

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

Dataset:

Num of genes in input gene set: 33
Total number of genes: 20834
Prediction LLR threshold: 0

The CLIME PDF output two sections:

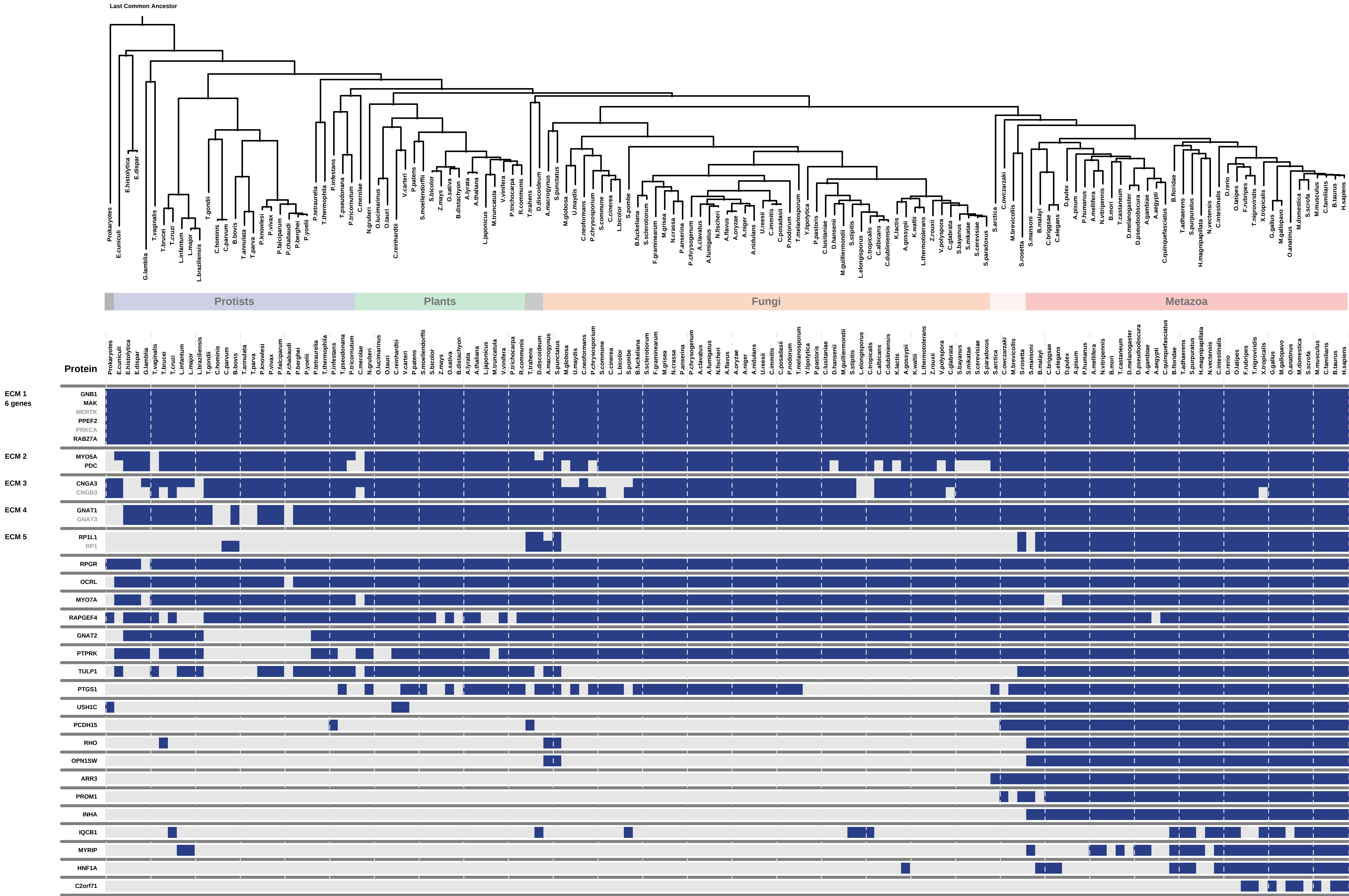
1) Overview of Evolutionarily Conserved Modules (ECMs)

- 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 $E < 1e-3$).

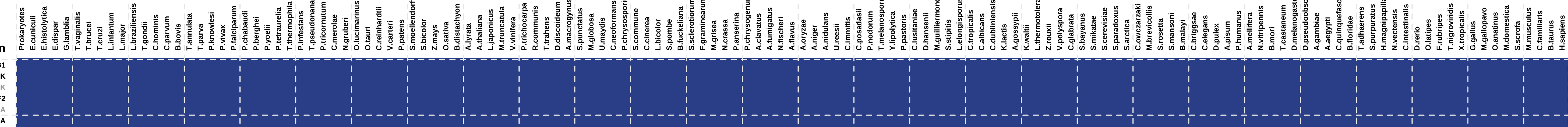
2) Details of each ECM and its expansion ECM+

- 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)

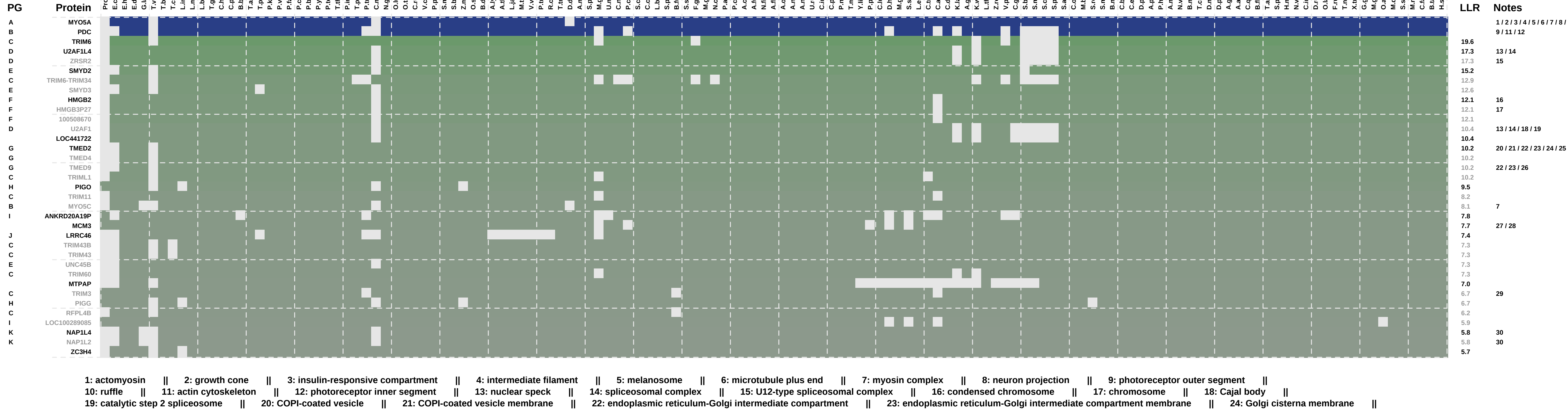


Num of ECM Genes: 6. Num of Predicted Genes: 0. ECM Strength: 0.0



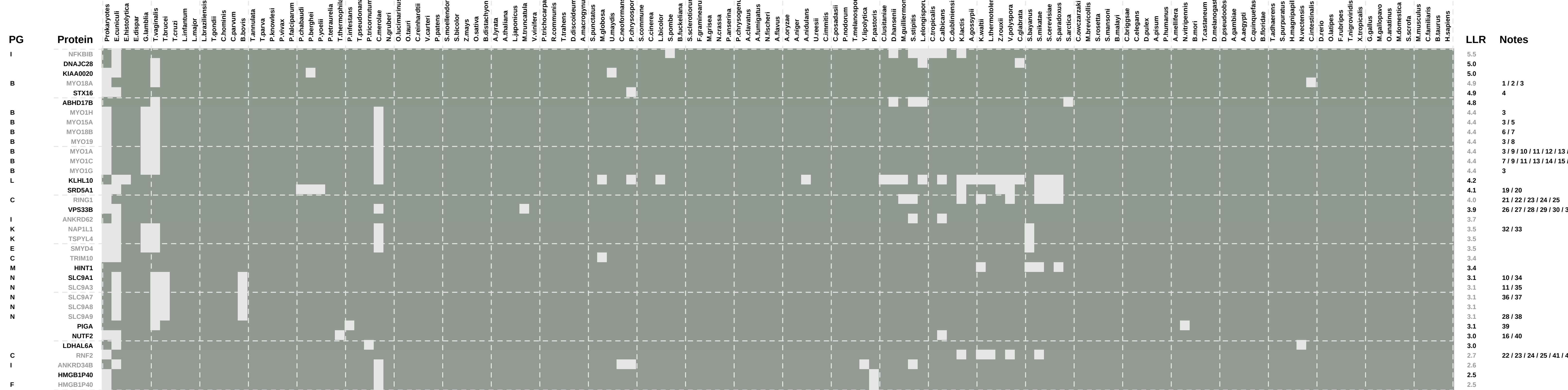
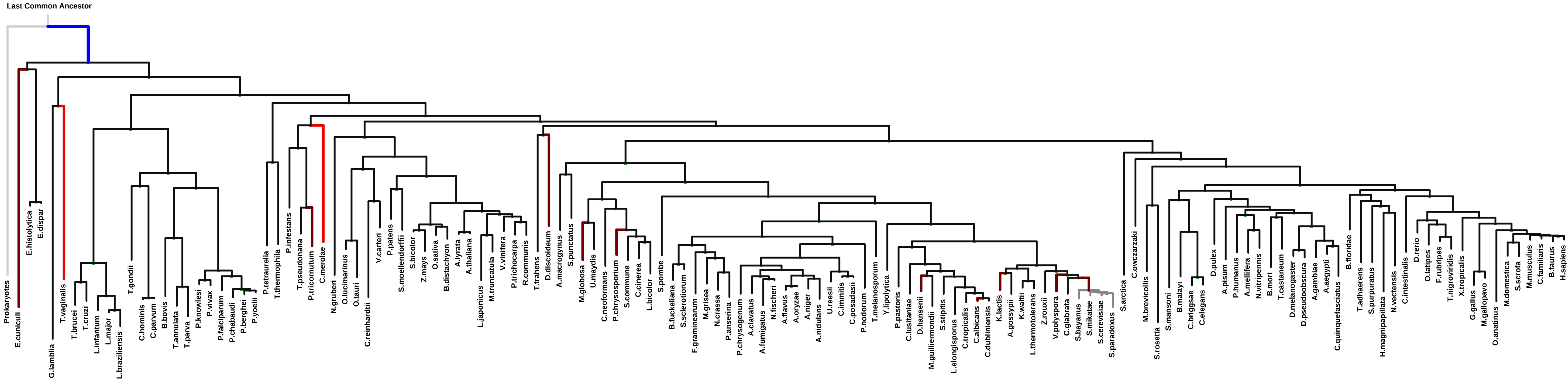
1: heterotrimeric G-protein complex || 2: photoreceptor outer segment || 3: midbody || 4: mitotic spindle || 5: photoreceptor inner segment || 6: dendrite || 7: membrane raft || 8: mitochondrial membrane || 9: exocytic vesicle || 10: late endosome || 11: lysosome || 12: melanosome || 13: multivesicular body membrane || 14: secretory granule membrane

Num of ECM Genes: 2. Num of Predicted Genes: 116. ECM Strength: 0.0



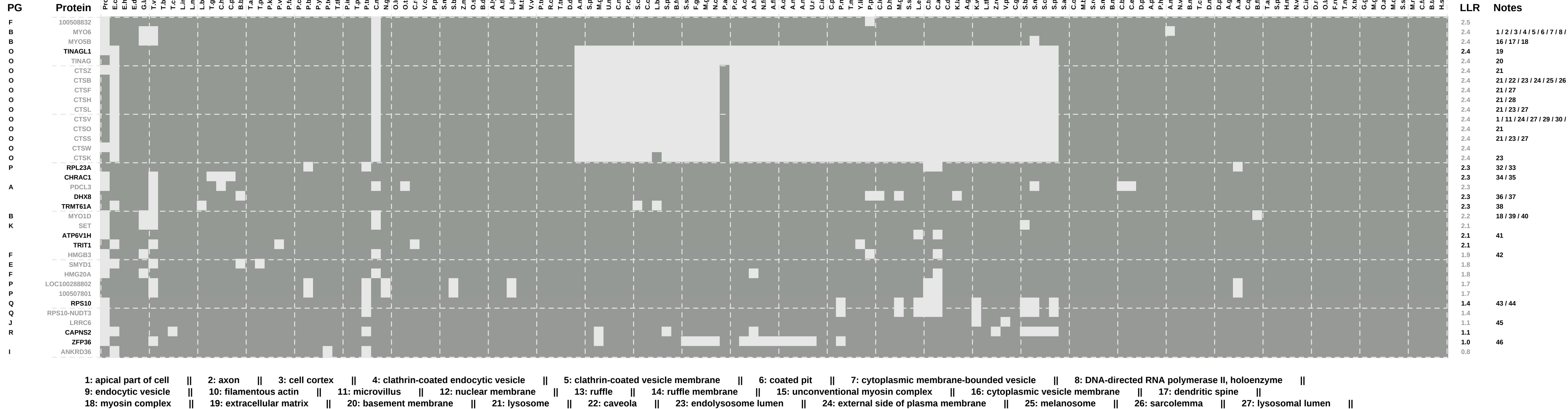
ECM 2, Gene set "photoreceptor outer segment", Page 2

Num of ECM Genes: 2. Num of Predicted Genes: 116. ECM Strength: 0.0

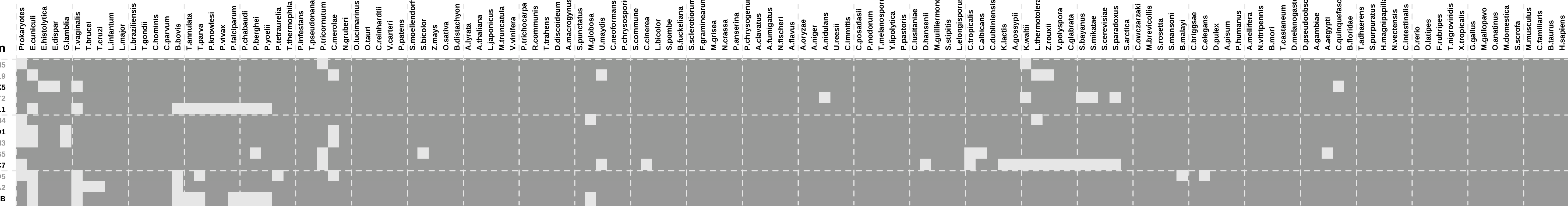


1: actomyosin || 2: endoplasmic reticulum-Golgi intermediate compartment || 3: myosin complex || 4: SNARE complex || 5: stereocilium || 6: sarcomere || 7: unconventional myosin complex || 8: mitochondrial outer membrane || 9: basal plasma membrane || 10: basolateral plasma membrane || 11: brush border || 12: cortical actin cytoskeleton || 13: filamentous actin || 14: lateral plasma membrane || 15: microvilli || 16: nuclear pore || 17: stereocilium membrane || 18: stress fiber || 19: cell body fiber || 20: myelin sheath || 21: nuclear speck || 22: PcG protein complex || 23: PRC1 complex || 24: sex chromatin || 25: ubiquitin ligase complex || 26: HOPS complex || 27: late endosome ||

Num of ECM Genes: 2. Num of Predicted Genes: 116. ECM Strength: 0.0



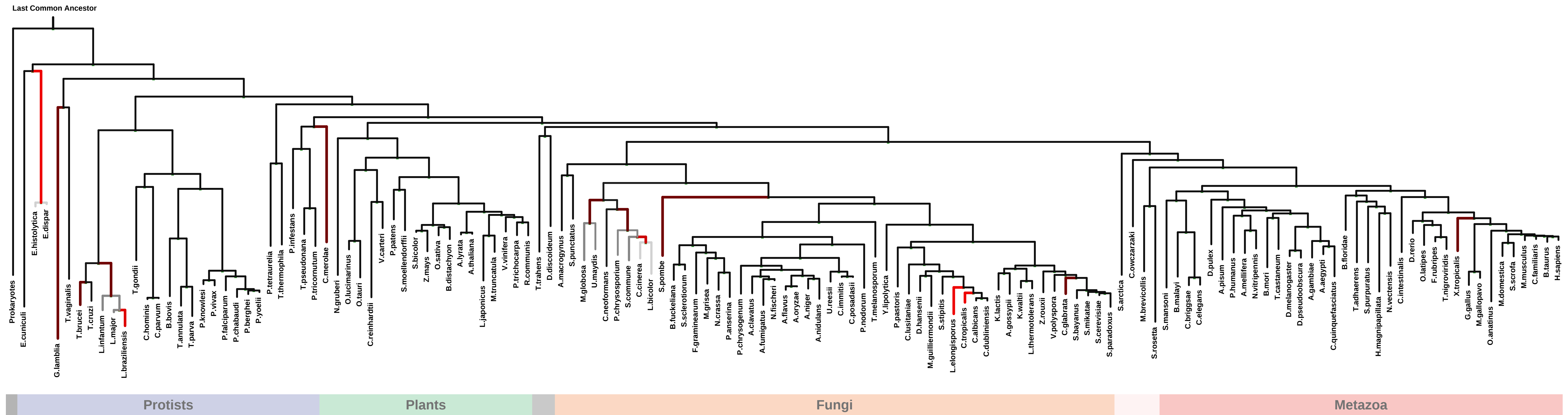
Num of ECM Genes: 2. Num of Predicted Genes: 116. ECM Strength: 0.0



1: cytoplasmic mRNA processing body || 2: Cul3-RING ubiquitin ligase complex || 3: midbody || 4: endosome || 5: myofibril || 6: T-tubule || 7: Z disc

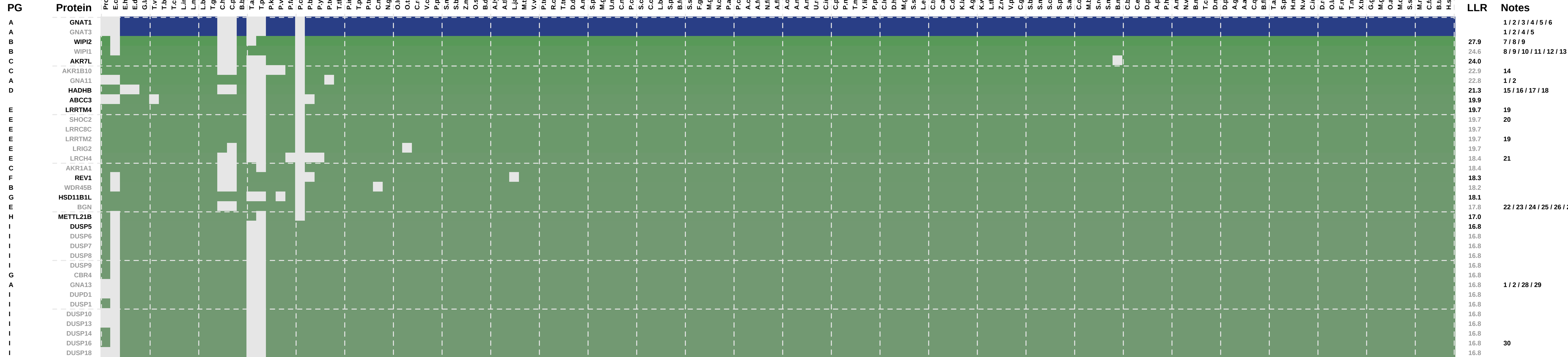
ECM 3, Gene set "photoreceptor outer segment", Page 1

Num of ECM Genes: 2. Num of Predicted Genes: 24. ECM Strength: 0.8

[illegible]

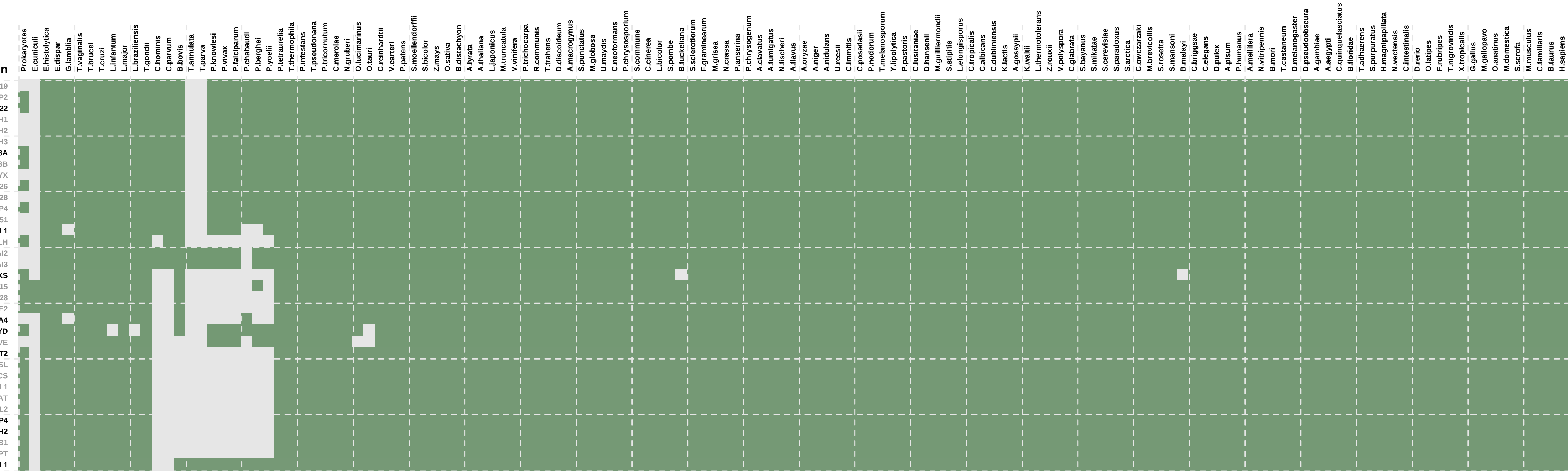
1: photoreceptor outer segment || 2: intracellular cyclic nucleotide activated cation channel complex || 3: photoreceptor outer segment membrane || 4: histone methyltransferase complex || 5: cytoplasmic microtubule || 6: midbody || 7: microtubule cytoskeleton || 8: spliceosomal complex || 9: chromosome || 10: MLL1 complex || 11: cell projection membrane || 12: cortical microtubule cytoskeleton || 13: microtubule plus end || 14: spindle || 15: nuclear speck || 16: mitochondrial intermembrane space || 17: mitochondrial nucleoid

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



1: extrinsic to internal side of plasma membrane || 2: heterotrimeric G-protein complex || 3: photoreceptor connecting cilium || 4: photoreceptor inner segment || 5: photoreceptor outer segment || 6: photoreceptor outer segment membrane ||
7: autophagic vacuole || 8: autophagic vacuole membrane || 9: pre-autophagosomal structure membrane || 10: clathrin-coated vesicle || 11: endosome membrane || 12: pre-autophagosomal structure || 13: trans-Golgi network ||
14: lysosome || 15: mitochondrial envelope || 16: mitochondrial fatty acid beta-oxidation multienzyme complex || 17: mitochondrial nucleoid || 18: mitochondrial outer membrane || 19: postsynaptic membrane || 20: protein phosphatase type 1 complex ||

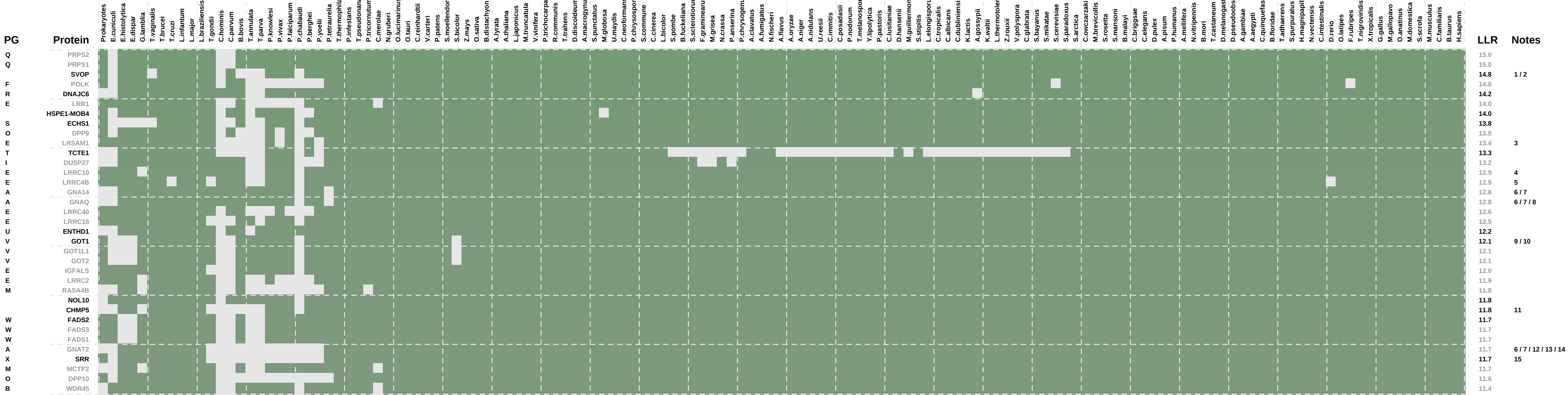
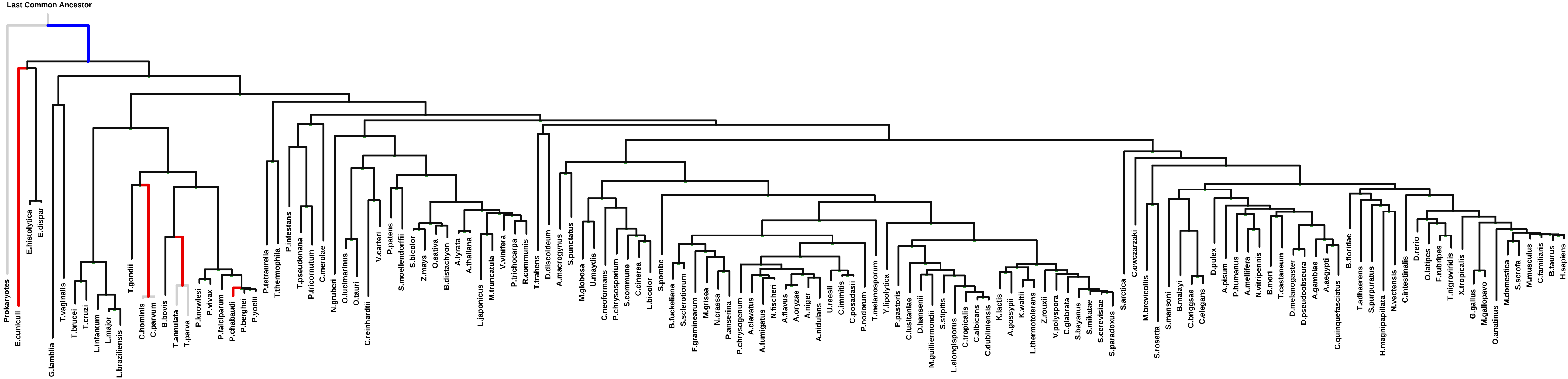
Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



1: cleavage furrow || 2: lamellipodium || 3: midbody || 4: oligosaccharyltransferase complex || 5: extrinsic to internal side of plasma membrane || 6: heterotrimeric G-protein complex || 7: membrane raft || 8: zymogen granule ||
9: intrinsic to internal side of plasma membrane || 10: cytoplasmic vesicle || 11: early endosome membrane || 12: endosome membrane || 13: late endosome membrane || 14: vesicle membrane || 15: endocytic vesicle || 16: intercellular canaliculus ||
17: invadopodium membrane || 18: lamellipodium membrane

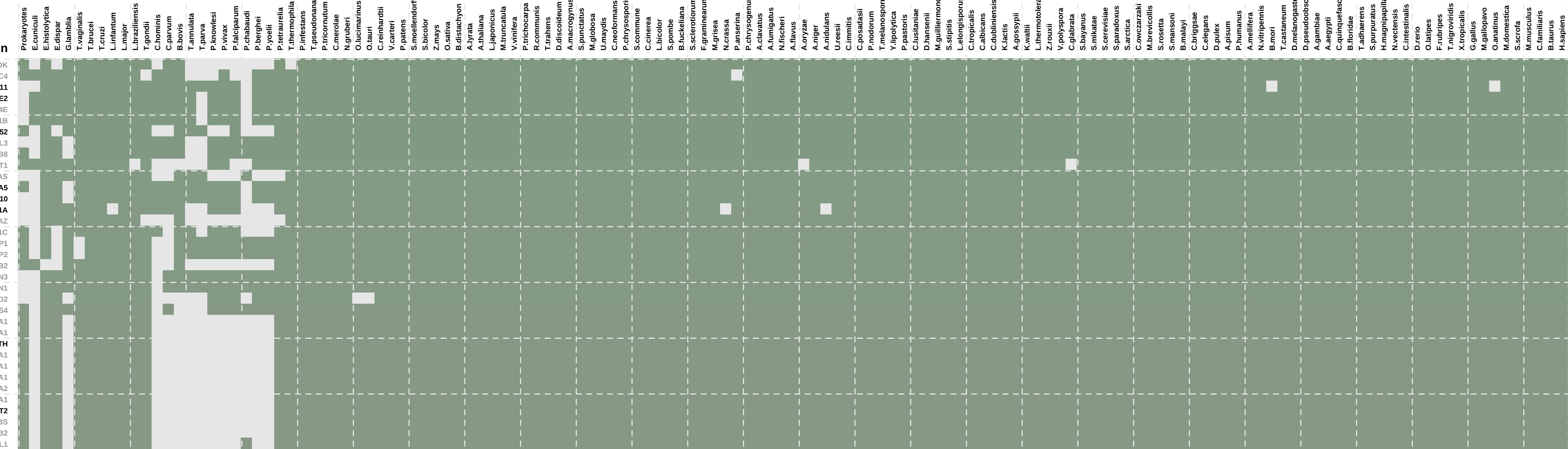
ECM 4, Gene set "photoreceptor outer segment", Page 3

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



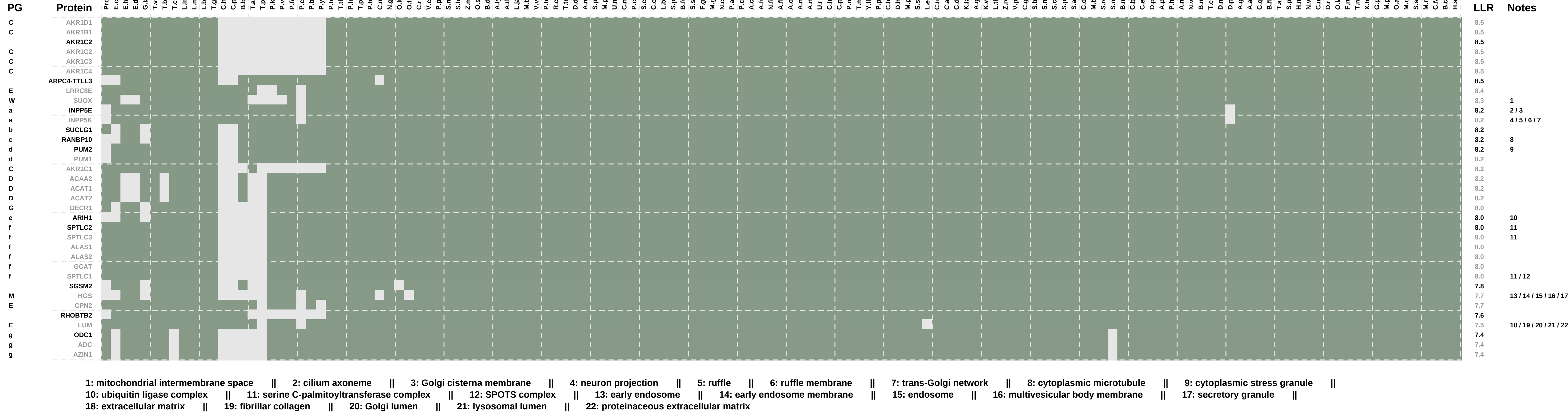
1: synaptic vesicle || 2: synaptic vesicle membrane || 3: membrane part || 4: myofibril || 5: presynaptic membrane || 6: extrinsic to internal side of plasma membrane || 7: heterotrimeric G-protein complex || 8: nuclear membrane || 9: axon terminus || 10: lysosome || 11: endosome membrane || 12: photoreceptor inner segment || 13: photoreceptor outer segment || 14: photoreceptor outer segment membrane || 15: apical part of cell

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



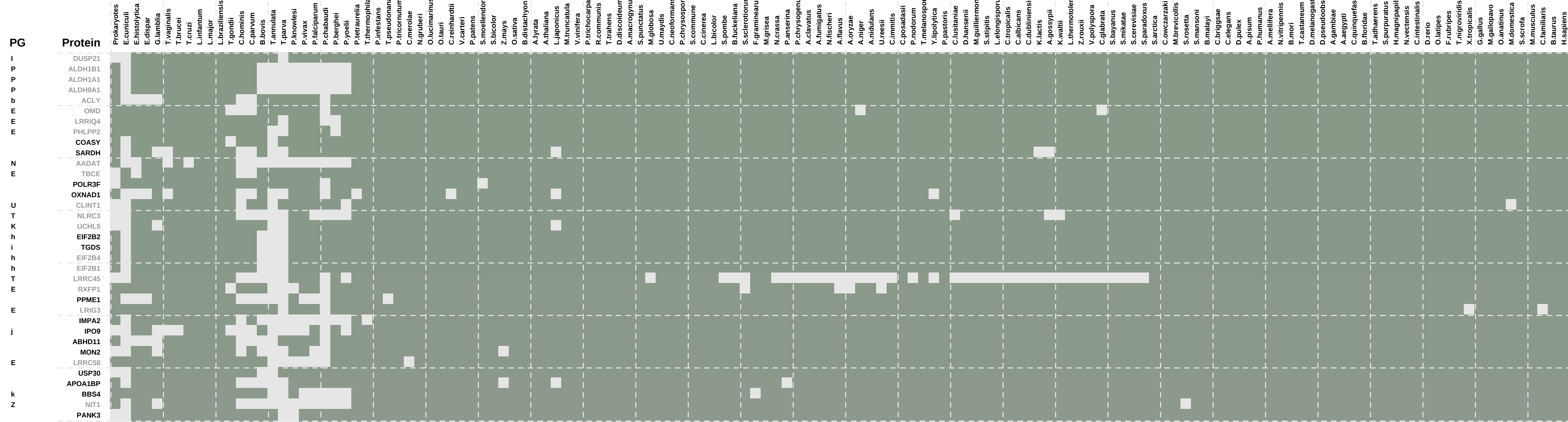
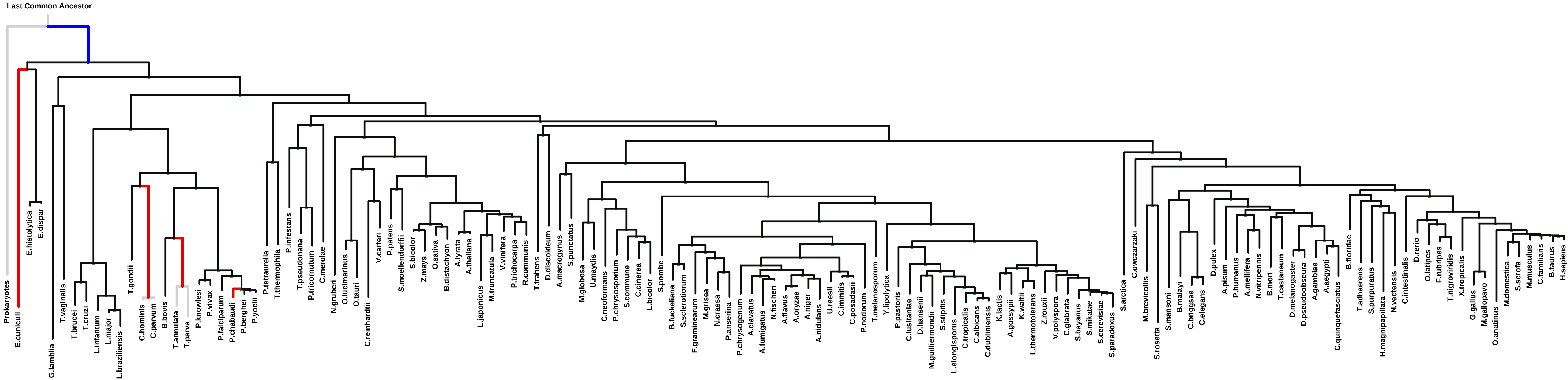
1: postsynaptic membrane || 2: endocytic vesicle || 3: endosome || 4: HOPS complex || 5: late endosome membrane || 6: lysosomal membrane || 7: mRNA cap binding complex || 8: cytoplasmic mRNA processing body || 9: cytoplasmic stress granule || 10: eukaryotic translation initiation factor 4F complex || 11: RNA-induced silencing complex || 12: mitochondrial envelope || 13: proteinaceous extracellular matrix || 14: extrinsic to internal side of plasma membrane || 15: heterotrimeric G-protein complex || 16: intrinsic to membrane || 17: ruffle || 18: trans-Golgi network membrane || 19: transport vesicle || 20: basal plasma membrane || 21: integral to endoplasmic reticulum membrane || 22: Cajal body || 23: U7 snRNP || 24: actomyosin ||

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



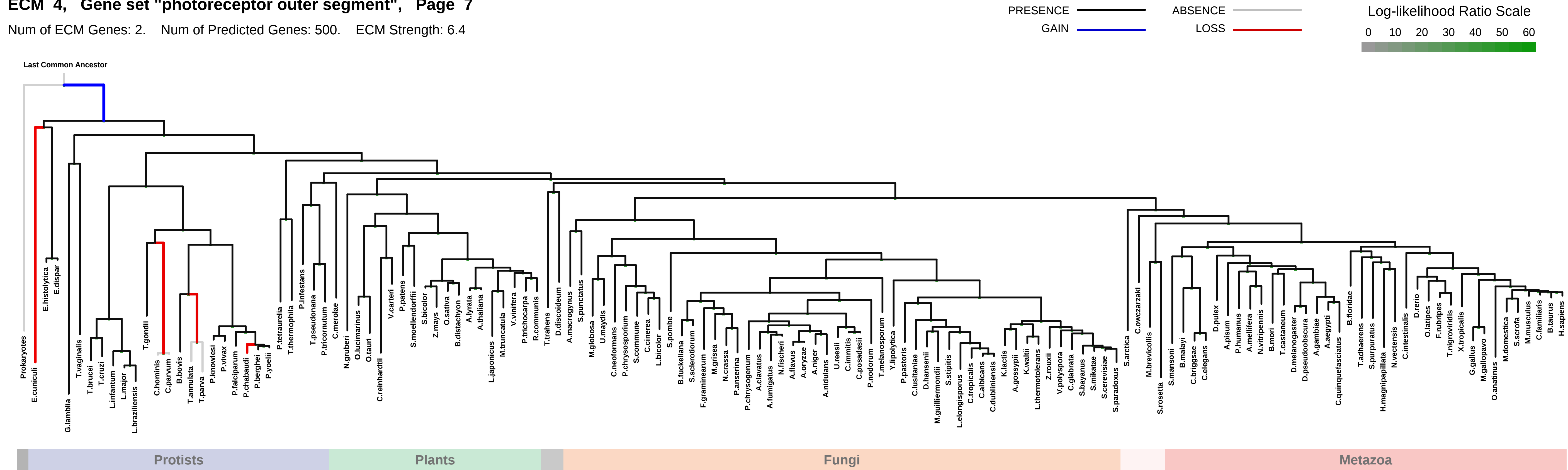
ECM 4, Gene set "photoreceptor outer segment", Page 6

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



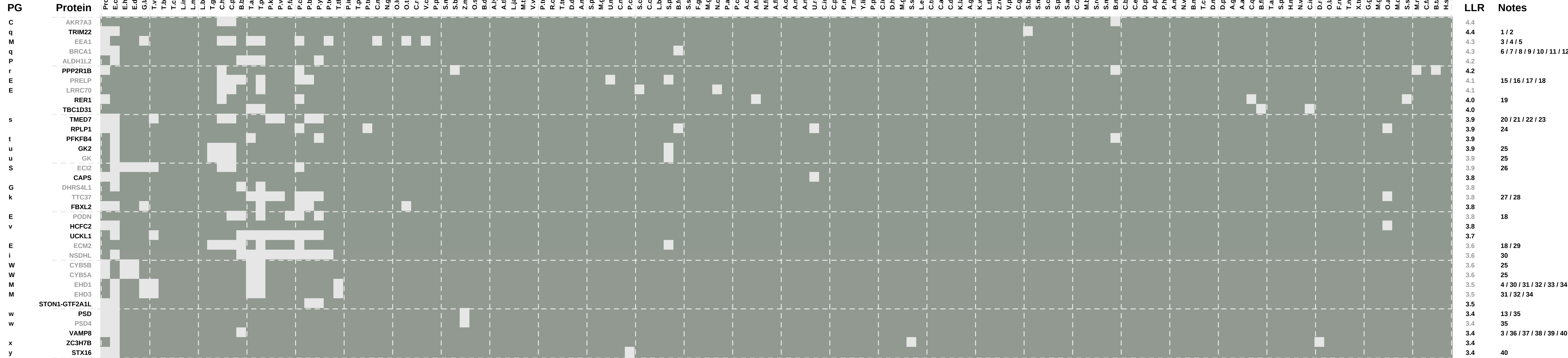
ECM 4, Gene set "photoreceptor outer segment", Page 7

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4

[illegible]

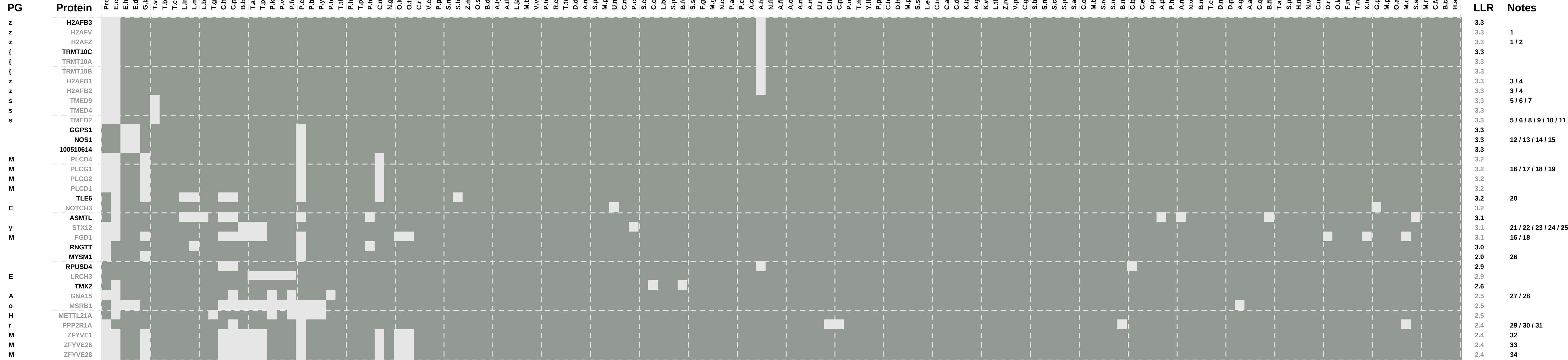
1: anaphase-promoting complex || 2: spindle || 3: spindle microtubule || 4: microtubule cytoskeleton || 5: juxtaparanode region of axon || 6: brush border membrane || 7: extrinsic to internal side of plasma membrane || 8: heterotrimeric G-protein complex || 9: NLRP1 inflammasome complex || 10: nuclear membrane || 11: dendritic shaft || 12: growth cone || 13: ruffle || 14: invadopodium membrane || 15: lamellipodium || 16: lamellipodium membrane || 17: integral to endoplasmic reticulum membrane || 18: synapse || 19: transcriptional repressor complex || 20: peroxisomal matrix || 21: microtubule associated complex || 22: intermediate filament cytoskeleton || 23: ribonucleoprotein complex || 24: cytoplasmic microtubule || 25: microtubule organizing center ||

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



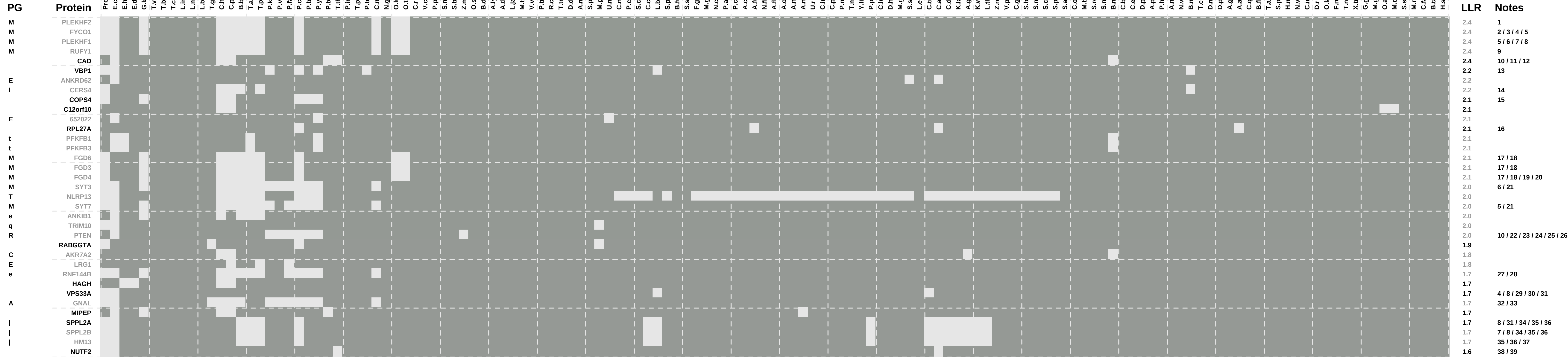
1: Cajal body || 2: nuclear speck || 3: early endosome || 4: early endosome membrane || 5: extrinsic to plasma membrane || 6: BRCA1-A complex || 7: BRCA1-BARD1 complex || 8: chromosome || 9: filamentous actin ||
10: focal adhesion || 11: gamma-tubulin ring complex || 12: ribonucleoprotein complex || 13: ruffle || 14: ubiquitin ligase complex || 15: extracellular matrix || 16: Golgi lumen || 17: lysosomal lumen || 18: proteinaceous extracellular matrix ||
19: integral to Golgi membrane || 20: COPI vesicle coat || 21: COPII vesicle coat || 22: endoplasmic reticulum-Golgi intermediate compartment || 23: endoplasmic reticulum-Golgi intermediate compartment membrane || 24: cytosolic large ribosomal subunit ||

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



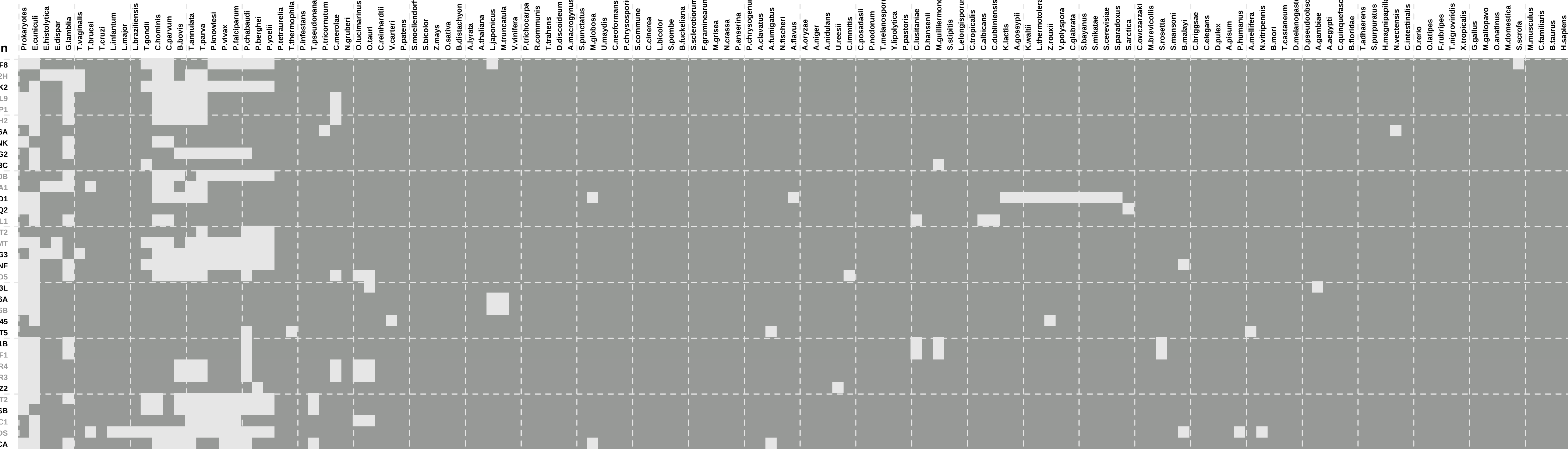
1: nucleosome || 2: Barr body || 3: nuclear nucleosome || 4: transcriptionally active chromatin || 5: endoplasmic reticulum-Golgi intermediate compartment || 6: endoplasmic reticulum-Golgi intermediate compartment membrane || 7: trans-Golgi network transport vesicle || 8: COPI-coated vesicle || 9: COPI-coated vesicle membrane || 10: Golgi cisterna membrane || 11: zymogen granule membrane || 12: dendritic spine || 13: photoreceptor inner segment || 14: sarcolemma || 15: sarcoplasmic reticulum || 16: lamellipodium || 17: neuron projection || 18: ruffle || 19: signalosome || 20: cell cortex || 21: BLOC-1 complex || 22: endosome membrane || 23: membrane raft || 24: phagocytic vesicle || 25: SNARE complex ||

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



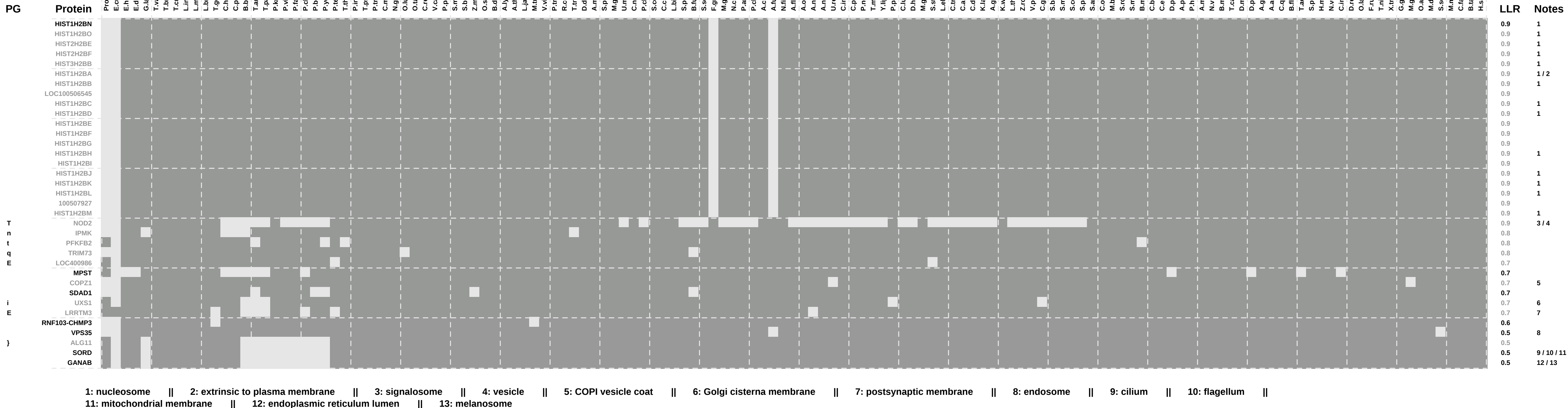
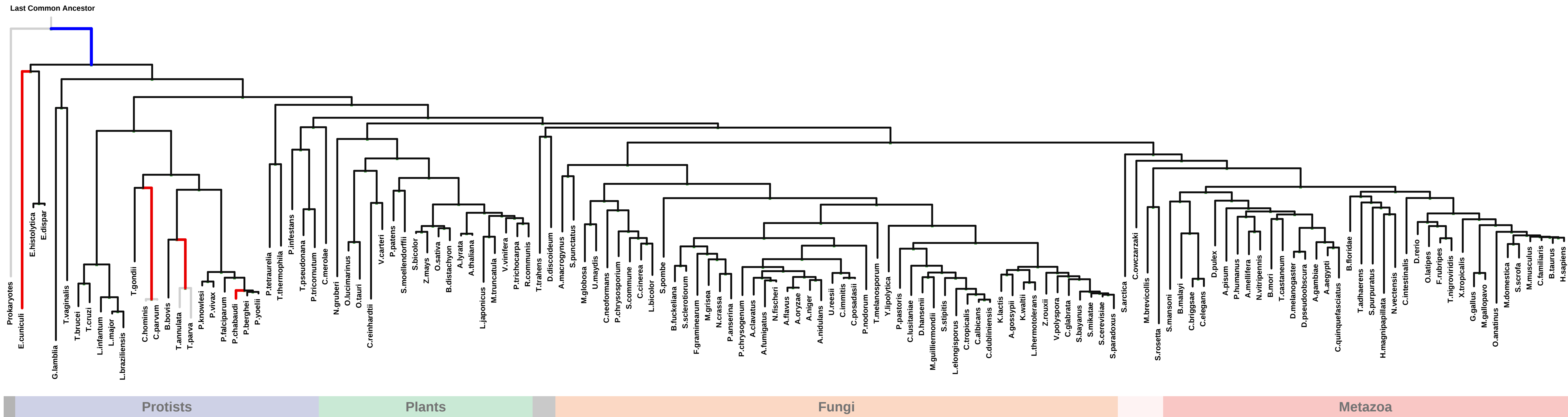
1: transport vesicle || 2: autophagic vacuole || 3: cytoplasmic vesicle || 4: late endosome || 5: lysosome || 6: endosome || 7: endosome membrane || 8: lysosomal membrane || 9: early endosome membrane || 10: cell projection ||
 11: nuclear matrix || 12: terminal button || 13: prefoldin complex || 14: nuclear membrane || 15: signalosome || 16: cytosolic large ribosomal subunit || 17: lamellipodium || 18: ruffle || 19: actin cytoskeleton || 20: filopodium ||
 21: synaptic vesicle membrane || 22: internal side of plasma membrane || 23: myelin sheath adaxonal region || 24: neuron projection || 25: PML body || 26: Schmidt-Lanterman incisure || 27: mitochondrial membrane || 28: ubiquitin ligase complex ||

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4

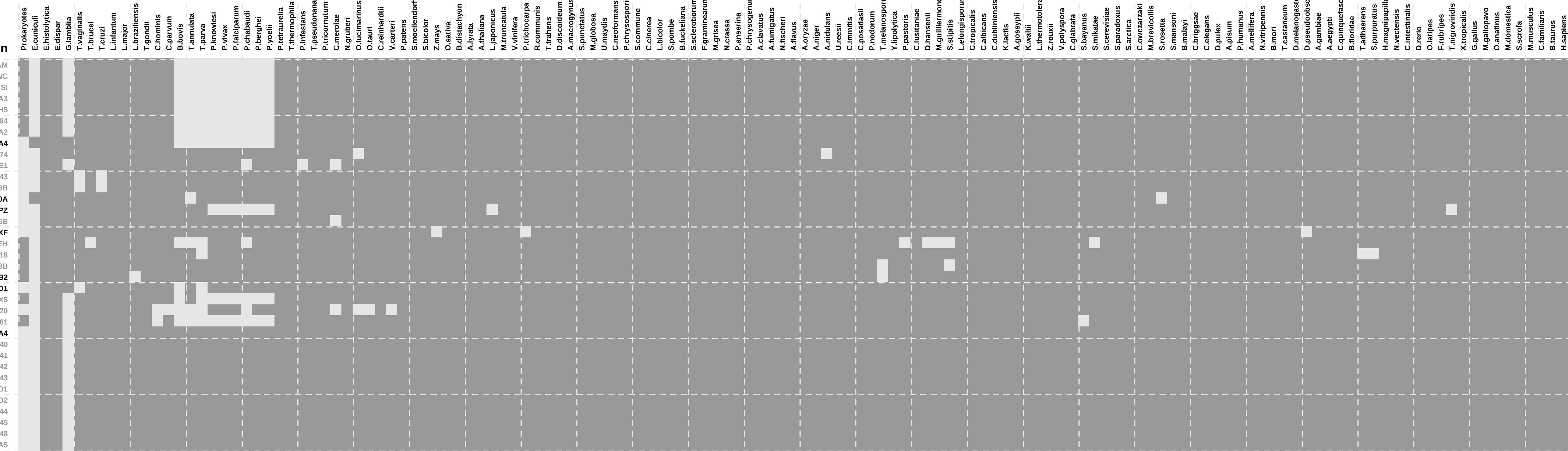


LLR	Notes
1.6	1
1.5	
1.5	2
1.5	3
1.5	
1.5	
1.4	
1.4	
1.4	
1.4	4 / 5
1.3	6 / 7
1.3	
1.3	
1.2	
1.1	8
1.1	9 / 10
1.1	11 / 12 / 13 / 14
1.1	
1.1	15 / 16 / 17 / 18
1.1	17
1.1	
1.1	
1.1	
1.0	19
1.0	
1.0	20 / 21
1.0	
1.0	22
0.9	
0.9	
0.9	

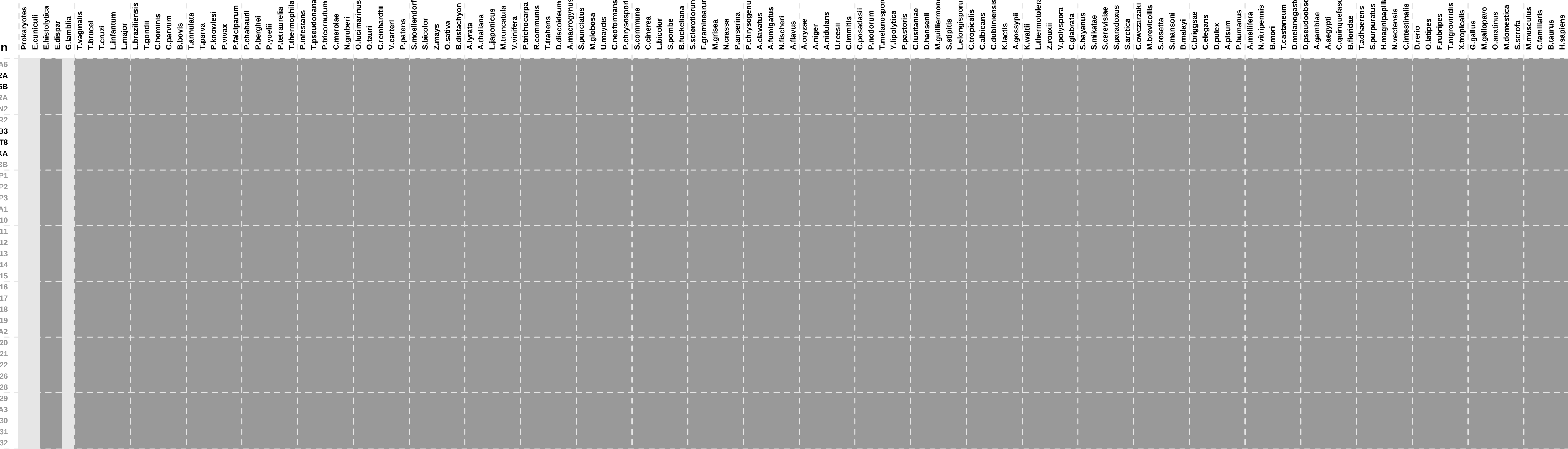
Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4

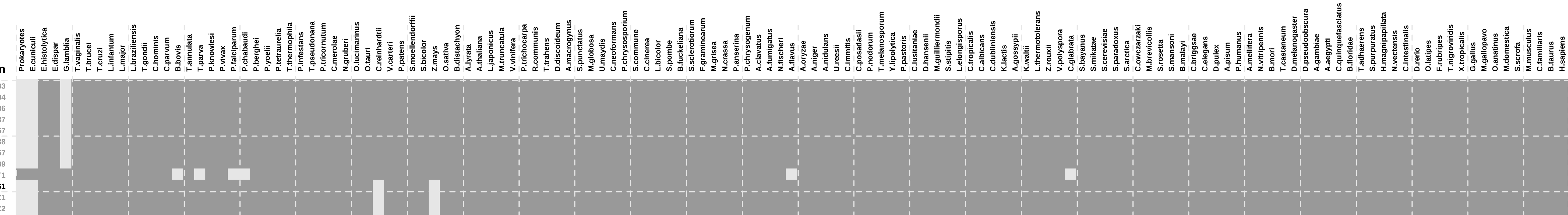


Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



LLR	Notes
0.1	1
0.1	2
0.1	
0.1	3
0.1	
0.1	4
0.1	5 / 6 / 7 / 8
0.1	
0.1	9
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	4 / 10 / 11
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	12 / 13
0.1	

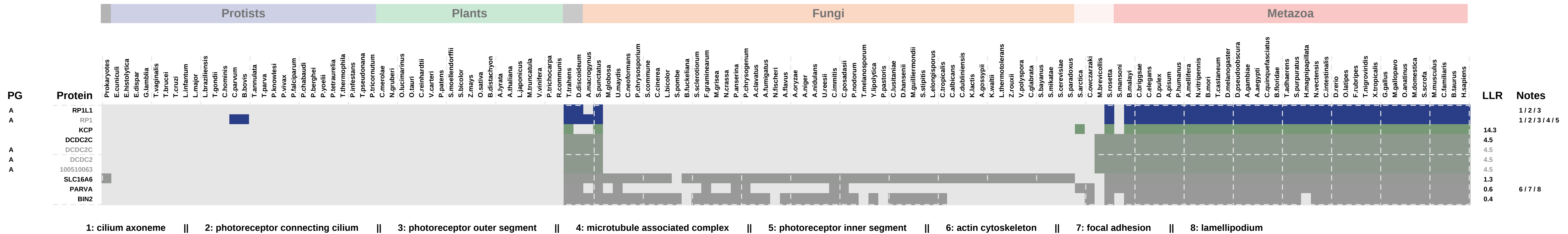
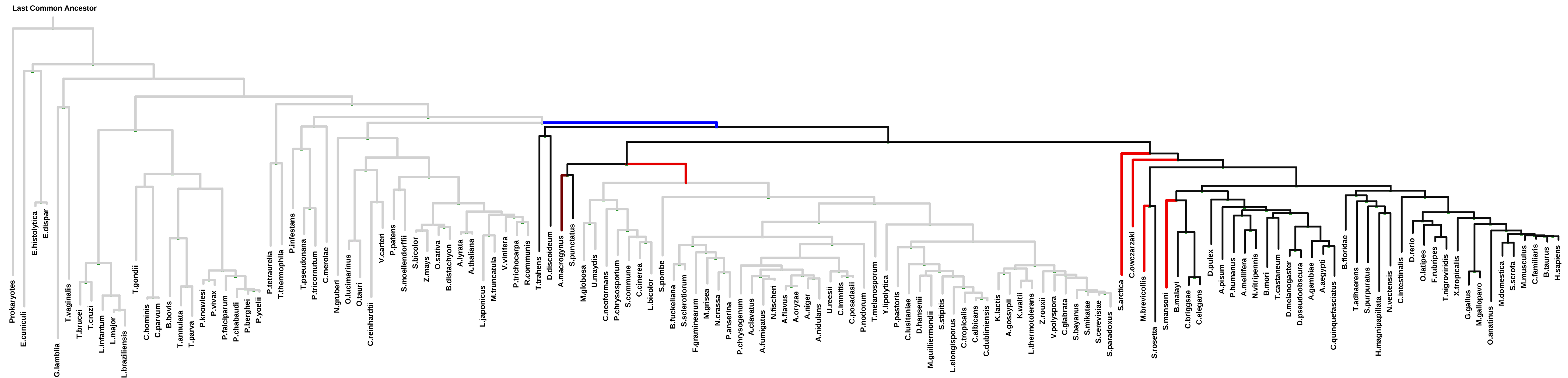
Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 6.4



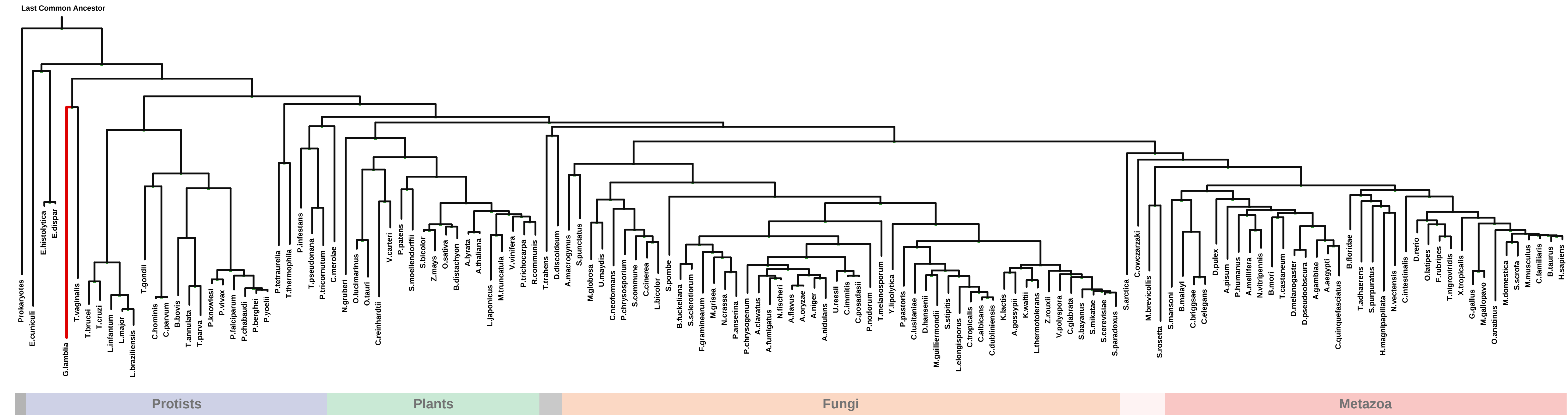
LLR	Notes
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	
0.1	1
0.1	1
0.1	2

ECM 5, Gene set "photoreceptor outer segment", Page 1

Num of ECM Genes: 2. Num of Predicted Genes: 8. ECM Strength: 1.7

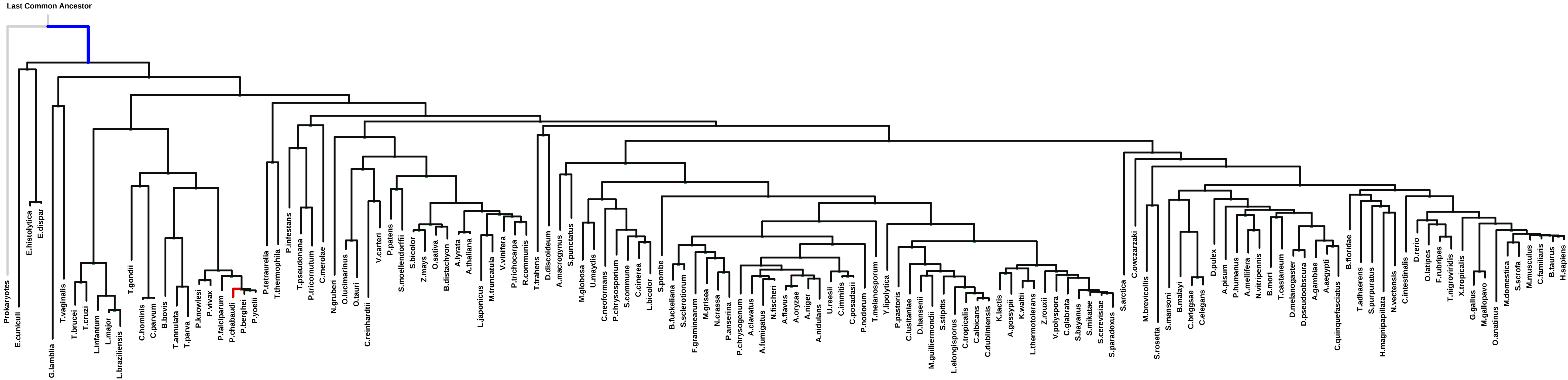


Num of ECM Genes: 1. Num of Predicted Genes: 0

1 / 2

ECM 7, Gene set "photoreceptor outer segment", Page 1

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



PG

Protein	OCRL	Prokaryotes	E.cuniculi	E.histolytica	E.dispar	G.lamblia	T.vaginalis	T.brucei	T.cruzi	L.infantum	L.major	L.braziliensis	T.gondii	C.hominis	C.parvum	B.bovis	T.annulata	T.parva	P.knowlesi	P.vivax	P.falciparum	P.chabaudi	P.berghsi	P.yoelli	P.tetraurelia	T.thermophila	P.infestans	T.pseudonana	P.tricornutum	C.merolae	N.gruberi	O.lucimarinus	O.auri	C.reinhardtii	V.carteri	P.patens	S.moellendorffii	S.bicolor	Z.mays	O.sativa	B.distachyon	A.lyrata	A.thaliana	L.japonicus	M.truncatula	V.vinifera	P.trichocarpa	R.communis	T.trahens	D.discoideum	A.macrogynus	S.punctatus	M.globosa	U.maydis	C.neoformans	P.chrysosporium	S.commune	C.cinerea	L.bicolor	S.pombe	B.fuckeliana	S.sclerotiorum	F.graminearum	M.grisea	N.crassa	P.anserina	P.chrysogenum	A.clavatus	A.fumigatus	N.fischeri	A.flavus	A.oryzae	A.niger	A.nidulans	U.ressii	C.immitis	C.posadasii	P.nodorum	T.melanosporum	Y.lipolytica	P.pastoris	C.lusitanae	D.hansenii	M.guilliermondii	S.stipitidis	L.elongisporus	C.tropicalis	C.albicans	C.dubliniensis	K.lactis	A.gossypii	K.waltii	L.thermotolerans	Z.rouxii	V.polyspora	C.glabrata	S.bayanus	S.mikatae	S.cerevisiae	S.paradoxus	S.sarctica	Cowczarzaki	M.brevicollis	S.rosea	S.mansoni	B.malay	C.briggsae	C.elegans	D.pulex	A.pisum	P.humanus	A.mellifera	N.vitripennis	B.mori	T.castaneum	D.melanogaster	D.pseudoobscura	A.gambiae	A.aegypti	C.quinquefasciatus	B.floridae	T.adhaerens	S.purpuratus	H.magnipapillata	N.vectensis	C.intestinalis	D.erio	O.latipes	F.rubripes	T.nigroviridis	X.tropicalis	G.gallus	M.gallopavo	O.anatinus	M.domestica	S.scrofa	M.musculus	C.familiaris	B.taurus	H.sapiens
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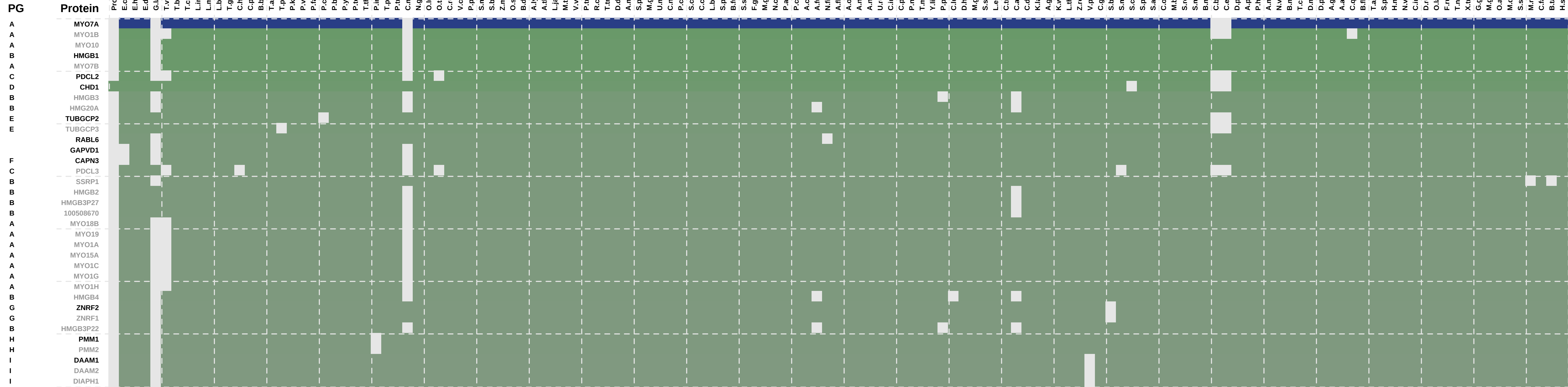
LLR

Notes

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

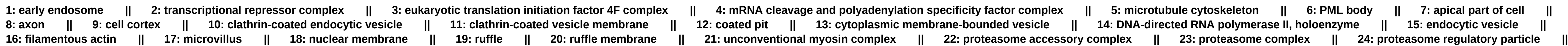
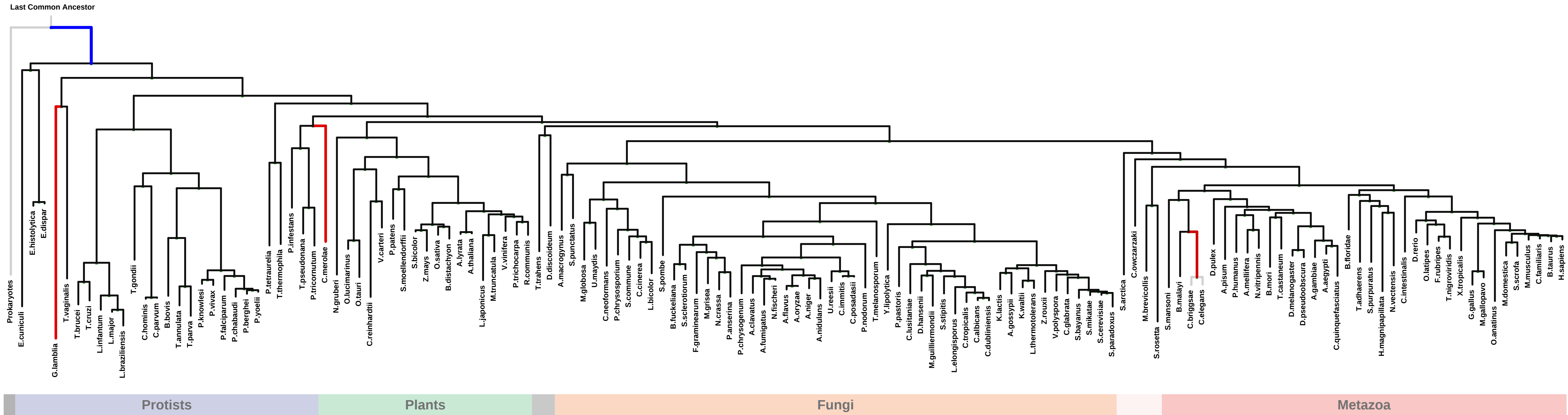
1: clathrin-coated vesicle || 2: coated pit || 3: early endosome || 4: early endosome membrane || 5: Golgi stack || 6: Golgi-associated vesicle || 7: phagocytic vesicle membrane || 8: photoreceptor outer segment

Num of ECM Genes: 1. Num of Predicted Genes: 434

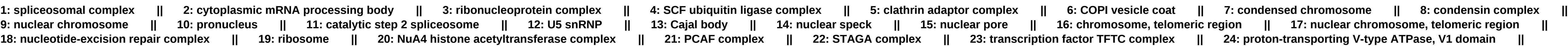
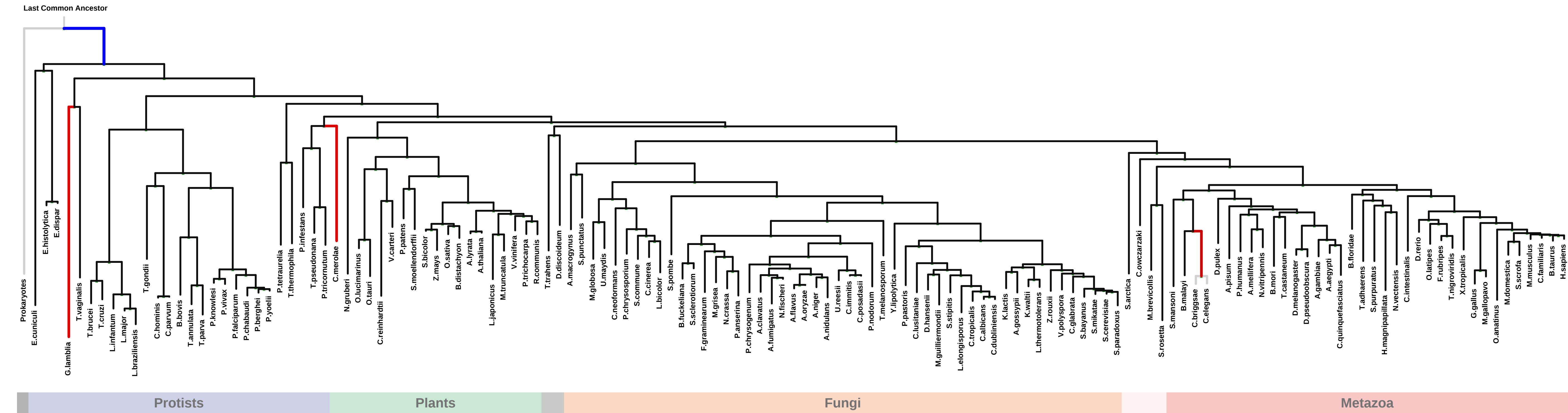


1: cell cortex || 2: lysosomal membrane || 3: melanosome || 4: myosin complex || 5: photoreceptor connecting cilium || 6: photoreceptor inner segment || 7: photoreceptor outer segment || 8: stereocilium || 9: synapse || 10: brush border || 11: cell periphery || 12: filopodium || 13: filopodium membrane || 14: filopodium tip || 15: lamellipodium || 16: neuron projection || 17: ruffle || 18: condensed chromosome || 19: transcriptional repressor complex || 20: chromosome || 21: cytoplasmic microtubule || 22: microtubule organizing center || 23: spindle pole || 24: centriole || 25: polar microtubule || 26: spindle || 27: endosome || 28: myofibril || 29: T-tubule || 30: Z disc ||

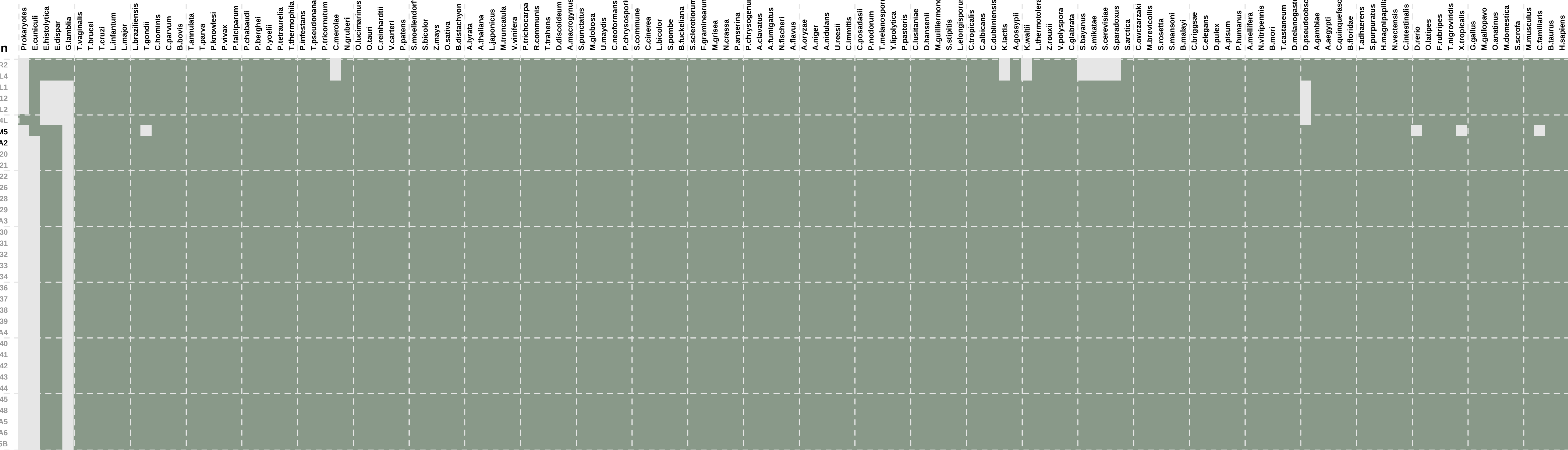
Num of ECM Genes: 1. Num of Predicted Genes: 434



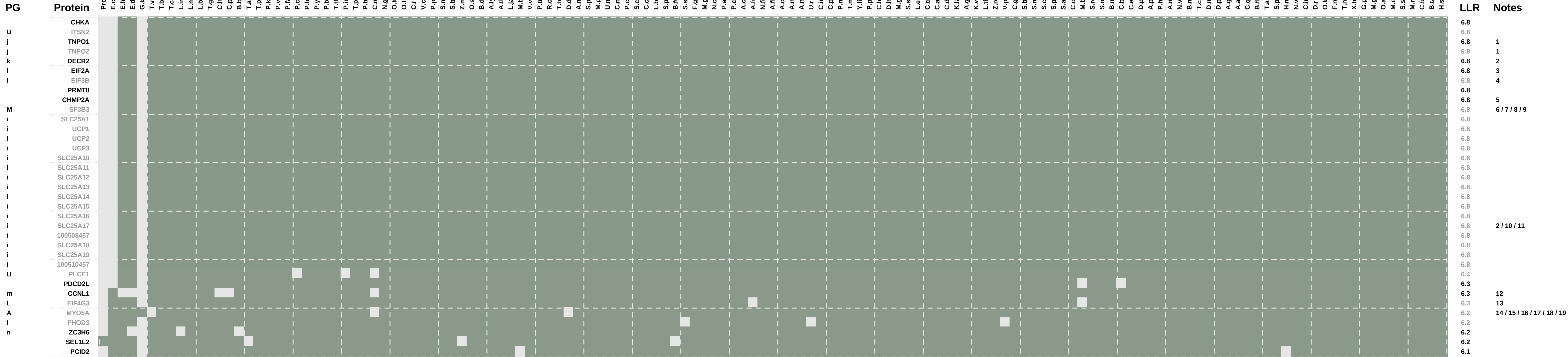
Num of ECM Genes: 1. Num of Predicted Genes: 434



Num of ECM Genes: 1. Num of Predicted Genes: 434

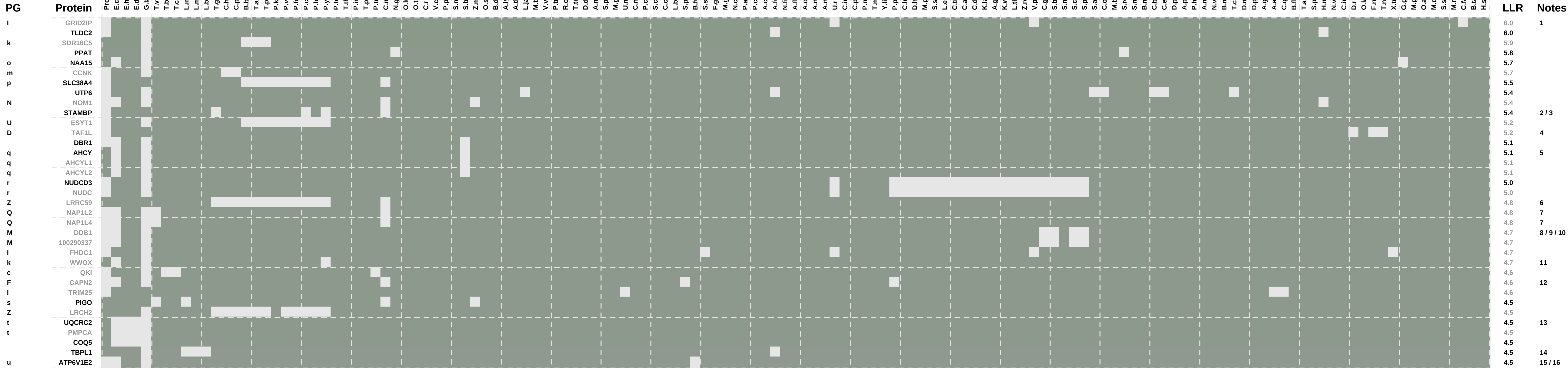


Num of ECM Genes: 1. Num of Predicted Genes: 434



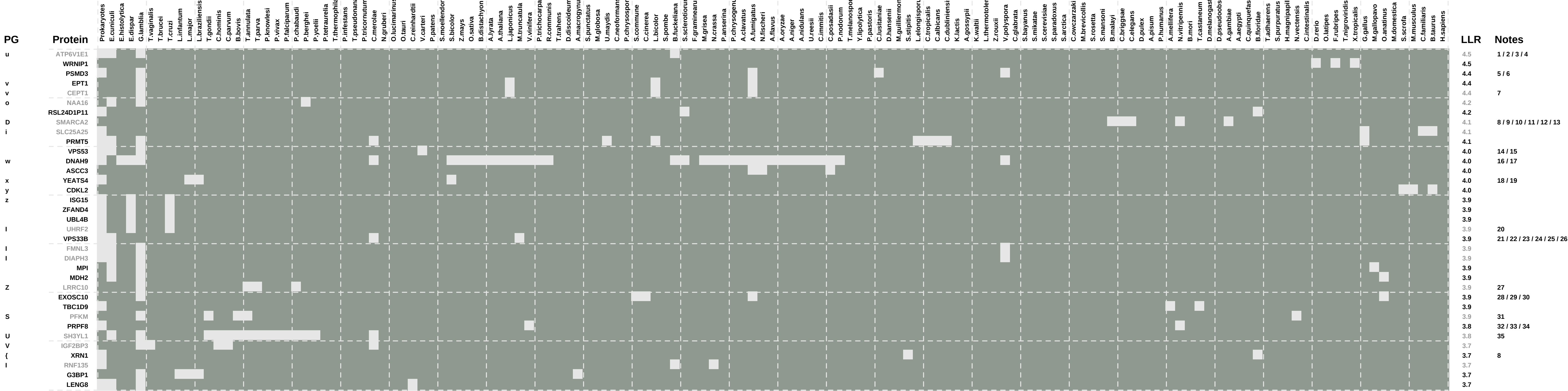
1: nuclear pore || 2: peroxisome || 3: eukaryotic translation initiation factor 2 complex || 4: eukaryotic translation initiation factor 3 complex || 5: late endosome membrane || 6: catalytic step 2 spliceosome || 7: small nuclear ribonucleoprotein complex || 8: spliceosomal complex || 9: U12-type spliceosomal complex || 10: integral to peroxisomal membrane || 11: peroxisomal membrane || 12: nuclear speck || 13: eukaryotic translation initiation factor 4F complex || 14: actomyosin || 15: growth cone || 16: insulin-responsive compartment || 17: intermediate filament || 18: melanosome || 19: microtubule plus end || 20: myosin complex || 21: neuron projection || 22: photoreceptor outer segment || 23: ruffle

Num of ECM Genes: 1. Num of Predicted Genes: 434

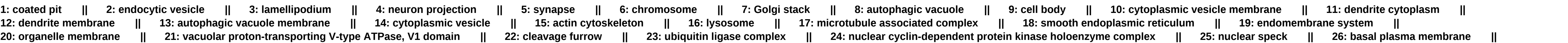
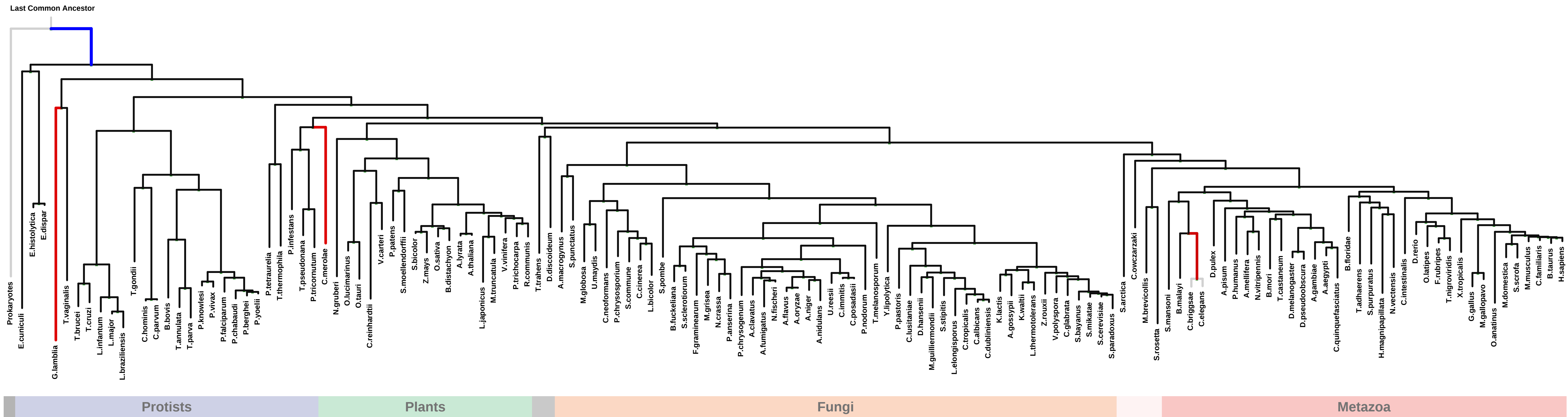


ECM 8, Gene set "photoreceptor outer segment", Page 7

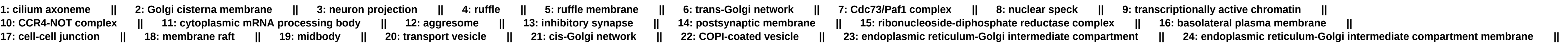
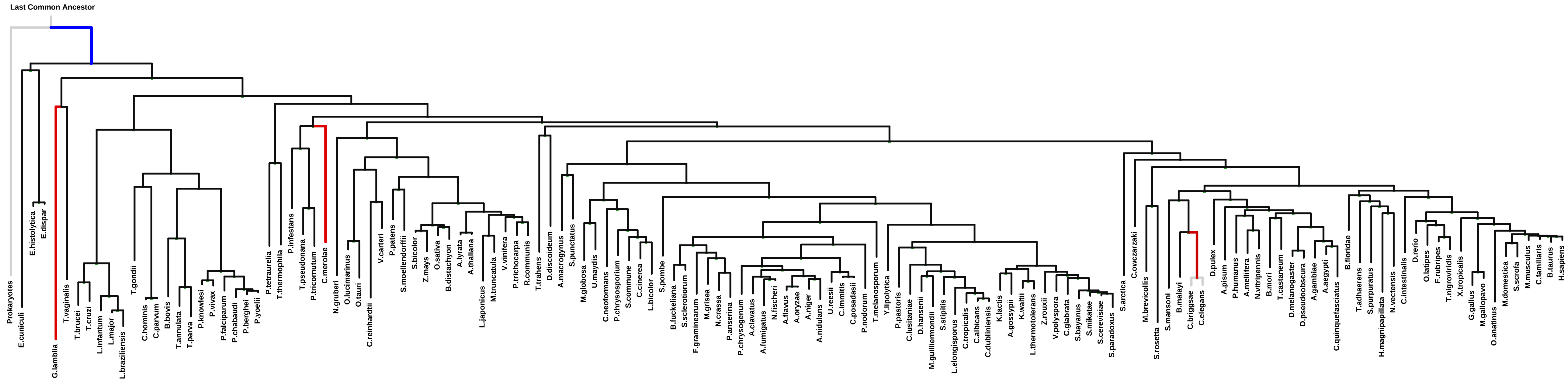
Num of ECM Genes: 1. Num of Predicted Genes: 434



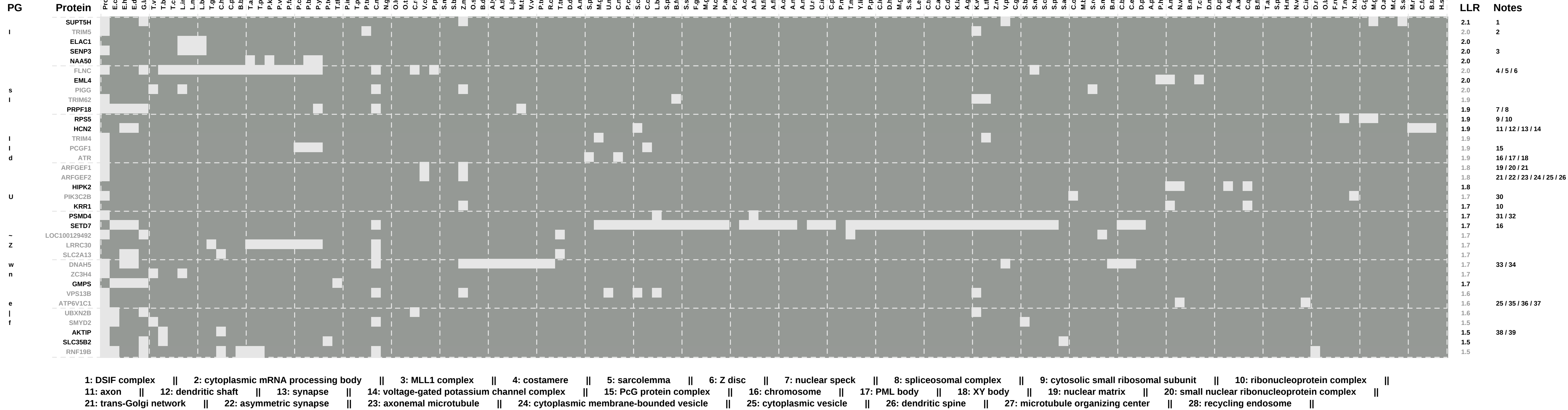
Num of ECM Genes: 1. Num of Predicted Genes: 434



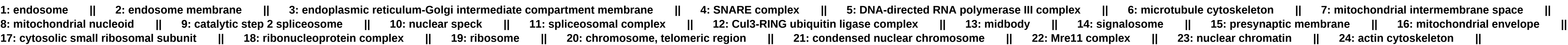
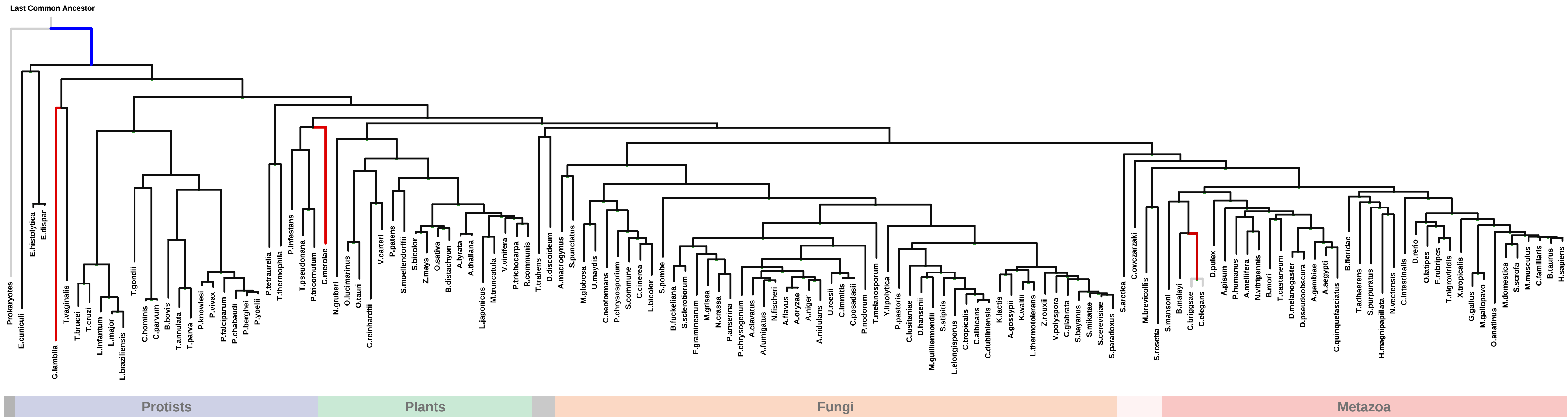
Num of ECM Genes: 1. Num of Predicted Genes: 434



Num of ECM Genes: 1. Num of Predicted Genes: 434

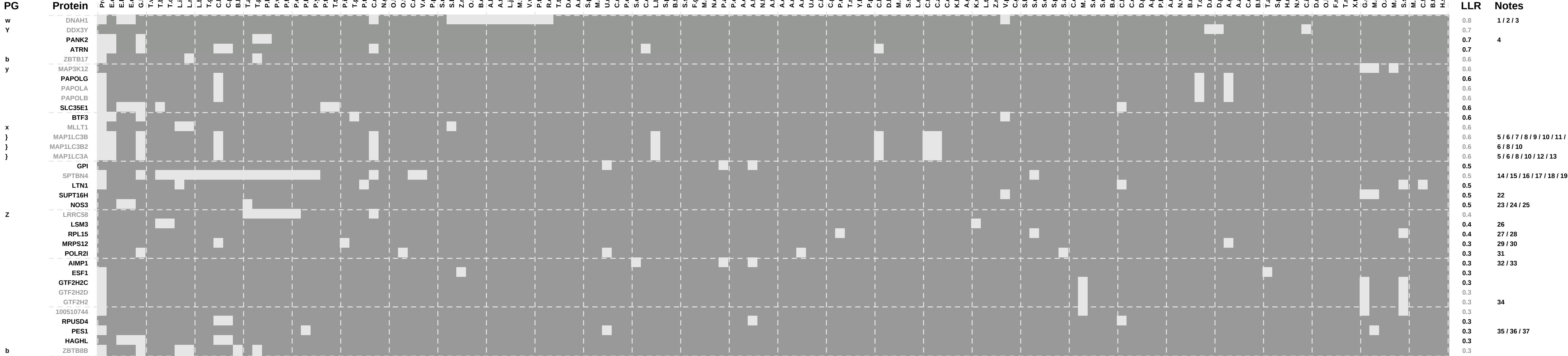
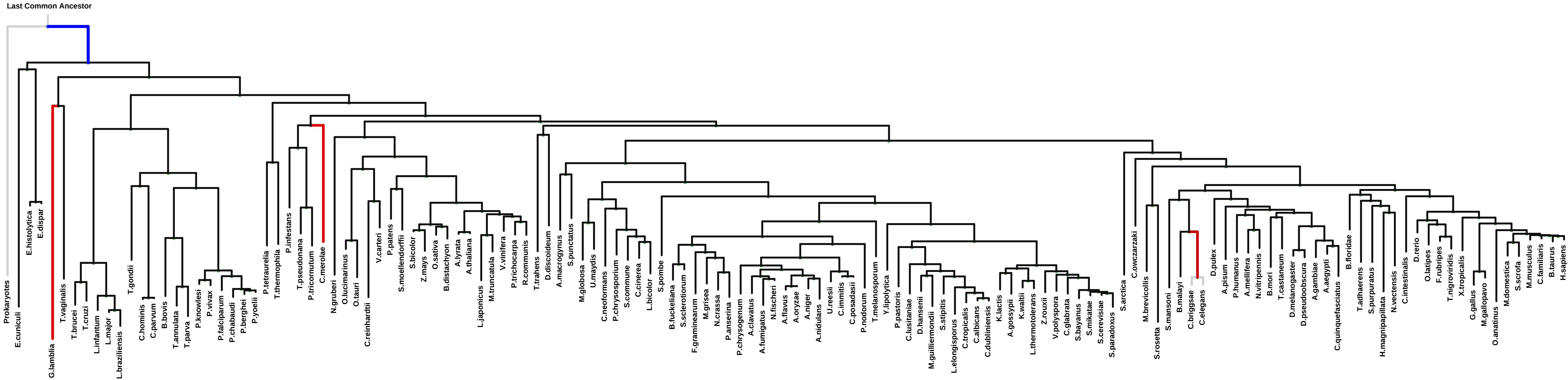


Num of ECM Genes: 1. Num of Predicted Genes: 434

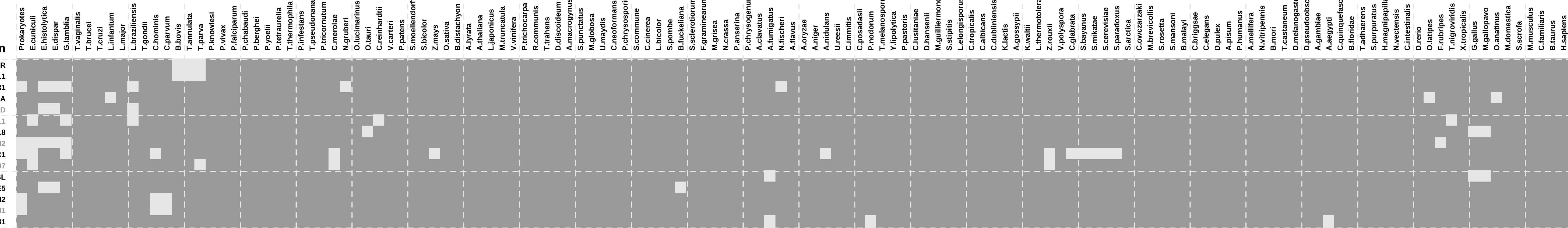


ECM 8, Gene set "photoreceptor outer segment", Page 12

Num of ECM Genes: 1. Num of Predicted Genes: 434

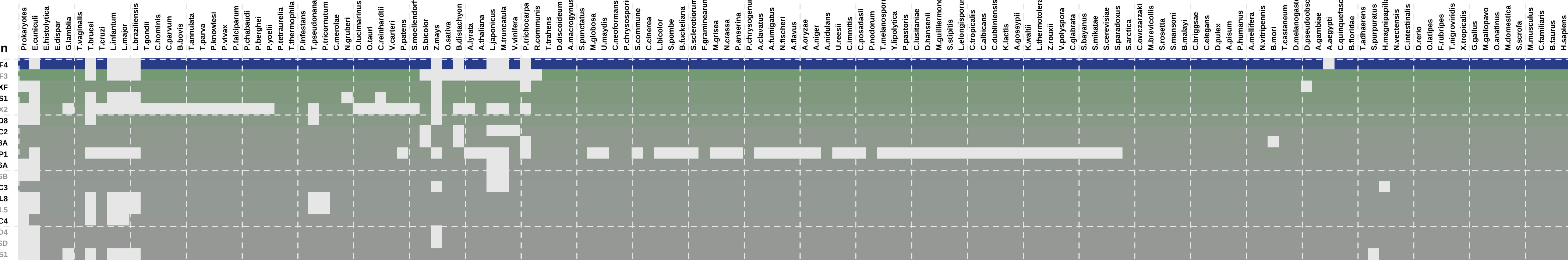


Num of ECM Genes: 1. Num of Predicted Genes: 434



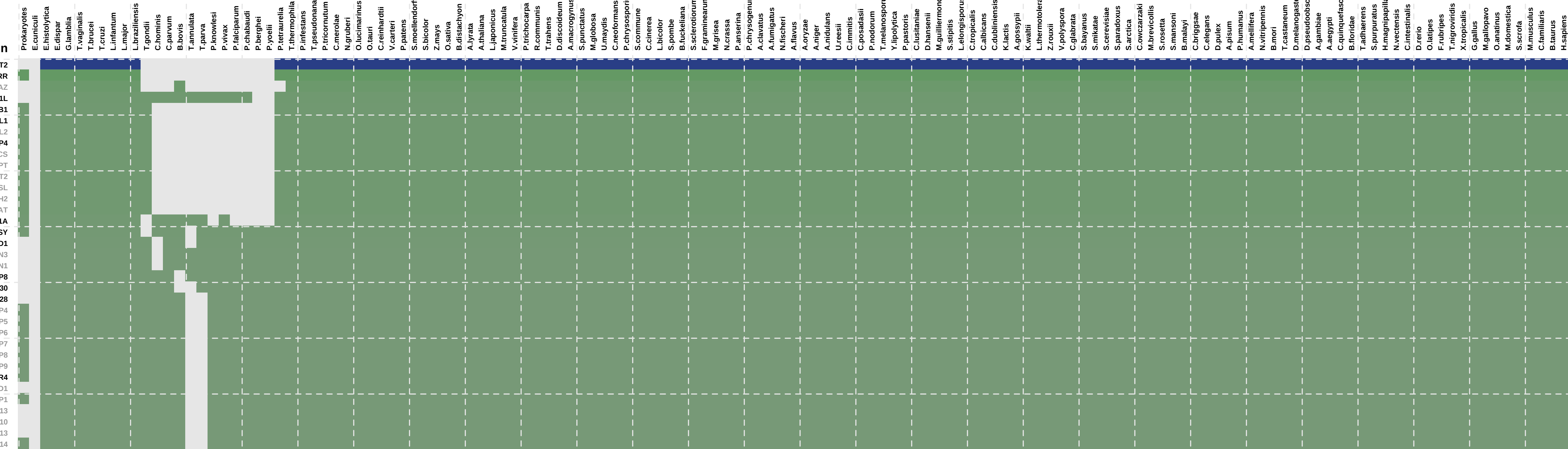
LLR	Notes
0.2	1 / 2 / 3
0.2	
0.2	
0.2	
0.1	4
0.1	5
0.1	6 / 7 / 8
0.1	
0.1	
0.0	9 / 10 / 11
0.0	
0.0	12
0.0	
0.0	

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



1: axon || 2: basolateral plasma membrane || 3: cAMP-dependent protein kinase complex || 4: dendritic spine || 5: excitatory synapse || 6: photoreceptor inner segment || 7: photoreceptor outer segment || 8: endomembrane system || 9: Cajal body || 10: small nuclear ribonucleoprotein complex || 11: trans-Golgi network || 12: ubiquitin ligase complex || 13: intercellular canaliculus || 14: chromosome || 15: PML body || 16: endosome || 17: endosome membrane || 18: retromer complex || 19: vesicle || 20: holo TFIIF complex || 21: SSL2-core TFIIF complex || 22: ruffle

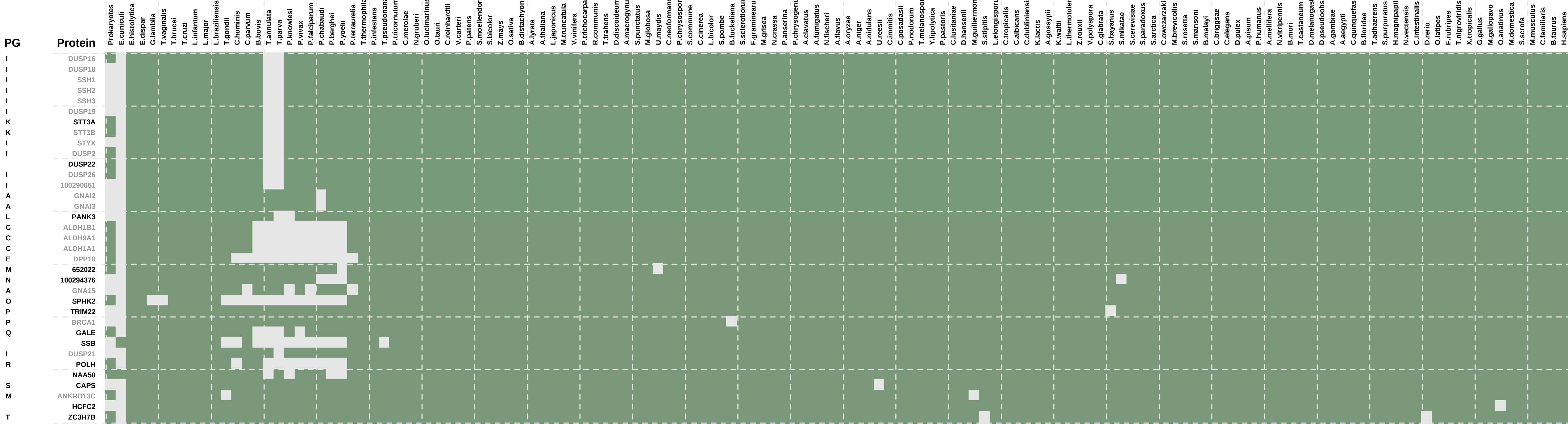
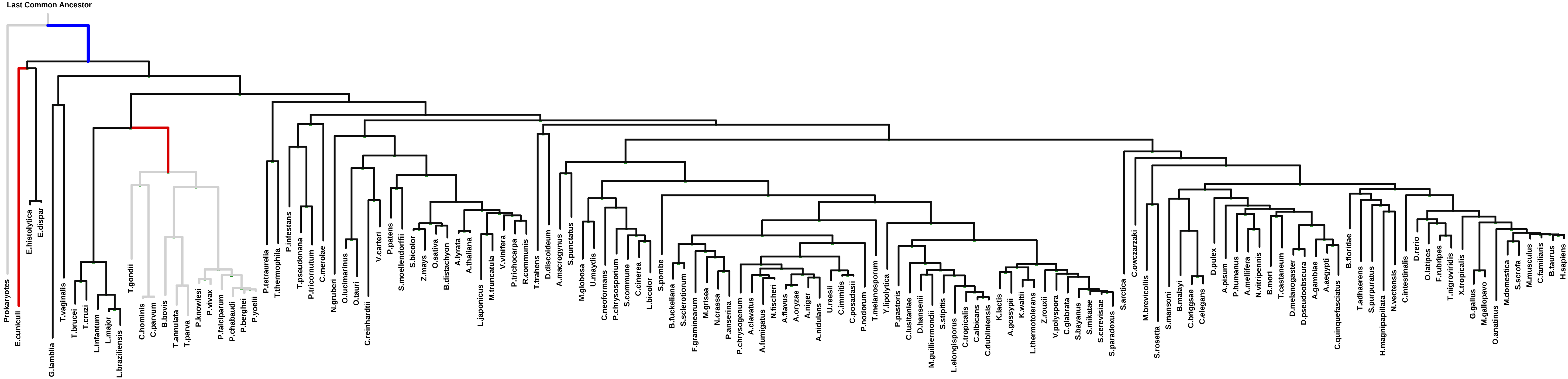
Num of ECM Genes: 1. Num of Predicted Genes: 500



LLR	Notes
22.6	1 / 2 / 3 / 4 / 5
19.1	6
17.7	1 / 2 / 7
17.3	
17.3	
17.3	
17.3	8 / 9 / 10 / 11 / 12 / 13
17.3	
17.3	
17.3	
17.3	
17.3	
16.2	
15.7	14
15.3	
15.0	15
15.0	16
14.8	17 / 18 / 19 / 20 / 21 / 22
14.4	14
14.4	
14.4	
14.4	
14.4	
14.4	
14.4	
14.4	
14.4	1 / 2 / 23 / 24
14.4	
14.4	

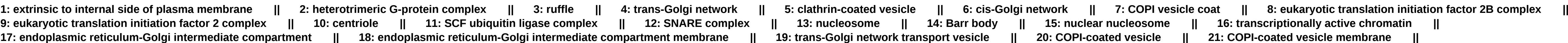
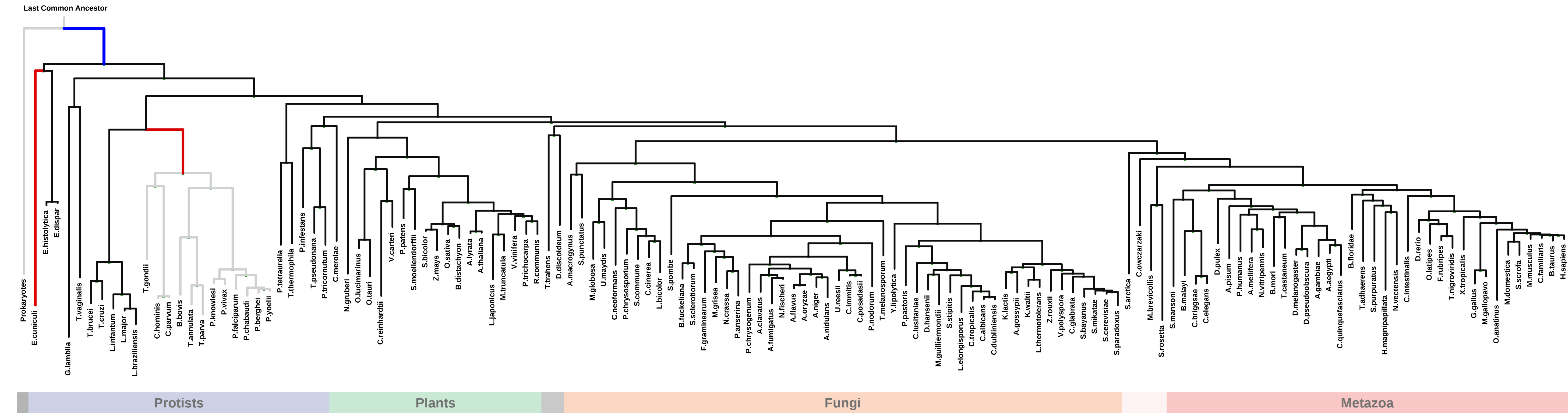
ECM 10, Gene set "photoreceptor outer segment", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 500

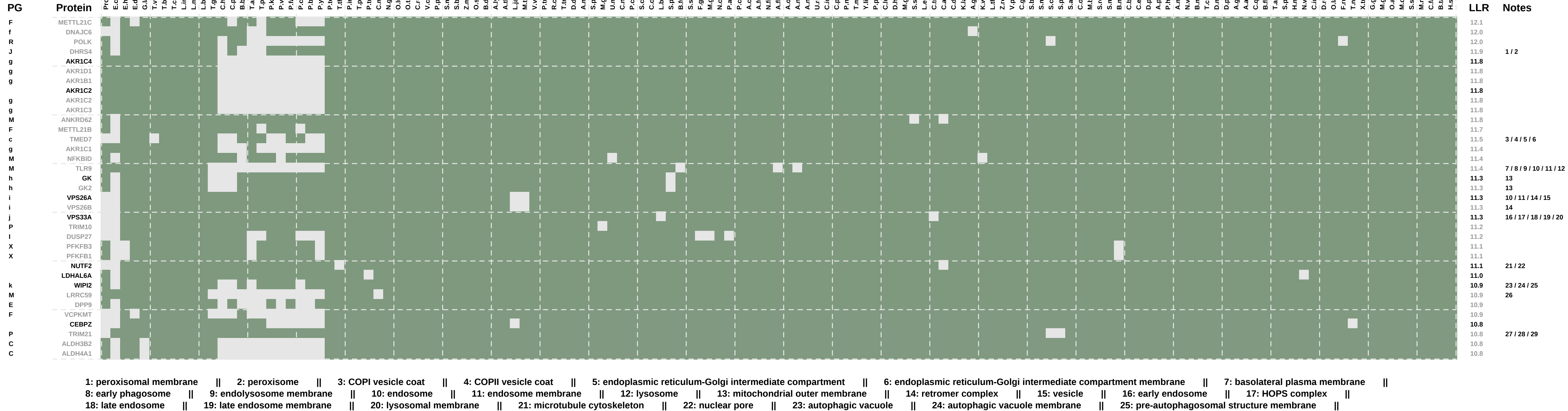


1: cytoplasmic membrane-bounded vesicle 2: cleavage furrow 3: lamellipodium 4: midbody 5: oligosaccharyltransferase complex 6: extrinsic to internal side of plasma membrane 7: heterotrimeric G-protein complex 8: membrane raft 9: zymogen granule 10: lysosomal membrane 11: Cajal body 12: nuclear speck 13: BRCA1-A complex 14: BRCA1-BARD1 complex 15: chromosome 16: filamentous actin 17: focal adhesion 18: gamma-tubulin ring complex 19: ribonucleoprotein complex 20: ruffle 21: ubiquitin ligase complex

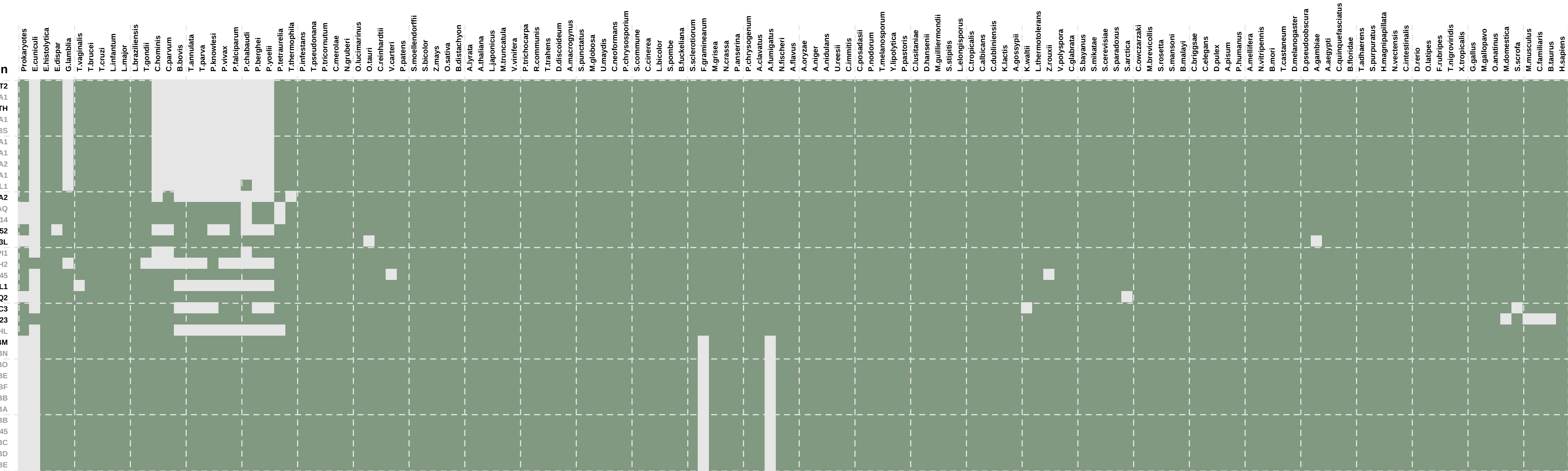
Num of ECM Genes: 1. Num of Predicted Genes: 500



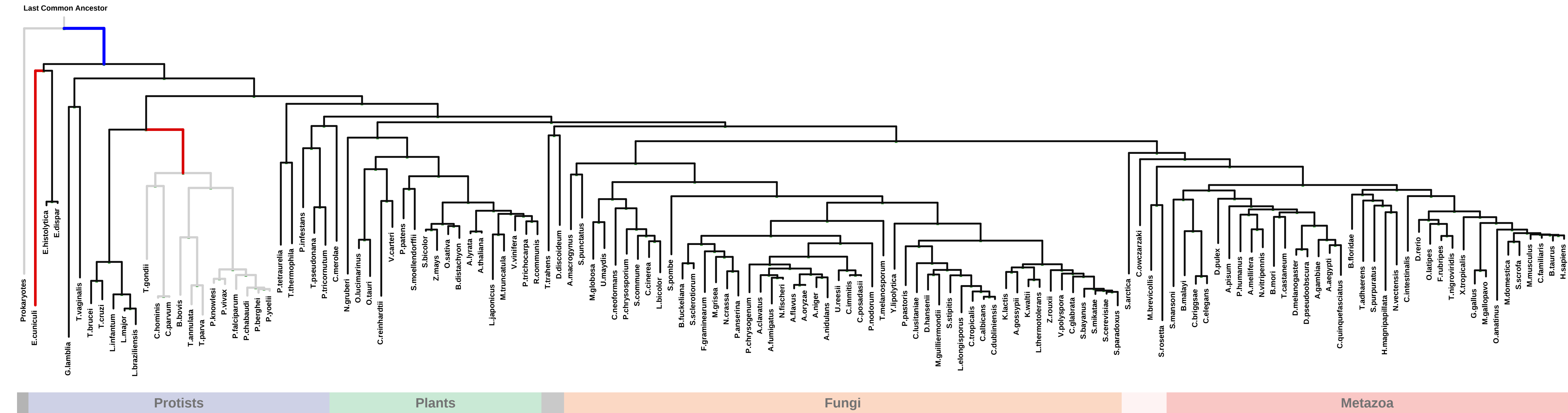
Num of ECM Genes: 1. Num of Predicted Genes: 500



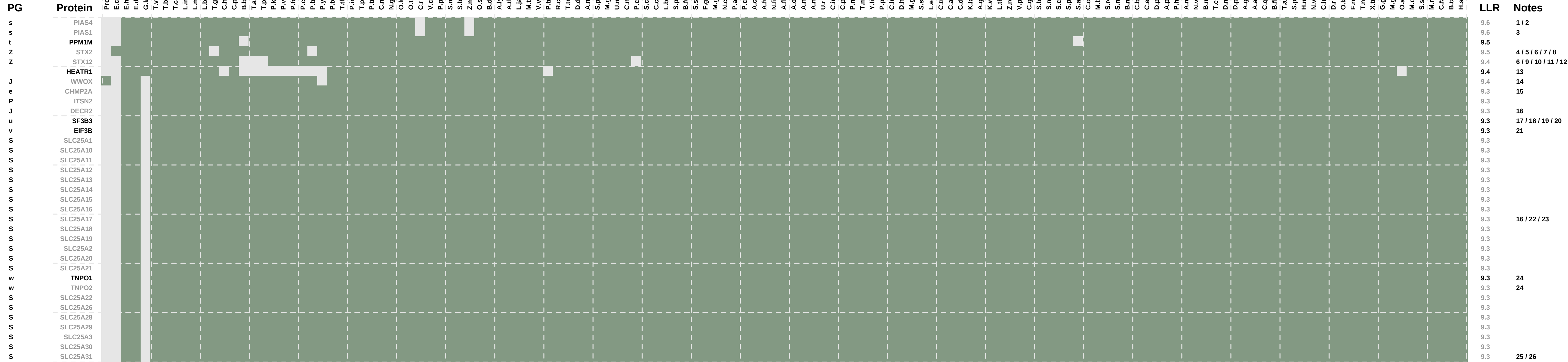
Num of ECM Genes: 1. Num of Predicted Genes: 500



Num of ECM Genes: 1. Num of Predicted Genes: 500



Num of ECM Genes: 1. Num of Predicted Genes: 500

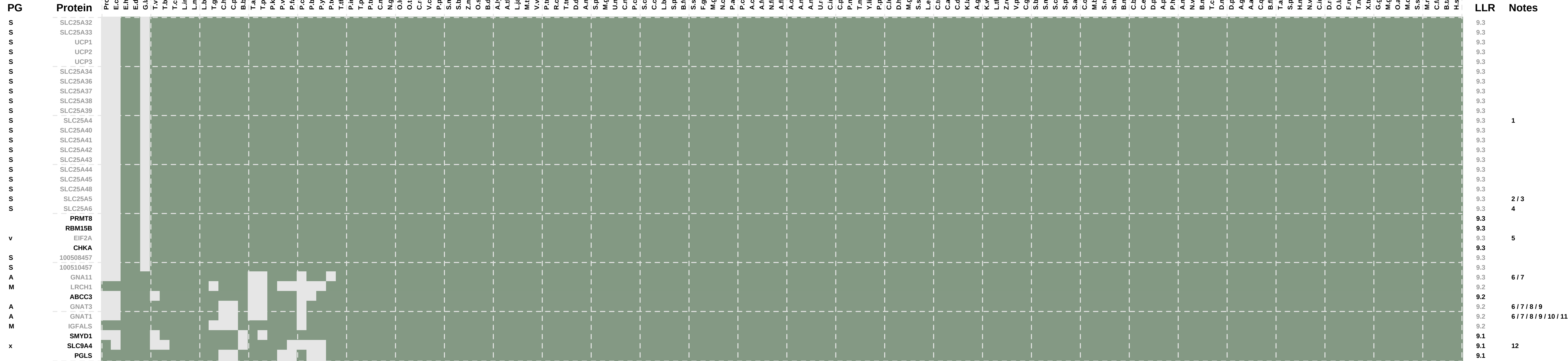


1: nuclear matrix || 2: PML body || 3: nuclear speck || 4: basolateral plasma membrane || 5: cell-cell junction || 6: membrane raft || 7: midbody

11: phagocytic vesicle || 12: SNARE complex || 13: ribonucleoprotein complex || 14: microvillus || 15: late endosome membrane || 16: peroxisome || 17: catalytic step 2 spliceosome || 18: small nuclear ribonucleoprotein complex ||

19: spliceosomal complex || 20: U12-type spliceosomal complex || 21: eukaryotic translation initiation factor 3 complex || 22: integral to peroxisomal membrane || 23: peroxisomal membrane || 24: nuclear pore || 25: cilium || 26: flagellum

Num of ECM Genes: 1. Num of Predicted Genes: 500



1

2 / 3

4

5

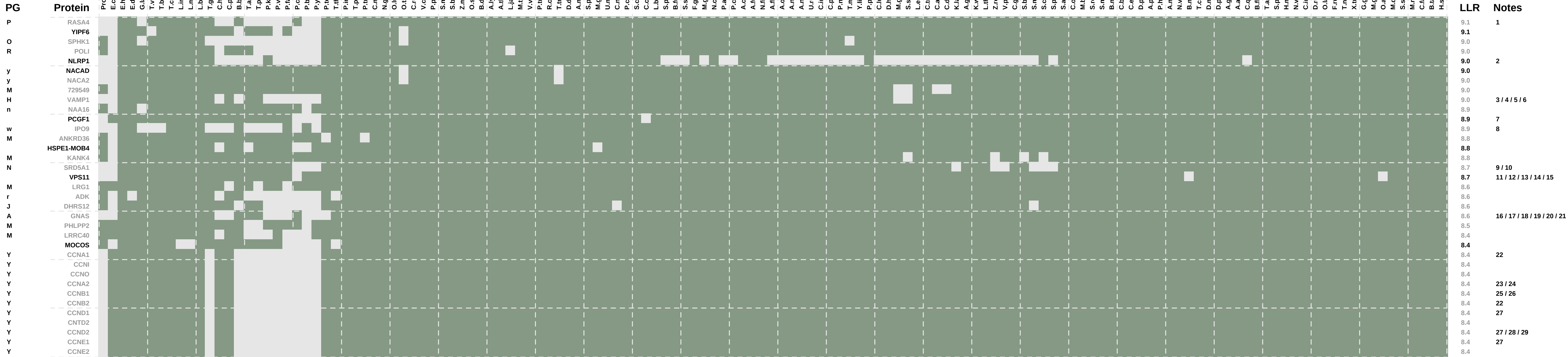
6 / 7

6 / 7 / 8 / 9

6 / 7 / 8 / 9 / 10 / 11

12

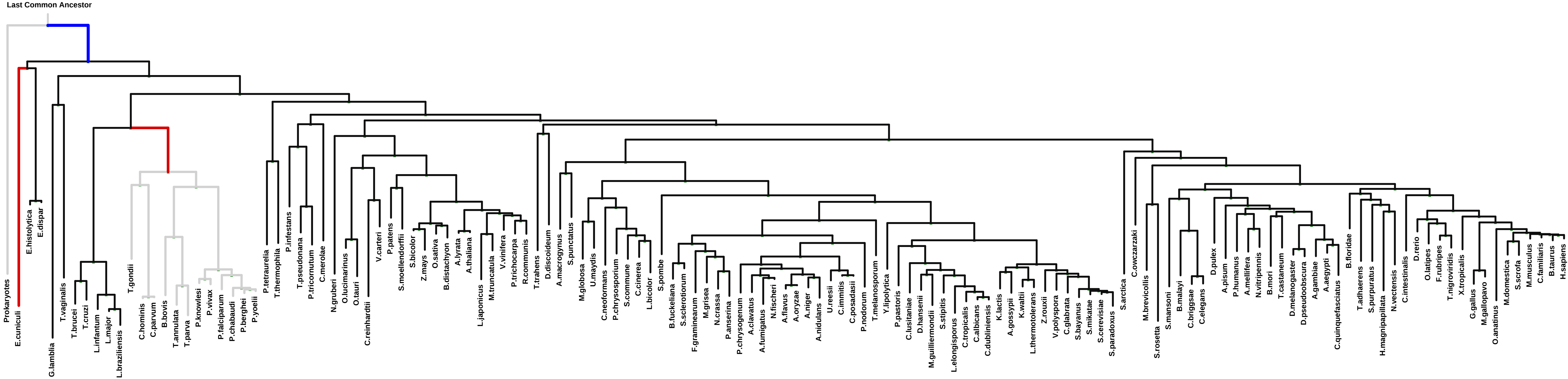
Num of ECM Genes: 1. Num of Predicted Genes: 500



1: intrinsic to internal side of plasma membrane || 2: NLRP1 inflammasome complex || 3: endocytic vesicle membrane || 4: mitochondrial outer membrane || 5: neuron projection || 6: synaptic vesicle membrane || 7: PcG protein complex || 8: nuclear pore || 9: cell body fiber || 10: myelin sheath || 11: endocytic vesicle || 12: endosome || 13: HOPS complex || 14: late endosome membrane || 15: lysosomal membrane || 16: extrinsic to internal side of plasma membrane || 17: heterotrimeric G-protein complex || 18: intrinsic to membrane || 19: ruffle || 20: trans-Golgi network membrane || 21: transport vesicle || 22: microtubule cytoskeleton || 23: female pronucleus || 24: male pronucleus || 25: condensed nuclear chromosome outer kinetochore

ECM 10, Gene set "photoreceptor outer segment", Page 10

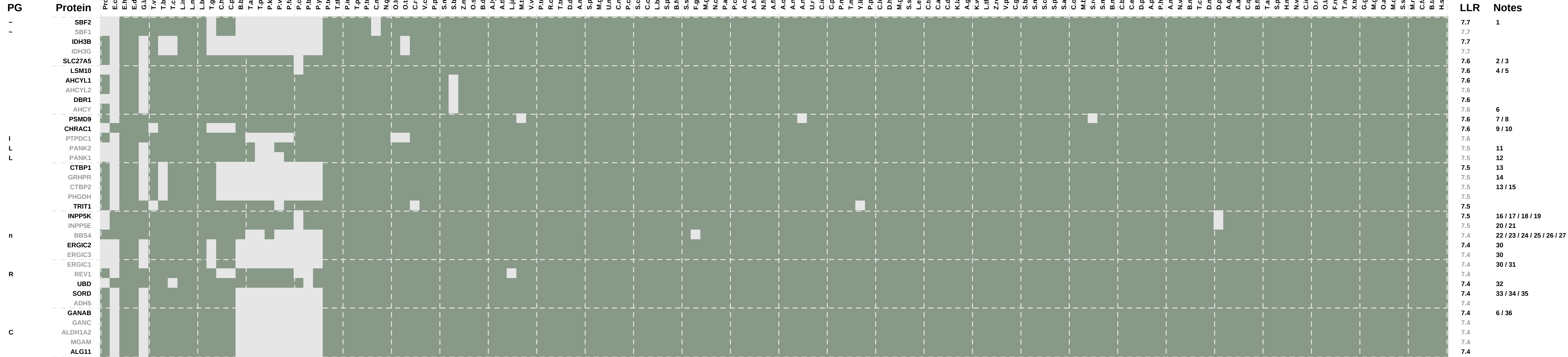
Num of ECM Genes: 1. Num of Predicted Genes: 500



PG	Protein	Prokaryotes	E.cuniculi	E.hispidula	E.dispar	G.lambia	T.vaginalis	T.brucei	T.cruzi	L.infantum	L.major	L.braziliensis	T.gondii	C.hominis	C.parvum	B.bovis	T.amulata	T.parva	P.knowlesi	P.vivax	P.falciparum	P.chabaudi	P.berghei	P.yoelli	P.tetralella	T.thermophilus	P.infestans	T.pseudonana	P.tricornutum	C.merolae	N.gruberi	O.lucimarinum	O.auri	C.reinhardtii	V.carteri	P.patens	S.moellendor	S.bicolor	Z.mays	O.sativa	B.distachyon	A.lyrata	A.italiana	L.japonicus	M.truncatula	V.vinifera	P.trichocarpa	R.communis	T.rahens	D.discoideum	A.macrogynum	S.punctatus	M.glabrosa	U.mayidis	C.neoformans	P.chrysosporium	S.commune	C.cinerea	L.bicolor	S.pombe	B.fuckeliana	S.sclerotiorum	F.graminearum	M.grisea	N.crassa	P.anserina	P.chrysogenum	A.clavatus	A.fumigatus	N.fischeri	A.flavus	A.oryzae	A.niger	A.nidulans	U.ressii	C.immitis	C.posadasii	P.nodorum	T.melanosporeum	Y.lipolytica	P.pastoris	C.lusitanae	D.hansenii	M.guilliermondii	S.stipitis	L.elongisporum	C.tropicalis	C.albicans	C.dubliniensis	K.lactis	A.gossypii	K.waltii	L.thermotolerans	Z.rouxii	V.polyspora	C.glabrata	S.bayanus	S.mikatae	S.cerevisiae	S.paradoxus	S.arctica	C.owczarzakii	M.brevicollis	S.rosetta	S.mansoni	B.malayi	C.briggsae	C.elegans	D.pulex	A.plisum	P.humanus	A.mellifera	N.vitripennis	B.mori	T.castaneum	D.melanogaster	D.pseudoscorpionis	A.gambiae	A.aegypti	C.quinquefasciatus	B.floridae	T.adhaerens	S.purpuratus	H.magnipapillatus	N.vectensis	C.intestinalis	D.riero	O.laetipes	F.rubripes	T.nigroviridis	X.tropicalis	G.gallus	M.gallipavo	O.anatinus	M.domestica	S.scrofa	M.musculus	C.familiaris	B.taurus	H.sapiens	LLR	Notes																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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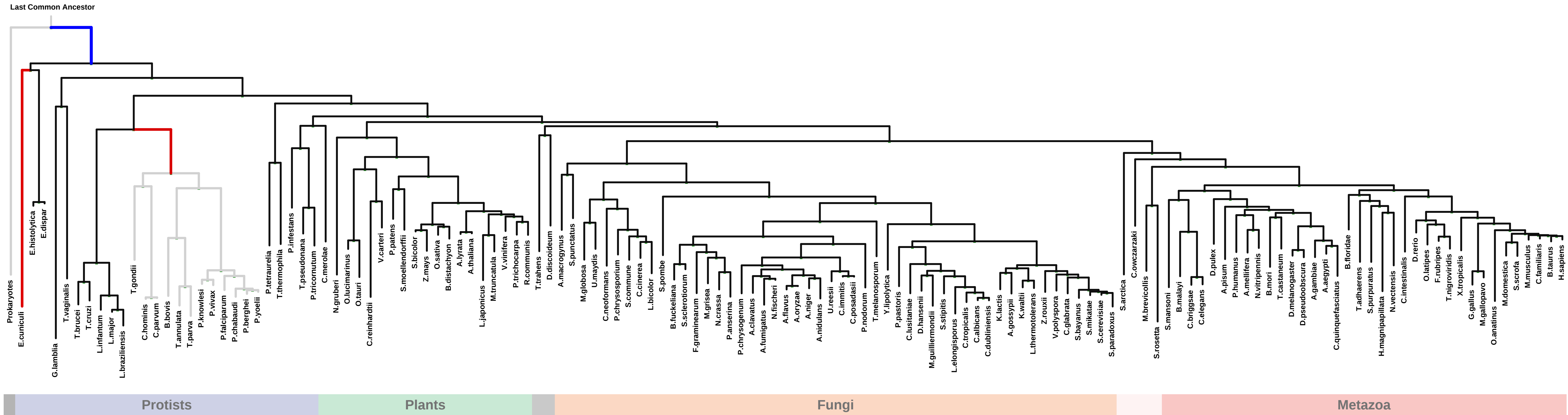
1: basolateral plasma membrane 2: membrane raft 3: recycling endosome membrane 4: trans-Golgi network 5: late endosome membrane 6: recycling endosome 7: brush border 8: brush border membrane 9: invadopodium membrane 10: lamellipodium 11: lamellipodium membrane 12: apical part of cell 13: centriole 14: cilium 15: cilium axoneme 16: intraflagellar transport particle B 17: microtubule basal body 18: microtubule-based flagellum 19: motile primary cilium 20: photoreceptor connecting cilium 21: sarcoplasmic reticulum membrane 22: vesicle 23: Z disc 24: mitochondrial envelope 25: chromosome, telomeric region

Num of ECM Genes: 1. Num of Predicted Genes: 500



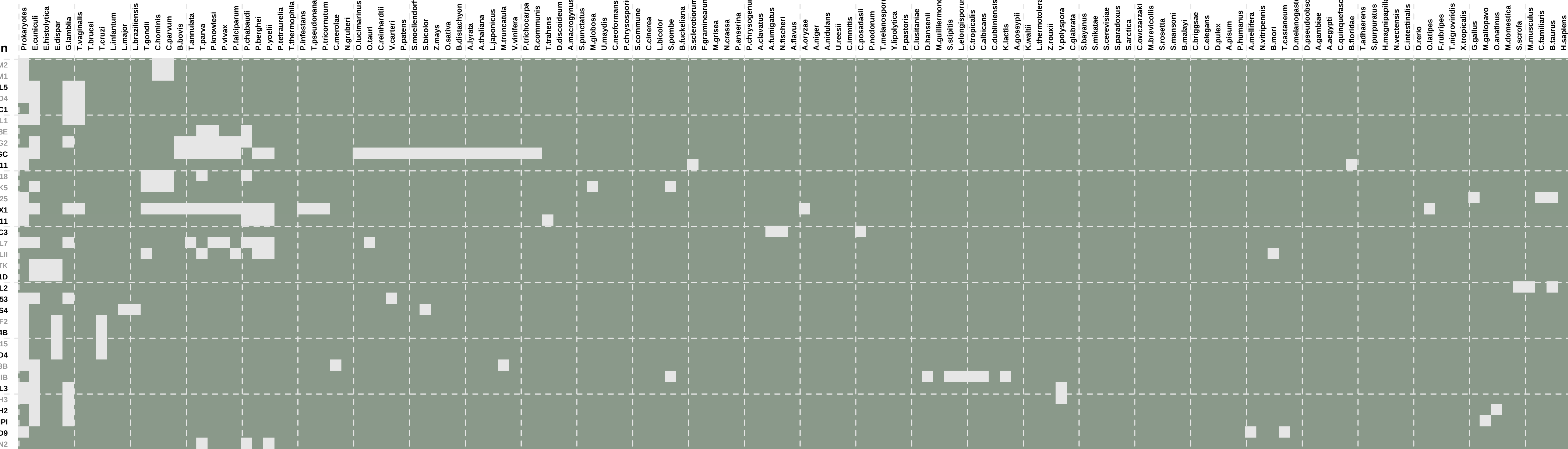
1: vacuolar membrane || 2: basal plasma membrane || 3: integral to endoplasmic reticulum membrane || 4: Cajal body || 5: U7 snRNP || 6: melanosome || 7: proteasome regulatory particle || 8: proteasome regulatory particle, base subcomplex || 9: chromatin accessibility complex || 10: epsilon DNA polymerase complex || 11: mitochondrial intermembrane space || 12: cell periphery || 13: transcriptional repressor complex || 14: peroxisomal matrix || 15: synapse || 16: neuron projection || 17: ruffle || 18: ruffle membrane || 19: trans-Golgi network || 20: cilium axoneme || 21: Golgi cisterna membrane || 22: BBSome || 23: centriolar satellite || 24: centriole || 25: cilium membrane || 26: microtubule basal body ||

Num of ECM Genes: 1. Num of Predicted Genes: 500



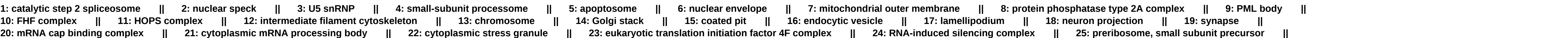
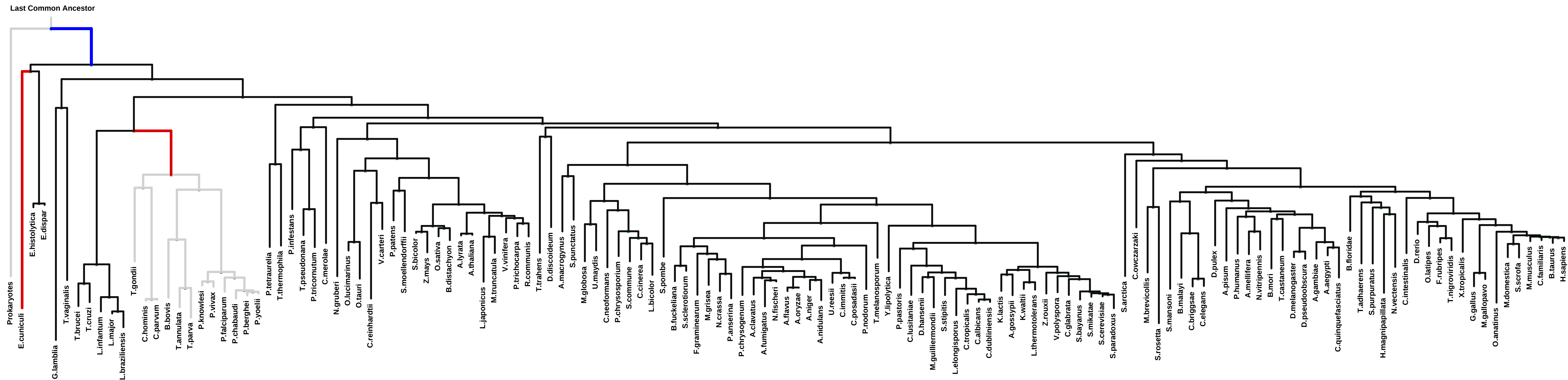
1: brush border || 2: membrane raft || 3: inhibitory synapse || 4: postsynaptic membrane || 5: trans-Golgi network || 6: cell projection || 7: focal adhesion || 8: Cul4A-RING ubiquitin ligase complex || 9: Cul4B-RING ubiquitin ligase complex || 10: Cul4-RING ubiquitin ligase complex || 11: Golgi cisterna membrane || 12: dendrite || 13: lysosome || 14: TORC1 complex || 15: protein phosphatase type 1 complex || 16: cytosolic large ribosomal subunit || 17: peroxisomal matrix || 18: peroxisomal membrane || 19: peroxisome || 20: anaphase-promoting complex || 21: spindle || 22: spindle microtubule || 23: actomyosin || 24: neuron projection || 25: secretory granule || 26: SNARE complex || 27: synaptic vesicle membrane ||

Num of ECM Genes: 1. Num of Predicted Genes: 500

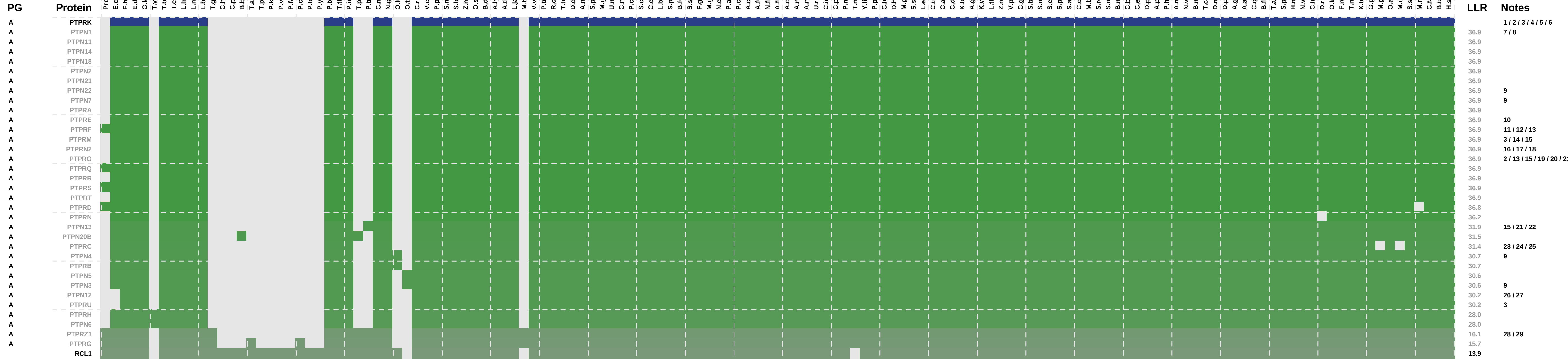


LLR	Notes
6.9	1
6.9	
6.9	
6.9	2
6.9	
6.9	
6.9	
6.8	
6.8	3
6.8	
6.7	
6.7	
6.7	
6.7	
6.6	
6.6	
6.6	4 / 5
6.6	
6.6	
6.6	
6.6	
6.6	6 / 7
6.6	8 / 9
6.5	10
6.5	
6.5	
6.5	
6.5	3 / 11 / 12 / 13 / 14 / 15

Num of ECM Genes: 1. Num of Predicted Genes: 500

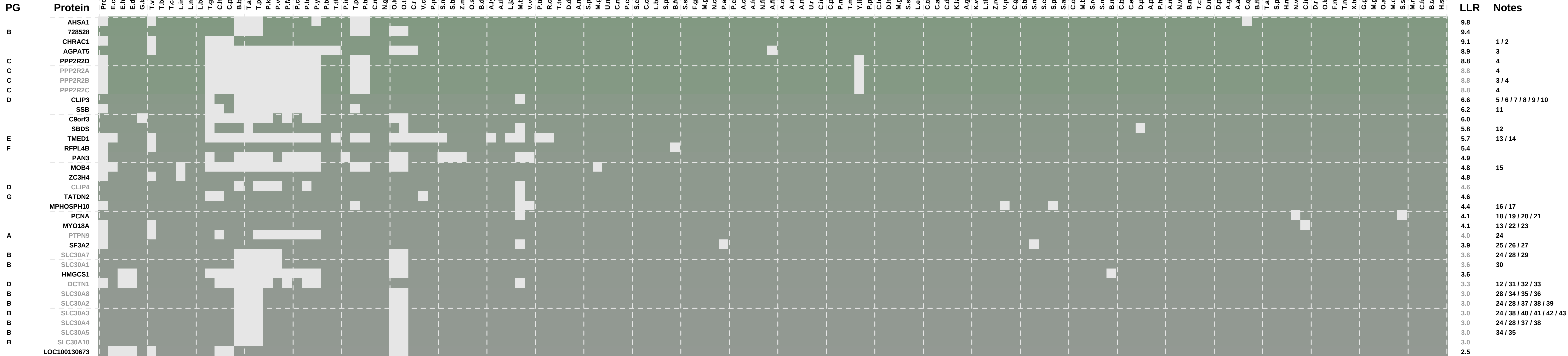


Num of ECM Genes: 1. Num of Predicted Genes: 98



1: adherens junction || 2: axon || 3: cell-cell junction || 4: dendrite || 5: leading edge membrane || 6: photoreceptor outer segment || 7: cytoplasmic vesicle || 8: early endosome || 9: internal side of plasma membrane || 10: intermediate filament cytoskeleton || 11: endosome || 12: excitatory synapse || 13: growth cone || 14: cell-cell adherens junction || 15: lamellipodium || 16: secretory granule || 17: terminal button || 18: transport vesicle membrane || 19: dendritic spine || 20: lateral plasma membrane || 21: neuron projection || 22: cell body || 23: external side of plasma membrane || 24: focal adhesion || 25: membrane raft || 26: cell projection || 27: podosome || 28: perineuronal net ||

Num of ECM Genes: 1. Num of Predicted Genes: 98

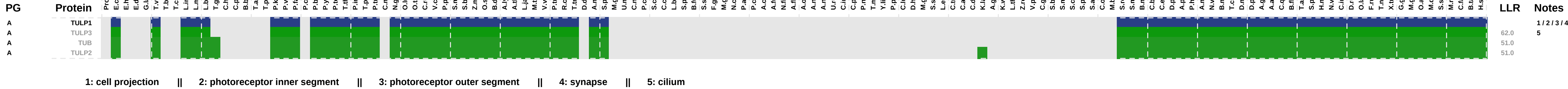


1: chromatin accessibility complex || 2: epsilon DNA polymerase complex || 3: mitochondrial outer membrane || 4: protein phosphatase type 2A complex || 5: early endosome membrane || 6: Golgi stack || 7: membrane raft || 8: recycling endosome membrane || 9: trans-Golgi network || 10: trans-Golgi network membrane || 11: ribonucleoprotein complex || 12: spindle pole || 13: endoplasmic reticulum-Golgi intermediate compartment || 14: endoplasmic reticulum-Golgi intermediate compartment membrane || 15: Golgi cisterna membrane || 16: chromosome || 17: small nucleolar ribonucleoprotein complex || 18: DNA replication factor C complex || 19: microtubule cytoskeleton || 20: nuclear replication fork || 21: PCNA-p21 complex ||

Num of ECM Genes: 1. Num of Predicted Genes: 98

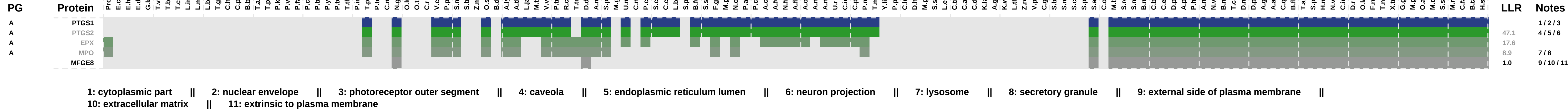
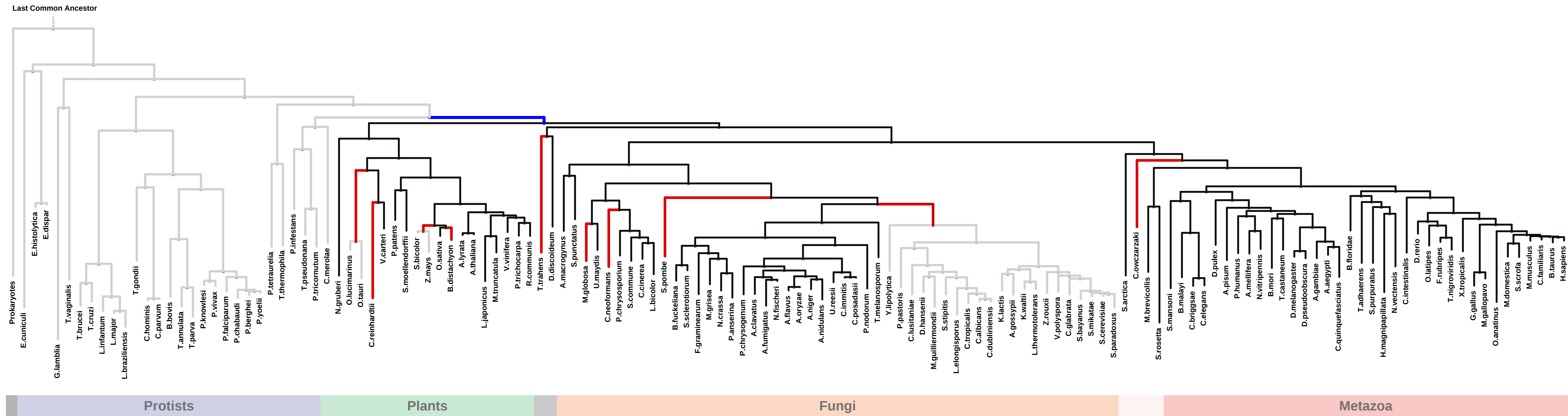


Num of ECM Genes: 1. Num of Predicted Genes: 3



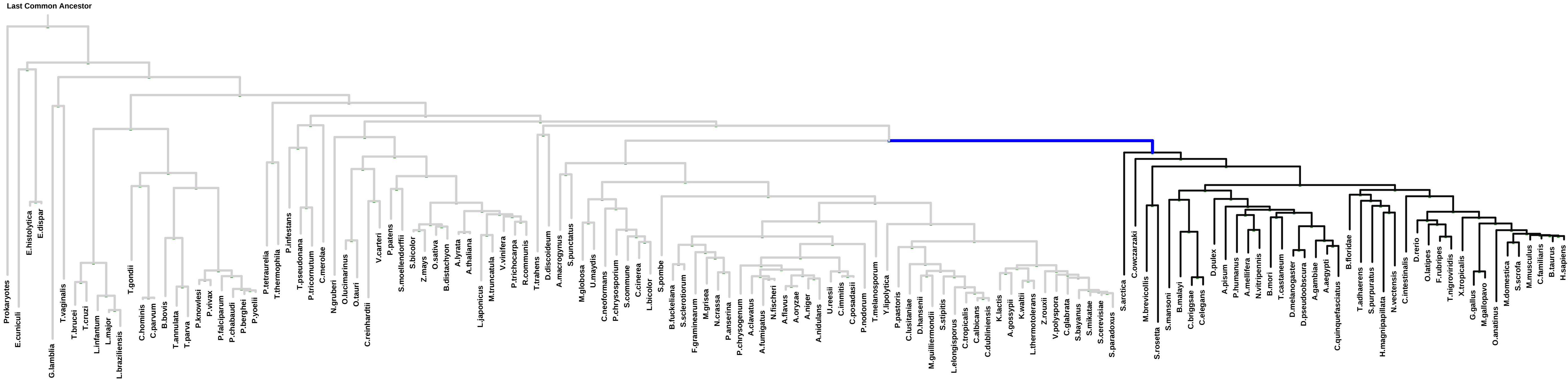
ECM 13, Gene set "photoreceptor outer segment", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 4



ECM 14, Gene set "photoreceptor outer segment", Page 1

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



PG

Protein



LLR

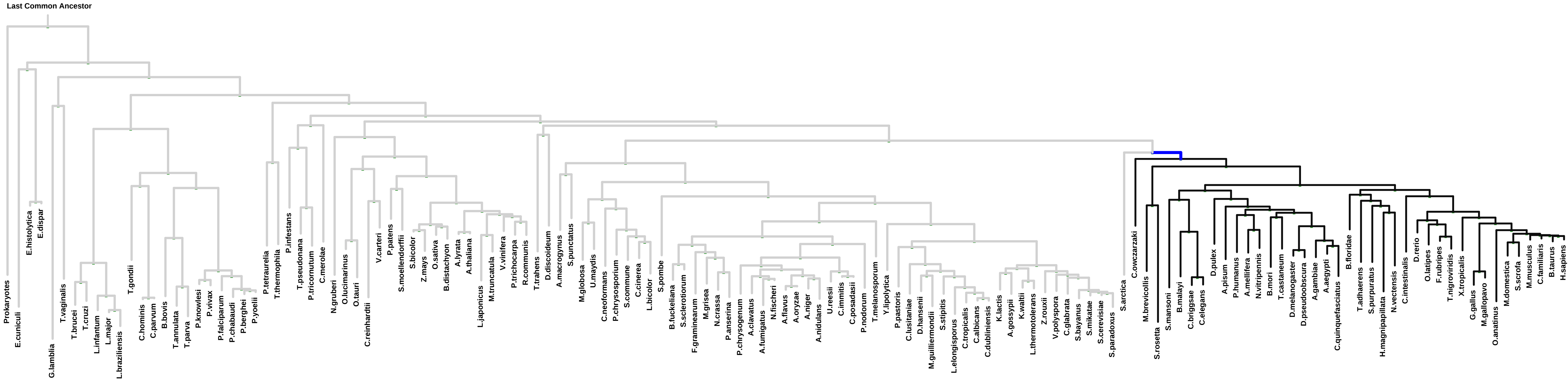
Notes

1 / 2 / 3 / 4 / 5

1: apical part of cell || 2: photoreceptor inner segment || 3: photoreceptor outer segment || 4: stereocilium || 5: synapse

ECM 15, Gene set "photoreceptor outer segment", Page 1

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



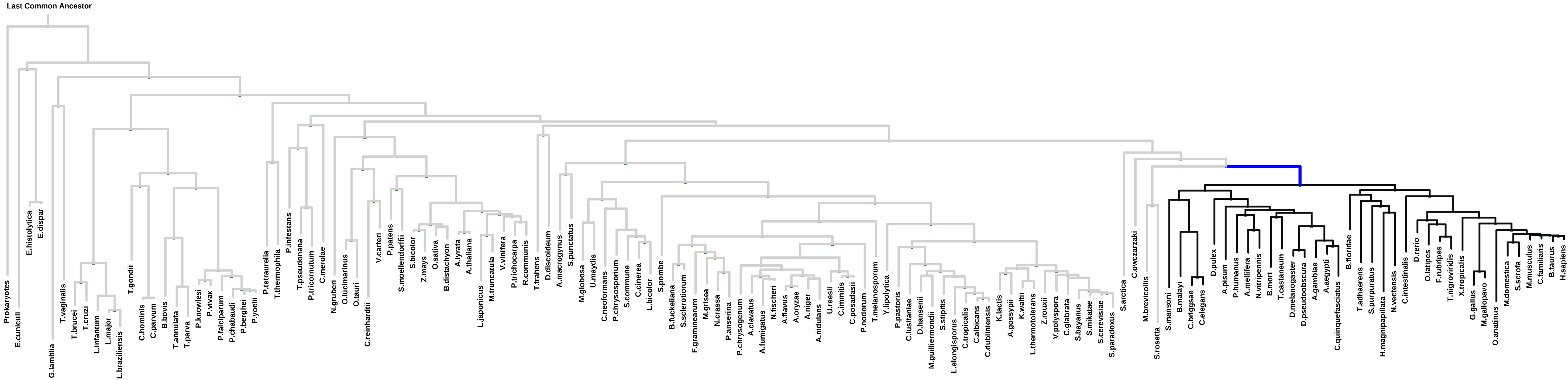
PG

Protein	PG	LLR	Notes
PCDH15			

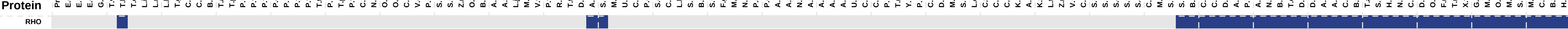
1: photoreceptor outer segment || 2: stereocilium || 3: synapse

ECM 16, Gene set "photoreceptor outer segment", Page 1

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

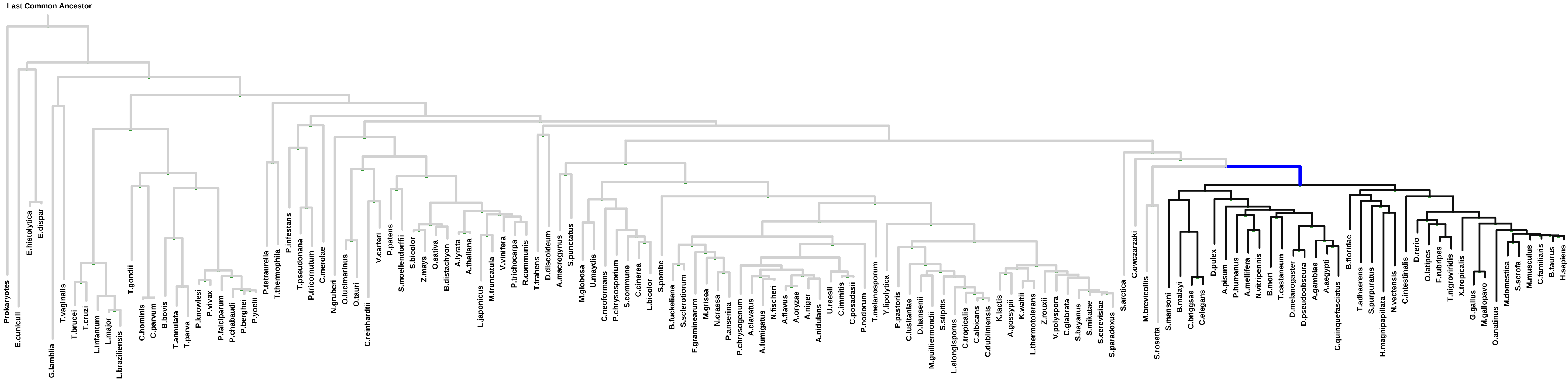


PG



ECM 17, Gene set "photoreceptor outer segment", Page 1

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



PG

Protein

OPN1SW

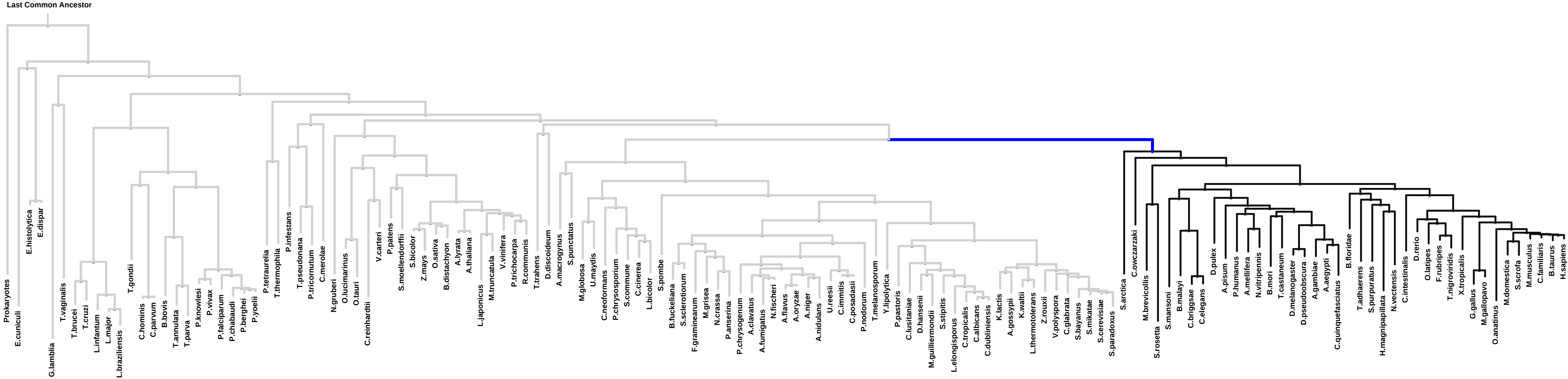
LLR Notes

1

1: photoreceptor outer segment

ECM 18, Gene set "photoreceptor outer segment", Page 1

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



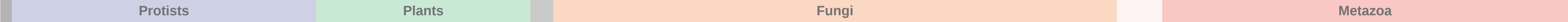
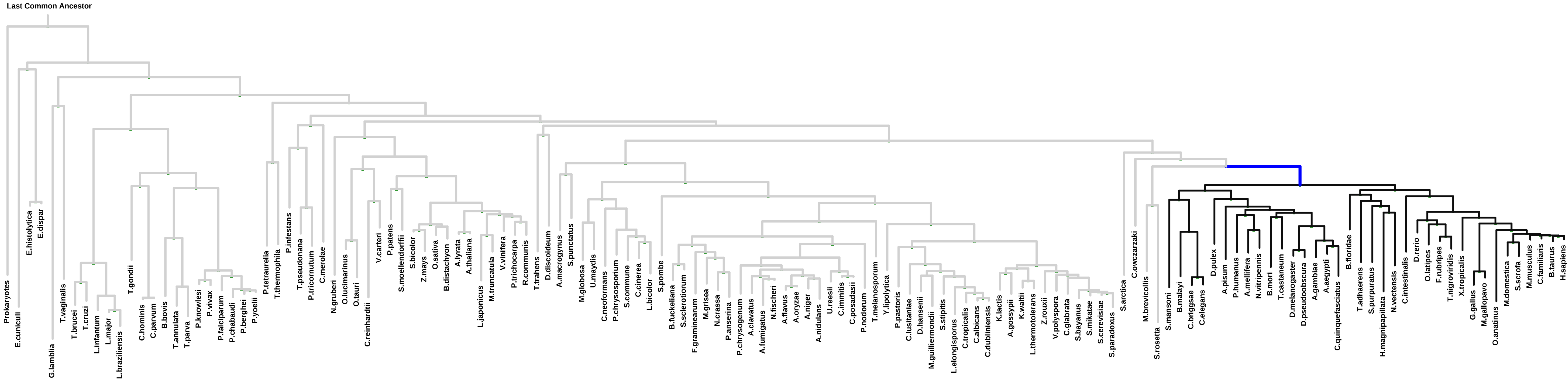
PG

Protein	ARR3	LLR	Notes
Prokaryotes			
E.cuniculi			
E.histolytica			
E.dispar			
G.lamblia			
T.vaginalis			
T.brucei			
T.cruzi			
L.infantum			
L.major			
L.brazilienis			
T.gondii			
C.hominis			
C.parvum			
B.bovis			
T.annulata			
T.parva			
P.knowlesi			
P.vivax			
P.falciparum			
P.chabaudi			
P.berghiei			
P.yoelii			
P.tetraurelia			
T.thermophila			
P.infestans			
T.pseudonana			
P.tricornutum			
C.merolae			
N.gruberi			
O.lucimarinus			
O.auri			
C.reinhardtii			
V.carteri			
P.patens			
S.moellendorffii			
S.bicolor			
Z.mays			
O.sativa			
B.distachyon			
A.lyrata			
A.thaliana			
L.japonicus			
M.truncatula			
V.vinifera			
P.trichocarpa			
R.communis			
T.trahens			
D.discoideum			
A.macrogynus			
S.punctatus			
M.globosa			
U.maydis			
C.neofornans			
P.chrysosporium			
S.commune			
C.cinerea			
L.bicolor			
S.pombe			
B.fuckeliana			
S.sclerotiorum			
F.graminearum			
M.grisea			
N.crassa			
P.anserina			
P.chrysogenum			
A.clavatus			
A.fumigatus			
N.fischeri			
A.flavus			
A.oryzae			
A.niger			
A.nidulans			
U.reesii			
C.immitis			
C.posadasii			
P.nodorum			
T.melanosporum			
Y.lipolytica			
P.pastoris			
C.lusitanae			
D.hansenii			
M.guilliermondii			
S.stipititis			
L.elongisporus			
C.tropicalis			
C.albicans			
C.dubliniensis			
K.lactis			
A.gossypii			
K.waltii			
L.thermotolerans			
Z.rouxii			
V.polyspora			
C.glabrata			
S.bayanus			
S.mikatae			
S.cerevisiae			
S.paradoxus			
S.arctica			
Cowczarzaki			
M.brevicollis			
S.rosetta			
S.mansoni			
B.malayii			
C.briggsae			
C.elegans			
D.pulex			
A.pisum			
P.humanus			
A.mellifera			
N.vitripennis			
B.mori			
T.castaneum			
D.melanogaster			
D.pseudoobscura			
A.gambiae			
A.aegypti			
C.quinquefasciatus			
B.floridae			
T.adhaerens			
S.purpuratus			
H.magnipapillata			
N.vectensis			
C.intestinalis			
D.erio			
O.latipes			
F.rubripes			
T.nigroviridis			
X.tropicalis			
G.gallus			
M.gallopavo			
O.anatinus			
M.domestica			
S.scrofa			
M.musculus			
C.familiaris			
B.taurus			
H.sapiens			

1: photoreceptor outer segment || 2: synapse

ECM 20, Gene set "photoreceptor outer segment", Page 1

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

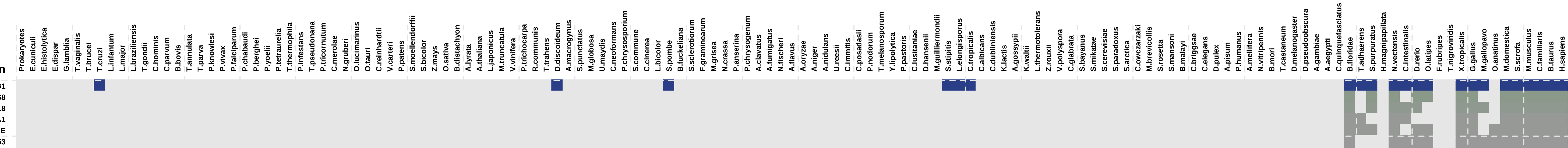


PG

Protein	INHA	LLR	Notes
Prokaryotes			
E.cuniculi			
E.histolytica			
E.dispar			
G.lambia			
T.vaginalis			
T.brucei			
T.cruzi			
L.infantum			
L.major			
L.brazilienis			
T.gondii			
C.hominis			
C.parvum			
B.bovis			
T.annulata			
T.parva			
P.knowlesi			
P.vivax			
P.falciparum			
P.chabaudi			
P.berghiei			
P.yoelii			
P.tetraurelia			
T.thermophila			
P.infestans			
T.pseudonana			
P.tricornutum			
C.merolae			
N.gruberi			
O.lucimarinus			
O.auri			
C.reinhardtii			
V.carteri			
P.patens			
S.moellendorffii			
S.bicolor			
Z.mays			
O.sativa			
B.distachyon			
A.lyrata			
A.thaliana			
L.japonicus			
M.truncatula			
V.vinifera			
P.trichocarpa			
R.communis			
T.trahens			
D.discoideum			
A.macrogynus			
S.punctatus			
M.globosa			
U.maydis			
C.neoformans			
P.chrysosporium			
S.commune			
C.cinerea			
L.bicolor			
S.pombe			
B.fuckeliana			
S.sclerotiorum			
F.graminearum			
M.grisea			
N.crassa			
P.anserina			
P.chrysogenum			
A.clavatus			
A.fumigatus			
N.fischeri			
A.flavus			
A.oryzae			
A.niger			
A.nidulans			
U.reesii			
C.immitis			
C.posadasii			
P.nodorum			
T.melanosporum			
Y.lipolytica			
P.pastoris			
C.lusitanae			
D.hansenii			
M.guilliermondii			
S.stipititis			
L.elongisporus			
C.tropicalis			
C.albicans			
C.dubliniensis			
K.lactis			
A.gossypii			
K.waltii			
L.thermotolerans			
Z.rouxii			
V.polyspora			
C.glabrata			
S.bayanus			
S.mikatae			
S.cerevisiae			
S.paradoxus			
S.sarctica			
Cowczarzaki			
M.brevicollis			
S.rosetta			
S.mansoni			
B.malayii			
C.briggsae			
C.elegans			
D.pulex			
A.pisum			
P.humanus			
A.mellifera			
N.vitripennis			
B.mori			
T.castaneum			
D.melanogaster			
D.pseudoobscura			
A.gambiae			
A.aegypti			
C.quinquefasciatus			
B.floridae			
T.adhaerens			
S.purpuratus			
H.magnipapillata			
N.vectensis			
C.intestinalis			
D.erio			
O.laetipes			
F.rubripes			
T.nigroviridis			
X.tropicalis			
G.gallus			
M.gallopavo			
O.anatinus			
M.domestica			
S.scrofa			
M.musculus			
C.familiaris			
B.taurus			
H.sapiens			

1: inhibin A complex || 2: inhibin-betaglycan-ActRII complex || 3: photoreceptor inner segment || 4: photoreceptor outer segment

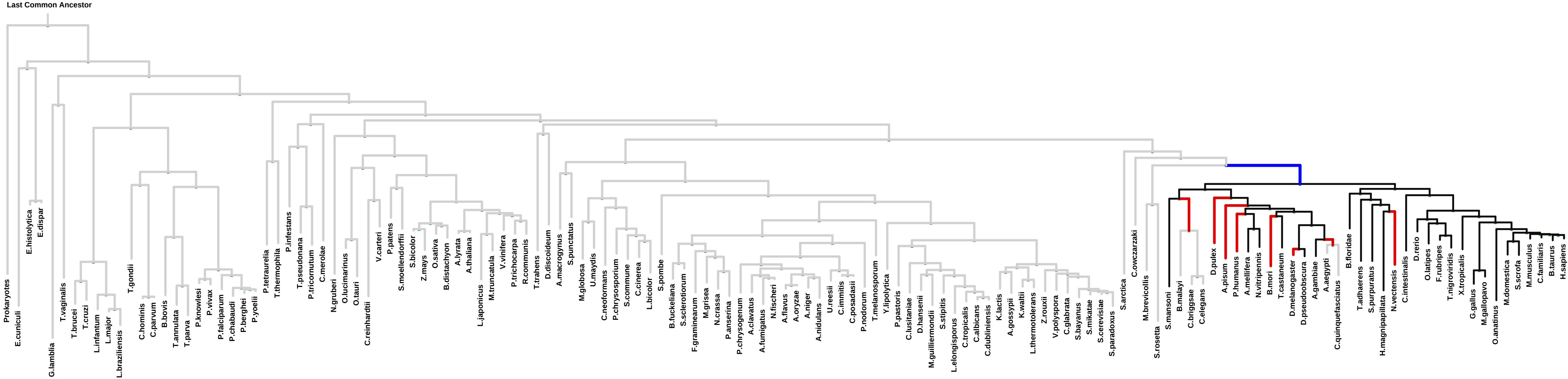
Num of ECM Genes: 1. Num of Predicted Genes: 5



LLR	Notes
	1 / 2
6.1	3 / 4
3.9	
1.4	
1.1	5
0.5	

ECM 22, Gene set "photoreceptor outer segment", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 24



Protists

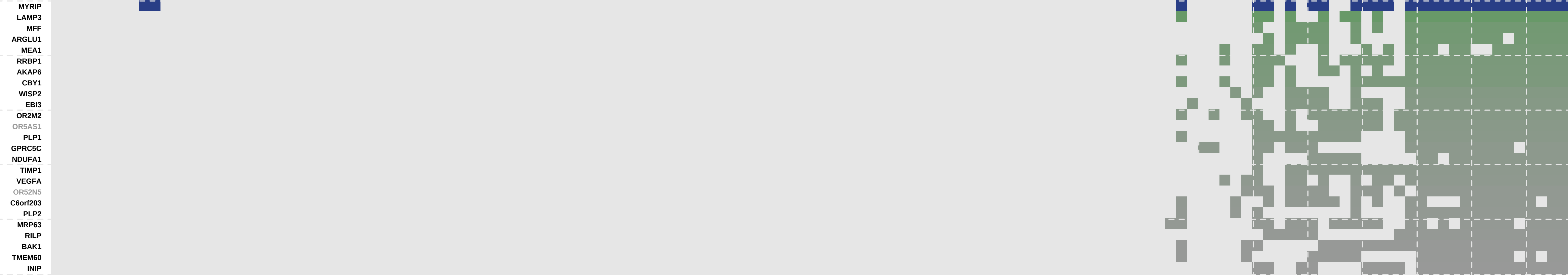
Plants

Fungi

Metazoa

PG

Protein



LLR

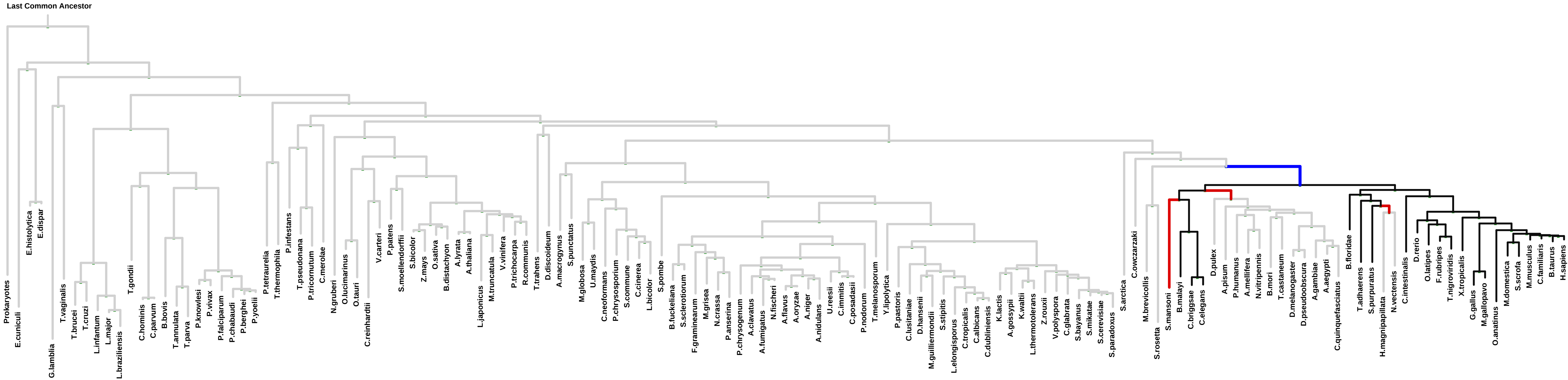
Notes

21.1	1 / 2 / 3 / 4 / 5 / 6 / 7
16.3	8 / 9
15.8	10 / 11 / 12
14.4	
12.7	13 / 14
12.6	15 / 16 / 17 / 18
12.0	19 / 20 / 21
8.9	
8.2	
7.9	
6.6	
6.5	22
5.2	23
5.2	24 / 25
4.9	26 / 27
4.2	26 / 27 / 28 / 29
3.0	
2.9	
2.6	
2.0	30
1.9	9 / 31 / 32 / 33 / 34
1.0	11 / 35 / 36
0.7	
0.4	37

1: actin cytoskeleton 2: dense core granule 3: exocyst 4: melanosome 5: photoreceptor outer segment 6: synapse 7: transport vesicle 8: alveolar lamellar body membrane 9: lysosomal membrane 10: integral to mitochondrial membrane 11: mitochondrial outer membrane 12: peroxisome 13: integral to endoplasmic reticulum membrane 14: ribosome 15: calcium channel complex 16: nuclear envelope 17: nuclear outer membrane 18: sarcoplasmic reticulum 19: microtubule basal body 20: nuclear speck 21: trans-Golgi network 22: compact myelin 23: cytoplasmic vesicle membrane 24: mitochondrial membrane 25: mitochondrial respiratory chain complex I 26: basement membrane 27: platelet alpha granule lumen 28: proteinaceous extracellular matrix 29: secretory granule 30: mitochondrial ribosome 31: late endosome 32: late endosome membrane 33: lysosome 34: phagocytic vesicle membrane 35: integral to mitochondrial outer membrane 36: pore complex 37: SOSS complex

ECM 23, Gene set "photoreceptor outer segment", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 40

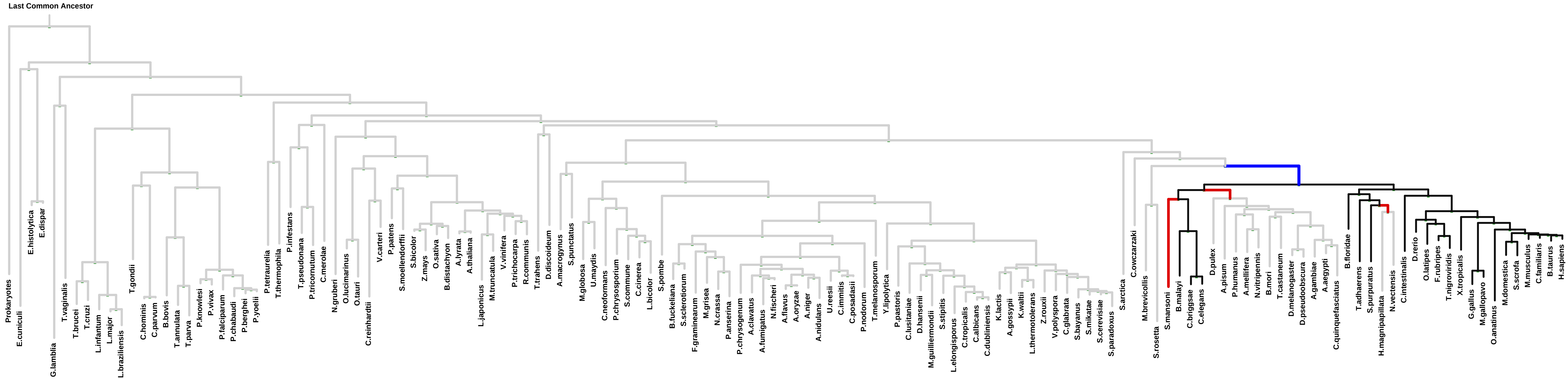


PG		Protein		Protists		Plants		Fungi		Metazoa		LLR	Notes
A	A	HNF1A											
		HNF1B											1 / 2
		ATP6V1G2										18.6	
		C5orf15										9.9	3 / 4
		BTNL3										8.0	
B	B	IL17D										7.8	
		FAM78A										7.1	
		FAM65A										6.7	
		PVRL2										6.4	
		TSC22D1										6.2	5 / 6
C	B	FAM65C										6.2	
		FAM65B										6.1	
		EBI3										6.1	7
		LECT2										5.0	
		IFNAR1										4.6	
D	D	PHYHIP										4.4	
		PHYHIPL										4.3	
		C1orf106										4.3	
		POT1										4.0	
		VWC2L										4.0	8 / 9
E	E	CD80										3.6	
		AFTPH										2.9	10
		OLFML3										2.8	11
		EFNA1										1.7	
		EFNA5										1.7	12
F	E	OLFM2										1.7	13 / 14
		OLFML1										1.7	
		TNNI1										1.7	
		OLFML2A										1.7	15
		TSC22D2										1.7	16
G	C	TSC22D3										1.7	
		OLFML2B										1.7	
		100508475										1.7	16
		TMEM98										1.7	
		TMEM47										1.4	
												1.2	5

1: photoreceptor outer segment 2: pronucleus 3: melanosome 4: vacuolar proton-transporting V-type ATPase complex 5: cell-cell junction 6: zonula adherens 7: filopodium 8: chromosome, telomeric region 9: nuclear telomere cap complex 10: external side of plasma membrane 11: AP-1 adaptor complex 12: anchored to plasma membrane 13: anchored to external side of plasma membrane 14: caveola 15: troponin complex 16: extracellular matrix

ECM 23, Gene set "photoreceptor outer segment", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 40



PG

Protein

SH3BGR
GEMIN8
ZACN
LGALS12
LGALS1
LGALS1

LLR

Notes

1.2
1.2
0.5
0.4
0.4
0.4

1 / 2 / 3
4
5 / 6

1: Cajal body || 2: SMN complex || 3: spliceosomal complex || 4: postsynaptic membrane || 5: extracellular matrix || 6: proteinaceous extracellular matrix

Num of ECM Genes: 1. Num of Predicted Genes: 30

