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

Dataset:

Num of genes in input gene set: 7
Total number of genes: 20834
Prediction LLR threshold: 0

The CLIME PDF output two sections:

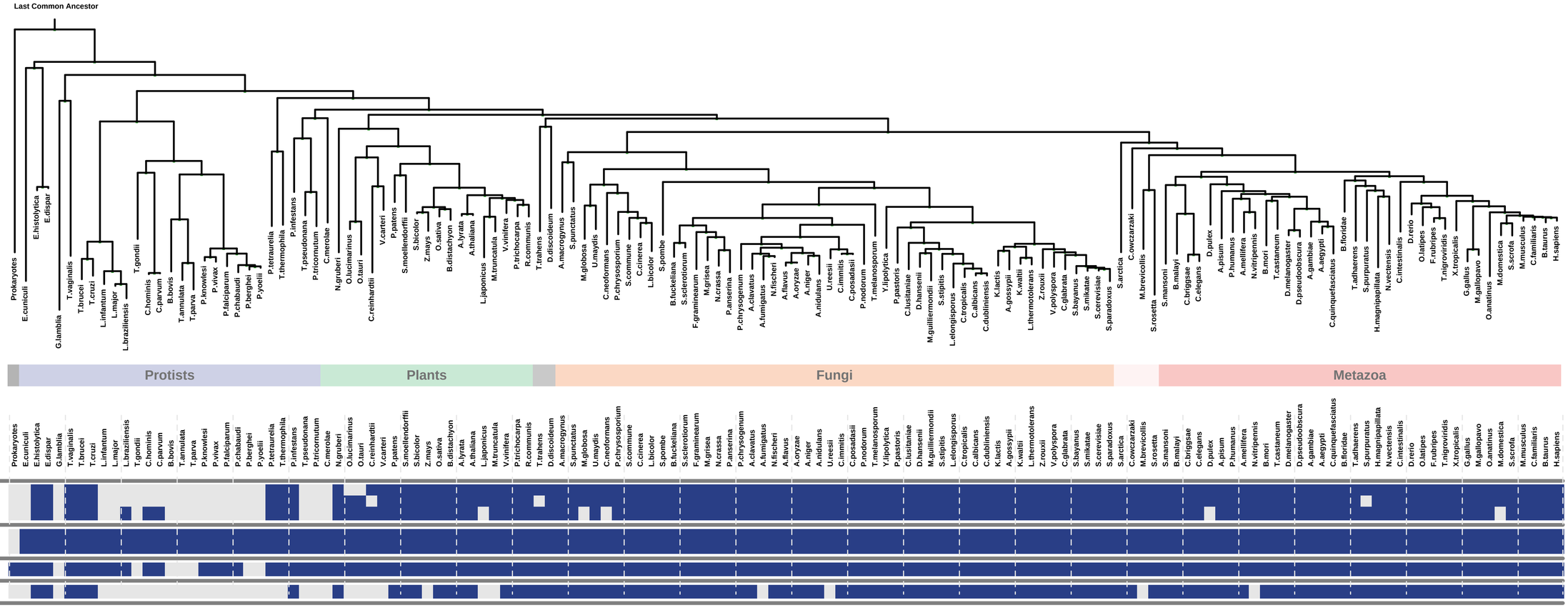
1) Overview of Evolutionarily Conserved Modules (ECMs)

- 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+

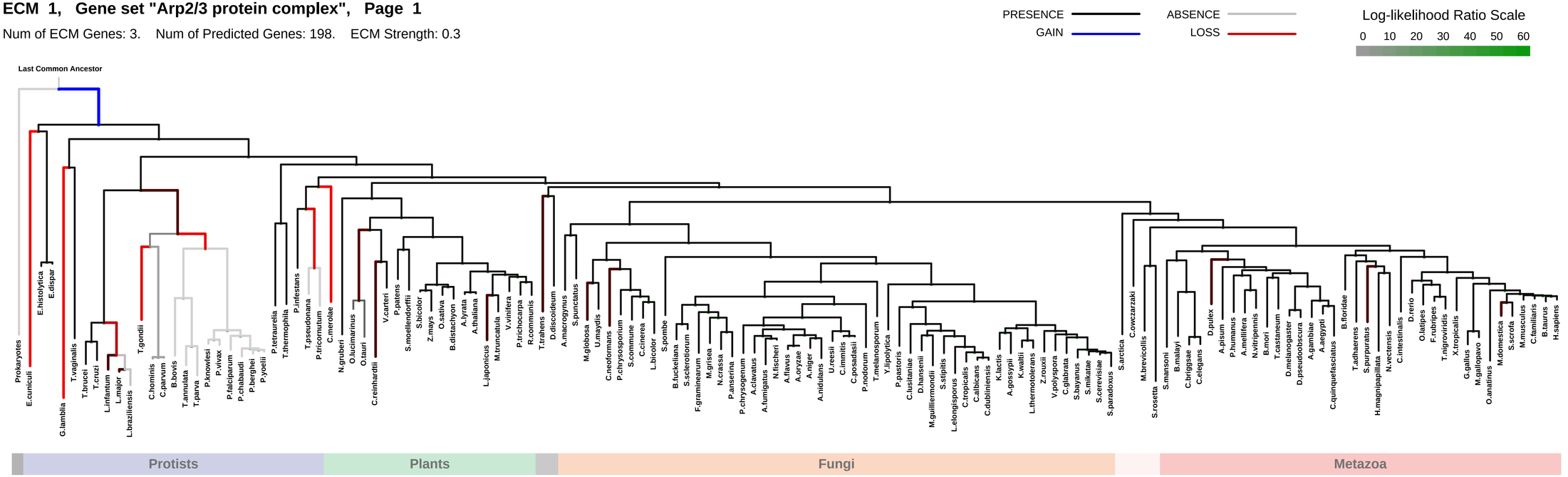
- Top panel shows the inferred evolutionary history on the predefined species tree. Branch color shows the gain event (blue) and loss events (red color, with brighter color indicating higher confidence in loss). Branches before the gain or after a loss are shown in gray.
- Bottom panel shows the input 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 "Arp2/3 protein complex", Page 1

Num of ECM Genes: 3. Num of Predicted Genes: 198. ECM Strength: 0.3

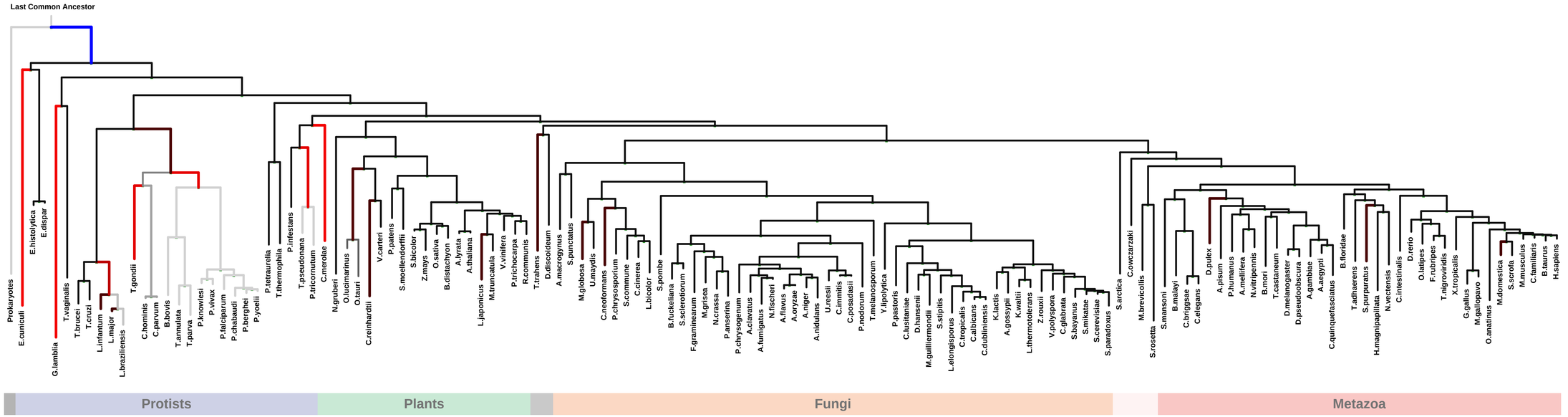


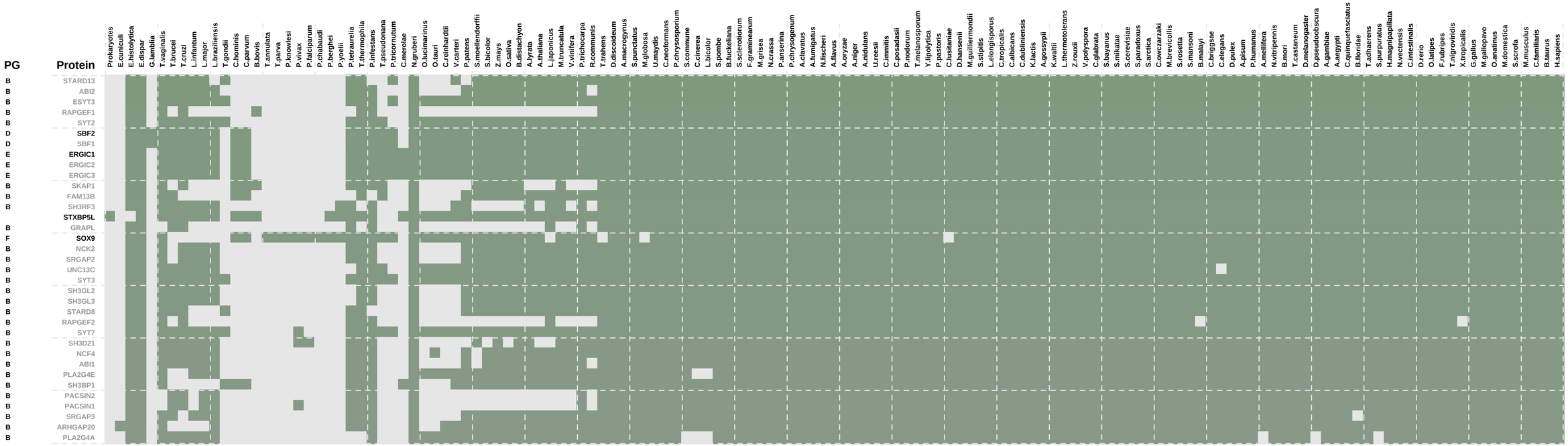
PG	Protein	LLR	Notes
	ARPC3		1 / 2 / 3
	ARPC2		1 / 2 / 4 / 5 / 6
	ARPC4		2 / 5
A	**MON1B**	29.5	
B	**SORBS3**	24.9	6
B	DLC1	24.4	6 / 7 / 8 / 9
B	NOXA1	17.5	10
B	ARHGAP31	17.4	3 / 6
B	SYT5	16.6	11 / 12 / 13 / 14
B	UNC13A	16.6	15
B	PLA2G4D	16.6	16
B	STAC3	16.5	
C	**ARPC1A**	15.3	1
B	SYT1	14.3	11 / 12 / 14 / 15 / 17 / 18 /
B	FCHSD2	14.1	
B	SNX9	13.9	16 / 24 / 25 / 26 / 27 / 28
B	STAM2	13.8	29
B	STAM	13.8	29
B	ARHGAP4	13.3	6
B	SH3D19	12.7	
B	SH3KBP1	12.7	6 / 12 / 16 / 30
	SLC30A6	12.7	
B	NCF2	12.7	10 / 31 / 32
B	SORBS2	12.7	1 / 33
B	NCK1	12.7	34
B	GRAP2	12.5	35
B	RASAL1	12.2	36
B	SH3YL1	12.1	37
B	GRAP	12.0	
	MOB4	12.0	38
B	RASGRP2	11.9	12 / 30 / 37
B	GRB2	11.7	34 / 35 / 39 / 40
B	DBNL	11.5	3 / 27 / 41 / 42
B	SYT10	11.3	14
B	SH3GL1	11.3	29

1: actin cytoskeleton || 2: Arp2/3 protein complex || 3: lamellipodium || 4: cell leading edge || 5: cell projection || 6: focal adhesion || 7: actin filament || 8: caveola || 9: stress fiber || 10: NADPH oxidase complex ||
11: dense core granule || 12: neuron projection || 13: recycling endosome membrane || 14: synaptic vesicle membrane || 15: presynaptic membrane || 16: cytoplasmic vesicle membrane || 17: chromaffin granule membrane || 18: clathrin-sculpted acetylcholine transport vesicle membrane ||
19: clathrin-sculpted gamma-aminobutyric acid transport vesicle membrane || 20: clathrin-sculpted glutamate transport vesicle membrane || 21: clathrin-sculpted monoamine transport vesicle membrane || 22: endocytic vesicle membrane || 23: synaptic vesicle ||

ECM 1, Gene set "Arp2/3 protein complex", Page 2

Num of ECM Genes: 3. Num of Predicted Genes: 198. ECM Strength: 0.3

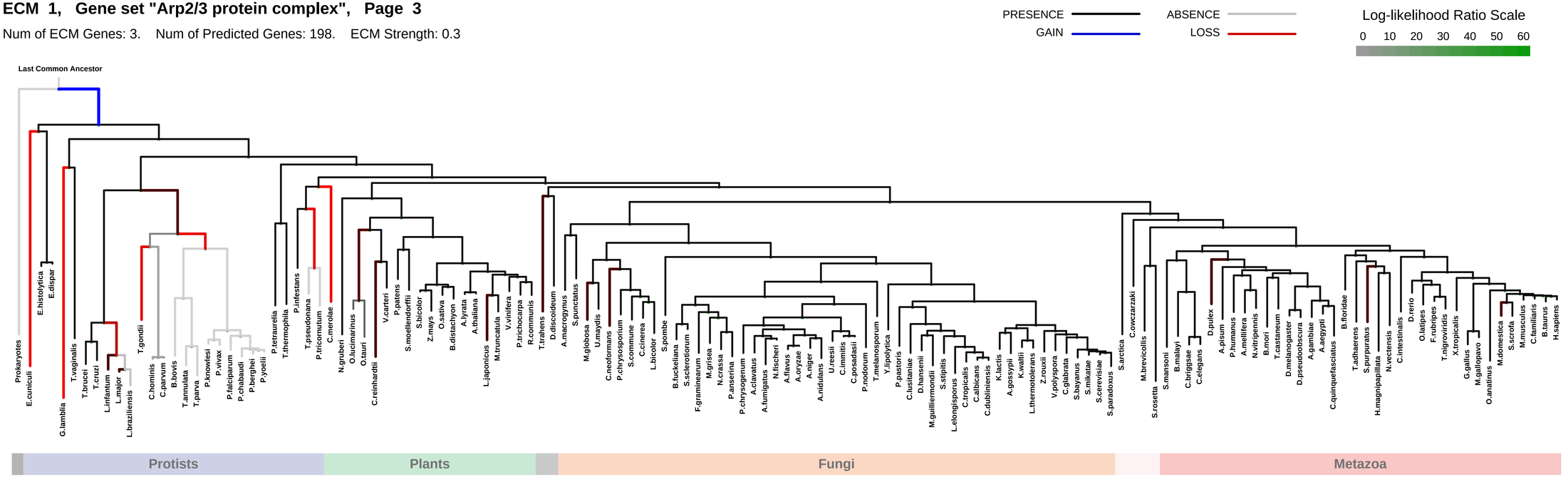




1: lipid particle || 2: mitochondrial membrane || 3: cell-cell adherens junction || 4: dendrite || 5: filopodium || 6: lamellipodium || 7: endosome || 8: chromaffin granule membrane || 9: endocytic vesicle membrane || 10: synaptic vesicle membrane ||
11: vacuolar membrane || 12: endoplasmic reticulum-Golgi intermediate compartment || 13: endoplasmic reticulum-Golgi intermediate compartment membrane || 14: chromatin remodeling complex || 15: vesicle membrane || 16: phagocytic vesicle ||
17: postsynaptic density || 18: postsynaptic membrane || 19: presynaptic membrane || 20: clathrin-coated endocytic vesicle membrane || 21: early endosome membrane || 22: focal adhesion || 23: lysosome || 24: NADPH oxidase complex ||

ECM 1, Gene set "Arp2/3 protein complex", Page 3

Num of ECM Genes: 3. Num of Predicted Genes: 198. ECM Strength: 0.3

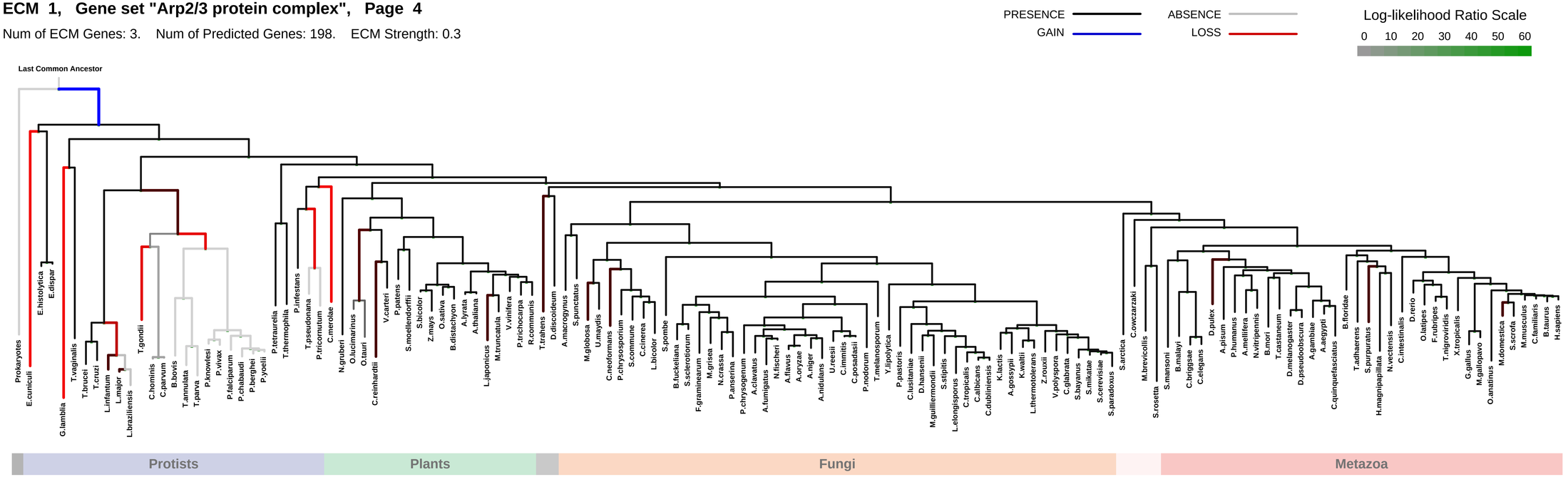


PG	Protein	LLR	Notes
B	ESYT2	7.3	
	PIEZO2	**7.2**	
B	CD2AP	7.2	**1 / 2 / 3**
B	ARHGEF6	6.9	**4**
B	NOSTRIN	6.9	**5**
B	VAV2	6.9	
B	ECT2L	6.7	
	ATG5	**6.6**	**6 / 7**
B	RALBP1	6.5	
G	**RNF217**	**6.4**	
F	SOX8	6.3	
B	RPH3A	6.0	**8 / 9 / 10**
B	SYT6	6.0	**8 / 10 / 11**
B	CHN2	6.0	
	PLEKHA7	**5.9**	
G	RNF144A	5.9	
B	RASGRF2	5.7	
	LPXN	**5.6**	**12 / 13 / 14**
H	**SERINC1**	**5.5**	
H	SERINC3	5.5	
B	PCLO	5.5	**15 / 16**
B	VAV1	5.3	
B	ARHGAP33	5.2	
B	ARHGAP30	5.2	**17**
F	SOX10	5.2	**18**
B	RALGPS2	5.1	
B	RASGEF1C	5.1	
B	RALGDS	5.1	
B	RALGPS1	5.1	
B	RGL1	5.1	
B	RGL3	5.1	
B	RAPGEFL1	5.1	
	AGK	**5.0**	**19**
B	ARHGEF37	5.0	
	TLE6	**4.9**	**20**

1: actin cytoskeleton || 2: filamentous actin || 3: ruffle || 4: lamellipodium || 5: endocytic vesicle membrane || 6: autophagic vacuole || 7: pre-autophagosomal structure membrane || 8: extrinsic to membrane || 9: secretory granule || 10: synaptic vesicle membrane || 11: perinuclear endoplasmic reticulum || 12: cell projection || 13: focal adhesion || 14: podosome || 15: synapse || 16: synaptic vesicle || 17: cytoplasmic membrane-bounded vesicle || 18: extrinsic to mitochondrial outer membrane || 19: mitochondrial membrane || 20: cell cortex

ECM 1, Gene set "Arp2/3 protein complex", Page 4

Num of ECM Genes: 3. Num of Predicted Genes: 198. ECM Strength: 0.3

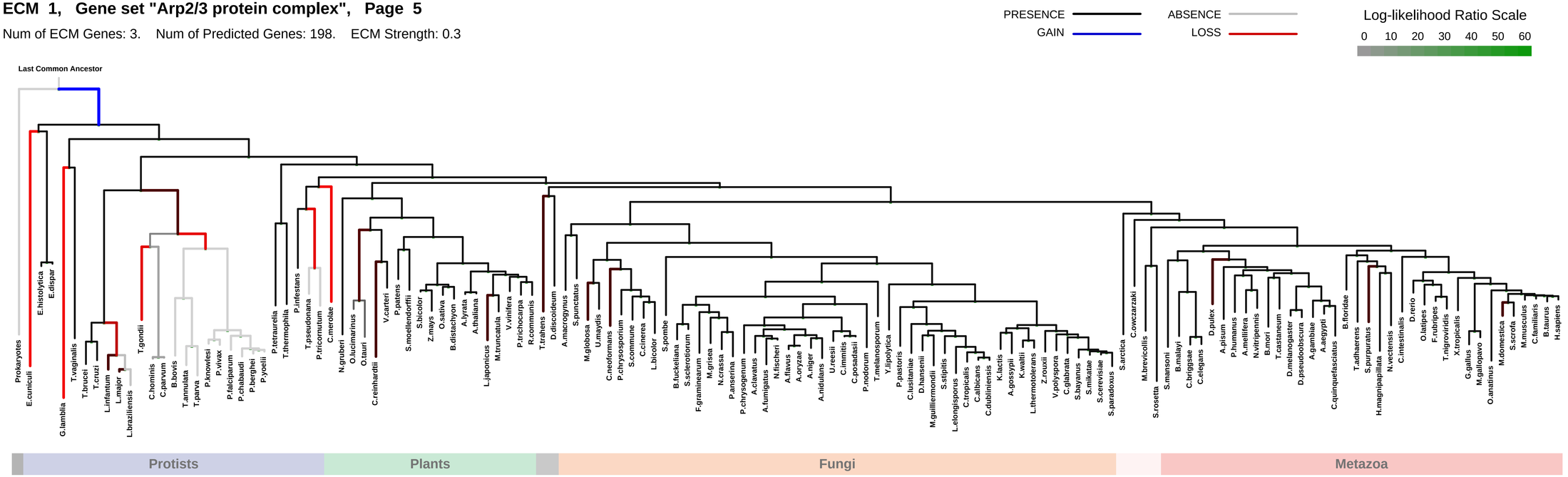


PG	Protein	LLR	Notes
	LARP6	4.8	1
B	SNX8	4.8	2 / 3
B	RAPGEF6	4.7	
B	UNC13B	4.6	4
A	MON1A	4.6	
B	PACSIN3	4.5	
B	ARHGAP44	4.5	
D	OSBPL6	4.4	
D	OSBPL7	4.4	
D	OSBPL9	4.4	
D	OSBPL10	4.4	
D	OSBPL11	4.4	
D	OSBPL1A	4.4	5 / 6
D	OSBPL2	4.4	
D	OSBPL3	4.4	
B	SYT9	4.0	7 / 8 / 9
B	HCLS1	3.9	
B	SKAP2	3.7	
B	ARHGAP12	3.5	
	ZNF131	3.5	
B	SNX12	3.2	
B	SNX3	3.2	10 / 11
B	SNX4	3.2	2 / 12
F	SOX7	3.1	
	NMNAT2	3.1	5 / 13
B	VAV3	3.0	
	RICTOR	2.8	14
	DSCR3	2.7	3
	643856	2.7	
B	ABI3	2.5	15
	ZNF335	2.4	
	TBC1D21	2.3	
I	ZFYVE9	2.3	2 / 10
B	ECT2	2.2	16 / 17 / 18 / 19 / 20 / 21
C	653888	2.1	

1: ribonucleoprotein complex || 2: early endosome membrane || 3: retromer complex || 4: synapse || 5: late endosome || 6: lysosomal membrane || 7: dense core granule || 8: secretory granule membrane || 9: synaptic vesicle membrane || 10: early endosome || 11: endosome membrane || 12: cytoplasmic dynein complex || 13: trans-Golgi network || 14: TORC2 complex || 15: lamellipodium || 16: cell-cell junction || 17: centralspindlin complex || 18: cleavage furrow || 19: midbody || 20: mitotic spindle || 21: tight junction

ECM 1, Gene set "Arp2/3 protein complex", Page 5

Num of ECM Genes: 3. Num of Predicted Genes: 198. ECM Strength: 0.3

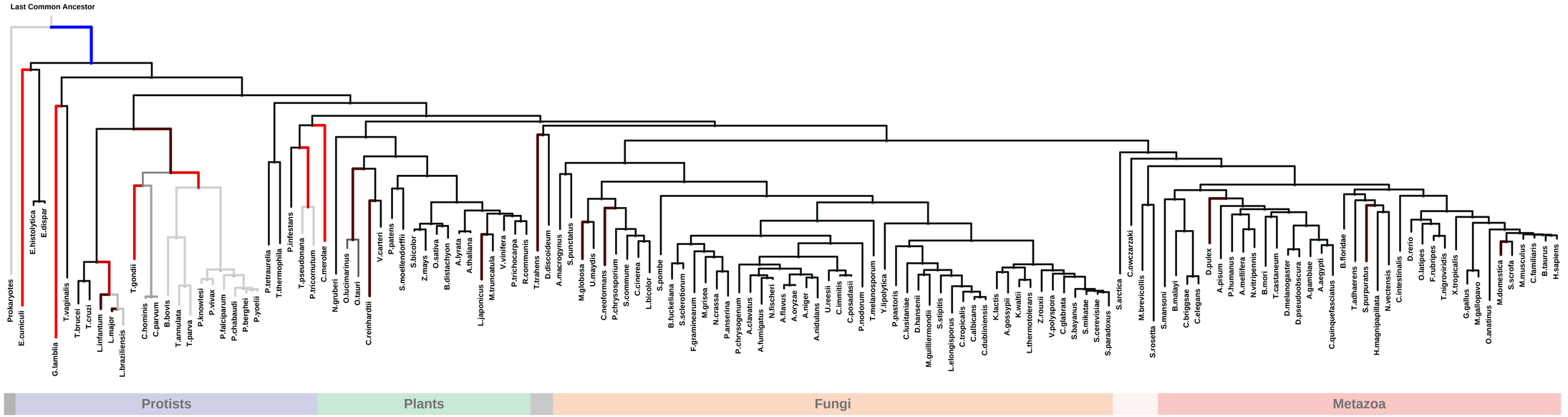


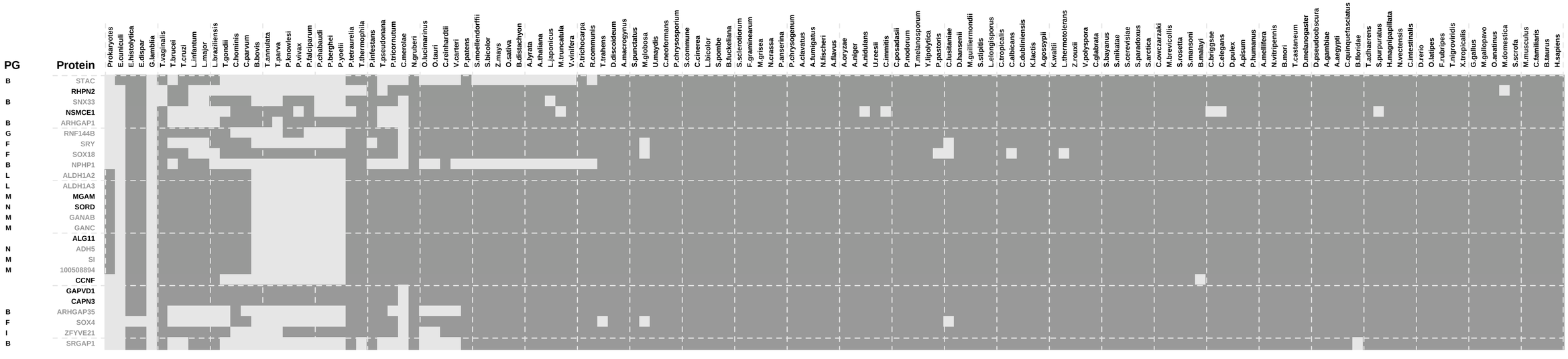
PG	Protein	LLR	Notes
J	CAPZA1	2.1	1 / 2 / 3
J	CAPZA2	2.1	1 / 2 / 4
K	TWF1	2.0	1 / 5 / 6 / 7 / 8
B	ARHGAP28	2.0	
K	TWF2	1.9	6 / 7 / 9 / 10 / 11
	TMED3	1.9	12 / 13 / 14 / 15
	FBXL13	1.8	
	EDEM3	1.8	16
B	PLEKHG4B	1.8	
B	ARHGAP18	1.8	
	EXOC6B	1.7	17
	GNAL	1.7	18 / 19
B	ARHGAP42	1.6	
B	RASA3	1.4	20
	RFT1	1.3	
B	JMJD7-PLA2G4B	1.3	
	LRRC30	1.3	
B	SOS1	1.2	
B	CRKL	1.2	
B	STAC2	1.2	
B	ARHGEF26	1.1	21
B	RASA4B	1.0	
L	ALDH3A2	1.0	22
L	ALDH3B2	1.0	
L	ALDH4A1	1.0	
	CTH	1.0	
L	ALDH5A1	1.0	
L	ALDH6A1	1.0	
	NIT2	1.0	
L	ALDH7A1	1.0	
L	ALDH8A1	1.0	
L	ALDH3A1	1.0	
	CBS	1.0	
L	ALDH1L1	1.0	
B	ARHGAP10	0.9	

1: actin cytoskeleton || 2: F-actin capping protein complex || 3: WASH complex || 4: cortical cytoskeleton || 5: cell-cell junction || 6: filopodium || 7: myofibril || 8: ruffle membrane || 9: growth cone || 10: lamellipodium ||
11: stereocilium || 12: COPI vesicle coat || 13: endoplasmic reticulum-Golgi intermediate compartment || 14: endoplasmic reticulum-Golgi intermediate compartment membrane || 15: Golgi cisterna membrane || 16: endoplasmic reticulum lumen ||
17: exocyst || 18: extrinsic to internal side of plasma membrane || 19: heterotrimeric G-protein complex || 20: intrinsic to internal side of plasma membrane || 21: ruffle || 22: peroxisome

ECM 1, Gene set "Arp2/3 protein complex", Page 6

Num of ECM Genes: 3. Num of Predicted Genes: 198. ECM Strength: 0.3

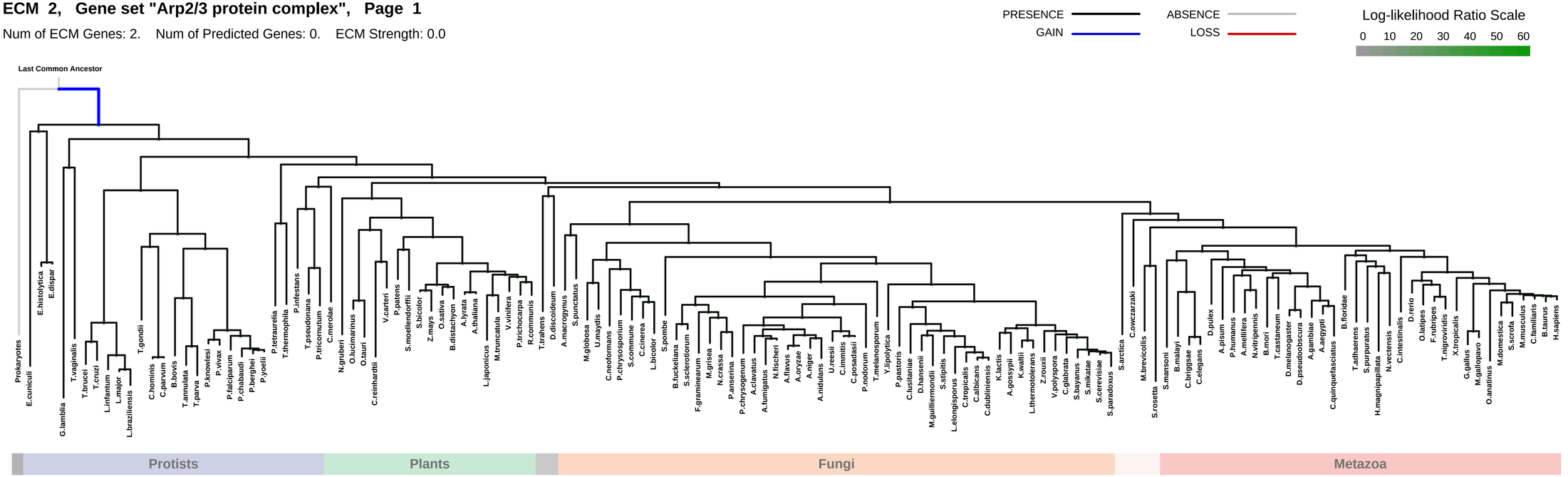




1: chromosome, telomeric region || 2: Smc5-Smc6 complex || 3: ruffle || 4: mitochondrial membrane || 5: ubiquitin ligase complex || 6: nuclear speck || 7: adherens junction || 8: cell-cell junction || 9: cilium axoneme ||
10: motile cilium || 11: photoreceptor connecting cilium || 12: tight junction || 13: cilium || 14: flagellum || 15: endoplasmic reticulum lumen || 16: melanosome || 17: brush border || 18: membrane raft || 19: centriole ||
20: SCF ubiquitin ligase complex || 21: endosome || 22: myofibril || 23: T-tubule || 24: Z disc || 25: actin cytoskeleton || 26: cytoplasmic membrane-bounded vesicle || 27: focal adhesion

ECM 2, Gene set "Arp2/3 protein complex", Page 1

Num of ECM Genes: 2. Num of Predicted Genes: 0. ECM Strength: 0.0

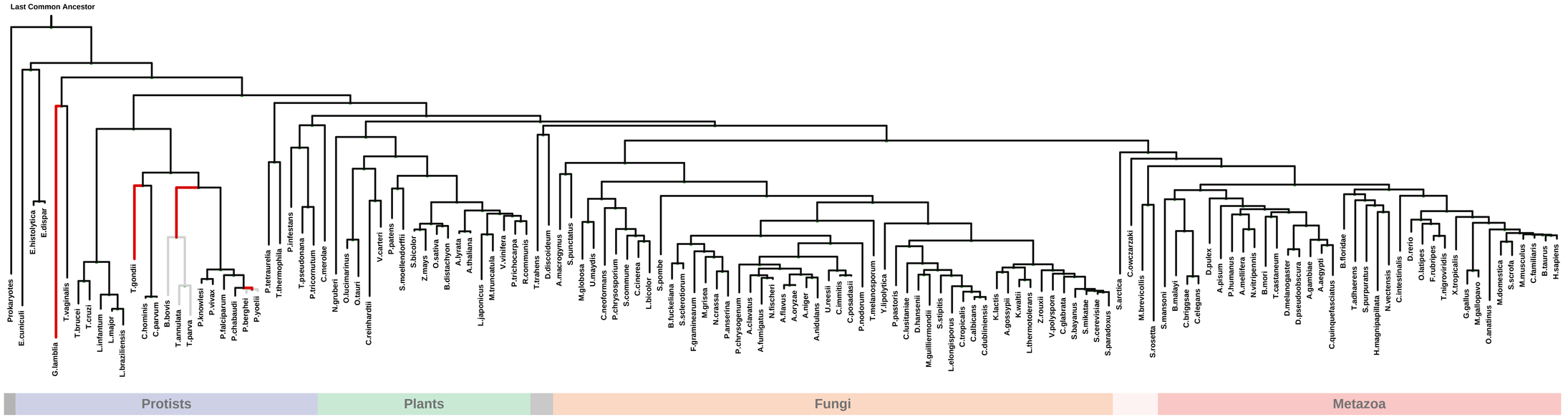


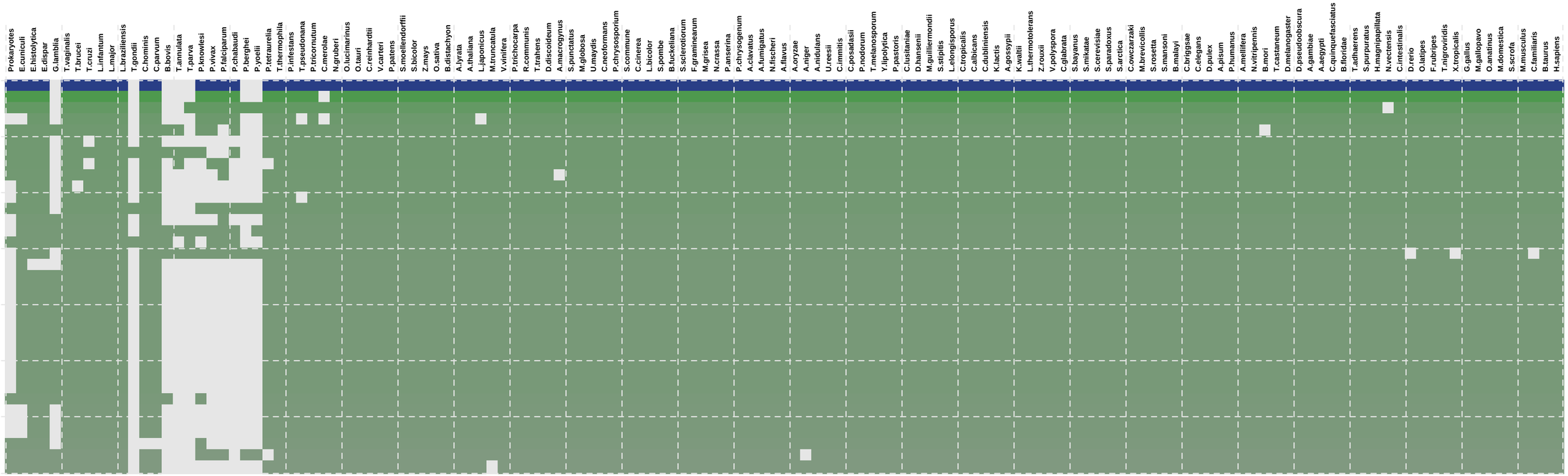
PG	Protein	LLR	Notes
A	ACTR2		1 / 2 / 3
A	ACTR3		1 / 2 / 4 / 5 / 6 / 7 / 8

1: actin cytoskeleton || 2: Arp2/3 protein complex || 3: cell projection || 4: actin filament || 5: excitatory synapse || 6: hemidesmosome || 7: lamellipodium || 8: podosome

ECM 3, Gene set "Arp2/3 protein complex", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 374



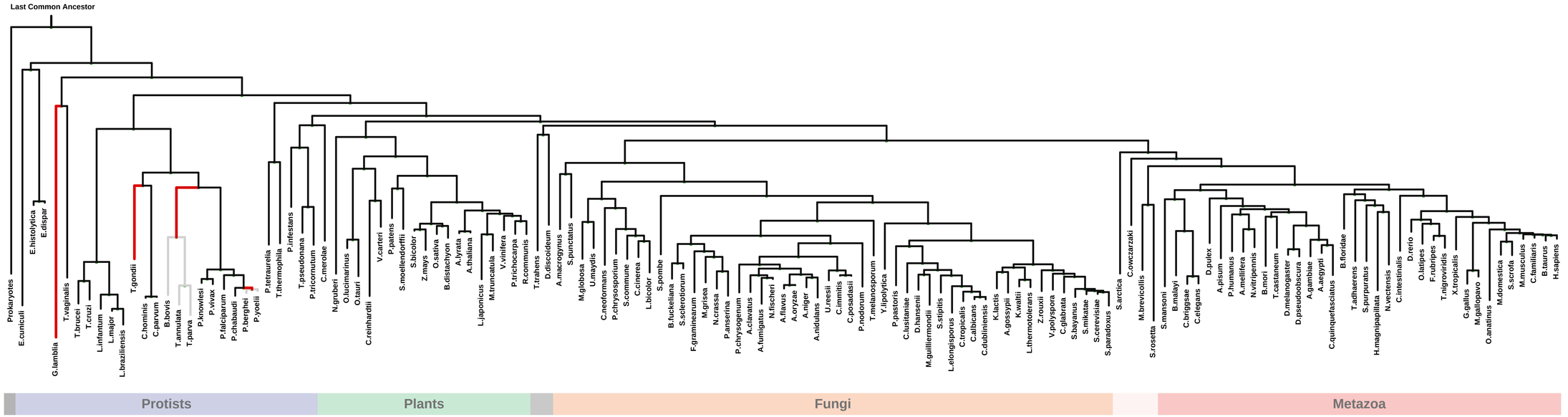


PG	Protein	LLR	Notes
A	ARPC1B		1 / 2
A	653888	31.9	
B	PFKM	22.9	3
A	ARPC1A	18.8	1
C	FLII	17.7	
C	NRROS	17.0	
	FBXW9	17.0	
C	TRIL	17.0	4
D	CDC16	16.5	5 / 6 / 7
E	CCND3	16.3	8
F	LARP6	16.2	9
G	SDR16C5	16.2	
E	CCNB3	14.9	
H	STX2	14.7	10 / 11 / 12 / 13 / 14
	NAA50	14.6	
	RBM5	14.5	15
E	CCNI2	14.1	
E	CCNA1	13.9	16
E	CCND1	13.9	8
E	CCND2	13.9	8 / 17 / 18
E	CCNA2	13.9	19 / 20
E	CCNE1	13.9	8
E	CCNE2	13.9	
E	CCNI	13.9	
E	CCNB1	13.9	21 / 22
E	CCNO	13.9	
E	CCNB2	13.9	16
E	CNTD2	13.9	
C	LRCH1	13.3	
I	ERGIC1	12.9	23 / 24
I	ERGIC2	12.9	24
I	ERGIC3	12.9	24
C	LRCH2	12.1	
C	LRRTM3	10.9	25
J	CLIP3	10.8	12 / 26 / 27 / 28 / 29 / 30

1: actin cytoskeleton || 2: Arp2/3 protein complex || 3: 6-phosphofructokinase complex || 4: lipopolysaccharide receptor complex || 5: anaphase-promoting complex || 6: spindle || 7: spindle microtubule || 8: cyclin-dependent protein kinase holoenzyme complex || 9: ribonucleoprotein complex || 10: basolateral plasma membrane || 11: cell-cell junction || 12: membrane raft || 13: midbody || 14: transport vesicle || 15: spliceosomal complex || 16: microtubule cytoskeleton || 17: chromatin || 18: nuclear membrane || 19: female pronucleus || 20: male pronucleus || 21: condensed nuclear chromosome outer kinetochore || 22: spindle pole || 23: endoplasmic reticulum-Golgi intermediate compartment || 24: endoplasmic reticulum-Golgi intermediate compartment membrane ||

ECM 3, Gene set "Arp2/3 protein complex", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 374

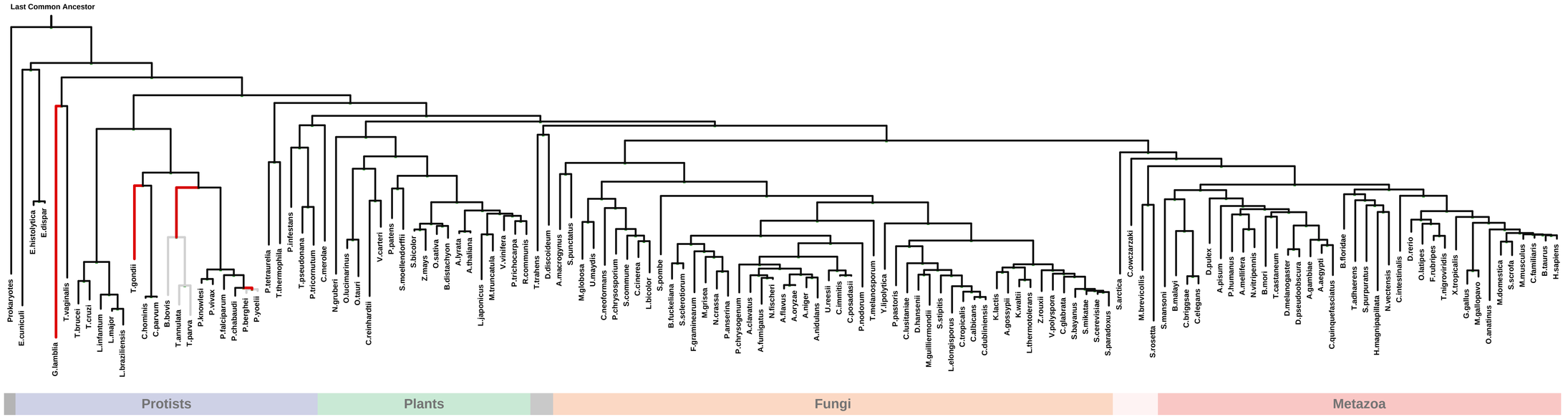


PG	Protein	LLR	Notes
	TBC1D21	10.7	
C	LINGO1	10.7	
	RPTOR	10.5	1 / 2 / 3
G	HSDL1	10.5	
D	TMTC3	10.1	
K	ESYT1	10.0	
C	RTN4R	9.7	4
G	BDH2	9.5	
G	DCXR	9.5	5 / 6
G	DHRS1	9.5	
	VAMP7	9.4	7 / 8 / 9 / 10 / 11 / 12 / 13
L	NOX5	9.4	
	TRMT2A	9.3	
	STON1-GTF2A1L	9.1	
C	LRRC8B	9.1	
C	TLR5	9.1	
	APEX2	8.9	
	RABL6	8.6	
C	RTN4RL2	8.5	16 / 17 / 18
B	PFKL	8.2	19
H	STX7	8.0	8 / 9 / 13 / 20
M	SSRP1	7.8	21
N	CSE1L	7.6	22
E	CCNG1	7.6	1
O	FNTA	7.2	23
C	LRRC4B	7.1	24
	C9orf3	7.1	
P	ZBTB8B	7.1	
C	LRRC30	6.8	
Q	ZNRF2	6.8	9 / 24 / 25
Q	ZNRF1	6.8	2 / 26 / 27
L	DGKA	6.7	
R	CUL4A	6.7	28 / 29
R	CUL2	6.7	30
	COASY	6.6	31

1: dendrite || 2: lysosome || 3: TORC1 complex || 4: anchored to membrane || 5: brush border || 6: microvillus || 7: apical part of cell || 8: late endosome membrane || 9: lysosomal membrane || 10: neuron projection ||
11: phagocytic vesicle || 12: phagocytic vesicle membrane || 13: SNARE complex || 14: synapse || 15: transport vesicle membrane || 16: anchored to plasma membrane || 17: external side of plasma membrane || 18: membrane raft ||
19: 6-phosphofructokinase complex || 20: early endosome membrane || 21: chromosome || 22: nuclear pore || 23: microtubule associated complex || 24: presynaptic membrane || 25: endosome membrane || 26: endosome ||

ECM 3, Gene set "Arp2/3 protein complex", Page 3

Num of ECM Genes: 1. Num of Predicted Genes: 374

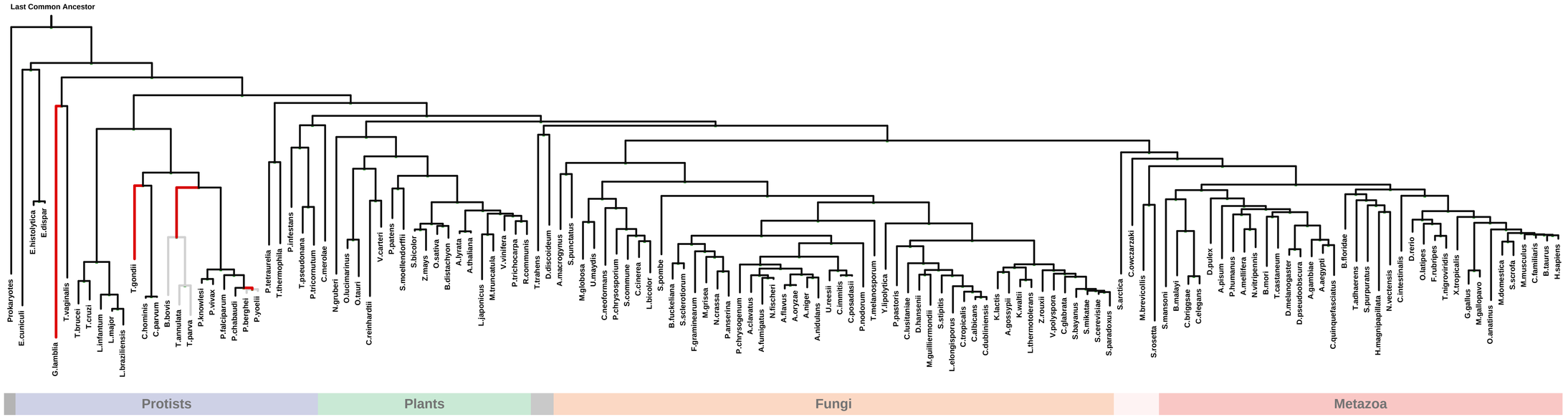


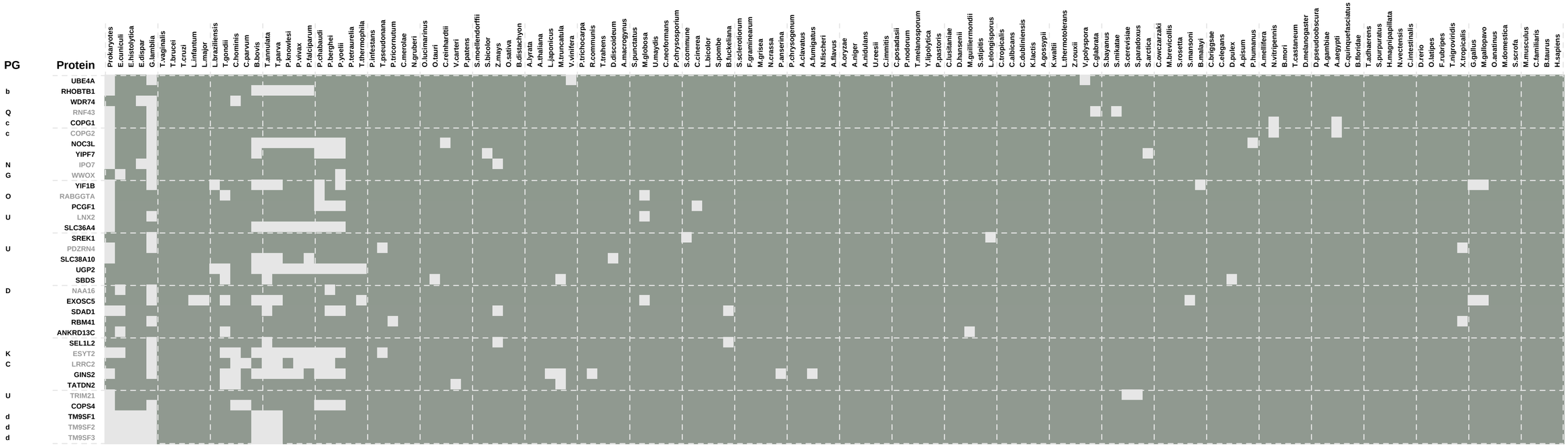
PG	Protein	LLR	Notes
S	ANAPC10	6.6	1
S	PMM2	6.5	
S	PMM1	6.5	
C	LRRC10	6.5	2
C	LRRC10B	6.5	
T	ANKIB1	6.5	
C	PHLPP2	6.5	
U	DIAPH1	6.2	3 / 4
U	DIAPH2	6.2	5
U	INF2	6.2	
U	DAAM2	6.2	
U	DAAM1	6.2	6
V	SPEN	6.2	7
	CKAP5	6.1	8 / 9 / 10 / 11
W	ALDH1L2	6.0	
G	HSD17B10	5.9	
X	EIF4G1	5.8	12
V	RBM15	5.7	
Y	ING5	5.7	13
Y	ING3	5.7	14 / 15
Z	CPSF1	5.6	16
	CHMP5	5.6	17
U	RNF4	5.4	9 / 18
a	ZC3H6	5.3	
E	CCNG2	5.3	
	STAMBP	5.3	5 / 19
	METTL21A	5.2	
	PSMD13	5.2	20 / 21 / 22
	MYSM1	5.2	23
	RFT1	5.1	
D	CDC27	5.1	1 / 24 / 25
C	LRRC4	5.1	26
C	PODN	5.1	27
F	SSB	5.0	28
T	RNF144A	4.9	

1: anaphase-promoting complex || 2: myofibril || 3: mitotic spindle || 4: ruffle membrane || 5: early endosome || 6: stress fiber || 7: transcriptional repressor complex || 8: gamma-tubulin complex || 9: microtubule cytoskeleton ||
10: microtubule plus end || 11: spindle pole || 12: eukaryotic translation initiation factor 4F complex || 13: MOZ/MORF histone acetyltransferase complex || 14: NuA4 histone acetyltransferase complex || 15: Piccolo NuA4 histone acetyltransferase complex ||
16: mRNA cleavage and polyadenylation specificity factor complex || 17: endosome membrane || 18: PML body || 19: cleavage furrow || 20: proteasome accessory complex || 21: proteasome complex || 22: proteasome regulatory particle ||

ECM 3, Gene set "Arp2/3 protein complex", Page 4

Num of ECM Genes: 1. Num of Predicted Genes: 374

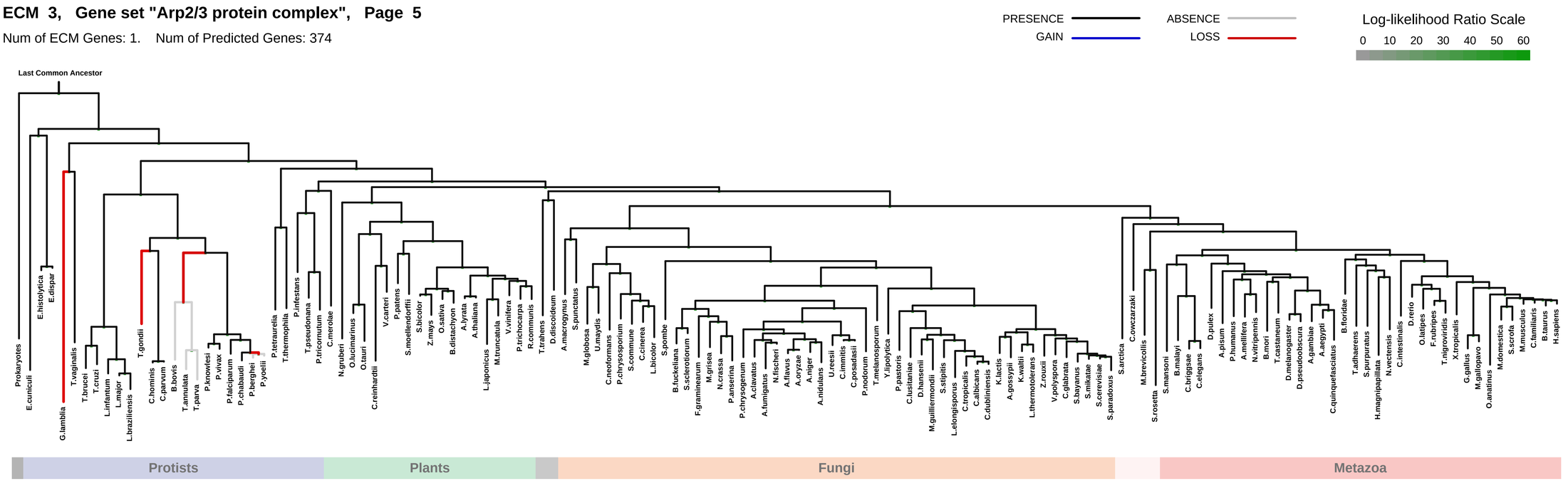


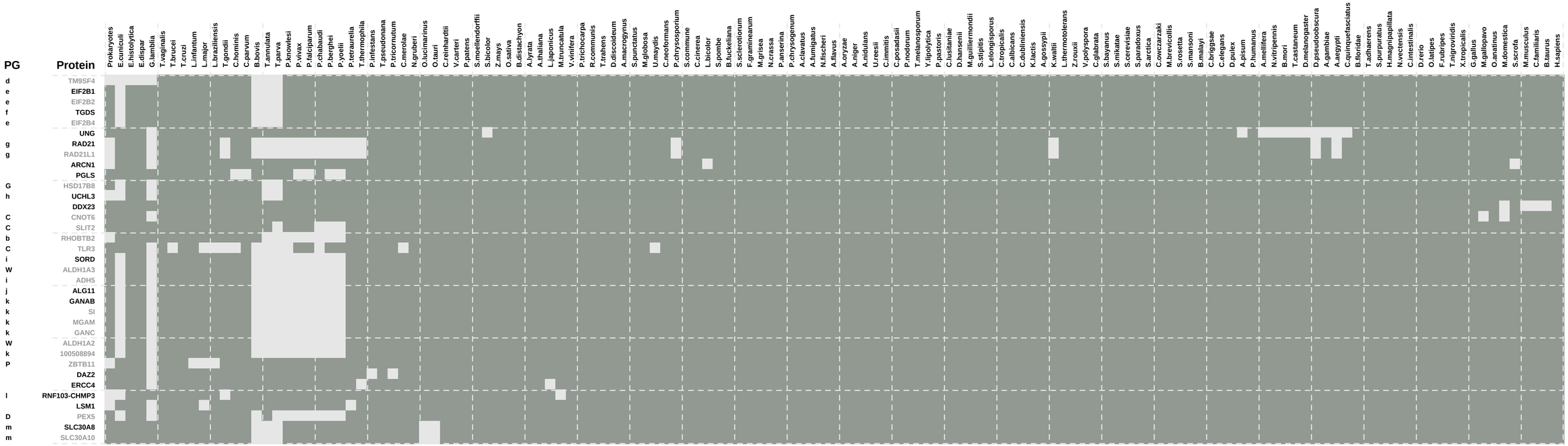


1: ubiquitin ligase complex || 2: nuclear envelope || 3: COPI vesicle coat || 4: nuclear speck || 5: nuclear pore || 6: microvillus || 7: PcG protein complex || 8: spliceosomal complex || 9: spindle pole || 10: exosome (RNase complex) ||
11: transcriptionally active chromatin || 12: cytoplasmic mRNA processing body || 13: ribonucleoprotein complex || 14: SCF ubiquitin ligase complex || 15: signalosome || 16: autophagic vacuole membrane || 17: cytoplasmic vesicle ||
18: lysosomal membrane || 19: endosome || 20: endosome membrane

ECM 3, Gene set "Arp2/3 protein complex", Page 5

Num of ECM Genes: 1. Num of Predicted Genes: 374

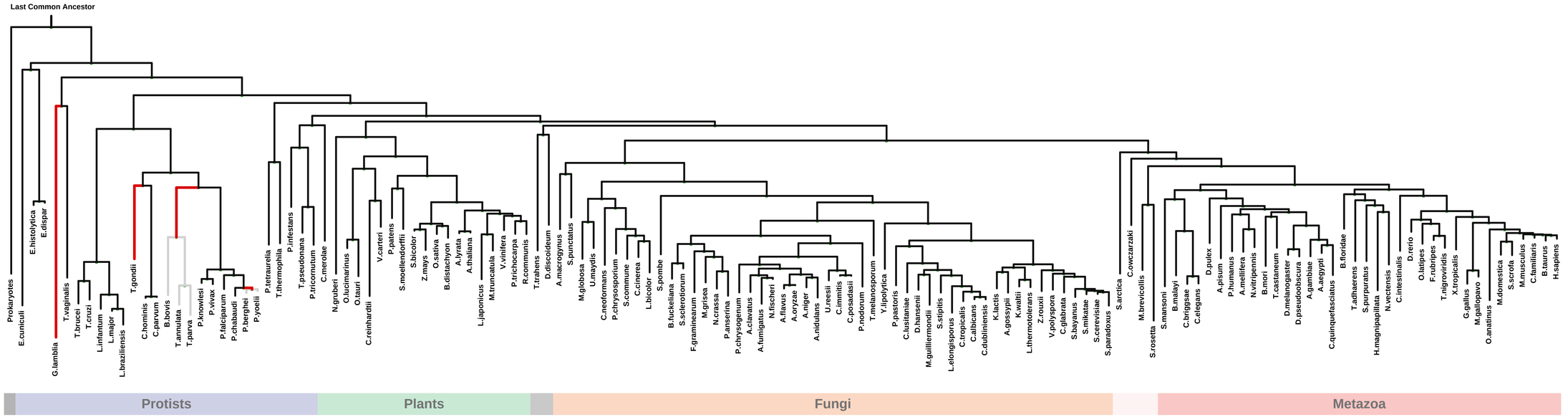




1: eukaryotic translation initiation factor 2 complex || 2: eukaryotic translation initiation factor 2B complex || 3: chromosome, centromeric region || 4: cohesin complex || 5: nuclear chromosome || 6: chromosome || 7: meiotic cohesin complex ||
8: clathrin adaptor complex || 9: COPI vesicle coat || 10: mitochondrial envelope || 11: catalytic step 2 spliceosome || 12: U5 snRNP || 13: endolysosome membrane || 14: endosome membrane || 15: cilium || 16: flagellum ||
17: mitochondrial membrane || 18: endoplasmic reticulum lumen || 19: melanosome || 20: brush border || 21: membrane raft || 22: chromosome, telomeric region || 23: nuclear chromosome, telomeric region || 24: nucleotide-excision repair complex ||

ECM 3, Gene set "Arp2/3 protein complex", Page 6

Num of ECM Genes: 1. Num of Predicted Genes: 374

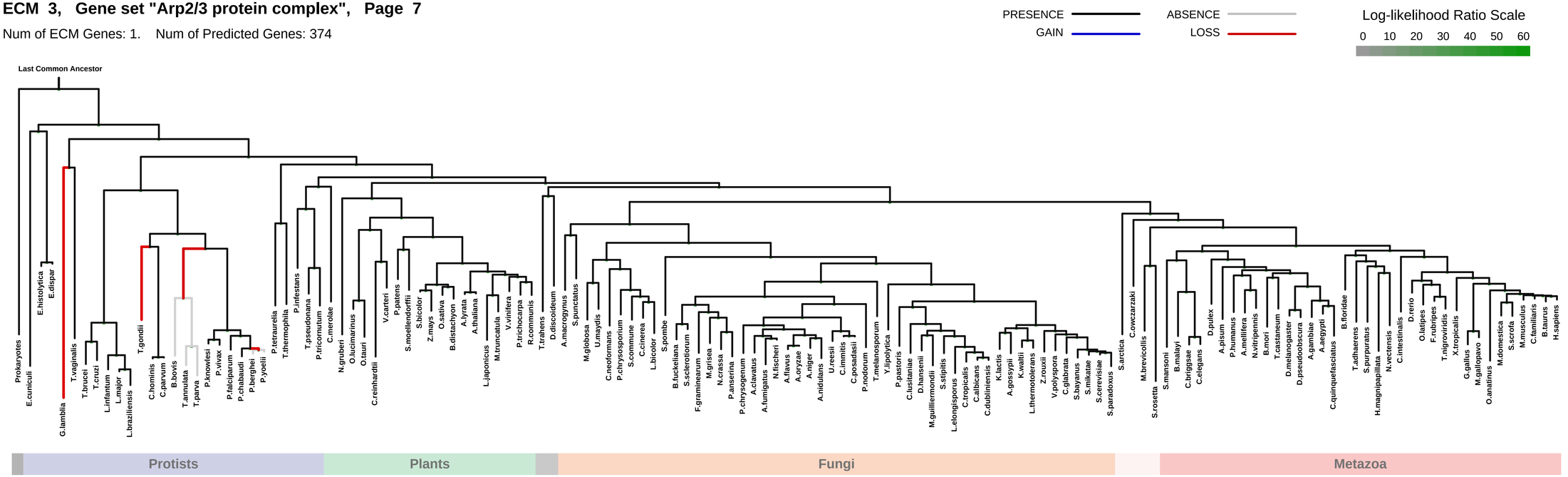


PG	Protein	LLR	Notes
m	SLC30A2	3.0	1 / 2 / 3 / 4 / 5
m	SLC30A3	3.0	2 / 4 / 6 / 7 / 8 / 9
m	SLC30A4	3.0	1 / 2 / 3 / 4
m	SLC30A5	3.0	10 / 11
	RBM14-RBM4	2.9	
n	GCAT	2.9	
n	ALAS1	2.9	
n	ALAS2	2.9	
n	SPTLC1	2.9	12 / 13
n	SPTLC2	2.9	12
n	SPTLC3	2.9	12
o	SF1	2.9	14 / 15
	TRRAP	2.8	16 / 17 / 18 / 19
	PUSL1	2.8	
	ATP6V1C2	2.8	20
p	MYO10	2.8	7 / 21 / 22 / 23 / 24 / 25 / 2
p	MYO7B	2.8	25
M	HMGB1	2.8	7 / 27 / 28
q	MEIS3	2.8	
q	MEIS1	2.8	
q	MEIS2	2.8	
G	HSD17B14	2.7	
G	HPGD	2.7	
	RAVER2	2.7	
	RQCD1	2.6	29
j	ALG2	2.6	
	CIB4	2.6	
	CLP1	2.6	30
	UBD	2.6	31
D	CTR9	2.6	32 / 33 / 34
	CDC45	2.6	
f	GALE	2.5	
	MYCBP2	2.5	35 / 36
C	CCRN4L	2.4	
C	ANGEL1	2.4	

1: cytoplasmic membrane-bounded vesicle || 2: cytoplasmic part || 3: endosome membrane || 4: late endosome || 5: lysosomal membrane || 6: endosome || 7: neuron projection || 8: synaptic vesicle || 9: synaptic vesicle membrane ||
10: secretory granule || 11: secretory granule membrane || 12: serine C-palmitoyltransferase complex || 13: SPOTS complex || 14: ribosome || 15: spliceosomal complex || 16: NuA4 histone acetyltransferase complex || 17: PCAF complex ||
18: STAGA complex || 19: transcription factor TFTC complex || 20: proton-transporting V-type ATPase, V1 domain || 21: cell cortex || 22: filopodium membrane || 23: filopodium tip || 24: lamellipodium || 25: myosin complex ||

ECM 3, Gene set "Arp2/3 protein complex", Page 7

Num of ECM Genes: 1. Num of Predicted Genes: 374

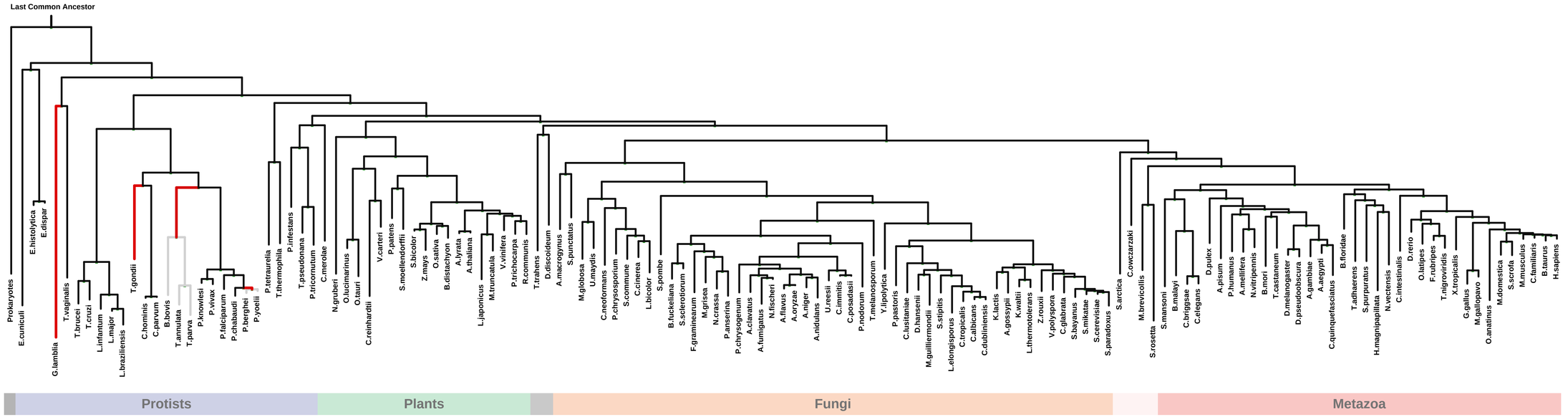


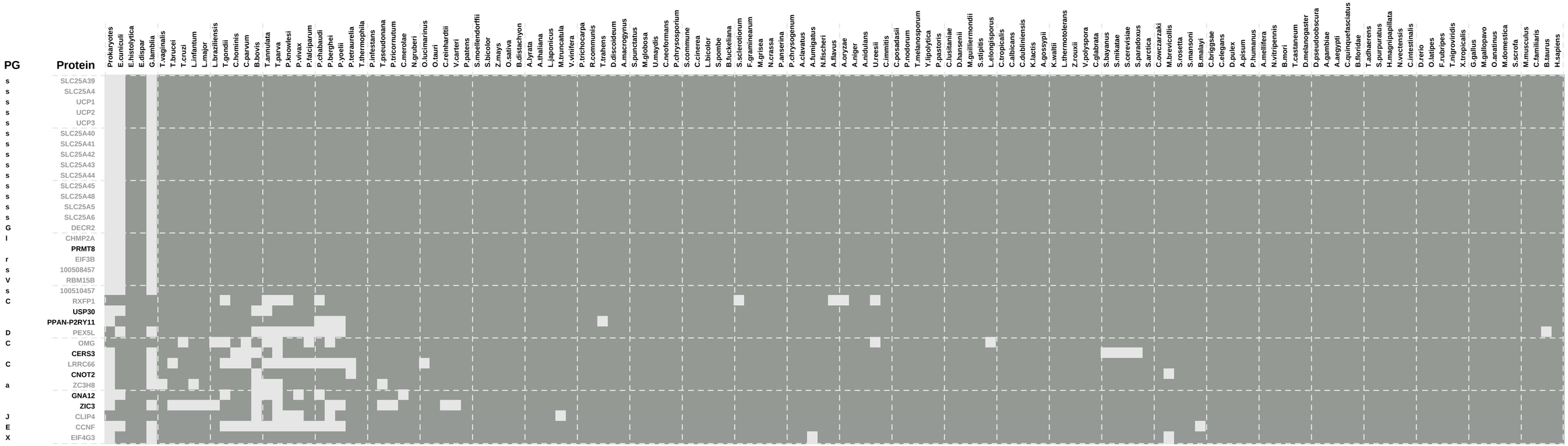
PG	Protein	LLR	Notes
C	PDE12	2.4	
C	ANGEL2	2.4	
r	**EIF2A**	**2.3**	**1**
K	ITSN2	2.3	
Z	SF3B3	2.3	**2 / 3 / 4 / 5**
	CHKA	**2.3**	
s	**SLC25A1**	**2.3**	
s	SLC25A10	2.3	
s	SLC25A11	2.3	
s	SLC25A12	2.3	
s	SLC25A13	2.3	
s	SLC25A14	2.3	
s	SLC25A15	2.3	
s	SLC25A16	2.3	
s	SLC25A17	2.3	**6 / 7 / 8**
s	SLC25A18	2.3	
s	SLC25A19	2.3	
s	SLC25A2	2.3	
s	SLC25A20	2.3	
s	SLC25A21	2.3	
s	SLC25A22	2.3	
s	SLC25A26	2.3	
s	SLC25A28	2.3	
s	SLC25A29	2.3	
s	SLC25A3	2.3	
s	SLC25A30	2.3	
s	SLC25A31	2.3	**9 / 10**
s	SLC25A32	2.3	
t	**TNPO1**	**2.3**	**11**
t	TNPO2	2.3	**11**
s	SLC25A33	2.3	
s	SLC25A34	2.3	
s	SLC25A36	2.3	
s	SLC25A37	2.3	
s	SLC25A38	2.3	

1: eukaryotic translation initiation factor 2 complex || 2: catalytic step 2 spliceosome || 3: small nuclear ribonucleoprotein complex || 4: spliceosomal complex || 5: U12-type spliceosomal complex || 6: integral to peroxisomal membrane || 7: peroxisomal membrane || 8: peroxisome || 9: cilium || 10: flagellum || 11: nuclear pore

ECM 3, Gene set "Arp2/3 protein complex", Page 8

Num of ECM Genes: 1. Num of Predicted Genes: 374

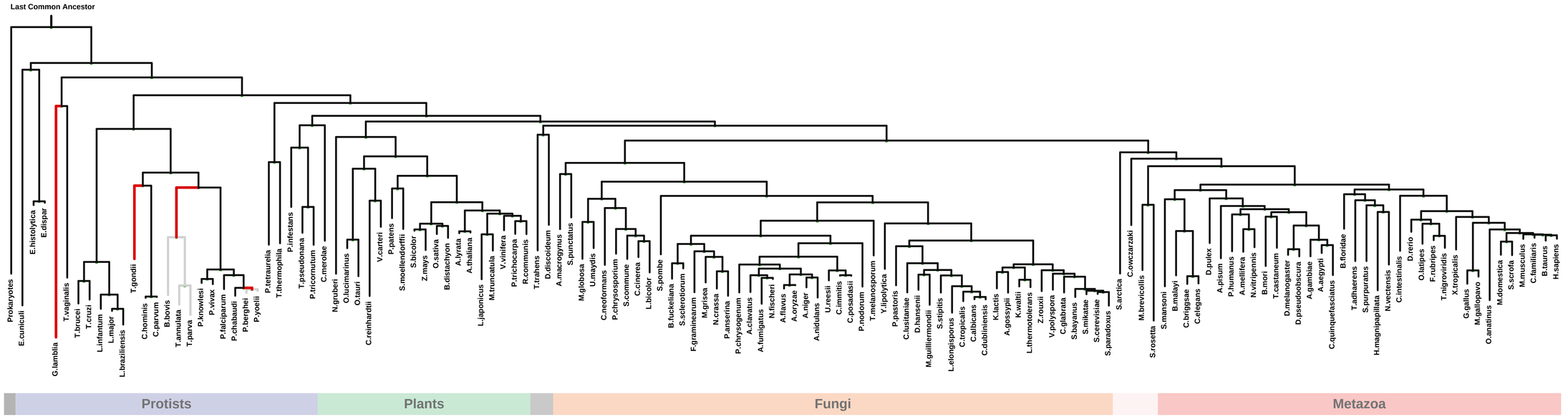


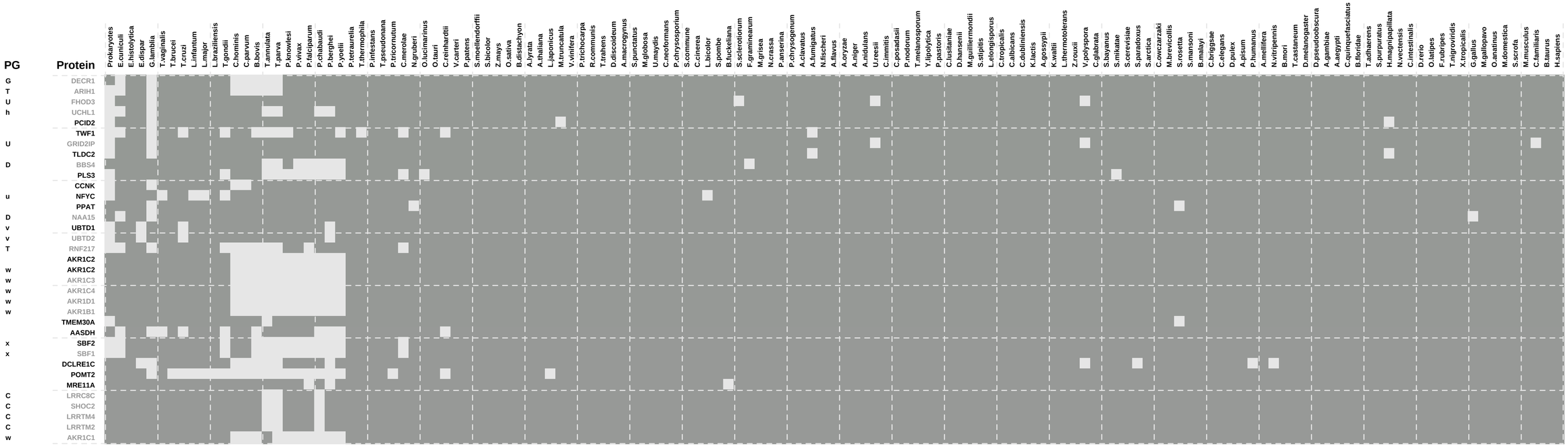


1: mitochondrial outer membrane || 2: mitochondrial nucleoid || 3: MMXD complex || 4: mitochondrial inner membrane presequence translocase complex || 5: peroxisome || 6: late endosome membrane || 7: eukaryotic translation initiation factor 3 complex ||
8: cell tip || 9: dendrite || 10: intracellular cyclic nucleotide activated cation channel complex || 11: peroxisomal membrane || 12: anchored to membrane || 13: nuclear membrane || 14: brush border membrane || 15: extrinsic to internal side of plasma membrane ||
16: heterotrimeric G-protein complex || 17: centriole || 18: SCF ubiquitin ligase complex || 19: eukaryotic translation initiation factor 4F complex

ECM 3, Gene set "Arp2/3 protein complex", Page 9

Num of ECM Genes: 1. Num of Predicted Genes: 374

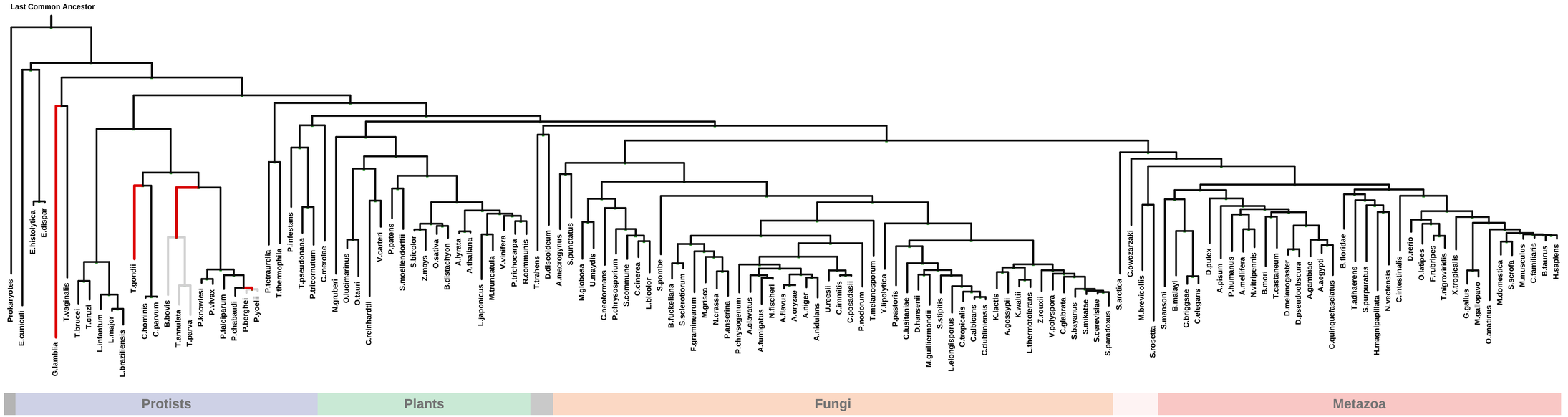


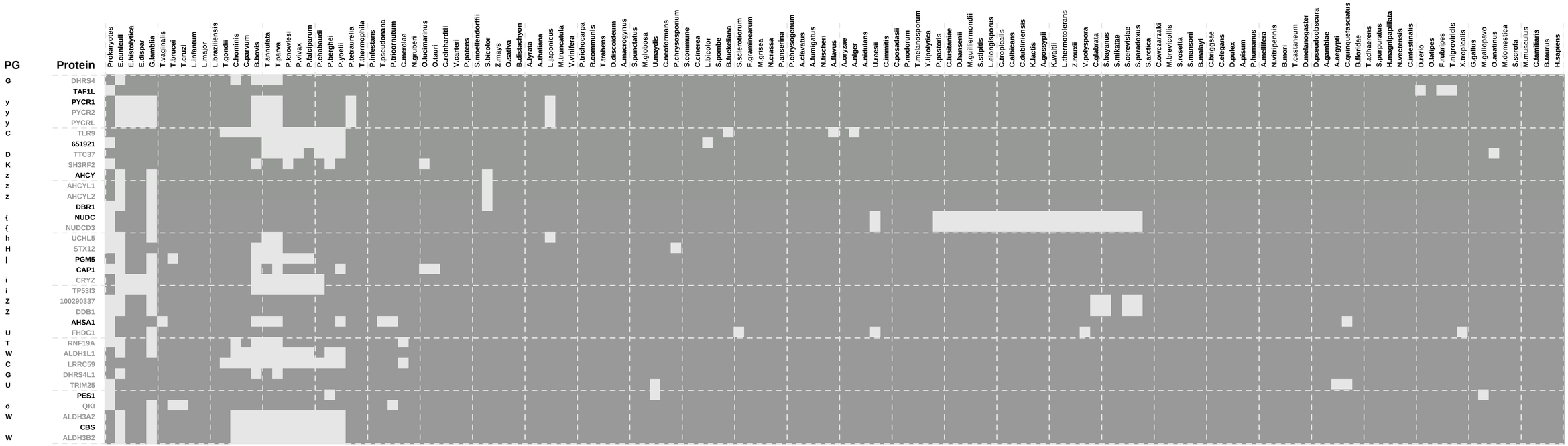


1: ubiquitin ligase complex || 2: actin cytoskeleton || 3: cell-cell junction || 4: filopodium || 5: myofibril || 6: ruffle membrane || 7: postsynaptic membrane || 8: BBSome || 9: centriolar satellite || 10: centriole || 11: cilium membrane ||
12: microtubule basal body || 13: motile cilium || 14: nonmotile primary cilium || 15: pericentriolar material || 16: CCAAT-binding factor complex || 17: vacuolar membrane || 18: chromosome, telomeric region || 19: condensed nuclear chromosome ||
20: Mre11 complex || 21: nuclear chromatin || 22: protein phosphatase type 1 complex

ECM 3, Gene set "Arp2/3 protein complex", Page 10

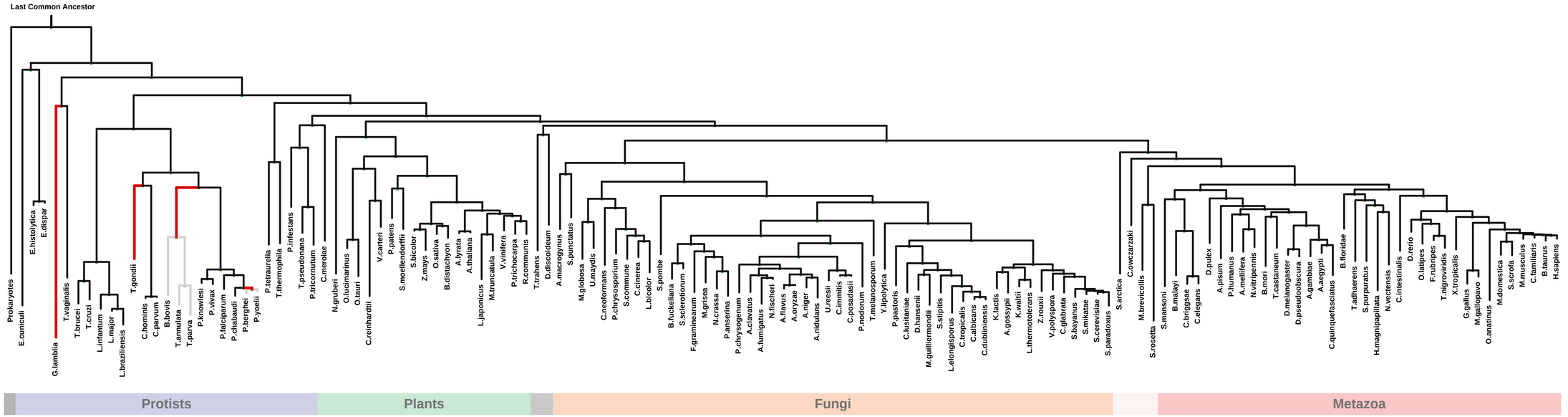
Num of ECM Genes: 1. Num of Predicted Genes: 374

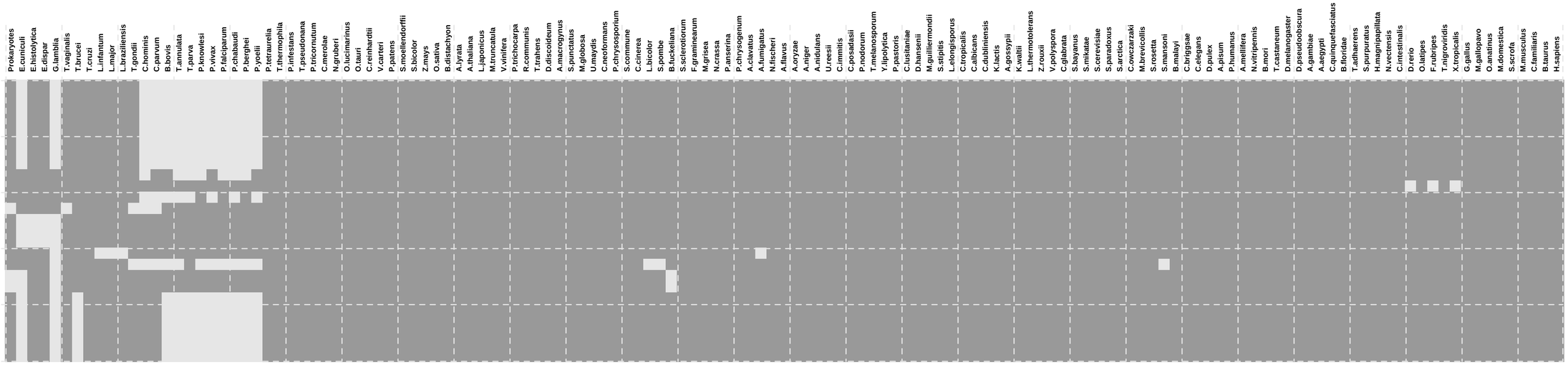




ECM 3, Gene set "Arp2/3 protein complex", Page 11

Num of ECM Genes: 1. Num of Predicted Genes: 374



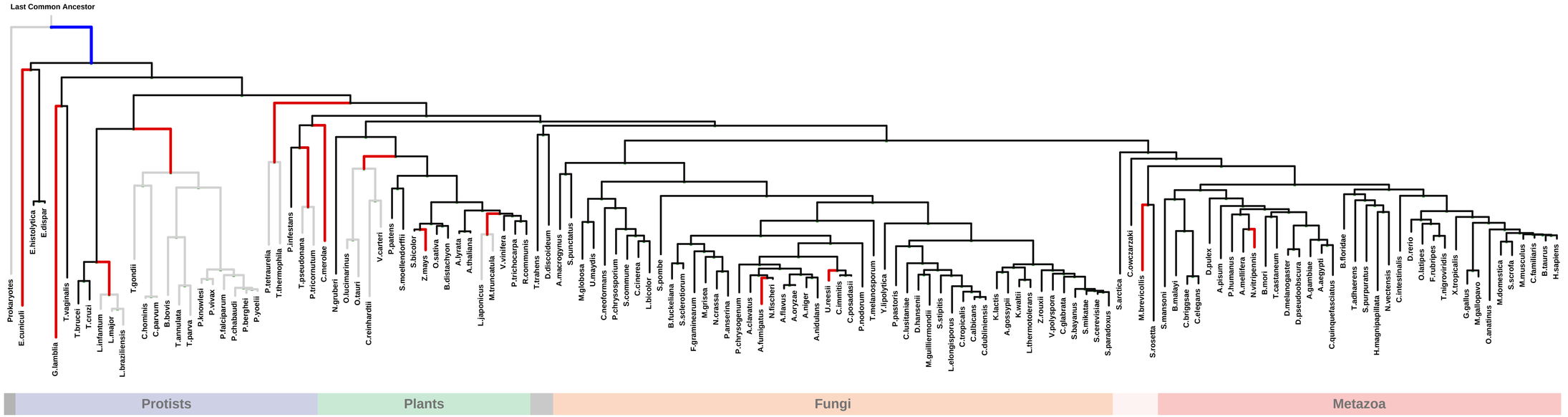


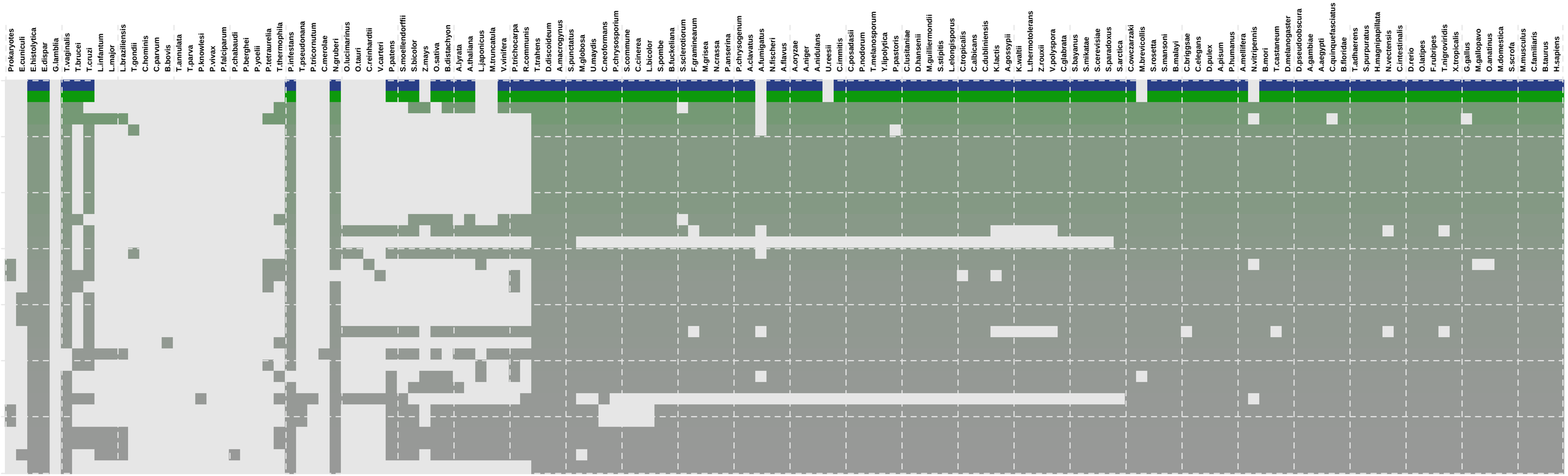
PG	Protein	LLR	Notes
W	ALDH4A1	0.2	
W	ALDH5A1	0.2	
W	ALDH6A1	0.2	
	CTH	**0.2**	
	NIT2	**0.2**	
W	ALDH7A1	0.2	
W	ALDH8A1	0.2	
W	ALDH3A1	0.2	
C	LRRC40	0.1	
	WRNIP1	**0.1**	
C	LRSAM1	0.1	**1**
u	CHRAC1	0.1	**2 / 3**
}	**UQCRC2**	**0.1**	**4**
	COQ5	**0.1**	
}	PMPCA	0.1	
	TBPL1	**0.1**	**5**
	ABHD1	**0.1**	
~	**ATP6V1E1**	**0.1**	**6 / 7 / 8 / 9**
~	ATP6V1E2	0.1	**9 / 10**
i	ADH4	0.1	**11**
i	ADH1A	0.1	
i	ADH7	0.1	
i	ADH1B	0.1	
i	ADH1C	0.1	
l	PGM1	0.1	**12**

1: membrane part || 2: chromatin accessibility complex || 3: epsilon DNA polymerase complex || 4: mitochondrial respiratory chain complex III || 5: transcription factor TFIIA complex || 6: endosome || 7: microvillus || 8: proton-transporting two-sector ATPase complex || 9: proton-transporting two-sector ATPase complex, catalytic domain || 10: acrosomal vesicle || 11: microtubule cytoskeleton || 12: actin cytoskeleton

ECM 4, Gene set "Arp2/3 protein complex", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 39

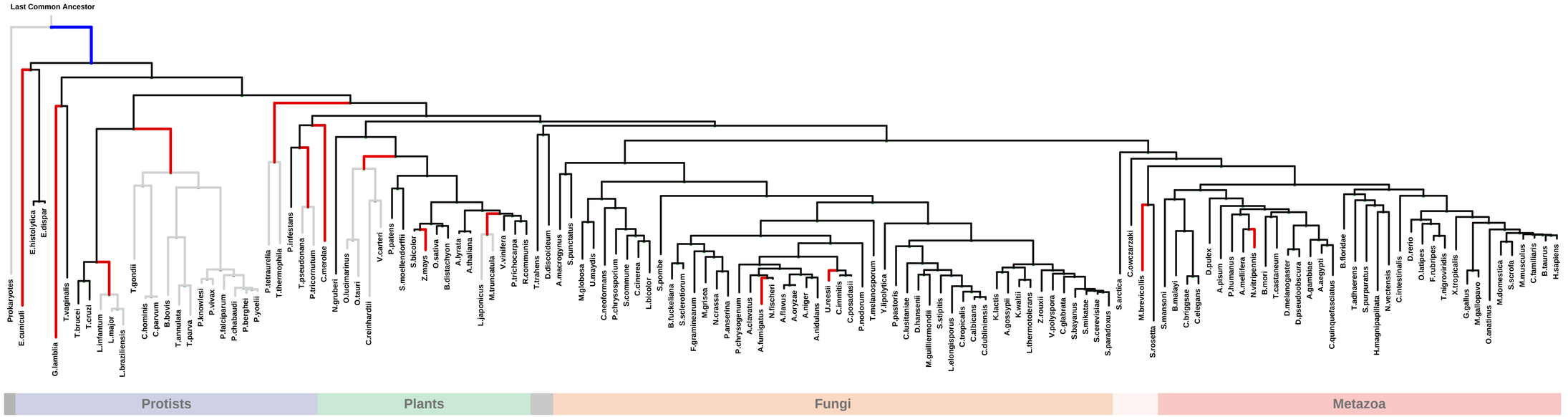




1: actin cytoskeleton || 2: Arp2/3 protein complex || 3: cell projection || 4: TORC2 complex || 5: dendrite || 6: guanyl-nucleotide exchange factor complex || 7: cell-cell junction || 8: focal adhesion || 9: ruffle || 10: ruffle membrane ||
11: extrinsic to membrane || 12: filopodium || 13: growth cone || 14: lamellipodium || 15: myofibril || 16: stereocilium || 17: NADPH oxidase complex || 18: cell cortex || 19: postsynaptic density || 20: fascia adherens ||
21: synapse || 22: endosome || 23: phagolysosome || 24: dendrite membrane || 25: perikaryon || 26: clathrin-coated endocytic vesicle membrane || 27: early endosome membrane

ECM 4, Gene set "Arp2/3 protein complex", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 39



PG	Protein	LLR	Notes
	NF1	**0.3**	**1 / 2 / 3**
C	RGL4	0.3	4
	FNBP1L	**0.3**	**4 / 5**
C	RASGEF1A	0.3	
C	RAPGEF5	0.3	

1: axon || 2: dendrite || 3: intrinsic to internal side of plasma membrane || 4: cytoplasmic membrane-bounded vesicle || 5: cell cortex