

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

Dataset:

Num of genes in input gene set: 60
Total number of genes: 20834
Prediction LLR threshold: 0

The CLIME PDF output two sections:

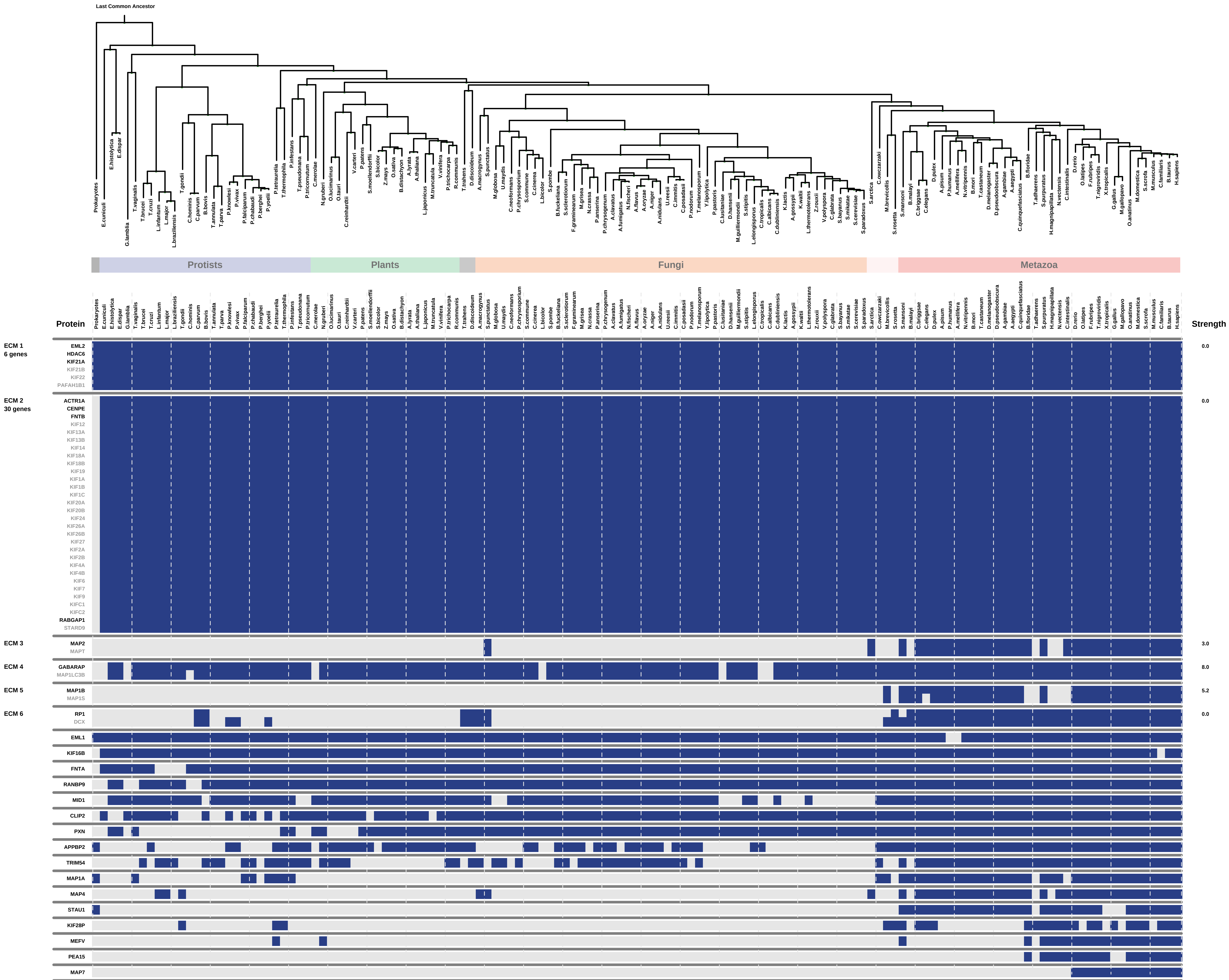
1) Overview of Evolutionarily Conserved Modules (ECMs)

- 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+

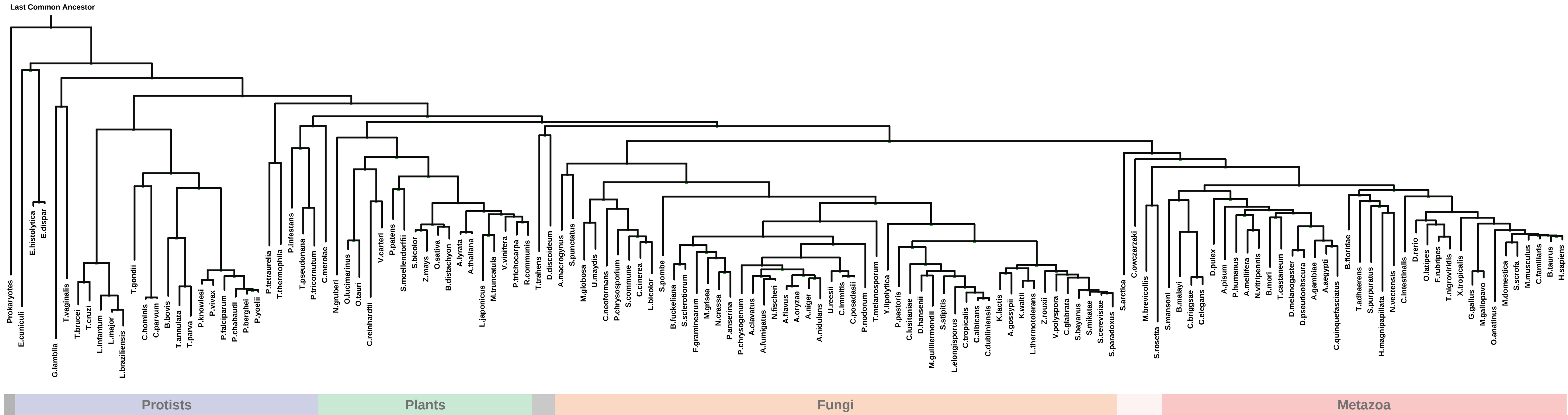
- Top panel shows the inferred evolutionary history on the predefined species tree. Branch color shows the gain event (blue) and loss events (red color, with brighter color indicating higher confidence in loss). Branches before the gain or after a loss are shown in gray.
- Bottom panel shows the input 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)

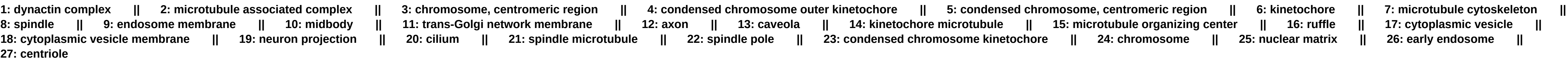
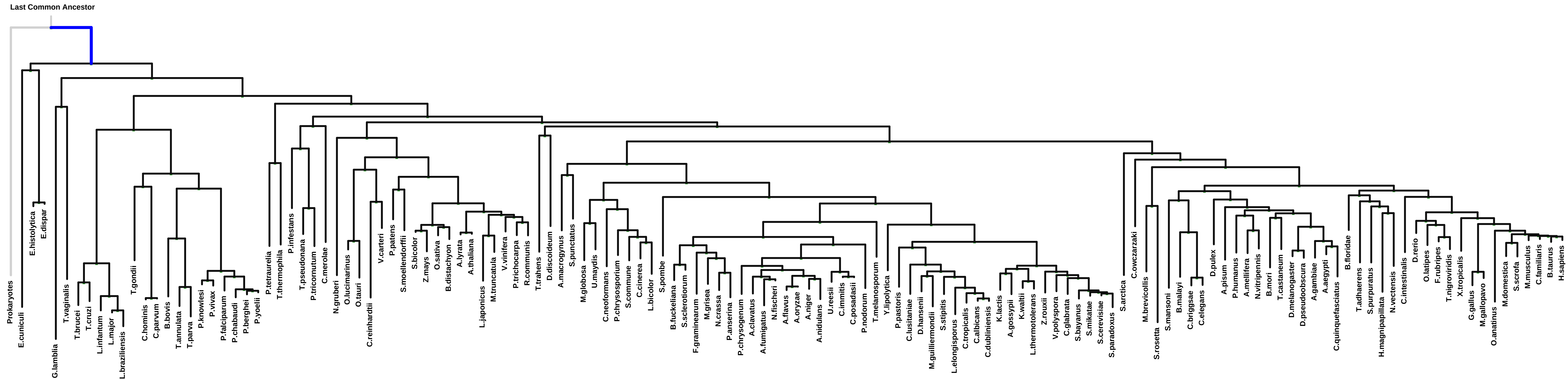


ECM 1, Gene set "microtubule associated complex", Page 1

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

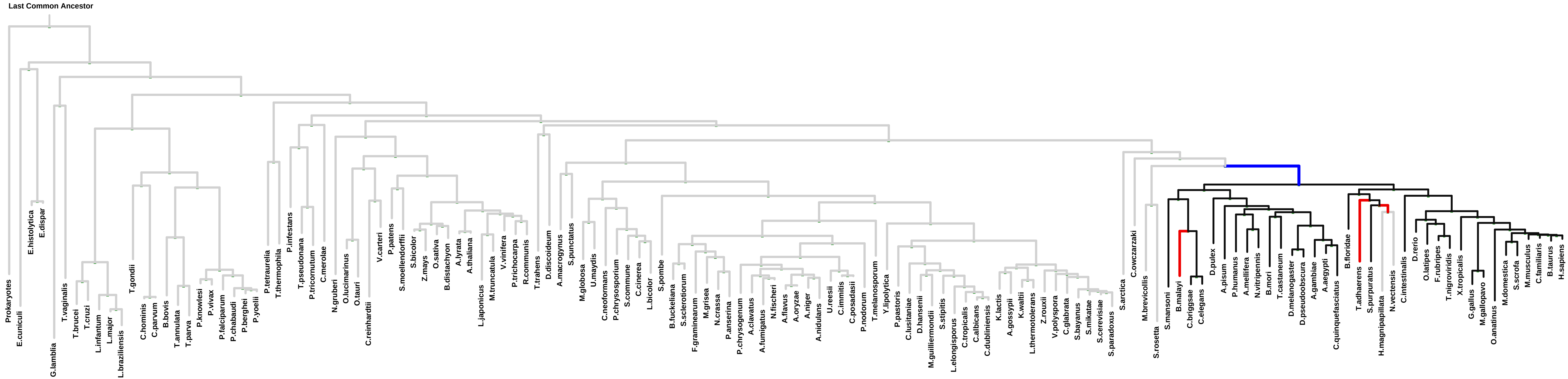
[illegible]

Num of ECM Genes: 30. Num of Predicted Genes: 0. ECM Strength: 0.0



ECM 3, Gene set "microtubule associated complex", Page 1

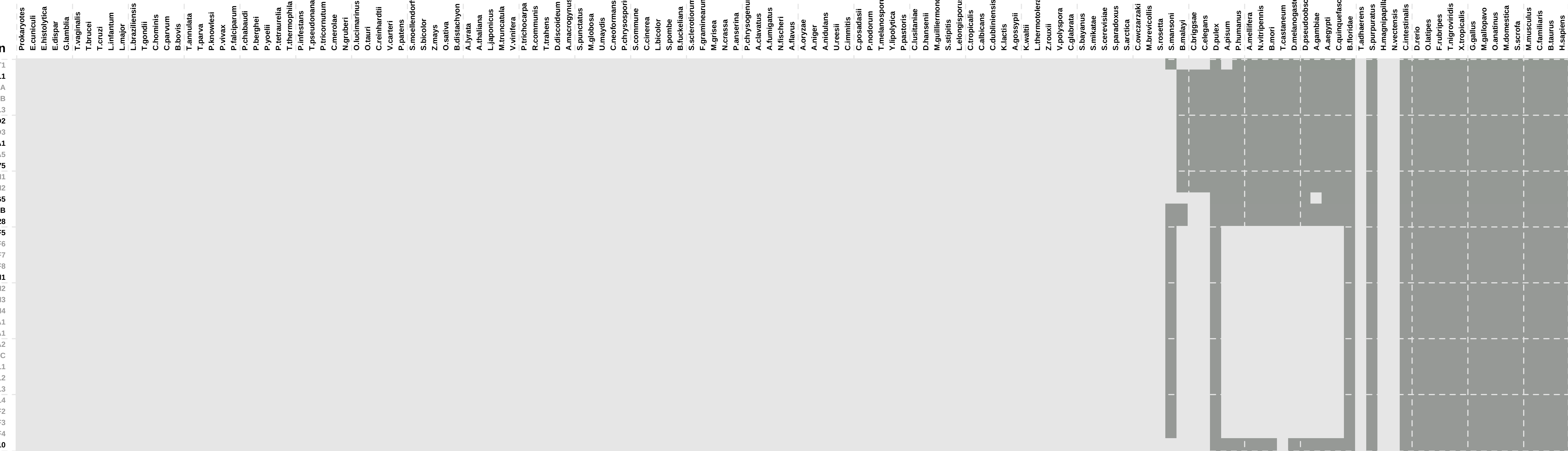
Num of ECM Genes: 2. Num of Predicted Genes: 77. ECM Strength: 3.0



PG	Protein	LLR	Notes
A	MAP2	16.3	1 / 2 / 3
A	MAPT	12.5	2 / 3 / 4 / 5 / 6 / 7
B	SDC1	8.7	8 / 9 / 10 / 11 / 12
	NDUFB5	13	13
	CPLX1	8.0	14 / 15 / 16
C	BAG2	6.3	
D	DCST2	6.3	17
D	TNNI2	6.3	17 / 18
E	TNNI3	6.3	17 / 18 / 19
E	TNNT2	6.1	17
	TNNT3	6.0	20 / 21 / 22
F	PDGFB	4.7	
F	GMNN	4.6	20 / 23 / 24 / 25
F	ERBB3	4.5	
F	OTOP2	4.5	
	100510667	4.3	24
B	ZACN	4.1	10 / 11 / 15
B	SDC2	4.1	9 / 10 / 11 / 26 / 27
B	SDC4	3.9	14 / 28 / 29 / 30 / 31
	BNIP3	3.8	
	TEX28	3.6	32 / 33
G	FABP1	3.3	
F	OTOP3	3.2	
C	DCST1	3.2	
H	LOC100130849	3.2	
	100510302	3.2	
	LOC402269	3.1	
I	PROX2	3.1	
I	PROX1	3.1	
G	FABP6	2.8	
J	DUOXA2	2.6	
J	DUOXA1	2.6	
	LOC100508969	2.6	
	ZNF185	2.6	9
	ATP5J2P4	2.5	

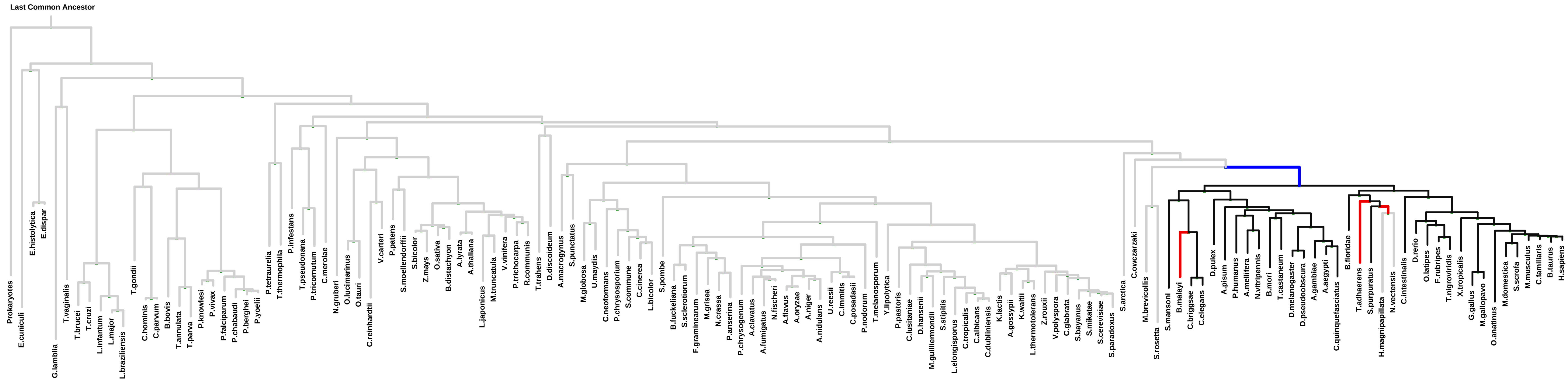
1: dendritic shaft || 2: microtubule associated complex || 3: nuclear periphery || 4: axon || 5: cilium axoneme || 6: growth cone || 7: tubulin complex || 8: external side of plasma membrane || 9: focal adhesion || 10: Golgi lumen ||
11: lysosomal lumen || 12: uropod || 13: mitochondrial respiratory chain complex I || 14: dendrite || 15: synapse || 16: synaptobrevin 2-SNAP-25-syntaxin-1a-complexin I complex || 17: troponin complex || 18: sarcomere ||
19: striated muscle thin filament || 20: basolateral plasma membrane || 21: endoplasmic reticulum lumen || 22: platelet alpha granule lumen || 23: lateral plasma membrane || 24: postsynaptic membrane || 25: receptor complex ||

Num of ECM Genes: 2. Num of Predicted Genes: 77. ECM Strength: 3.0

[illegible]

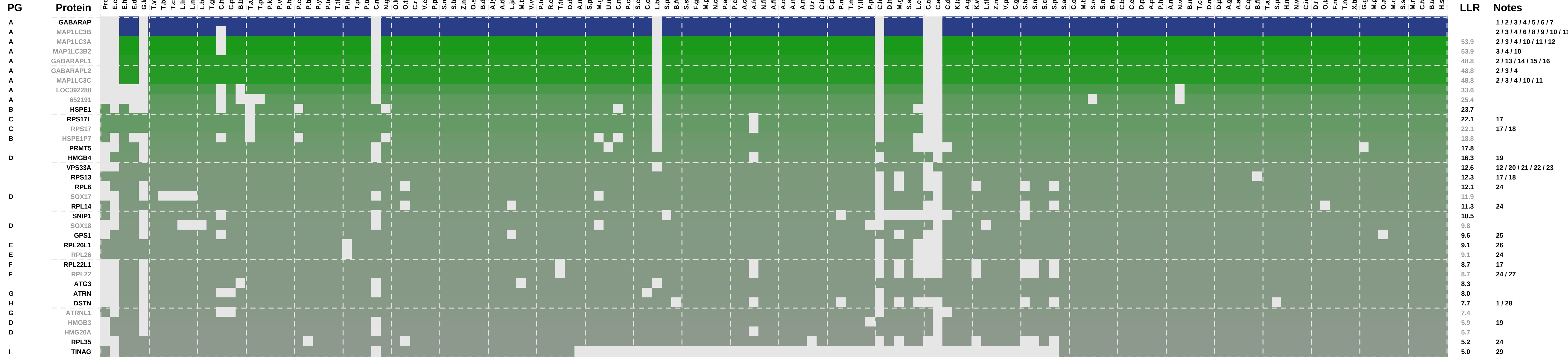
ECM 3, Gene set "microtubule associated complex", Page 3

Num of ECM Genes: 2. Num of Predicted Genes: 77. ECM Strength: 3.0

[illegible]

1: synapse || 2: voltage-gated potassium channel complex

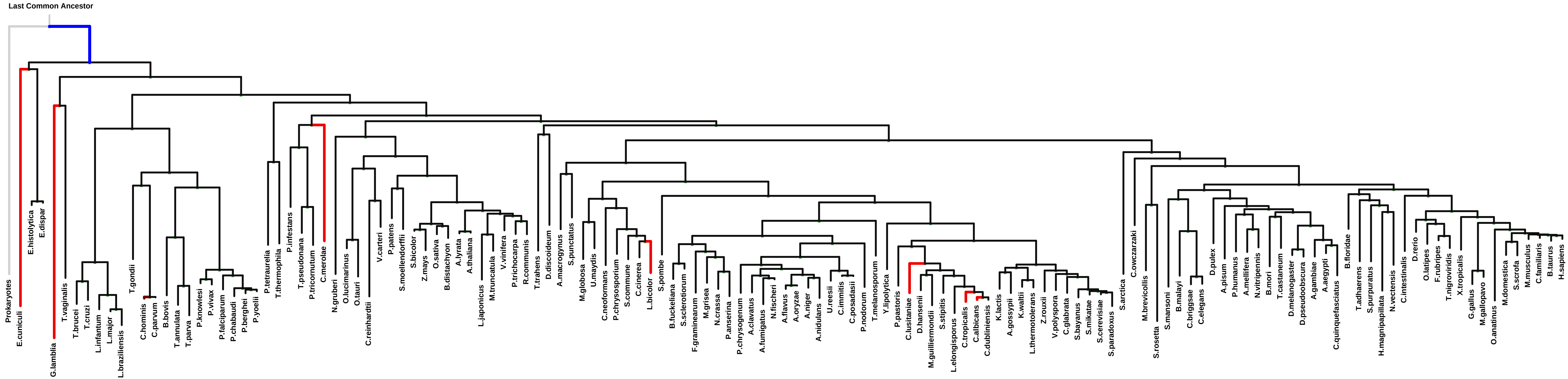
Num of ECM Genes: 2. Num of Predicted Genes: 74. ECM Strength: 8.0



1: actin cytoskeleton || 2: autophagic vacuole || 3: autophagic vacuole membrane || 4: cytoplasmic vesicle || 5: lysosome || 6: microtubule associated complex || 7: smooth endoplasmic reticulum || 8: axon || 9: dendrite || 10: endomembrane system || 11: organelle membrane || 12: late endosome || 13: cell body || 14: cytoplasmic vesicle membrane || 15: dendrite cytoplasm || 16: dendrite membrane || 17: ribosome || 18: cytosolic small ribosomal subunit || 19: chromosome || 20: early endosome || 21: HOPS complex || 22: late endosome membrane || 23: lysosomal membrane || 24: cytosolic large ribosomal subunit || 25: signalosome || 26: large ribosomal subunit || 27: ribonucleoprotein complex

ECM 4, Gene set "microtubule associated complex", Page 2

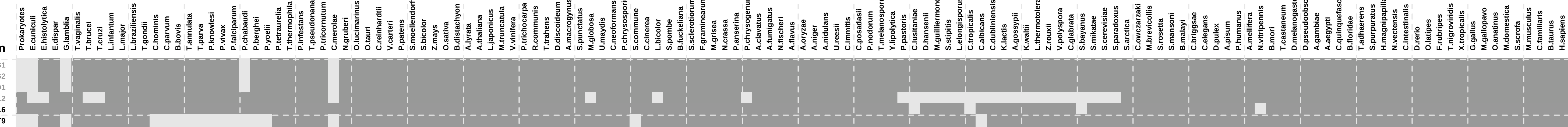
Num of ECM Genes: 2. Num of Predicted Genes: 74. ECM Strength: 8.0



PG	Protein	Protists	Plants	Fungi	Metazoa	LLR	Notes
I	TINAGL1					5.0	1
I	CTSV					5.0	2 / 3 / 4 / 5 / 6 / 7 / 8
I	CTSO					5.0	9
I	CTSS					5.0	4 / 9 / 10
I	CTSW					5.0	
I	CTSZ					5.0	9
I	CTSB					5.0	3 / 9 / 10 / 11 / 12 / 13
I	CTSF					5.0	4 / 9
I	CTSH					5.0	9 / 14
I	CTSL					5.0	4 / 9 / 10
I	CTSK					5.0	10
J	IVNS1ABP					4.8	15
K	GAPVD1					4.5	16
K	CAPN3					4.5	17 / 18 / 19
K	CAPN11					4.0	20
	RPS11					3.8	21 / 22
	RPL30					3.6	23
J	KLHL10					3.6	
	RPL34					3.5	23
K	CAPN9					2.6	
D	HMG3P22					2.3	
D	HMG3P27					2.3	24
D	100508670					2.3	25
D	SOX21					1.9	
G	MEGF8					1.6	
	MAK16					1.1	
	CWC22					1.1	15 / 26
	RNF19A					0.8	
L	CLPTM1					0.7	3
L	CLPTM1L					0.7	
H	CFL2					0.7	27
D	SOX7					0.4	
D	HMG20B					0.4	25
M	PLCD4					0.4	

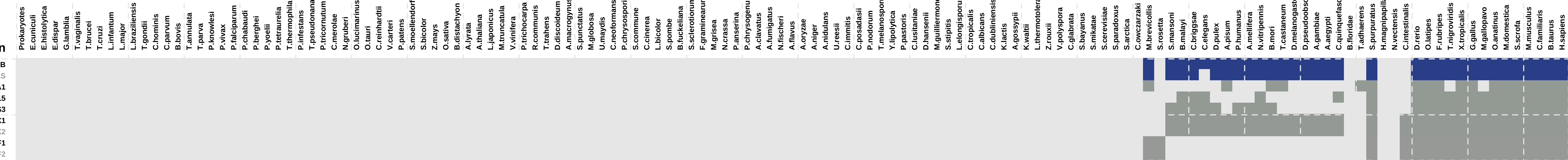
1: extracellular matrix || 2: apical part of cell || 3: external side of plasma membrane || 4: lysosomal lumen || 5: microvillus || 6: neuron projection || 7: perikaryon || 8: secretory granule || 9: lysosome || 10: endolysosome lumen || 11: caveola || 12: melanosome || 13: sarcolemma || 14: alveolar lamellar body || 15: spliceosomal complex || 16: endosome || 17: myofibril || 18: T-tubule || 19: Z disc || 20: acrosomal vesicle || 21: cytosolic small ribosomal subunit || 22: ribosome || 23: cytosolic large ribosomal subunit || 24: condensed chromosome || 25: chromosome || 26: catalytic step 2 spliceosome || 27: nuclear matrix

Num of ECM Genes: 2. Num of Predicted Genes: 74. ECM Strength: 8.0



PG
M
M
M
J

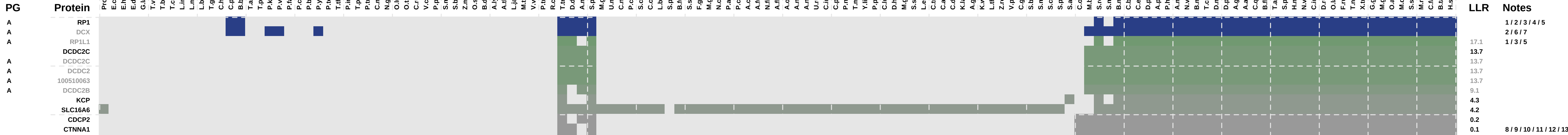
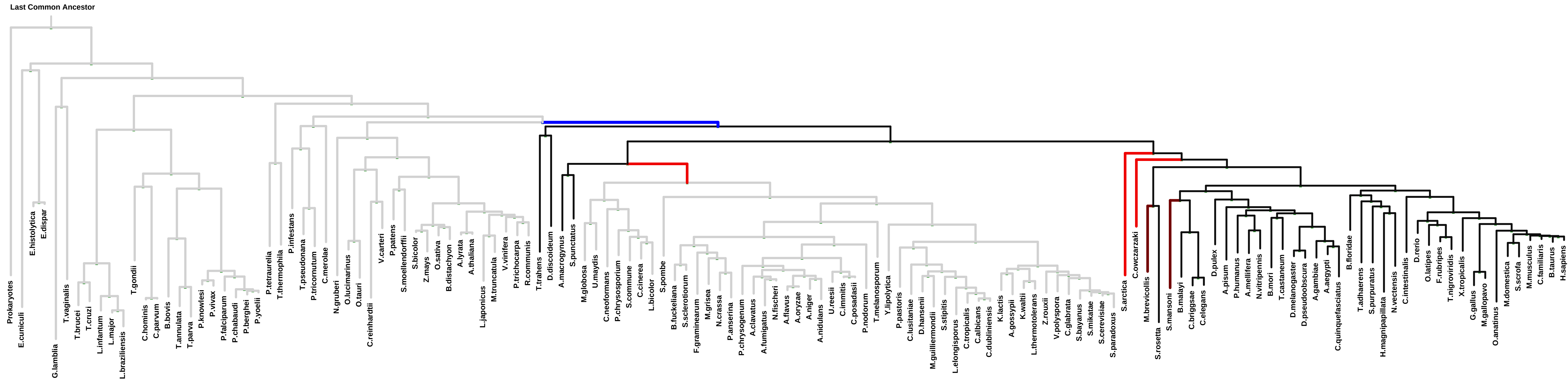
Num of ECM Genes: 2. Num of Predicted Genes: 7. ECM Strength: 5.2



LLR	Notes
	1 / 2 / 3 / 4 / 5
	3 / 6 / 7 / 8 / 9
2.8	8 / 10 / 11 / 12 / 13 / 14
2.6	
2.5	15 / 16 / 17
1.8	
1.8	
1.3	
1.3	

ECM 6, Gene set "microtubule associated complex", Page 1

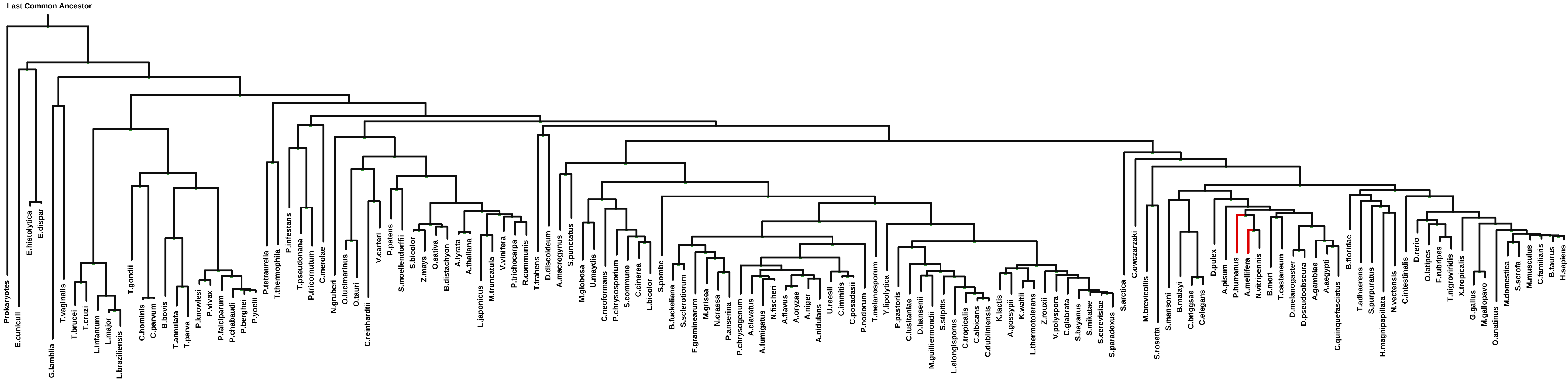
Num of ECM Genes: 2. Num of Predicted Genes: 10. ECM Strength: 0.0



1: cilium axoneme || 2: microtubule associated complex || 3: photoreceptor connecting cilium || 4: photoreceptor inner segment || 5: photoreceptor outer segment || 6: dendrite || 7: neuron projection || 8: acrosomal vesicle ||
9: actin cytoskeleton || 10: catenin complex || 11: cell-cell junction || 12: lamellipodium || 13: zonula adherens

ECM 7, Gene set "microtubule associated complex", Page 1

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



PG

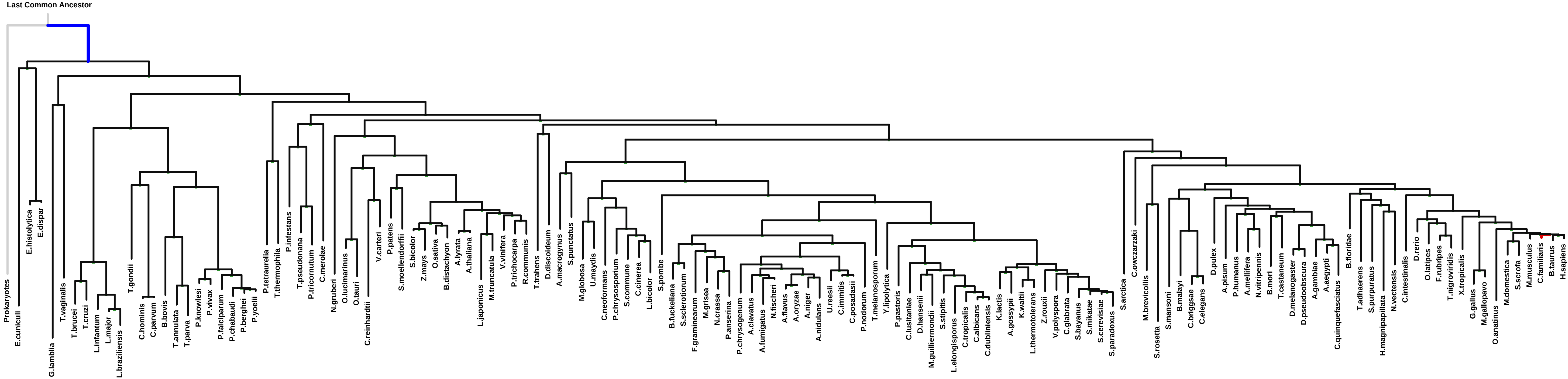
Protein	Protists	Plants	Fungi	Metazoa
EML1				

1: microtubule associated complex

LLR Notes

ECM 8, Gene set "microtubule associated complex", Page 1

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



PG

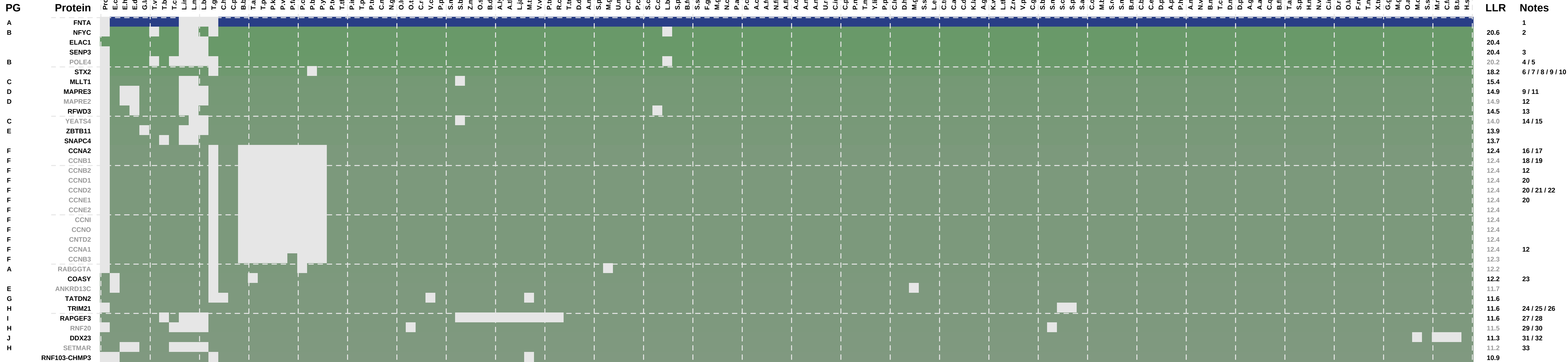
Protein	Protists	Plants	Fungi	Metazoa
KIF16B				

LLR Notes

1 / 2 / 3 / 4

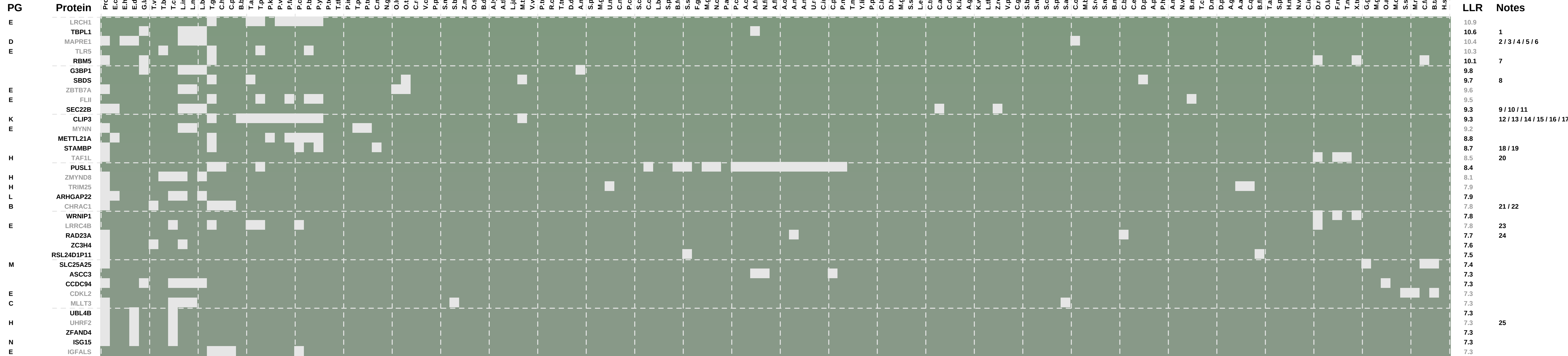
1: early endosome || 2: early endosome membrane || 3: endosome || 4: microtubule associated complex

Num of ECM Genes: 1. Num of Predicted Genes: 444



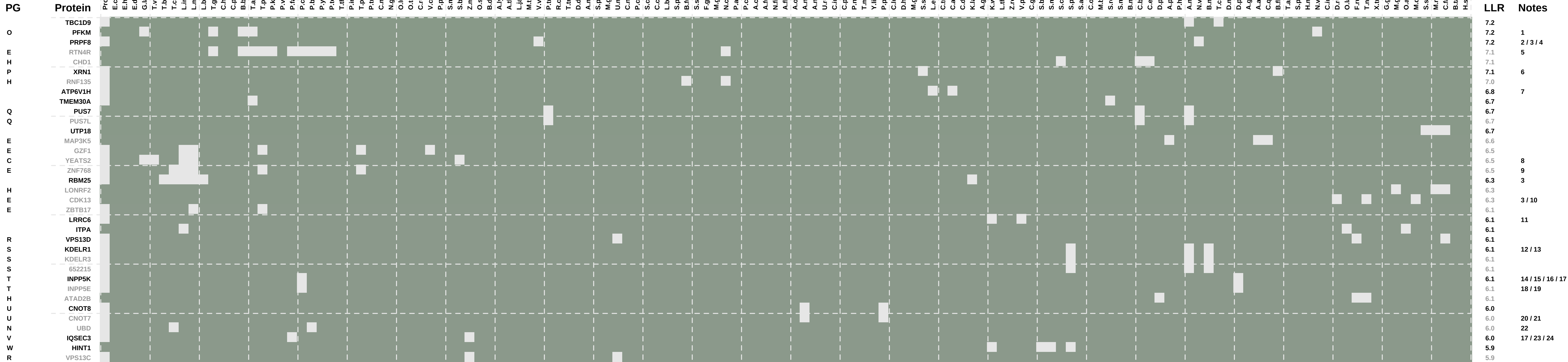
1: microtubule associated complex || 2: CCAAT-binding factor complex || 3: MLL1 complex || 4: Ada2/Gcn5/Ada3 transcription activator complex || 5: epsilon DNA polymerase complex || 6: basolateral plasma membrane || 7: cell-cell junction || 8: membrane raft || 9: midbody || 10: transport vesicle || 11: cytoplasmic microtubule || 12: microtubule cytoskeleton || 13: PML body || 14: NuA4 histone acetyltransferase complex || 15: nuclear matrix || 16: female pronucleus || 17: male pronucleus || 18: condensed nuclear chromosome outer kinetochore || 19: spindle pole || 20: cyclin-dependent protein kinase holoenzyme complex || 21: chromatin || 22: nuclear membrane || 23: mitochondrial outer membrane ||

Num of ECM Genes: 1. Num of Predicted Genes: 444



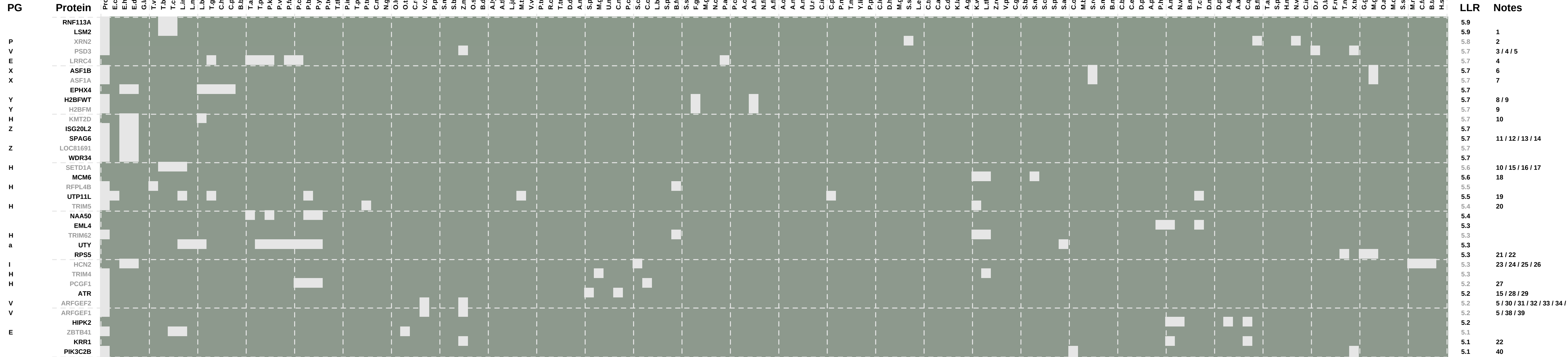
1: transcription factor TFIIA complex || 2: cell projection membrane || 3: cortical microtubule cytoskeleton || 4: cytoplasmic microtubule || 5: microtubule plus end || 6: spindle || 7: spliceosomal complex || 8: spindle pole || 9: endoplasmic reticulum-Golgi intermediate compartment || 10: endoplasmic reticulum-Golgi intermediate compartment membrane || 11: melanosome || 12: early endosome membrane || 13: Golgi stack || 14: membrane raft || 15: recycling endosome membrane || 16: trans-Golgi network || 17: trans-Golgi network membrane || 18: cleavage furrow || 19: early endosome || 20: transcription factor TFIID complex || 21: chromatin accessibility complex || 22: epsilon DNA polymerase complex ||

Num of ECM Genes: 1. Num of Predicted Genes: 444



1: 6-phosphofructokinase complex || 2: catalytic step 2 spliceosome || 3: nuclear speck || 4: U5 snRNP || 5: anchored to membrane || 6: intermediate filament cytoskeleton || 7: vacuolar proton-transporting V-type ATPase, V1 domain || 8: Ada2/Gcn5/Ada3 transcription activator complex || 9: DNA-directed RNA polymerase II, core complex || 10: nuclear cyclin-dependent protein kinase holoenzyme complex || 11: cilium || 12: cis-Golgi network || 13: endoplasmic reticulum-Golgi intermediate compartment || 14: neuron projection || 15: ruffle || 16: ruffle membrane || 17: trans-Golgi network || 18: cilium axoneme || 19: Golgi cisterna membrane || 20: CCR4-NOT complex || 21: cytoplasmic mRNA processing body || 22: aggresome ||

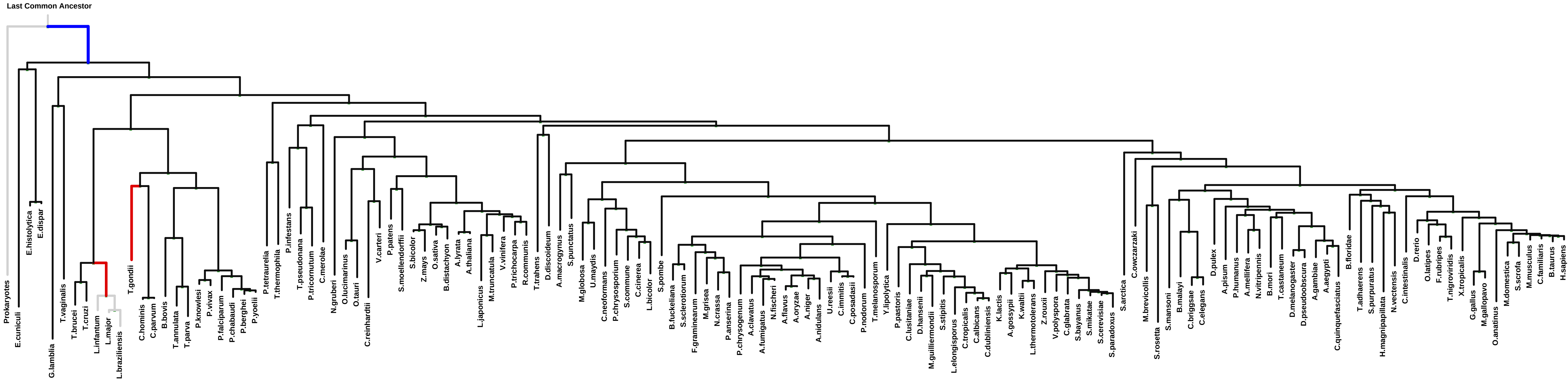
Num of ECM Genes: 1. Num of Predicted Genes: 444



1: catalytic step 2 spliceosome || 2: aggresome || 3: postsynaptic density || 4: postsynaptic membrane || 5: trans-Golgi network || 6: chromatin || 7: chromatin remodeling complex || 8: nuclear membrane || 9: nucleosome ||
10: histone methyltransferase complex || 11: axoneme || 12: cilium || 13: flagellum || 14: microtubule cytoskeleton || 15: chromosome || 16: nuclear speck || 17: Set1C/COMPASS complex || 18: MCM complex || 19: small-subunit processome ||
20: cytoplasmic mRNA processing body || 21: cytosolic small ribosomal subunit || 22: ribonucleoprotein complex || 23: axon || 24: dendritic shaft || 25: synapse || 26: voltage-gated potassium channel complex || 27: PcG protein complex ||

ECM 9, Gene set "microtubule associated complex", Page 5

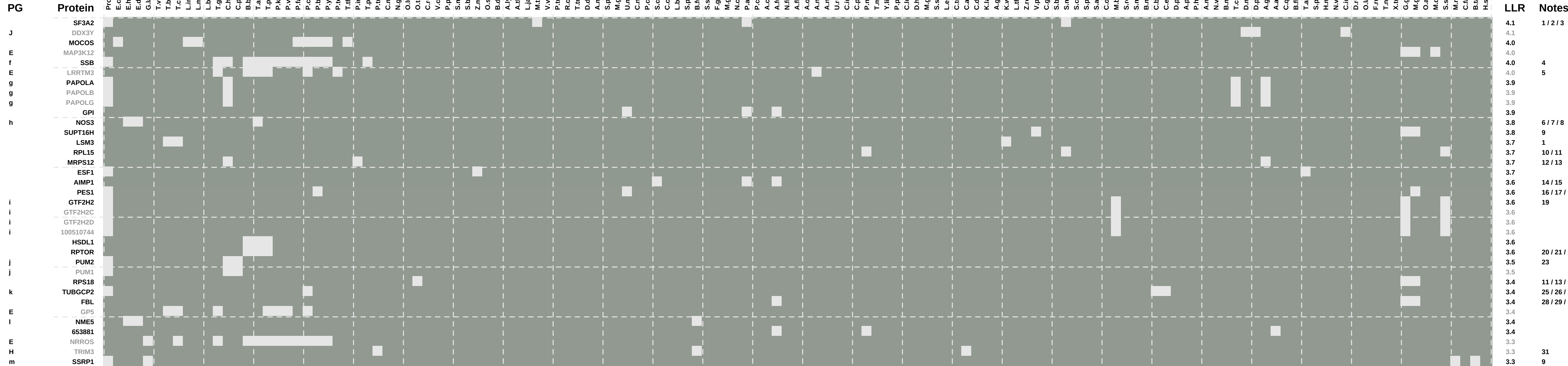
Num of ECM Genes: 1. Num of Predicted Genes: 444



PG		Protein	Protists	Plants	Fungi	Metazoa	LLR	Notes
E	B	PSMD4					5.1	1 / 2
		LRRC30					5.0	
		DRAP1					4.9	
H	b	ATP6V1C1					4.9	3 / 4 / 5 / 6
		AKTIP					4.9	
		TRAPPC2					4.9	
c	c	RNF40					4.9	9 / 10 / 11
		NCOA7					4.9	
		UGP2					4.8	
E	d	POLR3F					4.8	12
		UBTD2					4.7	
		UBTD1					4.7	
H	e	ZBTB48					4.7	13 / 14 / 15
		SF3A3					4.6	
		DUS3L					4.6	
E	d	CKAP5					4.6	16 / 17 / 18 / 19
		ZBTB8A					4.6	
		TRIM11					4.6	
H	d	APEX2					4.6	20 / 21 / 22
		ZBTB14					4.5	
		RPS9					4.4	
E	d	TRIM35					4.3	23 / 24 / 25 / 26
		GSPT2					4.3	
		NOL10					4.3	
H	d	MRE11A					4.3	27 / 28
		CDIPT					4.3	
		ARPC1B					4.3	
H	d	PCNA					4.3	17 / 29 / 30 / 31
		MYO18A					4.2	
		COPA					4.2	
E	d	NACA					4.2	35
		KMT2A					4.2	
		TOP3A					4.2	
H	d	AGAP3					4.2	36 / 37
		RABL6					4.1	
							4.1	

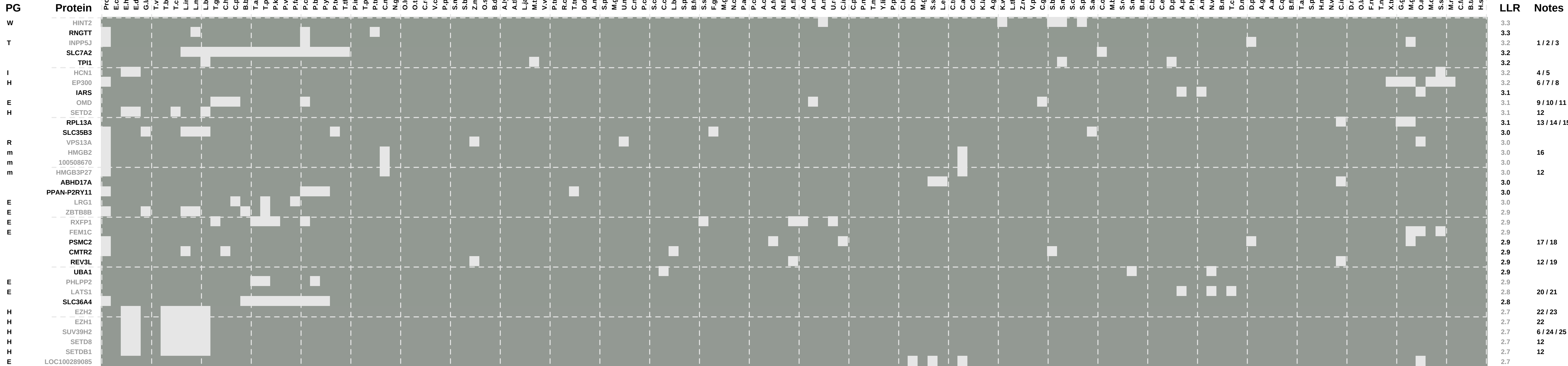
1: proteasome accessory complex 2: proteasome complex 3: apical part of cell 4: cytoplasmic vesicle 5: proton-transporting two-sector ATPase complex 6: proton-transporting V-type ATPase, V1 domain 7: FHF complex 8: HOPS complex 9: HULC complex 10: neuron projection 11: ubiquitin ligase complex 12: DNA-directed RNA polymerase III complex 13: catalytic step 2 spliceosome 14: nuclear speck 15: spliceosomal complex 16: gamma-tubulin complex 17: microtubule cytoskeleton 18: microtubule plus end 19: spindle pole 20: cytosolic small ribosomal subunit 21: ribonucleoprotein complex 22: ribosome 23: chromosome, telomeric region

Num of ECM Genes: 1. Num of Predicted Genes: 444



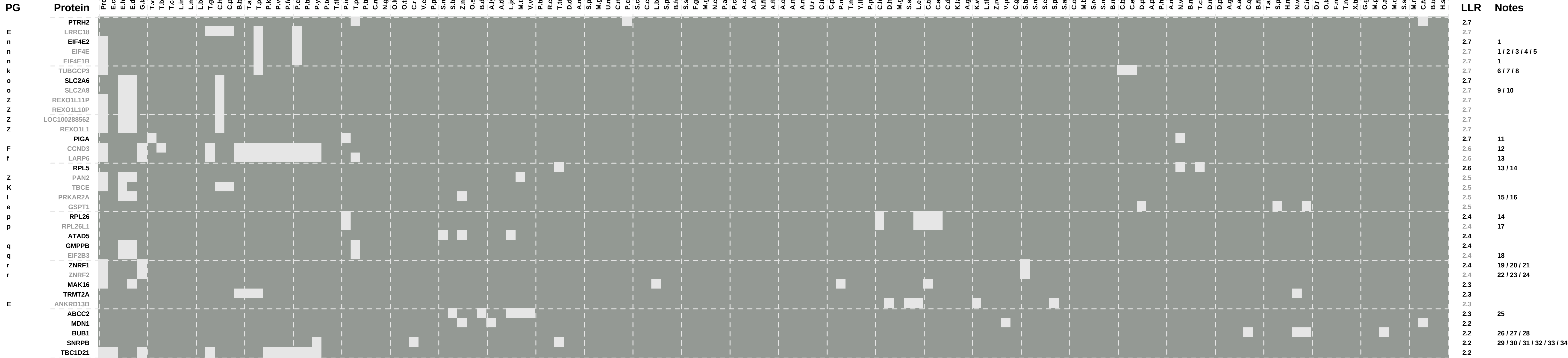
1: catalytic step 2 spliceosome || 2: small nuclear ribonucleoprotein complex || 3: spliceosomal complex || 4: ribonucleoprotein complex || 5: postsynaptic membrane || 6: apical part of cell || 7: caveola || 8: endocytic vesicle membrane || 9: chromosome || 10: cytosolic large ribosomal subunit || 11: ribosome || 12: mitochondrial ribosome || 13: small ribosomal subunit || 14: aminoacyl-tRNA synthetase multienzyme complex || 15: transport vesicle || 16: condensed chromosome || 17: PeBoW complex || 18: preribosome, large subunit precursor || 19: holo TFIIF complex || 20: dendrite || 21: lysosome || 22: TORC1 complex || 23: cytoplasmic stress granule || 24: cytosolic small ribosomal subunit || 25: cytoplasmic microtubule

Num of ECM Genes: 1. Num of Predicted Genes: 444



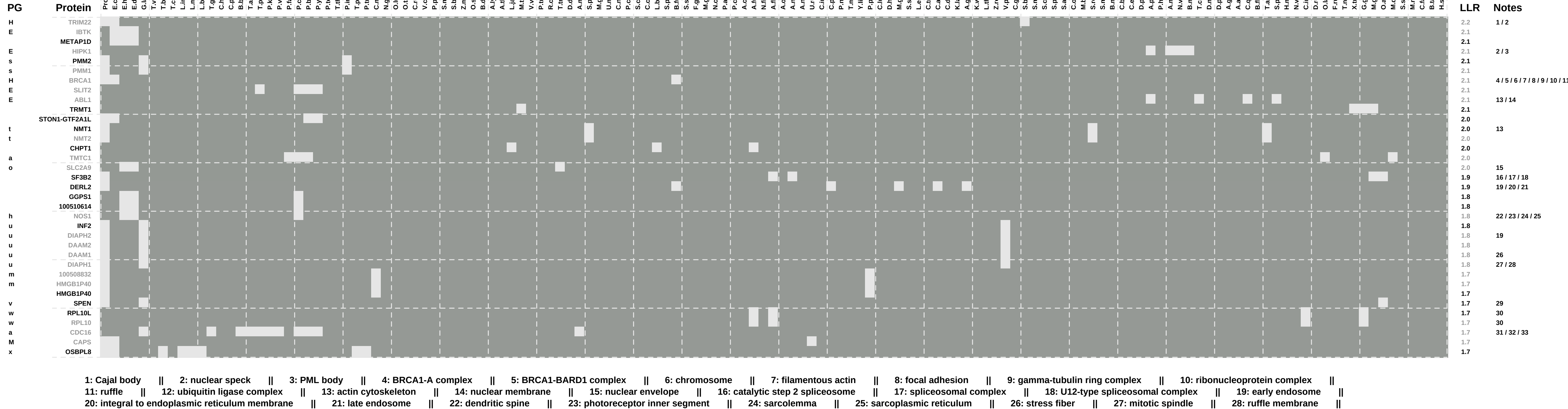
1: dendritic shaft || 2: growth cone || 3: ruffle || 4: axon || 5: dendrite || 6: chromatin || 7: histone acetyltransferase complex || 8: protein-DNA complex || 9: Golgi lumen || 10: lysosomal lumen || 11: proteinaceous extracellular matrix || 12: chromosome || 13: cytosolic large ribosomal subunit || 14: large ribosomal subunit || 15: ribonucleoprotein complex || 16: condensed chromosome || 17: proteasome accessory complex || 18: proteasome complex || 19: zeta DNA polymerase complex || 20: microtubule organizing center || 21: spindle pole || 22: ESC/E(Z) complex || 23: pronucleus || 24: chromosome, centromeric region || 25: nuclear heterochromatin

Num of ECM Genes: 1. Num of Predicted Genes: 444



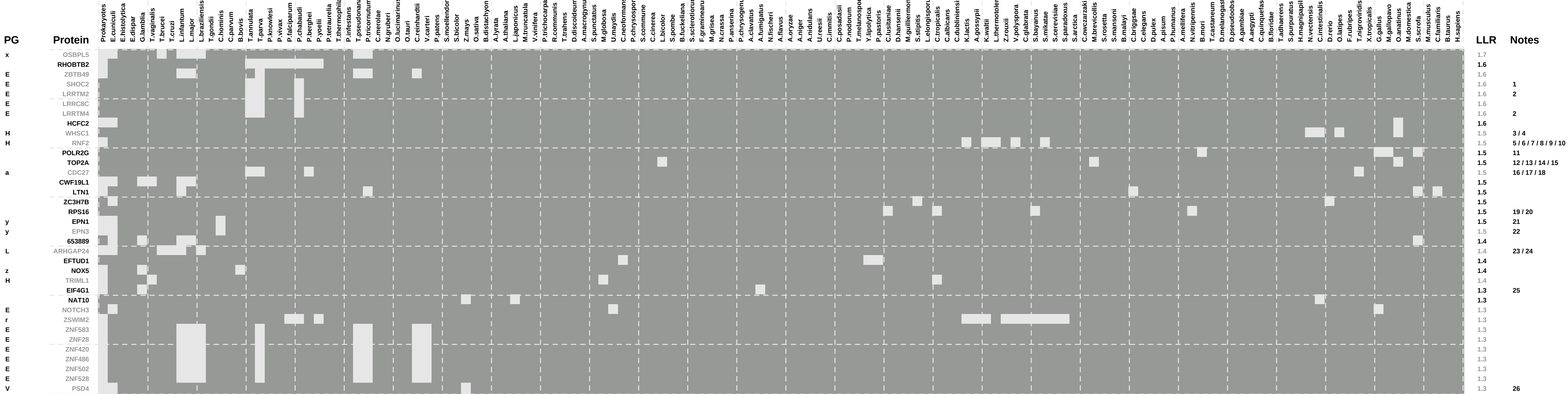
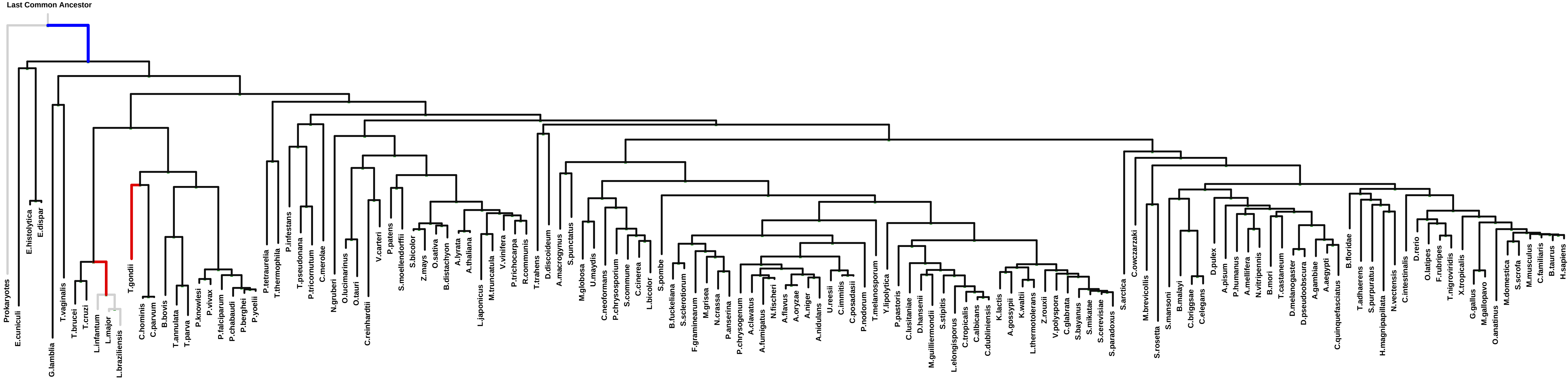
1: mRNA cap binding complex || 2: cytoplasmic mRNA processing body || 3: cytoplasmic stress granule || 4: eukaryotic translation initiation factor 4F complex || 5: RNA-induced silencing complex || 6: centriole || 7: polar microtubule || 8: spindle || 9: cytoplasmic vesicle membrane || 10: synaptic vesicle || 11: glycosylphosphatidylinositol-N-acetylglucosaminyltransferase (GPI-GnT) complex || 12: cyclin-dependent protein kinase holoenzyme complex || 13: ribonucleoprotein complex || 14: cytosolic large ribosomal subunit || 15: cAMP-dependent protein kinase complex || 16: T-tubule || 17: large ribosomal subunit || 18: eukaryotic translation initiation factor 2B complex || 19: endosome || 20: lysosome || 21: synaptic vesicle membrane ||

Num of ECM Genes: 1. Num of Predicted Genes: 444



ECM 9, Gene set "microtubule associated complex", Page 10

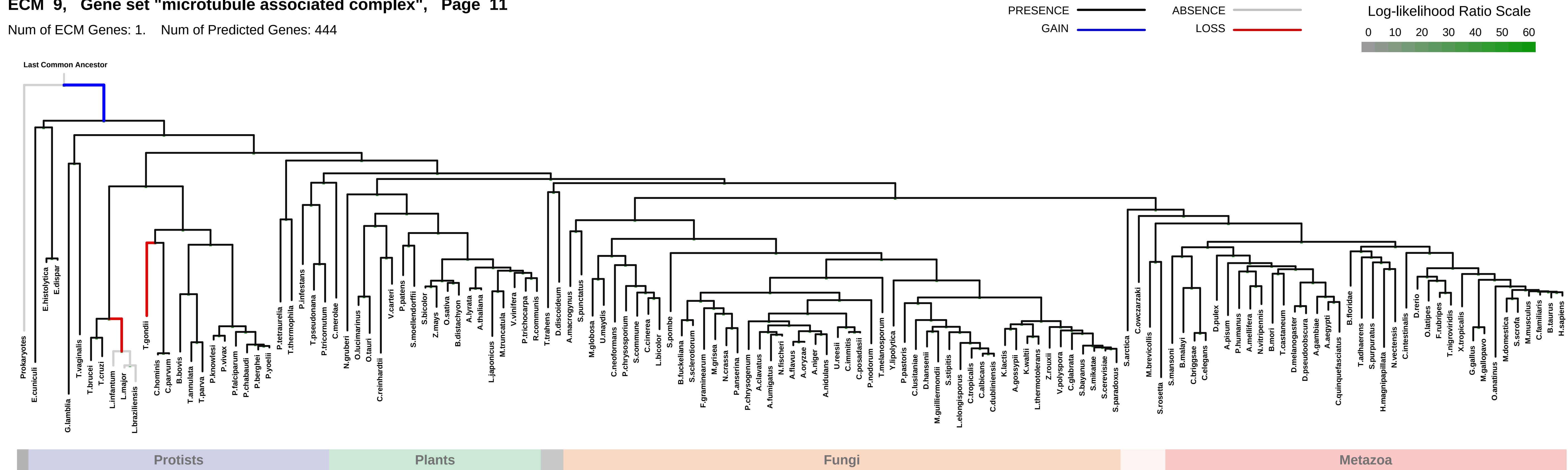
Num of ECM Genes: 1. Num of Predicted Genes: 444



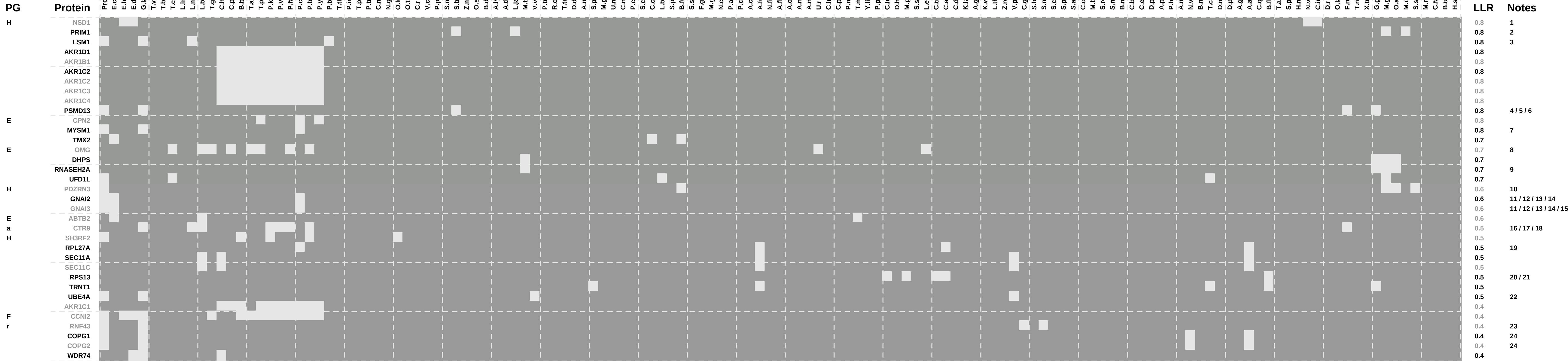
1: protein phosphatase type 1 complex || 2: postsynaptic membrane || 3: chromosome || 4: nuclear membrane || 5: MLL1 complex || 6: nuclear body || 7: PcG protein complex || 8: PRC1 complex || 9: sex chromatin ||
10: ubiquitin ligase complex || 11: DNA-directed RNA polymerase II, core complex || 12: centriole || 13: nuclear chromosome || 14: nucleoid || 15: synaptonemal complex || 16: anaphase-promoting complex || 17: spindle ||
18: spindle microtubule || 19: cytosolic small ribosomal subunit || 20: small ribosomal subunit || 21: coated pit || 22: clathrin-coated vesicle || 23: cell projection || 24: focal adhesion || 25: eukaryotic translation initiation factor 4F complex ||

ECM 9, Gene set "microtubule associated complex", Page 11

Num of ECM Genes: 1. Num of Predicted Genes: 444

[illegible]

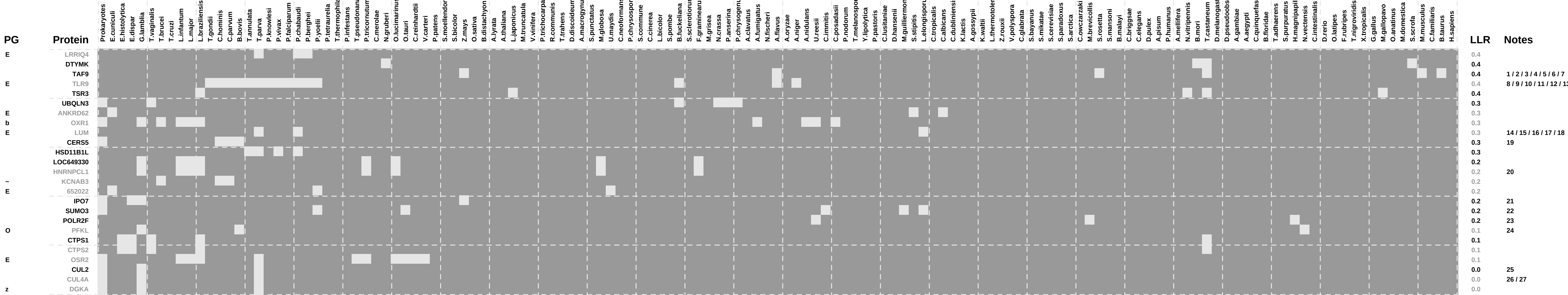
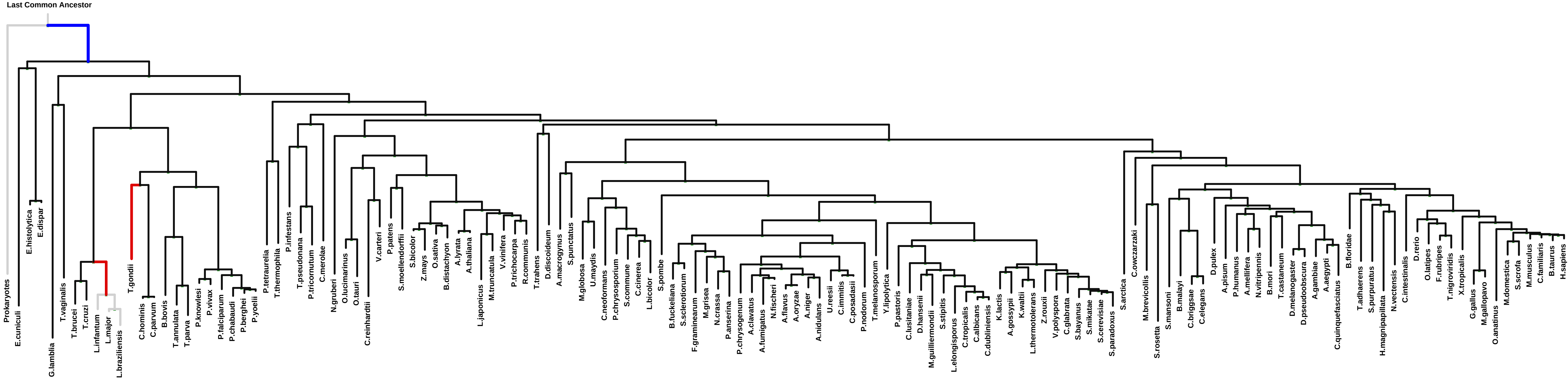
Num of ECM Genes: 1. Num of Predicted Genes: 444



1: chromosome || 2: alpha DNA polymerase:primase complex || 3: ribonucleoprotein complex || 4: proteasome accessory complex || 5: proteasome complex || 6: proteasome regulatory particle || 7: chromatin remodeling complex || 8: anchored to membrane || 9: ribonuclease H2 complex || 10: neuromuscular junction || 11: extrinsic to internal side of plasma membrane || 12: heterotrimeric G-protein complex || 13: membrane raft || 14: midbody || 15: zymogen granule || 16: Cdc73/Paf1 complex || 17: nuclear speck || 18: transcriptionally active chromatin || 19: cytosolic large ribosomal subunit || 20: cytosolic small ribosomal subunit || 21: ribosome || 22: ubiquitin ligase complex || 23: nuclear envelope ||

ECM 9, Gene set "microtubule associated complex", Page 13

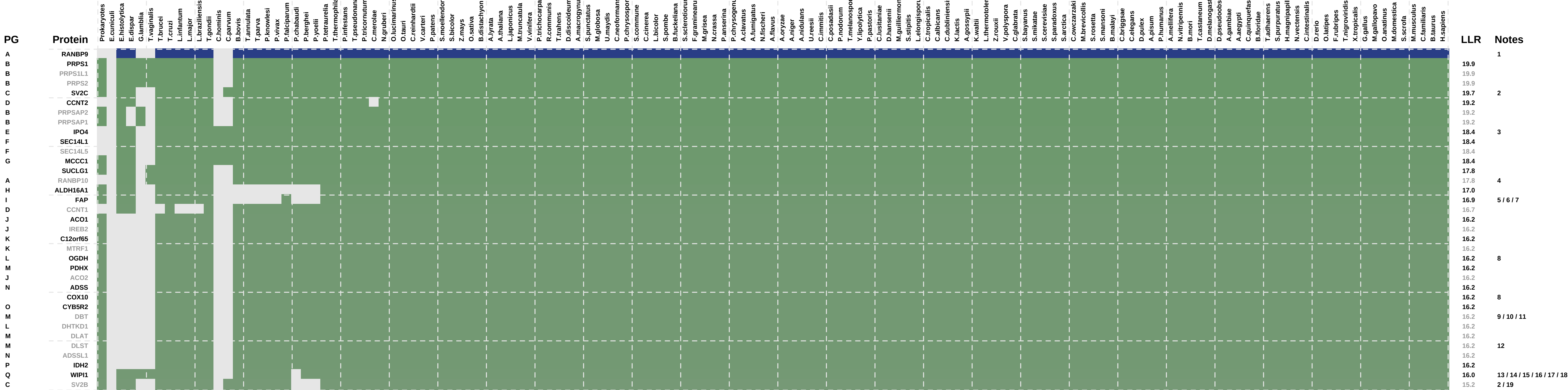
Num of ECM Genes: 1. Num of Predicted Genes: 444



1: Cajal body || 2: MLL1 complex || 3: PCAF complex || 4: pre-snoRNP complex || 5: STAGA complex || 6: transcription factor TFIID complex || 7: transcription factor TFIC complex || 8: basolateral plasma membrane || 9: early phagosome || 10: endolysosome membrane || 11: endosome || 12: endosome membrane || 13: lysosome || 14: extracellular matrix || 15: fibrillar collagen || 16: Golgi lumen || 17: lysosomal lumen || 18: proteinaceous extracellular matrix || 19: nuclear membrane || 20: ribonucleoprotein complex || 21: nuclear pore || 22: kinetochore || 23: DNA-directed RNA polymerase II, core complex || 24: 6-phosphofructokinase complex || 25: Cul2-RING ubiquitin ligase complex || 26: Cul4A-RING ubiquitin ligase complex || 27: Cul4-RING ubiquitin ligase complex

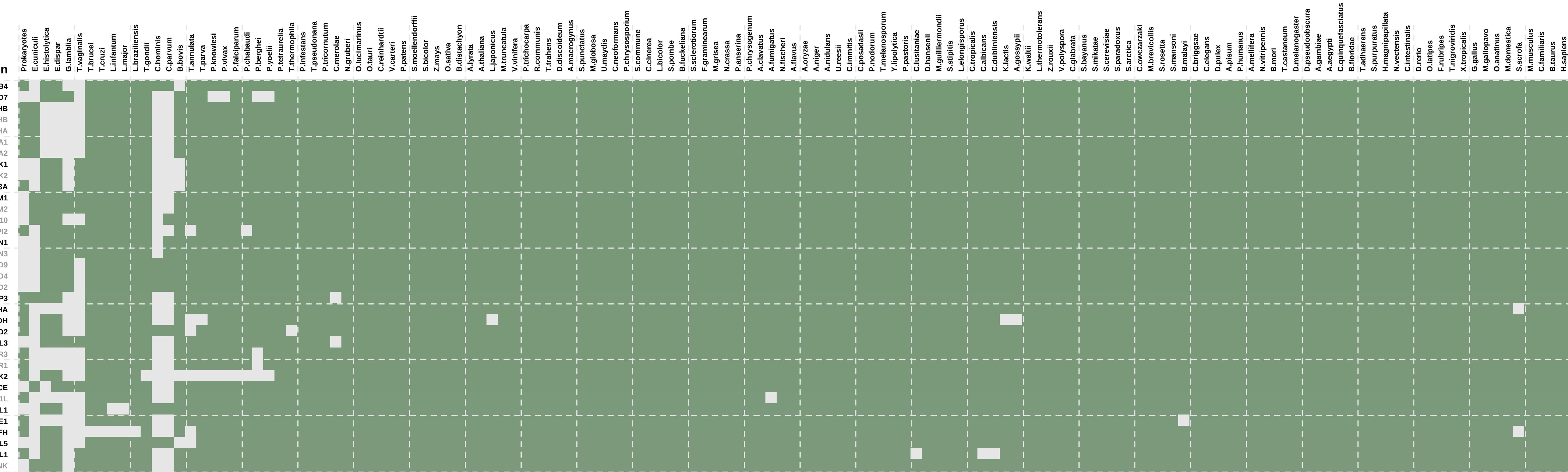
ECM 10, Gene set "microtubule associated complex", Page 1

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



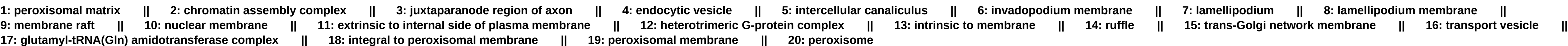
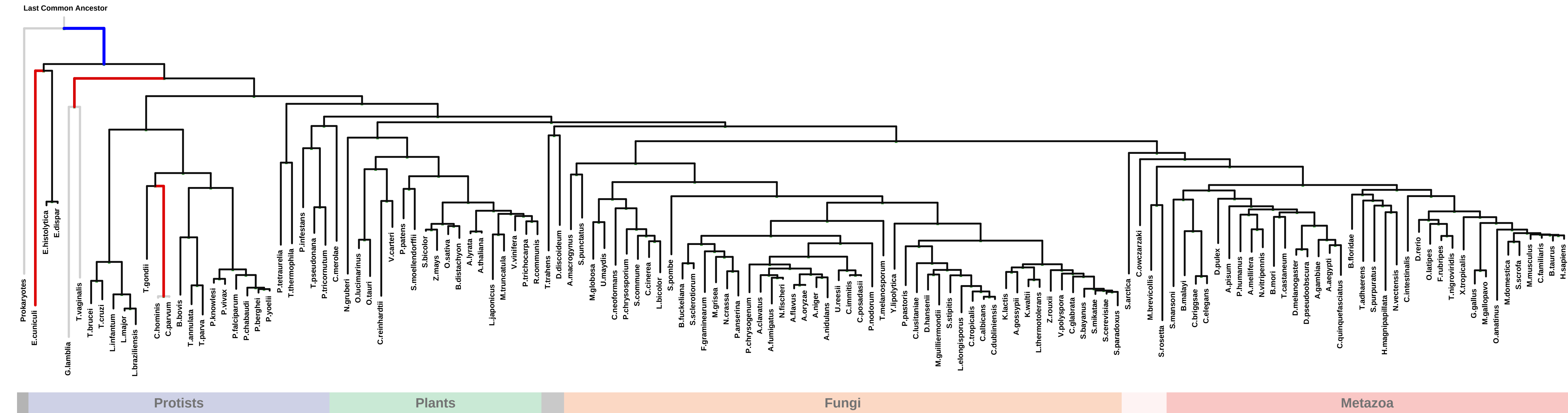
1: microtubule associated complex || 2: synaptic vesicle membrane || 3: nuclear pore || 4: cytoplasmic microtubule || 5: invadopodium membrane || 6: lamellipodium || 7: lamellipodium membrane || 8: mitochondrial membrane ||
9: microtubule cytoskeleton || 10: mitochondrial alpha-ketoglutarate dehydrogenase complex || 11: mitochondrial nucleoid || 12: oxoglutarate dehydrogenase complex || 13: autophagic vacuole membrane || 14: clathrin-coated vesicle ||
15: endosome membrane || 16: pre-autophagosomal structure || 17: pre-autophagosomal structure membrane || 18: trans-Golgi network || 19: acrosomal vesicle

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

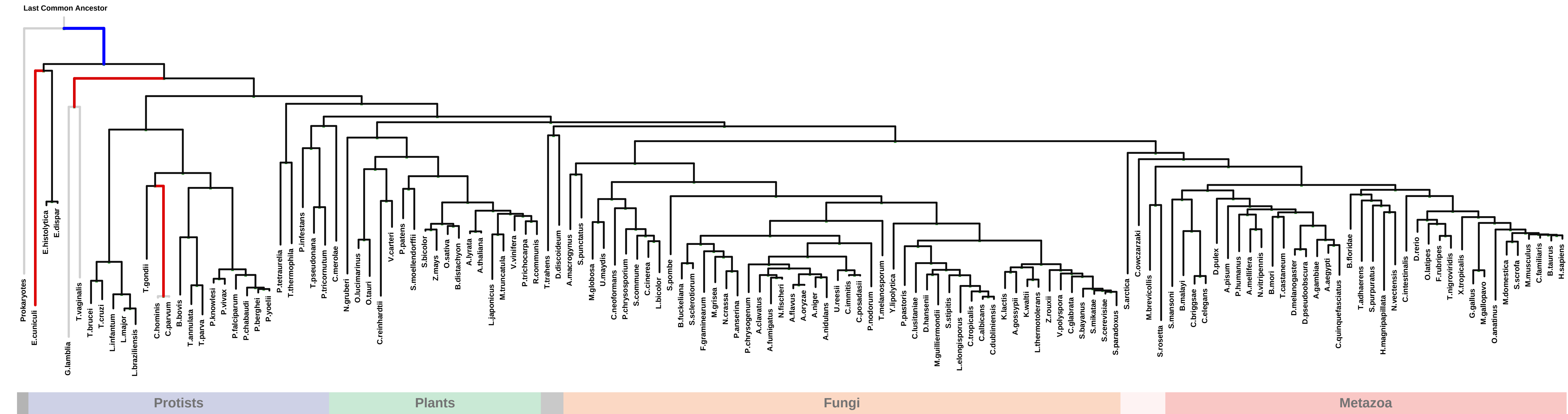


1: peroxisomal matrix || 2: peroxisomal membrane || 3: peroxisome || 4: COPI vesicle coat || 5: COPII vesicle coat || 6: endoplasmic reticulum-Golgi intermediate compartment || 7: endoplasmic reticulum-Golgi intermediate compartment membrane || 8: pyruvate dehydrogenase complex || 9: mitochondrial alpha-ketoglutarate dehydrogenase complex || 10: intermediate filament cytoskeleton || 11: cytoplasmic stress granule || 12: cis-Golgi network || 13: COPI-coated vesicle || 14: gamma-secretase complex || 15: melanosome || 16: secretory granule membrane || 17: trans-Golgi network transport vesicle || 18: transport vesicle membrane || 19: zymogen granule membrane || 20: autophagic vacuole || 21: autophagic vacuole membrane ||

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

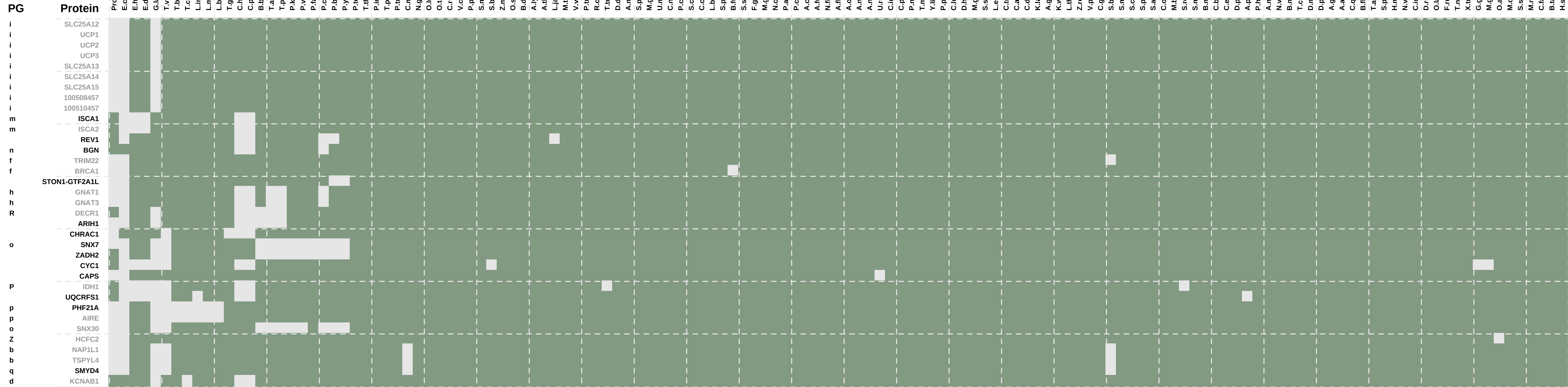


Num of ECM Genes: 1. Num of Predicted Genes: 500



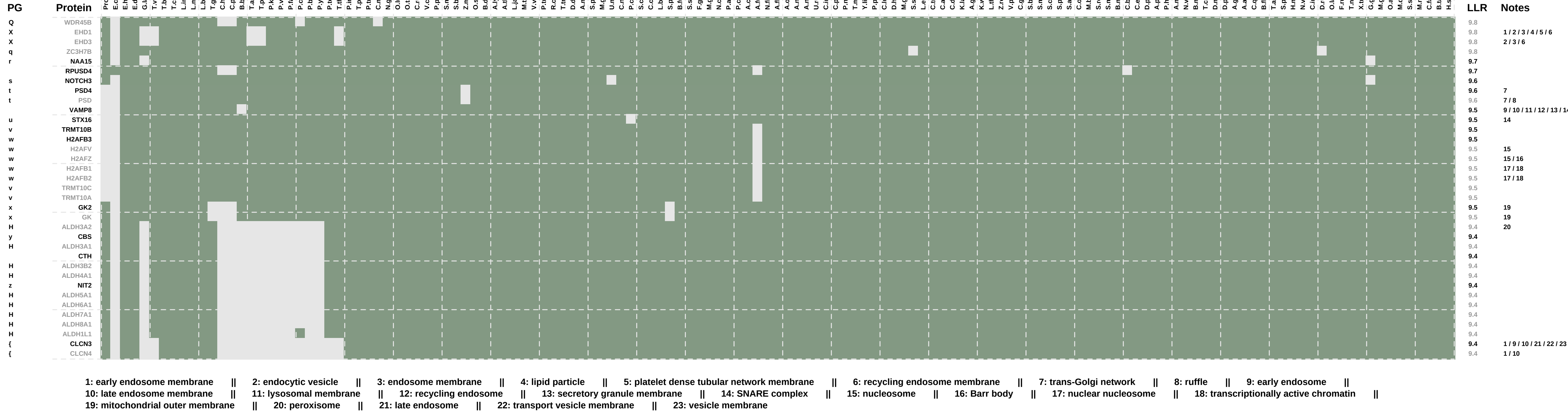
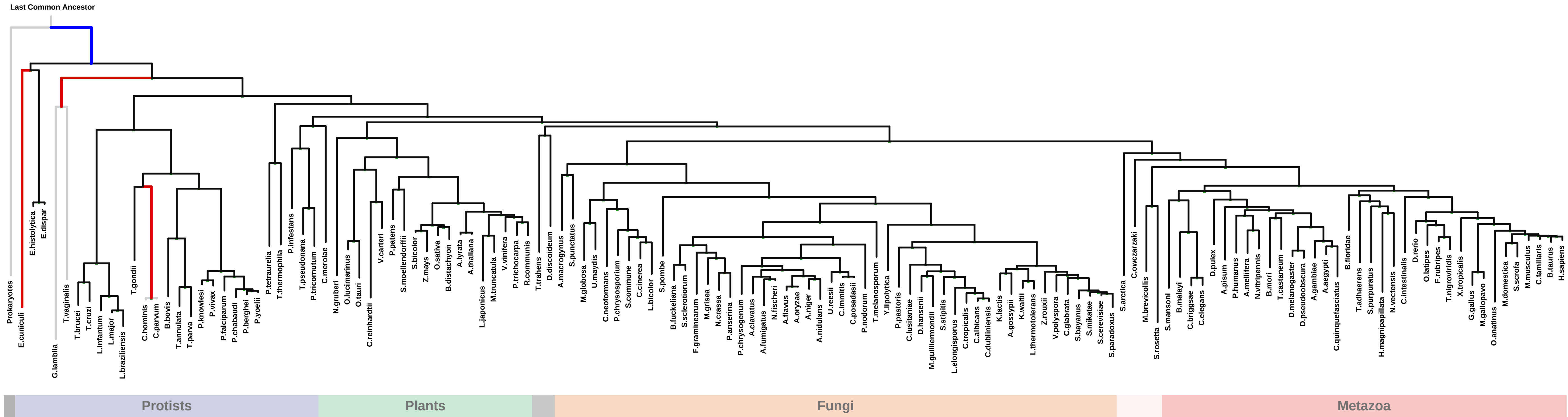
1: cilium || 2: flagellum || 3: mitochondrial outer membrane || 4: mitochondrial nucleoid || 5: MMXD complex || 6: mitochondrial inner membrane presequence translocase complex || 7: eukaryotic translation initiation factor 3 complex || 8: late endosome membrane || 9: peroxisome || 10: eukaryotic translation initiation factor 2 complex || 11: catalytic step 2 spliceosome || 12: small nuclear ribonucleoprotein complex || 13: spliceosomal complex || 14: U12-type spliceosomal complex || 15: nuclear pore

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



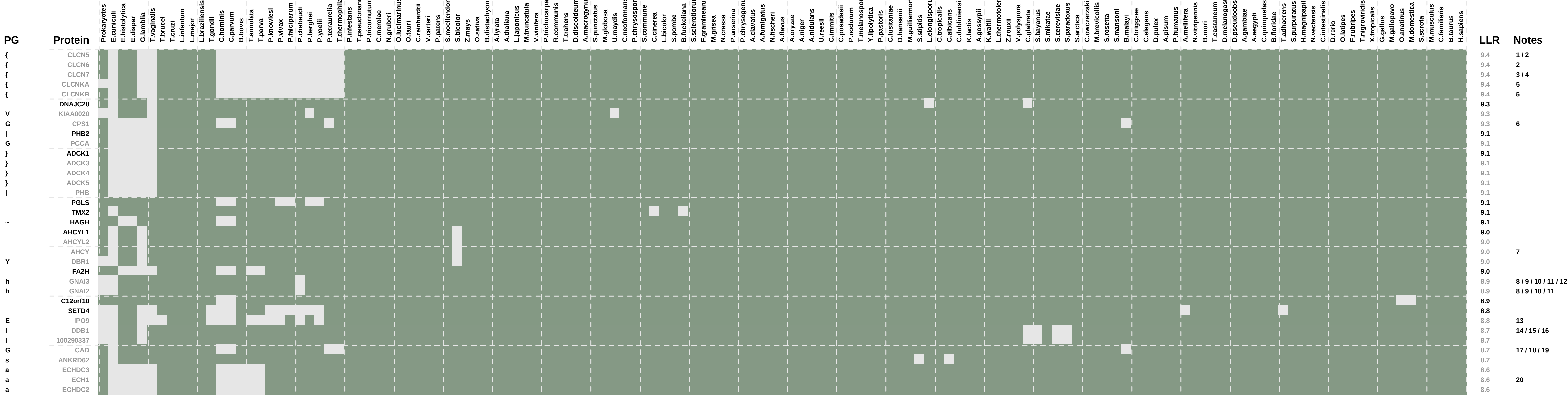
1: extracellular matrix || 2: Golgi lumen || 3: lysosomal lumen || 4: proteinaceous extracellular matrix || 5: sarcolemma || 6: transport vesicle || 7: Cajal body || 8: nuclear speck || 9: BRCA1-A complex || 10: BRCA1-BARD1 complex ||
11: chromosome || 12: filamentous actin || 13: focal adhesion || 14: gamma-tubulin ring complex || 15: ribonucleoprotein complex || 16: ruffle || 17: ubiquitin ligase complex || 18: extrinsic to internal side of plasma membrane ||
19: heterotrimeric G-protein complex || 20: photoreceptor connecting cilium || 21: photoreceptor inner segment || 22: photoreceptor outer segment || 23: photoreceptor outer segment membrane || 24: chromatin accessibility complex ||

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

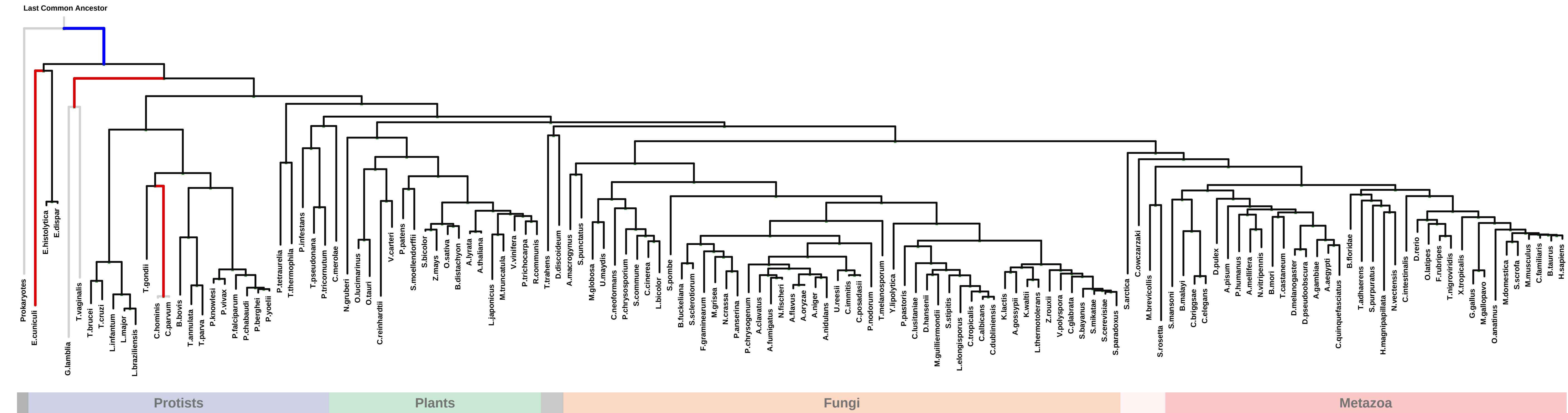


ECM 10, Gene set "microtubule associated complex", Page 7

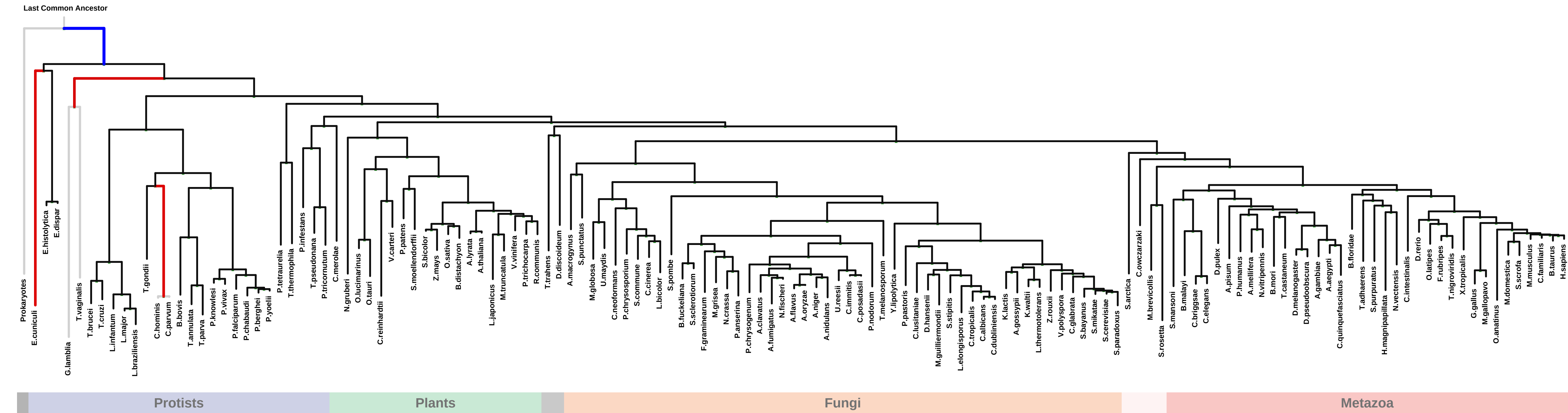
Num of ECM Genes: 1. Num of Predicted Genes: 500



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

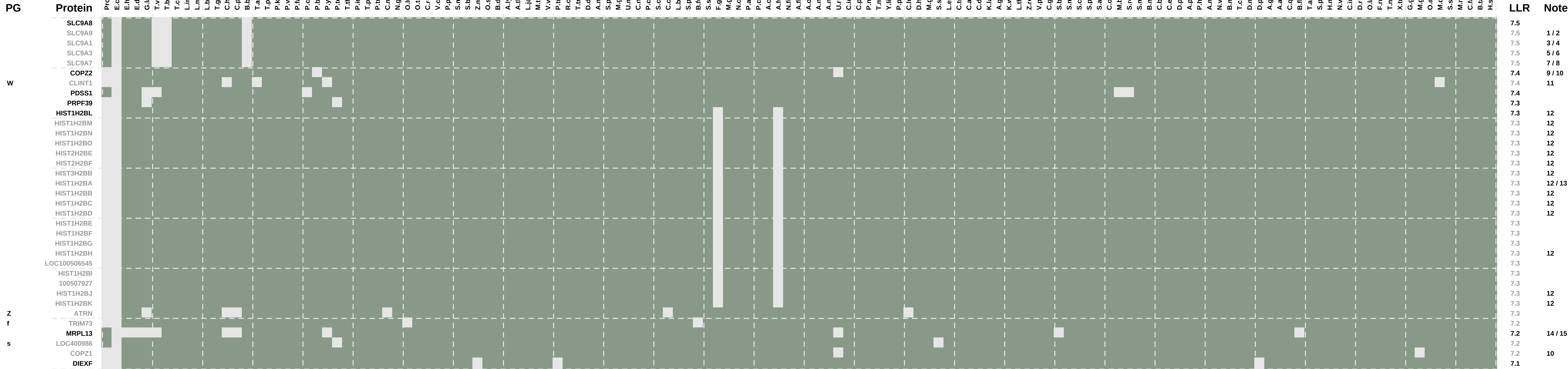


Num of ECM Genes: 1. Num of Predicted Genes: 500



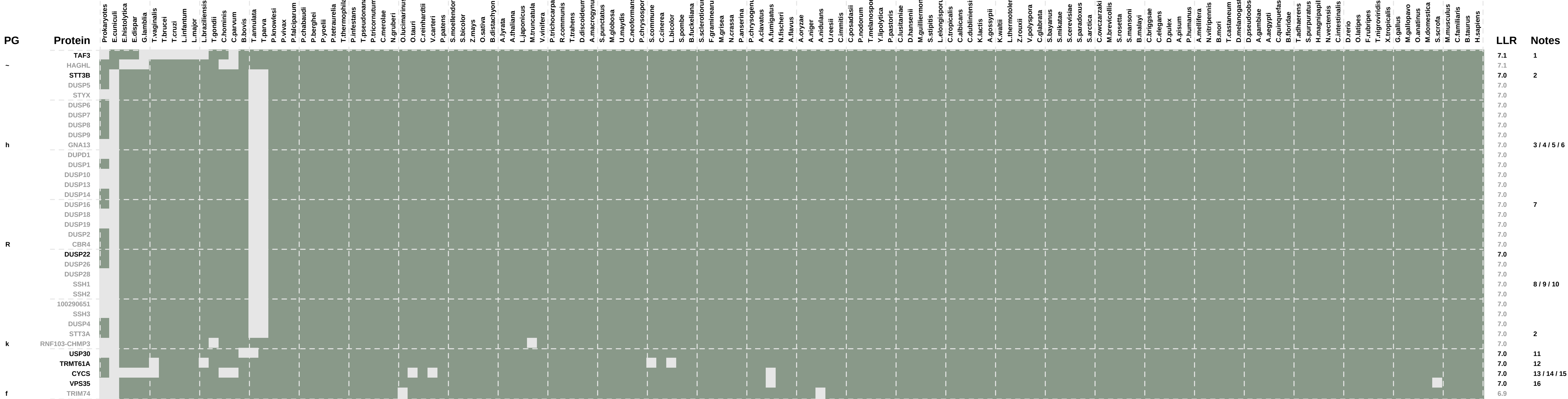
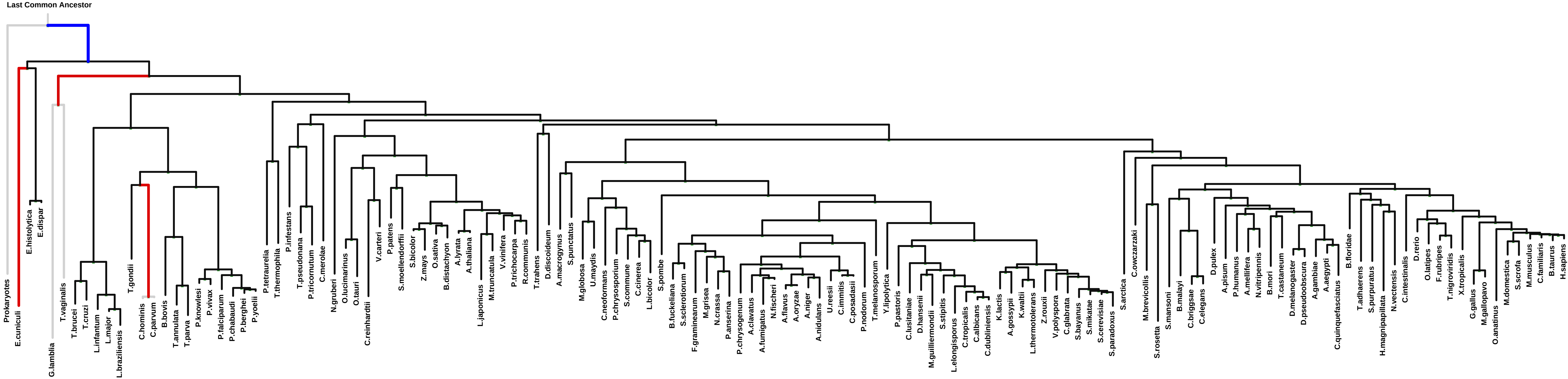
9: nuclear speck

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



ECM 10, Gene set "microtubule associated complex", Page 11

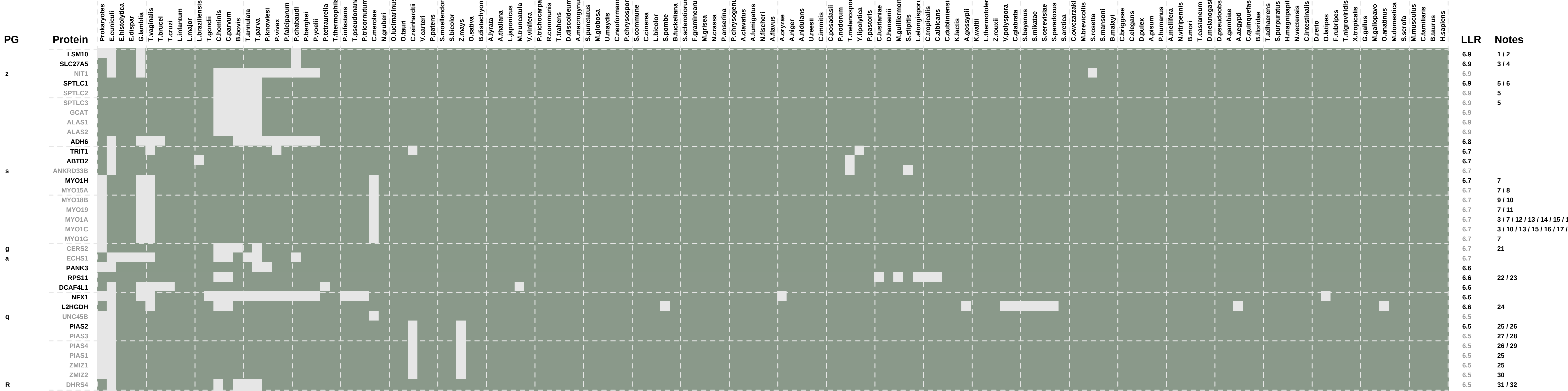
Num of ECM Genes: 1. Num of Predicted Genes: 500



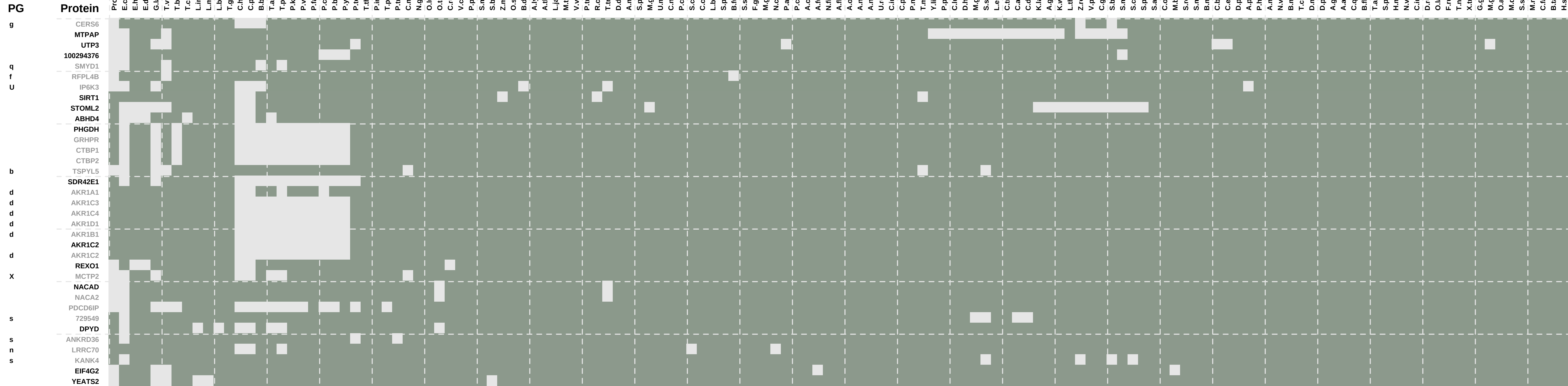
1: transcription factor TFIID complex || 2: oligosaccharyltransferase complex || 3: brush border membrane || 4: extrinsic to internal side of plasma membrane || 5: heterotrimeric G-protein complex || 6: melanosome || 7: cytoplasmic membrane-bounded vesicle || 8: cleavage furrow || 9: lamellipodium || 10: midbody || 11: mitochondrial outer membrane || 12: tRNA (m1A) methyltransferase complex || 13: mitochondrial intermembrane space || 14: protein phosphatase type 2A complex || 15: respiratory chain || 16: endosome

ECM 10, Gene set "microtubule associated complex", Page 12

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

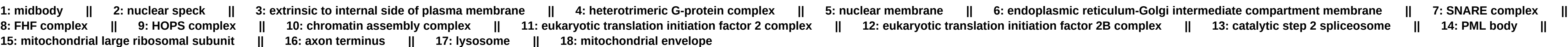
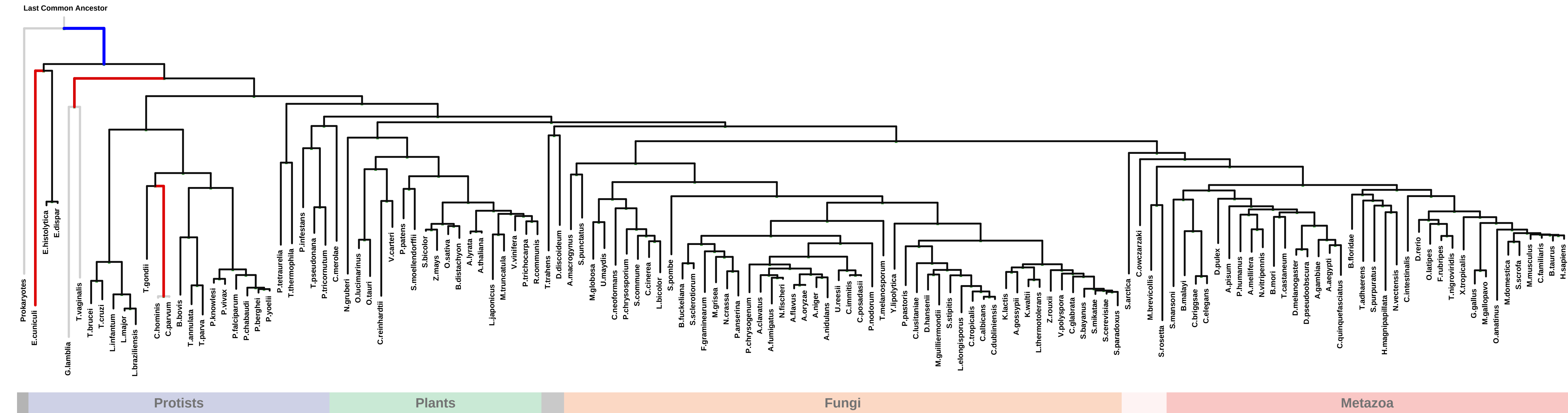


Num of ECM Genes: 1. Num of Predicted Genes: 500

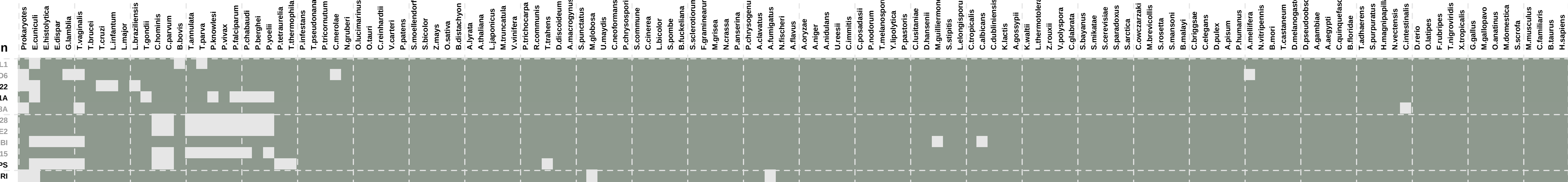


LLR	Notes
6.5	1
6.5	
6.4	
6.3	
6.2	
6.2	
6.2	
6.2	2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 /
6.2	11
6.2	
6.2	
6.2	12
6.2	13
6.2	13 / 14
6.1	
6.0	
6.0	
6.0	
6.0	
6.0	
6.0	
6.0	
6.0	
6.0	
6.0	
5.9	
5.9	
5.9	
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5.8	
5.8	
5.8	
5.7	
5.7	17
5.7	18

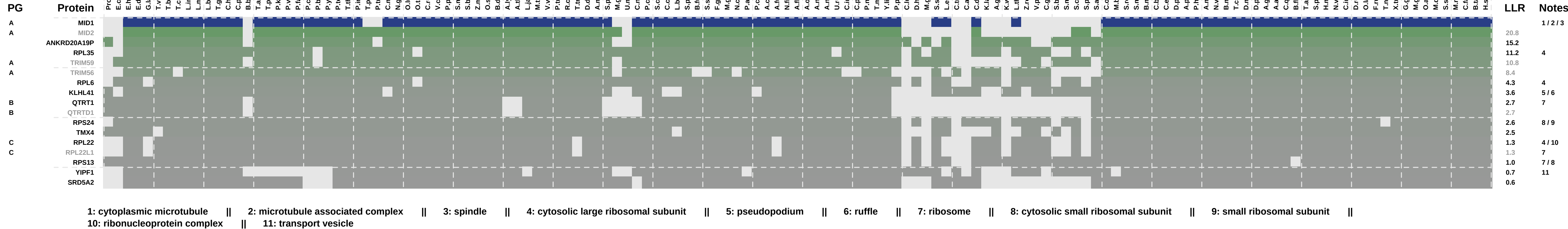
Num of ECM Genes: 1. Num of Predicted Genes: 500



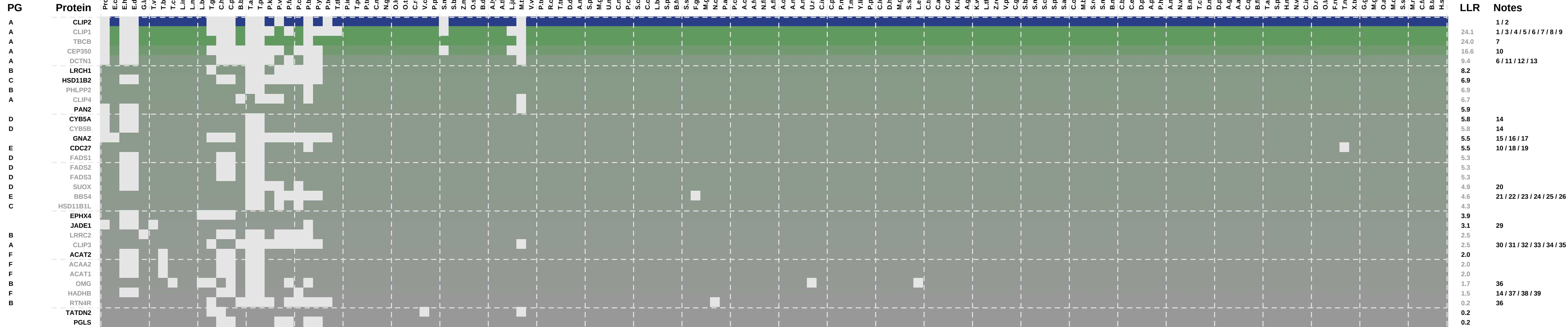
Num of ECM Genes: 1. Num of Predicted Genes: 500

[illegible]

Num of ECM Genes: 1. Num of Predicted Genes: 16



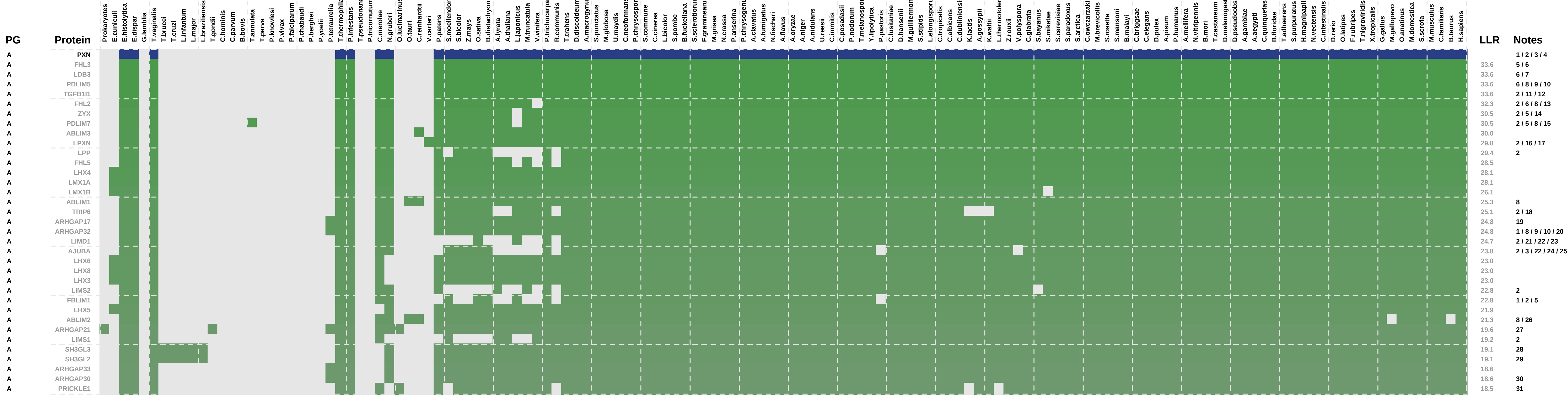
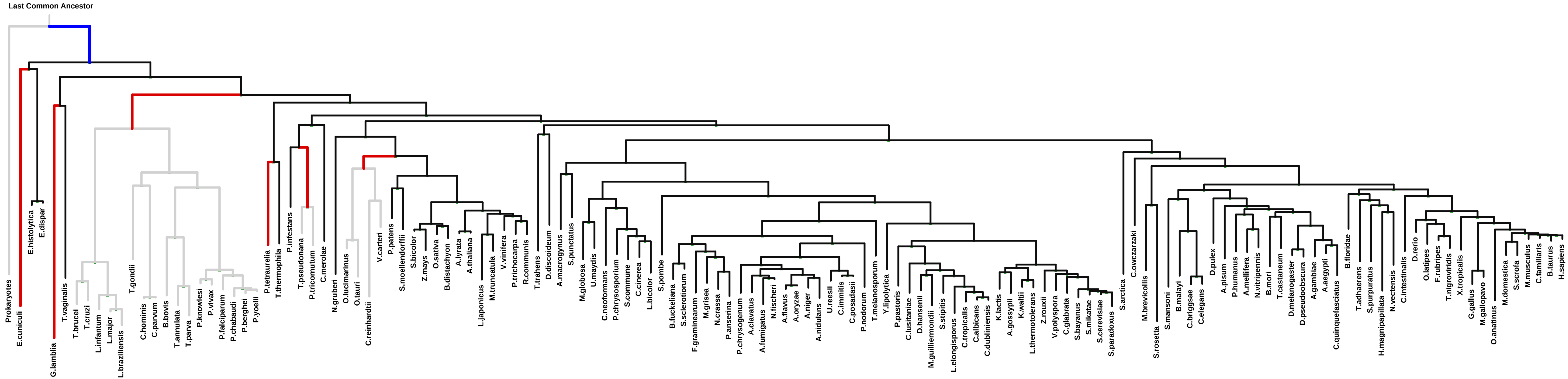
Num of ECM Genes: 1. Num of Predicted Genes: 31



35: trans-Golgi network membrane || 36: anchored to membrane || 37: mitochondrial envelope || 38: mitochondrial fatty acid beta-oxidation multienzyme complex || 39: mitochondrial nucleoid

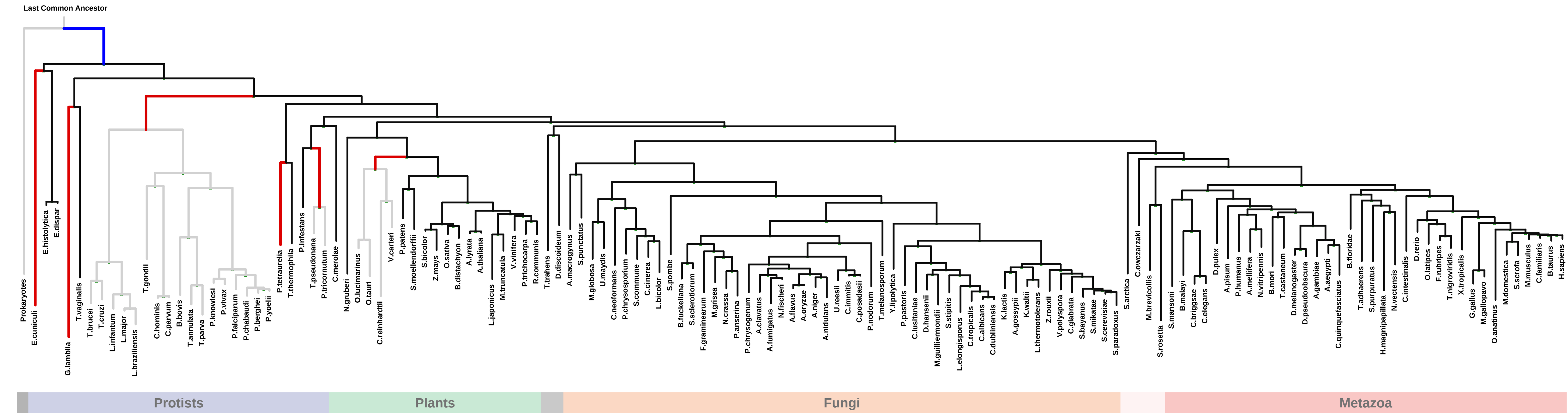
ECM 13, Gene set "microtubule associated complex", Page 1

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

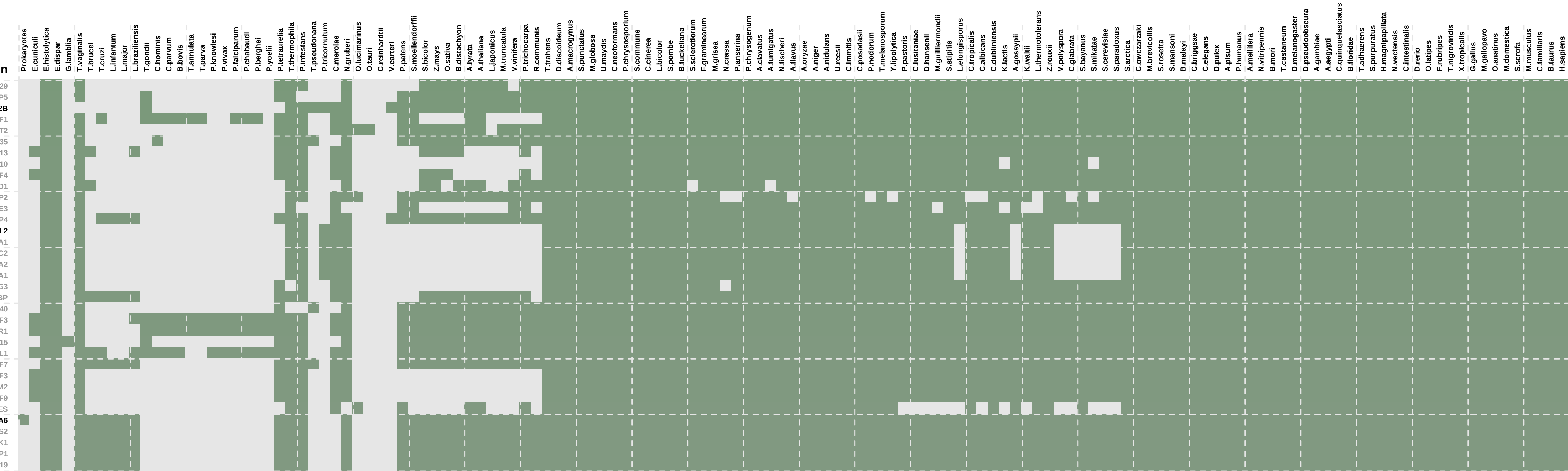


1: cell cortex 2: focal adhesion 3: lamellipodium 4: microtubule associated complex 5: stress fiber 6: Z disc 7: pseudopodium 8: actin cytoskeleton 9: postsynaptic density 10: postsynaptic membrane 11: extracellular matrix 12: nuclear matrix 13: M band 14: cell-cell adherens junction 15: ruffle 16: cell projection 17: podosome 18: interleukin-1 receptor complex 19: tight junction 20: endosome membrane 21: adherens junction 22: cytoplasmic mRNA processing body 23: RNA-induced silencing complex 24: cell-cell junction 25: microtubule organizing center 26: intermediate filament cytoskeleton 27: cytoplasmic vesicle membrane

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

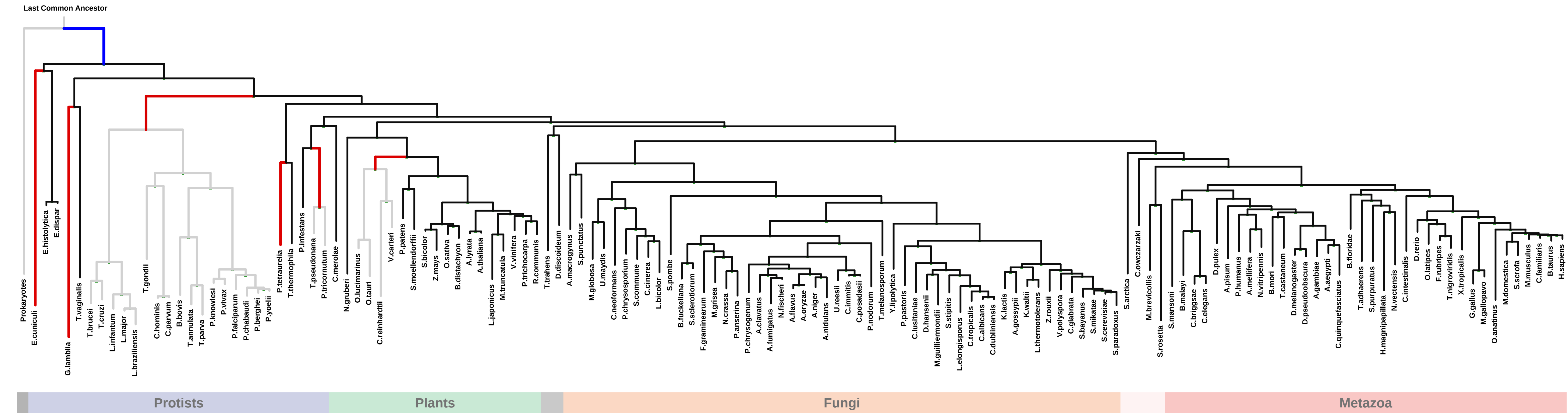


Num of ECM Genes: 1. Num of Predicted Genes: 500

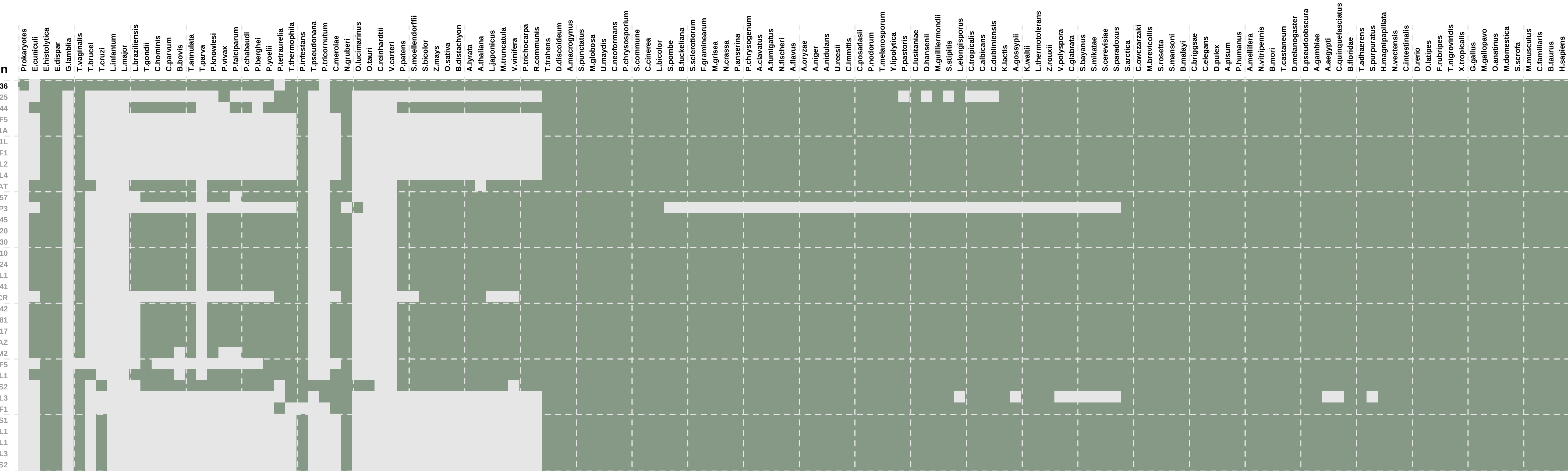


1: PcG protein complex || 2: growth cone || 3: neuron projection || 4: cell-cell junction || 5: centralspindlin complex || 6: cleavage furrow || 7: midbody || 8: mitotic spindle || 9: tight junction || 10: actin cytoskeleton || 11: filopodium || 12: lamellipodium || 13: ruffle membrane || 14: focal adhesion || 15: caveola || 16: cytoskeletal part || 17: dendrite || 18: TSC1-TSC2 complex || 19: endomembrane system || 20: Golgi stack || 21: synapse || 22: cell cortex || 23: ruffle || 24: Z disc || 25: vesicle membrane || 26: cytoplasmic vesicle membrane

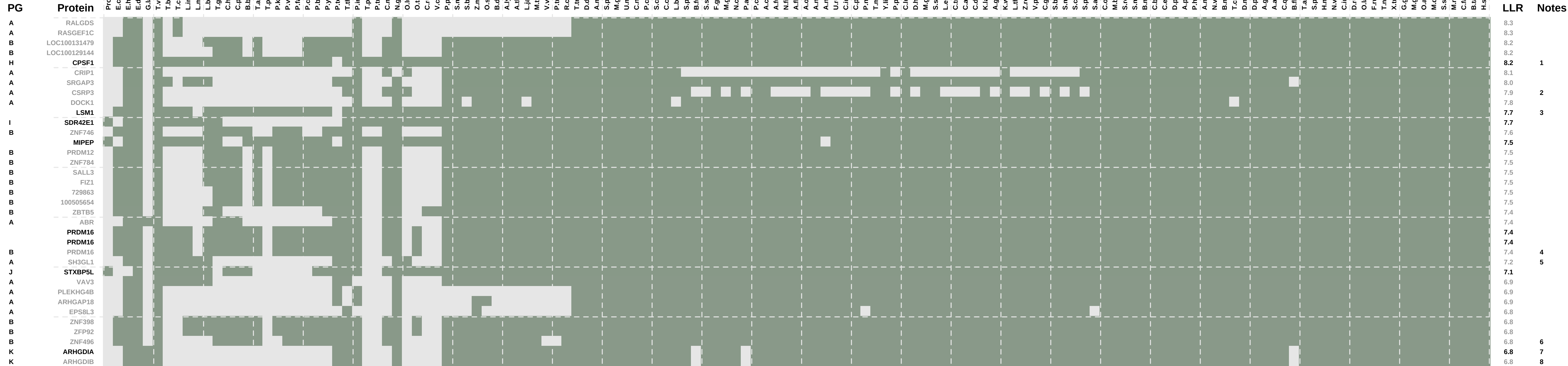
Num of ECM Genes: 1. Num of Predicted Genes: 500



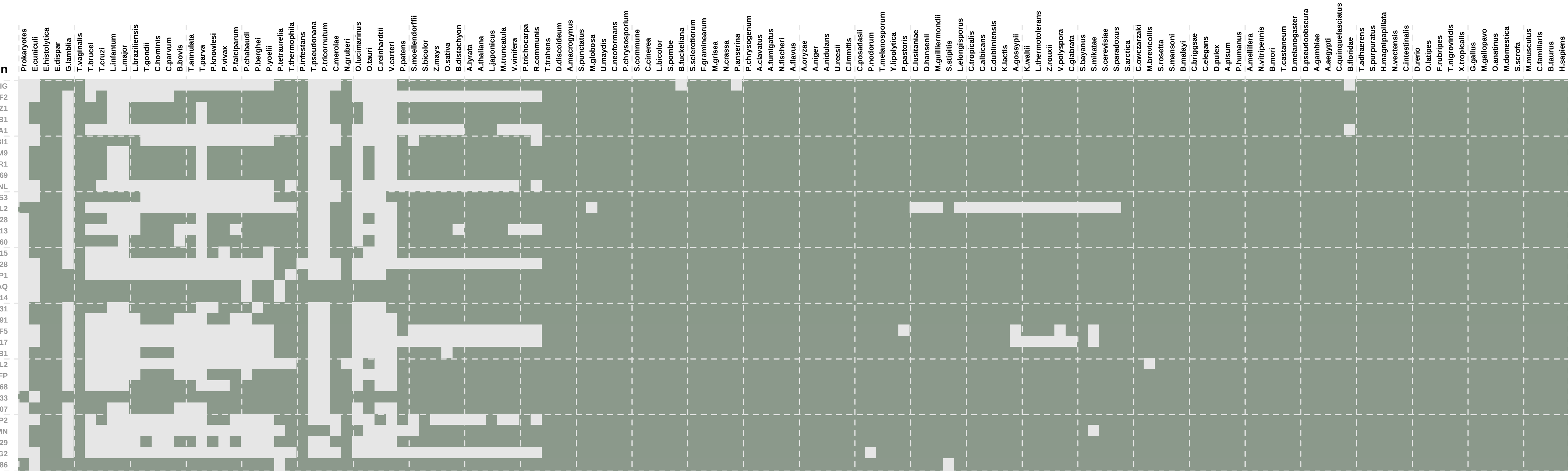
Num of ECM Genes: 1. Num of Predicted Genes: 500



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



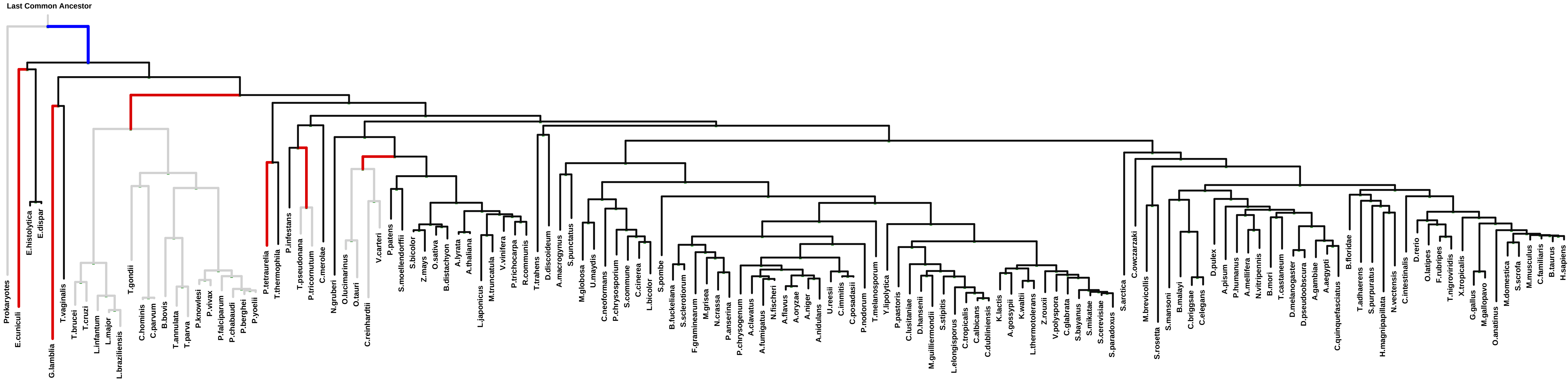
Num of ECM Genes: 1. Num of Predicted Genes: 500



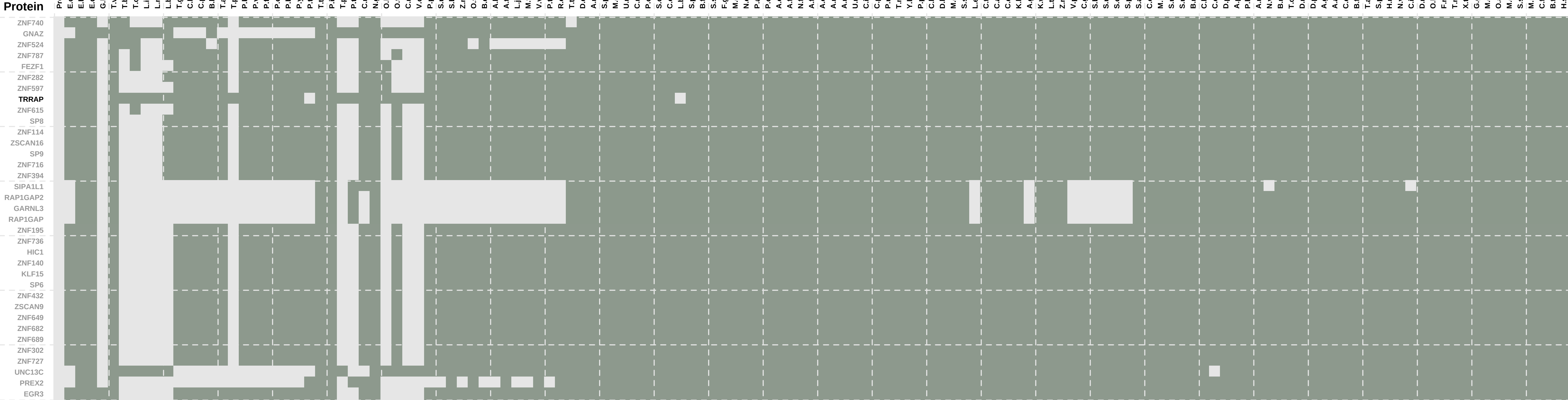
1: cytoplasmic membrane-bounded vesicle || 2: nuclear body || 3: nuclear speck || 4: intrinsic to internal side of plasma membrane || 5: ruffle || 6: filopodium || 7: growth cone || 8: lamellipodium || 9: synapse || 10: chromosome ||
11: cell cortex || 12: postsynaptic density || 13: focal adhesion || 14: microtubule cytoskeleton || 15: extrinsic to internal side of plasma membrane || 16: heterotrimeric G-protein complex || 17: nuclear membrane || 18: Cajal body ||
19: neuron projection || 20: ruffle membrane

ECM 13, Gene set "microtubule associated complex", Page 8

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

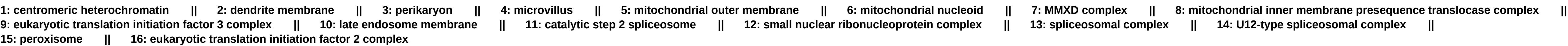
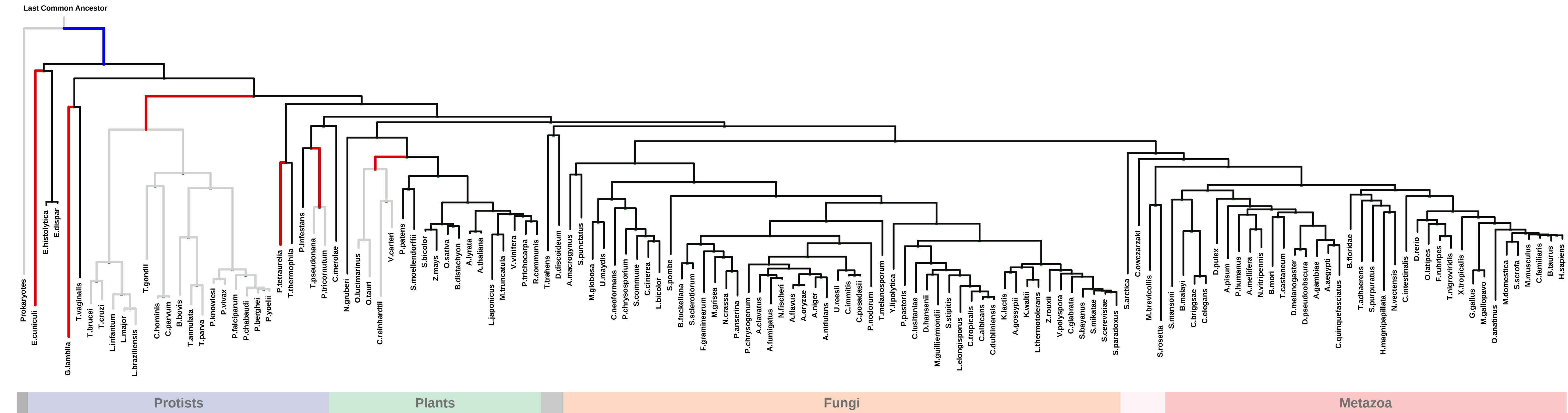


PG

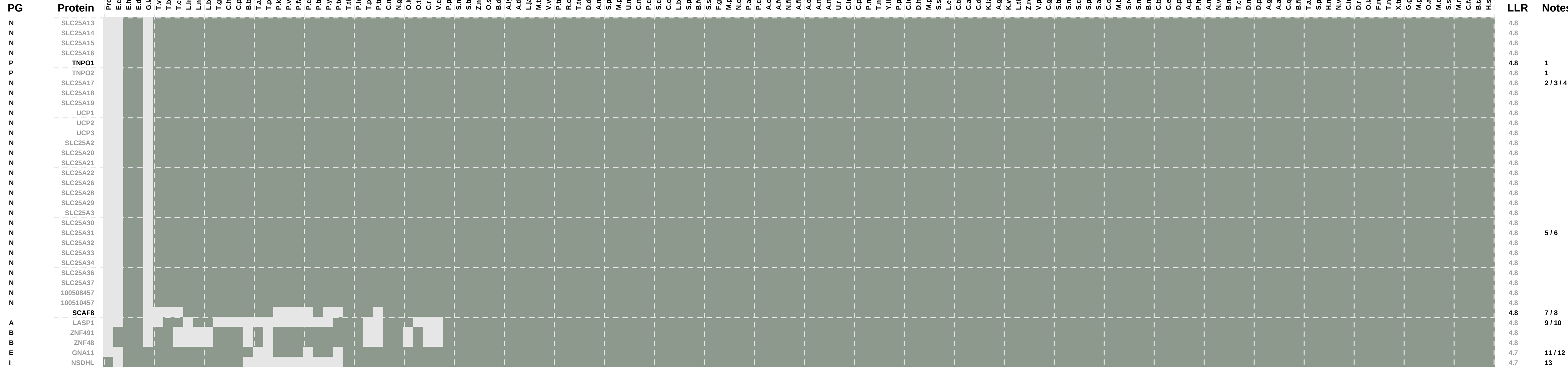


1: extrinsic to internal side of plasma membrane || 2: heterotrimeric G-protein complex || 3: nuclear envelope || 4: NuA4 histone acetyltransferase complex || 5: PCAF complex || 6: STAGA complex || 7: transcription factor TFTC complex ||
8: dendritic spine || 9: postsynaptic density || 10: postsynaptic membrane || 11: chromatin || 12: presynaptic membrane

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

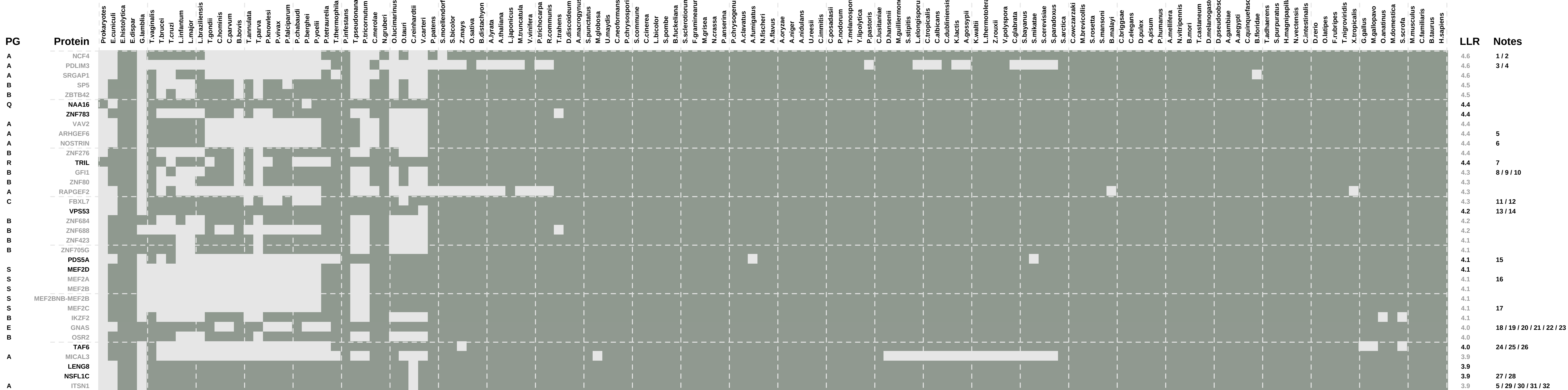


Num of ECM Genes: 1. Num of Predicted Genes: 500



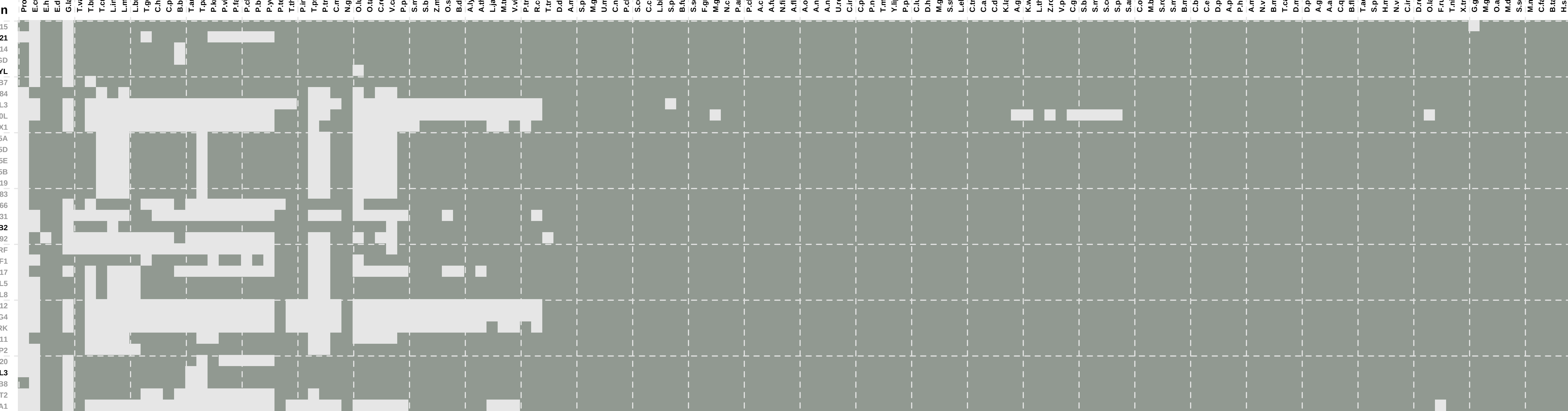
1: nuclear pore || 2: integral to peroxisomal membrane || 3: peroxisomal membrane || 4: peroxisome
11: extrinsic to internal side of plasma membrane || 12: heterotrimeric G-protein complex || 13: lipid particle

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



1: NADPH oxidase complex || 2: phagolysosome || 3: actin cytoskeleton || 4: Z disc || 5: lamellipodium || 6: endocytic vesicle membrane || 7: lipopolysaccharide receptor complex || 8: nuclear body || 9: nuclear matrix || 10: transcriptional repressor complex || 11: SCF ubiquitin ligase complex || 12: ubiquitin ligase complex || 13: endosome membrane || 14: GARP complex || 15: chromatin || 16: nuclear chromatin || 17: nuclear speck || 18: extrinsic to internal side of plasma membrane || 19: heterotrimeric G-protein complex || 20: intrinsic to membrane || 21: ruffle || 22: trans-Golgi network membrane || 23: transport vesicle || 24: MLL1 complex || 25: transcription factor TFIID complex || 26: transcription factor TIFC complex ||

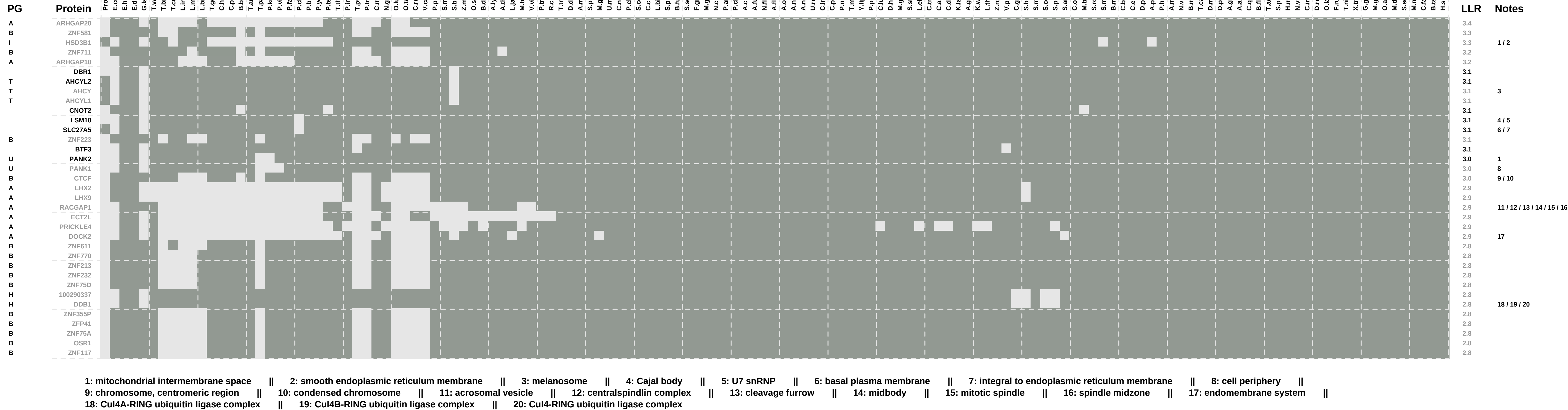
Num of ECM Genes: 1. Num of Predicted Genes: 500



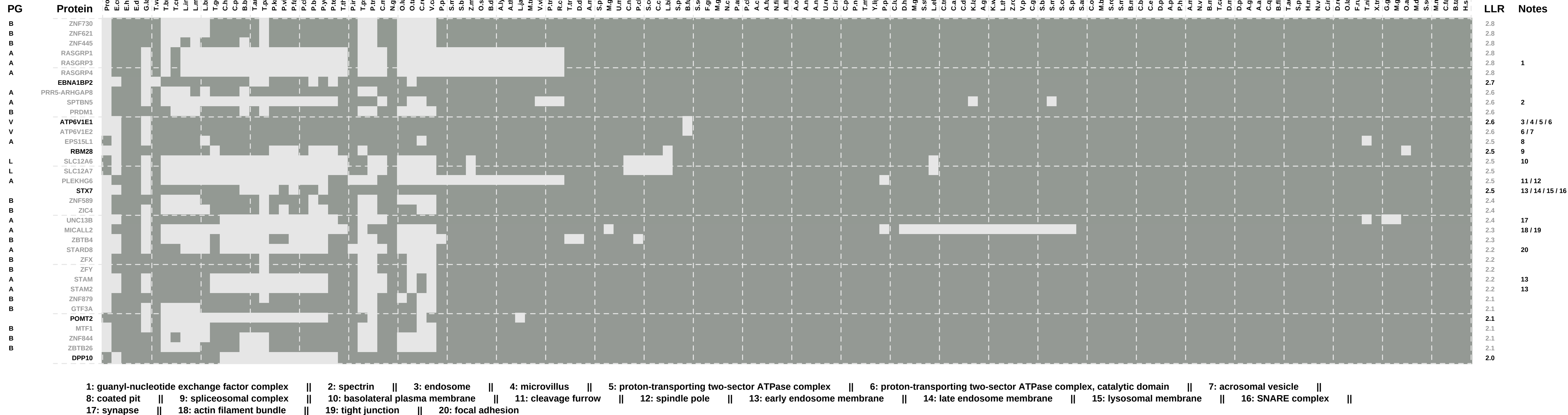
1: focal adhesion || 2: intrinsic to internal side of plasma membrane || 3: catalytic step 2 spliceosome || 4: nuclear chromatin || 5: lamellipodium || 6: histone deacetylase complex || 7: endosome || 8: mitochondrial envelope

LLR	Notes
3.8	
3.8	
3.8	
3.8	
3.7	
3.7	
3.7	1
3.7	2
3.7	
3.6	
3.6	
3.6	
3.6	
3.6	
3.6	
3.6	
3.6	
3.6	3
3.5	
3.5	
3.5	4
3.5	5
3.5	6
3.5	
3.5	
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3.4	
3.4	
3.4	
3.4	8
3.4	
3.4	

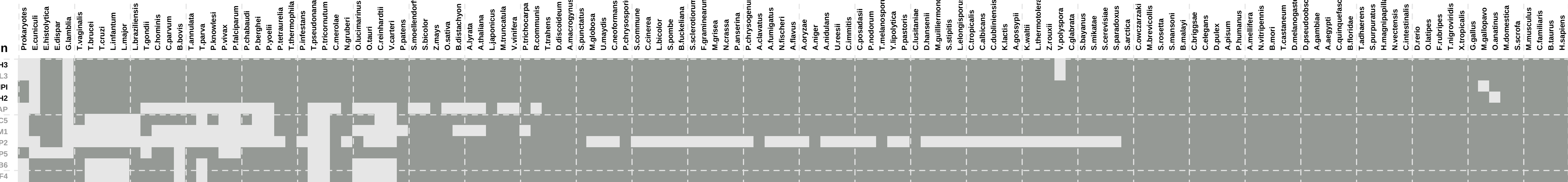
Num of ECM Genes: 1. Num of Predicted Genes: 500



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

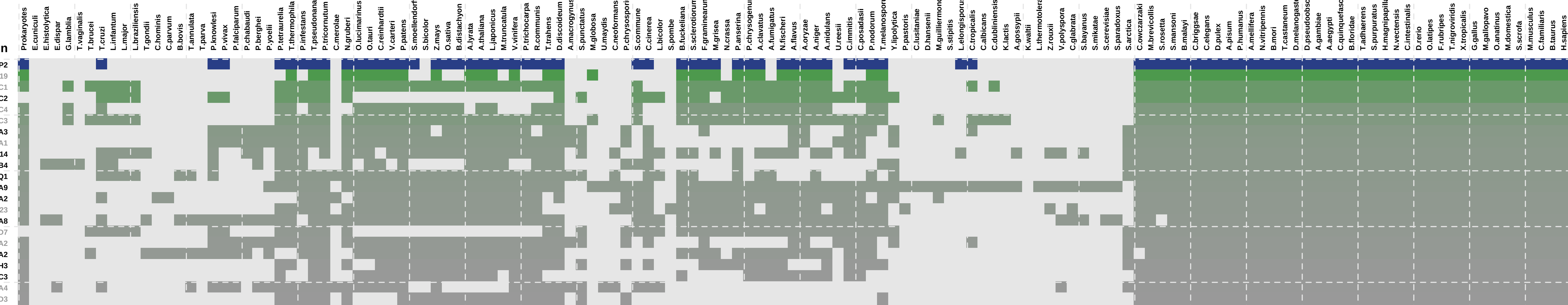


Num of ECM Genes: 1. Num of Predicted Genes: 500



LLR	Notes
2.0	
2.0	
2.0	
2.0	
2.0	
1.9	
1.9	1
1.9	
1.8	2 / 3 / 4
1.8	
1.8	

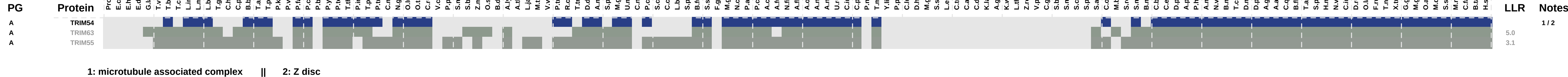
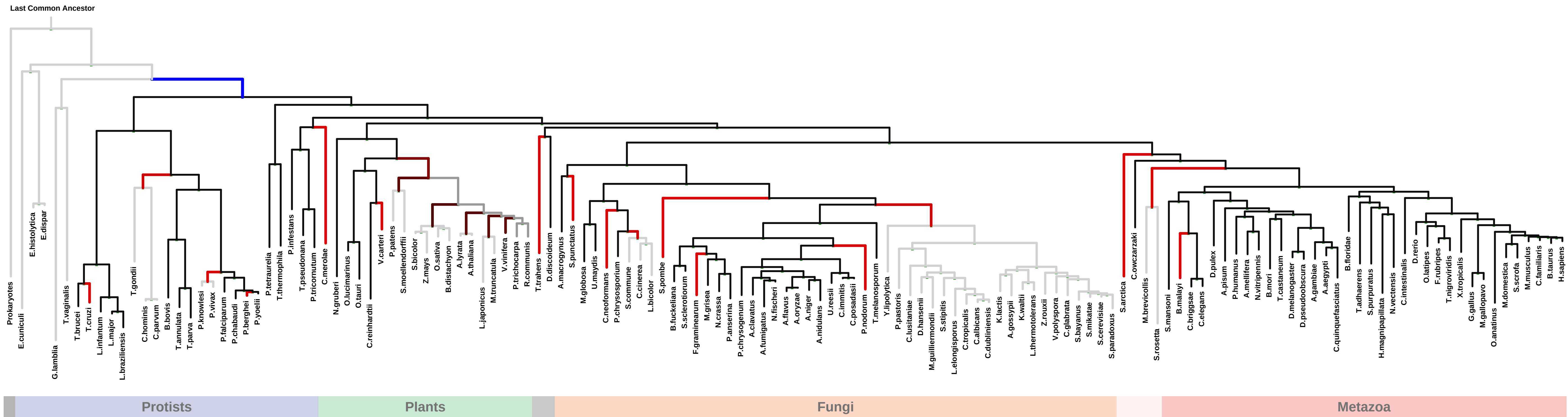
Num of ECM Genes: 1. Num of Predicted Genes: 21



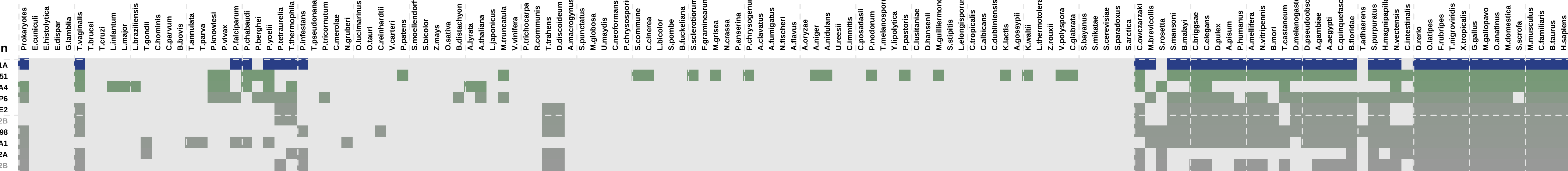
1: cytoplasmic vesicle membrane || 2: microtubule associated complex || 3: midbody || 4: kinesin complex || 5: lysosomal membrane || 6: ciliary rootlet || 7: microtubule-based flagellum || 8: neuron projection || 9: basement membrane ||
10: basolateral plasma membrane || 11: early endosome || 12: late endosome || 13: lysosome || 14: sarcolemma || 15: voltage-gated potassium channel complex || 16: zymogen granule membrane || 17: peroxisomal membrane ||
18: peroxisome || 19: endoplasmic reticulum lumen || 20: chloride channel complex

ECM 15, Gene set "microtubule associated complex", Page 1

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



Num of ECM Genes: 1. Num of Predicted Genes: 9

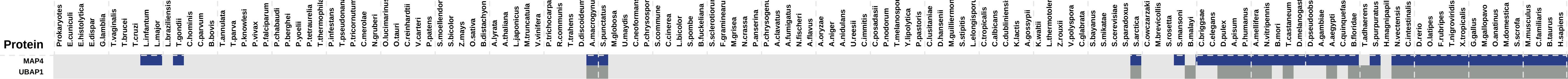


1: microtubule associated complex || 2: chylomicron || 3: endoplasmic reticulum lumen || 4: high-density lipoprotein particle || 5: very-low-density lipoprotein particle || 6: lysosome || 7: stereocilia ankle link complex

ECM 17, Gene set "microtubule associated complex", Page 1

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

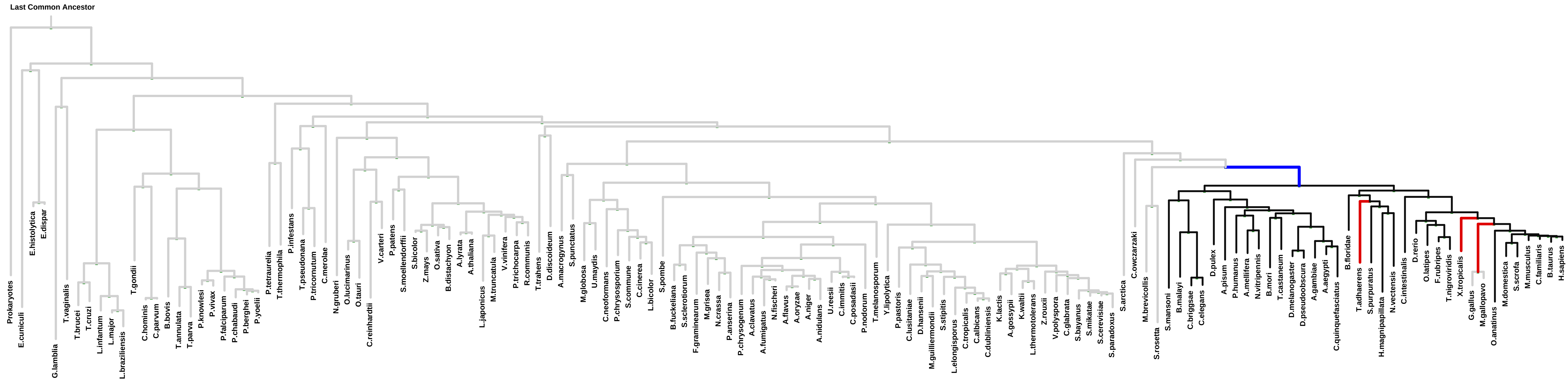
PG



1: microtubule associated complex || 2: microtubule cytoskeleton || 3: mitotic spindle

ECM 18, Gene set "microtubule associated complex", Page 1

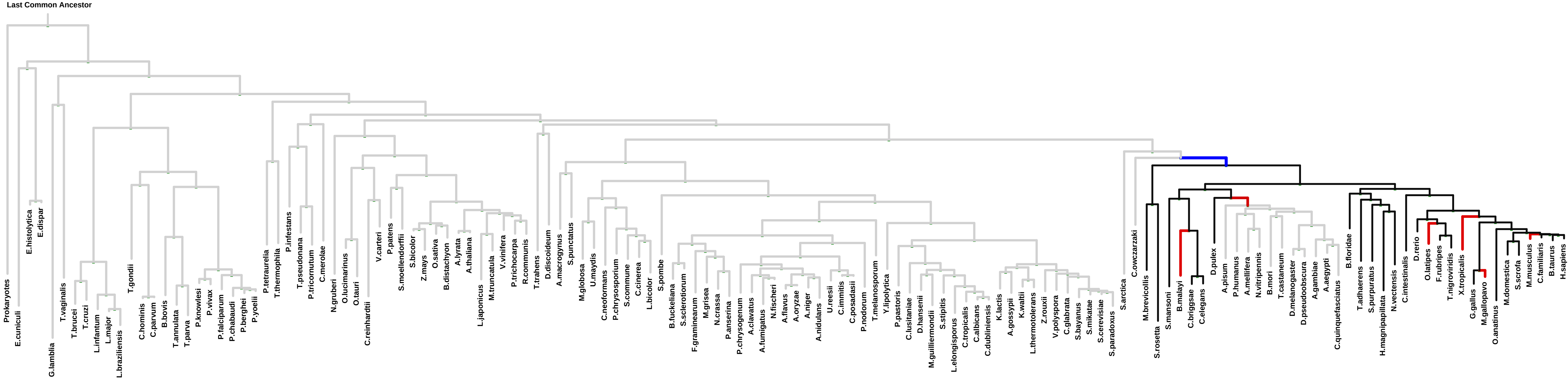
Num of ECM Genes: 1. Num of Predicted Genes: 4



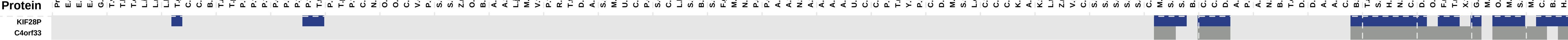
1: cytoplasmic stress granule || 2: microtubule associated complex || 3: rough endoplasmic reticulum || 4: cyclin-dependent protein kinase 5 holoenzyme complex || 5: axon || 6: contractile fiber || 7: dendrite || 8: dendritic spine || 9: growth cone || 10: neuromuscular junction || 11: postsynaptic density

ECM 19, Gene set "microtubule associated complex", Page 1

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



PG



1: microtubule associated complex || 2: mitochondrial membrane

LLR

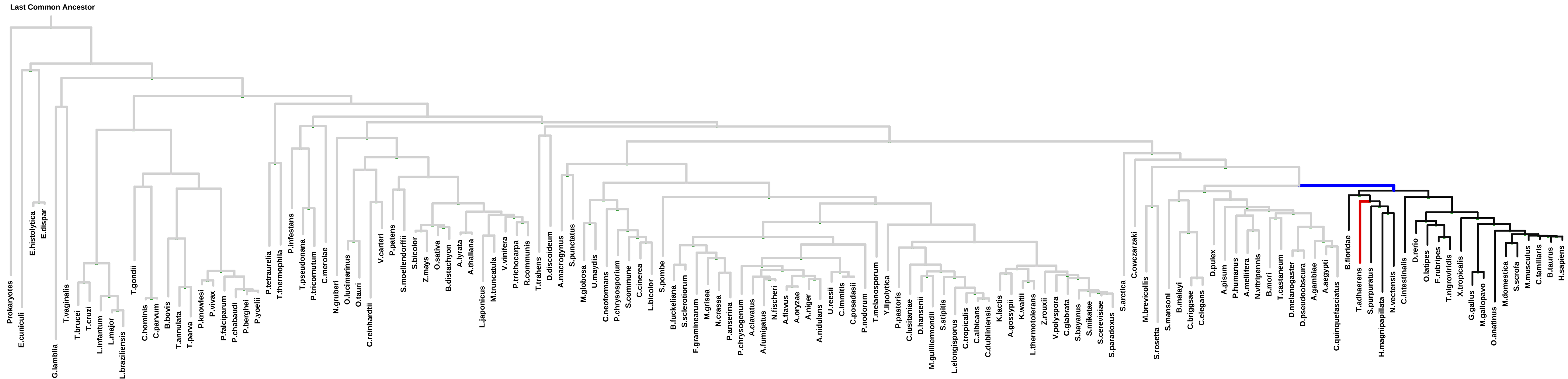
Notes

1.4

1 / 2

ECM 20, Gene set "microtubule associated complex", Page 1

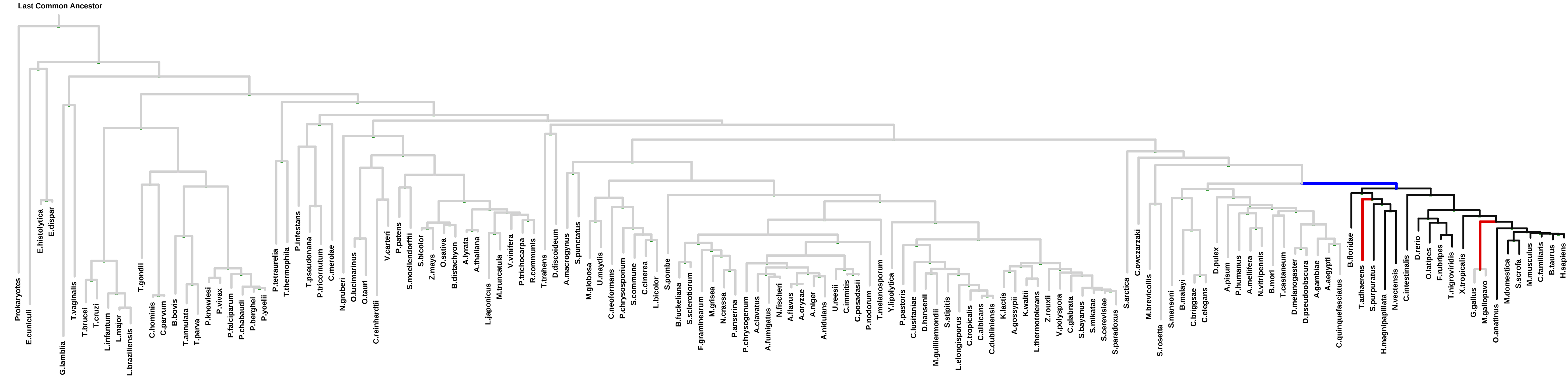
Num of ECM Genes: 1. Num of Predicted Genes: 4

[illegible]

1: microtubule associated complex || 2: proteinaceous extracellular matrix || 3: secretory granule || 4: nuclear membrane || 5: integral to endoplasmic reticulum membrane || 6: low-density lipoprotein particle || 7: very-low-density lipoprotein particle

ECM 21, Gene set "microtubule associated complex", Page 1

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



PG

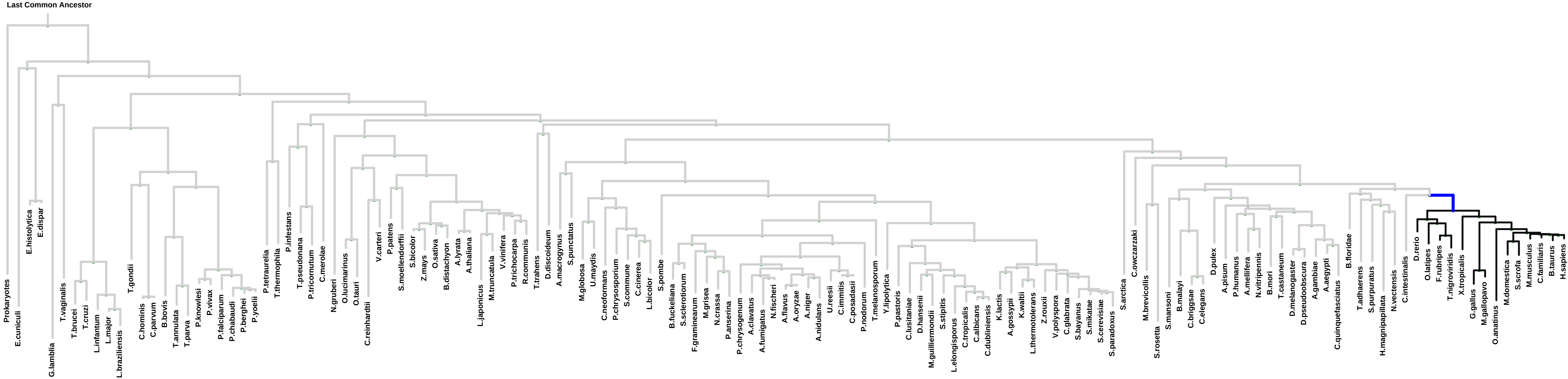
Protein	Protists	Plants	Fungi	Metazoa
PEA15				
AKNA				
C10orf53				
SYCE2				
TMEM236				
TMEM236				
MEDAG				
C9orf135				

1: microtubule associated complex || 2: central element

LLR	Notes
3.0	1
2.0	
1.6	2
0.6	
0.6	
0.4	
0.0	

ECM 22, Gene set "microtubule associated complex", Page 1

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



PG

Protein	MAP7	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.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.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.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.laipes			
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: basolateral plasma membrane || 2: microtubule associated complex || 3: microtubule cytoskeleton