

Output results of CLIME (CLustering by Inferred Models of Evolution)

Dataset:

Num of genes in input gene set: 4
Total number of genes: 20834
Prediction LLR threshold: 0

The CLIME PDF output two sections:

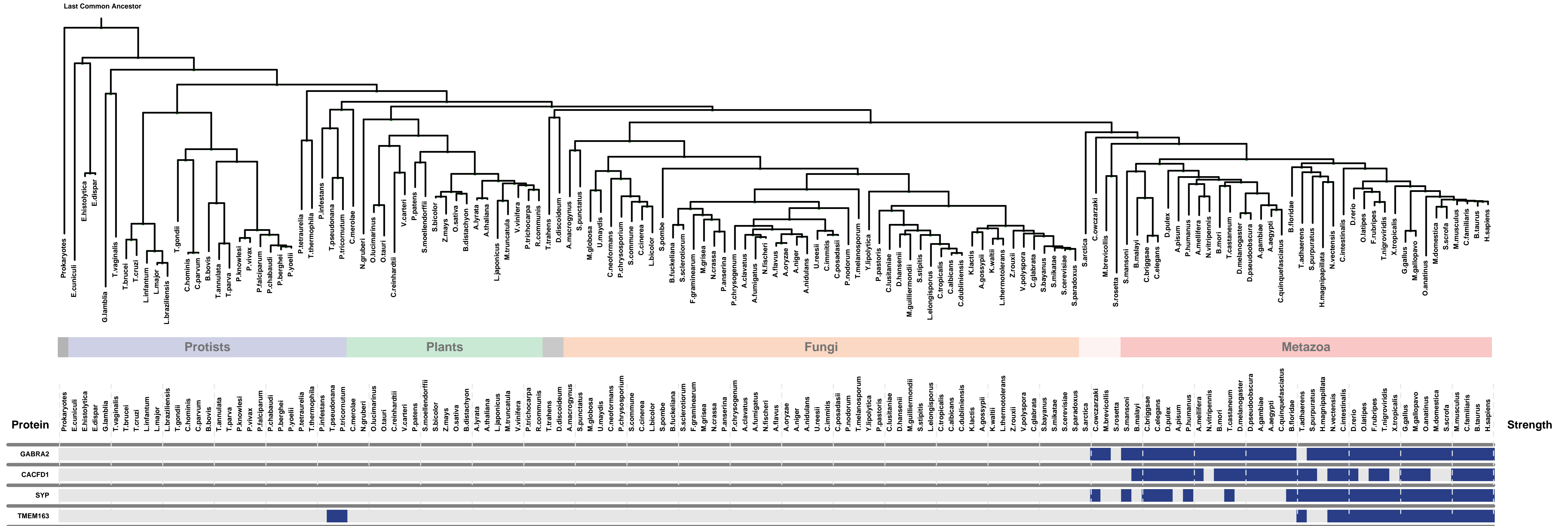
1) Overview of Evolutionarily Conserved Modules (ECMs)

- Top panel shows the predefined species tree.
- Bottom panel shows the partition of input genes into Evolutionary Conserved Modules (ECMs), ordered by ECM strength (shown at right), and separated by horizontal lines.
- Each row show one gene, where the phylogenetic profile indicates presence (blue) or absence (gray) of homologs in each species (column).
- Gene symbols are shown at left. Gray color indicates that the gene is a paralog to a higher scoring gene within the same ECM (based on BLASTP $E < 1e-3$).

2) Details of each ECM and its expansion ECM+

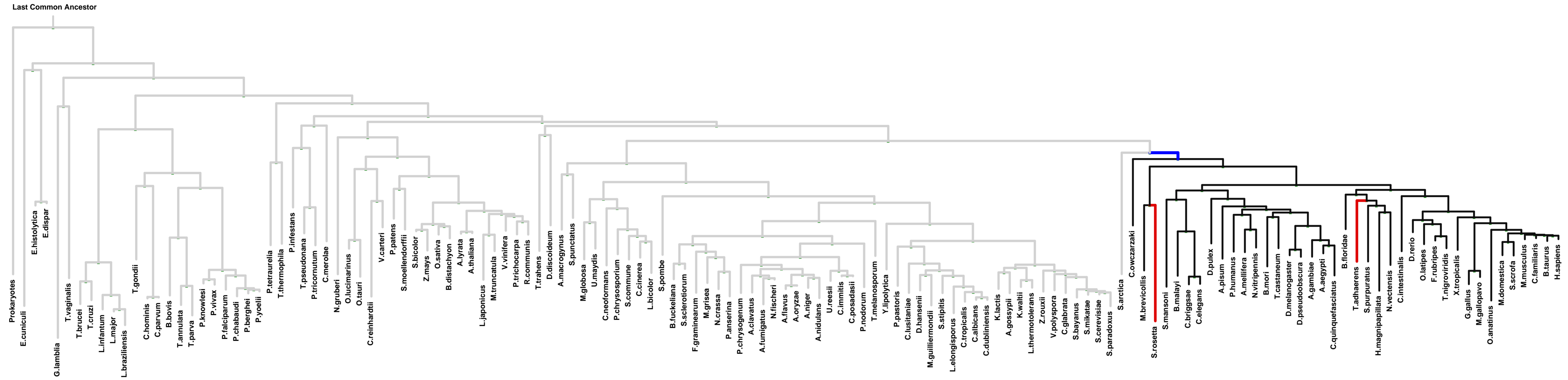
- Top panel shows the inferred evolutionary history on the predefined species tree. Branch color shows the gain event (blue) and loss events (red color, with brighter color indicating higher confidence in loss). Branches before the gain or after a loss are shown in gray.
- Bottom panel shows the input genes that are within the ECM (blue/white rows) as well as all genes in the expanded ECM+ (green/gray rows). The ECM+ includes genes likely to have arisen under the inferred model of evolution relative to a background model, and scored using a log likelihood ratio (LLR).
- PG indicates "paralog group" and are labeled alphabetically (i.e., A, B). The first gene within each paralog group is shown in black color. All other genes sharing sequence similarity (BLAST $E < 1e-3$) are assigned to the same PG label and displayed in gray.

Overview of Evolutionarily Conserved Modules (ECMs)



ECM 1, Gene set "integral to synaptic vesicle membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 46

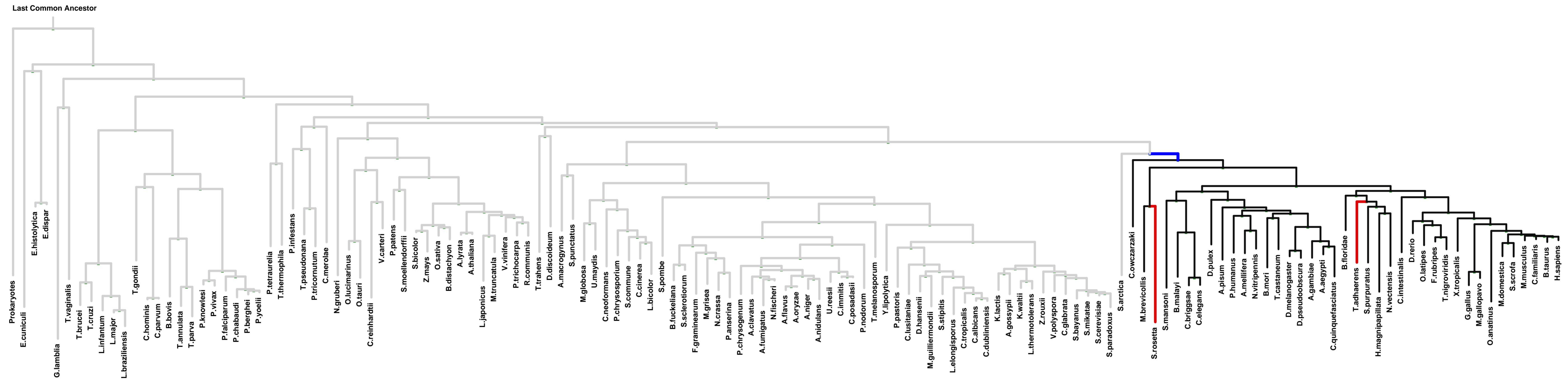


PG	Protein	Protists	Plants	Fungi	Metazoa	LLR	Notes
A	GABRA2					11.1	1/2/3/4
A	CHRNA6					11.1	4/5
A	GABRA1					11.1	2/4
A	GABRA3					11.1	2/4
A	GABRA4					11.1	2/4
A	GABRA5					11.1	
A	GABRA6					11.1	2/4/6/7/8/9/10
A	GABRE					11.1	2/4
A	GABRG1					11.1	2/4
A	GABRG2					11.1	2/4/11
A	GABRG3					11.1	2/4
A	GABRP					11.1	2/4
A	GABRQ					11.1	2/4
A	GABRR1					11.1	2/4
A	GABRR3					11.1	2/4
A	GLRB					11.1	2/4
A	HTR3A					11.1	4
A	DGCR8					6.0	12
A	SESTD1					3.2	13
A	CHRFAM7A					2.3	4
A	CHRNA7					2.3	4/5
A	CHRNA1					2.3	4/5/14
A	CHRNA3					2.3	4/5
A	CHRNA4					2.3	4/5
A	CHRNA5					2.3	4/5/6/17
A	GLRA1					1.9	2/4/17
A	GLRA2					1.9	2/4
A	GLRA4					1.9	2/4
A	GABRB2					1.9	2/4
A	CHRNA10					1.9	4/5
A	CHRNA2					1.9	2/4
A	CHRNA3					1.9	2/4
A	CHRNA4					1.9	2/4
A	CHRNA5					1.9	2/4
A	CHRNA6					1.9	2/4
A	CHRNA7					1.9	2/4
A	CHRNA8					1.9	2/4
A	CHRNA9					1.9	2/4
A	CHRNA10					1.9	2/4
A	CHRNA11					1.9	2/4
A	CHRNA12					1.9	2/4
A	CHRNA13					1.9	2/4
A	CHRNA14					1.9	2/4
A	CHRNA15					1.9	2/4
A	CHRNA16					1.9	2/4
A	CHRNA17					1.9	2/4
A	CHRNA18					1.9	2/4
A	CHRNA19					1.9	2/4
A	CHRNA20					1.9	2/4
A	CHRNA21					1.9	2/4
A	CHRNA22					1.9	2/4
A	CHRNA23					1.9	2/4
A	CHRNA24					1.9	2/4
A	CHRNA25					1.9	2/4
A	CHRNA26					1.9	2/4
A	CHRNA27					1.9	2/4
A	CHRNA28					1.9	2/4
A	CHRNA29					1.9	2/4
A	CHRNA30					1.9	2/4
A	CHRNA31					1.9	2/4
A	CHRNA32					1.9	2/4
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A	CHRNA40					1.9	2/4
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A	CHRNA44					1.9	2/4
A	CHRNA45					1.9	2/4
A	CHRNA46					1.9	2/4
A	CHRNA47					1.9	2/4
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A	CHRNA49					1.9	2/4
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A	CHRNA60					1.9	2/4
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A	CHRNA62					1.9	2/4
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A	CHRNA80					1.9	2/4
A	CHRNA81					1.9	2/4
A	CHRNA82					1.9	2/4
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A	CHRNA86					1.9	2/4
A	CHRNA87					1.9	2/4
A	CHRNA88					1.9	2/4
A	CHRNA89					1.9	2/4
A	CHRNA90					1.9	2/4
A	CHRNA91					1.9	2/4
A	CHRNA92					1.9	2/4
A	CHRNA93					1.9	2/4
A	CHRNA94					1.9	2/4
A	CHRNA95					1.9	2/4
A	CHRNA96					1.9	2/4
A	CHRNA97					1.9	2/4
A	CHRNA98					1.9	2/4
A	CHRNA99					1.9	2/4
A	CHRNA100					1.9	2/4

1: axon || 2: chloride channel complex || 3: integral to synaptic vesicle membrane || 4: postsynaptic membrane || 5: acetylcholine-gated channel complex || 6: dendrite || 7: neuronal cell body membrane || 8: presynaptic membrane || 9: receptor complex || 10: synaptic cleft || 11: dendrite membrane || 12: microtubule cytoskeleton || 13: calcium channel complex || 14: synapse || 15: neuromuscular junction || 16: postsynaptic density || 17: external side of plasma membrane

ECM 1, Gene set "integral to synaptic vesicle membrane", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 46

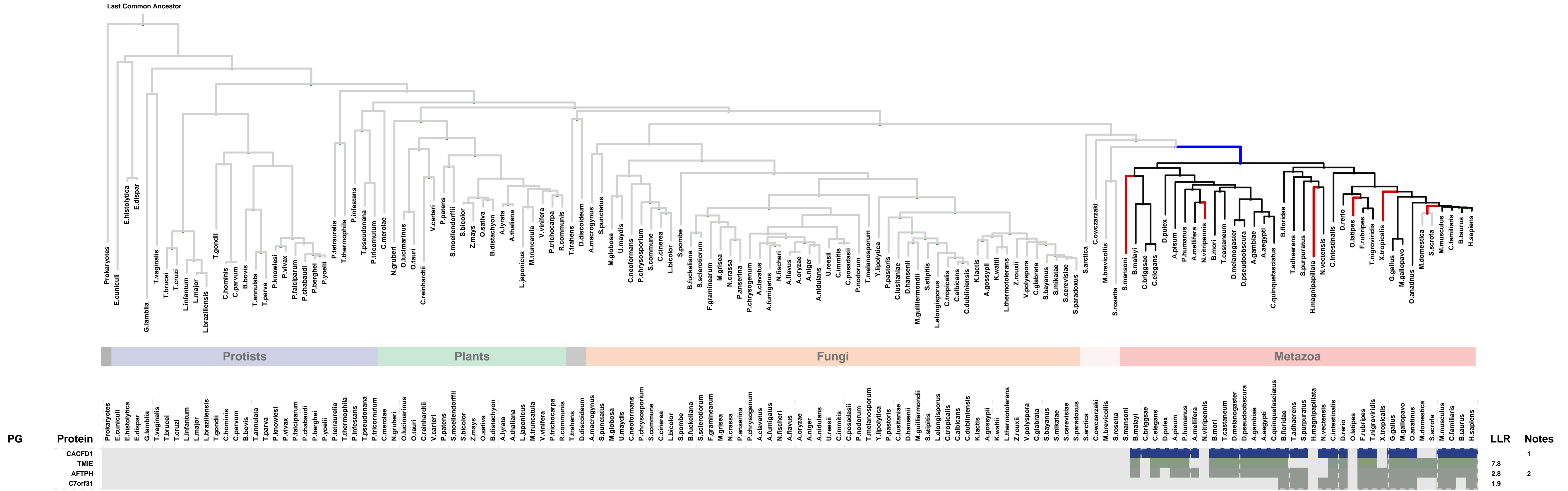
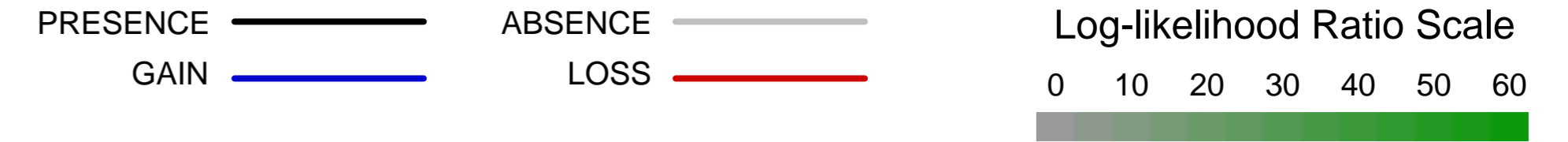


PG	Protein	Protists	Plants	Fungi	Metazoa	LLR	Notes
A	GABRB1					1.9	1/2
A	GABRD					1.9	1/2
B	SHROOM3					1.5	3/4
B	SOCS4					1.5	
B	SOCS5					1.5	
A	NDUFA7					1.1	5
A	HTR3E					1.0	2
A	GABRR2					1.0	1/2
A	HTR3C					1.0	2
C	ST7					1.0	
C	ST7L					1.0	
C	DLGAP5					0.6	6

1: chloride channel complex || 2: postsynaptic membrane || 3: adherens junction || 4: apical junction complex || 5: mitochondrial respiratory chain complex I || 6: spindle pole centrosome

ECM 2, Gene set "integral to synaptic vesicle membrane", Page 1

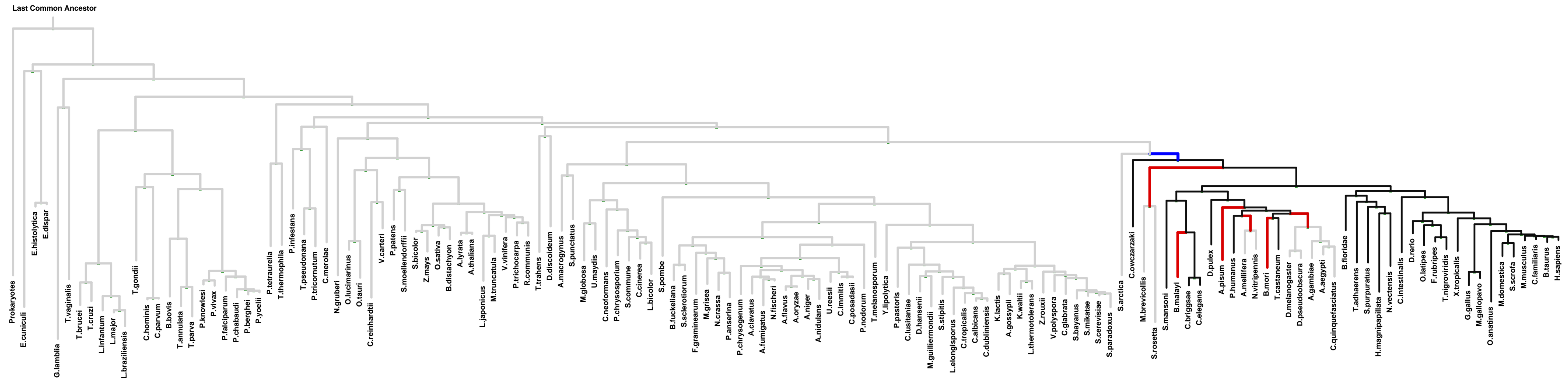
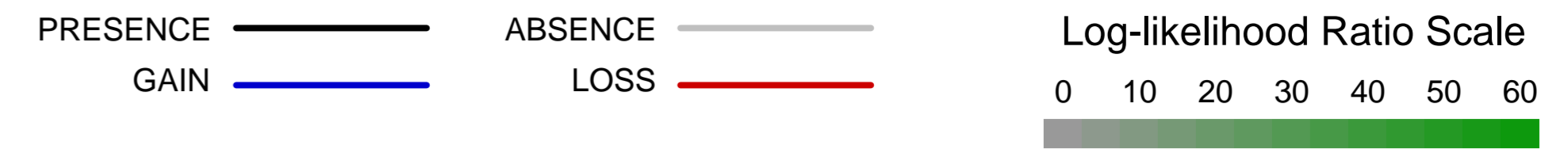
Num of ECM Genes: 1. Num of Predicted Genes: 3



1: integral to synaptic vesicle membrane || 2: AP-1 adaptor complex

ECM 3, Gene set "integral to synaptic vesicle membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 11

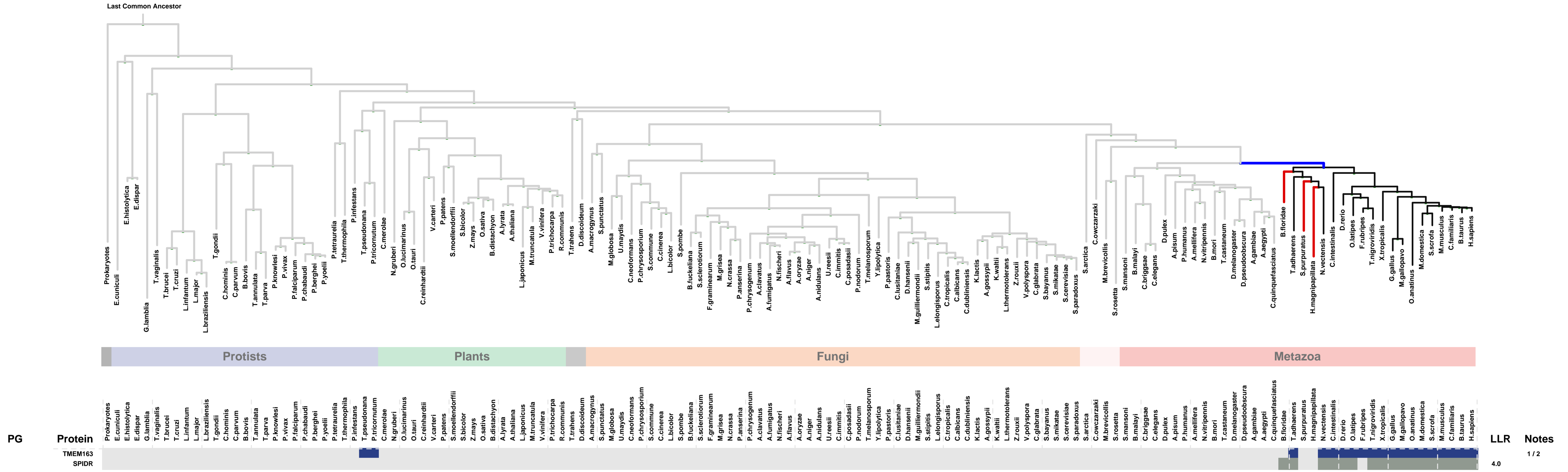


PG	Protein	Prokaryotes	Protists	Plants	Fungi	Metazoa	LLR	Notes
A	SYP							1 / 2 / 3 / 4
A	SYNPR							5 / 6
A	SYPL1							7 / 8 / 9 / 10
A	SYPL2							10
B	OSTM1							10.4
B	FOLR1							6.5
B	FOLR2							6.5
B	FOLR3							6.5
B	FOLR4							6.5
	PROM2							3.9
	GNG8							2.6
	C1orf50							0.2

1: integral to synaptic vesicle membrane || 2: neuron projection terminus || 3: presynaptic active zone || 4: presynaptic membrane || 5: neuron projection || 6: synaptic vesicle membrane || 7: cytoplasmic vesicle membrane || 8: melanosome || 9: secretory granule || 10: synaptic vesicle || 11: lysosomal membrane || 12: anchored to membrane || 13: extrinsic to membrane || 14: basolateral plasma membrane || 15: cilium membrane || 16: microvillus membrane || 17: heterotrimeric G-protein complex

ECM 4, Gene set "integral to synaptic vesicle membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 1



1: early endosome membrane || 2: integral to synaptic vesicle membrane