

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:

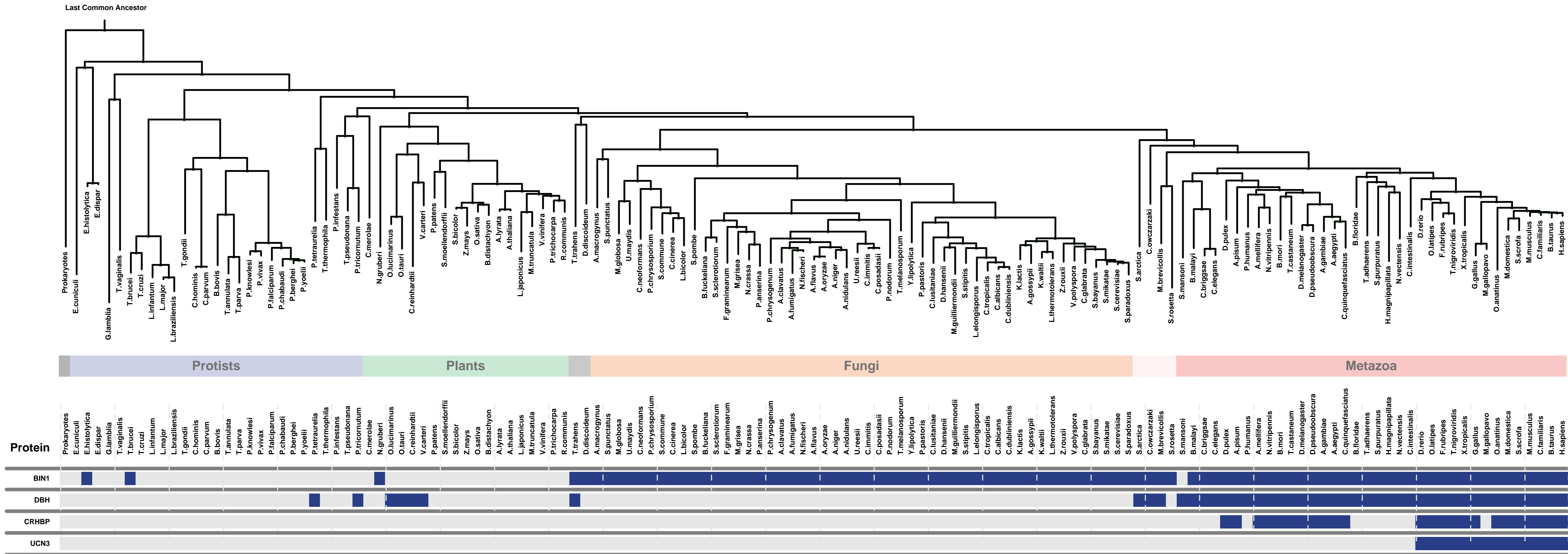
1) Overview of Evolutionarily Conserved Modules (ECMs)

- 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)



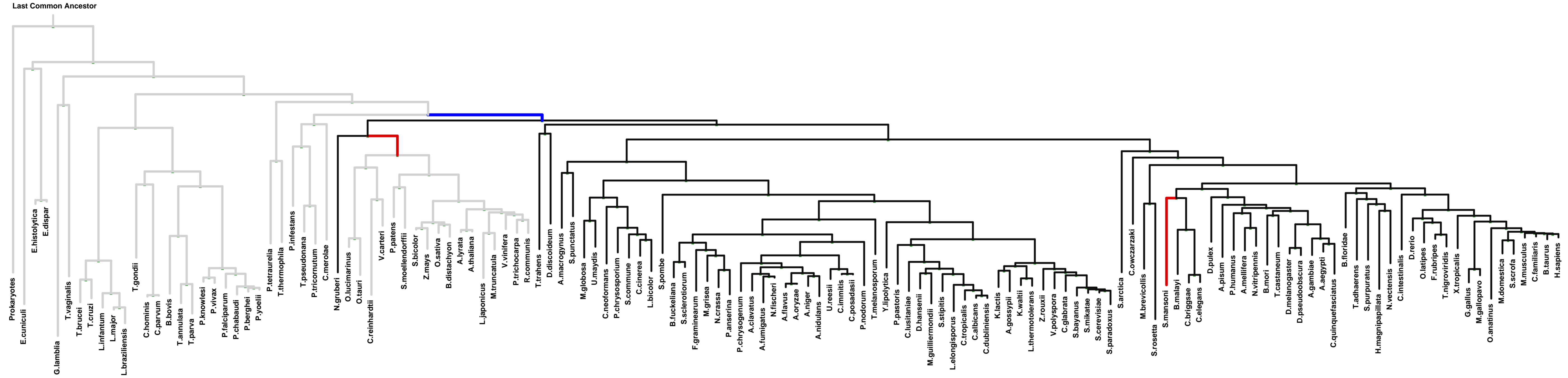
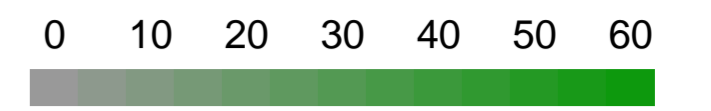
ECM 1, Gene set "varicosity", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 2

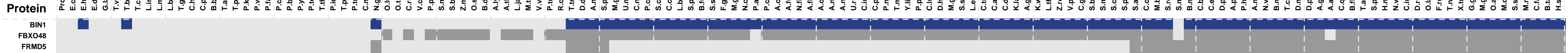
PRESENCE ———
GAIN ———

ABSENCE ———
LOSS ———

Log-likelihood Ratio Scale



PG



LLR

Notes

1.2
0.3

1/2/3/4/5
6

1: actin cytoskeleton || 2: axon terminus || 3: cerebellar mossy fiber || 4: synaptic vesicle || 5: varicosity || 6: extrinsic to membrane

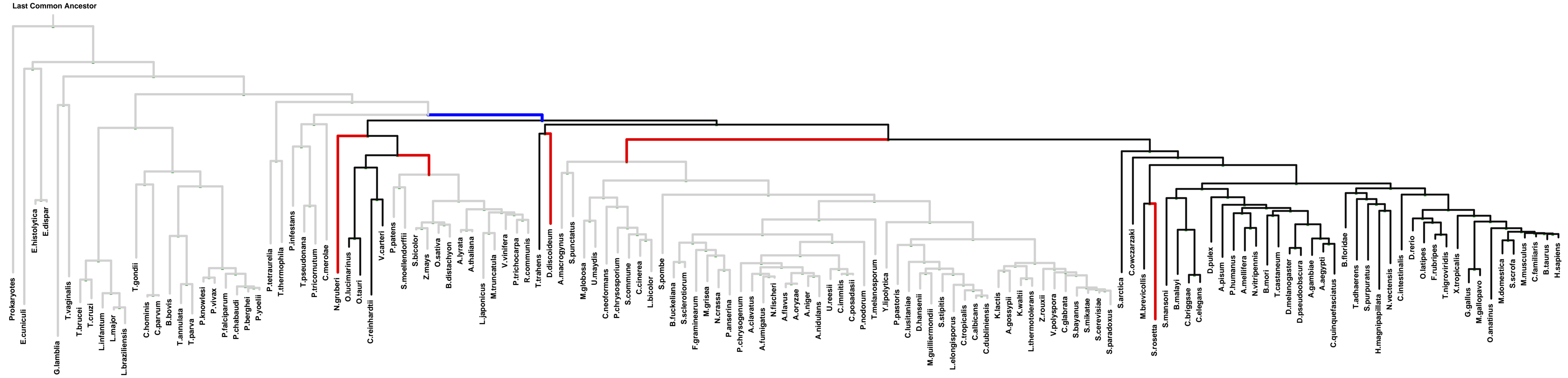
ECM 2, Gene set "varicosity", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 6

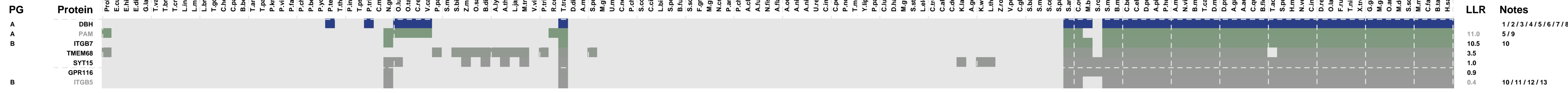
PRESENCE ———— ABSENCE ————
GAIN ———— LOSS ————

Log-likelihood Ratio Scale

0 10 20 30 40 50 60



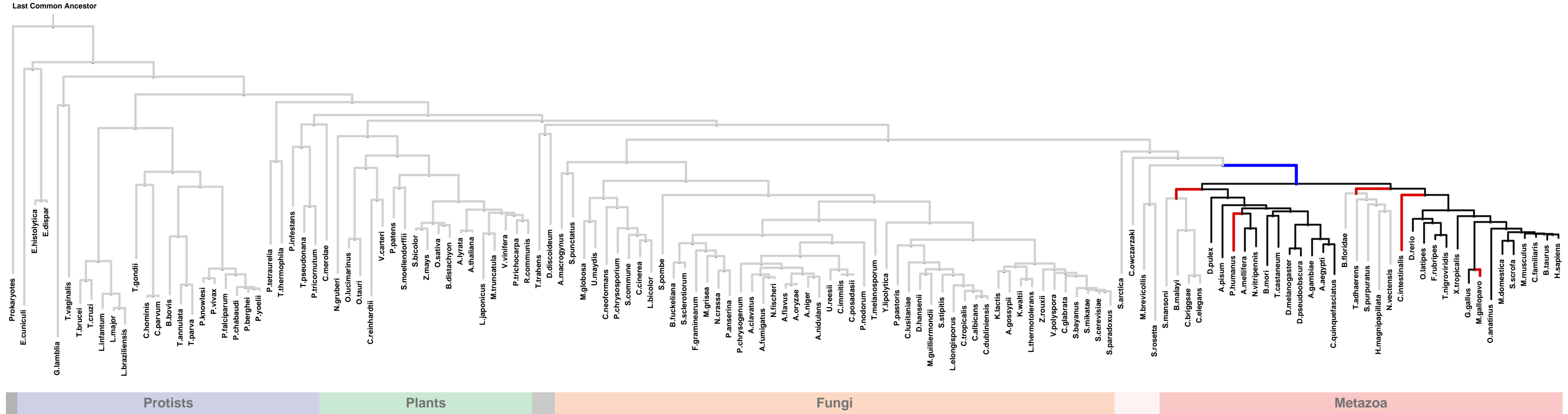
Protists Plants Fungi Metazoa



1: apical part of cell || 2: chromaffin granule || 3: chromaffin granule membrane || 4: dendrite || 5: secretory granule || 6: terminal button || 7: transport vesicle membrane || 8: varicosity || 9: perikaryon || 10: integrin complex || 11: cell leading edge || 12: focal adhesion || 13: phagocytic vesicle

ECM 3, Gene set "varicosity", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 53

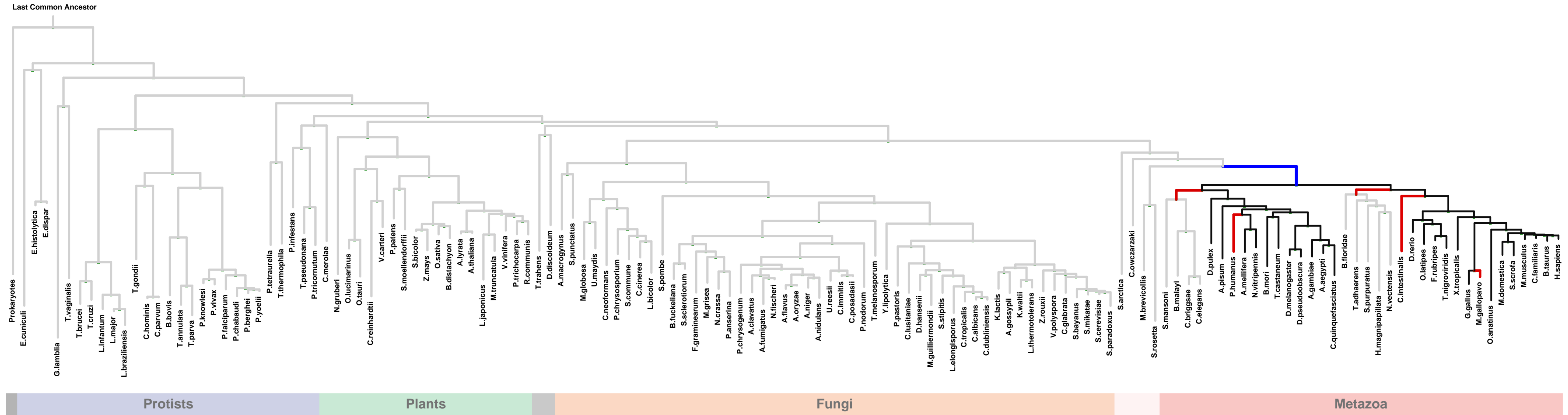


PG	Protein	Protists	Plants	Fungi	Metazoa	LLR	Notes
	CRHBP					11.8	1/2/3/4/5/6/7
	C9orf16					11.0	
	FAM162B					10.5	8
	UQCR11					9.3	
	HAVCR2					8.4	
	TMEM130					8.3	
	ARL6IP6					7.2	
	CIDEB					7.1	
	MANBAL					6.8	9
	NDUFB1					5.9	10/11
	ATN1					5.4	
	CCDC64B					5.0	
	C10orf32					4.8	
	NCKAP5L					4.8	
A	NCKAP5					4.8	
	PKIB					4.8	
	SAMSN1					4.6	12
	TMEM173					4.5	13
B	GADD45A					4.5	
B	GADD45B					4.5	
C	LYPD6B					4.2	14
	LYPD6					4.2	
	C1orf43					3.4	
	COX6C					3.4	
	C2orf42					3.2	
	USMG5					3.0	15
	SDC3					2.9	16/17/18
	LOC646644					2.8	
	FAM122C					2.6	
	SPATA2L					2.2	
	ICAM1					2.2	19/20
	TESPA1					2.1	21
	ATF4					2.1	22
	NDUFB11					2.1	9
	CD4					2.0	19/23/24/25/26

1: axon terminus || 2: dendrite || 3: dense core granule || 4: multivesicular body || 5: perikaryon || 6: secretory granule || 7: varicosity || 8: respiratory chain || 9: mitochondrial respiratory chain complex I || 10: cell leading edge || 11: nuclear matrix || 12: ruffle || 13: mitochondrial outer membrane || 14: anchored to membrane || 15: mitochondrial proton-transporting ATP synthase complex || 16: axon || 17: Golgi lumen || 18: lysosomal lumen || 19: external side of plasma membrane || 20: immunological synapse || 21: signalosome || 22: microtubule organizing center || 23: early endosome || 24: endoplasmic reticulum lumen || 25: membrane raft || 26: T cell receptor complex

ECM 3, Gene set "varicosity", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 53



PG	Protein	Prokaryotes	Protists	Plants	Fungi	Metazoa	LLR	Notes
	SAYS1						2.0	1
	COA3						1.9	2
	AUTS2						1.9	
D	DDIT4L						1.9	
D	DDIT4						1.9	
	OCIAD2						1.6	3
	BTN3A3						1.6	
	C19orf43						1.4	
E	OR5AP2						1.4	
	RILP						1.3	4/5/6/7/8
	CST6						1.1	9
	CRB3						1.1	10
	RBFA						1.1	
	C22orf39						0.7	
	BCL9						0.6	
E	OR6K6						0.6	
	MMS22L						0.1	11/12/13
	CD79A						0.1	14/15/16/17
	C5orf15						0.0	

1: cytoplasmic vesicle membrane || 2: mitochondrial membrane || 3: endosome || 4: late endosome || 5: late endosome membrane || 6: lysosomal membrane || 7: lysosome || 8: phagocytic vesicle membrane || 9: cornified envelope || 10: tight junction || 11: FACT complex || 12: MCM complex || 13: nuclear replication fork || 14: B cell receptor complex || 15: external side of plasma membrane || 16: membrane raft || 17: multivesicular body

ECM 4, Gene set "varicosity", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 0

PRESENCE ——— ABSENCE ———
GAIN ——— LOSS ———

Log-likelihood Ratio Scale

0 10 20 30 40 50 60

