

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

## Dataset:

Num of genes in input gene set: 6  
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  $E < 1e-3$ ).

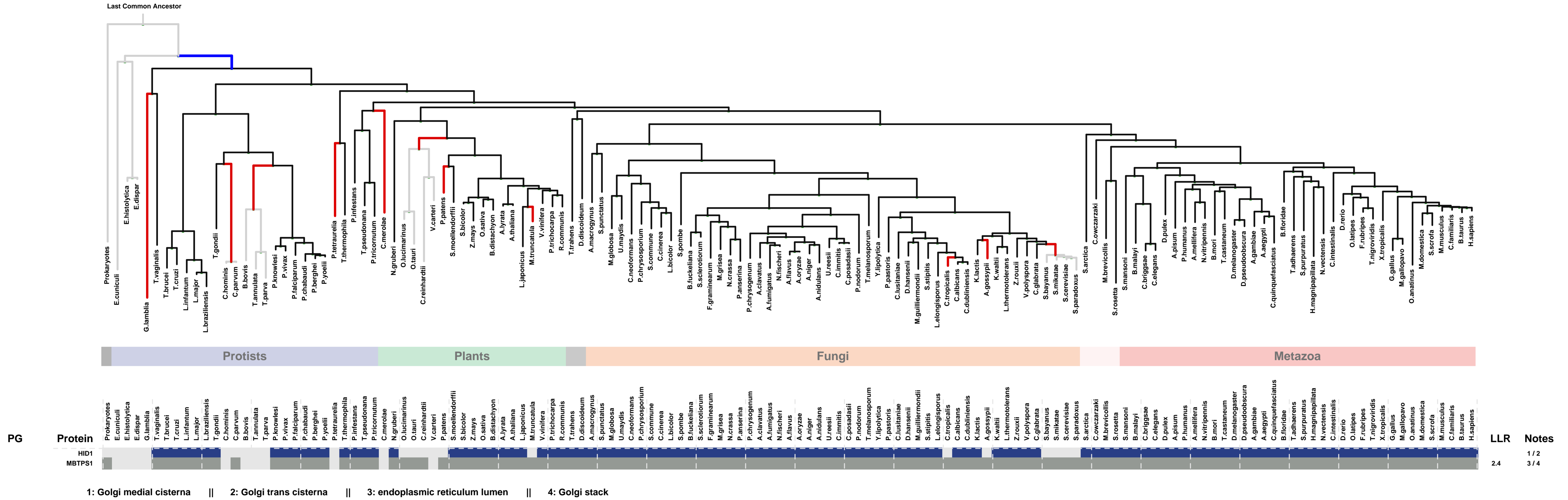
### 2) Details of each ECM and its expansion ECM+

- 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.



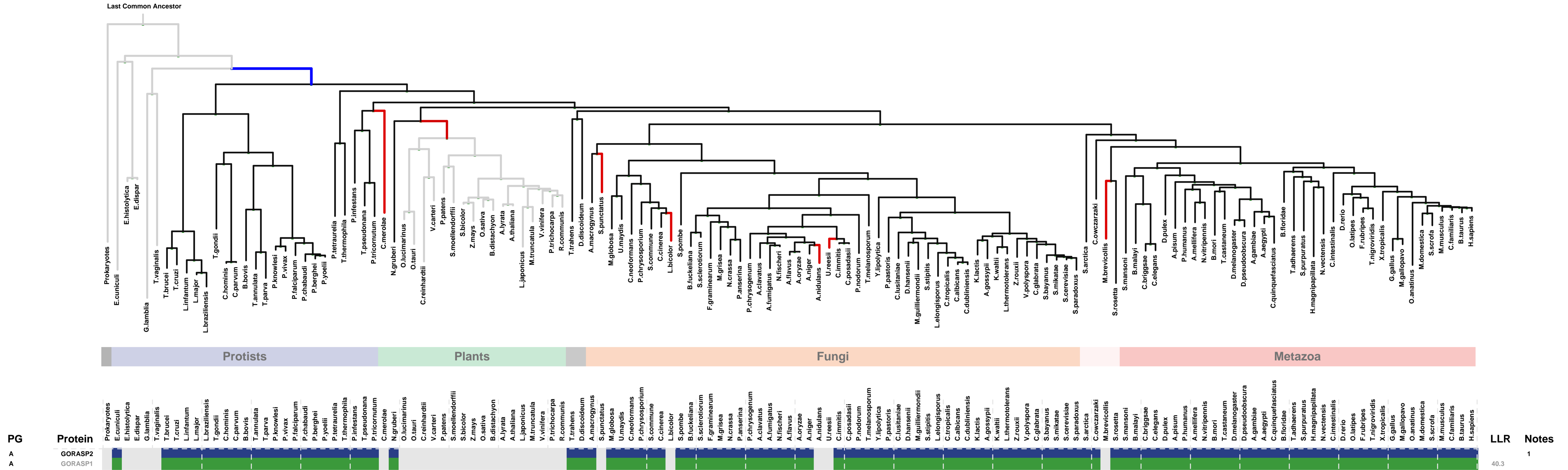
ECM 1, Gene set "Golgi medial cisterna", Page 1

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



ECM 2, Gene set "Golgi medial cisterna", Page 1

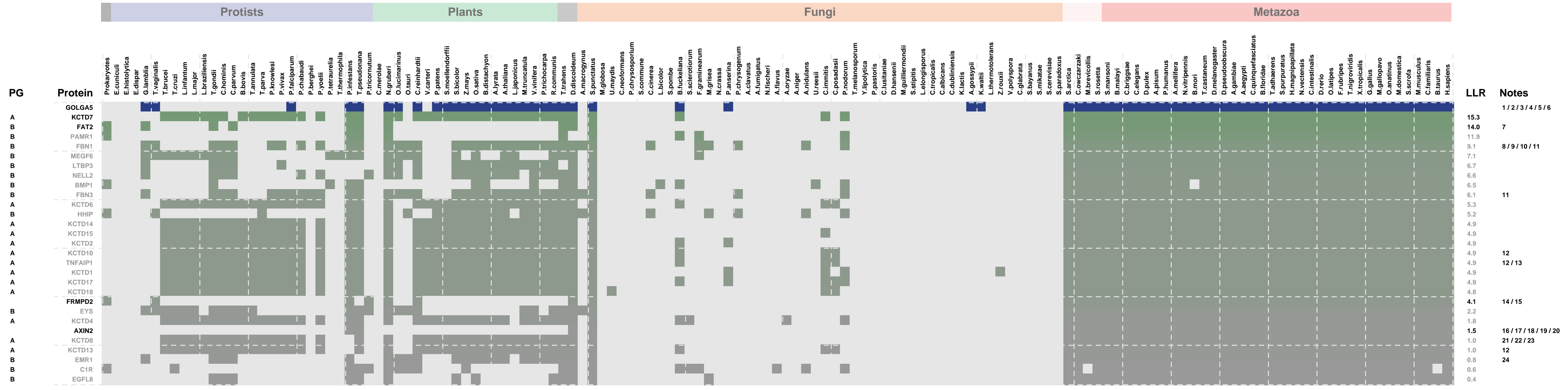
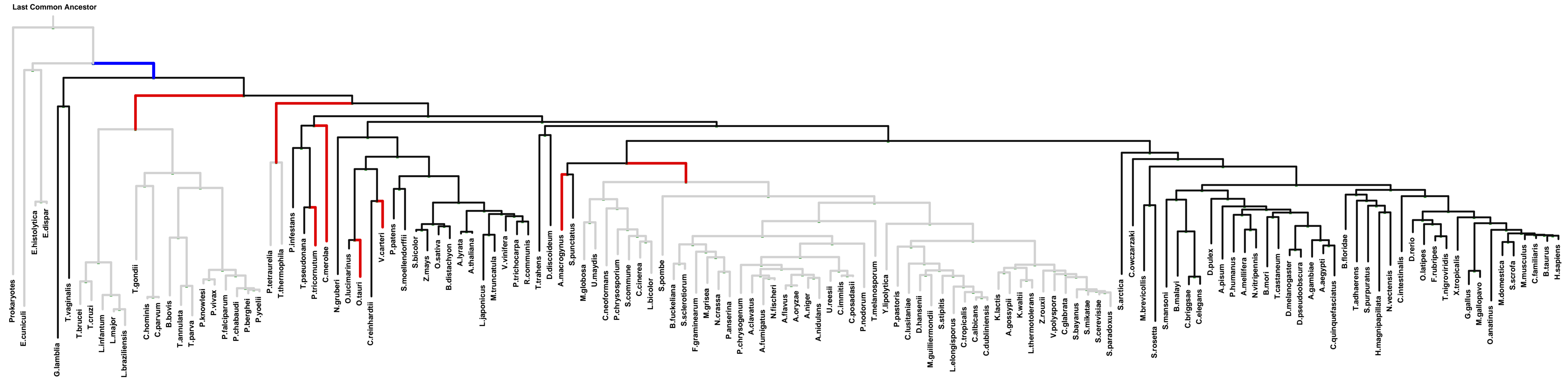
Num of ECM Genes: 1. Num of Predicted Genes: 1



1: Golgi medial cisterna

ECM 3, Gene set "Golgi medial cisterna", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 28



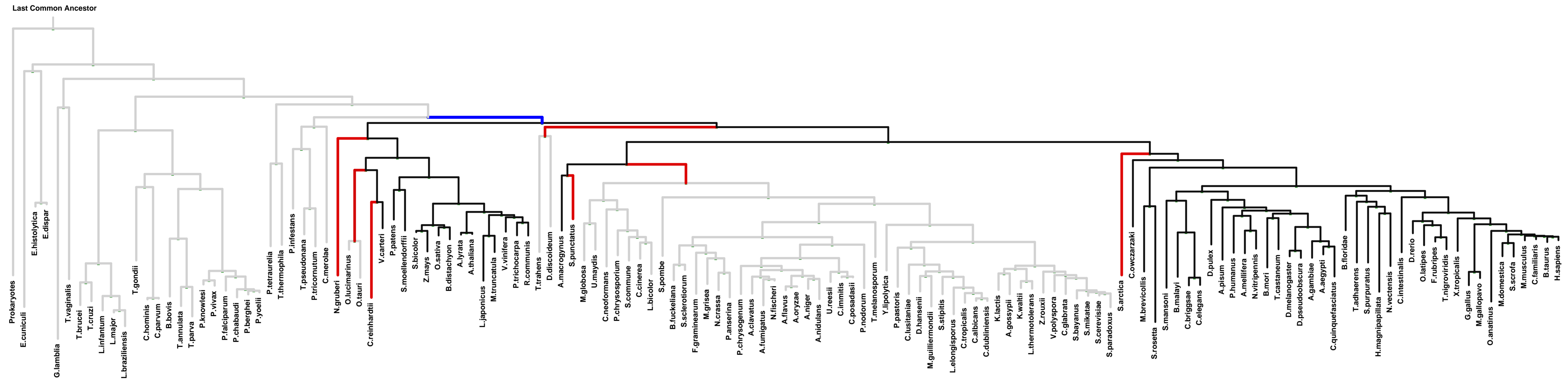
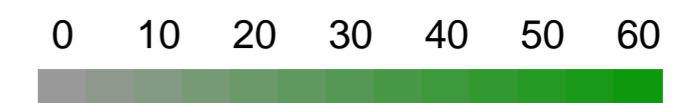
1: cis-Golgi network || 2: COPI-coated vesicle membrane || 3: Golgi cis cisterna || 4: Golgi cisterna || 5: Golgi medial cisterna || 6: Golgi trans cisterna || 7: cell-cell adherens junction || 8: basement membrane || 9: extracellular matrix || 10: microfibril || 11: proteinaceous extracellular matrix || 12: Cul3-RING ubiquitin ligase complex || 13: endosome || 14: basolateral plasma membrane || 15: tight junction || 16: beta-catenin destruction complex || 17: cell cortex || 18: cytoplasmic membrane-bounded vesicle || 19: cytoplasmic microtubule || 20: postsynaptic density || 21: postsynaptic membrane || 22: presynaptic membrane || 23: receptor complex || 24: external side of plasma membrane

# ECM 4, Gene set "Golgi medial cisterna", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 39

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

Log-likelihood Ratio Scale



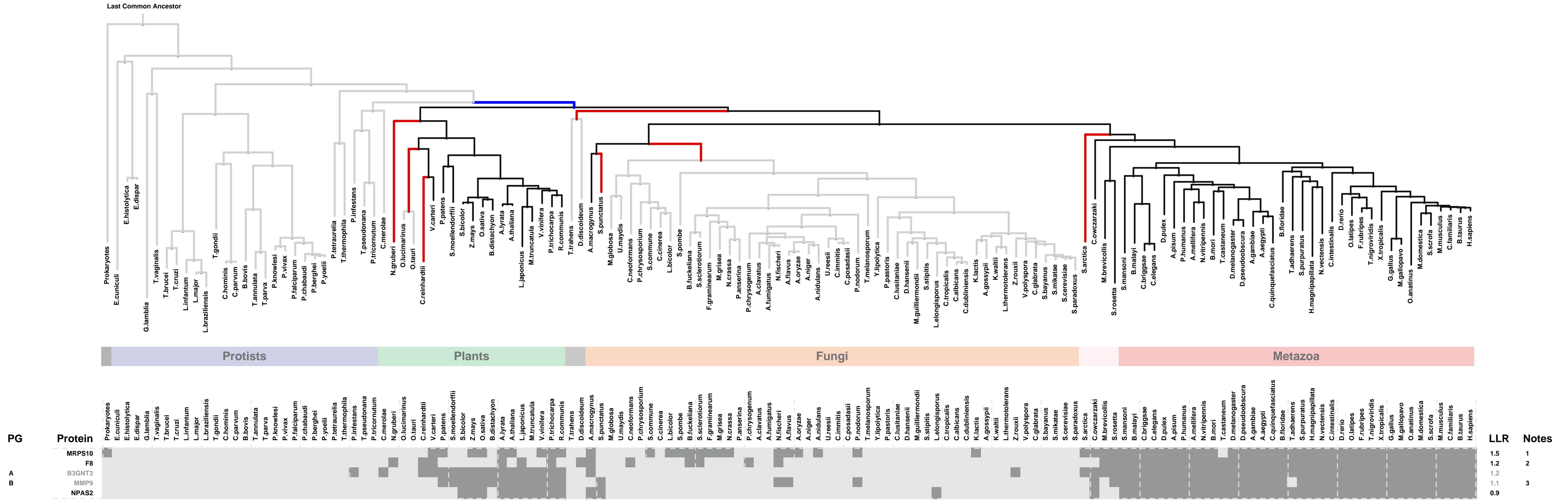
Protists Plants Fungi Metazoa

PG	Protein	Prokaryotes	Protists	Plants	Fungi	Metazoa	LLR	Notes
A	B3GALT6						14.2	1 / 2
A	ERLIN2						10.4	
A	B3GALT2						9.9	3
B	MMP1						9.9	3 / 4
B	MMP16						9.9	3
B	MMP12						9.9	3 / 5
B	MMP25						9.9	3
B	MMP27						9.9	3
A	B3GNT9						9.7	
B	MMP14						8.9	4 / 6 / 7
B	MMP15						8.6	6
A	B3GALNT2						6.8	
B	MMP23B						5.4	3
B	MMP7						5.4	3
B	MMP26						5.4	3
	CLASRP						4.5	
	AKAP17A						3.0	8 / 9
C	WASF1						2.5	10 / 11 / 12
D	B3GAT3						2.2	13
D	B3GAT1						2.2	
D	B3GAT2						2.2	
	TMEM14C						2.2	14
C	WASF2						2.0	10 / 11 / 15 / 16
	MRPL18						1.9	17
B	MMP21						1.7	6
B	MMP8						1.7	3
B	MMP20						1.7	3
B	MMP3						1.7	3 / 18 / 19
B	MMP10						1.7	3
B	MMP13						1.7	20 / 21 / 22
B	MMP24						1.7	3
B	MMP17						1.7	3 / 5
B	MMP19						1.7	3
B	MMP11						1.7	3 / 4
	RBPJL						1.5	

1: Golgi cisterna membrane || 2: Golgi medial cisterna || 3: proteinaceous extracellular matrix || 4: Golgi lumen || 5: anchored to membrane || 6: extracellular matrix || 7: melanosome || 8: nuclear speck || 9: spliceosomal complex || 10: actin cytoskeleton || 11: lamellipodium || 12: mitochondrial outer membrane || 13: cis-Golgi network || 14: mitochondrial membrane || 15: early endosome || 16: ruffle || 17: mitochondrial ribosome || 18: cell body || 19: dendrite || 20: fibrillar collagen || 21: intercellular canaliculus || 22: lysosome

ECM 4, Gene set "Golgi medial cisterna", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 39

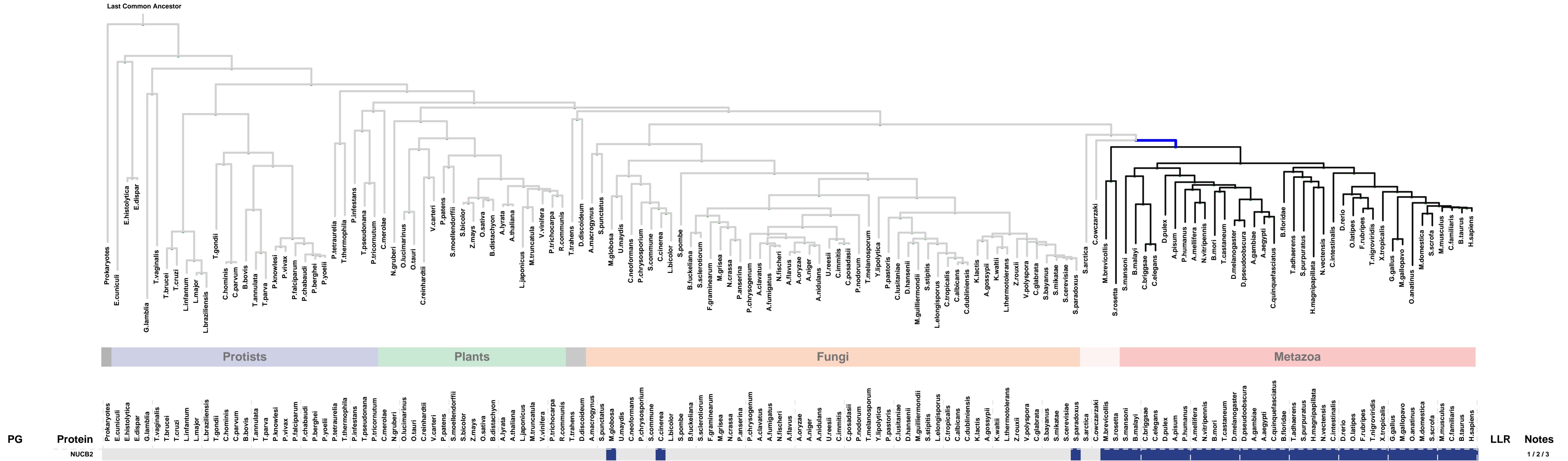
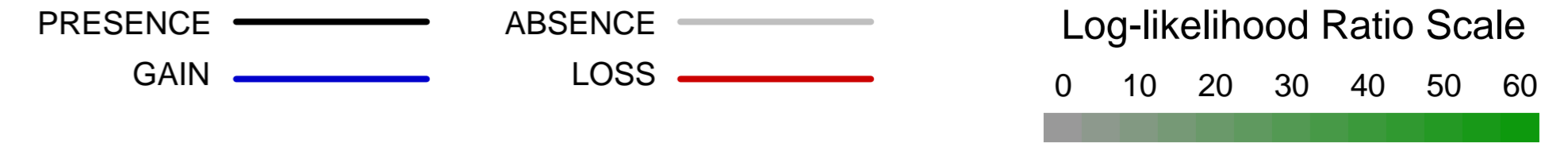


PG	Protein	Prokaryotes	Protists	Plants	Fungi	Metazoa	LLR	Notes
A	MRPS10						1.5	1
A	F8						1.2	2
B	B3GNT3						1.2	
B	MMP9						1.1	3
B	NPAS2						0.9	

1: ribosome || 2: platelet alpha granule lumen || 3: proteinaceous extracellular matrix

ECM 5, Gene set "Golgi medial cisterna", Page 1

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



1: endoplasmic reticulum-Golgi intermediate compartment || 2: Golgi medial cisterna || 3: nuclear outer membrane



ECM 6, Gene set "Golgi medial cisterna", Page 1

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

