

# 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:

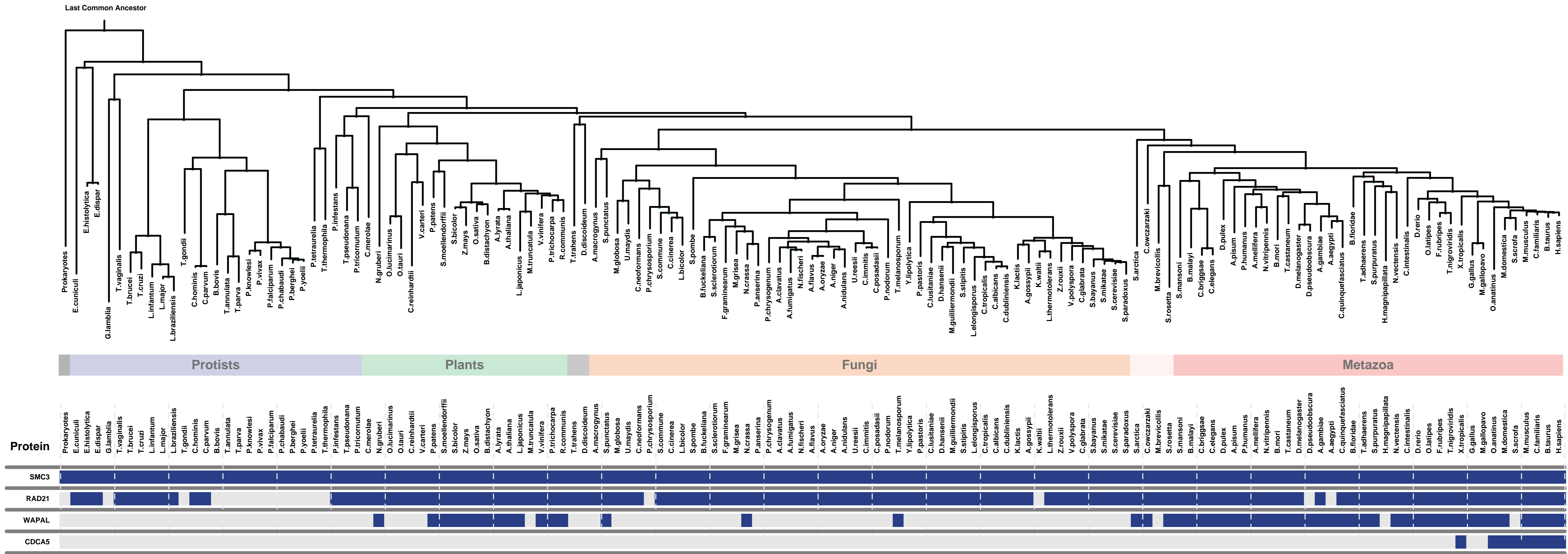
### 1) Overview of Evolutionarily Conserved Modules (ECMs)

- 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  $E < 1e-3$ ).

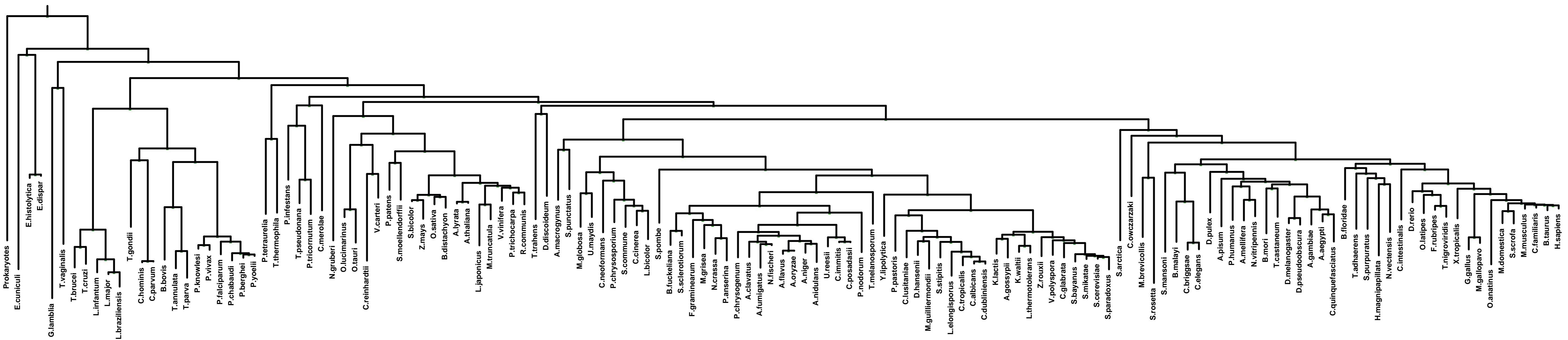
### 2) Details of each ECM and its expansion ECM+

- 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)



Last Common Ancestor



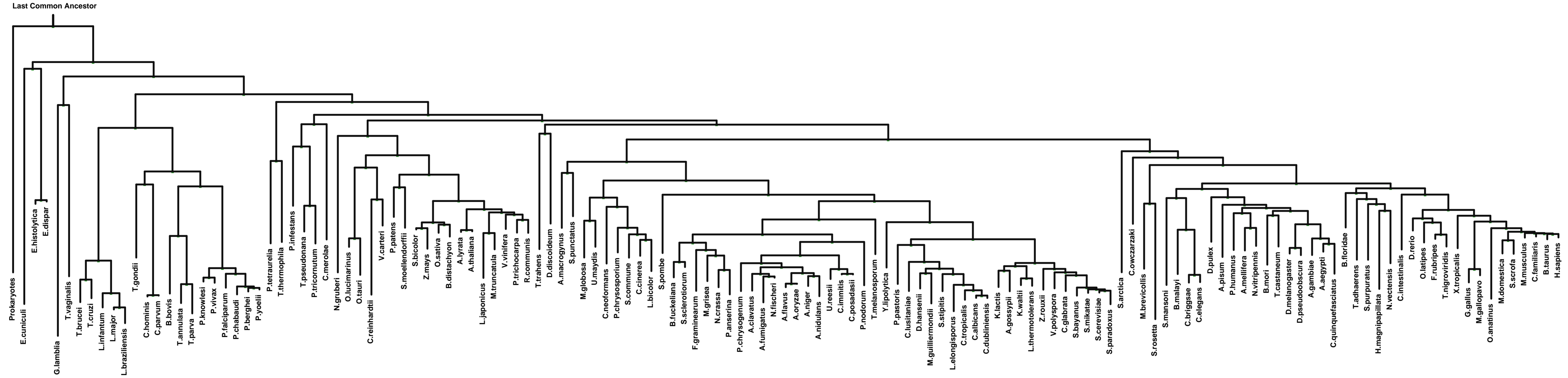
ECM 1, Gene set "cohesin complex", Page 1

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



Protists

Plants

Fungi

Metazoa

PG

Protein



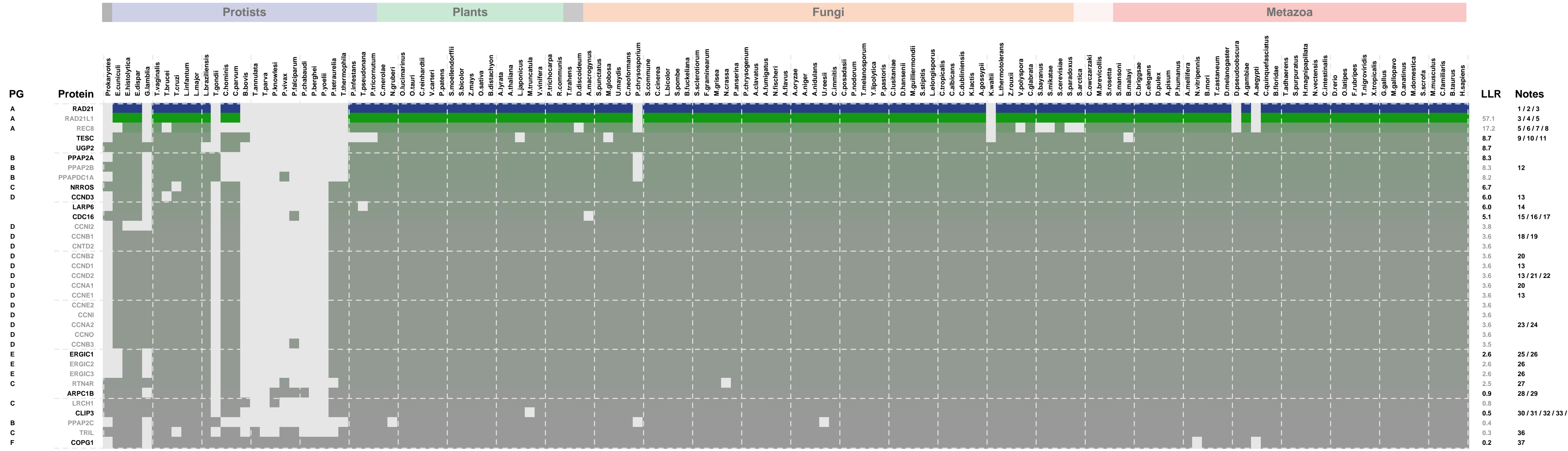
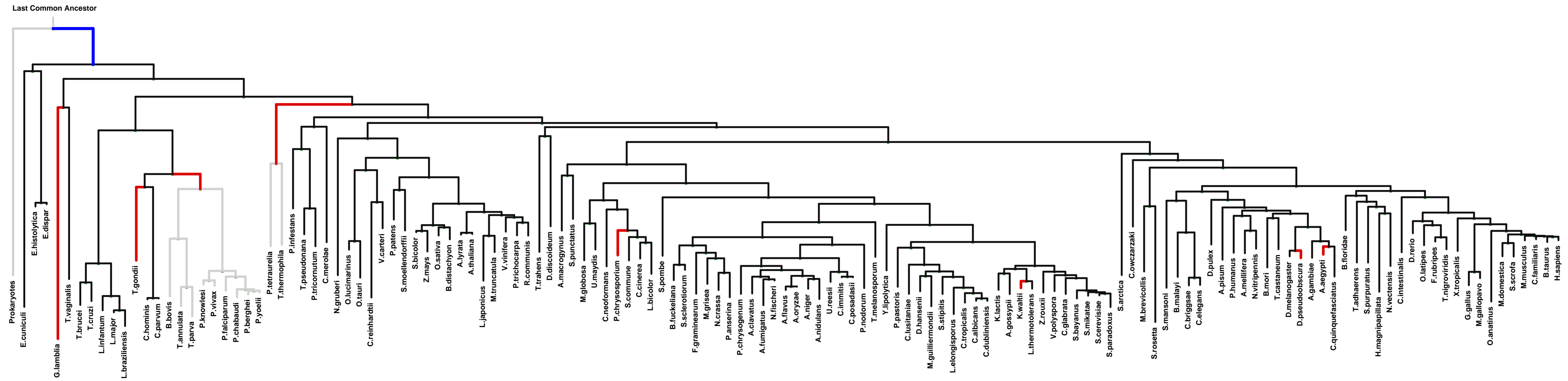
1: basement membrane || 2: chromatin || 3: chromosome, centromeric region || 4: cohesin complex || 5: lateral element || 6: meiotic cohesin complex || 7: nuclear matrix || 8: spindle pole

LLR Notes

1/2/3/4/5/6/7/8

# ECM 2, Gene set "cohesin complex", Page 1

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

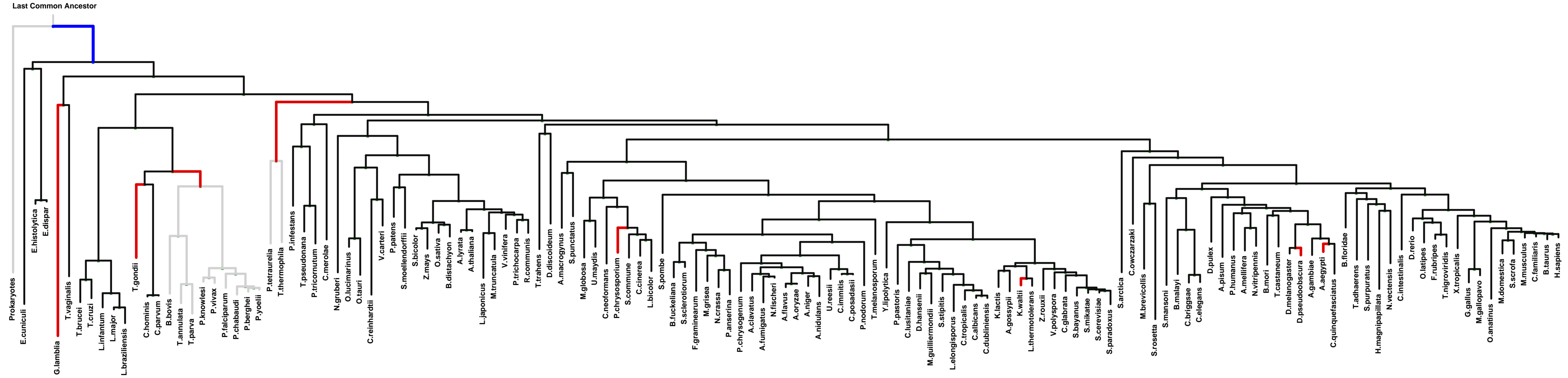
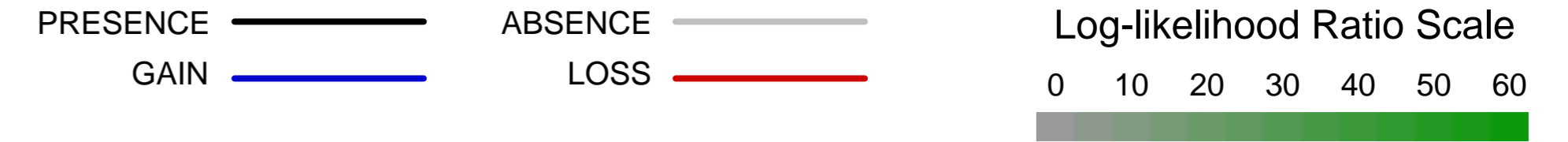


1: chromosome, centromeric region || 2: cohesin complex || 3: nuclear chromosome || 4: chromosome || 5: meiotic cohesin complex || 6: condensed nuclear chromosome, centromeric region || 7: lateral element || 8: male germ cell nucleus || 9: lamellipodium || 10: ruffle || 11: ruffle membrane || 12: adherens junction || 13: cyclin-dependent protein kinase holoenzyme complex || 14: ribonucleoprotein complex || 15: anaphase-promoting complex || 16: spindle || 17: spindle microtubule || 18: condensed nuclear chromosome outer kinetochore || 19: spindle pole || 20: microtubule cytoskeleton || 21: chromatin || 22: nuclear membrane || 23: female pronucleus || 24: male pronucleus ||



ECM 2, Gene set "cohesin complex", Page 2

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



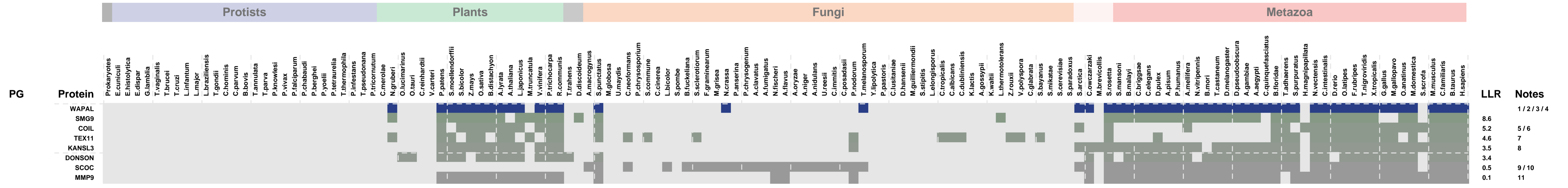
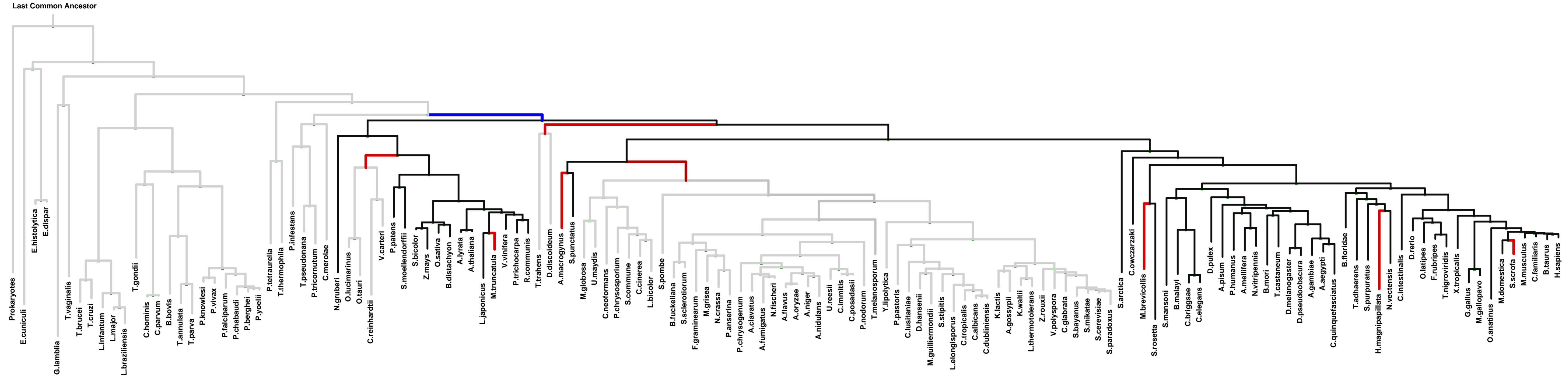
PG  
F

Protein	Prokaryotes	Protists	Plants	Fungi	Metazoa	LLR	Notes
COPG2	■	■	■	■	■	0.2	1
RRM1	■	■	■	■	■	0.2	2

1: COPI vesicle coat || 2: ribonucleoside-diphosphate reductase complex

ECM 3, Gene set "cohesin complex", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 7



1: chromatin || 2: cohesin complex || 3: microtubule cytoskeleton || 4: synaptonemal complex || 5: Cajal body || 6: female germ cell nucleus || 7: central element || 8: histone acetyltransferase complex || 9: endosome || 10: trans-Golgi network || 11: proteinaceous extracellular matrix

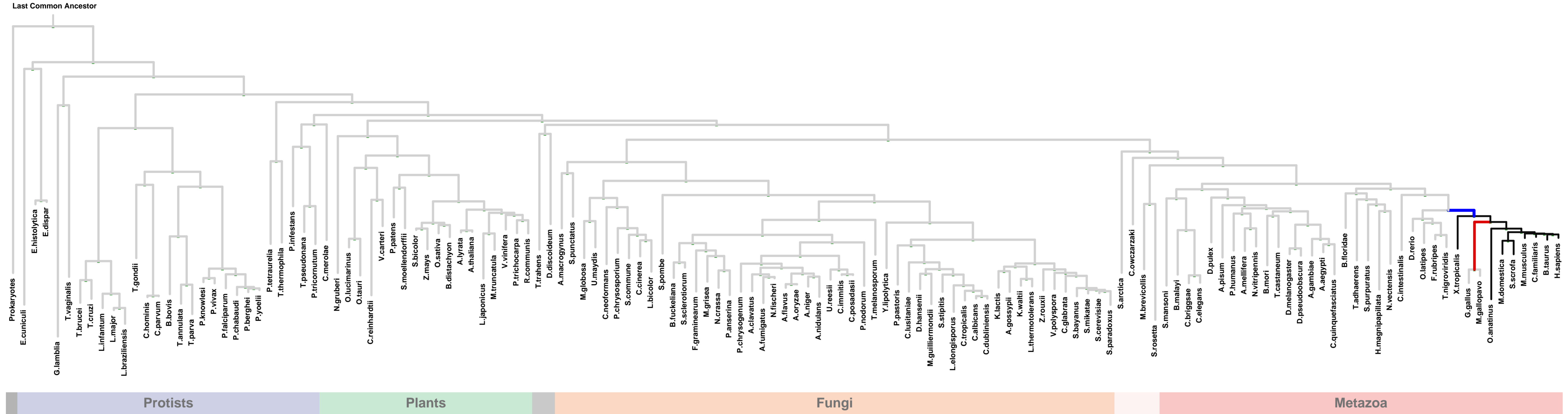
ECM 4, Gene set "cohesin complex", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 17

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

Log-likelihood Ratio Scale

0 10 20 30 40 50 60



PG	Protein	LLR	Notes
	CDC45		1 / 2
	ACRBP	4.1	3
	AMBN	4.1	4
	C1orf65	4.1	
	FAM228A	4.1	
	CCDC160	4.1	
	CEACAM3	4.1	
	VN1R10P	4.1	
	LEP	4.1	
A	LYPD3	4.1	5
A	LYPD5	4.1	6
	CYHR1	4.0	7
	KISS1	2.3	
	DYNAP	2.2	
	C3orf43	1.6	
	SERTAD1	1.6	
	NAT14	1.4	
	CD177	1.4	6

1: cohesin complex || 2: nuclear chromatin || 3: acrosomal vesicle || 4: proteinaceous extracellular matrix || 5: anchored to plasma membrane || 6: anchored to membrane || 7: nuclear envelope