wwPDB EM Validation Summary Report (i)

Oct 14, 2025 – 05:18 PM JST

PDB ID	:	8Z5X / pdb_00008z5x
EMDB ID	:	EMD-39787
Title	:	Cryo-EM structure of the MS ring with the proximal rod and the export apparatus (C1) within the polar flagellar motor
Authors	:	Zhang, L.; Tan, J.X.; Zhou, Y.; Zhu, Y.Q.
Deposited on	:	2024-04-18
Resolution	:	3.64 Å(reported)
Based on initial model	:	.

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

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

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

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

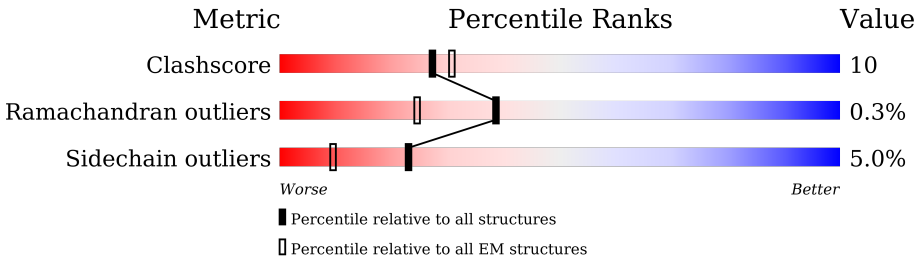
EMDB validation analysis	:	0.0.1.dev129
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh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

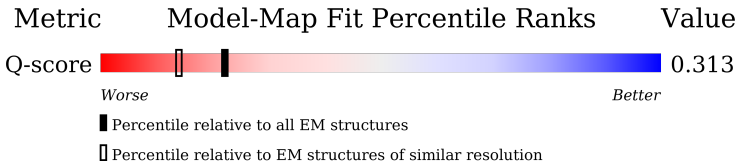
1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.64 Å.

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





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	11633 (3.14 - 4.14)

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

Mol	Chain	Length	Quality of chain
1	0	289	56% 15% 28%
1	9	289	58% 13% 28%
1	AP	289	56% 15% 28%
1	Ak	289	57% 13% 28%

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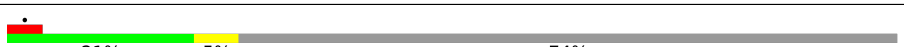
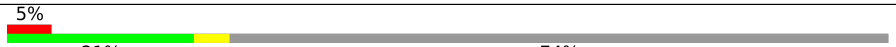
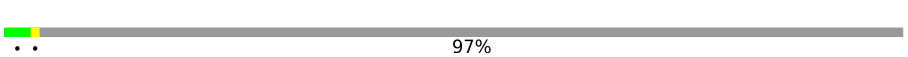
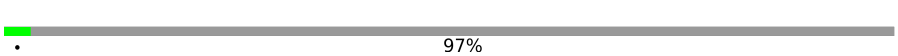
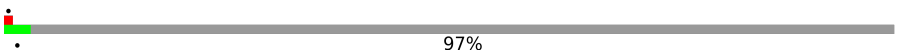
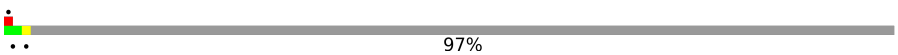
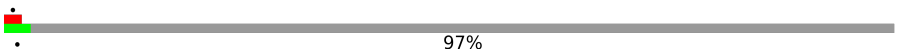
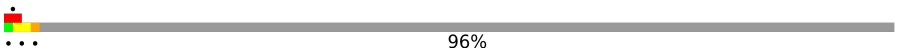
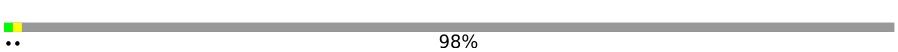
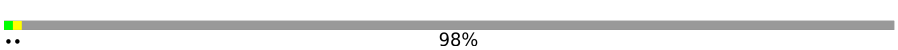
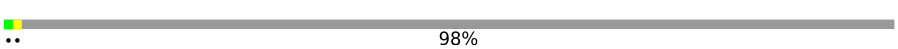
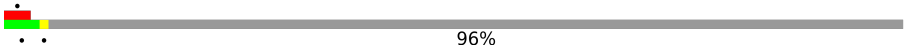
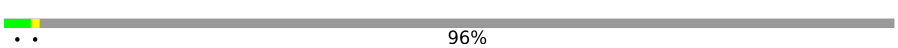
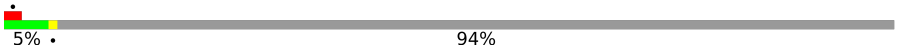
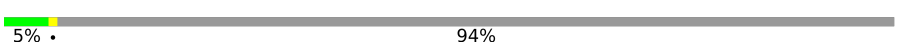
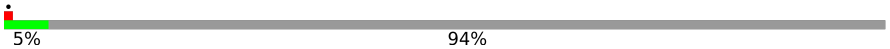
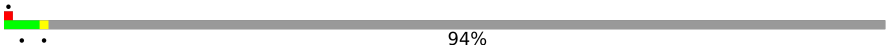
Mol	Chain	Length	Quality of chain
1	Al	289	
2	1	580	
2	2	580	
2	3	580	
2	4	580	
2	5	580	
2	A	580	
2	AA	580	
2	AB	580	
2	AC	580	
2	AD	580	
2	AE	580	
2	AF	580	
2	AG	580	
2	AH	580	
2	AI	580	
2	AJ	580	
2	AK	580	
2	AL	580	
2	AM	580	
2	AN	580	
2	AO	580	
2	B	580	
2	C	580	
2	D	580	

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Mol	Chain	Length	Quality of chain
2	E	580	21% 74%
2	F	580	21% 74%
2	G	580	21% 74%
2	H	580	21% 74%
2	I	580	21% 74%
2	J	580	21% 74%
2	K	580	22% 74%
2	L	580	22% 74%
2	M	580	21% 74%
2	N	580	21% 74%
2	O	580	5% 22% 74%
2	P	580	22% 74%
2	Q	580	21% 74%
2	R	580	22% 74%
2	S	580	11% 8% 80%
2	T	580	10% 8% 80%
2	U	580	12% 7% 80%
2	V	580	12% 7% 80%
2	W	580	11% 7% 80%
2	X	580	12% 5% 81%
2	Y	580	12% 6% 80%
2	Z	580	12% 6% 80%
2	a	580	13% 7% 80%
2	b	580	11% 6% 84%
2	c	580	10% 7% 82%

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Mol	Chain	Length	Quality of chain
2	d	580	9% 7% 82%
2	e	580	10% 7% 82%
2	f	580	9% 6% 85%
2	g	580	10% 5% 84%
2	h	580	10% 6% 84%
2	i	580	9% 6% 85%
2	j	580	10% 6% 84%
2	k	580	12% 7% 80%
2	l	580	12% 7% 80%
2	m	580	13% 6% 80%
2	n	580	11% 7% 82%
2	o	580	12% 6% 80%
2	p	580	22% 74%
2	q	580	21% 74%
2	r	580	22% 74%
2	s	580	21% 74%
2	t	580	22% 74%
2	u	580	22% 74%
2	v	580	6% 22% 74%
2	w	580	6% 21% 74%
2	x	580	5% 21% 5% 74%
2	y	580	5% 21% 74%
2	z	580	6% 22% 74%
3	6	89	69% 29%
3	7	89	78% 22%

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Mol	Chain	Length	Quality of chain
3	AQ	89	71% 28%
3	AR	89	71% 26%
4	8	260	69% 22% 7%
5	AS	131	69% 13% 17%
5	AT	131	66% 16% 18%
5	AU	131	69% 14% 17%
5	AV	131	68% 15% 18%
5	AW	131	70% 12% 18%
6	AX	137	15% 79% 16% 5%
6	AY	137	42% 77% 18% 5%
6	AZ	137	46% 70% 22% 5%
6	Aa	137	36% 83% 11% 5%
6	Ab	137	28% 77% 18% 5%
6	Ac	137	20% 80% 14% 5%
7	Ad	103	54% 16% 30%
7	Ae	103	66% 11% 22%
7	Af	103	63% 15% 22%
7	Ag	103	60% 10% 30%
7	Ah	103	59% 11% 30%
7	Ai	103	29% 10% 61%
8	Aj	376	14% 5% 81%
9	Am	13	8% 46% 38% 8% 8%
9	An	13	15% 15% 38% 15% 31%
9	Ao	13	38% 31% 8% 23%
9	Ap	13	38% 23% 15% 23%

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Mol	Chain	Length	Quality of chain
9	Aq	13	38% 54% 8%
10	Ar	17	6% 88% 12%
10	As	17	6% 82% 18%
10	At	17	18% 88% 12%
10	Au	17	59% 94% 6%
10	Av	17	18% 88% 12%
10	Aw	17	94% 6%

2 Entry composition (i)

There are 10 unique types of molecules in this entry. The entry contains 88315 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 Flagellar biosynthetic protein FliP.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	0	208	Total	C	N	O	S	0	0
			1608	1060	244	285	19		
1	9	207	Total	C	N	O	S	0	0
			1599	1055	243	282	19		
1	AP	208	Total	C	N	O	S	0	0
			1608	1060	244	285	19		
1	Ak	208	Total	C	N	O	S	0	0
			1608	1060	244	285	19		
1	Al	208	Total	C	N	O	S	0	0
			1608	1060	244	285	19		

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
0	26	SER	THR	conflict	UNP A0A1W6TTE6
0	204	ASP	GLU	conflict	UNP A0A1W6TTE6
9	26	SER	THR	conflict	UNP A0A1W6TTE6
9	204	ASP	GLU	conflict	UNP A0A1W6TTE6
AP	26	SER	THR	conflict	UNP A0A1W6TTE6
AP	204	ASP	GLU	conflict	UNP A0A1W6TTE6
Ak	26	SER	THR	conflict	UNP A0A1W6TTE6
Ak	204	ASP	GLU	conflict	UNP A0A1W6TTE6
Al	26	SER	THR	conflict	UNP A0A1W6TTE6
Al	204	ASP	GLU	conflict	UNP A0A1W6TTE6

- Molecule 2 is a protein called Flagellar M-ring protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	1	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	2	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	3	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		

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Mol	Chain	Residues	Atoms	AltConf	Trace
2	4	148	Total C N O S 1171 719 215 235 2	0	0
2	5	148	Total C N O S 1171 719 215 235 2	0	0
2	A	148	Total C N O S 1171 719 215 235 2	0	0
2	AA	19	Total C N O S 135 82 23 29 1	0	0
2	AB	19	Total C N O S 135 82 23 29 1	0	0
2	AC	20	Total C N O S 139 84 24 30 1	0	0
2	AD	19	Total C N O S 135 82 23 29 1	0	0
2	AE	19	Total C N O S 135 82 23 29 1	0	0
2	AF	23	Total C N O S 158 97 27 33 1	0	0
2	AG	11	Total C N O 73 46 13 14	0	0
2	AH	11	Total C N O 73 46 13 14	0	0
2	AI	11	Total C N O 73 46 13 14	0	0
2	AJ	24	Total C N O S 163 100 28 34 1	0	0
2	AK	25	Total C N O S 169 104 29 35 1	0	0
2	AL	32	Total C N O S 220 134 38 46 2	0	0
2	AM	33	Total C N O S 224 136 39 47 2	0	0
2	AN	33	Total C N O S 224 136 39 47 2	0	0
2	AO	32	Total C N O S 220 134 38 46 2	0	0
2	B	148	Total C N O S 1171 719 215 235 2	0	0
2	C	148	Total C N O S 1171 719 215 235 2	0	0
2	D	148	Total C N O S 1171 719 215 235 2	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	F	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	G	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	H	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	I	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	J	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	K	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	L	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	M	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	N	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	O	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	P	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	Q	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	R	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	S	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	T	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	U	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	V	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	W	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	X	109	Total	C	N	O	S	0	0
			839	515	157	163	4		
2	Y	114	Total	C	N	O	S	0	0
			881	543	165	169	4		

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Mol	Chain	Residues	Atoms					AltConf	Trace
2	Z	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	a	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	b	94	Total	C	N	O	S	0	0
			724	446	135	140	3		
2	c	103	Total	C	N	O	S	0	0
			803	496	153	151	3		
2	d	103	Total	C	N	O	S	0	0
			803	496	153	151	3		
2	e	103	Total	C	N	O	S	0	0
			803	496	153	151	3		
2	f	85	Total	C	N	O	S	0	0
			660	405	125	127	3		
2	g	92	Total	C	N	O	S	0	0
			704	432	132	137	3		
2	h	91	Total	C	N	O	S	0	0
			695	427	131	134	3		
2	i	89	Total	C	N	O	S	0	0
			684	420	129	132	3		
2	j	92	Total	C	N	O	S	0	0
			704	432	132	137	3		
2	k	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	l	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	m	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	n	105	Total	C	N	O	S	0	0
			802	494	147	157	4		
2	o	114	Total	C	N	O	S	0	0
			881	543	165	169	4		
2	p	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	q	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	r	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	s	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	t	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		

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Mol	Chain	Residues	Atoms					AltConf	Trace
2	u	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	v	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	w	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	x	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	y	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		
2	z	148	Total	C	N	O	S	0	0
			1171	719	215	235	2		

- Molecule 3 is a protein called Flagellar biosynthetic protein FliQ.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	6	89	Total	C	N	O	S	0	0
			722	489	107	117	9		
3	7	89	Total	C	N	O	S	0	0
			722	489	107	117	9		
3	AQ	89	Total	C	N	O	S	0	0
			722	489	107	117	9		
3	AR	89	Total	C	N	O	S	0	0
			722	489	107	117	9		

- Molecule 4 is a protein called Flagellar biosynthetic protein FliR.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	8	242	Total	C	N	O	S	0	0
			1896	1265	295	315	21		

- Molecule 5 is a protein called Flagellar basal body rod protein FlgB.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	AS	109	Total	C	N	O	S	0	0
			845	523	155	166	1		
5	AT	107	Total	C	N	O	S	0	0
			835	518	153	163	1		
5	AU	109	Total	C	N	O	S	0	0
			845	523	155	166	1		
5	AV	108	Total	C	N	O	S	0	0
			837	519	154	163	1		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
5	AW	108	Total	C	N	O	S	0	0
			837	519	154	163	1		

- Molecule 6 is a protein called Flagellar basal-body rod protein FlgC.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	AX	130	Total	C	N	O	S	0	0
			983	605	168	203	7		
6	AY	130	Total	C	N	O	S	0	0
			983	605	168	203	7		
6	AZ	130	Total	C	N	O	S	0	0
			983	605	168	203	7		
6	Aa	130	Total	C	N	O	S	0	0
			983	605	168	203	7		
6	Ab	130	Total	C	N	O	S	0	0
			983	605	168	203	7		
6	Ac	130	Total	C	N	O	S	0	0
			983	605	168	203	7		

- Molecule 7 is a protein called Flagellar hook-basal body complex protein FliE.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	Ad	72	Total	C	N	O	S	0	0
			560	345	99	113	3		
7	Ae	80	Total	C	N	O	S	0	0
			605	372	108	122	3		
7	Af	80	Total	C	N	O	S	0	0
			605	372	108	122	3		
7	Ag	72	Total	C	N	O	S	0	0
			560	345	99	113	3		
7	Ah	72	Total	C	N	O	S	0	0
			560	345	99	113	3		
7	Ai	40	Total	C	N	O	S	0	0
			311	194	53	61	3		

- Molecule 8 is a protein called Flagellar biosynthetic protein FlhB.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	Aj	71	Total	C	N	O	S	0	0
			552	370	83	95	4		

- Molecule 9 is a protein called Alanine-modelled FlgB-Dc loop.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	Am	12	Total	C	N	O	0	0
			58	34	12	12		
9	An	9	Total	C	N	O	0	0
			44	26	9	9		
9	Ao	10	Total	C	N	O	0	0
			49	29	10	10		
9	Ap	10	Total	C	N	O	0	0
			49	29	10	10		
9	Aq	13	Total	C	N	O	0	0
			63	37	13	13		

- Molecule 10 is a protein called FliE-helix 1.

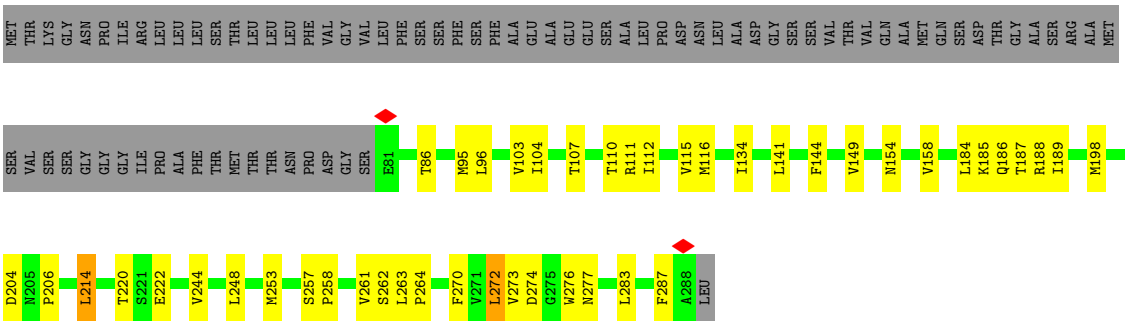
Mol	Chain	Residues	Atoms				AltConf	Trace
10	Ar	17	Total	C	N	O	0	0
			84	50	17	17		
10	As	17	Total	C	N	O	0	0
			84	50	17	17		
10	At	17	Total	C	N	O	0	0
			84	50	17	17		
10	Au	17	Total	C	N	O	0	0
			84	50	17	17		
10	Av	17	Total	C	N	O	0	0
			84	50	17	17		
10	Aw	17	Total	C	N	O	0	0
			84	50	17	17		

3 Residue-property plots (i)

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

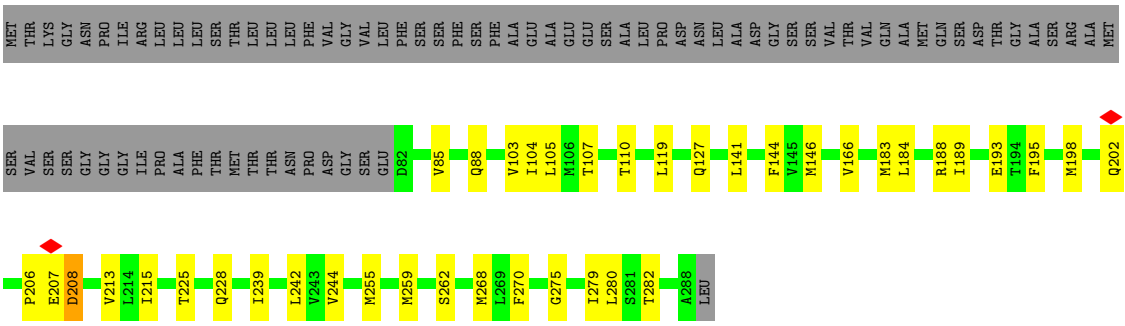
• Molecule 1: Flagellar biosynthetic protein FliP

Chain 0:



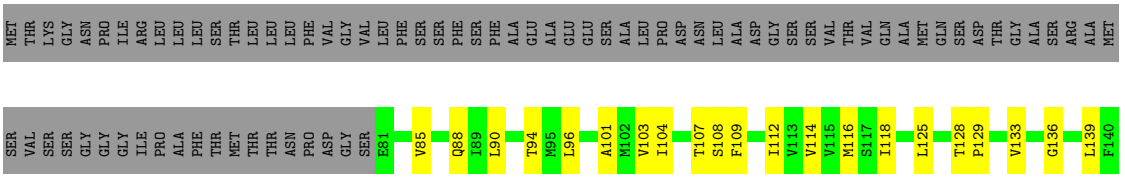
• Molecule 1: Flagellar biosynthetic protein FliP

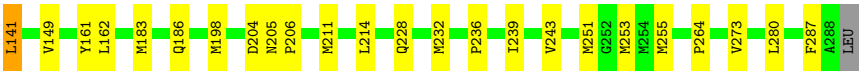
Chain 9:



• Molecule 1: Flagellar biosynthetic protein FliP

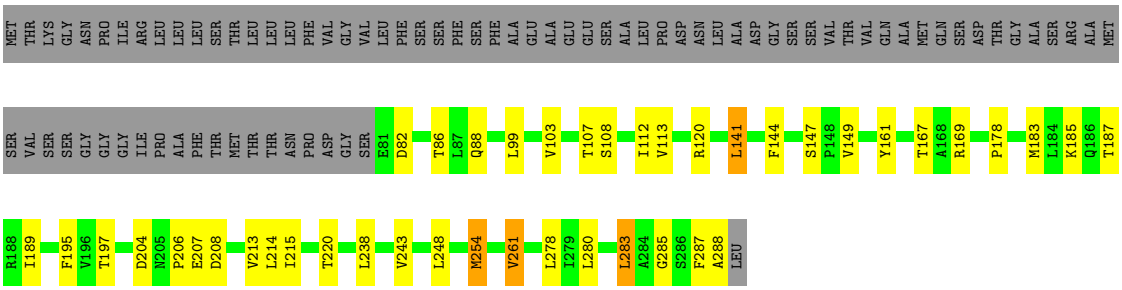
Chain AP:





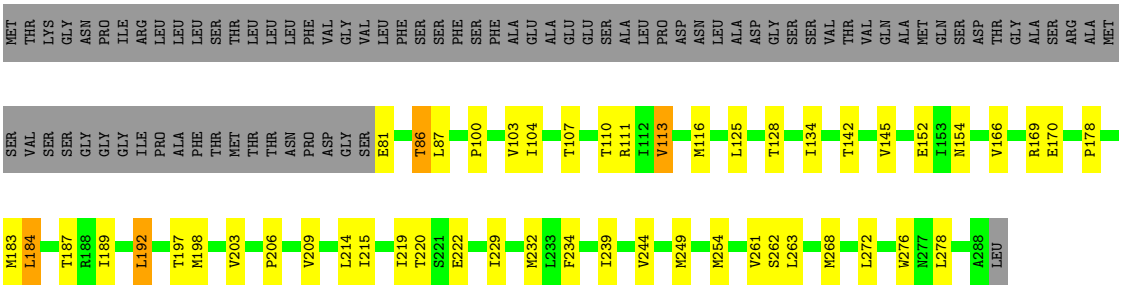
• Molecule 1: Flagellar biosynthetic protein FliP

Chain Ak:



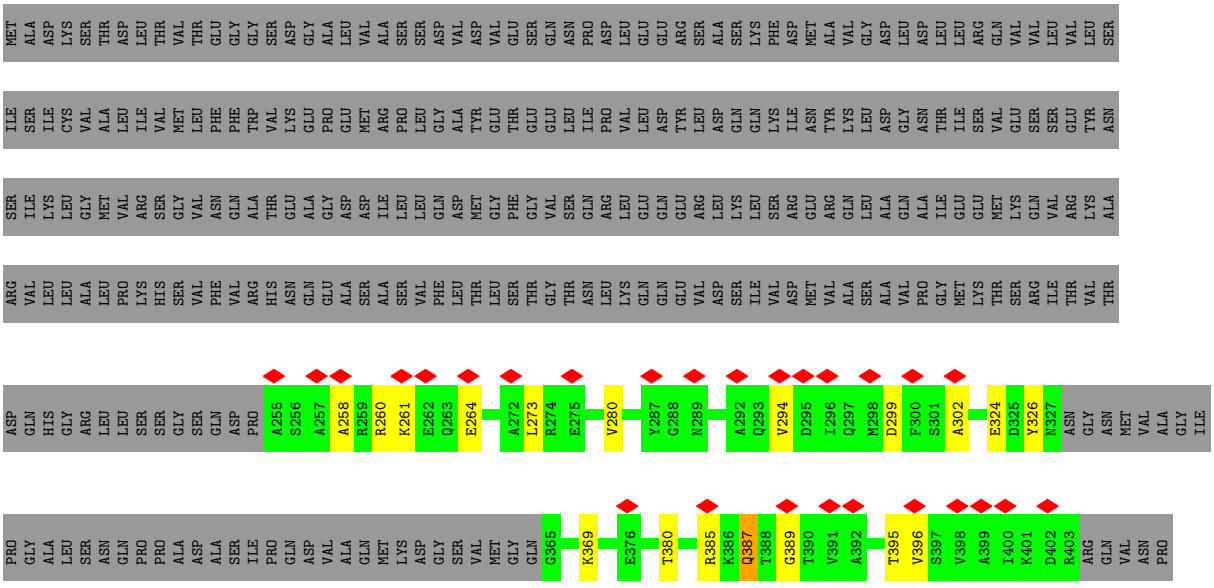
• Molecule 1: Flagellar biosynthetic protein FliP

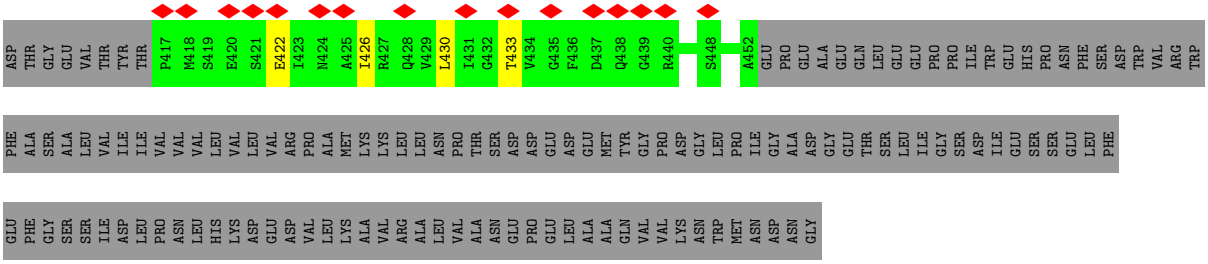
Chain Al:



• Molecule 2: Flagellar M-ring protein

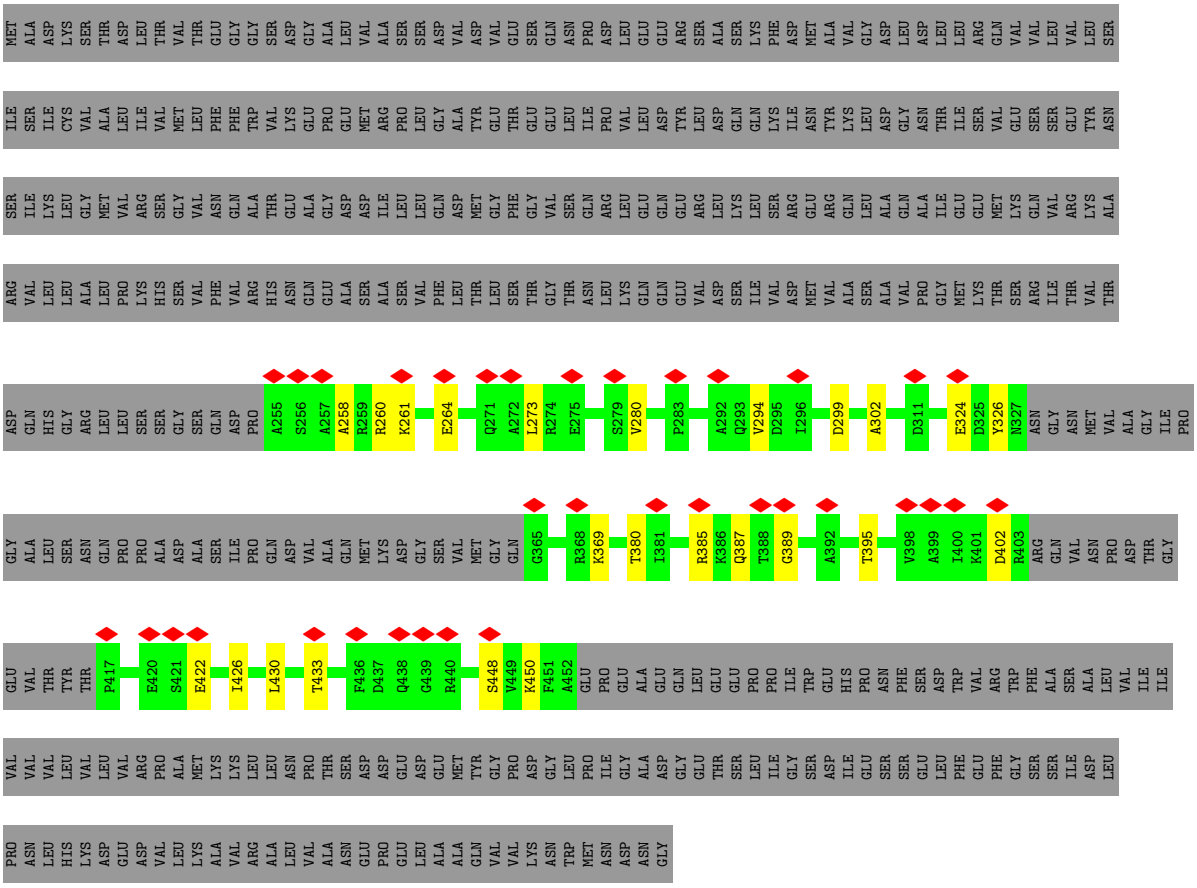
Chain 1:





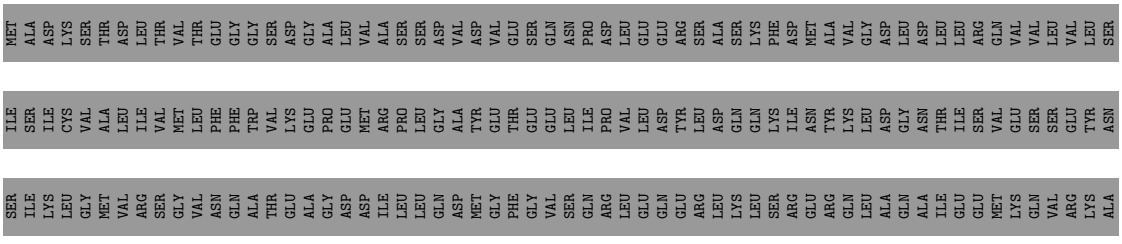
• Molecule 2: Flagellar M-ring protein

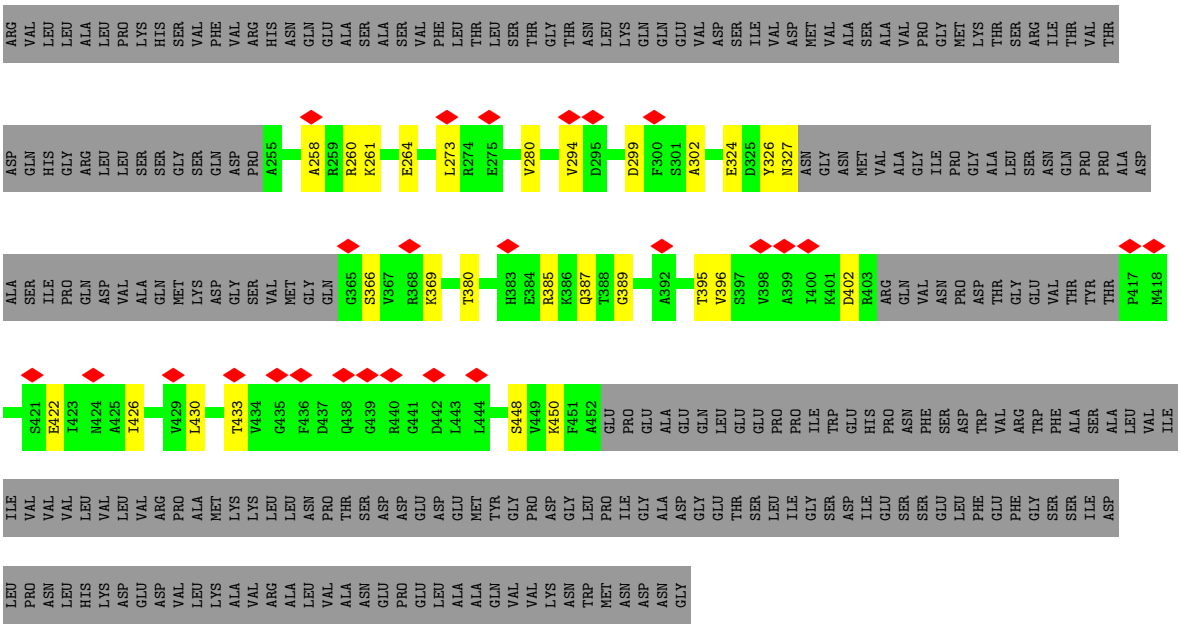
Chain 2:



• Molecule 2: Flagellar M-ring protein

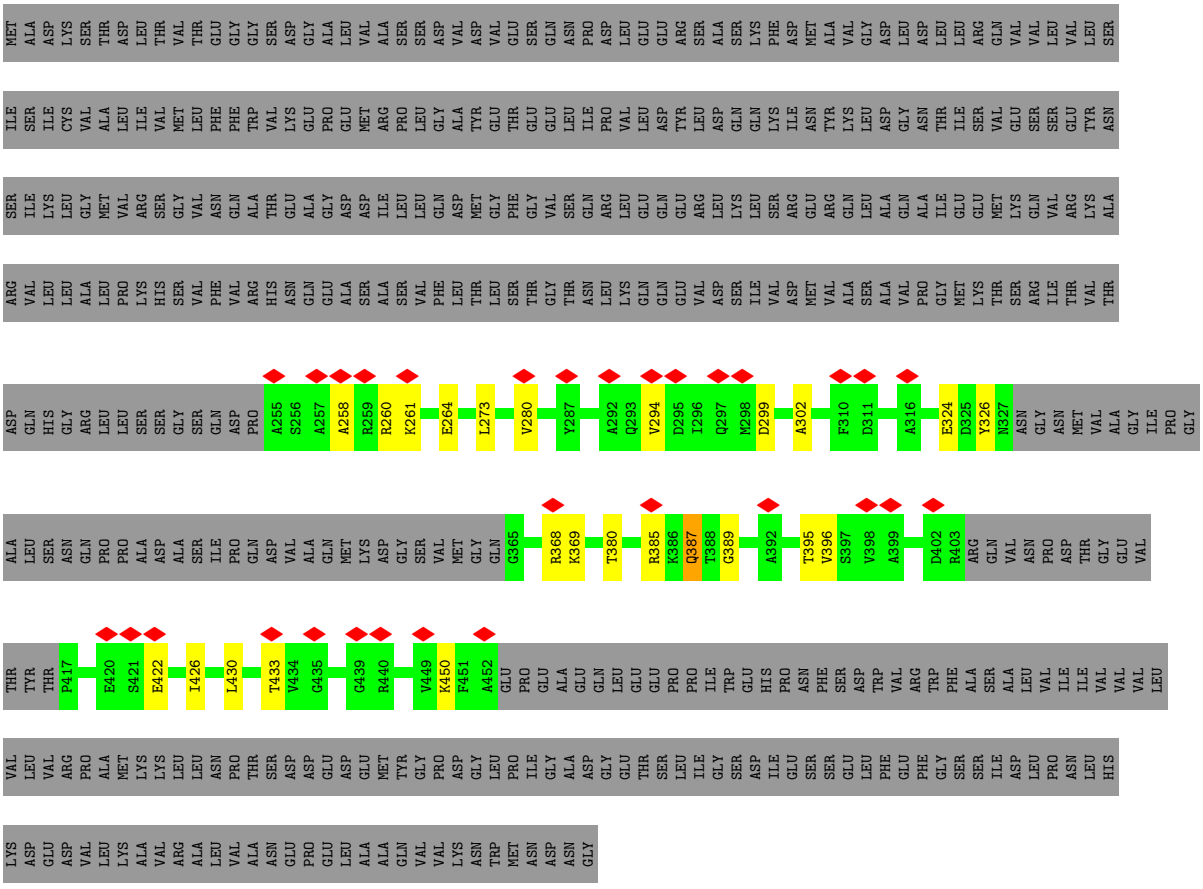
Chain 3:





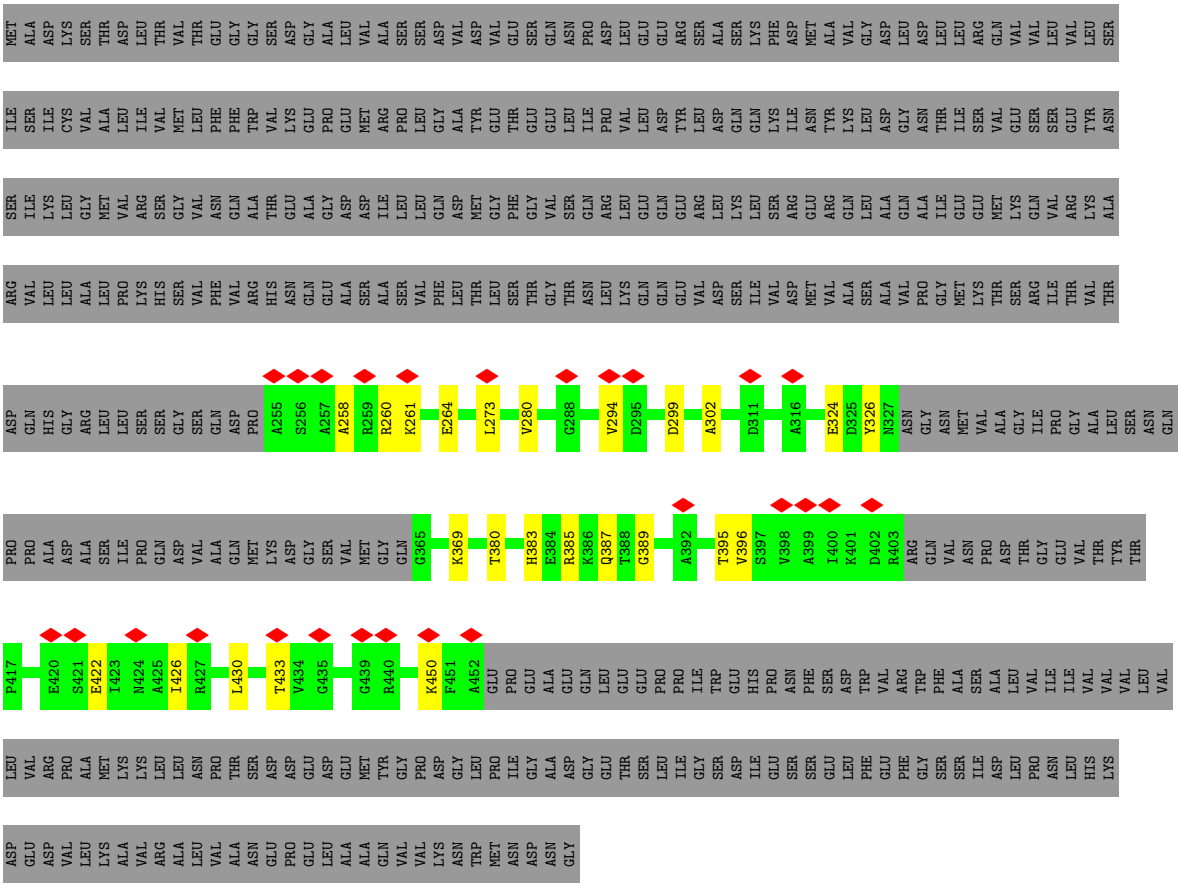
• Molecule 2: Flagellar M-ring protein

Chain 4:



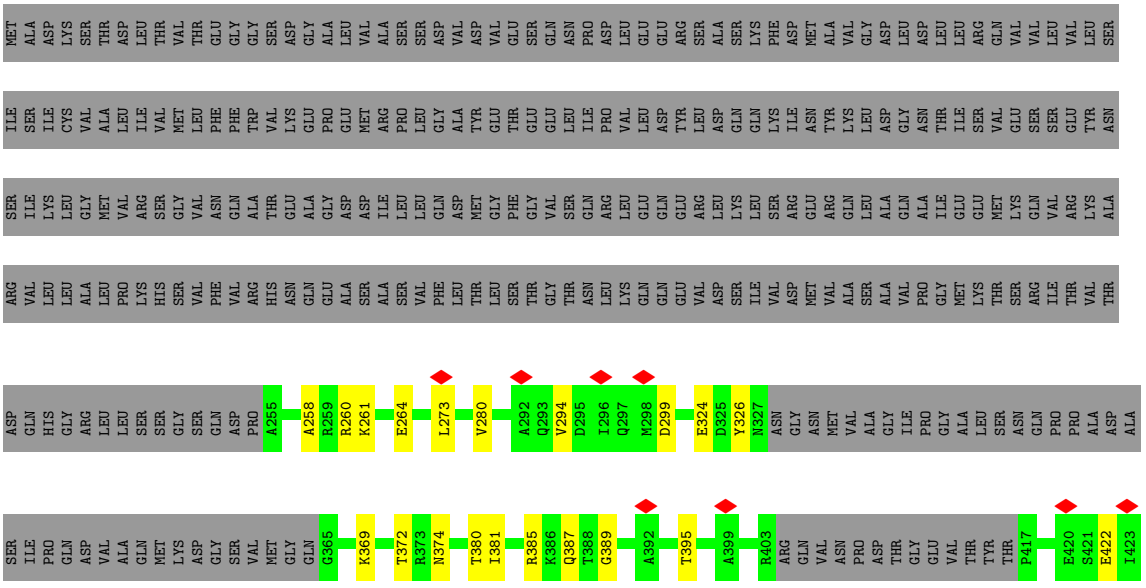
• Molecule 2: Flagellar M-ring protein

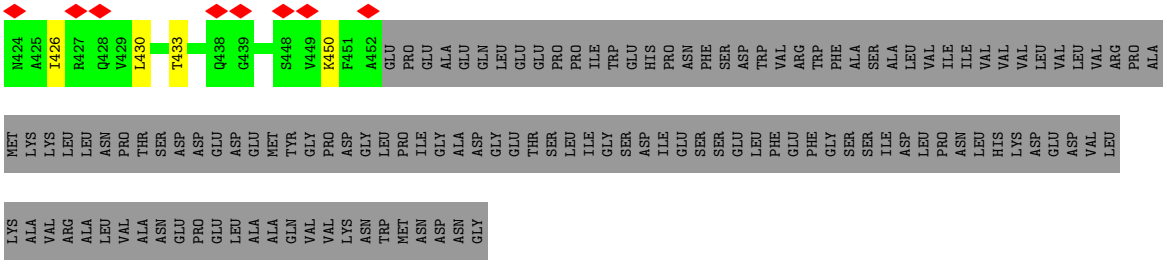
Chain 5:



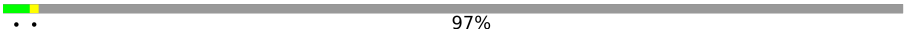
• Molecule 2: Flagellar M-ring protein

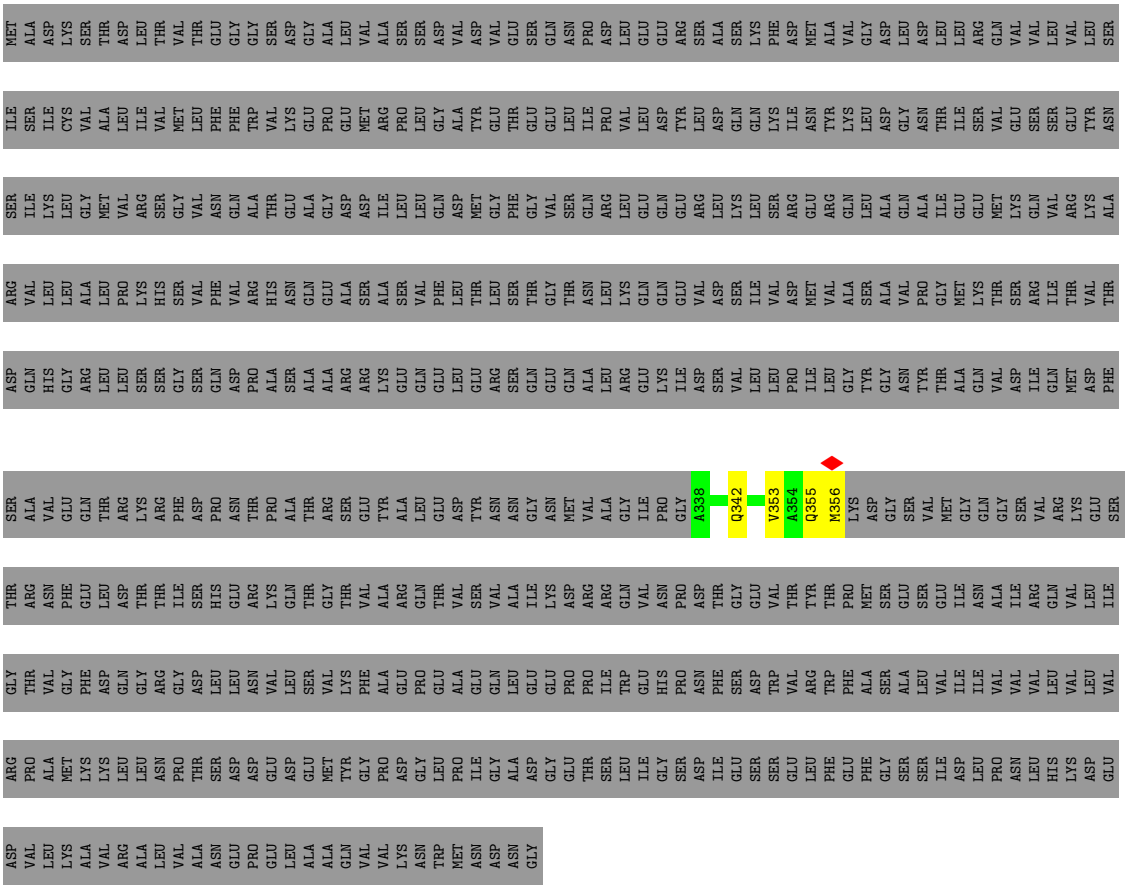
Chain A:



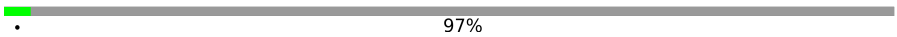


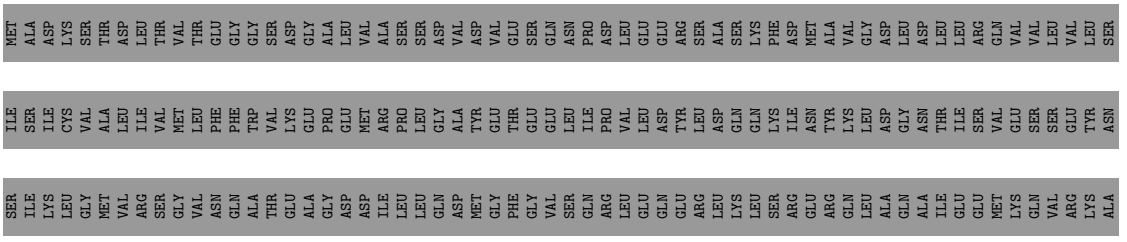
• Molecule 2: Flagellar M-ring protein

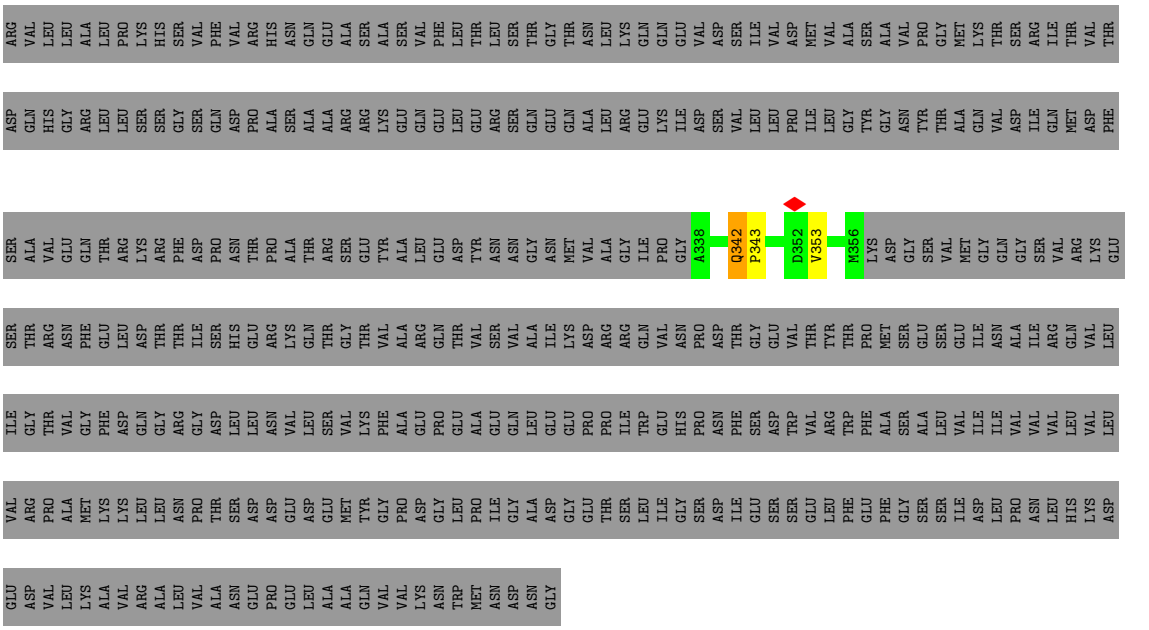
Chain AA: 



• Molecule 2: Flagellar M-ring protein

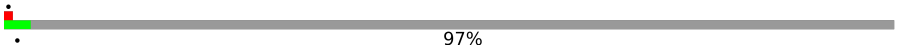
Chain AB: 

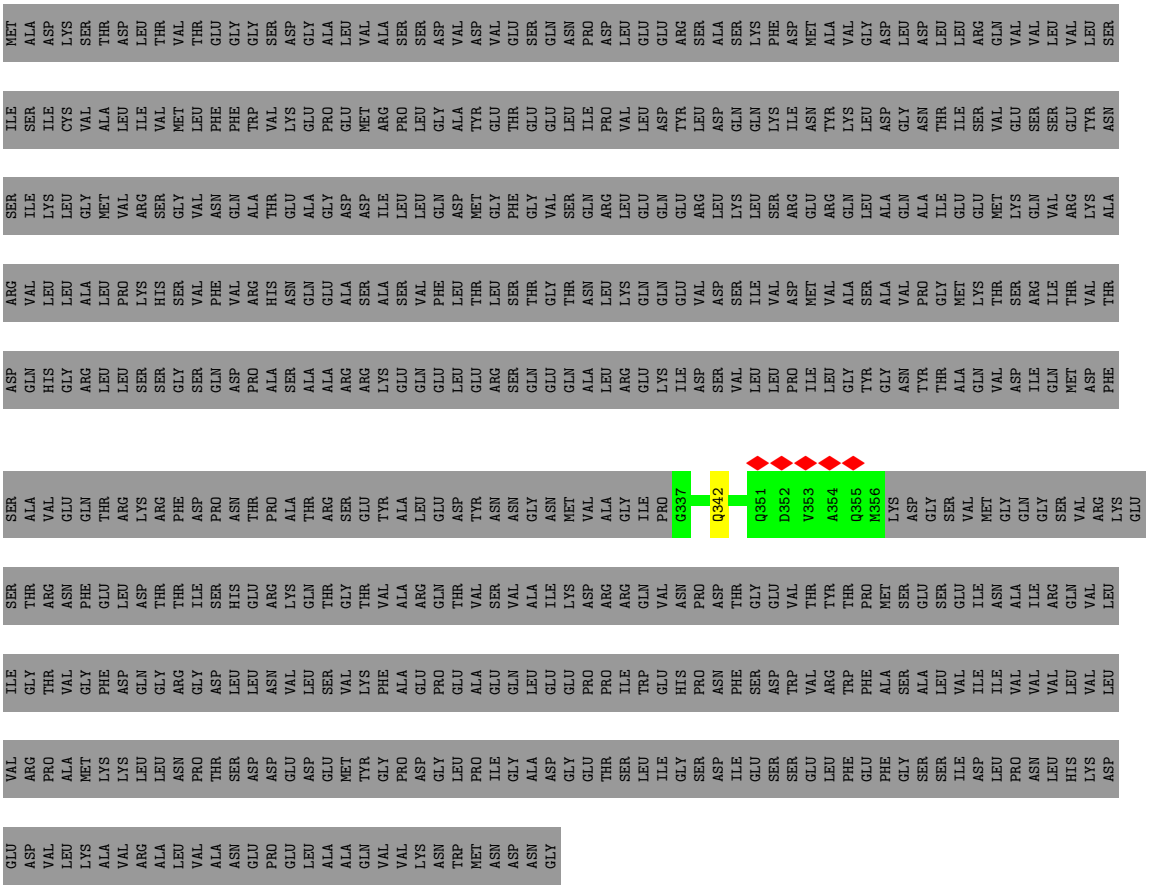




• Molecule 2: Flagellar M-ring protein

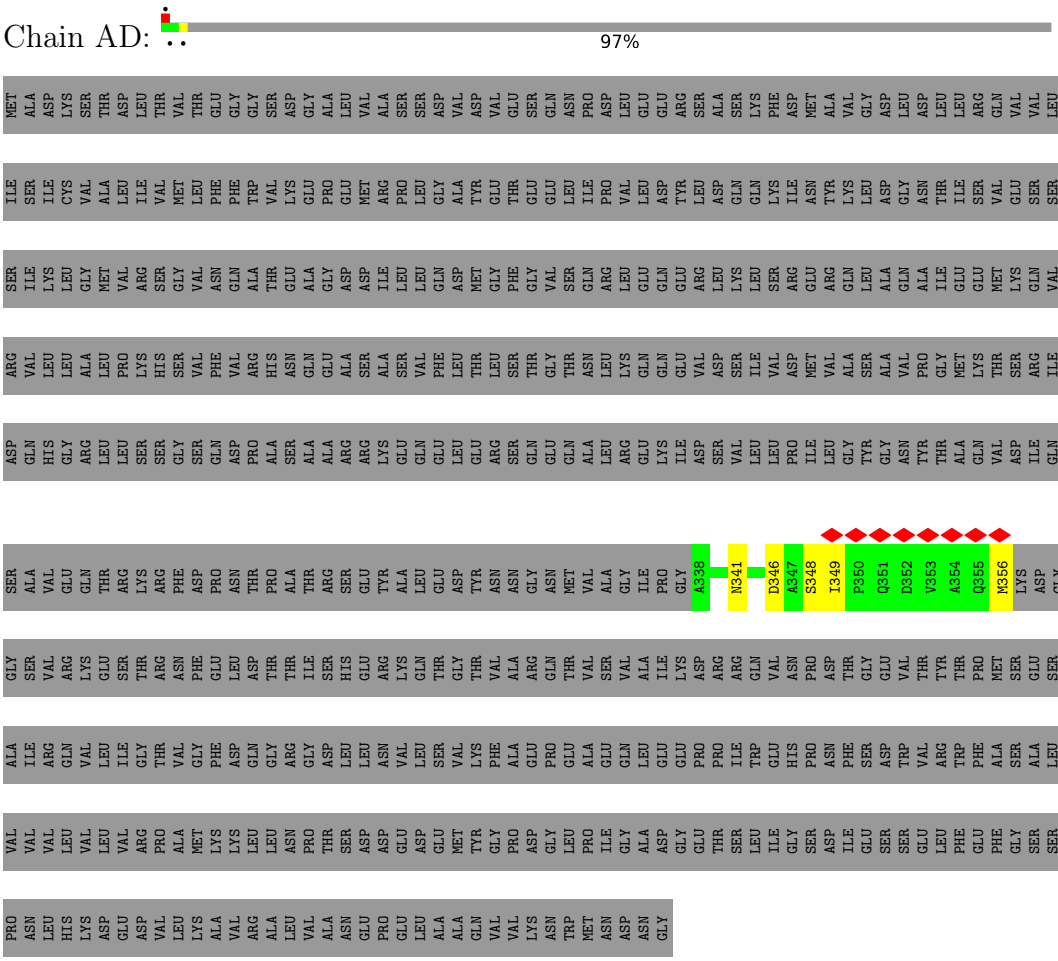
Chain AC:





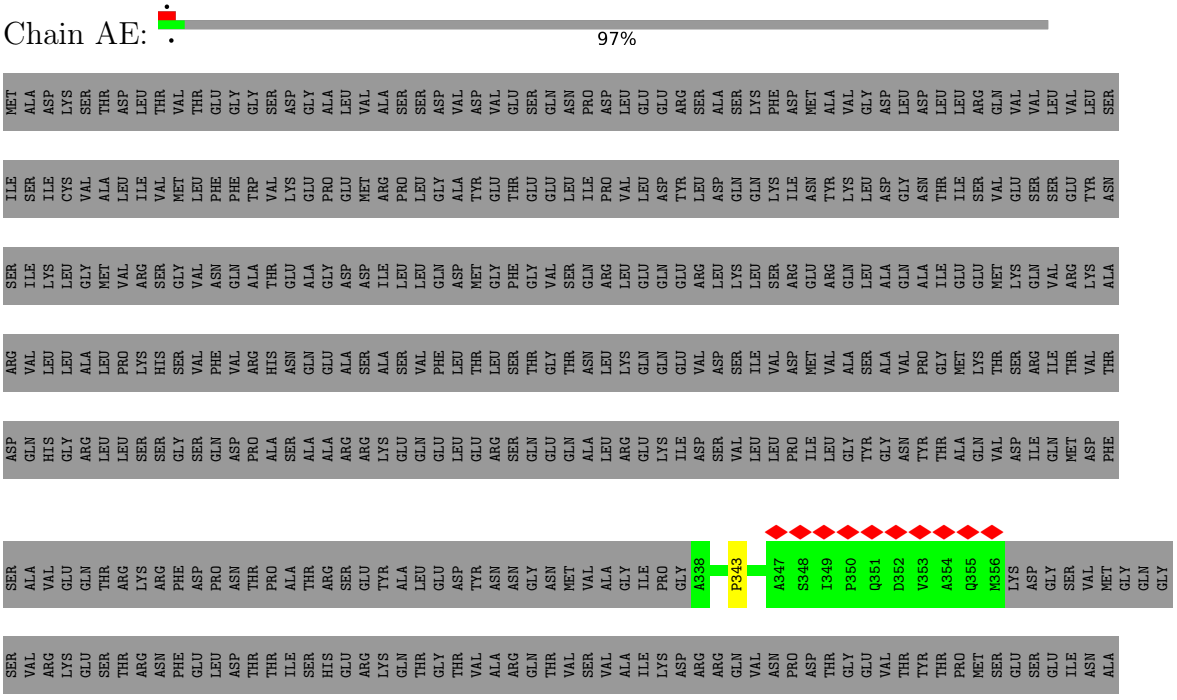
• Molecule 2: Flagellar M-ring protein

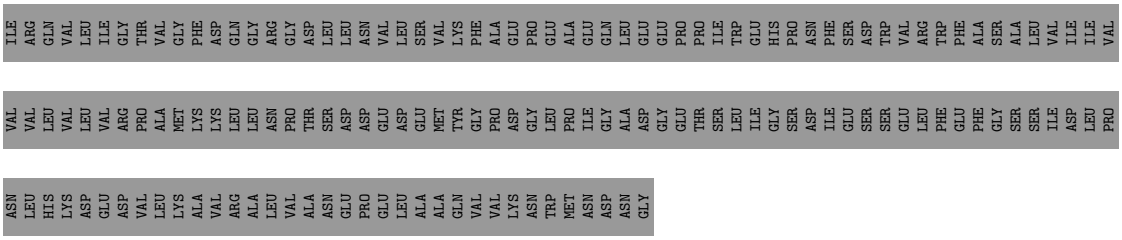
Chain AD:



• Molecule 2: Flagellar M-ring protein

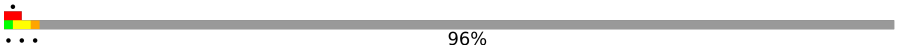
Chain AE:

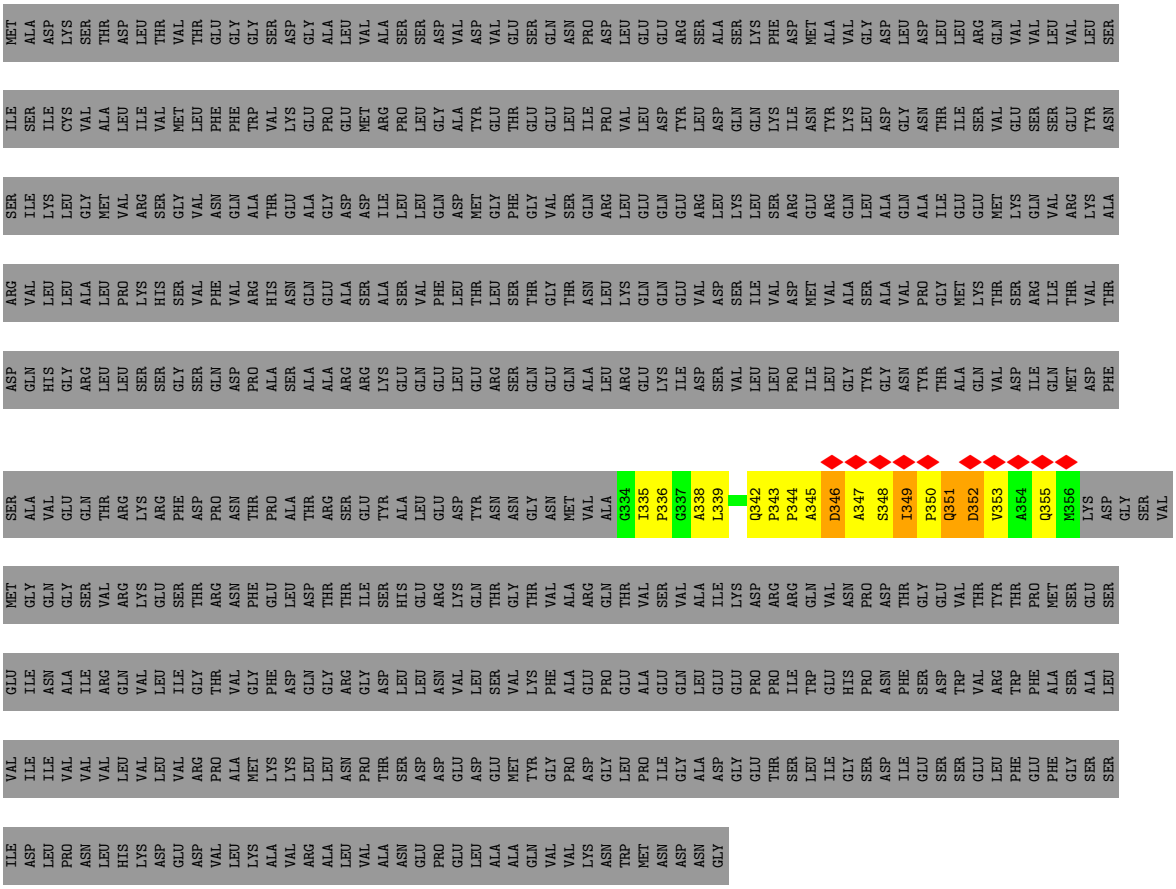




• Molecule 2: Flagellar M-ring protein

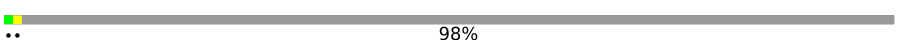
Chain AF:

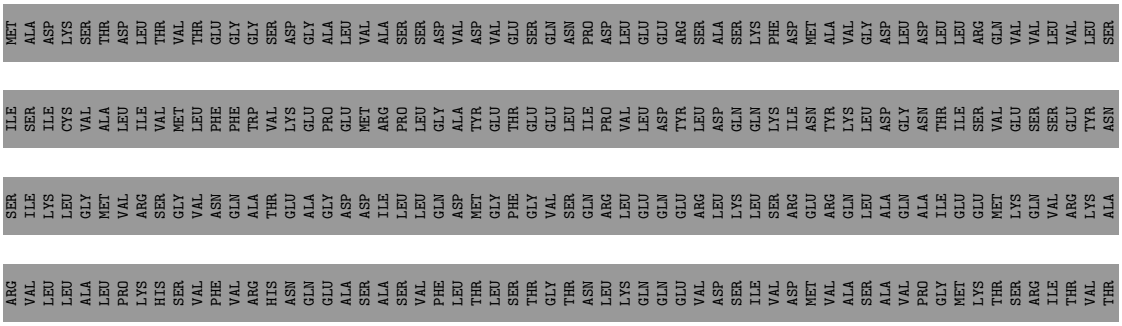


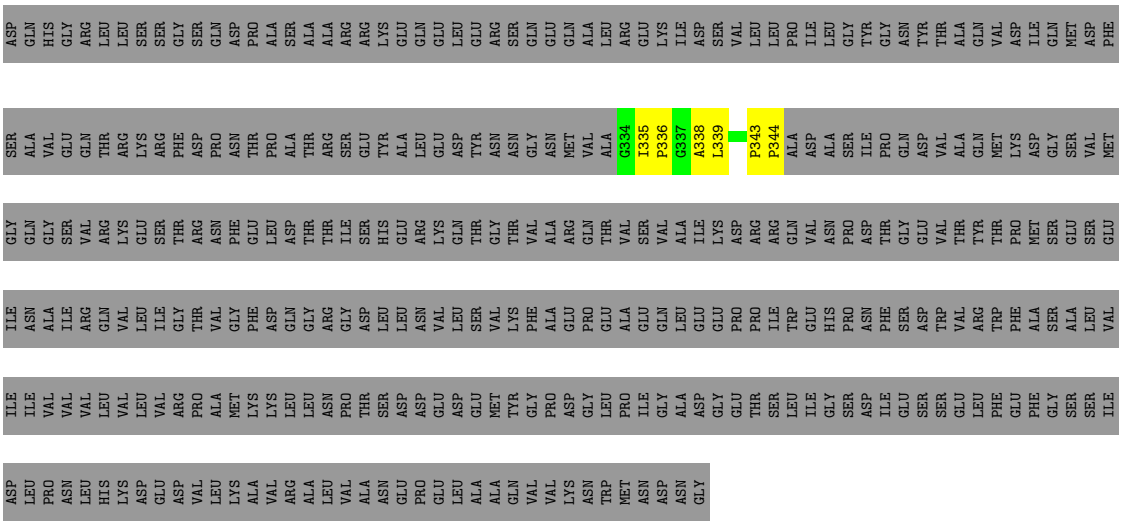


• Molecule 2: Flagellar M-ring protein

Chain AG:

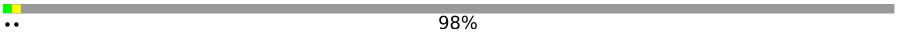


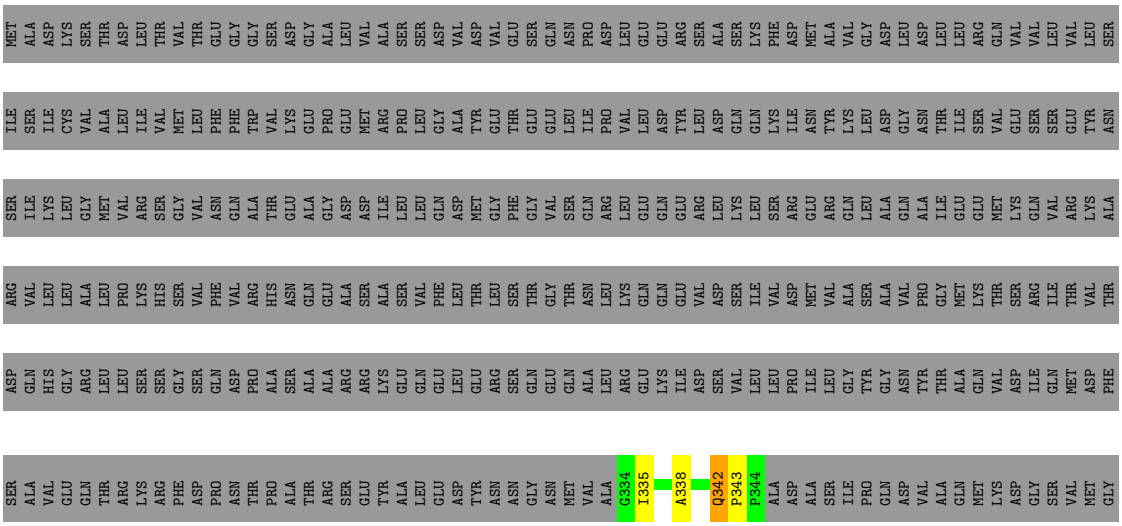




• Molecule 2: Flagellar M-ring protein

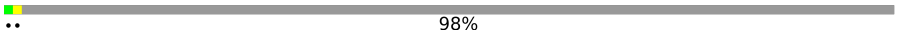
Chain AH:

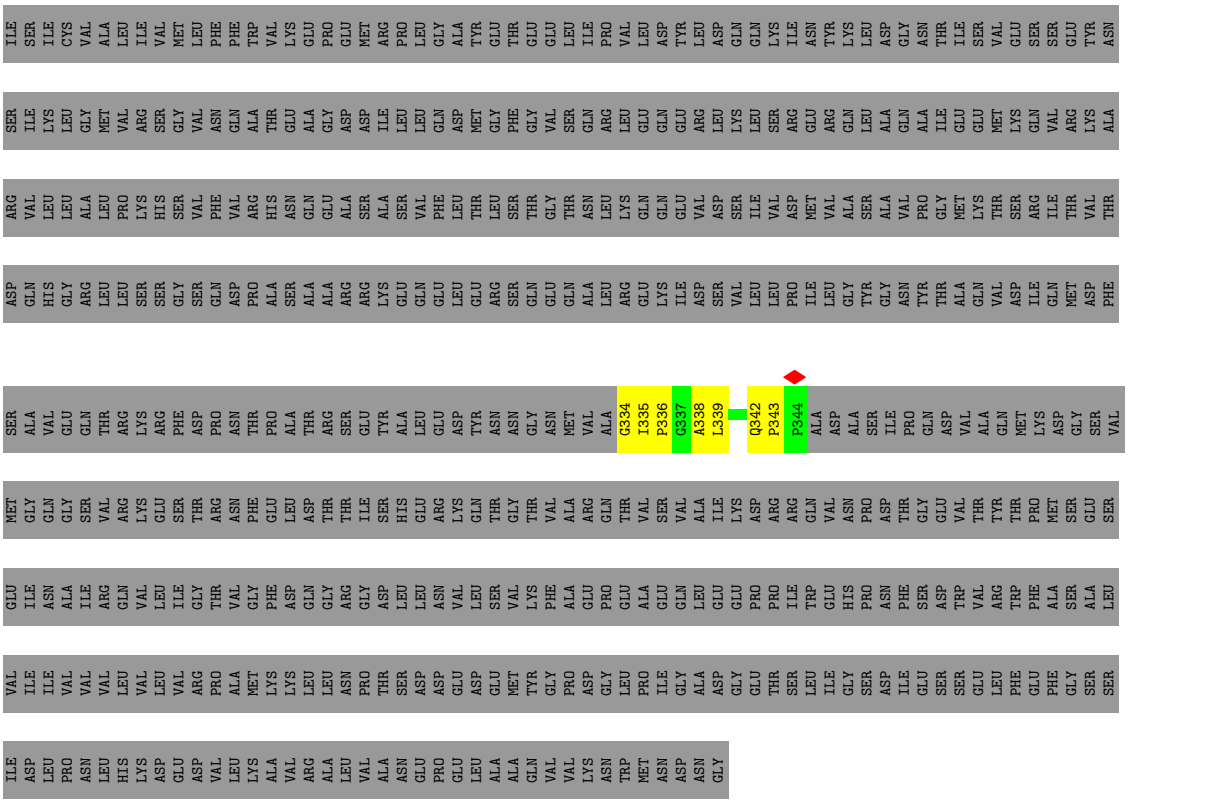




• Molecule 2: Flagellar M-ring protein

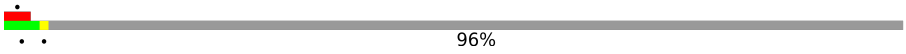
Chain AI:

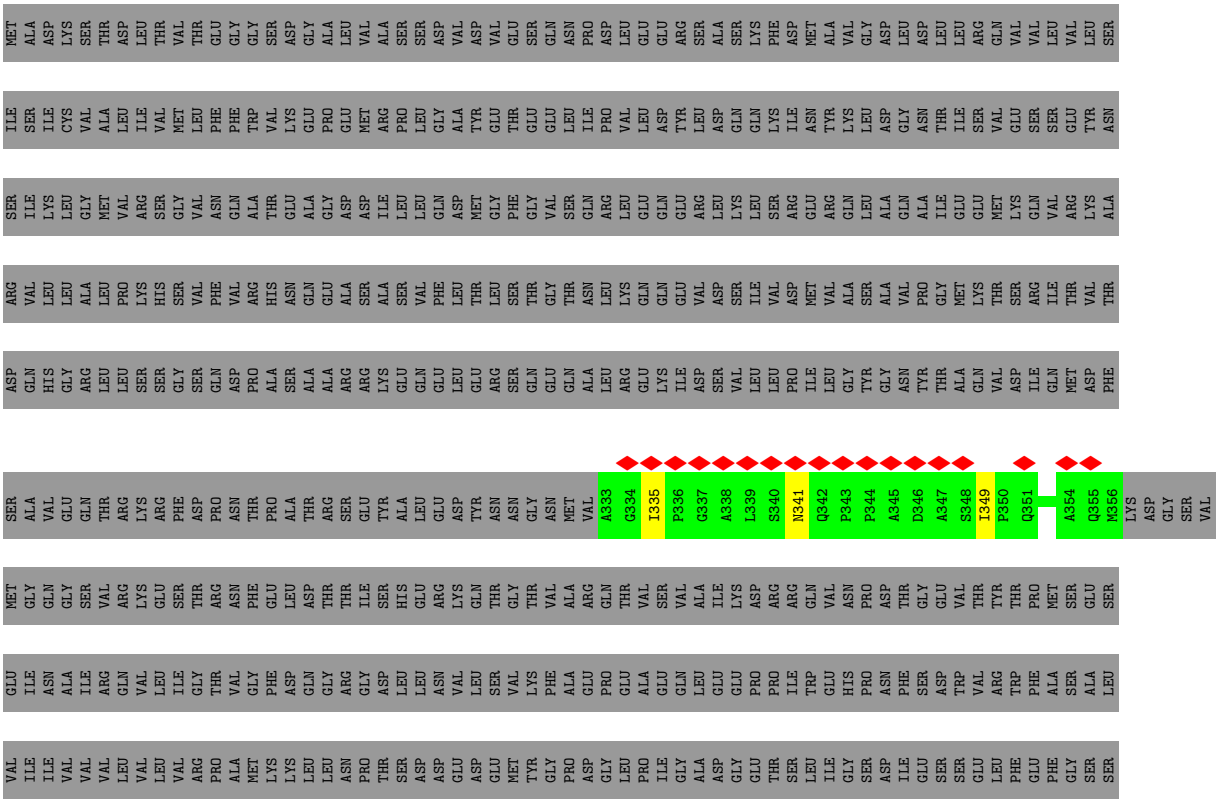




• Molecule 2: Flagellar M-ring protein

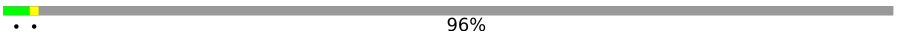
Chain AJ:

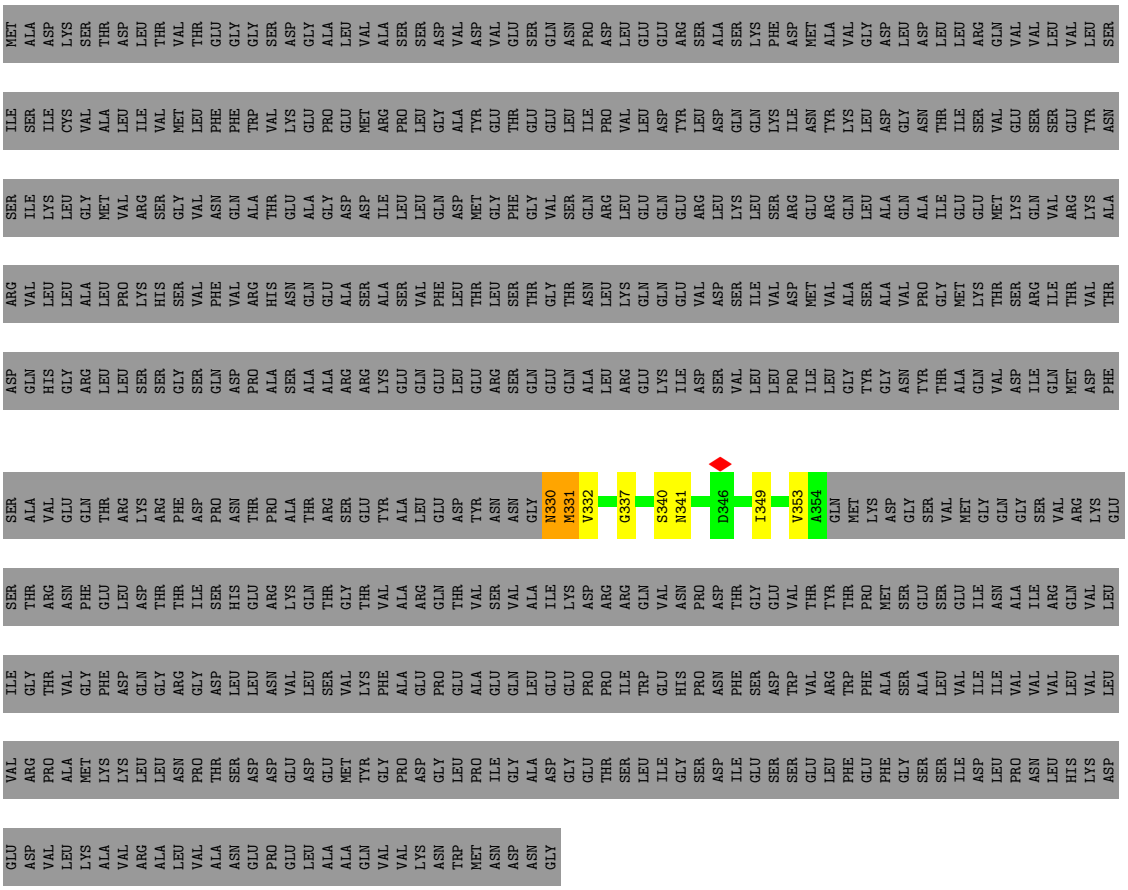




• Molecule 2: Flagellar M-ring protein

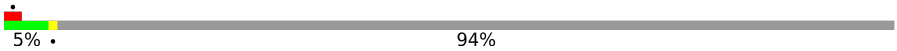
Chain AK:

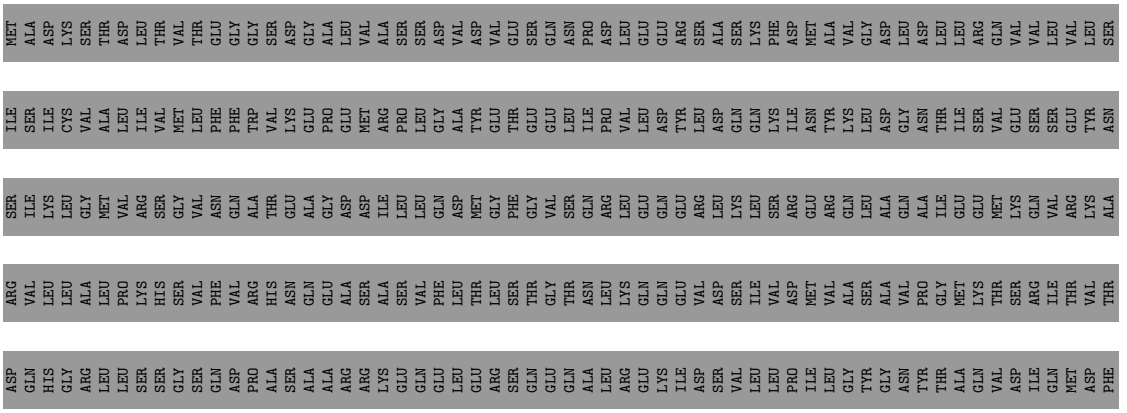




• Molecule 2: Flagellar M-ring protein

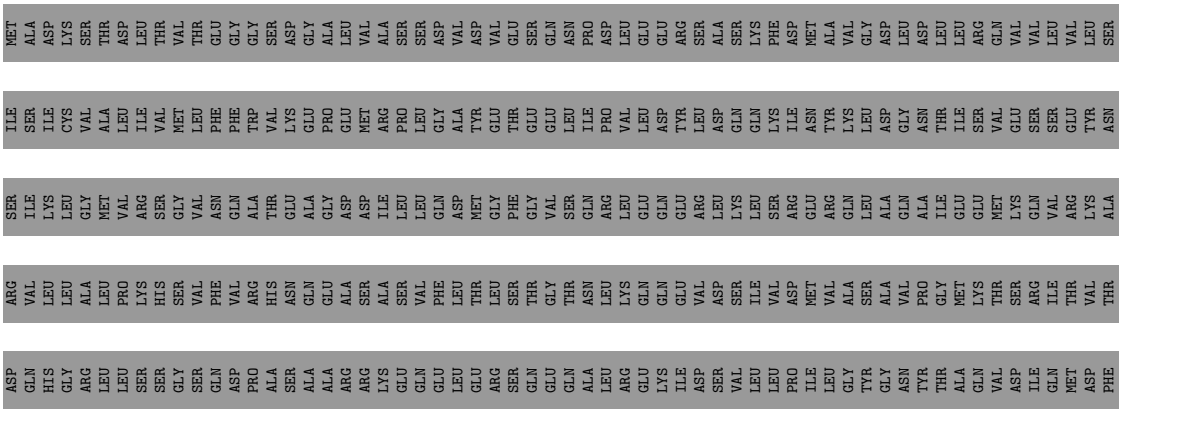
Chain AL:





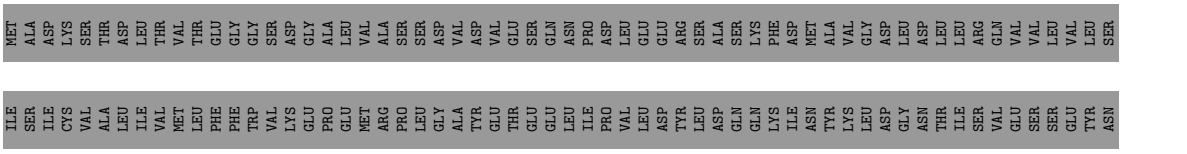
• Molecule 2: Flagellar M-ring protein

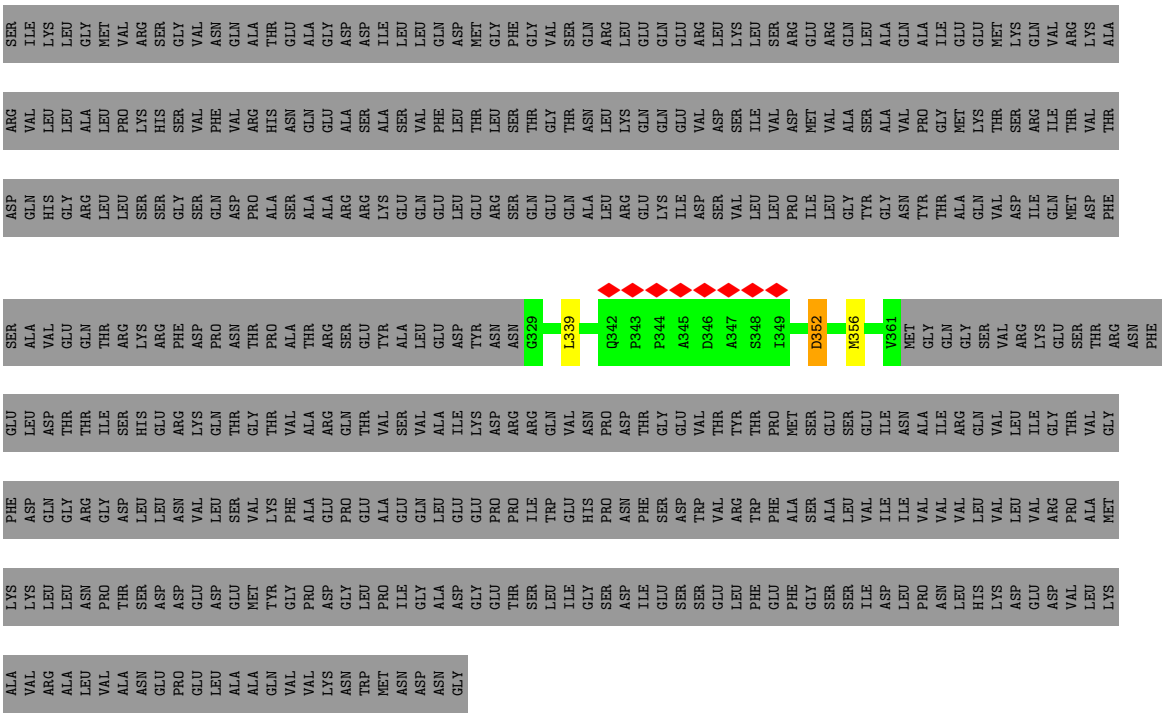
Chain AM: 5% 94%



• Molecule 2: Flagellar M-ring protein

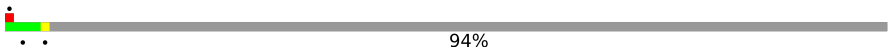
Chain AN: 5% 94%

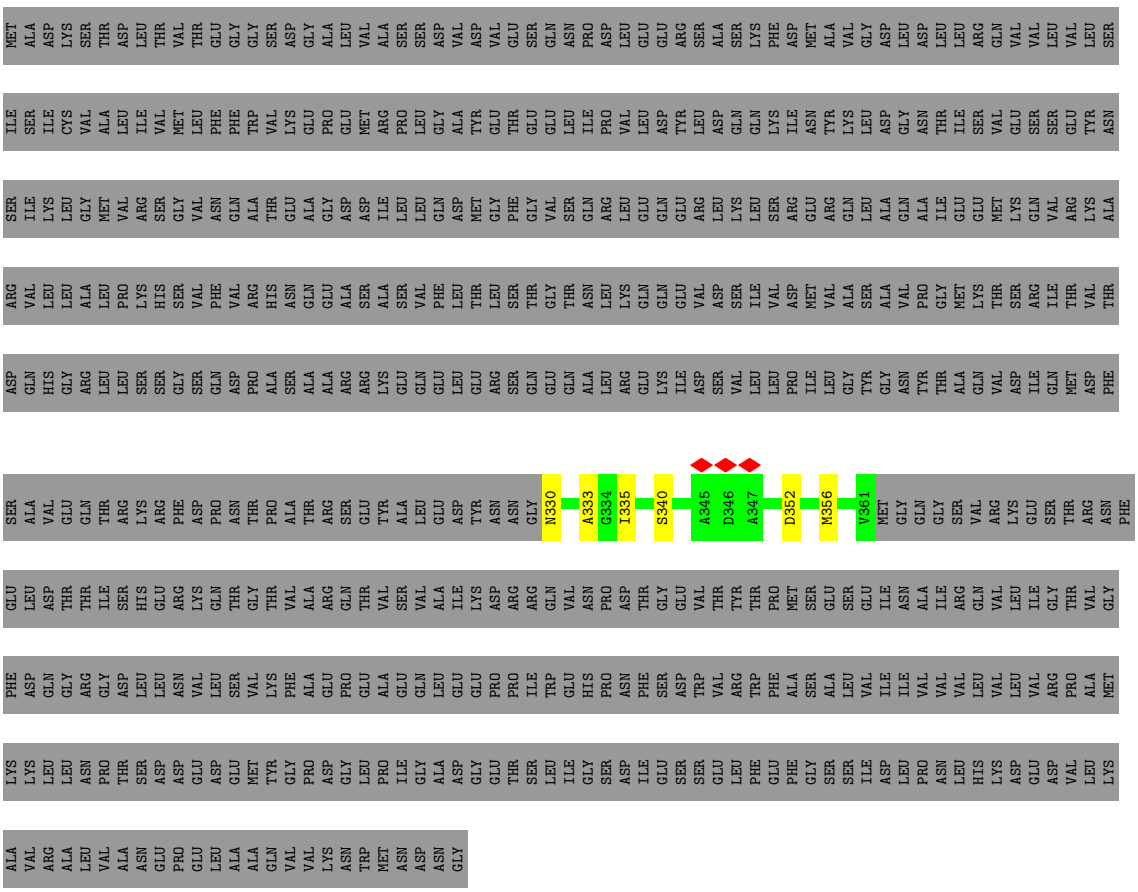




• Molecule 2: Flagellar M-ring protein

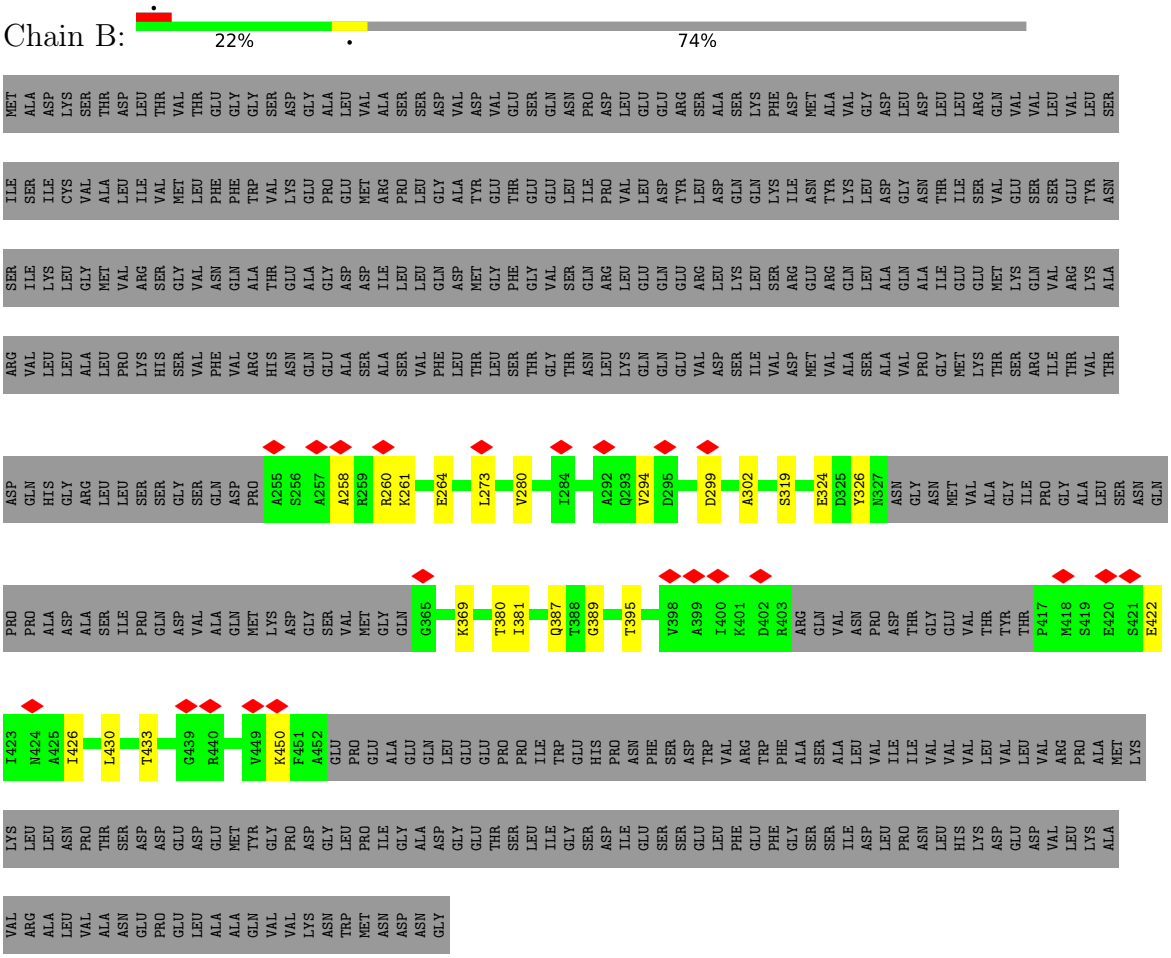
Chain AO:





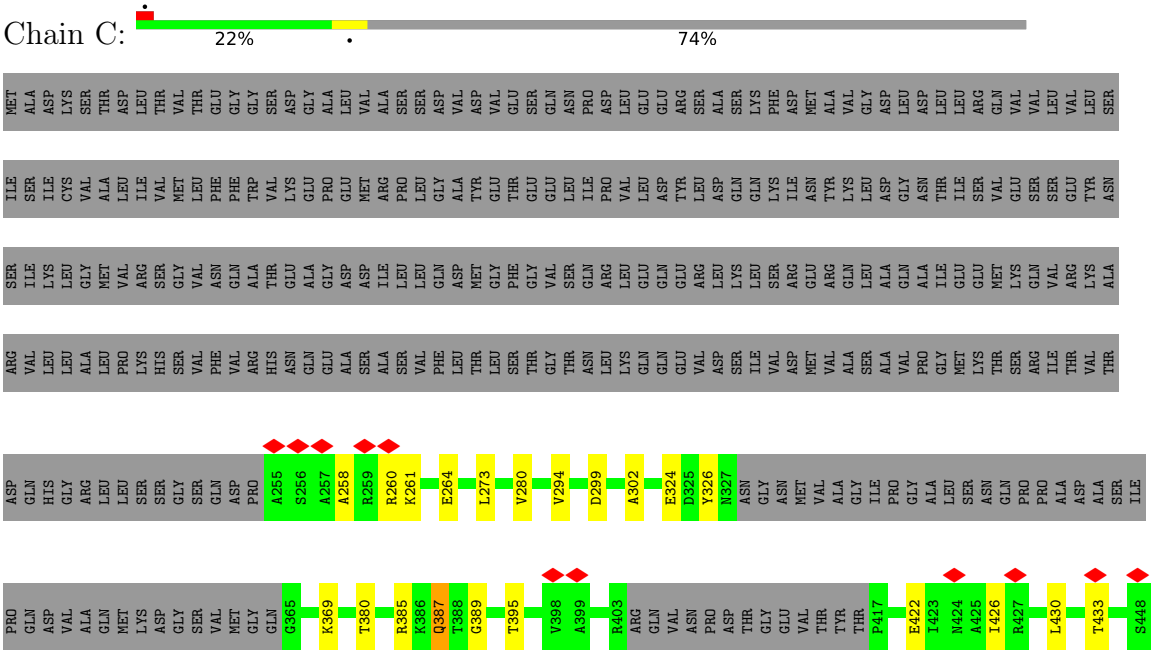
• Molecule 2: Flagellar M-ring protein

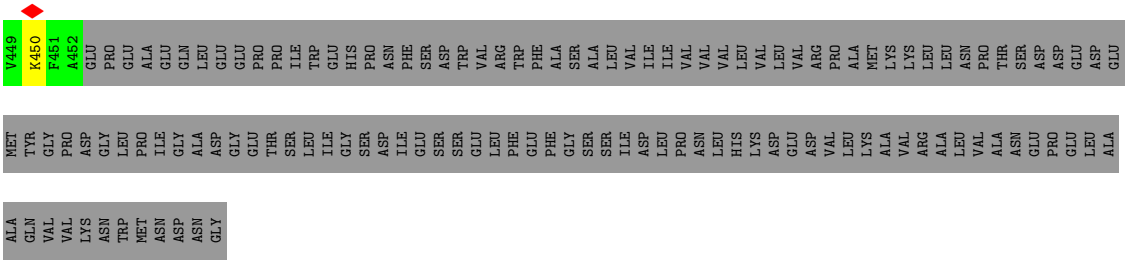
Chain B:



• Molecule 2: Flagellar M-ring protein

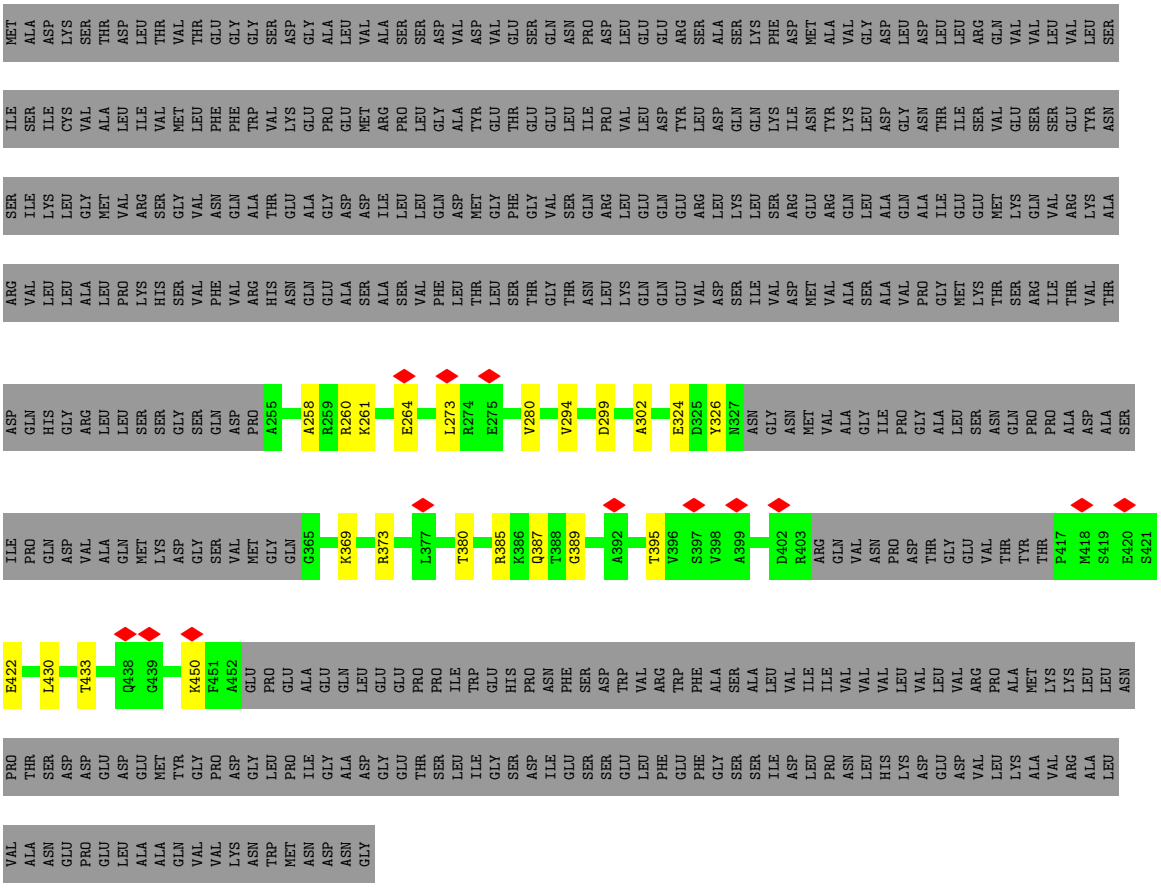
Chain C:





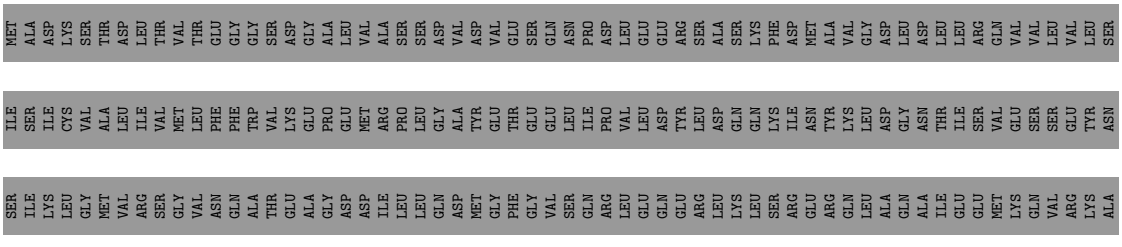
• Molecule 2: Flagellar M-ring protein

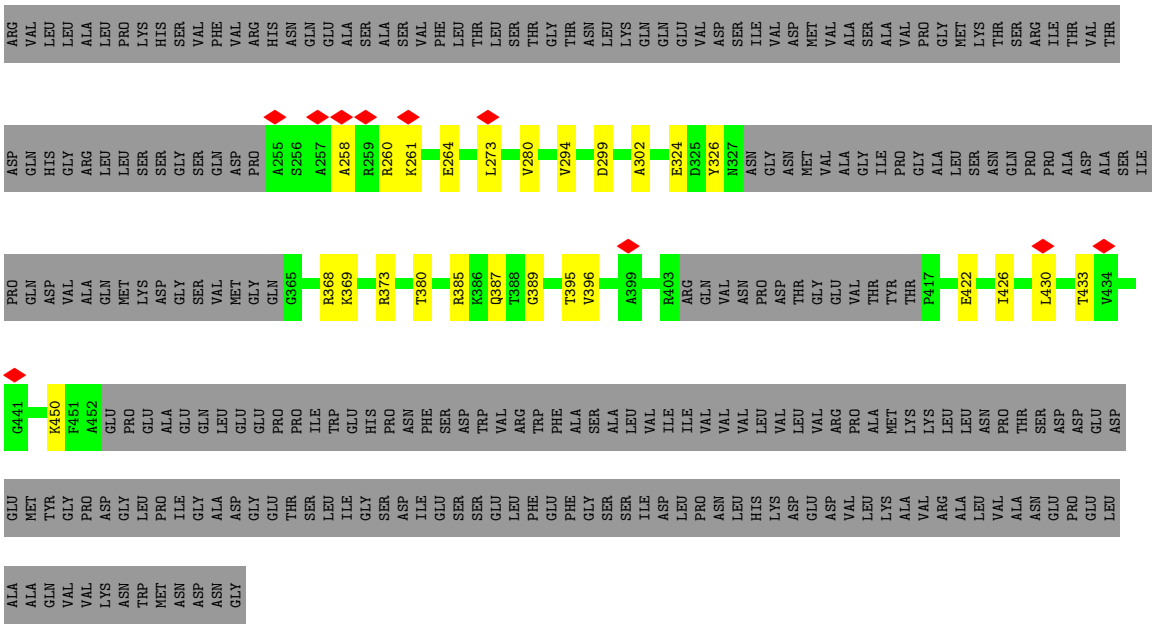
Chain D:



• Molecule 2: Flagellar M-ring protein

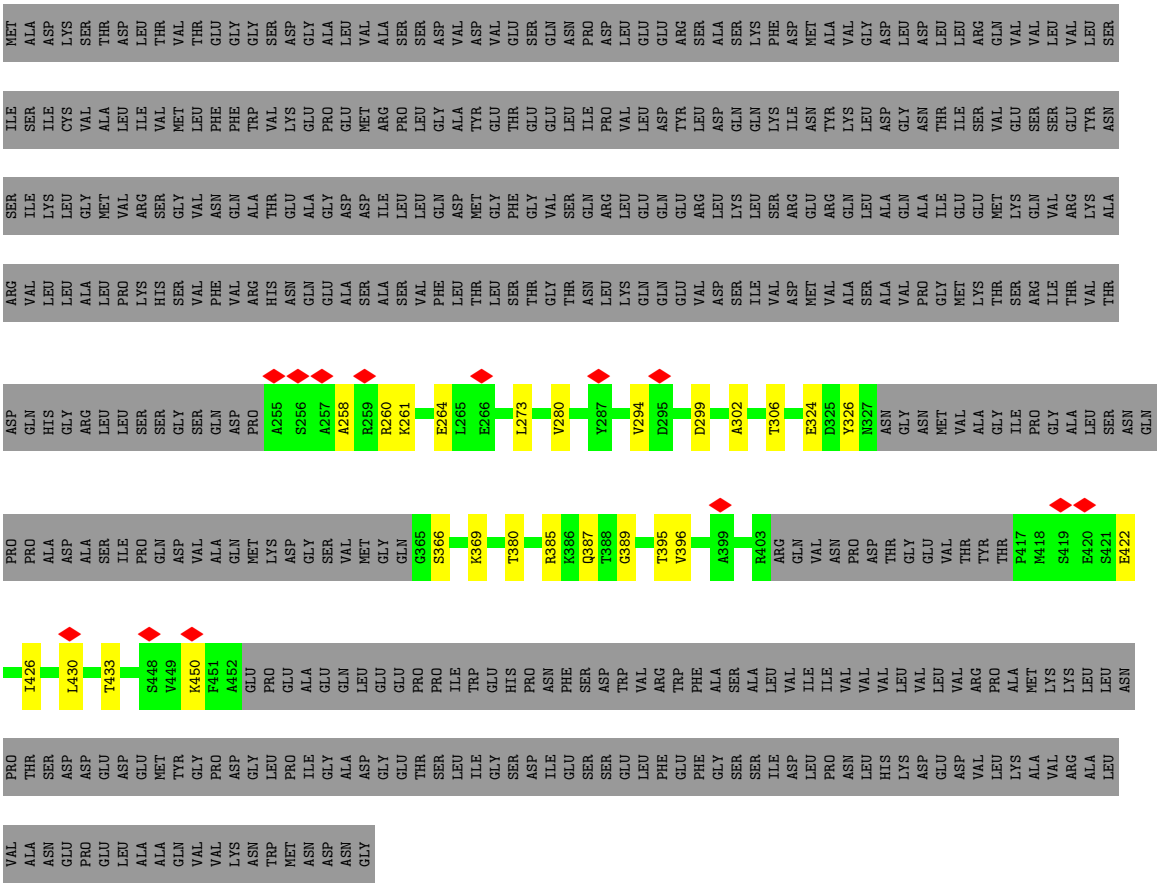
Chain E:





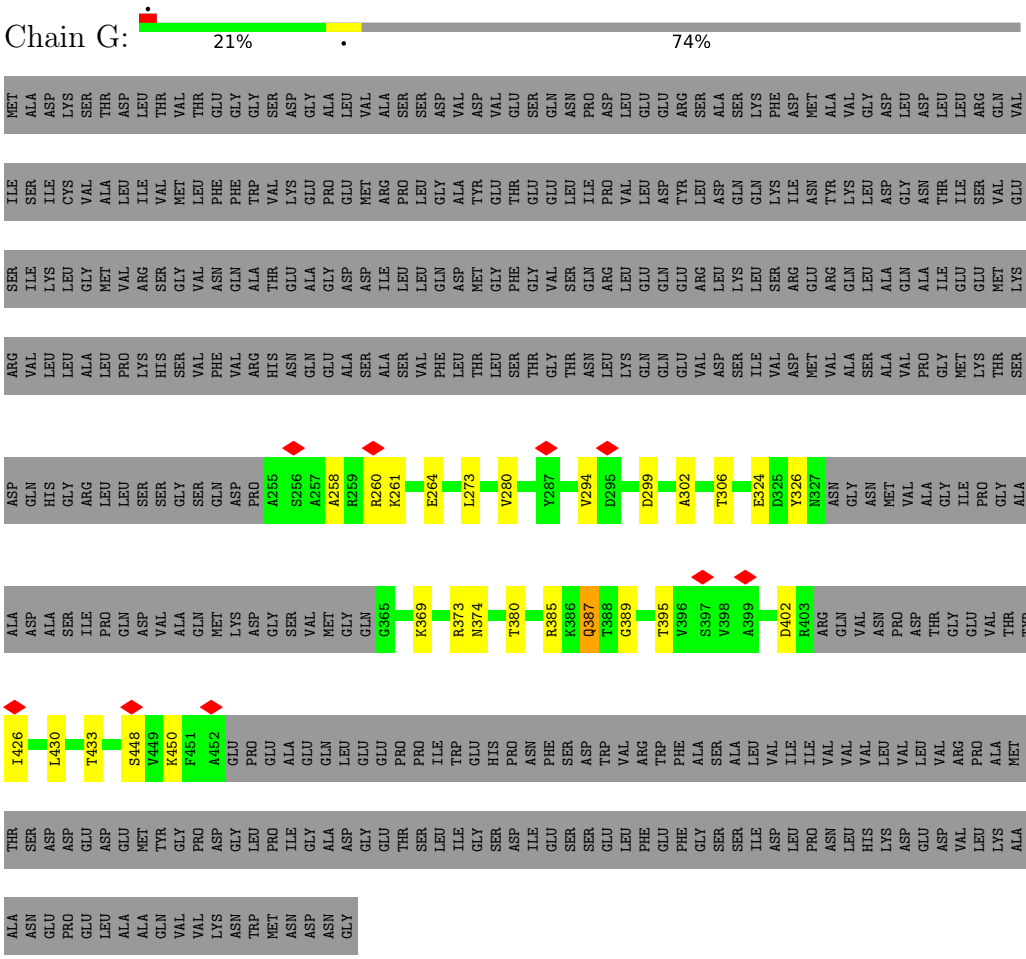
• Molecule 2: Flagellar M-ring protein

Chain F:



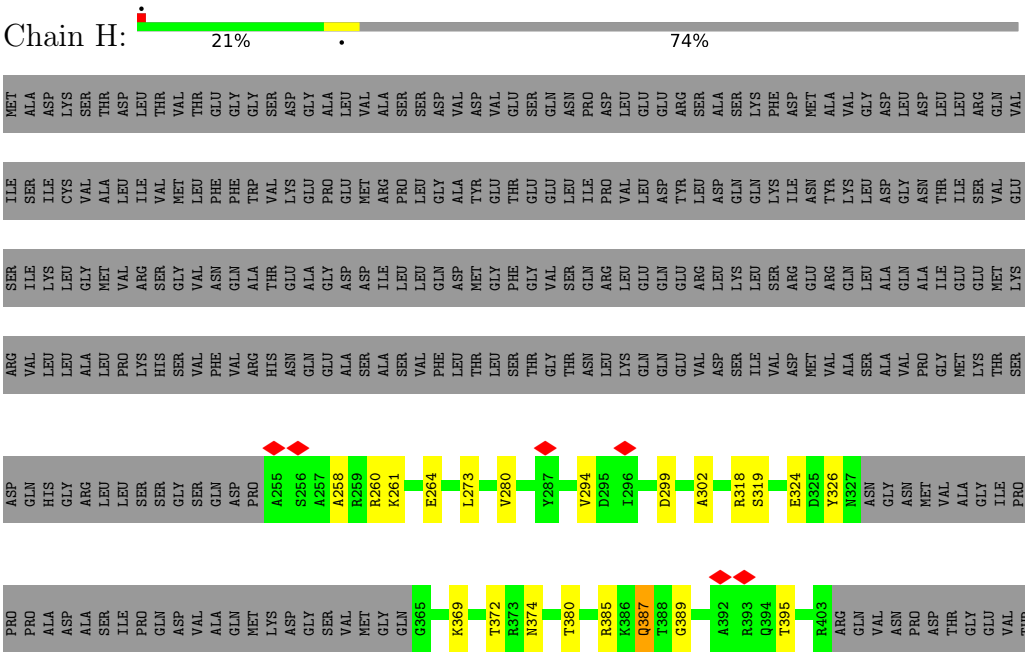
• Molecule 2: Flagellar M-ring protein

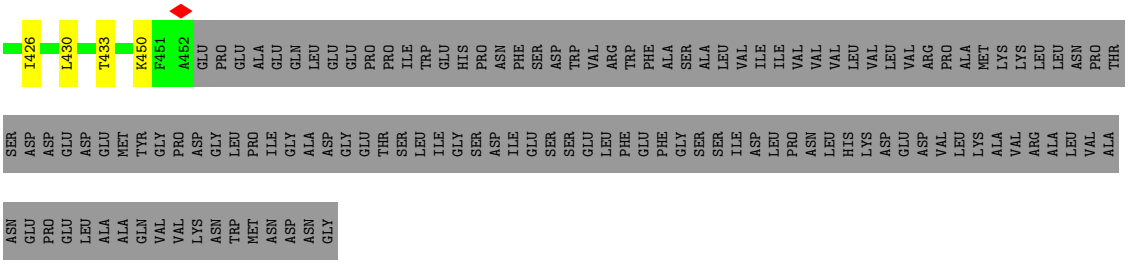
Chain G:



• Molecule 2: Flagellar M-ring protein

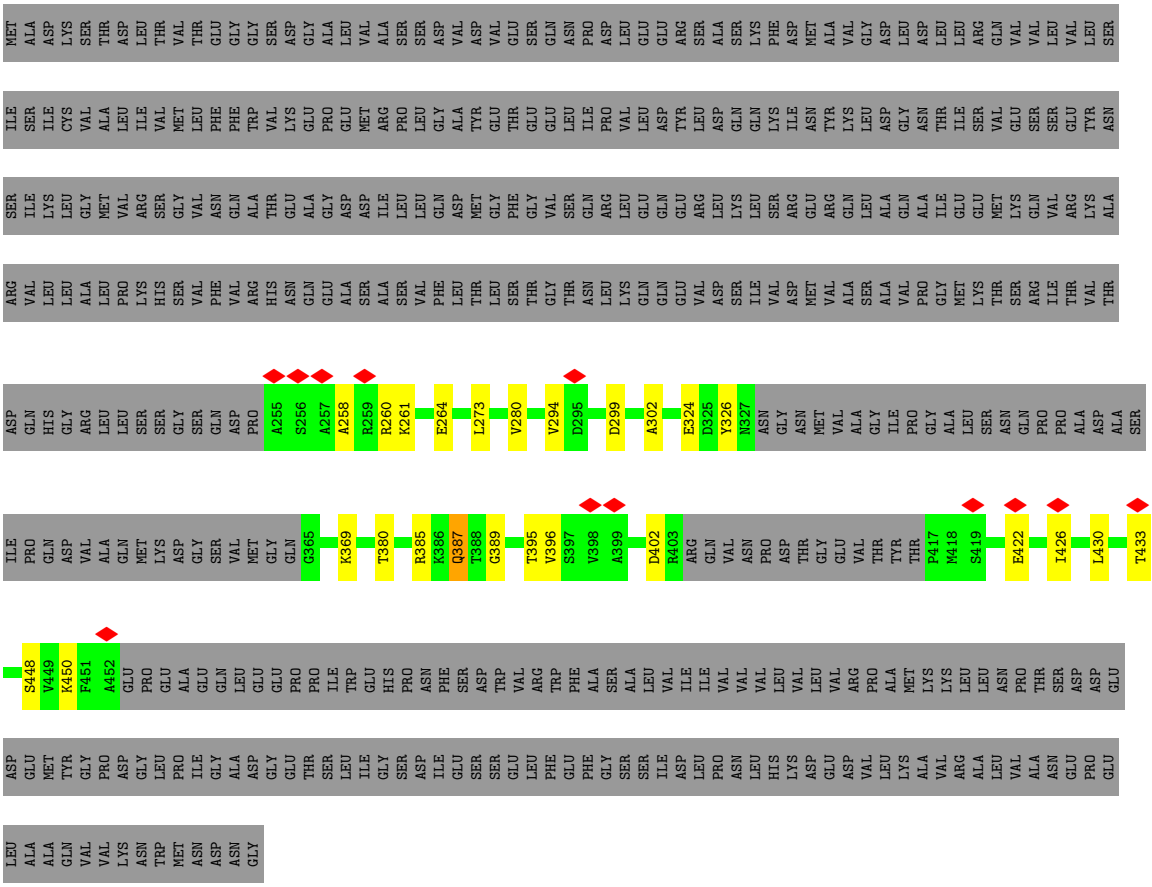
Chain H:





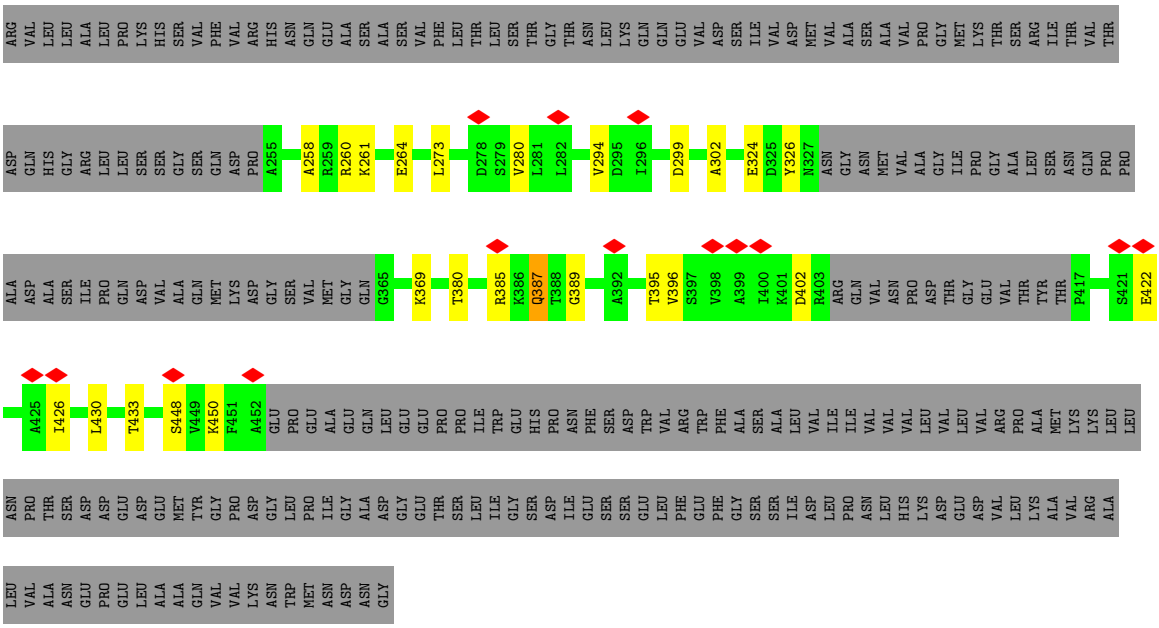
• Molecule 2: Flagellar M-ring protein

Chain I:



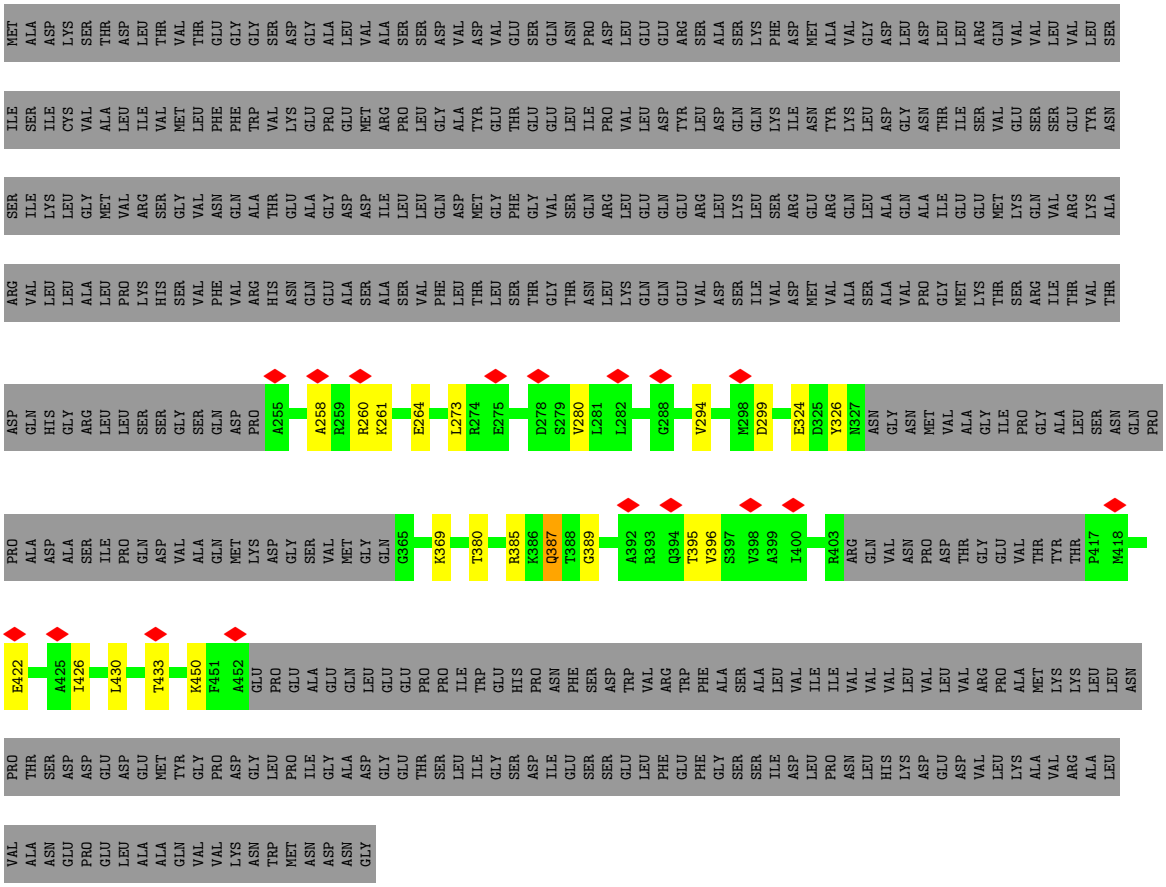
• Molecule 2: Flagellar M-ring protein

Chain J:



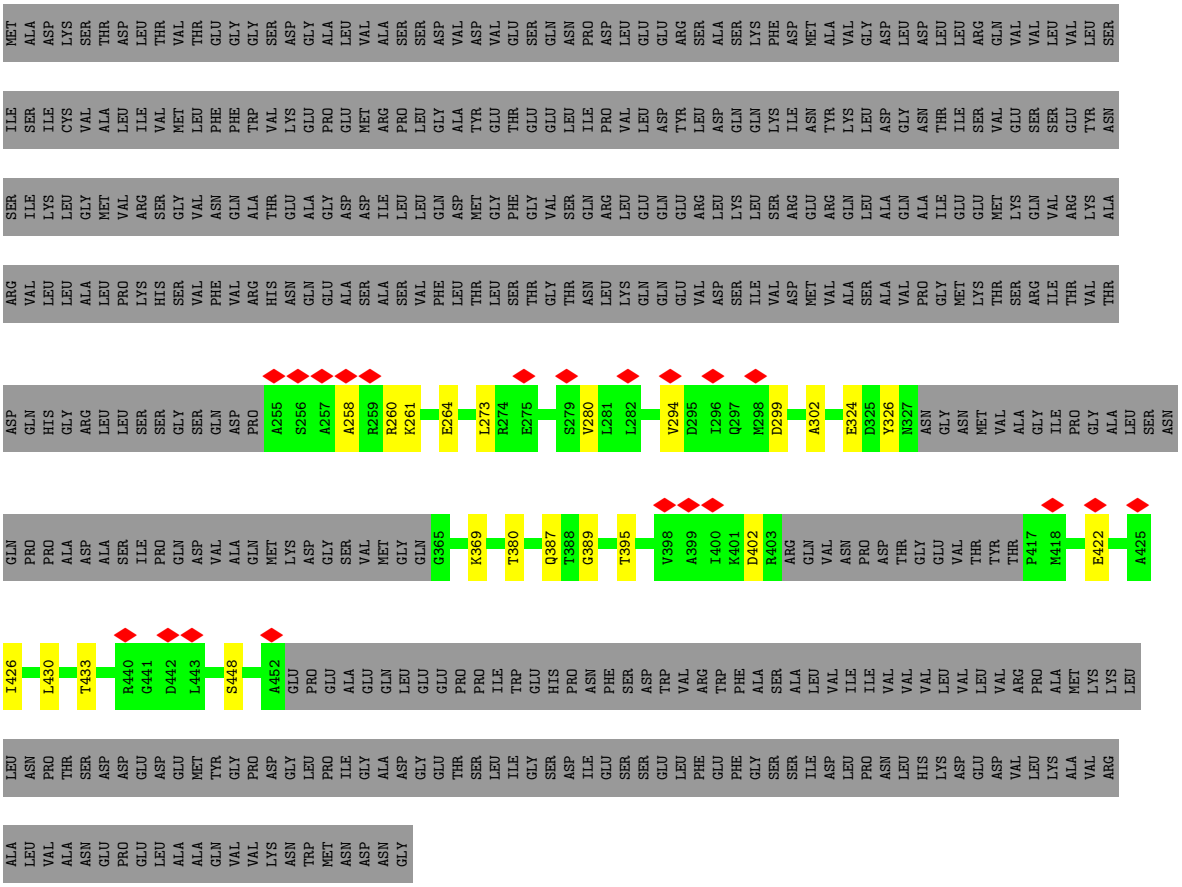
• Molecule 2: Flagellar M-ring protein

Chain K:



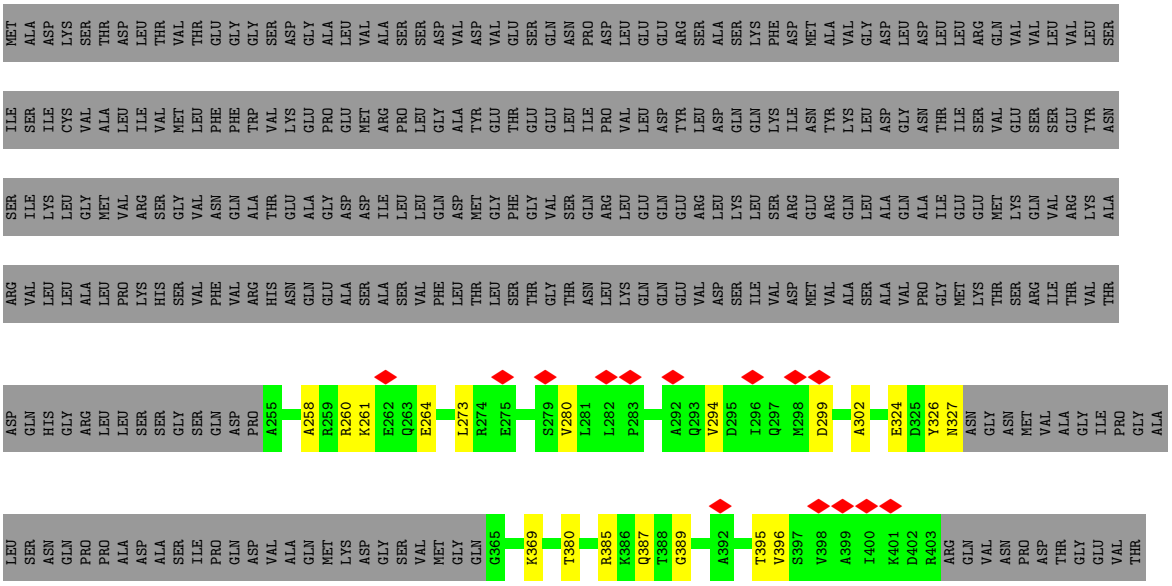
• Molecule 2: Flagellar M-ring protein

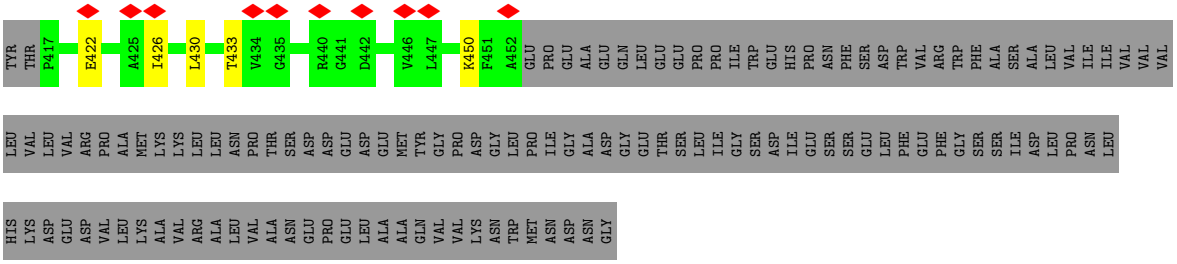
Chain L:



• Molecule 2: Flagellar M-ring protein

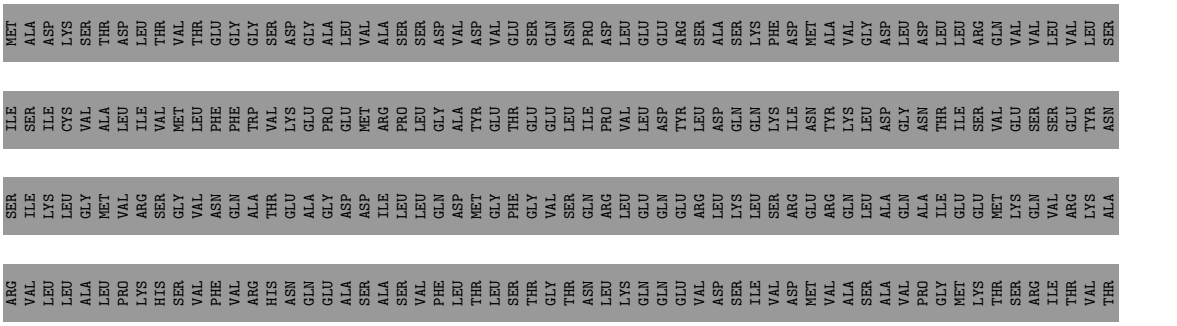
Chain M:

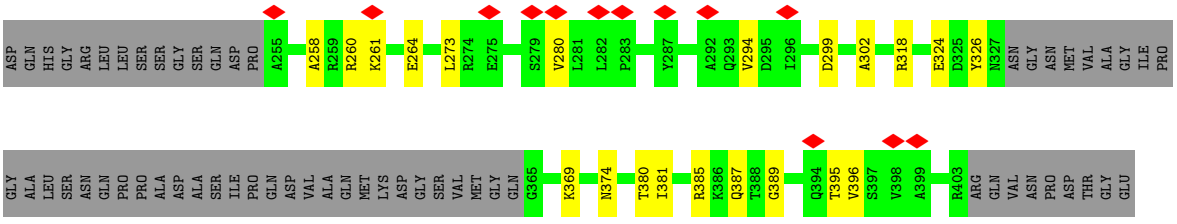


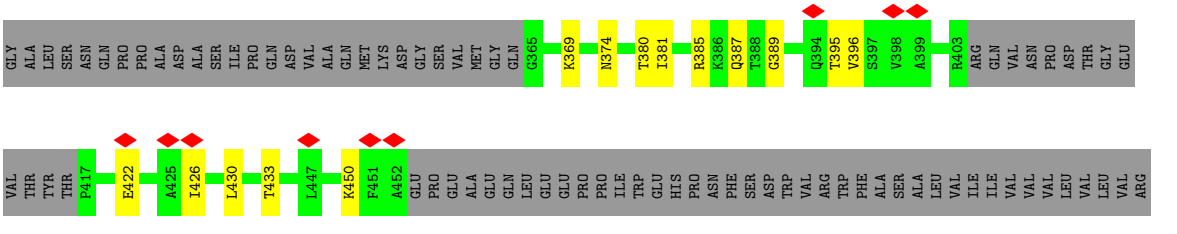


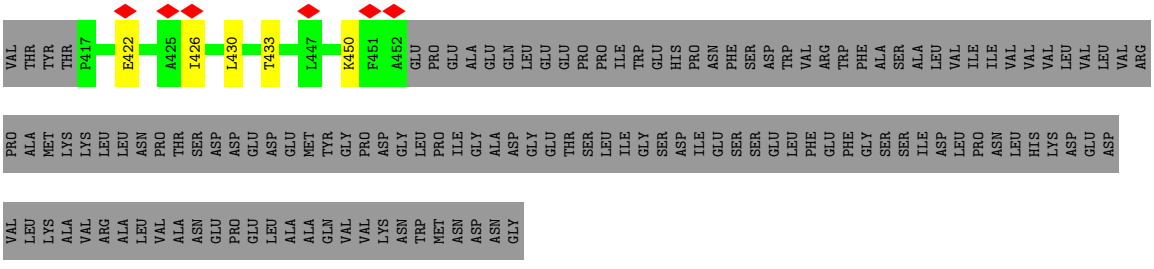
• Molecule 2: Flagellar M-ring protein

Chain N:



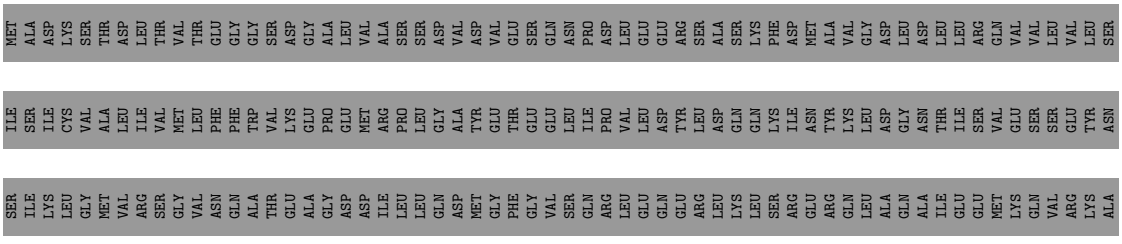


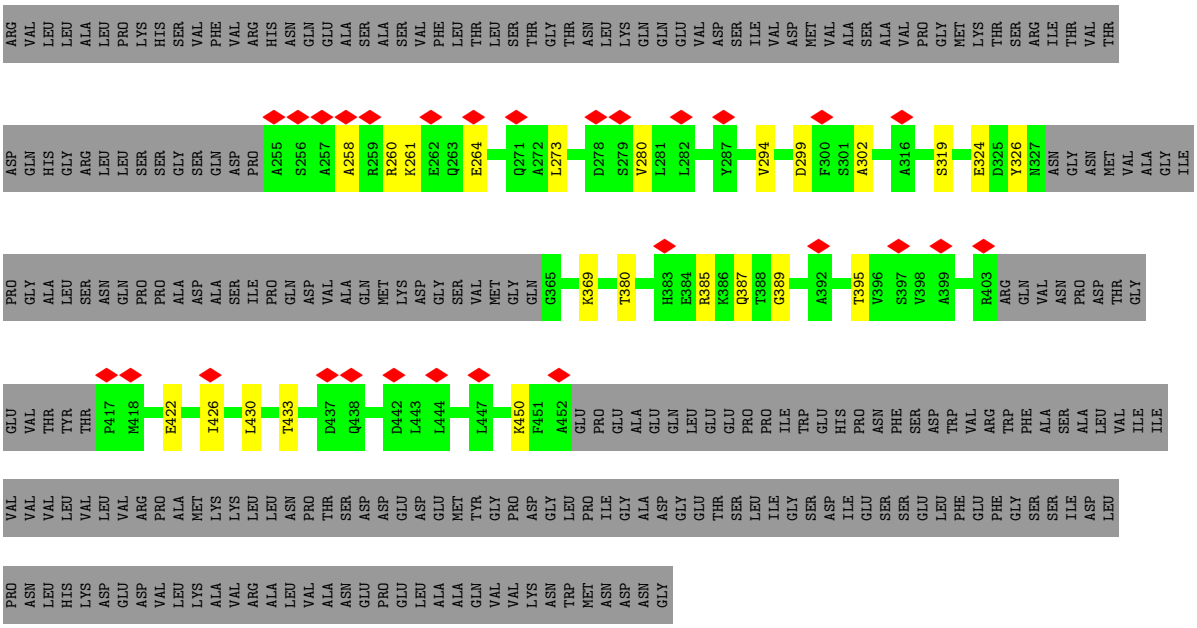




• Molecule 2: Flagellar M-ring protein

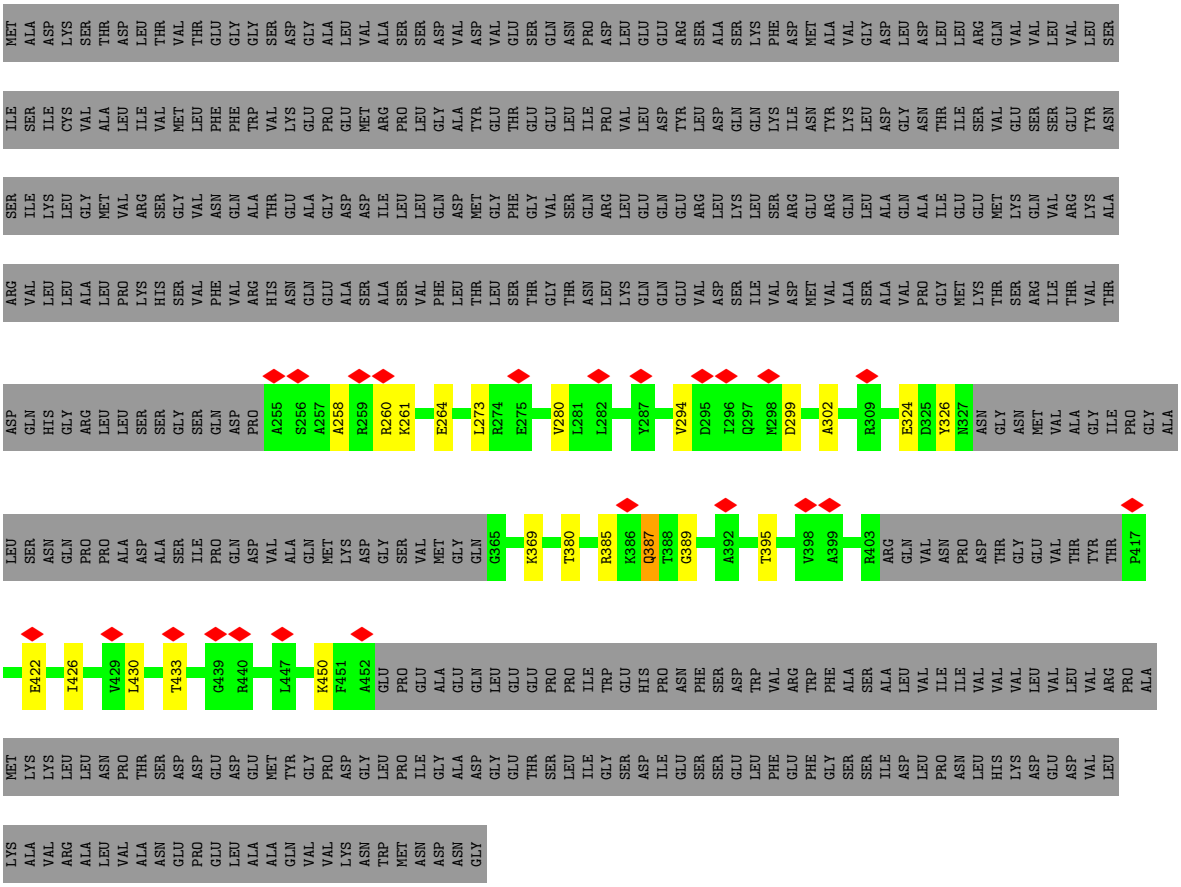
Chain O:





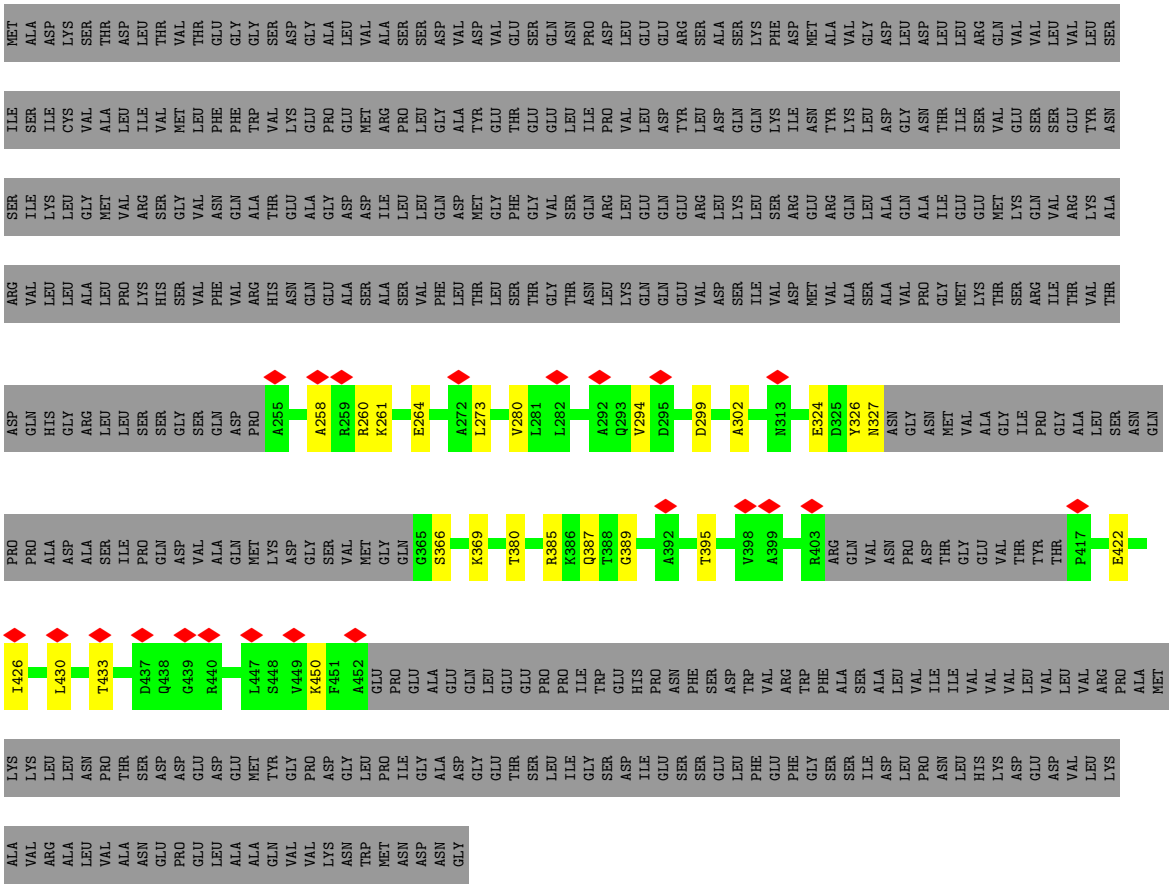
• Molecule 2: Flagellar M-ring protein

Chain P:



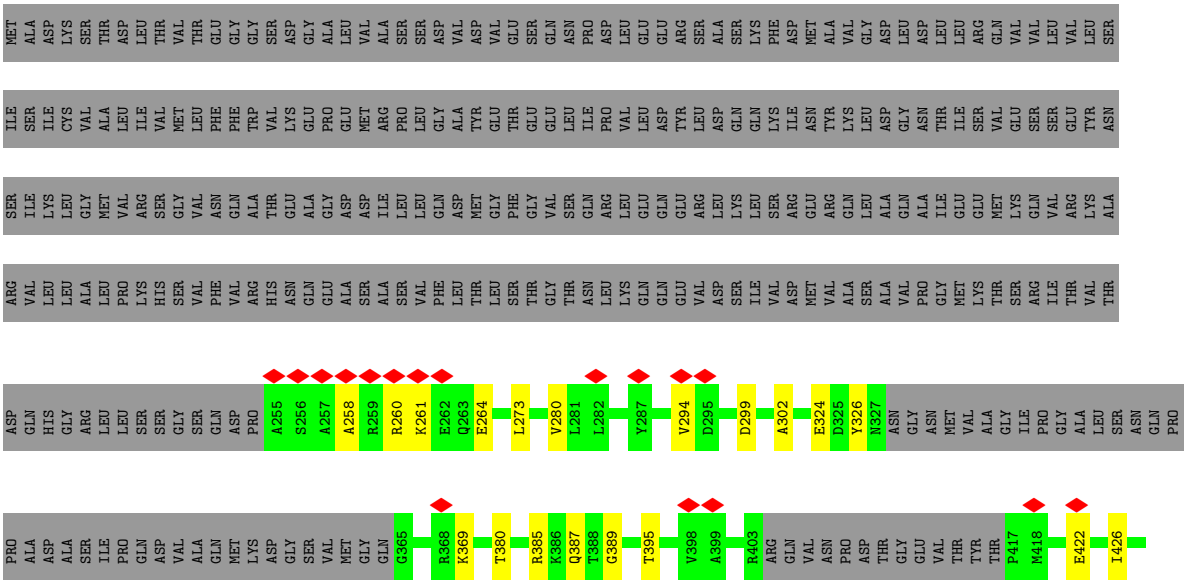
• Molecule 2: Flagellar M-ring protein

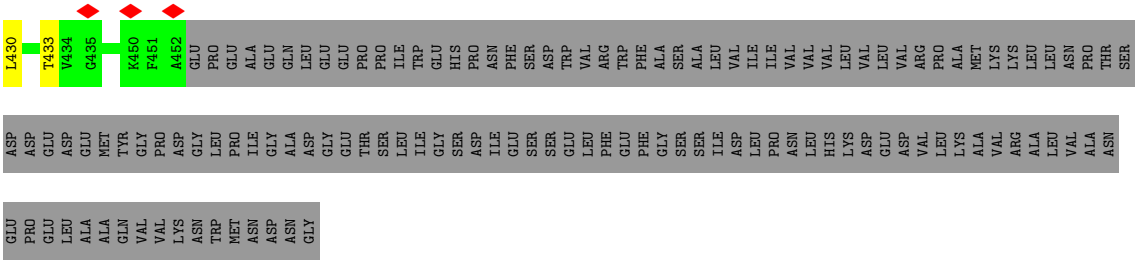
Chain Q:



• Molecule 2: Flagellar M-ring protein

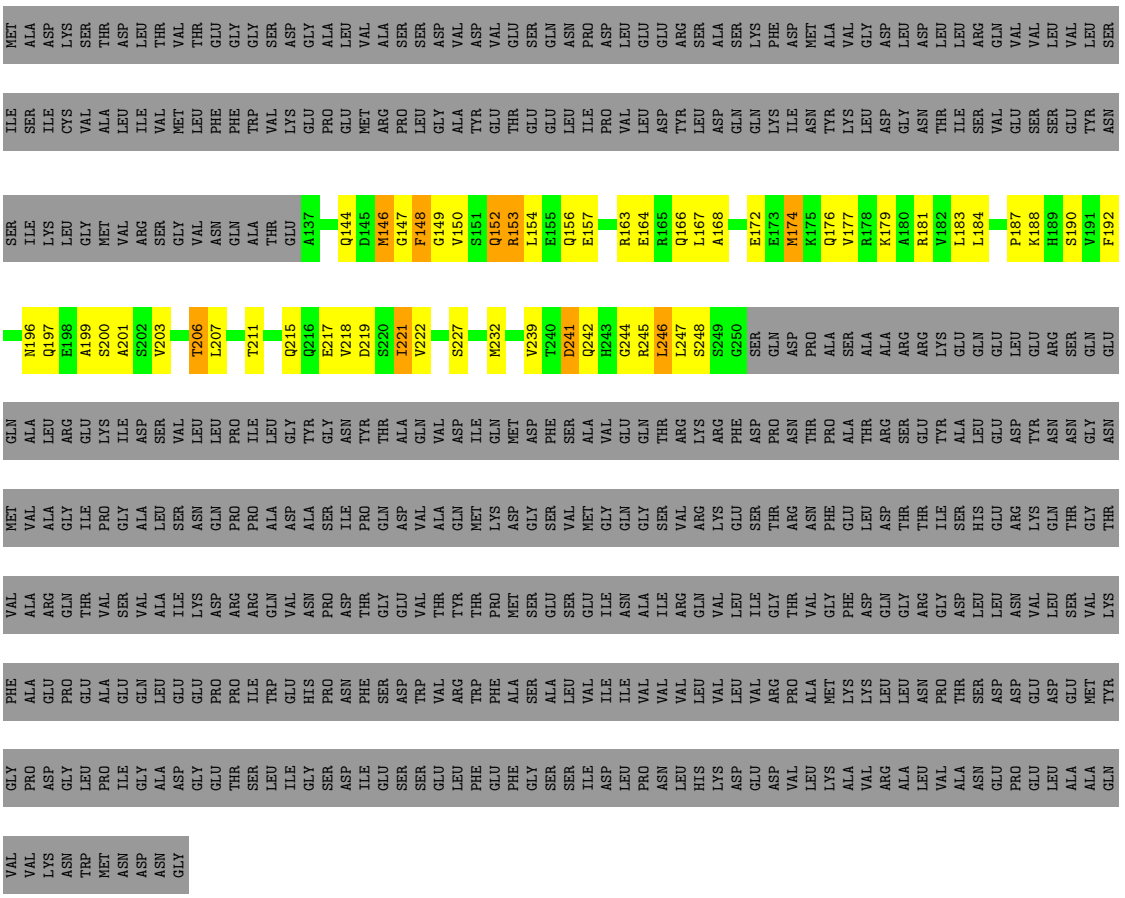
Chain R:





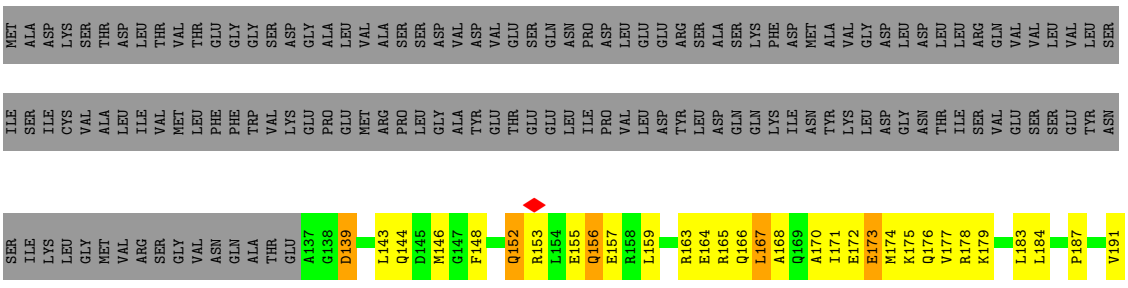
• Molecule 2: Flagellar M-ring protein

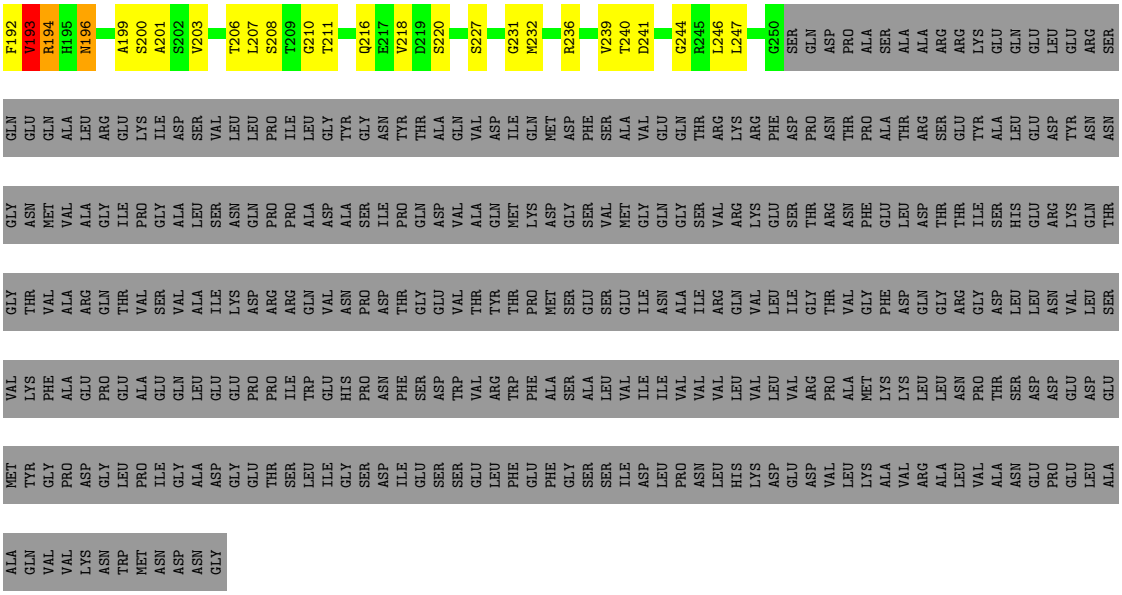
Chain S:



• Molecule 2: Flagellar M-ring protein

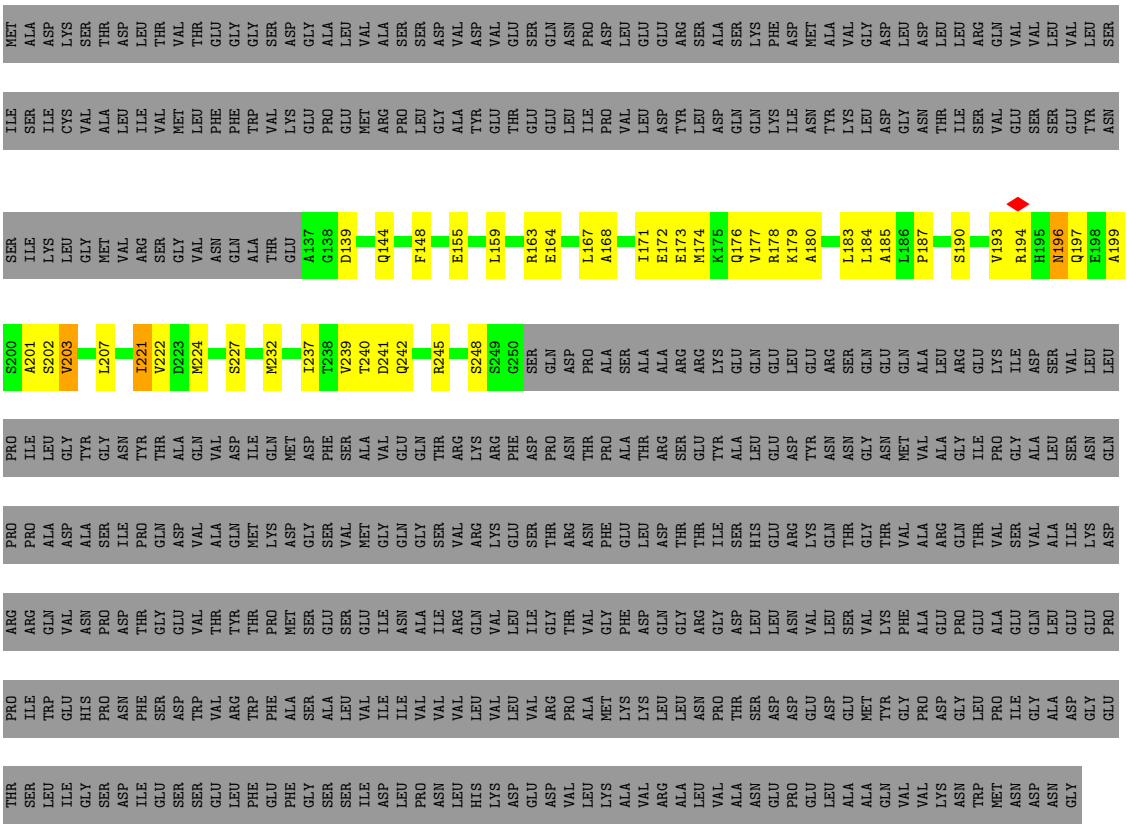
Chain T:





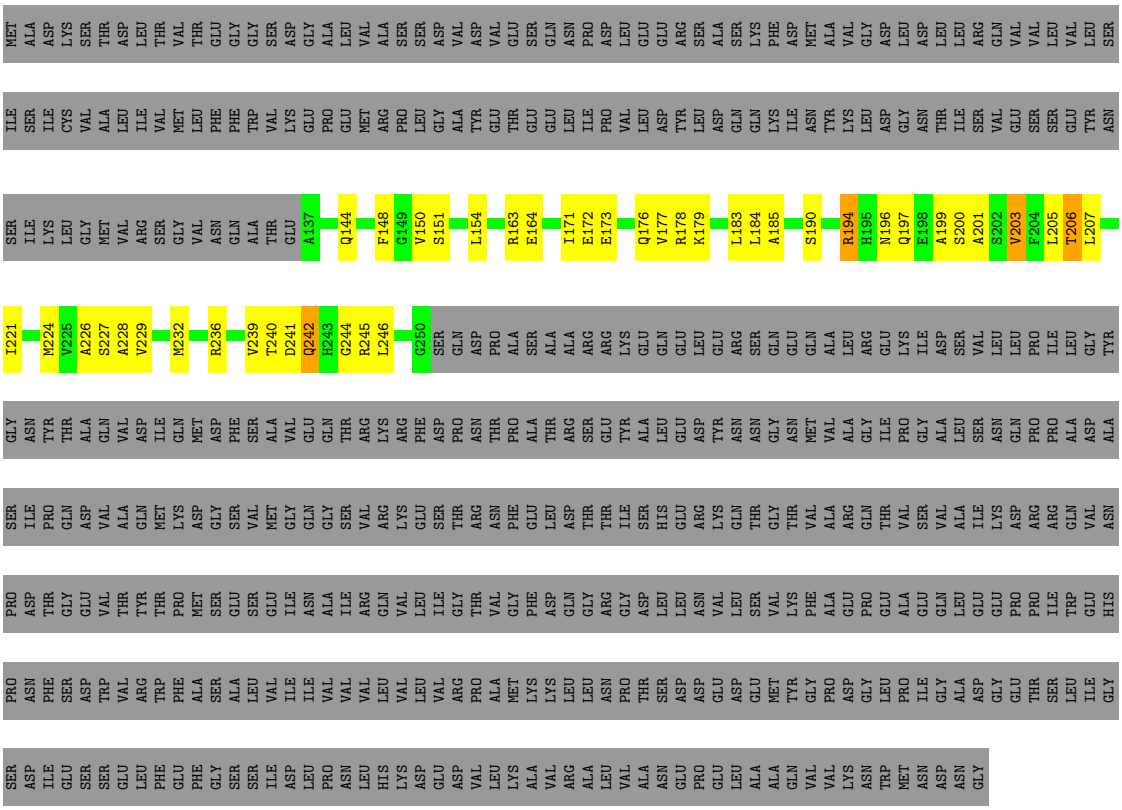
• Molecule 2: Flagellar M-ring protein

Chain U:



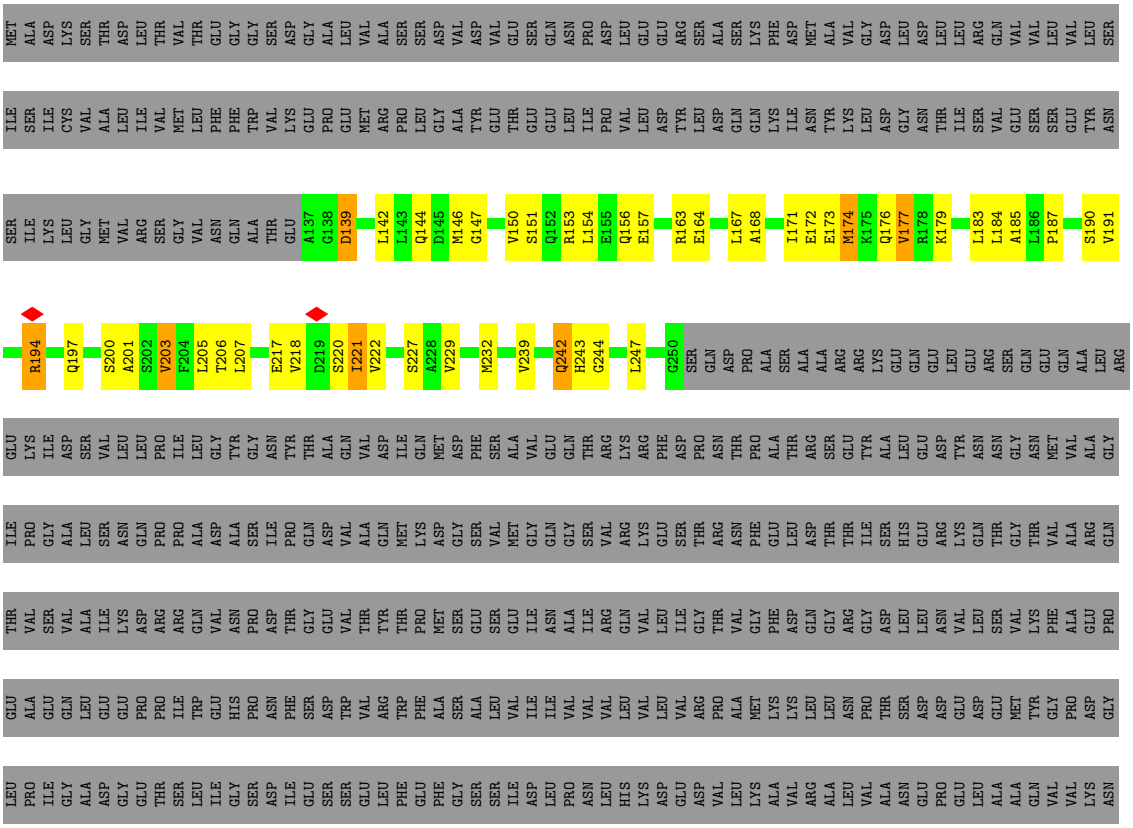
• Molecule 2: Flagellar M-ring protein

Chain V:



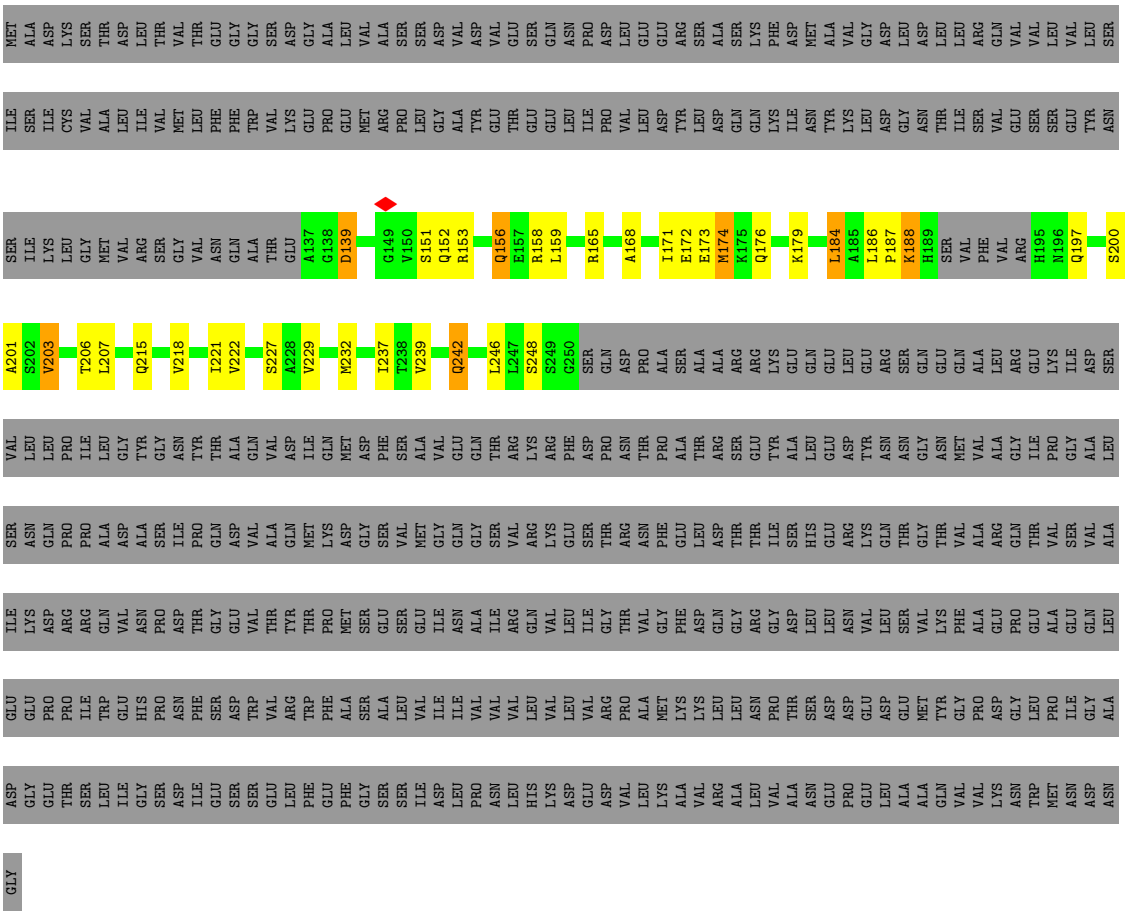
• Molecule 2: Flagellar M-ring protein

Chain W: 11% 7% • 80%



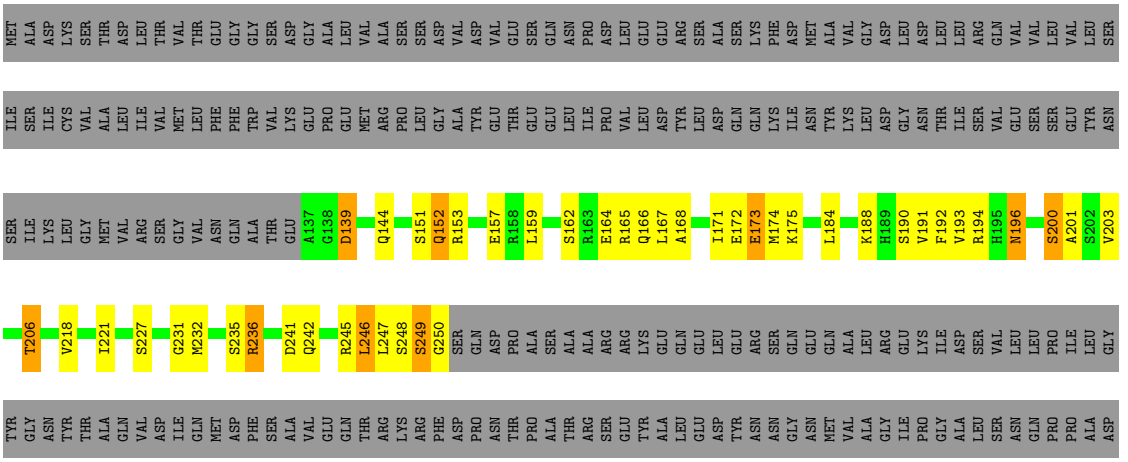
• Molecule 2: Flagellar M-ring protein

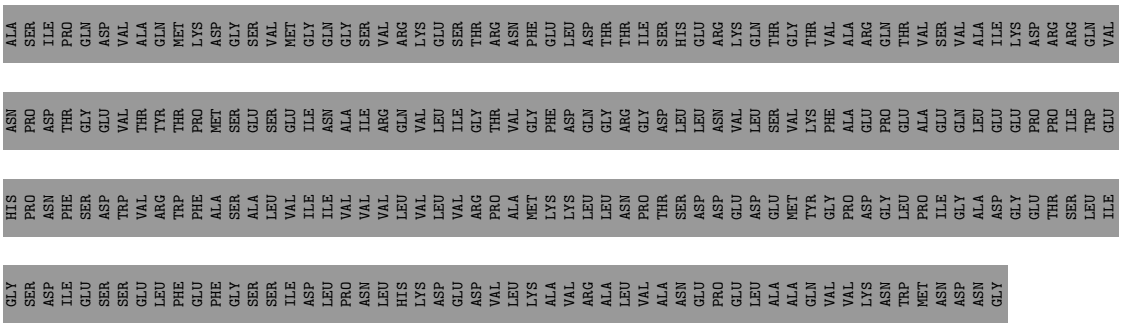
Chain X:



• Molecule 2: Flagellar M-ring protein

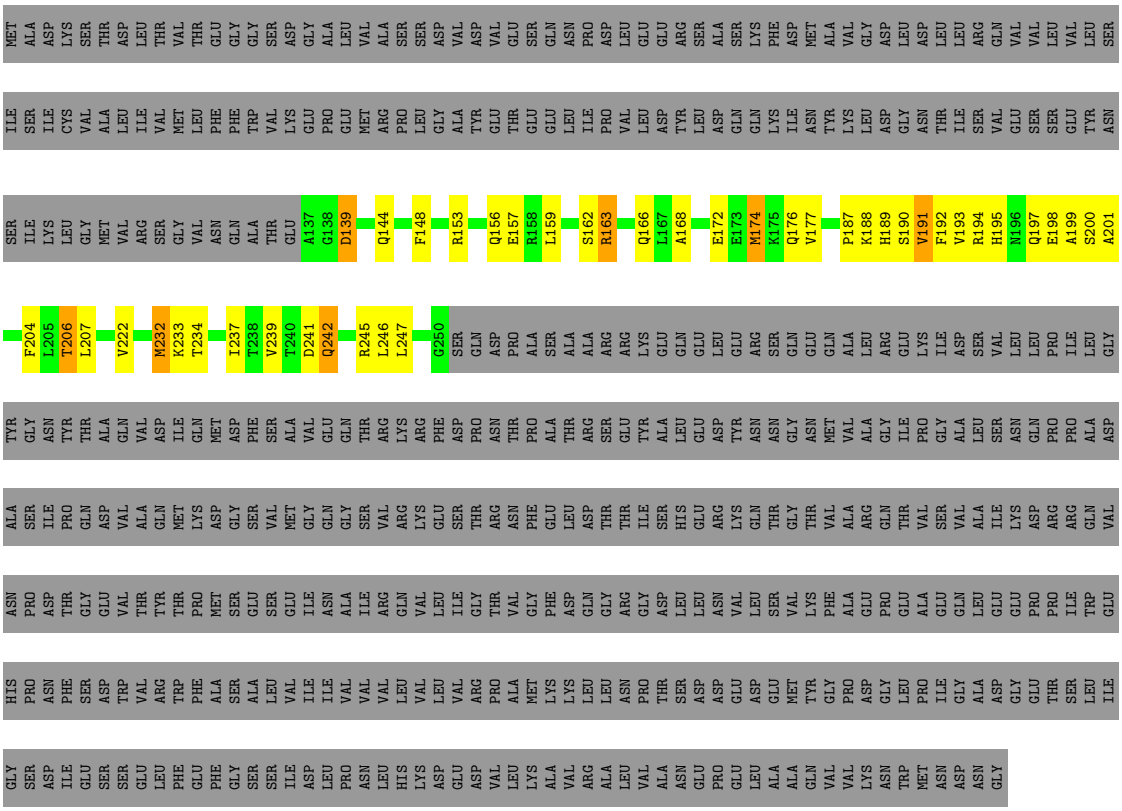
Chain Y:





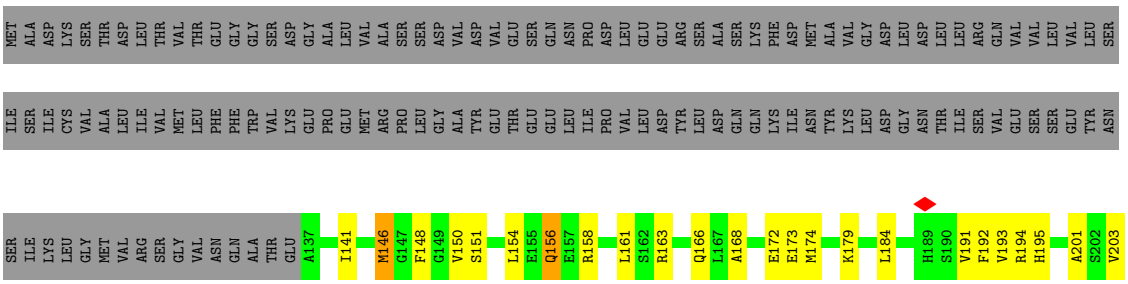
• Molecule 2: Flagellar M-ring protein

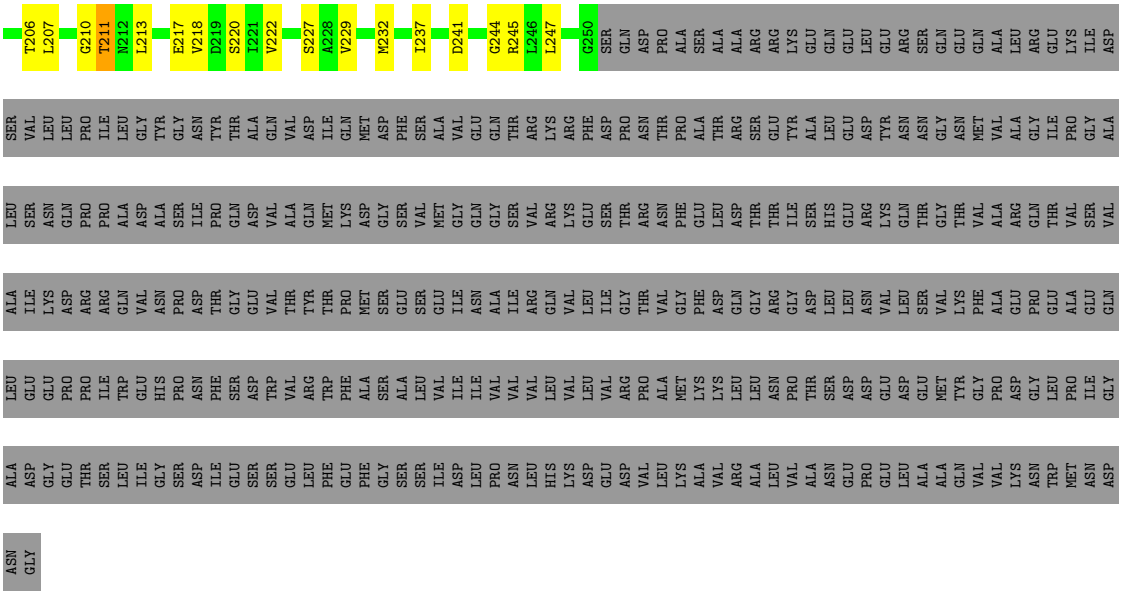
Chain Z:



• Molecule 2: Flagellar M-ring protein

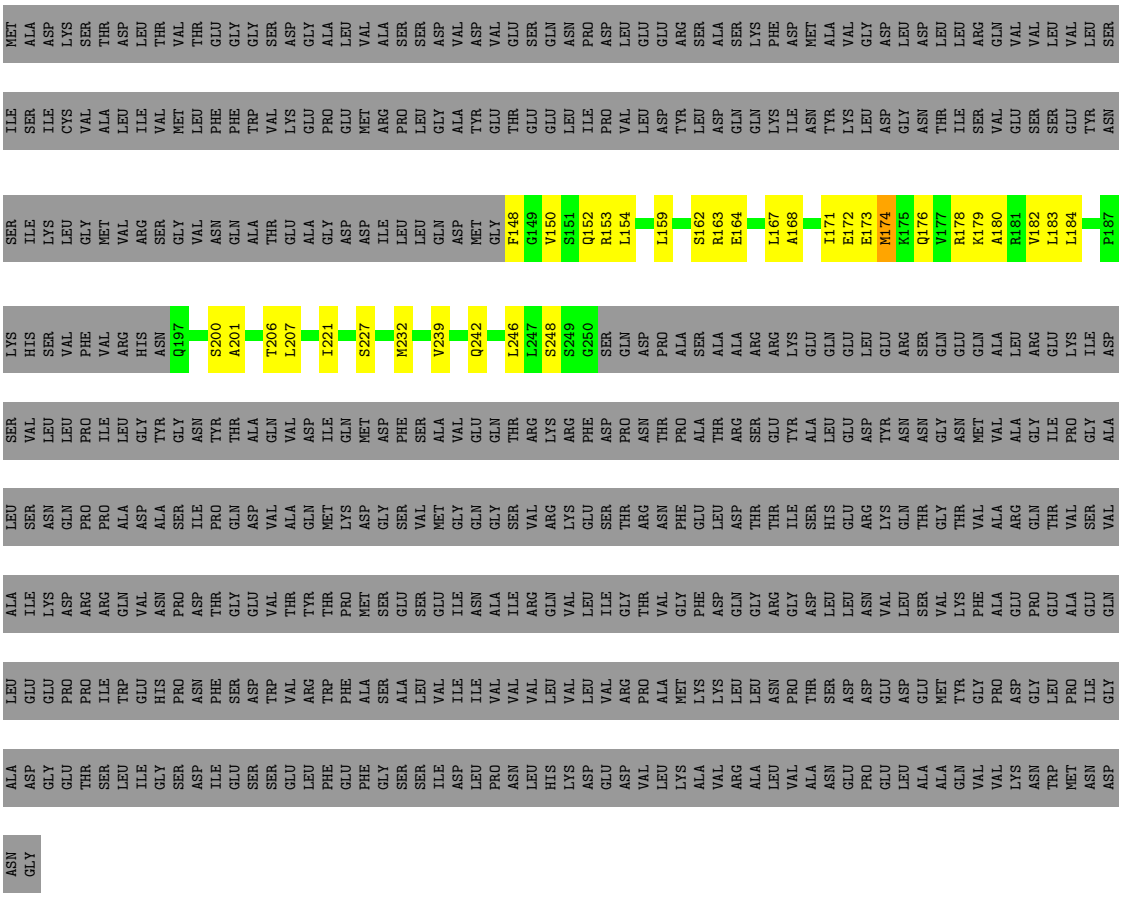
Chain a:





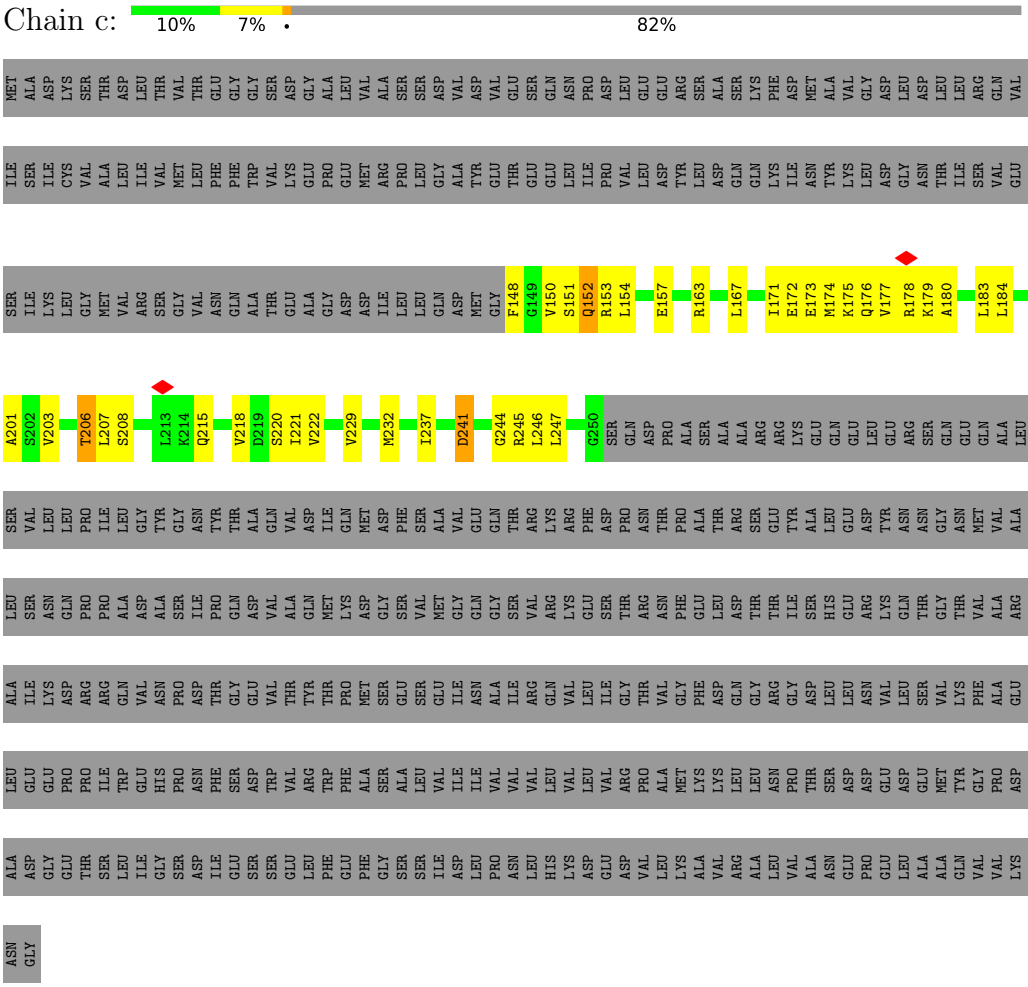
• Molecule 2: Flagellar M-ring protein

Chain b:



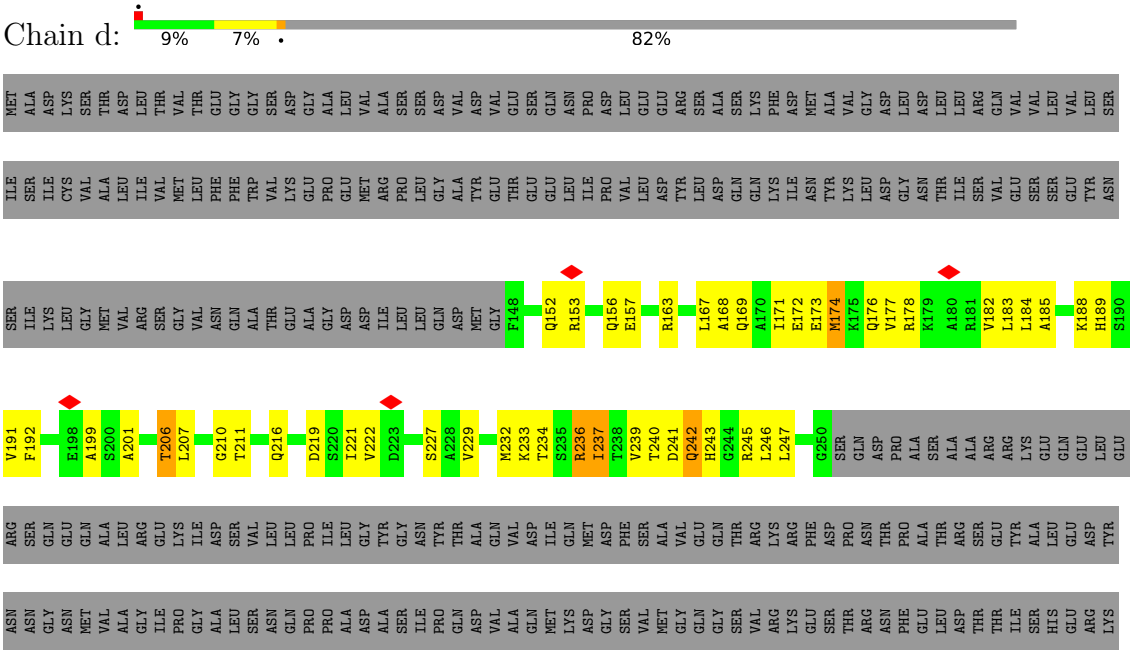
• Molecule 2: Flagellar M-ring protein

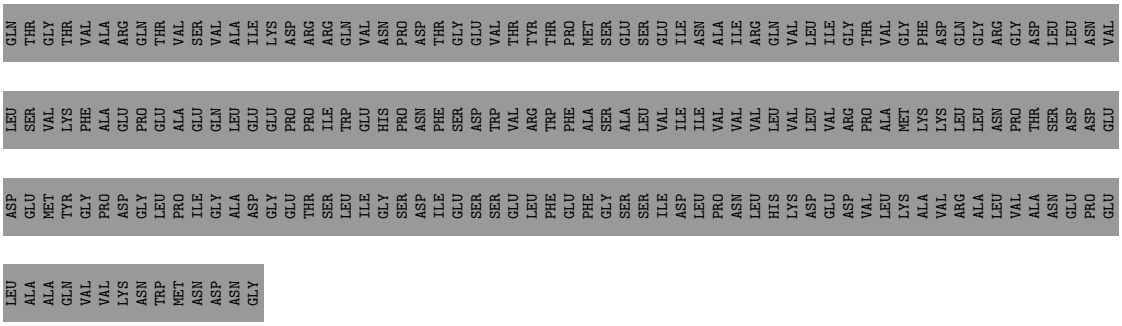
Chain c:



• Molecule 2: Flagellar M-ring protein

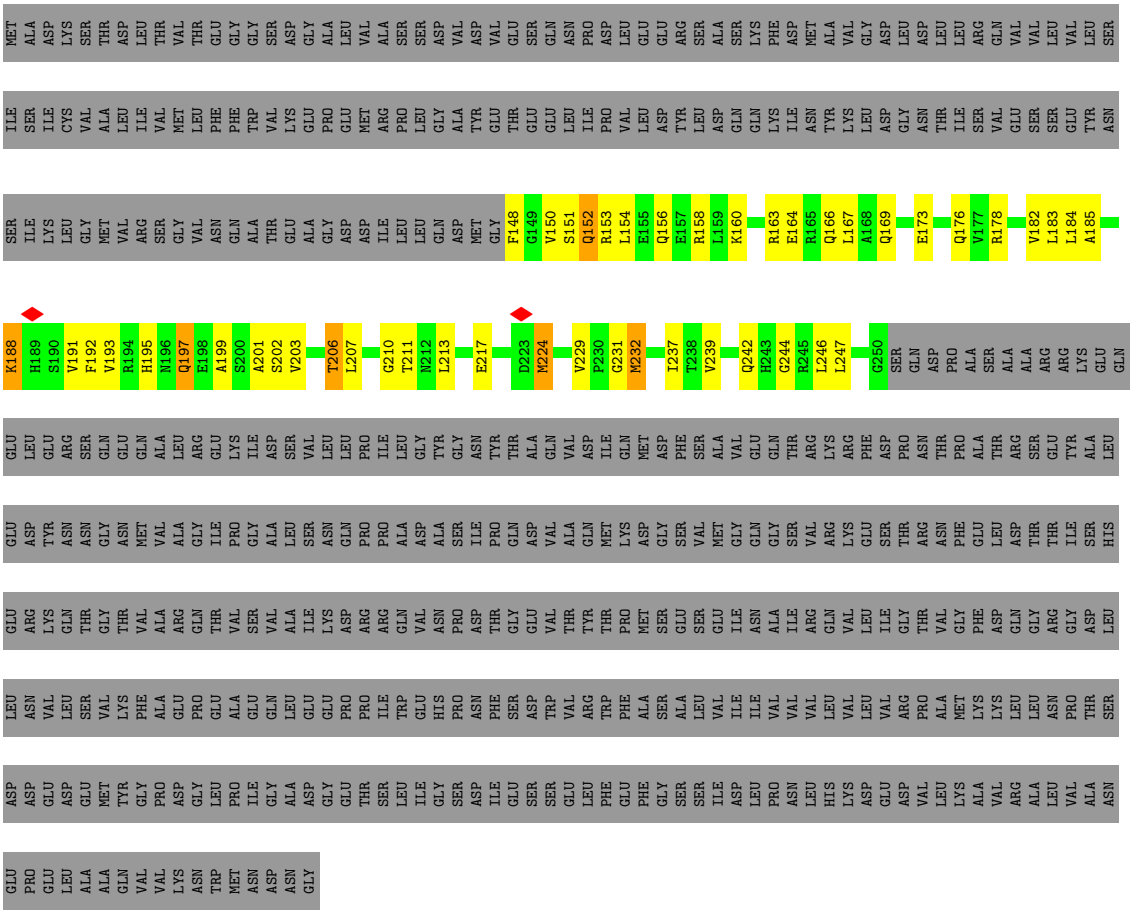
Chain d:





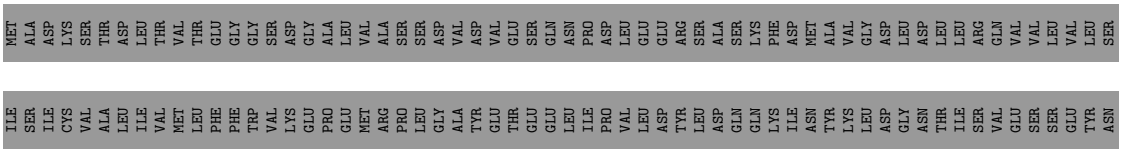
• Molecule 2: Flagellar M-ring protein

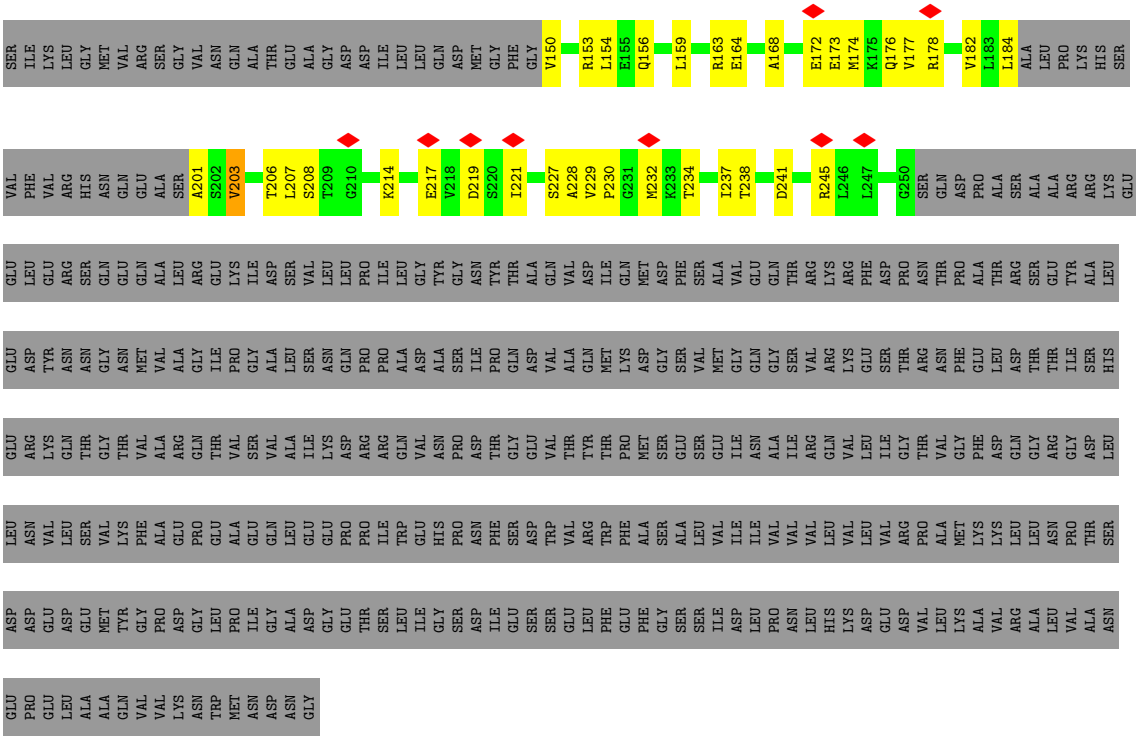
Chain e:



• Molecule 2: Flagellar M-ring protein

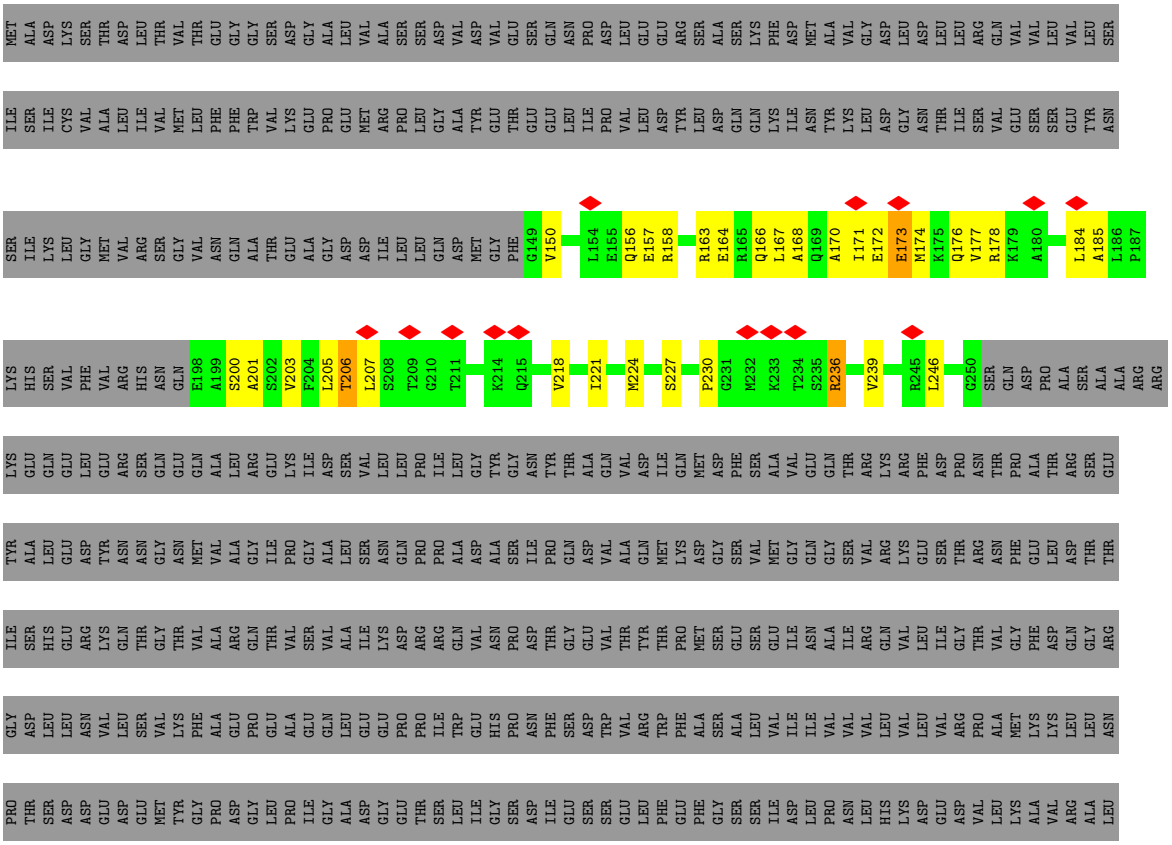
Chain f:

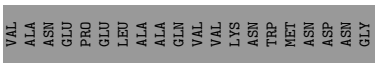




• Molecule 2: Flagellar M-ring protein

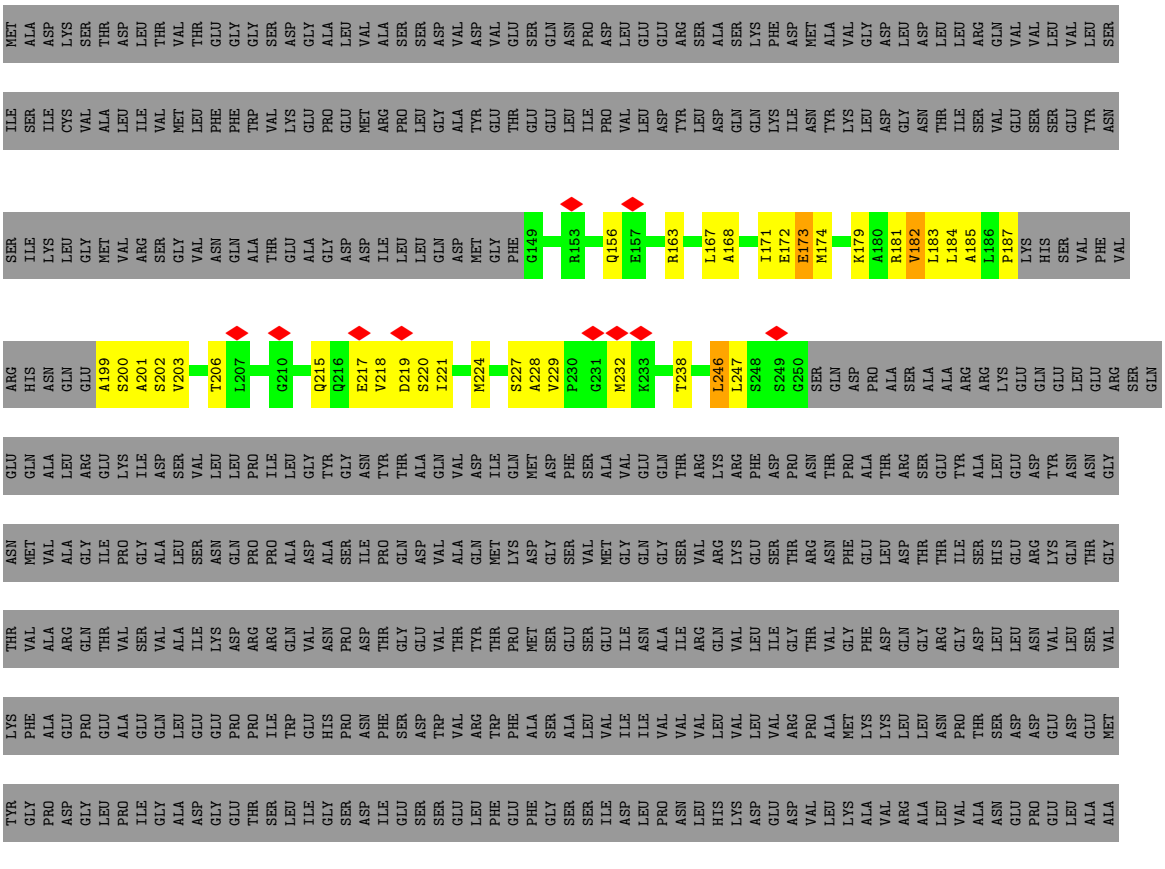
Chain g:





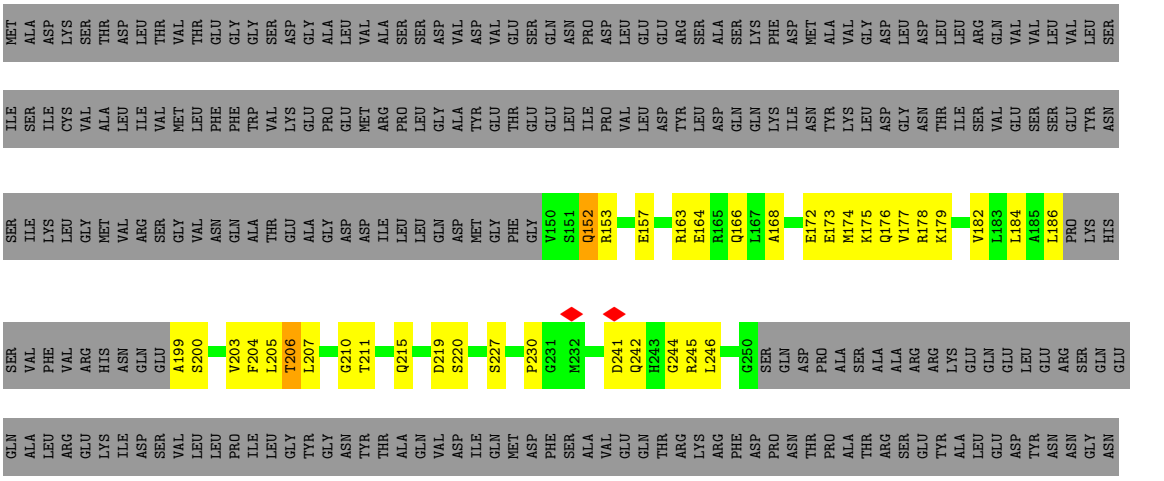
• Molecule 2: Flagellar M-ring protein

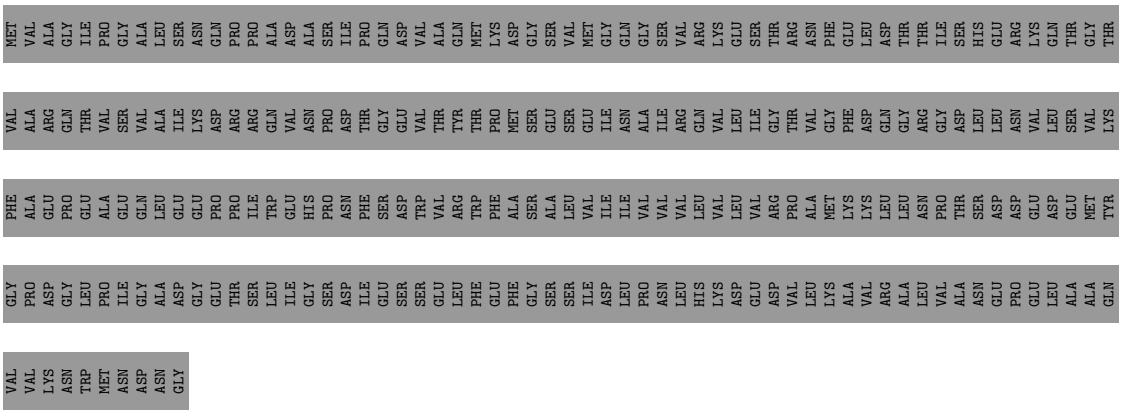
Chain h:



• Molecule 2: Flagellar M-ring protein

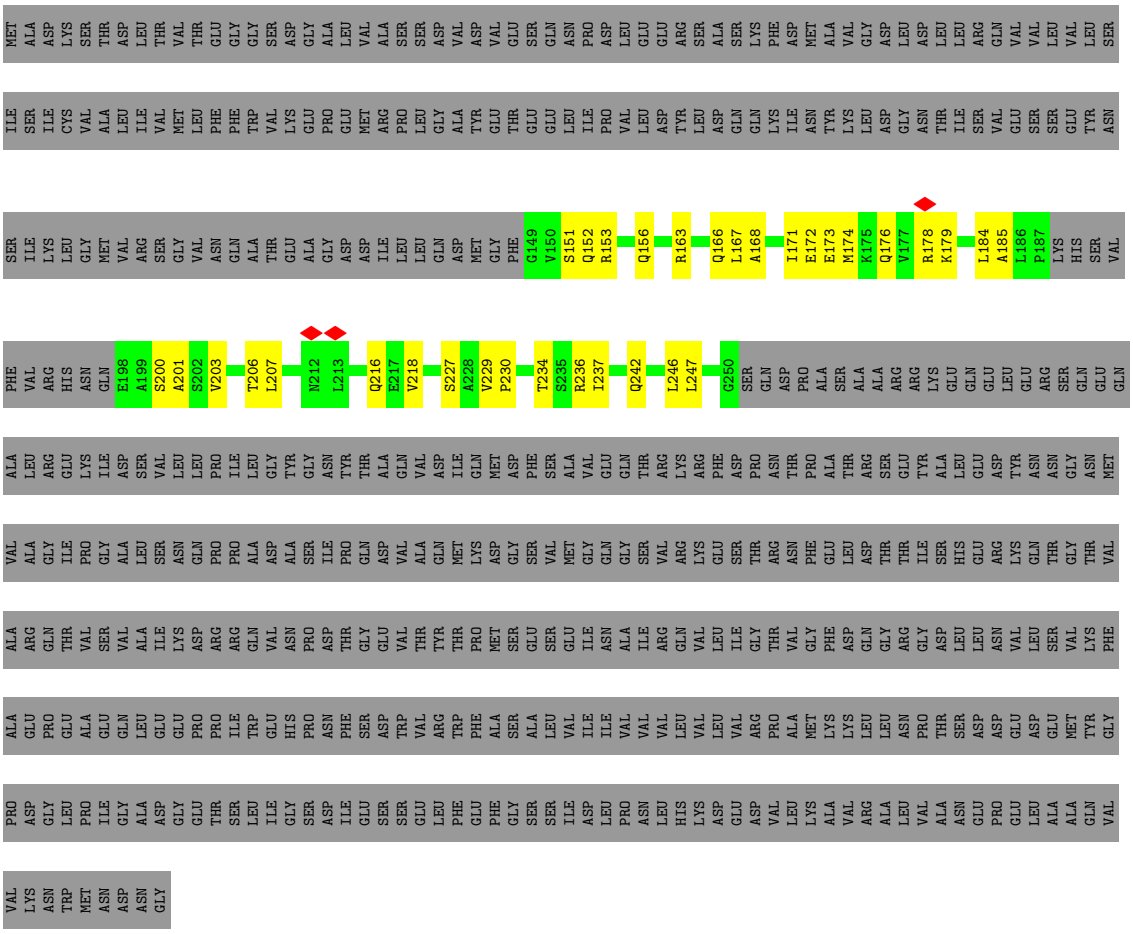
Chain i:





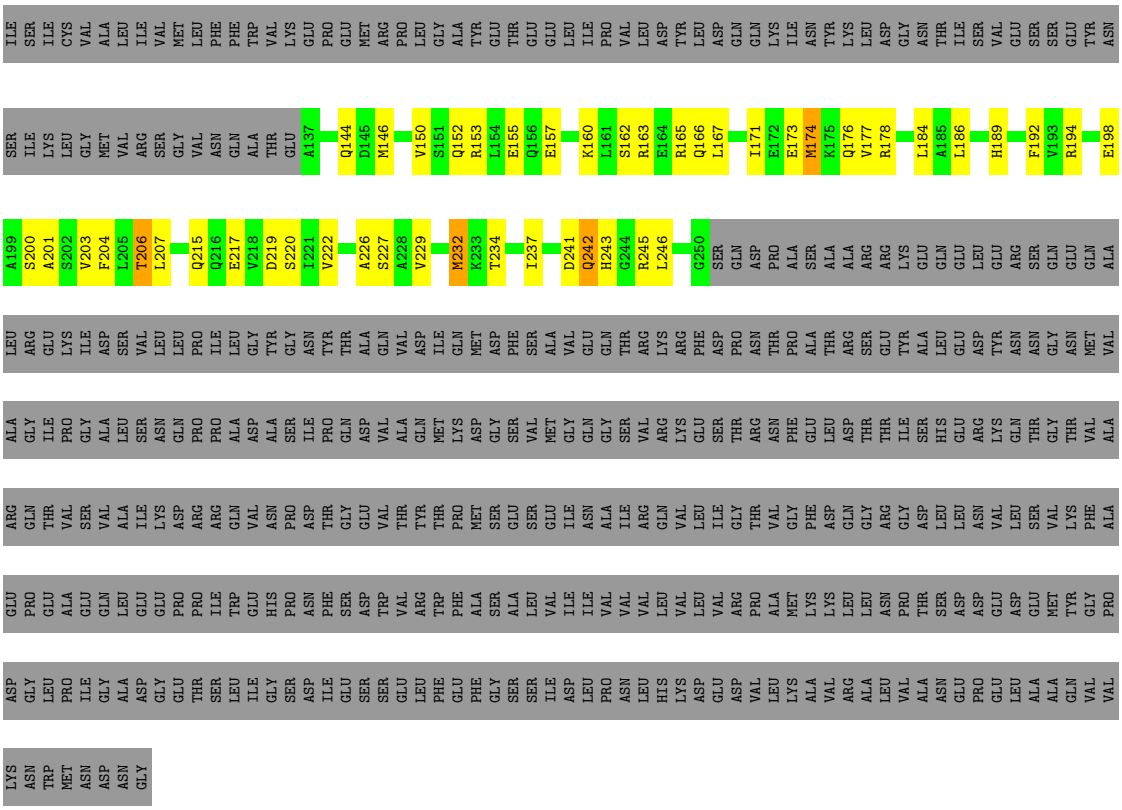
• Molecule 2: Flagellar M-ring protein

Chain j:



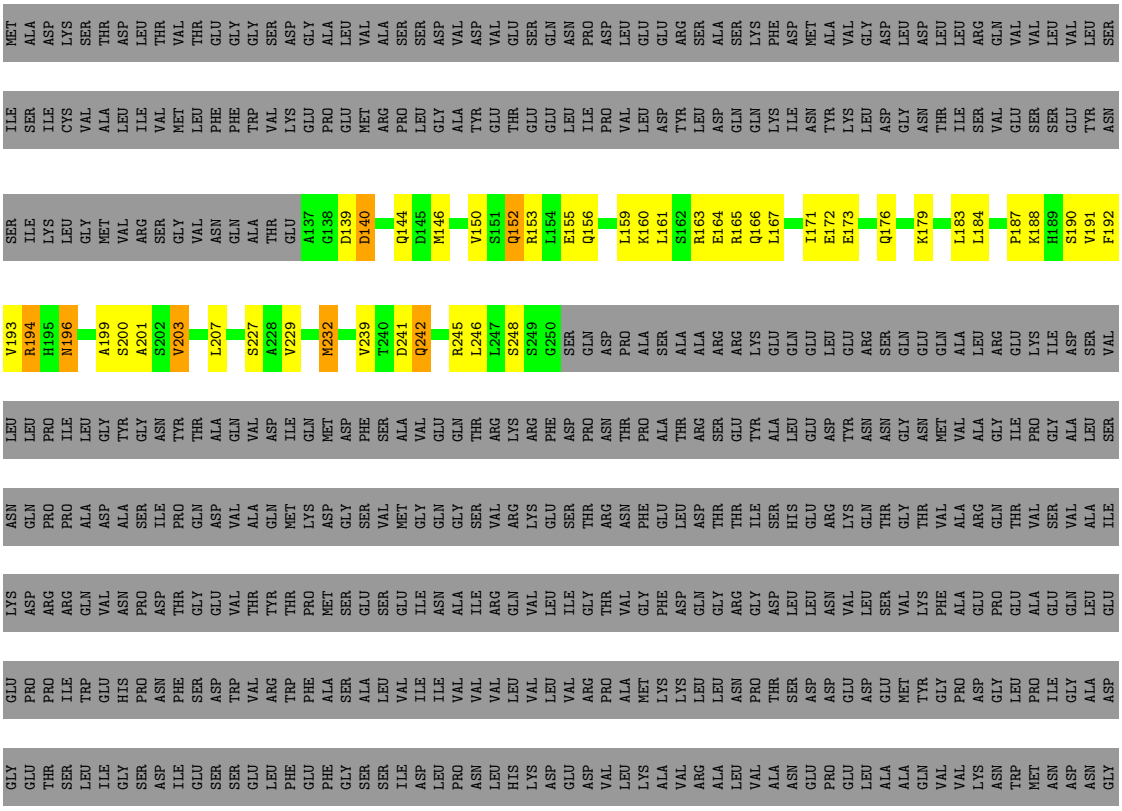
• Molecule 2: Flagellar M-ring protein

Chain k:



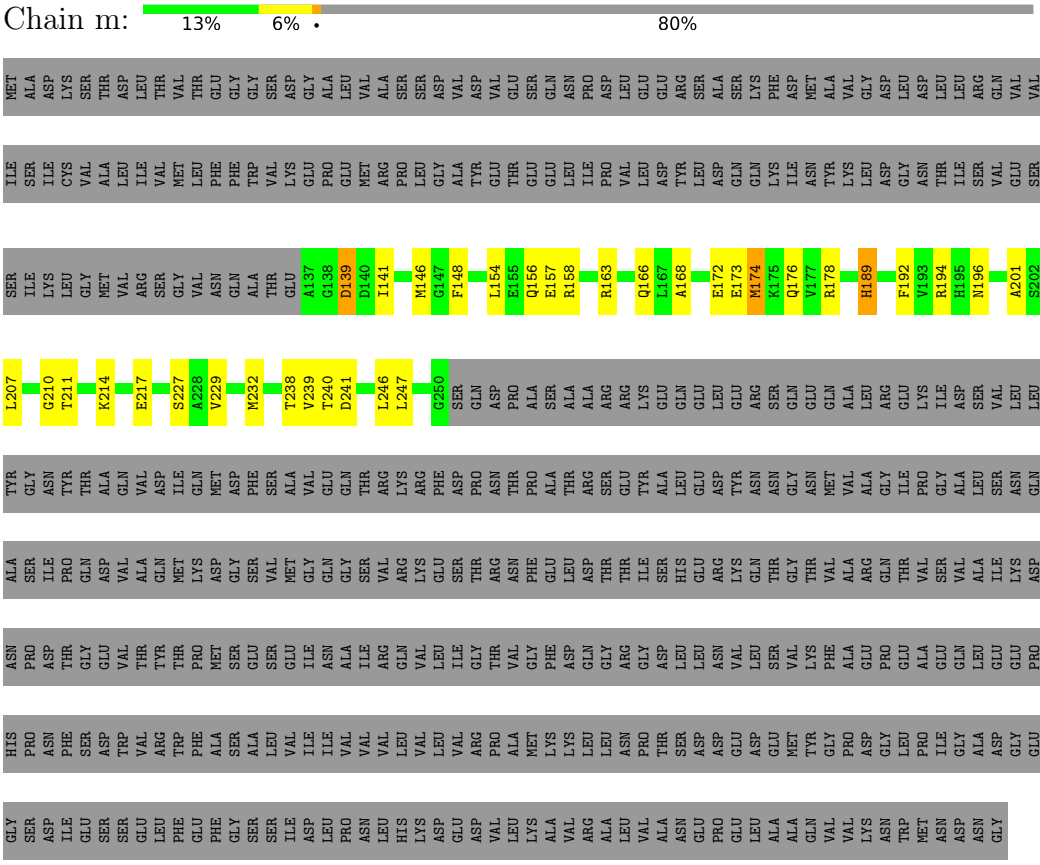
• Molecule 2: Flagellar M-ring protein

Chain l:



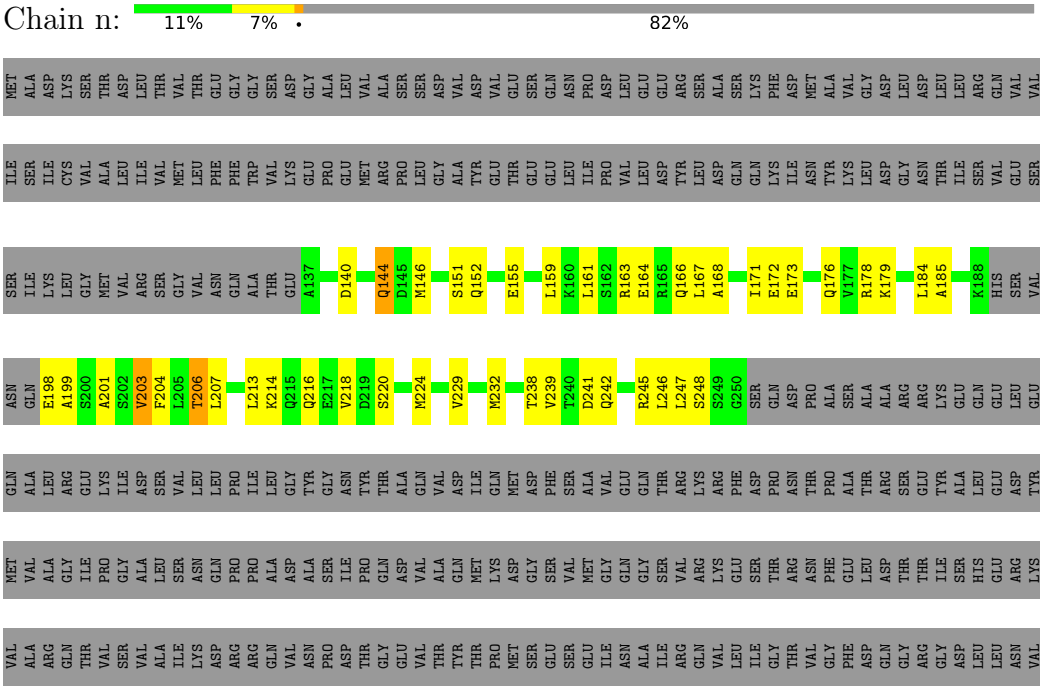
• Molecule 2: Flagellar M-ring protein

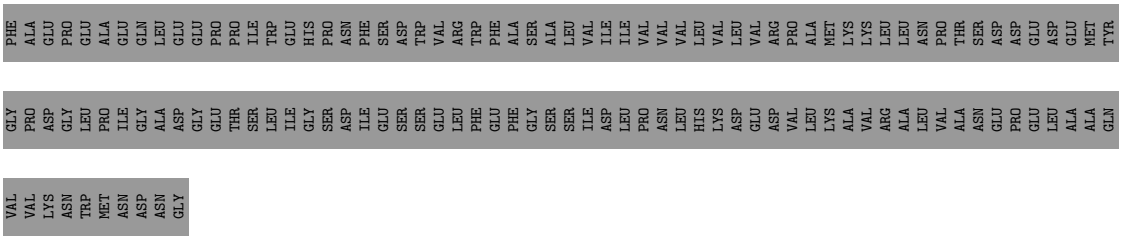
Chain m:



• Molecule 2: Flagellar M-ring protein

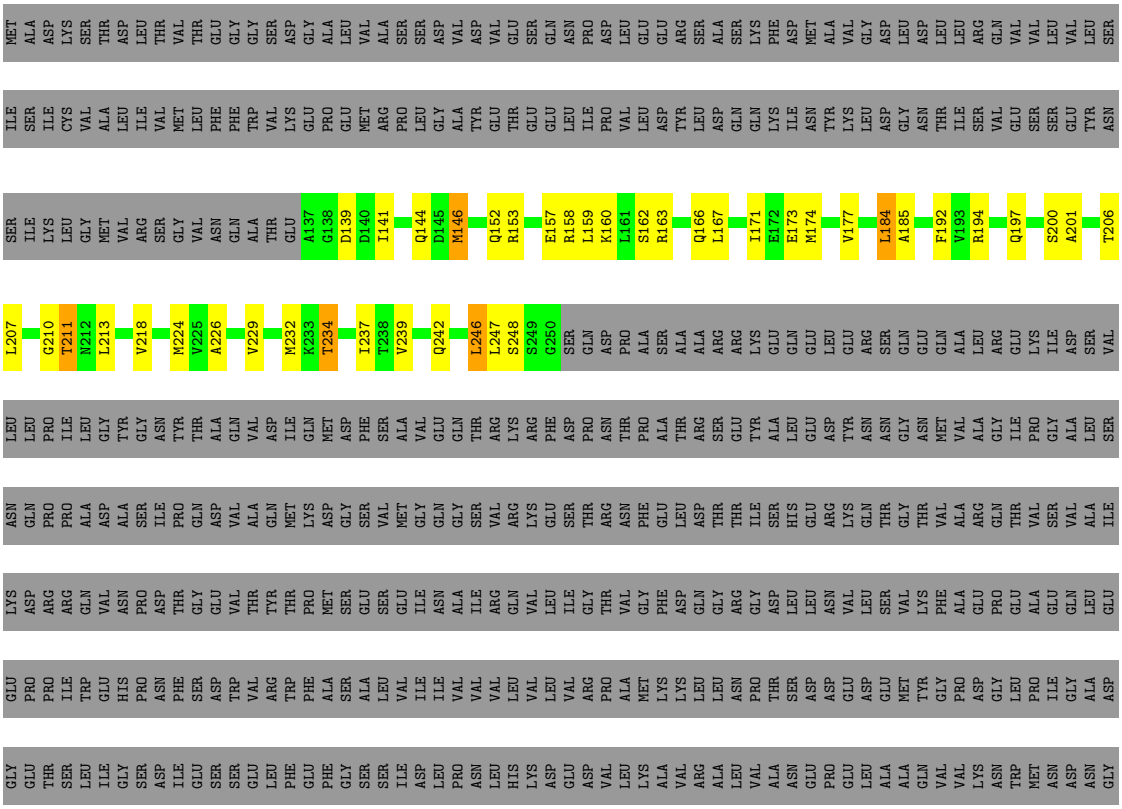
Chain n:





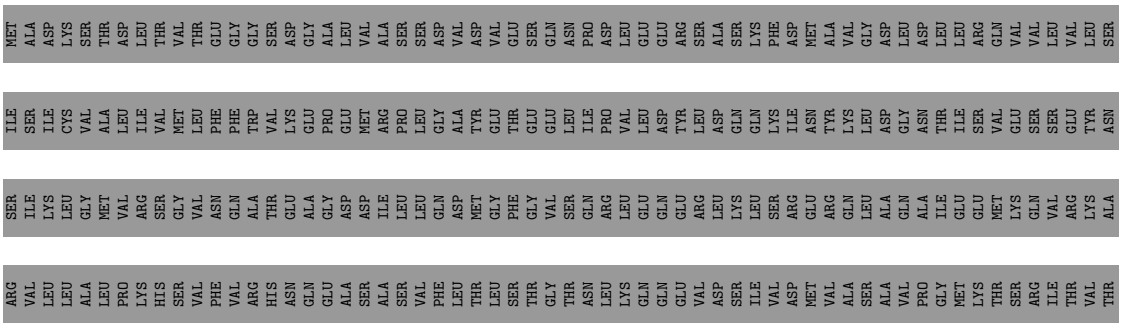
• Molecule 2: Flagellar M-ring protein

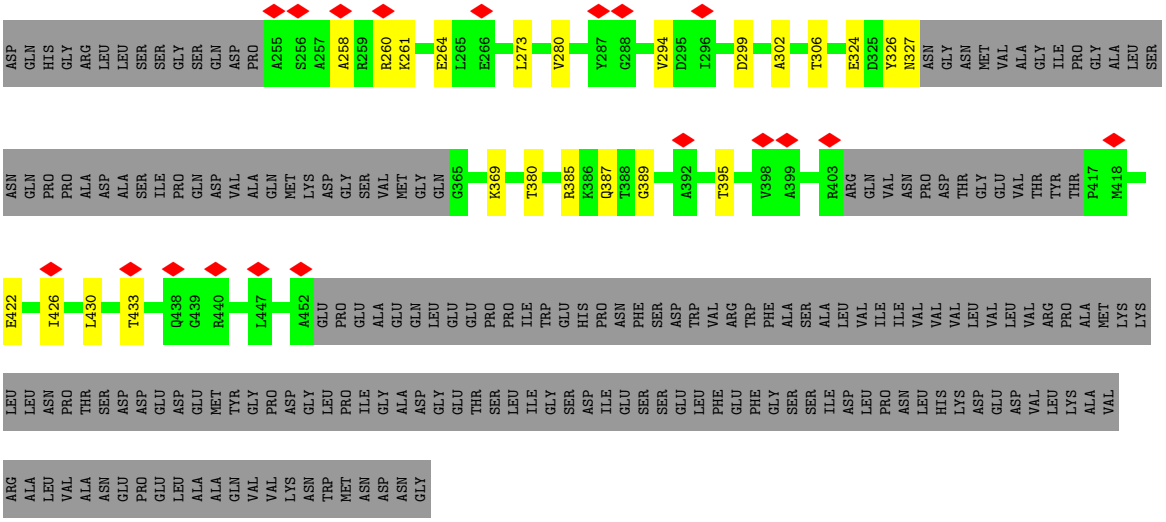
Chain o:



• Molecule 2: Flagellar M-ring protein

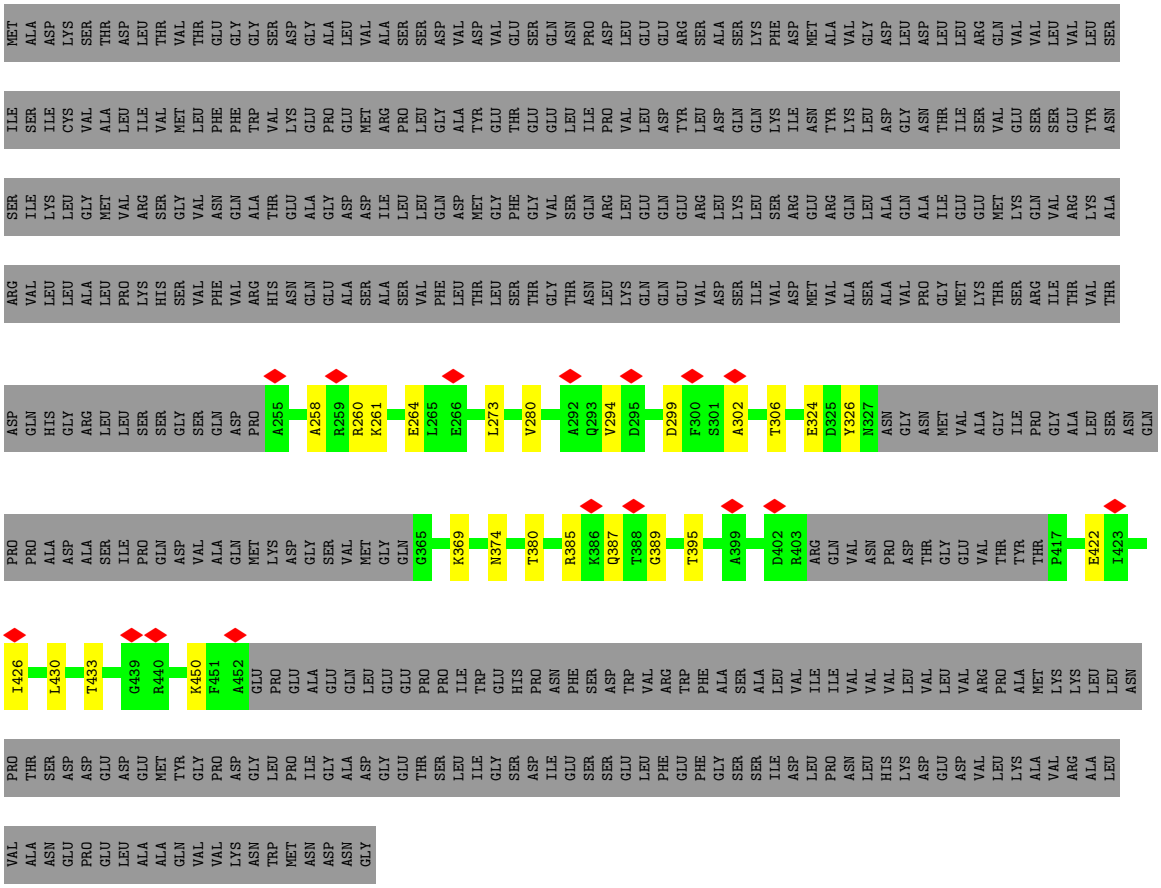
Chain p:





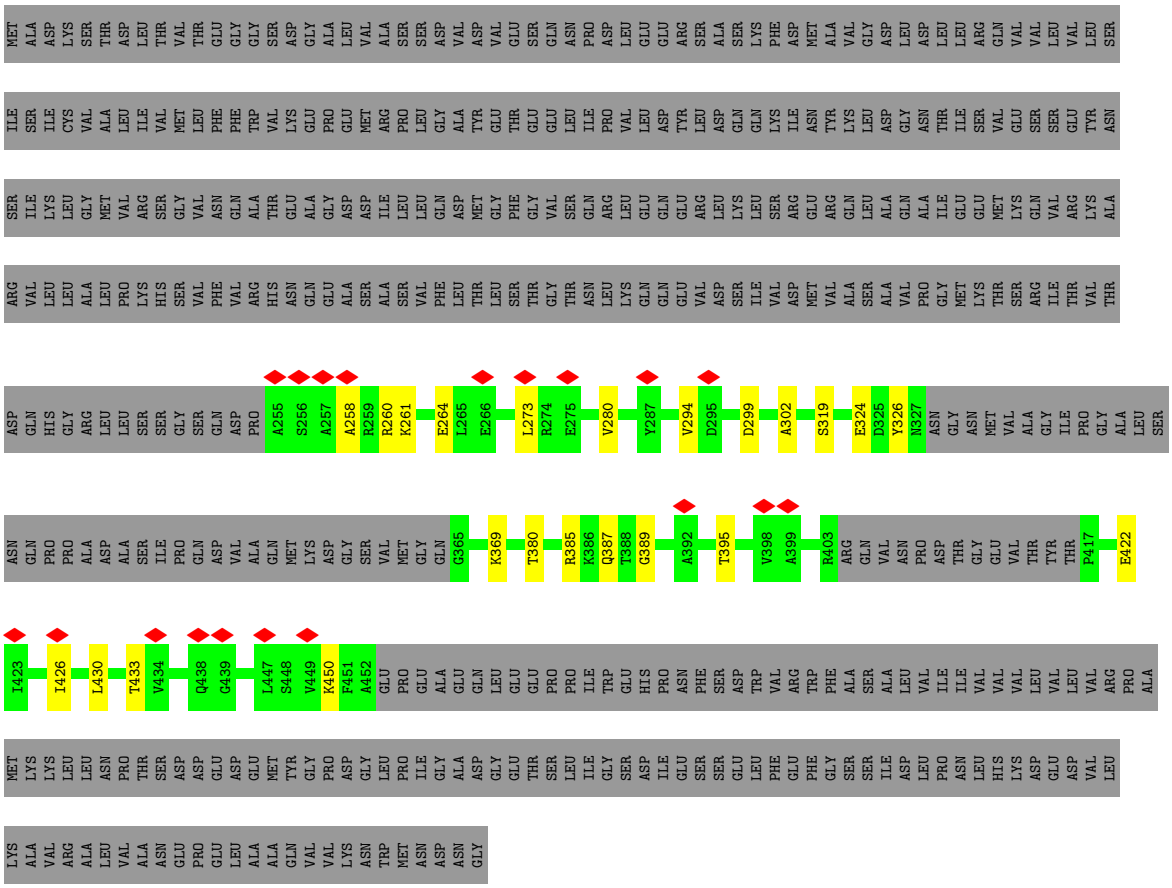
• Molecule 2: Flagellar M-ring protein

Chain q:



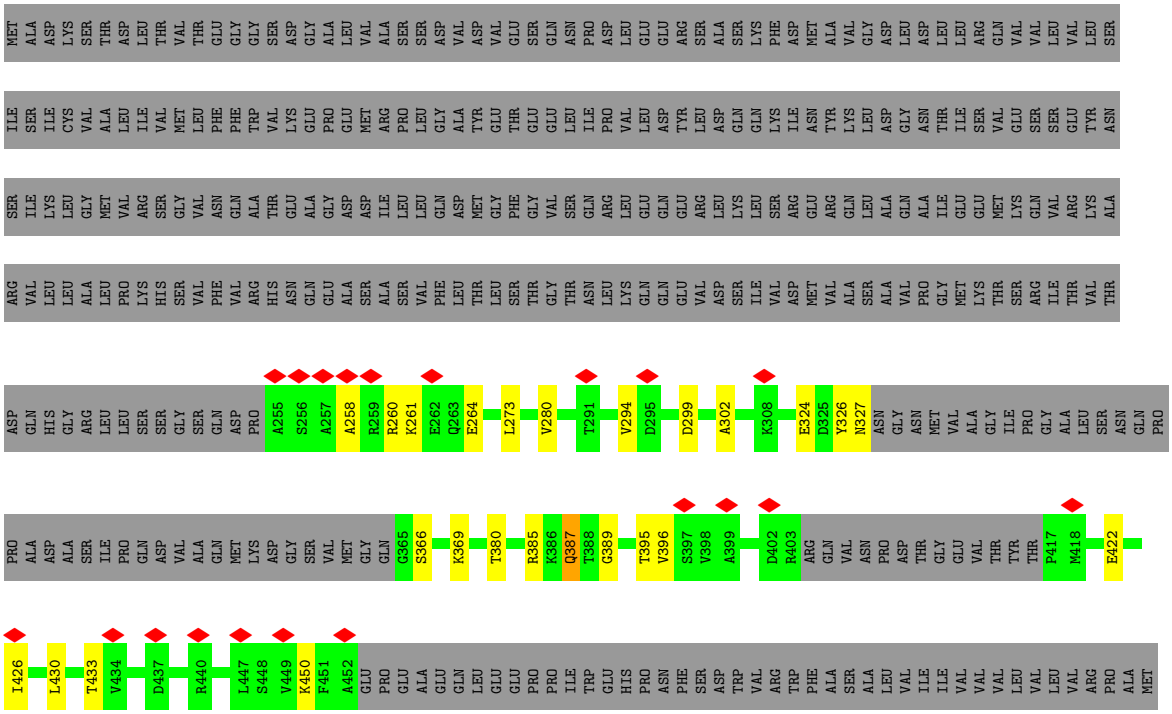
• Molecule 2: Flagellar M-ring protein

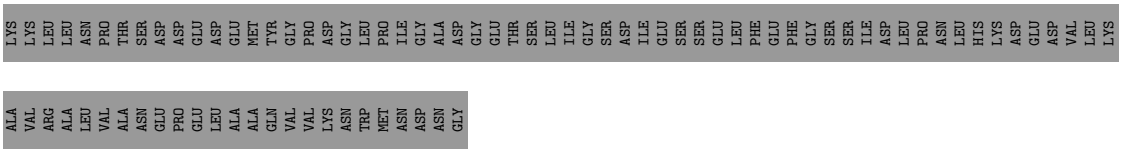
Chain r:



• Molecule 2: Flagellar M-ring protein

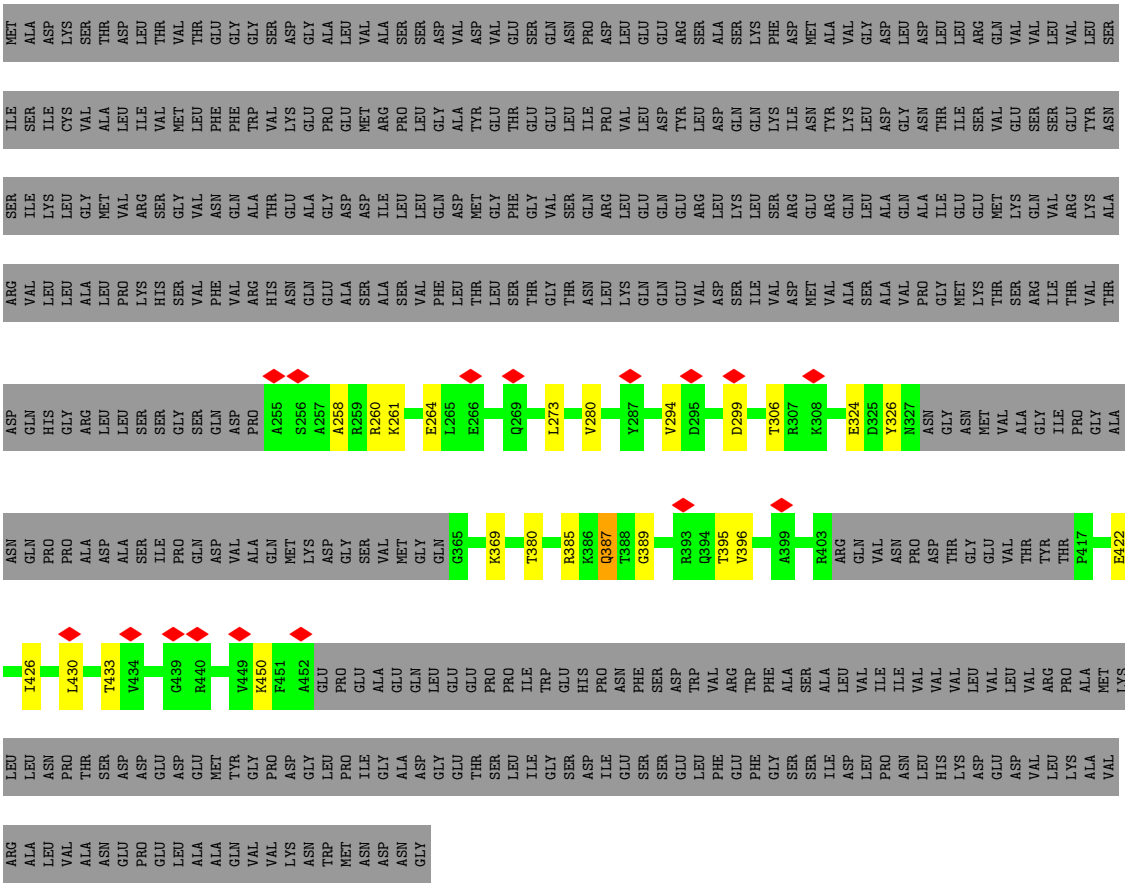
Chain s:





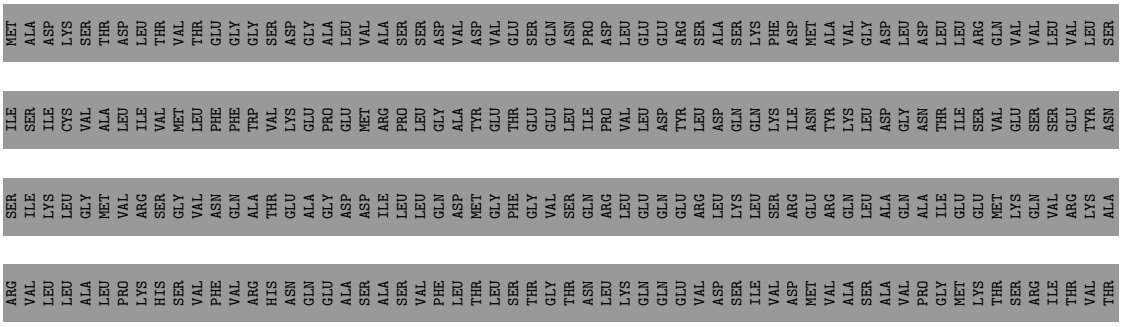
• Molecule 2: Flagellar M-ring protein

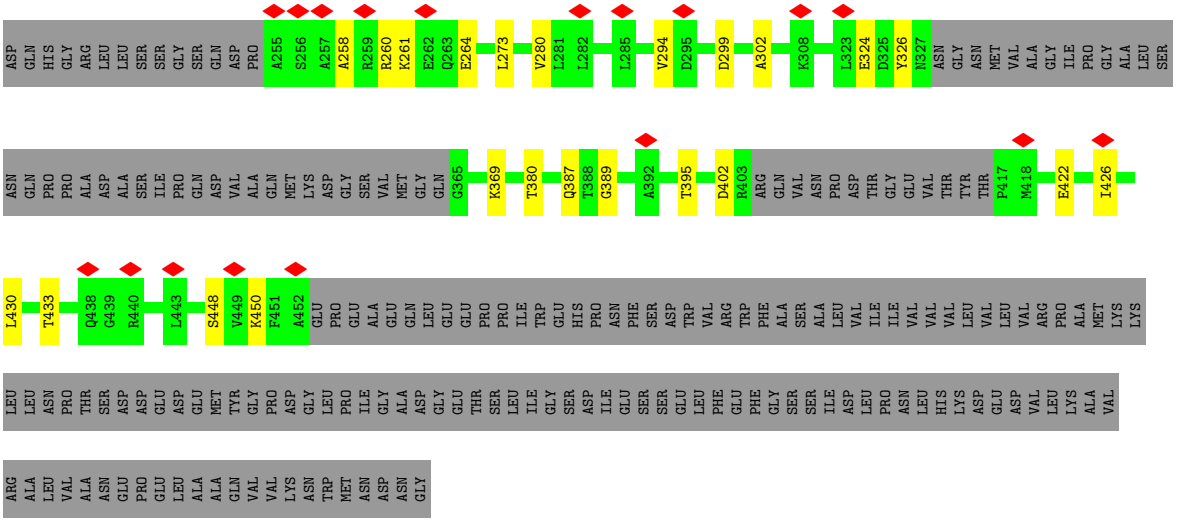
Chain t:



• Molecule 2: Flagellar M-ring protein

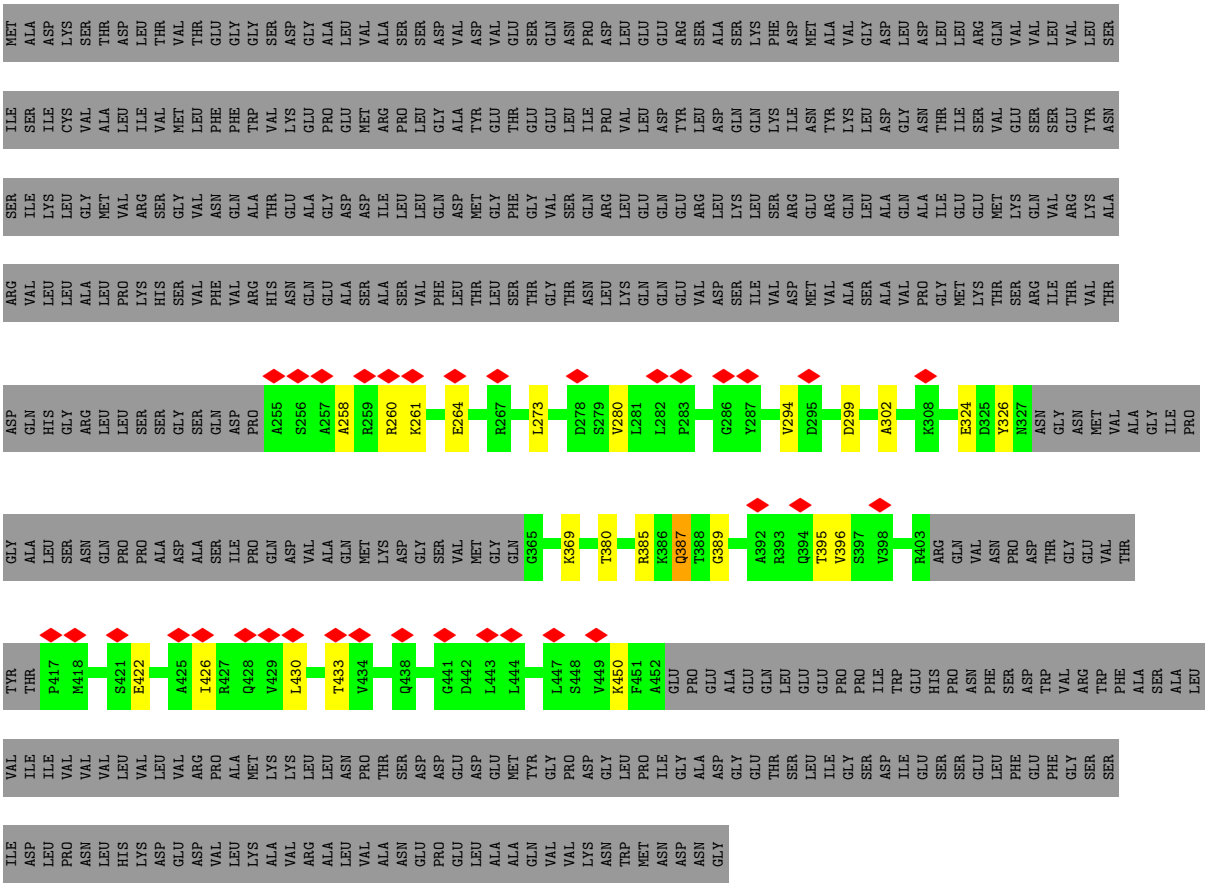
Chain u:





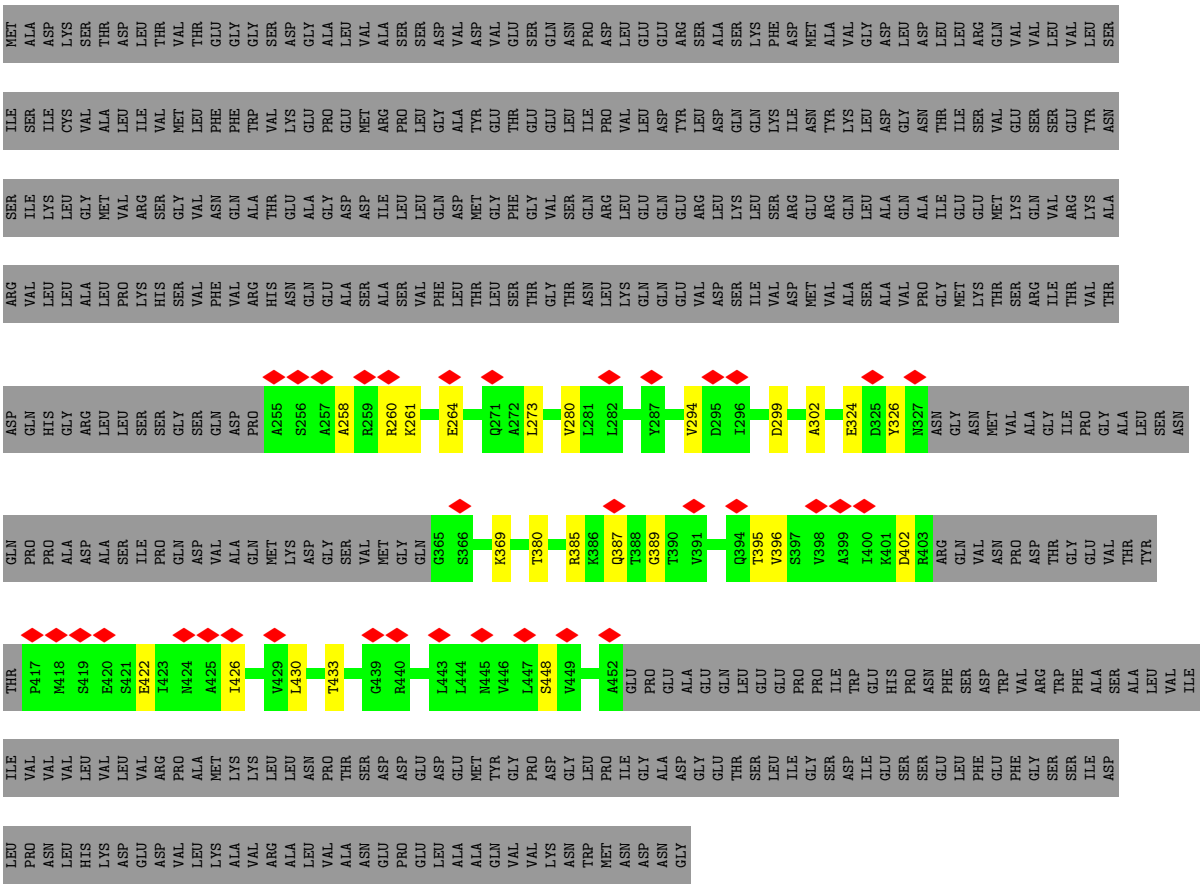
• Molecule 2: Flagellar M-ring protein

Chain v:



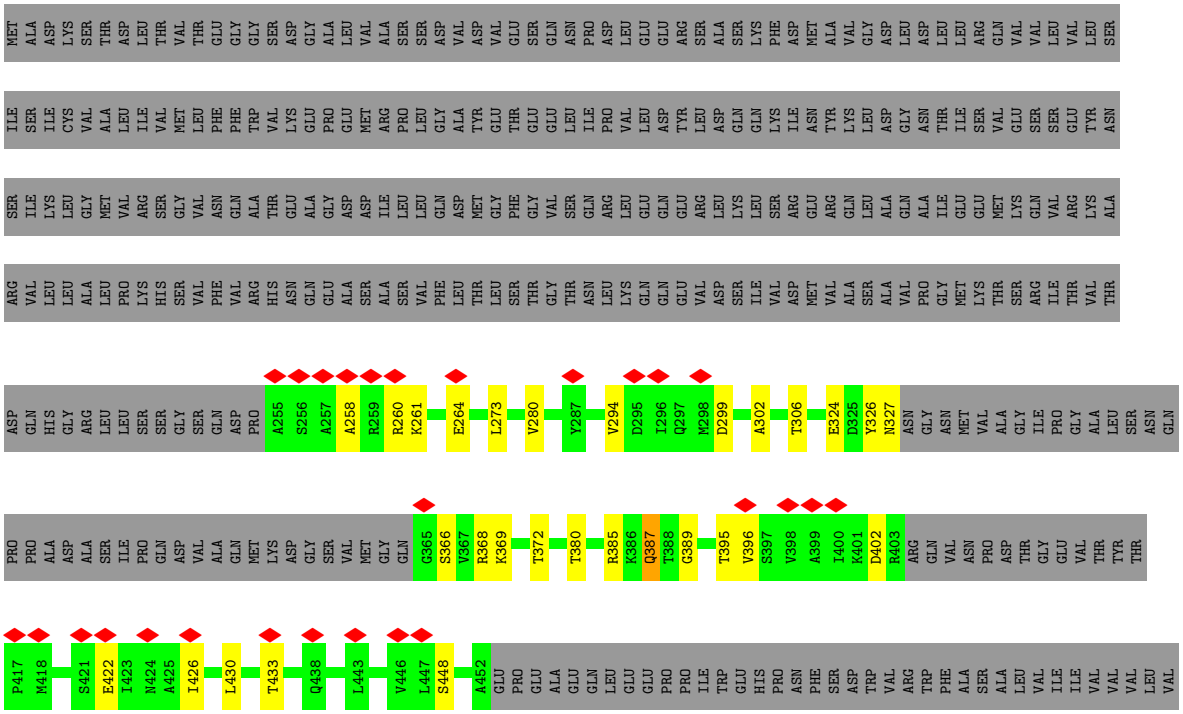
• Molecule 2: Flagellar M-ring protein

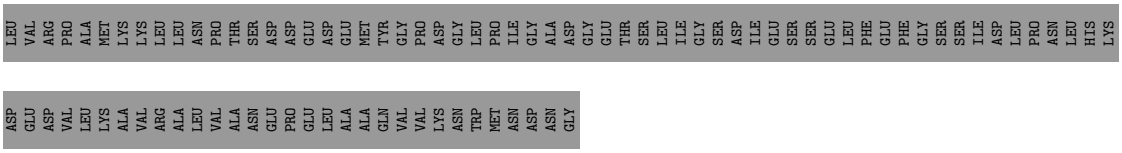
Chain w:



• Molecule 2: Flagellar M-ring protein

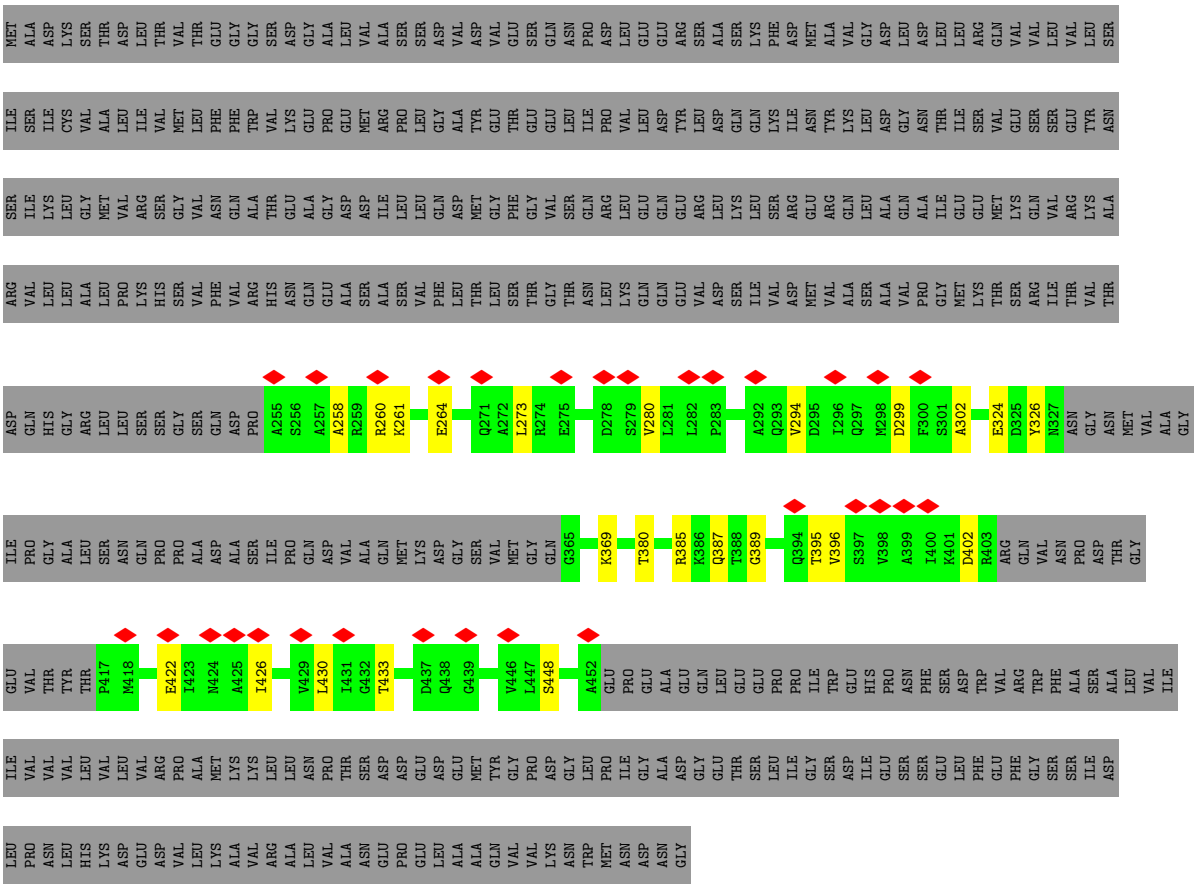
Chain x:





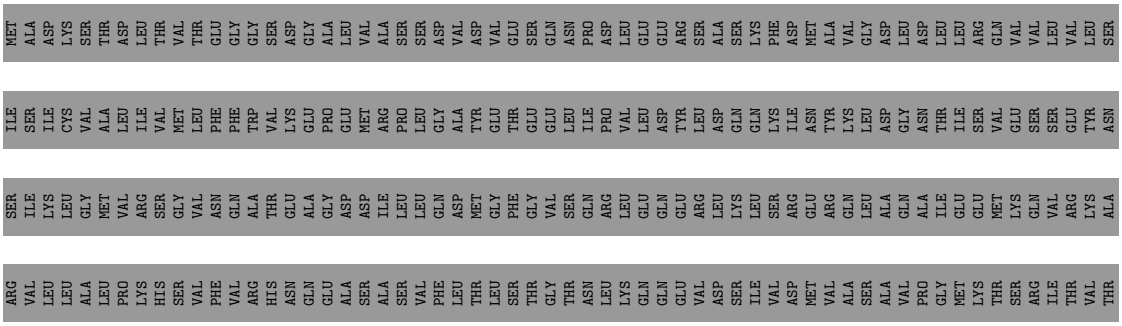
• Molecule 2: Flagellar M-ring protein

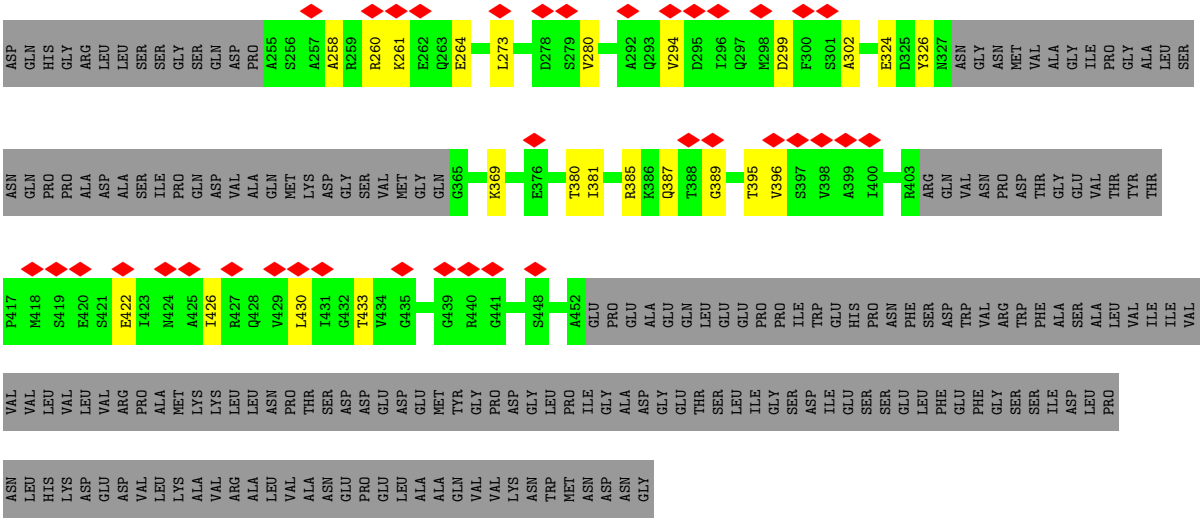
Chain y:



• Molecule 2: Flagellar M-ring protein

Chain z:





• Molecule 3: Flagellar biosynthetic protein FliQ

Chain 6:

• Molecule 3: Flagellar biosynthetic protein FliQ

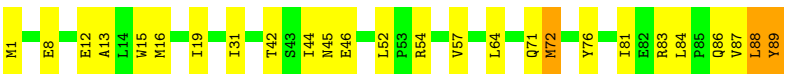
Chain 7:

• Molecule 3: Flagellar biosynthetic protein FliQ

Chain AQ:

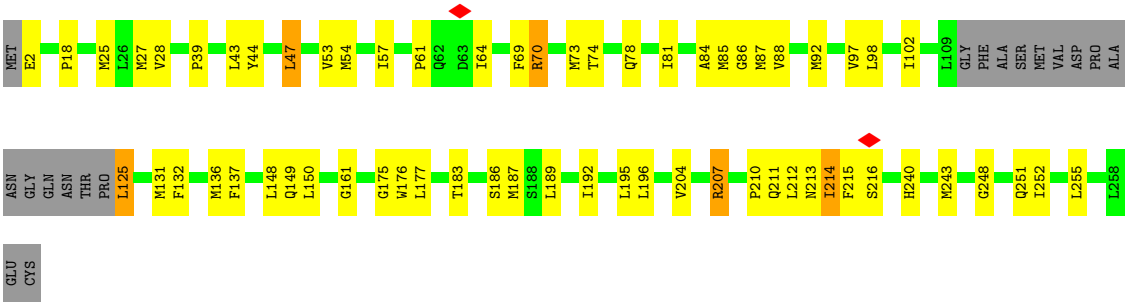
• Molecule 3: Flagellar biosynthetic protein FliQ

Chain AR:



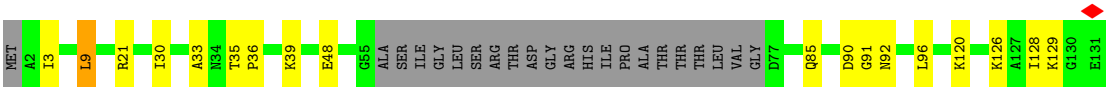
• Molecule 4: Flagellar biosynthetic protein FliR

Chain 8:



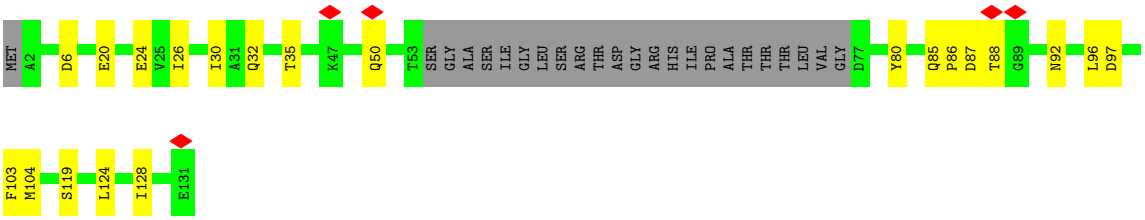
• Molecule 5: Flagellar basal body rod protein FlgB

Chain AS:



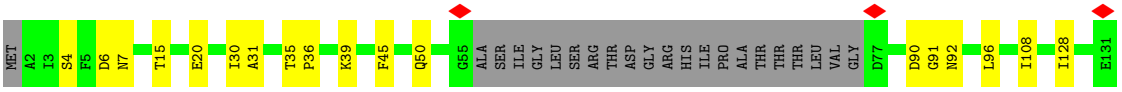
• Molecule 5: Flagellar basal body rod protein FlgB

Chain AT:



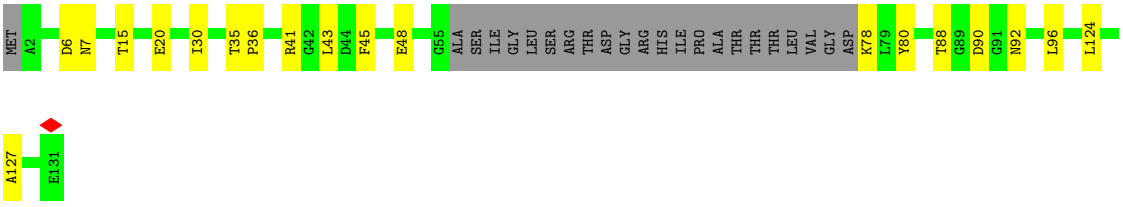
• Molecule 5: Flagellar basal body rod protein FlgB

Chain AU:



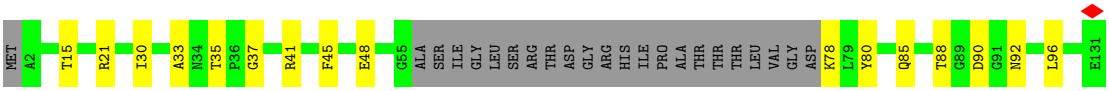
• Molecule 5: Flagellar basal body rod protein FlgB

Chain AV:



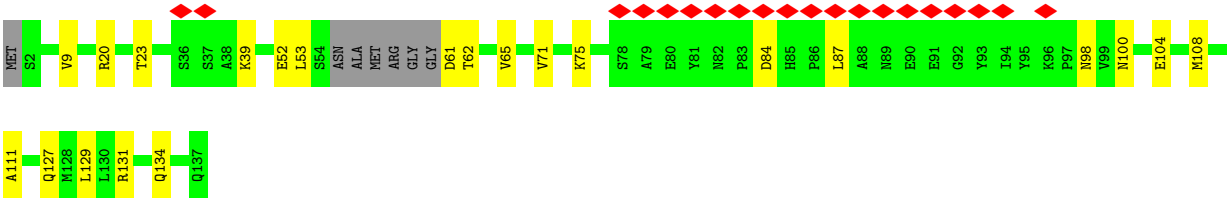
• Molecule 5: Flagellar basal body rod protein FlgB

Chain AW:



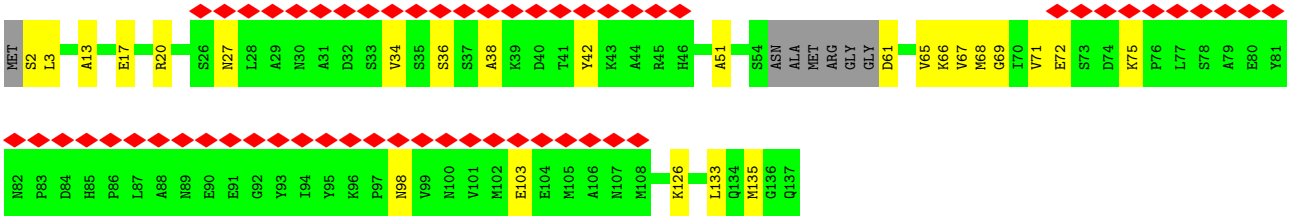
• Molecule 6: Flagellar basal-body rod protein FlgC

Chain AX:



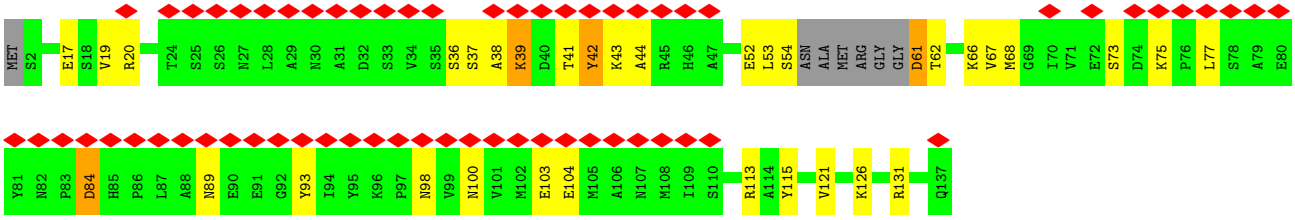
• Molecule 6: Flagellar basal-body rod protein FlgC

Chain AY:



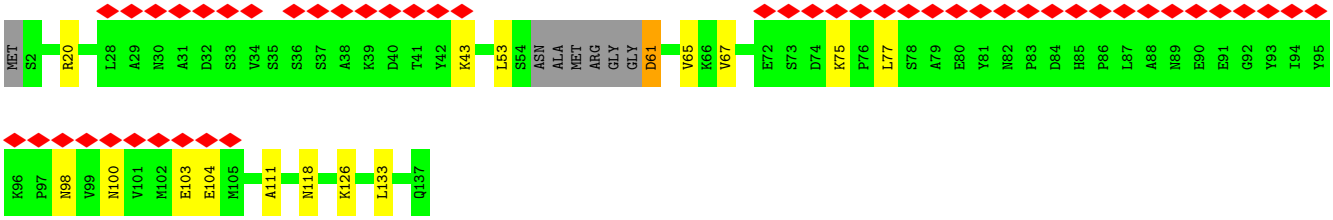
• Molecule 6: Flagellar basal-body rod protein FlgC

Chain AZ:



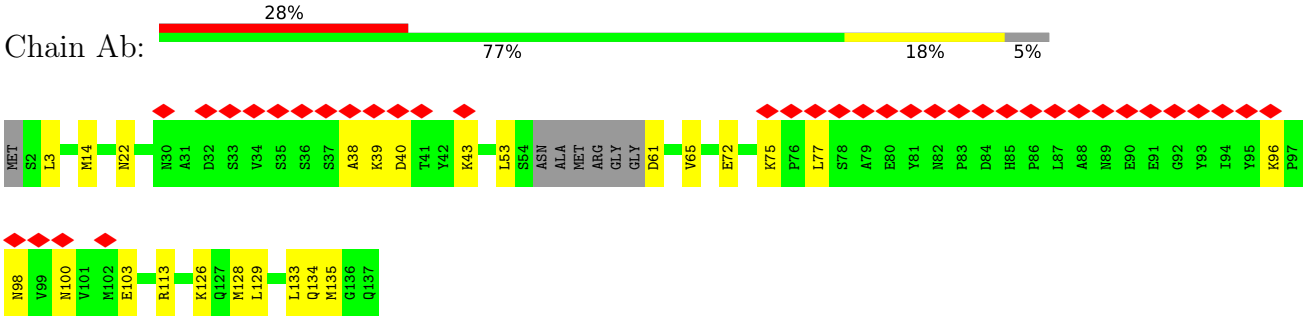
• Molecule 6: Flagellar basal-body rod protein FlgC

Chain Aa:



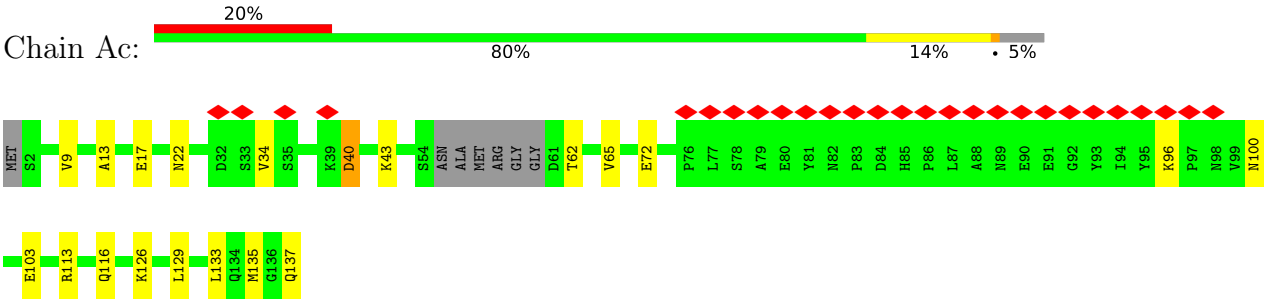
• Molecule 6: Flagellar basal-body rod protein FlgC

Chain Ab:



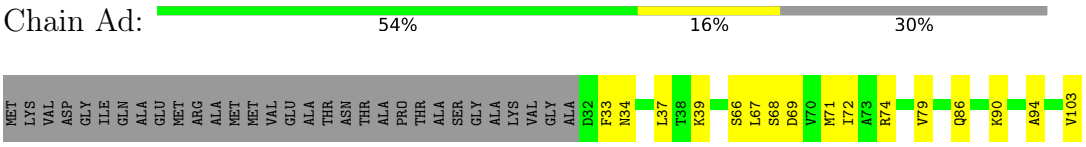
• Molecule 6: Flagellar basal-body rod protein FlgC

Chain Ac:



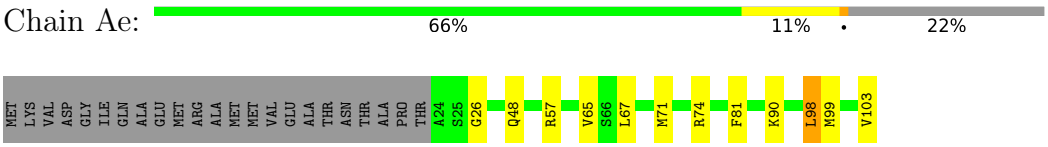
• Molecule 7: Flagellar hook-basal body complex protein FliE

Chain Ad:



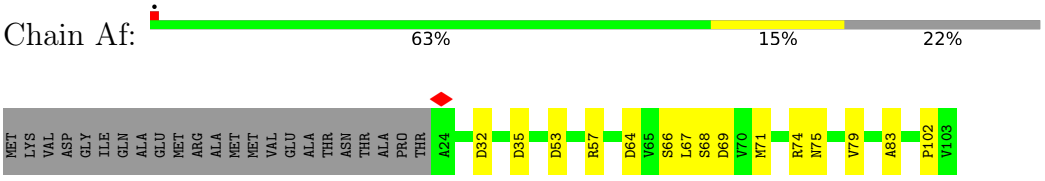
• Molecule 7: Flagellar hook-basal body complex protein FliE

Chain Ae:



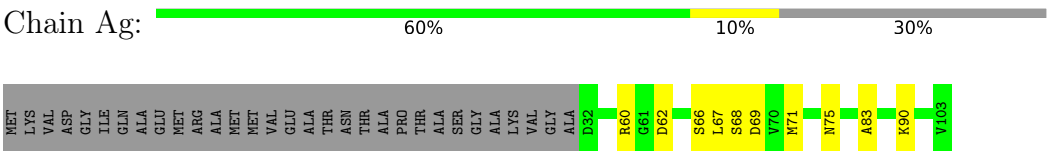
• Molecule 7: Flagellar hook-basal body complex protein FliE

Chain Af:



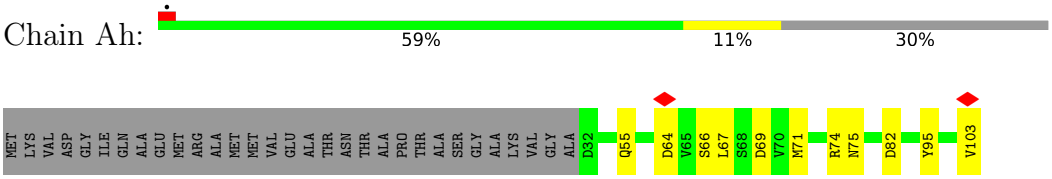
• Molecule 7: Flagellar hook-basal body complex protein FliE

Chain Ag:



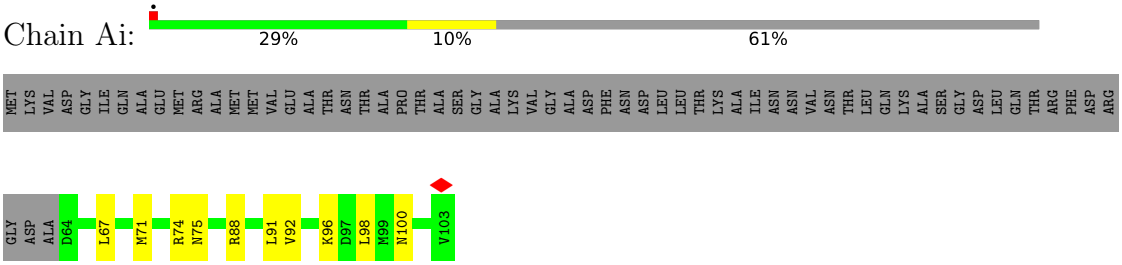
• Molecule 7: Flagellar hook-basal body complex protein FliE

Chain Ah:



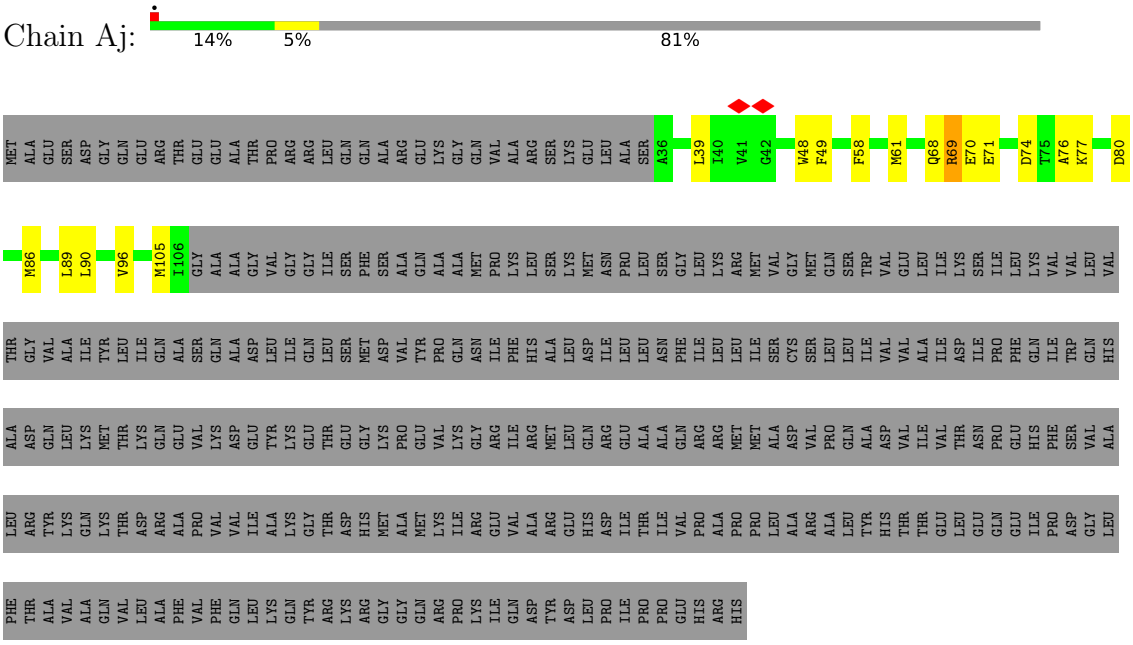
• Molecule 7: Flagellar hook-basal body complex protein FliE

Chain Ai:



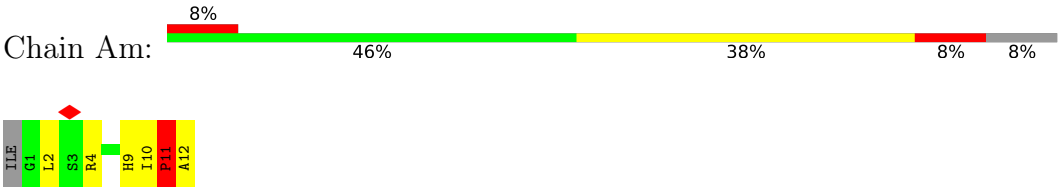
• Molecule 8: Flagellar biosynthetic protein FlhB

Chain Aj:



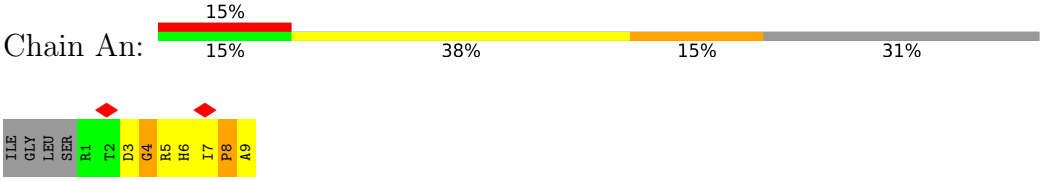
• Molecule 9: Alanine-modelled FlgB-Dc loop

Chain Am:



• Molecule 9: Alanine-modelled FlgB-Dc loop

Chain An:

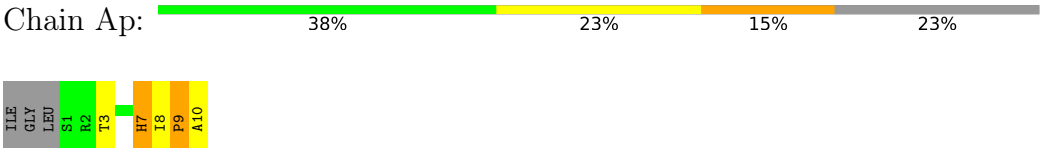


• Molecule 9: Alanine-modelled FlgB-Dc loop

Chain Ao:

• Molecule 9: Alanine-modelled FlgB-Dc loop

Chain Ap:

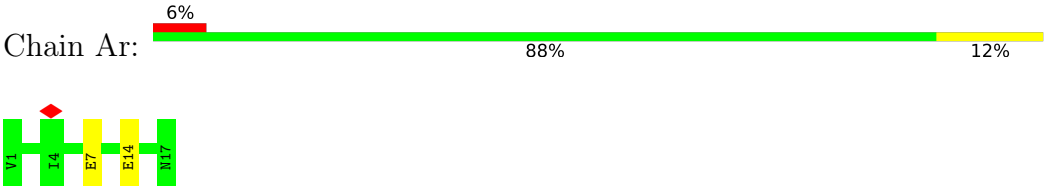


• Molecule 9: Alanine-modelled FlgB-Dc loop

Chain Aq:

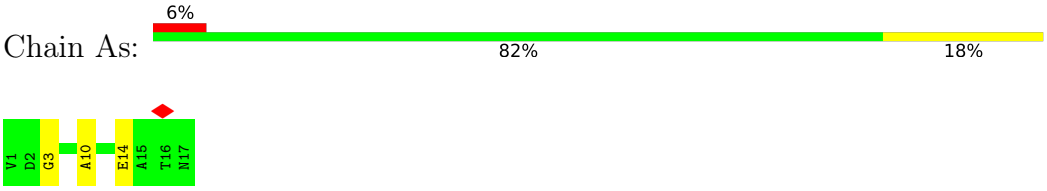
• Molecule 10: FliE-helix 1

Chain Ar:



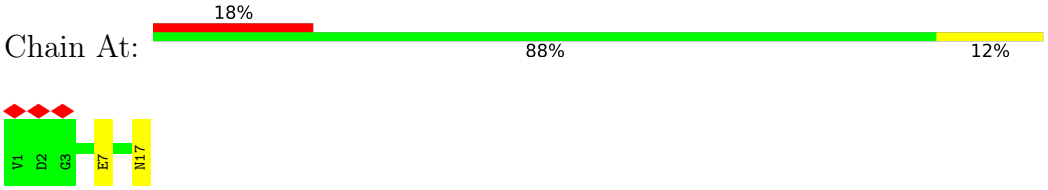
• Molecule 10: FliE-helix 1

Chain As:



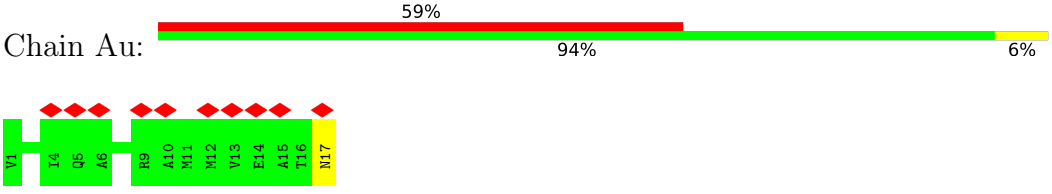
• Molecule 10: FliE-helix 1

Chain At:



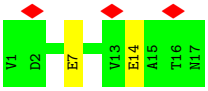
• Molecule 10: FliE-helix 1

Chain Au:



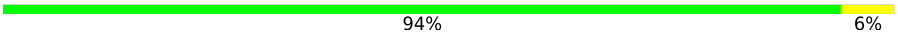
• Molecule 10: FliE-helix 1

Chain Av:



• Molecule 10: FliE-helix 1

Chain Aw:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	58418	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	105000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.065	Depositor
Minimum map value	-0.657	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.037	Depositor
Recommended contour level	0.15	Depositor
Map size (Å)	744.0, 744.0, 744.0	wwPDB
Map dimensions	620, 620, 620	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.2, 1.2, 1.2	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	0	0.16	0/1637	0.33	0/2221
1	9	0.14	0/1628	0.30	0/2209
1	AP	0.10	0/1637	0.26	0/2221
1	Ak	0.11	0/1637	0.27	0/2221
1	Al	0.12	0/1637	0.28	0/2221
2	1	0.16	0/1182	0.27	0/1588
2	2	0.16	0/1182	0.27	0/1588
2	3	0.16	0/1182	0.27	0/1588
2	4	0.16	0/1182	0.27	0/1588
2	5	0.16	0/1182	0.27	0/1588
2	A	0.16	0/1182	0.27	0/1588
2	AA	0.35	0/137	0.45	0/188
2	AB	0.29	0/137	0.43	0/188
2	AC	0.14	0/141	0.31	0/193
2	AD	0.31	0/137	0.46	0/188
2	AE	0.13	0/137	0.28	0/188
2	AF	0.92	0/161	1.23	0/221
2	AG	0.16	0/75	0.32	0/103
2	AH	0.20	0/75	0.41	0/103
2	AI	0.95	0/75	1.34	0/103
2	AJ	0.37	0/166	0.57	0/228
2	AK	0.32	0/172	0.70	0/237
2	AL	0.39	0/223	0.61	0/304
2	AM	0.20	0/227	0.44	0/309
2	AN	0.24	0/227	0.49	0/309
2	AO	0.17	0/223	0.40	0/304
2	B	0.16	0/1182	0.27	0/1588
2	C	0.16	0/1182	0.27	0/1588
2	D	0.16	0/1182	0.27	0/1588
2	E	0.16	0/1182	0.27	0/1588
2	F	0.16	0/1182	0.27	0/1588
2	G	0.16	0/1182	0.27	0/1588
2	H	0.16	0/1182	0.27	0/1588
2	I	0.16	0/1182	0.27	0/1588

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\|>5$	RMSZ	$\#\|Z\|>5$
2	J	0.16	0/1182	0.27	0/1588
2	K	0.16	0/1182	0.27	0/1588
2	L	0.16	0/1182	0.27	0/1588
2	M	0.16	0/1182	0.27	0/1588
2	N	0.16	0/1182	0.27	0/1588
2	O	0.16	0/1182	0.27	0/1588
2	P	0.16	0/1182	0.27	0/1588
2	Q	0.16	0/1182	0.27	0/1588
2	R	0.16	0/1182	0.27	0/1588
2	S	0.33	0/888	0.56	0/1192
2	T	0.30	0/888	0.44	0/1192
2	U	0.21	0/888	0.37	0/1192
2	V	0.22	0/888	0.40	0/1192
2	W	0.21	0/888	0.41	0/1192
2	X	0.23	0/844	0.41	0/1131
2	Y	0.29	0/888	0.48	0/1192
2	Z	0.29	0/888	0.44	0/1192
2	a	0.21	0/888	0.40	0/1192
2	b	0.22	0/727	0.40	0/974
2	c	0.26	0/810	0.44	0/1087
2	d	0.27	0/810	0.44	0/1087
2	e	0.16	0/810	0.38	0/1087
2	f	0.13	0/661	0.31	0/884
2	g	0.14	0/706	0.35	0/946
2	h	0.14	0/697	0.34	0/934
2	i	0.14	0/685	0.33	0/917
2	j	0.16	0/706	0.35	0/946
2	k	0.22	0/888	0.38	0/1192
2	l	0.24	0/888	0.45	0/1192
2	m	0.20	0/888	0.35	0/1192
2	n	0.19	0/805	0.37	0/1078
2	o	0.20	0/888	0.40	0/1192
2	p	0.16	0/1182	0.27	0/1588
2	q	0.16	0/1182	0.27	0/1588
2	r	0.16	0/1182	0.27	0/1588
2	s	0.16	0/1182	0.27	0/1588
2	t	0.16	0/1182	0.27	0/1588
2	u	0.16	0/1182	0.27	0/1588
2	v	0.16	0/1182	0.27	0/1588
2	w	0.16	0/1182	0.27	0/1588
2	x	0.16	0/1182	0.27	0/1588
2	y	0.16	0/1182	0.27	0/1588
2	z	0.16	0/1182	0.27	0/1588

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
3	6	0.28	0/739	0.49	0/1005
3	7	0.16	0/739	0.33	0/1005
3	AQ	0.12	0/739	0.31	0/1005
3	AR	0.17	0/739	0.34	0/1005
4	8	0.09	0/1941	0.25	0/2631
5	AS	0.23	0/856	0.36	0/1151
5	AT	0.22	0/846	0.30	0/1138
5	AU	0.24	0/856	0.31	0/1151
5	AV	0.19	0/848	0.31	0/1140
5	AW	0.22	0/848	0.35	0/1140
6	AX	0.11	0/996	0.27	0/1348
6	AY	0.11	0/996	0.26	0/1348
6	AZ	0.30	0/996	0.46	0/1348
6	Aa	0.10	0/996	0.24	0/1348
6	Ab	0.11	0/996	0.28	0/1348
6	Ac	0.14	0/996	0.30	0/1348
7	Ad	0.32	0/564	0.43	0/759
7	Ae	0.08	0/609	0.20	0/819
7	Af	0.08	0/609	0.17	0/819
7	Ag	0.08	0/564	0.16	0/759
7	Ah	0.08	0/564	0.18	0/759
7	Ai	0.10	0/313	0.19	0/420
8	Aj	0.08	0/562	0.19	0/760
9	Am	1.13	0/57	1.46	1/77 (1.3%)
9	An	1.26	0/43	1.85	1/58 (1.7%)
9	Ao	1.22	0/48	1.61	1/65 (1.5%)
9	Ap	1.09	0/48	1.55	1/65 (1.5%)
9	Aq	1.19	0/62	1.42	1/84 (1.2%)
10	Ar	1.12	0/83	1.44	0/114
10	As	1.11	0/83	1.44	0/114
10	At	1.12	0/83	1.45	0/114
10	Au	1.11	0/83	1.45	0/114
10	Av	1.11	0/83	1.45	0/114
10	Aw	1.11	0/83	1.44	0/114
All	All	0.21	0/89262	0.35	5/120213 (0.0%)

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

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

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Mol	Chain	#Chirality outliers	#Planarity outliers
2	T	0	1
2	c	0	1
2	d	0	1
2	l	0	1
All	All	0	5

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	An	8	PRO	N-CA-CB	10.53	109.83	102.35
9	Ap	9	PRO	N-CA-CB	6.81	109.66	103.33
9	Am	11	PRO	N-CA-CB	6.73	110.31	103.25
9	Ao	9	PRO	N-CA-CB	6.10	109.75	103.23
9	Aq	12	PRO	N-CA-CB	5.81	109.35	103.25

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	0	188	ARG	Sidechain
2	T	194	ARG	Sidechain
2	c	194	ARG	Sidechain
2	d	236	ARG	Sidechain
2	l	194	ARG	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	0	1608	0	1691	45	0
1	9	1599	0	1685	42	0
1	AP	1608	0	1691	37	0
1	Ak	1608	0	1691	66	0
1	Al	1608	0	1691	55	0
2	1	1171	0	1164	13	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	2	1171	0	1164	13	0
2	3	1171	0	1164	15	0
2	4	1171	0	1164	16	0
2	5	1171	0	1164	14	0
2	A	1171	0	1164	20	0
2	AA	135	0	128	2	0
2	AB	135	0	128	3	0
2	AC	139	0	131	4	0
2	AD	135	0	128	7	0
2	AE	135	0	128	1	0
2	AF	158	0	152	13	0
2	AG	73	0	72	4	0
2	AH	73	0	72	3	0
2	AI	73	0	72	8	0
2	AJ	163	0	157	3	0
2	AK	169	0	164	6	0
2	AL	220	0	215	3	0
2	AM	224	0	218	4	0
2	AN	224	0	218	2	0
2	AO	220	0	215	3	0
2	B	1171	0	1164	15	0
2	C	1171	0	1164	13	0
2	D	1171	0	1164	12	0
2	E	1171	0	1164	15	0
2	F	1171	0	1164	23	0
2	G	1171	0	1164	20	0
2	H	1171	0	1164	23	0
2	I	1171	0	1164	15	0
2	J	1171	0	1164	16	0
2	K	1171	0	1164	13	0
2	L	1171	0	1164	11	0
2	M	1171	0	1164	18	0
2	N	1171	0	1164	22	0
2	O	1171	0	1164	14	0
2	P	1171	0	1164	14	0
2	Q	1171	0	1164	14	0
2	R	1171	0	1164	11	0
2	S	881	0	910	59	0
2	T	881	0	910	62	0
2	U	881	0	910	35	0
2	V	881	0	910	35	0
2	W	881	0	910	50	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	X	839	0	864	30	0
2	Y	881	0	910	56	0
2	Z	881	0	910	38	0
2	a	881	0	910	40	0
2	b	724	0	758	33	0
2	c	803	0	837	45	0
2	d	803	0	837	40	0
2	e	803	0	837	35	0
2	f	660	0	699	22	0
2	g	704	0	741	27	0
2	h	695	0	735	29	0
2	i	684	0	725	31	0
2	j	704	0	741	28	0
2	k	881	0	910	60	0
2	l	881	0	910	39	0
2	m	881	0	910	39	0
2	n	802	0	836	36	0
2	o	881	0	910	37	0
2	p	1171	0	1164	13	0
2	q	1171	0	1164	16	0
2	r	1171	0	1164	14	0
2	s	1171	0	1164	16	0
2	t	1171	0	1164	15	0
2	u	1171	0	1164	13	0
2	v	1171	0	1164	15	0
2	w	1171	0	1164	14	0
2	x	1171	0	1164	22	0
2	y	1171	0	1164	13	0
2	z	1171	0	1164	14	0
3	6	722	0	768	36	0
3	7	722	0	768	40	0
3	AQ	722	0	768	29	0
3	AR	722	0	768	31	0
4	8	1896	0	1968	49	0
5	AS	845	0	833	11	0
5	AT	835	0	825	18	0
5	AU	845	0	833	11	0
5	AV	837	0	829	10	0
5	AW	837	0	829	10	0
6	AX	983	0	958	12	0
6	AY	983	0	958	18	0
6	AZ	983	0	958	23	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	Aa	983	0	958	8	0
6	Ab	983	0	958	15	0
6	Ac	983	0	958	11	0
7	Ad	560	0	561	11	0
7	Ae	605	0	609	10	0
7	Af	605	0	609	10	0
7	Ag	560	0	561	7	0
7	Ah	560	0	561	10	0
7	Ai	311	0	320	8	0
8	Aj	552	0	577	22	0
9	Am	58	0	30	7	0
9	An	44	0	23	12	0
9	Ao	49	0	25	14	0
9	Ap	49	0	25	7	0
9	Aq	63	0	32	5	0
10	Ar	84	0	46	6	0
10	As	84	0	46	3	0
10	At	84	0	46	4	0
10	Au	84	0	46	1	0
10	Av	84	0	46	2	0
10	Aw	84	0	46	4	0
All	All	88315	0	88899	1692	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 1692 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)
3:7:64:LEU:HD11	2:T:148:PHE:CE1	1.54	1.42
3:AQ:15:TRP:CD1	2:m:148:PHE:HE2	1.51	1.27
1:Ak:288:ALA:CB	2:m:192:PHE:HA	1.63	1.26
2:x:306:THR:HG21	10:At:17:ASN:CB	1.66	1.25
1:9:189:ILE:HD11	2:c:192:PHE:C	1.59	1.25

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	0	206/289 (71%)	203 (98%)	3 (2%)	0	100	100
1	9	205/289 (71%)	202 (98%)	3 (2%)	0	100	100
1	AP	206/289 (71%)	204 (99%)	2 (1%)	0	100	100
1	Ak	206/289 (71%)	202 (98%)	4 (2%)	0	100	100
1	Al	206/289 (71%)	202 (98%)	4 (2%)	0	100	100
2	1	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	2	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	3	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	4	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	5	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	A	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	AA	17/580 (3%)	17 (100%)	0	0	100	100
2	AB	17/580 (3%)	15 (88%)	2 (12%)	0	100	100
2	AC	18/580 (3%)	18 (100%)	0	0	100	100
2	AD	17/580 (3%)	17 (100%)	0	0	100	100
2	AE	17/580 (3%)	17 (100%)	0	0	100	100
2	AF	21/580 (4%)	14 (67%)	6 (29%)	1 (5%)	2	15
2	AG	9/580 (2%)	7 (78%)	2 (22%)	0	100	100
2	AH	9/580 (2%)	9 (100%)	0	0	100	100
2	AI	9/580 (2%)	8 (89%)	1 (11%)	0	100	100
2	AJ	22/580 (4%)	18 (82%)	4 (18%)	0	100	100
2	AK	23/580 (4%)	23 (100%)	0	0	100	100
2	AL	30/580 (5%)	26 (87%)	4 (13%)	0	100	100
2	AM	31/580 (5%)	31 (100%)	0	0	100	100
2	AN	31/580 (5%)	31 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	AO	30/580 (5%)	30 (100%)	0	0	100	100
2	B	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	C	142/580 (24%)	139 (98%)	3 (2%)	0	100	100
2	D	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	E	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	F	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	G	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	H	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	I	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	J	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	K	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	L	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	M	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	N	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	O	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	P	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	Q	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	R	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	S	112/580 (19%)	100 (89%)	10 (9%)	2 (2%)	7	32
2	T	112/580 (19%)	99 (88%)	12 (11%)	1 (1%)	14	45
2	U	112/580 (19%)	102 (91%)	10 (9%)	0	100	100
2	V	112/580 (19%)	102 (91%)	9 (8%)	1 (1%)	14	45
2	W	112/580 (19%)	104 (93%)	7 (6%)	1 (1%)	14	45
2	X	105/580 (18%)	97 (92%)	7 (7%)	1 (1%)	13	43
2	Y	112/580 (19%)	99 (88%)	11 (10%)	2 (2%)	7	32
2	Z	112/580 (19%)	99 (88%)	12 (11%)	1 (1%)	14	45
2	a	112/580 (19%)	102 (91%)	9 (8%)	1 (1%)	14	45
2	b	90/580 (16%)	83 (92%)	6 (7%)	1 (1%)	12	42
2	c	101/580 (17%)	93 (92%)	7 (7%)	1 (1%)	13	43
2	d	101/580 (17%)	93 (92%)	8 (8%)	0	100	100
2	e	101/580 (17%)	90 (89%)	10 (10%)	1 (1%)	13	43

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	f	81/580 (14%)	74 (91%)	7 (9%)	0	100	100
2	g	88/580 (15%)	83 (94%)	5 (6%)	0	100	100
2	h	87/580 (15%)	82 (94%)	5 (6%)	0	100	100
2	i	85/580 (15%)	81 (95%)	4 (5%)	0	100	100
2	j	88/580 (15%)	80 (91%)	8 (9%)	0	100	100
2	k	112/580 (19%)	106 (95%)	5 (4%)	1 (1%)	14	45
2	l	112/580 (19%)	98 (88%)	13 (12%)	1 (1%)	14	45
2	m	112/580 (19%)	103 (92%)	8 (7%)	1 (1%)	14	45
2	n	101/580 (17%)	95 (94%)	5 (5%)	1 (1%)	13	43
2	o	112/580 (19%)	104 (93%)	6 (5%)	2 (2%)	7	32
2	p	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	q	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	r	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	s	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	t	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	u	142/580 (24%)	139 (98%)	3 (2%)	0	100	100
2	v	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	w	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	x	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	y	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
2	z	142/580 (24%)	138 (97%)	4 (3%)	0	100	100
3	6	87/89 (98%)	84 (97%)	3 (3%)	0	100	100
3	7	87/89 (98%)	86 (99%)	1 (1%)	0	100	100
3	AQ	87/89 (98%)	87 (100%)	0	0	100	100
3	AR	87/89 (98%)	86 (99%)	0	1 (1%)	12	42
4	8	238/260 (92%)	232 (98%)	6 (2%)	0	100	100
5	AS	105/131 (80%)	104 (99%)	1 (1%)	0	100	100
5	AT	103/131 (79%)	102 (99%)	1 (1%)	0	100	100
5	AU	105/131 (80%)	103 (98%)	2 (2%)	0	100	100
5	AV	104/131 (79%)	104 (100%)	0	0	100	100
5	AW	104/131 (79%)	103 (99%)	1 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	AX	126/137 (92%)	122 (97%)	4 (3%)	0	100	100
6	AY	126/137 (92%)	123 (98%)	3 (2%)	0	100	100
6	AZ	126/137 (92%)	122 (97%)	3 (2%)	1 (1%)	16	47
6	Aa	126/137 (92%)	125 (99%)	1 (1%)	0	100	100
6	Ab	126/137 (92%)	120 (95%)	6 (5%)	0	100	100
6	Ac	126/137 (92%)	121 (96%)	5 (4%)	0	100	100
7	Ad	70/103 (68%)	70 (100%)	0	0	100	100
7	Ae	78/103 (76%)	78 (100%)	0	0	100	100
7	Af	78/103 (76%)	77 (99%)	1 (1%)	0	100	100
7	Ag	70/103 (68%)	69 (99%)	1 (1%)	0	100	100
7	Ah	70/103 (68%)	69 (99%)	1 (1%)	0	100	100
7	Ai	38/103 (37%)	38 (100%)	0	0	100	100
8	Aj	69/376 (18%)	69 (100%)	0	0	100	100
9	Am	10/13 (77%)	5 (50%)	4 (40%)	1 (10%)	0	5
9	An	7/13 (54%)	2 (29%)	4 (57%)	1 (14%)	0	2
9	Ao	8/13 (62%)	8 (100%)	0	0	100	100
9	Ap	8/13 (62%)	2 (25%)	4 (50%)	2 (25%)	0	0
9	Aq	11/13 (85%)	6 (54%)	3 (27%)	2 (18%)	0	1
10	Ar	15/17 (88%)	15 (100%)	0	0	100	100
10	As	15/17 (88%)	15 (100%)	0	0	100	100
10	At	15/17 (88%)	15 (100%)	0	0	100	100
10	Au	15/17 (88%)	15 (100%)	0	0	100	100
10	Av	15/17 (88%)	15 (100%)	0	0	100	100
10	Aw	15/17 (88%)	15 (100%)	0	0	100	100
All	All	11000/46459 (24%)	10564 (96%)	408 (4%)	28 (0%)	38	66

5 of 28 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	c	152	GLN
9	Am	11	PRO
9	Ap	7	HIS
9	Aq	7	ASP
2	T	193	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	0	182/247 (74%)	176 (97%)	6 (3%)	33 57
1	9	181/247 (73%)	175 (97%)	6 (3%)	33 57
1	AP	182/247 (74%)	177 (97%)	5 (3%)	40 60
1	Ak	182/247 (74%)	175 (96%)	7 (4%)	28 53
1	Al	182/247 (74%)	175 (96%)	7 (4%)	28 53
2	1	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	2	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	3	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	4	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	5	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	A	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	AA	15/500 (3%)	14 (93%)	1 (7%)	13 38
2	AB	15/500 (3%)	14 (93%)	1 (7%)	13 38
2	AC	15/500 (3%)	15 (100%)	0	100 100
2	AD	15/500 (3%)	14 (93%)	1 (7%)	13 38
2	AE	15/500 (3%)	15 (100%)	0	100 100
2	AF	17/500 (3%)	13 (76%)	4 (24%)	0 4
2	AG	8/500 (2%)	8 (100%)	0	100 100
2	AH	8/500 (2%)	7 (88%)	1 (12%)	3 17
2	AI	8/500 (2%)	8 (100%)	0	100 100
2	AJ	17/500 (3%)	16 (94%)	1 (6%)	16 42
2	AK	18/500 (4%)	15 (83%)	3 (17%)	2 11
2	AL	24/500 (5%)	23 (96%)	1 (4%)	25 51
2	AM	24/500 (5%)	23 (96%)	1 (4%)	25 51
2	AN	24/500 (5%)	22 (92%)	2 (8%)	9 32
2	AO	24/500 (5%)	23 (96%)	1 (4%)	25 51

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	B	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	C	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	D	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	E	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	F	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	G	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	H	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	I	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	J	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	K	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	L	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	M	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	N	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	O	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	P	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	Q	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	R	128/500 (26%)	123 (96%)	5 (4%)	27	53
2	S	98/500 (20%)	86 (88%)	12 (12%)	4	18
2	T	98/500 (20%)	84 (86%)	14 (14%)	2	14
2	U	98/500 (20%)	89 (91%)	9 (9%)	7	28
2	V	98/500 (20%)	88 (90%)	10 (10%)	6	24
2	W	98/500 (20%)	86 (88%)	12 (12%)	4	18
2	X	93/500 (19%)	85 (91%)	8 (9%)	8	31
2	Y	98/500 (20%)	89 (91%)	9 (9%)	7	28
2	Z	98/500 (20%)	89 (91%)	9 (9%)	7	28
2	a	98/500 (20%)	93 (95%)	5 (5%)	20	46
2	b	81/500 (16%)	78 (96%)	3 (4%)	29	54
2	c	90/500 (18%)	84 (93%)	6 (7%)	13	38
2	d	90/500 (18%)	81 (90%)	9 (10%)	6	25
2	e	90/500 (18%)	78 (87%)	12 (13%)	3	16
2	f	75/500 (15%)	71 (95%)	4 (5%)	19	45

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
2	g	79/500 (16%)	72 (91%)	7 (9%)	8 29
2	h	78/500 (16%)	73 (94%)	5 (6%)	14 40
2	i	77/500 (15%)	72 (94%)	5 (6%)	14 39
2	j	79/500 (16%)	73 (92%)	6 (8%)	11 34
2	k	98/500 (20%)	88 (90%)	10 (10%)	6 24
2	l	98/500 (20%)	88 (90%)	10 (10%)	6 24
2	m	98/500 (20%)	91 (93%)	7 (7%)	12 36
2	n	89/500 (18%)	83 (93%)	6 (7%)	13 38
2	o	98/500 (20%)	93 (95%)	5 (5%)	20 46
2	p	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	q	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	r	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	s	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	t	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	u	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	v	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	w	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	x	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	y	128/500 (26%)	123 (96%)	5 (4%)	27 53
2	z	128/500 (26%)	123 (96%)	5 (4%)	27 53
3	6	80/80 (100%)	75 (94%)	5 (6%)	15 40
3	7	80/80 (100%)	79 (99%)	1 (1%)	65 79
3	AQ	80/80 (100%)	77 (96%)	3 (4%)	28 53
3	AR	80/80 (100%)	76 (95%)	4 (5%)	20 46
4	8	204/218 (94%)	194 (95%)	10 (5%)	21 46
5	AS	89/106 (84%)	88 (99%)	1 (1%)	70 81
5	AT	88/106 (83%)	86 (98%)	2 (2%)	45 64
5	AU	89/106 (84%)	86 (97%)	3 (3%)	32 56
5	AV	88/106 (83%)	85 (97%)	3 (3%)	32 56
5	AW	88/106 (83%)	88 (100%)	0	100 100
6	AX	111/115 (96%)	106 (96%)	5 (4%)	23 49

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
6	AY	111/115 (96%)	107 (96%)	4 (4%)	30 55
6	AZ	111/115 (96%)	103 (93%)	8 (7%)	12 35
6	Aa	111/115 (96%)	106 (96%)	5 (4%)	23 49
6	Ab	111/115 (96%)	105 (95%)	6 (5%)	18 45
6	Ac	111/115 (96%)	106 (96%)	5 (4%)	23 49
7	Ad	63/84 (75%)	59 (94%)	4 (6%)	15 40
7	Ae	66/84 (79%)	64 (97%)	2 (3%)	36 58
7	Af	66/84 (79%)	63 (96%)	3 (4%)	23 49
7	Ag	63/84 (75%)	62 (98%)	1 (2%)	58 74
7	Ah	63/84 (75%)	63 (100%)	0	100 100
7	Ai	36/84 (43%)	35 (97%)	1 (3%)	38 60
8	Aj	58/317 (18%)	55 (95%)	3 (5%)	19 45
All	All	9652/39814 (24%)	9172 (95%)	480 (5%)	23 46

5 of 480 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	P	422	GLU
2	s	395	THR
2	V	242	GLN
2	r	395	THR
2	y	395	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 242 such sidechains are listed below:

Mol	Chain	Res	Type
2	I	445	ASN
2	t	305	GLN
2	R	327	ASN
2	s	387	GLN
2	y	305	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

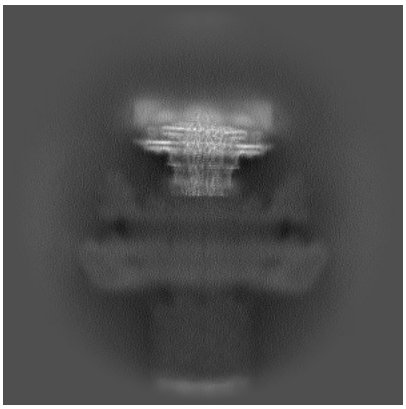
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-39787. These allow visual inspection of the internal detail of the map and identification of artifacts.

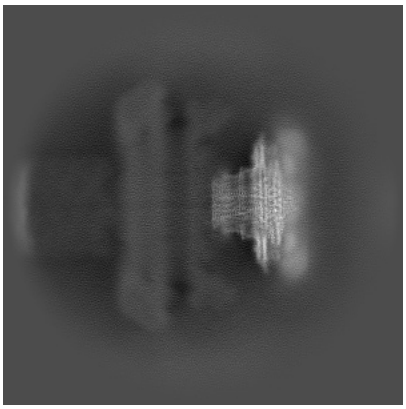
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

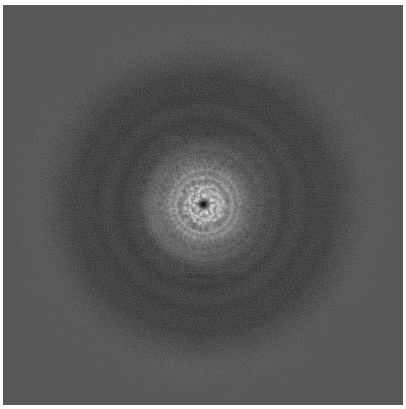
6.1.1 Primary map



X

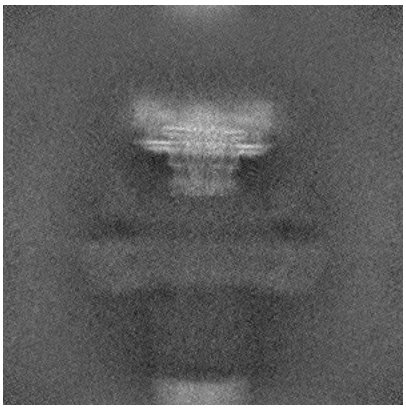


Y

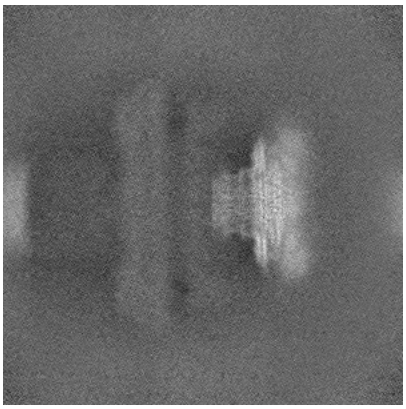


Z

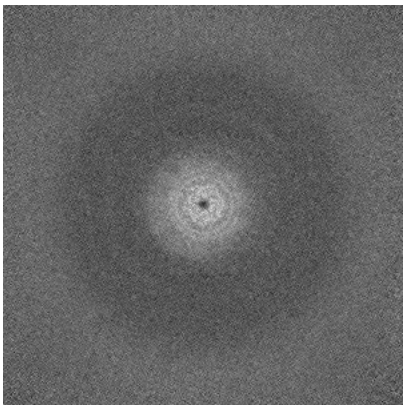
6.1.2 Raw map



X



Y

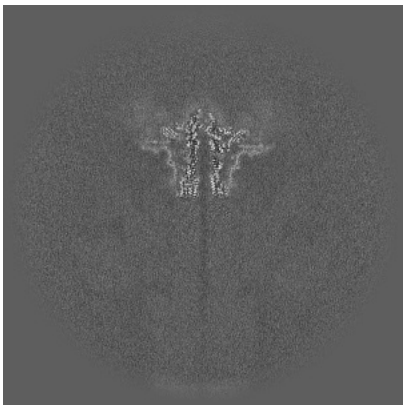


Z

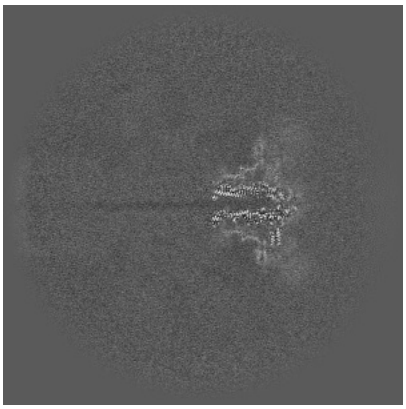
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

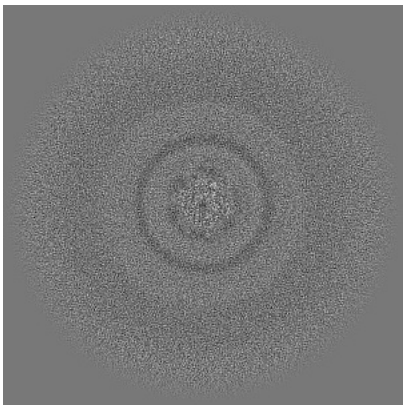
6.2.1 Primary map



X Index: 310



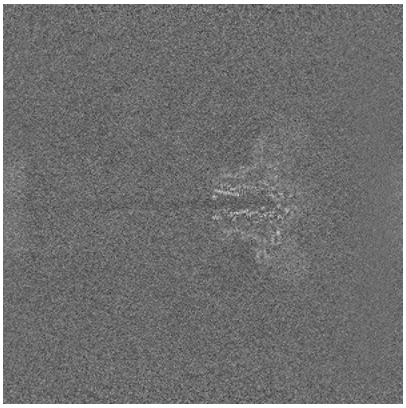
Y Index: 310



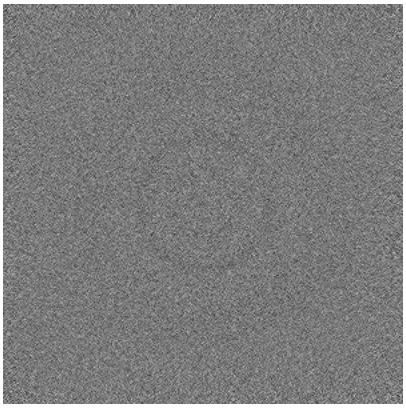
Z Index: 310

6.2.2 Raw map

X Index: 310



Y Index: 310



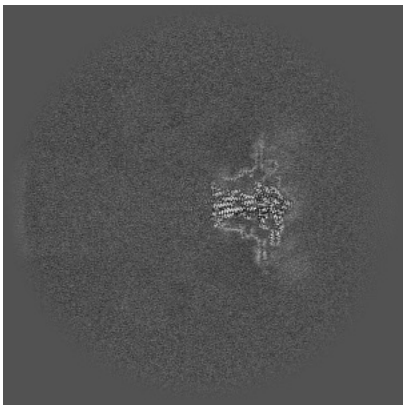
Z Index: 310

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

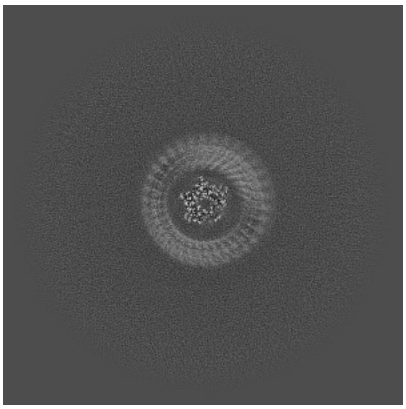
6.3 Largest variance slices (i)

6.3.1 Primary map

X Index: 301

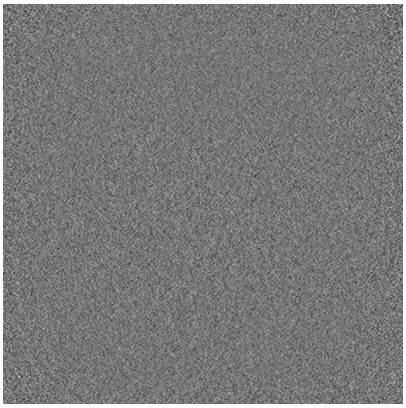


Y Index: 325

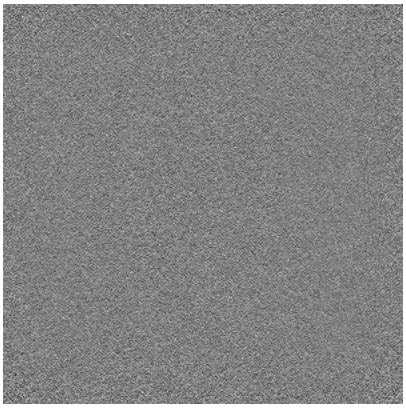


Z Index: 399

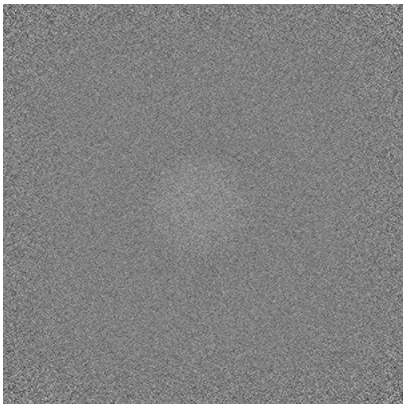
6.3.2 Raw map



X Index: 0



Y Index: 0

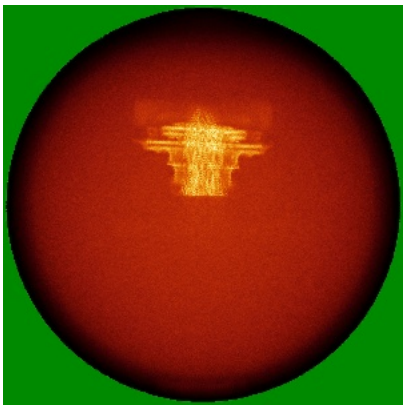


Z Index: 0

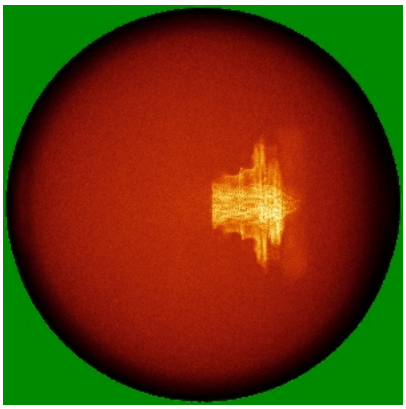
The images above show the largest variance slices of the map in three orthogonal directions.

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

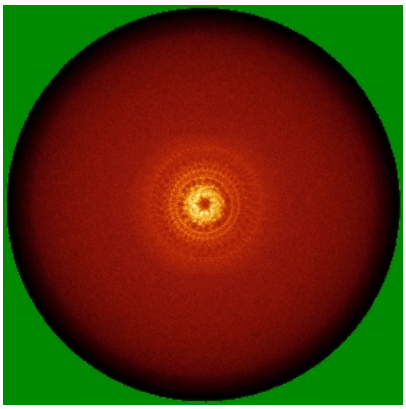
6.4.1 Primary map



X

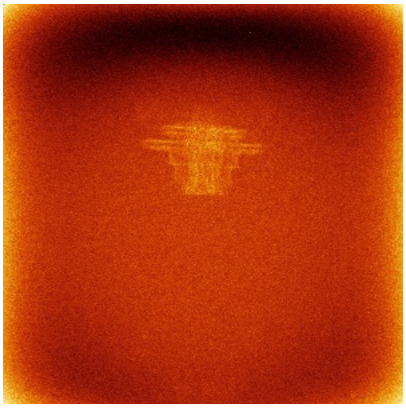


Y

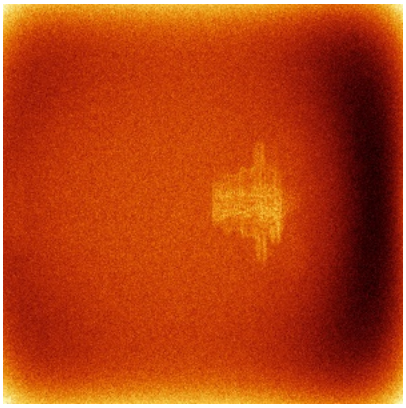


Z

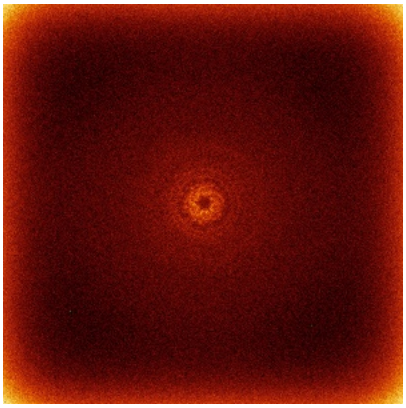
6.4.2 Raw map



X



Y

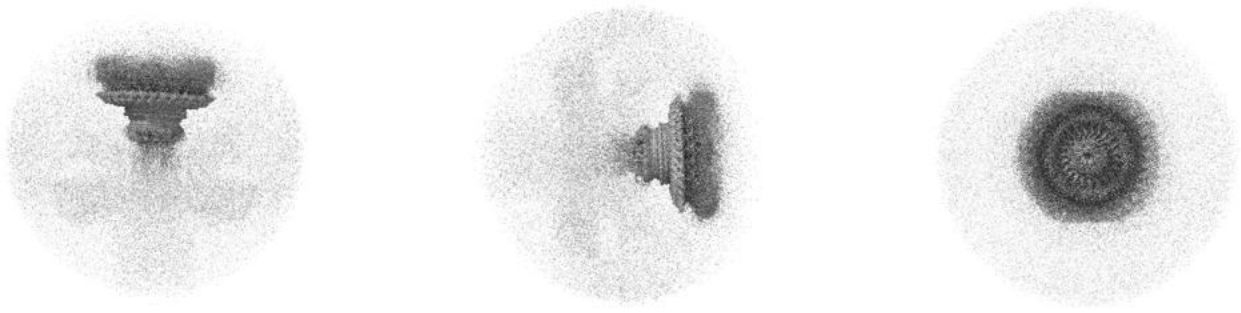


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.15. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

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

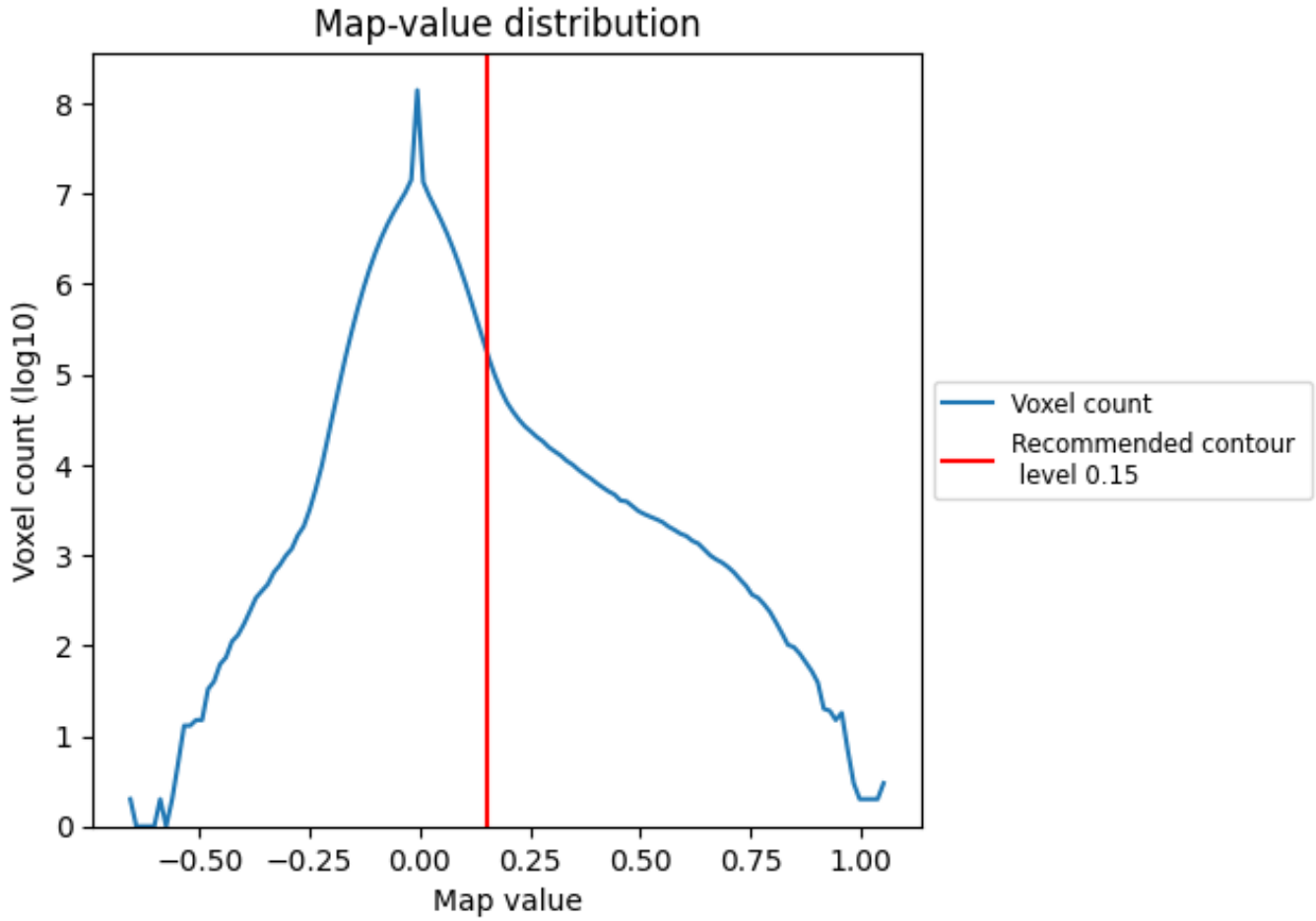
6.6 Mask visualisation (i)

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

7 Map analysis

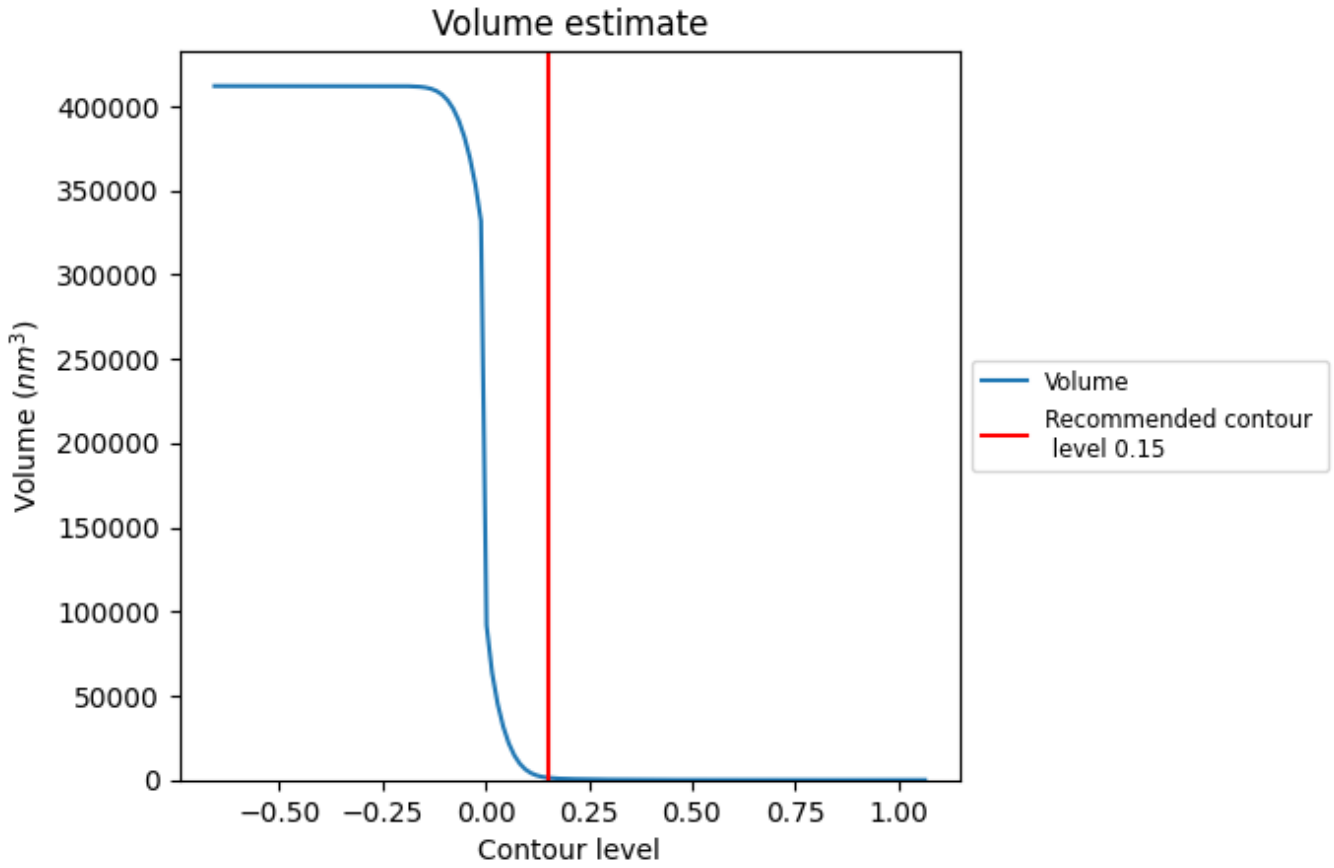
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

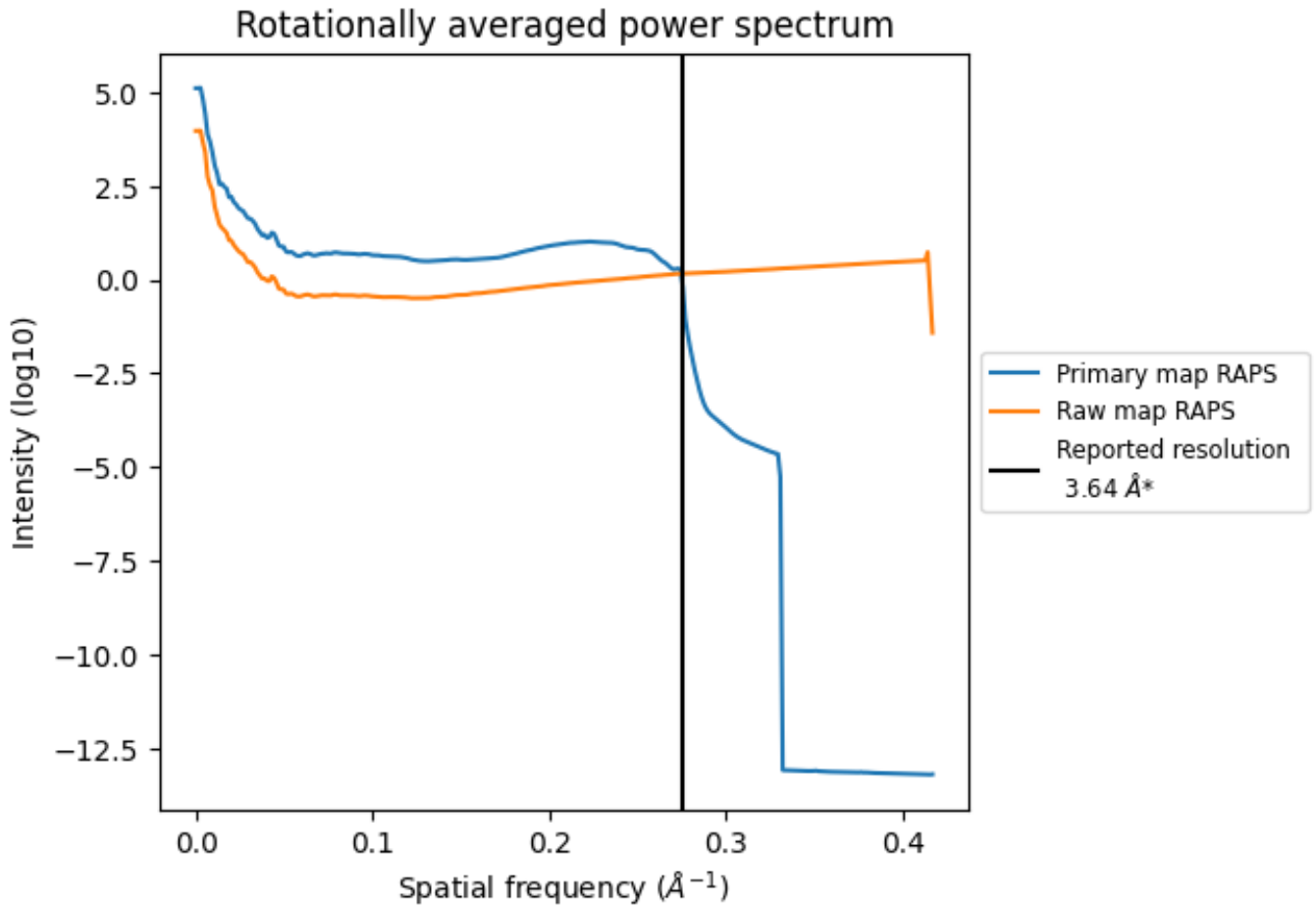
7.2 Volume estimate (i)



The volume at the recommended contour level is 1347 nm^3; this corresponds to an approximate mass of 1217 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)

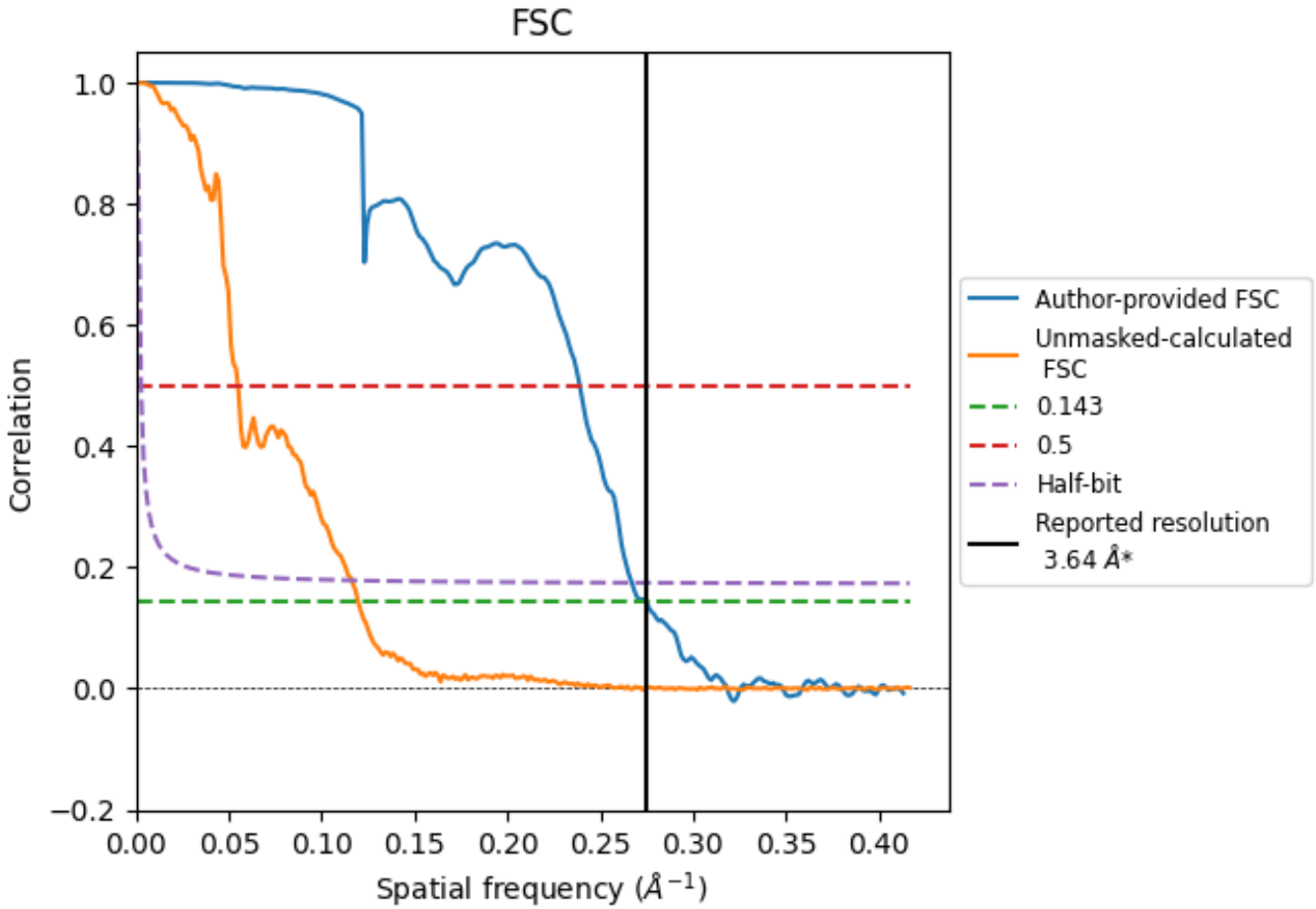


*Reported resolution corresponds to spatial frequency of 0.275 $Å^{-1}$

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.275 Å^{-1}

8.2 Resolution estimates (i)

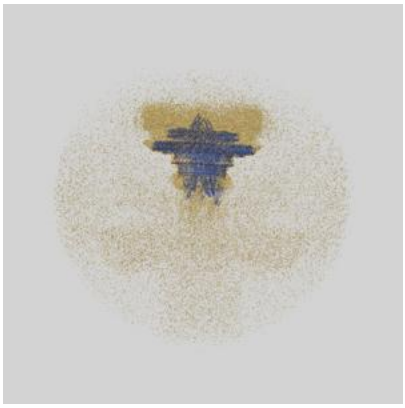
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.64	-	-
Author-provided FSC curve	3.64	4.18	3.74
Unmasked-calculated*	8.36	18.25	8.61

*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 8.36 differs from the reported value 3.64 by more than 10 %

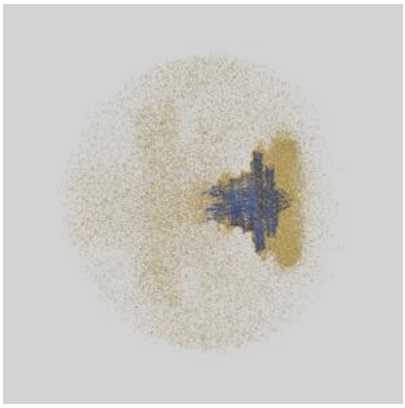
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-39787 and PDB model 8Z5X. Per-residue inclusion information can be found in section 3 on page 15.

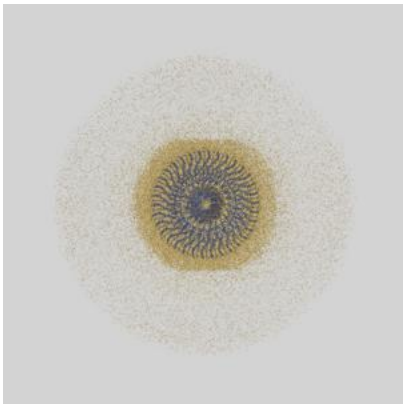
9.1 Map-model overlay



X



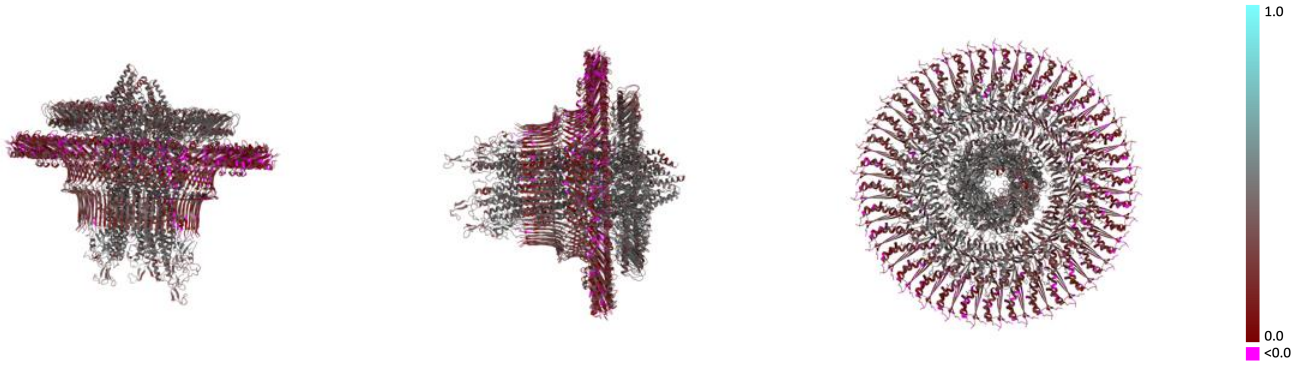
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.15 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.

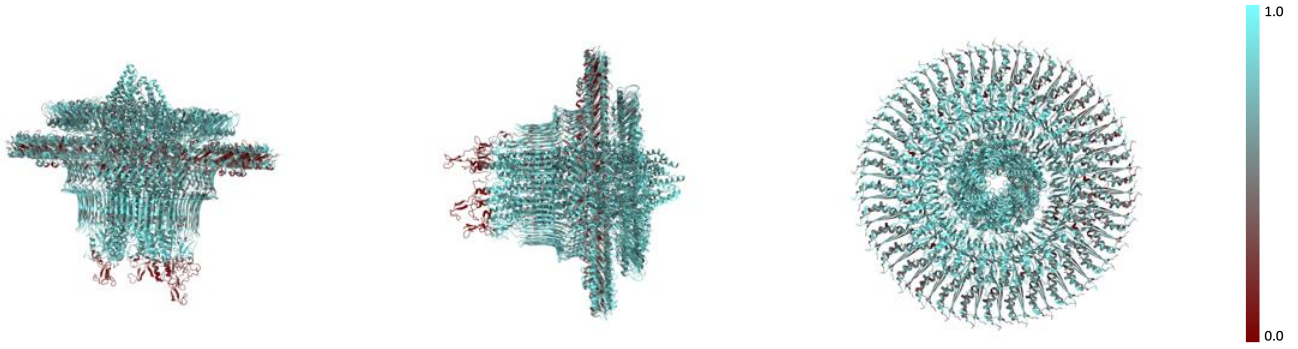
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

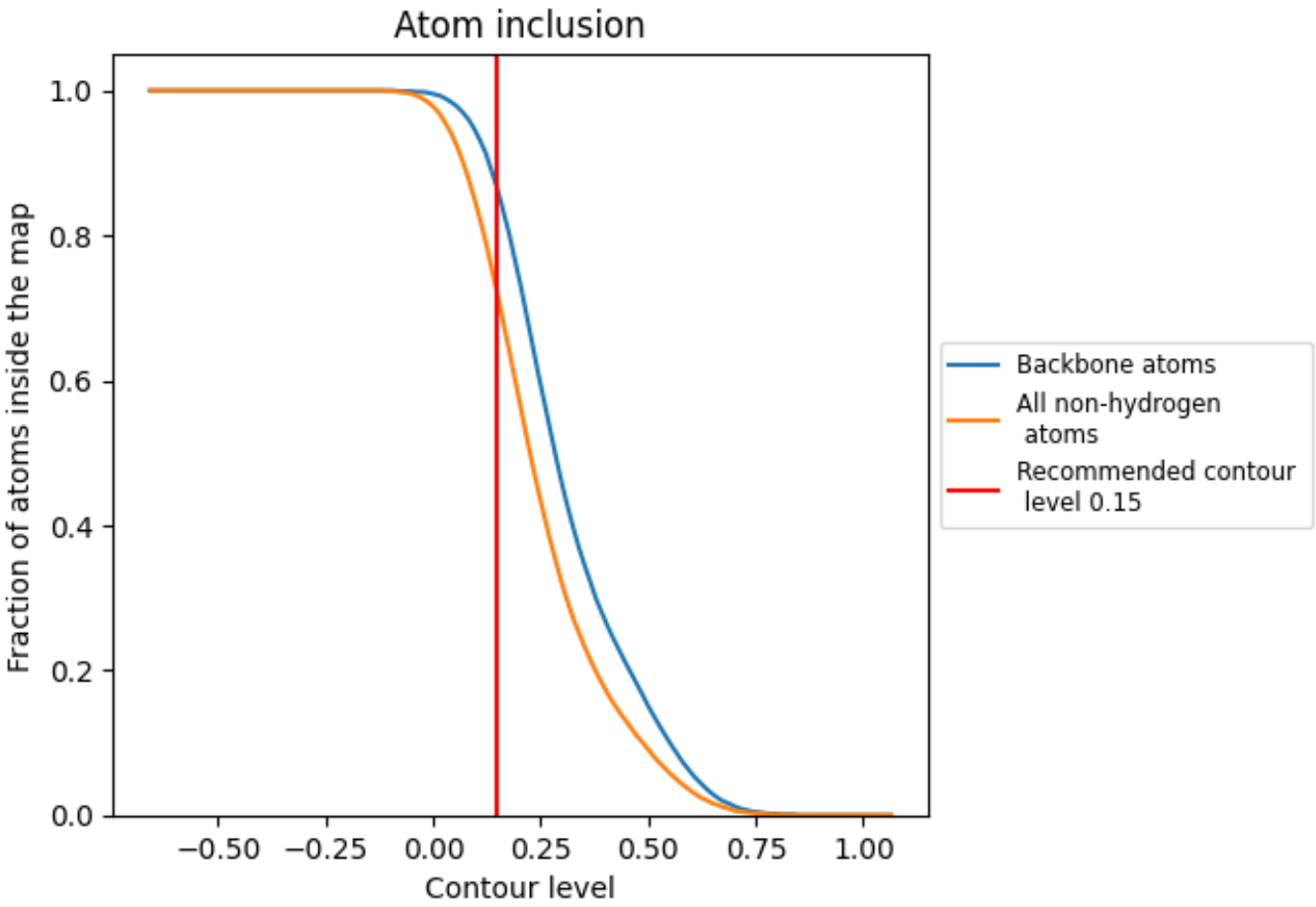
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.15).

9.4 Atom inclusion (i)



At the recommended contour level, 86% of all backbone atoms, 72% 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 (0.15) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7190	0.3130
0	0.8340	0.4560
1	0.5490	0.1320
2	0.5810	0.1440
3	0.5950	0.1420
4	0.6080	0.1490
5	0.6270	0.1720
6	0.8260	0.4330
7	0.8380	0.4440
8	0.8250	0.4280
9	0.8130	0.4360
A	0.6660	0.1800
AA	0.7330	0.4000
AB	0.8220	0.4370
AC	0.5830	0.3990
AD	0.4960	0.4030
AE	0.4370	0.3600
AF	0.4870	0.3450
AG	0.9040	0.4450
AH	0.8630	0.4310
AI	0.7120	0.4150
AJ	0.2090	0.2870
AK	0.7570	0.3960
AL	0.4860	0.3860
AM	0.8210	0.4250
AN	0.6470	0.4030
AO	0.7540	0.4190
AP	0.8290	0.4360
AQ	0.8230	0.4190
AR	0.8550	0.4520
AS	0.8350	0.4550
AT	0.8230	0.4250
AU	0.8510	0.4530
AV	0.8590	0.4660
AW	0.8690	0.4640

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Chain	Atom inclusion	Q-score
AX	0.7080	0.4220
AY	0.4880	0.4020
AZ	0.4640	0.4000
Aa	0.5470	0.4250
Ab	0.6300	0.4300
Ac	0.6800	0.4300
Ad	0.8440	0.4550
Ae	0.8220	0.4310
Af	0.8310	0.4280
Ag	0.8440	0.4410
Ah	0.8480	0.4420
Ai	0.8430	0.4390
Aj	0.7250	0.3240
Ak	0.8450	0.4520
Al	0.8550	0.4620
Am	0.7930	0.3750
An	0.6820	0.3520
Ao	0.8980	0.4520
Ap	0.9800	0.4690
Aq	0.9210	0.4960
Ar	0.8090	0.2940
As	0.8210	0.2520
At	0.7620	0.3190
Au	0.4640	0.2320
Av	0.7140	0.2490
Aw	0.8570	0.2880
B	0.6490	0.1720
C	0.7020	0.2210
D	0.6900	0.2250
E	0.6970	0.2200
F	0.6960	0.2260
G	0.7180	0.2320
H	0.6960	0.2070
I	0.7080	0.2190
J	0.7050	0.2240
K	0.6590	0.1990
L	0.6510	0.1890
M	0.6670	0.1870
N	0.6510	0.1690
O	0.6400	0.1550
P	0.6490	0.1560
Q	0.6450	0.1840

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Chain	Atom inclusion	Q-score
R	0.6620	0.1890
S	0.8370	0.4330
T	0.8490	0.4330
U	0.8130	0.4140
V	0.8380	0.4280
W	0.8120	0.4110
X	0.8210	0.4340
Y	0.8340	0.4440
Z	0.8360	0.4340
a	0.7880	0.4320
b	0.7910	0.4060
c	0.7830	0.4040
d	0.7440	0.3840
e	0.7070	0.3480
f	0.6490	0.3160
g	0.6160	0.3140
h	0.6700	0.3140
i	0.7190	0.3300
j	0.7540	0.3610
k	0.8530	0.4330
l	0.8390	0.4400
m	0.8080	0.4170
n	0.8130	0.4120
o	0.7880	0.3920
p	0.6650	0.2010
q	0.6670	0.2000
r	0.6460	0.1900
s	0.6630	0.2040
t	0.6420	0.1830
u	0.6540	0.1960
v	0.5910	0.1520
w	0.5960	0.1680
x	0.6250	0.1830
y	0.6050	0.1790
z	0.6000	0.1520