

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

## Dataset:

Num of genes in input gene set: 8

Total number of genes: 20834

Prediction LLR threshold: 0

The CLIME PDF output two sections:

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

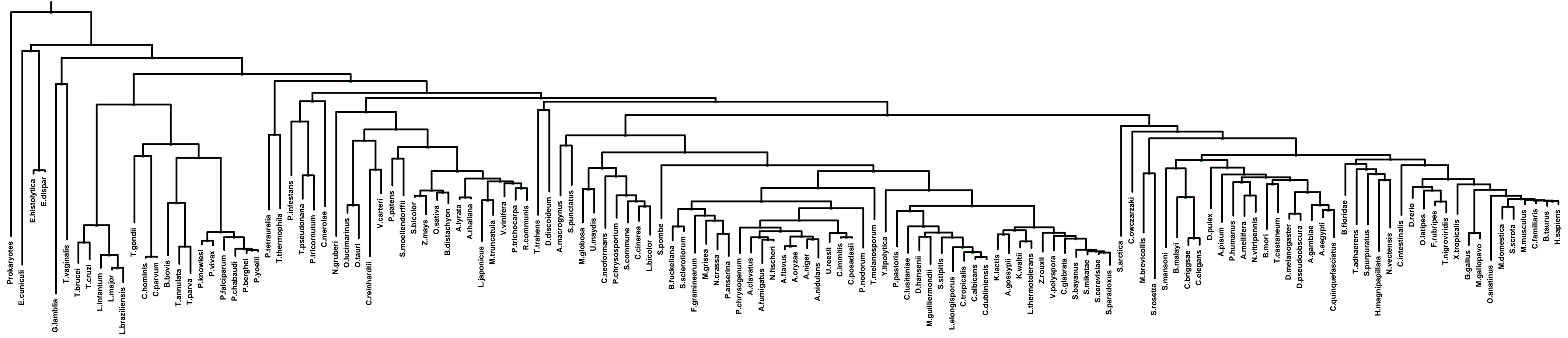
- Top panel shows the predefined species tree.
- Bottom panel shows the partition of input genes into Evolutionary Conserved Modules (ECMs), ordered by ECM strength (shown at right), and separated by horizontal lines.
- Each row show one gene, where the phylogenetic profile indicates presence (blue)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

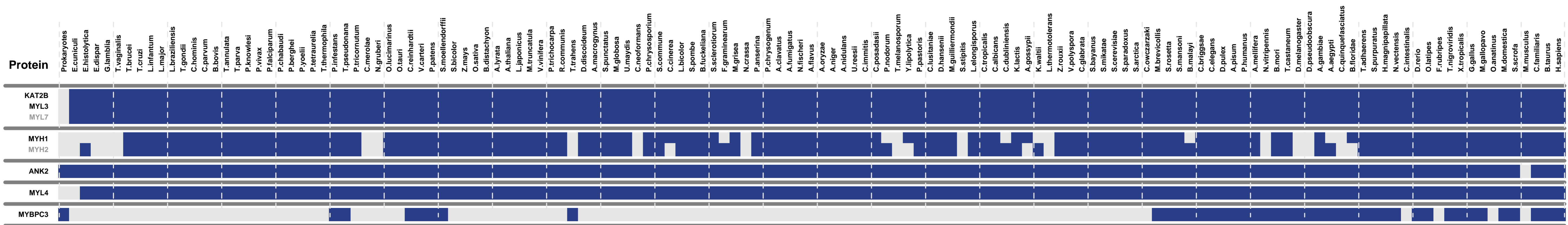


Protists

Plants

Fungi

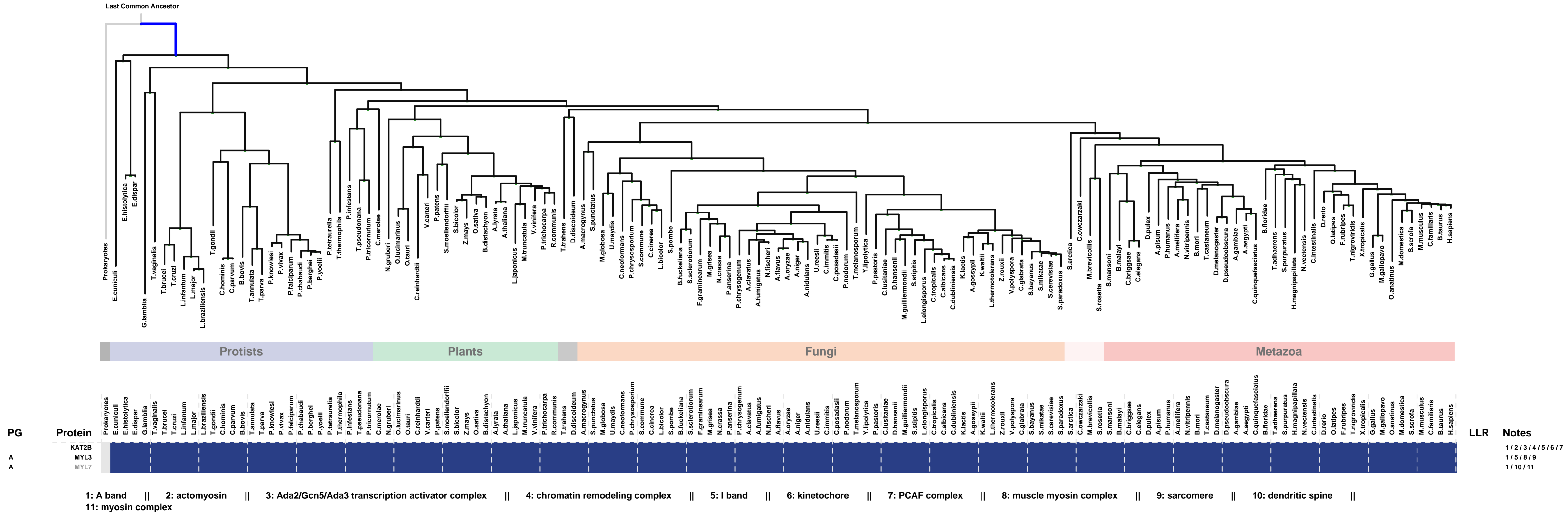
Metazoa



Strength

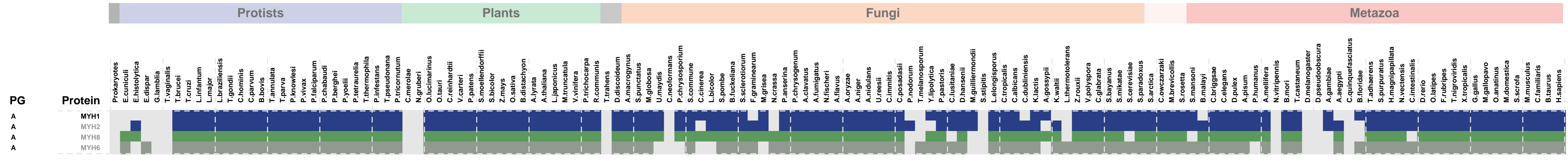
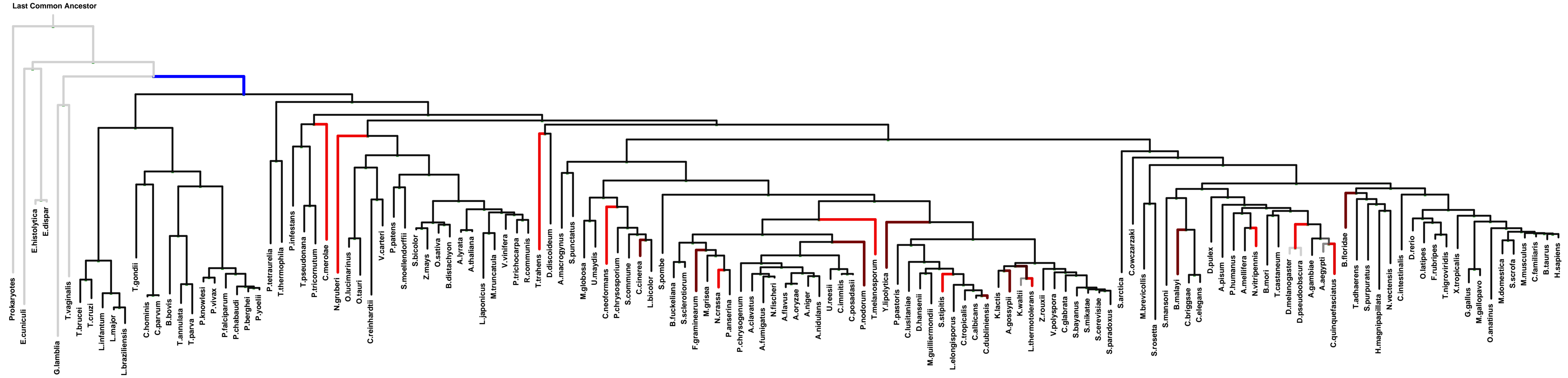
ECM 1, Gene set "A band", Page 1

Num of ECM Genes: 3. Num of Predicted Genes: 0. ECM Strength: 0.0



ECM 2, Gene set "A band", Page 1

Num of ECM Genes: 2. Num of Predicted Genes: 2. ECM Strength: 8.5

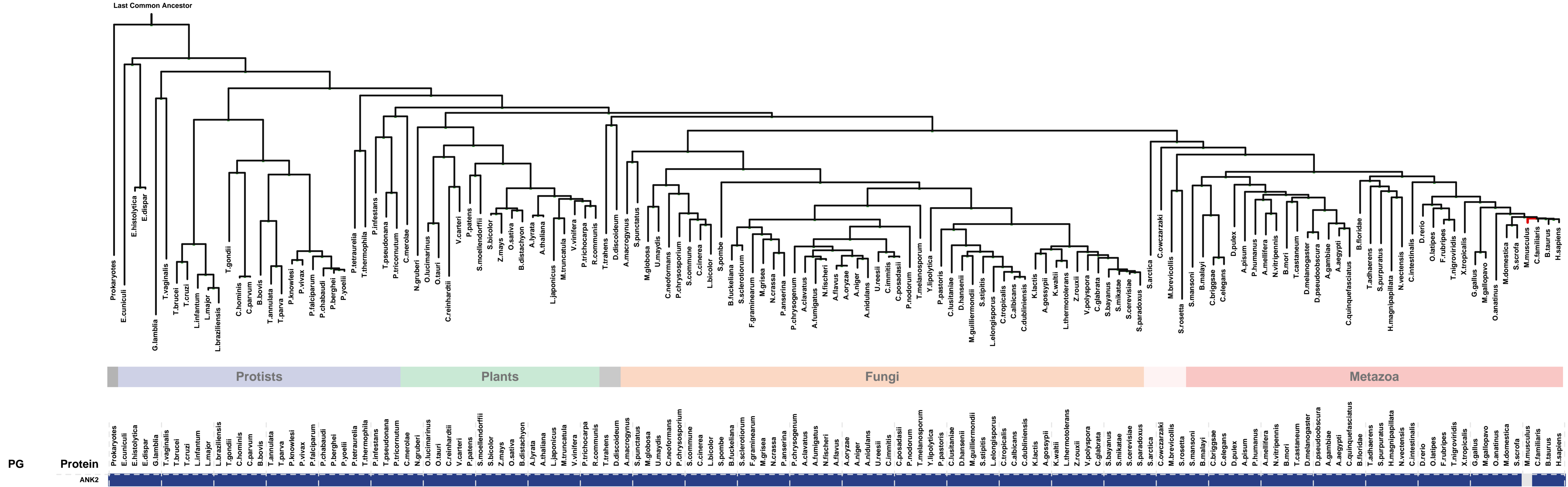


1: A band || 2: focal adhesion || 3: intercalated disc || 4: muscle myosin complex || 5: myosin filament || 6: actomyosin contractile ring || 7: myofibril || 8: sarcomere || 9: myosin complex || 10: stress fiber || 11: Z disc

PG	Protein	Species	LLR	Notes
A	MYH1	E.uniculi	26.3	1/2/3/4/5
A	MYH2	E.histolytica	26.3	1/2/4/5/6/7/8
A	MYH6	E.histolytica	26.3	2/4/5/7
A	MYH8	E.histolytica	3.5	2/4/5/7/8/9/10/11

ECM 3, Gene set "A band", Page 1

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



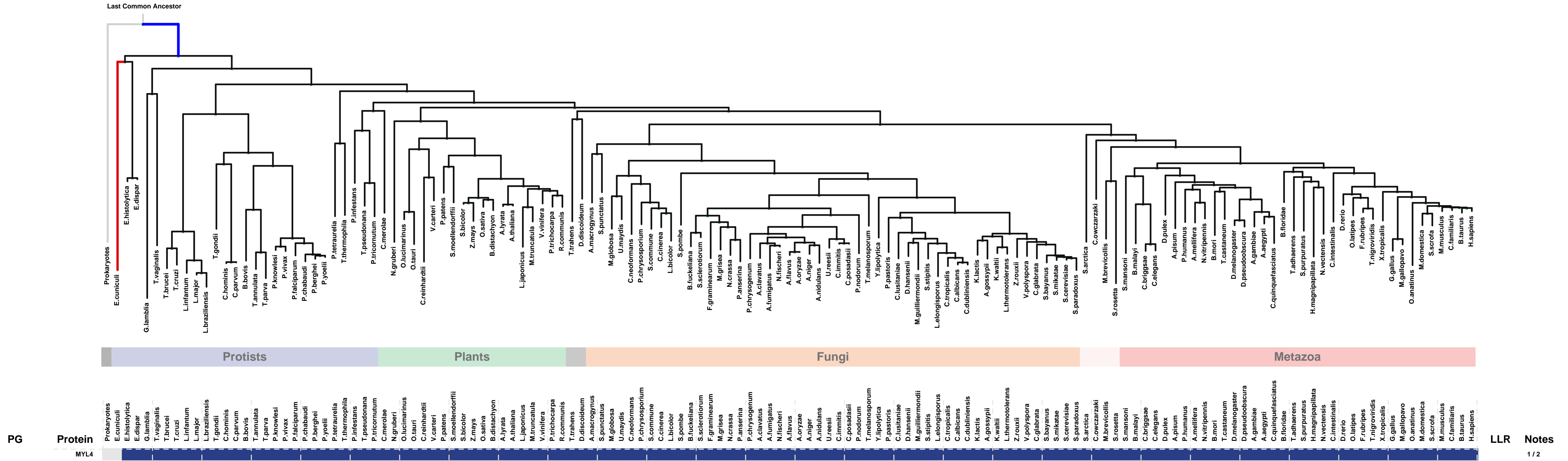
1: A band || 2: basolateral plasma membrane || 3: costamere || 4: intercalated disc || 5: M band || 6: postsynaptic membrane || 7: sarcolemma || 8: T-tubule || 9: Z disc

LLR Notes

1/2/3/4/5/6/7/8/9

ECM 4, Gene set "A band", Page 1

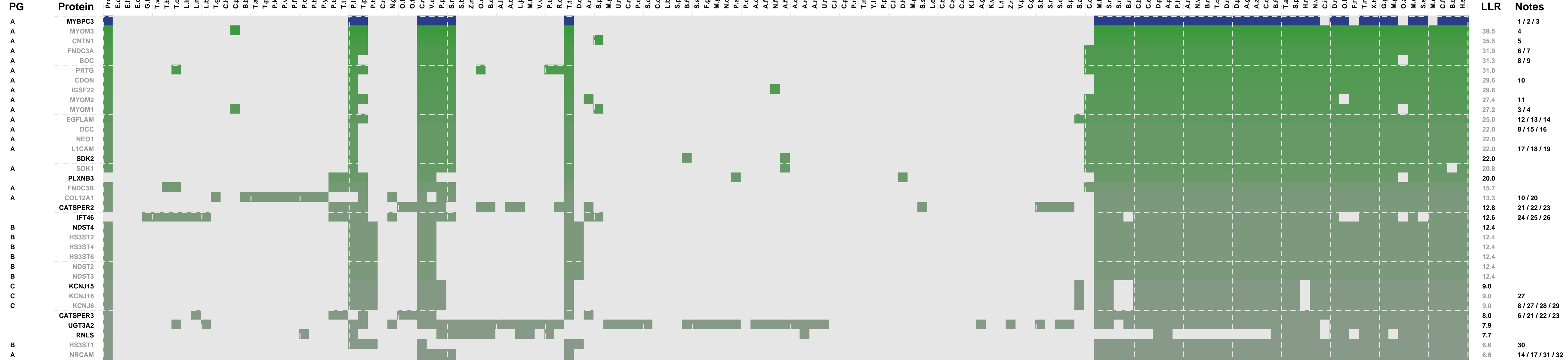
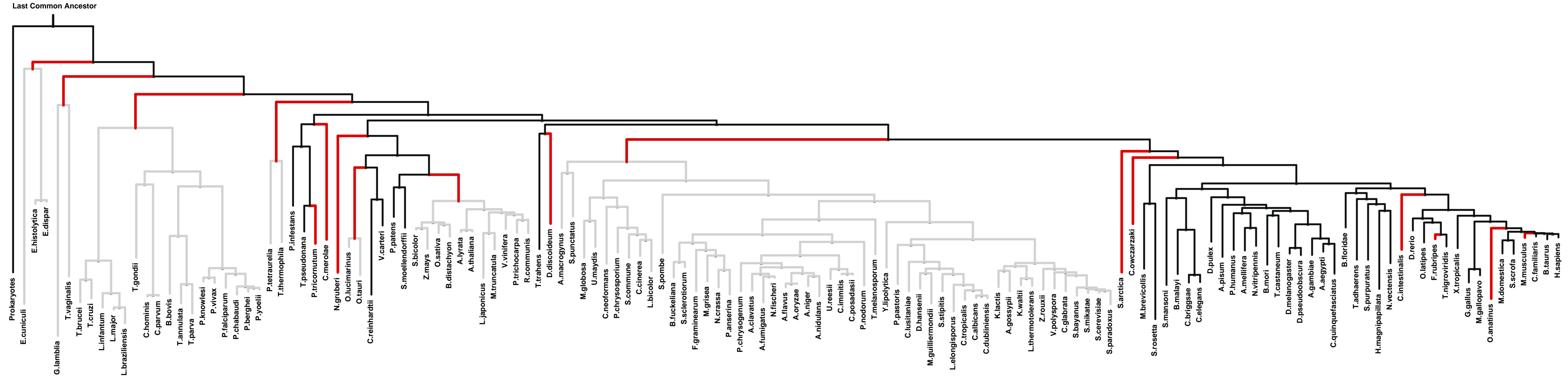
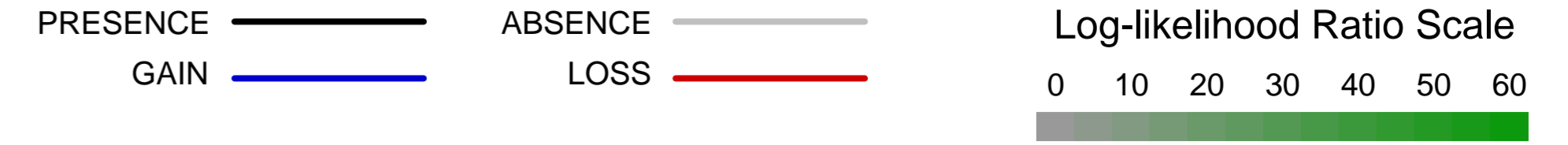
Num of ECM Genes: 1. Num of Predicted Genes: 0



1: A band || 2: muscle myosin complex

ECM 5, Gene set "A band", Page 1

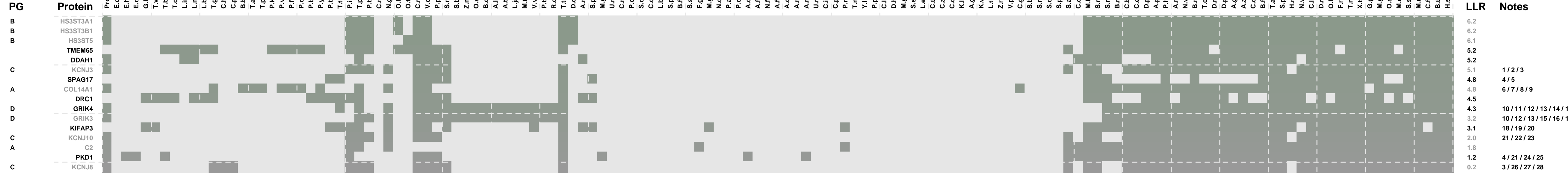
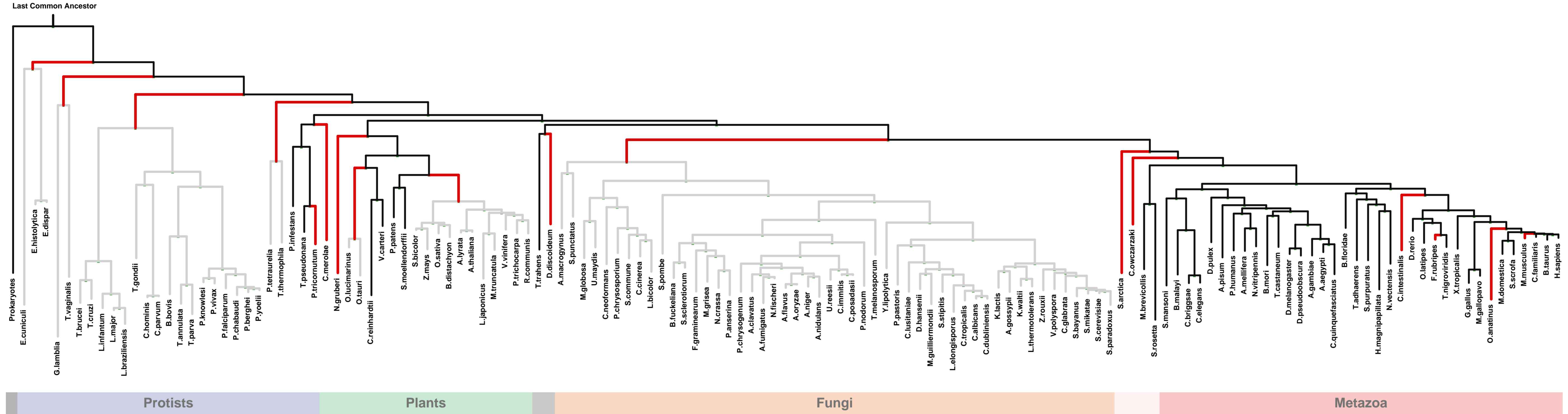
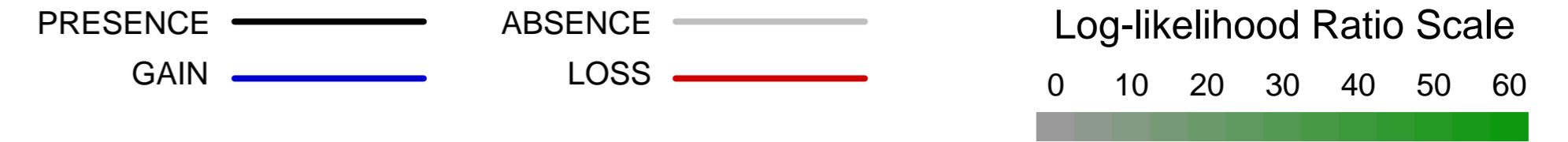
Num of ECM Genes: 1. Num of Predicted Genes: 50



1: A band || 2: sarcomere || 3: striated muscle myosin thick filament || 4: M band || 5: anchored to membrane || 6: acrosomal vesicle || 7: vesicle membrane || 8: axon || 9: growth cone || 10: extracellular matrix || 11: myosin filament || 12: basement membrane || 13: interstitial matrix || 14: synapse || 15: growth cone membrane || 16: membrane raft || 17: external side of plasma membrane || 18: presynaptic membrane || 19: terminal button || 20: endoplasmic reticulum lumen || 21: CatSper complex || 22: cilium || 23: flagellar membrane || 24: microtubule basal body || 25: microtubule-based flagellum || 26: motile primary cilium || 27: voltage-gated potassium channel complex ||

ECM 5, Gene set "A band", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 50



1: external side of plasma membrane || 2: T-tubule || 3: voltage-gated potassium channel complex || 4: cilium || 5: flagellar axoneme || 6: collagen || 7: endoplasmic reticulum lumen || 8: extracellular matrix || 9: proteinaceous extracellular matrix || 10: dendrite || 11: kainate selective glutamate receptor complex || 12: perikaryon || 13: postsynaptic membrane || 14: presynaptic membrane || 15: terminal button || 16: axon || 17: dendrite cytoplasm || 18: condensed nuclear chromosome || 19: kinesin II complex || 20: spindle microtubule || 21: basolateral plasma membrane || 22: dystrophin-associated glycoprotein complex || 23: microvillus || 24: motile primary cilium || 25: polycystin complex || 26: ATP-sensitive potassium channel complex || 27: myofibril || 28: sarcolemma