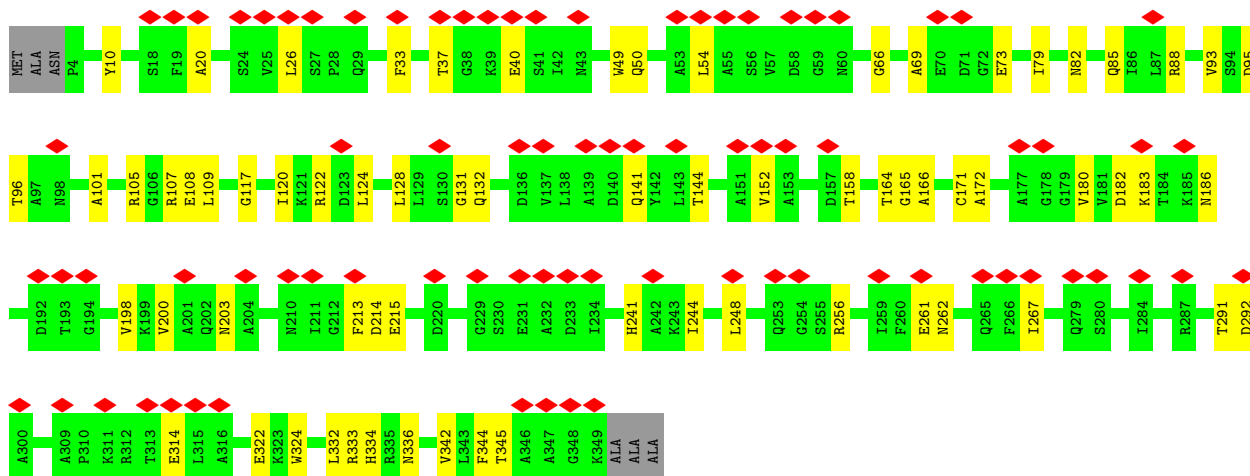
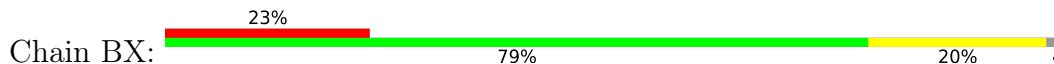




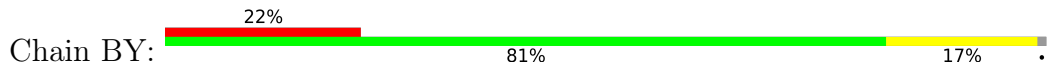
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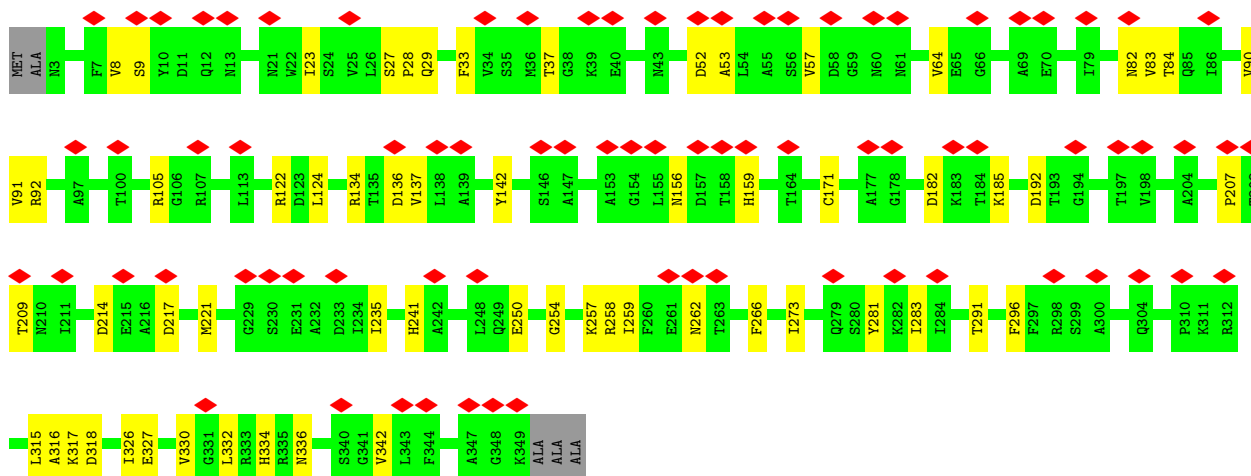


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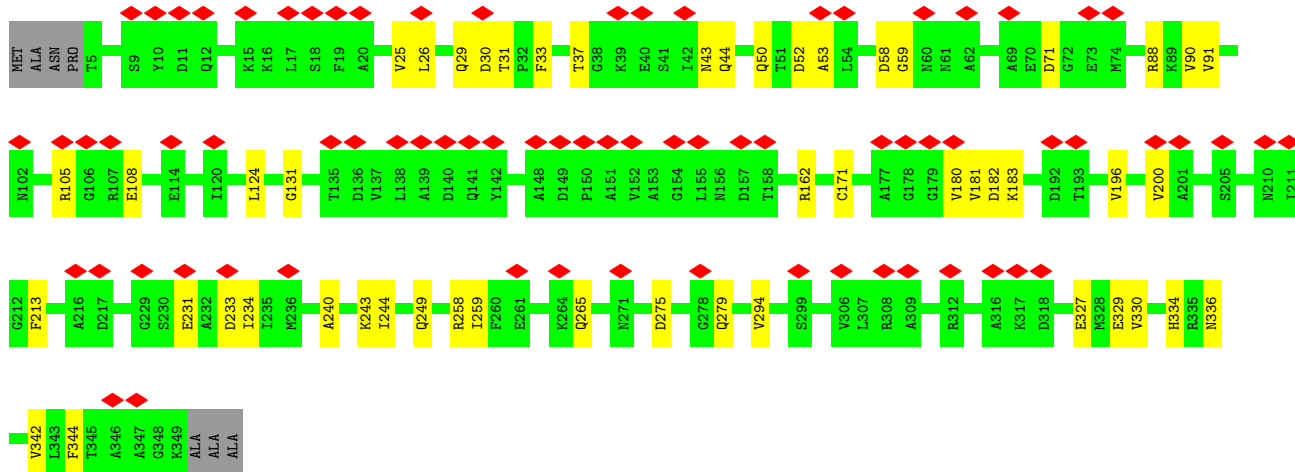
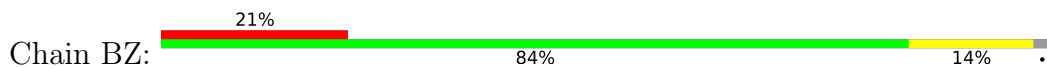


• Molecule 1: Major head protein

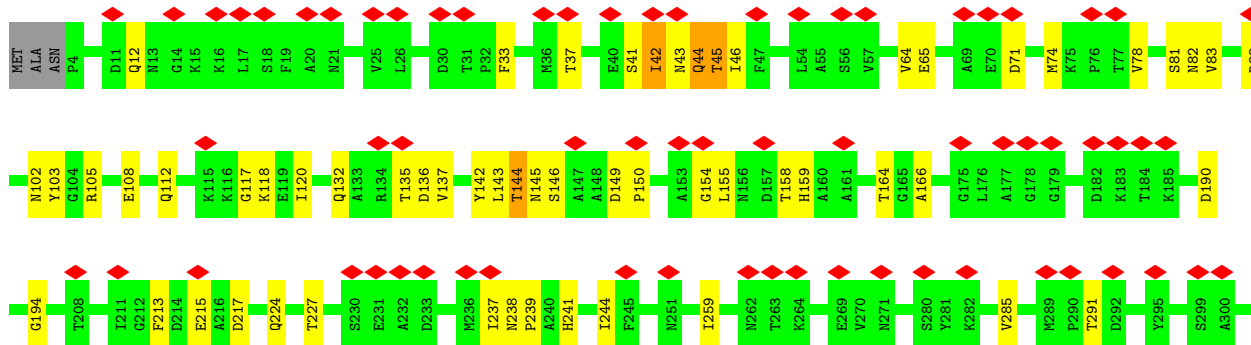
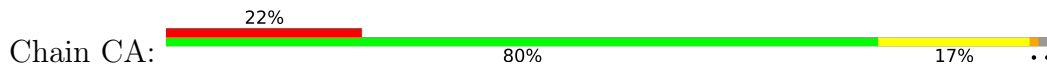


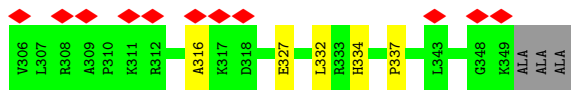


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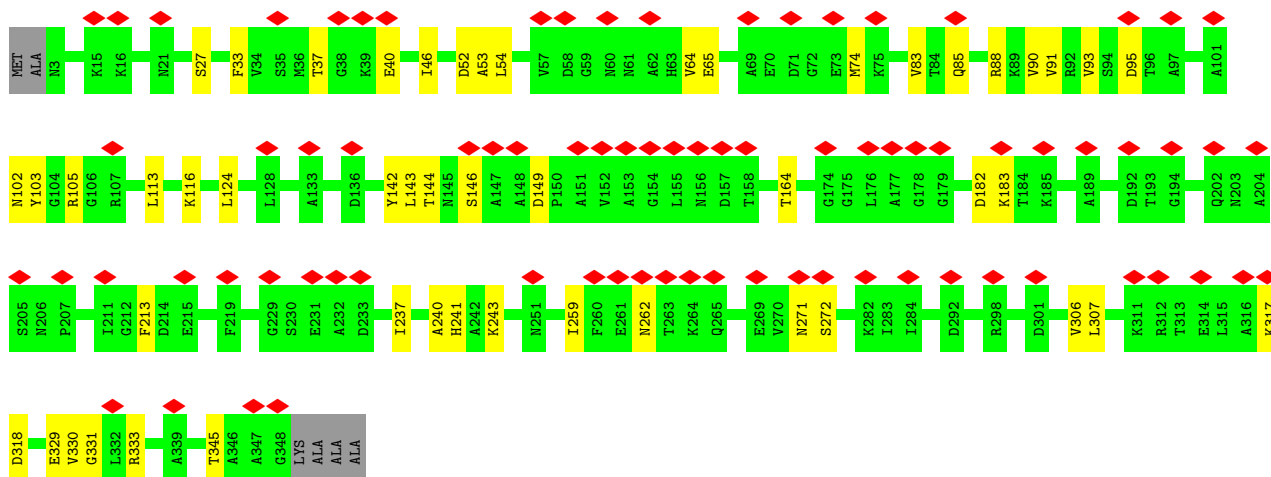
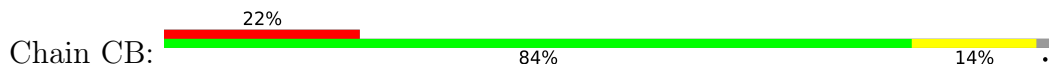


• Molecule 1: Major head protein

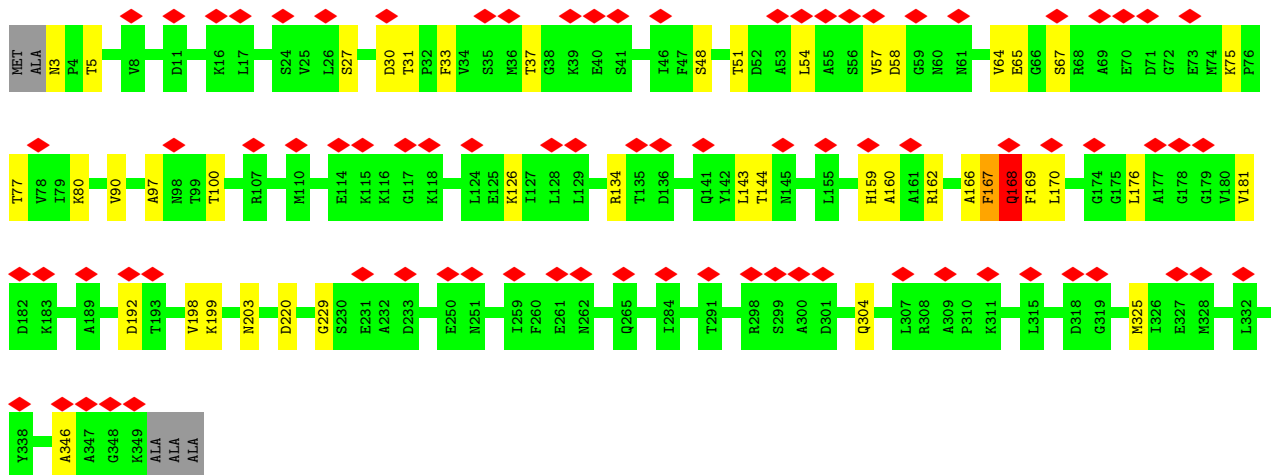
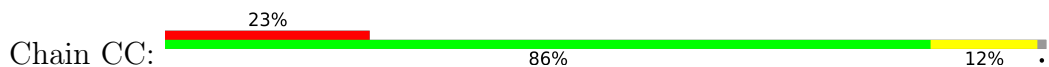




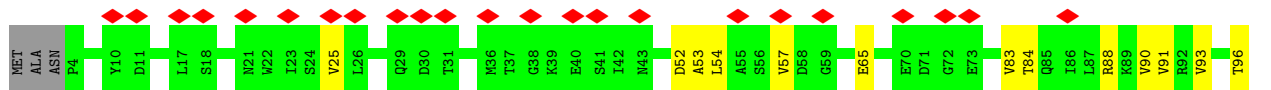
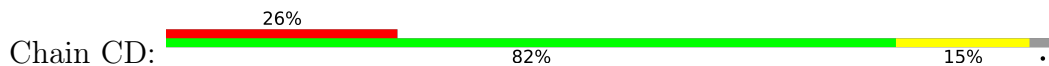
• Molecule 1: Major head protein

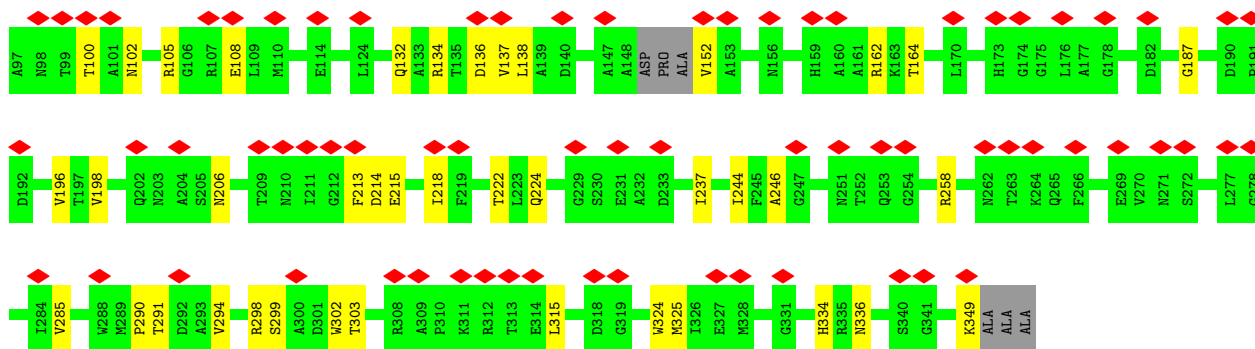


• Molecule 1: Major head protein

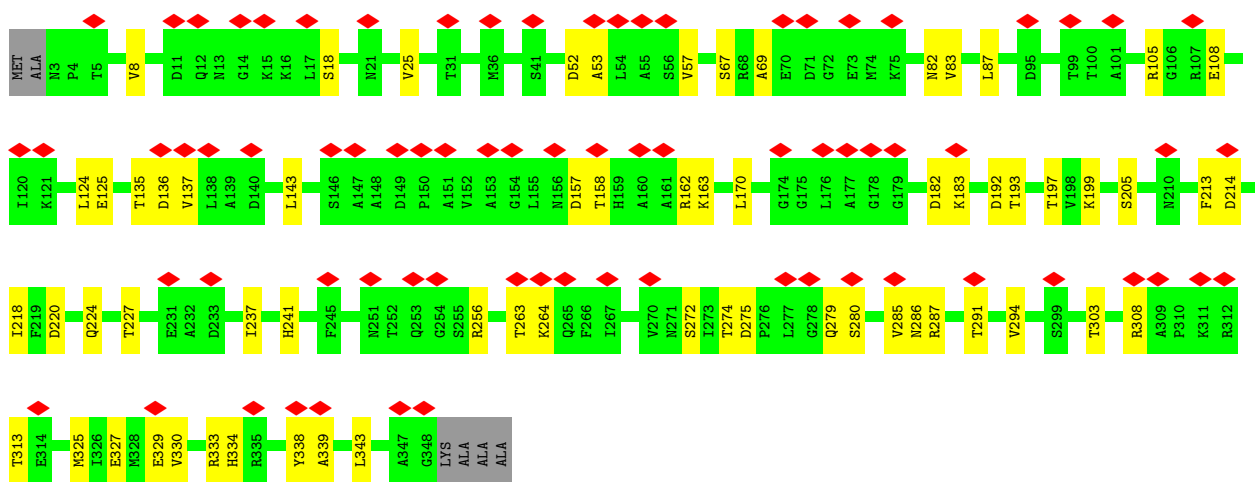
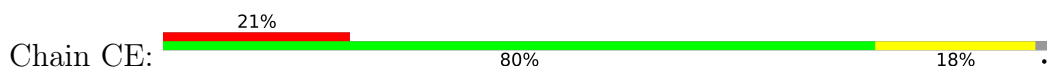


• Molecule 1: Major head protein

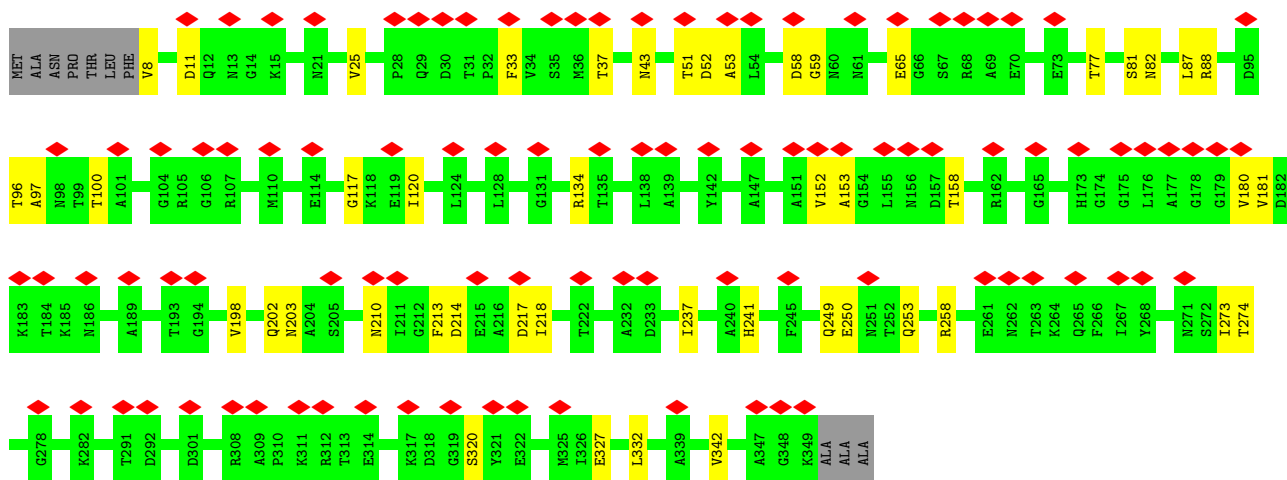
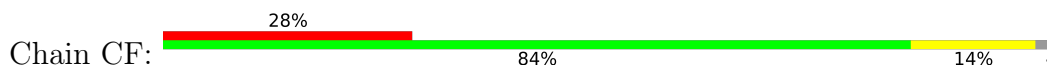




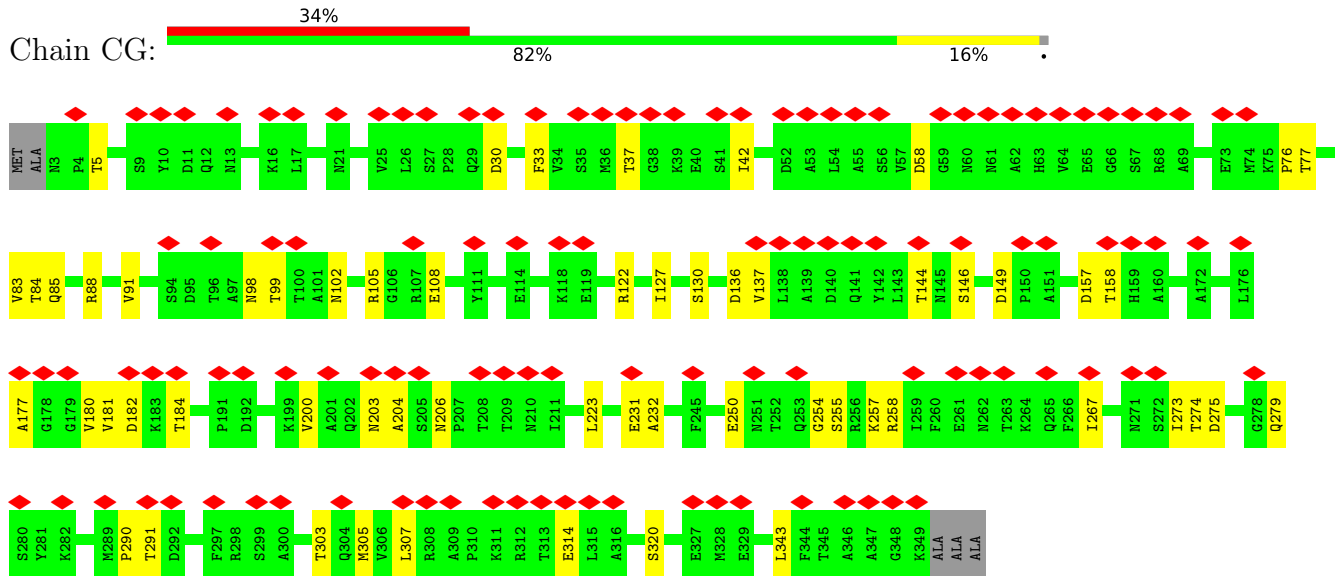
• Molecule 1: Major head protein



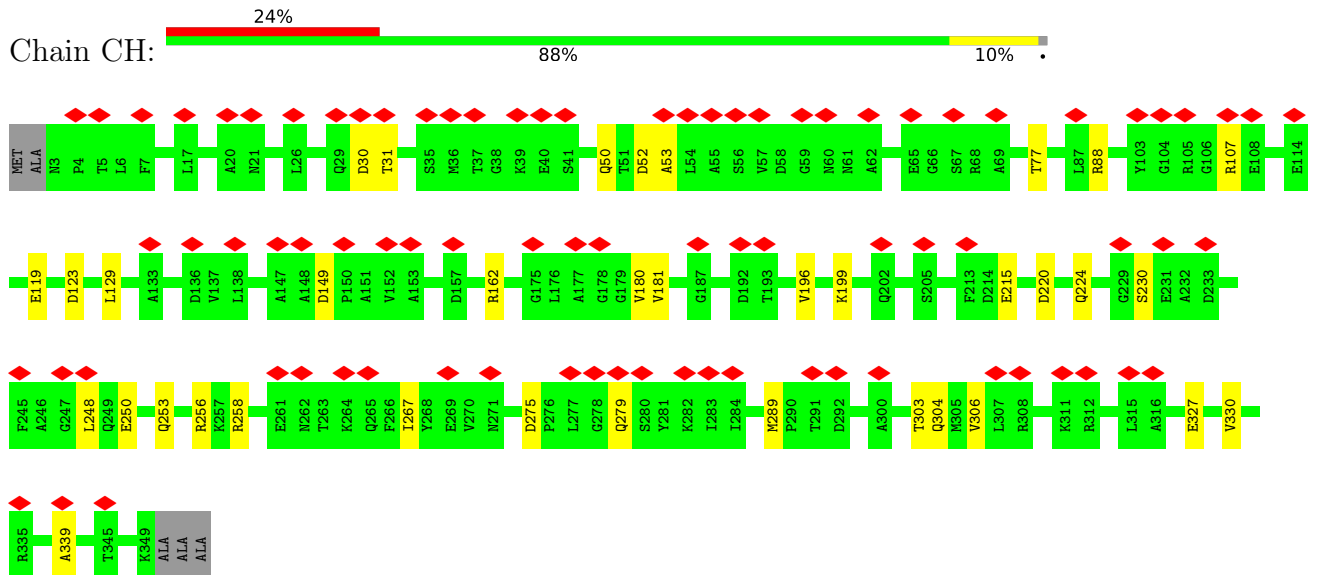
• Molecule 1: Major head protein



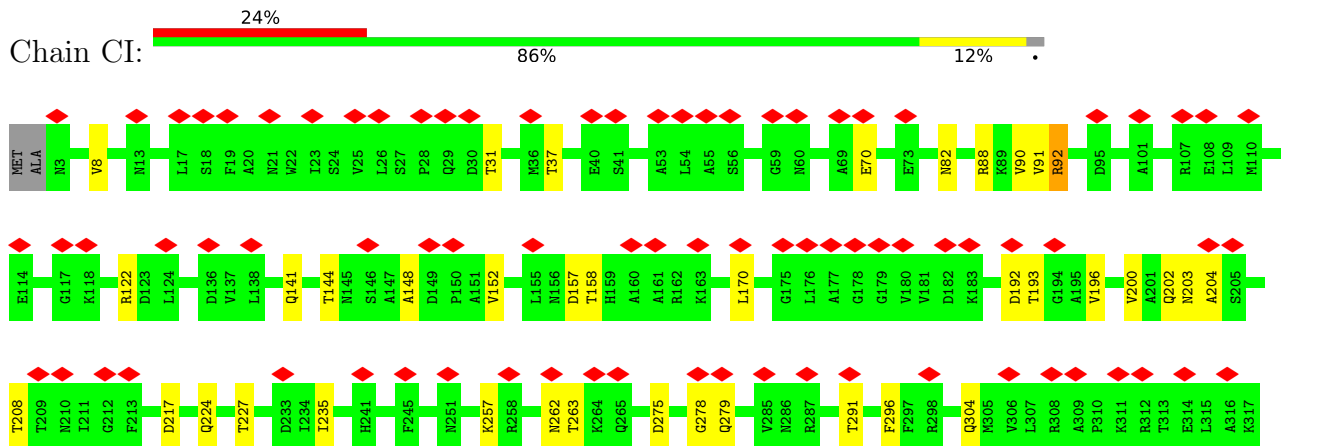
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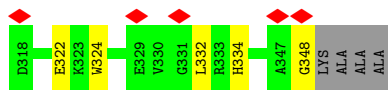


• Molecule 1: Major head protein

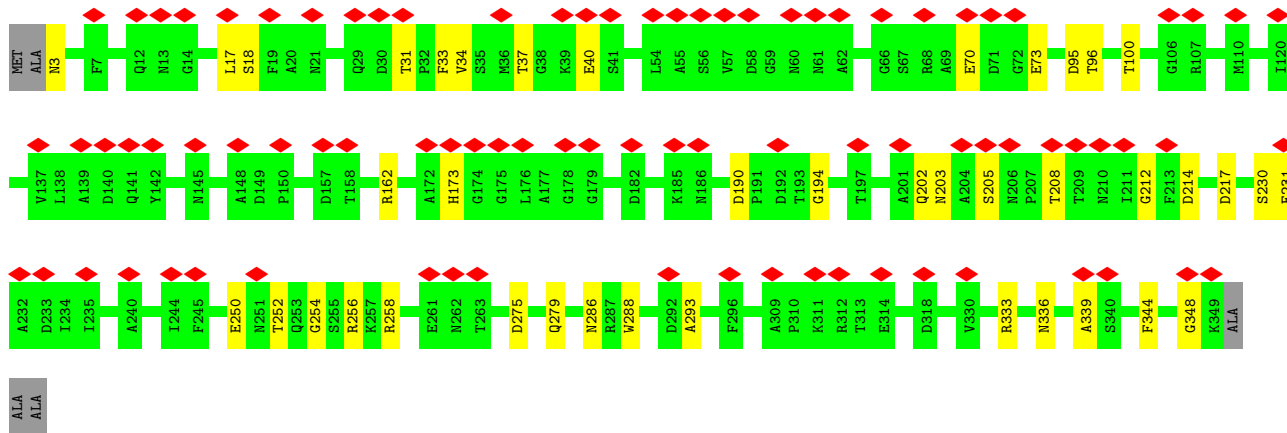
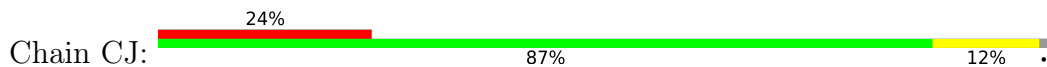


• Molecule 1: Major head protein

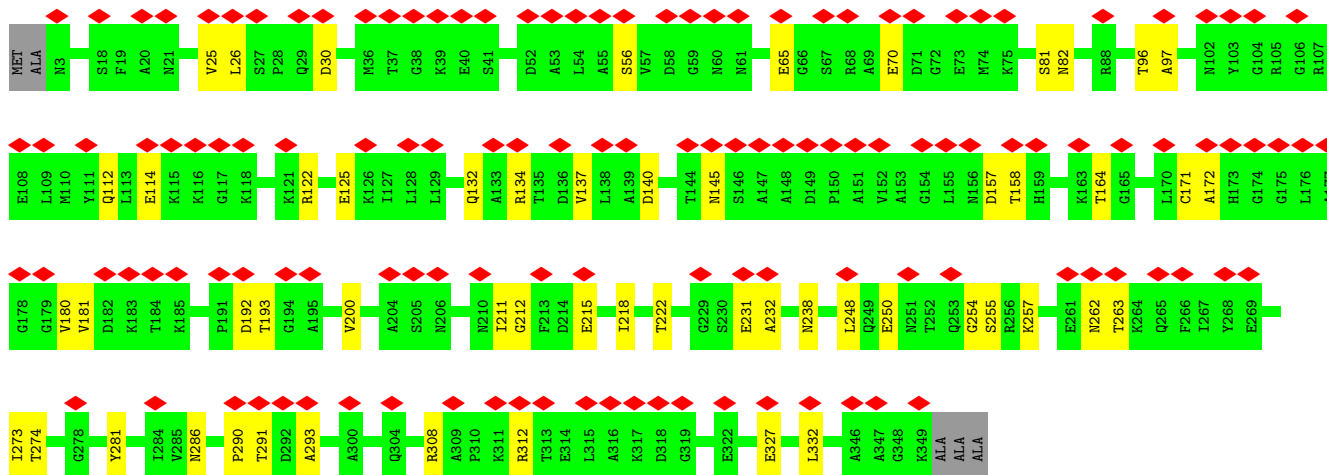
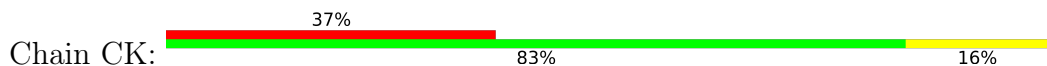




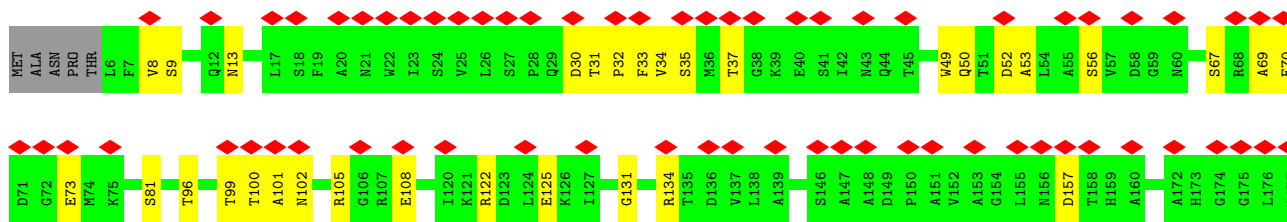
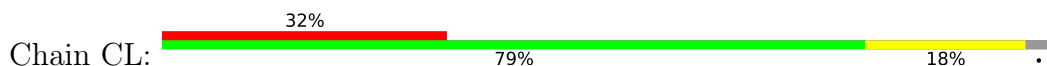
• Molecule 1: Major head protein

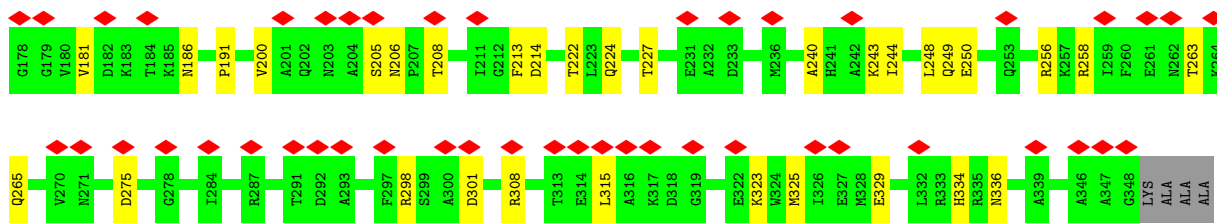


• Molecule 1: Major head protein

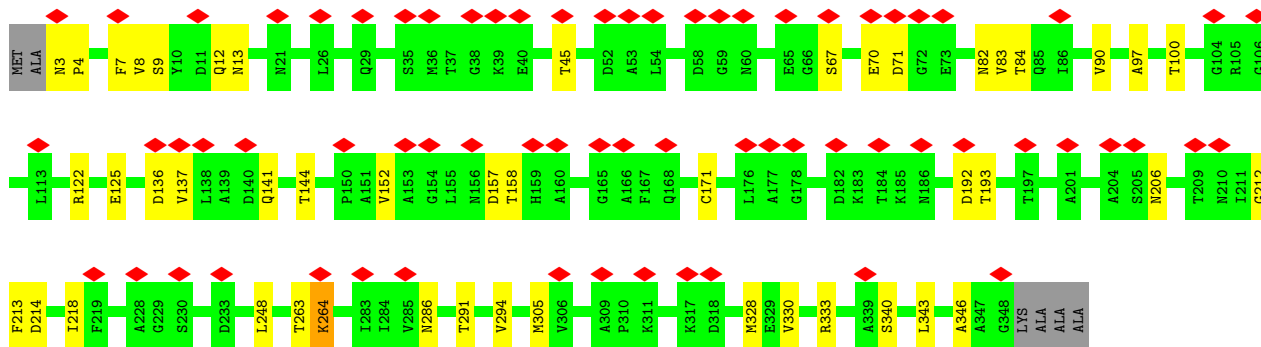
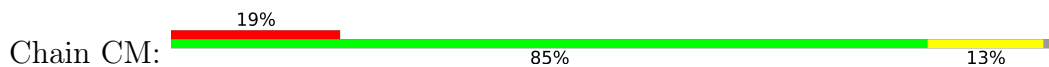


• Molecule 1: Major head protein

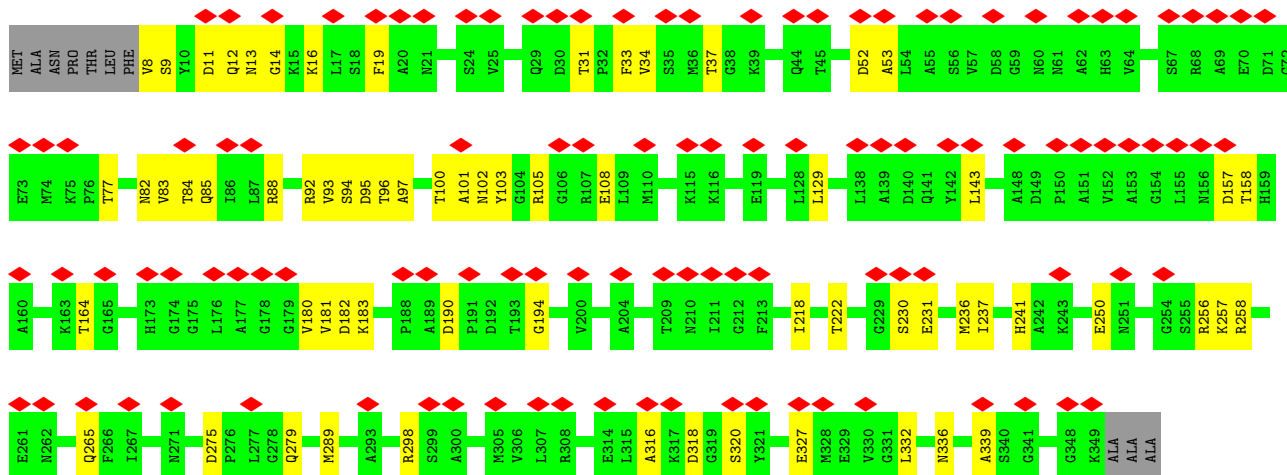
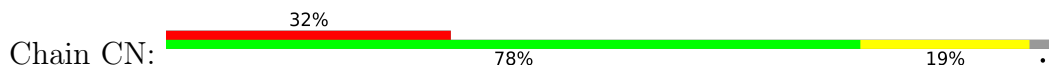




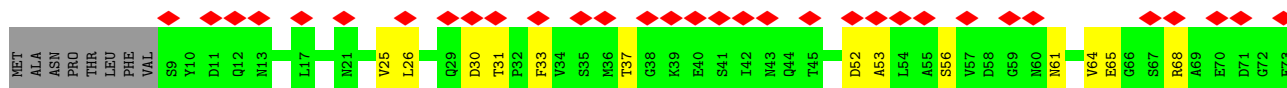
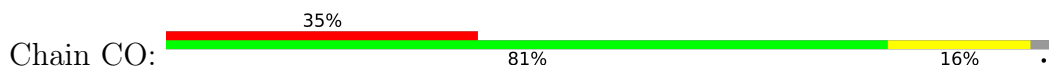
• Molecule 1: Major head protein

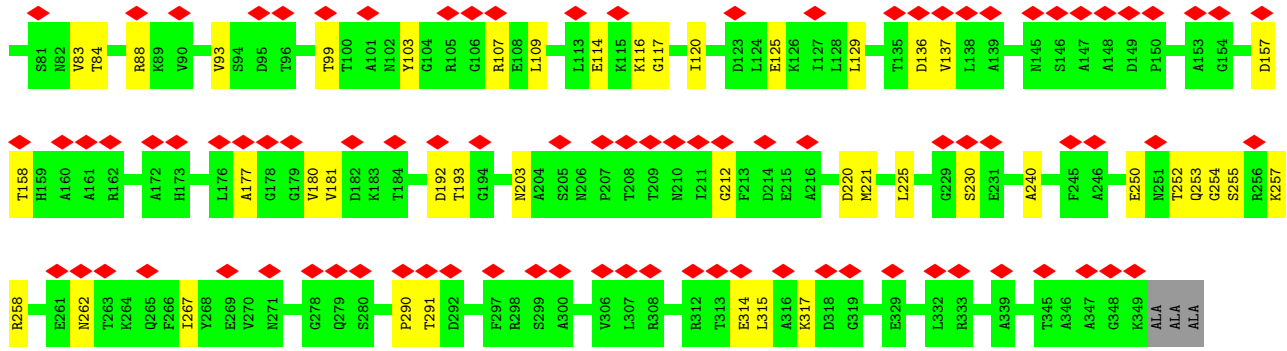


• Molecule 1: Major head protein

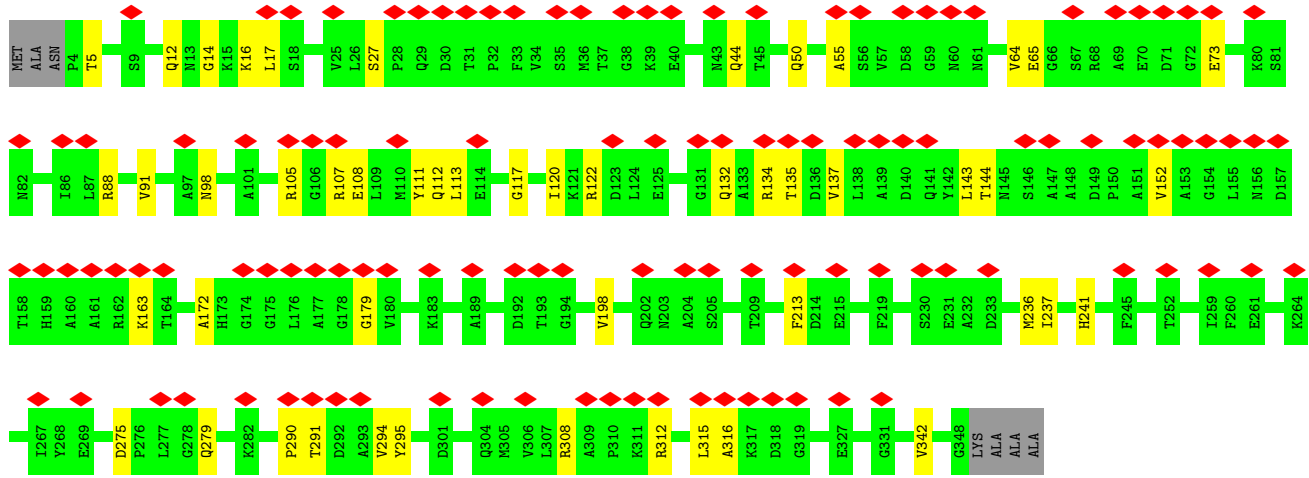
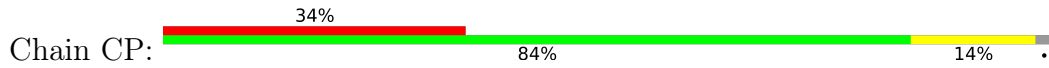


• Molecule 1: Major head protein

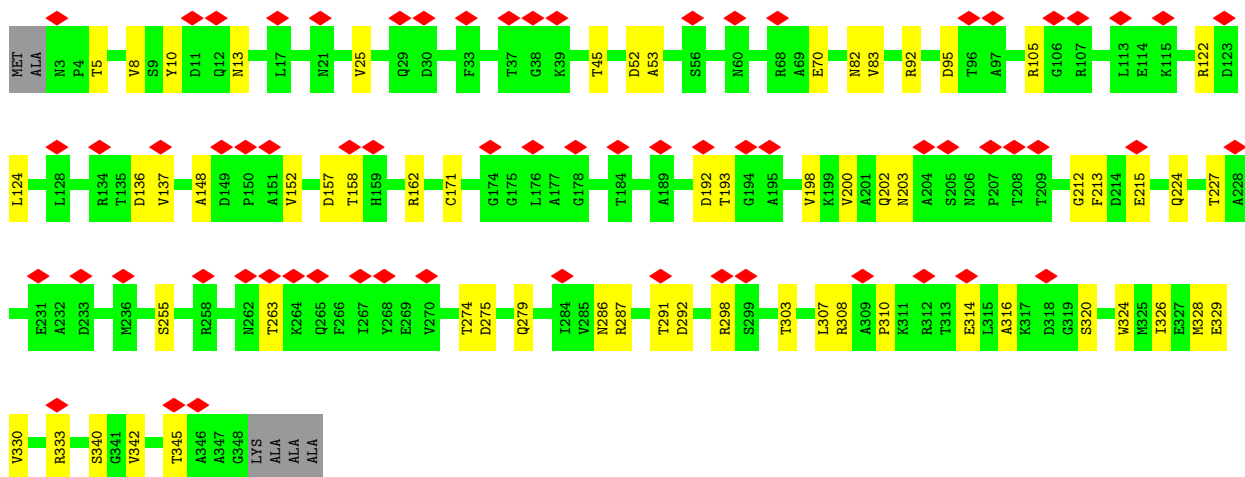
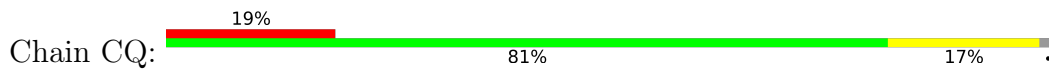




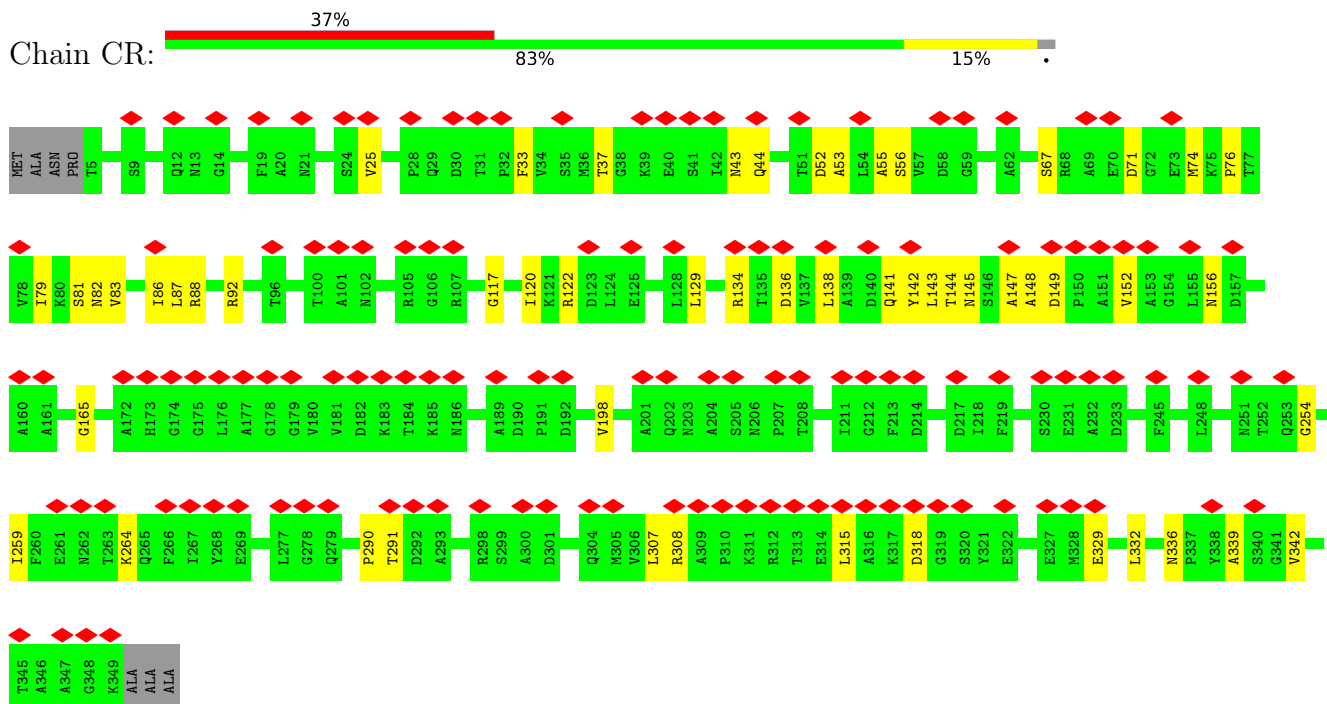
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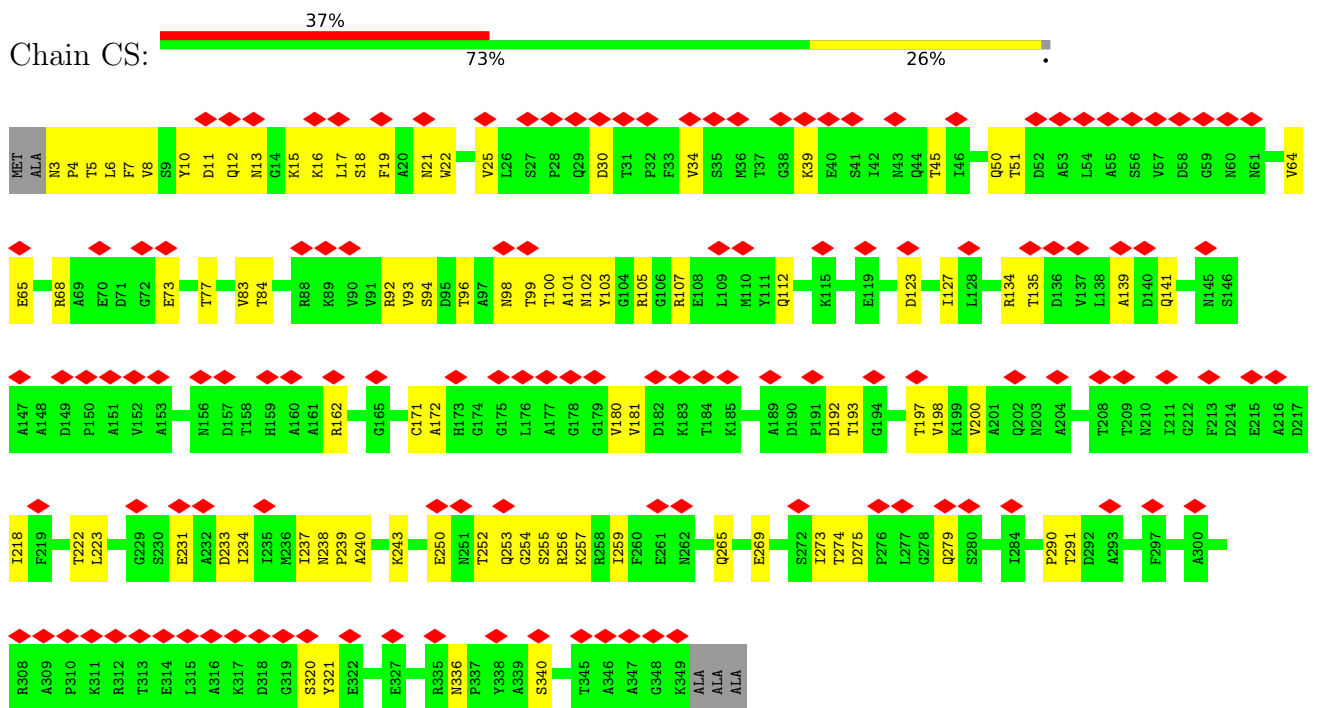
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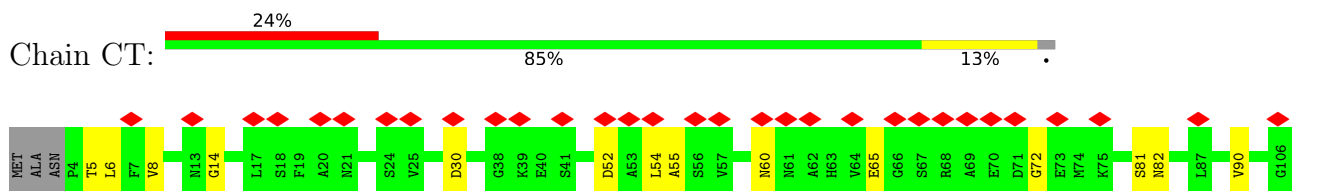
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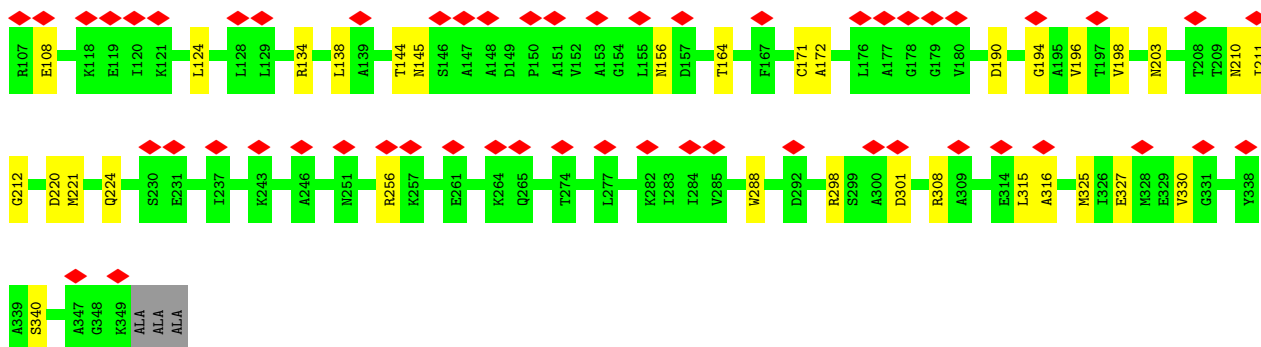


• Molecule 1: Major head protein

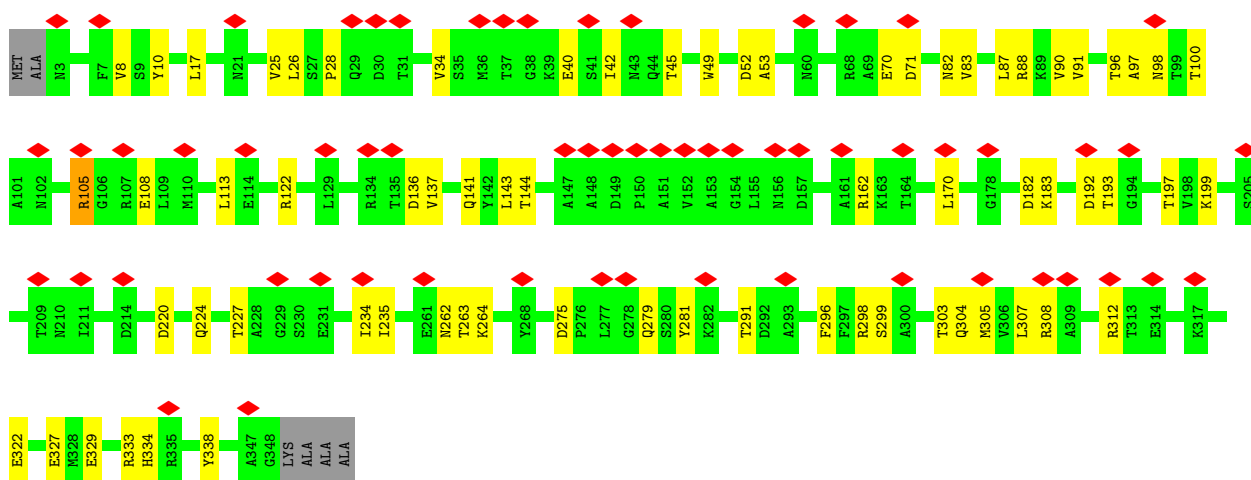
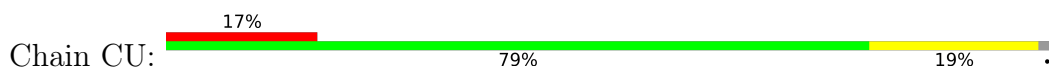


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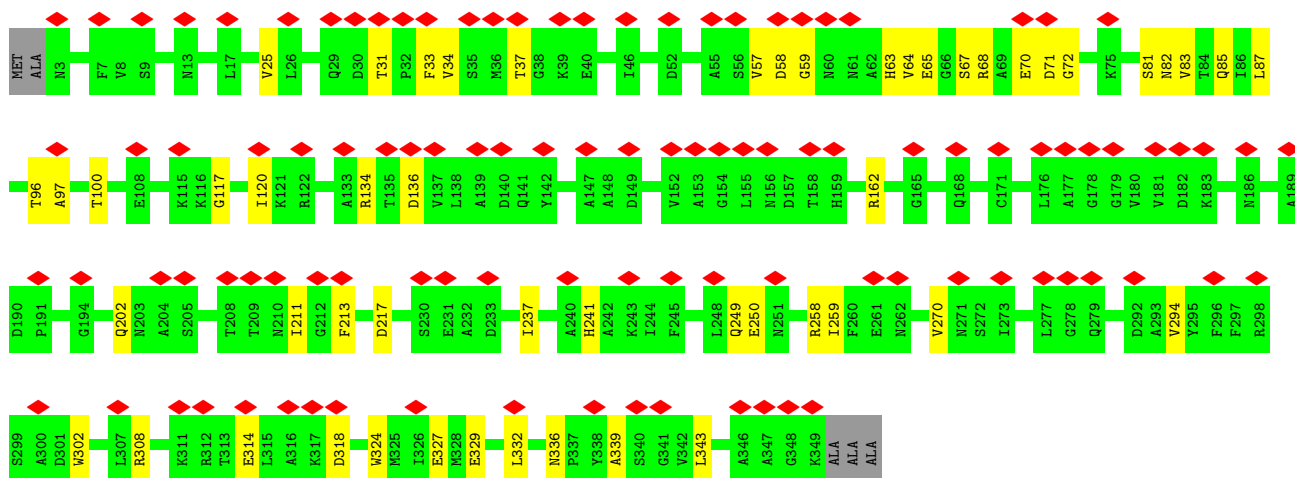
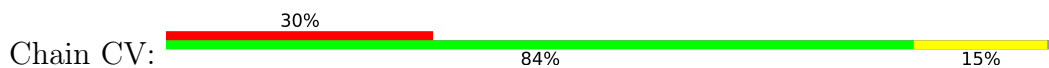




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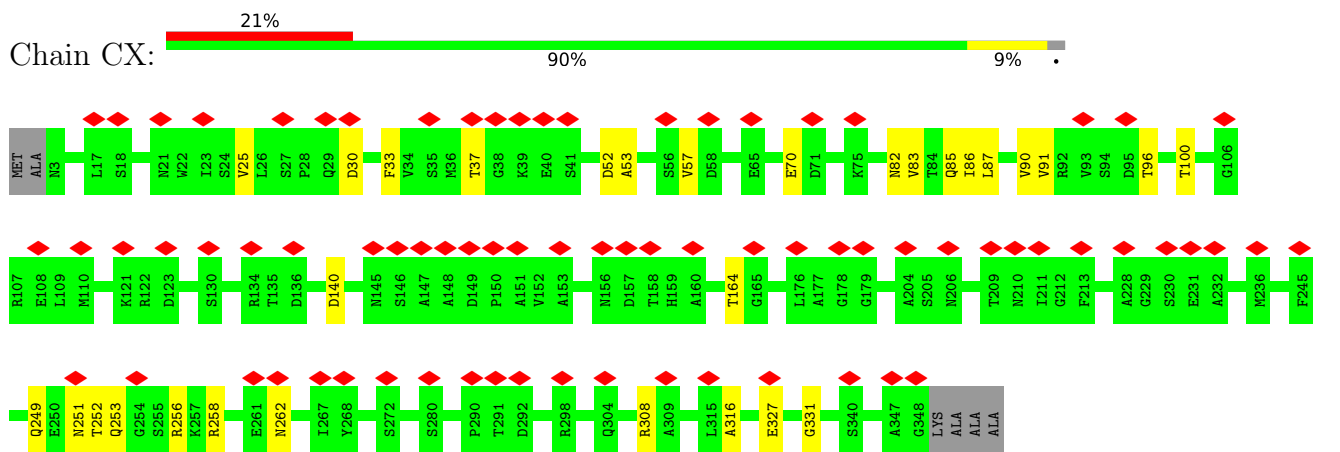
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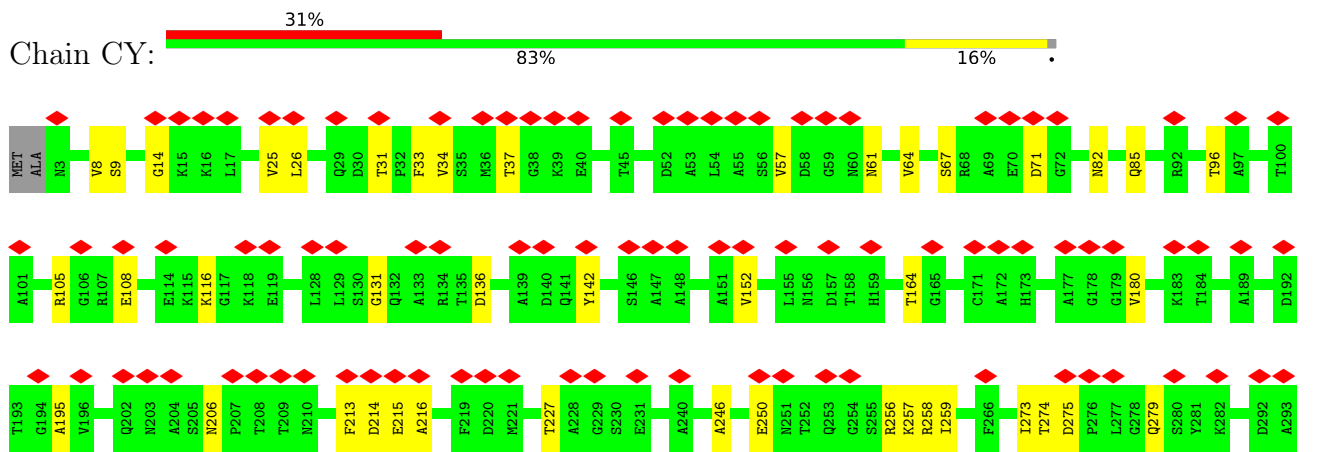
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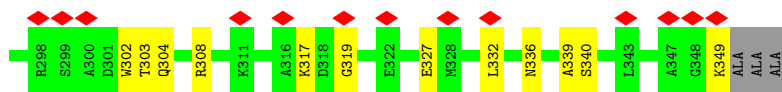


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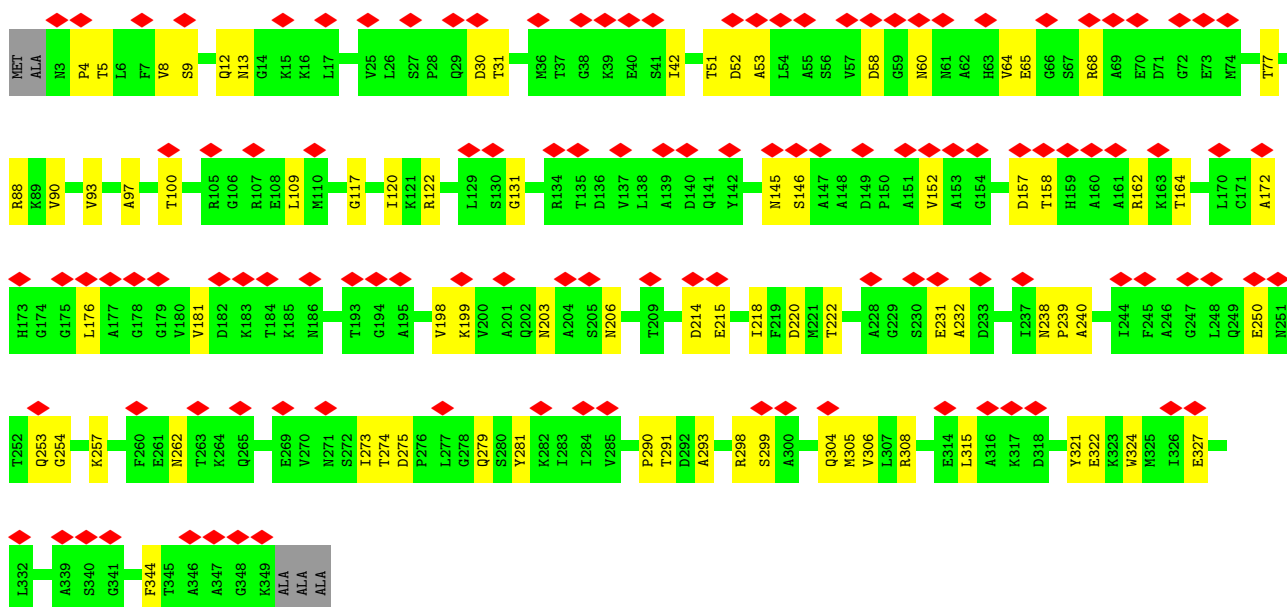
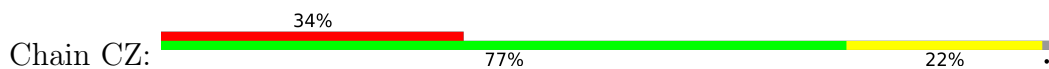


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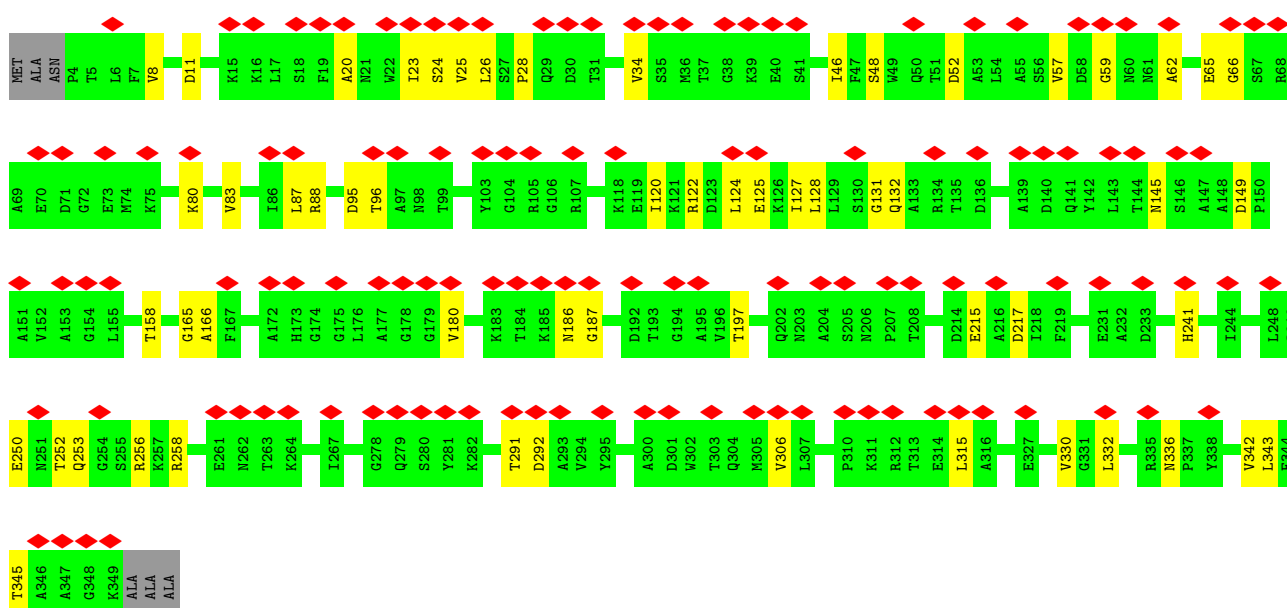
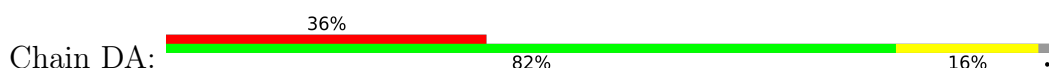




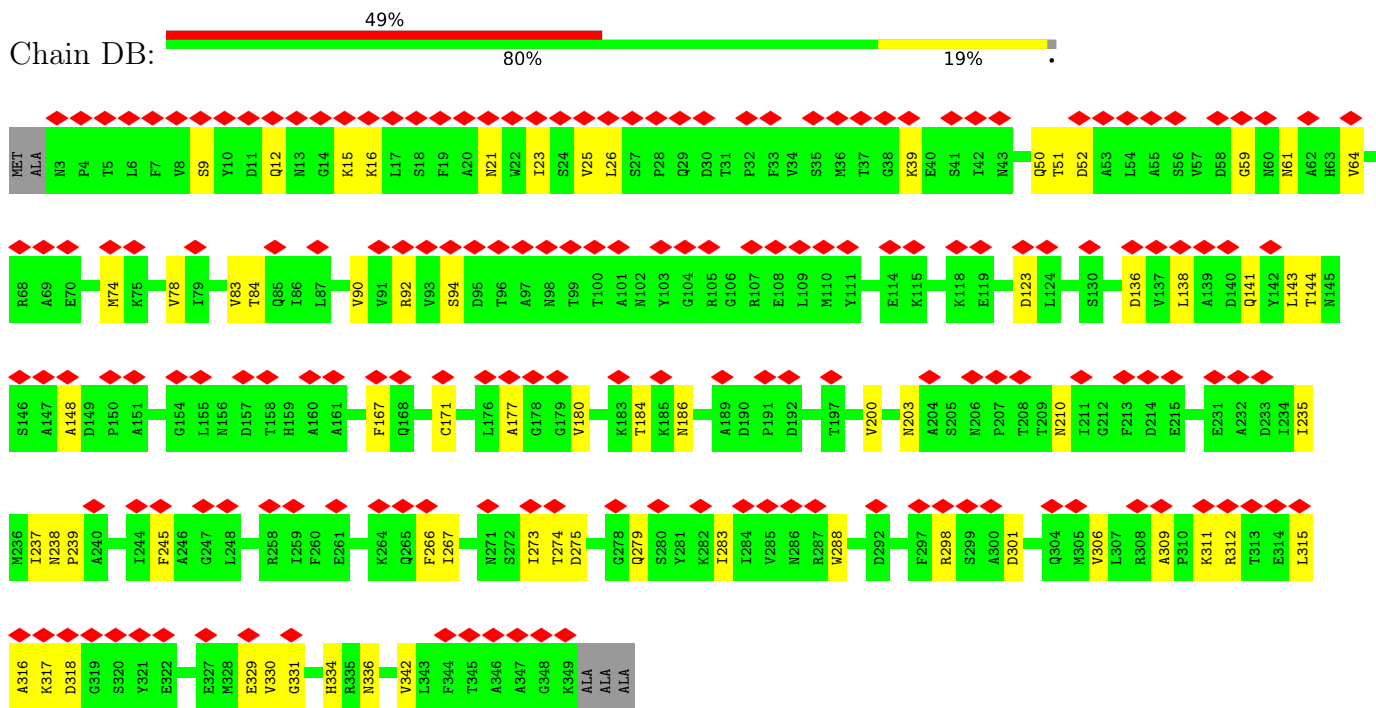
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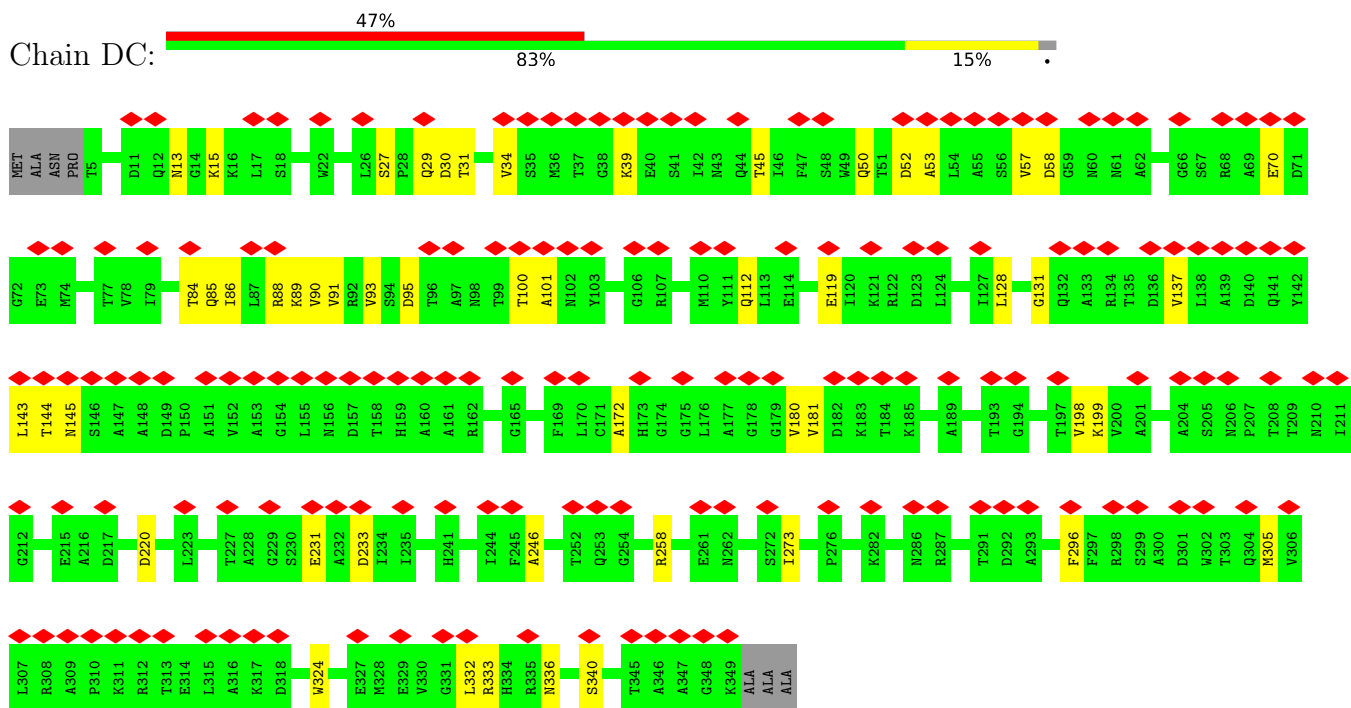
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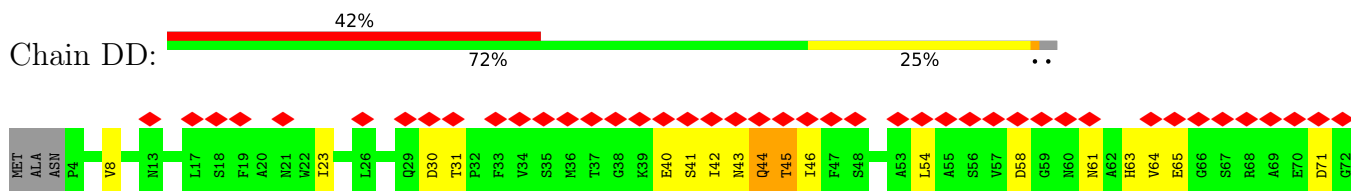
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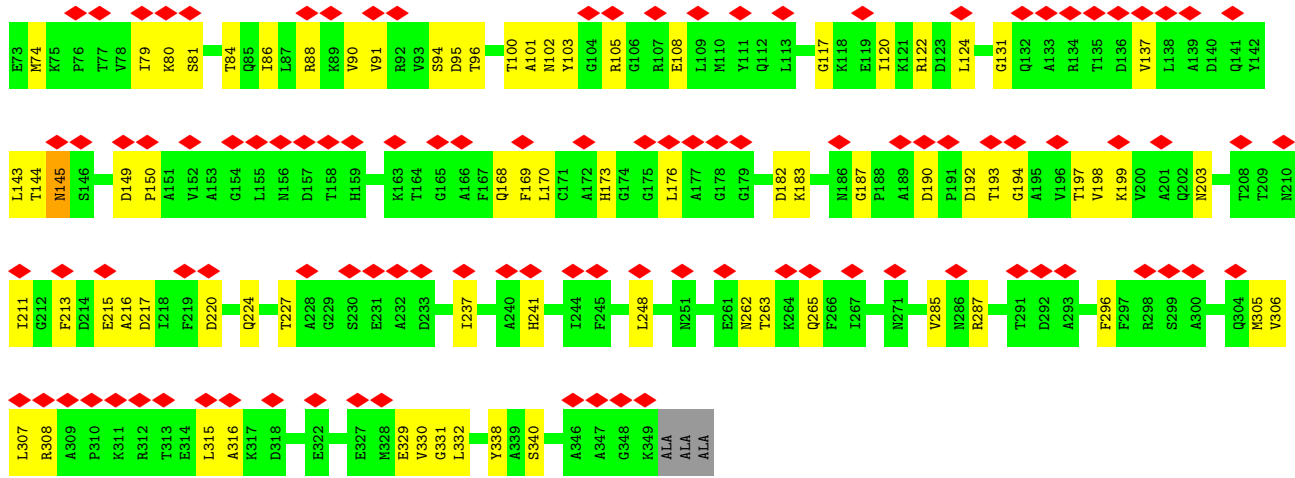


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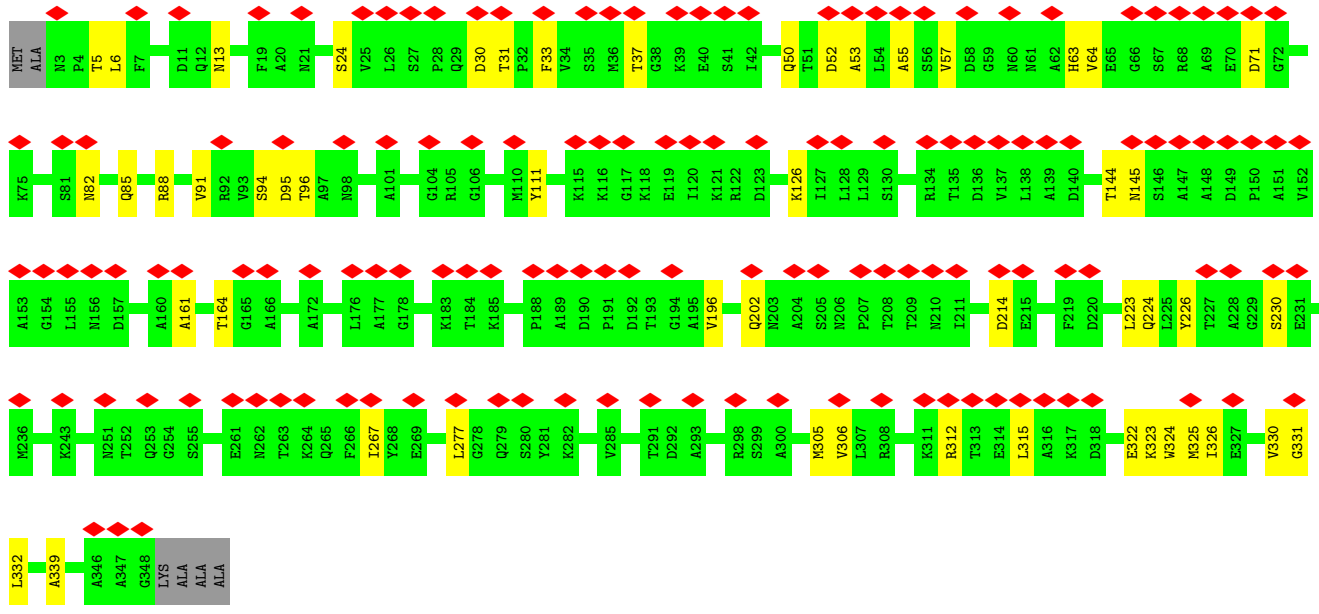
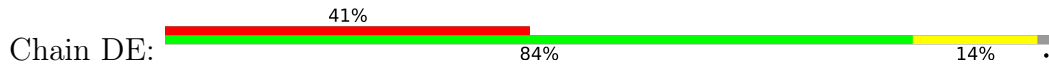


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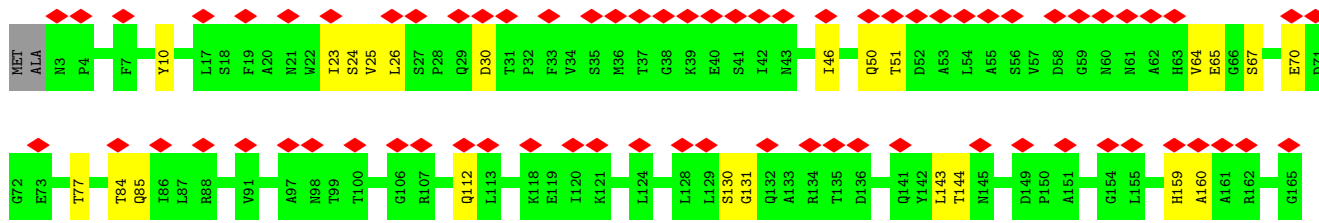
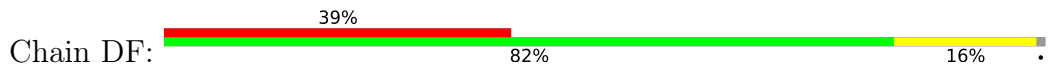


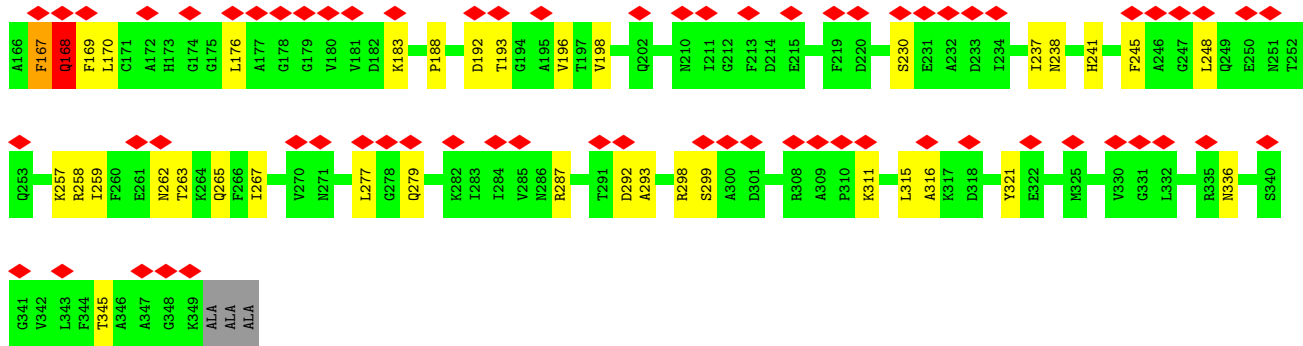


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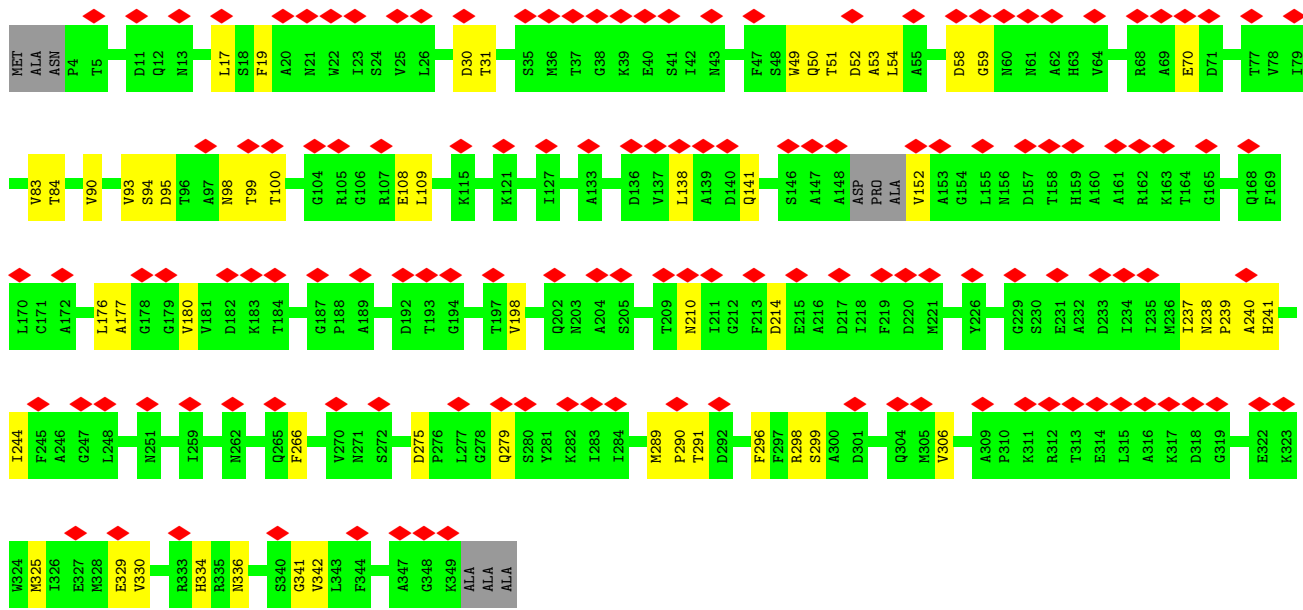
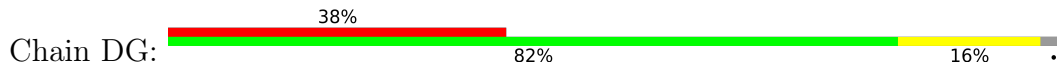


• Molecule 1: Major head protein

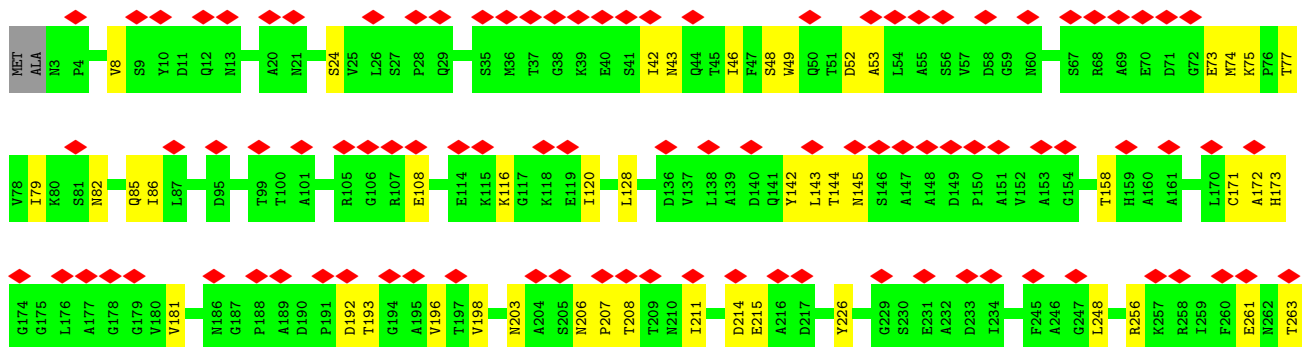
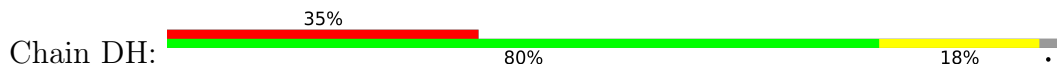


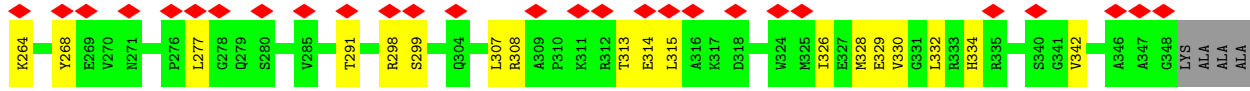


• Molecule 1: Major head protein

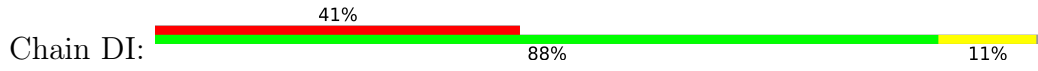


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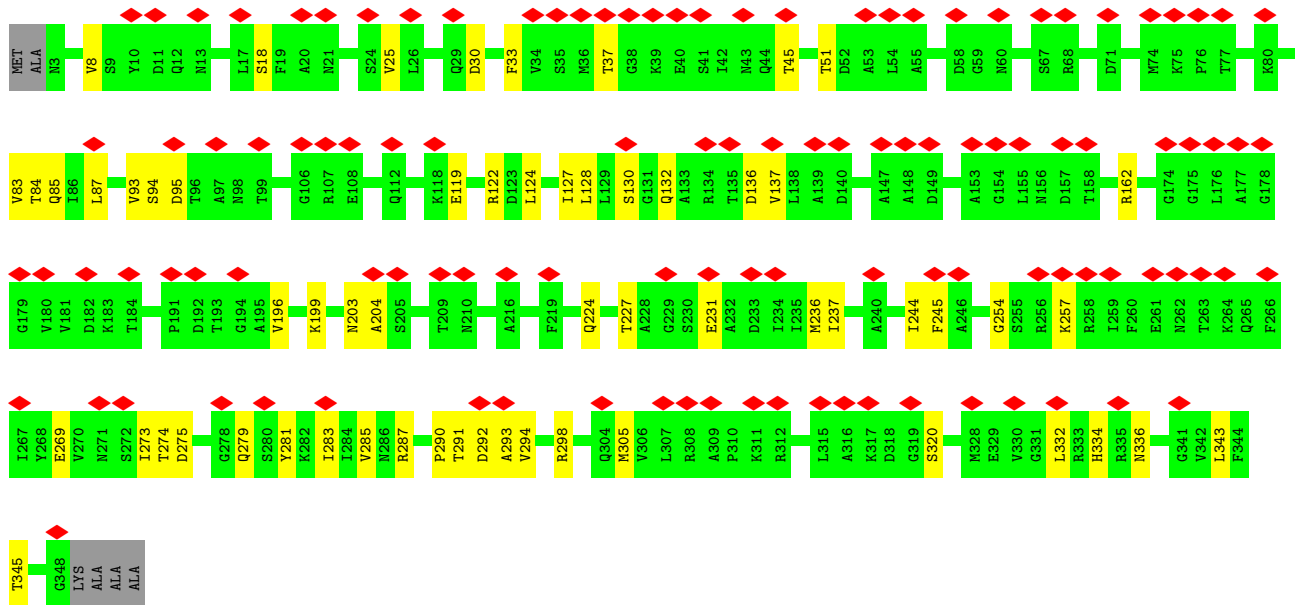
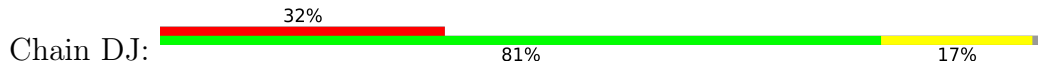




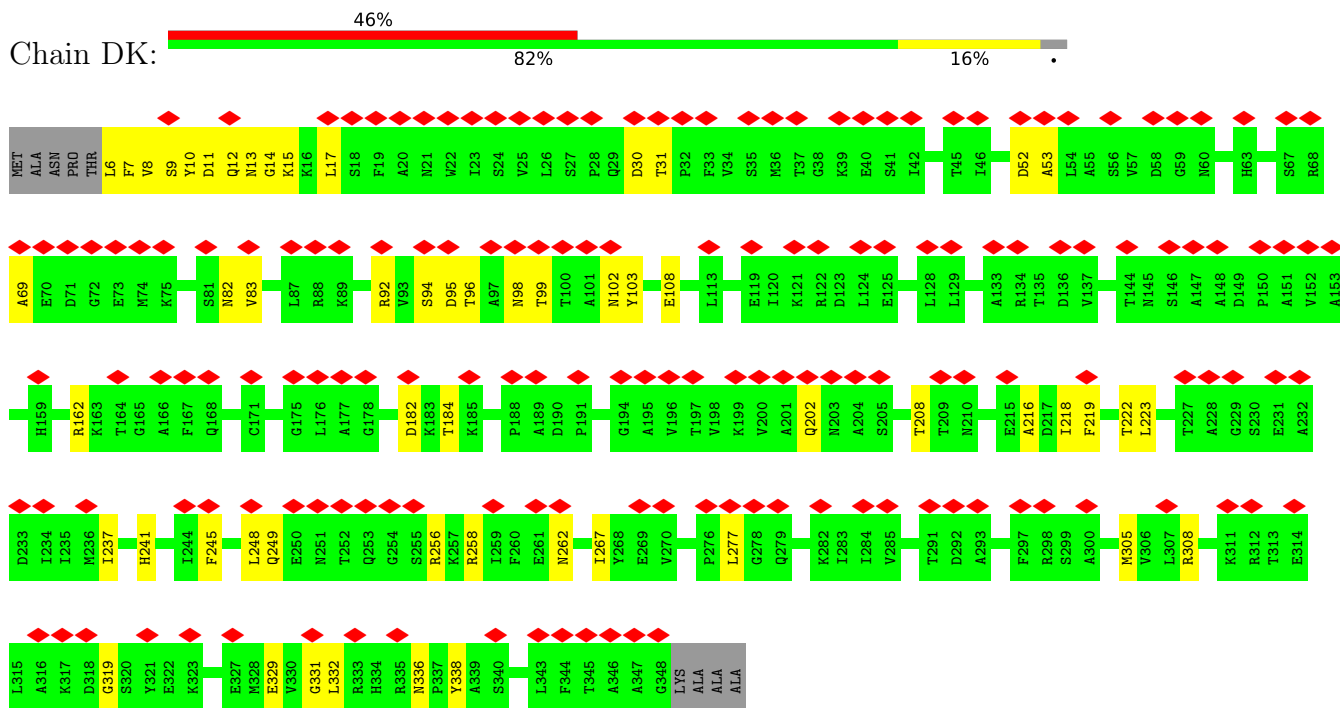
• Molecule 1: Major head protein



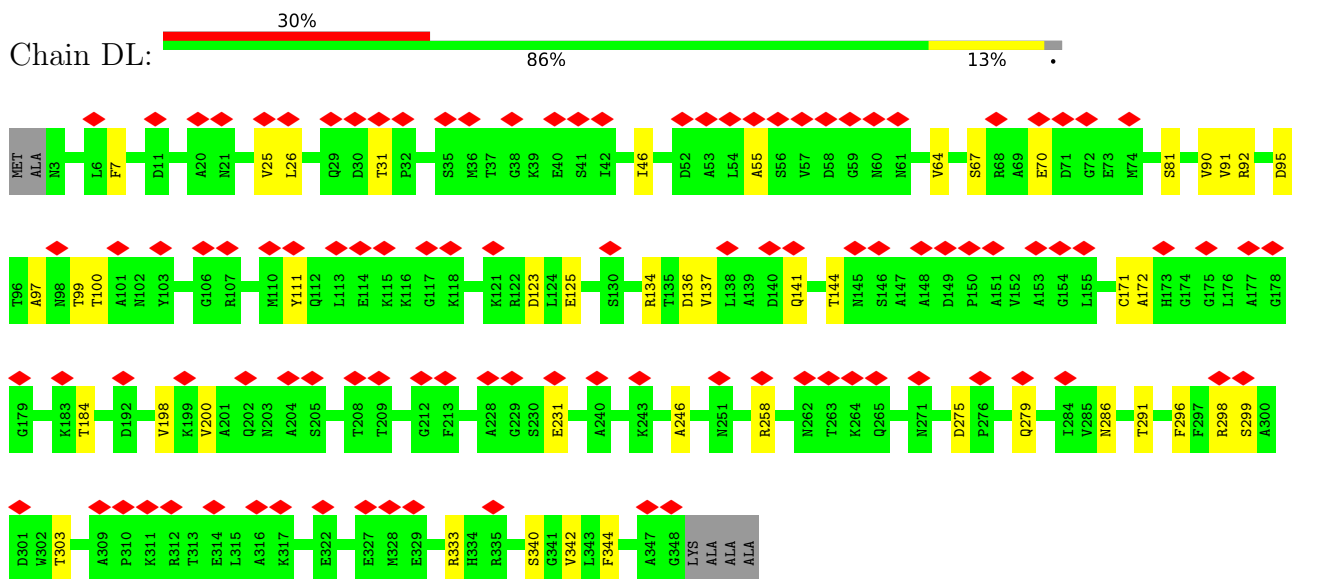
• Molecule 1: Major head protein



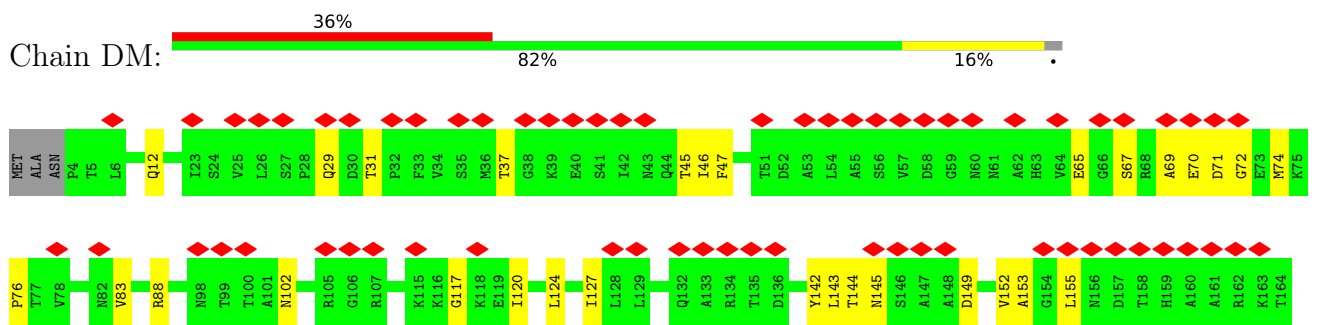
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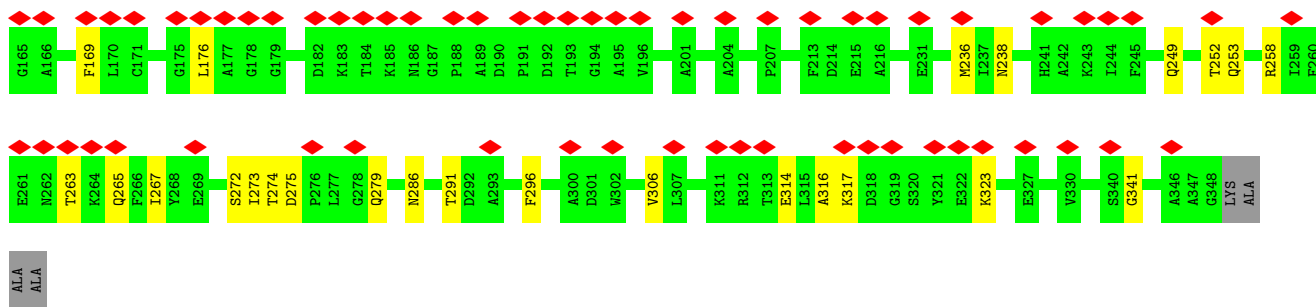


• Molecule 1: Major head protein

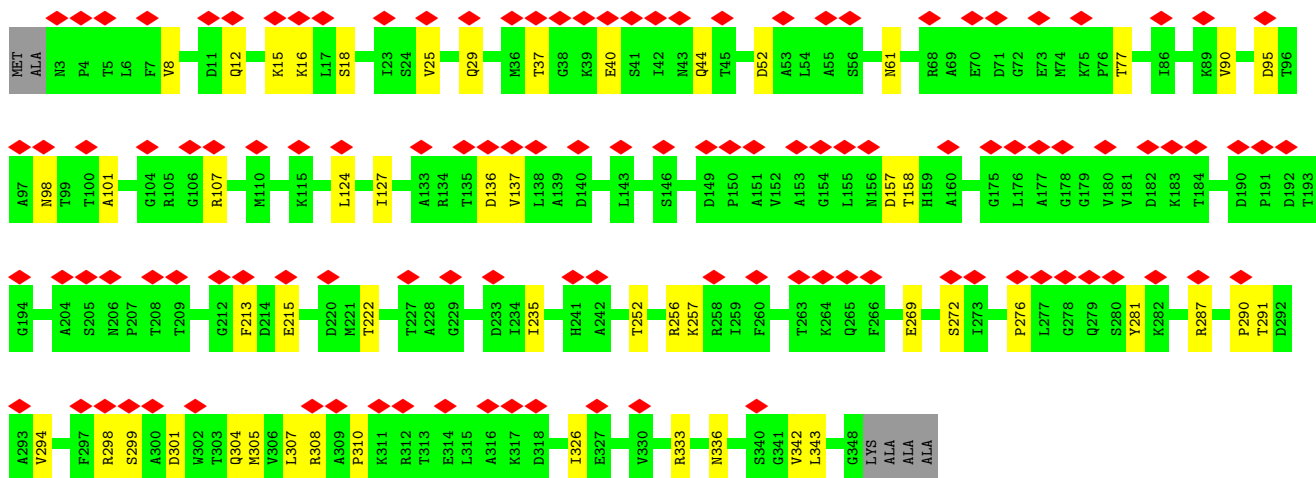
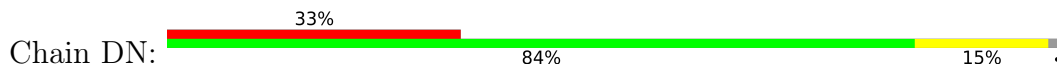


• Molecule 1: Major head protein

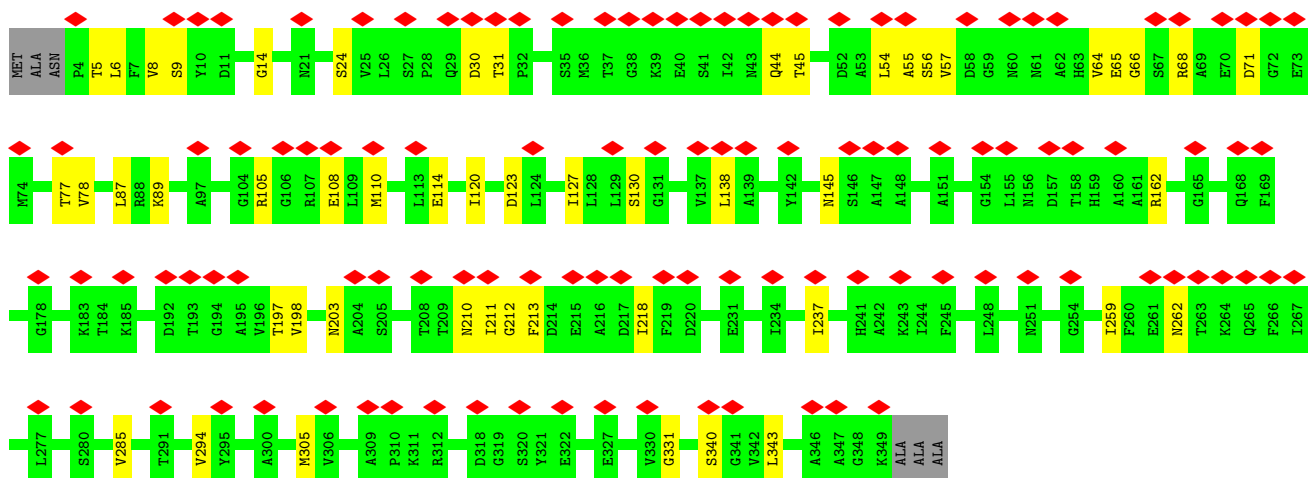
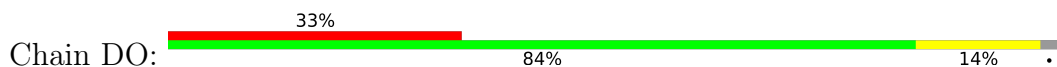




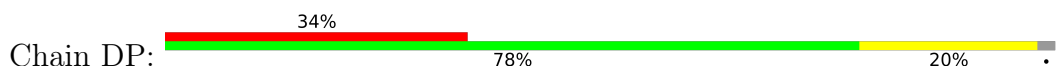
• Molecule 1: Major head protein

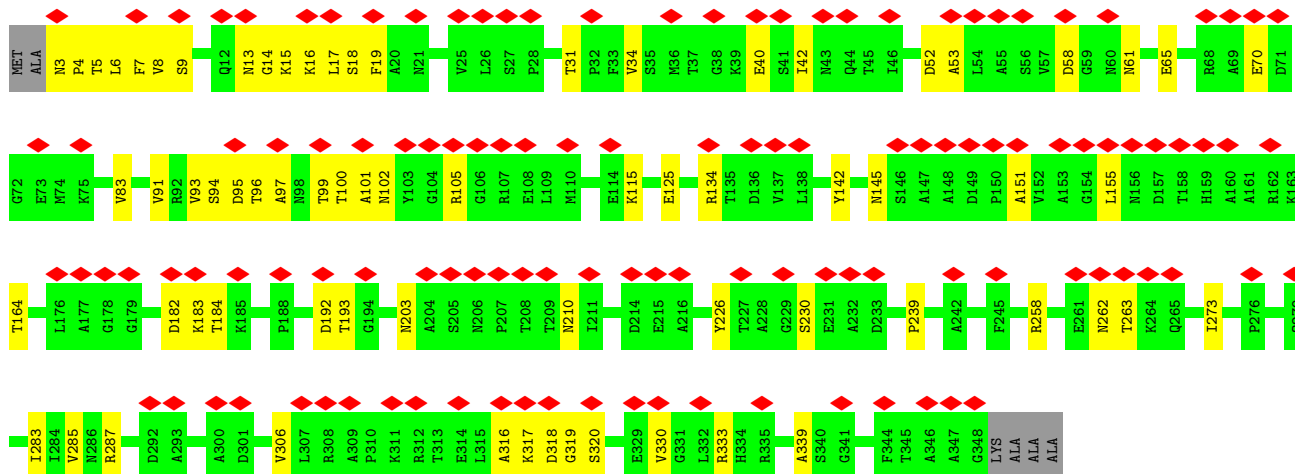


• Molecule 1: Major head protein

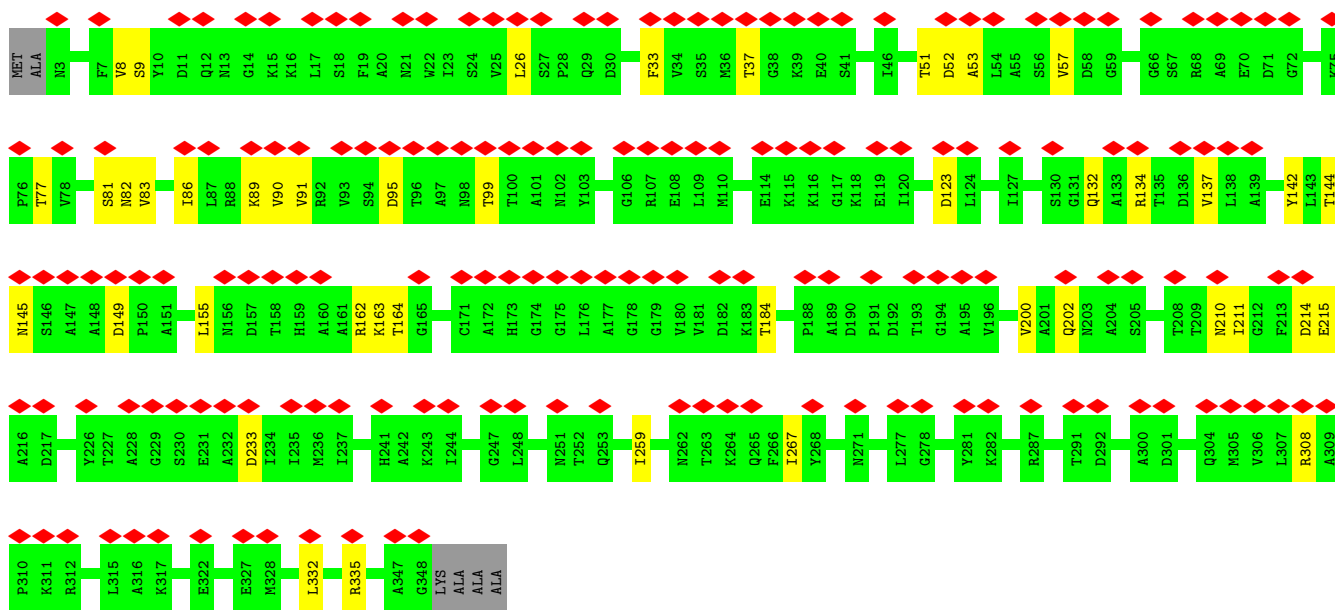
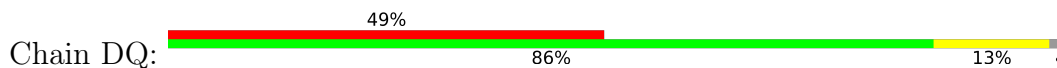


• Molecule 1: Major head protein

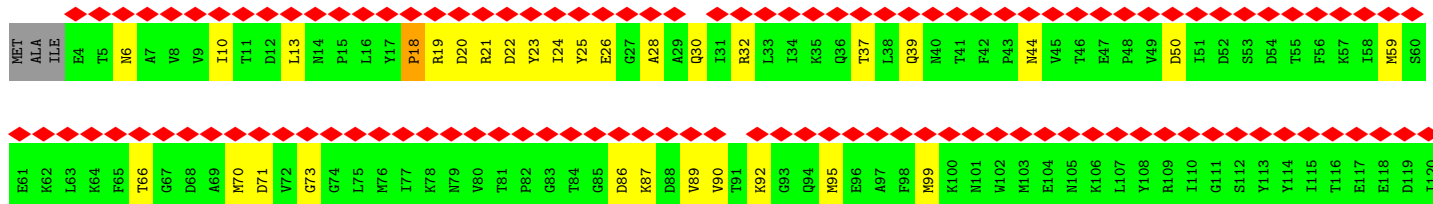
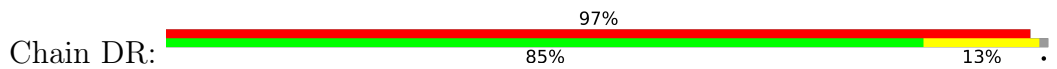




• Molecule 1: Major head protein

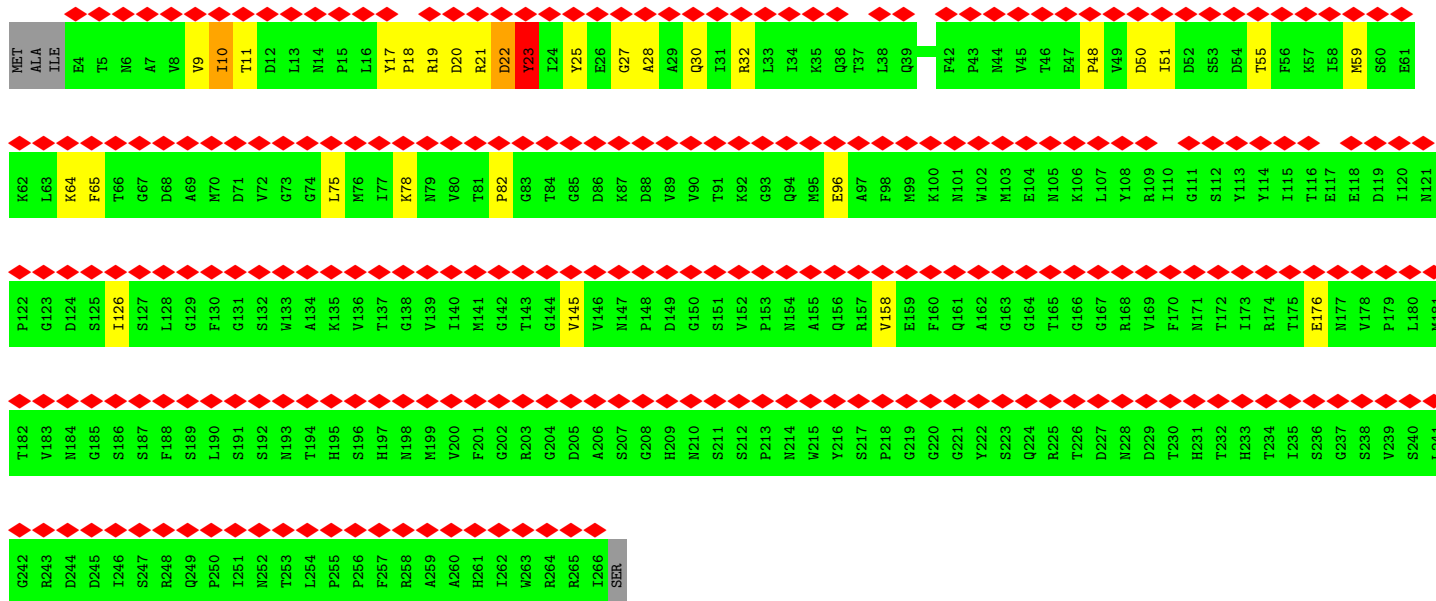
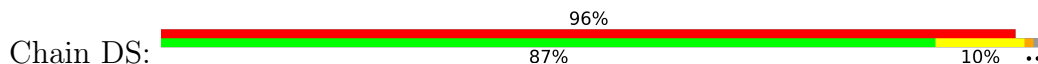


• Molecule 2: Putative structural protein

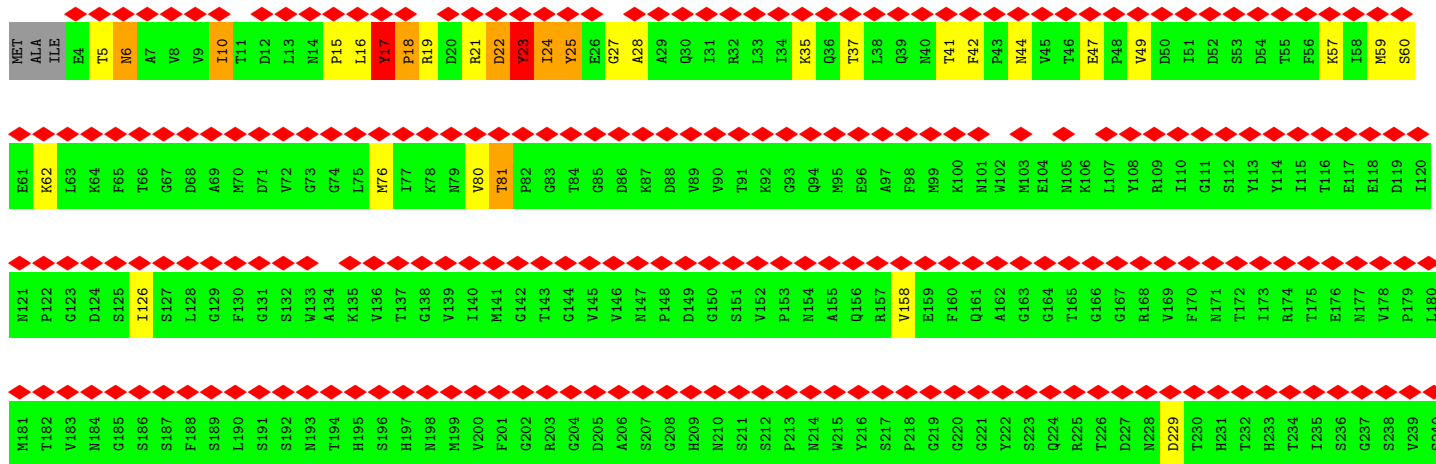
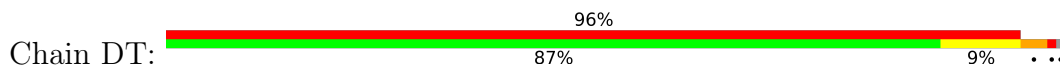


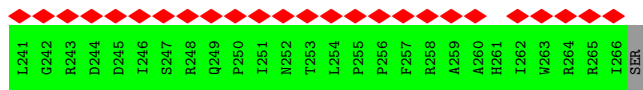


• Molecule 2: Putative structural protein

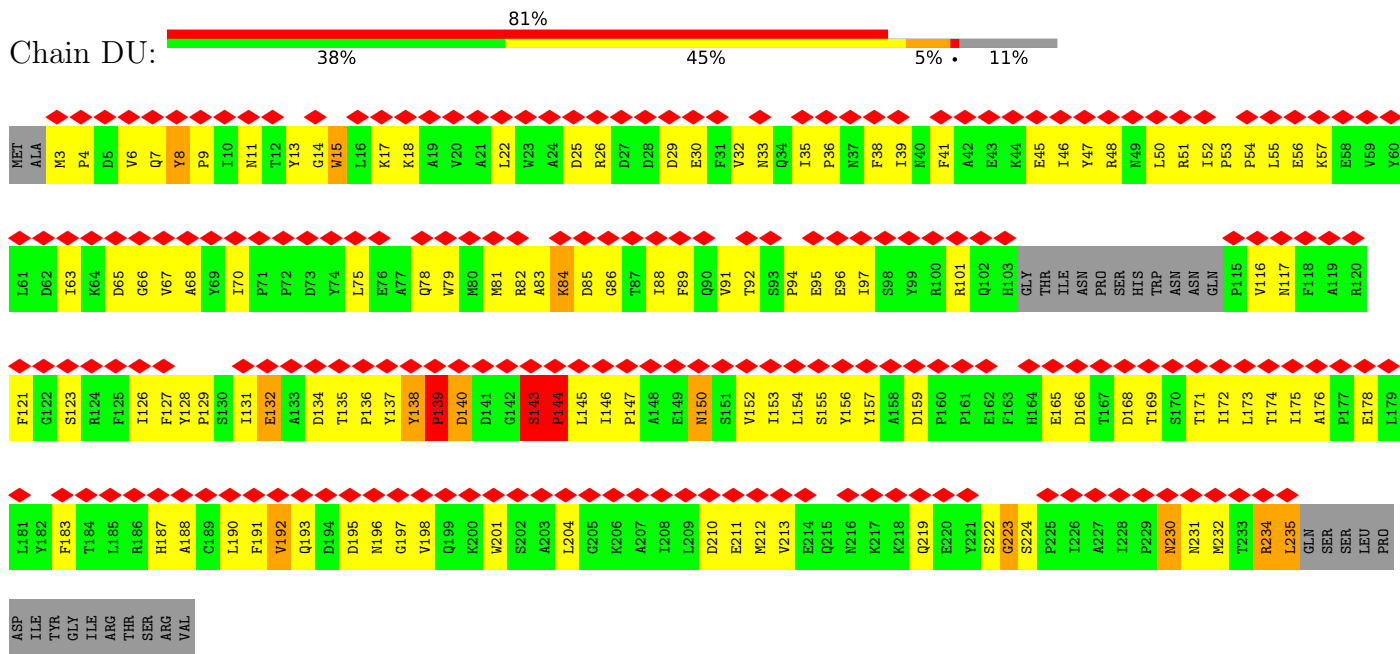


• Molecule 2: Putative structural protein

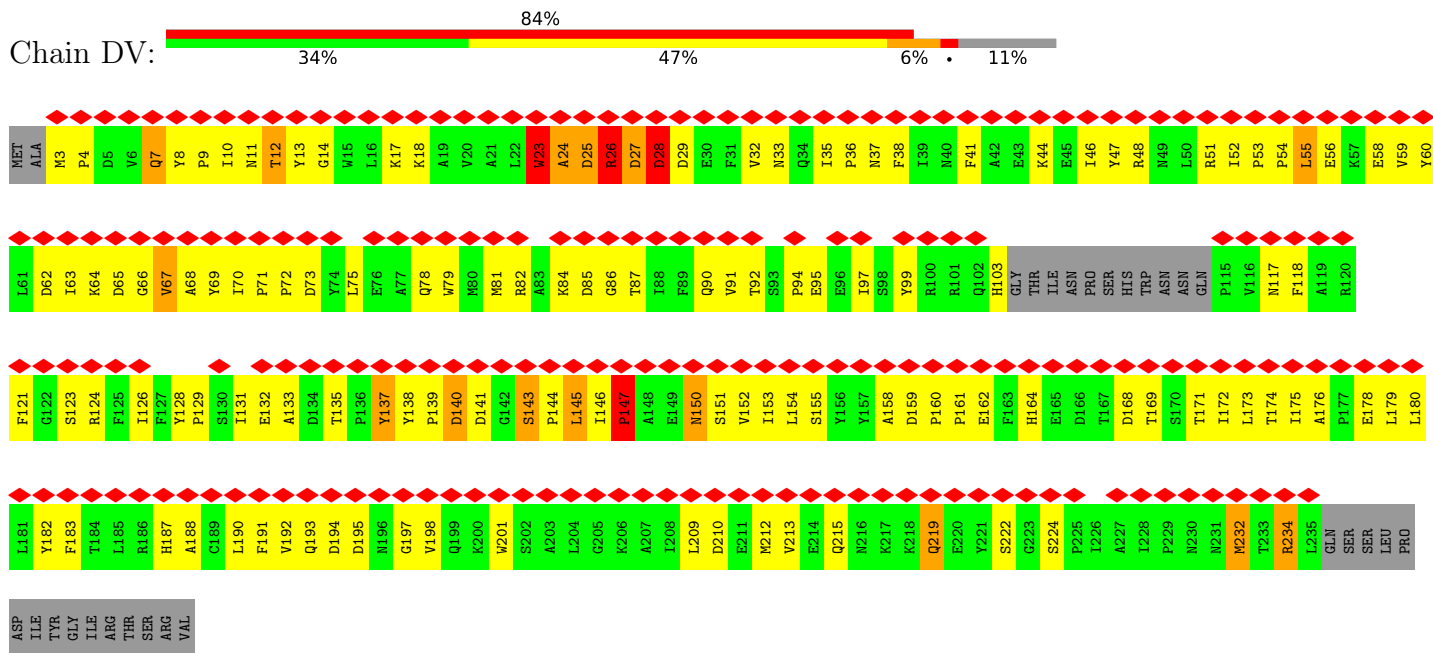




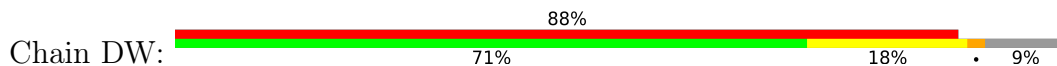
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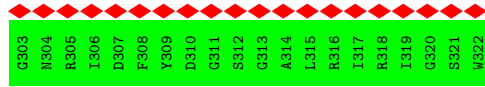
• Molecule 3: Adaptor



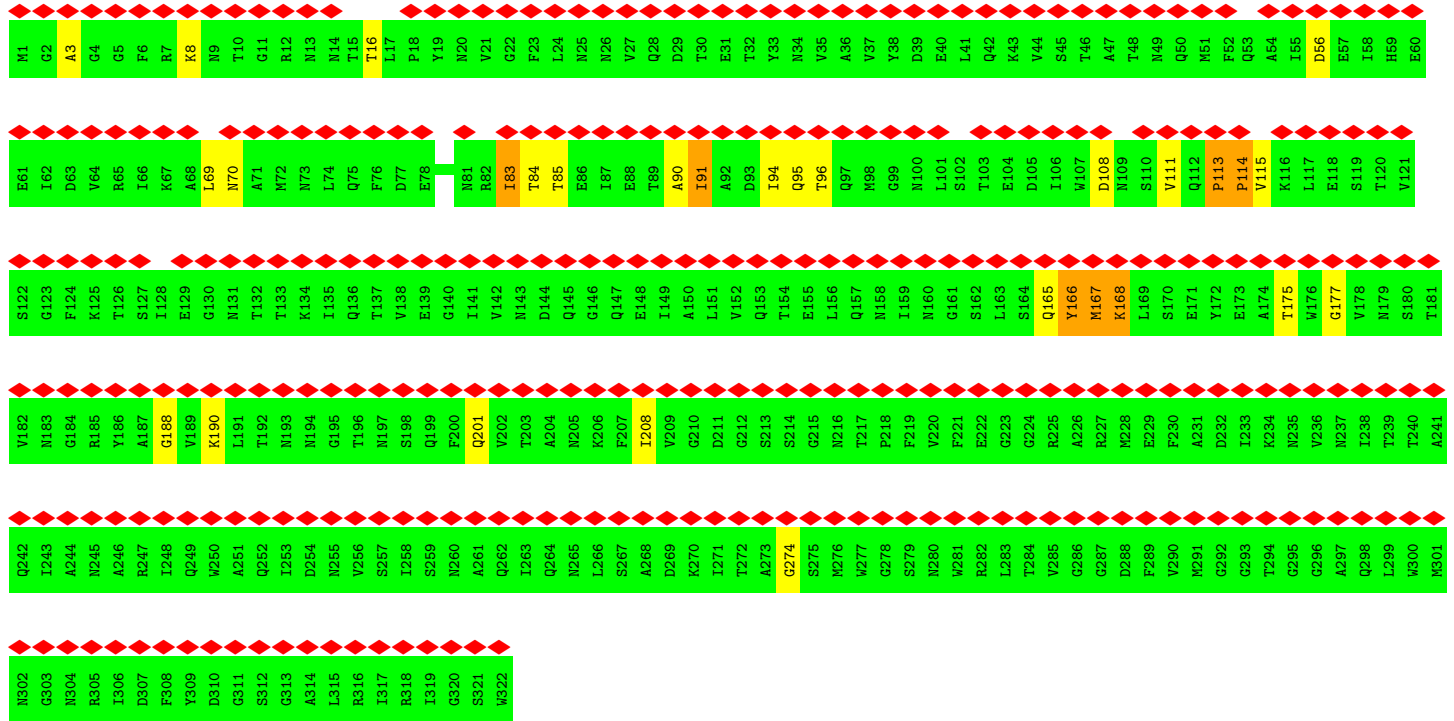
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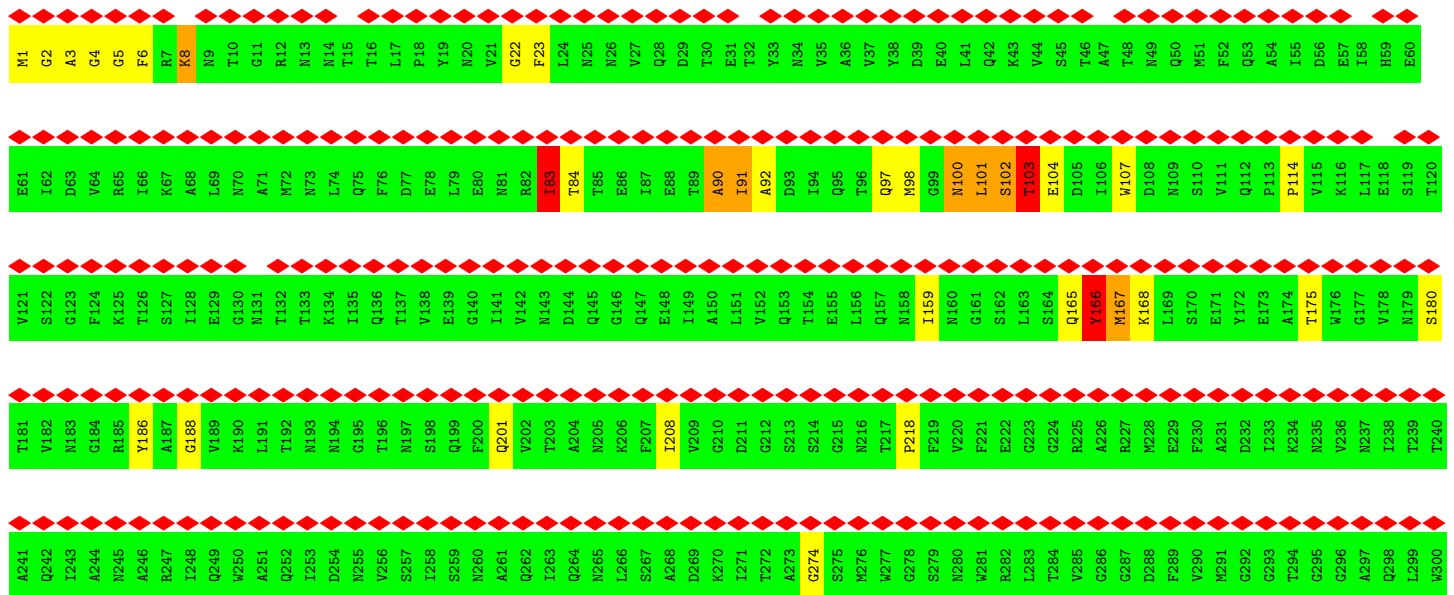
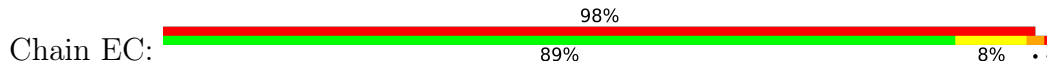
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K783	A723	E663	F603	I642	E482	THR	G363	V303	S243	K183	I123	L63	A2
K784	P724	M664	A604	S643	E483	GLY	M664	S304	N244	K184	V124	S64	L3
K785	E725	G665	L605	M644	S464	MET	R365	R305	N245	G185	P125	F65	V4
K786	C726	C666	M606	C645	Y485	TYR	V366	G306	A246	M186	P126	V66	P5
K787	V727	A667	M607	Q466	Q486	GLU	A367	Q307	S247	L187	E127	S67	I6
K788	V728	G668	R608	W487	W487	ASN	V368	Q308	I248	V188	S128	M68	K7
K789	E729	Y669	E609	S488	S488	ASN	C369	Y309	V249	V189	T129	P69	S8
K790	I730	I670	A610	A610	W489	PHE	C369	ASN	V249	V189	T129	P69	S8
K791	D731	D671	M611	D490	W489	TYR	T370	I310	S250	T190	I130	F70	L9
K792	L732	L672	A612	D490	D490	ASP	V371	L311	V251	I191	I131	D71	G10
K793	S733	A673	S613	K491	K491	TYR	R372	T312	T252	I192	M132	Y72	A11
K794	H734	D674	G614	T492	T492	SER	V373	A313	P253	T193	N133	Y73	V12
K795	F735	E553	V615	G493	G493	ASN	ASP	T314	N254	A194	F134	S74	G13
K796	V736	P555	Y494	Y494	Y494	VAL	LEU	L315	A255	M195	N135	A75	V14
K797	G737	Q556	Q495	W495	W495	ASP	ALA	S316	N256	E196	Q136	G76	I15
K798	V738	V557	S496	T497	T497	ILE	ARG	P317	S257	S197	T137	M77	A16
K799	T739	K558	T497	T497	T497	GLU	THR	A318	L258	V198	K138	S78	D17
K800	Q739	E559	T498	T498	T498	GLY	MET	N319	L258	V198	N139	F79	Q18
K801	N740	F560	S499	S499	S499	PHE	ARG	A320	T259	V199	L140	L80	A19
K802	D741	E561	V500	V500	V500	ALA	THR	A320	A260	A200	L140	L80	A19
K803	L742	S562	T501	T501	T501	ALA	SER	P321	V261	Q201	E141	W82	P20
K804	I743	E563	G502	G502	G502	LEU	MET	N322	L262	I202	V142	V82	T21
K805	L744	Y564	K503	K503	K503	LEU	ALA	Q323	T263	A203	S143	G83	D22
K806	H745	F565	S504	S504	S504	PHE	ALA	N324	A264	V204	L144	T84	L23
K807	N746	V566	I505	I505	I505	ALA	ALA	I325	L145	N205	L144	T84	L23
K808	G747	D567	K506	K506	K506	PRO	VAL	T326	G266	I206	P146	K87	P25
K809	A748	L568	L507	L507	L507	VAL	VAL	W327	E267	I207	A147	N26	N26
K810	T749	P569	V508	V508	V508	SER	GLU	T328	G268	D208	D148	L88	A27
K811	K750	G570	A509	A509	A509	GLU	SER	S329	N269	G209	A149	F89	F28
K812	S752	W571	L510	L510	L510	VAL	VAL	S330	V270	D210	N150	K90	T29
K813	I753	E572	R511	R511	R511	GLU	THR	N331	T271	S211	N151	L91	N30
K814	A754	G573	K512	K512	K512	GLN	THR	P332	L272	G212	T152	T92	A31
K815	E755	Q574	G513	G513	G513	GLU	GLU	N333	T273	I213	N153	D93	I32
K816	T756	T575	E514	E514	E514	GLU	GLU	I334	A274	F214	L154	E94	N33
K817	N757	V577	I515	I515	I515	VAL	VAL	A335	D275	L215	I155	S95	A34
K818	D758	D578	M516	M516	M516	VAL	THR	V337	N276	S216	V156	L96	R35
K819	E759	N579	V517	V517	V517	THR	PRO	S338	G277	Q217	E157	T97	F36
K820	D580	D580	T518	T518	T518	PRO	PRO	G339	T278	D218	V158	D98	V38
K821	F641	C519	C519	C519	C519	GLU	GLU	T340	K279	T219	S159	I99	E39
K822	A642	V521	T520	T520	T520	SER	SER	S341	T280	V220	N160	S100	Q40
K823	P583	N522	V521	V521	V521	THR	THR	A281	A281	T221	S162	R101	R41
K824	S523	Q523	Q523	Q523	Q523	VAL	VAL	C283	S283	I223	S162	K102	V42
K825	M524	M524	M524	M524	M524	TYR	TYR	E284	E284	K224	Y163	V103	F43
K826	K586	K586	T525	T525	T525	PHE	PHE	I285	I285	G225	S165	A104	K44
K827	K587	K587	T525	T525	T525	ALA	ALA	V286	V286	G226	S166	T105	T45
K828	F588	F588	Q526	Q526	Q526	GLU	GLU	N347	S287	T227	T167	T107	G47
K829	N589	N589	K527	K527	K527	PRO	PRO	A348	L288	T228	V168	K108	N48
K830	L710	L710	D528	D528	D528	THR	THR	N349	P289	T229	V168	K108	N48
K831	M711	M711	Y529	Y529	Y529	SER	SER	L350	Q290	P170	P170	A109	A49
K832	P712	P712	D530	D530	D530	GLY	GLY	A351	I291	L230	S171	S111	P50
K833	K713	K713	A531	A531	A531	ASN	ASN	G352	I292	T231	D172	A112	L51
K834	K714	K714	F532	F532	F532	ILE	ILE	F353	D292	A232	D172	A112	L51
K835	L715	L715	D533	D533	D533	VAL	VAL	T354	S293	V233	S173	S113	S52
K836	F716	F716	D534	D534	D534	GLN	GLN	E355	I294	T234	K174	I114	V54
K837	N717	N717	Y535	Y535	Y535	THR	THR	E356	S295	T234	L175	K115	B55
K838	H718	H718	P536	P536	P536	THR	THR	I356	L296	G235	A176	I116	E56
K839	S719	S719	W537	W537	W537	ALA	ALA	A358	S297	K236	T177	Y117	D57
K840	G720	G720	Y538	Y538	Y538	ALA	ALA	T359	Q298	T237	L178	P118	K58
K841	D781	D781	H539	H539	H539	ALA	ALA	T360	S299	V238	T179	V119	D59
			A540	A540	A540			E361	D300	T240	F181	V120	L60
									V301	W241		S121	T61

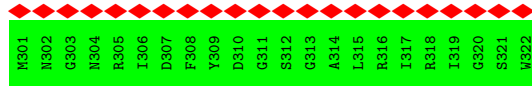


• Molecule 6: Putative tail tip fiber protein

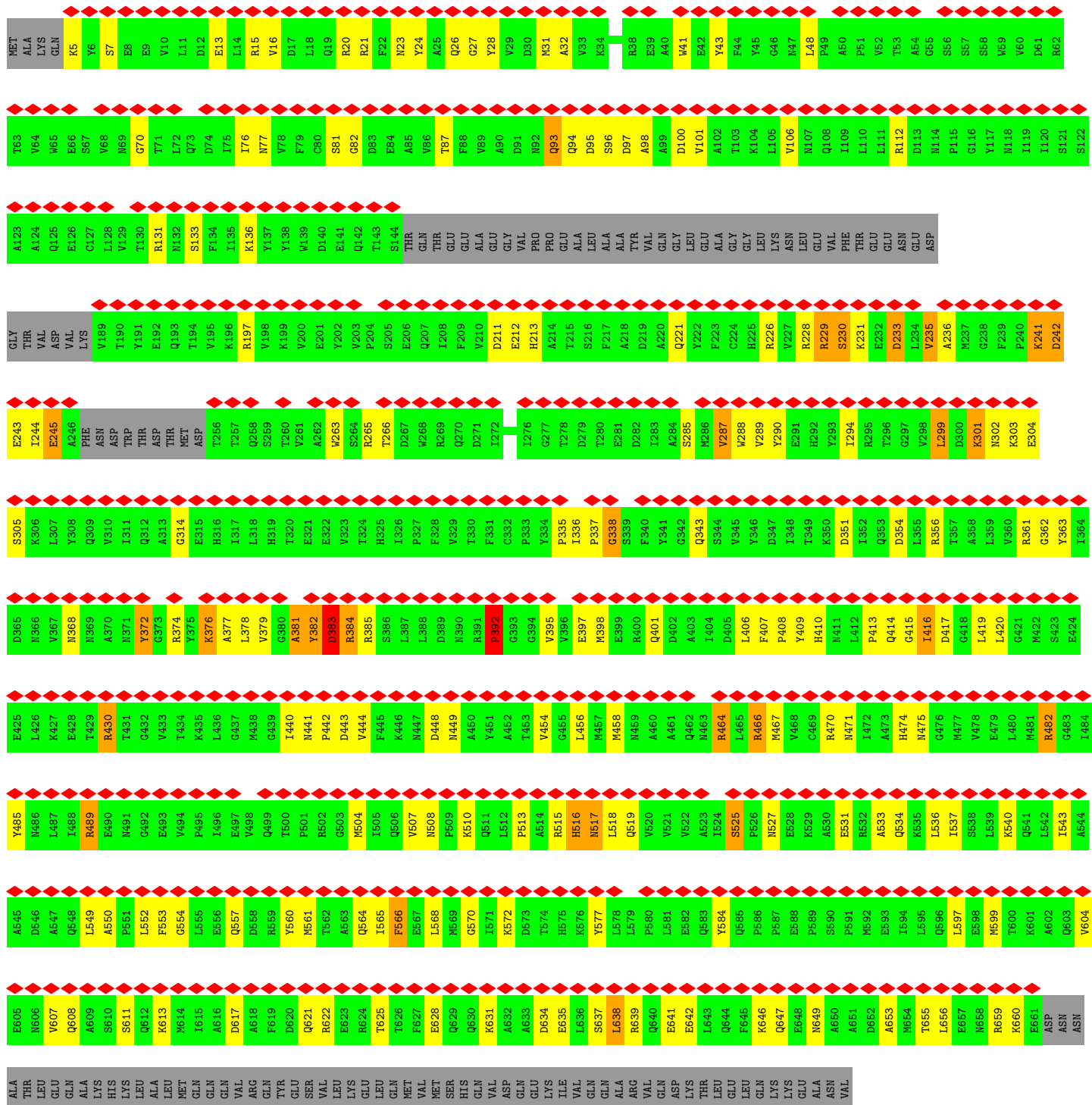
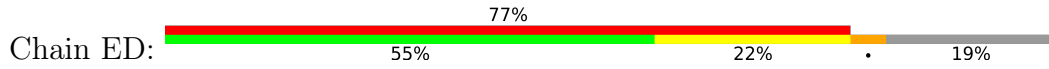


• Molecule 6: Putative tail tip fiber protein



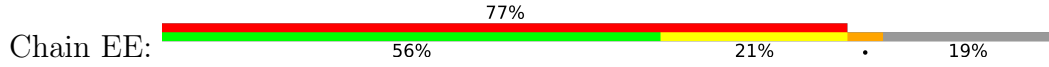


• Molecule 7: Portal protein



THR
LYS
GLY
GLN
GLN
ALA
SER
LEU
LYS
ASP
SER
ARG
ILE
PRO
GLY
LYS
ARG
LEU
GLY
SER
LYS
LYS

● Molecule 7: Portal protein



MET	ALA	GLN	K5	Y6	S7	E8	E9	V10	L11	D12	E13	L14	R15	V16	D17	L18	Q19	R20	R21	F22	N23	Y24	A25	Q26	G27	Y28	V29	D30	K31	A32	V33	K34	G35	V36	A37	R38	E39	A40	W41	S42	Y43	F44	F45	O46	M47	L48	P49	A50	F51	Y52	L53	A54	G55	M56	S57	S58	W59	V60		
D61	R62	T63	V64	W65	E66	S67	V68	N69	G70	T71	L72	Q73	I75	W76	M77	V78	F79	C80	S81	G82	D83	E84	A85	G86	Y87	F88	V89	G90	D91	N92	Q93	Q94	D95	S96	D97	A98	A99	D100	Y101	S102	A103	T104	O105	V106	N107	Q108	I109	L110	L111	R112	D113	M114	P115	G116	Y117	N118	I119	I120		
S121	S122	A123	A124	Q125	E126	C127	L128	V129	T130	R131	L132	S133	F134	I135	K136	Y137	Y138	W139	D140	E141	T142	T143	THR	THR	GLU	GLU	ALA	ALA	GLY	ALA	ALA	VAL	PRO	PRO	GLU	ALA	ALA	ALA	TYR	VAL	GLN	GLY	LEU	LEU	LEU	ALA	ALA	VAL	PHE	THR	THR	GLU	GLU	ASN						
GLU	ASP	GLY	THR	VAL	ASP	VAL	LYS	V189	T190	Y191	E192	Q193	T194	V195	K196	R197	V198	W200	E201	Y202	V203	P204	S205	E206	Q207	I208	F209	V210	D211	A212	H213	A214	T215	S216	F217	A218	D219	A220	Q221	Y222	F223	C224	H225	R226	V227	R228	R229	S230	K231	E232	D233	L234	V235	A236	M237	G238	F239	P240		
K241	D242	E243	I244	E245	A246	PHE	ASN	ASP	THR	TRP	THR	ASP	THR	MET	ASP	T256	T257	Q258	S259	V261	A262	E263	S264	R265	T266	D267	W268	R269	Q270	D271	L272	G273	A274	D275	T276	G277	T278	D279	E281	D282	I283	A284	S285	M286	V287	W288	V289	Y290	P408	I348	T349	H410	K350	I294	R295	T296	G297	V298	L299	D300
K301	N302	K303	E304	S305	K306	L307	Y308	Q309	V310	I311	Q312	A313	G314	E315	H316	I317	L318	H319	T320	E321	E322	T324	H325	I326	P327	F328	V329	T330	F331	C332	P333	P335	I336	P337	G338	S339	F340	Y341	G342	Q343	S344	V345	Y346	D347	T348	K350	I351	I352	Q353	D354	L355	R356	T357	A358	L359	V360				
R361	G362	Y363	I364	D365	N366	V367	N368	N369	A370	N371	Y372	G373	R374	Y375	K376	A377	L378	V379	G380	A381	Y382	D383	R384	R385	S386	L387	L388	D389	N390	R391	P392	G393	G394	V395	V396	E397	M398	E399	R400	Q401	D402	A403	I404	D405	L406	F407	P408	Y409	H410	N411	L412	P413	Q414	G415	I416	D417	G418	L419	L420	
G421	M422	S423	E424	L425	L426	K427	E428	T429	R430	T431	G432	V433	T434	K435	L436	G437	M438	G439	I440	N441	R442	D443	V444	F445	K446	N447	D448	N449	A450	Y451	A452	T453	V454	G455	L456	M457	M458	N459	A460	A461	Q462	M463	R464	L465	R466	M467	V468	C469	R470	N471	I472	A473	H474	N475	G476	M477	V478	E479	L480	
M481	R482	G483	I484	Y485	M486	L487	I488	R489	E490	M491	G492	E493	V494	P495	I496	E497	V498	Q499	P501	R502	G503	M504	I505	Q506	V507	M508	P509	K510	Q511	L512	P513	A514	R515	H516	M517	L518	Q519	V520	V521	V522	A523	I524	S525	P526	M527	E528	K529	A530	E531	R532	A533	Q534	K535	L536	I537	S538	L539	K540		
Q541	L542	I543	A544	A545	D546	A547	Q548	L549	A550	P551	L552	F553	G554	L555	E556	Q557	D558	R559	Y560	M561	T562	A563	Q564	I565	F566	E567	L568	M569	G570	I571	K572	D573	T574	H575	K576	Y577	L578	L579	P580	L581	E582	Q583	Y584	Q585	P586	P587	E588	P589	S590	P591	M592	E593	I594	L595	Q596	L597	E598	M599	T600	
K601	A602	Q603	V604	E605	N606	V607	Q608	A609	S610	S611	Q612	Q613	M614	I615	A616	D617	A618	F619	D620	Q621	R622	E623	R624	T625	T626	F627	E628	Q629	Q630	K631	A632	A633	D634	E635	L636	S637	L638	R639	Q640	E641	E642	L643	Q644	F645	K646	Q647	E648	N649	A650	A651	D652	A653	M654	T655	L656	E657	N658	R659	K660	
E661	ASP	ASN	ASN	ALA	THR	LEU	GLU	ALA	LYS	HIS	LYS	LEU	ALA	MET	GLN	GLN	GLN	VAL	ARG	ARG	TRP	GLU	SER	VAL	LEU	LYS	GLU	LEU	LEU	GLN	MET	MET	SER	HIS	GLN	VAL	ASP	GLN	GLY	ILE	VAL	VAL	GLN	GLN	ALA	ARG	VAL	GLN	ASP	LYS	THR	THR	LEU	GLU	LEU	GLN	LYS	LYS		

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

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	9418	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	49	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2700	Depositor
Magnification	59000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.130	Depositor
Minimum map value	-0.075	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.04	Depositor
Map size (Å)	1788.48, 1788.48, 1788.48	wwPDB
Map dimensions	1296, 1296, 1296	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.38, 1.38, 1.38	Depositor

5 Model quality i

5.1 Standard geometry i

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	AA	0.25	0/2736	0.43	0/3706
1	AB	0.24	0/2736	0.41	0/3706
1	AC	0.25	0/2713	0.42	0/3673
1	AD	0.25	0/2736	0.43	0/3706
1	AE	0.25	0/2728	0.43	0/3694
1	AF	0.24	0/2727	0.41	0/3695
1	AG	0.25	0/2736	0.44	0/3706
1	AH	0.24	0/2736	0.43	0/3706
1	AI	0.25	0/2736	0.44	0/3706
1	AJ	0.24	0/2736	0.42	0/3706
1	AK	0.24	0/2736	0.42	0/3706
1	AL	0.25	0/2736	0.43	0/3706
1	AM	0.25	0/2713	0.43	0/3673
1	AN	0.25	0/2713	0.42	0/3673
1	AO	0.25	0/2713	0.42	0/3673
1	AP	0.24	0/2736	0.43	0/3706
1	AQ	0.25	0/2736	0.42	0/3706
1	AR	0.25	0/2736	0.42	0/3706
1	AS	0.24	0/2728	0.43	0/3694
1	AT	0.24	0/2728	0.44	0/3694
1	AU	0.25	0/2728	0.44	0/3694
1	AV	0.25	0/2727	0.42	0/3695
1	AW	0.24	0/2727	0.42	0/3695
1	AX	0.24	0/2727	0.42	0/3695
1	AY	0.25	0/2736	0.43	0/3706
1	AZ	0.24	0/2736	0.42	0/3706
1	BA	0.25	0/2713	0.42	0/3673
1	BB	0.25	0/2736	0.43	0/3706
1	BC	0.25	0/2728	0.43	0/3694
1	BD	0.24	0/2727	0.41	0/3695
1	BE	0.25	0/2736	0.44	0/3706
1	BF	0.24	0/2736	0.43	0/3706
1	BG	0.25	0/2736	0.44	0/3706
1	BH	0.24	0/2736	0.42	0/3706

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	BI	0.24	0/2736	0.42	0/3706
1	BJ	0.25	0/2736	0.43	0/3706
1	BK	0.25	0/2713	0.43	0/3673
1	BL	0.25	0/2713	0.42	0/3673
1	BM	0.25	0/2713	0.42	0/3673
1	BN	0.25	0/2736	0.43	0/3706
1	BO	0.25	0/2736	0.42	0/3706
1	BP	0.25	0/2736	0.42	0/3706
1	BQ	0.24	0/2728	0.43	0/3694
1	BR	0.24	0/2728	0.44	0/3694
1	BS	0.25	0/2728	0.44	0/3694
1	BT	0.25	0/2727	0.42	0/3695
1	BU	0.24	0/2727	0.42	0/3695
1	BV	0.24	0/2727	0.42	0/3695
1	BW	0.25	0/2723	0.44	0/3690
1	BX	0.24	0/2728	0.44	0/3694
1	BY	0.25	0/2736	0.43	0/3706
1	BZ	0.25	0/2720	0.43	0/3683
1	CA	0.24	0/2728	0.45	0/3694
1	CB	0.25	0/2727	0.44	0/3695
1	CC	0.24	0/2736	0.46	0/3706
1	CD	0.25	0/2706	0.45	0/3661
1	CE	0.25	0/2727	0.44	0/3695
1	CF	0.25	0/2693	0.43	0/3646
1	CG	0.25	0/2736	0.45	0/3706
1	CH	0.24	0/2736	0.42	0/3706
1	CI	0.25	0/2727	0.45	0/3695
1	CJ	0.25	0/2736	0.44	0/3706
1	CK	0.24	0/2736	0.44	0/3706
1	CL	0.25	0/2704	0.43	0/3662
1	CM	0.25	0/2727	0.45	0/3695
1	CN	0.25	0/2693	0.44	0/3646
1	CO	0.25	0/2686	0.45	0/3636
1	CP	0.25	0/2719	0.43	0/3683
1	CQ	0.25	0/2727	0.44	0/3695
1	CR	0.25	0/2720	0.44	0/3683
1	CS	0.25	0/2736	0.43	0/3706
1	CT	0.25	0/2728	0.42	0/3694
1	CU	0.25	0/2727	0.45	0/3695
1	CV	0.25	0/2736	0.43	0/3706
1	CW	0.25	0/2728	0.45	0/3694
1	CX	0.25	0/2727	0.43	0/3695
1	CY	0.25	0/2736	0.44	0/3706

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	CZ	0.25	0/2736	0.46	0/3706
1	DA	0.25	0/2728	0.44	0/3694
1	DB	0.25	0/2736	0.44	0/3706
1	DC	0.25	0/2720	0.44	0/3683
1	DD	0.25	0/2728	0.44	0/3694
1	DE	0.25	0/2727	0.44	0/3695
1	DF	0.25	0/2736	0.45	0/3706
1	DG	0.25	0/2706	0.45	0/3661
1	DH	0.25	0/2727	0.44	0/3695
1	DI	0.25	0/2736	0.43	0/3706
1	DJ	0.25	0/2727	0.45	0/3695
1	DK	0.25	0/2704	0.43	0/3662
1	DL	0.25	0/2727	0.44	0/3695
1	DM	0.24	0/2719	0.43	0/3683
1	DN	0.25	0/2727	0.44	0/3695
1	DO	0.25	0/2728	0.43	0/3694
1	DP	0.25	0/2727	0.44	0/3695
1	DQ	0.25	0/2727	0.42	0/3695
2	DR	0.26	0/1431	0.51	0/1867
2	DS	0.36	2/1435 (0.1%)	0.92	7/1872 (0.4%)
2	DT	0.28	0/1435	0.66	3/1872 (0.2%)
3	DU	0.89	0/1866	0.78	4/2545 (0.2%)
3	DV	1.10	11/1866 (0.6%)	1.48	27/2545 (1.1%)
4	DW	1.49	138/7215 (1.9%)	1.30	54/9852 (0.5%)
5	DX	0.67	1/693 (0.1%)	0.95	4/935 (0.4%)
5	DY	0.64	0/635	0.80	1/852 (0.1%)
5	DZ	0.97	1/552 (0.2%)	1.02	3/741 (0.4%)
6	EA	1.16	18/1288 (1.4%)	1.35	21/1607 (1.3%)
6	EB	0.69	0/1288	0.94	1/1607 (0.1%)
6	EC	0.95	6/1288 (0.5%)	1.12	11/1607 (0.7%)
7	ED	1.28	45/4930 (0.9%)	1.27	35/6682 (0.5%)
7	EE	1.28	46/4930 (0.9%)	1.26	37/6682 (0.6%)
All	All	0.44	268/289915 (0.1%)	0.56	208/392151 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	AF	0	1
1	BD	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	CA	0	1
1	CC	0	2
1	DF	0	2
2	DT	0	1
3	DU	0	1
3	DV	1	6
4	DW	0	2
5	DX	0	2
5	DZ	0	1
6	EA	0	5
6	EB	0	7
6	EC	0	11
7	ED	0	1
All	All	1	44

The worst 5 of 268 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	DZ	41	TRP	C-O	15.14	1.52	1.23
6	EA	102	SER	C-O	14.54	1.50	1.23
6	EC	101	LEU	C-O	13.22	1.48	1.23
3	DV	28	ASP	C-O	-11.08	1.02	1.23
6	EA	101	LEU	C-O	10.11	1.42	1.23

The worst 5 of 208 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	DV	24	ALA	CB-CA-C	-27.15	69.38	110.10
3	DV	27	ASP	CB-CA-C	-26.89	56.61	110.40
3	DV	26	ARG	CB-CA-C	-26.87	56.66	110.40
2	DS	23	TYR	CB-CG-CD1	-22.54	107.48	121.00
3	DV	28	ASP	CB-CA-C	-19.23	71.94	110.40

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
3	DV	25	ASP	CA

5 of 44 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	AF	213	PHE	Peptide

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Mol	Chain	Res	Type	Group
1	BD	213	PHE	Peptide
1	CA	144	THR	Peptide
1	CC	167	PHE	Peptide
1	CC	168	GLN	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	AA	2685	0	2651	29	0
1	AB	2685	0	2651	24	0
1	AC	2663	0	2631	33	0
1	AD	2685	0	2651	26	0
1	AE	2677	0	2646	26	0
1	AF	2676	0	2638	26	0
1	AG	2685	0	2651	27	0
1	AH	2685	0	2651	29	0
1	AI	2685	0	2651	23	0
1	AJ	2685	0	2651	23	0
1	AK	2685	0	2645	88	0
1	AL	2685	0	2651	23	0
1	AM	2663	0	2625	169	0
1	AN	2663	0	2631	26	0
1	AO	2663	0	2631	32	0
1	AP	2685	0	2626	376	0
1	AQ	2685	0	2651	26	0
1	AR	2685	0	2651	30	0
1	AS	2677	0	2641	155	0
1	AT	2677	0	2646	25	0
1	AU	2677	0	2646	26	0
1	AV	2676	0	2638	33	0
1	AW	2676	0	2619	212	0
1	AX	2676	0	2638	23	0
1	AY	2685	0	2651	27	0
1	AZ	2685	0	2651	26	0
1	BA	2663	0	2631	34	0
1	BB	2685	0	2651	27	0
1	BC	2677	0	2646	25	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	BD	2676	0	2638	23	0
1	BE	2685	0	2651	28	0
1	BF	2685	0	2651	52	0
1	BG	2685	0	2651	24	0
1	BH	2685	0	2651	22	0
1	BI	2685	0	2629	426	0
1	BJ	2685	0	2651	22	0
1	BK	2663	0	2622	168	0
1	BL	2663	0	2631	29	0
1	BM	2663	0	2631	31	0
1	BN	2685	0	2642	145	0
1	BO	2685	0	2651	26	0
1	BP	2685	0	2651	28	0
1	BQ	2677	0	2646	31	0
1	BR	2677	0	2646	27	0
1	BS	2677	0	2646	25	0
1	BT	2676	0	2638	29	0
1	BU	2676	0	2622	275	0
1	BV	2676	0	2638	24	0
1	BW	2672	0	2635	40	0
1	BX	2677	0	2646	53	0
1	BY	2685	0	2651	41	0
1	BZ	2670	0	2638	34	0
1	CA	2677	0	2646	45	0
1	CB	2676	0	2638	40	0
1	CC	2685	0	2651	33	0
1	CD	2657	0	2629	39	0
1	CE	2676	0	2638	45	0
1	CF	2644	0	2611	34	0
1	CG	2685	0	2651	38	0
1	CH	2685	0	2651	22	0
1	CI	2676	0	2638	28	0
1	CJ	2685	0	2651	26	0
1	CK	2685	0	2651	41	0
1	CL	2654	0	2618	41	0
1	CM	2676	0	2638	31	0
1	CN	2644	0	2608	118	0
1	CO	2637	0	2602	39	0
1	CP	2668	0	2633	37	0
1	CQ	2676	0	2638	43	0
1	CR	2670	0	2631	139	0
1	CS	2685	0	2642	275	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	CT	2677	0	2646	34	0
1	CU	2676	0	2638	48	0
1	CV	2685	0	2647	48	0
1	CW	2677	0	2629	165	0
1	CX	2676	0	2638	22	0
1	CY	2685	0	2651	37	0
1	CZ	2685	0	2647	95	0
1	DA	2677	0	2646	36	0
1	DB	2685	0	2649	117	0
1	DC	2670	0	2636	72	0
1	DD	2677	0	2646	68	0
1	DE	2676	0	2638	42	0
1	DF	2685	0	2651	44	0
1	DG	2657	0	2629	37	0
1	DH	2676	0	2634	172	0
1	DI	2685	0	2651	28	0
1	DJ	2676	0	2638	38	0
1	DK	2654	0	2606	204	0
1	DL	2676	0	2638	30	0
1	DM	2668	0	2633	104	0
1	DN	2676	0	2638	38	0
1	DO	2677	0	2642	53	0
1	DP	2676	0	2623	296	0
1	DQ	2676	0	2638	30	0
2	DR	1420	0	954	74	0
2	DS	1424	0	965	40	0
2	DT	1424	0	965	36	0
3	DU	1813	0	1736	191	0
3	DV	1813	0	1738	300	0
4	DW	7063	0	6881	199	0
5	DX	683	0	653	167	0
5	DY	628	0	610	132	0
5	DZ	545	0	536	116	0
6	EA	1289	0	384	10	0
6	EB	1289	0	384	10	0
6	EC	1289	0	384	18	0
7	ED	4838	0	4692	509	0
7	EE	4838	0	4692	462	0
All	All	284597	0	276368	5691	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 10.

The worst 5 of 5691 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)
1:BI:96:THR:HB	1:DM:152:VAL:CG2	1.26	1.63
1:AW:16:LYS:HG3	1:BK:103:TYR:CD2	1.21	1.62
1:AP:320:SER:CB	1:CZ:65:GLU:CG	1.74	1.62
1:BI:92:ARG:CZ	1:DK:6:LEU:HD23	1.20	1.62
1:AP:79:ILE:HD13	1:CR:147:ALA:CB	1.15	1.61

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	AA	345/352 (98%)	327 (95%)	18 (5%)	0	100	100
1	AB	345/352 (98%)	318 (92%)	27 (8%)	0	100	100
1	AC	342/352 (97%)	320 (94%)	22 (6%)	0	100	100
1	AD	345/352 (98%)	321 (93%)	24 (7%)	0	100	100
1	AE	344/352 (98%)	308 (90%)	36 (10%)	0	100	100
1	AF	344/352 (98%)	317 (92%)	27 (8%)	0	100	100
1	AG	345/352 (98%)	314 (91%)	31 (9%)	0	100	100
1	AH	345/352 (98%)	319 (92%)	26 (8%)	0	100	100
1	AI	345/352 (98%)	322 (93%)	23 (7%)	0	100	100
1	AJ	345/352 (98%)	313 (91%)	32 (9%)	0	100	100
1	AK	345/352 (98%)	318 (92%)	27 (8%)	0	100	100
1	AL	345/352 (98%)	313 (91%)	32 (9%)	0	100	100
1	AM	342/352 (97%)	319 (93%)	22 (6%)	1 (0%)	41	77
1	AN	342/352 (97%)	311 (91%)	31 (9%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	AO	342/352 (97%)	315 (92%)	27 (8%)	0	100	100
1	AP	345/352 (98%)	318 (92%)	27 (8%)	0	100	100
1	AQ	345/352 (98%)	321 (93%)	24 (7%)	0	100	100
1	AR	345/352 (98%)	324 (94%)	21 (6%)	0	100	100
1	AS	344/352 (98%)	316 (92%)	28 (8%)	0	100	100
1	AT	344/352 (98%)	309 (90%)	35 (10%)	0	100	100
1	AU	344/352 (98%)	300 (87%)	44 (13%)	0	100	100
1	AV	344/352 (98%)	320 (93%)	24 (7%)	0	100	100
1	AW	344/352 (98%)	319 (93%)	25 (7%)	0	100	100
1	AX	344/352 (98%)	321 (93%)	23 (7%)	0	100	100
1	AY	345/352 (98%)	327 (95%)	18 (5%)	0	100	100
1	AZ	345/352 (98%)	319 (92%)	26 (8%)	0	100	100
1	BA	342/352 (97%)	319 (93%)	23 (7%)	0	100	100
1	BB	345/352 (98%)	320 (93%)	25 (7%)	0	100	100
1	BC	344/352 (98%)	308 (90%)	36 (10%)	0	100	100
1	BD	344/352 (98%)	319 (93%)	25 (7%)	0	100	100
1	BE	345/352 (98%)	314 (91%)	31 (9%)	0	100	100
1	BF	345/352 (98%)	319 (92%)	26 (8%)	0	100	100
1	BG	345/352 (98%)	323 (94%)	22 (6%)	0	100	100
1	BH	345/352 (98%)	314 (91%)	31 (9%)	0	100	100
1	BI	345/352 (98%)	316 (92%)	29 (8%)	0	100	100
1	BJ	345/352 (98%)	315 (91%)	30 (9%)	0	100	100
1	BK	342/352 (97%)	319 (93%)	22 (6%)	1 (0%)	41	77
1	BL	342/352 (97%)	311 (91%)	31 (9%)	0	100	100
1	BM	342/352 (97%)	316 (92%)	26 (8%)	0	100	100
1	BN	345/352 (98%)	318 (92%)	27 (8%)	0	100	100
1	BO	345/352 (98%)	321 (93%)	24 (7%)	0	100	100
1	BP	345/352 (98%)	323 (94%)	22 (6%)	0	100	100
1	BQ	344/352 (98%)	317 (92%)	27 (8%)	0	100	100
1	BR	344/352 (98%)	308 (90%)	36 (10%)	0	100	100
1	BS	344/352 (98%)	300 (87%)	44 (13%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	BT	344/352 (98%)	320 (93%)	24 (7%)	0	100	100
1	BU	344/352 (98%)	320 (93%)	24 (7%)	0	100	100
1	BV	344/352 (98%)	321 (93%)	23 (7%)	0	100	100
1	BW	343/352 (97%)	286 (83%)	57 (17%)	0	100	100
1	BX	344/352 (98%)	284 (83%)	59 (17%)	1 (0%)	41	77
1	BY	345/352 (98%)	309 (90%)	36 (10%)	0	100	100
1	BZ	343/352 (97%)	308 (90%)	35 (10%)	0	100	100
1	CA	344/352 (98%)	275 (80%)	65 (19%)	4 (1%)	13	50
1	CB	344/352 (98%)	298 (87%)	46 (13%)	0	100	100
1	CC	345/352 (98%)	288 (84%)	56 (16%)	1 (0%)	41	77
1	CD	339/352 (96%)	305 (90%)	34 (10%)	0	100	100
1	CE	344/352 (98%)	322 (94%)	22 (6%)	0	100	100
1	CF	340/352 (97%)	307 (90%)	33 (10%)	0	100	100
1	CG	345/352 (98%)	276 (80%)	68 (20%)	1 (0%)	41	77
1	CH	345/352 (98%)	314 (91%)	31 (9%)	0	100	100
1	CI	344/352 (98%)	318 (92%)	26 (8%)	0	100	100
1	CJ	345/352 (98%)	315 (91%)	30 (9%)	0	100	100
1	CK	345/352 (98%)	264 (76%)	81 (24%)	0	100	100
1	CL	341/352 (97%)	294 (86%)	47 (14%)	0	100	100
1	CM	344/352 (98%)	324 (94%)	20 (6%)	0	100	100
1	CN	340/352 (97%)	310 (91%)	30 (9%)	0	100	100
1	CO	339/352 (96%)	286 (84%)	53 (16%)	0	100	100
1	CP	343/352 (97%)	306 (89%)	37 (11%)	0	100	100
1	CQ	344/352 (98%)	313 (91%)	31 (9%)	0	100	100
1	CR	343/352 (97%)	307 (90%)	36 (10%)	0	100	100
1	CS	345/352 (98%)	298 (86%)	47 (14%)	0	100	100
1	CT	344/352 (98%)	312 (91%)	32 (9%)	0	100	100
1	CU	344/352 (98%)	319 (93%)	25 (7%)	0	100	100
1	CV	345/352 (98%)	323 (94%)	22 (6%)	0	100	100
1	CW	344/352 (98%)	284 (83%)	60 (17%)	0	100	100
1	CX	344/352 (98%)	328 (95%)	16 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	CY	345/352 (98%)	311 (90%)	34 (10%)	0	100	100
1	CZ	345/352 (98%)	285 (83%)	60 (17%)	0	100	100
1	DA	344/352 (98%)	288 (84%)	54 (16%)	2 (1%)	25	66
1	DB	345/352 (98%)	317 (92%)	28 (8%)	0	100	100
1	DC	343/352 (97%)	305 (89%)	38 (11%)	0	100	100
1	DD	344/352 (98%)	290 (84%)	51 (15%)	3 (1%)	17	57
1	DE	344/352 (98%)	302 (88%)	42 (12%)	0	100	100
1	DF	345/352 (98%)	286 (83%)	58 (17%)	1 (0%)	41	77
1	DG	339/352 (96%)	303 (89%)	36 (11%)	0	100	100
1	DH	344/352 (98%)	315 (92%)	29 (8%)	0	100	100
1	DI	345/352 (98%)	313 (91%)	32 (9%)	0	100	100
1	DJ	344/352 (98%)	322 (94%)	22 (6%)	0	100	100
1	DK	341/352 (97%)	303 (89%)	38 (11%)	0	100	100
1	DL	344/352 (98%)	324 (94%)	20 (6%)	0	100	100
1	DM	343/352 (97%)	312 (91%)	31 (9%)	0	100	100
1	DN	344/352 (98%)	326 (95%)	18 (5%)	0	100	100
1	DO	344/352 (98%)	317 (92%)	27 (8%)	0	100	100
1	DP	344/352 (98%)	327 (95%)	17 (5%)	0	100	100
1	DQ	344/352 (98%)	318 (92%)	26 (8%)	0	100	100
2	DR	261/267 (98%)	212 (81%)	43 (16%)	6 (2%)	6	34
2	DS	261/267 (98%)	219 (84%)	37 (14%)	5 (2%)	8	38
2	DT	261/267 (98%)	222 (85%)	30 (12%)	9 (3%)	3	26
3	DU	218/250 (87%)	163 (75%)	47 (22%)	8 (4%)	3	24
3	DV	218/250 (87%)	170 (78%)	43 (20%)	5 (2%)	6	34
4	DW	904/1005 (90%)	758 (84%)	131 (14%)	15 (2%)	9	42
5	DX	85/786 (11%)	63 (74%)	15 (18%)	7 (8%)	1	12
5	DY	76/786 (10%)	61 (80%)	13 (17%)	2 (3%)	5	31
5	DZ	66/786 (8%)	58 (88%)	7 (11%)	1 (2%)	10	46
6	EA	320/322 (99%)	272 (85%)	33 (10%)	15 (5%)	2	21
6	EB	320/322 (99%)	269 (84%)	37 (12%)	14 (4%)	2	22
6	EC	320/322 (99%)	271 (85%)	32 (10%)	17 (5%)	2	19

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	ED	598/747 (80%)	533 (89%)	56 (9%)	9 (2%)	10	46
7	EE	598/747 (80%)	533 (89%)	57 (10%)	8 (1%)	12	48
All	All	37172/40564 (92%)	33351 (90%)	3685 (10%)	136 (0%)	38	72

5 of 136 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	DR	6	ASN
2	DR	18	PRO
2	DR	126	ILE
2	DR	139	VAL
2	DR	158	VAL

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	AA	286/287 (100%)	279 (98%)	7 (2%)	49	69
1	AB	286/287 (100%)	284 (99%)	2 (1%)	84	90
1	AC	283/287 (99%)	282 (100%)	1 (0%)	91	94
1	AD	286/287 (100%)	281 (98%)	5 (2%)	60	78
1	AE	285/287 (99%)	282 (99%)	3 (1%)	73	84
1	AF	285/287 (99%)	281 (99%)	4 (1%)	67	80
1	AG	286/287 (100%)	282 (99%)	4 (1%)	67	80
1	AH	286/287 (100%)	285 (100%)	1 (0%)	92	95
1	AI	286/287 (100%)	283 (99%)	3 (1%)	76	86
1	AJ	286/287 (100%)	284 (99%)	2 (1%)	84	90
1	AK	286/287 (100%)	282 (99%)	4 (1%)	67	80
1	AL	286/287 (100%)	281 (98%)	5 (2%)	60	78
1	AM	283/287 (99%)	280 (99%)	3 (1%)	73	84
1	AN	283/287 (99%)	281 (99%)	2 (1%)	84	90

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	AO	283/287 (99%)	278 (98%)	5 (2%)	59	77
1	AP	286/287 (100%)	284 (99%)	2 (1%)	84	90
1	AQ	286/287 (100%)	280 (98%)	6 (2%)	53	72
1	AR	286/287 (100%)	281 (98%)	5 (2%)	60	78
1	AS	285/287 (99%)	282 (99%)	3 (1%)	73	84
1	AT	285/287 (99%)	285 (100%)	0	100	100
1	AU	285/287 (99%)	280 (98%)	5 (2%)	59	77
1	AV	285/287 (99%)	282 (99%)	3 (1%)	73	84
1	AW	285/287 (99%)	284 (100%)	1 (0%)	91	94
1	AX	285/287 (99%)	281 (99%)	4 (1%)	67	80
1	AY	286/287 (100%)	279 (98%)	7 (2%)	49	69
1	AZ	286/287 (100%)	284 (99%)	2 (1%)	84	90
1	BA	283/287 (99%)	282 (100%)	1 (0%)	91	94
1	BB	286/287 (100%)	281 (98%)	5 (2%)	60	78
1	BC	285/287 (99%)	282 (99%)	3 (1%)	73	84
1	BD	285/287 (99%)	282 (99%)	3 (1%)	73	84
1	BE	286/287 (100%)	282 (99%)	4 (1%)	67	80
1	BF	286/287 (100%)	285 (100%)	1 (0%)	92	95
1	BG	286/287 (100%)	283 (99%)	3 (1%)	76	86
1	BH	286/287 (100%)	284 (99%)	2 (1%)	84	90
1	BI	286/287 (100%)	282 (99%)	4 (1%)	67	80
1	BJ	286/287 (100%)	281 (98%)	5 (2%)	60	78
1	BK	283/287 (99%)	280 (99%)	3 (1%)	73	84
1	BL	283/287 (99%)	281 (99%)	2 (1%)	84	90
1	BM	283/287 (99%)	278 (98%)	5 (2%)	59	77
1	BN	286/287 (100%)	284 (99%)	2 (1%)	84	90
1	BO	286/287 (100%)	281 (98%)	5 (2%)	60	78
1	BP	286/287 (100%)	281 (98%)	5 (2%)	60	78
1	BQ	285/287 (99%)	282 (99%)	3 (1%)	73	84
1	BR	285/287 (99%)	285 (100%)	0	100	100
1	BS	285/287 (99%)	280 (98%)	5 (2%)	59	77

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	BT	285/287 (99%)	282 (99%)	3 (1%)	73	84
1	BU	285/287 (99%)	284 (100%)	1 (0%)	91	94
1	BV	285/287 (99%)	281 (99%)	4 (1%)	67	80
1	BW	285/287 (99%)	284 (100%)	1 (0%)	91	94
1	BX	285/287 (99%)	284 (100%)	1 (0%)	91	94
1	BY	286/287 (100%)	286 (100%)	0	100	100
1	BZ	284/287 (99%)	284 (100%)	0	100	100
1	CA	285/287 (99%)	285 (100%)	0	100	100
1	CB	285/287 (99%)	285 (100%)	0	100	100
1	CC	286/287 (100%)	286 (100%)	0	100	100
1	CD	283/287 (99%)	283 (100%)	0	100	100
1	CE	285/287 (99%)	285 (100%)	0	100	100
1	CF	281/287 (98%)	281 (100%)	0	100	100
1	CG	286/287 (100%)	286 (100%)	0	100	100
1	CH	286/287 (100%)	284 (99%)	2 (1%)	84	90
1	CI	285/287 (99%)	283 (99%)	2 (1%)	84	90
1	CJ	286/287 (100%)	286 (100%)	0	100	100
1	CK	286/287 (100%)	286 (100%)	0	100	100
1	CL	282/287 (98%)	282 (100%)	0	100	100
1	CM	285/287 (99%)	283 (99%)	2 (1%)	84	90
1	CN	281/287 (98%)	281 (100%)	0	100	100
1	CO	280/287 (98%)	279 (100%)	1 (0%)	91	94
1	CP	284/287 (99%)	284 (100%)	0	100	100
1	CQ	285/287 (99%)	283 (99%)	2 (1%)	84	90
1	CR	284/287 (99%)	283 (100%)	1 (0%)	91	94
1	CS	286/287 (100%)	285 (100%)	1 (0%)	92	95
1	CT	285/287 (99%)	284 (100%)	1 (0%)	91	94
1	CU	285/287 (99%)	283 (99%)	2 (1%)	84	90
1	CV	286/287 (100%)	286 (100%)	0	100	100
1	CW	285/287 (99%)	285 (100%)	0	100	100
1	CX	285/287 (99%)	285 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	CY	286/287 (100%)	286 (100%)	0	100	100
1	CZ	286/287 (100%)	286 (100%)	0	100	100
1	DA	285/287 (99%)	285 (100%)	0	100	100
1	DB	286/287 (100%)	286 (100%)	0	100	100
1	DC	284/287 (99%)	284 (100%)	0	100	100
1	DD	285/287 (99%)	285 (100%)	0	100	100
1	DE	285/287 (99%)	284 (100%)	1 (0%)	91	94
1	DF	286/287 (100%)	285 (100%)	1 (0%)	92	95
1	DG	283/287 (99%)	283 (100%)	0	100	100
1	DH	285/287 (99%)	285 (100%)	0	100	100
1	DI	286/287 (100%)	286 (100%)	0	100	100
1	DJ	285/287 (99%)	285 (100%)	0	100	100
1	DK	282/287 (98%)	282 (100%)	0	100	100
1	DL	285/287 (99%)	285 (100%)	0	100	100
1	DM	284/287 (99%)	284 (100%)	0	100	100
1	DN	285/287 (99%)	285 (100%)	0	100	100
1	DO	285/287 (99%)	285 (100%)	0	100	100
1	DP	285/287 (99%)	285 (100%)	0	100	100
1	DQ	285/287 (99%)	285 (100%)	0	100	100
2	DR	85/227 (37%)	84 (99%)	1 (1%)	71	83
2	DS	86/227 (38%)	84 (98%)	2 (2%)	50	70
2	DT	86/227 (38%)	83 (96%)	3 (4%)	36	59
3	DU	197/223 (88%)	179 (91%)	18 (9%)	9	29
3	DV	197/223 (88%)	183 (93%)	14 (7%)	14	39
4	DW	792/870 (91%)	782 (99%)	10 (1%)	69	81
5	DX	69/640 (11%)	51 (74%)	18 (26%)	0	3
5	DY	64/640 (10%)	41 (64%)	23 (36%)	0	1
5	DZ	56/640 (9%)	45 (80%)	11 (20%)	1	8
7	ED	523/647 (81%)	493 (94%)	30 (6%)	20	45
7	EE	523/647 (81%)	493 (94%)	30 (6%)	20	45
All	All	29746/32476 (92%)	29410 (99%)	336 (1%)	74	84

5 of 336 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
5	DX	62	LEU
7	ED	363	TYR
5	DX	81	LYS
5	DY	86	ARG
7	ED	617	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 212 such sidechains are listed below:

Mol	Chain	Res	Type
1	DD	202	GLN
1	DJ	336	ASN
7	EE	77	ASN
1	DE	60	ASN
1	DH	29	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
5	DY	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	DY	81:LYS	C	82:ASP	N	3.02

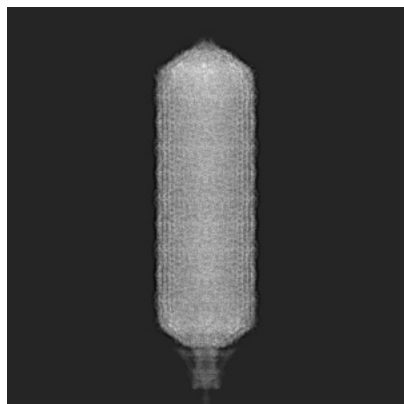
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-14492. These allow visual inspection of the internal detail of the map and identification of artifacts.

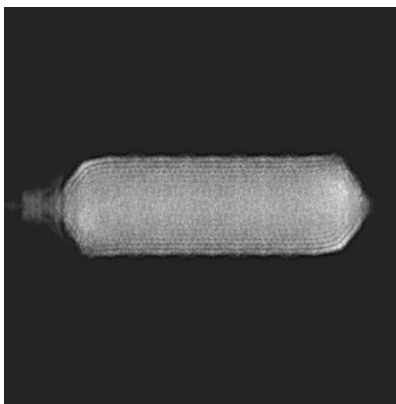
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

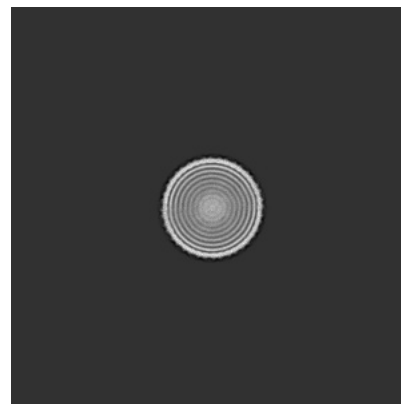
6.1.1 Primary map



X

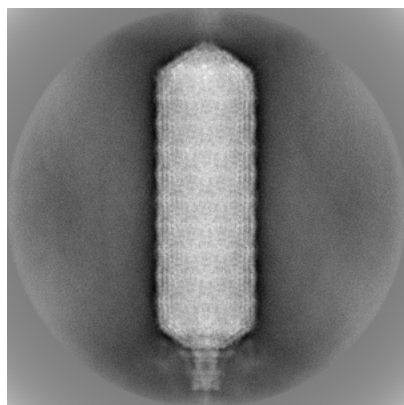


Y

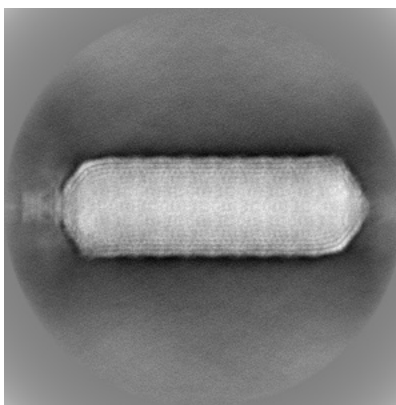


Z

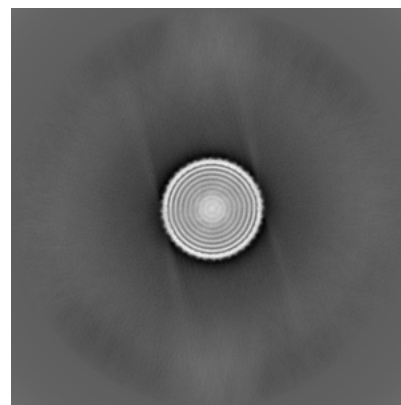
6.1.2 Raw map



X



Y

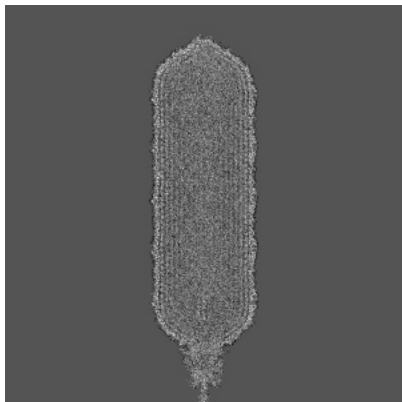


Z

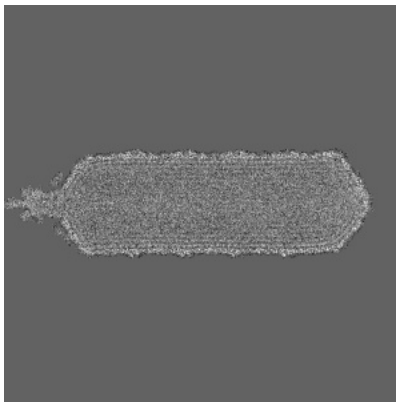
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

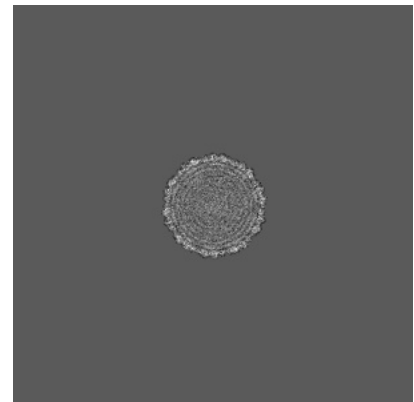
6.2.1 Primary map



X Index: 648

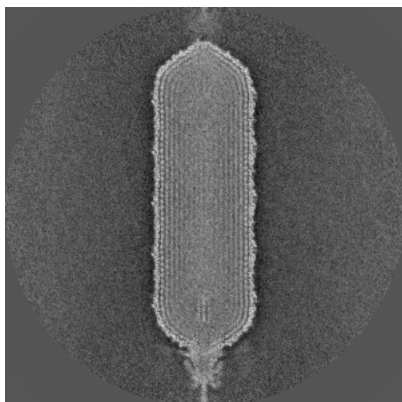


Y Index: 648

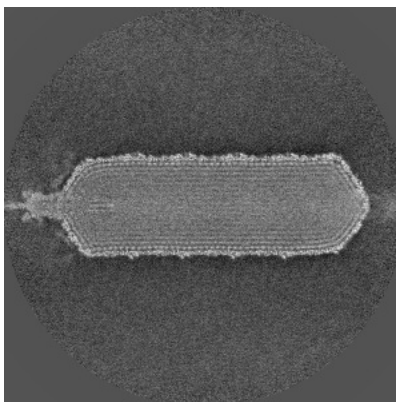


Z Index: 648

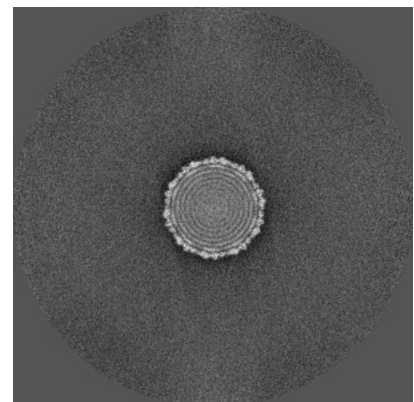
6.2.2 Raw map



X Index: 648



Y Index: 648

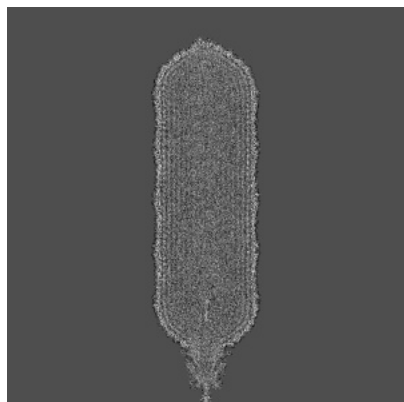


Z Index: 648

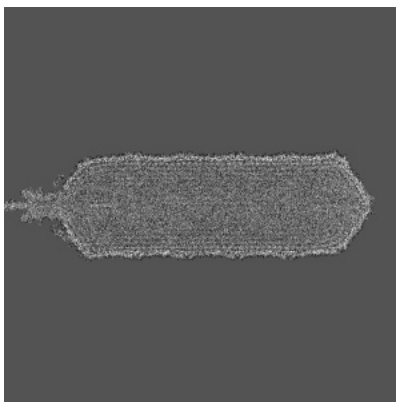
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

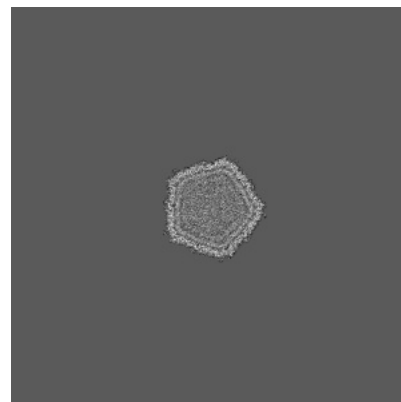
6.3.1 Primary map



X Index: 651

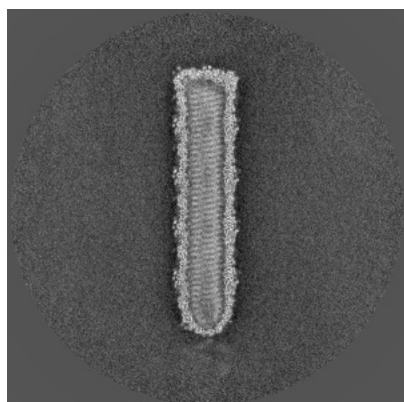


Y Index: 644

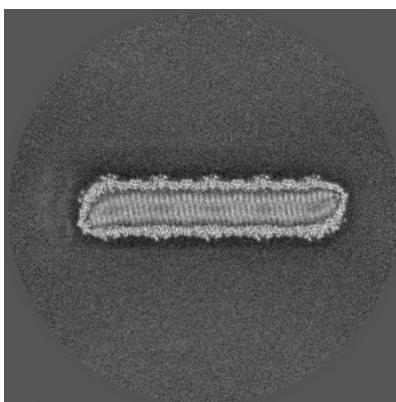


Z Index: 1085

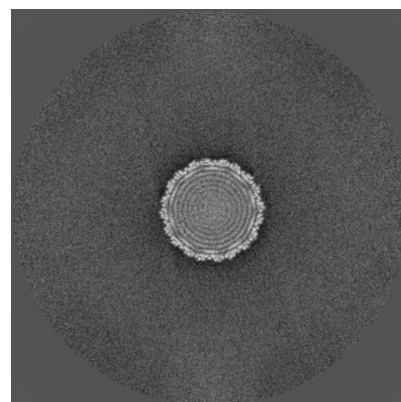
6.3.2 Raw map



X Index: 519



Y Index: 511

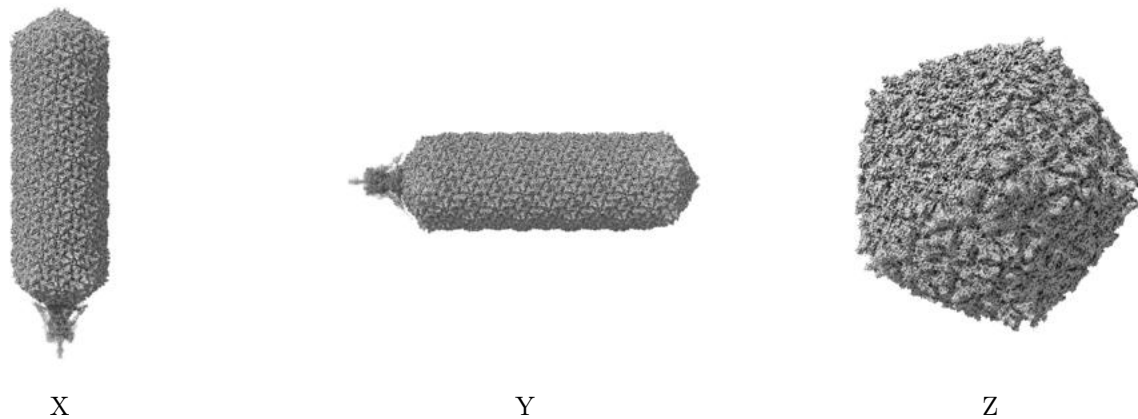


Z Index: 757

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

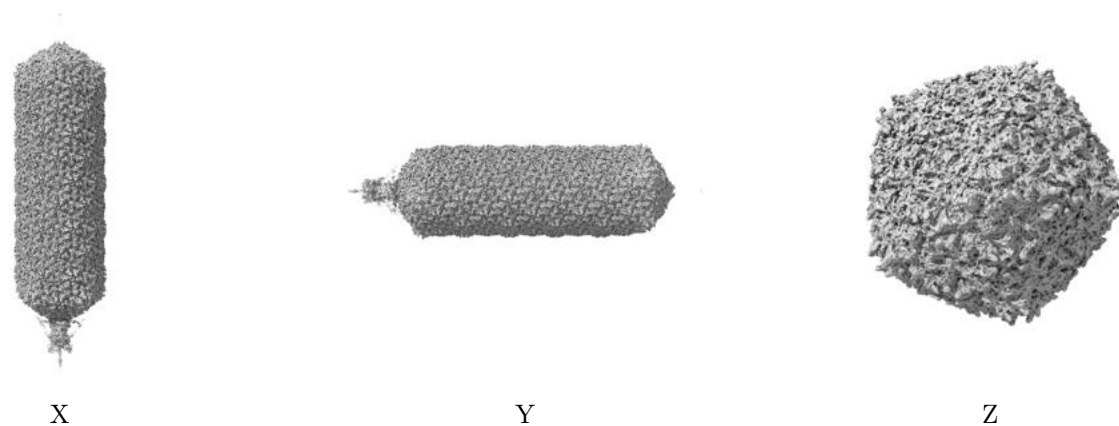
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



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.

6.4.2 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.

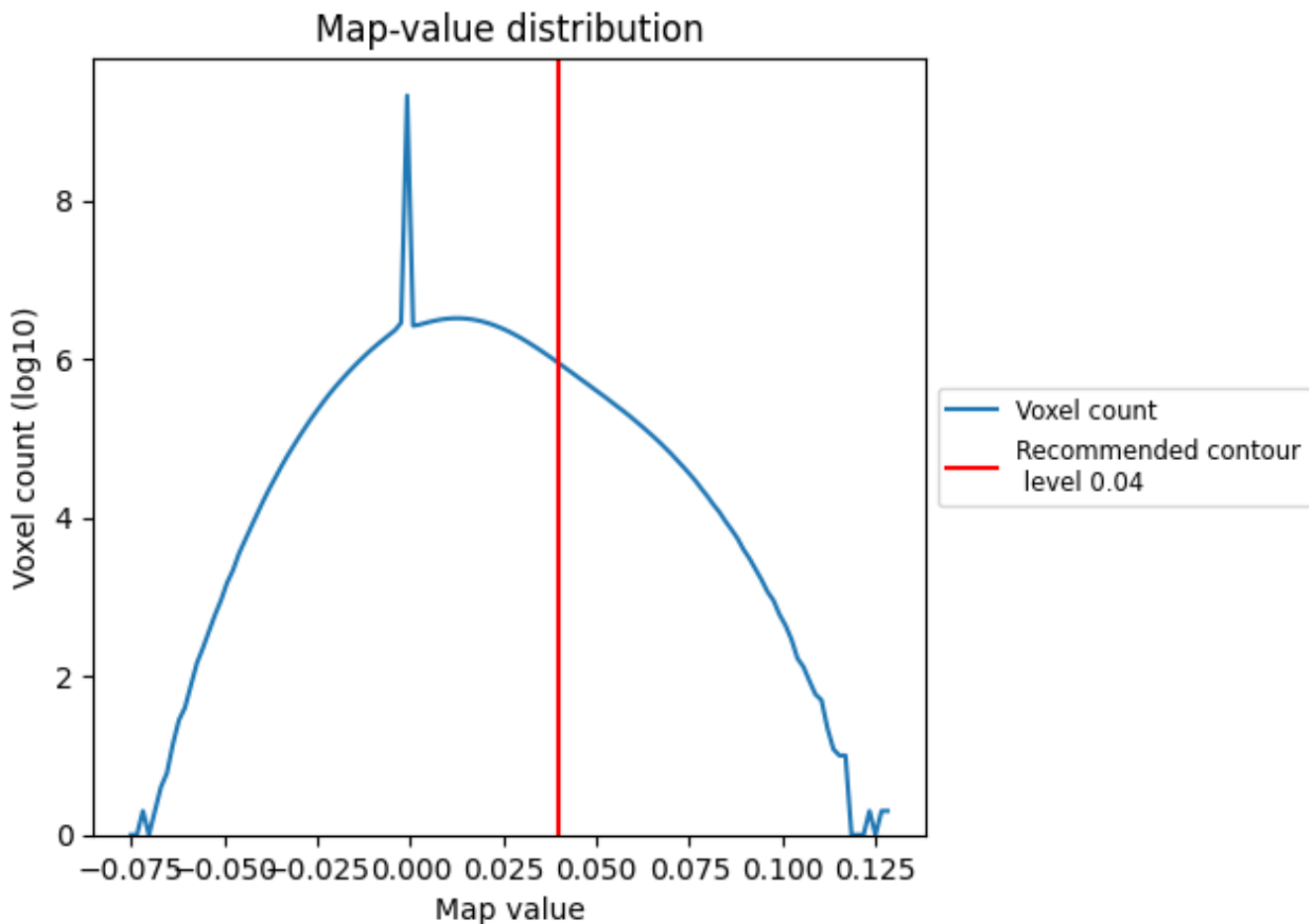
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

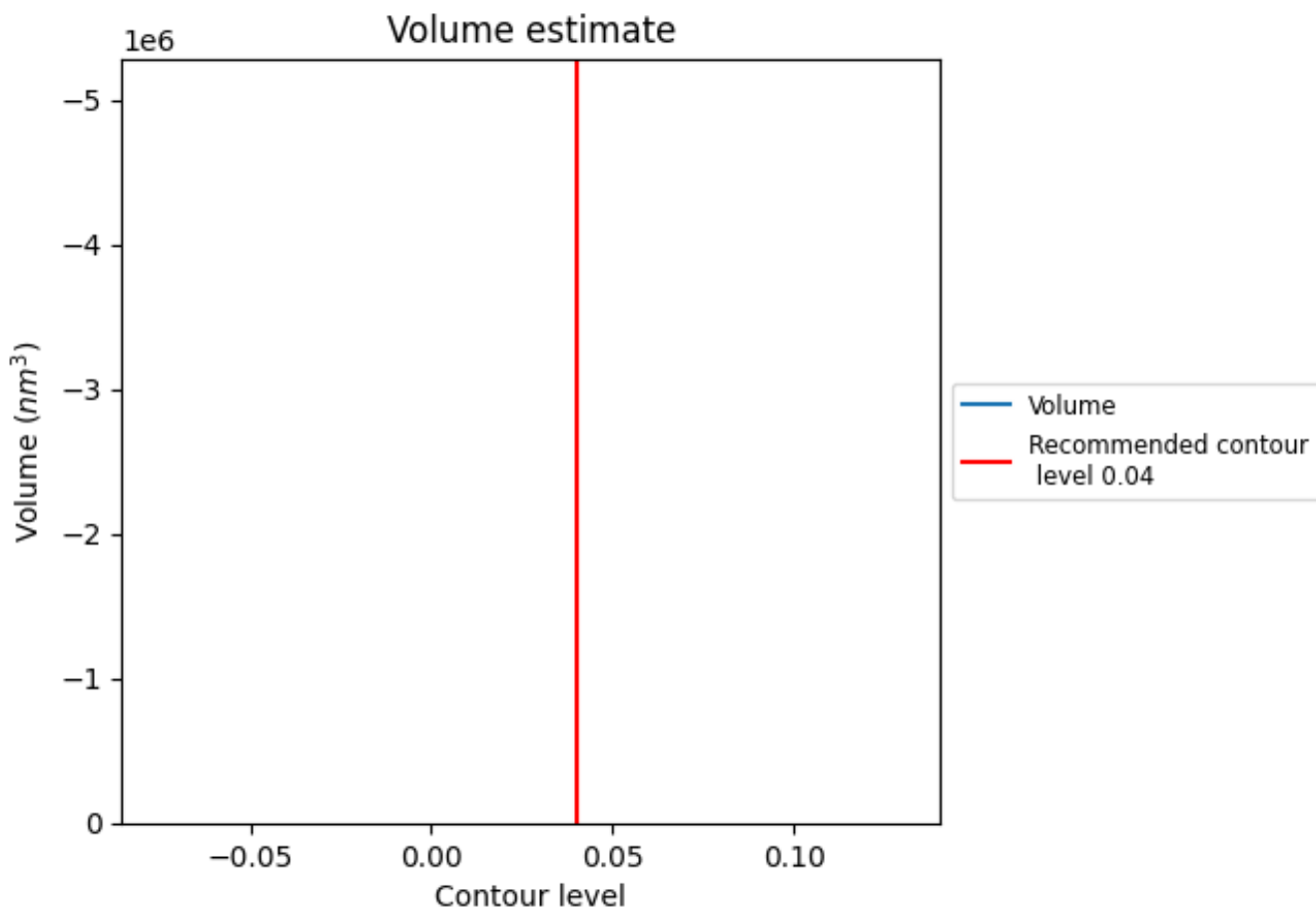
This section contains the results of statistical analysis of the map.

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.

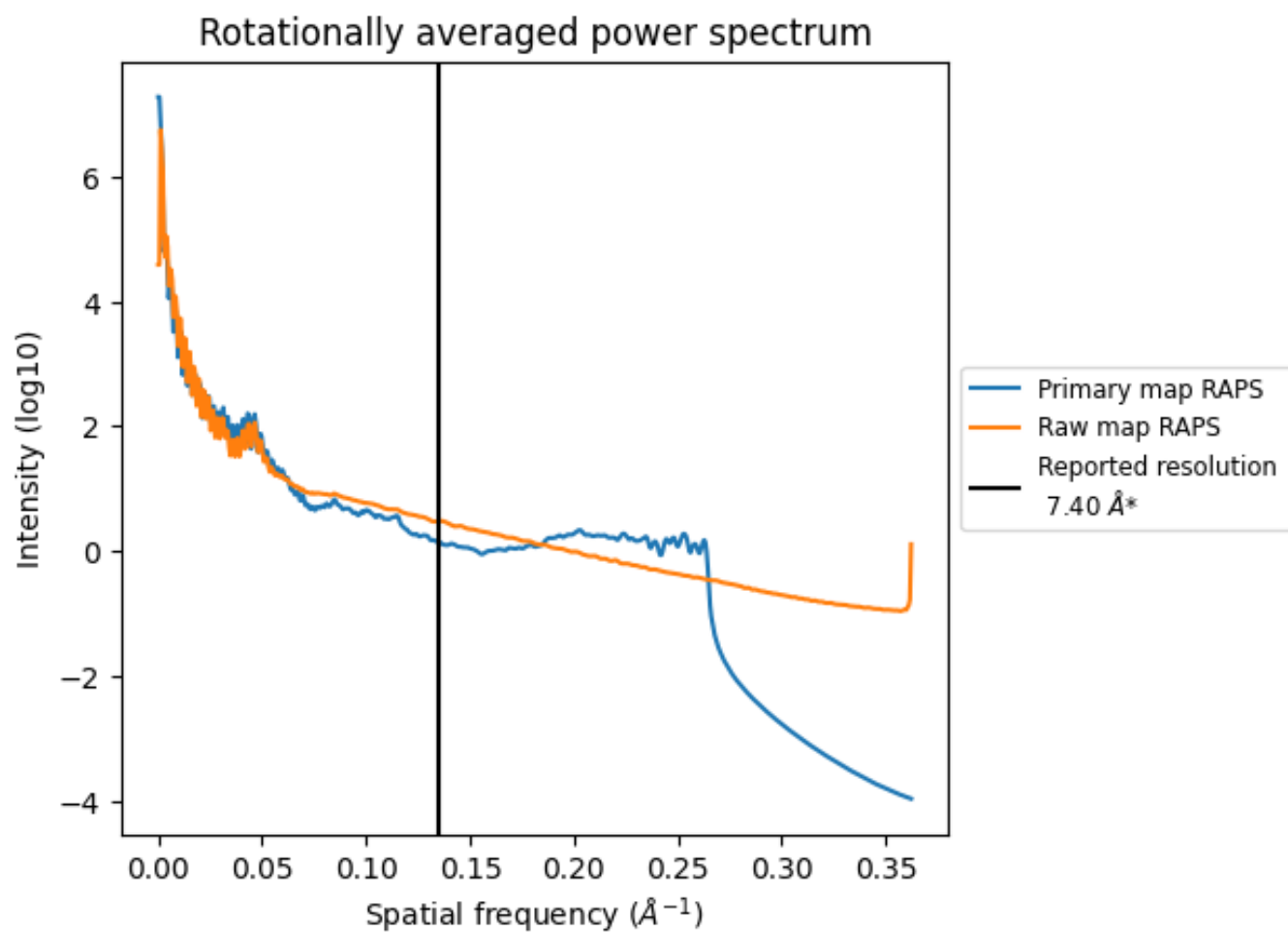
7.2 Volume estimate [i](#)



The volume at the recommended contour level is -11269269 nm^3 ; this corresponds to an approximate mass of -10179824 kDa .

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum i

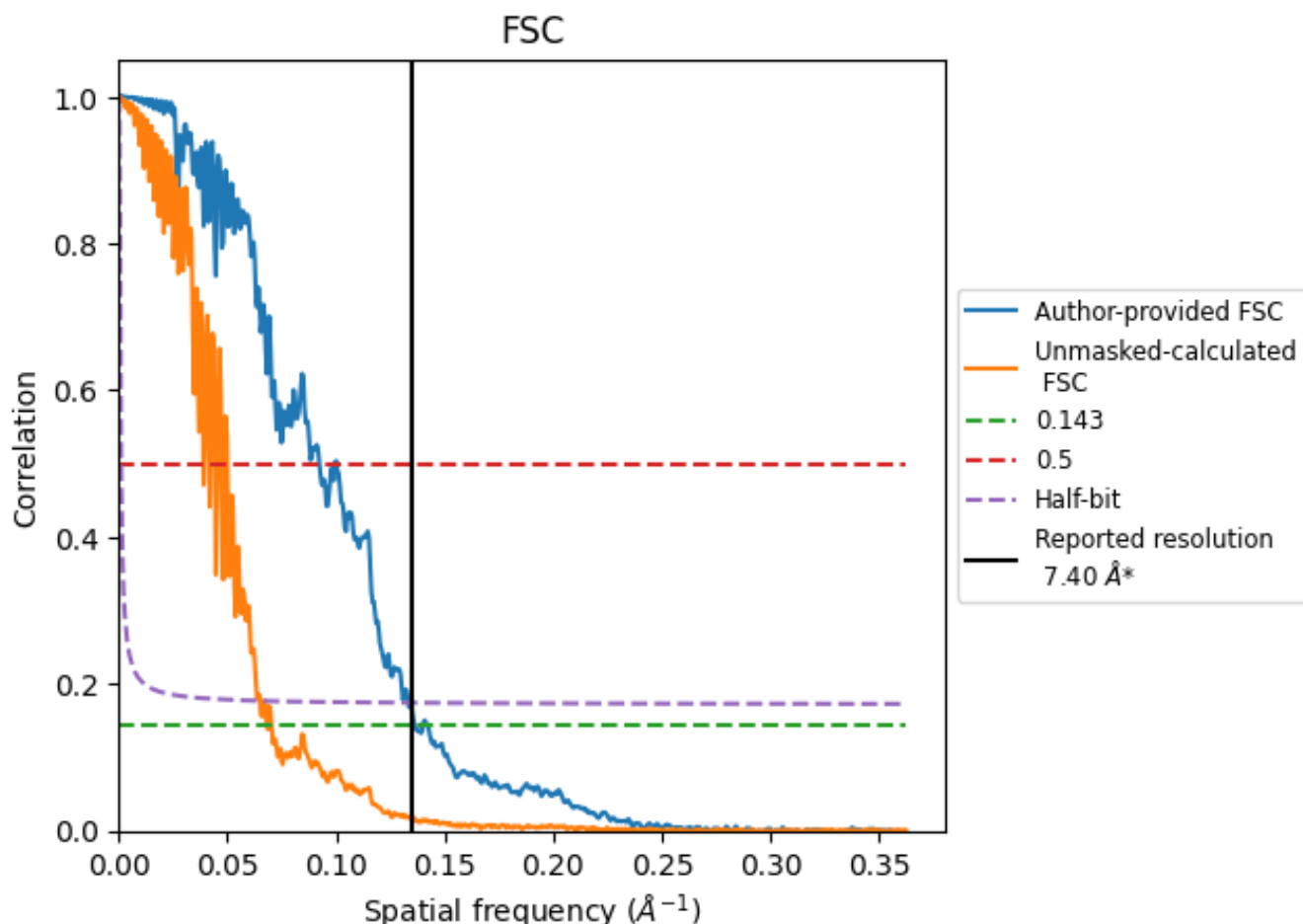


*Reported resolution corresponds to spatial frequency of 0.135 \AA^{-1}

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 0.135 Å⁻¹

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	7.40	-	-
Author-provided FSC curve	7.33	10.83	7.50
Unmasked-calculated*	14.66	25.64	15.38

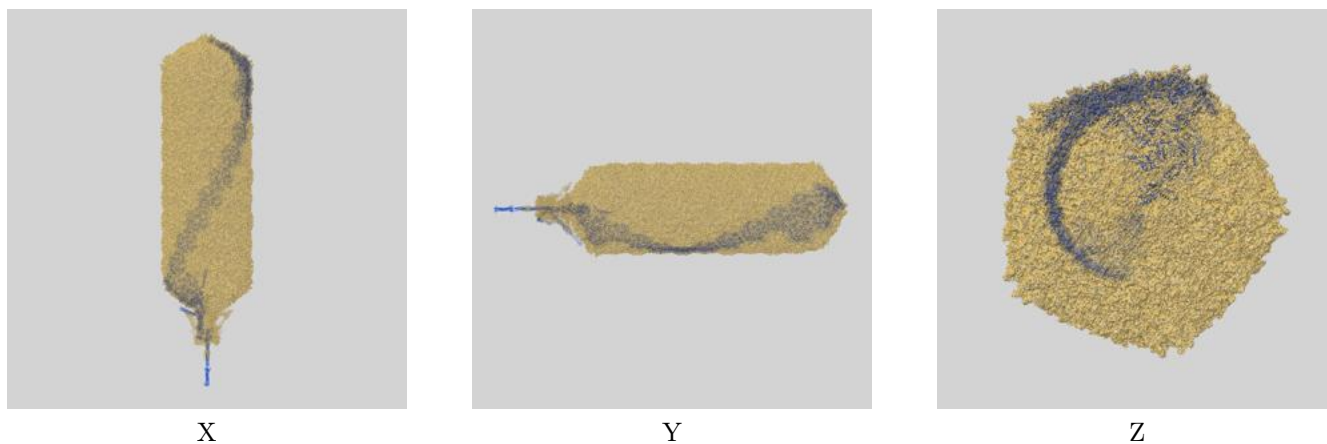
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 14.66 differs from the reported value 7.4 by more than 10 %

9 Map-model fit [i](#)

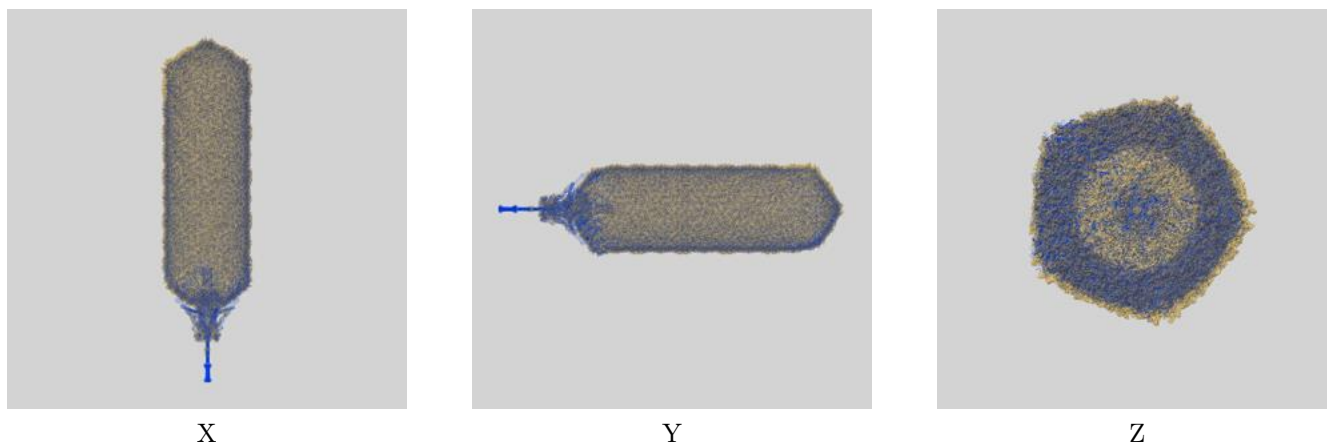
This section contains information regarding the fit between EMDB map EMD-14492 and PDB model 7Z4B. Per-residue inclusion information can be found in section 3 on page 14.

9.1 Map-model overlays

9.1.1 Map-model overlay [i](#)

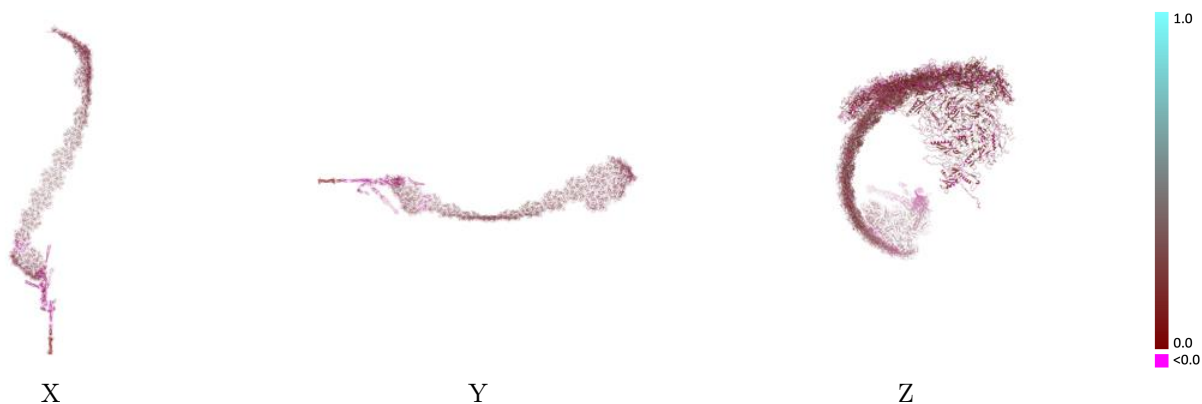


9.1.2 Map-model assembly overlay [i](#)



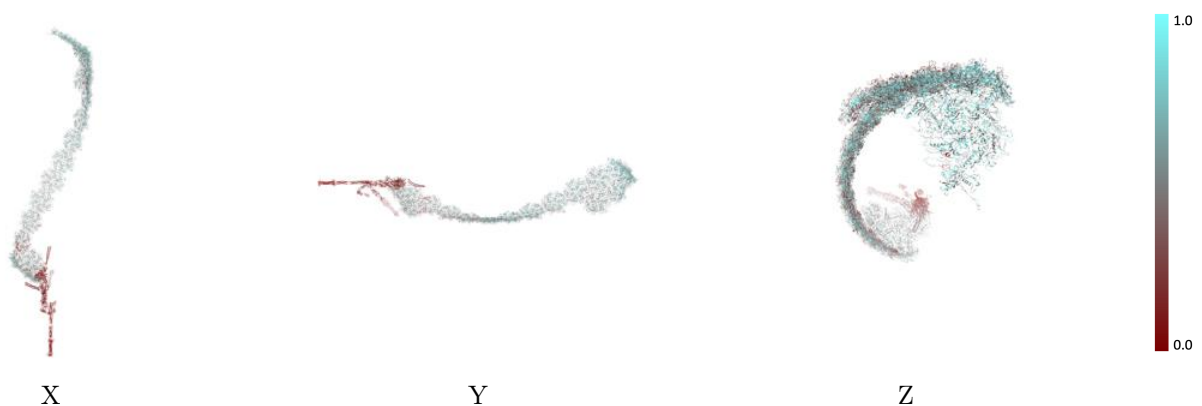
The images above show the 3D surface view of the map at the recommended contour level 0.04 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



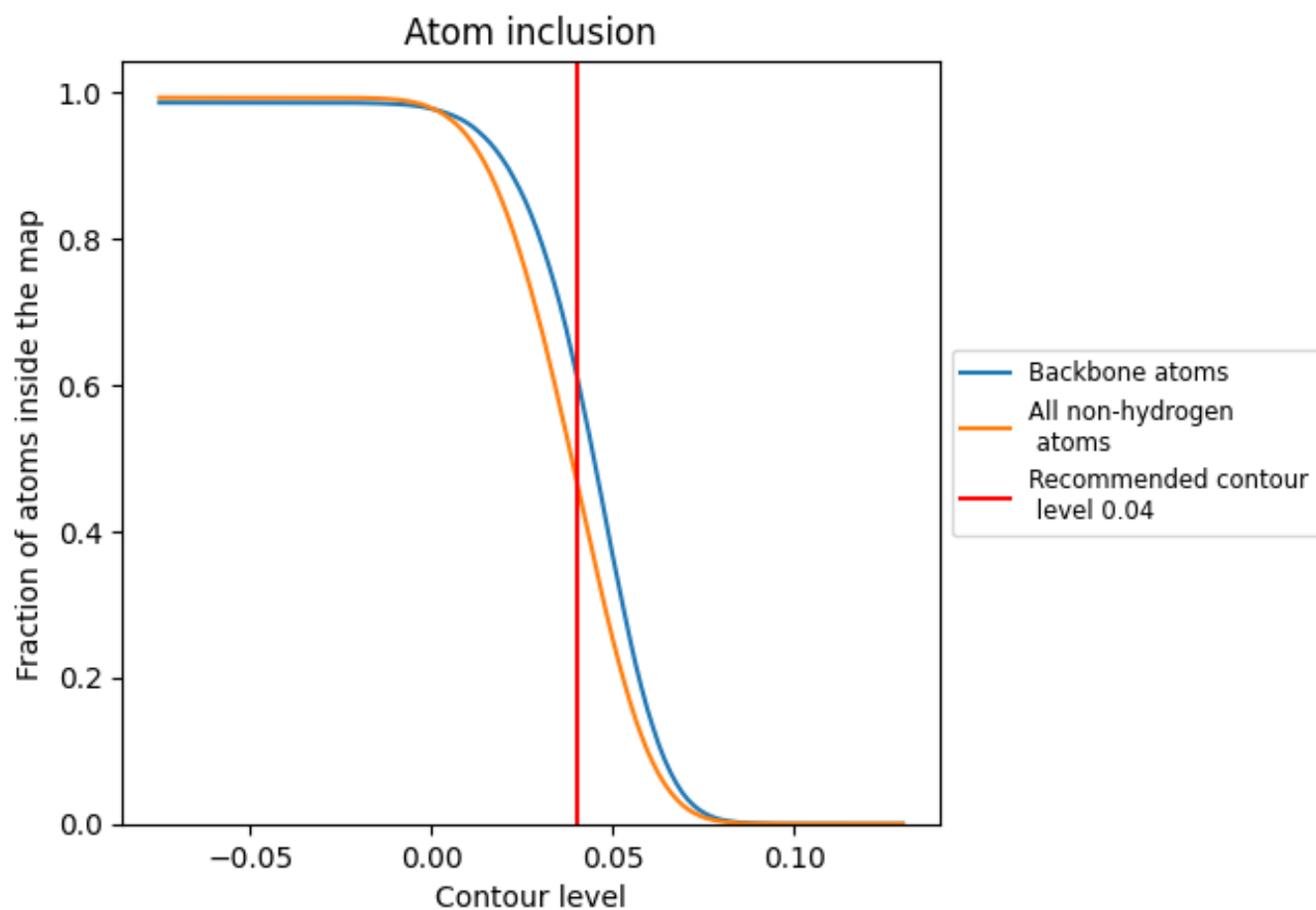
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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, 61% of all backbone atoms, 47% 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	0.4684	0.1940
AA	0.5569	0.2700
AB	0.5493	0.2600
AC	0.5700	0.2630
AD	0.5311	0.2520
AE	0.5262	0.2670
AF	0.5344	0.2620
AG	0.5425	0.2370
AH	0.5500	0.2540
AI	0.5504	0.2470
AJ	0.5466	0.2380
AK	0.5349	0.2540
AL	0.5318	0.2460
AM	0.5665	0.2400
AN	0.5413	0.2570
AO	0.5531	0.2440
AP	0.5030	0.2270
AQ	0.5326	0.2620
AR	0.5428	0.2470
AS	0.5194	0.2230
AT	0.5388	0.2620
AU	0.5228	0.2280
AV	0.5455	0.2460
AW	0.5181	0.2690
AX	0.5363	0.2510
AY	0.4124	0.2240
AZ	0.4587	0.2310
BA	0.4442	0.2390
BB	0.4905	0.2560
BC	0.5190	0.2480
BD	0.5223	0.2500
BE	0.5379	0.2600
BF	0.2707	0.0450
BG	0.5042	0.2510
BH	0.4958	0.2480





































































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Chain	Atom inclusion	Q-score
BI	0.4064	0.0790
BJ	0.4814	0.2490
BK	0.5573	0.2580
BL	0.3865	0.1680
BM	0.4870	0.2550
BN	0.5102	0.2570
BO	0.4719	0.2200
BP	0.4947	0.2580
BQ	0.4643	0.2360
BR	0.4433	0.1820
BS	0.5259	0.2500
BT	0.4998	0.2690
BU	0.3648	0.0680
BV	0.5257	0.2660
BW	0.5470	0.1400
BX	0.5985	0.1870
BY	0.5940	0.1890
BZ	0.6100	0.1870
CA	0.6004	0.1820
CB	0.6025	0.2020
CC	0.6016	0.1780
CD	0.5460	0.1730
CE	0.5793	0.1950
CF	0.5414	0.2090
CG	0.5167	0.1720
CH	0.5773	0.2020
CI	0.5854	0.2030
CJ	0.5679	0.2190
CK	0.4780	0.1710
CL	0.5036	0.1870
CM	0.6056	0.2050
CN	0.5144	0.2080
CO	0.5042	0.1970
CP	0.5174	0.1650
CQ	0.6086	0.2020
CR	0.4865	0.1950
CS	0.4841	0.1760
CT	0.5913	0.1860
CU	0.6059	0.1940
CV	0.5273	0.2090
CW	0.4624	0.1900
CX	0.5976	0.2030

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Chain	Atom inclusion	Q-score
CY	 0.5474	 0.1940
CZ	 0.5042	 0.1900
DA	 0.4871	 0.1930
DB	 0.4227	 0.1710
DC	 0.4083	 0.1790
DD	 0.4624	 0.1710
DE	 0.4766	 0.1880
DF	 0.4890	 0.1940
DG	 0.4747	 0.1930
DH	 0.5143	 0.1840
DI	 0.4780	 0.1910
DJ	 0.5325	 0.1800
DK	 0.4331	 0.1770
DL	 0.5447	 0.1930
DM	 0.4910	 0.1860
DN	 0.5143	 0.1900
DO	 0.5030	 0.2040
DP	 0.5143	 0.1780
DQ	 0.4332	 0.1780
DR	 0.0333	 0.0210
DS	 0.0375	 0.0130
DT	 0.0572	 0.0350
DU	 0.1420	 0.0390
DV	 0.0952	 0.0290
DW	 0.0666	 0.0320
DX	 0.1085	 0.0360
DY	 0.0372	 0.0310
DZ	 0.0448	 0.0160
EA	 0.0543	 0.0050
EB	 0.0357	 0.0050
EC	 0.0225	 -0.0070
ED	 0.0826	 0.0630
EE	 0.0896	 0.0770