

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

Dataset:

Num of genes in input gene set: 10
Total number of genes: 20834
Prediction LLR threshold: 0

The CLIME PDF output two sections:

1) Overview of Evolutionarily Conserved Modules (ECMs)

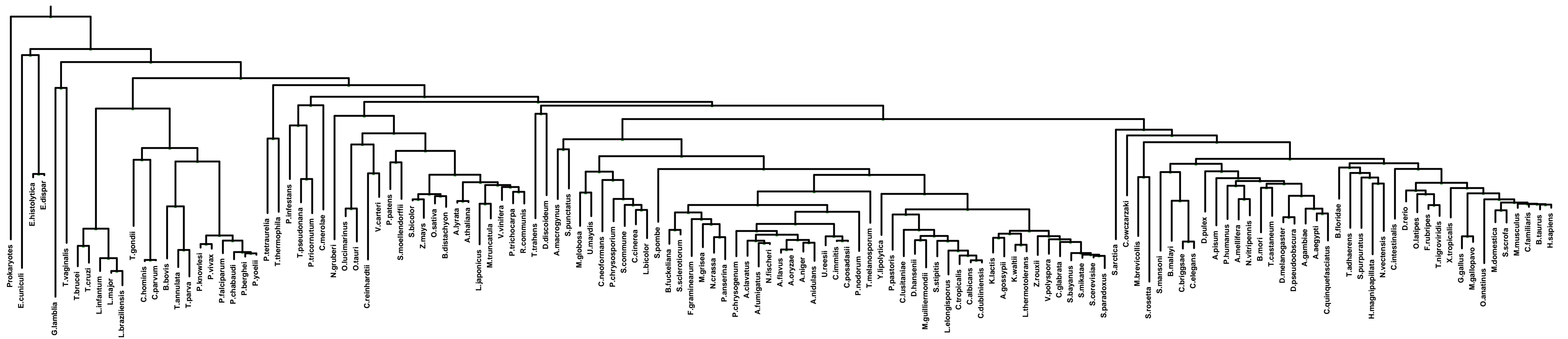
- Top panel shows the predefined species tree.
- Bottom panel shows the partition of input genes into Evolutionary Conserved Modules (ECMs), ordered by ECM strength (shown at right), and separated by horizontal lines.
- Each row show one gene, where the phylogenetic profile indicates presence (blue) 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)

Last Common Ancestor



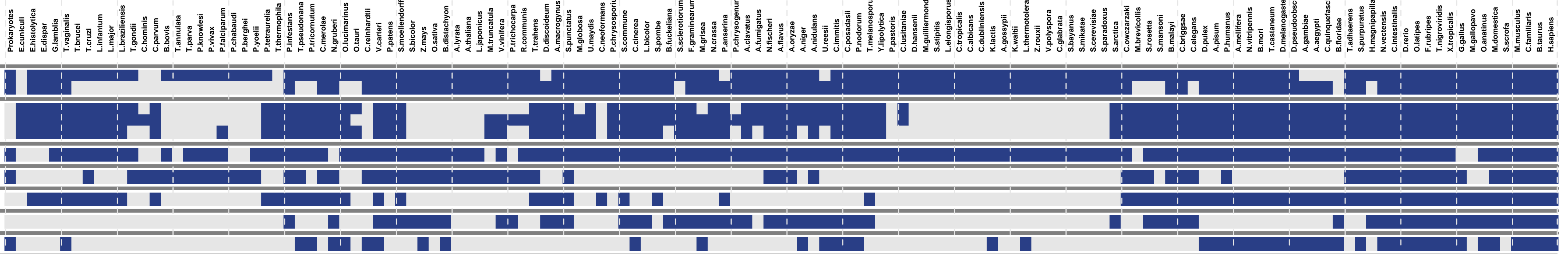
Protists

Plants

Fungi

Metazoa

Protein



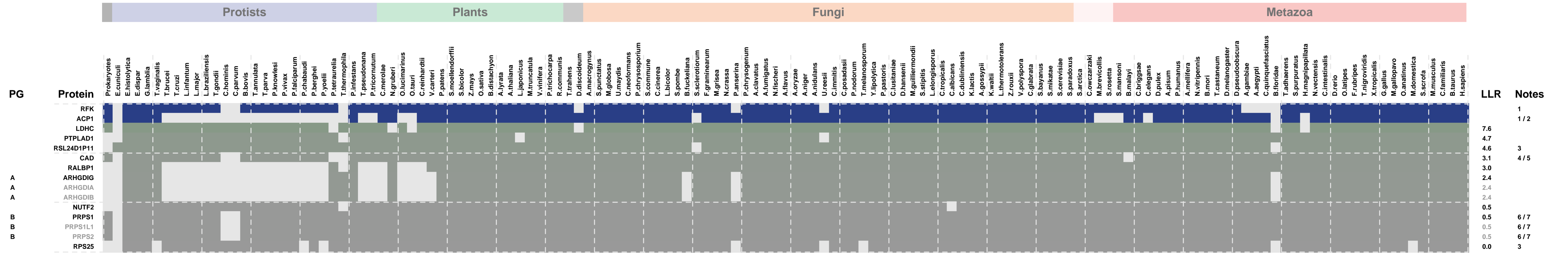
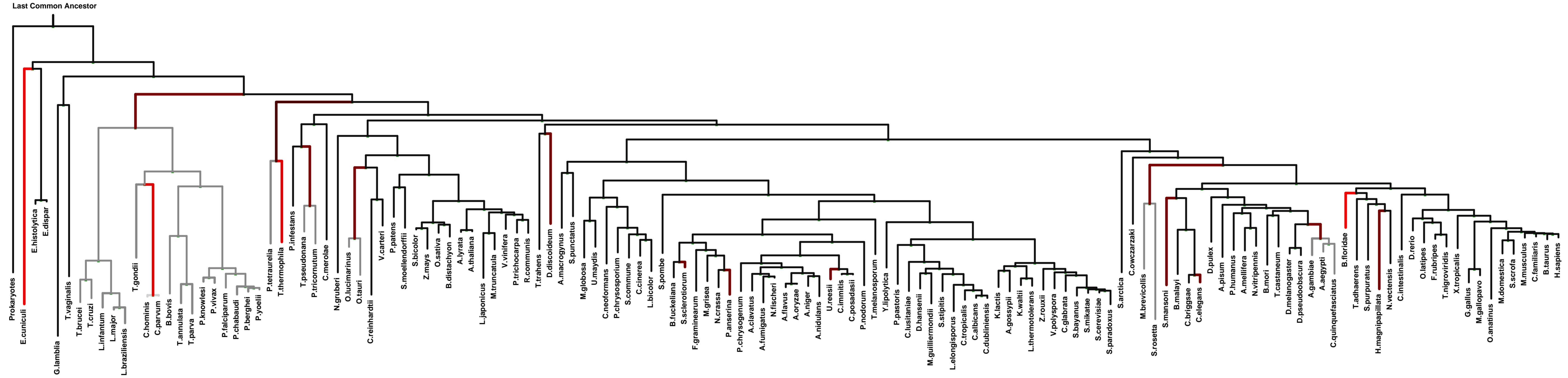
Strength

0.0

8.9

ECM 1, Gene set "Riboflavin metabolism", Page 1

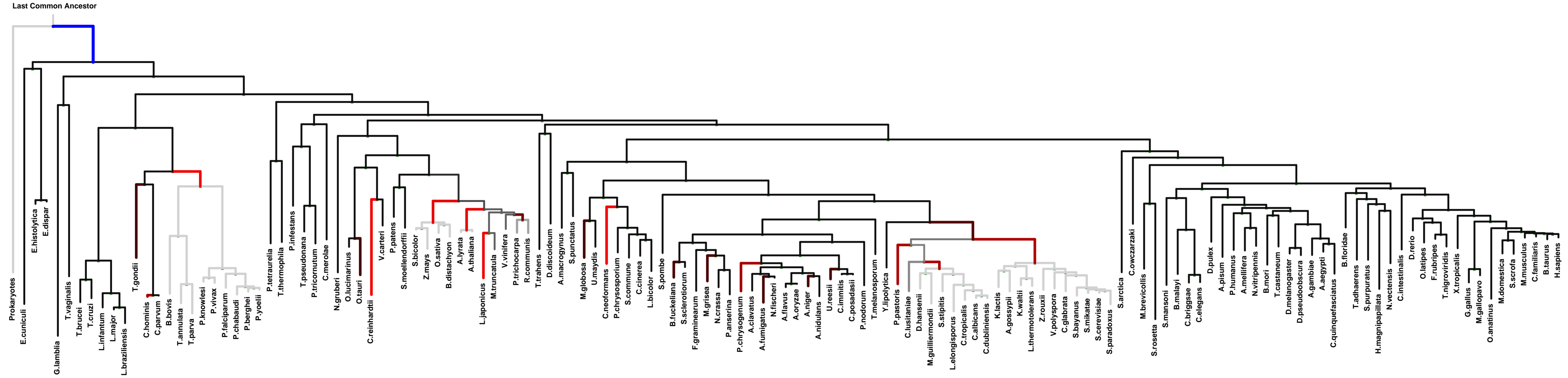
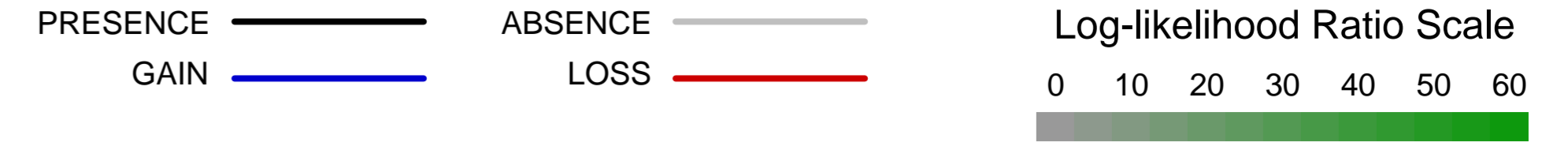
Num of ECM Genes: 2. Num of Predicted Genes: 13. ECM Strength: 0.0



1: Riboflavin metabolism || 2: Adherens junction || 3: Ribosome || 4: Alanine, aspartate and glutamate metabolism || 5: Pyrimidine metabolism || 6: Purine metabolism || 7: Pentose phosphate pathway

ECM 2, Gene set "Riboflavin metabolism", Page 1

Num of ECM Genes: 3. Num of Predicted Genes: 2. ECM Strength: 8.9



Protists

Plants

Fungi

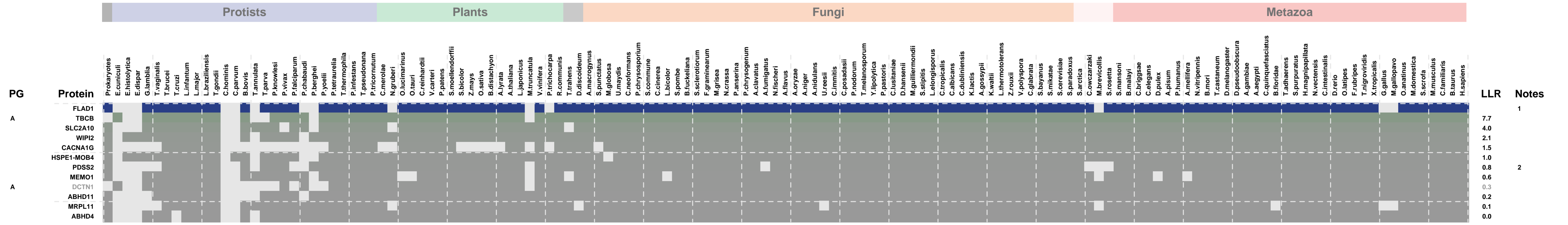
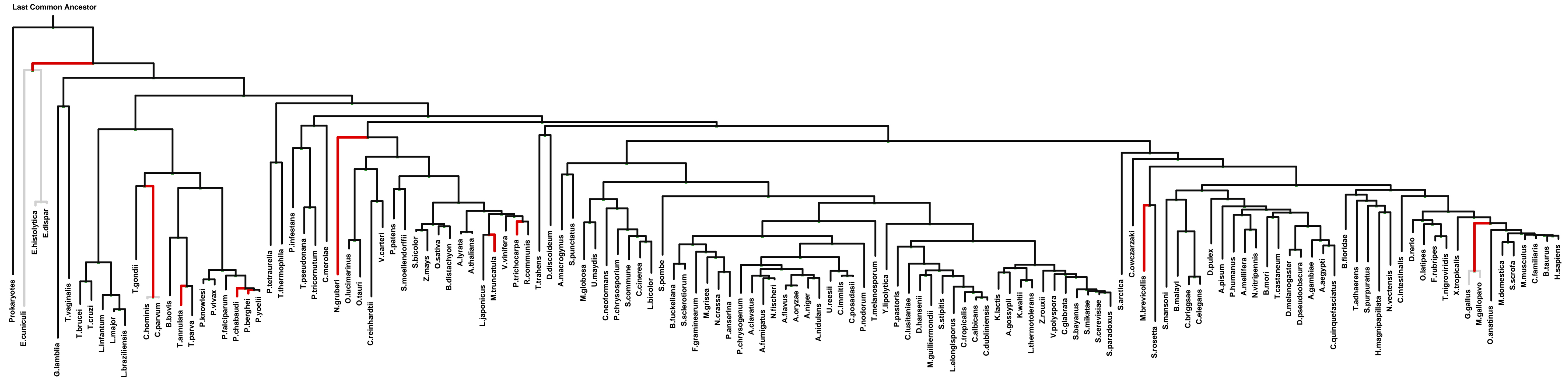
Metazoa

PG	Protein	Prokaryotes	Protists	Plants	Fungi	Metazoa	LLR	Notes
A	ACPT	█	█	█	█	█	1	
A	ACP6	█	█	█	█	█	1	
A	ACPP	█	█	█	█	█	1	
A	ACPL2	█	█	█	█	█	20.1	
A	ACP2	█	█	█	█	█	4.1	1/2

1: Riboflavin metabolism || 2: Lysosome

ECM 3, Gene set "Riboflavin metabolism", Page 1

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

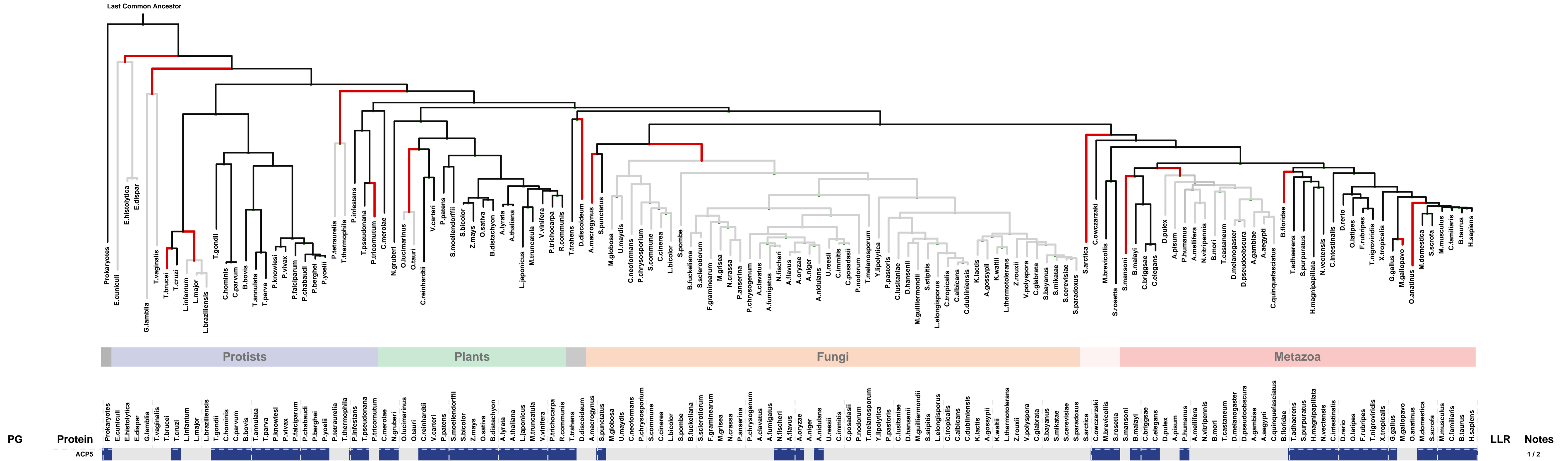
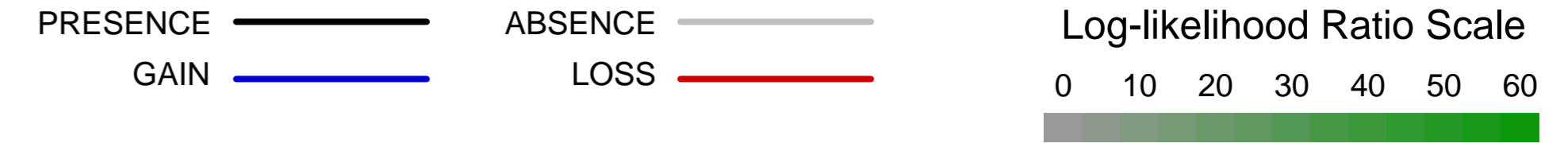


1: Riboflavin metabolism || 2: Terpenoid backbone biosynthesis

Gene	LLR	Notes
FLAD1	7.7	1
TBCB	4.0	
SLC2A10	2.1	
WIPI2	1.5	
CACNA1G	1.0	
HSPE1-MOB4	0.8	2
PDSS2	0.6	
MEMO1	0.3	
DCTN1	0.6	
ABHD11	0.2	
MRPL11	0.1	
ABHD4	0.0	

ECM 4, Gene set "Riboflavin metabolism", Page 1

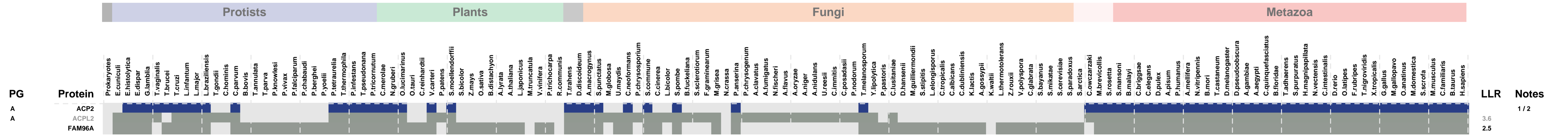
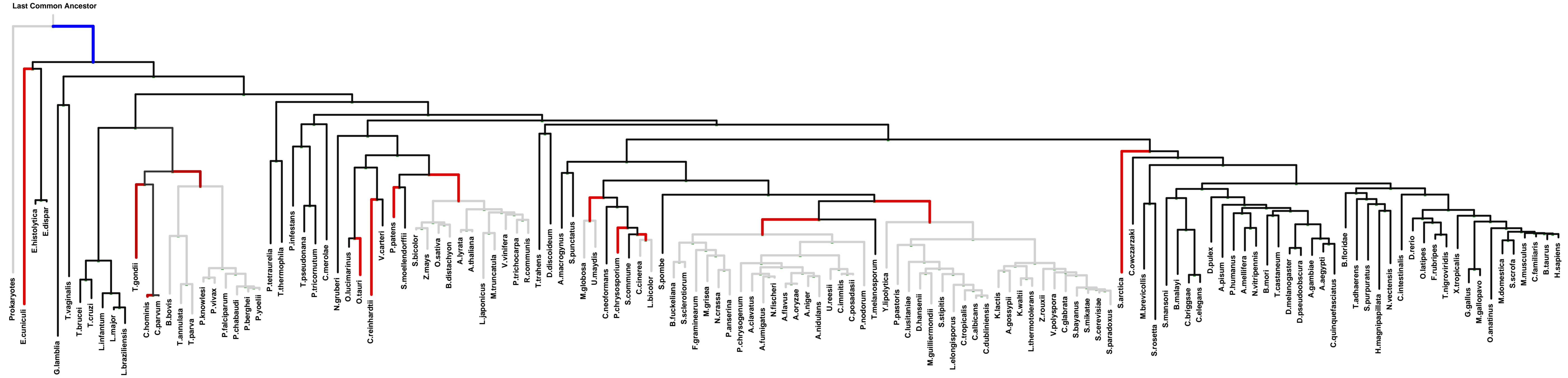
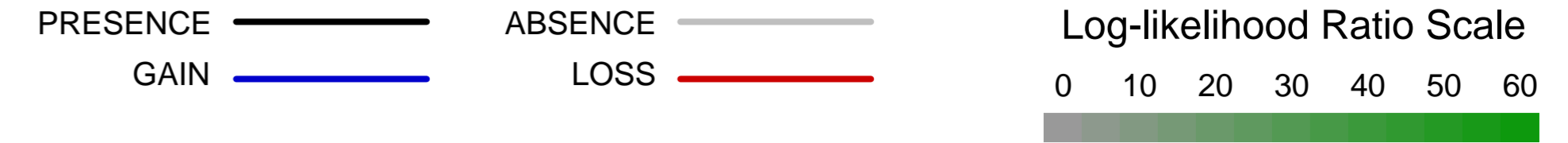
Num of ECM Genes: 1. Num of Predicted Genes: 0



1: Lysosome || 2: Riboflavin metabolism

ECM 5, Gene set "Riboflavin metabolism", Page 1

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



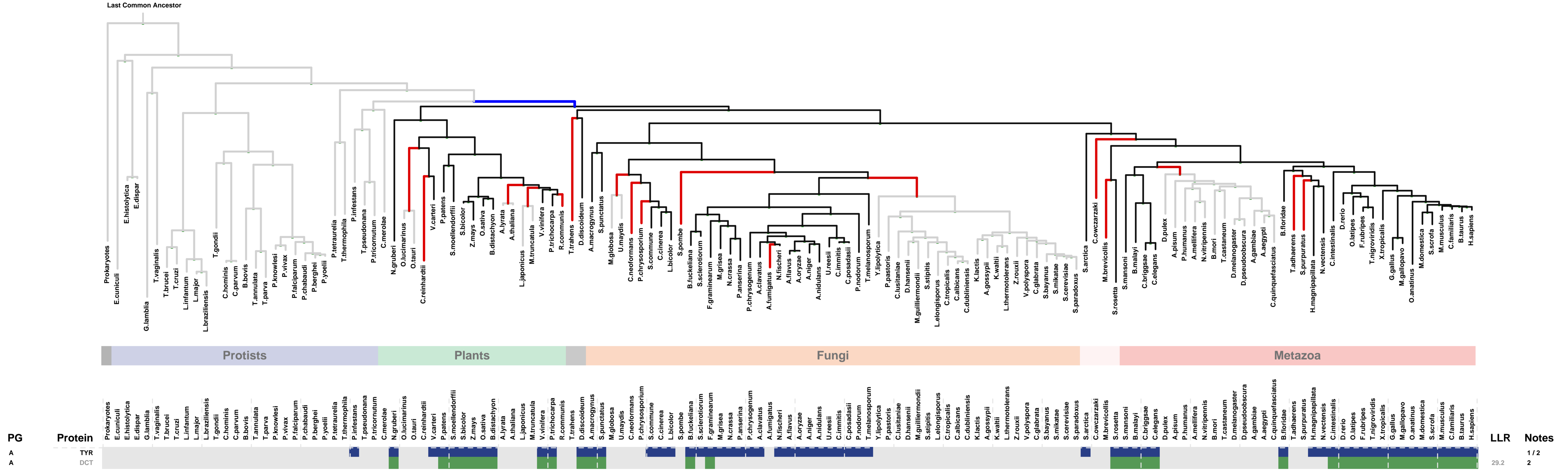
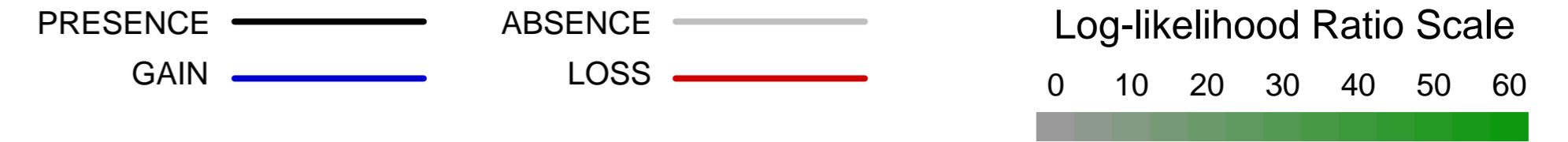
PG
A
A

Protein	Prokaryotes	Protists	Plants	Fungi	Metazoa	LLR	Notes
ACP2	Present	Absent	Absent	Absent	Absent	3.6	1/2
ACPL2	Absent	Absent	Absent	Absent	Absent		
FAM96A	Absent	Absent	Absent	Absent	Absent	2.5	

1: Lysosome || 2: Riboflavin metabolism

ECM 6, Gene set "Riboflavin metabolism", Page 1

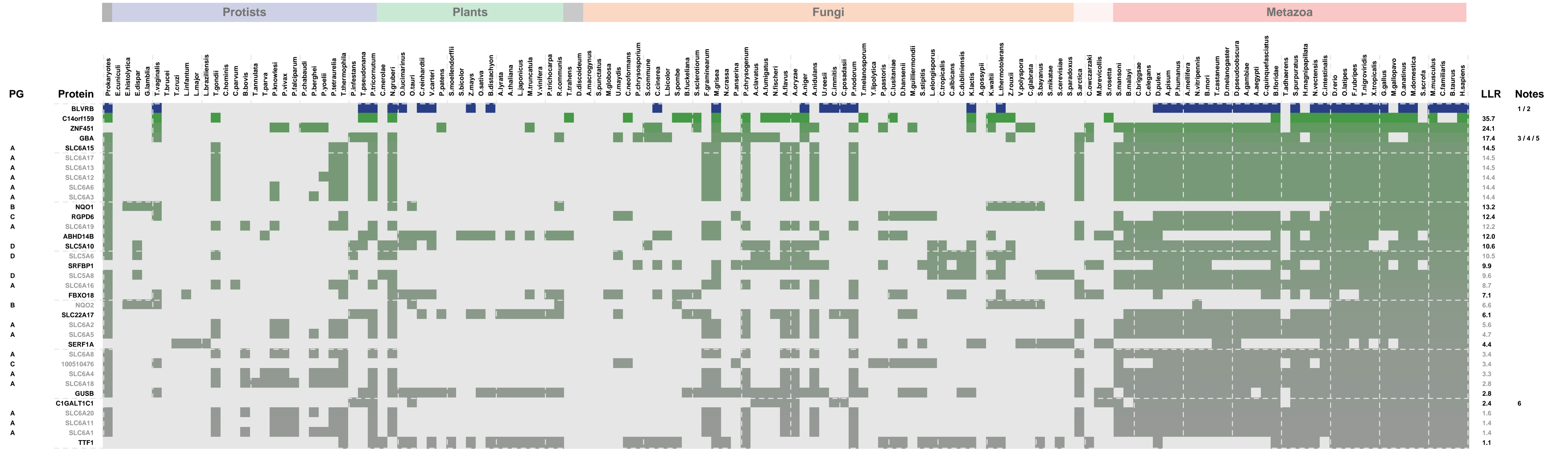
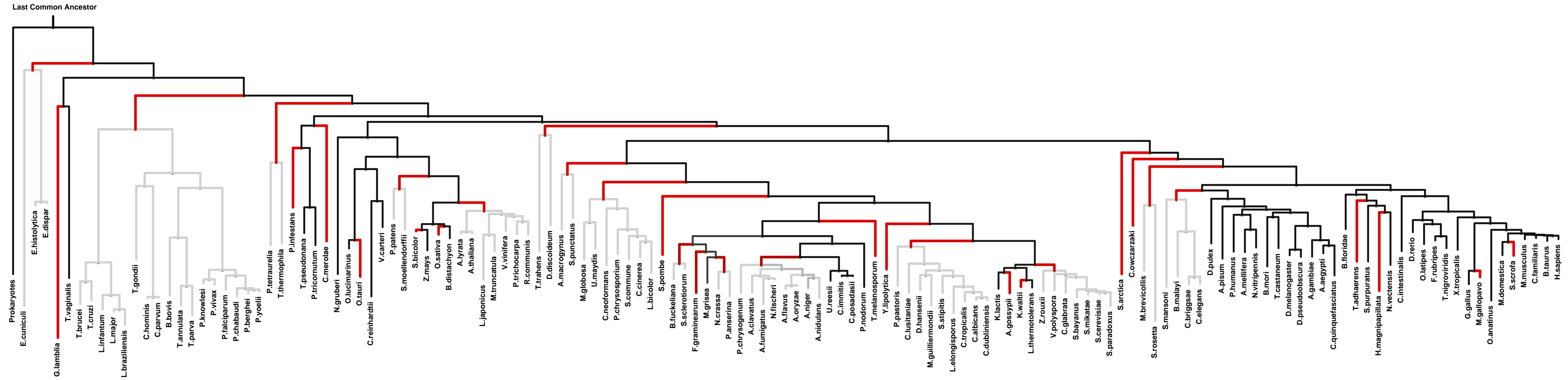
Num of ECM Genes: 1. Num of Predicted Genes: 1



1: Riboflavin metabolism || 2: Tyrosine metabolism

ECM 7, Gene set "Riboflavin metabolism", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 36



1: Porphyrin and chlorophyll metabolism || 2: Riboflavin metabolism || 3: Other glycan degradation || 4: Sphingolipid metabolism || 5: Lysosome || 6: Mucin type O-Glycan biosynthesis

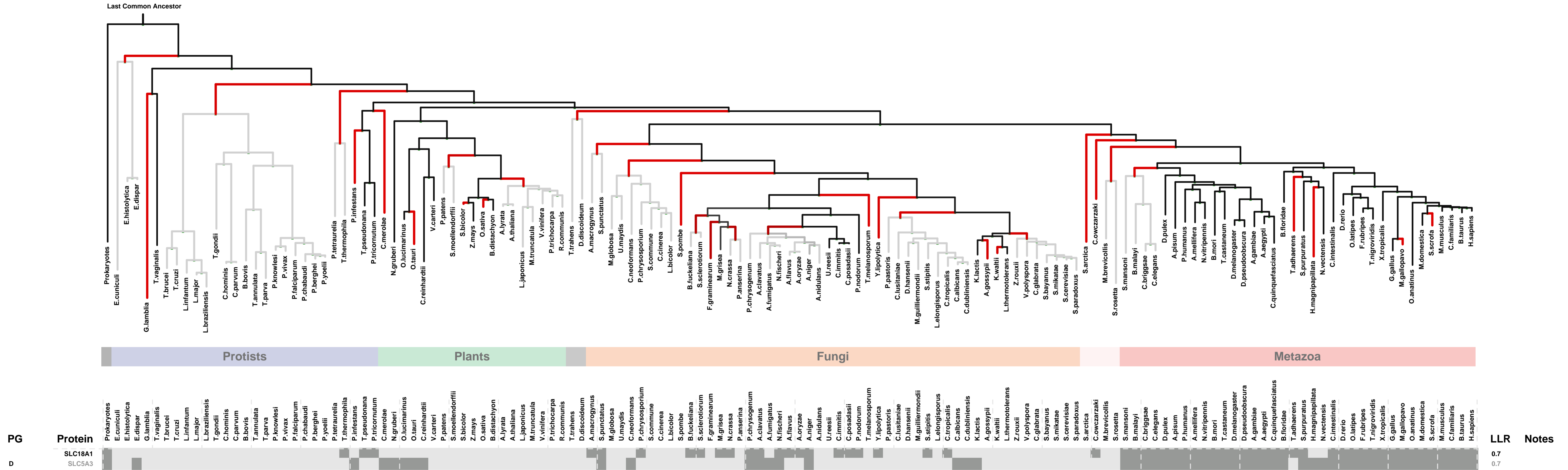
ECM 7, Gene set "Riboflavin metabolism", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 36

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

Log-likelihood Ratio Scale

0 10 20 30 40 50 60



PG

Protein

SLC18A1
SLC5A3

LLR Notes

0.7
0.7