



wwPDB EM Validation Summary Report ⓘ

Nov 20, 2022 – 03:45 pm GMT

PDB ID : 2W4W
EMDB ID : EMD-1584
Title : Isometrically contracting insect asynchronous flight muscle quick frozen after a quick stretch step
Authors : Wu, S.; Liu, J.; Reedy, M.C.; Tregear, R.T.; Winkler, H.; Franzini-Armstrong, C.; Sasaki, H.; Lucaveche, C.; Goldman, Y.E.; Reedy, M.K.; Taylor, K.A.
Deposited on : 2008-12-02
Resolution : 35.00 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : **FAILED**
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

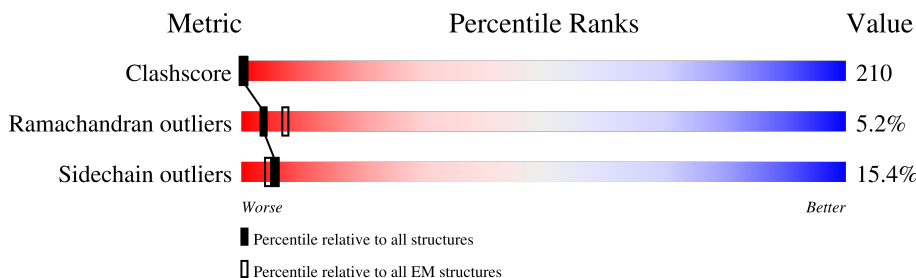
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 35.00 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	1-C	831	13% 60% 18% • 7%
1	10-C	831	13% 60% 18% • 7%
1	11-C	831	13% 59% 18% • 7%
1	12-C	831	13% 59% 18% • 7%
1	13-C	831	13% 60% 18% • 7%
1	14-C	831	14% 59% 17% • 7%
1	15-C	831	13% 59% 18% • 7%
1	16-C	831	13% 59% 18% • 7%
1	17-C	831	14% 59% 18% • 7%


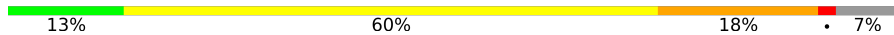
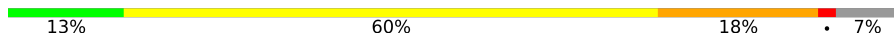



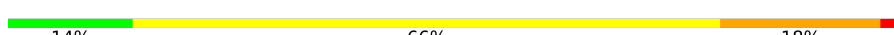
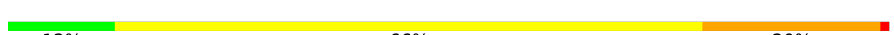



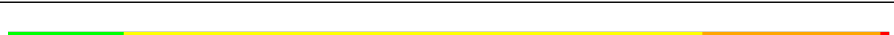

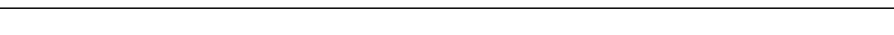
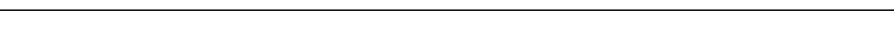
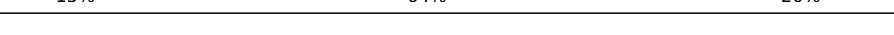
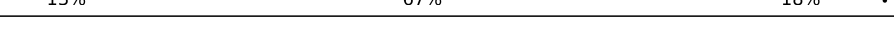
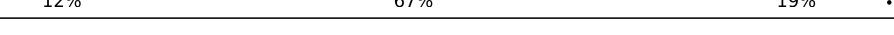
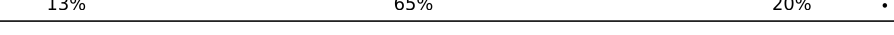

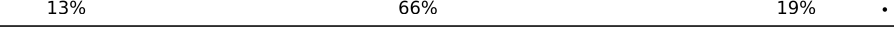
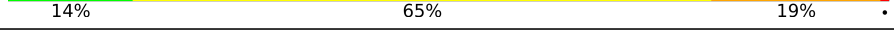
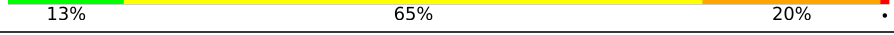

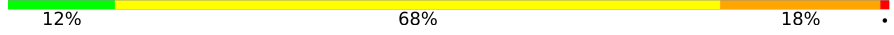
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Mol	Chain	Length	Quality of chain
1	18-C	831	12% 61% 18% • 7%
1	19-C	831	14% 60% 18% • 7%
1	2-C	831	14% 59% 18% • 7%
1	20-C	831	13% 60% 18% • 7%
1	21-C	831	12% 60% 18% • 7%
1	22-C	831	14% 59% 18% • 7%
1	23-C	831	14% 59% 18% • 7%
1	24-C	831	13% 59% 18% • 7%
1	25-C	831	13% 59% 18% • 7%
1	26-C	831	13% 59% 18% • 7%
1	27-C	831	14% 58% 18% • 7%
1	28-C	831	13% 59% 18% • 7%
1	29-C	831	11% 61% 18% • 7%
1	3-C	831	13% 60% 17% • 7%
1	30-C	831	13% 59% 18% • 7%
1	31-C	831	13% 59% 18% • 7%
1	32-C	831	14% 59% 18% • 7%
1	33-C	831	13% 59% 18% • 7%
1	34-C	831	12% 60% 19% • 7%
1	35-C	831	13% 59% 18% • 7%
1	36-C	831	13% 60% 18% • 7%
1	37-C	831	14% 59% 18% • 7%
1	38-C	831	13% 59% 18% • 7%
1	39-C	831	13% 59% 18% • 7%
1	4-C	831	13% 59% 18% • 7%

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Mol	Chain	Length	Quality of chain
1	40-C	831	 13% 59% 18% 7%
1	5-C	831	 13% 60% 18% 7%
1	6-C	831	 13% 60% 18% 7%
1	7-C	831	 13% 60% 18% 7%
1	8-C	831	 13% 59% 18% 7%
1	9-C	831	 13% 60% 18% 7%
2	1-Y	136	 14% 66% 18% .
2	10-Y	136	 12% 66% 20% .
2	11-Y	136	 14% 66% 18% .
2	12-Y	136	 14% 65% 20% .
2	13-Y	136	 12% 66% 19% .
2	14-Y	136	 13% 65% 20% .
2	15-Y	136	 12% 66% 20% .
2	16-Y	136	 14% 65% 20% .
2	17-Y	136	 15% 64% 20% .
2	18-Y	136	 13% 67% 18% .
2	19-Y	136	 12% 67% 19% .
2	2-Y	136	 13% 65% 20% .
2	20-Y	136	 12% 66% 20% .
2	21-Y	136	 13% 66% 19% .
2	22-Y	136	 14% 65% 19% .
2	23-Y	136	 13% 65% 20% .
2	24-Y	136	 12% 67% 18% .
2	25-Y	136	 12% 68% 18% .
2	26-Y	136	 12% 67% 19% .

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Mol	Chain	Length	Quality of chain		
2	27-Y	136	13%	66%	19%
2	28-Y	136	12%	67%	20%
2	29-Y	136	13%	66%	18%
2	3-Y	136	14%	65%	20%
2	30-Y	136	14%	66%	18%
2	31-Y	136	12%	68%	18%
2	32-Y	136	14%	65%	19%
2	33-Y	136	12%	67%	19%
2	34-Y	136	13%	65%	20%
2	35-Y	136	15%	65%	19%
2	36-Y	136	12%	66%	20%
2	37-Y	136	12%	68%	18%
2	38-Y	136	14%	65%	19%
2	39-Y	136	12%	67%	19%
2	4-Y	136	12%	66%	20%
2	40-Y	136	12%	67%	20%
2	5-Y	136	14%	65%	20%
2	6-Y	136	12%	65%	21%
2	7-Y	136	12%	66%	20%
2	8-Y	136	13%	65%	20%
2	9-Y	136	15%	64%	20%
3	1-Z	151	18%	64%	17%
3	10-Z	151	19%	63%	17%
3	11-Z	151	19%	62%	17%
3	12-Z	151	20%	62%	17%

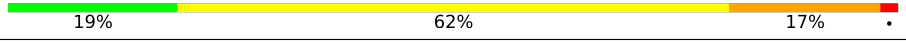
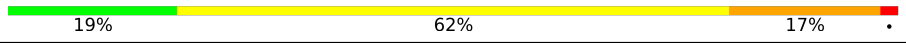
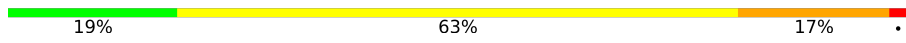
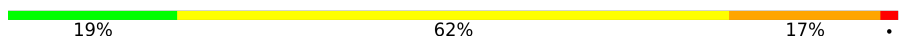
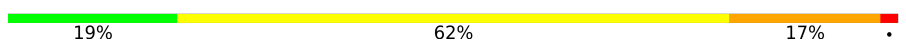
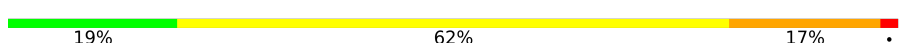
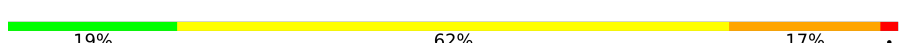

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Mol	Chain	Length	Quality of chain		
3	13-Z	151	19%	63%	17%
3	14-Z	151	19%	63%	17%
3	15-Z	151	19%	63%	17%
3	16-Z	151	19%	63%	17%
3	17-Z	151	19%	63%	17%
3	18-Z	151	19%	62%	17%
3	19-Z	151	19%	62%	17%
3	2-Z	151	19%	63%	17%
3	20-Z	151	18%	64%	17%
3	21-Z	151	16%	65%	17%
3	22-Z	151	19%	62%	17%
3	23-Z	151	19%	62%	17%
3	24-Z	151	18%	64%	17%
3	25-Z	151	19%	62%	17%
3	26-Z	151	19%	62%	17%
3	27-Z	151	19%	62%	17%
3	28-Z	151	19%	62%	17%
3	29-Z	151	15%	66%	17%
3	3-Z	151	19%	62%	17%
3	30-Z	151	20%	61%	17%
3	31-Z	151	19%	62%	17%
3	32-Z	151	18%	64%	17%
3	33-Z	151	17%	64%	17%
3	34-Z	151	16%	66%	17%
3	35-Z	151	20%	62%	17%

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Mol	Chain	Length	Quality of chain
3	36-Z	151	 19% 62% 17% .
3	37-Z	151	 19% 62% 17% .
3	38-Z	151	 19% 63% 17% .
3	39-Z	151	 19% 62% 17% .
3	4-Z	151	 19% 62% 17% .
3	40-Z	151	 19% 62% 17% .
3	5-Z	151	 19% 62% 17% .
3	6-Z	151	 19% 62% 17% .
3	7-Z	151	 19% 63% 17% .
3	8-Z	151	 19% 63% 17% .
3	9-Z	151	 19% 62% 17% .

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 340040 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 MYOSIN HEAVY CHAIN, STRIATED MUSCLE.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	1-C	772	6215	3957	1067	1155	36	0	0
1	2-C	772	6215	3957	1067	1155	36	0	0
1	3-C	772	6215	3957	1067	1155	36	0	0
1	4-C	772	6215	3957	1067	1155	36	0	0
1	5-C	772	6215	3957	1067	1155	36	0	0
1	6-C	772	6215	3957	1067	1155	36	0	0
1	7-C	772	6215	3957	1067	1155	36	0	0
1	8-C	772	6215	3957	1067	1155	36	0	0
1	9-C	772	6215	3957	1067	1155	36	0	0
1	10-C	772	6215	3957	1067	1155	36	0	0
1	11-C	772	6215	3957	1067	1155	36	0	0
1	12-C	772	6215	3957	1067	1155	36	0	0
1	13-C	772	6215	3957	1067	1155	36	0	0
1	14-C	772	6215	3957	1067	1155	36	0	0
1	15-C	772	6215	3957	1067	1155	36	0	0
1	16-C	772	6215	3957	1067	1155	36	0	0
1	17-C	772	6215	3957	1067	1155	36	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	18-C	772	6215	3957	1067	1155	36	0	0
1	19-C	772	6215	3957	1067	1155	36	0	0
1	20-C	772	6215	3957	1067	1155	36	0	0
1	21-C	772	6215	3957	1067	1155	36	0	0
1	22-C	772	6215	3957	1067	1155	36	0	0
1	23-C	772	6215	3957	1067	1155	36	0	0
1	24-C	772	6215	3957	1067	1155	36	0	0
1	25-C	772	6215	3957	1067	1155	36	0	0
1	26-C	772	6215	3957	1067	1155	36	0	0
1	27-C	772	6215	3957	1067	1155	36	0	0
1	28-C	772	6215	3957	1067	1155	36	0	0
1	29-C	772	6215	3957	1067	1155	36	0	0
1	30-C	772	6215	3957	1067	1155	36	0	0
1	31-C	772	6215	3957	1067	1155	36	0	0
1	32-C	772	6215	3957	1067	1155	36	0	0
1	33-C	772	6215	3957	1067	1155	36	0	0
1	34-C	772	6215	3957	1067	1155	36	0	0
1	35-C	772	6215	3957	1067	1155	36	0	0
1	36-C	772	6215	3957	1067	1155	36	0	0
1	37-C	772	6215	3957	1067	1155	36	0	0
1	38-C	772	6215	3957	1067	1155	36	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	39-C	772	Total 6215	C 3957	N 1067	O 1155	S 36	0	0
1	40-C	772	Total 6215	C 3957	N 1067	O 1155	S 36	0	0

- Molecule 2 is a protein called MYOSIN REGULATORY LIGHT CHAIN, STRIATED AD-DUCTOR MUSCLE.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	1-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	2-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	3-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	4-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	5-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	6-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	7-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	8-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	9-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	10-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	11-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	12-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	13-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	14-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	15-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	16-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0
2	17-Y	136	Total 1088	C 687	N 173	O 219	S 9	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
2	18-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	19-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	20-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	21-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	22-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	23-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	24-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	25-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	26-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	27-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	28-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	29-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	30-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	31-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	32-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	33-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	34-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	35-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	36-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	37-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	38-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	39-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		
2	40-Y	136	Total	C	N	O	S	0	0
			1088	687	173	219	9		

- Molecule 3 is a protein called MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	1-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	2-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	3-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	4-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	5-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	6-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	7-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	8-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	9-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	10-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	11-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	12-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	13-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	14-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	15-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	16-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	17-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	18-Z	151	1198	757	190	244	7	0	0
3	19-Z	151	1198	757	190	244	7	0	0
3	20-Z	151	1198	757	190	244	7	0	0
3	21-Z	151	1198	757	190	244	7	0	0
3	22-Z	151	1198	757	190	244	7	0	0
3	23-Z	151	1198	757	190	244	7	0	0
3	24-Z	151	1198	757	190	244	7	0	0
3	25-Z	151	1198	757	190	244	7	0	0
3	26-Z	151	1198	757	190	244	7	0	0
3	27-Z	151	1198	757	190	244	7	0	0
3	28-Z	151	1198	757	190	244	7	0	0
3	29-Z	151	1198	757	190	244	7	0	0
3	30-Z	151	1198	757	190	244	7	0	0
3	31-Z	151	1198	757	190	244	7	0	0
3	32-Z	151	1198	757	190	244	7	0	0
3	33-Z	151	1198	757	190	244	7	0	0
3	34-Z	151	1198	757	190	244	7	0	0
3	35-Z	151	1198	757	190	244	7	0	0
3	36-Z	151	1198	757	190	244	7	0	0
3	37-Z	151	1198	757	190	244	7	0	0
3	38-Z	151	1198	757	190	244	7	0	0

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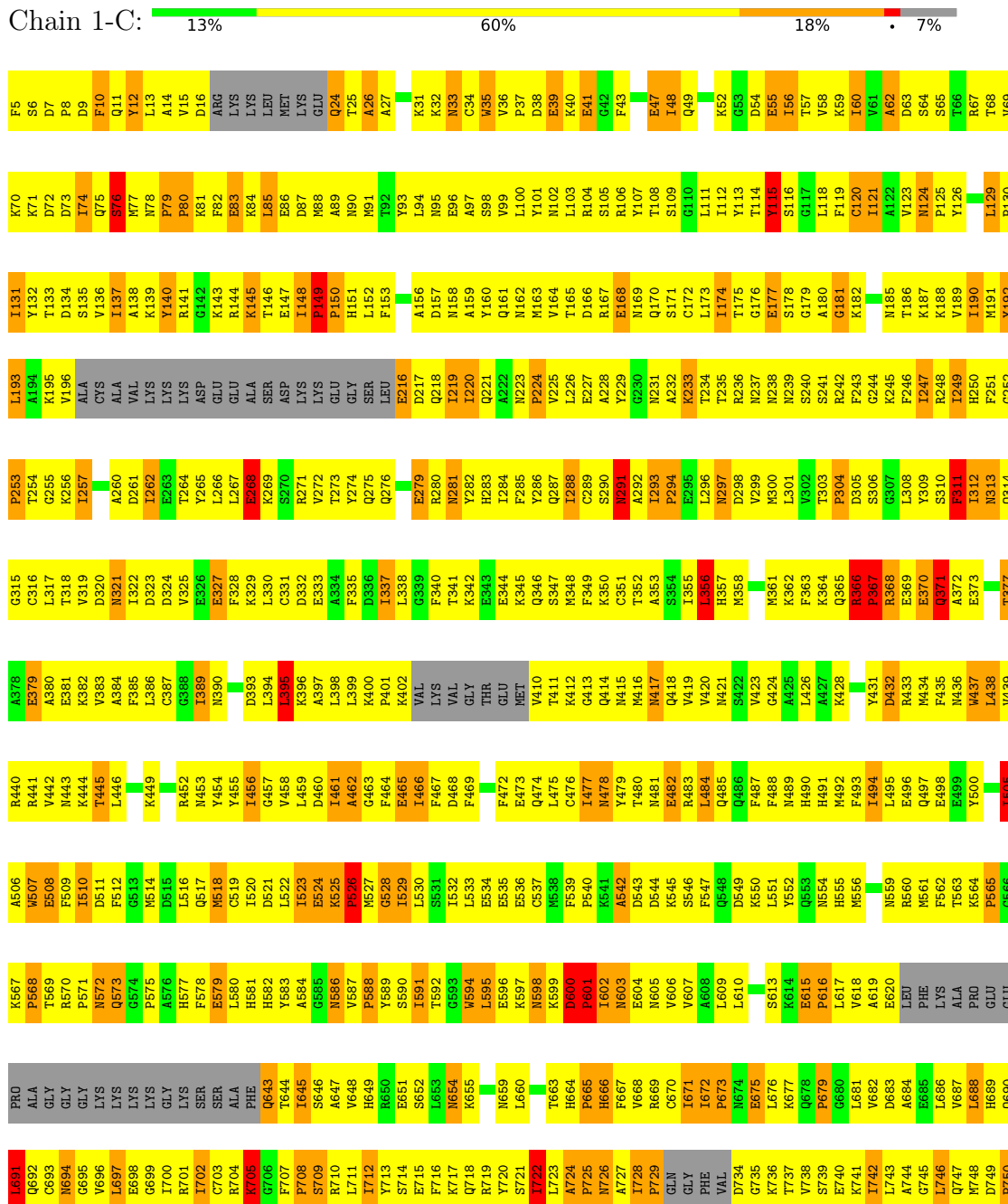
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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	39-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		
3	40-Z	151	Total	C	N	O	S	0	0
			1198	757	190	244	7		

3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. 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. 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: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



A751 E752 E753 R754 R755 R756 R757 R758 K759 V760 V761 F762 K763 F764 A765 G766 V767 L768 G768 N769 L770 E771 E772 M773 R774 D775 E776 R777 L778 S779 K780 I781 E782 I783 S783 M784 F785 Q786 Q787 H788 R789 R790 G791 Y792 L793 L794 R795 K796 A797 Y798 K799 K800 Q802 Q803 Q804 R805 I806 G807 L808 V810

I811 Q812 R813 R814 I815 R816 K817 W818 L819 V820 L821 R822 K823 W824 Q825 W826 W827 K828 L829 Y830 S831 V832 V833 K834 P835

● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

Chain 2-C: 14% 59% 18% 7%

F5 S6 D7 P8 D9 F10 Q11 Y12 M13 A14 V15 D16 ARG LYS LYS LYS LYS LYS MET MET LYS LYS LYS Q24 Q25 T25 A26 A27 F28 K31 K32 N33 C34 W35 V36 P37 D38 E39 M102 K103 E41 E42 E43 E47 E48 S109 S110 G110 Q49 L111 L112 K52 S53 D54 E55 I56 T57 V58 K59 L60 V61 A62 D63 D64 S64 S65 T66 R67 T68

V69 K70 K71 D72 D73 I74 Q75 S76 M77 N78 P79 P80 K81 F82 E83 K84 E85 E86 E87 D87 H88 A89 N90 N91 T92 Y93 L94 N95 E96 A97 W98 S98 V99 L100 Y101 M102 L103 E104 E105 E106 Y107 T108 S109 L110 G111 L112 Y113 T114 E115 S116 F119 C120 L121 A122 V123 N124 D125 Y126 V129 M130

I131 Y132 T133 D134 S135 I136 L137 A138 K139 Y140 R141 G142 K143 R144 E145 T146 E147 I148 P149 A150 F151 F153 A156 D157 N158 E159 Q161 S162 S163 M163 V164 T165 E166 R167 S168 E169 Q170 C172 L173 I174 G176 E177 S178 S179 A180 G181 K182 N185 V186 K187 N188 V189 I190 M191 G192

L193 A194 K195 V196 A197 D260 D261 A262 E263 T264 L265 L266 L267 E268 K269 S270 R271 L272 V273 A274 Q275 E279 R280 N281 Y282 H283 L284 F285 Q221 Q222 Q223 Q224 V225 E227 A228 Y229 E230 P294 E295 L296 L297 D298 V299 N300 L301 S302 F303 D304 S241 S242 S243 G306 L308 G244 K245 S310 F246 K187 K188 V189 H250 G251 G252

P253 A254 A260 D261 A262 E263 T264 L265 L266 L267 E268 K269 S270 R280 N281 Y282 H283 L284 F285 Q221 Q222 Q223 Q224 V225 E227 A228 Y229 E230 P294 E295 L296 L297 D298 V299 N300 L301 S302 F303 D304 S241 S242 S243 G306 L308 G244 K245 S310 F246 K187 K188 V189 H250 G251 G252

L317 T318 V319 N321 N322 S323 V324 V325 E327 F328 K329 L330 D332 E333 A334 F335 S337 F340 L338 F341 K342 E343 K345 Q346 S347 K348 F349 G350 K351 T352 A353 S354 S355 L356 K358 K361 K362 F363 K364 Q365 S366 F367 R368 E369 E370 S371 A372 E373 T377 E379

A380 E381 K382 V383 A384 F385 L386 C387 G388 R389 N390 D392 F393 L394 R395 K396 A397 L398 L399 K400 P401 VAL LYS THR MET VAL LYS GLY THR G462 F463 A464 F465 F466 F467 D468 F469 F472 E473 L474 Q475 L476 L477 T478 L480 T481 Q481 Q482 E483 L484 Q485 Q486 F487 F488 N489 H490 H491 M492 F493 I494 L495 A496 Q497 F498 E499 Y500 K501 A502 E503

R441 V442 M443 K444 L445 L446 L447 K448 R452 L453 N454 Y454 Y455 I456 Q517 R457 G518 G519 M514 D515 D516 Q517 M518 A519 I520 H521 D521 L522 I523 E524 K525 P526 P527 P528 S529 L530 T531 S531 L532 L533 M534 L535 E534 E535 E536 C537 F539 P540 P541 K541 A542 D543 D544 K545 K546 S546 F547 Q548 D549 K550 L551 Y552 Q553 M554 L555 M556 V559 A560 M561 P562 L563 K564

G504 I505 A506 W507 E508 F509 I510 D511 F512 G513 G514 M514 D515 D516 Q517 M518 A519 I520 H521 D521 L522 I523 E524 K525 P526 P527 P528 S529 L530 T531 S531 L532 L533 M534 L535 E534 E535 E536 C537 F539 P540 P541 K541 A542 D543 D544 K545 K546 S546 F547 Q548 D549 K550 L551 Y552 Q553 M554 L555 M556 V559 A560 M561 P562 L563 K564

P565 G566 K567 T568 R569 S570 P571 N572 Q573 L574 M575 P576 H577 F578 E579 L580 A581 P582 H581 D582 Y583 A584 G585 S586 V587 P588 P589 S590 T591 L592 G593 G594 M594 L595 E596 N598 C599 D600 P601 I602 N603 E604 M605 N606 V607 A608 L609 N610 L611 S613 K614 E615 E616 P617 L618 V619 A620 Q621 A622 A623 F624 G625 P626 P627 K628 Q629 P630 P631 F632 F633 F634 P635 F636 F637 F638 N639 F639 P640 P641 F642 P643 P644 P645 P646 P647 P648 P649 P650 P651 P652 P653 P654 P655 P656 P657 P658 P659 P660 P661 P662 P663 P664 P665 P666 P667 P668 P669 P670 P671 P672 P673 P674 P675 P676 P677 P678 P679 P680 P681 P682 P683 P684 P685 P686 P687 P688 P689 P690 P691 P692 P693 P694 P695 P696 P697 P698 P699 P700 P701 P702 P703 P704 P705 P706 P707 P708 P709 P710 P711 P712 P713 P714 P715 P716 P717 P718 P719 P720 P721 P722 P723 P724 P725 P726 P727 P728 P729 P730 P731 P732 P733 P734 P735 P736 P737 P738 P739 P740 P741 P742 P743 P744 P745 P746 P747 P748 P749 P750 P751 P752 P753 P754 P755 P756 P757 P758 P759 P760 P761 P762 P763 P764 P765 P766 P767

L770 L771 E772 M773 R774 R775 E776 R777 L778 S779 K780 I781 E782 I783 S783 M784 F785 Q786 Q787 H788 R789 R790 G791 Y792 L793 L794 R795 K796 A797 Y798 K799 K800 Q802 Q803 Q804 R805 I806 G807 L808 V810

L888 H889 Q890 R891 A892 G893 W894 R895 L896 V897 L898 E899 I900 R901 F902 C903 A904 P905 Q906 K907 T908 F909 T910 L911 W912 I913 S914 E915 L916 M917 L918 L919 L920 L921 L922 L923 L924 L925 L926 L927 L928 L929 L930 L931 L932 L933 L934 L935 L936 L937 L938 L939 L940 L941 L942 L943 L944 L945 L946 L947 L948 L949 L950 L951 L952 L953 L954 L955 L956 L957 L958 L959 L960 L961 L962 L963 L964 L965 L966 L967 L968 L969 L970 L971 L972 L973 L974 L975 L976 L977 L978 L979 L980 L981 L982 L983 L984 L985 L986 L987 L988 L989 L990 L991 L992 L993 L994 L995 L996 L997 L998 L999

L988 H989 Q990 R991 A992 G993 W994 R995 L996 V997 L998 E999 I1000 R1001 F1002 C1003 A1004 P1005 Q1006 K1007 T1008 F1009 T1010 L1011 W1012 I1013 S1014 E1015 L1016 M1017 L1018 L1019 L1020 L1021 L1022 L1023 L1024 L1025 L1026 L1027 L1028 L1029 L1030 L1031 L1032 L1033 L1034 L1035 L1036 L1037 L1038 L1039 L1040 L1041 L1042 L1043 L1044 L1045 L1046 L1047 L1048 L1049 L1050 L1051 L1052 L1053 L1054 L1055 L1056 L1057 L1058 L1059 L1060 L1061 L1062 L1063 L1064 L1065 L1066 L1067 L1068 L1069 L1070 L1071 L1072 L1073 L1074 L1075 L1076 L1077 L1078 L1079 L1080 L1081 L1082 L1083 L1084 L1085 L1086 L1087 L1088 L1089 L1090 L1091 L1092 L1093 L1094 L1095 L1096 L1097 L1098 L1099

I811	Q812	R813	N814	I815	R816	K817	W818	L819	V820	L821	R822	N823	W824	Q825	W826	W827	K828	L829	Y830	S831	K832	W833	K834	P835
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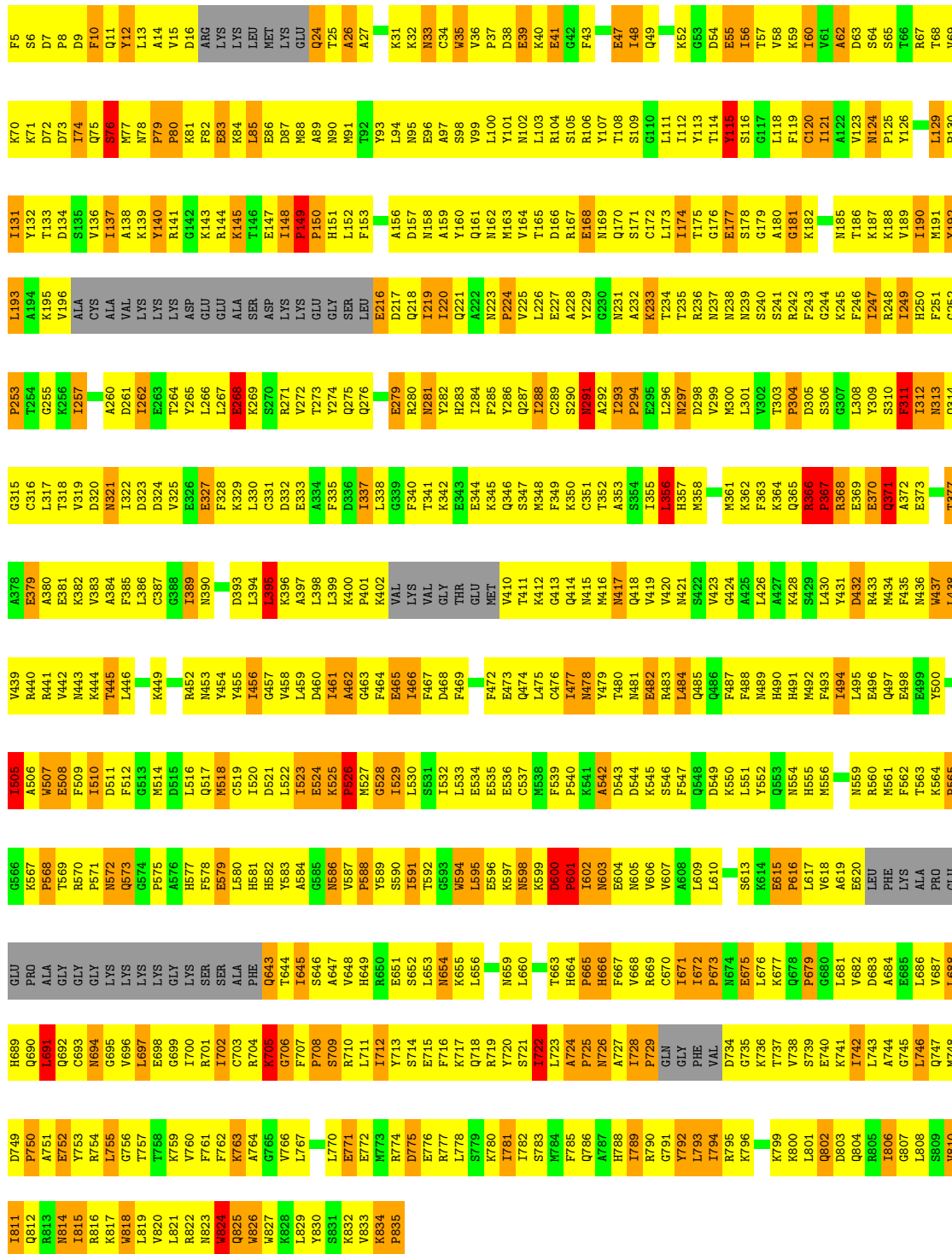
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

Chain 3-C: 13% 60% 17% 7%

F5	S6	D7	F8	D9	F10	Q11	Y12	L13	A14	V15	D16	ARG	LYS	LYS	LYS	LEU	MET	LYS	GLU	Q24	T25	A26	A27	K31	K32	R33	C34	W35	V36	P37	D38	E39	K40	E41	F42	G43	F44	E47	I48	Q49	L111	L112	L113	L114	Y115	S116	T57	V58	K59	I60	V61	A62	D63	S64	S65	T66	R67	T68	V69																																																																																		
K70	K71	D72	D73	I74	Q75	S76	R77	M78	P80	V81	K81	K82	E83	R84	L85	E86	D87	M88	L89	N90	R91	T92	Y93	L94	N95	E96	A97	S98	V99	L100	Y101	N102	L103	R104	E105	R106	Y107	T108	S109	L110	L111	L112	L113	L114	Y115	S116	F119	C120	K121	A122	V123	D63	P125	S64	Y126	T66	L129	P130	I131																																																																																		
Y132	T133	D134	S135	V136	I137	A138	L139	Y140	R141	ASP	K142	L143	R144	K145	T146	A147	L148	P149	P150	H151	L152	R91	F153	A156	D157	M158	A159	Y160	Q161	N162	M163	V164	L165	D166	R167	E168	M169	Q170	S171	C172	L173	T174	T175	G176	E177	N239	S178	G179	A180	G181	K182	M185	T186	K187	M188	V189	I190	M191	Y192	P253																																																																																	
K195	V196	ALA	CYS	VAL	VAL	LYS	LYS	LYS	ASP	ASP	LYS	LYS	LYS	LYS	ASP	LYS	LYS	LYS	GLY	GLY	GLY	GLY	GLY	D217	Q218	T219	L220	Q221	A222	N223	P224	V225	E227	A228	Y229	G230	N231	A232	K233	T234	T235	R236	N237	N238	N239	S240	S241	R242	F243	G244	K245	F246	Y309	L308	Y309	S310	R248	H250	F251	Y192	P253																																																																																
T254	G255	K256	L257	A260	D261	L262	E263	T264	V265	L266	L267	E268	K269	L270	R271	R272	T273	Y274	Q275	Q276	E279	R280	N281	Y282	H283	L284	F285	Y286	Q287	L288	C289	A290	S291	A292	T293	P294	E295	L301	V302	T303	P304	D305	S306	G307	L308	Y309	S310	R366	P367	S368	F369	E370	Q371	R372	L312	N313	Q314	G315																																																																																			
C316	L317	V318	V319	N321	T322	D323	D324	V325	E326	E327	F328	K329	L330	C331	D332	E333	A334	F335	D336	L337	L338	E339	F340	T341	K342	E343	E344	N345	Q346	S347	F348	F349	Q414	C351	T352	A353	S354	L355	L356	R357	H358	M359	K361	K362	F363	K364	Q365	R366	P367	R368	F369	E370	Q371	R372	E373	T377	A378																																																																																				
E379	A380	K381	K382	V383	A384	F385	L386	C387	G388	L389	N390	D393	L394	C395	L396	D397	A398	D400	F401	K402	VAL	LYS	VAL	GLY	THR	GLU	MET	V410	T411	K412	G413	Q414	N415	M416	M417	Q418	V419	V420	N421	S422	V423	G424	A425	L426	H490	A427	K428	S429	L430	Y431	D432	R433	M434	F435	M436	W437	L438	V439																																																																																			
R440	R441	V442	M443	T444	T445	L446	K449	R452	L453	M454	Y455	G456	L457	C458	V459	D460	I461	A462	G463	F464	E465	I466	F467	D468	F469	F472	E473	Q474	L475	L476	C477	L478	M479	T480	M481	E482	R483	L484	Q485	Q486	F487	F488	M489	H490	A491	M492	F493	L494	L495	L496	E497	N559	R560	M561	F562	L563	K564																																																																																				
G504	I505	A506	M507	E508	F509	L510	D511	F512	G513	M514	D515	L516	Q517	M518	C519	H520	D521	L522	L523	E524	K525	P526	M527	G528	L529	L530	S531	L532	L533	M534	E535	E536	C537	M538	F539	P540	K541	A542	D543	D544	K545	S546	F547	Q548	D549	K550	L551	V552	Q553	M554	H555	M556	N559	R560	M561	F562	L563	K564																																																																																			
P565	G566	K567	P568	G569	R570	P571	Q572	Q573	G574	L575	P576	H577	A578	F579	E580	H581	H582	Y583	A584	S585	N586	V587	P588	S589	T589	L590	L591	T592	G593	M594	G595	L596	E597	N598	C599	D600	P601	M602	M603	E604	N605	V606	V607	A608	L609	L610	L611	S613	K614	L615	E616	P617	L618	L619	H620	L621	L622	L623	L624	L625	L626	L627	L628	L629	L630	L631	L632	L633	L634	L635	L636	L637	L638	L639	L640	L641	L642	L643	L644	L645	L646	L647	L648	L649	L650	L651	L652	L653	L654	L655	L656	M659	L660	L661	T663	H664	P665	H666	F667	V668	R669	C670	G671	I671	L672	L673	L674	G675	E676	L677	K678	Q679	L680	L681	L682	L683	L684	L685	L686	L687	L688	L689	L690	L691	L692	L693	L694	R795	K796	K797	L798	K799	R800	L801	Q802	D803	Q804	Q805	I806	G807	L808
L688	H689	Q690	L691	Q692	C693	M694	G695	V696	L697	E698	G699	I700	R701	I702	C703	R704	P705	Q706	T707	F708	S709	R710	L711	H712	Y713	S714	E715	F716	K717	L718	Q719	R720	S721	I722	L723	A724	P725	N726	I727	F728	V729	P730	G731	P732	P733	P734	G735	E736	L737	L738	L739	L740	L741	L742	L743	L744	L745	L746	L747	L748	L749	L750	L751	L752	L753	L754	L755	L756	L757	L758	K759	L760	L761	L762	L763	L764	L765	L766	L767	L768	L769	L770	E771	S772	K773	M774	R775	D776	E777	L778	K779	S780	L781	I782	L783	S784	M785	F786	Q787	R788	I789	R790	G791	Y792	L793	L794	R795	K796	K797	L798	K799	R800	L801	Q802	D803	Q804	Q805	I806	G807	L808																					
S809	V810	Q811	Q812	R813	N814	I815	R816	L817	W818	L819	V820	L821	R822	F761	F762	K763	R764	P765	G766	L767	L770	E771	S772	K773	M774	R775	D776	E777	L778	K779	S780	L781	I782	L783	S784	M785	F786	Q787	R788	I789	R790	G791	Y792	L793	L794	R795	K796	K797	L798	K799	R800	L801	Q802	D803	Q804	Q805	I806	G807	L808																																																																																		

● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

Chain 4-C: 13% 59% 18% 7%

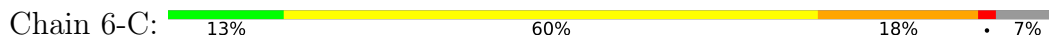


• Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

Chain 5-C: 13% 60% 18% 7%

F5	S6	D7	P8	D9	F10	Q11	Y12	L13	A14	V15	ARG	LYS	LEU	LEU	MET	LYS	GLU	Q24	T25	A26	A27	K31	K32	N33	C34	W35	V36	P37	D38	E39	K40	E41	G42	F43	E47	I48	Q49	K52	G53	D54	E55	I56	T57	V58	K59	I60	V61	A62	D63	S64	S65	T66	R67	T68	Y69																																																																																																																																																																																																
K70	K71	D72	D73	I74	W75	S76	M77	N78	P79	P80	K81	F82	E83	K84	L85	E86	D87	M88	A89	N90	M91	T92	Y93	L94	N95	E96	A97	S98	V99	L100	Y101	N102	L103	L104	E105	G106	Y107	T108	S109	G110	L111	Y112	Y113	T114	Y115	S116	F119	C120	I121	A122	V123	N124	K125	Y126	L129	P130	Y131	I132	T133	D134	S135	CYS	ALA	I137	VAL	L139	Y140	R141	G142	K143	GLU	R144	K145	T146	SER	ASP	L148	D149	LYS	P150	H151	L152	F153	A156	D157	N158	A159	Q160	Q161	N162	M163	V164	T165	D166	A228	E168	N169	Q170	S171	C172	L173	I174	T175	R236	N237	N238	N239	S240	G179	S241	A180	R242	G181	F243	G244	K245	L246	Y247	R248	K249	R250	F251	H252	I253	N254	G255	I256	R257	A260	D261	L262	E263	Y264	Y265	L266	L267	E268	K269	S270	C331	D332	V272	R273	T274	S275	L337	L338	E279	R280	N281	Y282	H283	L284	F285	N223	P224	V225	L226	E227	C289	S290	A291	N292	L293	P294	K295	L296	N297	D298	V299	M300	L301	V302	T303	P304	D305	S306	G307	R308	L308	Y309	S310	R311	I312	N313	Q314	G315	C316	L317	T318	V319	D320	N321	I322	D323	D324	V325	E326	E327	N453	F328	K329	L330	C331	D332	E333	A334	F335	D336	L337	G339	F340	T341	K342	E343	E344	K345	F285	Q346	S347	N348	C289	K351	T352	A353	S354	L355	H357	M358	M361	K362	F363	K364	Q365	R366	F367	R368	E369	E370	R433	Q371	R434	F435	M436	W437	Y500	E503
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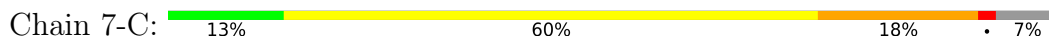
• Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



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● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



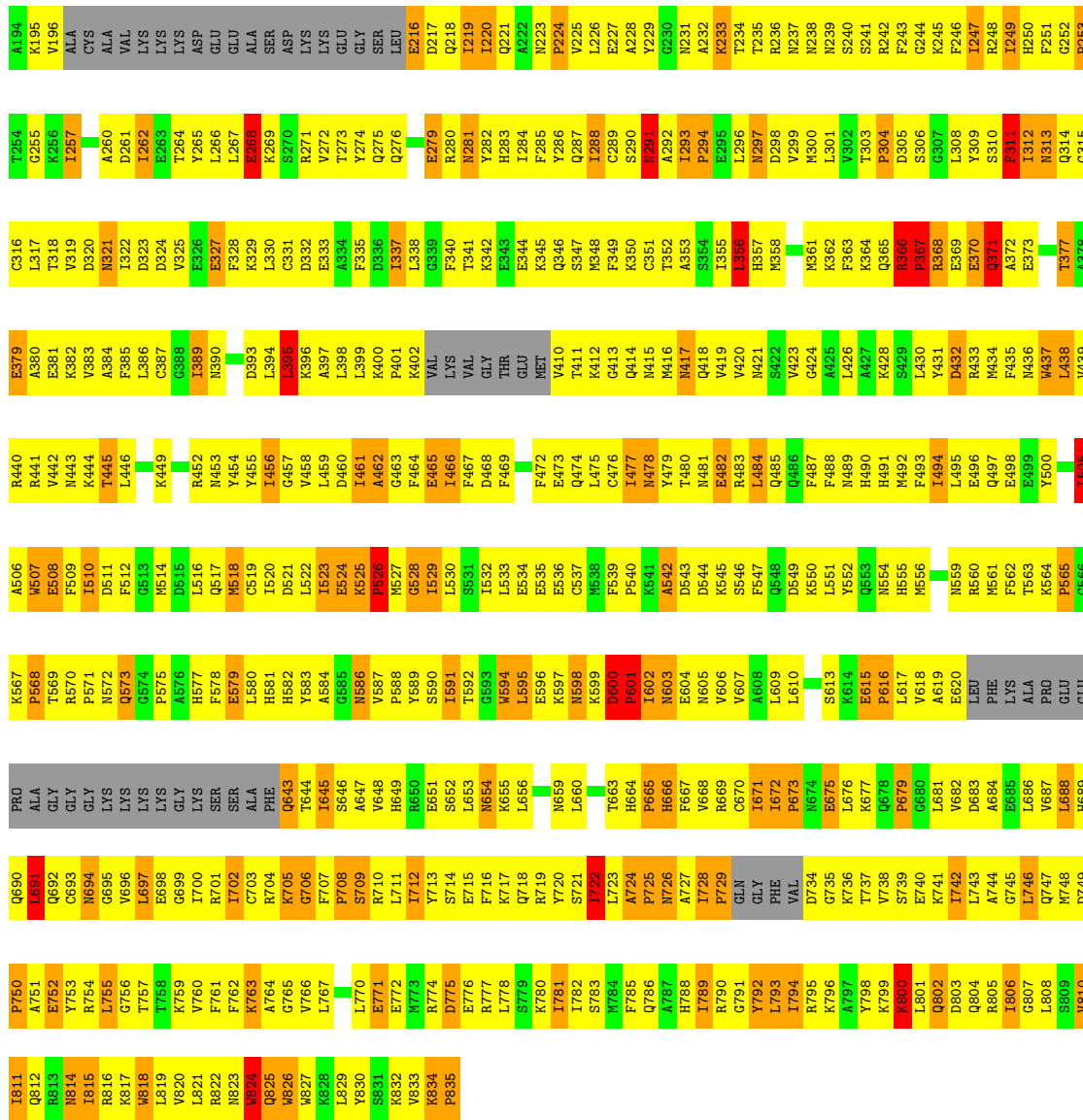
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R440	R441	V442	N443	K444	T445	R446	K449	R452	G453	M454	Y455	I456	M457	F458	E459	L459	D460	I461	A462	G463	F464	E465	I466	F467	Y468	L469	F472	E473	Q474	L475	K412	L477	M478	M416	Y479	T480	M481	E482	R483	D543	D544	K484	V606	V607	S546	F547	F487	F488	D549	H489	H490	H491	M492	F493	G553	E554	L494	L495	E496	Q371	R434	F435	A372	I312	M313	Q314	G315
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K564	P565	G566	K567	P568	T569	R570	F571	M572	Q573	G574	P575	A576	H577	F578	E579	L580	H581	D582	L583	A584	G585	M586	V587	Y588	Y589	S590	T591	T592	G593	M594	L595	E596	K597	M598	K599	D600	P601	L602	N603	E604	N605	V606	V607	A608	L609	L610	L611	G613	G614	E615	P616	L617	H555	M556	E557	L618	A619	E559	R560	M561	F562	LYS	ALA	T563			
PRO	GLU	GLU	PRO	ALA	GLY	GLY	GLY	LYS	LYS	LYS	LYS	LYS	LYS	SER	SER	ALA	PHE	G643	T644	S645	A647	V648	H649	G650	E651	S652	L653	M654	K655	L656	M659	W660	T663	H664	P665	H666	F667	V668	R669	C670	L671	P672	P673	M674	E675	L676	K677	Q678	V738	S739	E740	K741	L681	V682	D683	A684	G685	L746									
V687	L688	H689	G690	L691	G692	C693	M694	G695	V696	L697	E698	G699	I700	R701	I702	C703	R704	K705	G706	F707	P708	S709	R710	L711	I712	Y713	S714	E715	F716	M654	K717	Q718	R719	Y720	S721	L722	A724	F725	N726	A727	I728	F729	G730	PHE	VAL	D734	G735	K736	T737	V738	S739	E740	K741	L681	V682	D683	A684	G685	L746								
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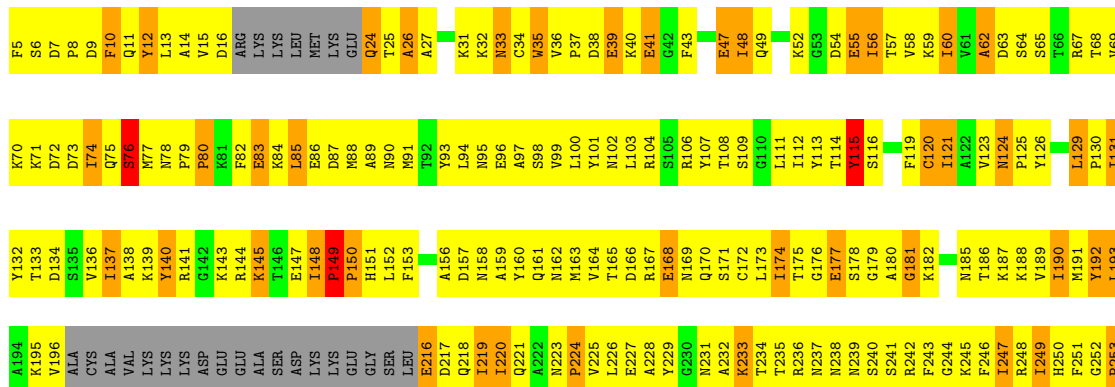
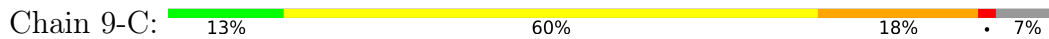
• Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

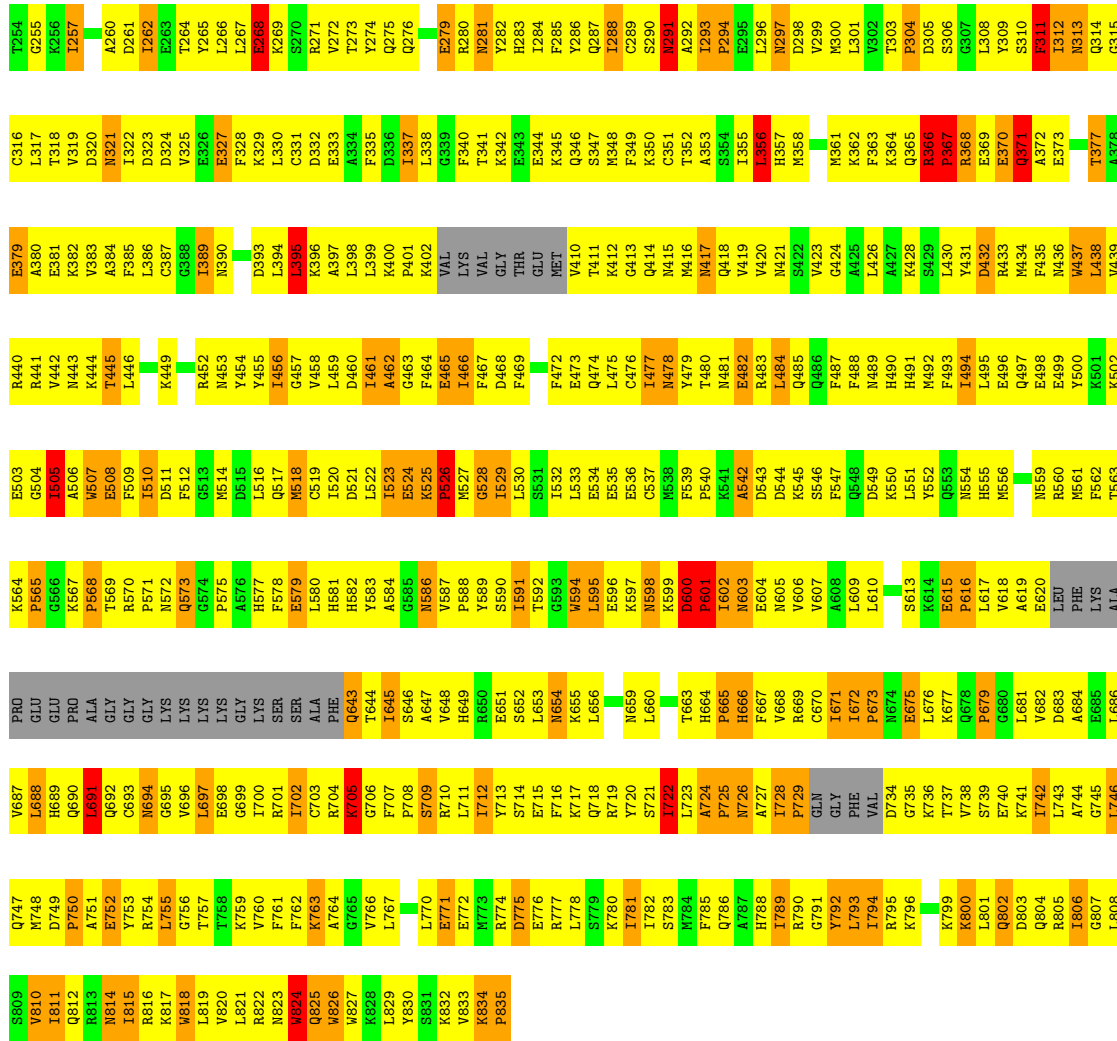
Chain 8-C: 13% 59% 18% 7%

F5	S6	D7	P8	D9	F10	Q11	Y12	L13	A14	V15	D16	ARG	LYS	LYS	LYS	MET	P149	P150	H151	L152	F153	A156	D157	M158	A159	Y160	Q161	M162	M163	V164	T165	D166	R167	E168	M169	Q170	S171	C172	L173	I174	T175	G176	E177	S178	G179	A180	G181	K182	M185	T186	K187	K188	V189	I190	M191	Y192	L193				
K70	K71	D72	D73	I74	Y75	S76	M77	L78	P79	P80	K81	E82	E83	K84	L85	E86	D87	M88	A89	N90	M91	Y92	L94	N95	E96	A97	S98	V99	L100	Y101	D102	L103	R104	E105	R106	Y107	T108	S109	L111	G110	L111	I112	Y113	T114	Y115	S116	T57	V58	K59	I60	V61	A62	D63	P125	Y126	T66	R67	L129	P130	T68	L131

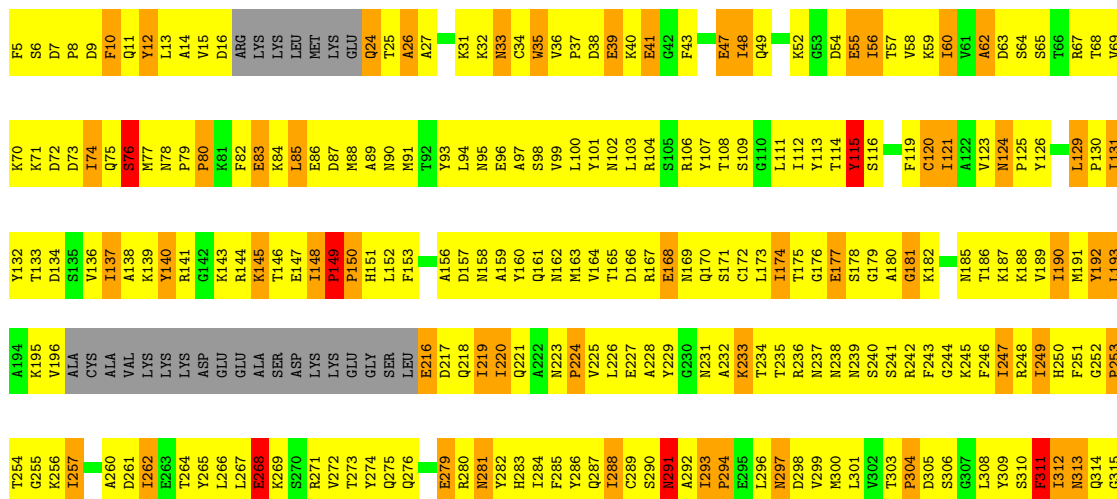
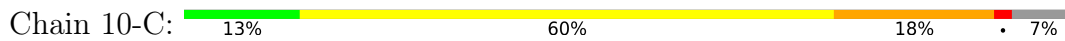


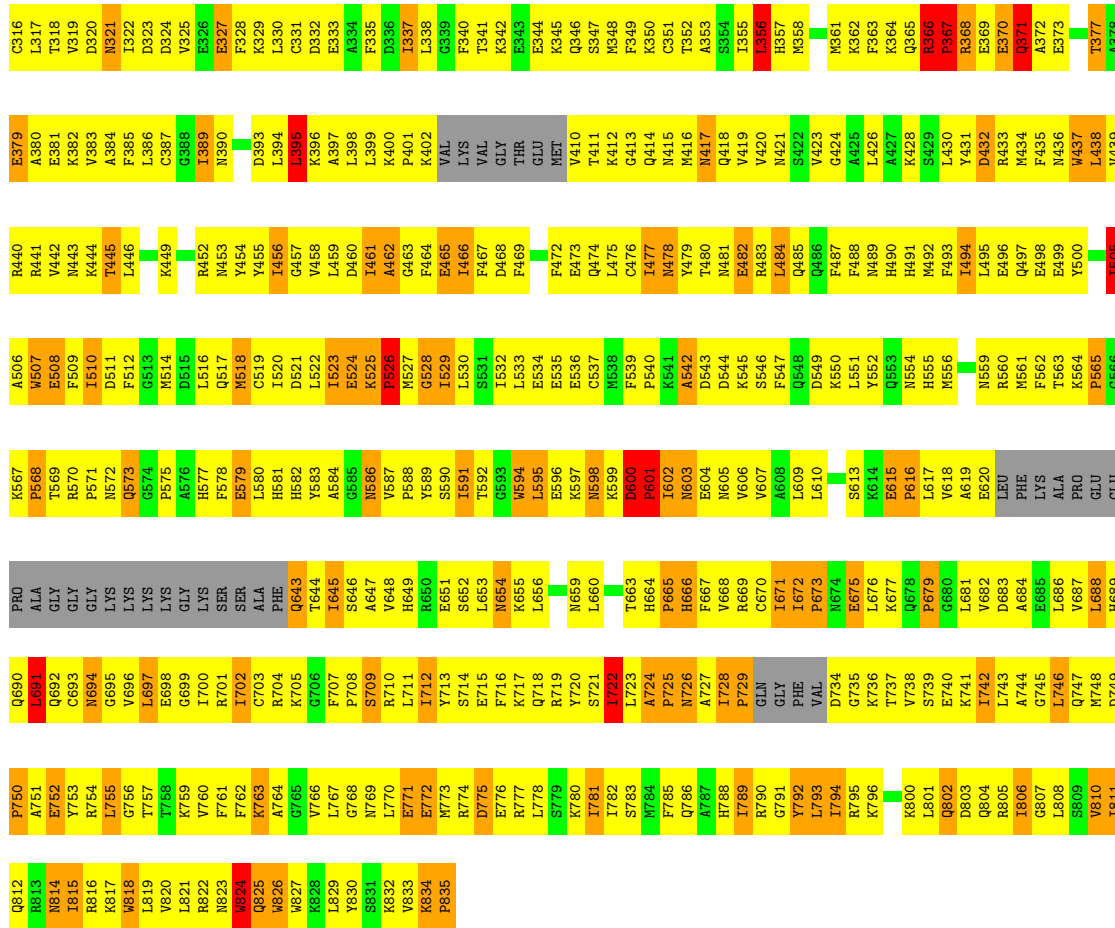
• Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



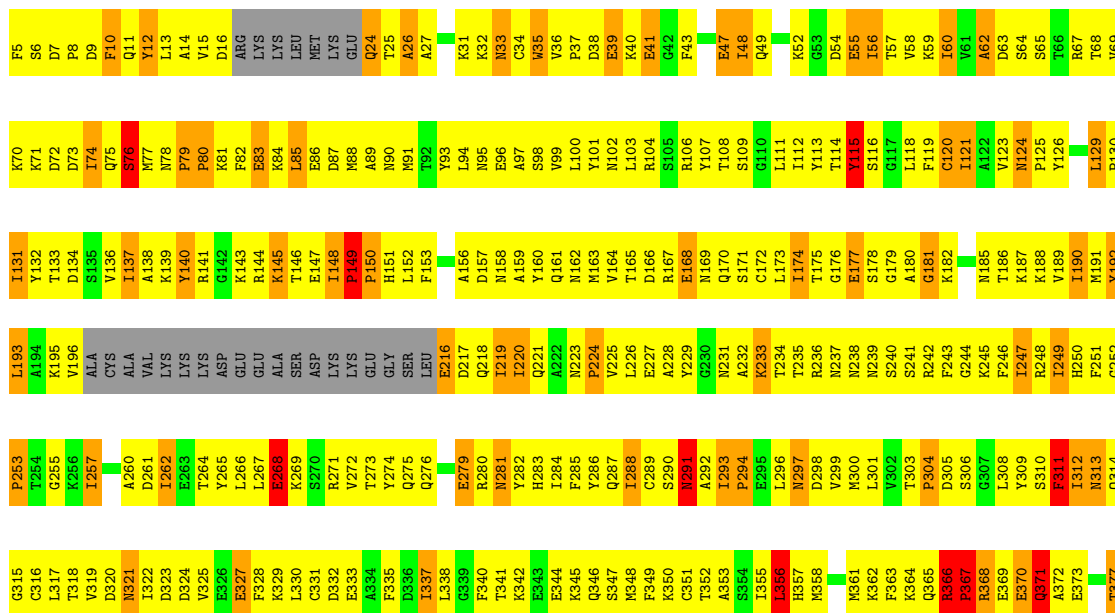
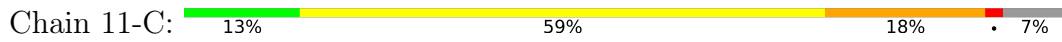


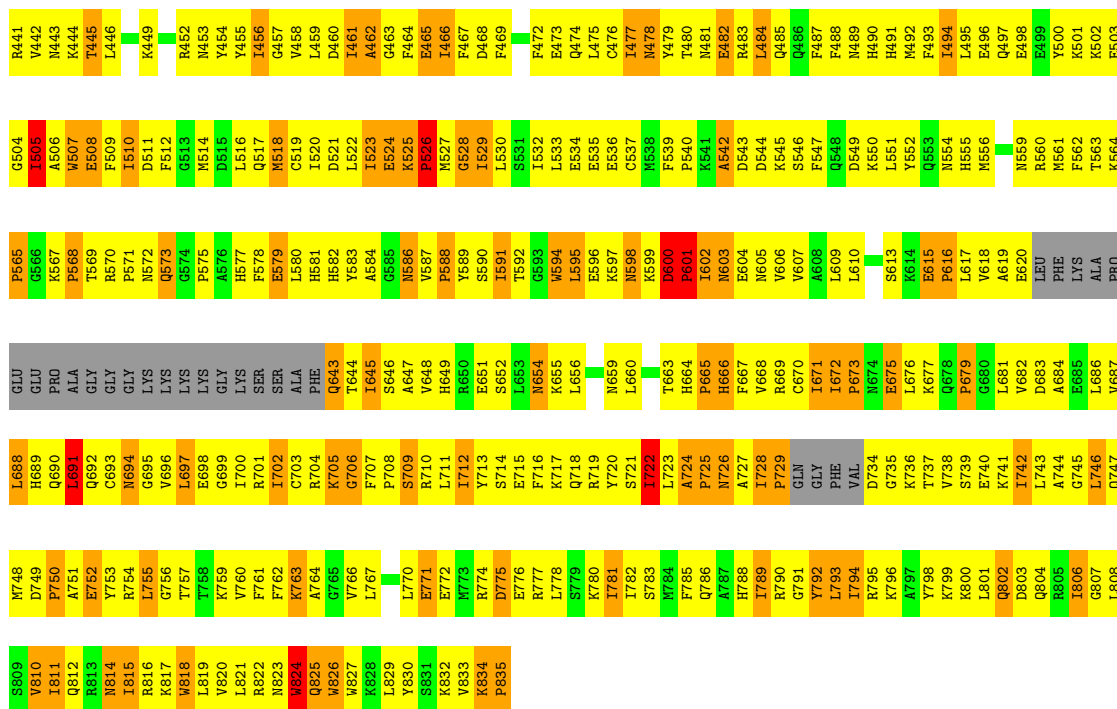
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE





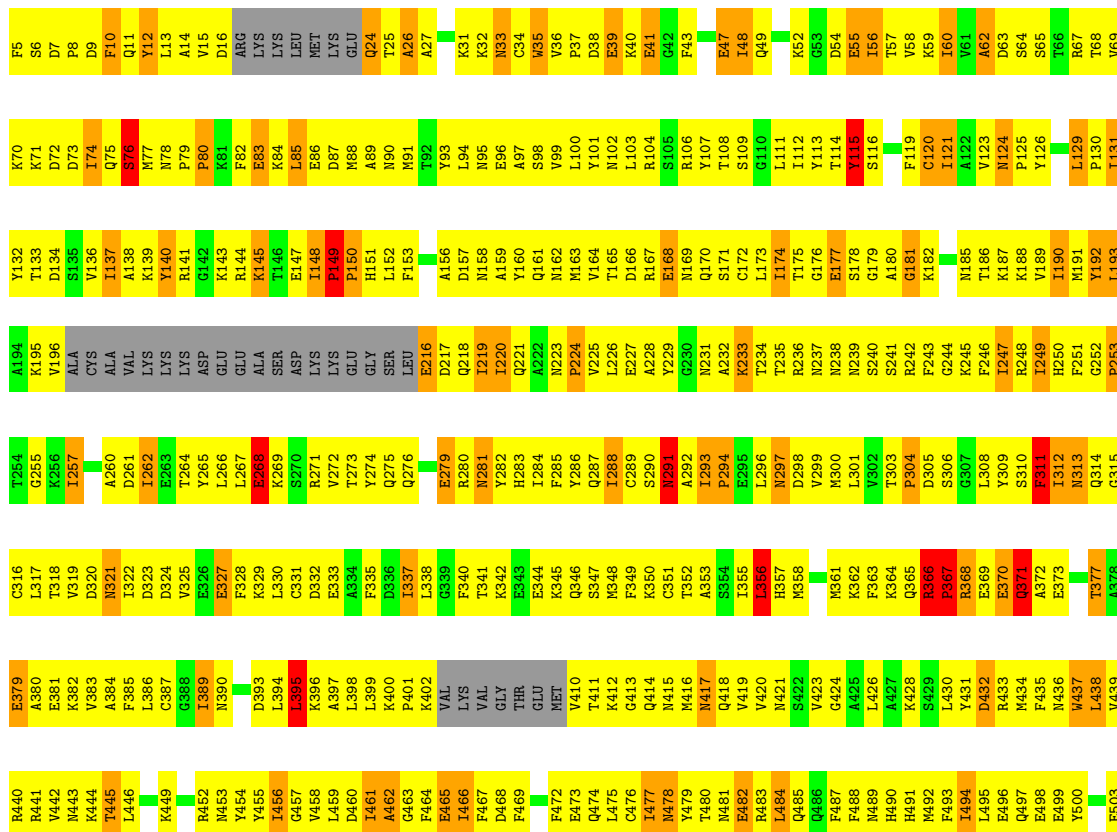
• Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE





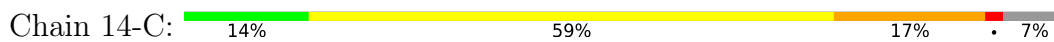
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

Chain 13-C: 13% 60% 18% 7%

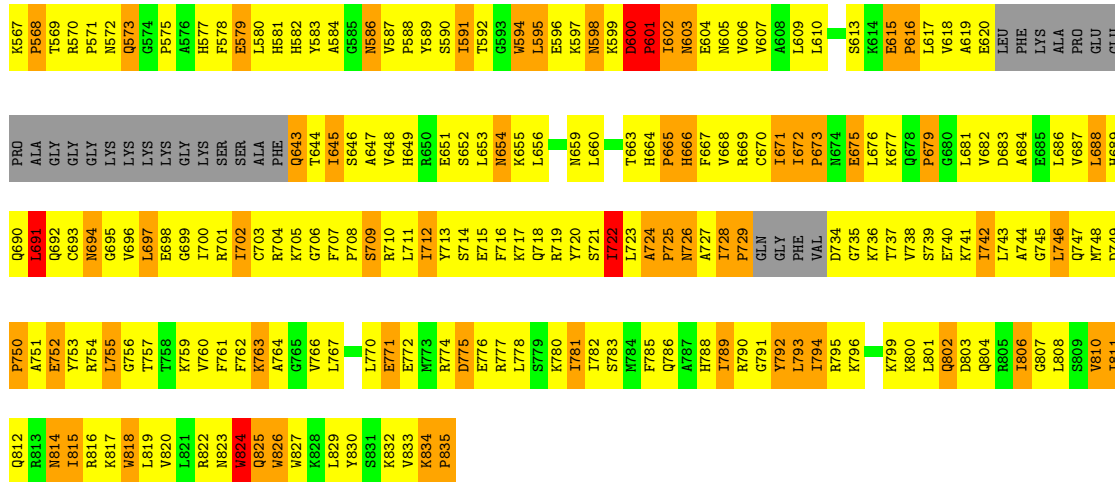


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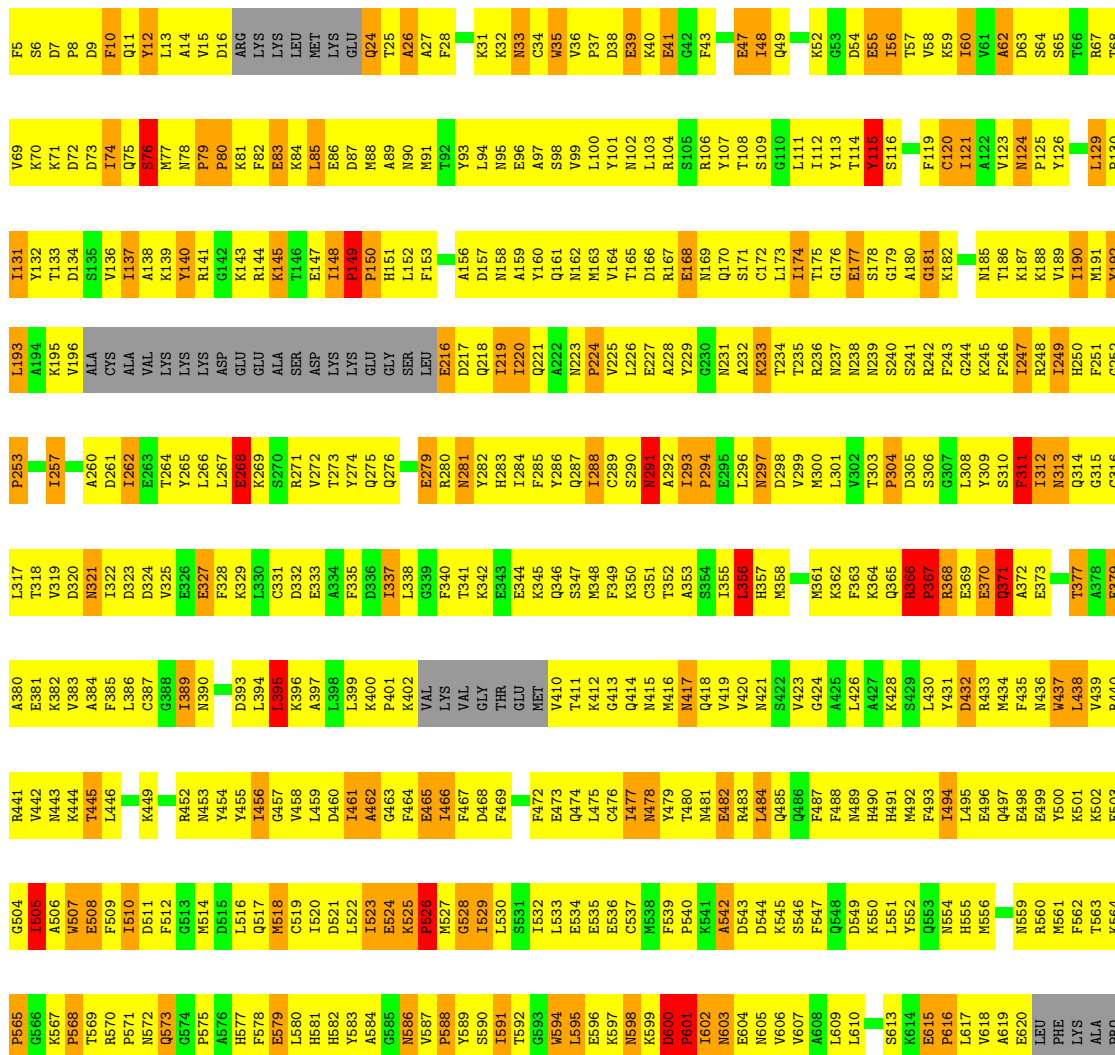
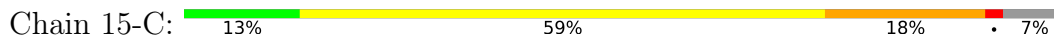
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

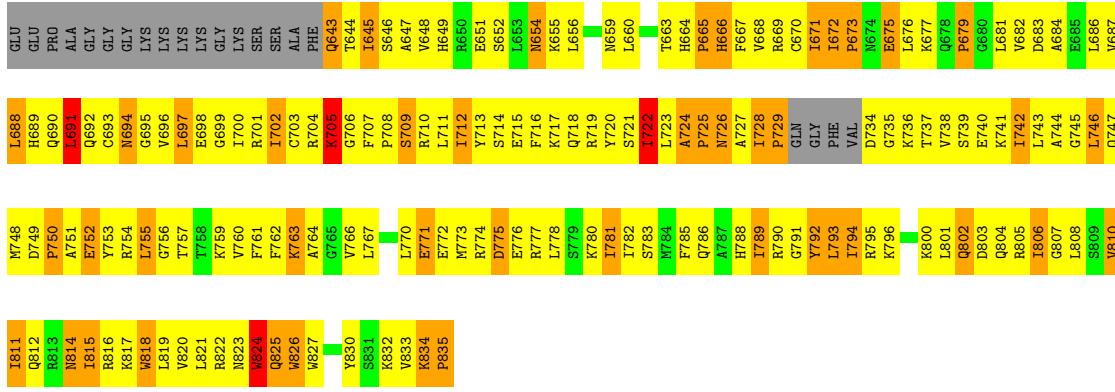


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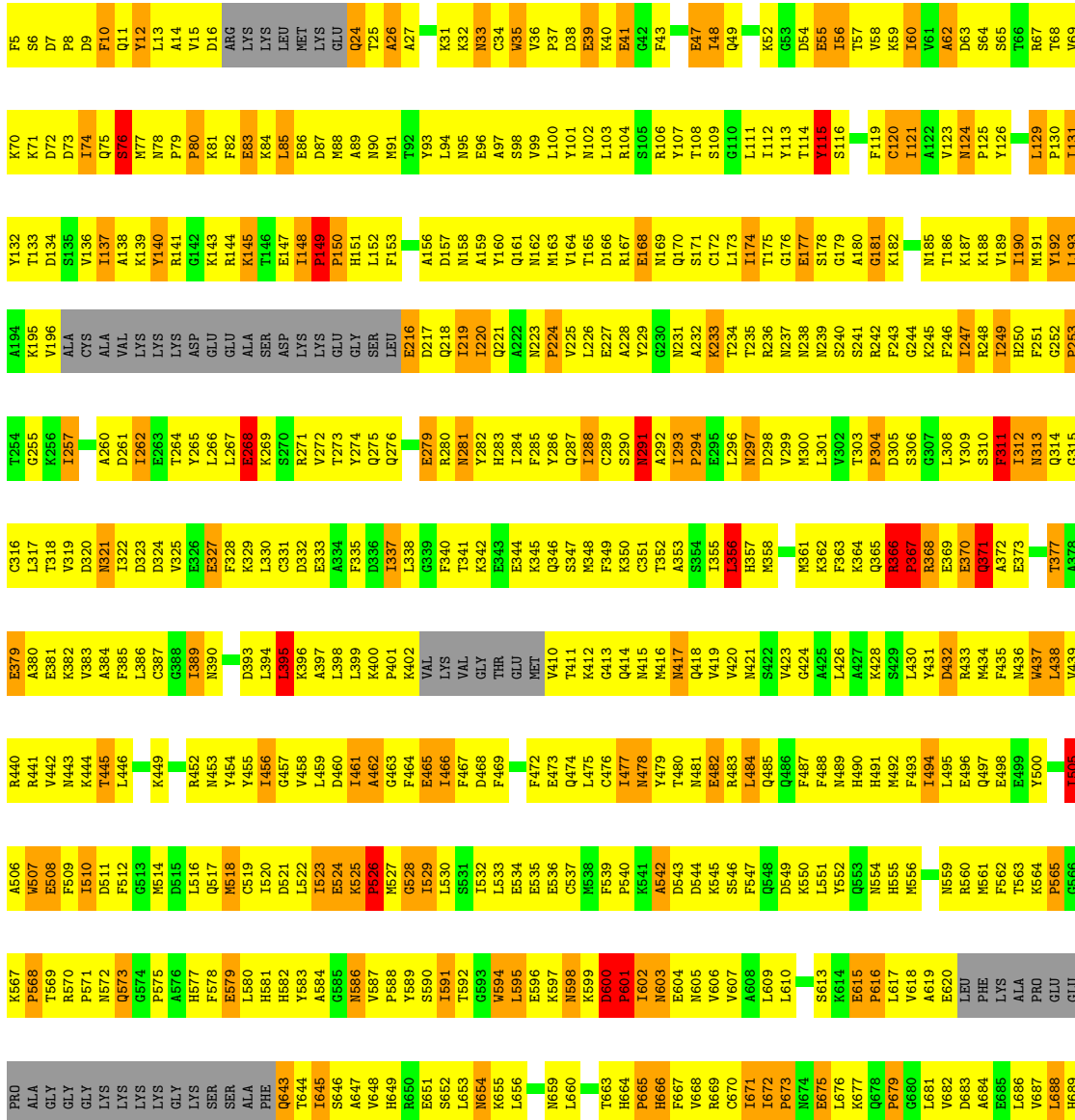
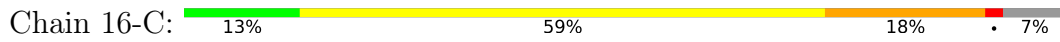


● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



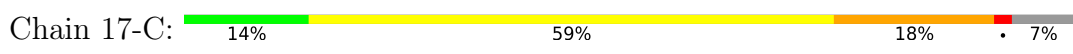


● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

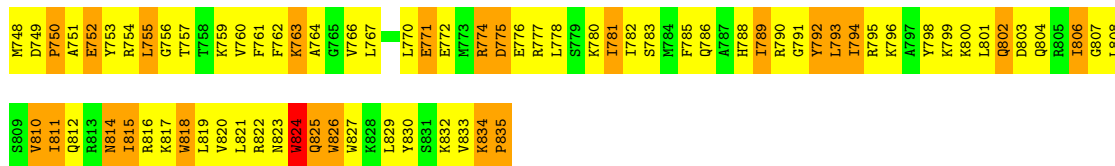


Q690	L881	Q692	C693	G694	G695	V696	L697	E698	G699	I700	R701	I702	C703	R704	K705	G706	F707	P708	S709	R710	L711	I712	L713	S714	E715	F716	K717	R718	R719	Y720	S721	I722	L723	P725	W726	A727	I728	P729	GLN	GLY	PHE	VAL	D734	G735	K736	T737	V738	S739	E740	K741	I742	L743	A744	G745	I805	I806	L746	Q747	M748	D749																				
P750	A751	E752	Y753	R814	R815	L755	G756	T757	I758	K759	A14	V15	F761	R822	F762	I762	K763	A764	G765	W826	MET	K828	L829	Y830	L819	W820	L821	R822	F762	K823	A824	Q825	W826	K832	V833	K834	P835	L770	E771	E772	M773	R774	D775	E776	R777	L778	S779	K780	I781	I782	S783	W784	K785	Q786	A787	H788	I789	R790	G791	Y792	L793	I794	R795	K796	A797	Y798	K799	K800	L801	Q802	D803	Q804	L743	R805	I806	S807	L808	S809	M748	V810
I811	Q812	R813	R814	R815	R816	K817	W818	T757	I758	K759	A14	V15	F761	R822	F762	I762	K763	A764	G765	W826	MET	K828	L829	Y830	L819	W820	L821	R822	F762	K823	A824	Q825	W826	K832	V833	K834	P835	L770	E771	E772	M773	R774	D775	E776	R777	L778	S779	K780	I781	I782	S783	W784	K785	Q786	A787	H788	I789	R790	G791	Y792	L793	I794	R795	K796	A797	Y798	K799	K800	L801	Q802	D803	Q804	L743	R805	I806	S807	L808	S809	M748	V810

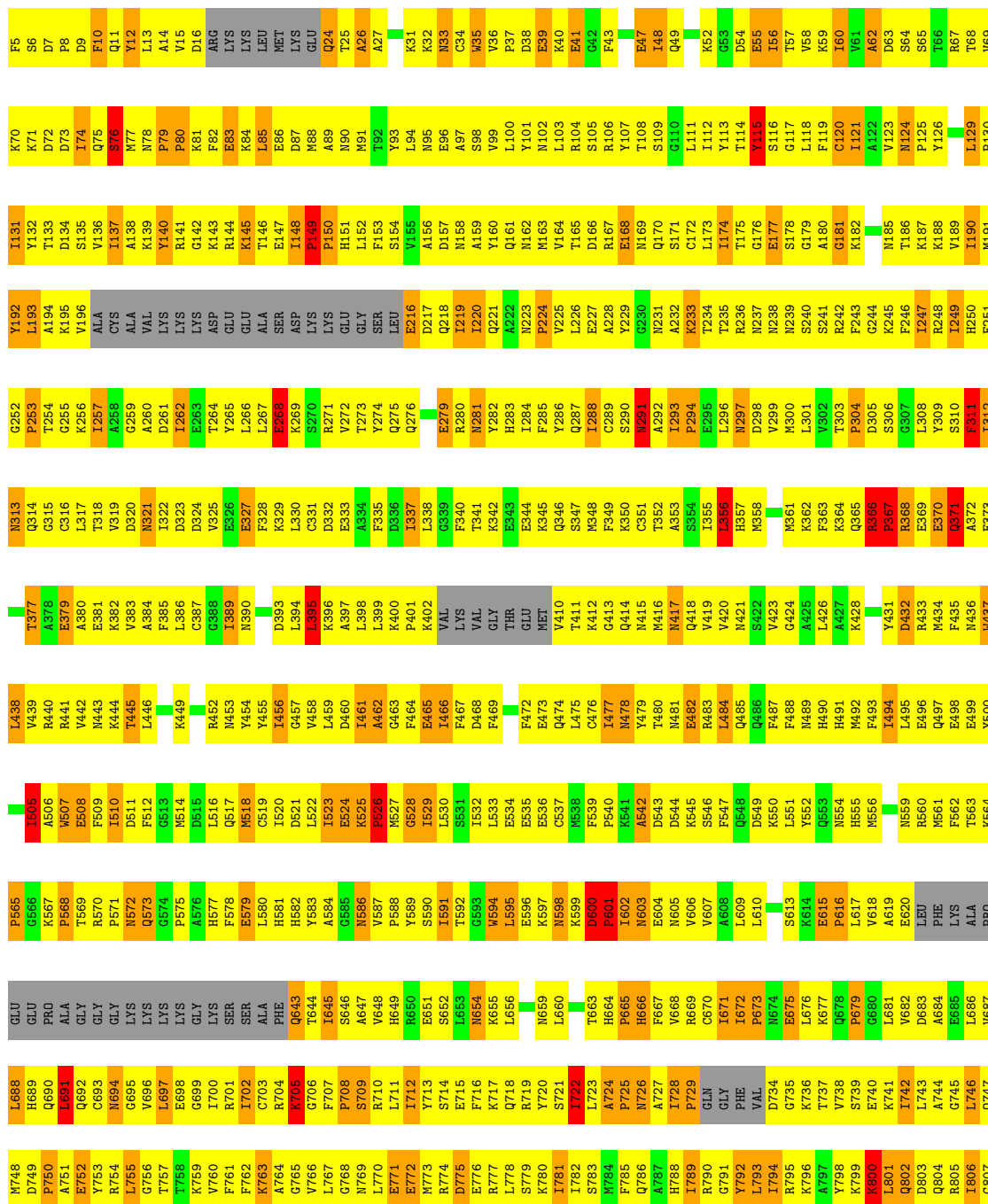
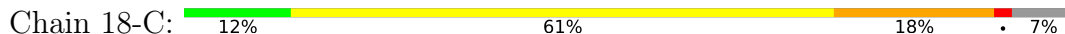
• Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



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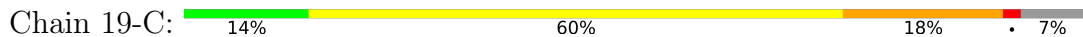


● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



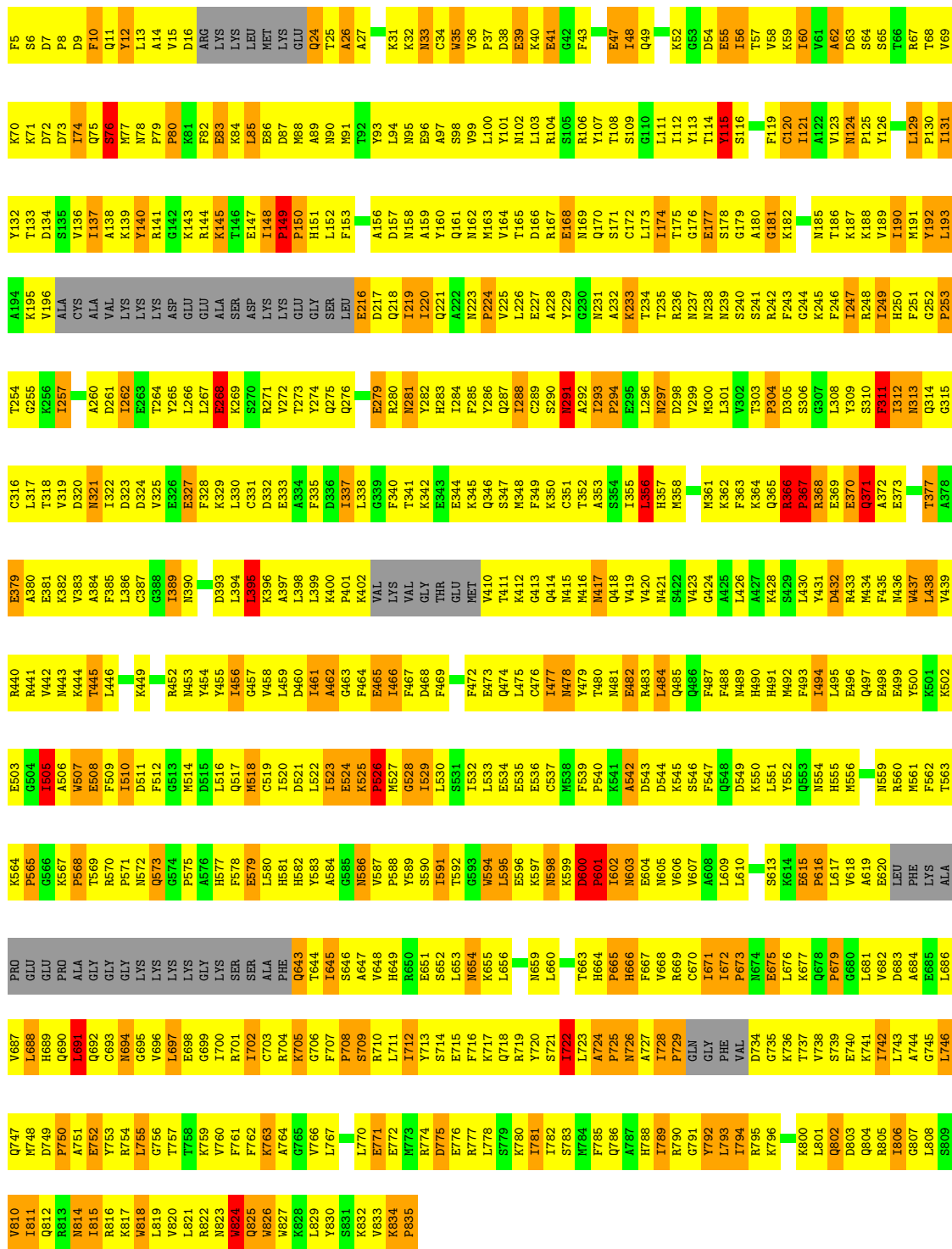
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K817	W820
L819	W821
L821	R822
N824	Q825
W826	W827
K828	L829
Y830	S831
K832	W833
K834	P835

● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



F5	S6	D7	F8	D9	F10	Q11	Y12	L13	A14	V15	A16	ARG	LYS	LYS	LYS	LYS	MET	MET	LYS	GLU	Q24	T25	A26	A27	K31	K32	N33	C34	W35	V36	P37	L100	D38	E39	K40	E41	F42	F43	E47	I48	Q49	G52	D54	E55	I56	T57	V58	K59	I60	V61	A62	D63	S64	S65	T66	R67	T68	V69	K70	K71	D72	W73	I74	Q75	S76	R77	M78	P80	P80	X81	X81	F82	E83	K84	A145	T146	R85	L85	E86	D87	M88	A89	N90	R91	T92	Y93	L94	N95	A96	E97	F98	N99	M102	L103	R104	S105	R106	Y107	T108	S109	L110	L111	L112	Y113	T114	Y115	S116	F119	C120	I121	A122	V123	M124	D63	P125	S64	V126	I127	L128	H250	I191	P130	G252	P253	G255	G256	L257	A260	D261	L262	E263	T264	V265	L266	L267	E268	K269	R270	S271	I272	R271	V272	T273	Y274	Q275	D276	E279	R280	N281	Y282	H283	L284	F285	Y286	Q287	L288	C289	S290	A227	E168	A292	T293	P294	E295	L296	L297	D298	N299	M300	L301	V302	T303	P304	D305	S306	G307	L308	Y309	R310	S311	S312	N313	Q314	G315	C316	L317	V318	N319	D320	L322	D323	V324	V325	E326	E327	L328	N390	D393	L394	R395	K396	L398	L399	K400	P401	K402	VAL	LYS	VAL	GLY	T341	K342	E343	E344	F345	Q346	S347	M348	F349	Q414	C351	T352	A353	S354	L355	R356	H357	M358	M361	K362	F363	K364	Q365	R366	P367	R368	E369	D432	R433	M434	Q435	A436	Y437	E438	Y500	K501	K502	E503	G504	I505	W507	E508	F509	I510	D511	F512	G513	M514	O515	L516	Q517	M518	C519	I520	P521	L522	I523	E524	K525	P526	E465	I466	F467	D468	F469	L529	L530	L531	E532	L533	E534	E535	E536	C537	F538	N539	P540	R541	A542	D543	D544	L545	K546	S546	F547	Q548	L549	D549	K550	L551	Y552	Q553	N554	H555	M556	L557	G558	A619	E620	N559	R560	M561	F562	L563	K564	P565	G566	K567	T568	A569	B570	P571	N572	N573	Q574	L575	L576	A577	H578	F579	E580	S581	P582	H583	Y584	R585	S586	V587	R588	Y589	S590	L591	L592	G593	M594	L595	N596	K597	N598	C599	D600	P601	L602	N603	E604	N605	V606	V607	A608	L609	L610	S613	E614	P615	L616	P617	V618	G619	L681	A619	E620	L682	D683	P684	E685	L686	V687	I702	C703	R704	K705	G706	F707	S708	S709	R710	L711	I712	Y713	S714	E715	F716	L717	M718	L719	S720	W721	I722	L723	A724	P725	N726	A727	I728	P729	GLN	GLY	P730	D734	L793	P794	R795	K796	K800	L801	Q802	D803	Q804	R805	I806	G807	L808	S809	P887	L888	H889	L890	R891	L892	L893	L894	L895	L896	L897	L898	L899	L900	L901	L902	L903	L904	L905	L906	L907	L908	L909	L910	L911	L912	L913	L914	L915	L916	L917	L918	L919	L920	L921	L922	L923	L924	L925	L926	L927	L928	L929	L930	L931	L932	L933	L934	L935	L936	L937	L938	L939	L940	L941	L942	L943	L944	L945	L946	L947	L948	L949	L950	L951	L952	L953	L954	L955	L956	L957	L958	L959	L960	L961	L962	L963	L964	L965	L966	L967	L968	L969	L970	L971	L972	L973	L974	L975	L976	L977	L978	L979	L980	L981	L982	L983	L984	L985	L986	L987	L988	L989	L990	L991	L992	L993	L994	L995	L996	L997	L998	L999	L1000	L1001	L1002	L1003	L1004	L1005	L1006	L1007	L1008	L1009	L1010	L1011	L1012	L1013	L1014	L1015	L1016	L1017	L1018	L1019	L1020	L1021	L1022	L1023	L1024	L1025	L1026	L1027	L1028	L1029	L1030	L1031	L1032	L1033	L1034	L1035	L1036	L1037	L1038	L1039	L1040	L1041	L1042	L1043	L1044	L1045	L1046	L1047	L1048	L1049	L1050	L1051	L1052	L1053	L1054	L1055	L1056	L1057	L1058	L1059	L1060	L1061	L1062	L1063	L1064	L1065	L1066	L1067	L1068	L1069	L1070	L1071	L1072	L1073	L1074	L1075	L1076	L1077	L1078	L1079	L1080	L1081	L1082	L1083	L1084	L1085	L1086	L1087	L1088	L1089	L1090	L1091	L1092	L1093	L1094	L1095	L1096	L1097	L1098	L1099	L1100	L1101	L1102	L1103	L1104	L1105	L1106	L1107	L1108	L1109	L1110	L1111	L1112	L1113	L1114	L1115	L1116	L1117	L1118	L1119	L1120	L1121	L1122	L1123	L1124	L1125	L1126	L1127	L1128	L1129	L1130	L1131	L1132	L1133	L1134	L1135	L1136	L1137	L1138	L1139	L1140	L1141	L1142	L1143	L1144	L1145	L1146	L1147	L1148	L1149	L1150	L1151	L1152	L1153	L1154	L1155	L1156	L1157	L1158	L1159	L1160	L1161	L1162	L1163	L1164	L1165	L1166	L1167	L1168	L1169	L1170	L1171	L1172	L1173	L1174	L1175	L1176	L1177	L1178	L1179	L1180	L1181	L1182	L1183	L1184	L1185	L1186	L1187	L1188	L1189	L1190	L1191	L1192	L1193	L1194	L1195	L1196	L1197	L1198	L1199	L1200	L1201	L1202	L1203	L1204	L1205	L1206	L1207	L1208	L1209	L1210	L1211	L1212	L1213	L1214	L1215	L1216	L1217	L1218	L1219	L1220	L1221	L1222	L1223	L1224	L1225	L1226	L1227	L1228	L1229	L1230	L1231	L1232	L1233	L1234	L1235	L1236	L1237	L1238	L1239	L1240	L1241	L1242	L1243	L1244	L1245	L1246	L1247	L1248	L1249	L1250	L1251	L1252	L1253	L1254	L1255	L1256	L1257	L1258	L1259	L1260	L1261	L1262	L1263	L1264	L1265	L1266	L1267	L1268	L1269	L1270	L1271	L1272	L1273	L1274	L1275	L1276	L1277	L1278	L1279	L1280	L1281	L1282	L1283	L1284	L1285	L1286	L1287	L1288	L1289	L1290	L1291	L1292	L1293	L1294	L1295	L1296	L1297	L1298	L1299	L1300	L1301	L1302	L1303	L1304	L1305	L1306	L1307	L1308	L1309	L1310	L1311	L1312	L1313	L1314	L1315	L1316	L1317	L1318	L1319	L1320	L1321	L1322	L1323	L1324	L1325	L1326	L1327	L1328	L1329	L1330	L1331	L1332	L1333	L1334	L1335	L1336	L1337	L1338	L1339	L1340	L1341	L1342	L1343	L1344	L1345	L1346	L1347	L1348	L1349	L1350	L1351	L1352	L1353	L1354	L1355	L1356	L1357	L1358	L1359	L1360	L1361	L1362	L1363	L1364	L1365	L1366	L1367	L1368	L1369	L1370	L1371	L1372	L1373	L1374	L1375	L1376	L1377	L1378	L1379	L1380	L1381	L1382	L1383	L1384	L1385	L1386	L1387	L1388	L1389	L1390	L1391	L1392	L1393	L1394	L1395	L1396	L1397	L1398	L1399	L1400	L1401	L1402	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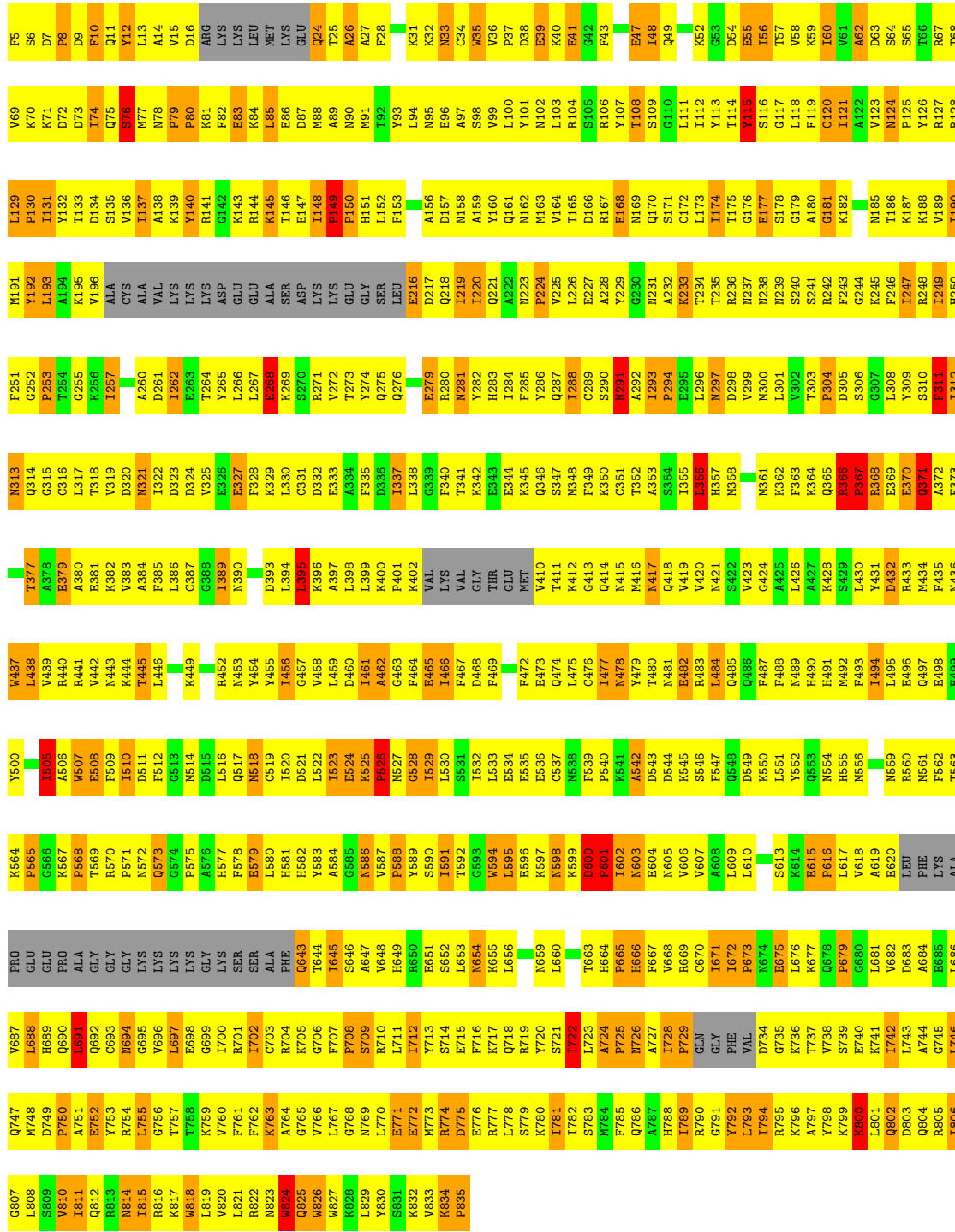
Chain 20-C: 13% 60% 18% 7%



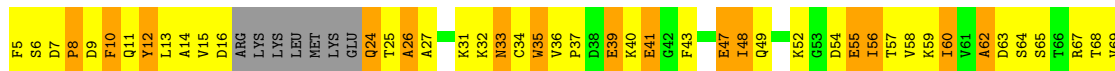
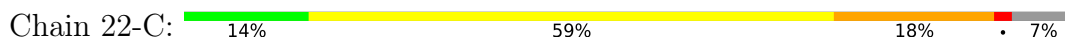
• Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

Chain 21-C: 12% 60% 18% 7%





● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

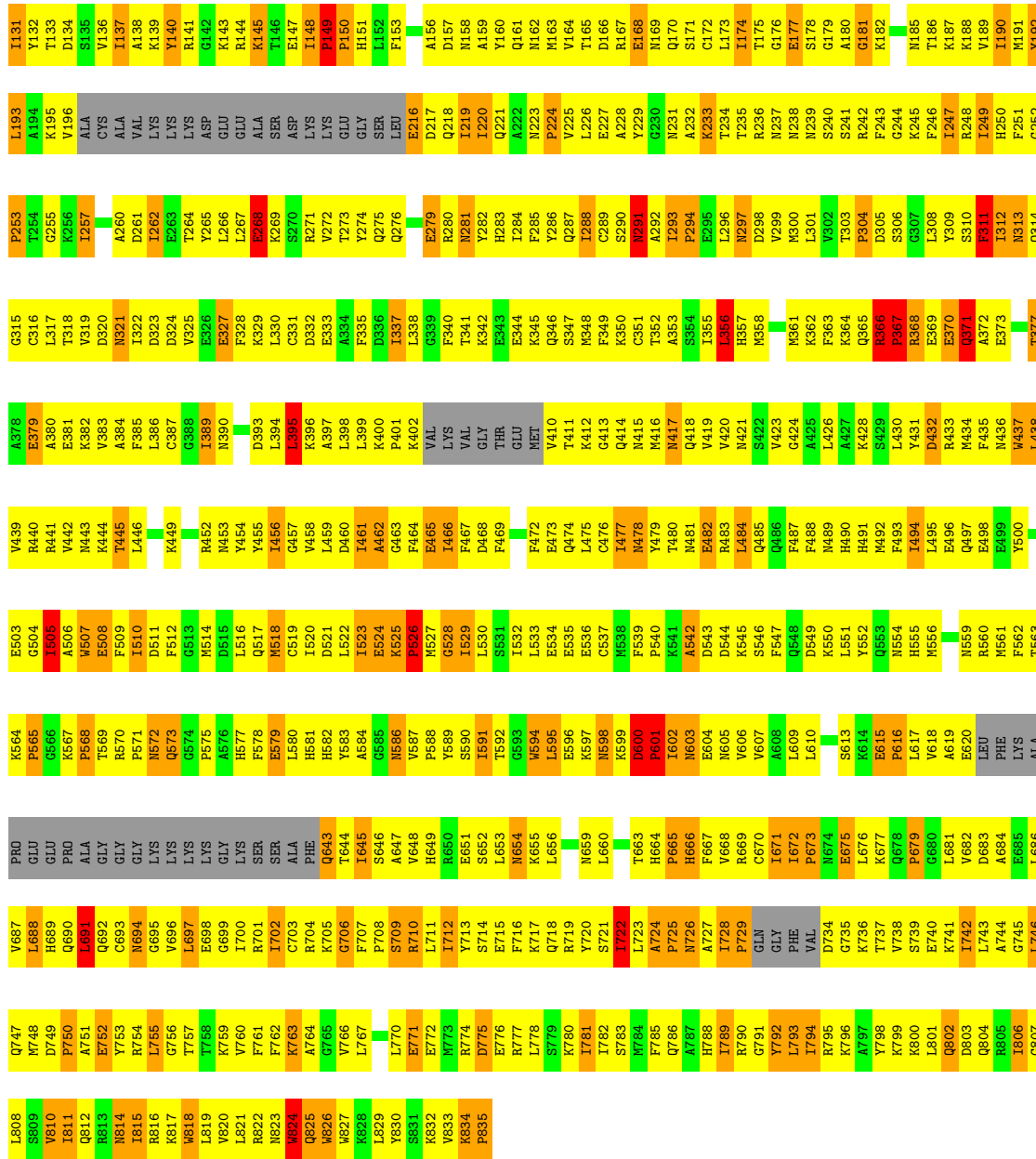


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L193	A194	K195	V196	ALA	CYS	ALA	VAL	LYS	LYS	LYS	ASP	GLU	GLU	ALA	SER	L85	ASP	LYS	LYS	GLY	LEU	E216	D217	Q218	I219	I220	Q221	A222	M223	P224	V225	L226	E227	A228	Y229	G230	N231	A232	K233	T234	T235	R236	N237	M238	N239	S240	S241	R242	F243	G244	K245	F246	I247	Y309	R248	S310	F311	I312	N313	Q314																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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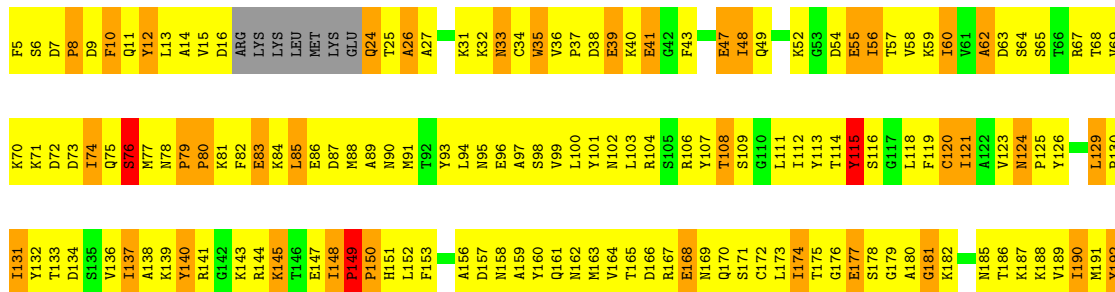
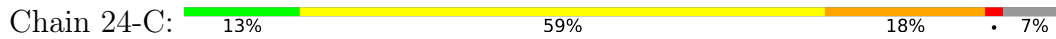
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

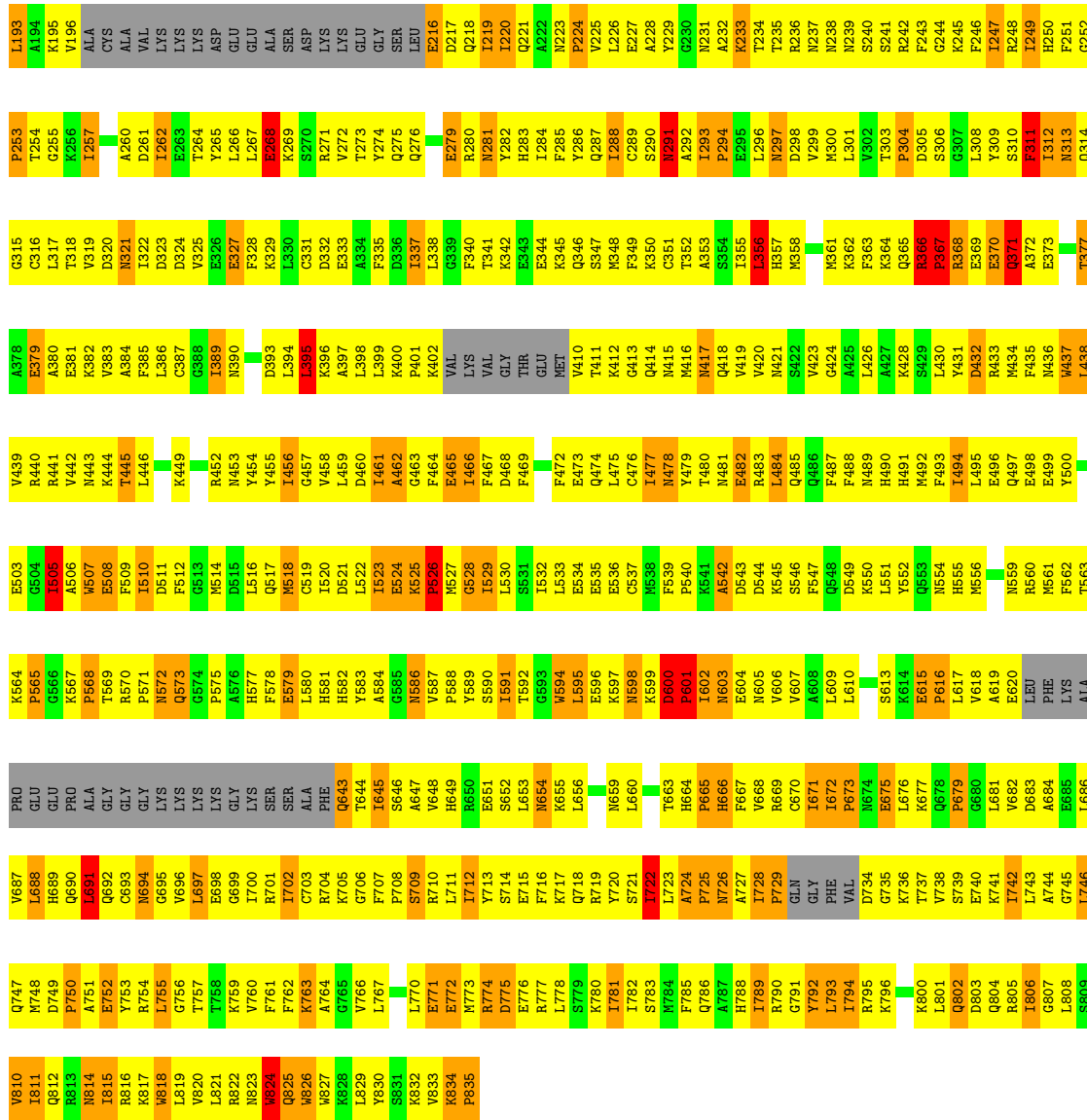
Chain 23-C: 14% 59% 18% 7%

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K70	K71	D72	D73	I74	Q75	S76	M77	M78	P79	P80	K81	F82	E83	K84	L85	E86	D87	M88	A89	N90	M91	T92	F93	L94	N95	E96	A97	S98	V99	L100	Y101	M102	L103	R104	S105	R106	Y107	T108	S109	G110	L111	I112	Y113	T114	Y115	S116	G117	L118	F119	C120	I121	A122	V123	M124	S64	S65	T66	R67	T68	V69

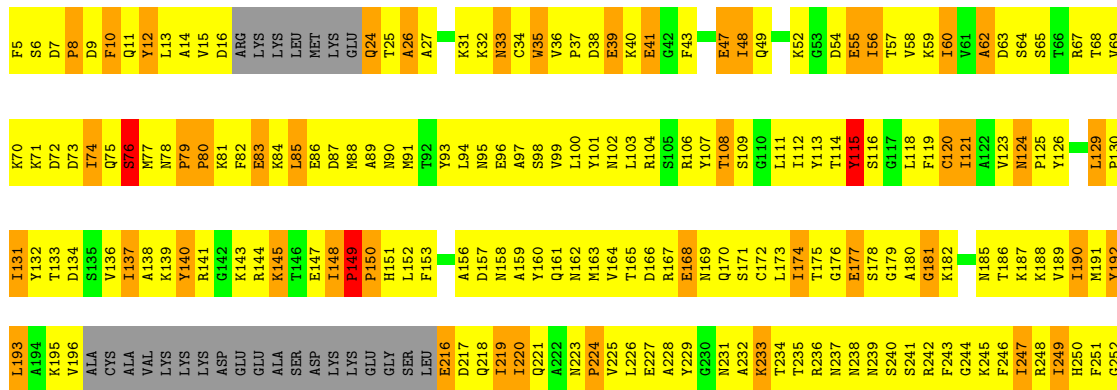


● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



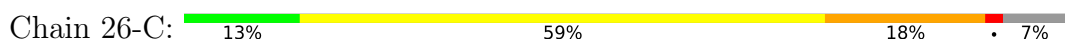


● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

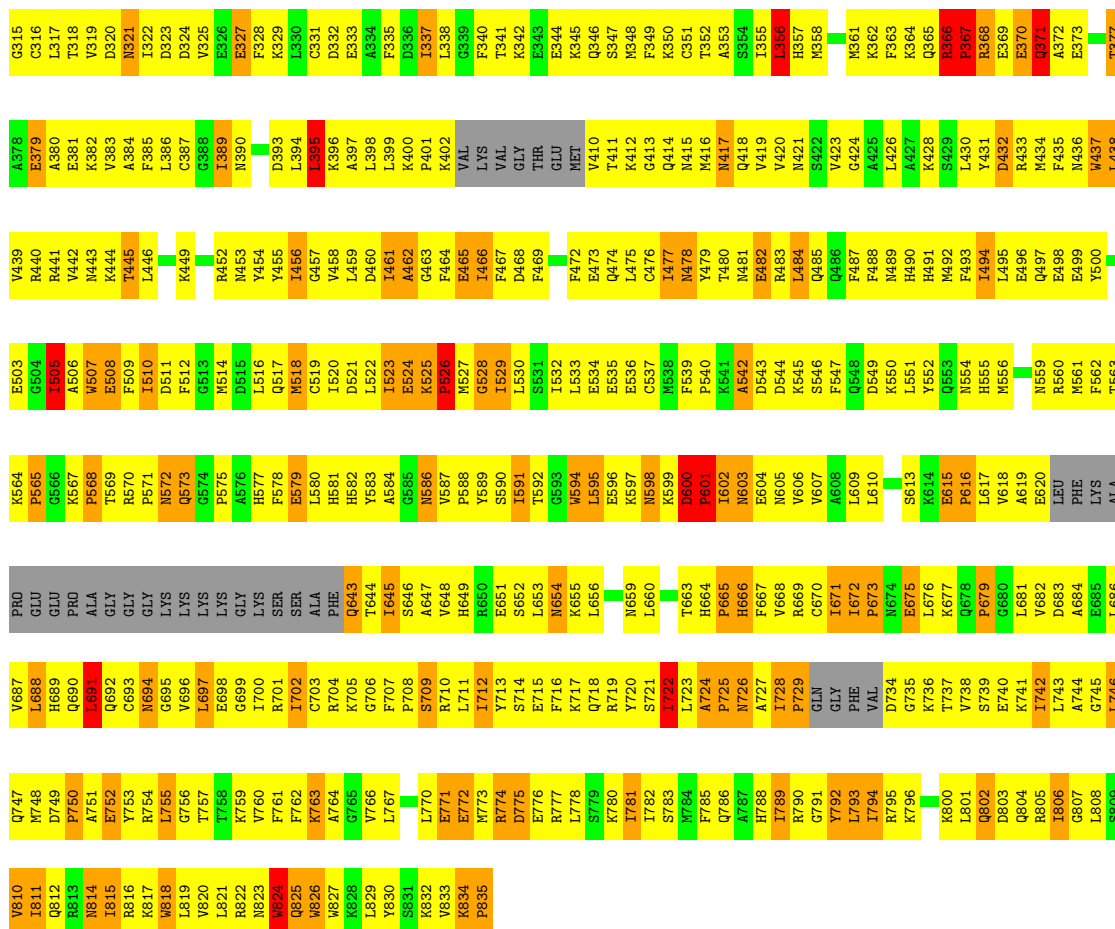


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PRO	GLU	GLU	PRO	ALA	GLY	GLY	LYS	LYS	LYS	LYS	GLY	LYS	LYS	SER	SER	ALA	PHE	GLY	T644	I645	S646	A647	V648	H649	R650	E651	S652	L653	M654	K655	L656	M659	L660	L661	T663	H664	P665	H666	F667	V668	R669	C670	L671	P672	P673	V674	G675	L676	K677	G679	V678	S679	E680	E681	E682	E683	A684	E685	L686		
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Q747	M748	D749	F750	A751	G752	Y753	L754	L755	G756	T757	L758	K759	V760	F761	F762	K763	A764	G765	V766	L767	L770	F708	S709	R710	E771	L772	R773	R774	D775	E776	R777	L778	S779	R780	I781	L782	T783	A784	F785	Q786	A787	H788	I789	R790	G791	Y792	L793	L794	R795	K796	K800	L801	D803	L681	R805	L806	G807	L808	S809		
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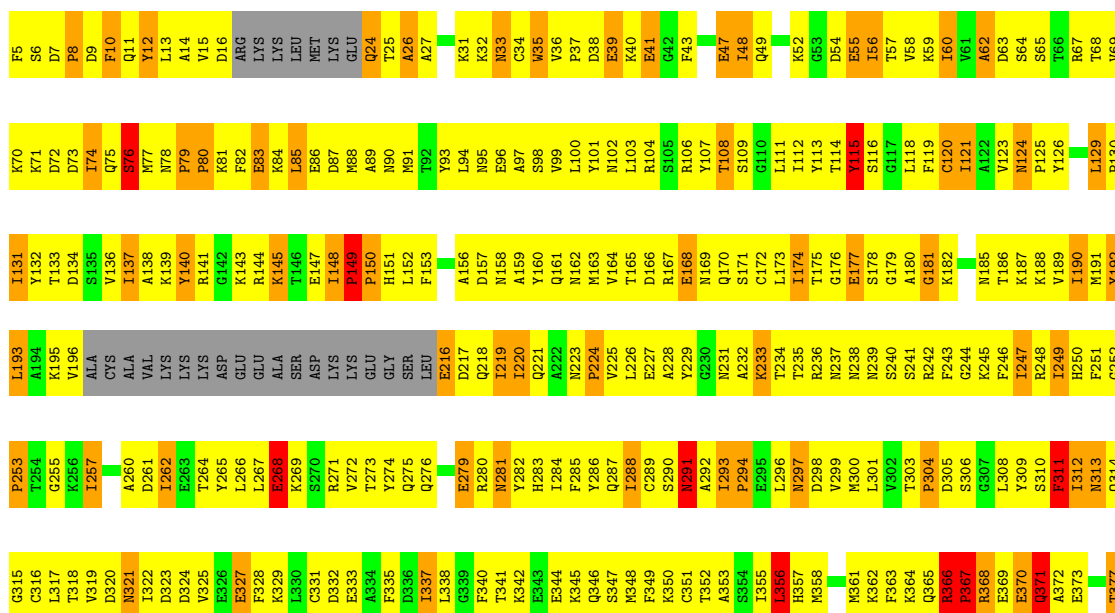
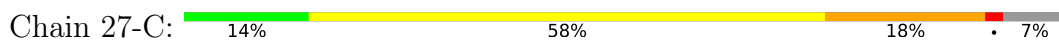
• Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

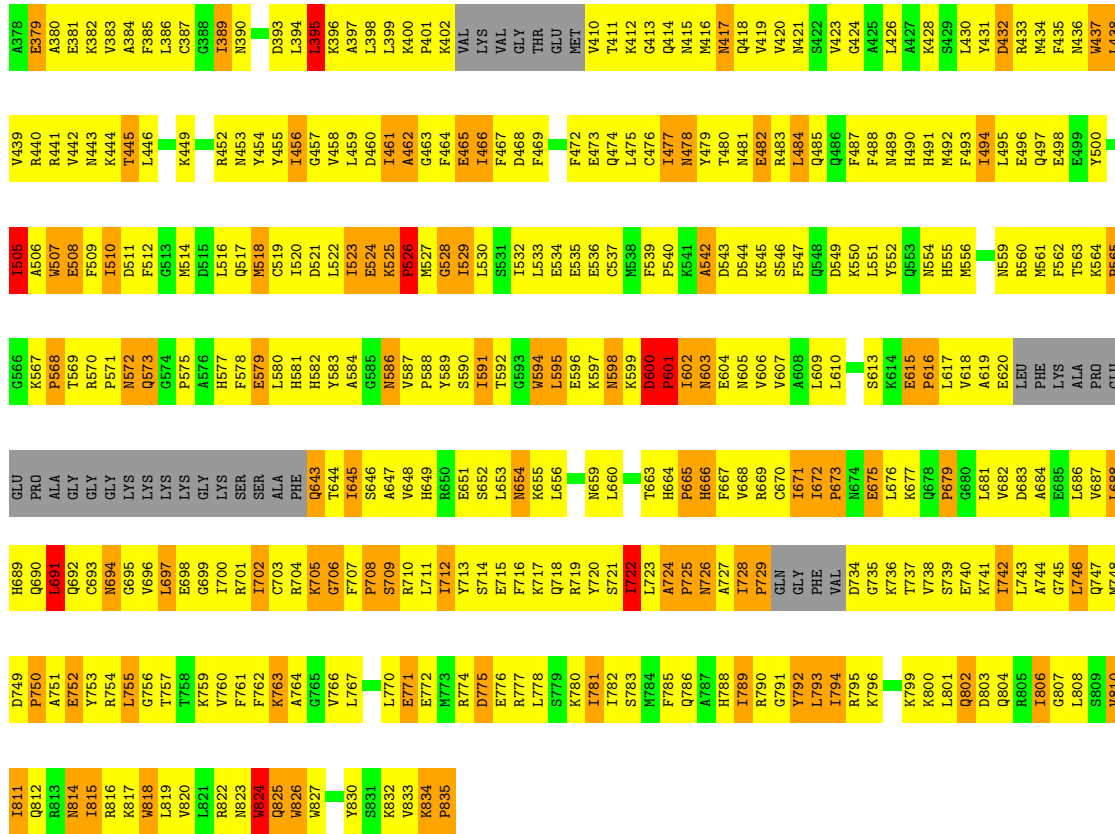


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I131	Y132	T133	D134	S135	I136	I137	A138	K139	L140	R141	G142	K143	R144	K145	T146	E147	I148	E149	P150	H151	S152	F153	A156	D157	N158	I159	A160	Q161	G162	N162	M163	V164	T165	D166	R167	E168	N169	Q170	S171	C172	L173	I174	T175	G176	E177	S178	G179	A180	G181	K182	N185	D186	K187	R188	P189	I190	L191	L192		
L193	A194	V195	ALA	CYS	ALA	VAL	LYS	LYS	LYS	LYS	ASP	GLU	GLU	ALA	SER	ASP	LYS	LYS	GLY	SER	LEU	D216	Q218	I219	I220	Q221	A222	N223	P224	V225	L226	E227	A228	Y229	G230	N231	A232	K233	T234	T235	R236	N237	N238	N239	S240	S241	R242	F243	G244	K245	F246	I247	R248	R249	I249	H250	F251	G252		
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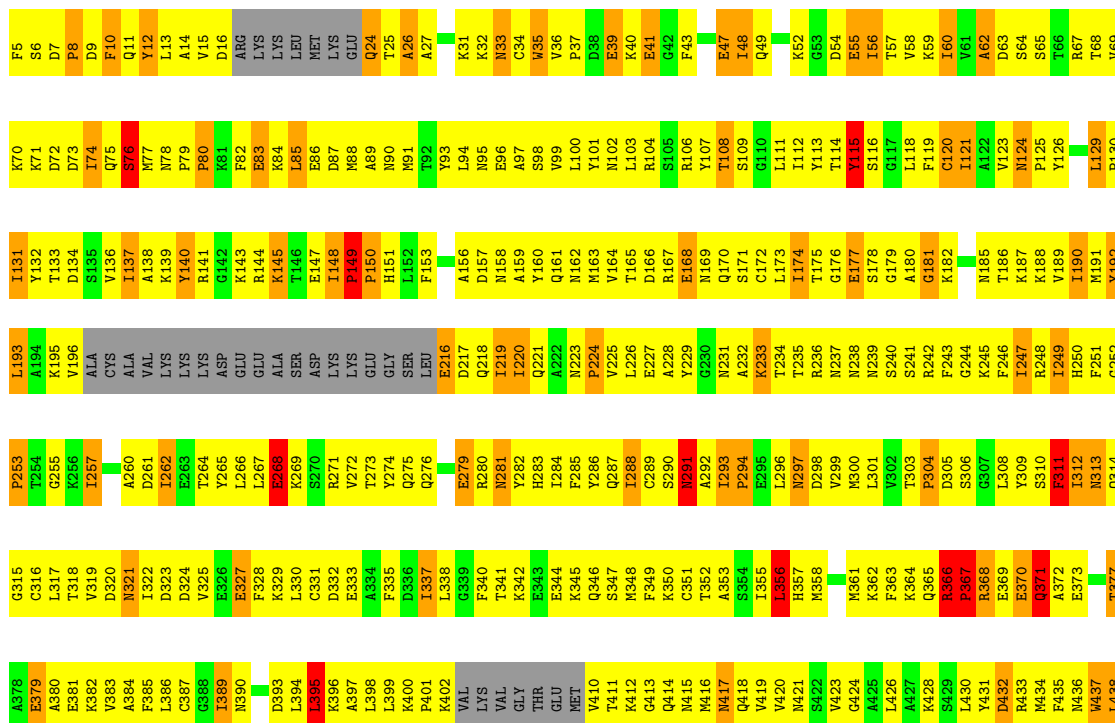
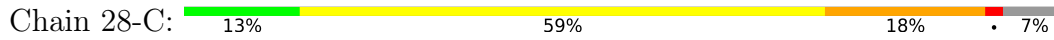


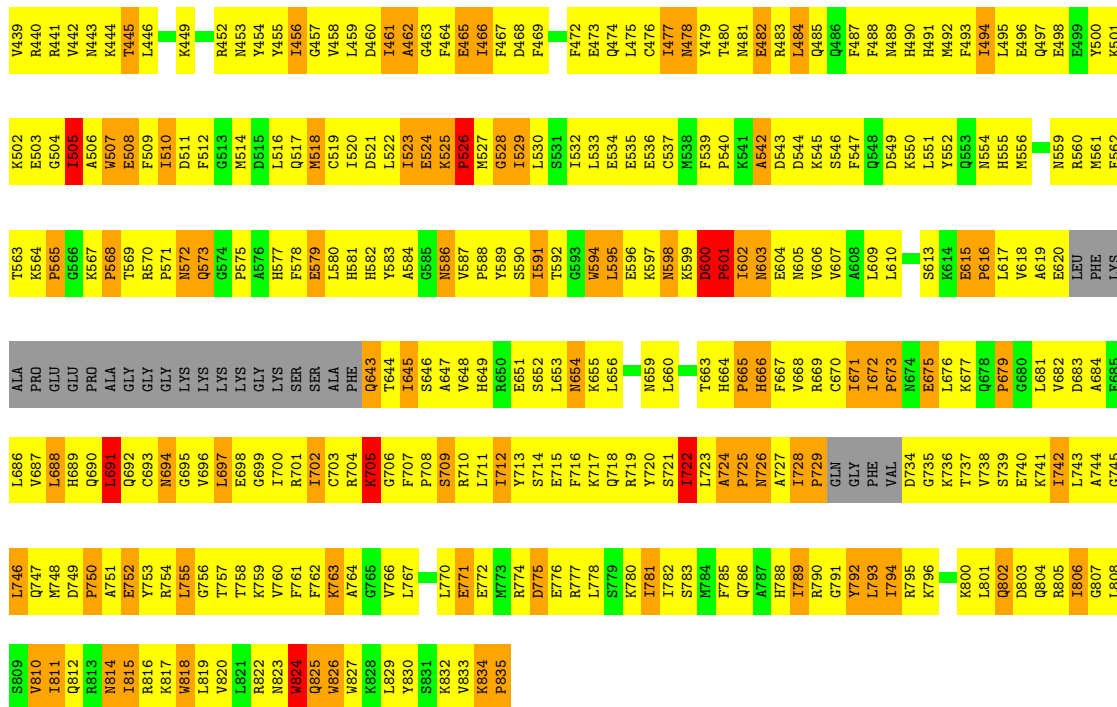
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



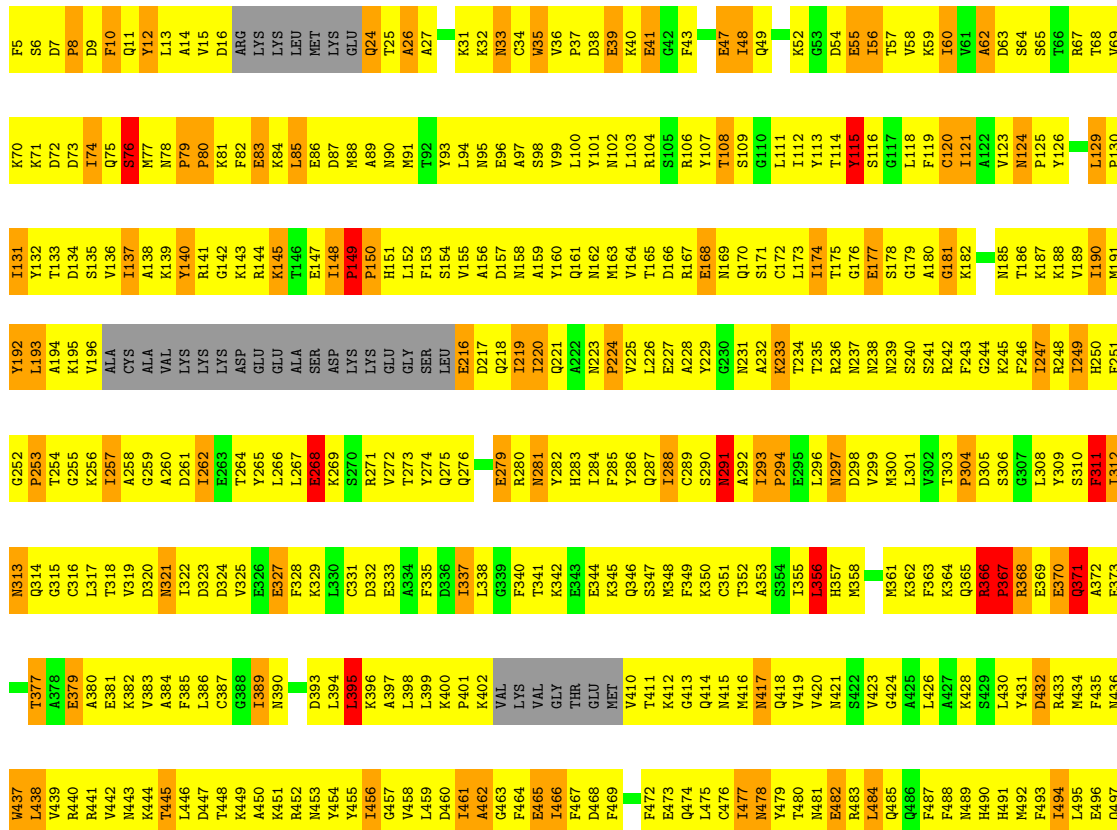
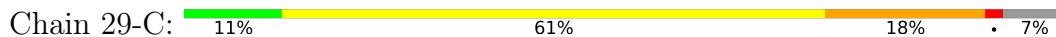


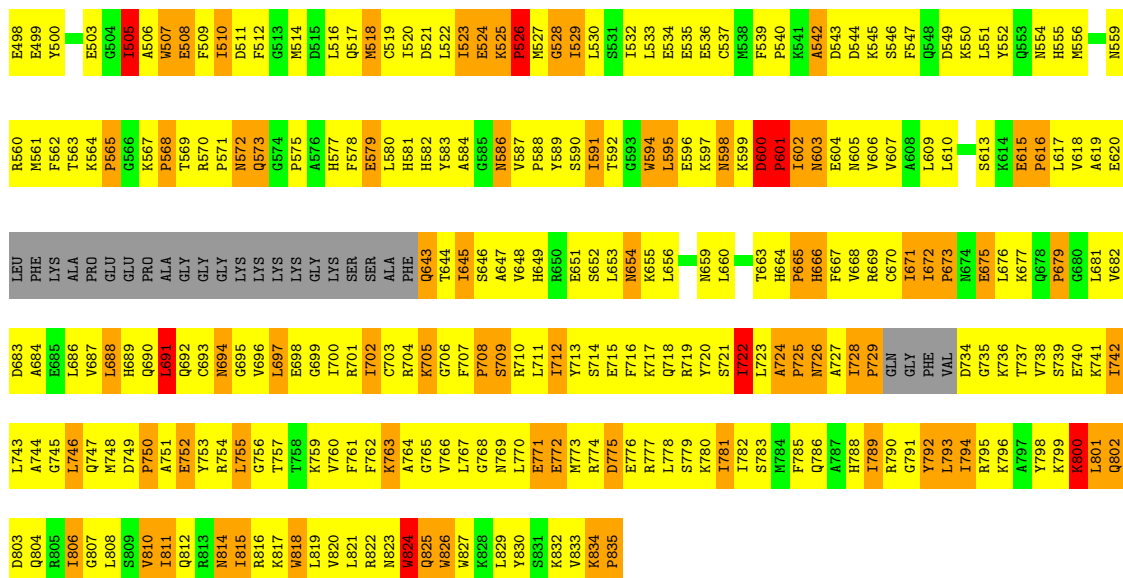
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



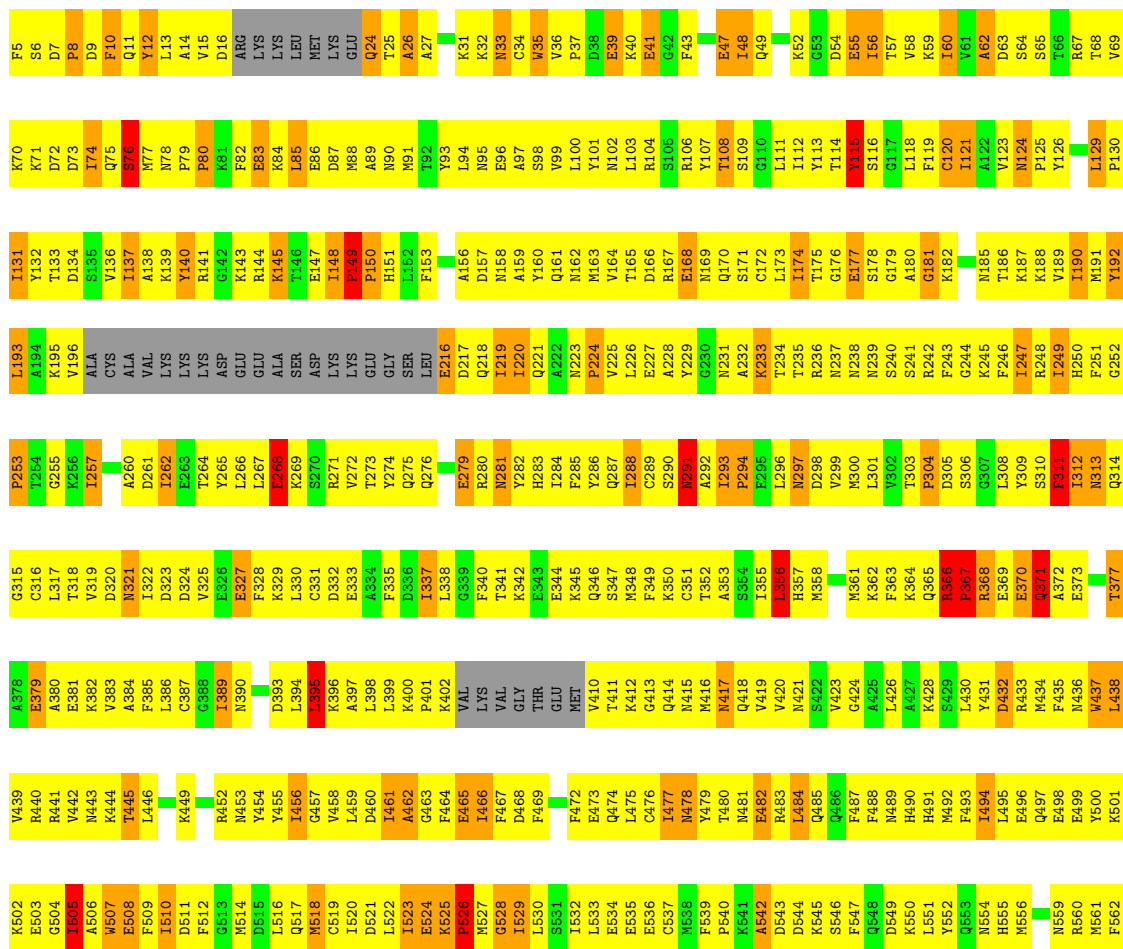
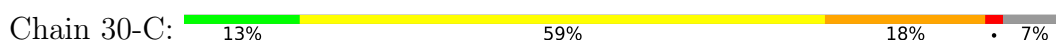


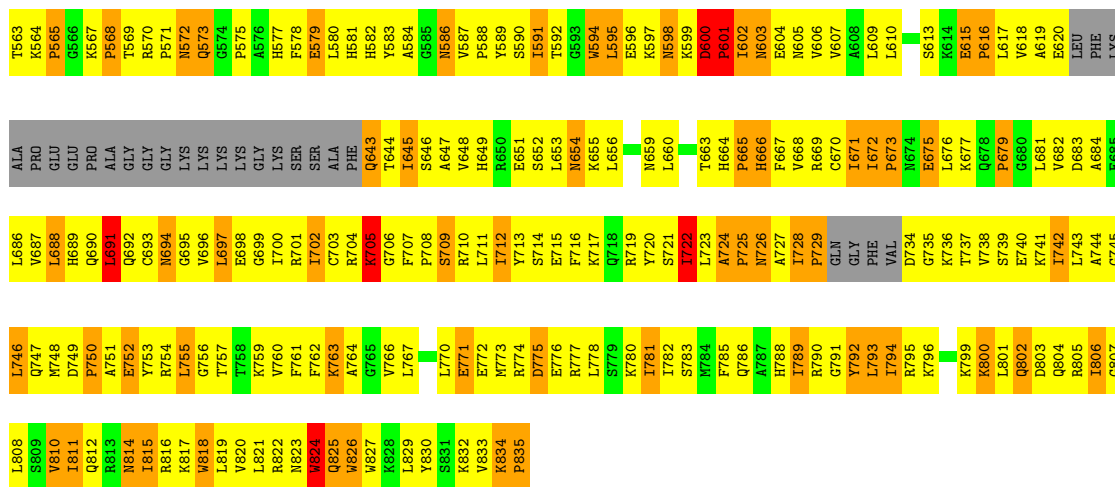
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



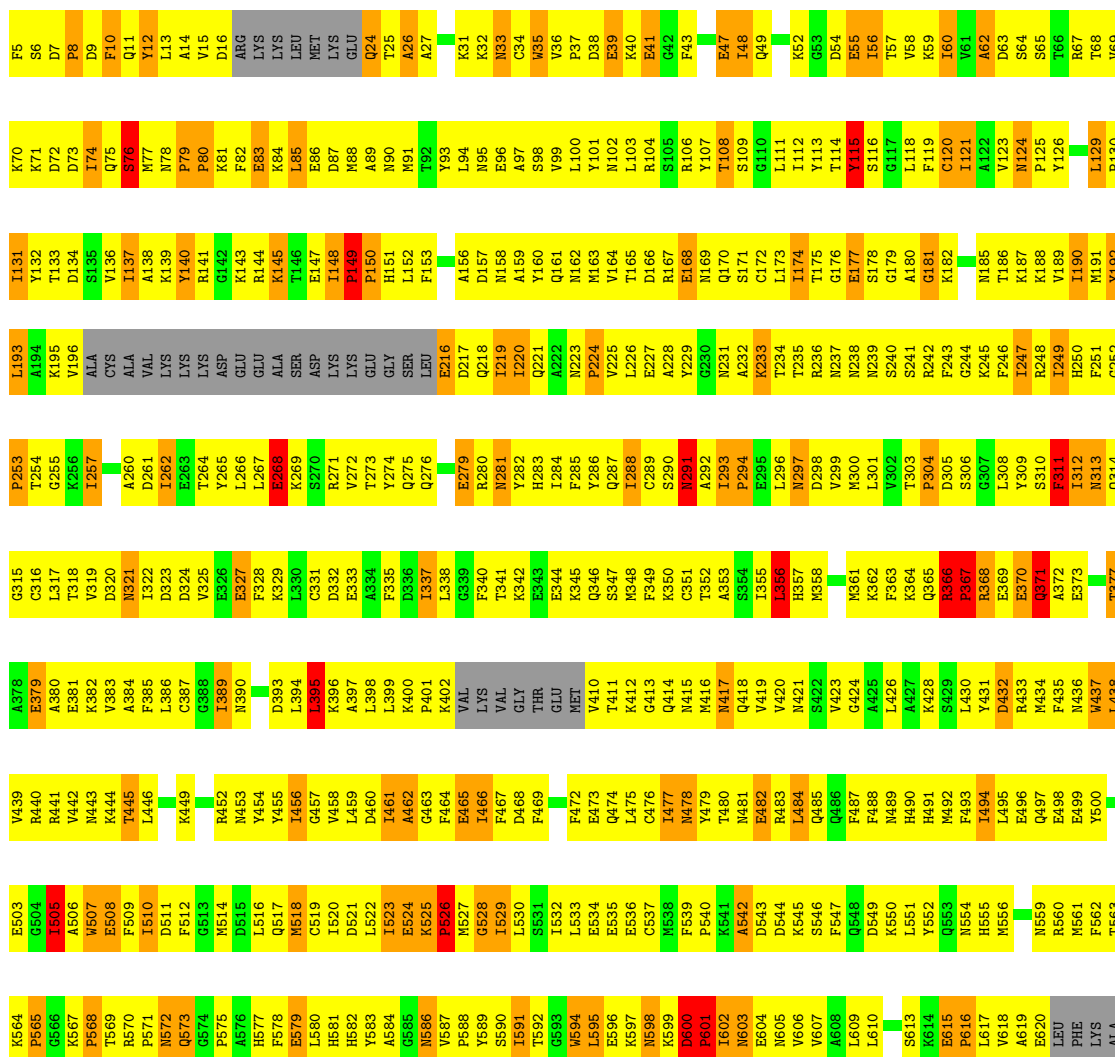
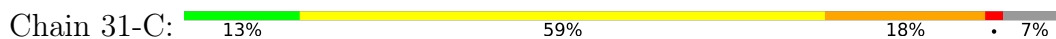


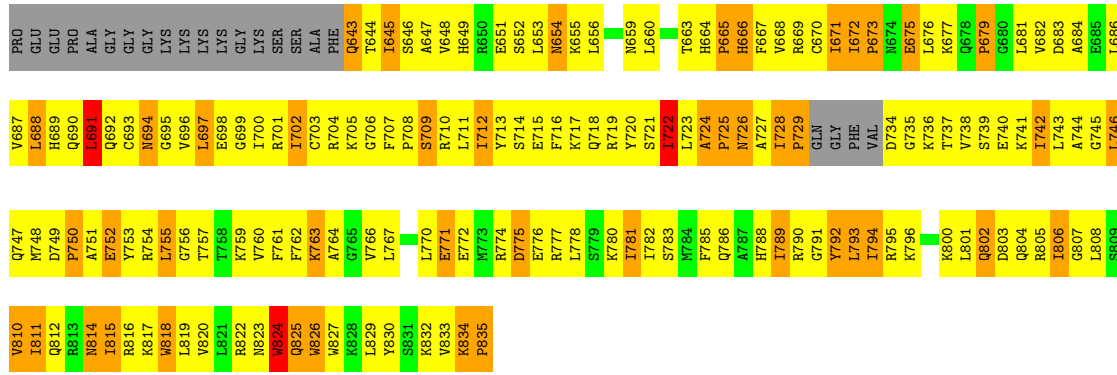
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



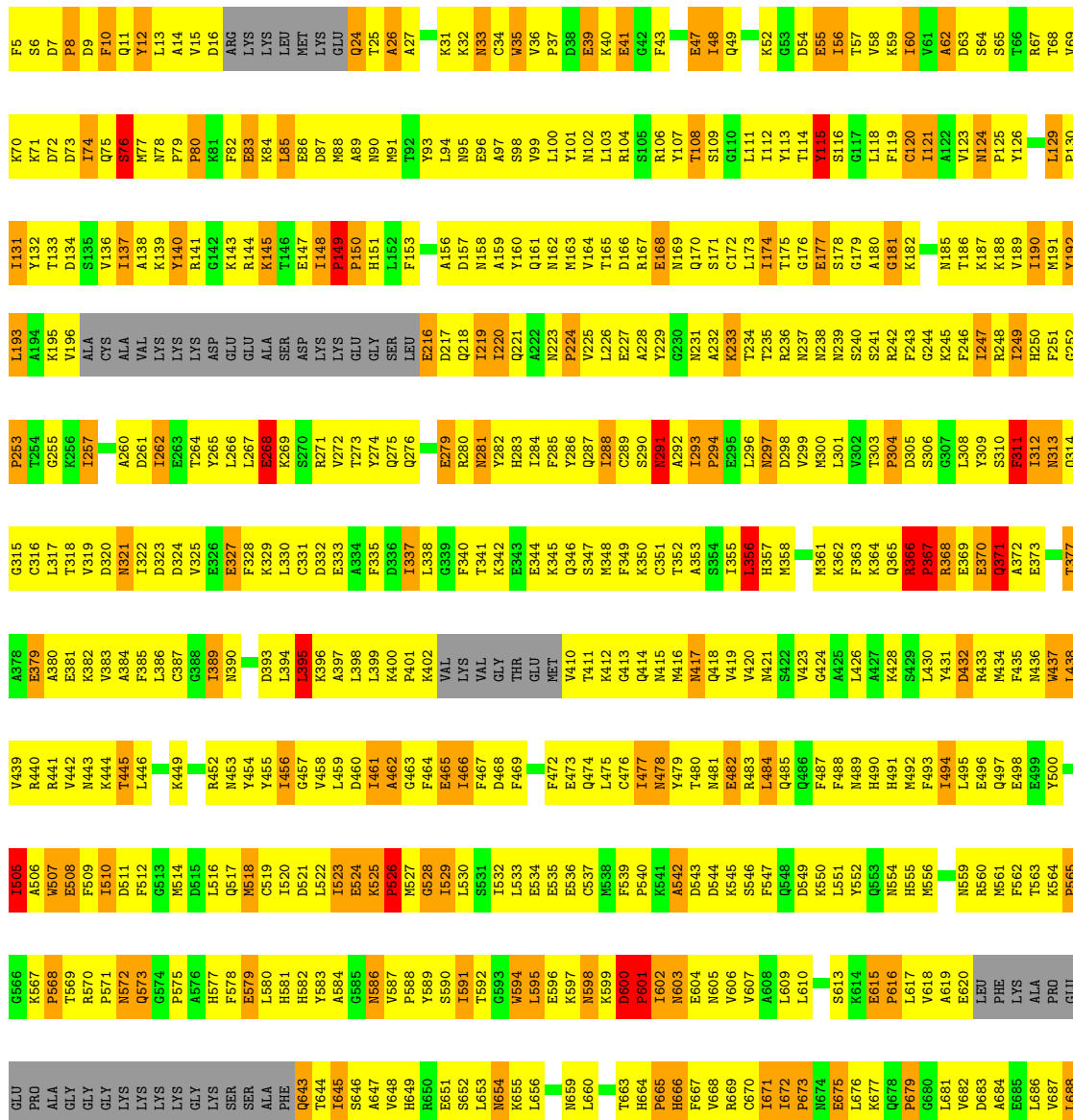


● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE





● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

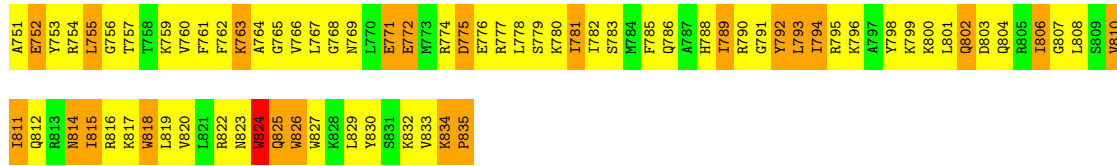


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D749	P750	A751	E752	Y753	R754	L755	G756	T757	T758	K759	V760	I761	F762	K763	R764	G765	M766	V767	L767	L770	E771	E772	M773	R774	D775	E776	F777	L778	S779	K780	I781	I782	S783	M784	F785	Q786	A787	H788	I789	R790	G791	Y792	L793	I794	R795	K796	A797	Y798	K799	K800	L801	Q802	D803	Q804	R805	A744	G745	L746	Q747	L808	S809	
V810	I811	Q812	R813	M814	I815	R816	K817	M818	L819	V820	L821	R822	M823	Q824	Q825	W826	W827	K828	L829	Y830	K831	A26	R832	V833	K834	P835																																				

● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

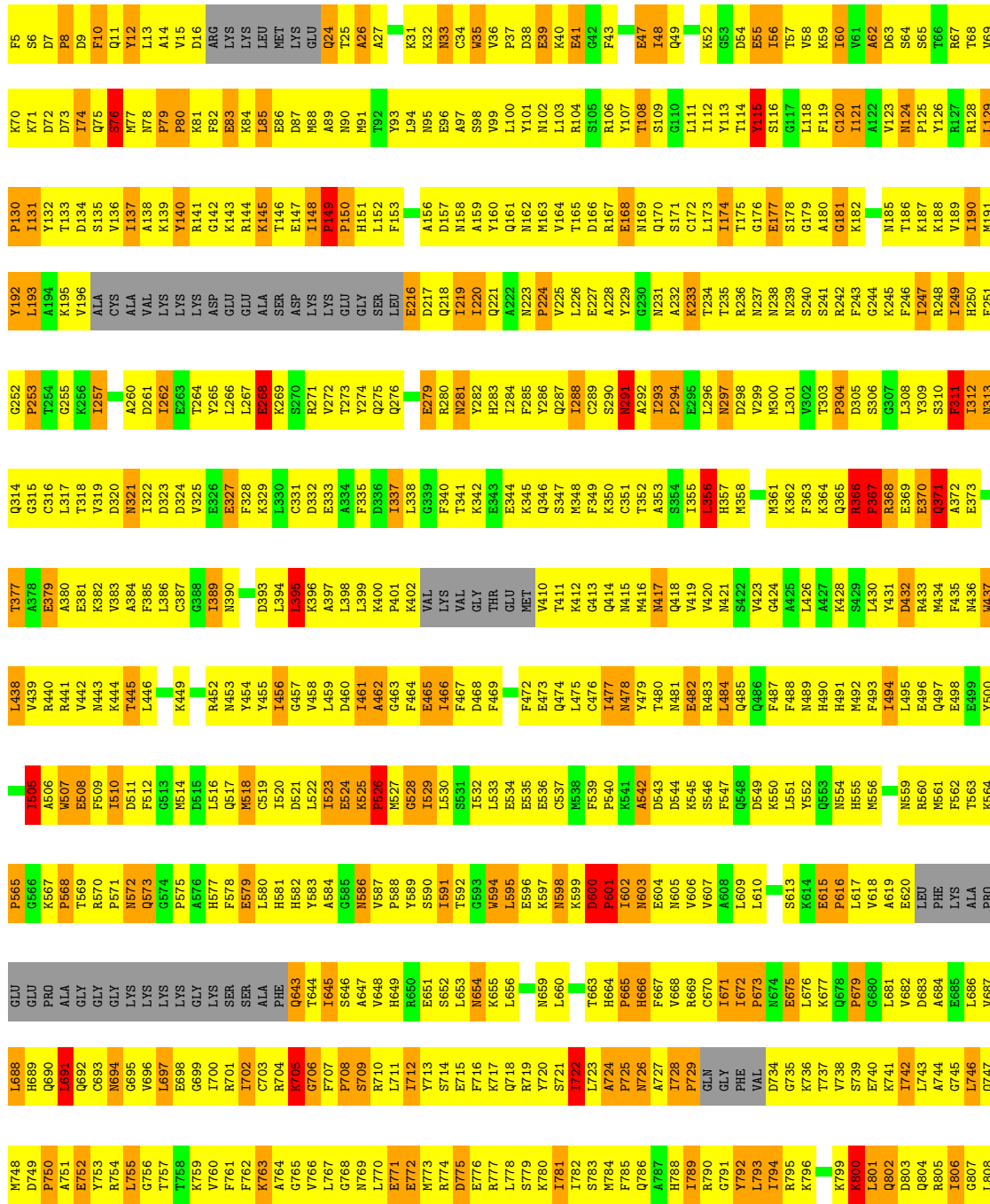


F5	S6	D7	P8	D9	F10	O11	Y12	L13	A14	V15	D16	ARG	LYS	LYS	LEU	LEU	MET	LYS	GLU	Q24	T25	A26	A27	K31	K32	N33	C34	W35	V36	P37	D38	E39	K40	E41	W42	G43	F43	E47	L48	Q49	K52	D54	E55	L56	T57	V58	K59	L60	V61	A62	D63	S64	S65	T66	R67	L68	V69							
K70	K71	D72	D73	I74	Q75	S76	M77	N78	P79	P80	K81	F82	E83	K84	L85	E86	D87	M88	A89	N90	H91	N92	Y93	L94	N95	E96	A97	S98	Q99	L100	Y101	N102	L103	R104	E41	S105	R106	Y107	T108	S109	G110	L111	I112	Y113	D54	E55	L56	T57	V58	K59	L60	V61	A62	D63	S64	S65	T66	R67	L68	V69				
I131	Y132	T133	D134	S135	V136	I137	A138	K139	Y140	L141	K142	G143	R144	K145	T146	E147	L148	M149	H150	L152	F153	Y156	A156	D157	N158	A159	V160	Q161	N162	M163	V164	L165	D166	R167	E168	N169	Q170	S171	C172	L173	I174	T175	G176	E177	S178	G179	A180	G181	K182	M185	V186	K187	N188	L189	I190	M191	Y192							
L193	A194	K195	V196	ALA	CYS	ALA	VAL	LYS	LYS	LYS	P80	ASP	GLY	GLY	ALA	ASP	LYS	LYS	LYS	GLY	E216	D217	Q218	R219	L220	L221	A222	N223	P224	V225	L226	E227	A228	Y229	G230	N231	A232	K233	T234	T235	L236	N237	M300	L301	V302	T303	P304	D305	S306	G307	L308	Y309	S310	R311	L312	N313	Q314							
P253	T254	G255	K256	I257	A260	D261	L262	E263	T264	V265	L266	L267	E268	K269	S270	R271	V272	T273	Y274	Q275	Q276	E279	R280	M281	V282	H283	Q221	A222	N223	P224	V225	L226	E227	A228	Y229	G230	N231	A232	K233	T234	T235	L236	N237	M300	L301	V302	T303	P304	D305	S306	G307	L308	Y309	S310	R311	L312	N313	Q314						
G315	C316	L317	T318	V319	D320	N321	L322	D323	D324	V325	E326	E327	F328	K329	L330	C331	D332	E333	A334	F335	L336	L337	L338	F340	T341	K342	E343	E344	C345	Q346	S347	M348	F349	K350	C351	T352	A353	G354	L355	L356	H357	K358	M361	K362	F363	K364	C365	R366	P367	R368	E369	E370	O371	A372	E373	T377								
A378	E379	A380	E381	K382	V383	A384	F385	L386	C387	G388	I389	N390	D393	L394	L395	K396	V397	A398	L399	K400	P401	K402	VAL	LYS	VAL	GLY	THR	GLU	MET	V410	T411	K412	G413	Q414	M415	M416	N417	Q418	V419	V420	R421	M422	V423	G424	A425	L426	A427	K428	S429	L430	L431	D432	E433	M434	O371	A372	E373	M436	L438					
V439	R440	R441	V442	M443	K444	T445	L446	K449	M452	M453	Y454	L456	L457	G458	D521	V458	G459	L459	D460	T461	K525	P526	M527	G528	I529	L530	S531	L532	L533	E534	K535	E536	F539	L602	N603	E604	N605	V606	V607	K545	S546	F547	L484	Q548	D549	K550	L551	Y552	P616	P617	H555	M556	N559	R560	L561	PHE	L562	ALA	ALA	PRO	K564	P565	G566	E567
P568	T569	R570	P571	L572	Q573	G574	P575	A576	H577	F578	E579	L580	H581	H582	G583	M584	S585	E586	V587	P588	Y589	S590	T591	I592	G593	M594	L595	E596	K597	M598	K599	D600	P601	N603	E604	N605	V606	V607	K545	S546	F547	L484	Q548	D549	K550	L551	Y552	P616	P617	H555	M556	N559	R560	L561	PHE	L562	ALA	ALA	PRO	K564	P565	G566	E567	
ALA	GLY	GLY	GLY	LYS	LYS	LYS	LYS	LYS	SER	SER	ALA	PHE	Q643	T644	I645	S646	G647	I648	A649	V648	H649	R650	S651	L652	M654	L655	K656	L657	N659	L660	T663	H664	G665	N603	E604	N605	V606	V607	K545	S546	F547	L484	Q548	D549	K550	L551	Y552	P616	P617	H555	M556	N559	R560	L561	PHE	L562	ALA	ALA	PRO	K564	P565	G566	E567	
L691	Q692	C693	M694	G695	V696	L697	E698	I700	I701	I702	C703	R704	K705	F707	S709	R710	L711	Y713	S714	L653	M654	L655	K656	L657	N659	L660	T663	H664	G665	N603	E604	N605	V606	V607	K545	S546	F547	L484	Q548	D549	K550	L551	Y552	P616	P617	H555	M556	N559	R560	L561	PHE	L562	ALA	ALA	PRO	K564	P565	G566	E567					



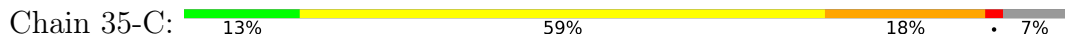
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

Chain 34-C: 12% 60% 19% 7%



S809	V810	I811	Q812	R813	M814	I815	K816	R817	W818	L819	V820	L821	R822	M823	W824	Q825	W826	W827	K828	L829	Y830	S831	K832	W833	K834	P835
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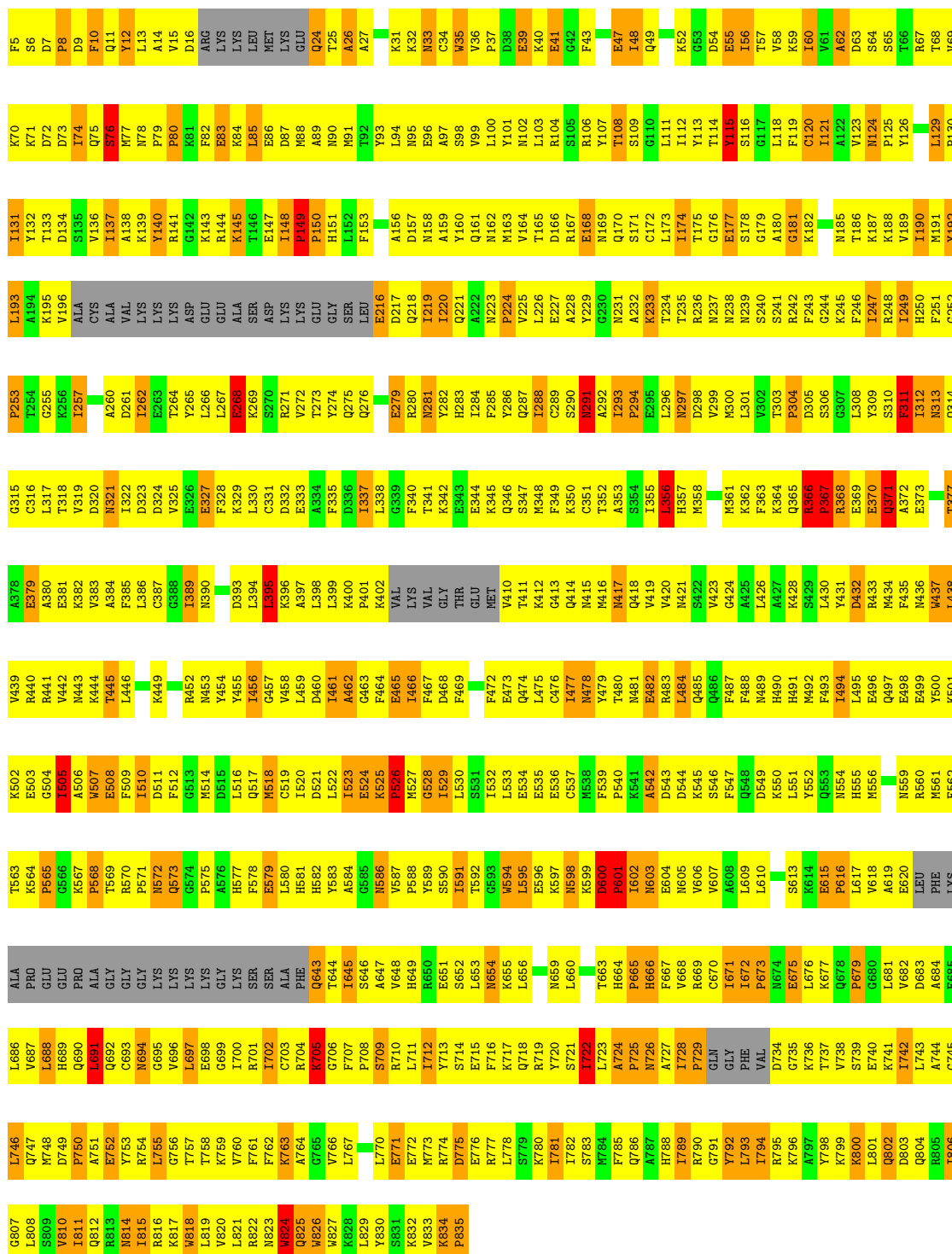
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



F5	S6	D7	P8	D9	F10	Q11	Y12	L13	A14	V15	D16	ARG	LYS	LYS	LEU	MET	LYS	GLU	Q24	T25	A26	A27	K31	K32	R33	C34	W35	V36	P37	D38	E39	K40	E41	E42	G43	F44	E47	I48	Q49	L111	L112	Y113	D54	E55	S56	T57	V58	K59	I60	V61	A62	D63	S64	S65	T66	R67	T68	V69				
K70	K71	D72	D73	I74	Q75	S76	K77	M78	P79	V80	K81	F82	E83	R84	L85	E86	D87	M88	A89	I90	L91	F92	Y93	L94	N95	E96	A97	W98	S99	V99	L100	L101	N102	L103	E104	E105	S106	L107	T108	S109	L110	L111	L112	Y113	L114	Y115	S116	G117	L118	F119	C120	I121	A122	V123	D124	S64	S65	T66	L129	T130		
I131	Y132	T133	D134	S135	L136	I137	A138	K139	Y140	L141	G142	K143	R144	A145	T146	S147	L148	Y149	P150	H151	L152	F153	A156	D157	M158	A159	V160	S98	Q161	M162	M163	L164	D165	T166	E167	E168	N169	Q170	C172	L173	L174	T175	G176	E177	S178	G179	A180	G181	K182	M185	A186	F246	K187	M188	P189	L190	M191	Y192				
L193	A194	K195	V196	ALA	CYS	ALA	VAL	LYS	LYS	LYS	ASP	G142	GLU	GLU	ALA	SER	ASP	LYS	LYS	GLU	GLY	SER	LEU	E216	D217	Q218	L219	L220	Q221	Q161	E222	N223	P224	V225	L226	E227	C289	A228	Y229	E230	N231	A232	K233	L234	T235	P236	N237	N238	N239	S240	S241	R242	F243	G244	K245	F246	Y309	R248	T249	H250	M251	G252
P253	T254	G255	K256	I257	A260	D261	D262	E263	T264	V265	L266	L267	E268	K269	S270	R271	V272	T273	Y274	Q275	Q276	E279	R280	N281	L282	H283	H284	L284	F285	F286	Y287	L288	C289	S290	N291	A292	L293	P294	E295	L296	N297	D298	V299	K300	L301	N302	F303	S304	D305	S306	G307	E308	E309	F310	S310	F311	L312	N313	Q314			
G315	C316	L317	T318	V319	D320	N321	L322	D323	D324	V325	E326	F328	K329	L330	C331	D332	E333	A334	F335	L336	G338	F340	T341	L342	E343	E344	L344	K345	Q346	S347	K348	F349	G350	C351	T352	A353	S354	L355	L356	H357	K358	M361	K362	F363	K364	Q365	R366	P367	L430	Y431	E368	E369	E370	Q371	A372	E373	T377					
A378	E379	A380	E381	K382	V383	A384	F385	L386	C387	G388	L389	N390	D393	L394	L395	K396	A397	L398	L399	K400	G401	L402	VAL	LYS	VAL	GLY	THR	GLU	MET	V410	T411	K412	G413	Q414	Q415	N416	Q417	V418	V419	V420	N421	S422	V423	G424	A425	L426	A427	K428	S429	L430	Y431	D432	R433	A434	F435	M436	N437	L438				
V439	R440	R441	V442	M443	K444	T445	L446	K449	M452	R453	M454	Y454	Y455	I456	G457	V458	L459	D460	L461	A462	G463	P401	L337	L338	F465	I466	F467	G528	L529	F469	S531	L532	L533	E534	E535	E536	C537	M538	F539	P540	K541	A542	D543	D544	K545	S546	F547	F488	M489	H490	H491	M492	F493	L494	L495	H554	H555	M556	N559	R560	M561	F562
E502	E503	G504	L505	A506	N507	E508	F509	L510	D511	F512	G513	M514	M515	L516	H517	F518	E519	C519	L520	D521	L522	L523	E524	G525	R526	F527	G528	L529	L530	L531	L532	L533	E534	E535	E536	C537	M538	F539	P540	K541	A542	D543	D544	K545	S546	F547	F488	M489	H490	H491	M492	F493	L494	L495	H554	H555	M556	N559	R560	M561	F562	
T563	K564	P565	G566	K567	P568	T569	R570	P571	L572	Q573	G574	P575	A576	L577	F578	S579	L580	H581	H582	T583	A584	G585	N586	V587	P588	Y589	S590	L591	L592	L593	L594	L595	E596	K597	N598	K599	D600	P601	L602	N603	E604	N605	V606	V607	A608	L609	L610	S613	G614	R615	L616	P617	P618	G619	G620	L621	PHE	L622	A684	E685		
ALA	PRO	GLU	GLU	PRO	ALA	GLY	GLY	GLY	LYS	LYS	LYS	LYS	GLY	LYS	SER	SER	ALA	PHE	Q643	T644	S645	S646	A647	V648	H649	R650	E651	S652	L653	M654	K655	L656	M659	L660	T663	H664	P665	H666	F667	V668	R669	C670	I671	P672	P673	L674	E675	L676	Q678	P679	G680	L681	L682	V682	L683	A684	E685					
L686	V687	H688	H689	Q690	L691	R692	C693	M694	G695	V696	L697	E698	G699	I700	T701	I702	C703	R704	K705	G706	F707	P708	S709	R710	L711	I712	Y713	E714	S715	L716	K717	L718	R719	V720	S721	I722	L723	A724	P725	N726	F727	I728	P729	GLN	GLY	PHE	VAL	D734	G735	K736	V737	S738	S739	K800	L801	E740	K741	V682	L743	A744	G745	
L746	Q747	M748	D749	P750	A751	E752	Y753	L754	L755	K756	T757	L758	K759	V760	F761	K762	K763	A764	G765	L767	L770	E771	E772	M773	R774	D775	E776	L777	R778	L779	K780	I781	V782	S783	M784	F785	Q786	A787	H788	I789	R790	G791	Y792	L793	I794	R795	K796	A797	Y798	K799	K800	L801	E740	K741	V682	L743	A744	G745				
G807	L808	S809	V810	I811	Q812	R813	M814	I815	K816	R817	W818	L819	V820	L821	R822	M823	W824	Q825	W826	W827	K828	L829	Y830	S831	K832	W833	K834	P835																																		

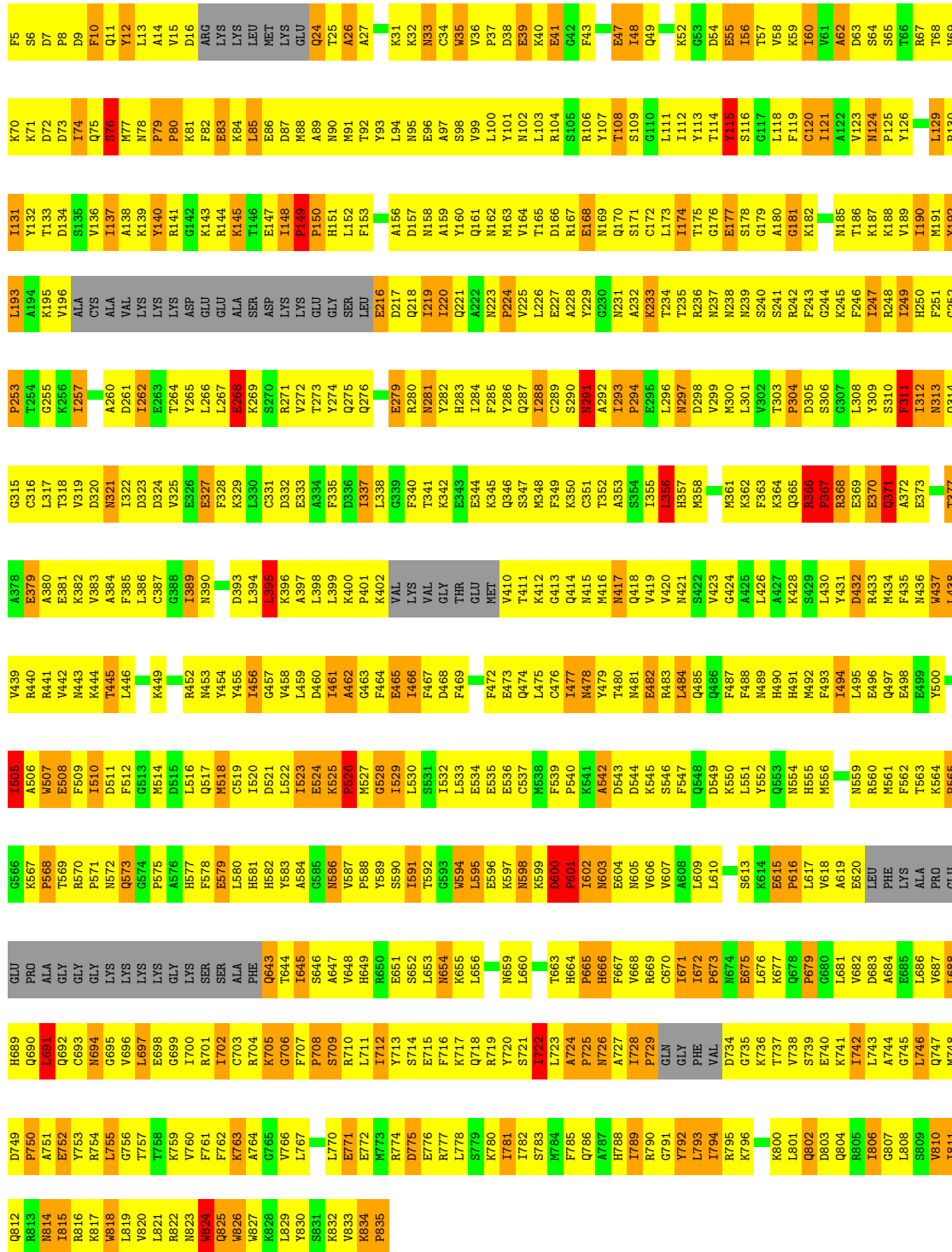
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

Chain 36-C: 13% 60% 18% 7%

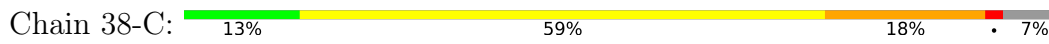


● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE

Chain 37-C: 14% 59% 18% 7%

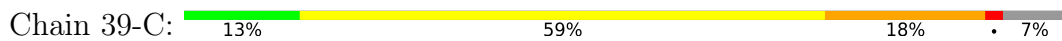


● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



K70	K71	D72	D73	I74	I75	S76	M77	M78	P79	P80	K81	F82	E83	K84	L85	E86	D87	M88	A89	N90	M91	T92	Y93	L94	N95	E96	A97	S98	V99	L100	Y101	M102	R103	R104	E105	R106	Y107	T108	S109	G110	L111	L112	Y113	T114	Y115	G117	L118	F119	C120	I121	A122	T186	M124	P125	Y126	L129	M191	Y192		
L131	Y132	L133	D134	S135	L136	L137	A138	L139	Y140	P141	G142	G143	R144	K145	L146	E147	I148	P149	F150	H151	L152	F153	E216	A156	D157	M158	A159	Q160	Q161	V162	M163	V164	L165	D166	R167	E168	M169	Q170	S171	C172	L173	L174	T175	G176	E177	S178	G179	A180	G181	K182	M185	T186	K187	R188	V189	L190	M191	Y192		
L193	A194	K195	V196	ALA	CYS	ALA	VAL	LYS	LYS	LYS	ASP	GLU	GLU	ALA	SER	ASP	LYS	LYS	GLY	SER	LEU	E216	D217	Q218	I219	I220	Q221	A222	N223	P224	V225	L226	E227	A228	Y229	G230	N231	K232	C233	T234	T235	L174	R236	N237	M238	N239	S240	S241	R242	F243	G244	K245	F246	I247	Y309	R248	I249	H250	F251	G252
P253	T254	G255	K256	I257	A260	D261	L262	E263	T264	Y265	ASP	L266	L267	E268	K269	S270	R271	V272	T273	Y274	Q275	Q276	E279	R280	M281	Y282	H283	I284	E285	P286	Q287	L288	C289	S290	N291	A292	L293	P294	E295	L296	M297	D298	V299	M300	L301	V302	T303	K364	Q365	P366	R368	L308	E369	E370	S310	F311	I312	N313	Q314	T377
G315	C316	L317	T318	V319	D320	M321	I322	D323	D324	Y325	E326	E327	F328	K329	L330	C331	D332	E333	A334	F335	D336	I337	L338	G339	F340	T341	K342	E343	E344	K345	Q346	S347	M348	G349	K350	Q351	T352	S353	L354	V355	L356	H357	M358	M361	K362	F363	K364	E369	E370	E371	A372	E373	M374	L375	L376	L377				
A378	E379	A380	E381	K382	V383	A384	F385	L386	C387	G388	I389	M390	D391	L392	K393	L394	R395	K396	D397	A398	L399	K400	Q401	L402	VAL	LYS	VAL	GLY	THR	GLU	MET	V410	T411	K412	L413	Q414	M415	M416	M417	Q418	V419	L420	M421	L422	L423	G424	A425	Y431	D432	R433	R434	E435	M436	F437	F438	Y500	W437	L438		
V439	R440	R441	V442	N443	K444	T445	L446	K449	R450	F451	D452	Y453	Y454	V455	L456	G457	V458	L459	D460	L461	G462	G463	P464	F465	L466	F467	D468	F469	F470	E471	E472	E473	Q474	L475	C476	L477	M478	Y479	T480	N481	E482	R483	L484	Q485	G486	F487	F488	N489	H490	H491	M492	F493	L494	L495	E496	E497	E498	E499	Y500	K501
K502	E503	G504	T505	K506	M507	E508	F509	L510	D511	F512	G513	M514	B515	M516	Q517	C518	M519	V520	D521	L522	T523	A524	K525	M526	M527	G528	L529	L530	L531	S532	L533	E534	E535	L536	C537	M538	F539	F540	K541	A542	D543	M544	K545	S546	F547	Q548	D549	L549	H550	M551	Y552	G553	N554	H555	L556	M557	N558	R560	M561	F562
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ALA	PRO	GLU	GLU	PRO	ALA	GLY	GLY	GLY	LYS	LYS	LYS	LYS	GLY	LYS	LYS	SER	ALA	PHE	Q643	T644	T645	A646	A647	V648	H649	H650	Y713	S714	E715	L653	M654	K655	L656	N659	L660	T663	H664	P665	H666	F667	V668	R669	C670	L671	L672	P673	L674	E675	L676	K677	V738	P679	S739	E740	L681	L682	L743	D683	A744	E685
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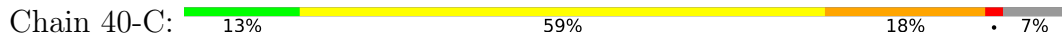
● Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



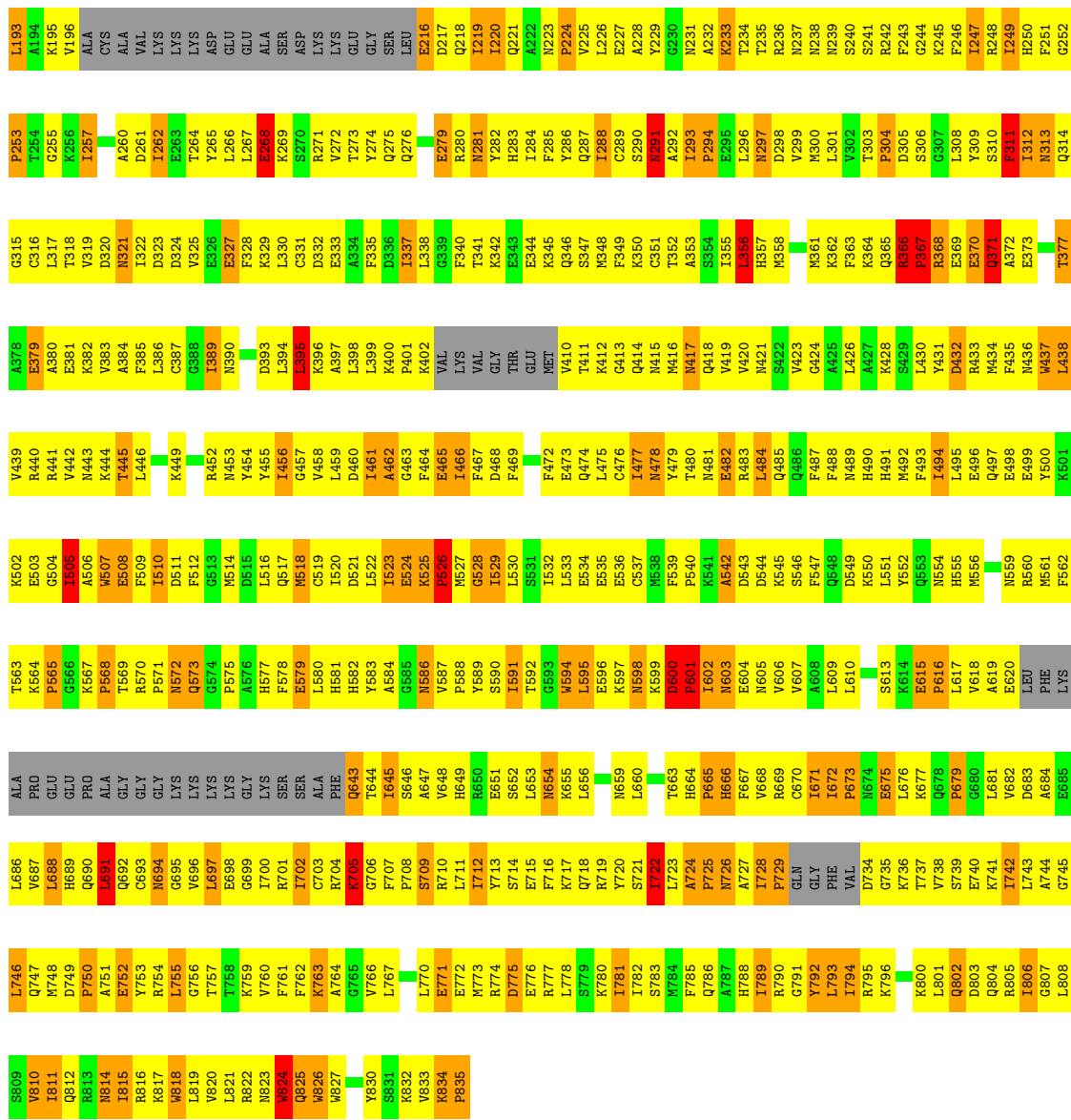
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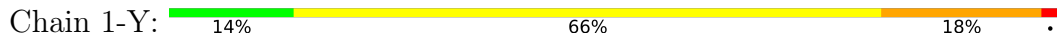
• Molecule 1: MYOSIN HEAVY CHAIN, STRIATED MUSCLE



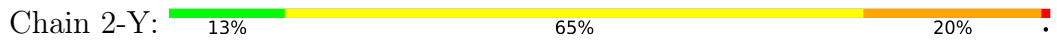
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K70	K71	D72	D73	I74	O75	S76	M77	N78	P79	R80	R81	E82	E83	K84	L85	E86	D87	M88	A89	N90	M91	T92	Y93	L94	N95	E96	A97	S98	V99	L100	L101	E102	L103	R104	E41	S105	G42	F43	E47	I48	Q49	L111	L112	Y113	T114	E115	I116	T117	V118	K119	I120	L121	A122	A62	D63	S64	S65	T66	R67	L129	L130	V69				
I131	Y132	T133	D134	S135	I136	I137	A138	K139	L140	R141	Y141	G142	K143	R144	K145	T146	E147	I148	P149	P150	H151	L152	F153	A156	D157	M158	A159	Y160	Q161	M162	M163	V164	T165	D166	E227	R167	E168	M169	Q170	S171	C172	L173	I174	T175	G176	E177	S178	G179	A180	G181	K182	M185	T186	K187	K188	V189	I190	M191	Y192							

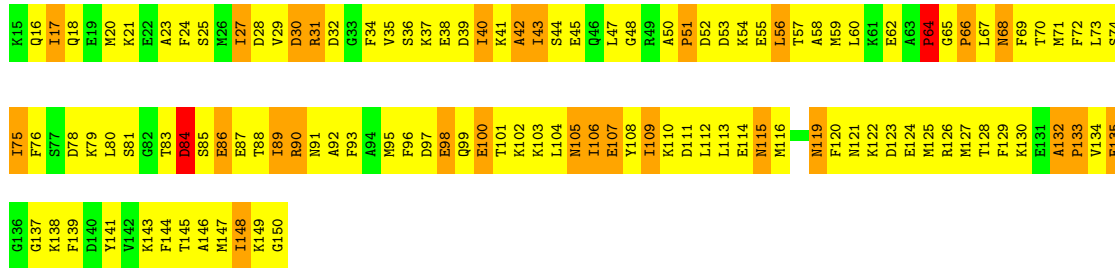


● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

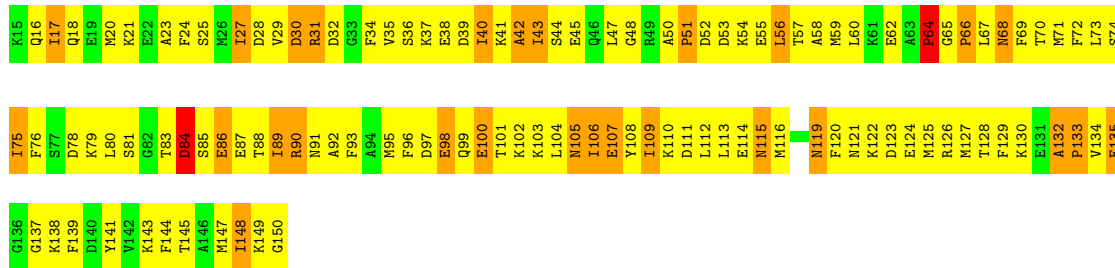


● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

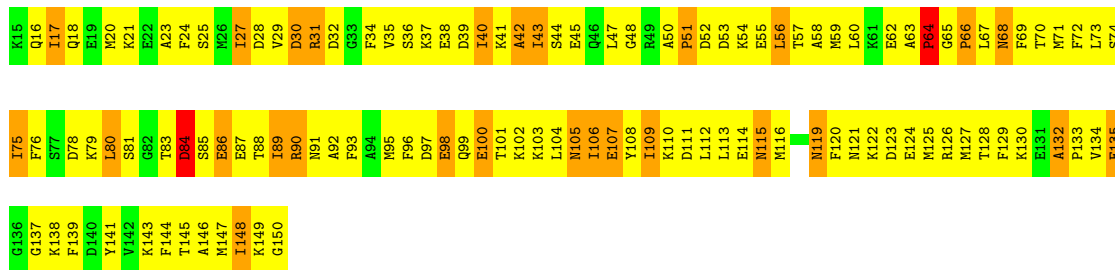
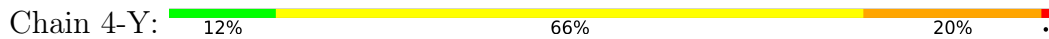




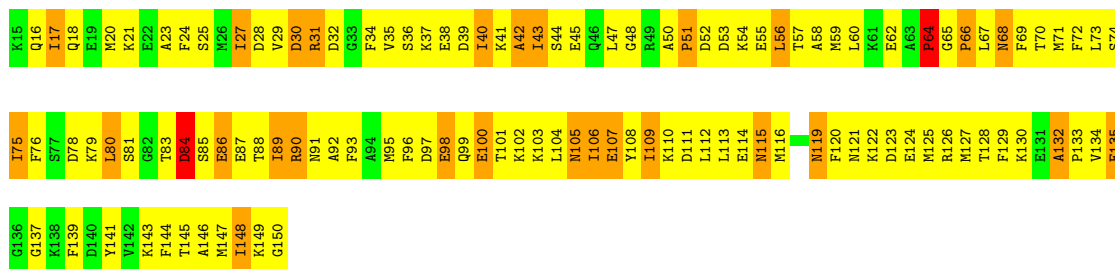
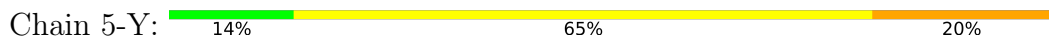
• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



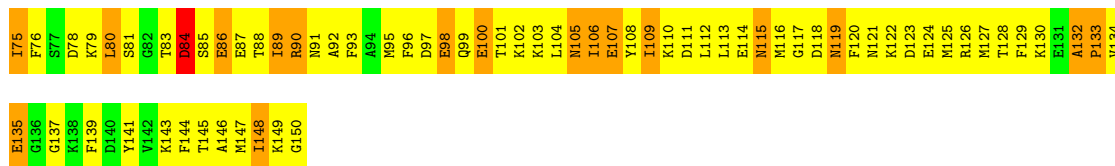
• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

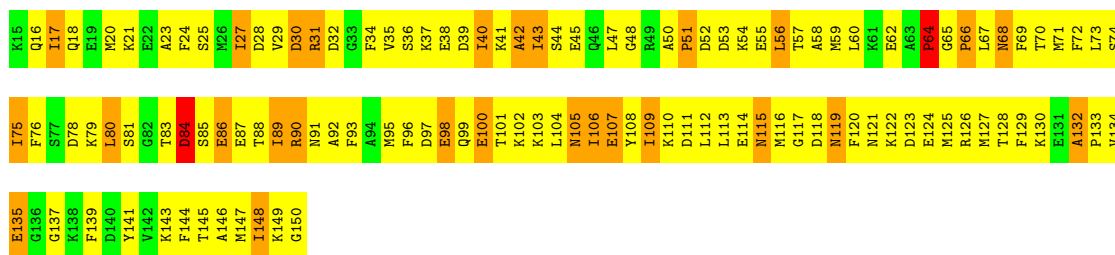


• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



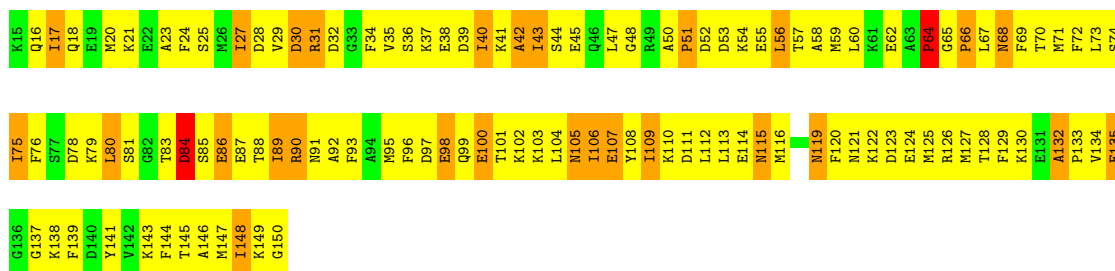
● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 7-Y: 12% 66% 20%



● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 8-Y: 13% 65% 20%



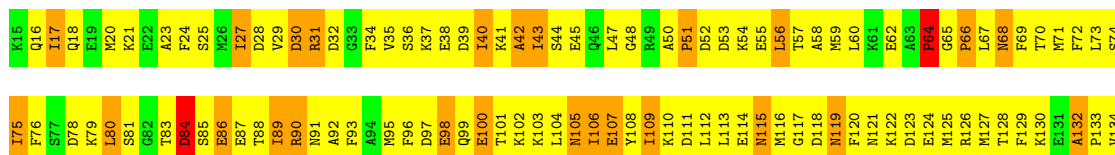
● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 9-Y: 15% 64% 20%



● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 10-Y: 12% 66% 20%

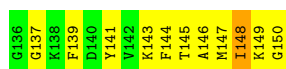
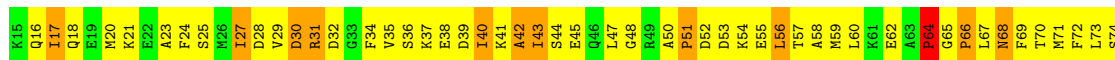




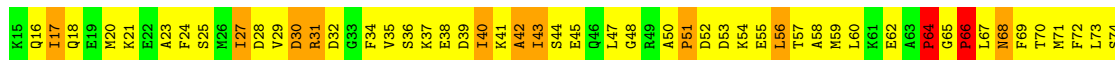
• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



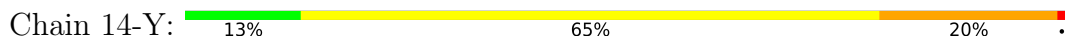
• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



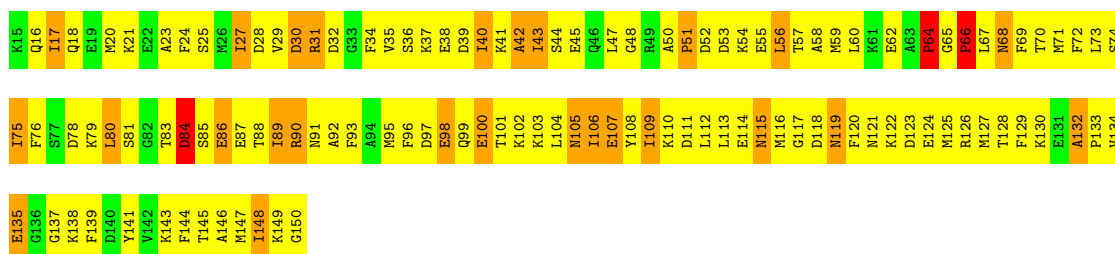
• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

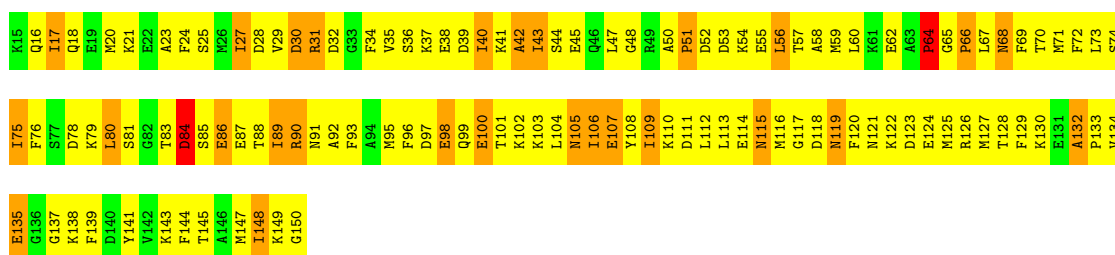


Chain 19-Y: 12% 67% 19%



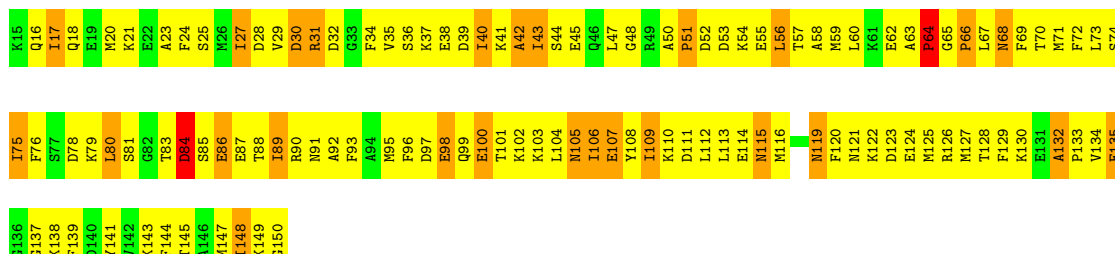
• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 20-Y: 12% 66% 20%



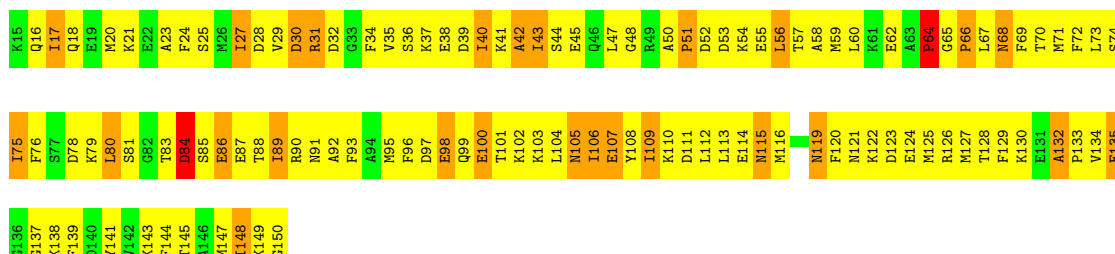
• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 21-Y: 13% 66% 19%



• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 22-Y: 14% 65% 19%



• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 23-Y: 13% 65% 20%



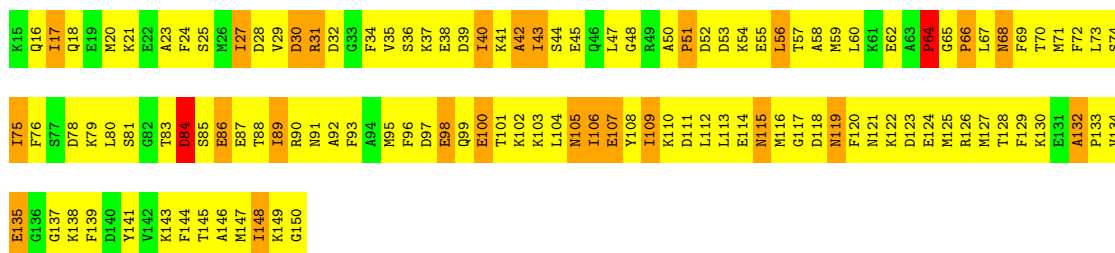
• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 24-Y: 12% 67% 18%



• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 25-Y: 12% 68% 18%



• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

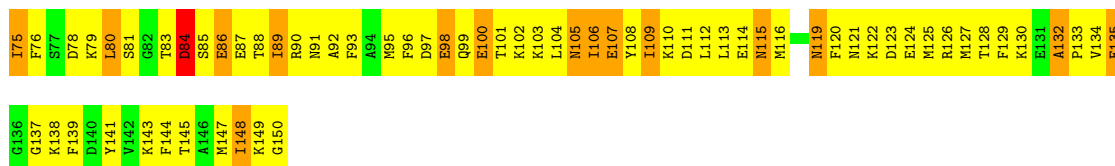
Chain 26-Y: 12% 67% 19%



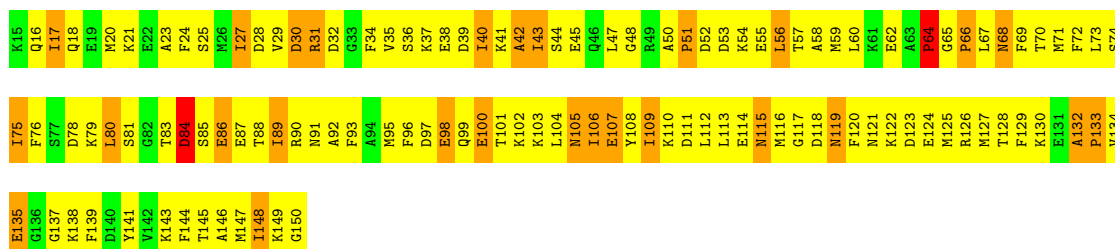
• Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 27-Y: 13% 66% 19%

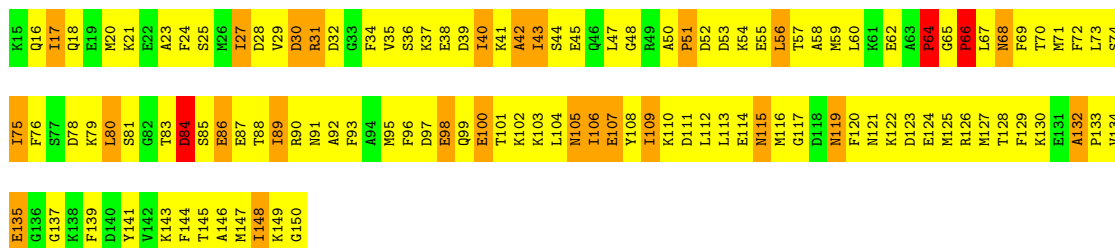




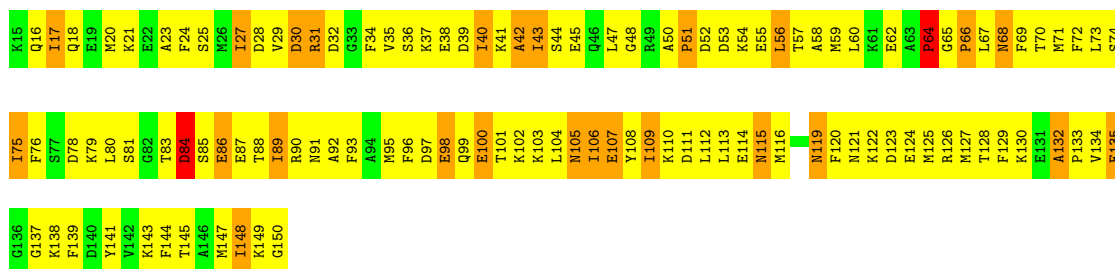
● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



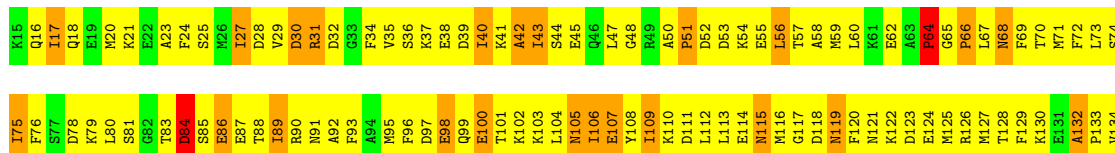
● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

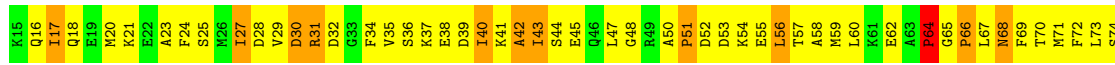
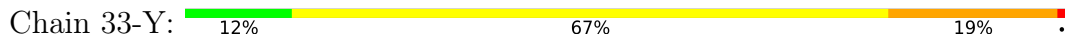




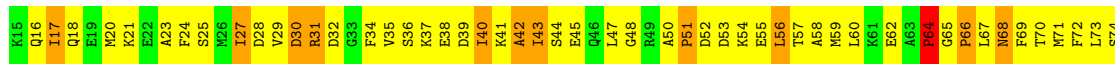
● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



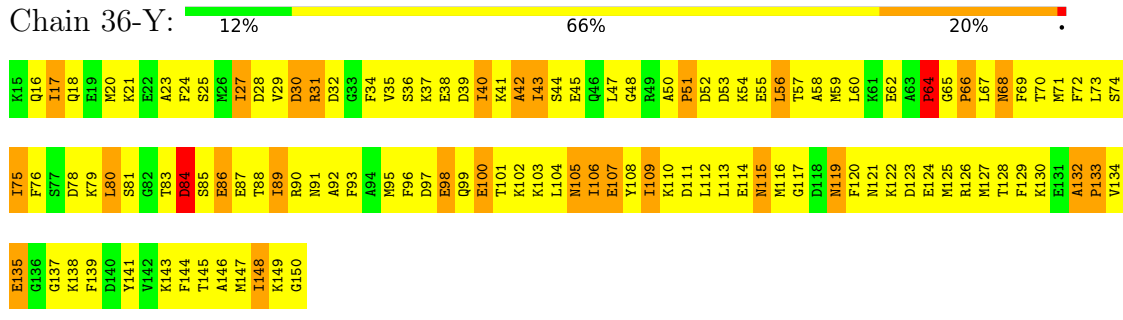
● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



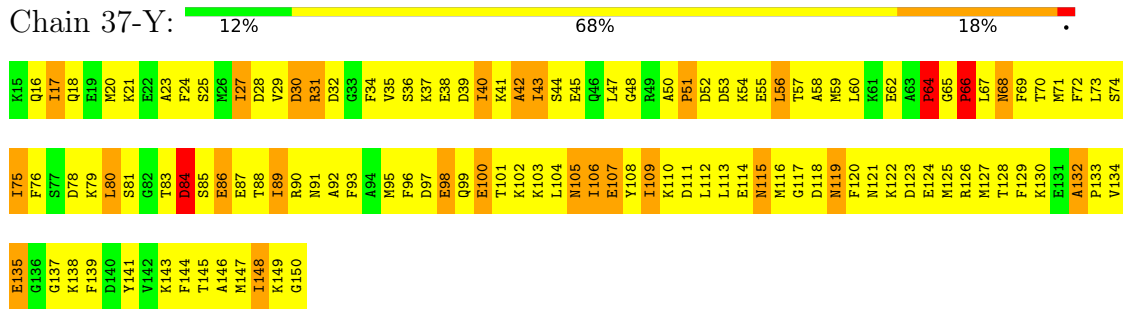
● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



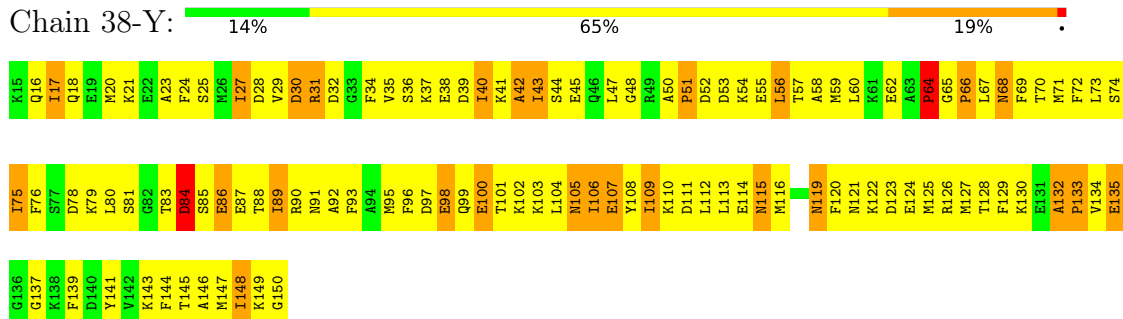
● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



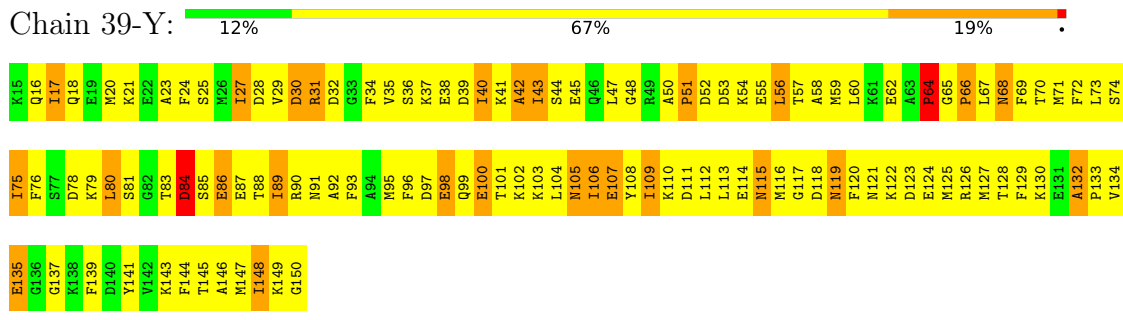
● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



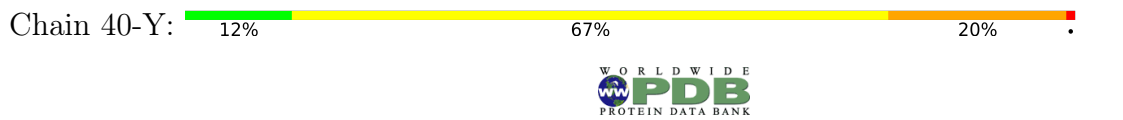
● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

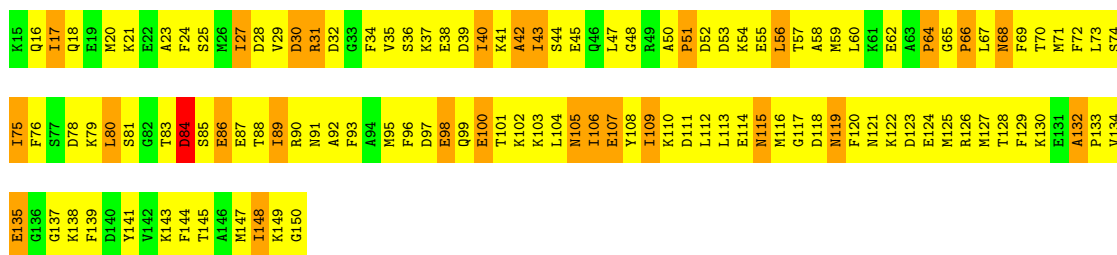


● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

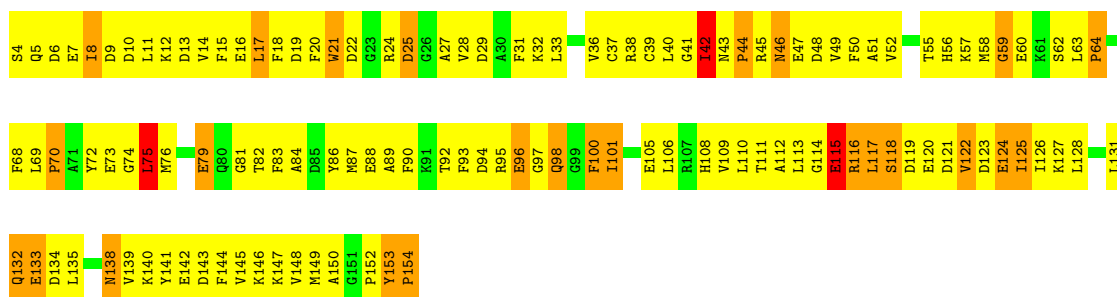


● Molecule 2: MYOSIN REGULATORY LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

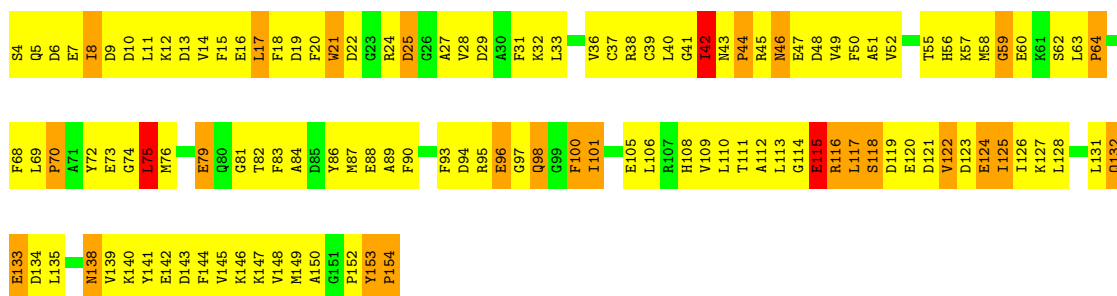




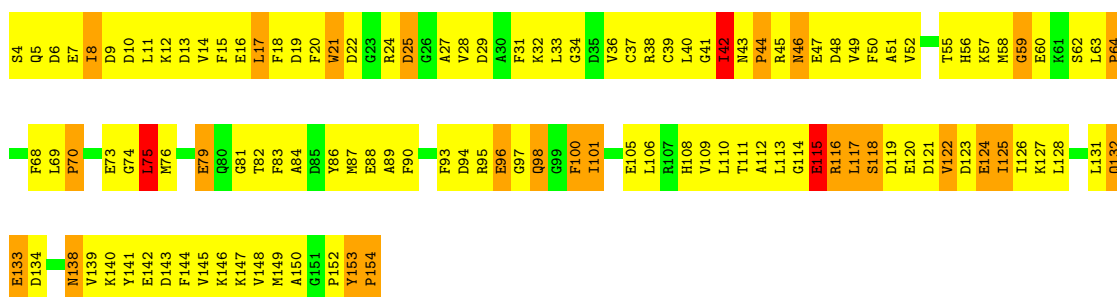
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



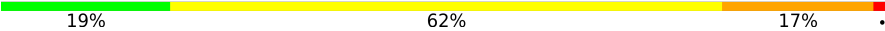
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

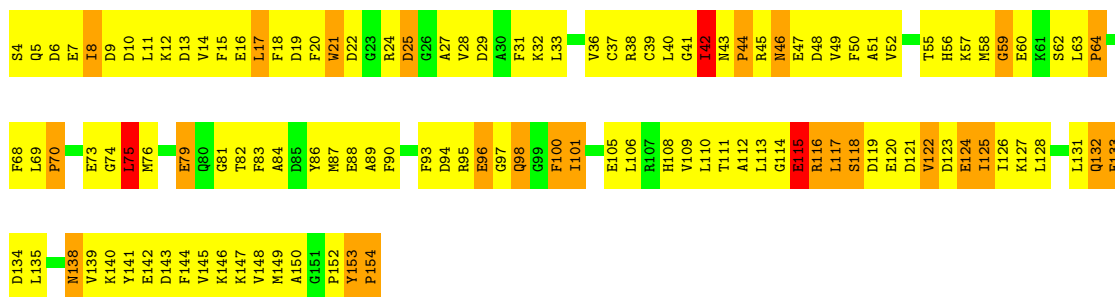


• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 4-Z:  19% 62% 17%

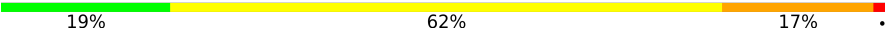


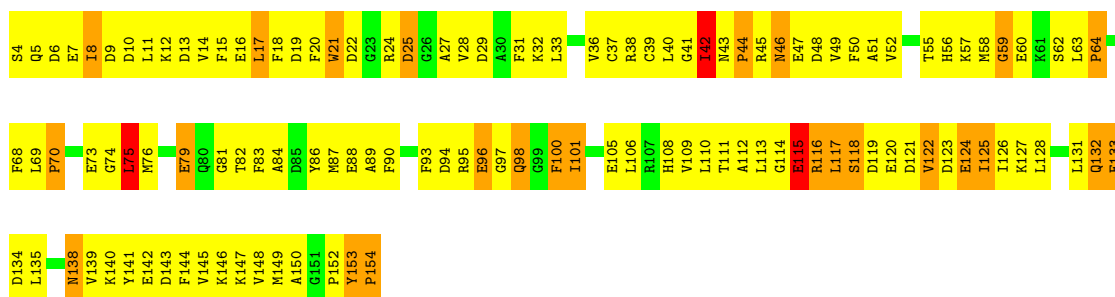
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 5-Z:  19% 62% 17%

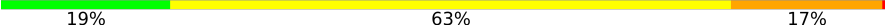


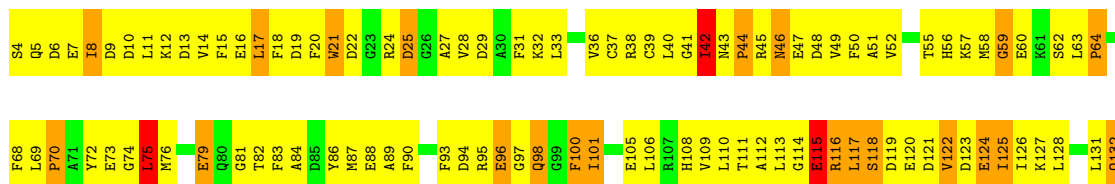
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

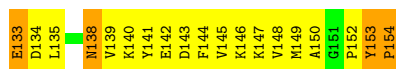
Chain 6-Z:  19% 62% 17%



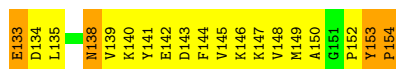
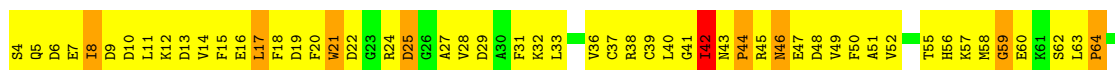
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 7-Z:  19% 63% 17%

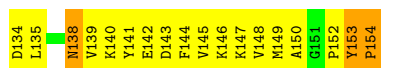
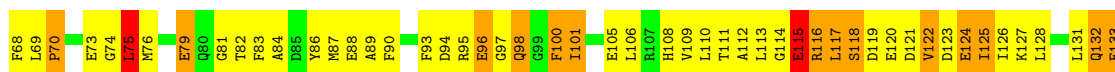
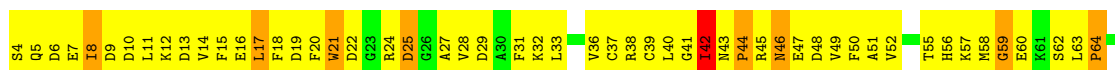
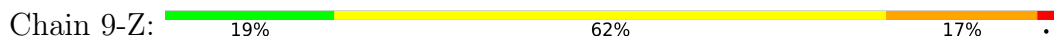




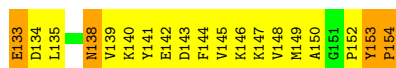
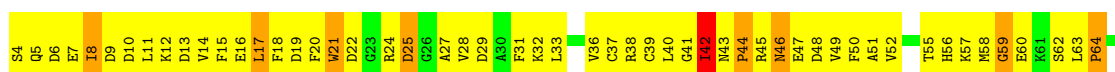
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

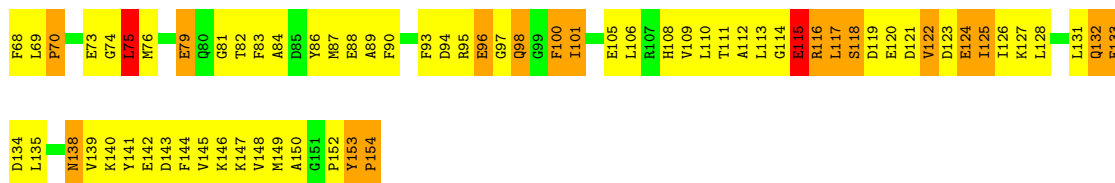


• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

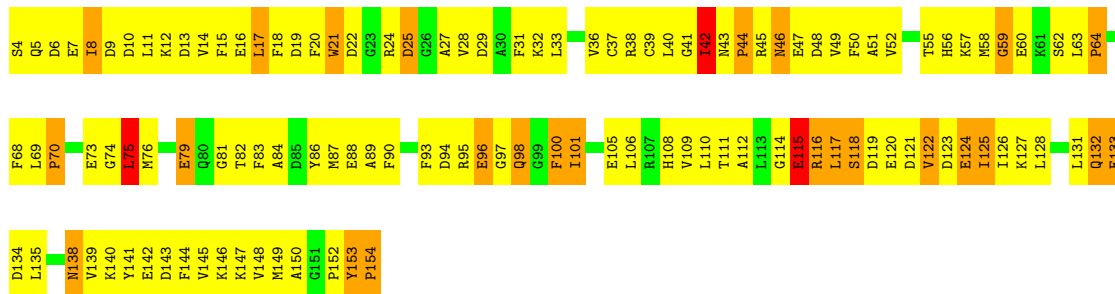


• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

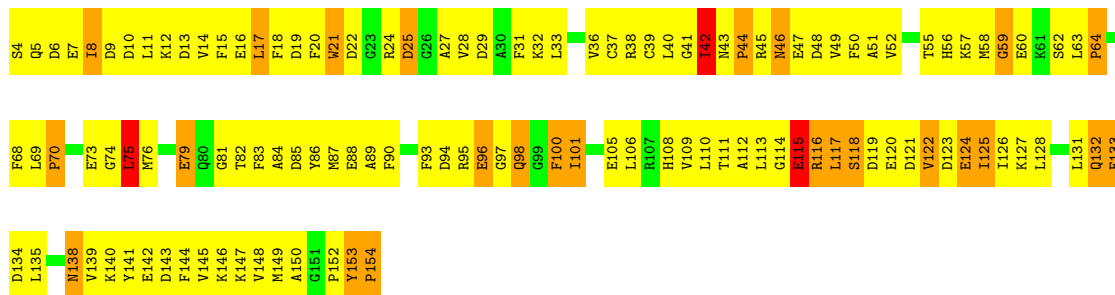




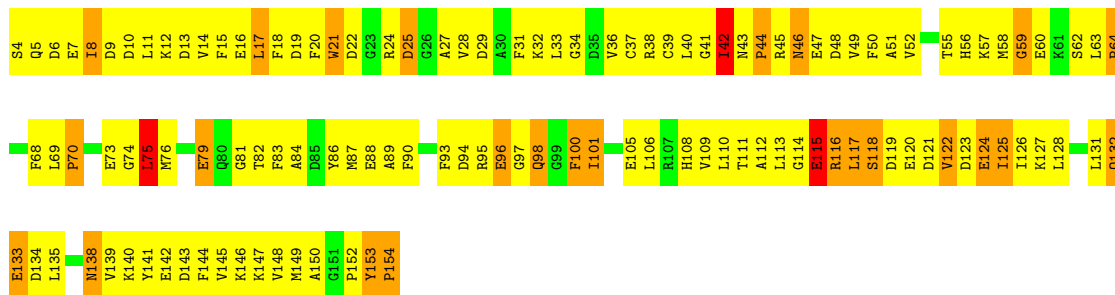
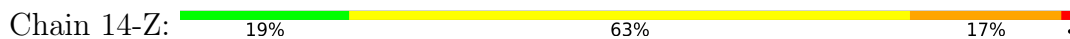
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

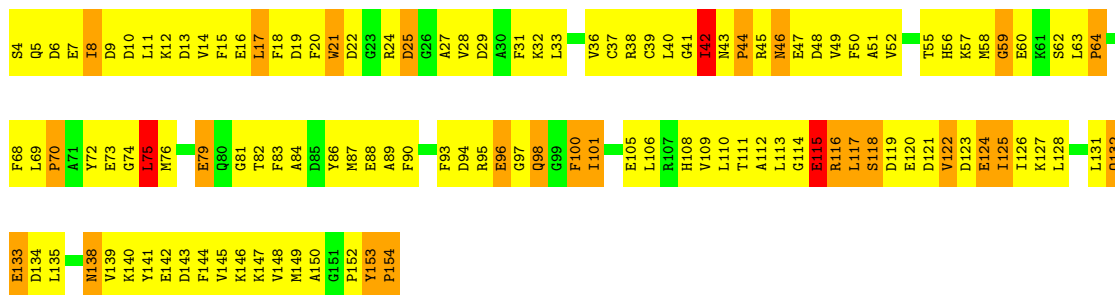


• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



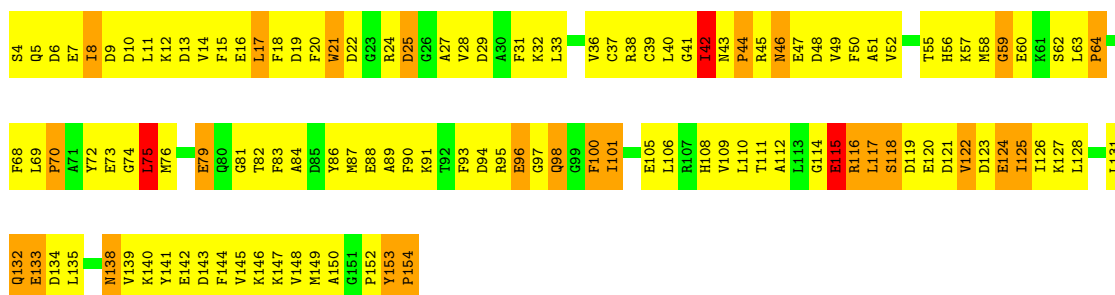
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE





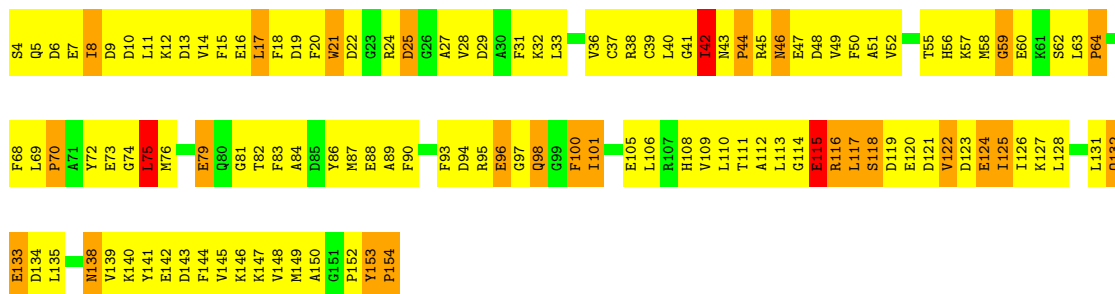
- Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 16-Z: 19% 63% 17%



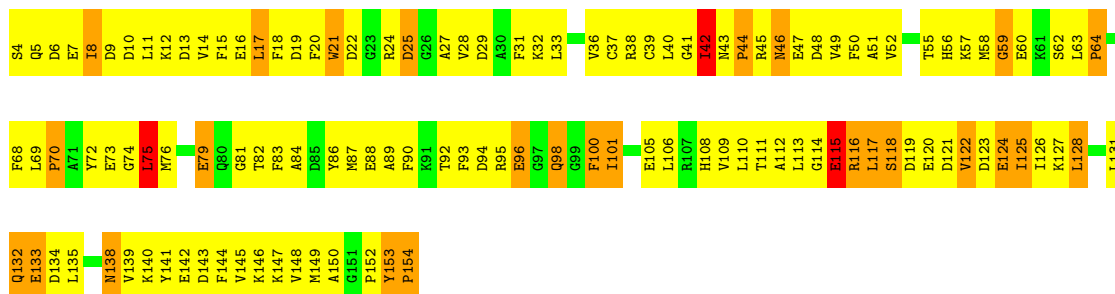
- Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 17-Z: 19% 63% 17%

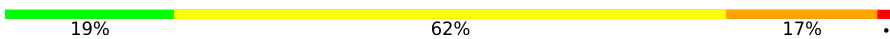


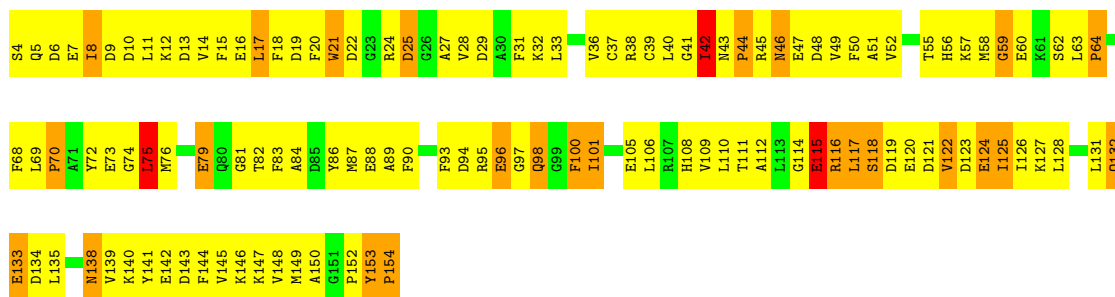
- Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 18-Z: 19% 62% 17%



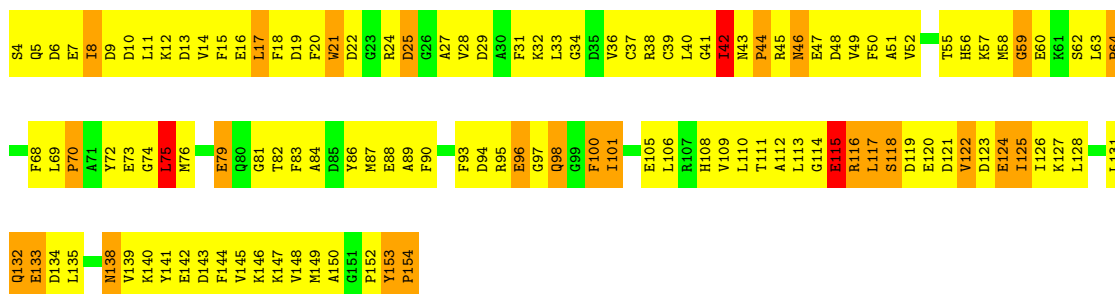
- Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 19-Z:  19% 62% 17%

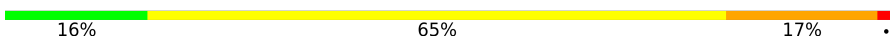


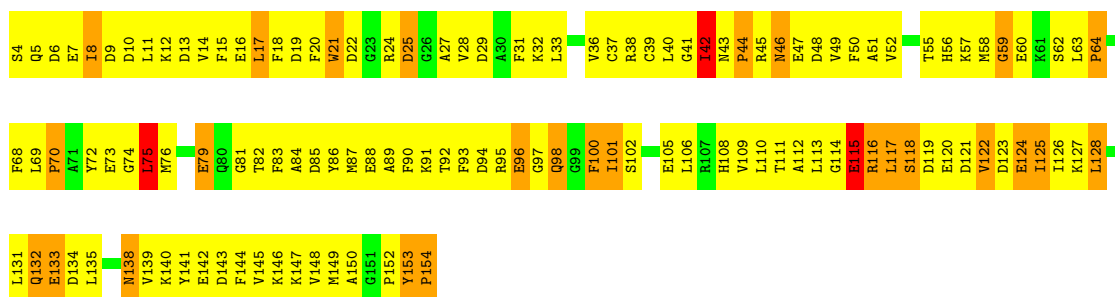
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 20-Z:  18% 64% 17%



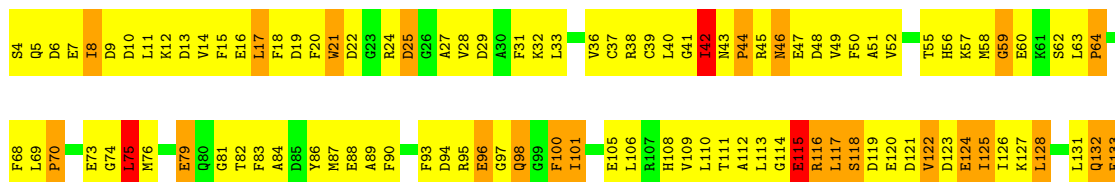
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

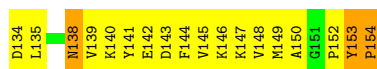
Chain 21-Z:  16% 65% 17%



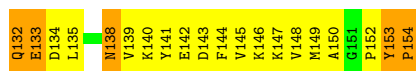
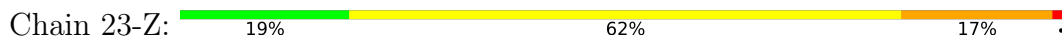
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 22-Z:  19% 62% 17%

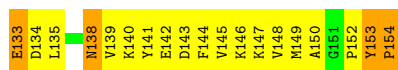
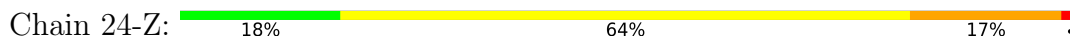




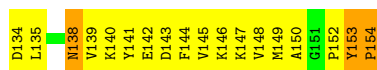
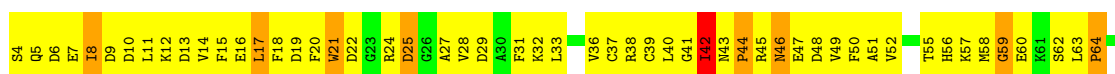
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



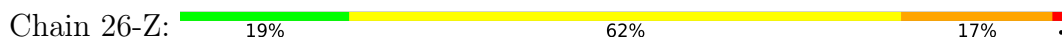
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

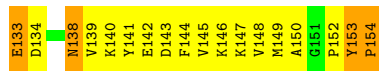


• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

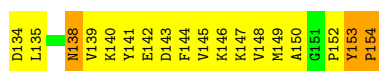
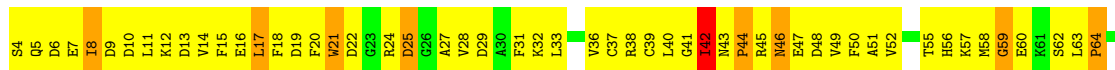
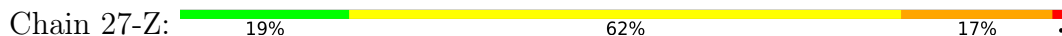


• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

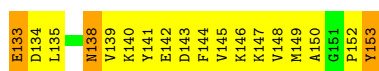




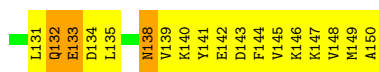
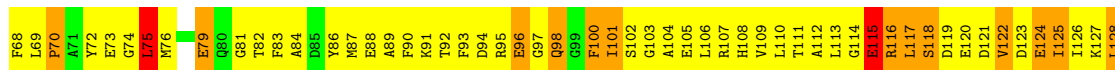
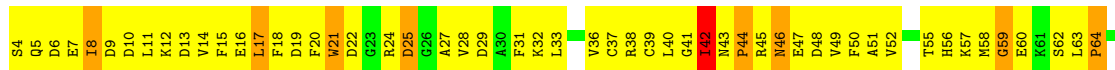
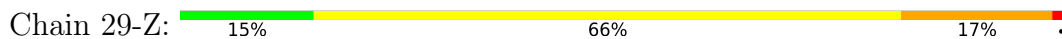
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

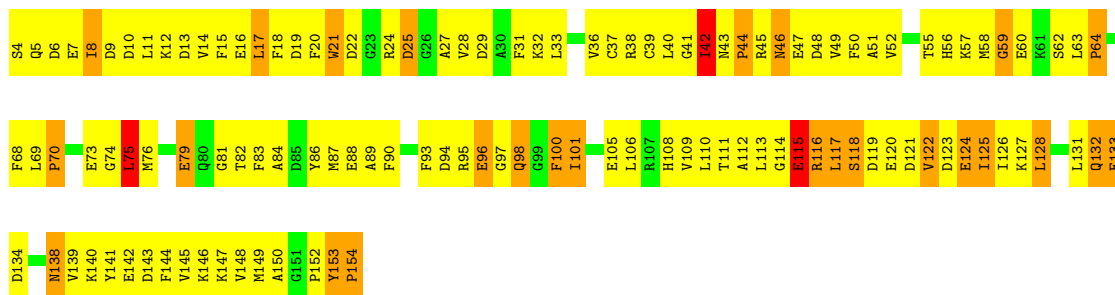


• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

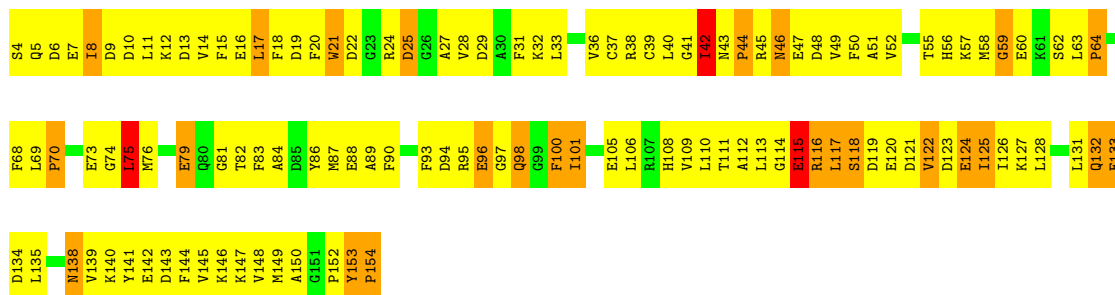


• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

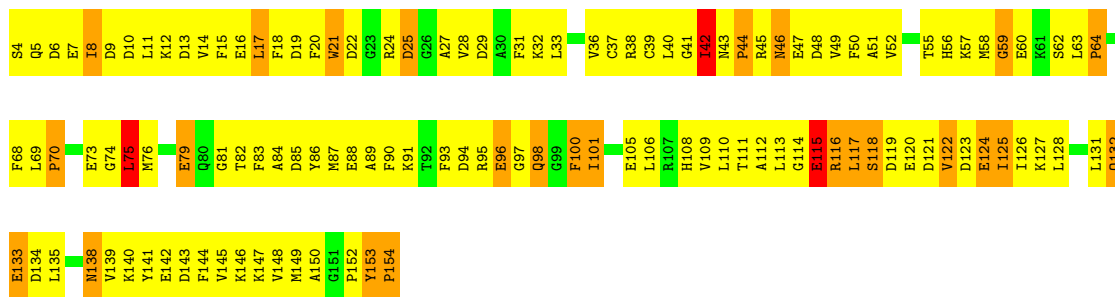




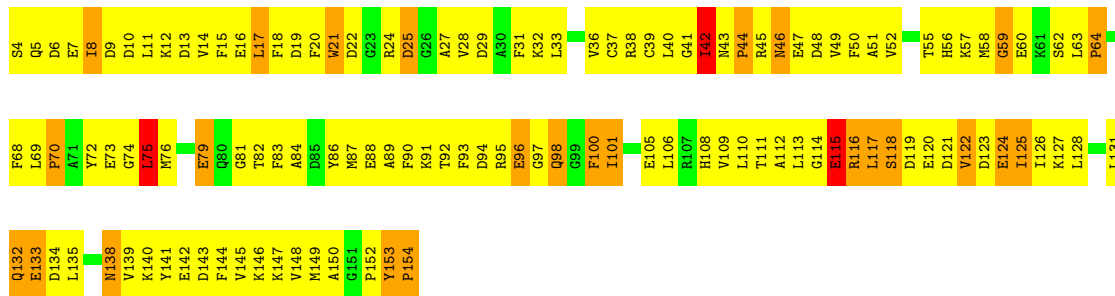
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



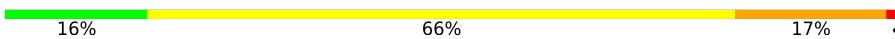
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

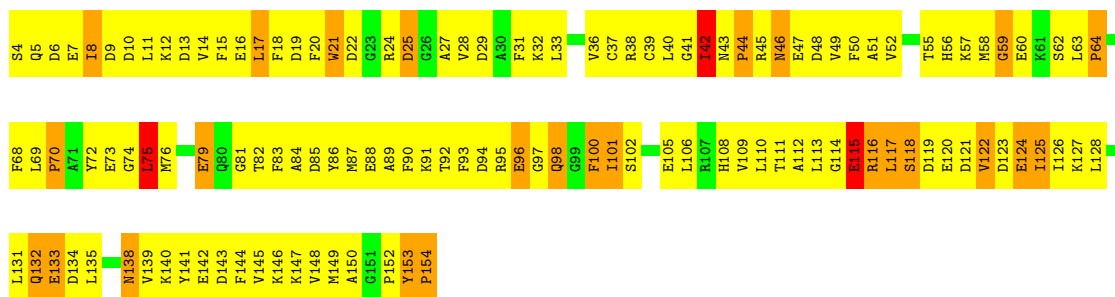


• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



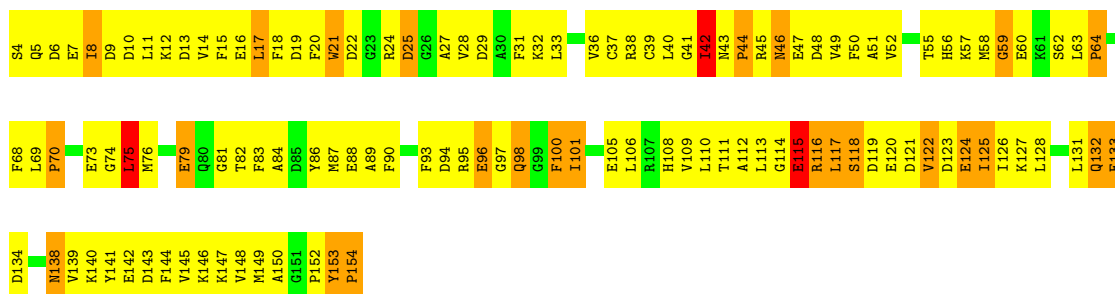
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 34-Z:  16% 66% 17%



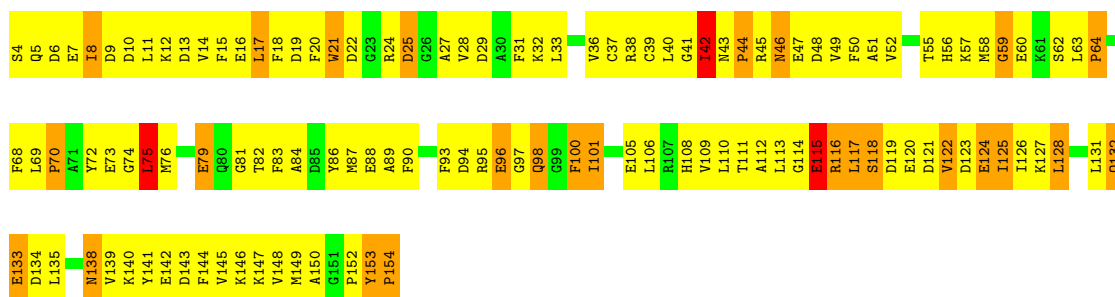
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 35-Z:  20% 62% 17%



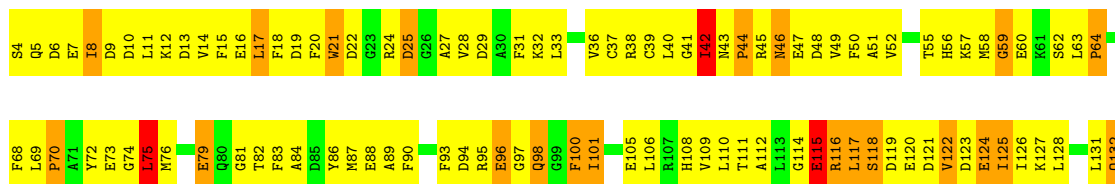
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

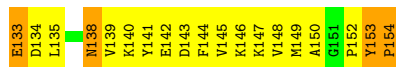
Chain 36-Z:  19% 62% 17%



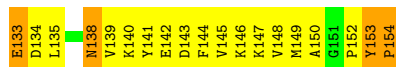
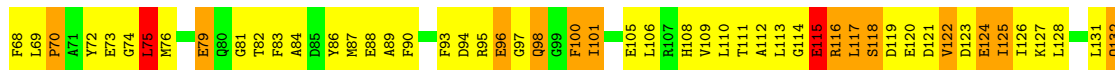
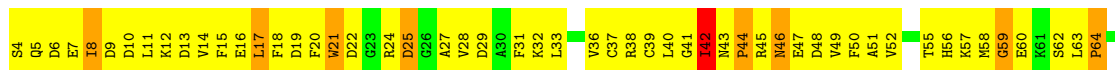
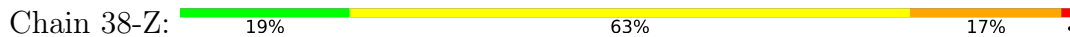
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE

Chain 37-Z:  19% 62% 17%

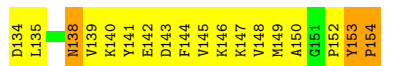
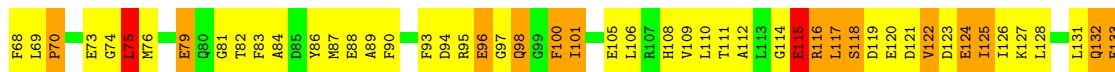
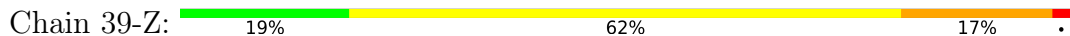




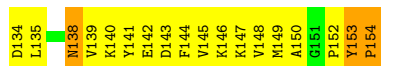
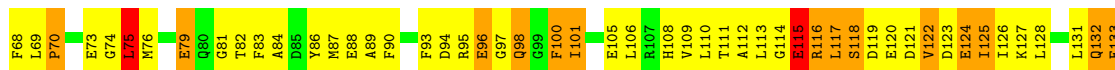
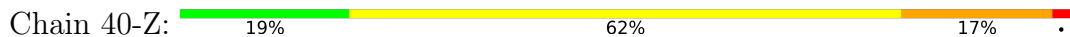
• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



• Molecule 3: MYOSIN ESSENTIAL LIGHT CHAIN, STRIATED ADDUCTOR MUSCLE



4 Experimental information

Property	Value	Source
EM reconstruction method	TOMOGRAPHY	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of tilted images used	Not provided	
Resolution determination method	FSC 0.5 CUT-OFF	Depositor
CTF correction method	Not provided	
Microscope	FEI/PHILIPS CM300FEG/T	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	Not provided	
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	TVIPS TEMCAM-F224 (2k x 2k)	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	1-C	1.19	83/6340 (1.3%)	1.30	32/8539 (0.4%)
1	2-C	1.15	83/6339 (1.3%)	1.33	33/8536 (0.4%)
1	3-C	1.14	81/6340 (1.3%)	1.29	31/8539 (0.4%)
1	4-C	1.18	82/6339 (1.3%)	1.30	29/8536 (0.3%)
1	5-C	1.14	81/6339 (1.3%)	1.29	30/8536 (0.4%)
1	6-C	1.18	82/6340 (1.3%)	1.29	30/8539 (0.4%)
1	7-C	1.14	82/6340 (1.3%)	1.29	29/8539 (0.3%)
1	8-C	1.21	83/6340 (1.3%)	1.32	33/8539 (0.4%)
1	9-C	1.15	83/6340 (1.3%)	1.29	33/8539 (0.4%)
1	10-C	1.14	81/6340 (1.3%)	1.29	27/8539 (0.3%)
1	11-C	1.14	82/6339 (1.3%)	1.29	30/8536 (0.4%)
1	12-C	1.14	82/6339 (1.3%)	1.29	29/8536 (0.3%)
1	13-C	1.15	82/6340 (1.3%)	1.29	30/8539 (0.4%)
1	14-C	1.14	81/6338 (1.3%)	1.29	28/8533 (0.3%)
1	15-C	1.14	82/6340 (1.3%)	1.31	30/8539 (0.4%)
1	16-C	1.14	82/6338 (1.3%)	1.29	28/8533 (0.3%)
1	17-C	1.15	83/6339 (1.3%)	1.29	29/8536 (0.3%)
1	18-C	1.15	82/6340 (1.3%)	1.31	30/8539 (0.4%)
1	19-C	1.14	82/6340 (1.3%)	1.29	31/8539 (0.4%)
1	20-C	1.14	82/6340 (1.3%)	1.29	31/8539 (0.4%)
1	21-C	1.15	83/6339 (1.3%)	1.33	33/8536 (0.4%)
1	22-C	1.14	81/6339 (1.3%)	1.29	30/8536 (0.4%)
1	23-C	1.14	81/6339 (1.3%)	1.29	31/8536 (0.4%)
1	24-C	1.16	82/6340 (1.3%)	1.29	30/8539 (0.4%)
1	25-C	1.14	81/6340 (1.3%)	1.29	30/8539 (0.4%)
1	26-C	1.15	82/6340 (1.3%)	1.29	31/8539 (0.4%)
1	27-C	1.15	82/6339 (1.3%)	1.29	31/8536 (0.4%)
1	28-C	1.14	82/6340 (1.3%)	1.32	32/8539 (0.4%)
1	29-C	1.14	82/6340 (1.3%)	1.30	31/8539 (0.4%)
1	30-C	1.18	83/6340 (1.3%)	1.32	33/8539 (0.4%)
1	31-C	1.14	81/6340 (1.3%)	1.29	30/8539 (0.4%)
1	32-C	1.24	84/6340 (1.3%)	1.33	34/8539 (0.4%)
1	33-C	1.16	82/6340 (1.3%)	1.29	33/8539 (0.4%)
1	34-C	1.22	83/6340 (1.3%)	1.35	35/8539 (0.4%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	35-C	1.19	82/6340 (1.3%)	1.30	31/8539 (0.4%)
1	36-C	1.17	83/6340 (1.3%)	1.37	34/8539 (0.4%)
1	37-C	1.14	82/6340 (1.3%)	1.29	30/8539 (0.4%)
1	38-C	1.19	83/6340 (1.3%)	1.32	34/8539 (0.4%)
1	39-C	1.15	82/6340 (1.3%)	1.32	35/8539 (0.4%)
1	40-C	1.14	82/6340 (1.3%)	1.30	33/8539 (0.4%)
2	1-Y	0.80	8/1104 (0.7%)	1.06	1/1472 (0.1%)
2	2-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	3-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	4-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	5-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	6-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	7-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	8-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	9-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	10-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	11-Y	0.80	8/1104 (0.7%)	1.06	1/1472 (0.1%)
2	12-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	13-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	14-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	15-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	16-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	17-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	18-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	19-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	20-Y	0.80	9/1104 (0.8%)	1.06	2/1472 (0.1%)
2	21-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	22-Y	0.80	8/1104 (0.7%)	1.06	1/1472 (0.1%)
2	23-Y	0.80	8/1104 (0.7%)	1.06	1/1472 (0.1%)
2	24-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	25-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	26-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	27-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	28-Y	0.80	8/1104 (0.7%)	1.05	1/1472 (0.1%)
2	29-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	30-Y	0.80	8/1104 (0.7%)	1.05	1/1472 (0.1%)
2	31-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	32-Y	0.80	9/1104 (0.8%)	1.05	1/1472 (0.1%)
2	33-Y	0.80	8/1104 (0.7%)	1.06	1/1472 (0.1%)
2	34-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	35-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	36-Y	0.80	9/1104 (0.8%)	1.05	1/1472 (0.1%)
2	37-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
2	38-Y	0.80	8/1104 (0.7%)	1.05	1/1472 (0.1%)
2	39-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
2	40-Y	0.80	9/1104 (0.8%)	1.06	1/1472 (0.1%)
3	1-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	2-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	3-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	4-Z	0.82	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	5-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	6-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	7-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	8-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	9-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	10-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	11-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	12-Z	0.82	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	13-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	14-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	15-Z	0.82	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	16-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	17-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	18-Z	0.81	10/1222 (0.8%)	1.09	1/1644 (0.1%)
3	19-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	20-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	21-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	22-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	23-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	24-Z	0.81	10/1222 (0.8%)	1.09	1/1644 (0.1%)
3	25-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	26-Z	0.81	11/1222 (0.9%)	1.09	1/1644 (0.1%)
3	27-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	28-Z	0.82	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	29-Z	0.81	11/1222 (0.9%)	1.09	1/1644 (0.1%)
3	30-Z	0.82	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	31-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	32-Z	0.82	11/1222 (0.9%)	1.09	2/1644 (0.1%)
3	33-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	34-Z	0.81	11/1222 (0.9%)	1.09	1/1644 (0.1%)
3	35-Z	0.81	10/1222 (0.8%)	1.09	1/1644 (0.1%)
3	36-Z	0.81	10/1222 (0.8%)	1.09	2/1644 (0.1%)
3	37-Z	0.81	11/1222 (0.9%)	1.09	1/1644 (0.1%)
3	38-Z	0.81	9/1222 (0.7%)	1.09	2/1644 (0.1%)
3	39-Z	0.81	10/1222 (0.8%)	1.09	1/1644 (0.1%)
3	40-Z	0.81	11/1222 (0.9%)	1.09	2/1644 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
All	All	1.07	4056/346626 (1.2%)	1.25	1373/466158 (0.3%)

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	1-C	0	5
1	2-C	0	7
1	3-C	0	6
1	4-C	0	4
1	5-C	0	6
1	6-C	0	4
1	7-C	0	4
1	8-C	0	4
1	9-C	0	5
1	10-C	0	4
1	11-C	0	4
1	12-C	0	4
1	13-C	0	4
1	14-C	0	4
1	15-C	0	6
1	16-C	0	4
1	17-C	0	4
1	18-C	0	7
1	19-C	0	4
1	20-C	0	4
1	21-C	0	6
1	22-C	0	4
1	23-C	0	4
1	24-C	0	4
1	25-C	0	4
1	26-C	0	4
1	27-C	0	4
1	28-C	0	6
1	29-C	0	6
1	30-C	0	6
1	31-C	0	4
1	32-C	0	6
1	33-C	0	5
1	34-C	0	6

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	35-C	0	4
1	36-C	0	5
1	37-C	0	4
1	38-C	0	6
1	39-C	0	6
1	40-C	0	6
2	1-Y	0	1
2	2-Y	0	1
2	3-Y	0	1
2	4-Y	0	1
2	5-Y	0	1
2	6-Y	0	1
2	7-Y	0	1
2	8-Y	0	1
2	9-Y	0	1
2	10-Y	0	1
2	11-Y	0	1
2	12-Y	0	1
2	13-Y	0	1
2	14-Y	0	1
2	15-Y	0	1
2	16-Y	0	1
2	17-Y	0	1
2	18-Y	0	1
2	19-Y	0	1
2	20-Y	0	1
2	21-Y	0	1
2	22-Y	0	1
2	23-Y	0	1
2	24-Y	0	1
2	25-Y	0	1
2	26-Y	0	1
2	27-Y	0	1
2	28-Y	0	1
2	29-Y	0	1
2	30-Y	0	1
2	31-Y	0	1
2	32-Y	0	1
2	33-Y	0	1
2	34-Y	0	1
2	35-Y	0	1
2	36-Y	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
2	37-Y	0	1
2	38-Y	0	1
2	39-Y	0	1
2	40-Y	0	1
All	All	0	234

The worst 5 of 4056 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	32-C	705	LYS	C-N	37.13	1.99	1.33
1	34-C	705	LYS	C-N	34.38	1.95	1.33
1	22-C	462	ALA	C-N	33.21	1.92	1.33
1	23-C	462	ALA	C-N	33.21	1.92	1.33
1	28-C	462	ALA	C-N	33.21	1.92	1.33

The worst 5 of 1373 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	36-C	705	LYS	O-C-N	-30.57	71.23	123.20
1	34-C	800	LYS	O-C-N	-27.36	78.92	122.70
1	37-C	709	SER	O-C-N	27.21	166.24	122.70
1	34-C	709	SER	O-C-N	27.20	166.22	122.70
1	29-C	709	SER	O-C-N	27.20	166.22	122.70

There are no chirality outliers.

5 of 234 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	1-C	115	TYR	Mainchain
1	1-C	691	LEU	Mainchain
1	1-C	705	LYS	Mainchain
1	1-C	76	SER	Mainchain
1	1-C	824	TRP	Mainchain

5.2 Too-close contacts

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	1-C	6215	0	6169	2832	0
1	2-C	6215	0	6169	2737	0
1	3-C	6215	0	6183	2614	0
1	4-C	6215	0	6182	2649	0
1	5-C	6215	0	6179	2652	0
1	6-C	6215	0	6173	2754	0
1	7-C	6215	0	6180	2645	0
1	8-C	6215	0	6180	2615	0
1	9-C	6215	0	6180	2659	0
1	10-C	6215	0	6180	2685	0
1	11-C	6215	0	6182	2607	0
1	12-C	6215	0	6175	2707	0
1	13-C	6215	0	6182	2617	0
1	14-C	6215	0	6182	2630	0
1	15-C	6215	0	6177	2738	0
1	16-C	6215	0	6182	2660	0
1	17-C	6215	0	6177	2679	0
1	18-C	6215	0	6151	3066	0
1	19-C	6215	0	6181	2622	0
1	20-C	6215	0	6179	2670	0
1	21-C	6215	0	6145	3252	0
1	22-C	6215	0	6183	2616	0
1	23-C	6215	0	6180	2684	0
1	24-C	6215	0	6181	2660	0
1	25-C	6215	0	6185	2599	0
1	26-C	6215	0	6183	2619	0
1	27-C	6215	0	6184	2628	0
1	28-C	6215	0	6175	2703	0
1	29-C	6215	0	6124	3562	0
1	30-C	6215	0	6174	2712	0
1	31-C	6215	0	6185	2599	0
1	32-C	6215	0	6181	2620	0
1	33-C	6215	0	6168	2914	0
1	34-C	6215	0	6148	3341	0
1	35-C	6215	0	6181	2677	0
1	36-C	6215	0	6177	2702	0
1	37-C	6215	0	6183	2580	0
1	38-C	6215	0	6174	2699	0
1	39-C	6215	0	6173	2726	0
1	40-C	6215	0	6177	2625	0
2	1-Y	1088	0	1066	468	0
2	2-Y	1088	0	1066	471	0
2	3-Y	1088	0	1066	471	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	4-Y	1088	0	1066	471	0
2	5-Y	1088	0	1066	462	0
2	6-Y	1088	0	1066	469	0
2	7-Y	1088	0	1066	472	0
2	8-Y	1088	0	1066	463	0
2	9-Y	1088	0	1066	473	0
2	10-Y	1088	0	1066	474	0
2	11-Y	1088	0	1066	457	0
2	12-Y	1088	0	1066	465	0
2	13-Y	1088	0	1066	469	0
2	14-Y	1088	0	1066	478	0
2	15-Y	1088	0	1066	475	0
2	16-Y	1088	0	1066	469	0
2	17-Y	1088	0	1066	483	0
2	18-Y	1088	0	1066	469	0
2	19-Y	1088	0	1066	472	0
2	20-Y	1088	0	1066	476	0
2	21-Y	1088	0	1066	470	0
2	22-Y	1088	0	1066	469	0
2	23-Y	1088	0	1064	487	0
2	24-Y	1088	0	1066	479	0
2	25-Y	1088	0	1066	474	0
2	26-Y	1088	0	1066	470	0
2	27-Y	1088	0	1066	472	0
2	28-Y	1088	0	1066	476	0
2	29-Y	1088	0	1066	496	0
2	30-Y	1088	0	1066	472	0
2	31-Y	1088	0	1066	474	0
2	32-Y	1088	0	1066	477	0
2	33-Y	1088	0	1066	470	0
2	34-Y	1088	0	1065	477	0
2	35-Y	1088	0	1066	465	0
2	36-Y	1088	0	1066	470	0
2	37-Y	1088	0	1066	472	0
2	38-Y	1088	0	1064	471	0
2	39-Y	1088	0	1064	517	0
2	40-Y	1088	0	1066	475	0
3	1-Z	1198	0	1118	543	0
3	2-Z	1198	0	1120	507	0
3	3-Z	1198	0	1120	498	0
3	4-Z	1198	0	1120	508	0
3	5-Z	1198	0	1120	501	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	6-Z	1198	0	1117	537	0
3	7-Z	1198	0	1120	502	0
3	8-Z	1198	0	1120	498	0
3	9-Z	1198	0	1120	504	0
3	10-Z	1198	0	1118	532	0
3	11-Z	1198	0	1120	501	0
3	12-Z	1198	0	1120	502	0
3	13-Z	1198	0	1120	503	0
3	14-Z	1198	0	1120	510	0
3	15-Z	1198	0	1120	501	0
3	16-Z	1198	0	1120	518	0
3	17-Z	1198	0	1120	518	0
3	18-Z	1198	0	1109	655	0
3	19-Z	1198	0	1120	496	0
3	20-Z	1198	0	1117	513	0
3	21-Z	1198	0	1111	778	0
3	22-Z	1198	0	1120	496	0
3	23-Z	1198	0	1120	508	0
3	24-Z	1198	0	1120	536	0
3	25-Z	1198	0	1120	502	0
3	26-Z	1198	0	1120	516	0
3	27-Z	1198	0	1120	505	0
3	28-Z	1198	0	1120	498	0
3	29-Z	1198	0	1094	977	0
3	30-Z	1198	0	1120	500	0
3	31-Z	1198	0	1120	502	0
3	32-Z	1198	0	1120	517	0
3	33-Z	1198	0	1118	599	0
3	34-Z	1198	0	1110	795	0
3	35-Z	1198	0	1120	503	0
3	36-Z	1198	0	1120	513	0
3	37-Z	1198	0	1120	496	0
3	38-Z	1198	0	1120	497	0
3	39-Z	1198	0	1117	617	0
3	40-Z	1198	0	1120	499	0
All	All	340040	0	334366	141572	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 210.

The worst 5 of 141572 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:500:TYR:HA	1:C:761:PHE:CG	1.17	1.69
1:C:192:TYR:CE2	1:C:775:ASP:HA	1.27	1.68
1:C:500:TYR:CE1	1:C:707:PHE:HB2	1.22	1.68
1:C:251:PHE:HD1	3:Z:95:ARG:CG	1.07	1.67
1:C:130:PRO:HA	3:Z:108:HIS:CD2	1.27	1.67

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	1-C	758/831 (91%)	605 (80%)	114 (15%)	39 (5%)	2	19
1	2-C	756/831 (91%)	604 (80%)	114 (15%)	38 (5%)	2	20
1	3-C	758/831 (91%)	606 (80%)	114 (15%)	38 (5%)	2	20
1	4-C	756/831 (91%)	604 (80%)	112 (15%)	40 (5%)	2	19
1	5-C	756/831 (91%)	604 (80%)	114 (15%)	38 (5%)	2	20
1	6-C	758/831 (91%)	606 (80%)	113 (15%)	39 (5%)	2	19
1	7-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	8-C	758/831 (91%)	605 (80%)	113 (15%)	40 (5%)	2	19
1	9-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	10-C	758/831 (91%)	606 (80%)	114 (15%)	38 (5%)	2	20
1	11-C	756/831 (91%)	605 (80%)	113 (15%)	38 (5%)	2	20
1	12-C	756/831 (91%)	605 (80%)	112 (15%)	39 (5%)	2	19
1	13-C	758/831 (91%)	606 (80%)	114 (15%)	38 (5%)	2	20
1	14-C	754/831 (91%)	604 (80%)	112 (15%)	38 (5%)	2	20
1	15-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	16-C	754/831 (91%)	604 (80%)	112 (15%)	38 (5%)	2	20

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	17-C	756/831 (91%)	605 (80%)	112 (15%)	39 (5%)	2	19
1	18-C	758/831 (91%)	605 (80%)	113 (15%)	40 (5%)	2	19
1	19-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	20-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	21-C	756/831 (91%)	605 (80%)	112 (15%)	39 (5%)	2	19
1	22-C	756/831 (91%)	604 (80%)	113 (15%)	39 (5%)	2	19
1	23-C	756/831 (91%)	604 (80%)	113 (15%)	39 (5%)	2	19
1	24-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	25-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	26-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	27-C	756/831 (91%)	605 (80%)	112 (15%)	39 (5%)	2	19
1	28-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	29-C	758/831 (91%)	607 (80%)	111 (15%)	40 (5%)	2	19
1	30-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	31-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
1	32-C	758/831 (91%)	605 (80%)	113 (15%)	40 (5%)	2	19
1	33-C	758/831 (91%)	606 (80%)	112 (15%)	40 (5%)	2	19
1	34-C	758/831 (91%)	605 (80%)	112 (15%)	41 (5%)	2	19
1	35-C	758/831 (91%)	609 (80%)	111 (15%)	38 (5%)	2	20
1	36-C	758/831 (91%)	608 (80%)	112 (15%)	38 (5%)	2	20
1	37-C	758/831 (91%)	606 (80%)	113 (15%)	39 (5%)	2	19
1	38-C	758/831 (91%)	607 (80%)	112 (15%)	39 (5%)	2	19
1	39-C	758/831 (91%)	608 (80%)	112 (15%)	38 (5%)	2	20
1	40-C	758/831 (91%)	607 (80%)	113 (15%)	38 (5%)	2	20
2	1-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	2-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	3-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	4-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	5-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	6-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	7-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	8-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	9-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	10-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	11-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	12-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	13-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	14-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	15-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	16-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	17-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	18-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	19-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	20-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	21-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	22-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	23-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	24-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	25-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	26-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	27-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	28-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	29-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	30-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	31-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	32-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	33-Y	134/136 (98%)	94 (70%)	34 (25%)	6 (4%)	2	22
2	34-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	35-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	36-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	37-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
2	38-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	39-Y	134/136 (98%)	94 (70%)	34 (25%)	6 (4%)	2	22
2	40-Y	134/136 (98%)	95 (71%)	33 (25%)	6 (4%)	2	22
3	1-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	2-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	3-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	4-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	5-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	6-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	7-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	8-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	9-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	10-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	11-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	12-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	13-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	14-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	15-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	16-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	17-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	18-Z	149/151 (99%)	104 (70%)	35 (24%)	10 (7%)	1	15
3	19-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	20-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	21-Z	149/151 (99%)	104 (70%)	35 (24%)	10 (7%)	1	15
3	22-Z	149/151 (99%)	104 (70%)	35 (24%)	10 (7%)	1	15
3	23-Z	149/151 (99%)	104 (70%)	35 (24%)	10 (7%)	1	15
3	24-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	25-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	26-Z	149/151 (99%)	104 (70%)	35 (24%)	10 (7%)	1	15
3	27-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	28-Z	149/151 (99%)	104 (70%)	35 (24%)	10 (7%)	1	15
3	29-Z	149/151 (99%)	104 (70%)	35 (24%)	10 (7%)	1	15

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	30-Z	149/151 (99%)	104 (70%)	35 (24%)	10 (7%)	1	15
3	31-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	32-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	33-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	34-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	35-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	36-Z	149/151 (99%)	104 (70%)	35 (24%)	10 (7%)	1	15
3	37-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	38-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	39-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
3	40-Z	149/151 (99%)	104 (70%)	36 (24%)	9 (6%)	1	17
All	All	41612/44720 (93%)	32195 (77%)	7263 (18%)	2154 (5%)	4	19

5 of 2154 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	1-C	27	ALA
1	1-C	366	ARG
1	1-C	368	ARG
1	1-C	371	GLN
1	1-C	542	ALA

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	1-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	2-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	3-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	4-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	5-C	678/724 (94%)	571 (84%)	107 (16%)	2	13

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	6-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	7-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	8-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	9-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	10-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	11-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	12-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	13-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	14-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	15-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	16-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	17-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	18-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	19-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	20-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	21-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	22-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	23-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	24-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	25-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	26-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	27-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	28-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	29-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	30-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	31-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	32-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	33-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	34-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	35-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	36-C	678/724 (94%)	571 (84%)	107 (16%)	2	13

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	37-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	38-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	39-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
1	40-C	678/724 (94%)	571 (84%)	107 (16%)	2	13
2	1-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	2-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	3-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	4-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	5-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	6-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	7-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	8-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	9-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	10-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	11-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	12-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	13-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	14-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	15-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	16-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	17-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	18-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	19-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	20-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	21-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	22-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	23-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	24-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	25-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	26-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	27-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	28-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	29-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	30-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	31-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	32-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	33-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	34-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	35-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	36-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	37-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	38-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	39-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
2	40-Y	119/119 (100%)	100 (84%)	19 (16%)	2	13
3	1-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	2-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	3-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	4-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	5-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	6-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	7-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	8-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	9-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	10-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	11-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	12-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	13-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	14-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	15-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	16-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	17-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	18-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	19-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	20-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	21-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	22-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	23-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	24-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	25-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	26-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	27-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	28-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	29-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	30-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	31-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	32-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	33-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	34-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	35-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	36-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	37-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	38-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	39-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
3	40-Z	127/127 (100%)	111 (87%)	16 (13%)	4	19
All	All	36960/38800 (95%)	31280 (85%)	5680 (15%)	6	14

5 of 5680 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	27-C	85	LEU
1	33-C	297	ASN
2	27-Y	115	ASN
1	27-C	56	ILE
1	30-C	311	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 1906 such sidechains are listed below:

Mol	Chain	Res	Type
1	20-C	291	ASN
1	38-C	239	ASN
2	24-Y	91	ASN
2	37-Y	91	ASN
1	40-C	769	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	2-C	13
1	17-C	12
1	14-C	12
1	21-C	12
1	4-C	12
1	12-C	12
1	16-C	12
1	1-C	12

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Mol	Chain	Number of breaks
1	8-C	12
1	30-C	12
1	34-C	12
1	36-C	12
1	38-C	12
1	23-C	11
1	5-C	11
1	27-C	11
1	22-C	11
1	11-C	11
1	6-C	11
1	9-C	11
1	13-C	11
1	15-C	11
1	18-C	11
1	19-C	11
1	20-C	11
1	24-C	11
1	26-C	11
1	32-C	11
1	33-C	11
1	35-C	11
1	39-C	11
1	40-C	11
1	3-C	10
1	7-C	10
1	10-C	10
1	25-C	10
1	28-C	10
1	29-C	10
1	31-C	10
1	37-C	10

The worst 5 of 446 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
23	C	800:LYS	C	801:LEU	N	2.81
17	C	800:LYS	C	801:LEU	N	2.72
14	C	800:LYS	C	801:LEU	N	2.53
21	C	705:LYS	C	706:GLY	N	2.46
5	C	800:LYS	C	801:LEU	N	2.42

6 Tomogram visualisation

This section contains visualisations of the EMDB entry EMD-1584. These allow visual inspection of the internal detail of the tomogram and identification of artifacts.

6.1 Orthogonal projections

This section was not generated.

6.2 Central slices

This section was not generated.

6.3 Largest variance slices

This section was not generated.

6.4 Mask visualisation

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

7 Tomogram analysis

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

7.1 Map-value distribution

This section was not generated.

8 Map-model fit

This section was not generated.