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

Dataset:

Num of genes in input gene set: 63
Total number of genes: 20834
Prediction LLR threshold: 0

The CLIME PDF output two sections:

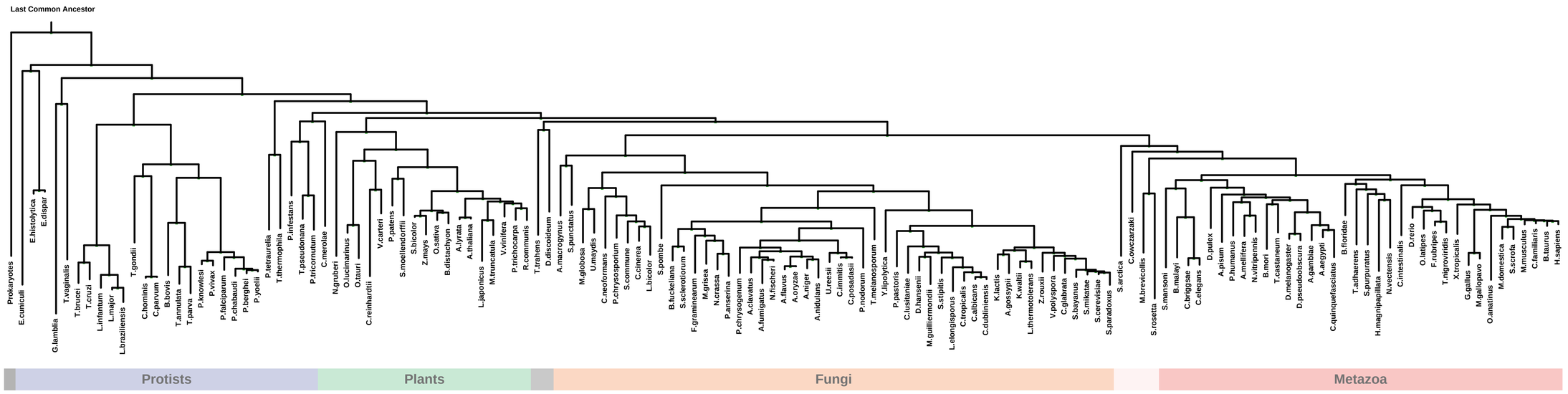
1) Overview of Evolutionarily Conserved Modules (ECMs)

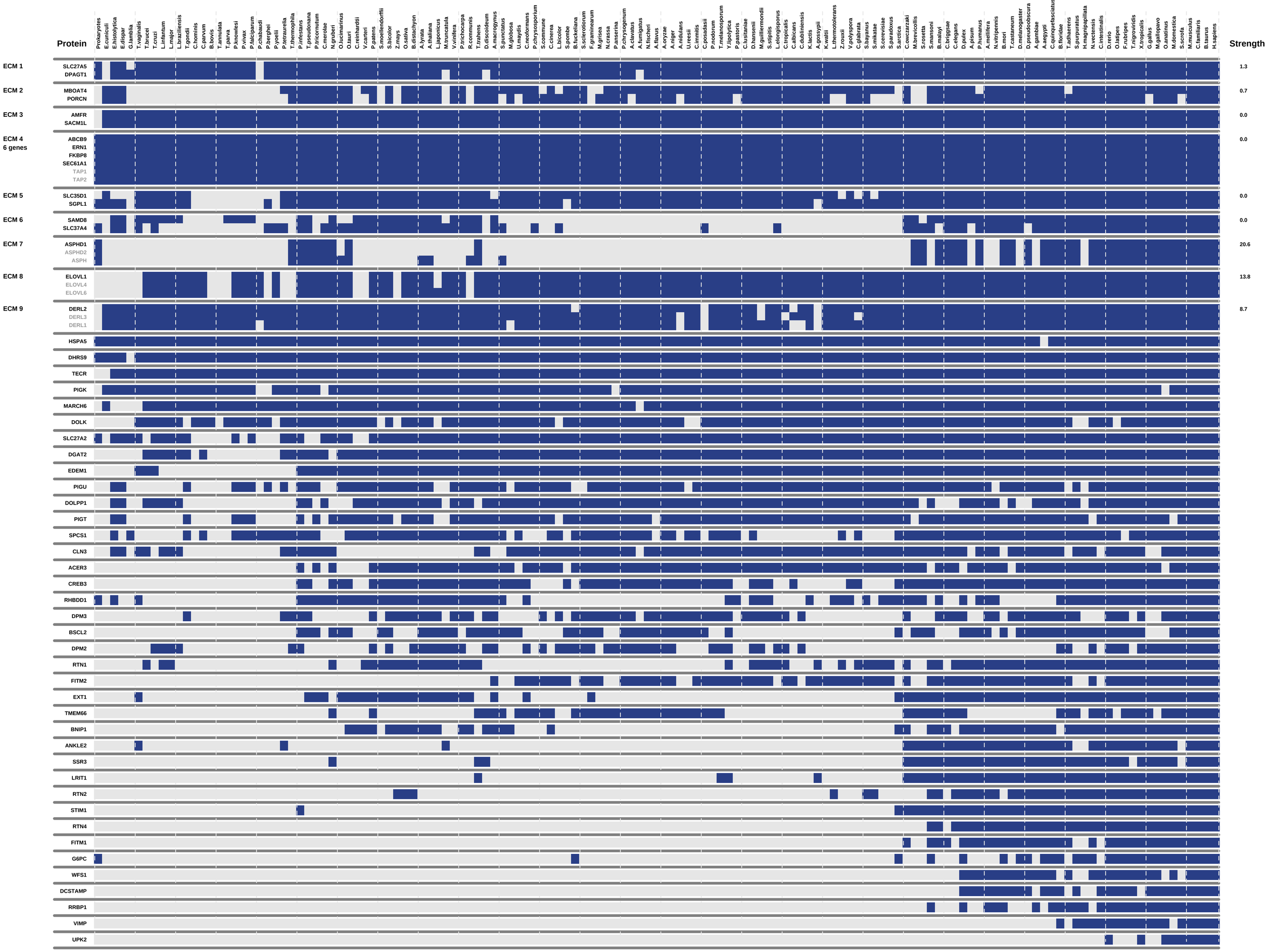
- Top panel shows the predefined species tree.
- Bottom panel shows the partition of input genes into Evolutionary Conserved Modules (ECMs), ordered by ECM strength (shown at right), and separated by horizontal lines.
- Each row show one gene, where the phylogenetic profile indicates presence (blue)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

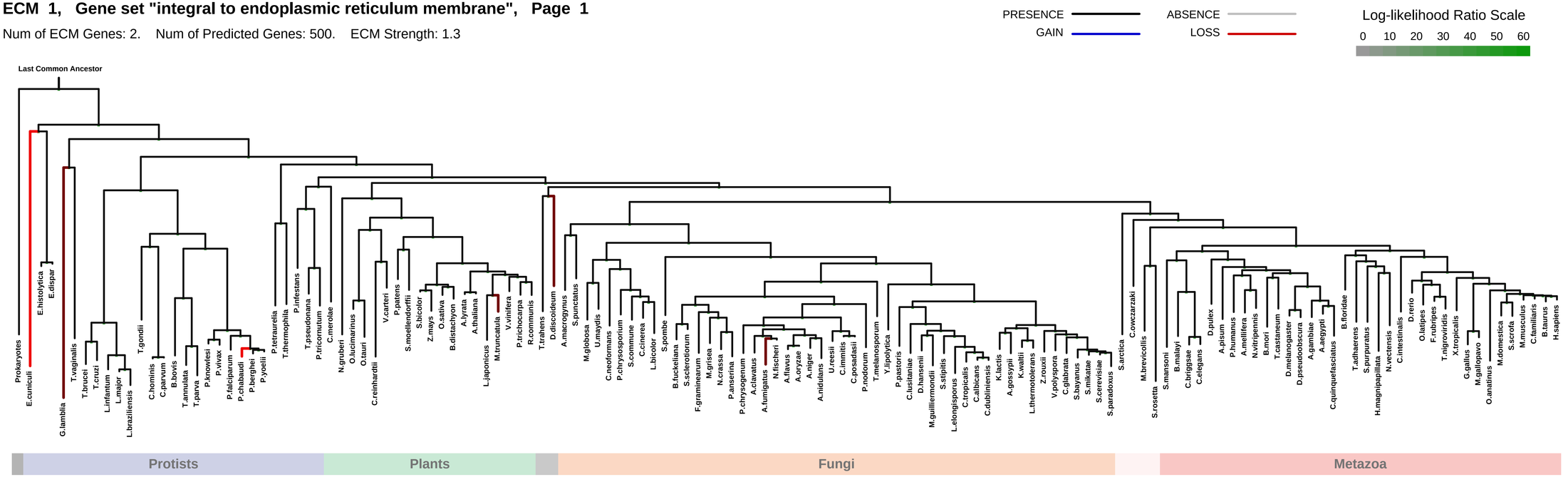
Overview of Evolutionarily Conserved Modules (ECMs)





ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

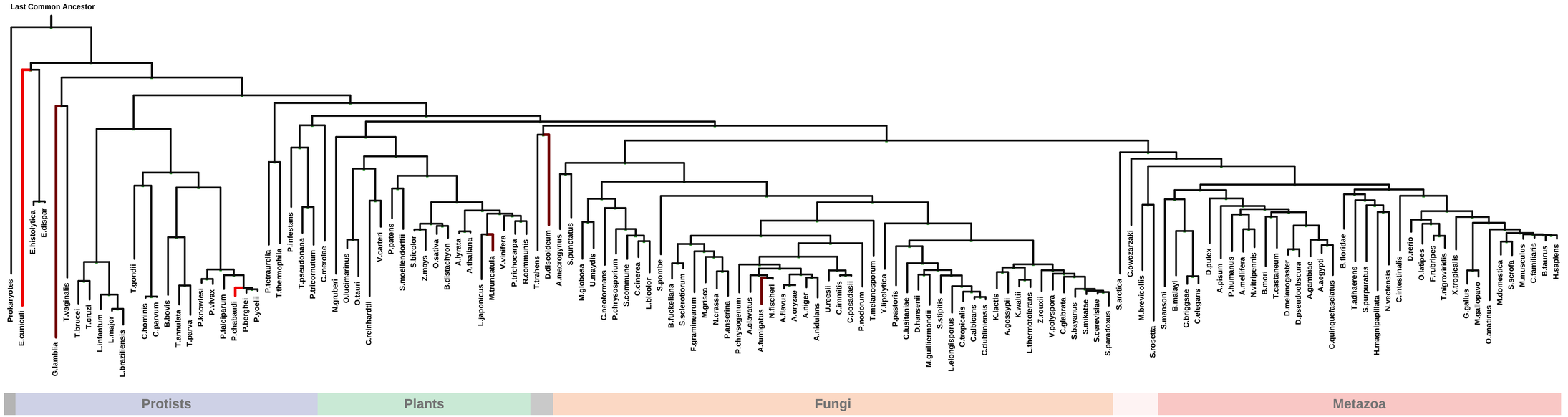


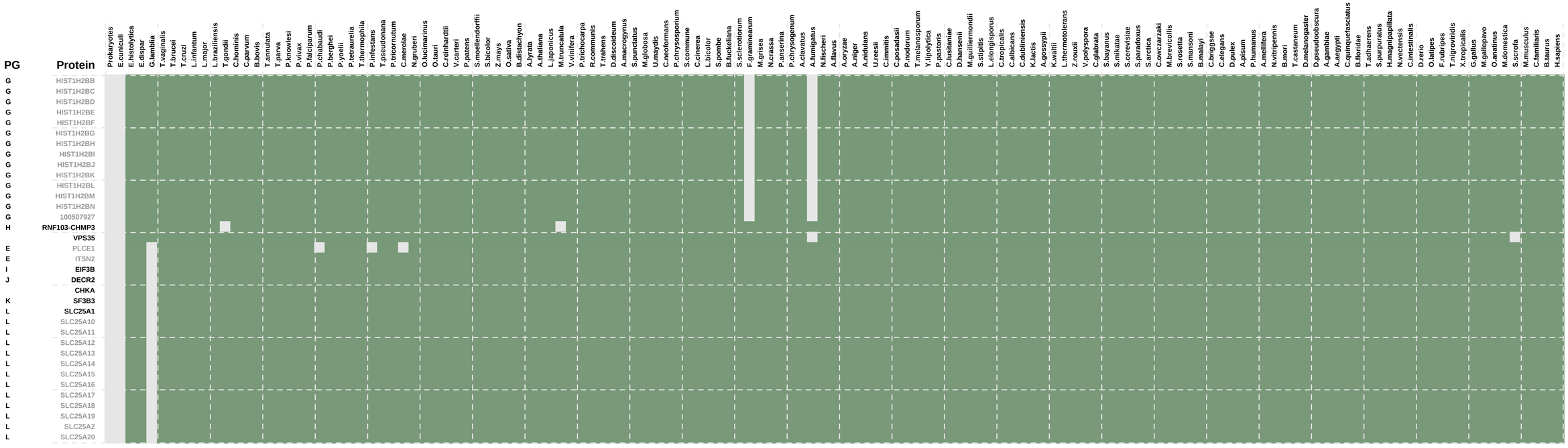
PG	Protein	LLR	Notes
	SLC27A5		1 / 2
	DPAGT1		2
	LSM10	23.5	3 / 4
A	HIST1H2APS6	22.4	
A	HIST1H2APS6	22.4	
B	GNAI3	21.9	5 / 6 / 7 / 8 / 9
B	GNAI2	21.9	5 / 6 / 7 / 8
B	GNAQ	18.2	5 / 6 / 10
B	GNA14	18.2	5 / 6
C	METTL21B	17.1	
A	H2AFZ	17.1	11 / 12
A	H2AFB1	17.1	13 / 14
A	H2AFB2	17.1	13 / 14
A	H2AFB3	17.1	
A	H2AFV	17.1	12
D	TRMT10C	17.1	
D	TRMT10A	17.1	
D	TRMT10B	17.1	
E	PLCG2	17.0	
E	PLCD1	17.0	
E	PLCD4	17.0	
E	PLCG1	17.0	15 / 16 / 17 / 18
	RPLP2	17.0	19
	MYSM1	16.7	20
	RPL27A	15.9	19
	VPS11	15.9	21 / 22 / 23 / 24 / 25
	TRMT5	14.9	
F	EIF1B	14.8	
F	EIF1	14.8	
G	HIST1H2BO	14.6	12
G	HIST2H2BE	14.6	12
G	HIST2H2BF	14.6	12
G	HIST3H2BB	14.6	12
G	LOC100506545	14.6	
G	HIST1H2BA	14.6	12 / 26

1: basal plasma membrane || 2: integral to endoplasmic reticulum membrane || 3: Cajal body || 4: U7 snRNP || 5: extrinsic to internal side of plasma membrane || 6: heterotrimeric G-protein complex || 7: membrane raft || 8: midbody ||
9: zymogen granule || 10: nuclear membrane || 11: Barr body || 12: nucleosome || 13: nuclear nucleosome || 14: transcriptionally active chromatin || 15: lamellipodium || 16: neuron projection || 17: ruffle || 18: signalosome ||
19: cytosolic large ribosomal subunit || 20: chromatin remodeling complex || 21: endocytic vesicle || 22: endosome || 23: HOPS complex || 24: late endosome membrane || 25: lysosomal membrane || 26: extrinsic to plasma membrane

ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 2

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

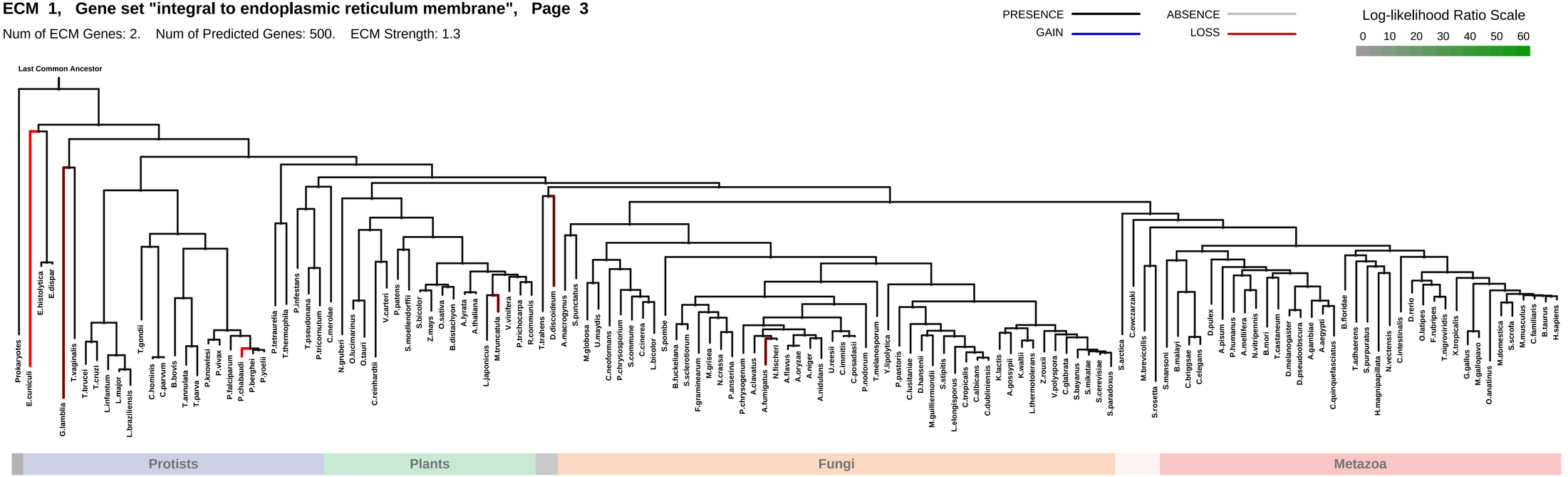




1: nucleosome || 2: endosome || 3: eukaryotic translation initiation factor 3 complex || 4: peroxisome || 5: catalytic step 2 spliceosome || 6: small nuclear ribonucleoprotein complex || 7: spliceosomal complex || 8: U12-type spliceosomal complex ||
9: integral to peroxisomal membrane || 10: peroxisomal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

ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 3

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

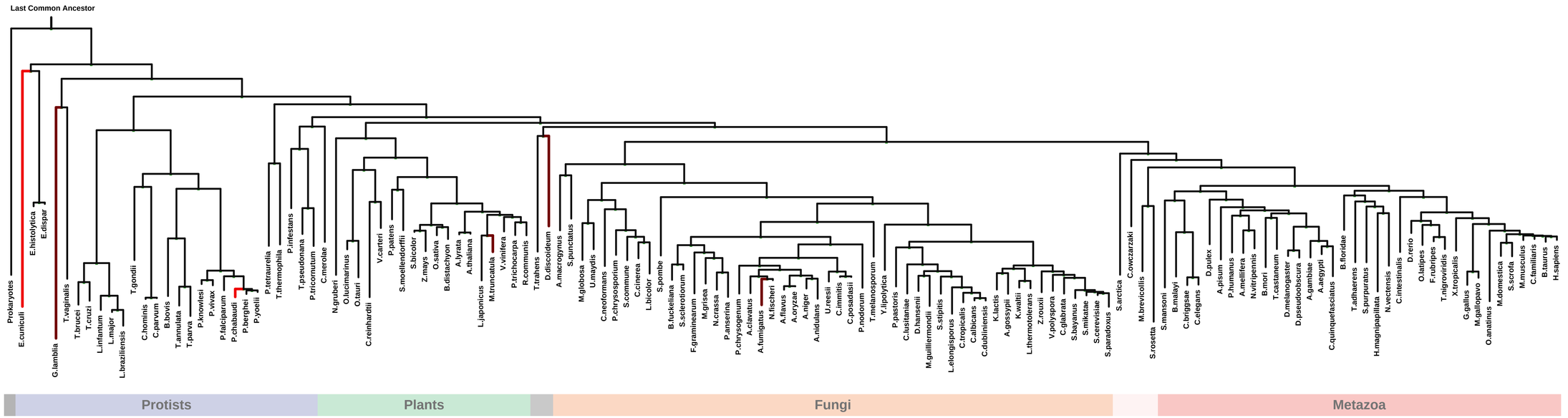


PG	Protein	LLR	Notes
L	SLC25A21	13.8	
L	SLC25A22	13.8	
L	SLC25A26	13.8	
L	SLC25A28	13.8	
L	SLC25A29	13.8	
L	SLC25A3	13.8	
L	SLC25A30	13.8	
L	SLC25A31	13.8	1 / 2
L	SLC25A32	13.8	
L	SLC25A33	13.8	
L	SLC25A34	13.8	
L	SLC25A36	13.8	
L	SLC25A37	13.8	
L	SLC25A38	13.8	
L	SLC25A39	13.8	
L	SLC25A4	13.8	3
L	SLC25A40	13.8	
L	SLC25A41	13.8	
L	SLC25A42	13.8	
L	SLC25A43	13.8	
L	SLC25A44	13.8	
L	SLC25A45	13.8	
L	SLC25A48	13.8	
L	SLC25A5	13.8	4 / 5
L	SLC25A6	13.8	6
M	**TNPO1**	**13.8**	7
M	TNPO2	13.8	7
	PRMT8	**13.8**	
L	UCP1	13.8	
L	UCP2	13.8	
L	UCP3	13.8	
N	**RBM15B**	**13.8**	
H	CHMP2A	13.8	8
I	EIF2A	13.8	9
L	100508457	13.8	

1: cilium || 2: flagellum || 3: mitochondrial outer membrane || 4: mitochondrial nucleoid || 5: MMXD complex || 6: mitochondrial inner membrane presequence translocase complex || 7: nuclear pore || 8: late endosome membrane ||
9: eukaryotic translation initiation factor 2 complex

ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 4

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3



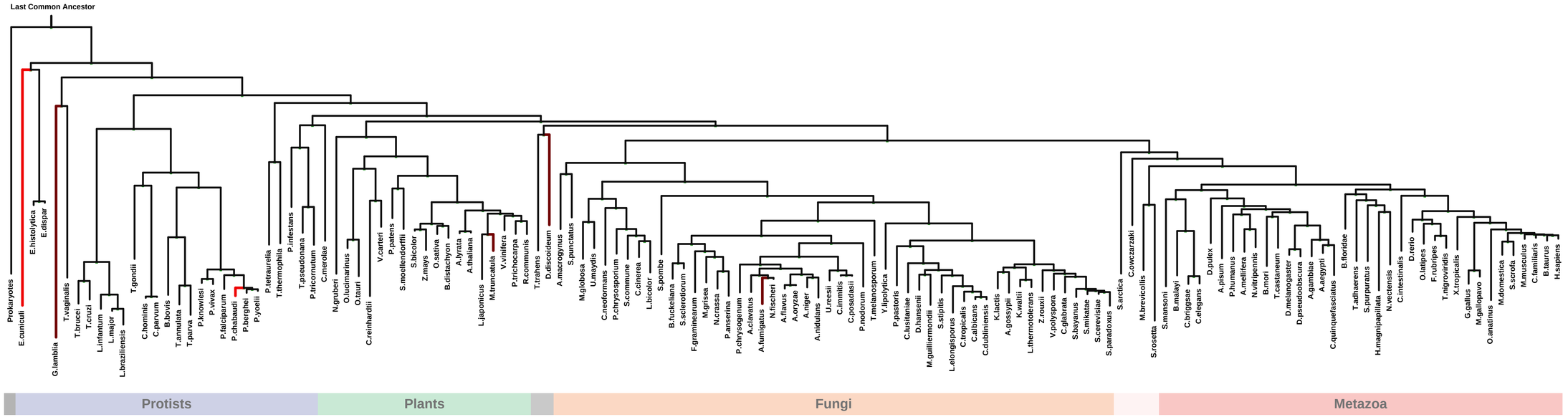
PG	Protein	LLR	Notes
L	100510457	13.8	
O	INPP5E	13.6	1 / 2
O	INPP5K	13.6	3 / 4 / 5 / 6
P	UCHL1	13.6	
Q	FBXL14	13.5	
R	WIPI1	13.0	6 / 7 / 8 / 9 / 10 / 11
	SUPT6H	12.9	
S	NAA15	12.5	
	RER1	12.4	12
	POLR3F	12.3	13
T	SRI	12.2	14 / 15 / 16
Q	FBXL2	12.2	
	NOL10	11.9	
U	EIF4G1	11.9	17
V	AHCY	11.9	18
V	AHCYL1	11.9	
V	AHCYL2	11.9	
W	NAPA	11.8	19
W	NAPB	11.8	19
	DBR1	11.8	
	PSMD9	11.5	20 / 21
J	WWOX	11.5	22
B	GNA11	11.3	23 / 24
X	ATP6V1E2	11.3	25 / 26
X	ATP6V1E1	11.3	22 / 26 / 27 / 28
	PROSC	11.1	
S	NAA16	11.0	
R	WIPI2	10.8	7 / 11 / 29
Y	RNF41	10.8	
	VPS53	10.8	9 / 30
Z	TRMT1L	10.8	
a	VPS33B	10.7	31 / 32 / 33 / 34 / 35 / 36
	MPI	10.7	
b	100294376	10.7	
c	MDH2	10.7	

1: cilium axoneme || 2: Golgi cisterna membrane || 3: neuron projection || 4: ruffle || 5: ruffle membrane || 6: trans-Golgi network || 7: autophagic vacuole membrane || 8: clathrin-coated vesicle || 9: endosome membrane ||
10: pre-autophagosomal structure || 11: pre-autophagosomal structure membrane || 12: integral to Golgi membrane || 13: DNA-directed RNA polymerase III complex || 14: sarcoplasmic reticulum membrane || 15: vesicle || 16: Z disc ||
17: eukaryotic translation initiation factor 4F complex || 18: melanosome || 19: synaptobrevin 2-SNAP-25-syntaxin-1a complex || 20: proteasome regulatory particle || 21: proteasome regulatory particle, base subcomplex || 22: microvillus ||

ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 5

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

PRESENCE ABSENCE
GAIN LOSS
Log-likelihood Ratio Scale
0 10 20 30 40 50 60

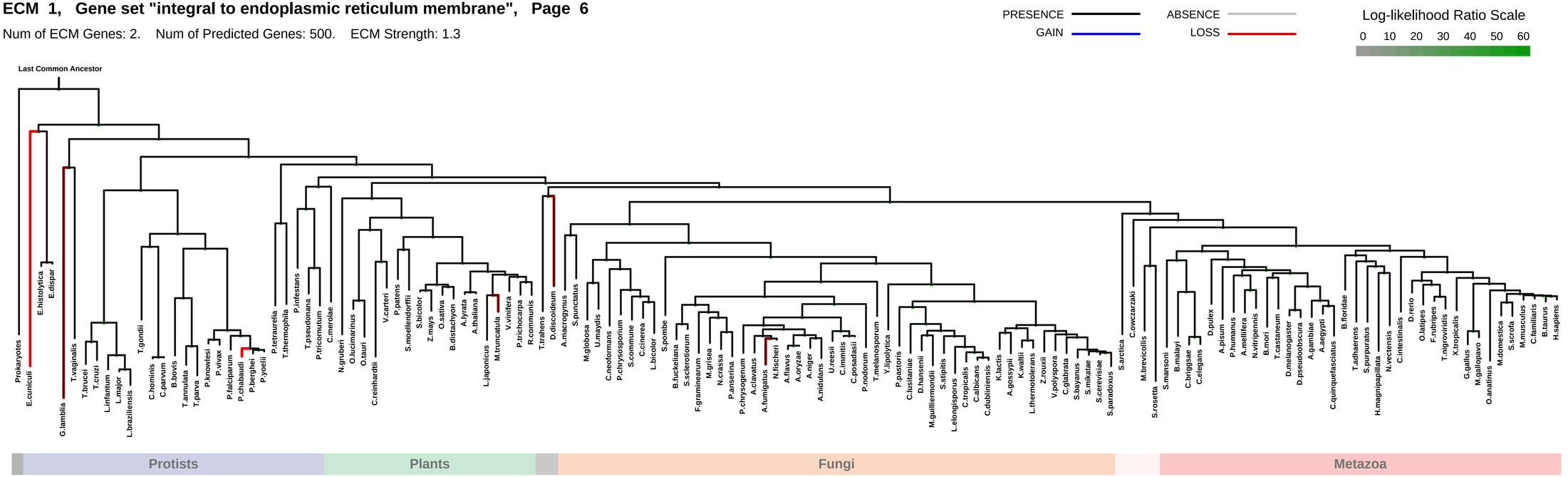


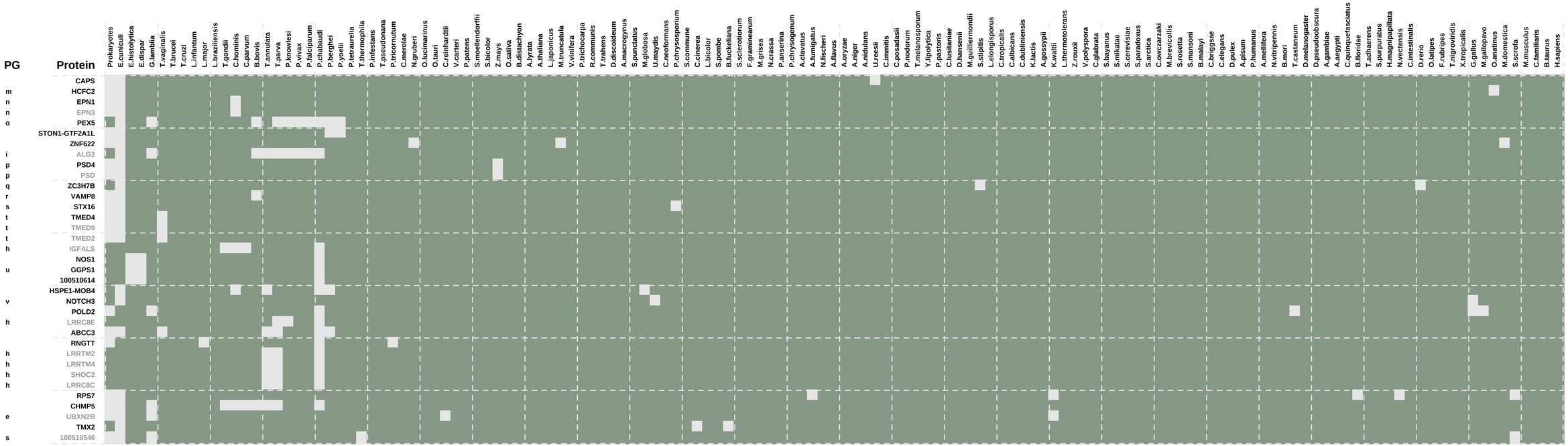
PG	Protein	LLR	Notes
d	DIAPH3	10.7	
d	FMNL3	10.7	
K	DDB1	10.5	1 / 2 / 3
K	100290337	10.5	
O	INPP5J	10.5	4 / 5 / 6
E	ITSN1	10.5	7 / 8 / 9 / 10 / 11
e	NSFL1C	10.5	12 / 13
	LENG8	10.5	
E	PLCL1	10.4	
J	HPGD	10.4	
J	HSD17B14	10.4	
J	HSD17B7	10.3	
	RALYL	10.3	
f	EIF4E1B	10.3	14
f	EIF4E2	10.3	14
f	EIF4E	10.3	14 / 15 / 16 / 17 / 18
	PRPF39	10.1	
g	VPS26B	10.1	19
g	VPS26A	10.1	19 / 20 / 21 / 22
	TUBGCP2	10.0	23 / 24 / 25
h	LRRC10	9.8	26
Y	TRIM22	9.7	27 / 28
Y	BRCA1	9.7	6 / 12 / 29 / 30 / 31 / 32 / 3
	TBC1D21	9.5	
i	ALG11	9.3	
j	SI	9.3	36 / 37
j	GANAB	9.3	38 / 39
j	GANC	9.3	
k	ADH5	9.3	
l	ALDH1A2	9.3	
j	MGAM	9.3	
l	ALDH1A3	9.3	
j	100508894	9.3	
k	SORD	9.3	40 / 41 / 42
	RPLP1	9.3	43

1: Cul4A-RING ubiquitin ligase complex || 2: Cul4B-RING ubiquitin ligase complex || 3: Cul4-RING ubiquitin ligase complex || 4: dendritic shaft || 5: growth cone || 6: ruffle || 7: coated pit || 8: endocytic vesicle || 9: lamellipodium ||
10: neuron projection || 11: synapse || 12: chromosome || 13: Golgi stack || 14: mRNA cap binding complex || 15: cytoplasmic mRNA processing body || 16: cytoplasmic stress granule || 17: eukaryotic translation initiation factor 4F complex ||
18: RNA-induced silencing complex || 19: retromer complex || 20: endosome || 21: endosome membrane || 22: vesicle || 23: cytoplasmic microtubule || 24: microtubule organizing center || 25: spindle pole || 26: myofibril ||

ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 6

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3





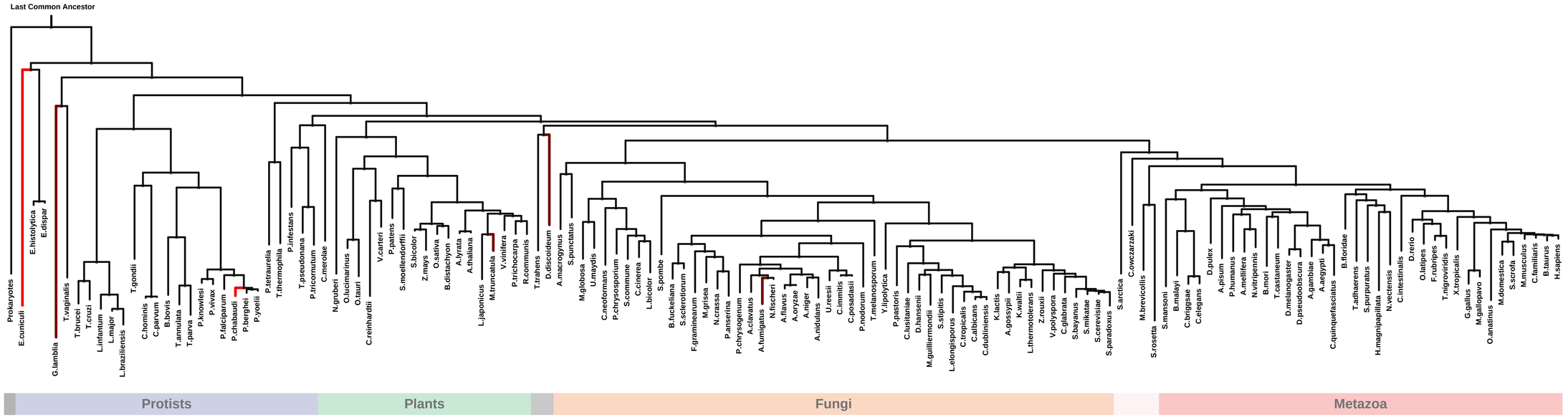
1: coated pit || 2: clathrin-coated vesicle || 3: peroxisomal matrix || 4: peroxisomal membrane || 5: peroxisome || 6: trans-Golgi network || 7: ruffle || 8: early endosome || 9: late endosome membrane || 10: lysosomal membrane ||
11: recycling endosome || 12: secretory granule membrane || 13: SNARE complex || 14: endoplasmic reticulum-Golgi intermediate compartment || 15: endoplasmic reticulum-Golgi intermediate compartment membrane || 16: trans-Golgi network transport vesicle ||
17: COPI-coated vesicle || 18: COPI-coated vesicle membrane || 19: Golgi cisterna membrane || 20: zymogen granule membrane || 21: dendritic spine || 22: photoreceptor inner segment || 23: sarcolemma || 24: sarcoplasmic reticulum ||

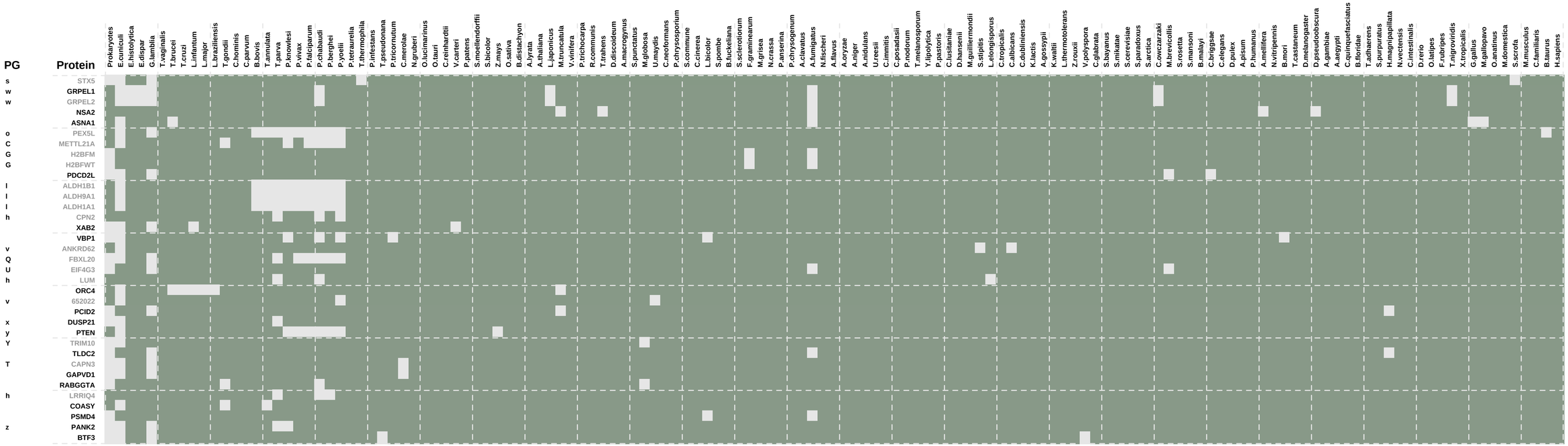
ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 7

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

PRESENCE ABSENCE
GAIN LOSS

Log-likelihood Ratio Scale
0 10 20 30 40 50 60





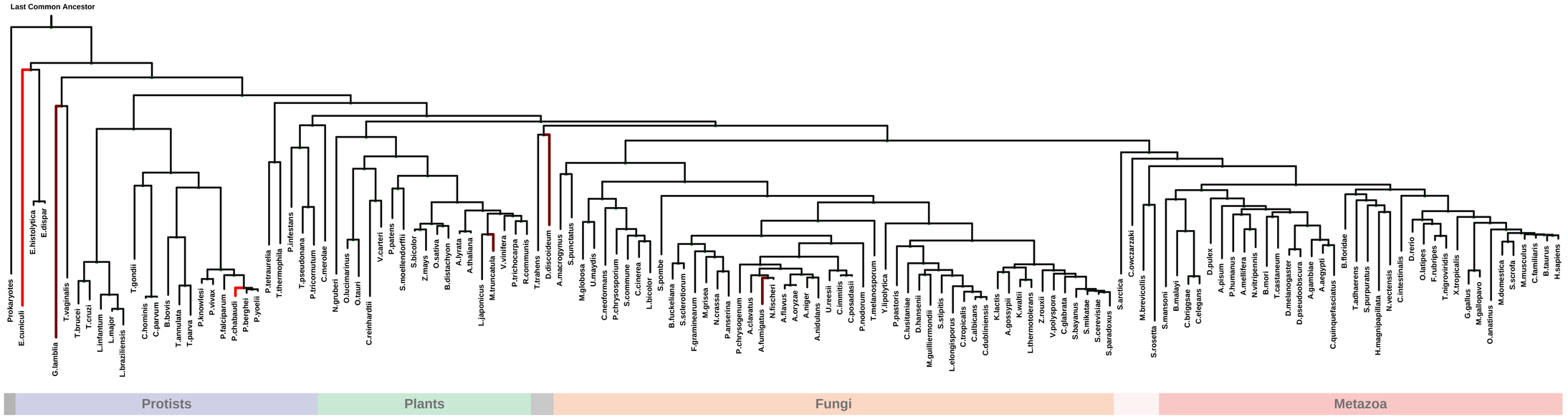
1: endoplasmic reticulum-Golgi intermediate compartment membrane || 2: SNARE complex || 3: ribonucleoprotein complex || 4: cell tip || 5: dendrite || 6: intracellular cyclic nucleotide activated cation channel complex || 7: peroxisomal membrane || 8: nucleosome || 9: nuclear membrane || 10: catalytic step 2 spliceosome || 11: prefoldin complex || 12: eukaryotic translation initiation factor 4F complex || 13: extracellular matrix || 14: fibrillar collagen || 15: Golgi lumen || 16: lysosomal lumen || 17: proteinaceous extracellular matrix || 18: nuclear origin of replication recognition complex || 19: origin recognition complex || 20: cell projection || 21: internal side of plasma membrane || 22: myelin sheath adaxonal region ||

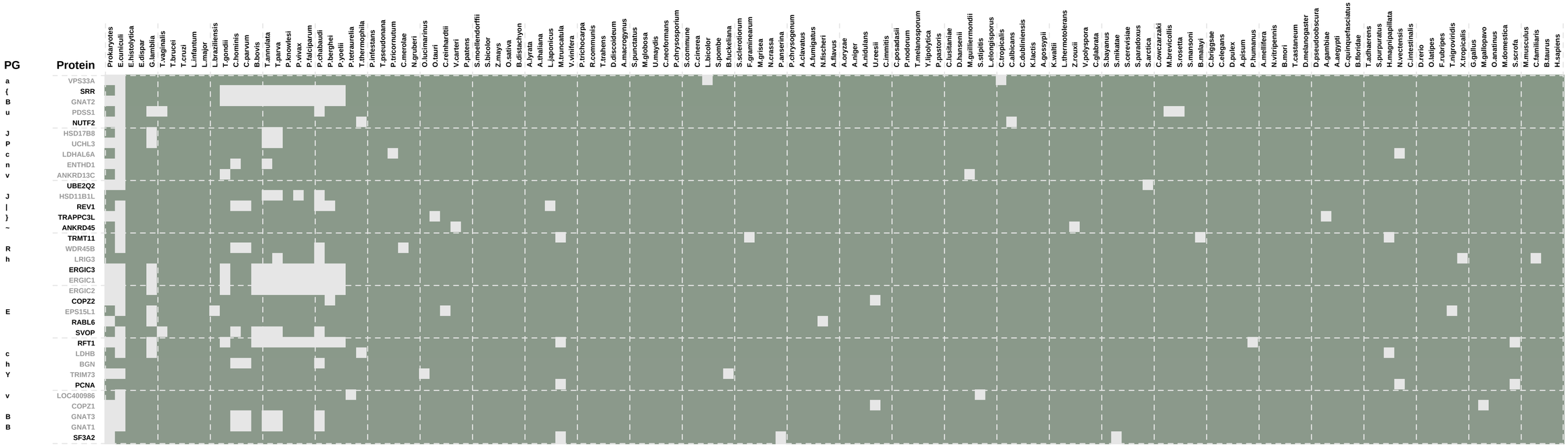
ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 8

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

PRESENCE ABSENCE
GAIN LOSS

Log-likelihood Ratio Scale
0 10 20 30 40 50 60



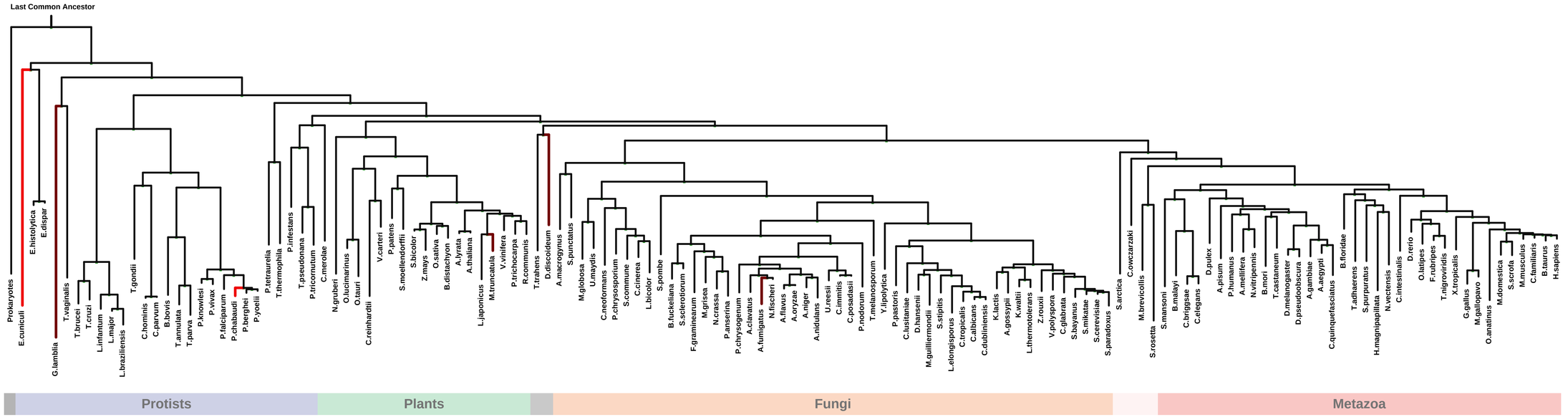


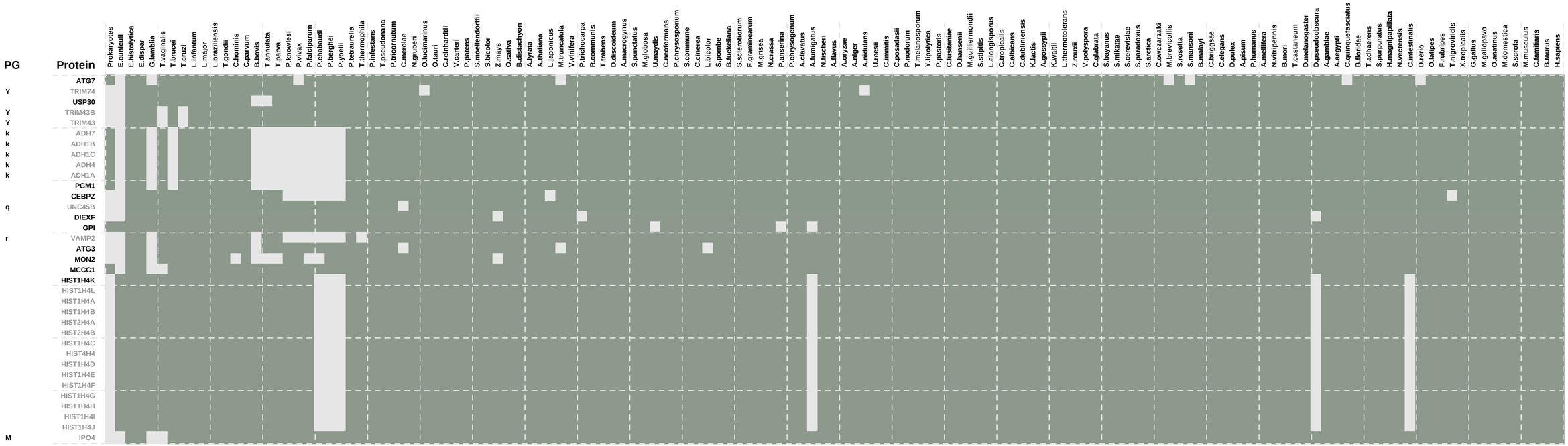
1: early endosome || 2: HOPS complex || 3: late endosome || 4: late endosome membrane || 5: lysosomal membrane || 6: apical part of cell || 7: extrinsic to internal side of plasma membrane || 8: heterotrimeric G-protein complex ||
9: photoreceptor inner segment || 10: photoreceptor outer segment || 11: photoreceptor outer segment membrane || 12: microtubule cytoskeleton || 13: nuclear pore || 14: mitochondrial envelope || 15: endoplasmic reticulum-Golgi intermediate compartment membrane ||
16: endoplasmic reticulum-Golgi intermediate compartment || 17: cis-Golgi network || 18: COPI vesicle coat || 19: coated pit || 20: synaptic vesicle || 21: synaptic vesicle membrane || 22: extracellular matrix || 23: Golgi lumen ||

ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 9

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

PRESENCE ABSENCE
GAIN LOSS
Log-likelihood Ratio Scale
0 10 20 30 40 50 60





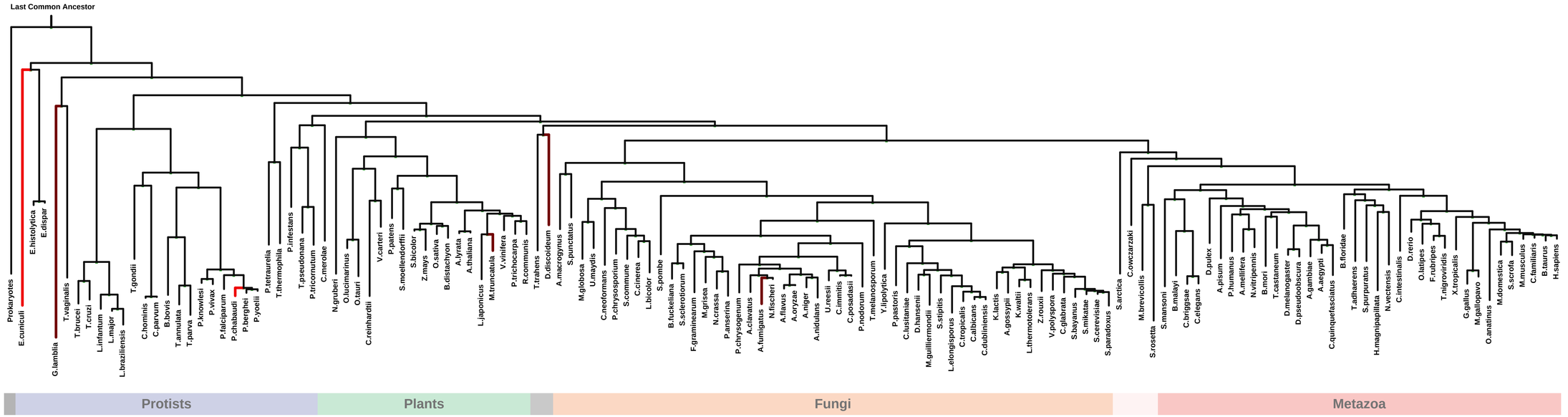
1: mitochondrial outer membrane || 2: microtubule cytoskeleton || 3: actin cytoskeleton || 4: clathrin-coated vesicle || 5: clathrin-sculpted gamma-aminobutyric acid transport vesicle membrane || 6: clathrin-sculpted glutamate transport vesicle membrane || 7: clathrin-sculpted monoamine transport vesicle membrane || 8: endocytic vesicle membrane || 9: neuron projection || 10: secretory granule membrane || 11: SNARE complex || 12: synaptic vesicle membrane || 13: trans-Golgi network || 14: nucleosome || 15: nuclear pore

ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 10

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

PRESENCE ABSENCE
GAIN LOSS

Log-likelihood Ratio Scale
0 10 20 30 40 50 60

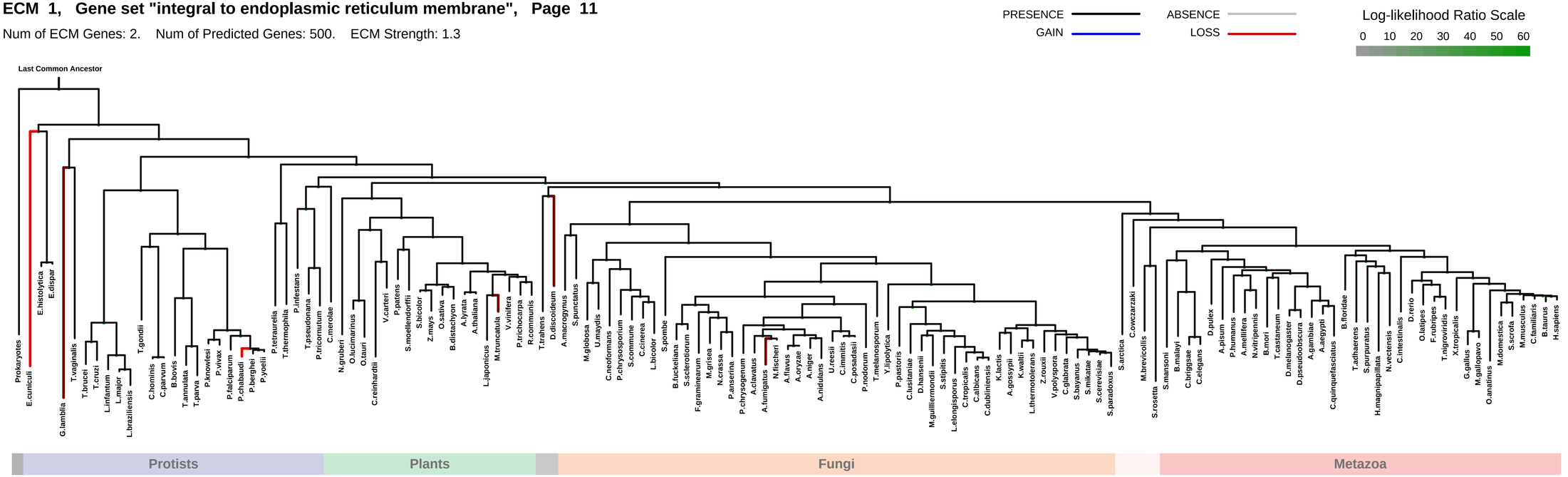


PG	Protein	LLR	Notes
	SEC14L1	**5.7**	
	SEC14L5	5.7	
	ABTB2	**5.7**	
v	ANKRD33B	5.6	
z	PANK3	5.6	
	AIMP1	**5.6**	**1 / 2**
	PSMD3	**5.5**	**3 / 4**
Q	FBXL7	5.5	**5 / 6**
j	GAA	5.5	**7 / 8**
	ZMIZ1	**5.5**	**9**
	ZMIZ2	5.5	**10**
	PIAS4	5.5	**11 / 12**
	PIAS1	5.5	**9**
	PIAS2	5.5	**9 / 12**
	PIAS3	5.5	**13 / 14**
	EPT1	**5.5**	
	CEPT1	5.5	**15**
J	HSD17B10	5.4	
	STT3A	**5.3**	**16**
	STT3B	5.3	**16**
x	DUSP14	5.3	
x	DUSP16	5.3	**17**
x	DUSP2	5.3	
J	CBR4	5.3	
	DUSP22	**5.3**	
x	DUSP26	5.3	
x	DUSP4	5.3	
x	DUSP5	5.3	
x	DUSP6	5.3	
x	DUSP7	5.3	
x	DUSP8	5.3	
x	DUSP9	5.3	
x	DUSP1	5.3	
x	DUSP13	5.3	
x	SSH1	5.3	**18 / 19 / 20**

1: aminoacyl-tRNA synthetase multienzyme complex || 2: transport vesicle || 3: proteasome accessory complex || 4: proteasome complex || 5: SCF ubiquitin ligase complex || 6: ubiquitin ligase complex || 7: lysosomal membrane || 8: lysosome || 9: nuclear speck || 10: nuclear replication fork || 11: nuclear matrix || 12: PML body || 13: dendrite || 14: synapse || 15: nuclear membrane || 16: oligosaccharyltransferase complex || 17: cytoplasmic membrane-bounded vesicle || 18: cleavage furrow || 19: lamellipodium || 20: midbody

ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 11

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3



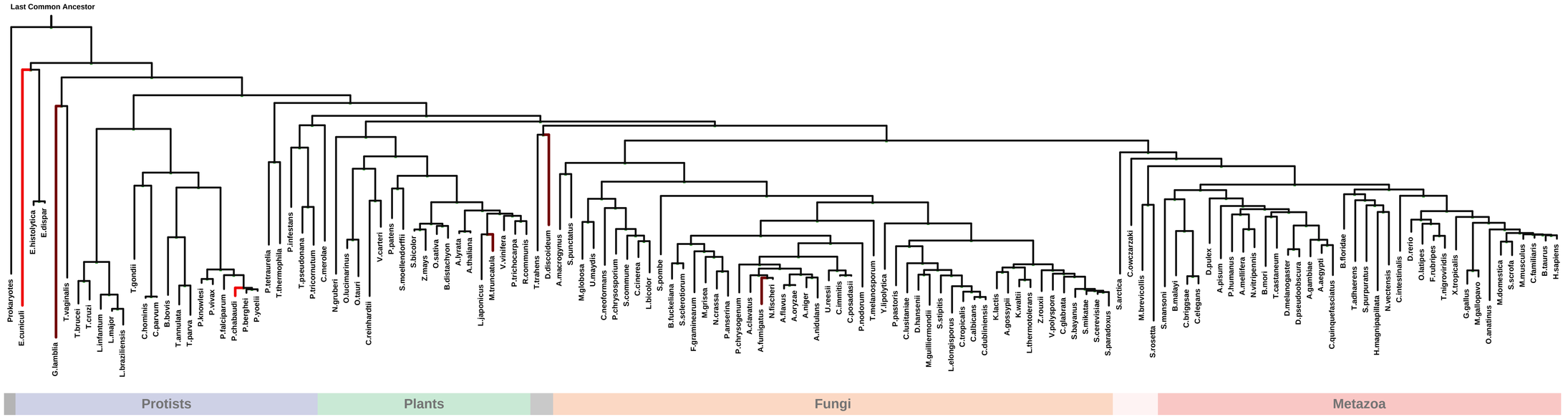
PG	Protein	LLR	Notes
x	SSH2	5.3	
x	SSH3	5.3	
x	100290651	5.3	
x	DUPD1	5.3	
x	DUSP10	5.3	
B	GNA13	5.3	1 / 2 / 3 / 4
x	DUSP18	5.3	
x	DUSP28	5.3	
x	STYX	5.3	
x	DUSP19	5.3	
h	LINGO1	5.3	
	DPP9	**5.3**	
	DGKQ	**5.3**	5
	653881	**5.3**	
	UTP11L	**5.2**	6
	SSRP1	**5.2**	7
J	DHRS1	5.0	
J	DCXR	5.0	8 / 9
J	BDH2	5.0	
r	VAMP7	5.0	10 / 11 / 12 / 13 / 14 / 15 /
	653889	**4.9**	
	POLE2	**4.9**	19
	TBPL1	**4.9**	20
	SUCLG1	**4.9**	
	RANBP10	**4.9**	21
	CCNF	**4.9**	22 / 23
	NACAD	**4.8**	
	NACA2	4.8	
	EIF3C	**4.8**	24
	EIF3CL	4.8	
v	ANKRD36	4.7	
Y	TRIM21	4.7	23 / 25 / 26
E	ESYT2	4.7	
	EXOSC10	**4.6**	27 / 28 / 29
	FBL	**4.6**	30 / 31 / 32

1: brush border membrane || 2: extrinsic to internal side of plasma membrane || 3: heterotrimeric G-protein complex || 4: melanosome || 5: nuclear speck || 6: small-subunit processome || 7: chromosome || 8: brush border ||
9: microvillus || 10: apical part of cell || 11: late endosome membrane || 12: lysosomal membrane || 13: neuron projection || 14: phagocytic vesicle || 15: phagocytic vesicle membrane || 16: SNARE complex || 17: synapse ||
18: transport vesicle membrane || 19: epsilon DNA polymerase complex || 20: transcription factor TFIIA complex || 21: cytoplasmic microtubule || 22: centriole || 23: SCF ubiquitin ligase complex || 24: eukaryotic translation initiation factor 3 complex ||

ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 12

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

PRESENCE ABSENCE
GAIN LOSS
Log-likelihood Ratio Scale
0 10 20 30 40 50 60



PG	Protein	LLR	Notes
Y	PCGF1	4.5	1
	ZNRF1	4.5	2 / 3 / 4
	ZNRF2	4.5	5 / 6 / 7
	PSMC2	4.5	8 / 9
m	MEGF8	4.4	
	FBXW9	4.3	
	PMM2	4.3	
	PMM1	4.3	
	PPP2R1B	4.2	
	DDX23	4.2	10 / 11
	SERINC3	4.2	
	SERINC1	4.2	
	UCKL1	4.2	
C	METTL21C	4.2	
v	KANK4	4.1	
z	PANK1	4.1	12
	NSDHL	4.1	13
b	SRD5A1	4.0	14 / 15
	TRAPPC2	4.0	
	PFKFB4	4.0	
	PAN2	4.0	
	ACLY	4.0	16
h	OMD	3.9	17 / 18 / 19
	NCAPD2	3.9	20 / 21 / 22 / 23
d	DAAM2	3.9	
d	DAAM1	3.9	24
d	INF2	3.9	
d	DIAPH1	3.9	25 / 26
d	DIAPH2	3.9	27
	CWC22	3.9	10 / 28
N	SPEN	3.9	29
	CHPT1	3.9	
J	DHRS4L1	3.9	
h	LRRC18	3.8	
	ASCC3	3.8	

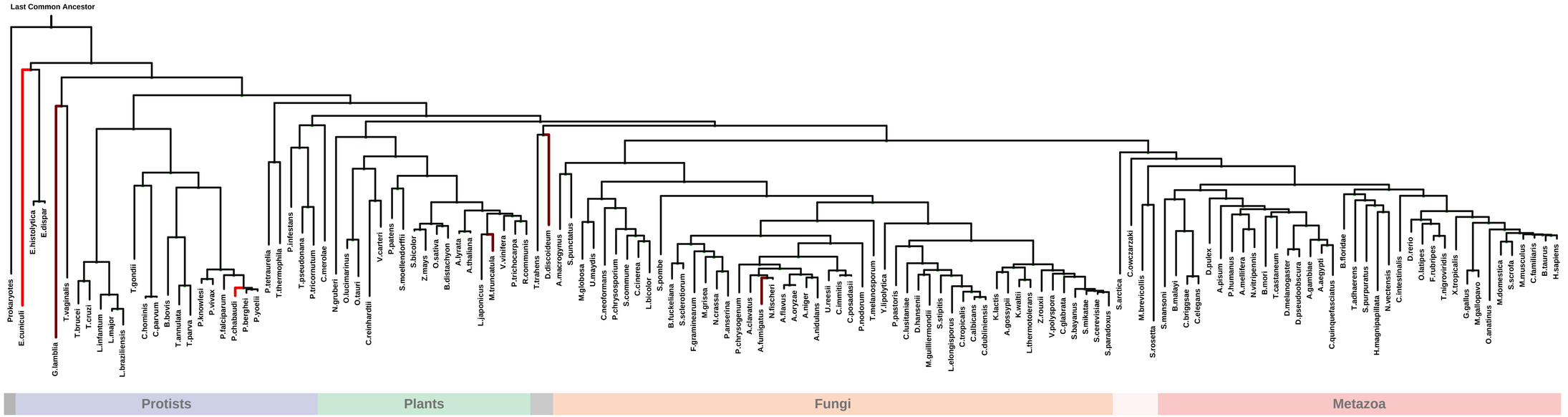
1: PcG protein complex || 2: endosome || 3: lysosome || 4: synaptic vesicle membrane || 5: endosome membrane || 6: lysosomal membrane || 7: presynaptic membrane || 8: proteasome accessory complex || 9: proteasome complex ||
10: catalytic step 2 spliceosome || 11: U5 snRNP || 12: cell periphery || 13: lipid particle || 14: cell body fiber || 15: myelin sheath || 16: citrate lyase complex || 17: Golgi lumen || 18: lysosomal lumen || 19: proteinaceous extracellular matrix ||
20: condensed chromosome || 21: condensin complex || 22: nuclear chromosome || 23: pronucleus || 24: stress fiber || 25: mitotic spindle || 26: ruffle membrane || 27: early endosome || 28: spliceosomal complex ||

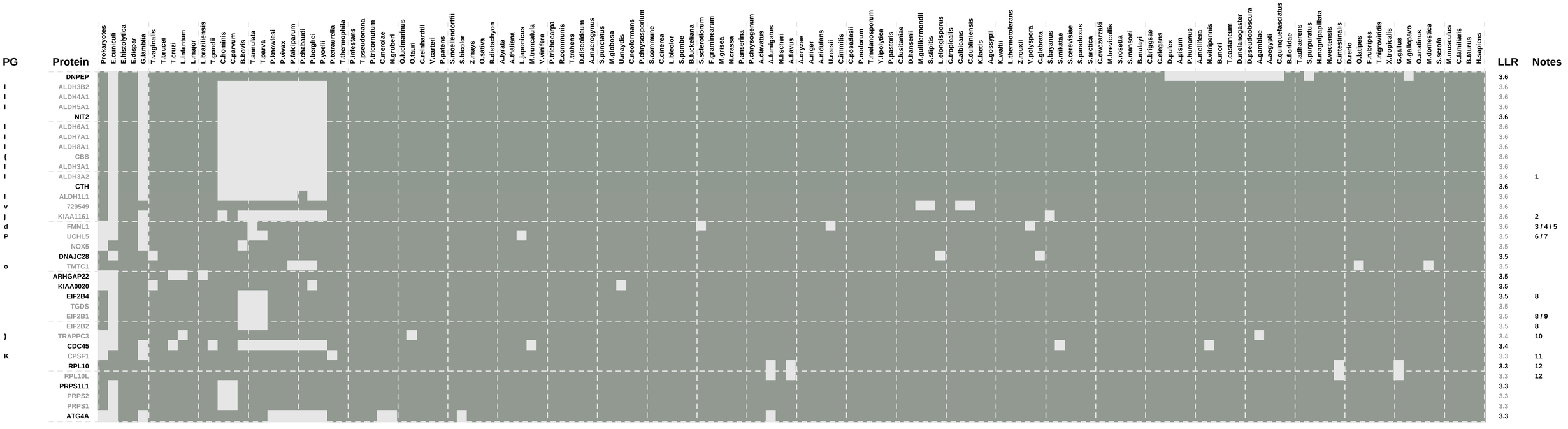
ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 13

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

PRESENCE ABSENCE
GAIN LOSS

Log-likelihood Ratio Scale
0 10 20 30 40 50 60





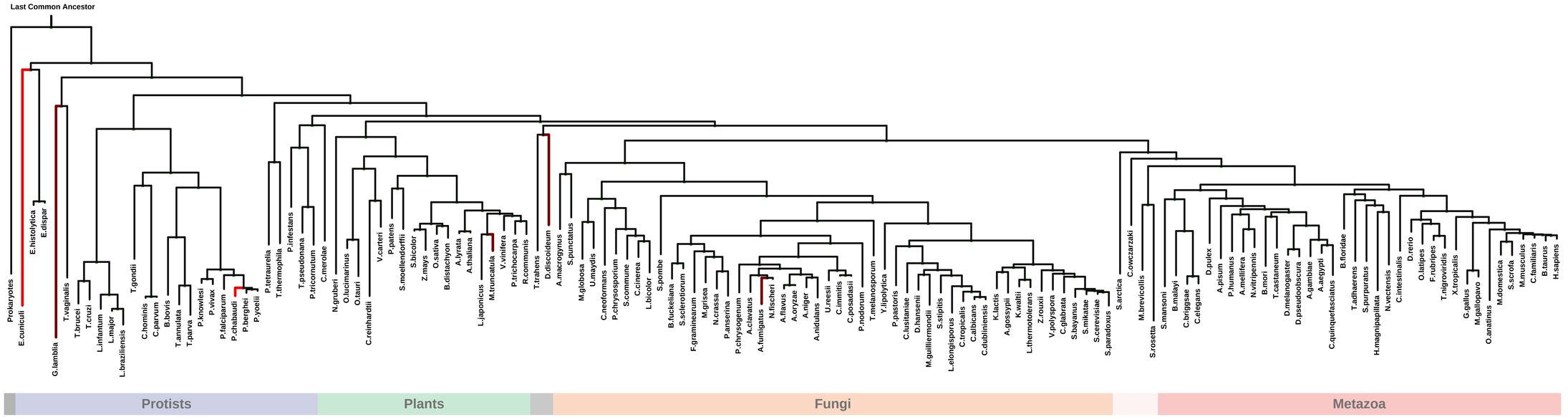
1: peroxisome || 2: nuclear membrane || 3: bleb || 4: cell cortex || 5: phagocytic vesicle || 6: Ino80 complex || 7: proteasome complex || 8: eukaryotic translation initiation factor 2B complex || 9: eukaryotic translation initiation factor 2 complex ||
10: TRAPP complex || 11: mRNA cleavage and polyadenylation specificity factor complex || 12: cytosolic large ribosomal subunit

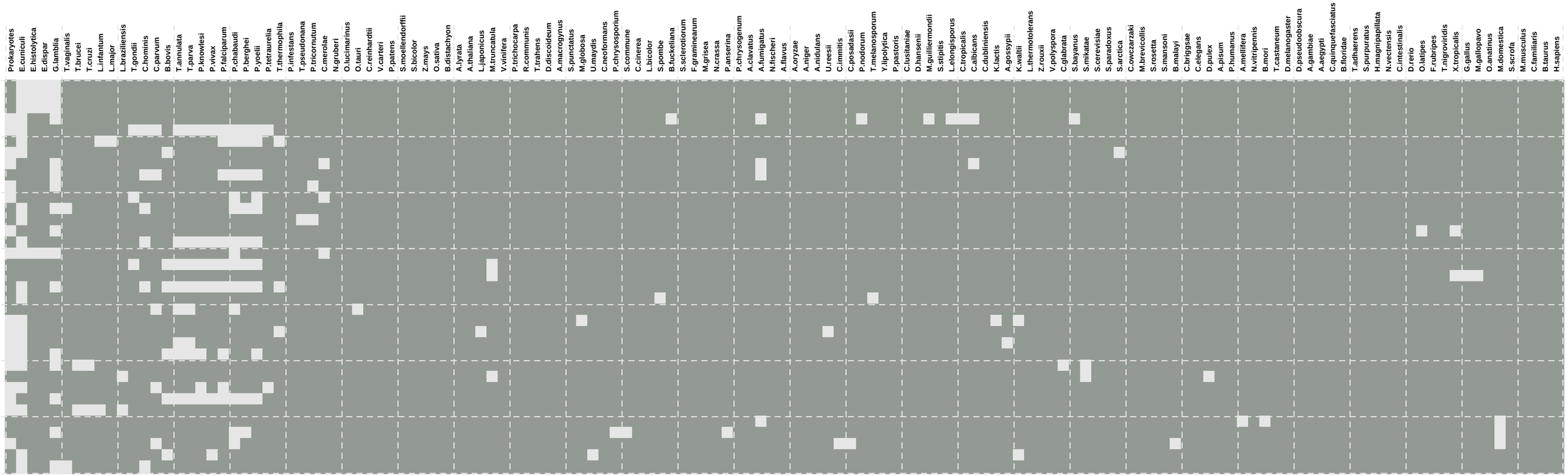
ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 14

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

PRESENCE ABSENCE
GAIN LOSS

Log-likelihood Ratio Scale
0 10 20 30 40 50 60



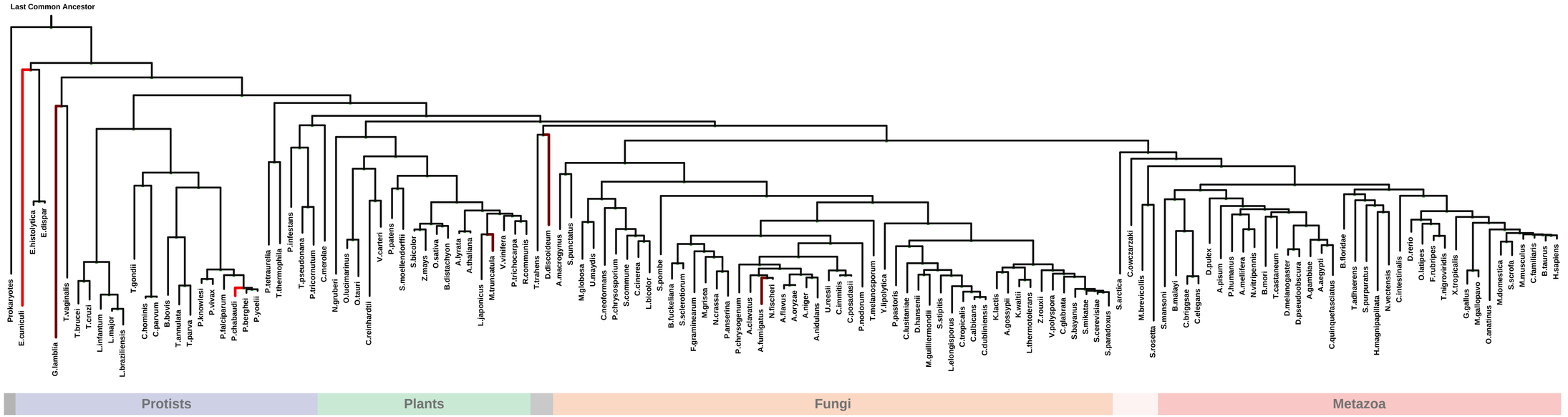


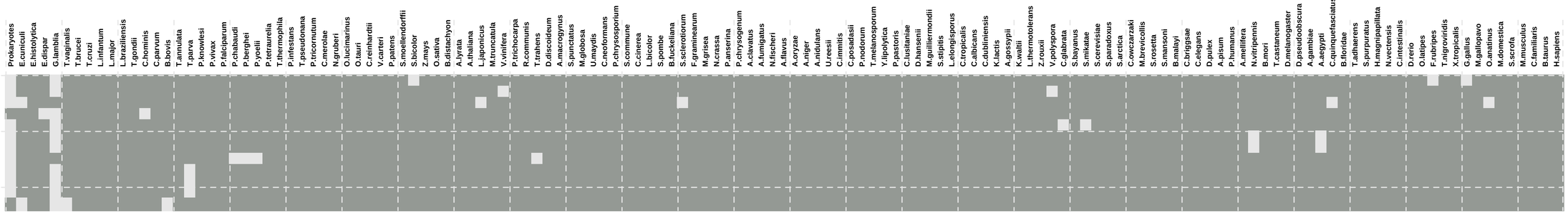
1: mitochondrial respiratory chain complex III || 2: nuclear matrix || 3: extrinsic to internal side of plasma membrane || 4: heterotrimeric G-protein complex || 5: nuclear envelope || 6: midbody || 7: nuclear speck || 8: microtubule cytoskeleton ||
9: PML body || 10: cleavage furrow || 11: early endosome || 12: acrosomal vesicle || 13: synaptic vesicle membrane || 14: early endosome membrane || 15: Golgi stack || 16: membrane raft || 17: recycling endosome membrane ||
18: trans-Golgi network || 19: trans-Golgi network membrane || 20: axon || 21: presynaptic membrane || 22: late endosome membrane || 23: lysosomal membrane || 24: SNARE complex || 25: PcG protein complex || 26: cell projection ||

ECM 1, Gene set "integral to endoplasmic reticulum membrane", Page 15

Num of ECM Genes: 2. Num of Predicted Genes: 500. ECM Strength: 1.3

PRESENCE ABSENCE
GAIN LOSS
Log-likelihood Ratio Scale
0 10 20 30 40 50 60



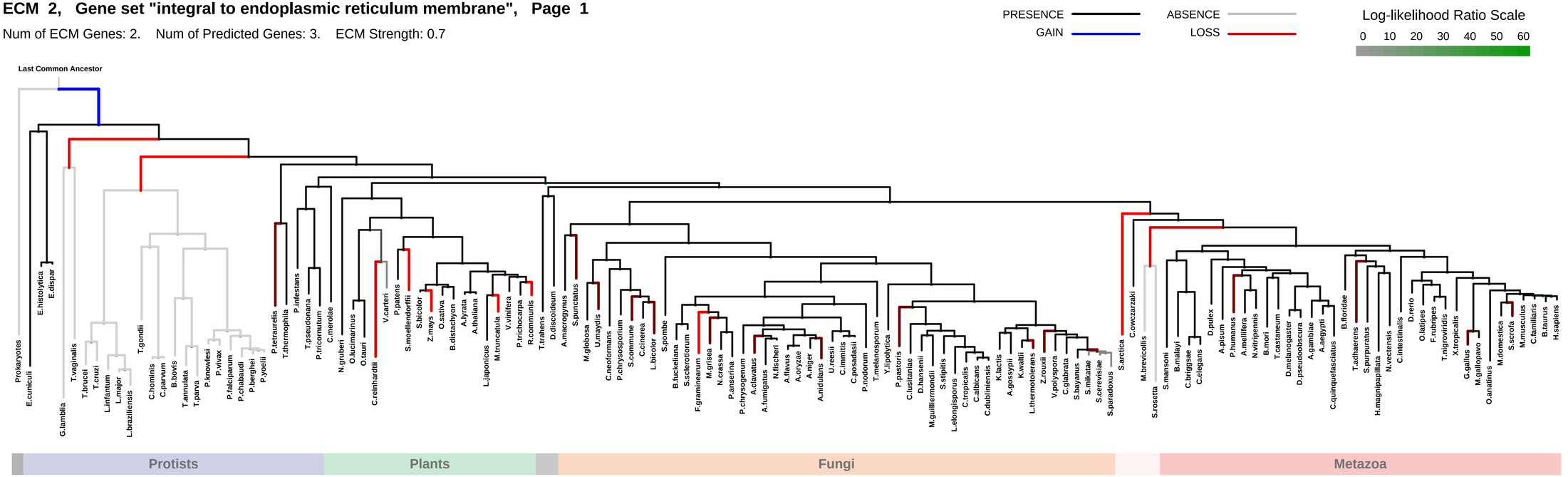


PG	Protein	LLR	Notes
	PSMD13	2.4	1 / 2 / 3
	UBE4A	2.3	4
	BYSL	2.3	
	WDR74	2.3	
	RNF43	2.3	5
	COPG2	2.3	6
	COPG1	2.3	6
	PPAN-P2RY11	2.2	
	CUL4A	2.2	7 / 8
	DGKA	2.2	
	CUL2	2.2	9
J	HSD17B4	2.2	10 / 11 / 12

1: proteasome accessory complex || 2: proteasome complex || 3: proteasome regulatory particle || 4: ubiquitin ligase complex || 5: nuclear envelope || 6: COPI vesicle coat || 7: Cul4A-RING ubiquitin ligase complex || 8: Cul4-RING ubiquitin ligase complex ||
9: Cul2-RING ubiquitin ligase complex || 10: peroxisomal matrix || 11: peroxisomal membrane || 12: peroxisome

ECM 2, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 2. Num of Predicted Genes: 3. ECM Strength: 0.7



PG	Protein	LLR	Notes
	MBOAT4		1
A	PORCN		1
A	MBOAT7	44.8	
A	MBOAT2	6.5	
A	MBOAT1	6.5	

1: integral to endoplasmic reticulum membrane

ECM 3, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

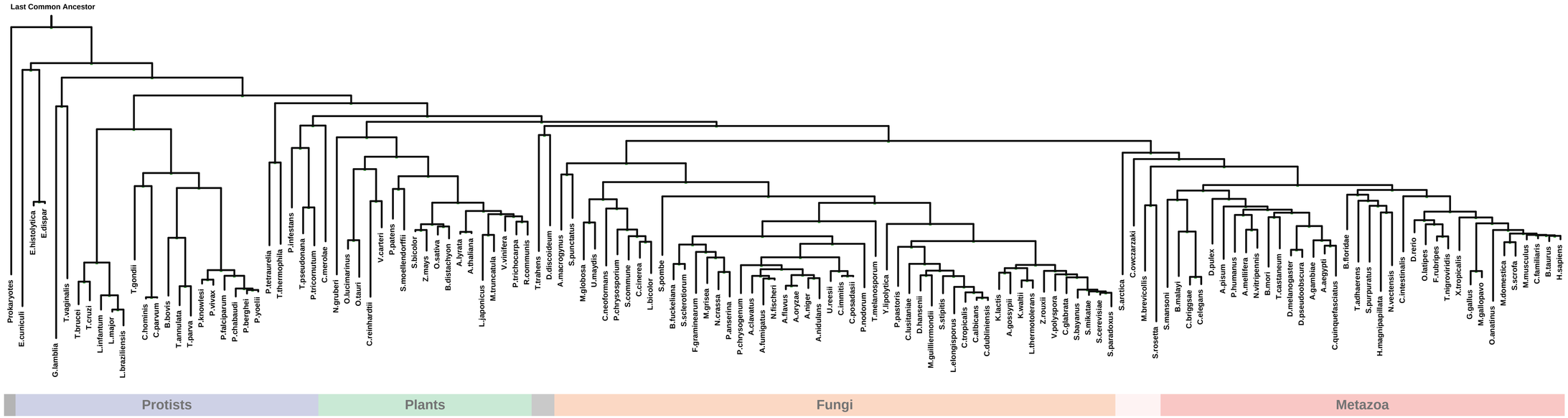
1: dendrite || 2: growth cone || 3: integral to endoplasmic reticulum membrane

ECM 4, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

PRESENCE — GAIN — ABSENCE — LOSS

Log-likelihood Ratio Scale
0 10 20 30 40 50 60



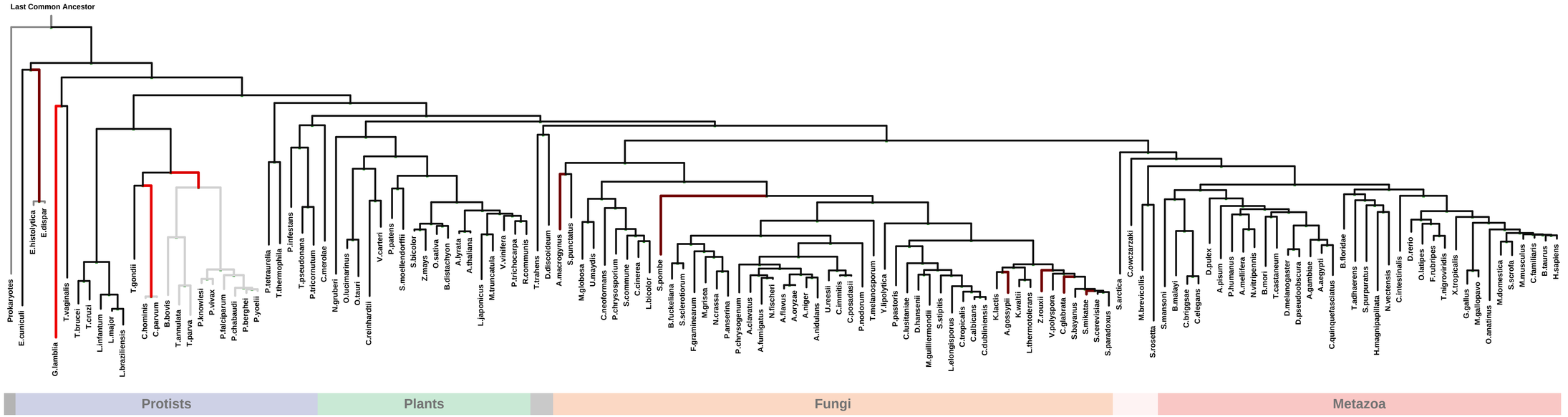
PG	Protein	LLR	Notes
A	ABCB9		1 / 2 / 3 / 4
	ERN1		2 / 5
	FKBP8		2 / 6 / 7
	SEC61A1		2
A	TAP1		2 / 4
A	TAP2		2 / 4

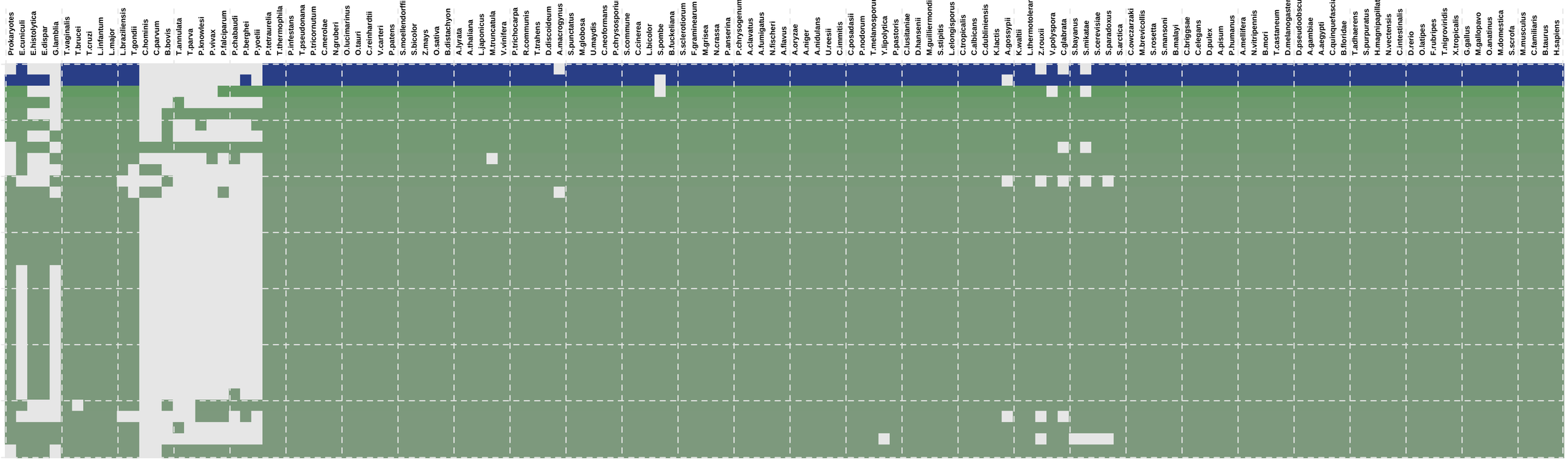
1: early endosome || 2: integral to endoplasmic reticulum membrane || 3: lysosomal membrane || 4: TAP complex || 5: nuclear inner membrane || 6: mitochondrial envelope || 7: mitochondrial membrane

ECM 5, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 2. Num of Predicted Genes: 326. ECM Strength: 0.0

PRESENCE ABSENCE
GAIN LOSS
Log-likelihood Ratio Scale
0 10 20 30 40 50 60



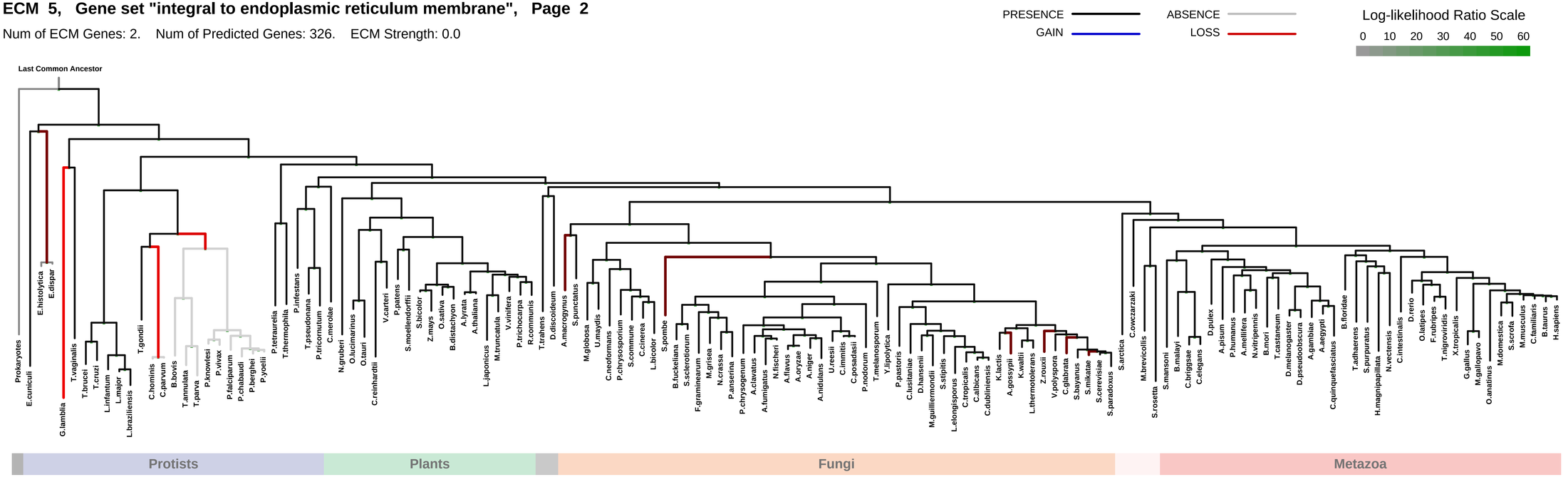


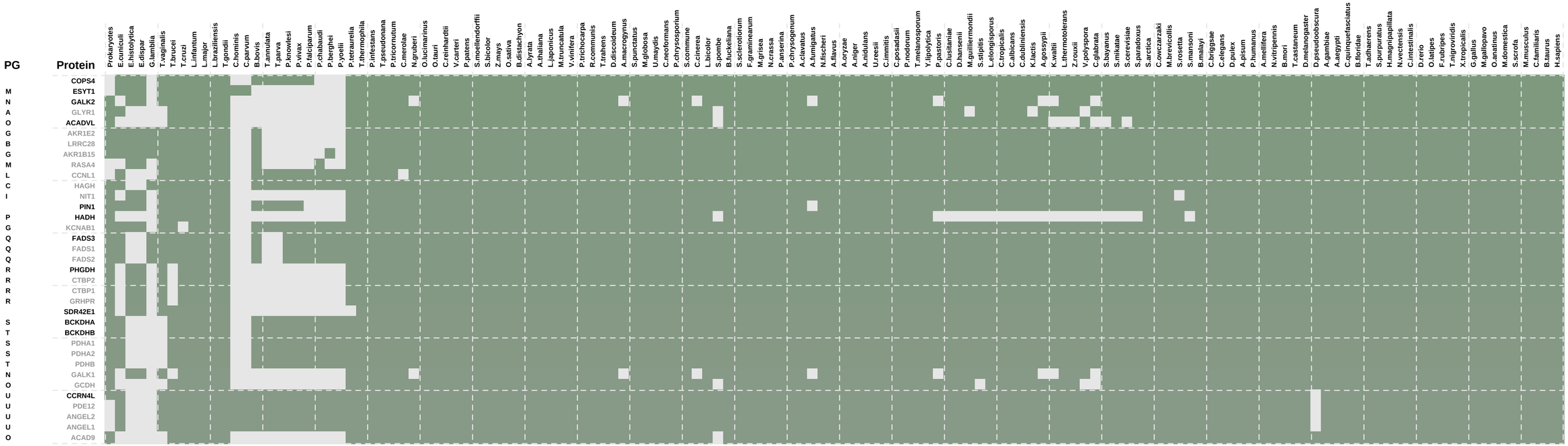
PG	Protein	LLR	Notes
	SLC35D1		1
	SGPL1		1
A	HIBADH	23.0	
B	LRRC10B	19.0	
C	HAGHL	17.1	
B	LRRC2	16.2	
	HSD11B2	15.9	
D	RNF43	15.9	2
E	DCTN1	13.9	3 / 4 / 5 / 6
F	CCNI2	13.9	
	LACTB2	13.7	
	CDC16	12.5	7 / 8 / 9
G	AKR1C4	12.4	
G	AKR1D1	12.4	
G	AKR1B1	12.4	
	AKR1C2	12.4	
G	AKR1C2	12.4	
G	AKR1C3	12.4	
H	ALDH3A2	12.4	10
	CTH	12.4	
H	ALDH3B2	12.4	
H	ALDH4A1	12.4	
H	ALDH5A1	12.4	
H	ALDH6A1	12.4	
H	ALDH7A1	12.4	
H	ALDH8A1	12.4	
	CBS	12.4	
I	NIT2	12.4	
H	ALDH3A1	12.4	
H	ALDH1L1	12.4	
J	ACAA1	12.3	10 / 11
K	EPHX2	12.1	10 / 12
G	AKR1C1	12.0	
B	AMIGO2	11.8	
L	CCNK	11.8	

1: integral to endoplasmic reticulum membrane || 2: nuclear envelope || 3: cell leading edge || 4: cytoplasmic dynein complex || 5: kinetochore || 6: spindle pole || 7: anaphase-promoting complex || 8: spindle || 9: spindle microtubule ||
10: peroxisome || 11: peroxisomal matrix || 12: focal adhesion

ECM 5, Gene set "integral to endoplasmic reticulum membrane", Page 2

Num of ECM Genes: 2. Num of Predicted Genes: 326. ECM Strength: 0.0



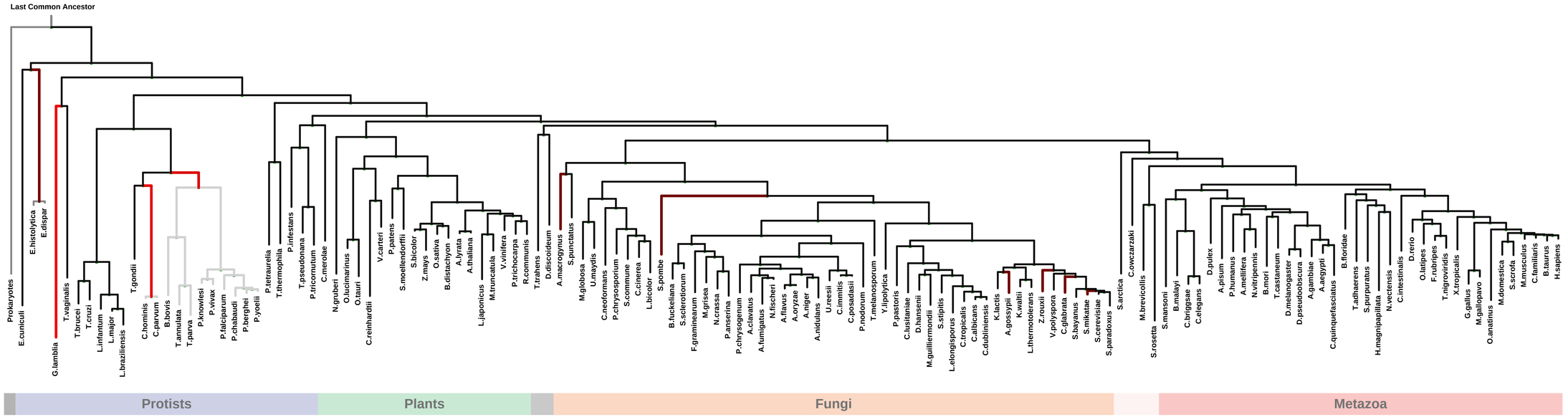


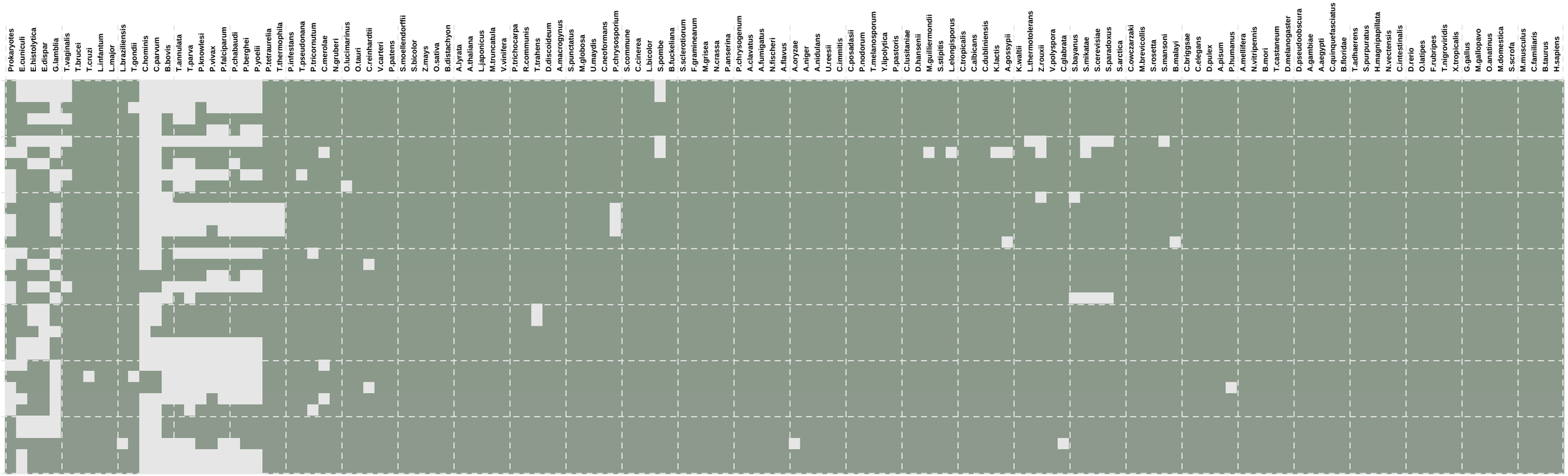
1: signalosome || 2: mitochondrial nucleoid || 3: intrinsic to internal side of plasma membrane || 4: nuclear speck || 5: midbody || 6: synapse || 7: transcriptional repressor complex || 8: peroxisomal matrix || 9: mitochondrial alpha-ketoglutarate dehydrogenase complex || 10: pyruvate dehydrogenase complex || 11: dendrite

ECM 5, Gene set "integral to endoplasmic reticulum membrane", Page 3

Num of ECM Genes: 2. Num of Predicted Genes: 326. ECM Strength: 0.0

PRESENCE ABSENCE
GAIN LOSS
Log-likelihood Ratio Scale
0 10 20 30 40 50 60

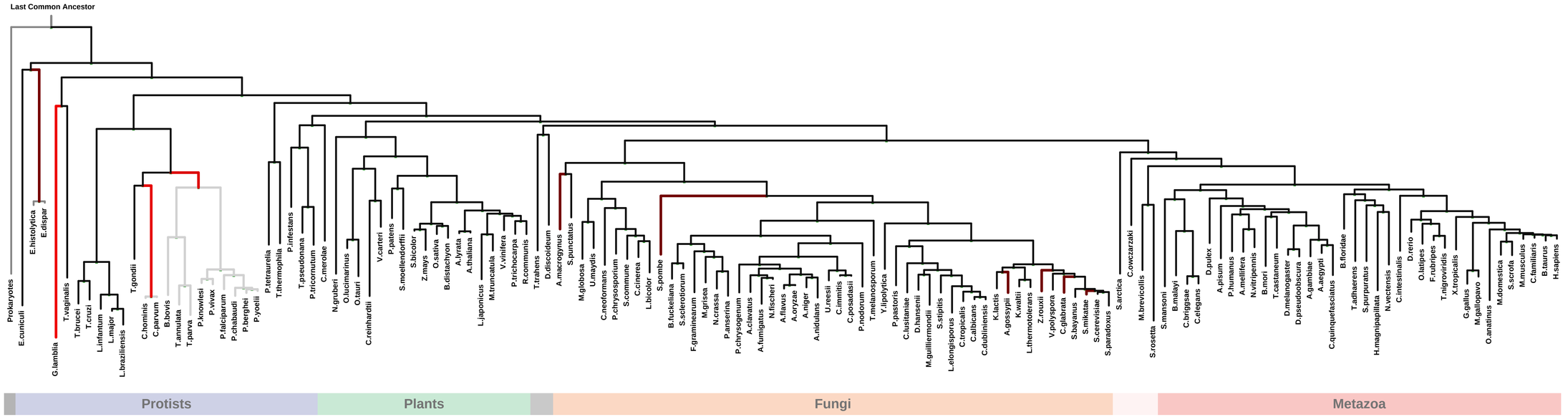




1: axon || 2: mitochondrial membrane || 3: mitochondrial envelope || 4: mitochondrial fatty acid beta-oxidation multienzyme complex || 5: mitochondrial nucleoid || 6: mitochondrial outer membrane || 7: cilium || 8: cytoplasmic membrane-bounded vesicle || 9: endosome || 10: microtubule basal body || 11: nuclear membrane || 12: adherens junction || 13: lysosomal membrane || 14: synaptic vesicle membrane || 15: nuclear speck || 16: lysosome || 17: proteinaceous extracellular matrix || 18: endocytic vesicle || 19: intercellular canaliculus || 20: invadopodium membrane || 21: lamellipodium || 22: lamellipodium membrane || 23: membrane raft

ECM 5, Gene set "integral to endoplasmic reticulum membrane", Page 4

Num of ECM Genes: 2. Num of Predicted Genes: 326. ECM Strength: 0.0

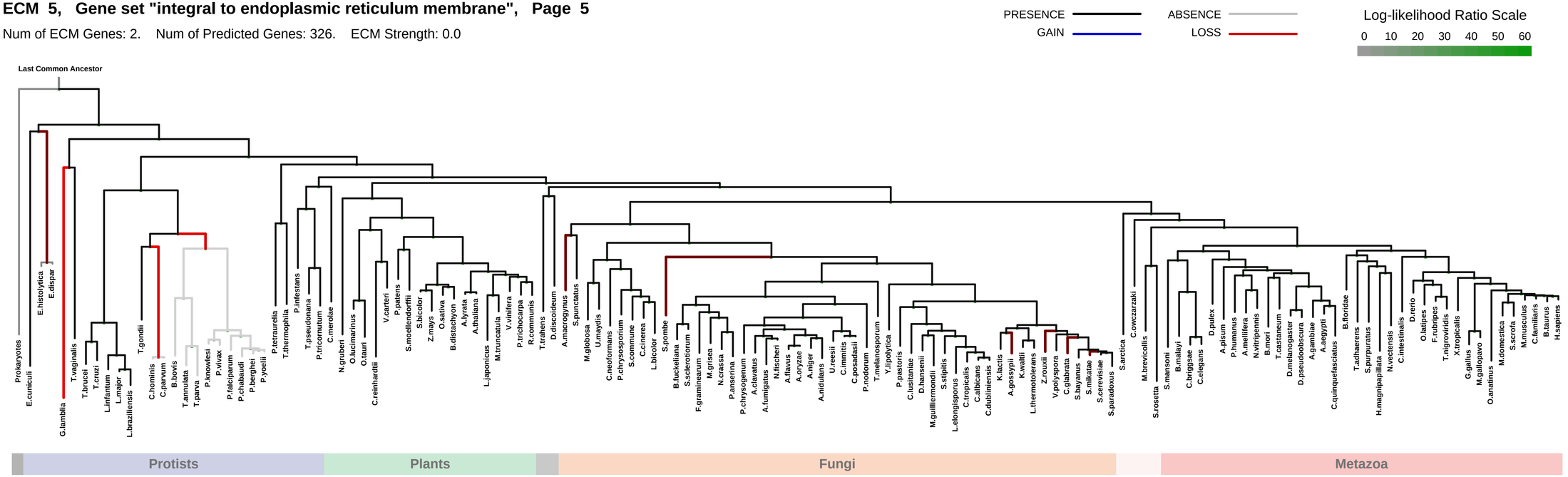


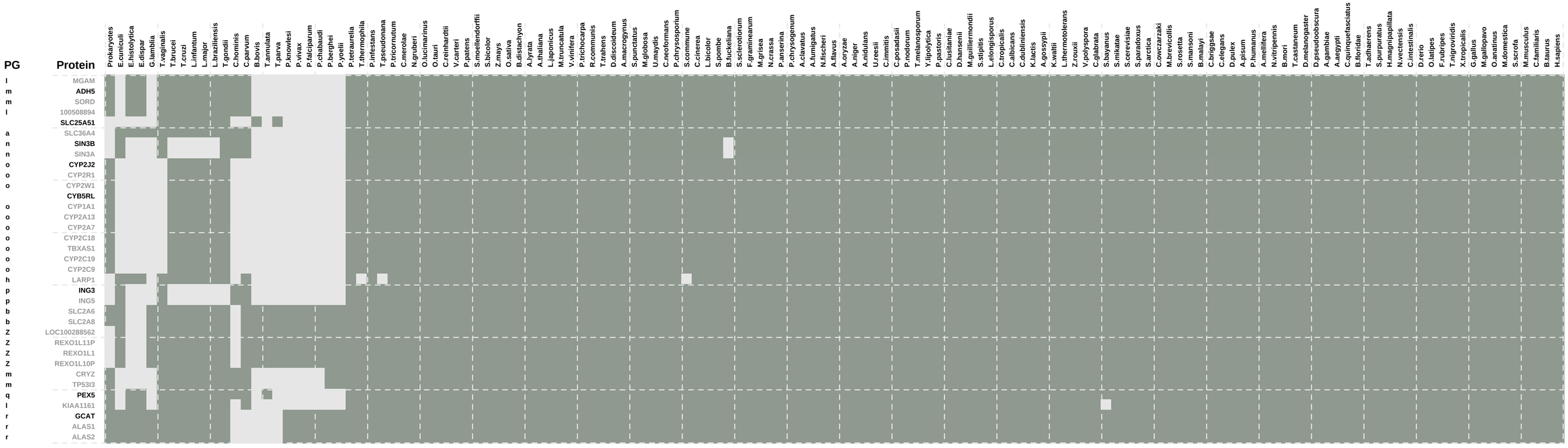
PG	Protein	LLR	Notes
e	ACCSL	5.4	
e	ACCS	5.4	
H	ALDH3B1	5.4	
H	ALDH2	5.4	
e	CCBL1	5.4	
e	GPT	5.4	
e	TAT	5.4	
e	GPT2	5.4	
J	ACAA2	5.4	
J	ACAT1	5.4	
J	ACAT2	5.4	
g	**FBP1**	**5.3**	
g	FBP2	5.3	
E	TBCE	5.2	
F	CCND3	5.1	1
E	TBCB	5.1	2
	JMJD4	**5.1**	
h	**LARP6**	**5.1**	3
B	LRSAM1	5.0	4
	ECI1	**5.0**	
d	SUCLG1	4.9	
	IDE	**4.9**	5 / 6 / 7
i	**PUM2**	**4.9**	8
i	PUM1	4.9	
	RANBP10	**4.9**	9
	CNDP1	**4.8**	
B	LRCH4	4.8	10
	KIAA0141	**4.7**	
j	**ABHD3**	**4.6**	
H	ALDH1A2	4.6	
k	**ALG11**	**4.6**	
H	ALDH1A3	4.6	
l	**GANAB**	**4.6**	11 / 12
l	SI	4.6	13 / 14
l	GANC	4.6	

1: cyclin-dependent protein kinase holoenzyme complex || 2: microtubule cytoskeleton || 3: ribonucleoprotein complex || 4: membrane part || 5: cytosolic proteasome complex || 6: peroxisomal matrix || 7: peroxisome || 8: cytoplasmic stress granule ||
9: cytoplasmic microtubule || 10: PML body || 11: endoplasmic reticulum lumen || 12: melanosome || 13: brush border || 14: membrane raft

ECM 5, Gene set "integral to endoplasmic reticulum membrane", Page 5

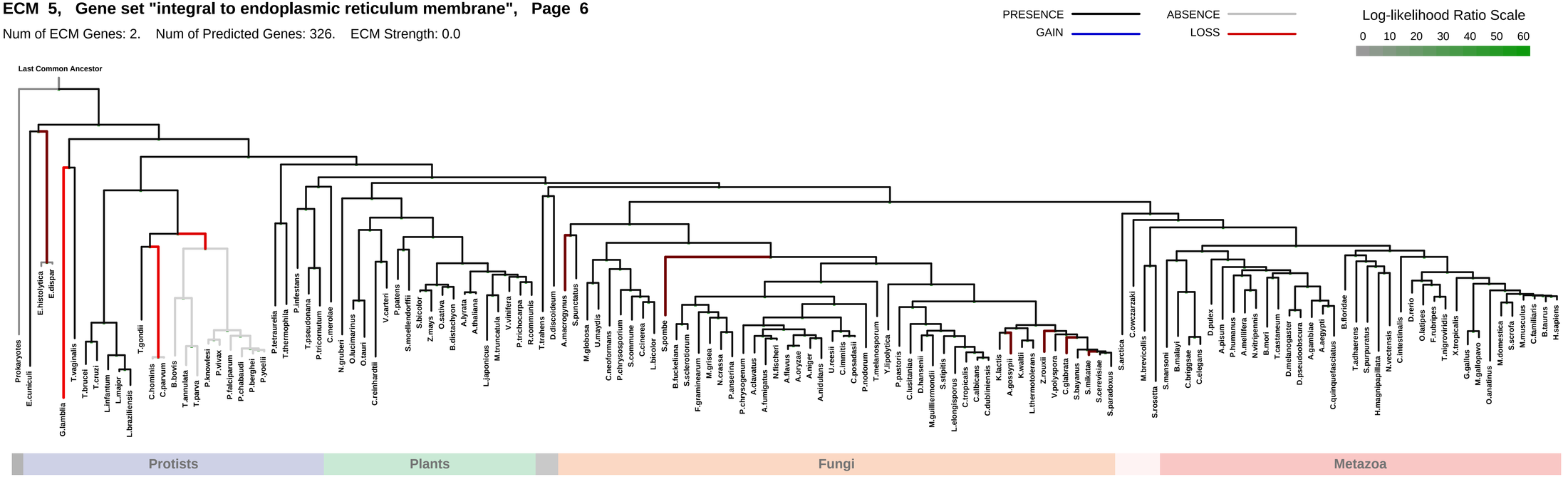
Num of ECM Genes: 2. Num of Predicted Genes: 326. ECM Strength: 0.0

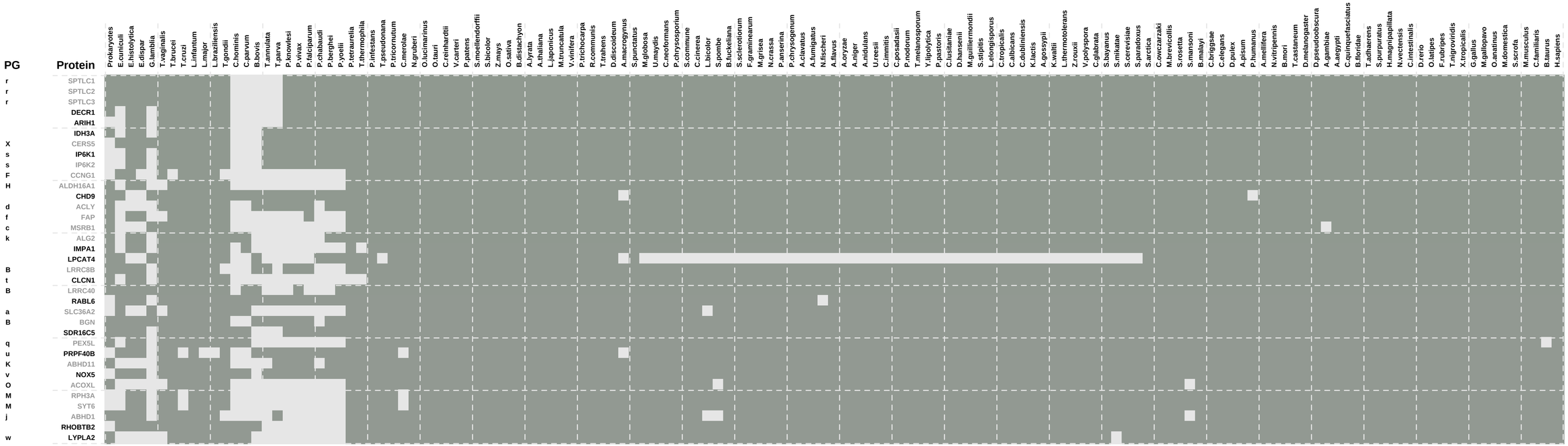




ECM 5, Gene set "integral to endoplasmic reticulum membrane", Page 6

Num of ECM Genes: 2. Num of Predicted Genes: 326. ECM Strength: 0.0

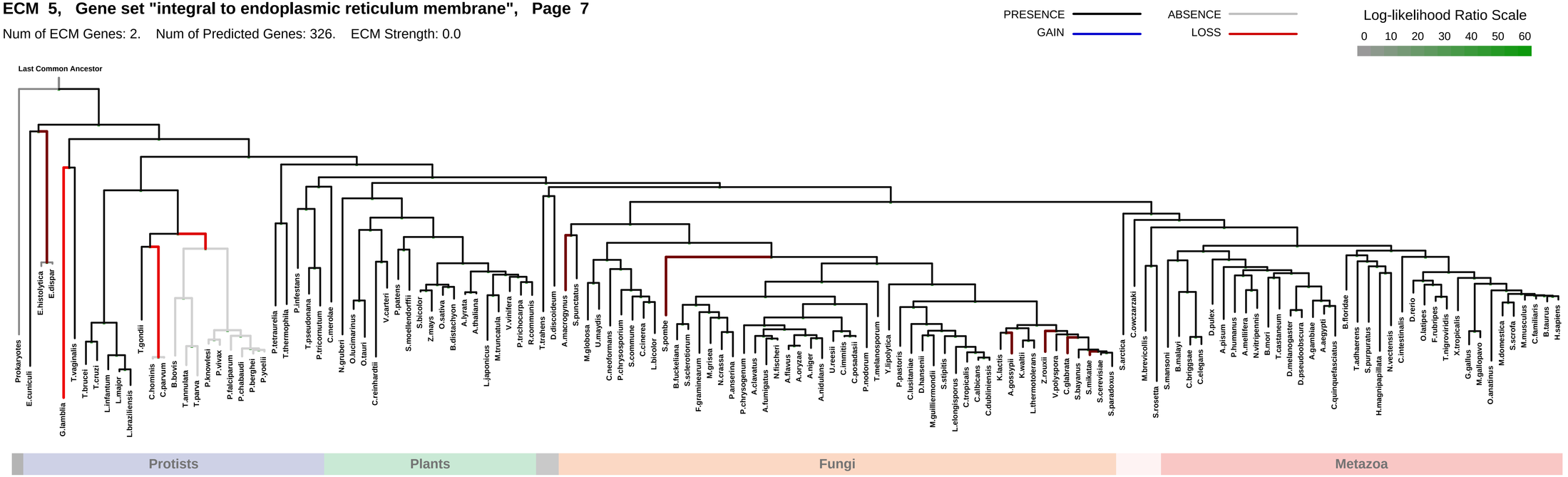




1: serine C-palmitoyltransferase complex || 2: SPOTS complex || 3: ubiquitin ligase complex || 4: nuclear membrane || 5: intermediate filament cytoskeleton || 6: dendrite || 7: citrate lyase complex || 8: invadopodium membrane ||
9: lamellipodium || 10: lamellipodium membrane || 11: axon || 12: chloride channel complex || 13: sarcolemma || 14: extracellular matrix || 15: Golgi lumen || 16: lysosomal lumen || 17: proteinaceous extracellular matrix ||
18: transport vesicle || 19: cell tip || 20: intracellular cyclic nucleotide activated cation channel complex || 21: peroxisomal membrane || 22: nuclear speck || 23: peroxisome || 24: extrinsic to membrane || 25: secretory granule ||

ECM 5, Gene set "integral to endoplasmic reticulum membrane", Page 7

Num of ECM Genes: 2. Num of Predicted Genes: 326. ECM Strength: 0.0

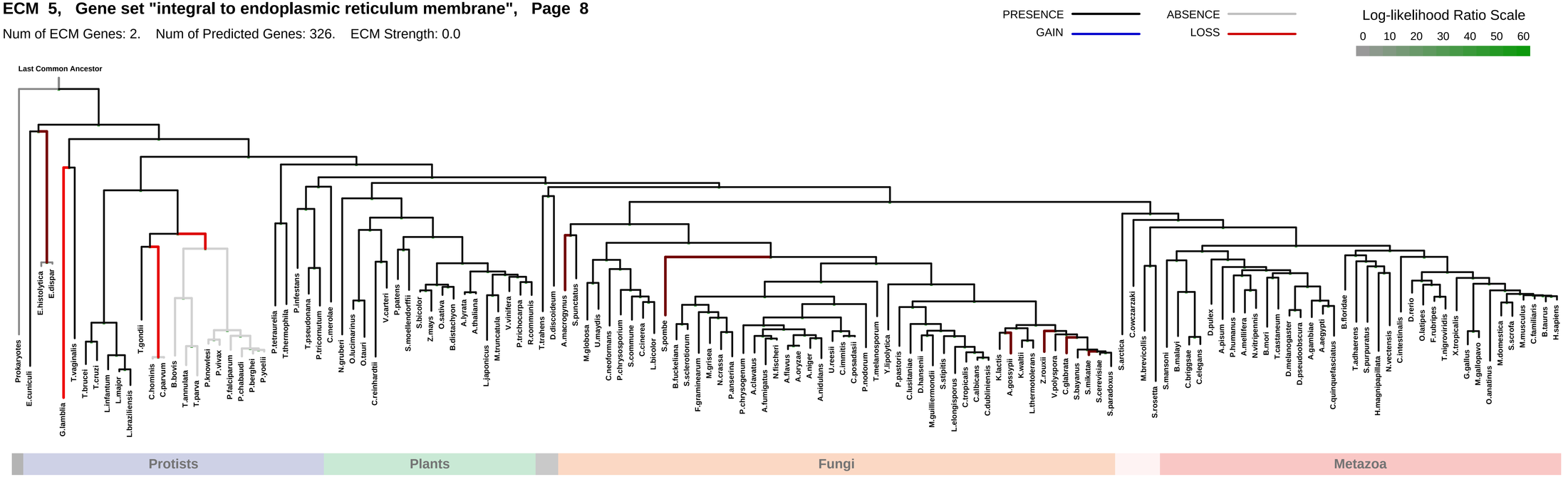


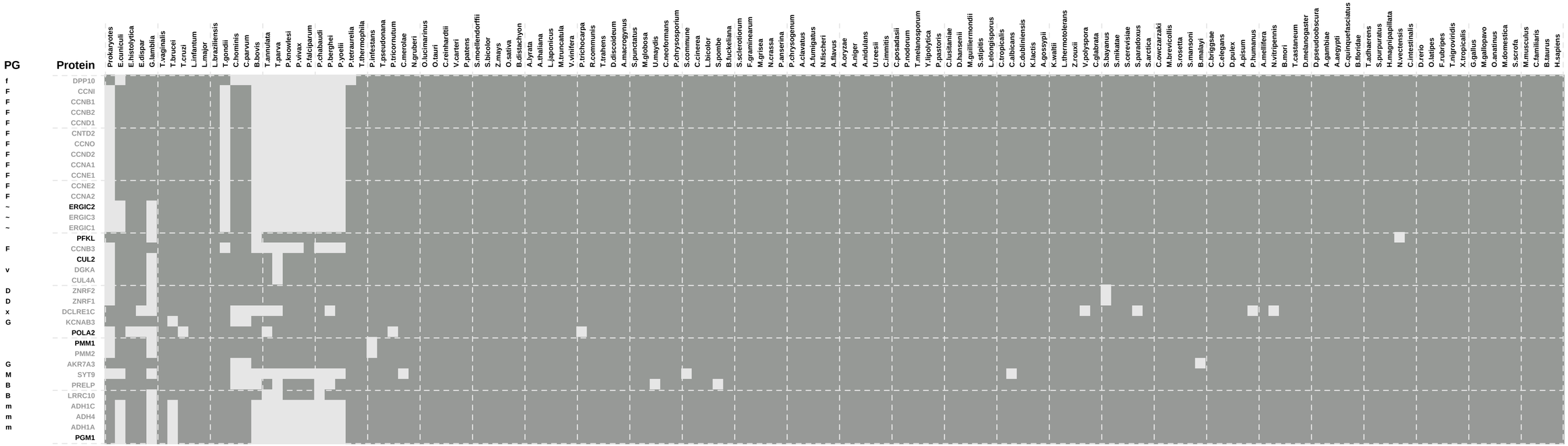
PG	Protein	LLR	Notes
w	LYPLAL1	2.8	
w	LYPLA1	2.8	
x	DCLRE1B	2.8	1
	MCM3AP	2.8	
G	AKR1B10	2.7	2
	RBM14-RBM4	2.6	
y	NOS3	2.5	3 / 4 / 5
	PCGF3	2.4	6
	PRKAG3	2.4	7
B	LRRC27	2.3	
	VPS54	2.3	8
z	MEIS3	2.3	
z	MEIS1	2.3	
z	MEIS2	2.3	
M	ESYT3	2.2	
	MYSM1	2.2	9
X	CERS2	2.2	10
	SPAG6	2.2	11 / 12 / 13 / 14
	WDR34	2.2	
Z	LOC81691	2.2	
Z	ISG20L2	2.2	
	ARPC1B	2.1	15 / 16
	SSRP1	2.1	17
G	KCNAB2	2.0	18
	RRM1	2.0	19
M	SYT2	2.0	5 / 20 / 21
{	SHMT1	1.9	
{	SHMT2	1.9	14 / 22 / 23
K	EPHX4	1.8	
|	E2F7	1.7	
|	E2F1	1.7	24
|	E2F2	1.7	
}	TFDP1	1.7	
}	TFDP3	1.7	
	NLRP1	1.7	25

1: chromosome, telomeric region || 2: lysosome || 3: apical part of cell || 4: caveola || 5: endocytic vesicle membrane || 6: PcG protein complex || 7: AMP-activated protein kinase complex || 8: GARP complex || 9: chromatin remodeling complex ||
10: nuclear membrane || 11: axoneme || 12: cilium || 13: flagellum || 14: microtubule cytoskeleton || 15: actin cytoskeleton || 16: Arp2/3 protein complex || 17: chromosome || 18: juxtaparanode region of axon || 19: ribonucleoside-diphosphate reductase complex ||
20: chromaffin granule membrane || 21: synaptic vesicle membrane || 22: mitochondrial intermembrane space || 23: mitochondrial nucleoid || 24: Rb-E2F complex || 25: NLRP1 inflammasome complex

ECM 5, Gene set "integral to endoplasmic reticulum membrane", Page 8

Num of ECM Genes: 2. Num of Predicted Genes: 326. ECM Strength: 0.0



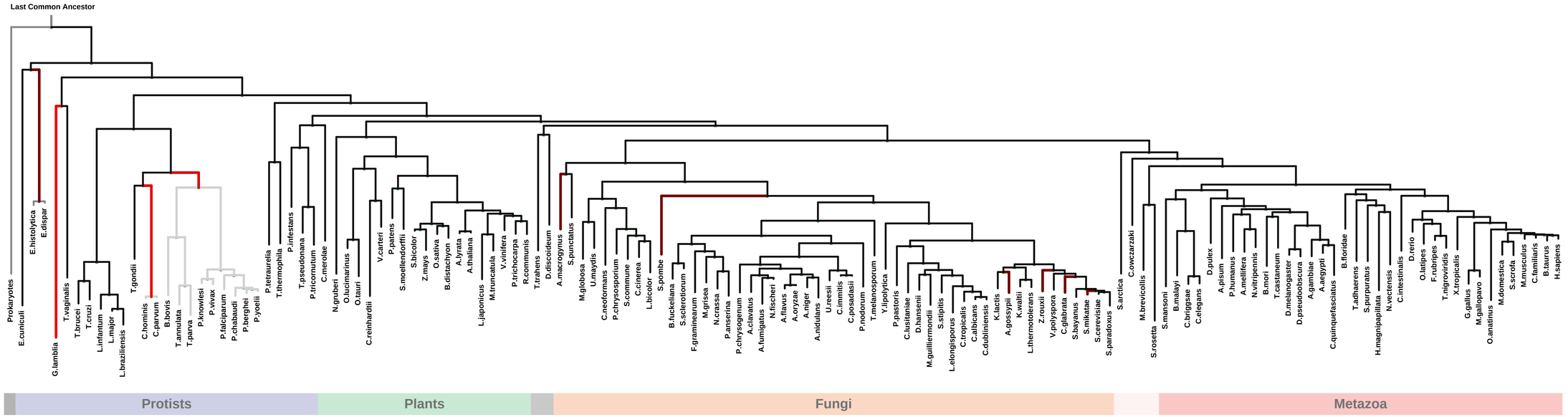


1: condensed nuclear chromosome outer kinetochore || 2: spindle pole || 3: microtubule cytoskeleton || 4: cyclin-dependent protein kinase holoenzyme complex || 5: chromatin || 6: nuclear membrane || 7: female pronucleus || 8: male pronucleus ||
9: endoplasmic reticulum-Golgi intermediate compartment membrane || 10: endoplasmic reticulum-Golgi intermediate compartment || 11: 6-phosphofructokinase complex || 12: Cul2-RING ubiquitin ligase complex || 13: Cul4A-RING ubiquitin ligase complex ||
14: Cul4-RING ubiquitin ligase complex || 15: endosome membrane || 16: lysosomal membrane || 17: presynaptic membrane || 18: endosome || 19: lysosome || 20: synaptic vesicle membrane || 21: alpha DNA polymerase:primase complex ||

ECM 5, Gene set "integral to endoplasmic reticulum membrane", Page 9

Num of ECM Genes: 2. Num of Predicted Genes: 326. ECM Strength: 0.0

PRESENCE ABSENCE
GAIN LOSS
Log-likelihood Ratio Scale
0 10 20 30 40 50 60

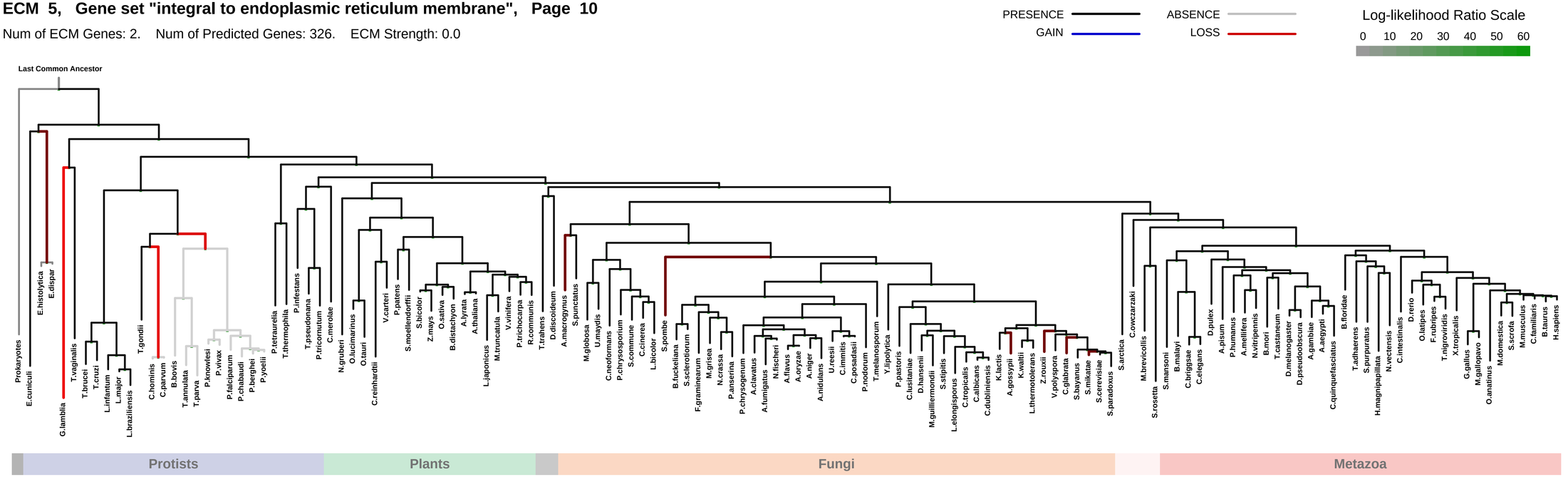


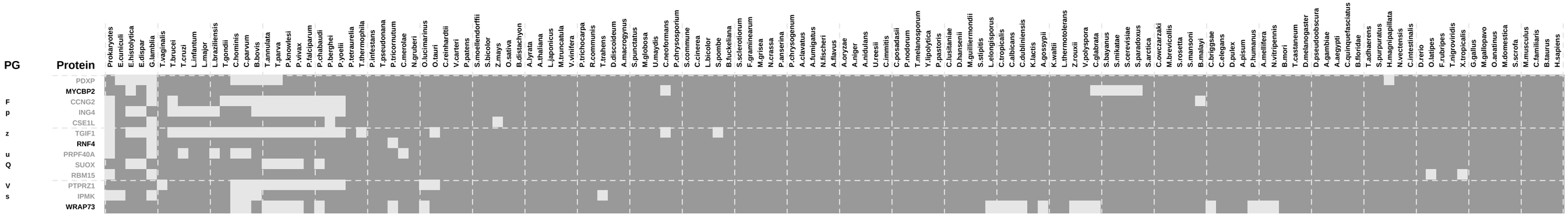
PG	Protein	LLR	Notes
m	ADH7	1.0	
m	ADH1B	1.0	
Q	CYB5A	1.0	1
Q	CYB5B	1.0	1
	G3BP1	1.0	
t	CLCN2	0.9	2 / 3 / 4
B	OMD	0.9	5 / 6 / 7
	FMN2	0.9	
	DAAM1	0.8	8
	DIAPH1	0.8	9 / 10
	INF2	0.8	
	DIAPH2	0.8	11
	DAAM2	0.8	
	MRPL3	0.8	12
	SPEN	0.8	13
G	AKR1A1	0.8	
l	GAA	0.7	14 / 15
P	CRYL1	0.6	
	BUD31	0.5	
	FGD3	0.5	16 / 17
	FGD4	0.5	16 / 17 / 18 / 19
	FGD6	0.5	16 / 17
	IPO7	0.5	20
	GGPS1	0.5	
y	NOS1	0.5	21 / 22 / 23 / 24
	100510614	0.5	
	SLC35B4	0.5	
	KMT2A	0.5	25 / 26
	EIF4G1	0.4	27
b	SLC2A3	0.4	
b	SLC2A14	0.4	
	DERL3	0.3	28
	HCN2	0.3	29 / 30 / 31 / 32
	CPSF1	0.3	33
	PGP	0.1	

1: mitochondrial outer membrane || 2: chloride channel complex || 3: dendrite || 4: perikaryon || 5: Golgi lumen || 6: lysosomal lumen || 7: proteinaceous extracellular matrix || 8: stress fiber || 9: mitotic spindle || 10: ruffle membrane ||
11: early endosome || 12: mitochondrial large ribosomal subunit || 13: transcriptional repressor complex || 14: lysosomal membrane || 15: lysosome || 16: lamellipodium || 17: ruffle || 18: actin cytoskeleton || 19: filopodium ||
20: nuclear pore || 21: dendritic spine || 22: photoreceptor inner segment || 23: sarcolemma || 24: sarcoplasmic reticulum || 25: histone methyltransferase complex || 26: MLL1 complex || 27: eukaryotic translation initiation factor 4F complex ||

ECM 5, Gene set "integral to endoplasmic reticulum membrane", Page 10

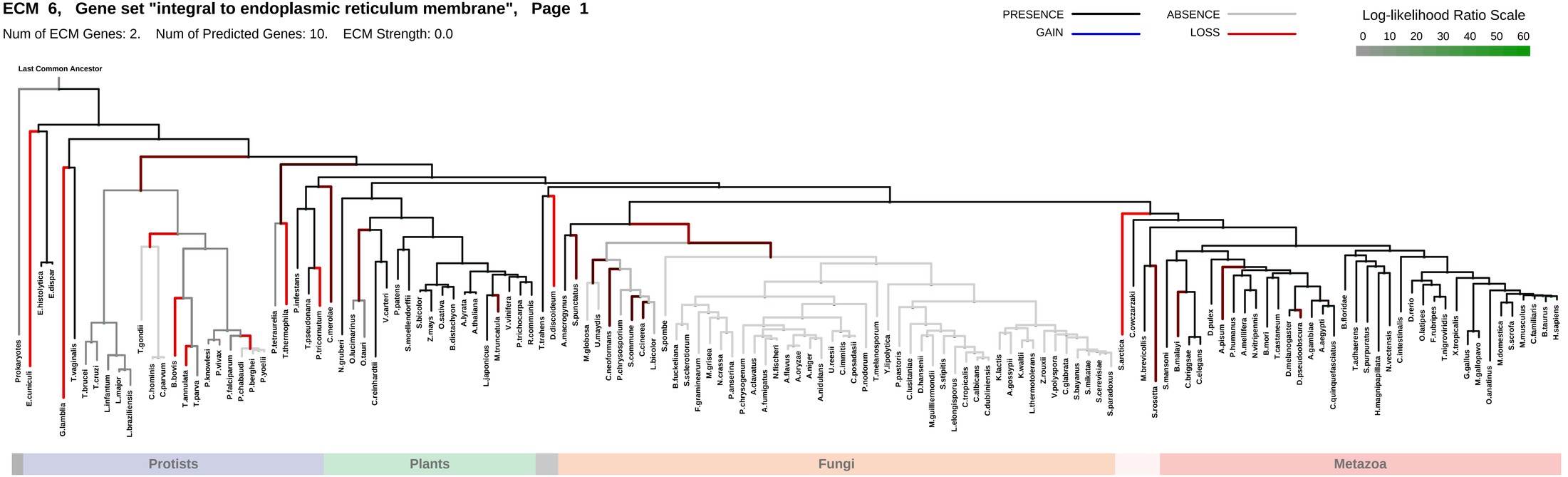
Num of ECM Genes: 2. Num of Predicted Genes: 326. ECM Strength: 0.0





ECM 6, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

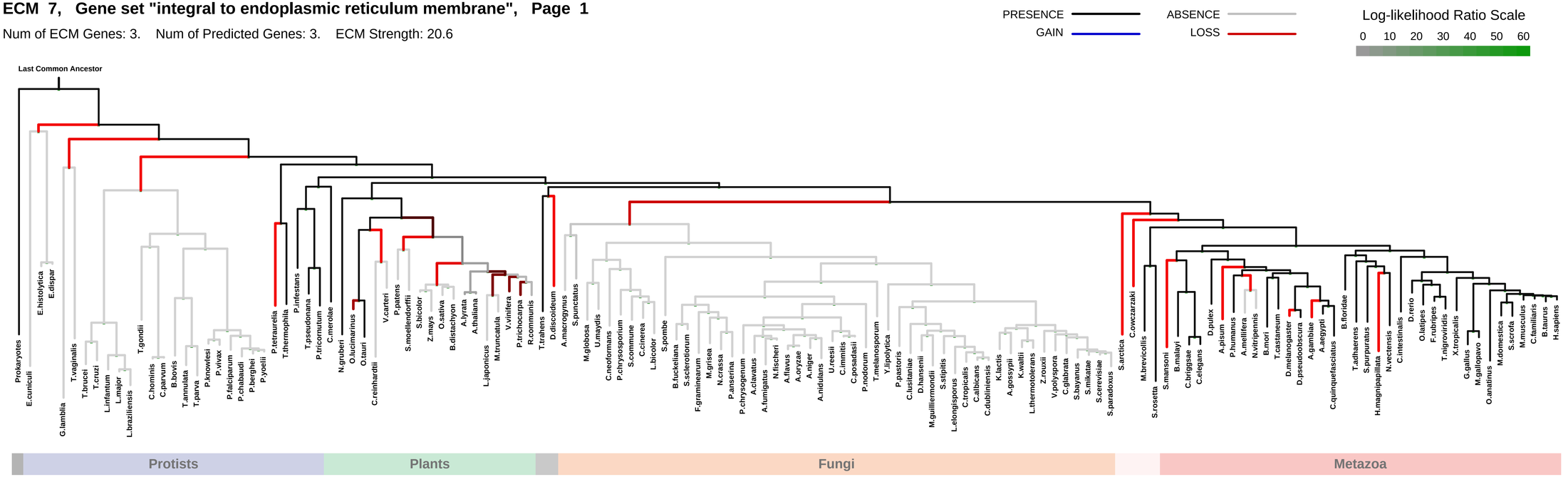


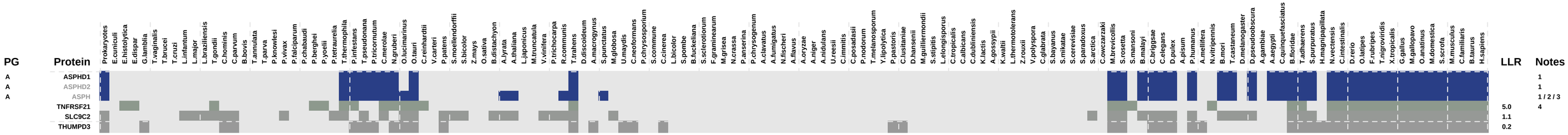
PG	Protein	LLR	Notes
A	SAMD8		1
	SLC37A4		1
A	SGMS2	28.9	2
A	SGMS1	18.5	2 / 3
	MDH1B	7.6	
	ARG2	6.6	
B	LGI4	5.7	
	MYOM2	5.1	4
B	LRRC52	4.9	
	IFIT1B	4.1	
	TDRD3	3.9	
	CYFIP2	1.7	5 / 6

1: integral to endoplasmic reticulum membrane || 2: integral to Golgi membrane || 3: Golgi trans cisterna || 4: myosin filament || 5: neuron projection || 6: synapse

ECM 7, Gene set "integral to endoplasmic reticulum membrane", Page 1

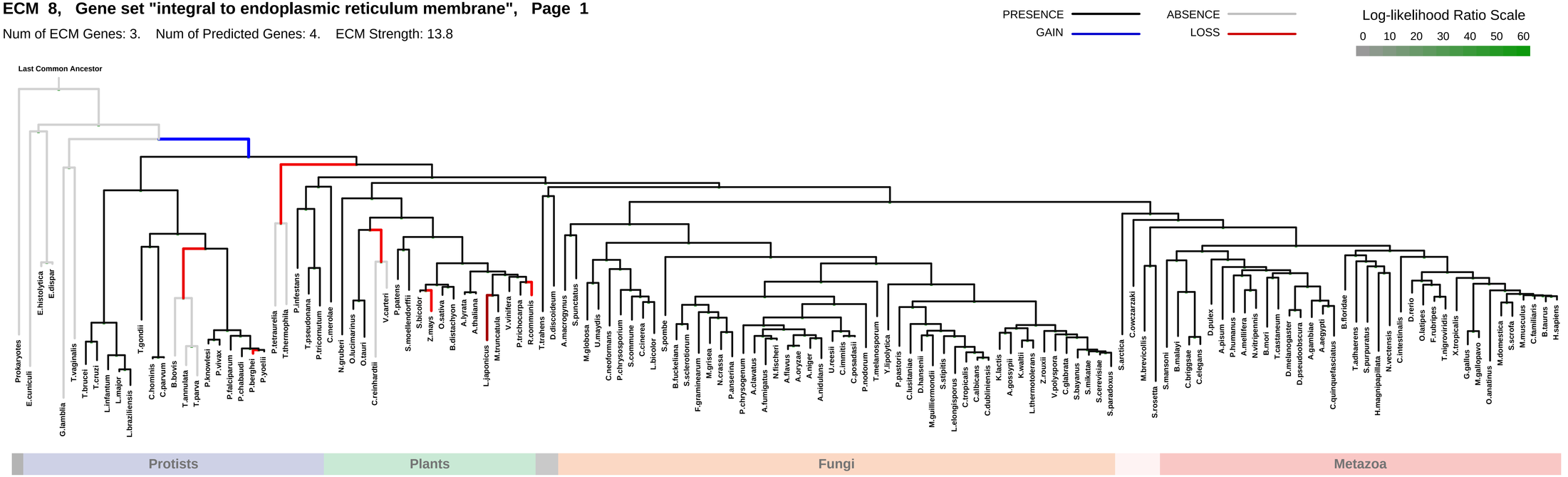
Num of ECM Genes: 3. Num of Predicted Genes: 3. ECM Strength: 20.6





ECM 8, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 3. Num of Predicted Genes: 4. ECM Strength: 13.8

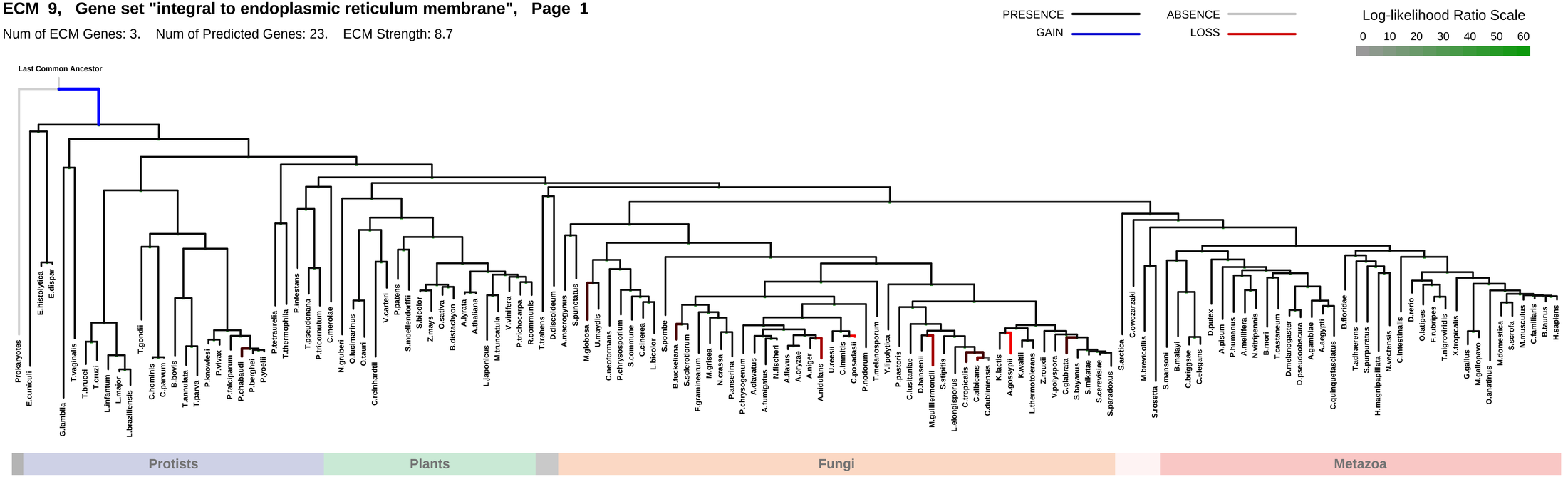


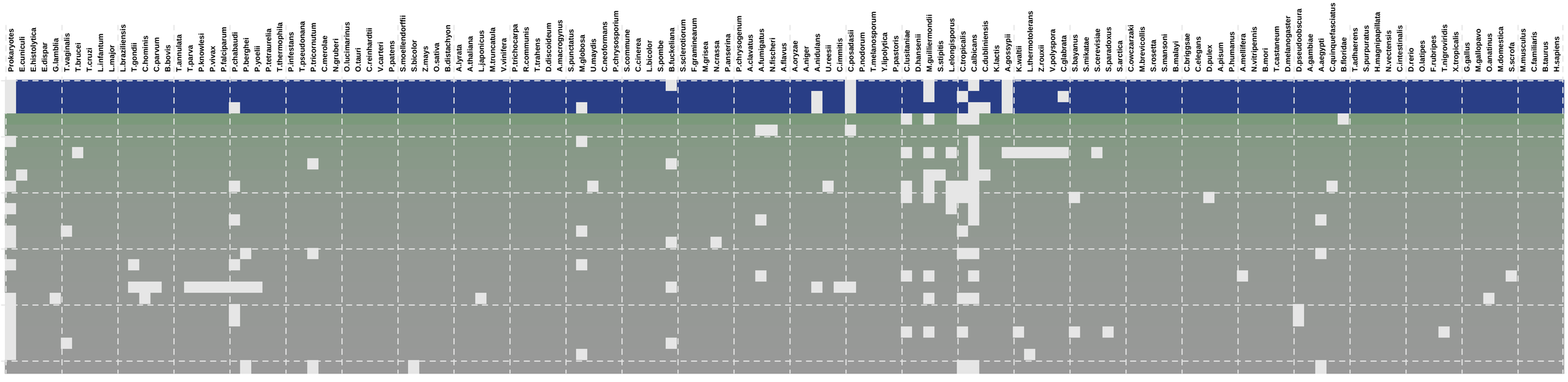
PG	Protein	LLR	Notes
A	ELOVL1		1
A	ELOVL4		1
A	ELOVL6		1
A	ELOVL2	51.9	
A	ELOVL5	51.9	
A	ELOVL3	45.4	
A	ELOVL7	45.4	

1: integral to endoplasmic reticulum membrane

ECM 9, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 3. Num of Predicted Genes: 23. ECM Strength: 8.7

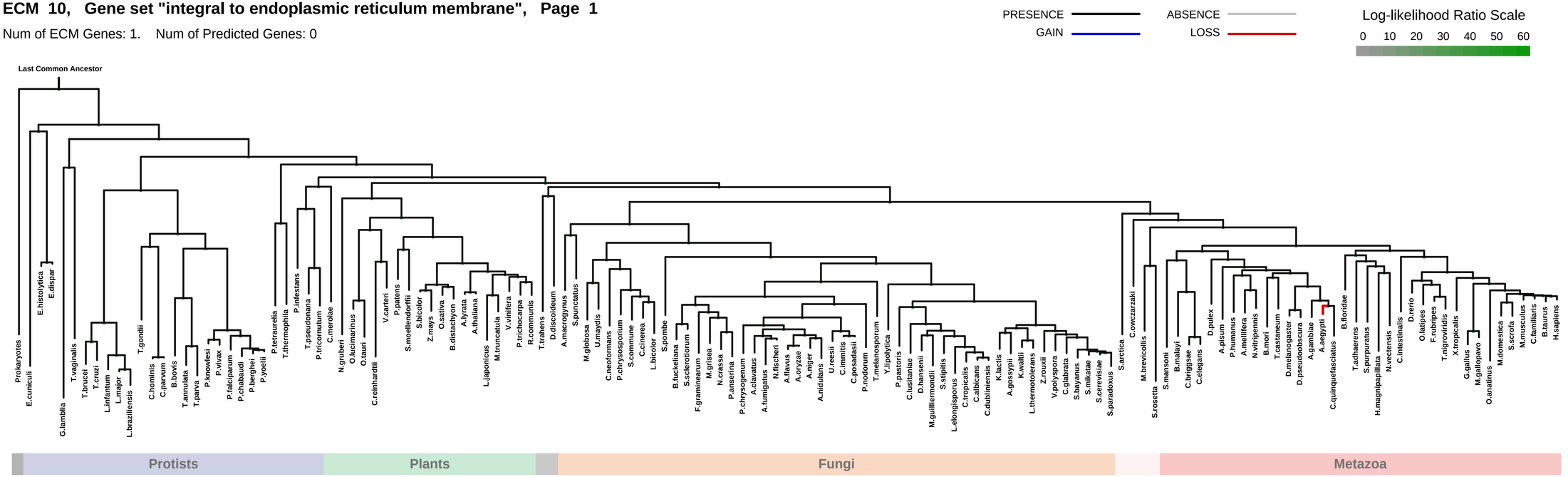




1: early endosome || 2: integral to endoplasmic reticulum membrane || 3: late endosome || 4: cytosolic small ribosomal subunit || 5: ribosome || 6: cytoplasmic membrane-bounded vesicle || 7: cytosolic large ribosomal subunit ||
8: vacuolar proton-transporting V-type ATPase, V1 domain || 9: TORC2 complex || 10: signalosome || 11: neuron projection || 12: ruffle || 13: ruffle membrane || 14: trans-Golgi network || 15: cilium axoneme || 16: Golgi cisterna membrane ||
17: small ribosomal subunit

ECM 10, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

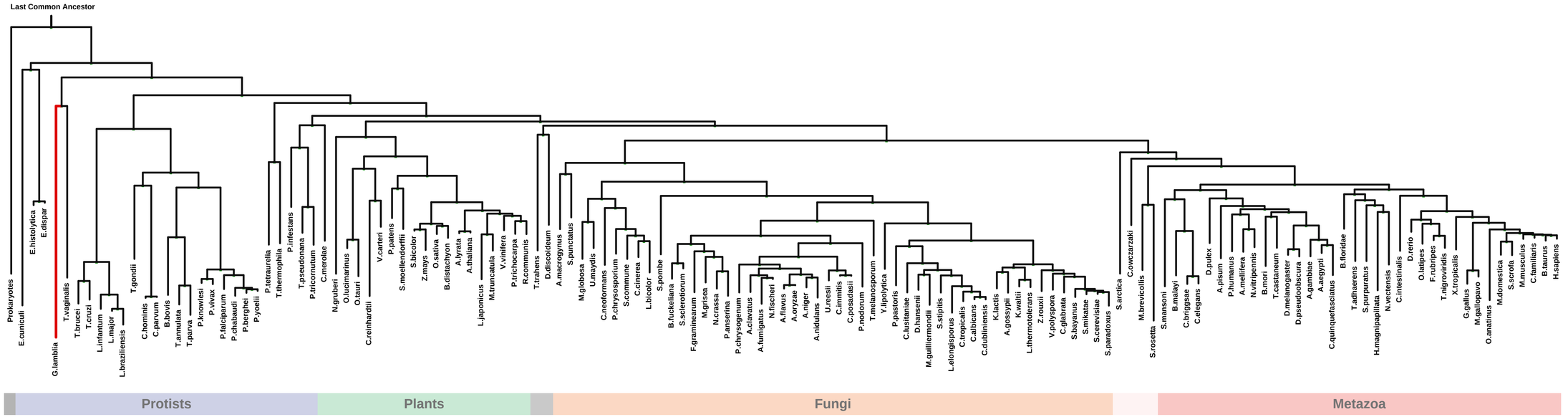


PG	Protein	LLR	Notes
	HSPA5		1 / 2 / 3 / 4 / 5 / 6 / 7

1: endoplasmic reticulum chaperone complex || 2: endoplasmic reticulum lumen || 3: endoplasmic reticulum-Golgi intermediate compartment || 4: integral to endoplasmic reticulum membrane || 5: melanosome || 6: midbody || 7: signalosome

ECM 11, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

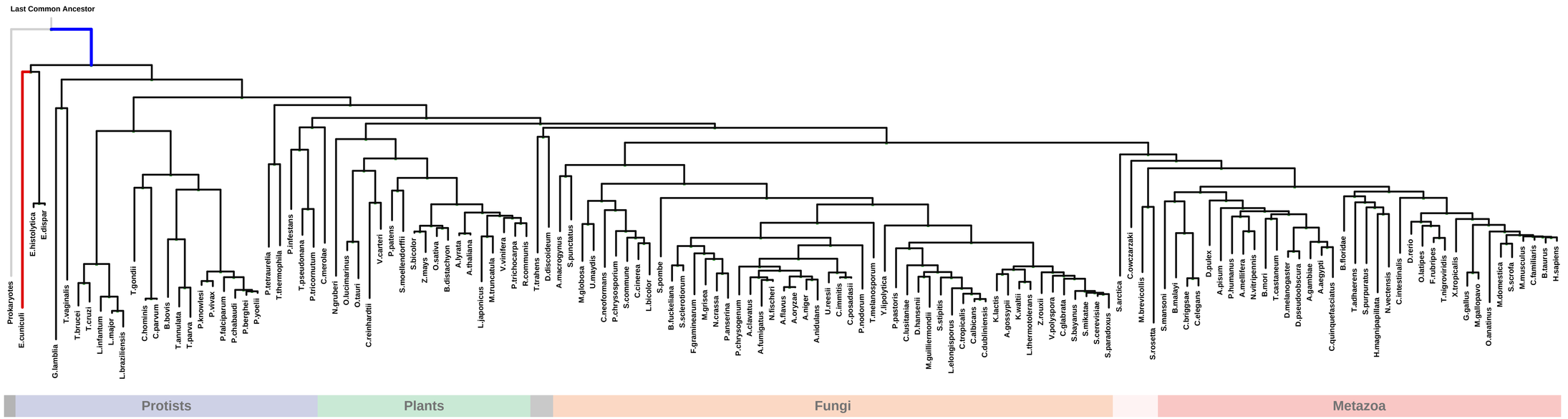


PG	Protein	LLR	Notes
	DHRS9		1

1: integral to endoplasmic reticulum membrane

ECM 12, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

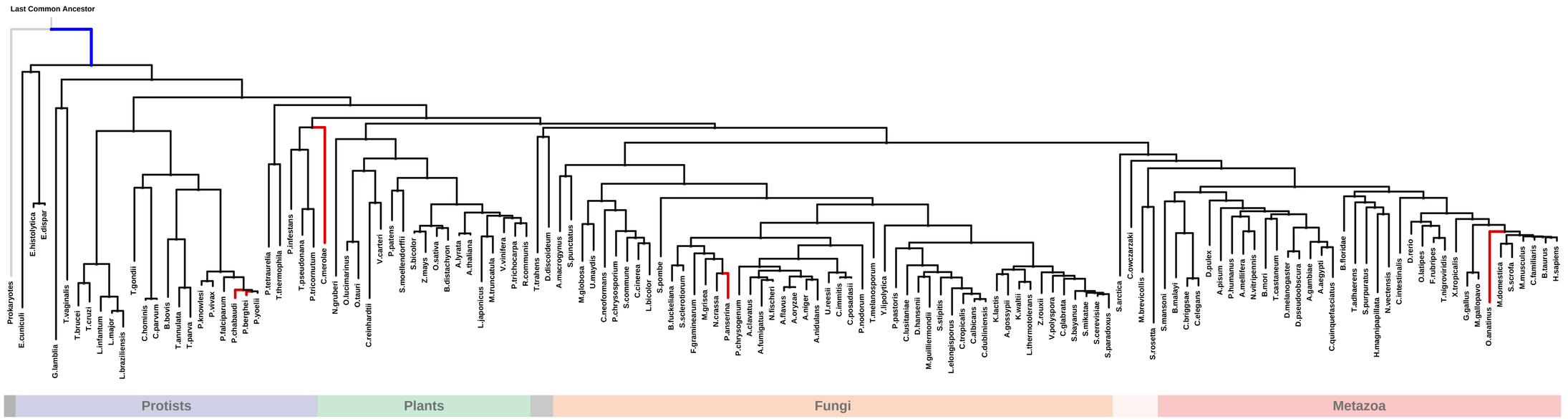


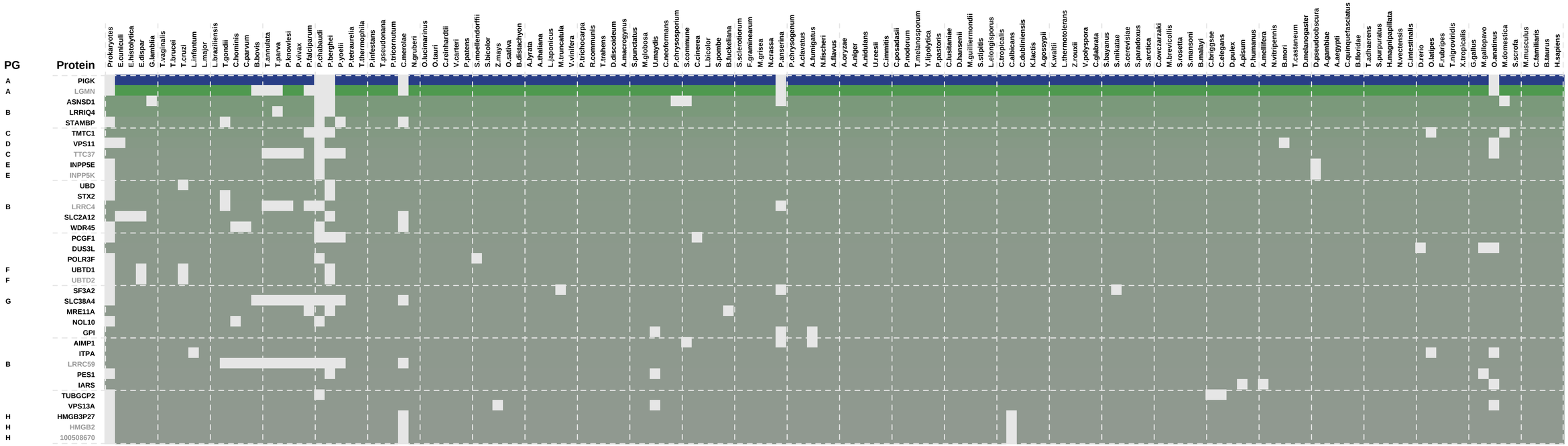
PG	Protein	LLR	Notes
	TECR		1

1: integral to endoplasmic reticulum membrane

ECM 13, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 106

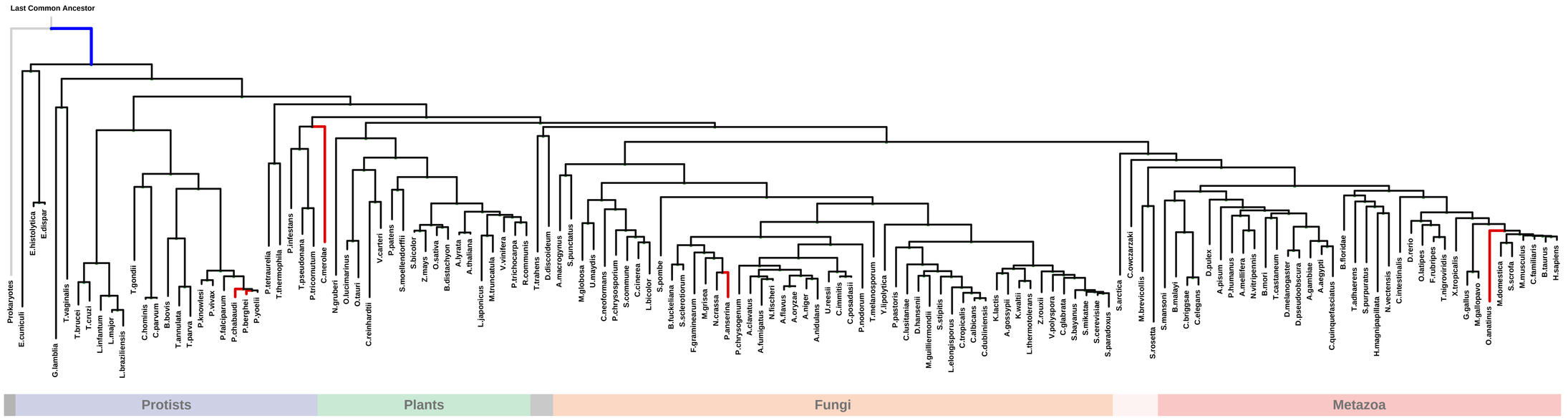


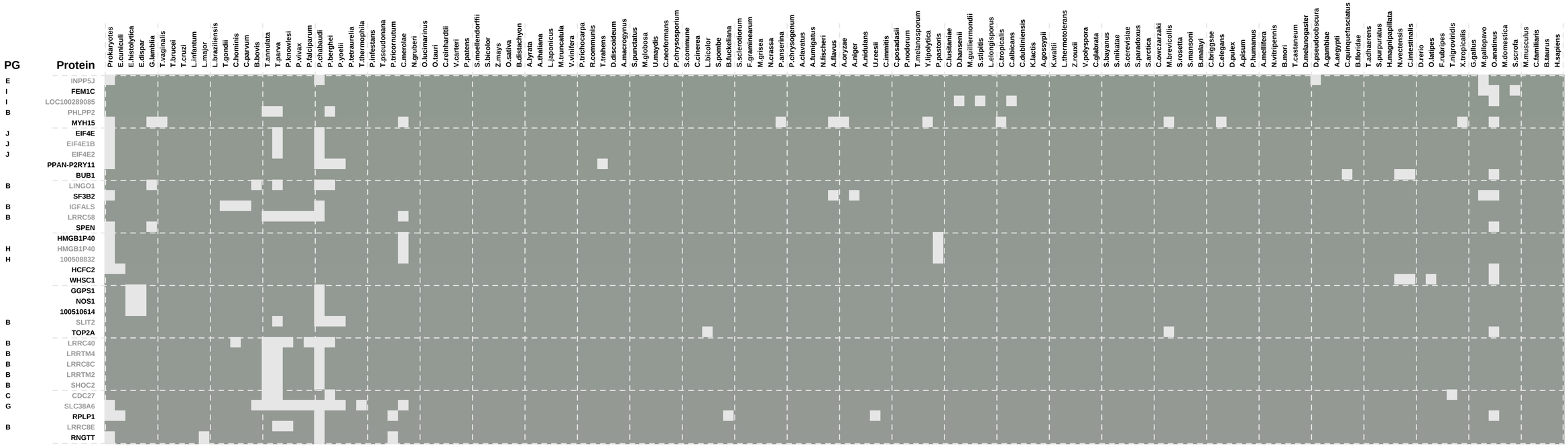


1: GPI-anchor transamidase complex || 2: integral to endoplasmic reticulum membrane || 3: apical part of cell || 4: late endosome || 5: lysosomal lumen || 6: cleavage furrow || 7: early endosome || 8: endocytic vesicle || 9: endosome ||
10: HOPS complex || 11: late endosome membrane || 12: lysosomal membrane || 13: Ski complex || 14: transcriptionally active chromatin || 15: cilium axoneme || 16: Golgi cisterna membrane || 17: neuron projection || 18: ruffle ||
19: ruffle membrane || 20: trans-Golgi network || 21: aggresome || 22: basolateral plasma membrane || 23: cell-cell junction || 24: membrane raft || 25: midbody || 26: transport vesicle || 27: postsynaptic membrane ||

ECM 13, Gene set "integral to endoplasmic reticulum membrane", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 106

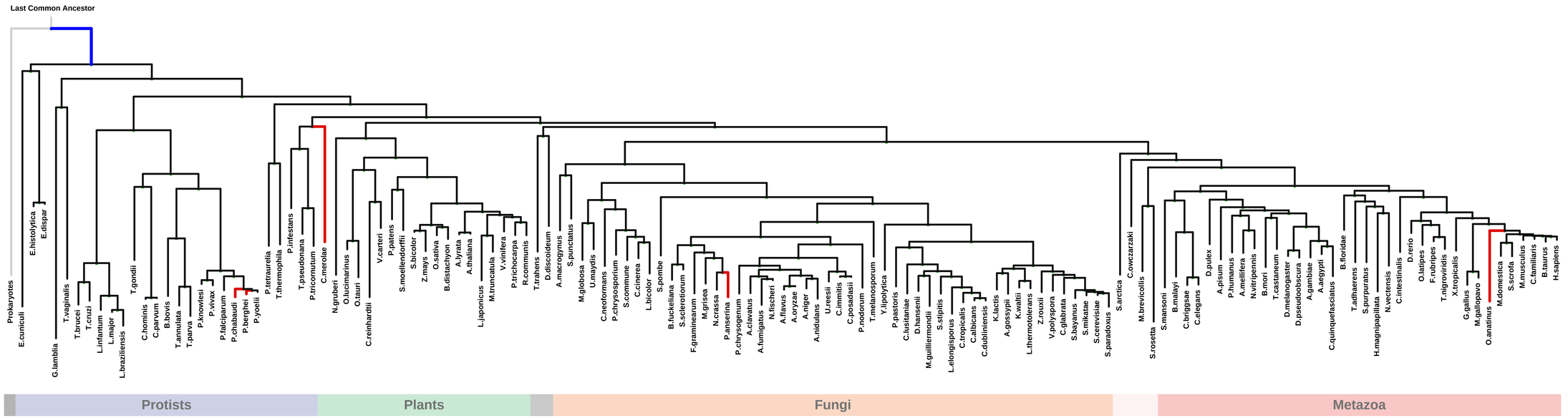




1: dendritic shaft || 2: growth cone || 3: ruffle || 4: myofibril || 5: myosin filament || 6: cytoplasmic mRNA processing body || 7: cytoplasmic stress granule || 8: eukaryotic translation initiation factor 4F complex || 9: mRNA cap binding complex ||
10: RNA-induced silencing complex || 11: condensed chromosome kinetochore || 12: condensed nuclear chromosome, centromeric region || 13: kinetochore || 14: catalytic step 2 spliceosome || 15: spliceosomal complex || 16: U12-type spliceosomal complex ||
17: transcriptional repressor complex || 18: chromosome || 19: nuclear membrane || 20: dendritic spine || 21: photoreceptor inner segment || 22: sarcolemma || 23: sarcoplasmic reticulum || 24: centriole || 25: nuclear chromosome ||

ECM 13, Gene set "integral to endoplasmic reticulum membrane", Page 3

Num of ECM Genes: 1. Num of Predicted Genes: 106

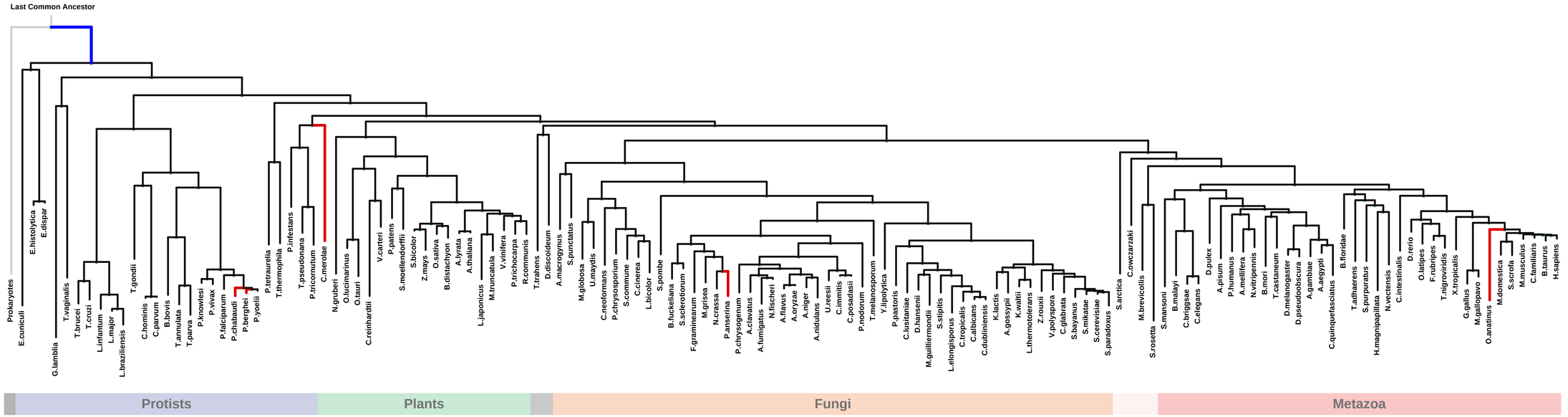


PG	Protein	LLR	Notes
	DHPS	1.8	
	RNASEH2A	1.8	1
D	VPS18	1.8	2 / 3 / 4 / 5 / 6
	PDZRN3	1.7	7
	ABCC3	1.6	
	MYSM1	1.6	8
B	CPN2	1.5	
B	TRIO	1.5	
K	GNAI2	1.4	9 / 10 / 11 / 12
K	GNAI3	1.4	9 / 10 / 11 / 12 / 13
B	LRRC30	1.4	
	SH3RF2	1.4	
	RPL27A	1.3	14
	HSPE1-MOB4	1.2	
B	LUM	1.1	15 / 16 / 17 / 18 / 19
	HSD11B1L	1.1	
	NAA50	0.9	
	DNAJC13	0.9	
	RABGGTA	0.9	
L	PLCG1	0.8	20 / 21 / 22 / 23
L	PLCG2	0.8	
L	PLCD1	0.8	
L	PLCD4	0.8	
M	NARF	0.8	24 / 25 / 26
M	NARFL	0.8	27
	RPL23A	0.7	14 / 28
N	BIRC2	0.7	29 / 30
N	BIRC3	0.7	
	JADE1	0.7	31
	TRIM21	0.5	32 / 33 / 34
	CCDC130	0.4	
B	BGN	0.3	15 / 17 / 18 / 19 / 35 / 36
	TRMT5	0.3	
	DDX23	0.2	37 / 38
B	LRIG3	0.2	

1: ribonuclease H2 complex || 2: actin filament || 3: early endosome || 4: HOPS complex || 5: late endosome membrane || 6: lysosomal membrane || 7: neuromuscular junction || 8: chromatin remodeling complex || 9: extrinsic to internal side of plasma membrane ||
10: heterotrimeric G-protein complex || 11: membrane raft || 12: midbody || 13: zymogen granule || 14: cytosolic large ribosomal subunit || 15: extracellular matrix || 16: fibrillar collagen || 17: Golgi lumen || 18: lysosomal lumen ||
19: proteinaceous extracellular matrix || 20: lamellipodium || 21: neuron projection || 22: ruffle || 23: signalosome || 24: lamin filament || 25: nuclear lamina || 26: nuclear lumen || 27: CIA complex || 28: TORC2 complex ||

ECM 13, Gene set "integral to endoplasmic reticulum membrane", Page 4

Num of ECM Genes: 1. Num of Predicted Genes: 106

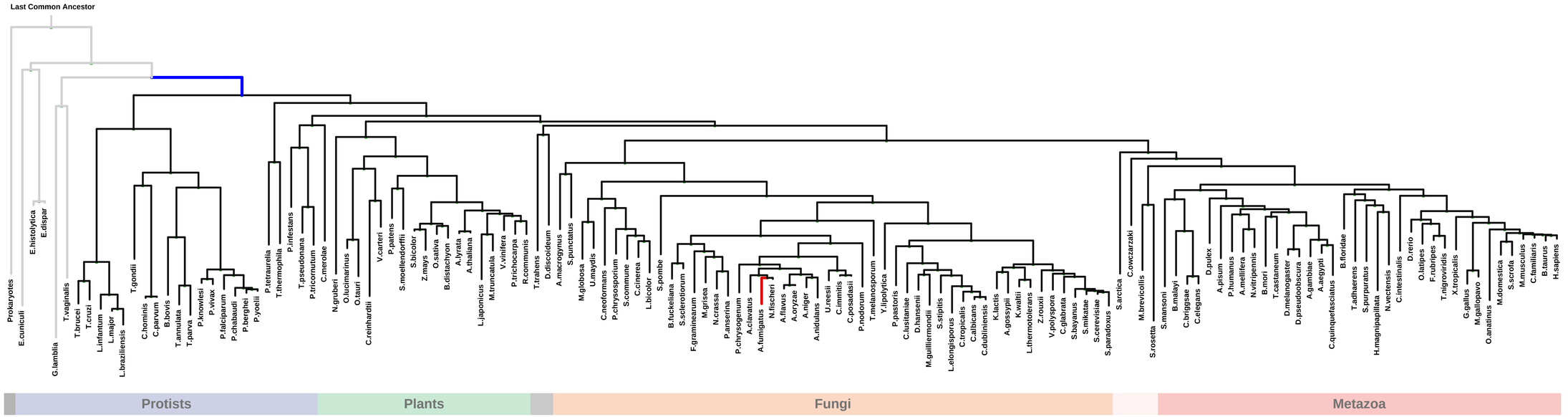


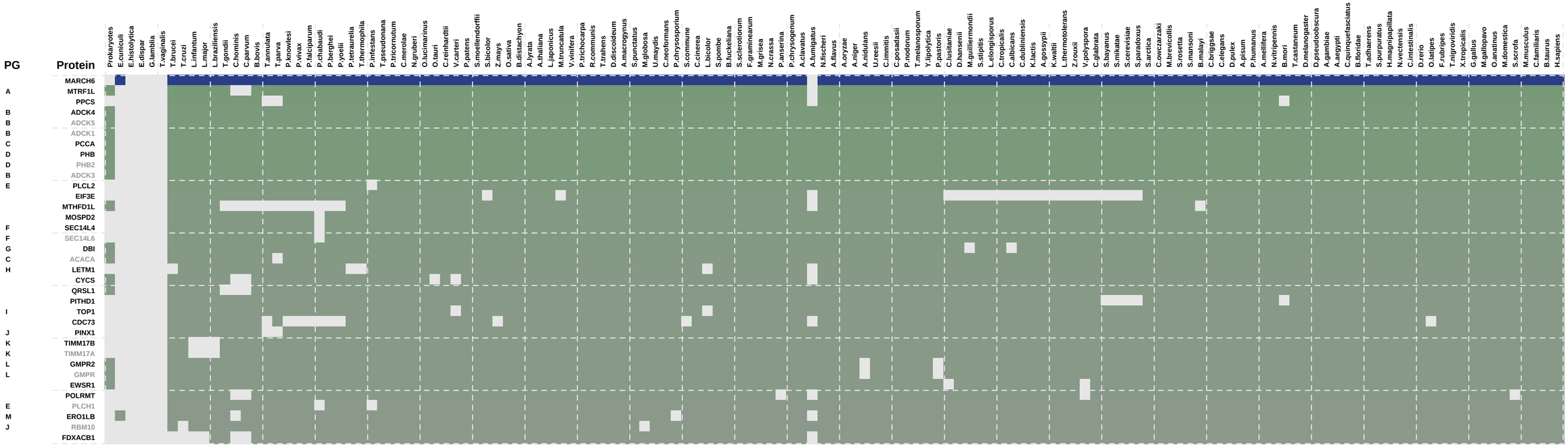
PG	Protein	LLR	Notes
	U2AF1	0.0	1 / 2 / 3 / 4
	LOC441722	0.0	

1: Cajal body || 2: catalytic step 2 spliceosome || 3: nuclear speck || 4: spliceosomal complex

ECM 14, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 106

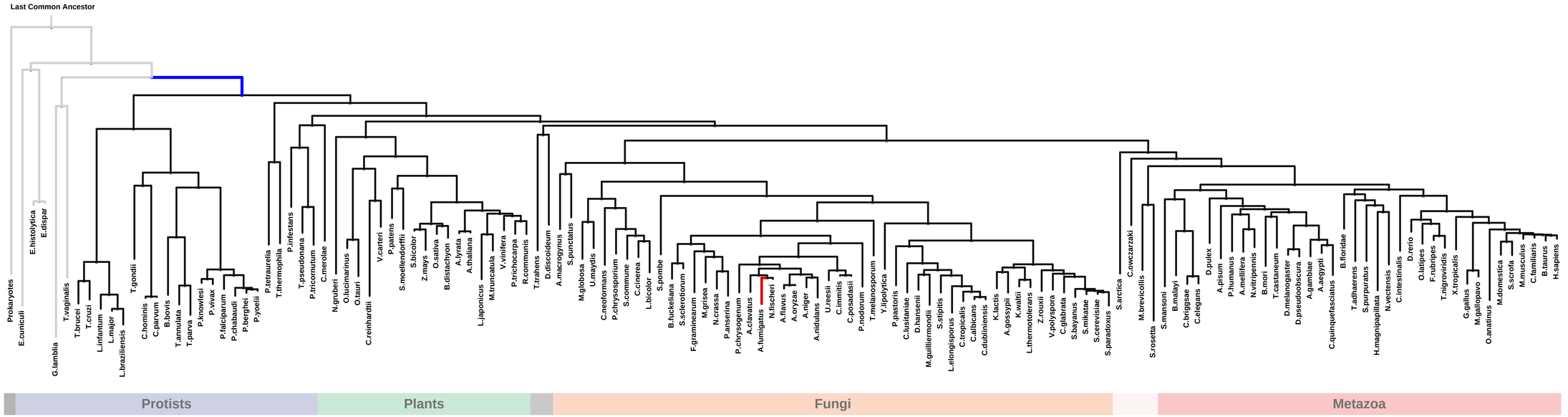


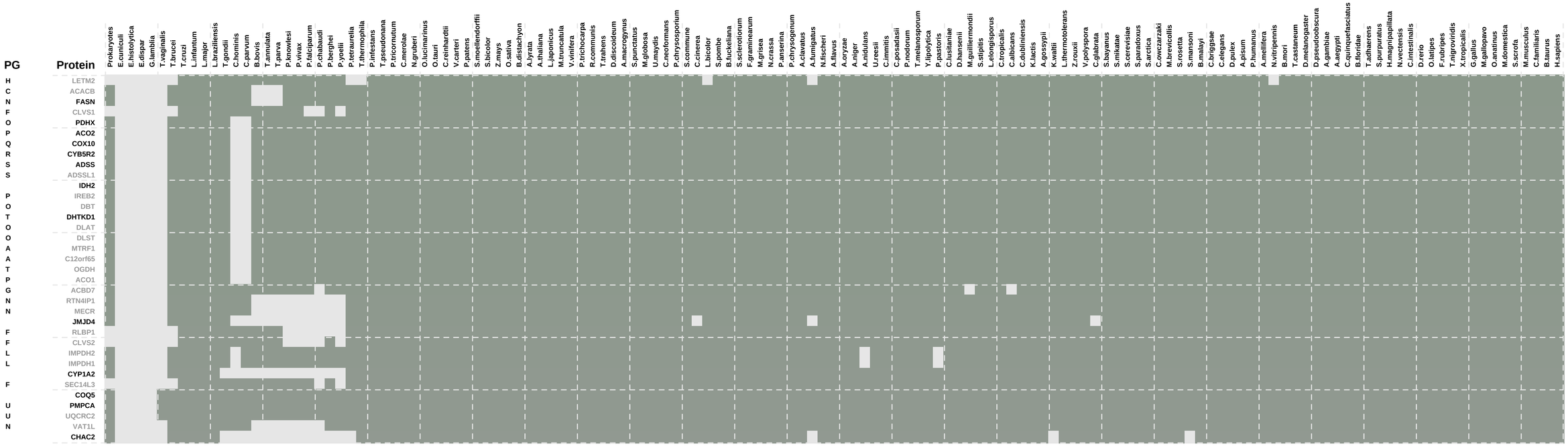


1: integral to endoplasmic reticulum membrane || 2: chromatin || 3: eukaryotic translation initiation factor 3 complex || 4: PML body || 5: mitochondrial intermembrane space || 6: protein phosphatase type 2A complex || 7: respiratory chain ||
8: glutamyl-tRNA(Gln) amidotransferase complex || 9: cytoplasmic mRNA processing body || 10: nuclear chromosome || 11: perikaryon || 12: replication fork protection complex || 13: Cdc73/Paf1 complex || 14: chromosome, telomeric region ||
15: condensed chromosome kinetochore || 16: kinetochore || 17: spindle || 18: integral to mitochondrial inner membrane || 19: microtubule cytoskeleton || 20: mitochondrial inner membrane presequence translocase complex || 21: mitochondrial nucleoid ||

ECM 14, Gene set "integral to endoplasmic reticulum membrane", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 106

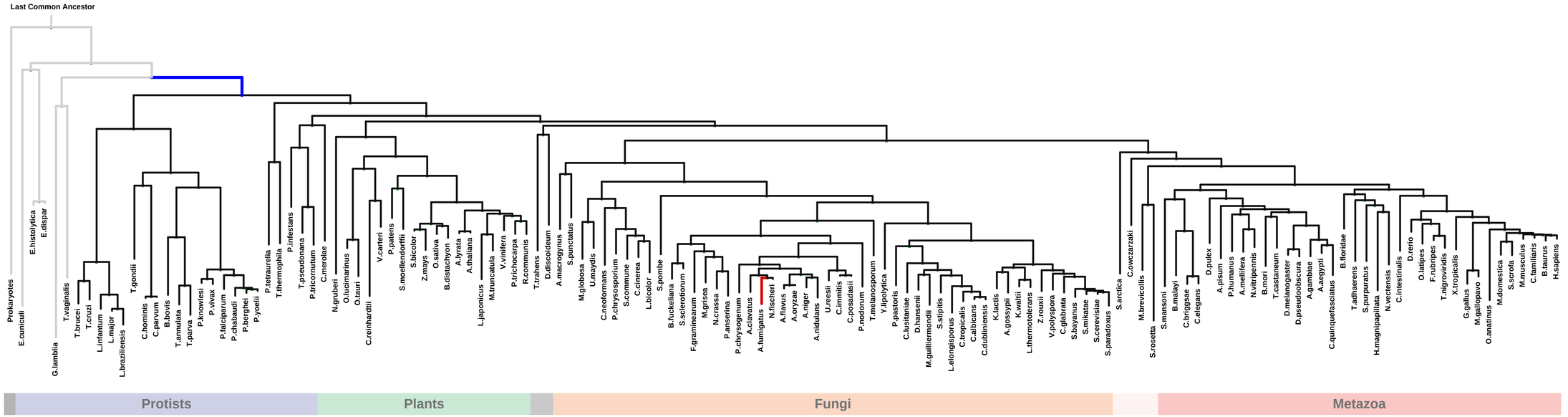


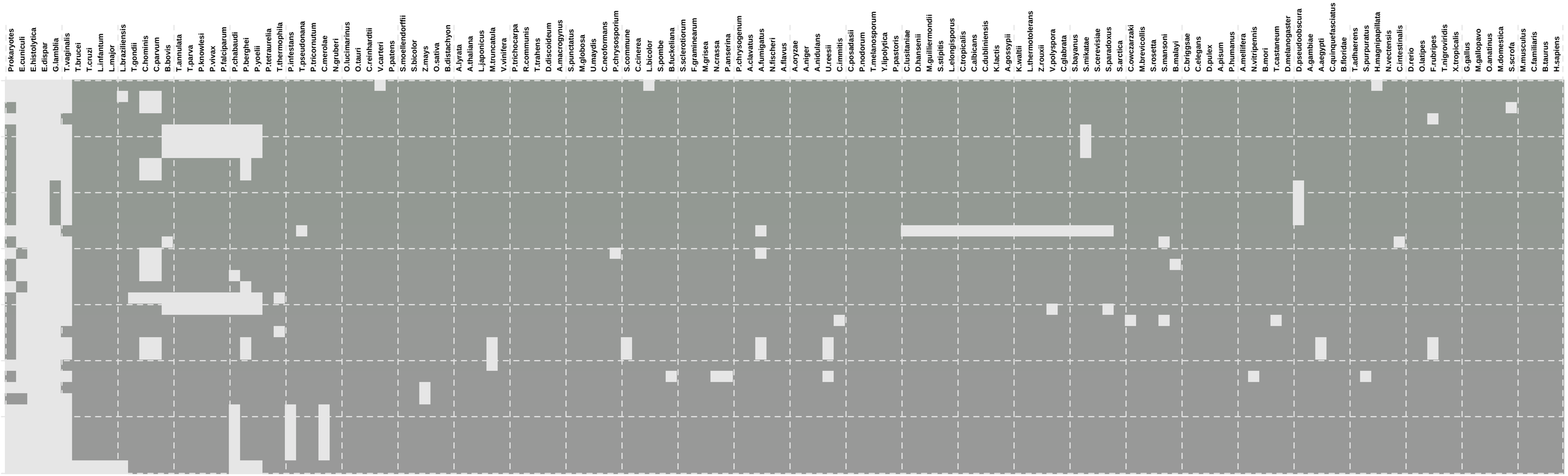


1: endomembrane system || 2: glycogen granule || 3: melanosome || 4: clathrin-coated vesicle || 5: early endosome membrane || 6: endosome || 7: trans-Golgi network || 8: mitochondrial membrane || 9: microtubule cytoskeleton ||
10: mitochondrial alpha-ketoglutarate dehydrogenase complex || 11: mitochondrial nucleoid || 12: oxoglutarate dehydrogenase complex || 13: peroxisomal membrane || 14: mitochondrial respiratory chain complex III

ECM 14, Gene set "integral to endoplasmic reticulum membrane", Page 3

Num of ECM Genes: 1. Num of Predicted Genes: 106

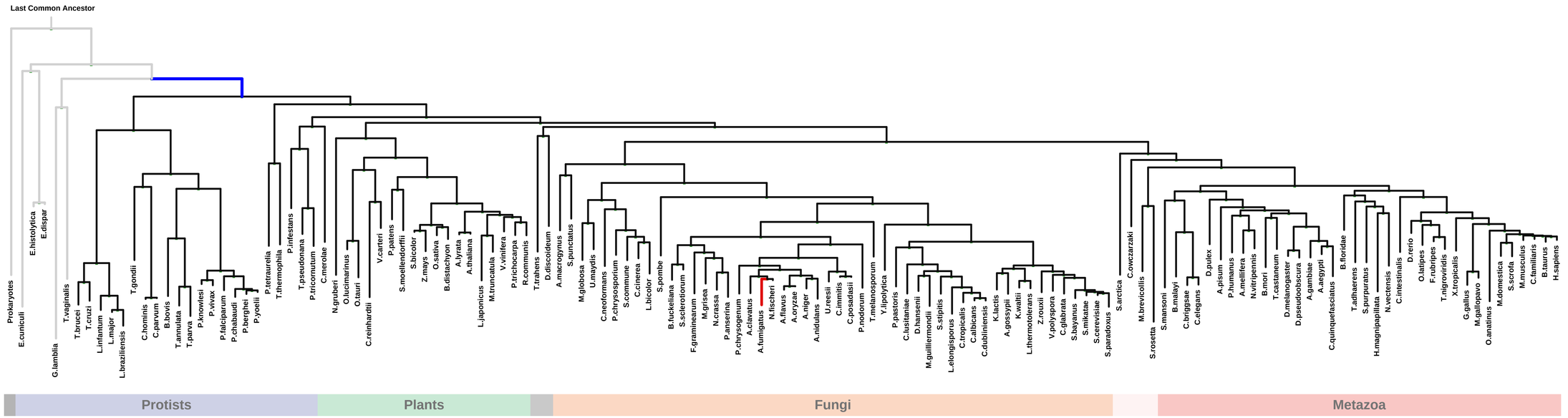




1: mitochondrial nucleoid || 2: replication fork protection complex || 3: mitochondrial respiratory chain complex II || 4: hemoglobin complex || 5: lipid particle || 6: mitochondrial outer membrane || 7: basolateral plasma membrane ||
8: eukaryotic translation initiation factor 3 complex || 9: endoplasmic reticulum lumen || 10: peroxisomal matrix || 11: nuclear chromatin || 12: integral to mitochondrial inner membrane || 13: mitochondrial membrane || 14: epsilon DNA polymerase complex ||
15: nuclear pore || 16: nuclear membrane || 17: nuclear speck || 18: sarcolemma || 19: postsynaptic density || 20: smooth endoplasmic reticulum || 21: nBAF complex

ECM 14, Gene set "integral to endoplasmic reticulum membrane", Page 4

Num of ECM Genes: 1. Num of Predicted Genes: 106

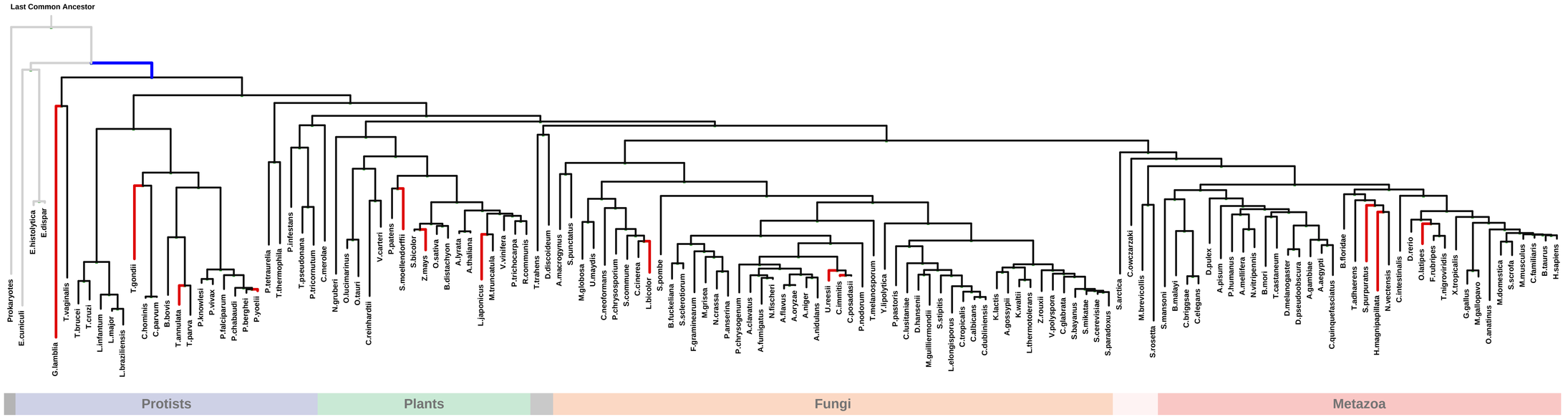


PG	Protein	LLR	Notes
Y	PHF10	0.1	1
Y	DPF2	0.1	

1: npBAF complex

ECM 15, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

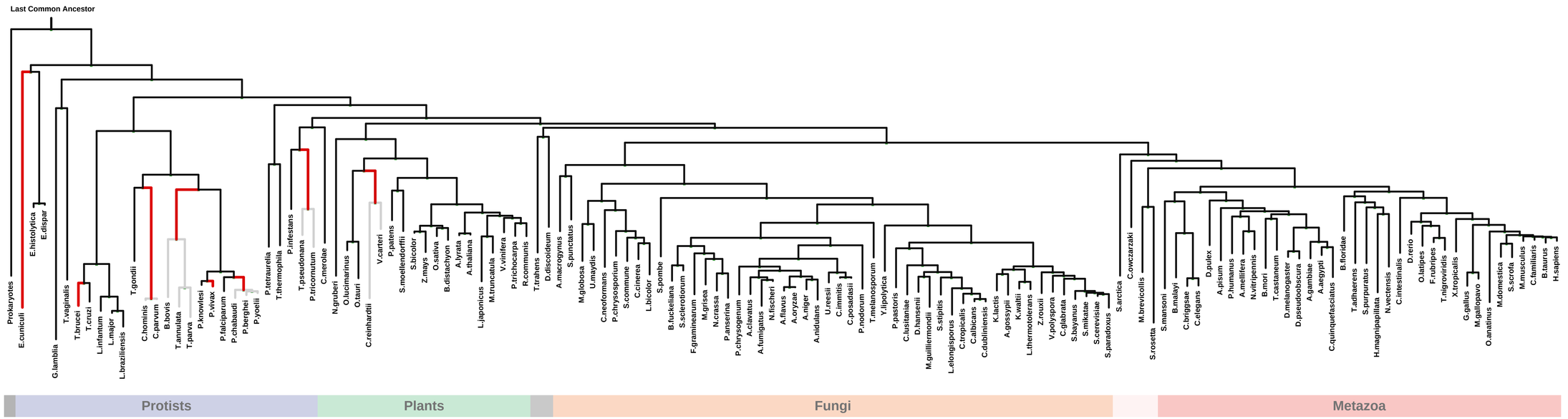


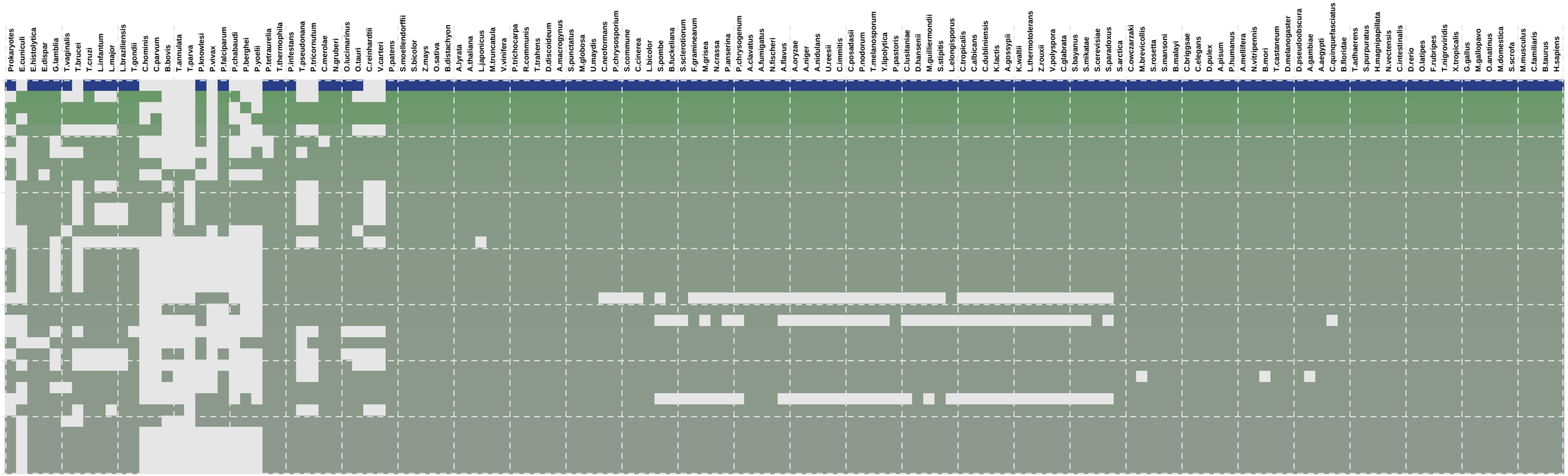
PG	Protein	LLR	Notes
	DOLK		1

1: integral to endoplasmic reticulum membrane

ECM 16, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 145

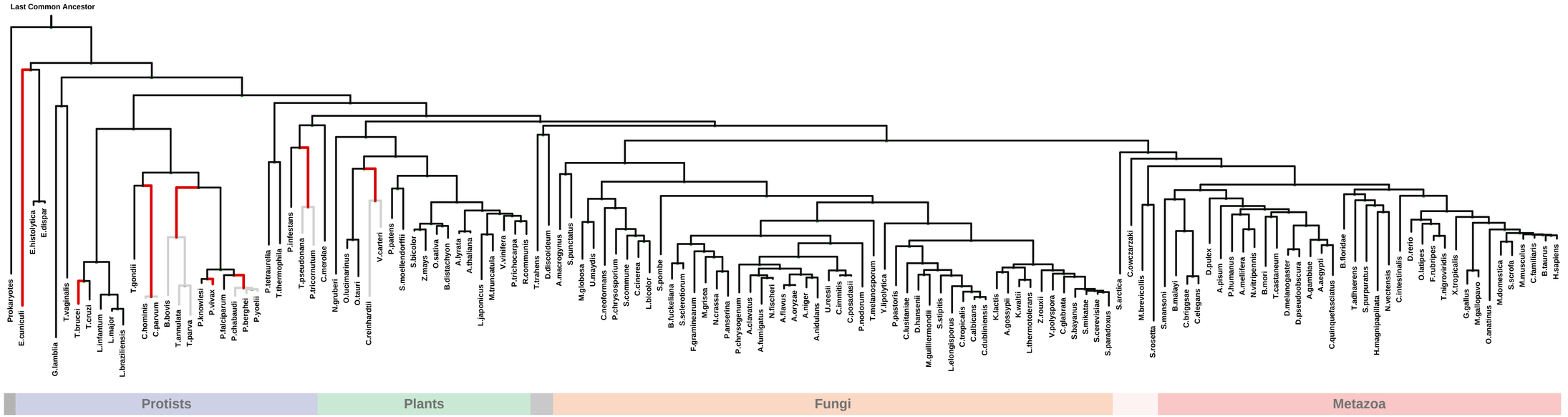




1: endoplasmic reticulum lumen || 2: integral to endoplasmic reticulum membrane || 3: integral to peroxisomal membrane || 4: peroxisomal membrane || 5: membrane part || 6: melanosome || 7: microtubule organizing center || 8: cell-cell junction || 9: centralspindlin complex || 10: cleavage furrow || 11: midbody || 12: mitotic spindle || 13: tight junction || 14: transcriptional repressor complex || 15: peroxisomal matrix || 16: synapse || 17: NLRP1 inflammasome complex || 18: ruffle || 19: cytoplasmic vesicle membrane || 20: invadopodium membrane || 21: lamellipodium || 22: lamellipodium membrane || 23: early endosome membrane || 24: recycling endosome membrane

ECM 16, Gene set "integral to endoplasmic reticulum membrane", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 145



PG	Protein	LLR	Notes
J	ALDH2	4.9	
I	GPT	4.9	
I	GPT2	4.9	
J	ALDH3B1	4.9	
B	DPP4	4.9	1 / 2 / 3 / 4 / 5 / 6
I	ACCS	4.9	
C	ZNF320	4.7	
C	ZNF26	4.7	
	TLR4	4.6	6 / 7 / 8 / 9
C	ZNF433	4.1	
	TMED7	3.9	10 / 11 / 12 / 13
	AGAP3	3.9	14
G	ARHGAP4	3.8	15
C	ZIC4	3.7	
	ADIPOR2	3.6	
K	PGM5	3.5	15 / 16 / 17 / 18 / 19 / 20 /
	IPO9	3.3	24
	KCNAB3	3.3	
F	NLRC3	3.0	
	NAPG	3.0	
F	C14orf166B	2.8	
C	ZNF175	2.7	25
C	ZNF189	2.7	
C	ZKSCAN8	2.7	
C	ZNF225	2.7	
C	ZNF25	2.7	
C	ZFP90	2.7	
C	ZNF287	2.7	
C	ZNF141	2.7	
C	ZNF347	2.7	
C	ZNF41	2.7	
C	ZNF415	2.7	26
C	ZNF419	2.7	
C	ZNF121	2.7	
C	ZNF556	2.7	

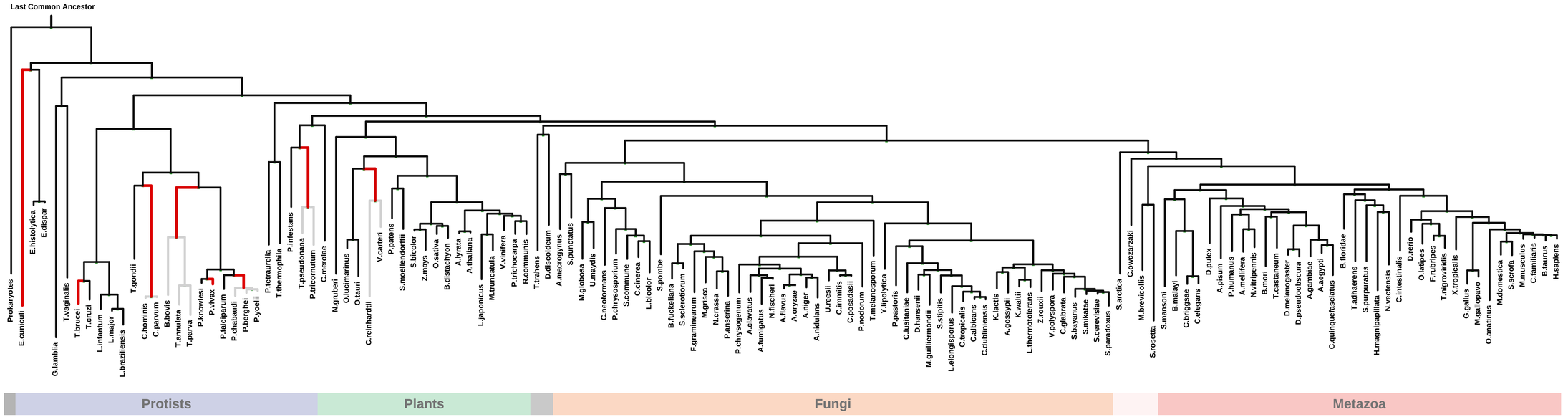
1: endocytic vesicle || 2: intercellular canaliculus || 3: invadopodium membrane || 4: lamellipodium || 5: lamellipodium membrane || 6: membrane raft || 7: endosome membrane || 8: external side of plasma membrane || 9: lipopolysaccharide receptor complex || 10: COPI vesicle coat || 11: COPII vesicle coat || 12: endoplasmic reticulum-Golgi intermediate compartment || 13: endoplasmic reticulum-Golgi intermediate compartment membrane || 14: cell periphery || 15: focal adhesion || 16: cell-cell adherens junction || 17: costamere || 18: dystrophin-associated glycoprotein complex || 19: intercalated disc || 20: internal side of plasma membrane || 21: sarcolemma || 22: stress fiber || 23: Z disc || 24: nuclear pore || 25: intermediate filament cytoskeleton ||

ECM 16, Gene set "integral to endoplasmic reticulum membrane", Page 3

Num of ECM Genes: 1. Num of Predicted Genes: 145

PRESENCE ABSENCE
GAIN LOSS

Log-likelihood Ratio Scale
0 10 20 30 40 50 60

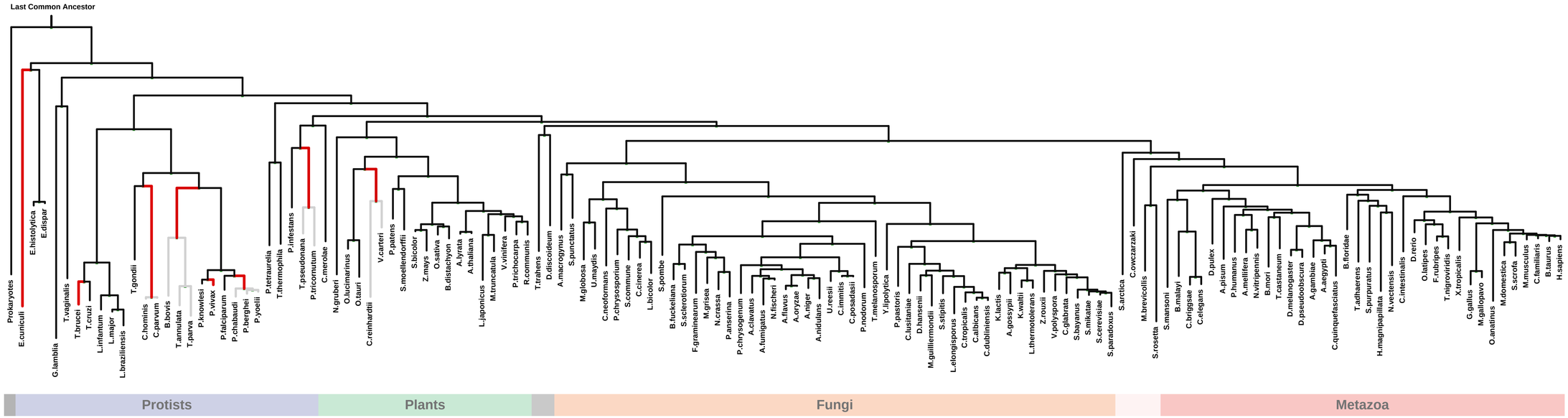


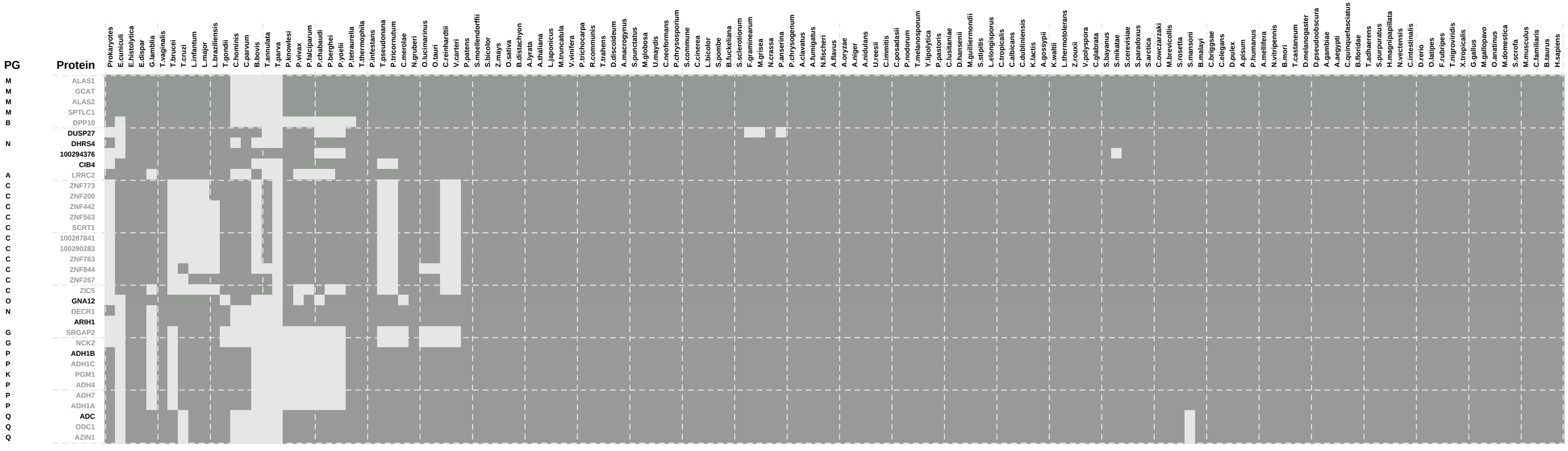
PG	Protein	LLR	Notes
C	ZNF558	2.7	
C	ZNF562	2.7	
C	ZNF584	2.7	
C	ZNF623	2.7	
C	ZNF624	2.7	
C	ZNF665	2.7	
C	ZNF696	2.7	
C	ZNF160	2.7	
C	ZNF71	2.7	
C	ZNF829	2.7	
C	ZNF845	2.7	
C	ZNF846	2.7	
C	ZNF880	2.7	
C	PRDM14	2.7	
C	ZNF223	2.6	
F	NOD2	2.6	1 / 2
C	ZNF354C	2.1	
A	LRRC27	2.1	
	REV1	**2.1**	
	MTHFD2	**1.9**	
H	SLC9A4	1.9	3
L	**OSBPL5**	**1.9**	
L	OSBPL8	1.9	
C	ZNF260	1.8	
C	ZNF732	1.8	
C	ZNF791	1.8	
C	ZNF816	1.8	
C	ZFP28	1.8	
C	ZNF14	1.8	
C	ZNF548	1.8	
C	ZNF600	1.8	
	METTL21C	**1.8**	
C	ZNF616	1.7	
M	**SPTLC2**	**1.6**	4
M	SPTLC3	1.6	4

1: signalosome || 2: vesicle || 3: basolateral plasma membrane || 4: serine C-palmitoyltransferase complex

ECM 16, Gene set "integral to endoplasmic reticulum membrane", Page 4

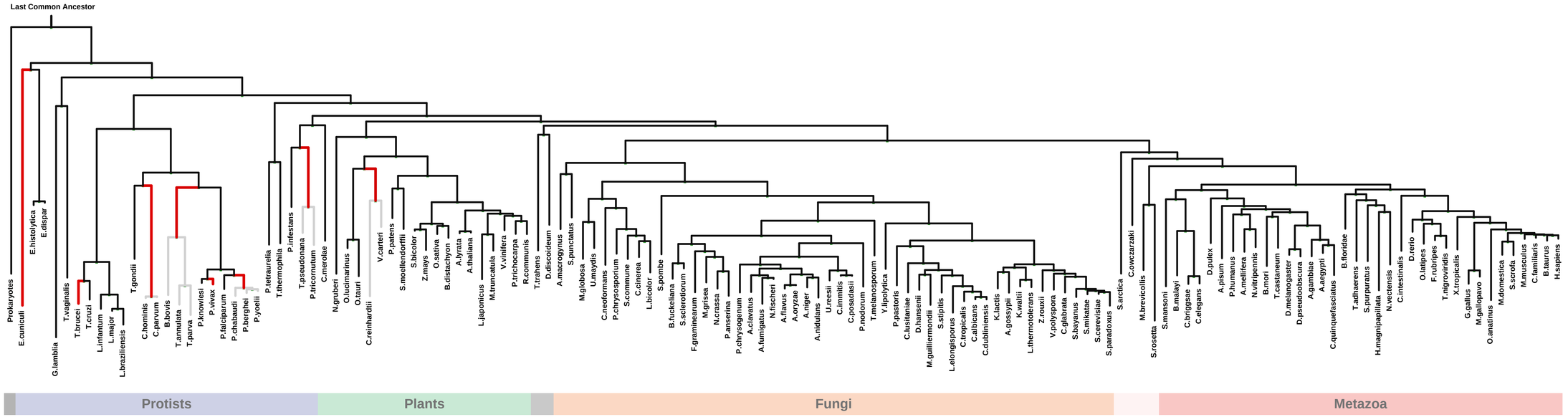
Num of ECM Genes: 1. Num of Predicted Genes: 145

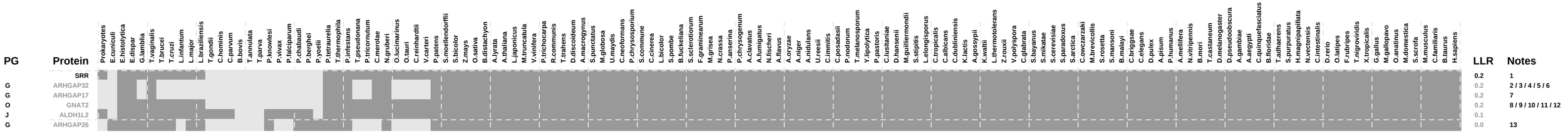




ECM 16, Gene set "integral to endoplasmic reticulum membrane", Page 5

Num of ECM Genes: 1. Num of Predicted Genes: 145

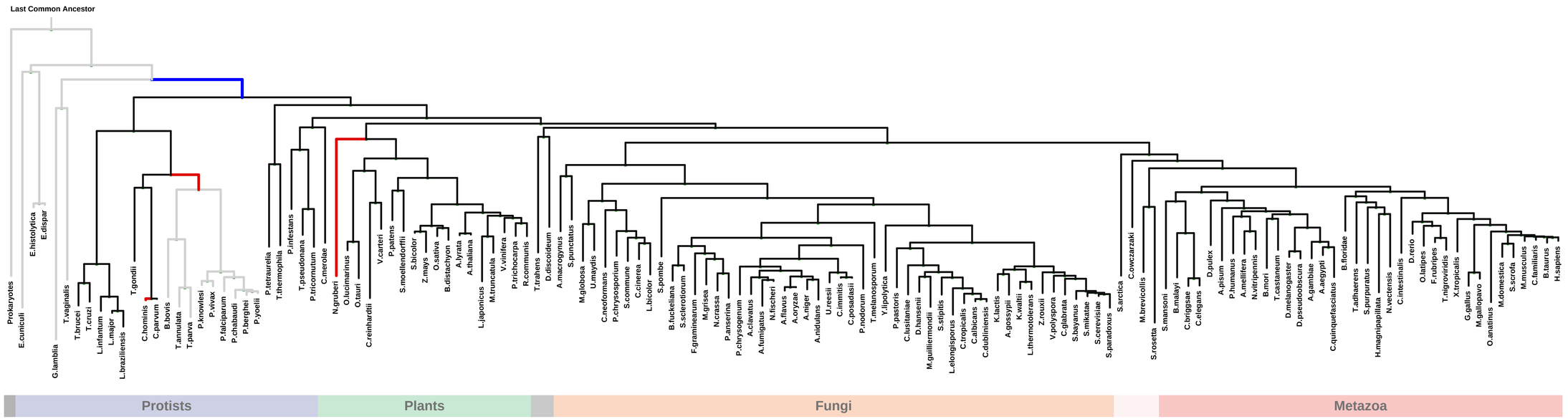




1: apical part of cell || 2: actin cytoskeleton || 3: cell cortex || 4: endosome membrane || 5: postsynaptic density || 6: postsynaptic membrane || 7: tight junction || 8: extrinsic to internal side of plasma membrane || 9: heterotrimeric G-protein complex || 10: photoreceptor inner segment || 11: photoreceptor outer segment || 12: photoreceptor outer segment membrane || 13: focal adhesion

ECM 17, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 156

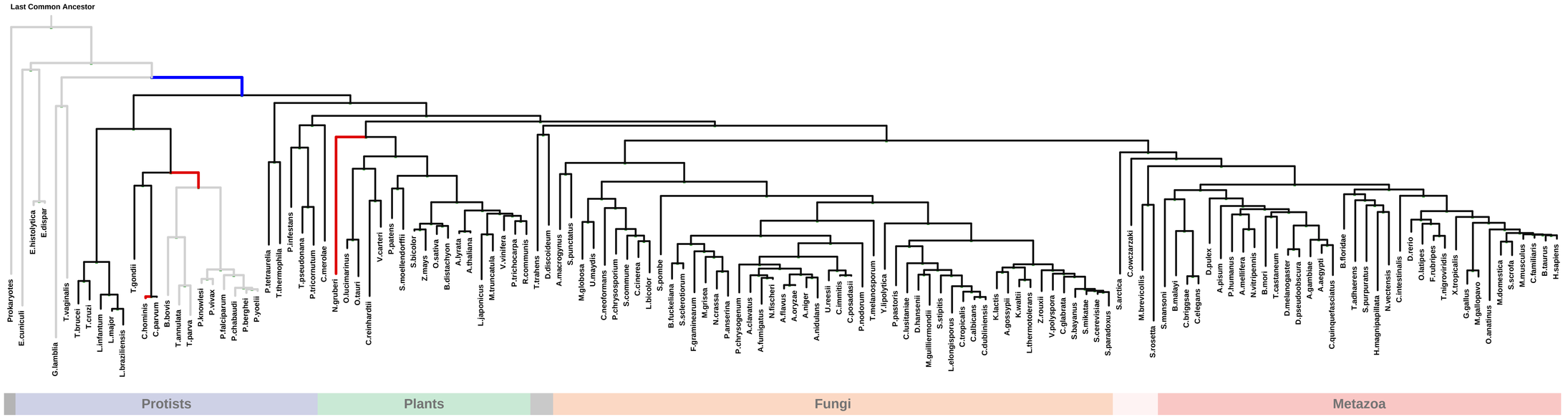


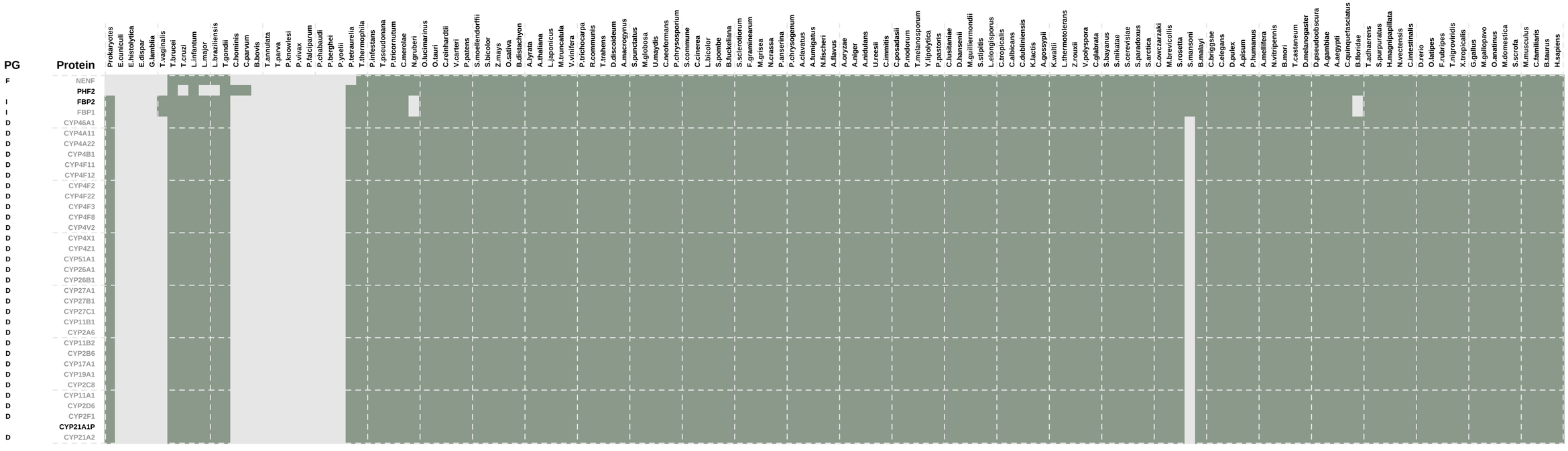
PG	Protein	LLR	Notes
A	DGAT2		1 / 2
A	AWAT1	27.8	
A	AWAT2	27.8	
A	DGAT2L6	27.8	
A	MOGAT1	27.8	
A	MOGAT3	27.8	
A	MOGAT2	17.4	
B	SLC22A15	15.2	
C	RTN4IP1	11.6	
C	MECR	11.6	
C	VAT1L	10.6	
D	CYP2R1	10.3	
D	CYP2W1	10.3	
E	CYB5RL	10.3	
D	CYP1A1	10.3	
D	CYP2A13	10.3	
D	CYP2A7	10.3	
D	CYP2C18	10.3	
F	PGRMC1	10.3	
F	PGRMC2	10.3	
D	CYP2C19	10.3	
D	CYP2C9	10.3	
D	TBXAS1	10.3	
D	CYP2J2	10.3	
G	LYPLA2	9.6	
G	LYPLAL1	9.6	
G	LYPLA1	9.6	
	UPRT	9.4	
C	VAT1	8.0	3
H	IMPDH2	7.6	4
H	IMPDH1	7.6	
	ATP5C1	7.5	5 / 6
	TAMM41	7.4	7
	SDHB	6.9	8
F	CYB5D2	6.9	

1: integral to endoplasmic reticulum membrane || 2: lipid particle || 3: mitochondrial outer membrane || 4: peroxisomal membrane || 5: mitochondrial proton-transporting ATP synthase complex || 6: mitochondrial proton-transporting ATP synthase complex, catalytic core F(1) || 7: extrinsic to mitochondrial inner membrane || 8: mitochondrial respiratory chain complex II

ECM 17, Gene set "integral to endoplasmic reticulum membrane", Page 2

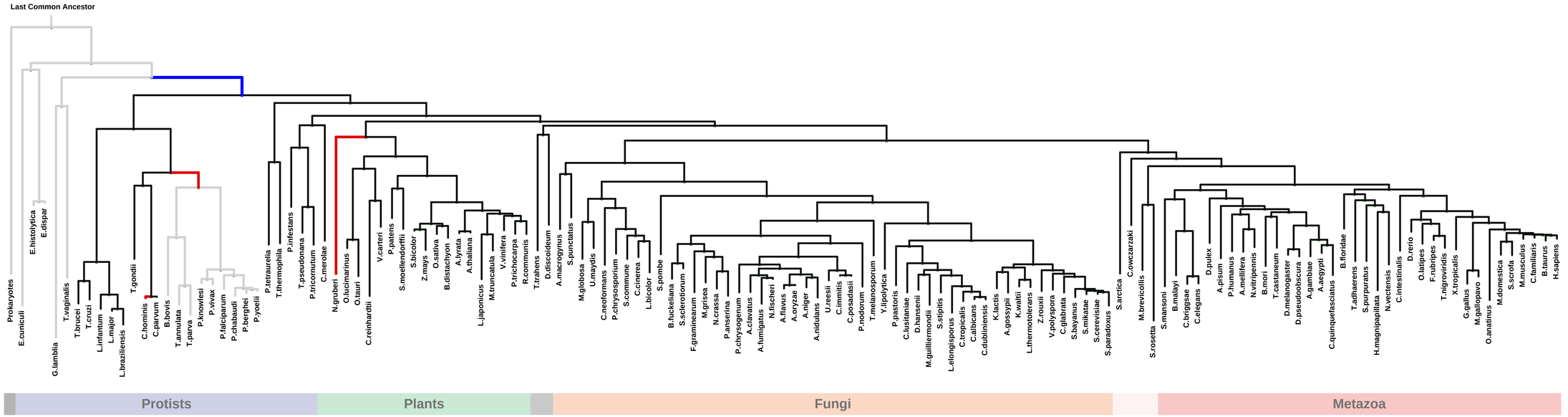
Num of ECM Genes: 1. Num of Predicted Genes: 156





ECM 17, Gene set "integral to endoplasmic reticulum membrane", Page 3

Num of ECM Genes: 1. Num of Predicted Genes: 156

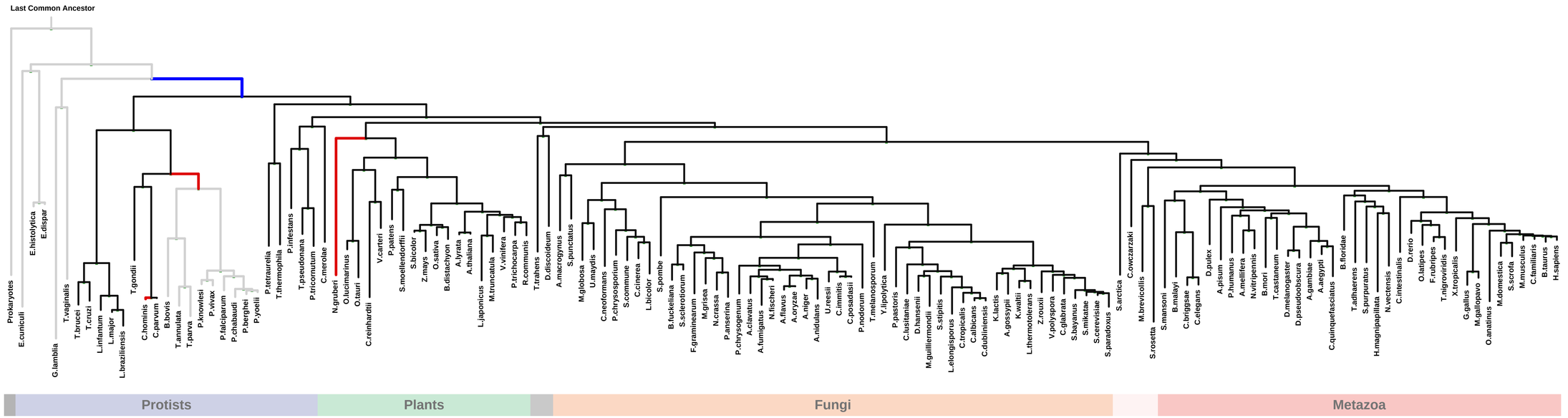


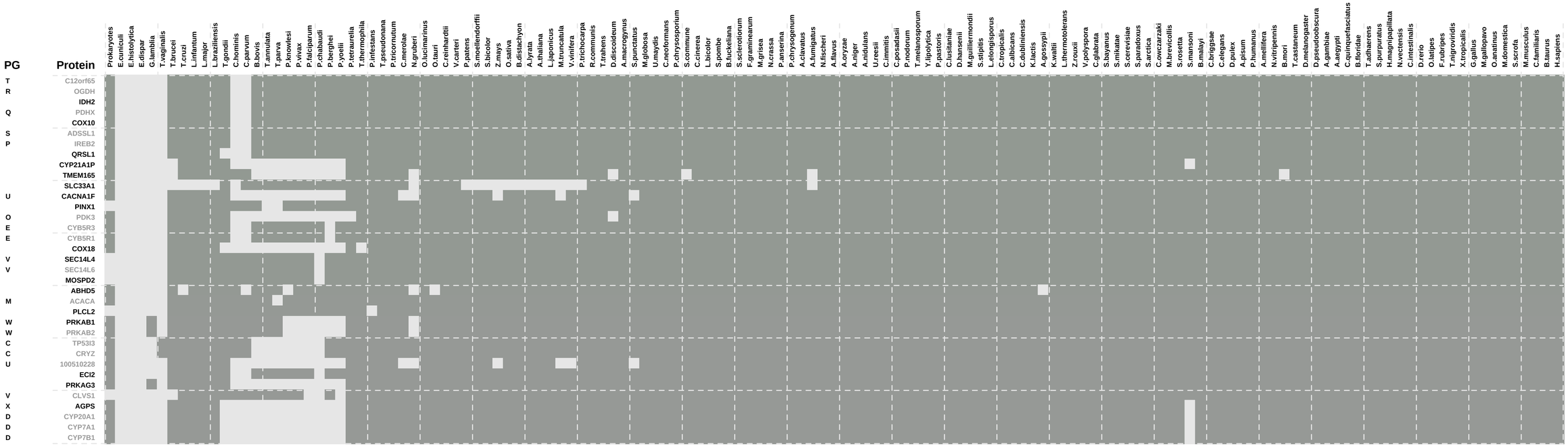
PG	Protein	LLR	Notes
D	CYP2S1	6.1	
D	CYP2U1	6.1	
D	CYP24A1	6.1	
D	CYP3A4	6.1	
D	CYP3A43	6.1	
D	CYP3A5	6.1	
D	CYP3A7	6.1	
J	**SLC26A11**	**5.8**	1
D	CYP1A2	5.3	
K	**ACAD9**	**5.3**	2
K	ACADS	5.3	
K	ACADSB	5.3	
D	CYP1B1	5.2	
	TCF25	**5.0**	
J	SLC26A6	4.7	
B	SLC22A4	4.1	
B	SVOPL	4.1	
L	**ADCK3**	**4.1**	
L	ADCK4	4.1	
M	**PCCA**	**4.1**	
L	ADCK5	4.1	
L	ADCK1	4.1	
N	**PHB**	**4.1**	
N	PHB2	4.1	
	JMJD4	**3.5**	
O	**PDK1**	**3.2**	3
E	CYB5R2	3.0	
P	**ACO1**	**3.0**	
Q	**DBT**	**3.0**	4 / 5 / 6
P	ACO2	3.0	
R	**DHTKD1**	**3.0**	
Q	DLAT	3.0	
Q	DLST	3.0	7
S	**ADSS**	**3.0**	
T	**MTRF1**	**3.0**	

1: lysosomal membrane || 2: dendrite || 3: pyruvate dehydrogenase complex || 4: microtubule cytoskeleton || 5: mitochondrial alpha-ketoglutarate dehydrogenase complex || 6: mitochondrial nucleoid || 7: oxoglutarate dehydrogenase complex

ECM 17, Gene set "integral to endoplasmic reticulum membrane", Page 4

Num of ECM Genes: 1. Num of Predicted Genes: 156

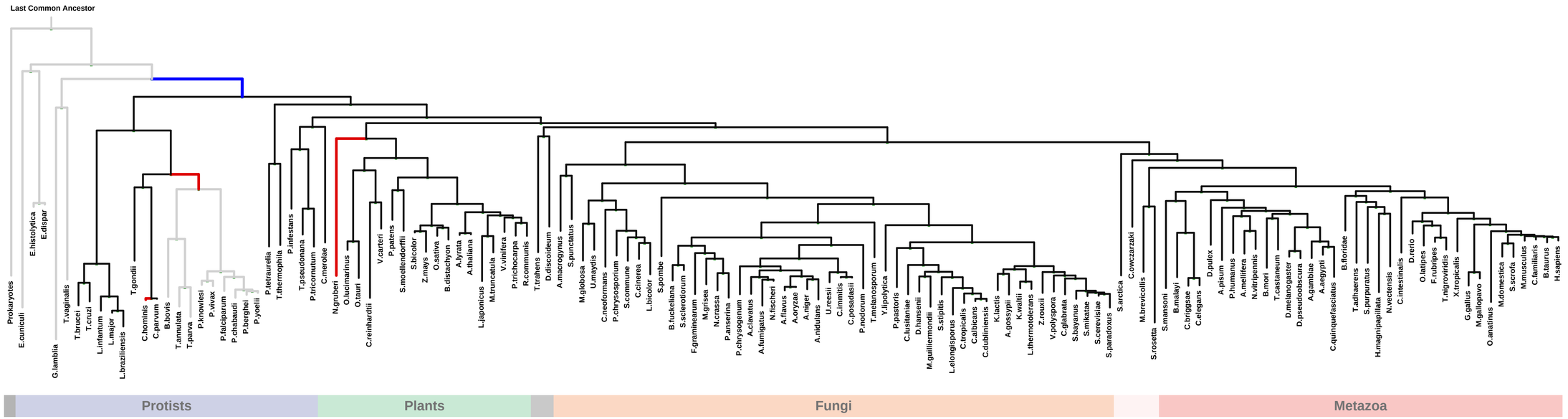


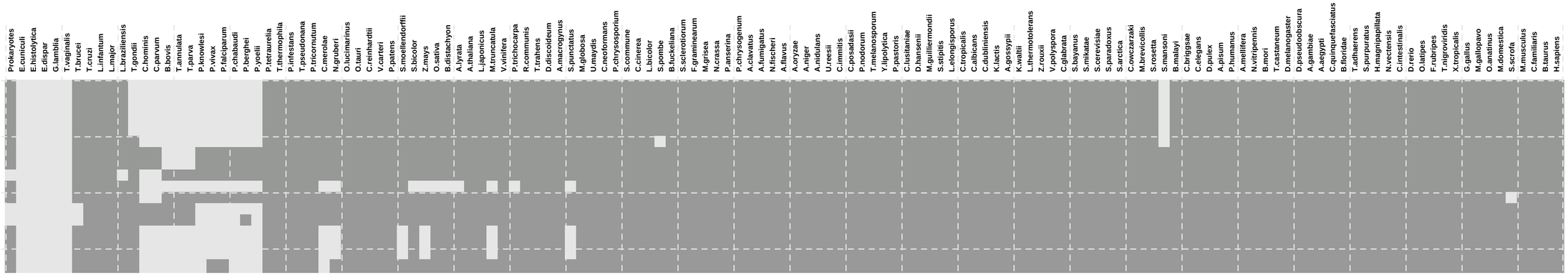


1: mitochondrial membrane || 2: glutamyl-tRNA(Gln) amidotransferase complex || 3: voltage-gated calcium channel complex || 4: chromosome, telomeric region || 5: condensed chromosome kinetochore || 6: kinetochore || 7: nuclear chromosome || 8: spindle || 9: hemoglobin complex || 10: lipid particle || 11: mitochondrial outer membrane || 12: integral to mitochondrial inner membrane || 13: AMP-activated protein kinase complex || 14: cAMP-dependent protein kinase complex || 15: peroxisomal matrix || 16: clathrin-coated vesicle || 17: early endosome membrane || 18: endosome || 19: trans-Golgi network || 20: peroxisomal membrane || 21: peroxisome

ECM 17, Gene set "integral to endoplasmic reticulum membrane", Page 5

Num of ECM Genes: 1. Num of Predicted Genes: 156

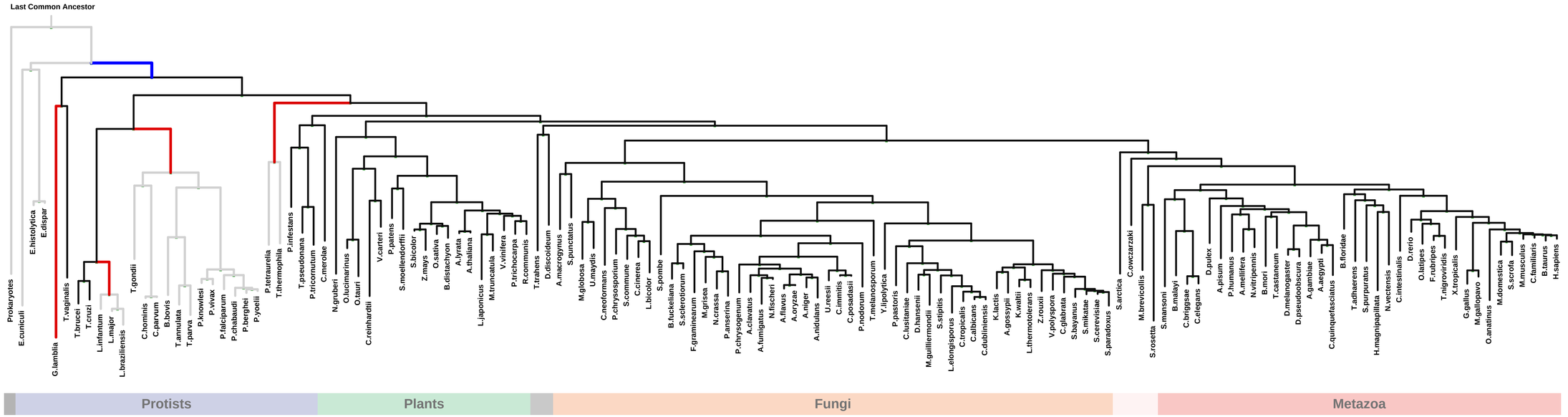


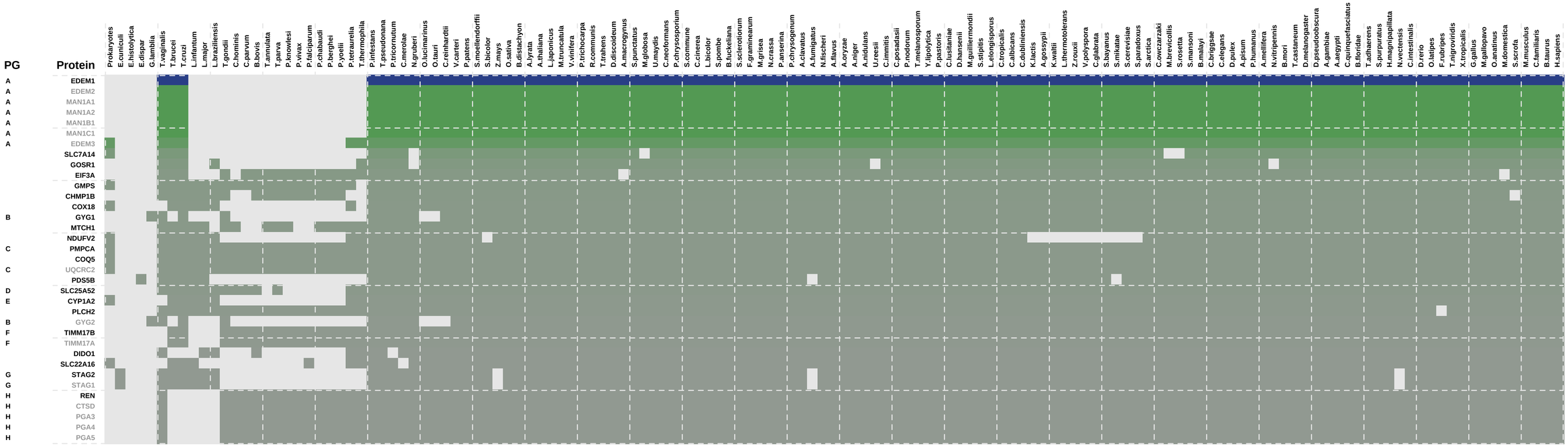


1: caveola || 2: intrinsic to endoplasmic reticulum membrane || 3: peroxisome || 4: endomembrane system || 5: glycogen granule || 6: melanosome || 7: voltage-gated calcium channel complex || 8: mitochondrial respiratory chain complex II ||
9: clathrin-coated vesicle || 10: early endosome membrane || 11: endosome || 12: trans-Golgi network || 13: postsynaptic density || 14: T-tubule || 15: Z disc

ECM 18, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 86

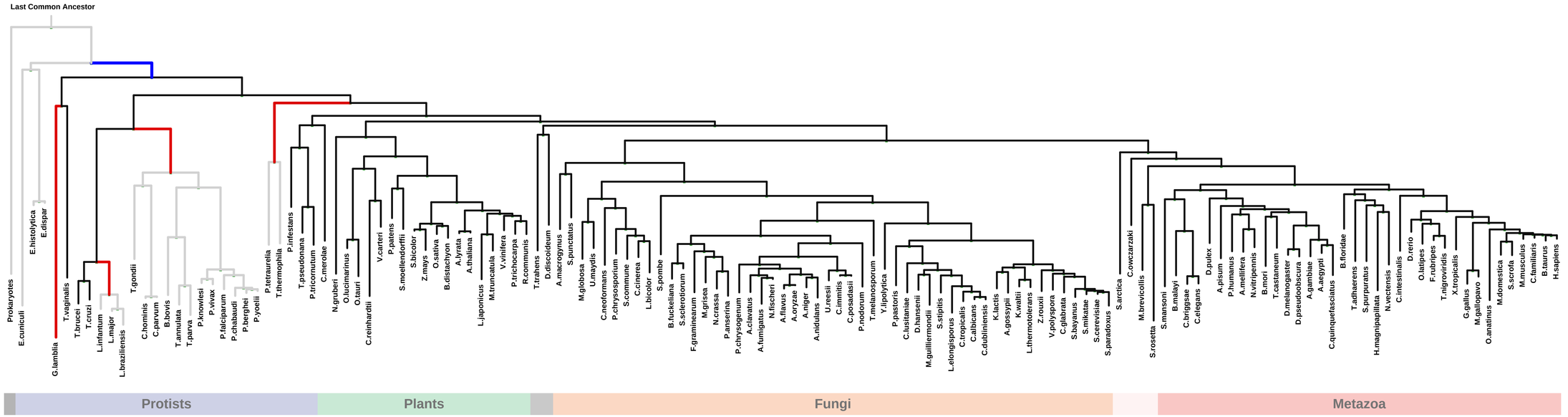




1: integral to endoplasmic reticulum membrane || 2: endoplasmic reticulum lumen || 3: endoplasmic reticulum-Golgi intermediate compartment || 4: endoplasmic reticulum quality control compartment || 5: integral to Golgi membrane || 6: cis-Golgi network ||
7: SNARE complex || 8: eukaryotic translation initiation factor 3 complex || 9: late endosome membrane || 10: integral to mitochondrial inner membrane || 11: mitochondrial respiratory chain complex I || 12: mitochondrial respiratory chain complex III ||
13: chromatin || 14: microtubule cytoskeleton || 15: mitochondrial inner membrane presequence translocase complex || 16: chromosome, centromeric region || 17: cytoplasmic part || 18: extracellular matrix || 19: lysosomal lumen ||

ECM 18, Gene set "integral to endoplasmic reticulum membrane", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 86

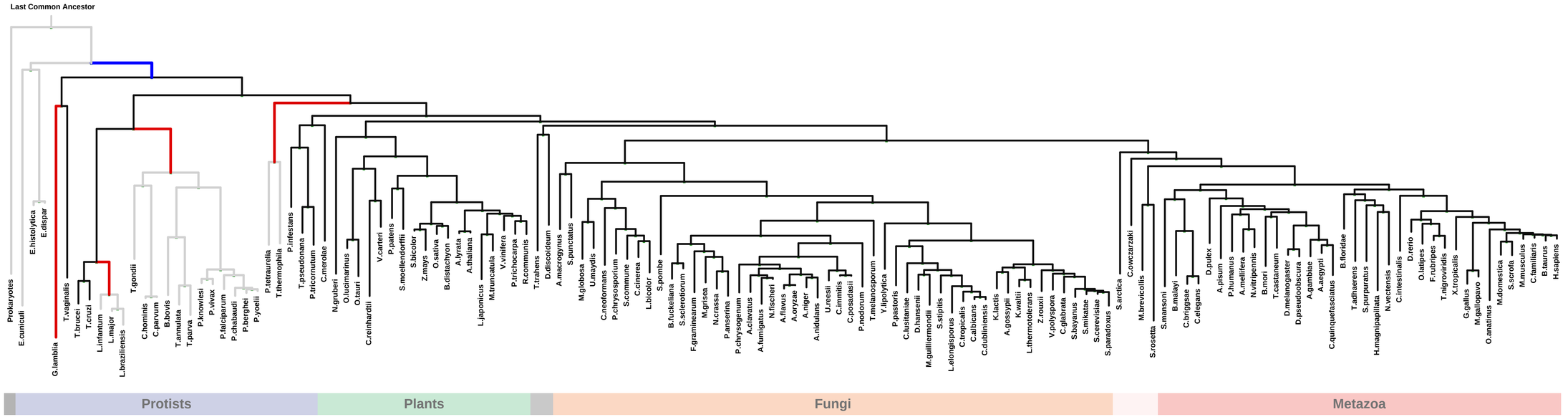


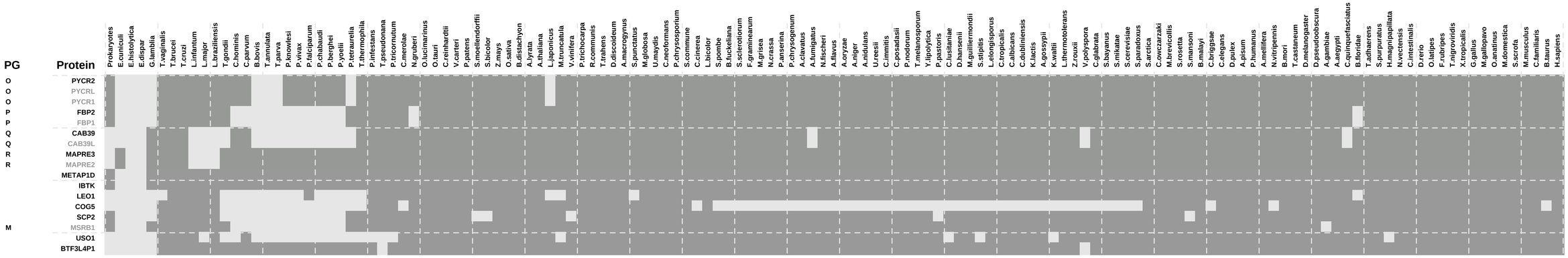
PG	Protein	LLR	Notes
H	PGC	3.4	
H	NAPSA	3.4	1 / 2
H	CTSE	3.4	3
	NDUFV1	3.1	4
	POLE2	3.0	5
	IPO11	3.0	6
I	TM9SF2	3.0	3 / 7
I	TM9SF3	3.0	
I	TM9SF4	3.0	
I	TM9SF1	3.0	8 / 9 / 10
	MTAP	2.9	
D	SLC25A51	2.7	
J	BCKDK	2.7	11
K	SUCLG2	2.6	
K	SUCLA2	2.6	
J	PDK2	2.6	12
J	PDK4	2.6	
L	TP53I3	2.6	
L	CRYZ	2.6	
	ANAPC2	2.3	13
M	MSRB2	2.3	
M	MSRB3	2.3	
E	CYP8B1	2.1	
	CES4A	1.2	
E	CYP20A1	1.1	
E	CYP2E1	1.1	14
E	PTGIS	1.1	15
N	LDHD	1.1	
E	CYP39A1	1.1	
E	CYP7A1	1.1	
E	CYP7B1	1.1	
N	AGPS	1.1	16 / 17 / 18
N	D2HGDH	1.1	
	VPS28	1.1	3 / 7 / 19
K	ACLY	0.9	20

1: alveolar lamellar body || 2: lysosome || 3: endosome || 4: mitochondrial respiratory chain complex I || 5: epsilon DNA polymerase complex || 6: nuclear pore || 7: endosome membrane || 8: autophagic vacuole membrane ||
9: cytoplasmic vesicle || 10: lysosomal membrane || 11: mitochondrial alpha-ketoglutarate dehydrogenase complex || 12: pyruvate dehydrogenase complex || 13: anaphase-promoting complex || 14: intrinsic to endoplasmic reticulum membrane ||
15: caveola || 16: peroxisomal matrix || 17: peroxisomal membrane || 18: peroxisome || 19: late endosome membrane || 20: citrate lyase complex

ECM 18, Gene set "integral to endoplasmic reticulum membrane", Page 3

Num of ECM Genes: 1. Num of Predicted Genes: 86

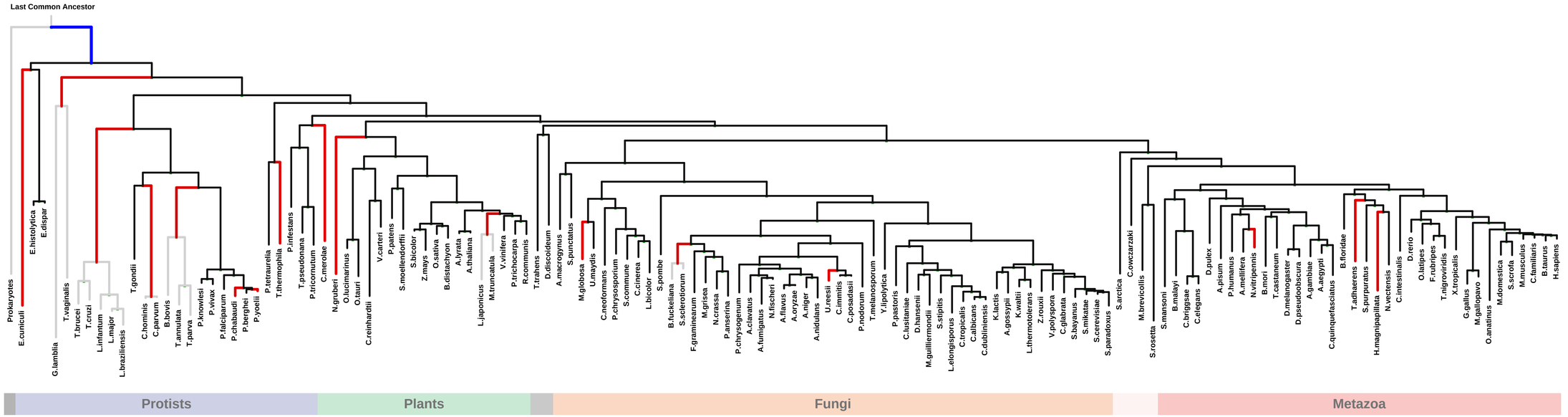




1: cytoplasmic microtubule || 2: midbody || 3: microtubule cytoskeleton || 4: Cdc73/Paf1 complex || 5: Golgi transport complex || 6: peroxisomal matrix || 7: peroxisome

ECM 19, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

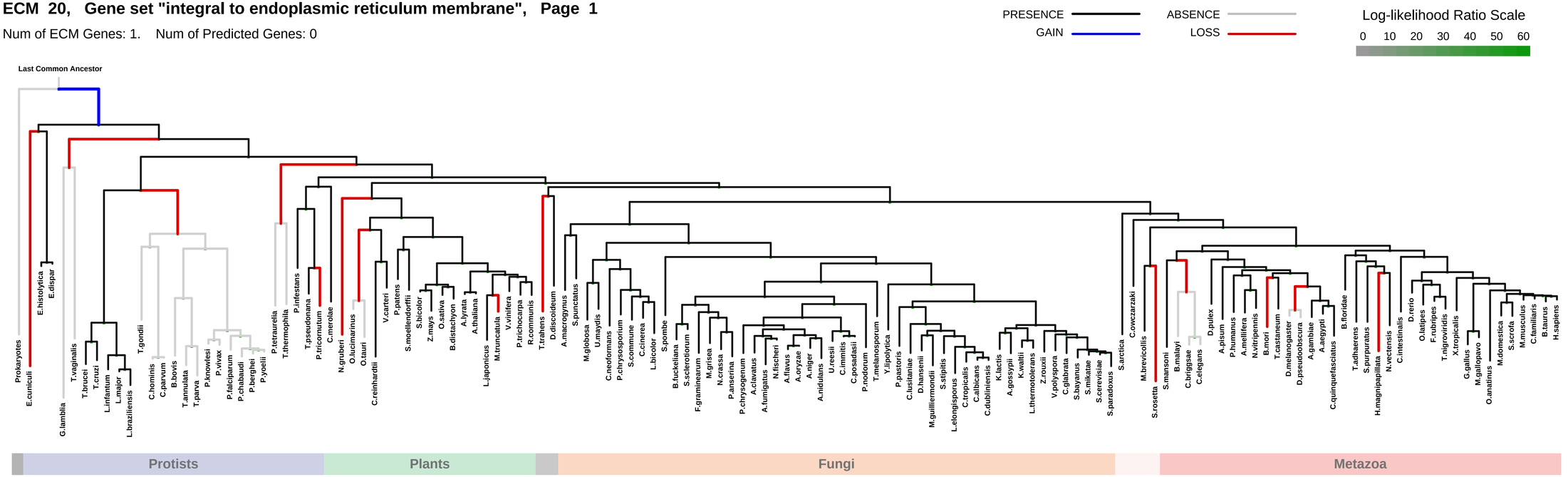


PG	Protein	LLR	Notes
	PIGU		1 / 2

1: GPI-anchor transamidase complex || 2: integral to endoplasmic reticulum membrane

ECM 20, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

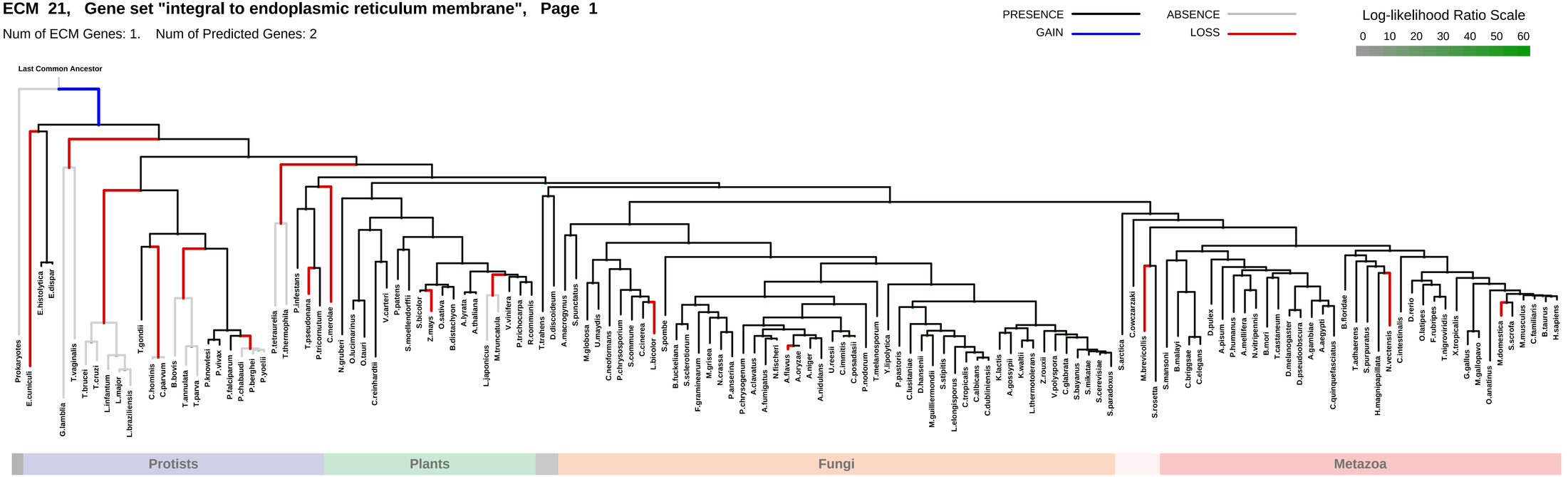


PG	Protein	LLR	Notes
	DOLPP1		1

1: integral to endoplasmic reticulum membrane

ECM 21, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

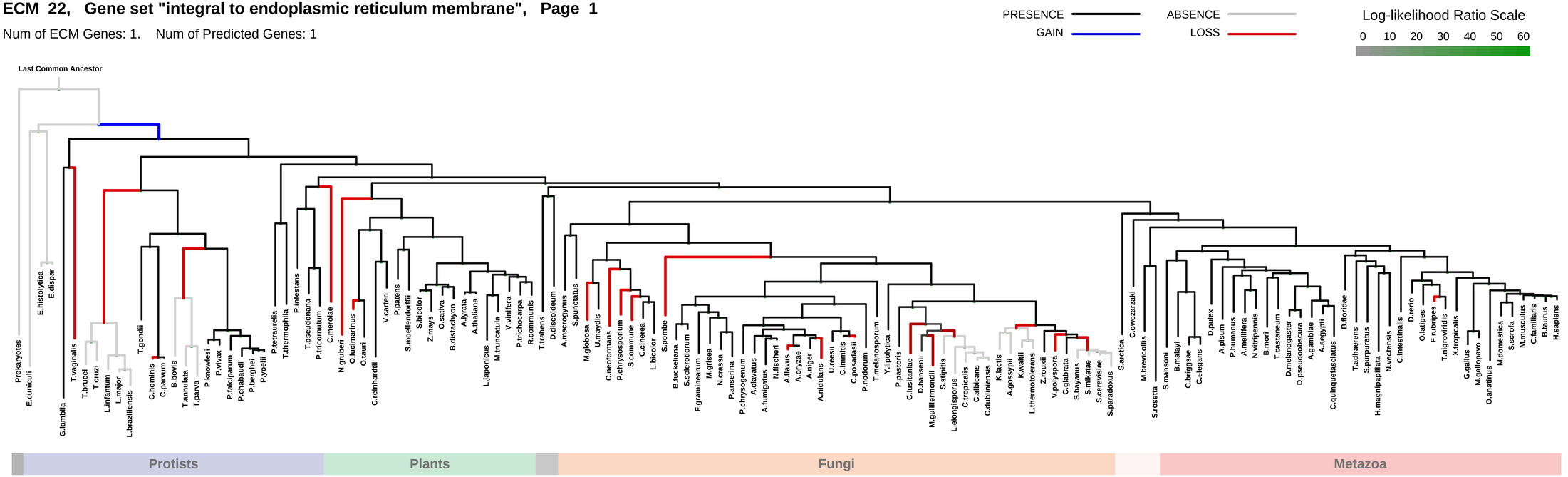


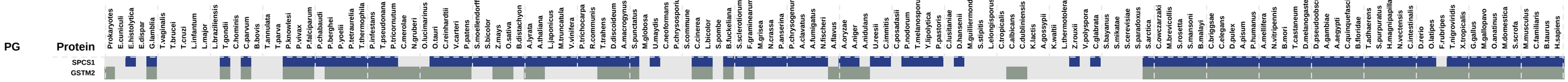
PG	Protein	LLR	Notes
	PIGT		1 / 2 / 3
	IST1	10.2	1 / 4
	PIGW	1.0	

1: cytoplasmic membrane-bounded vesicle || 2: GPI-anchor transamidase complex || 3: integral to endoplasmic reticulum membrane || 4: endoplasmic reticulum-Golgi intermediate compartment

ECM 22, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

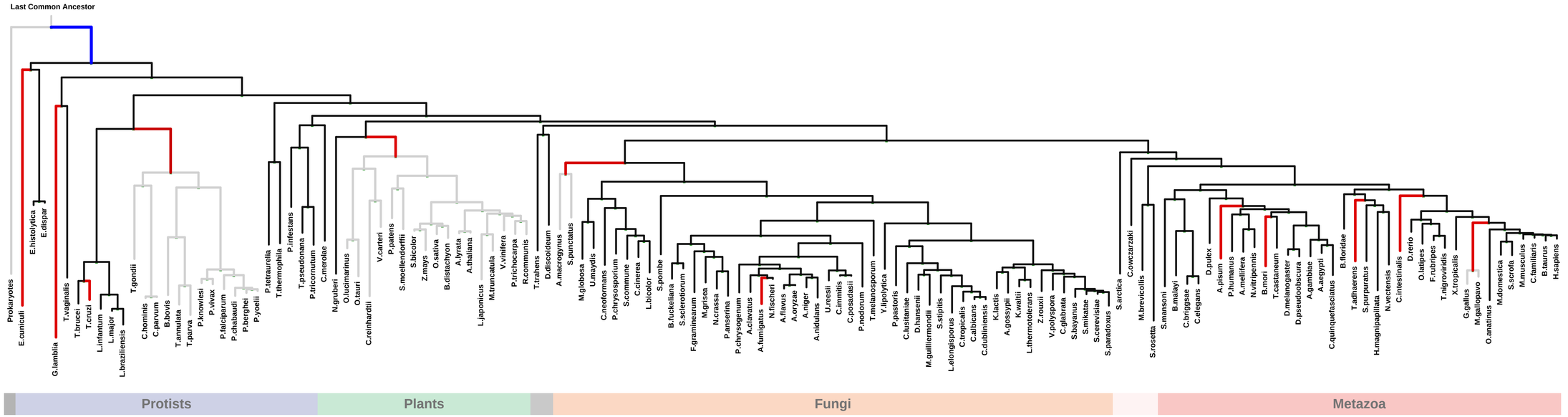


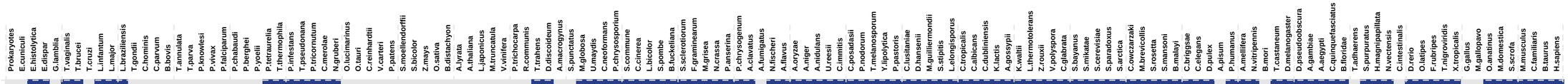


1: integral to endoplasmic reticulum membrane || 2: signal peptidase complex

ECM 23, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

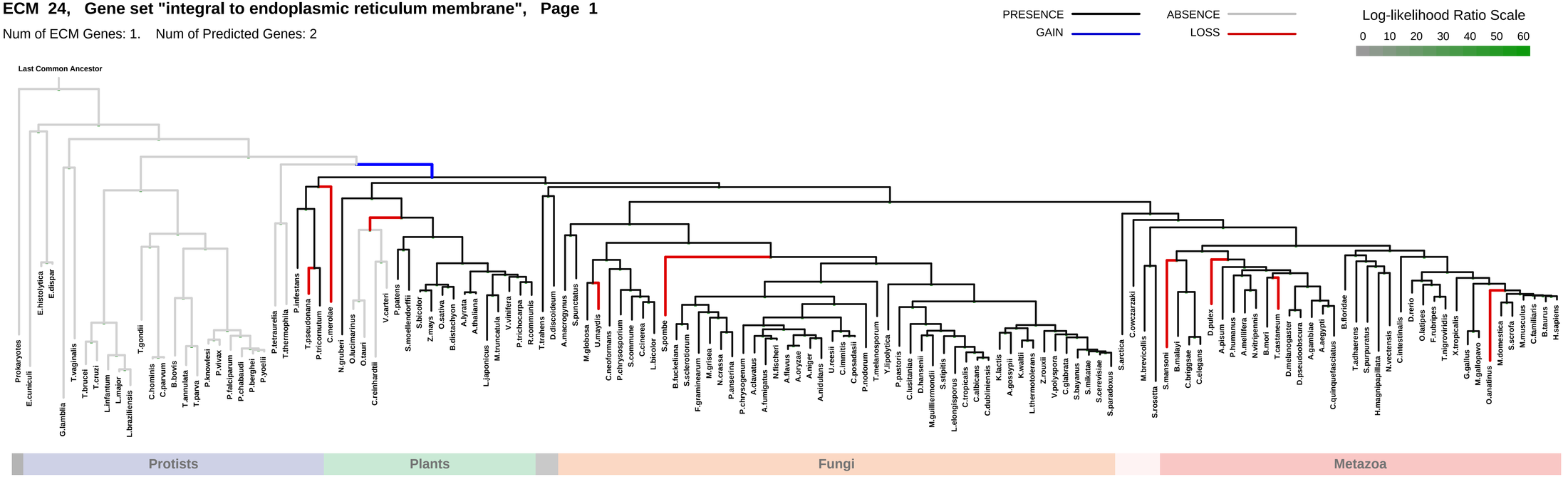




1: autophagic vacuole || 2: caveola || 3: early endosome || 4: Golgi stack || 5: integral to endoplasmic reticulum membrane || 6: late endosome || 7: lysosomal membrane || 8: lysosome || 9: membrane raft || 10: neuron projection ||
11: synaptic vesicle || 12: trans-Golgi network

ECM 24, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

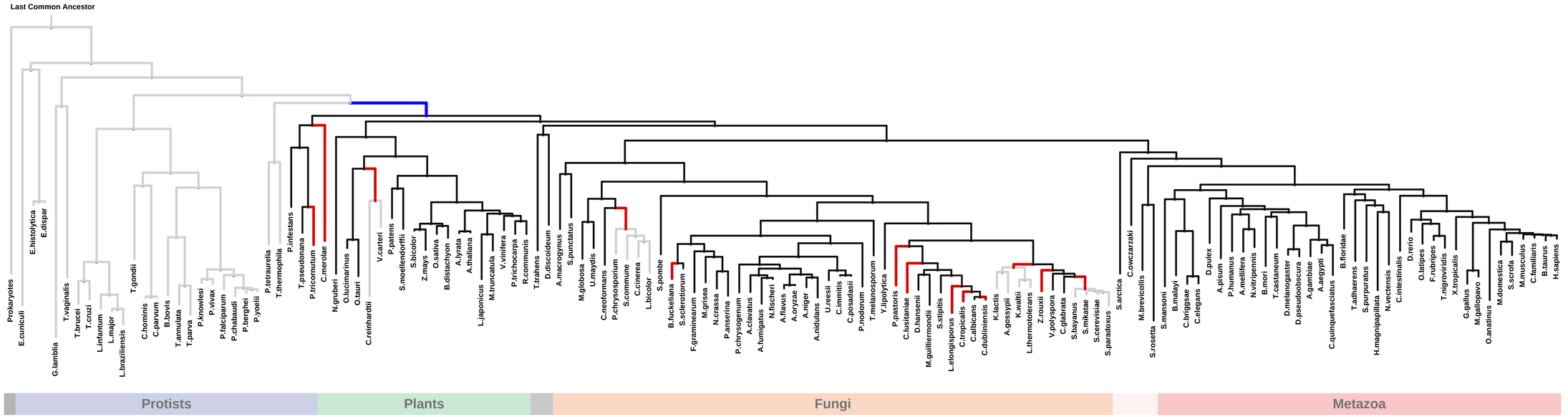


PG	Protein	LLR	Notes
A	ACER3		1 / 2
A	ACER1	18.2	
A	ACER2	16.3	2

1: integral to endoplasmic reticulum membrane || 2: integral to Golgi membrane

ECM 25, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

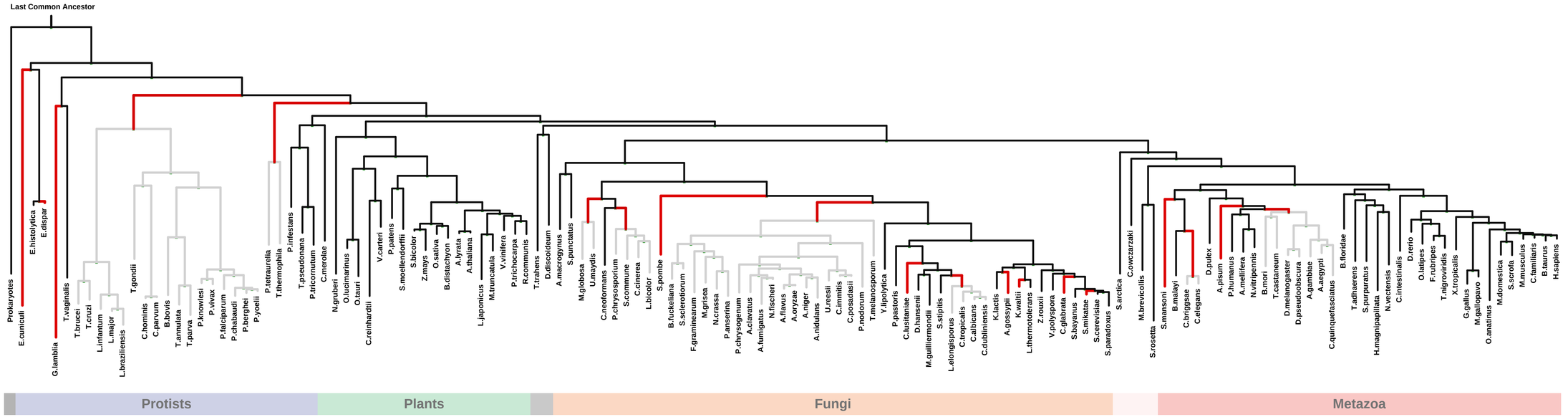


PG	Protein	LLR	Notes
	CREB3		1 / 2

1: integral to endoplasmic reticulum membrane || 2: nuclear body

ECM 26, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

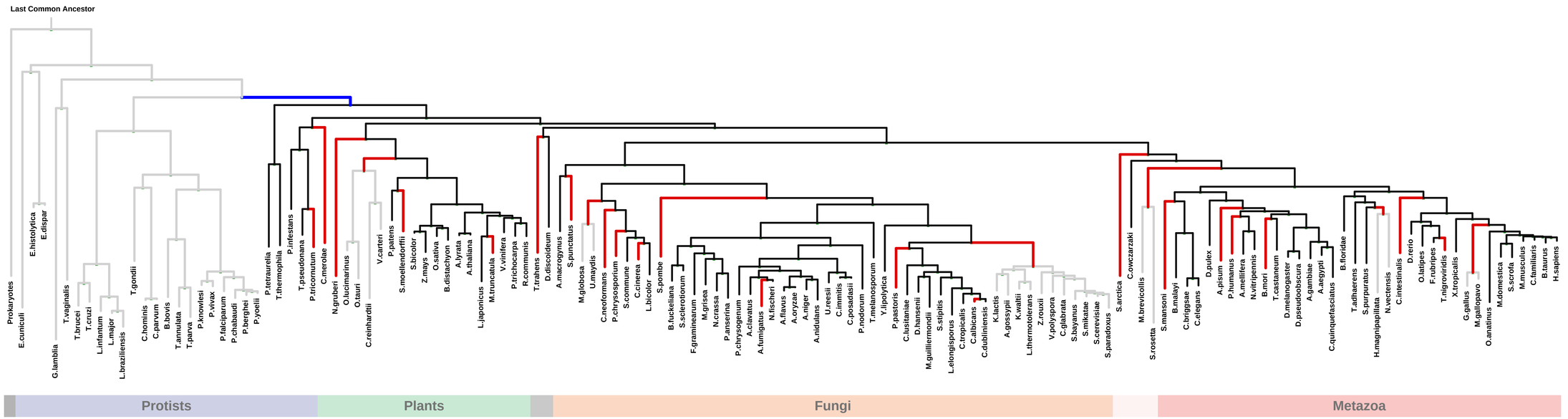


PG	Protein	LLR	Notes
	RHBDD1		1 / 2
	100508250	3.9	
	MRRF	0.4	

1: endoplasmic reticulum quality control compartment || 2: integral to endoplasmic reticulum membrane

ECM 27, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

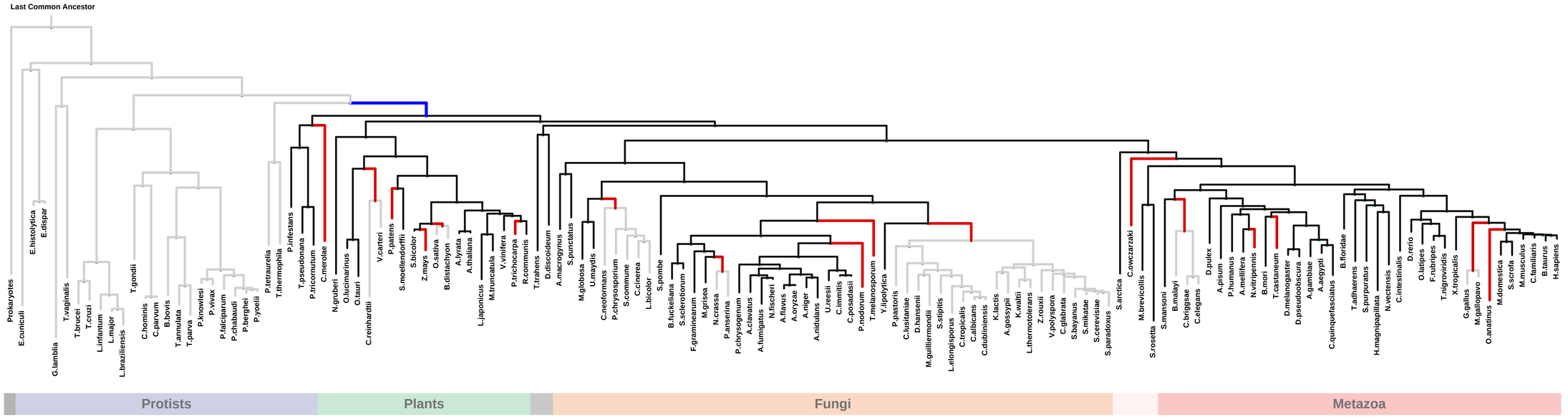


PG	Protein	LLR	Notes
	DPM3		1 / 2

1: dolichol-phosphate-mannose synthase complex || 2: integral to endoplasmic reticulum membrane

ECM 28, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

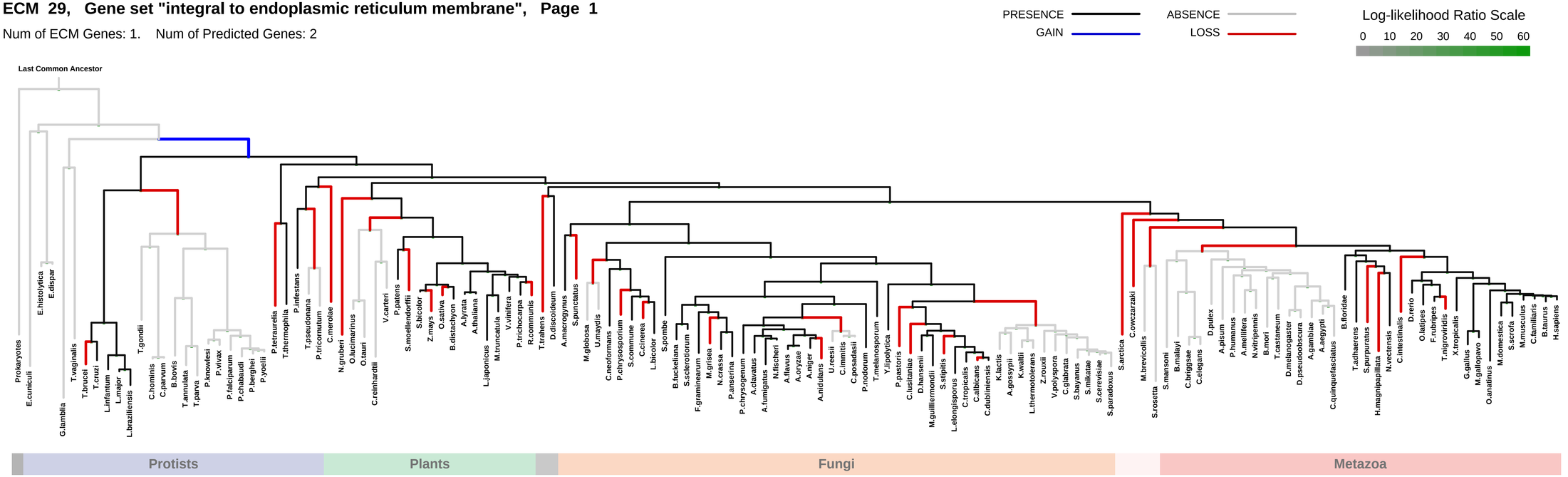


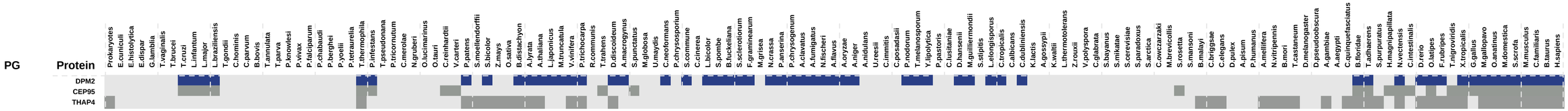
PG	Protein	LLR	Notes
	BSCL2		1

1: integral to endoplasmic reticulum membrane

ECM 29, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

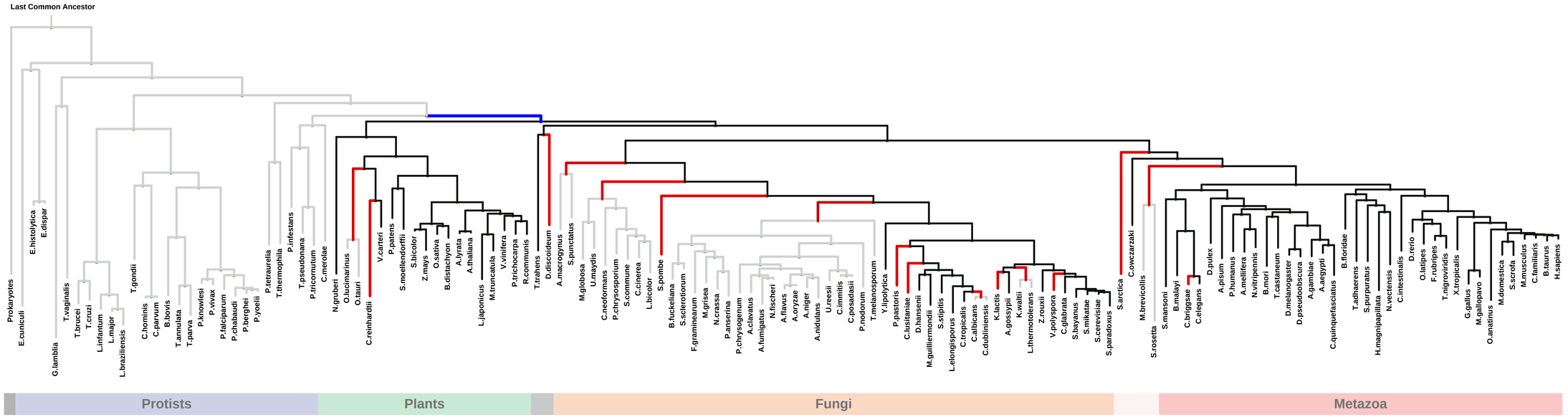


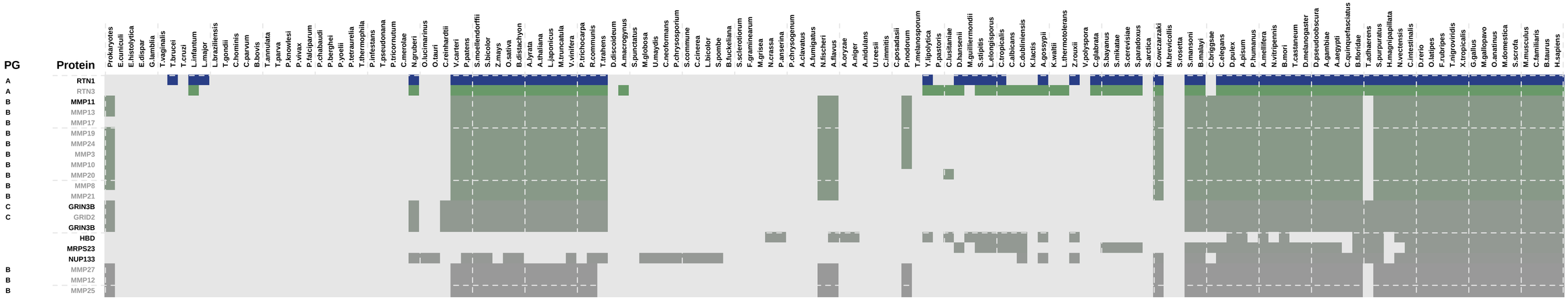


1: dolichol-phosphate-mannose synthase complex || 2: glycosylphosphatidylinositol-N-acetylglucosaminyltransferase (GPI-GnT) complex || 3: integral to endoplasmic reticulum membrane || 4: spindle pole

ECM 30, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 20

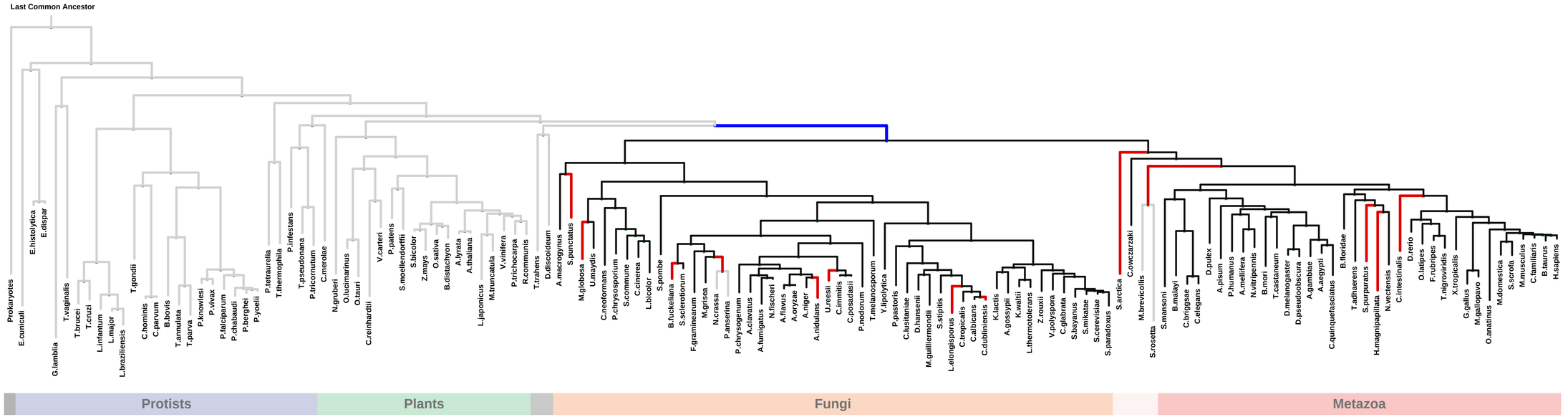




1: integral to endoplasmic reticulum membrane || 2: Golgi lumen || 3: proteinaceous extracellular matrix || 4: fibrillar collagen || 5: intercellular canaliculus || 6: lysosome || 7: anchored to membrane || 8: cell body || 9: dendrite ||
10: extracellular matrix || 11: N-methyl-D-aspartate selective glutamate receptor complex || 12: outer membrane-bounded periplasmic space || 13: postsynaptic membrane || 14: dendritic spine || 15: ionotropic glutamate receptor complex ||
16: postsynaptic density || 17: synapse || 18: hemoglobin complex || 19: intermediate filament cytoskeleton || 20: nuclear membrane || 21: ribosome || 22: condensed chromosome kinetochore || 23: condensed chromosome outer kinetochore ||
24: nuclear envelope || 25: nuclear pore || 26: nuclear pore outer ring

ECM 31, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

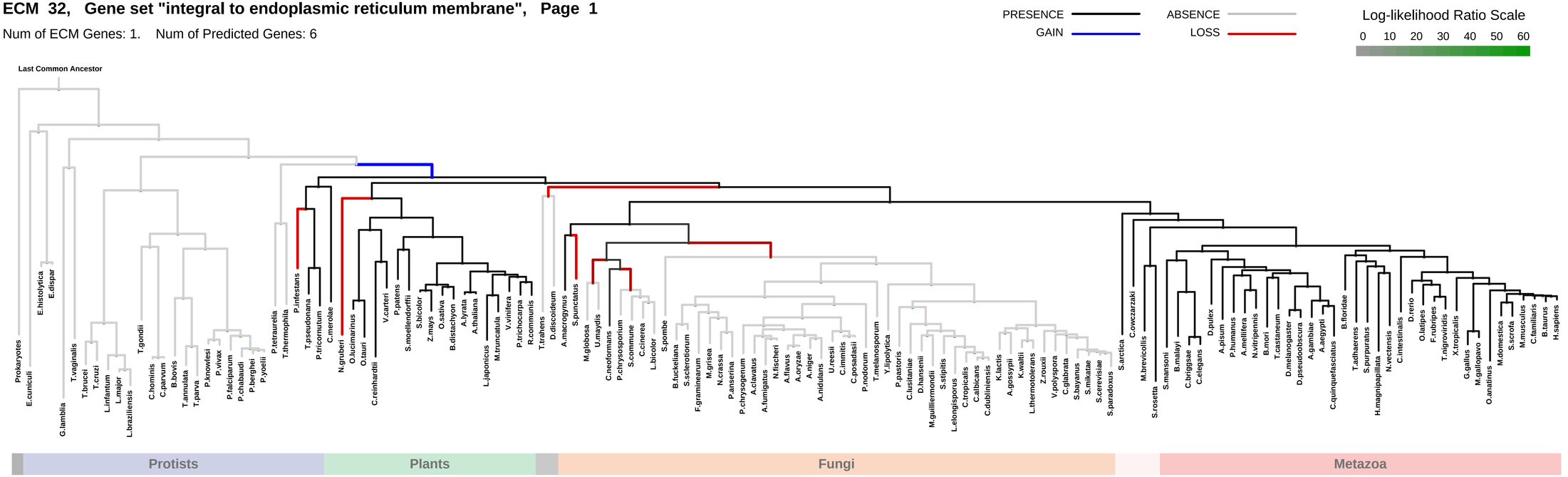


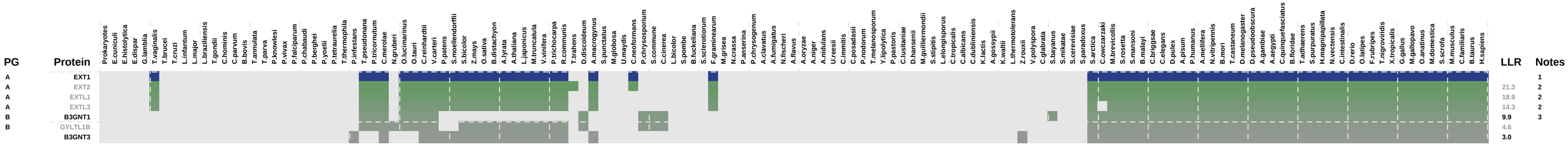
PG	Protein	LLR	Notes
A	FITM2		1
A	FITM1	7.7	1

1: integral to endoplasmic reticulum membrane

ECM 32, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 6





1: integral to endoplasmic reticulum membrane || 2: intrinsic to endoplasmic reticulum membrane || 3: integral to Golgi membrane

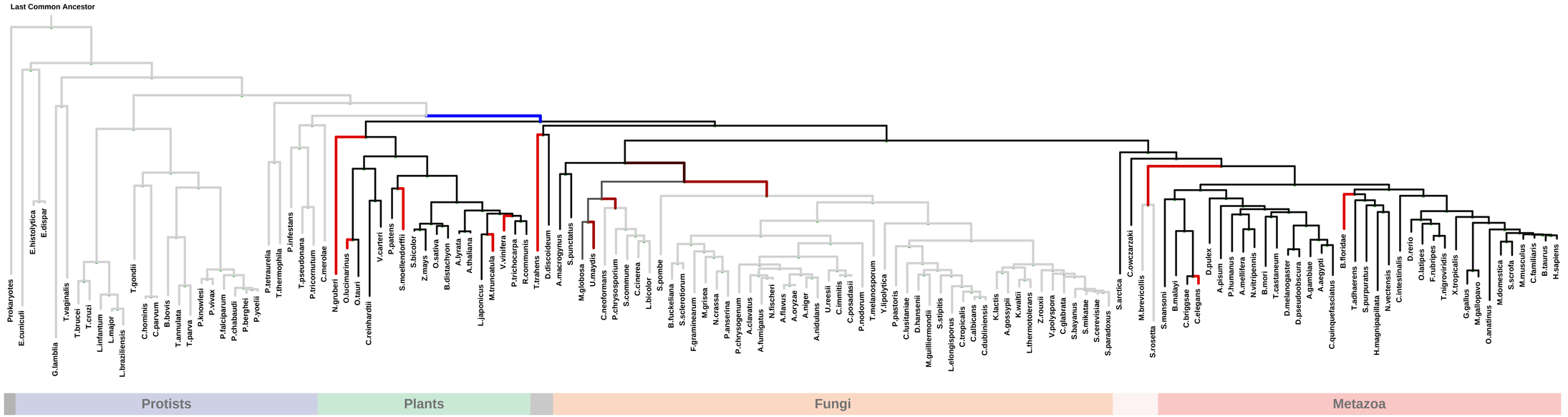
ECM 33, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

1: integral to endoplasmic reticulum membrane

ECM 34, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

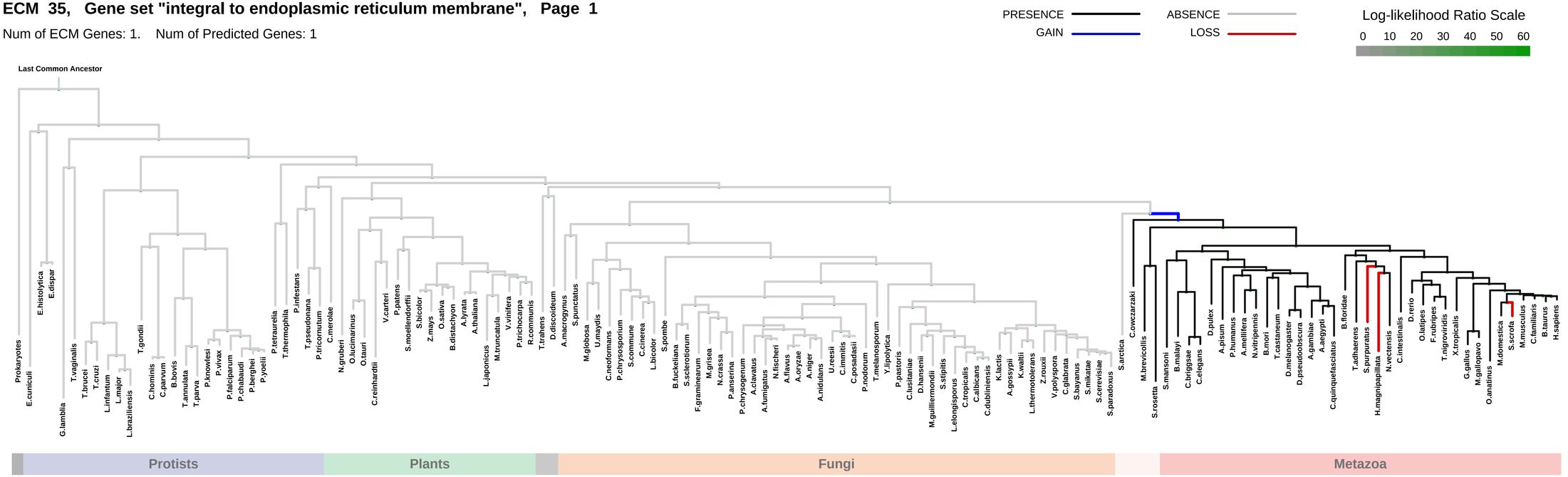


PG	Protein	LLR	Notes
	BNIP1		1 / 2 / 3
	CREB5	1.1	

1: integral to endoplasmic reticulum membrane || 2: nuclear envelope || 3: SNARE complex

ECM 35, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

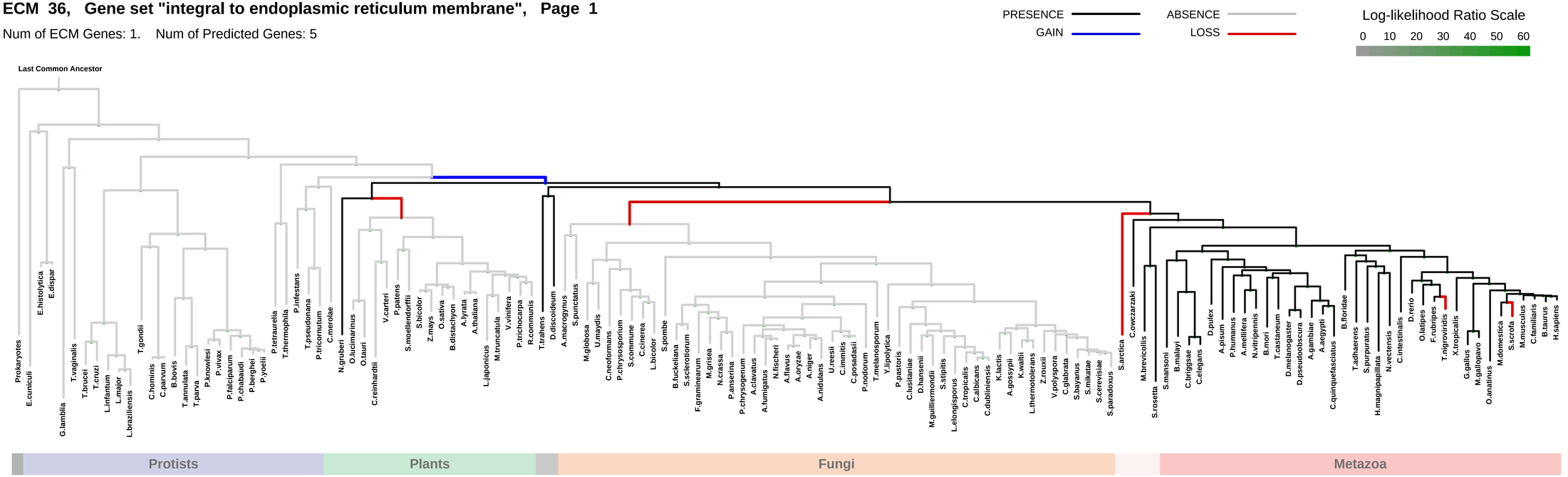


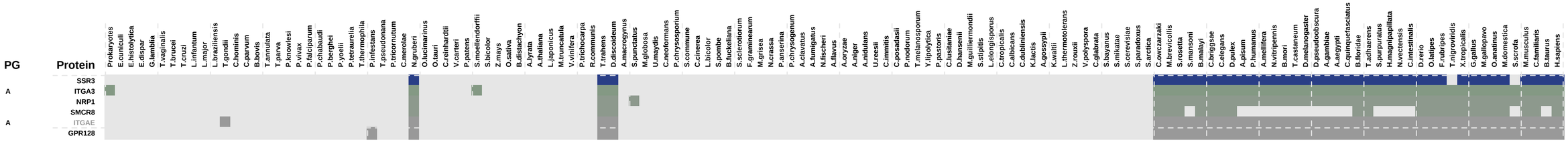
PG	Protein	LLR	Notes
	ANKLE2		1 / 2
	BLZF1	0.3	3

1: integral to endoplasmic reticulum membrane || 2: nuclear envelope || 3: Golgi lumen

ECM 36, Gene set "integral to endoplasmic reticulum membrane", Page 1

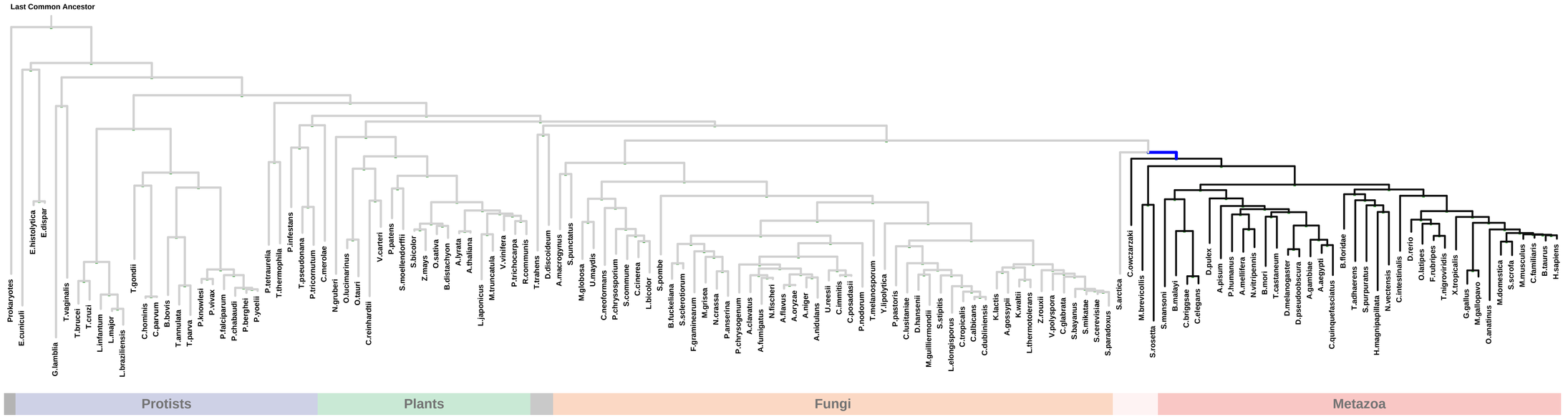
Num of ECM Genes: 1. Num of Predicted Genes: 5





ECM 37, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

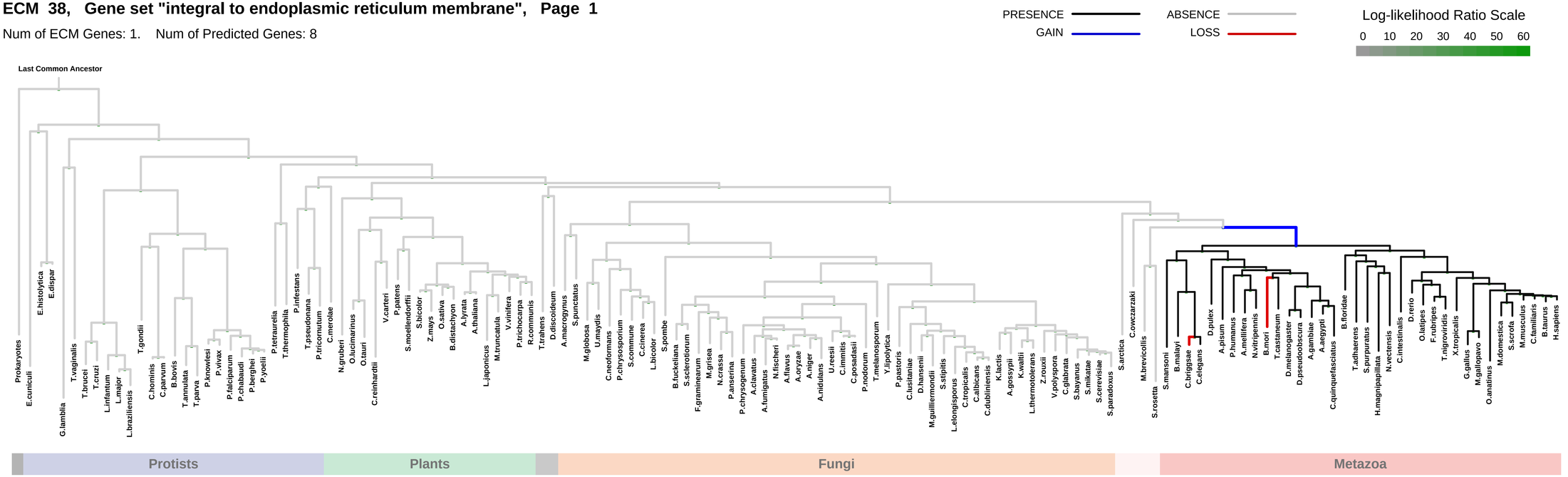


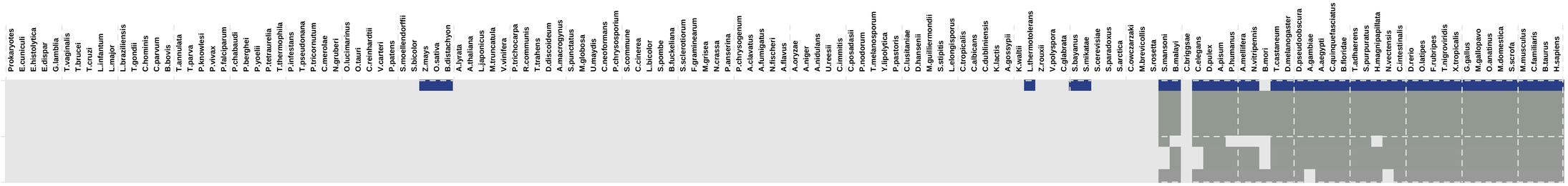
PG	Protein	LLR	Notes
	LRIT1		1

1: integral to endoplasmic reticulum membrane

ECM 38, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 8

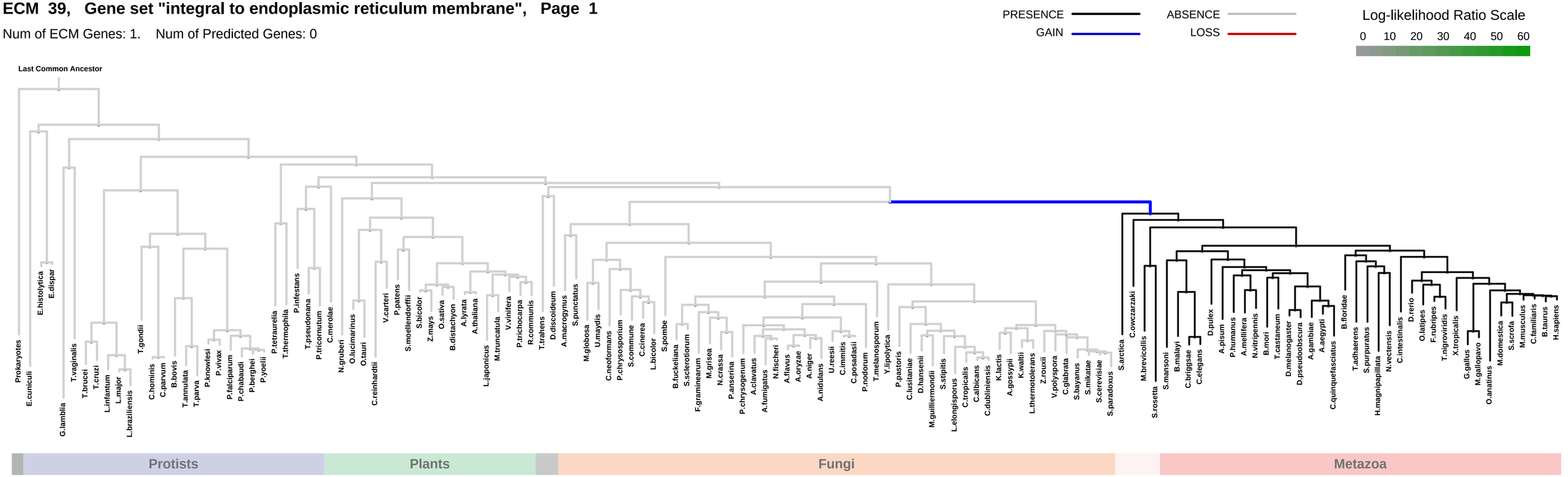




1: integral to endoplasmic reticulum membrane || 2: lysosome || 3: myelin sheath || 4: neuron projection || 5: nuclear envelope || 6: nuclear body || 7: nuclear part || 8: PML body || 9: transcriptional repressor complex

ECM 39, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

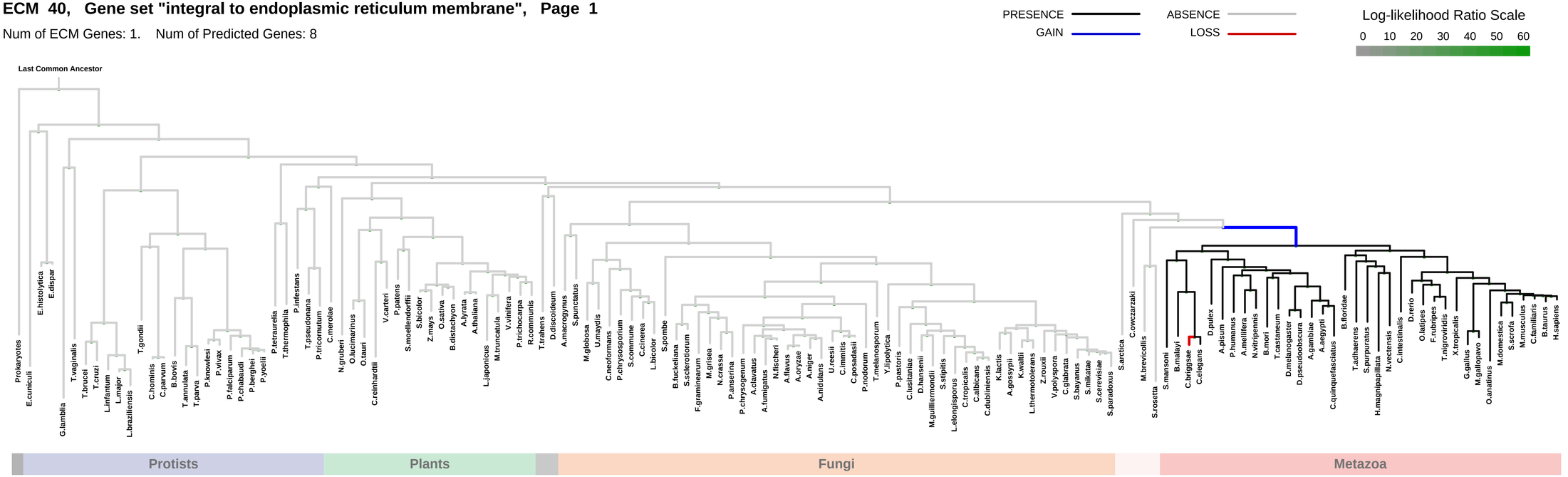


PG	Protein	LLR	Notes
	STIM1		1 / 2

1: cortical endoplasmic reticulum || 2: integral to endoplasmic reticulum membrane

ECM 40, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 8

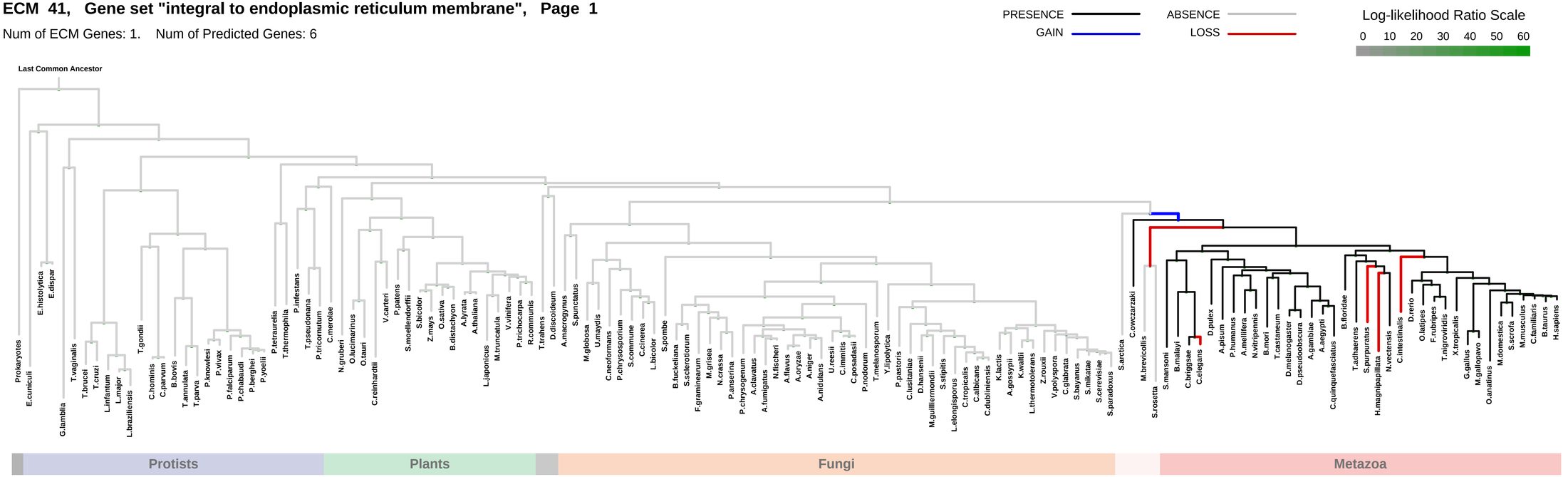


PG	Protein	LLR	Notes
	RTN4		1 / 2 / 3 / 4
	NPC2	7.5	5
A	SKI	7.5	6 / 7 / 8 / 9
A	SKIL	7.5	8
	CLSPN	4.3	
	F2RL3	3.6	
B	UBAP2	3.2	
B	UBAP2L	3.2	10
	SKIDA1	1.5	

1: integral to endoplasmic reticulum membrane || 2: myelin sheath || 3: neuron projection || 4: nuclear envelope || 5: lysosome || 6: nuclear body || 7: nuclear part || 8: PML body || 9: transcriptional repressor complex ||
10: Ada2/Gcn5/Ada3 transcription activator complex

ECM 41, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 6

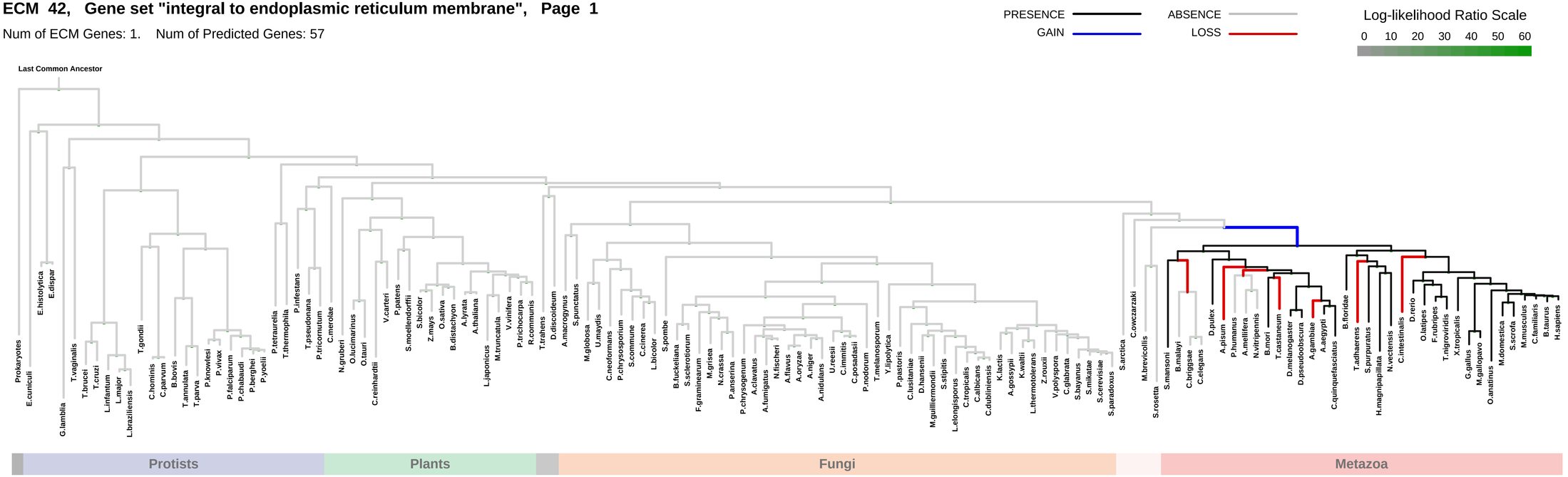


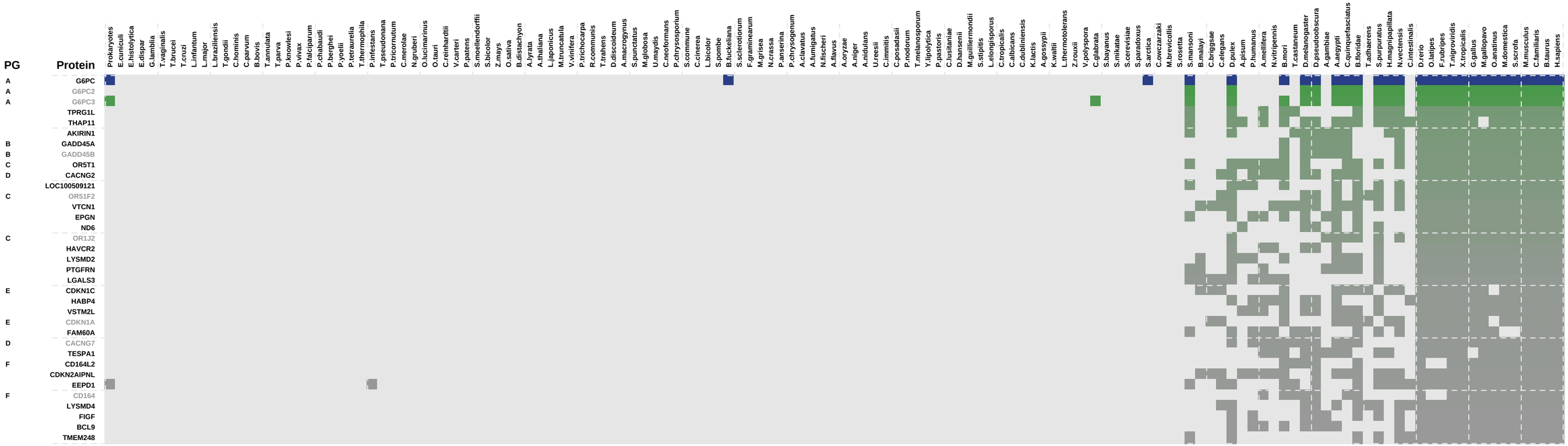
PG	Protein	LLR	Notes
	FITM1		1
A	388079	3.2	
A	100509399	3.2	
A	ZCCHC2	2.5	
B	FAM114A2	0.8	
B	FAM114A1	0.8	
	PRR12	0.1	

1: integral to endoplasmic reticulum membrane

ECM 42, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 57

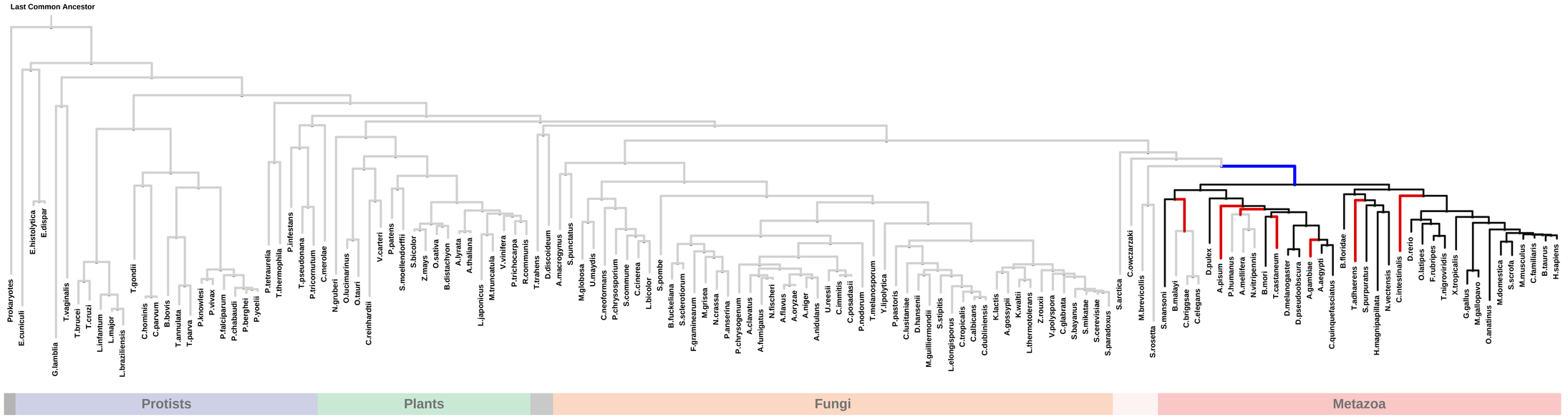


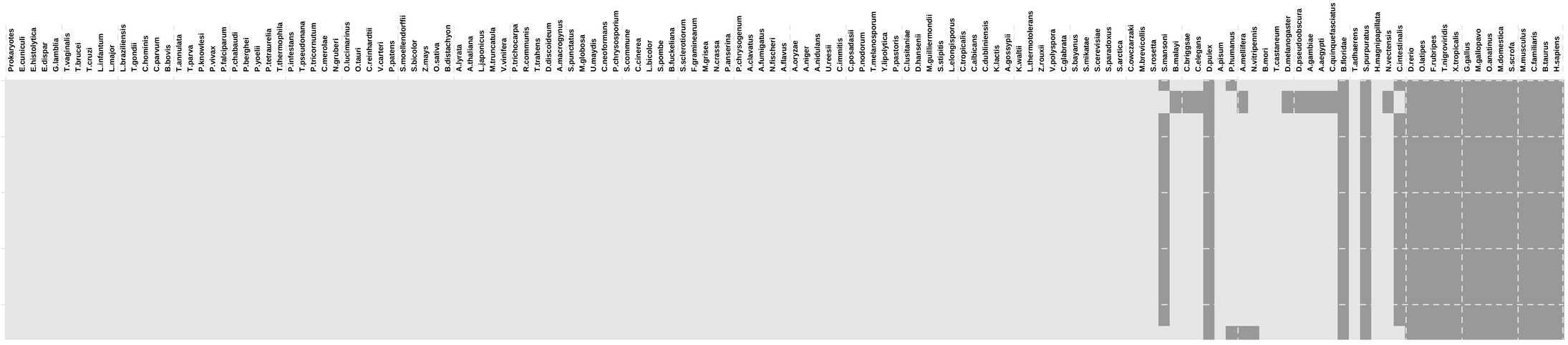


1: integral to endoplasmic reticulum membrane || 2: synaptic vesicle || 3: half bridge of spindle pole body || 4: nuclear membrane || 5: alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid selective glutamate receptor complex || 6: endocytic vesicle membrane || 7: voltage-gated calcium channel complex || 8: mitochondrial respiratory chain complex I || 9: extracellular matrix || 10: proteinaceous extracellular matrix || 11: spliceosomal complex || 12: sarcomere || 13: cyclin-dependent protein kinase holoenzyme complex || 14: PCNA-p21 complex || 15: Sin3 complex || 16: signalosome || 17: endosome || 18: endosome membrane || 19: lysosomal membrane || 20: lysosome || 21: platelet alpha granule lumen

ECM 42, Gene set "integral to endoplasmic reticulum membrane", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 57



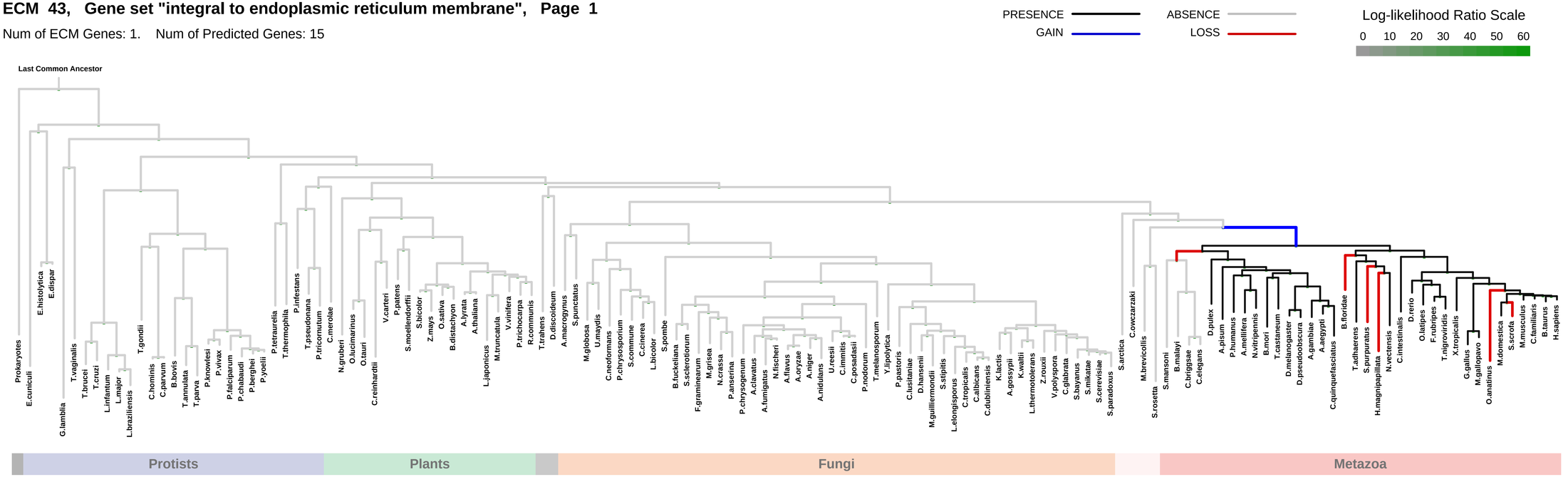


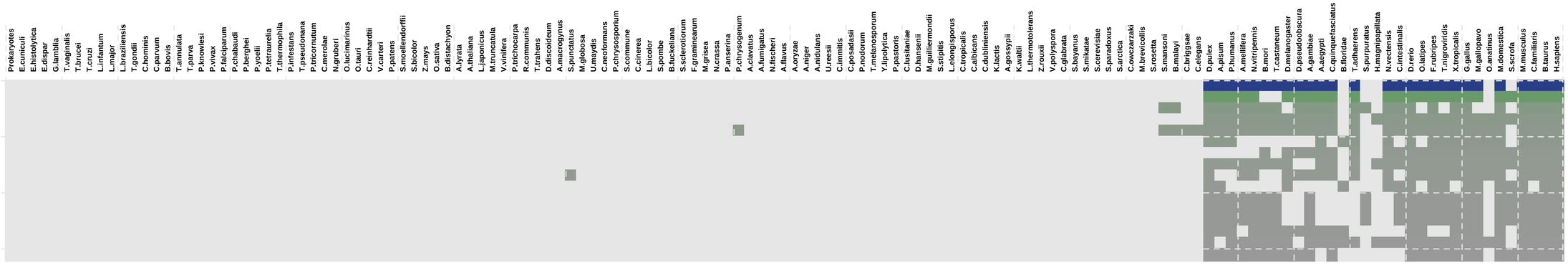
PG	Protein	LLR	Notes
G	CBLN1	0.3	1
H	FAM69C	0.1	
H	FAM69B	0.1	
G	CBLN3	0.1	1
G	CBLN4	0.1	1
G	C1QL4	0.1	2
G	C1QTNF2	0.1	2
G	C1QTNF3	0.1	2
G	C1QTNF4	0.1	
G	C1QTNF5	0.1	2
G	COL10A1	0.1	2 / 3 / 4
G	COL8A1	0.1	4 / 5 / 6
G	COL8A2	0.1	2 / 4 / 5 / 6 / 7
G	C1QTNF6	0.1	2
G	C1QTNF7	0.1	2
G	C1QTNF8	0.1	2
G	C1QC	0.1	2
	TEDDM1	0.1	
G	C1QL1	0.1	2
G	C1QL2	0.1	2
G	C1QL3	0.1	2
G	CBLN2	0.1	
	CDCA4	0.0	

1: synapse || 2: collagen || 3: cell cortex || 4: endoplasmic reticulum lumen || 5: basement membrane || 6: extracellular matrix || 7: proteinaceous extracellular matrix

ECM 43, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 15

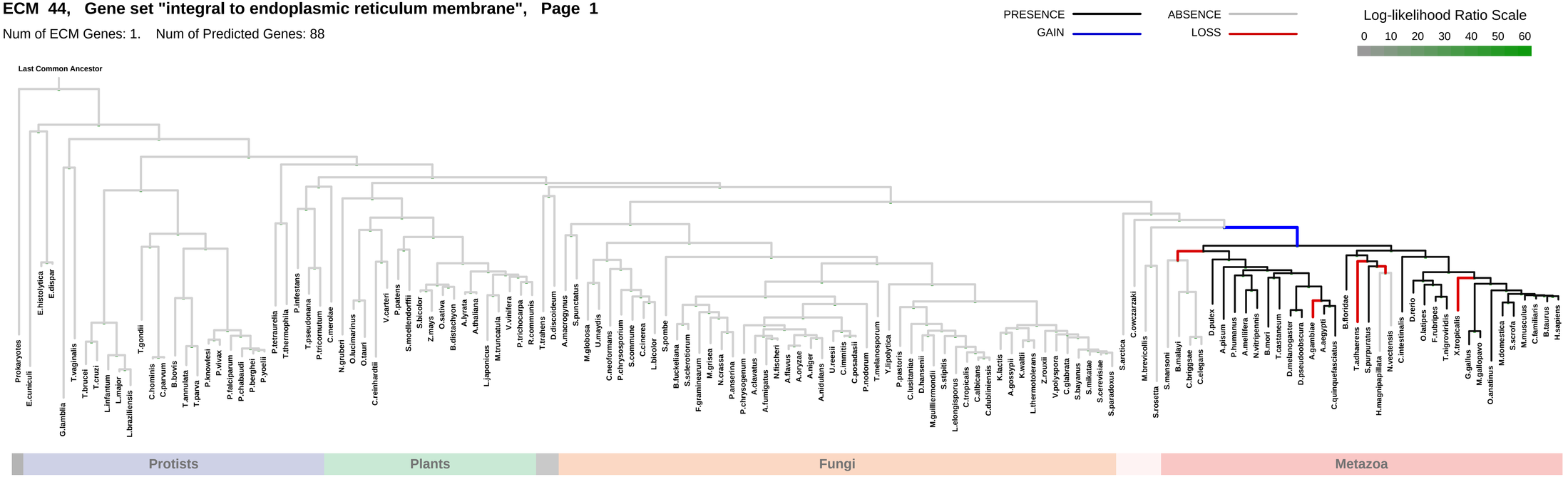


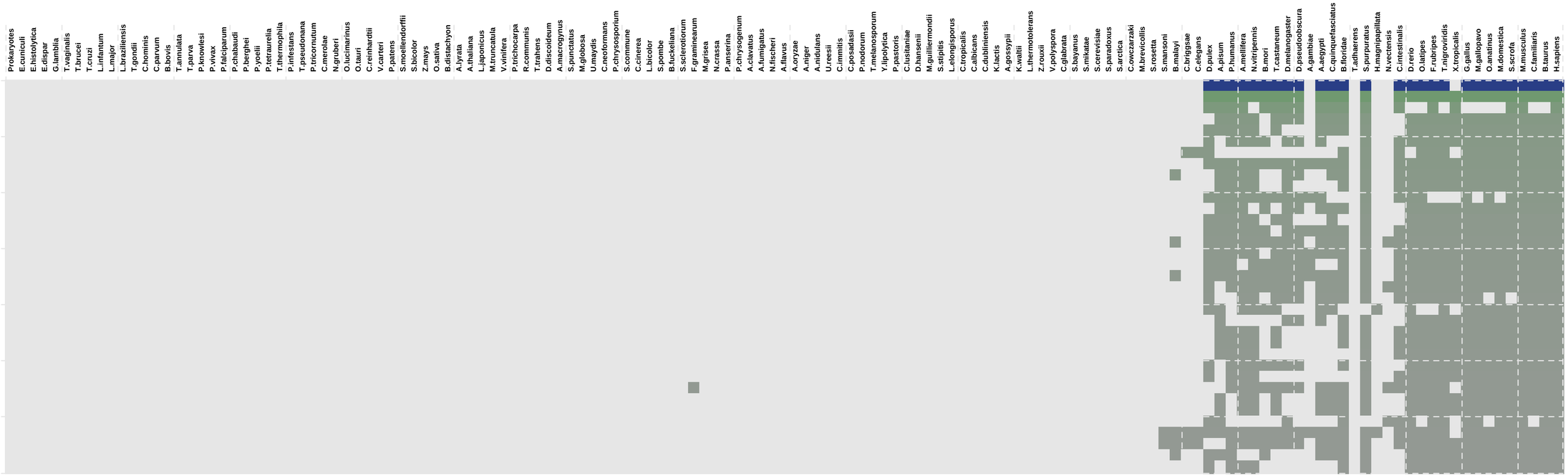


1: dendrite || 2: integral to endoplasmic reticulum membrane || 3: nuclear speck || 4: spliceosomal complex || 5: Fanconi anaemia nuclear complex || 6: basal plasma membrane || 7: lateral plasma membrane || 8: ribonucleoprotein complex || 9: spindle pole centrosome || 10: cell leading edge || 11: nuclear matrix

ECM 44, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 88



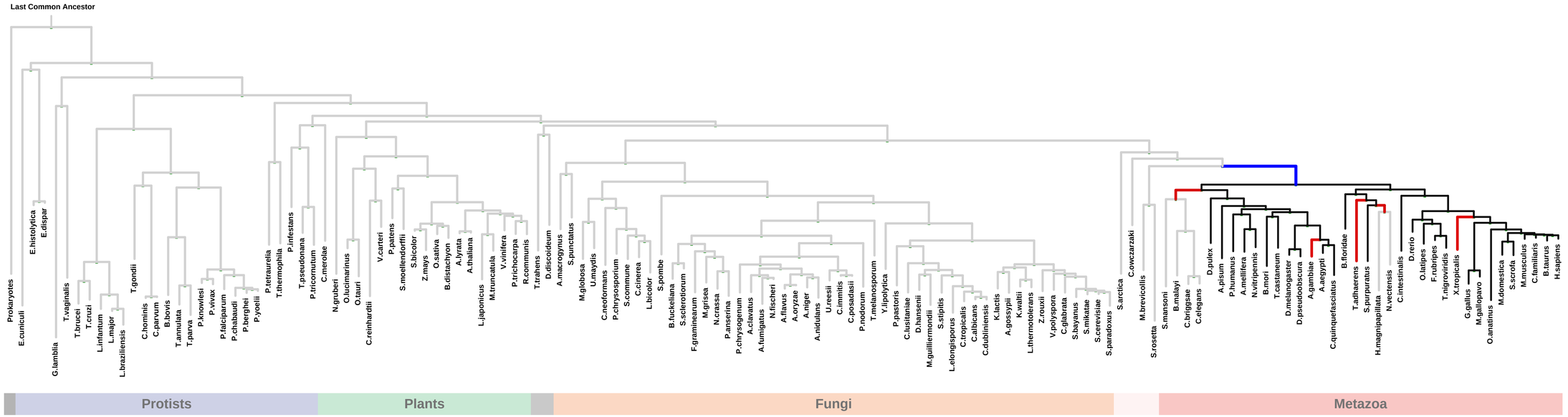


PG	Protein	LLR	Notes
	DCSTAMP		1 / 2 / 3
	BAG5	17.5	4
	123855	12.0	
A	GFRAL	8.4	
	C2CD2L	7.9	
	HABP4	7.5	5
	ZACN	7.3	6
	TEX28	7.3	
B	FAM193A	6.9	
	HDAC9	6.4	7 / 8
	NDUFB11	6.3	9
	VSTM2L	6.2	
	AUTS2	5.3	
	CCR10	5.1	
	SLC22A31	4.8	
C	FAM195A	4.7	
	EVPLL	4.7	
	TWSG1	4.5	
D	NFATC4	4.2	10
	MYEOV2	4.0	
	UQCR11	4.0	11
	ND6	3.9	9
E	COBLL1	3.9	
E	COBL	3.9	12 / 13 / 14 / 15 / 16 / 17 /
B	FAM193B	3.5	
F	SERTAD2	3.4	
C	FAM195B	3.0	
D	NFATC3	2.9	
A	GFRA1	2.9	19 / 20
A	GFRA3	2.9	19 / 20 / 21
	TNFSF12	2.8	
	TMEM9B	2.7	
G	MYOD1	2.7	22 / 23
	LYSMD2	2.5	
F	CDCA4	2.3	

1: endoplasmic reticulum-Golgi intermediate compartment membrane || 2: endosome membrane || 3: integral to endoplasmic reticulum membrane || 4: inclusion body || 5: sarcomere || 6: postsynaptic membrane || 7: histone deacetylase complex || 8: histone methyltransferase complex || 9: mitochondrial respiratory chain complex I || 10: intermediate filament cytoskeleton || 11: respiratory chain || 12: actin filament || 13: axon || 14: axonal growth cone || 15: cell cortex || 16: dendrite || 17: dendritic growth cone || 18: ruffle || 19: anchored to membrane || 20: extrinsic to membrane || 21: external side of plasma membrane || 22: myofibril || 23: nuclear chromatin

ECM 44, Gene set "integral to endoplasmic reticulum membrane", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 88

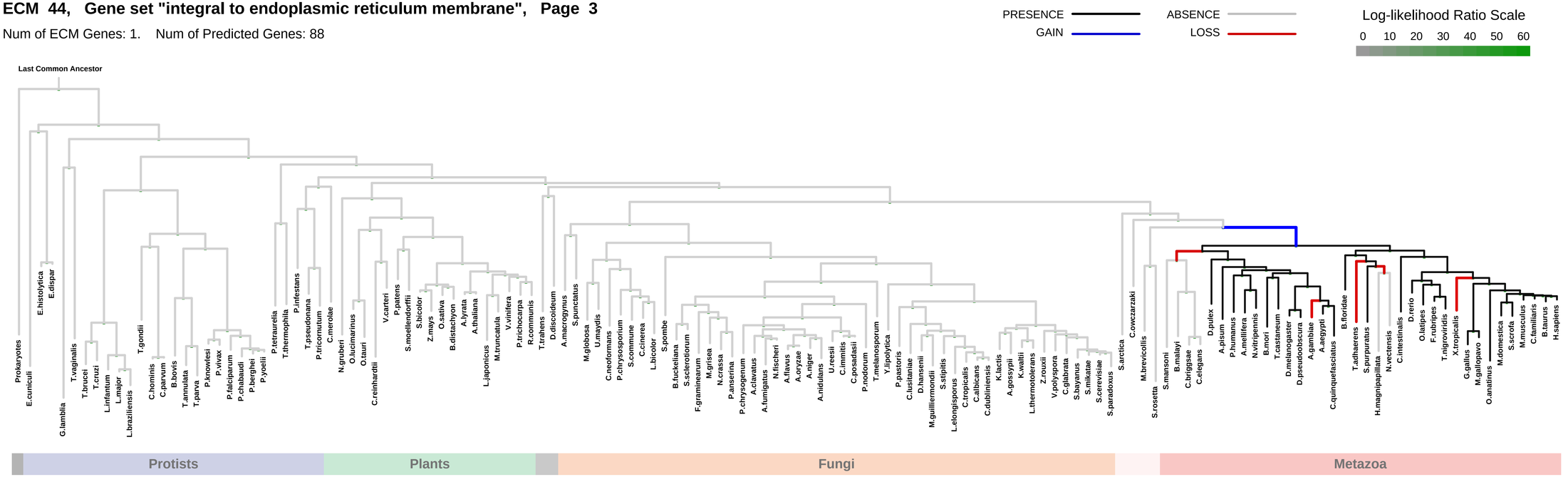


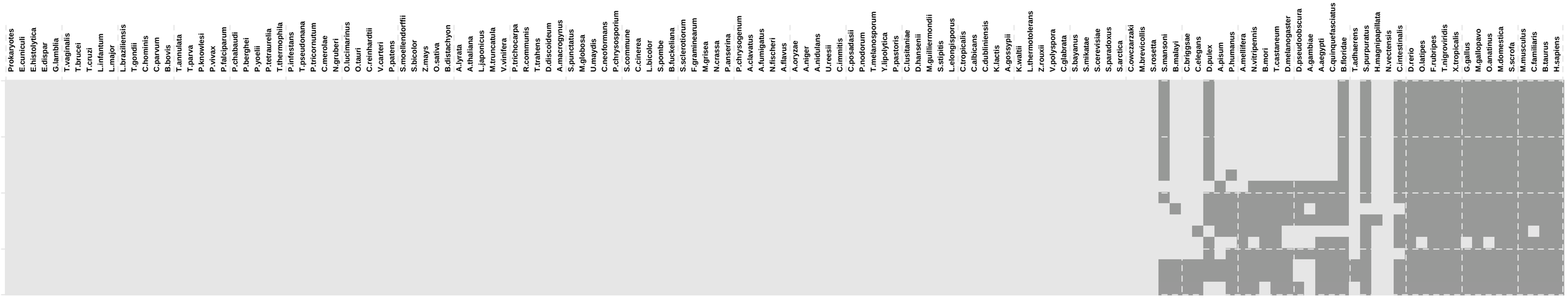
PG	Protein	LLR	Notes
	MID1IP1	2.3	1
	SIRPG	2.2	
H	VGLL1	2.2	
H	VGLL2	2.2	
H	VGLL3	2.2	
	VEGFB	2.1	2
	DAPL1	1.5	
	CSPG4P3Y	1.4	
	CSPG4P4Y	1.4	
	100509804	1.4	
I	CRABP1	1.4	
I	PMP2	1.4	
I	CRABP2	1.4	
I	FABP12	1.4	
I	FABP3	1.4	3
I	FABP4	1.4	4
I	FABP5	1.4	
I	FABP7	1.4	5
I	FABP9	1.4	6
D	NFATC2	1.3	7 / 8
J	NINJ2	1.2	
J	NINJ1	1.2	
I	FABP6	1.1	
	HAVCR2	1.0	
K	COL10A1	1.0	9 / 10 / 11
K	COL8A1	1.0	11 / 12 / 13
K	COL8A2	1.0	10 / 11 / 12 / 13 / 14
K	C1QTNF2	1.0	10
K	C1QTNF3	1.0	10
	TEDDM1	1.0	
K	C1QTNF4	1.0	
K	C1QTNF5	1.0	10
K	C1QTNF6	1.0	10
K	C1QTNF7	1.0	10
K	C1QTNF8	1.0	10

1: microtubule cytoskeleton || 2: platelet alpha granule lumen || 3: sarcoplasm || 4: lipid particle || 5: cell projection || 6: acrosomal vesicle || 7: actin cytoskeleton || 8: ribonucleoprotein complex || 9: cell cortex || 10: collagen ||
11: endoplasmic reticulum lumen || 12: basement membrane || 13: extracellular matrix || 14: proteinaceous extracellular matrix

ECM 44, Gene set "integral to endoplasmic reticulum membrane", Page 3

Num of ECM Genes: 1. Num of Predicted Genes: 88



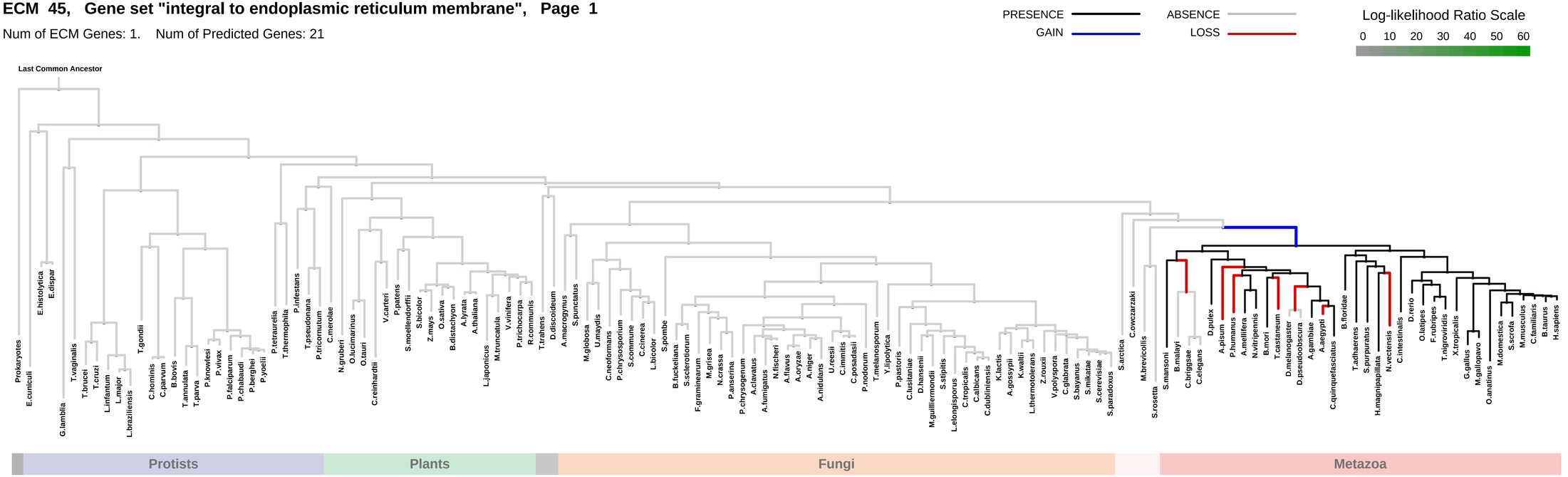


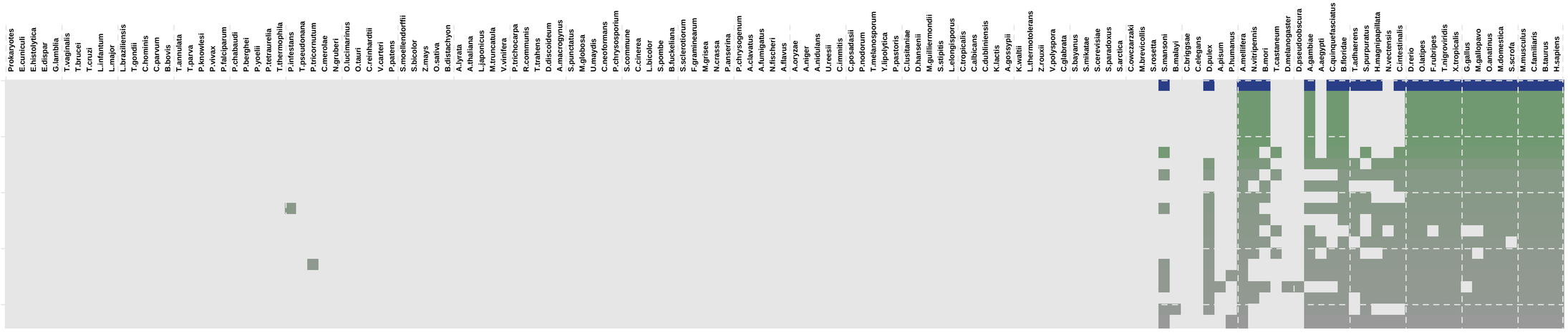
PG	Protein	LLR	Notes
K	C1QC	1.0	1
K	CBLN2	1.0	
K	CBLN3	1.0	2
K	CBLN4	1.0	2
K	C1QL1	1.0	1
K	C1QL2	1.0	1
K	C1QL3	1.0	1
K	C1QL4	1.0	1
K	CBLN1	0.9	2
	CYR61	0.9	
	TNNT3	0.5	3
	CACNG5	0.4	4 / 5 / 6
	CCDC50	0.4	
	LLPH	0.4	
	ANAPC15	0.4	7
	CD226	0.3	8
I	FABP2	0.2	9 / 10
I	RBP2	0.2	
G	MYF6	0.0	

1: collagen || 2: synapse || 3: troponin complex || 4: alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid selective glutamate receptor complex || 5: postsynaptic density || 6: postsynaptic membrane || 7: anaphase-promoting complex ||
8: membrane raft || 9: apical cortex || 10: microvillus

ECM 45, Gene set "integral to endoplasmic reticulum membrane", Page 1

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



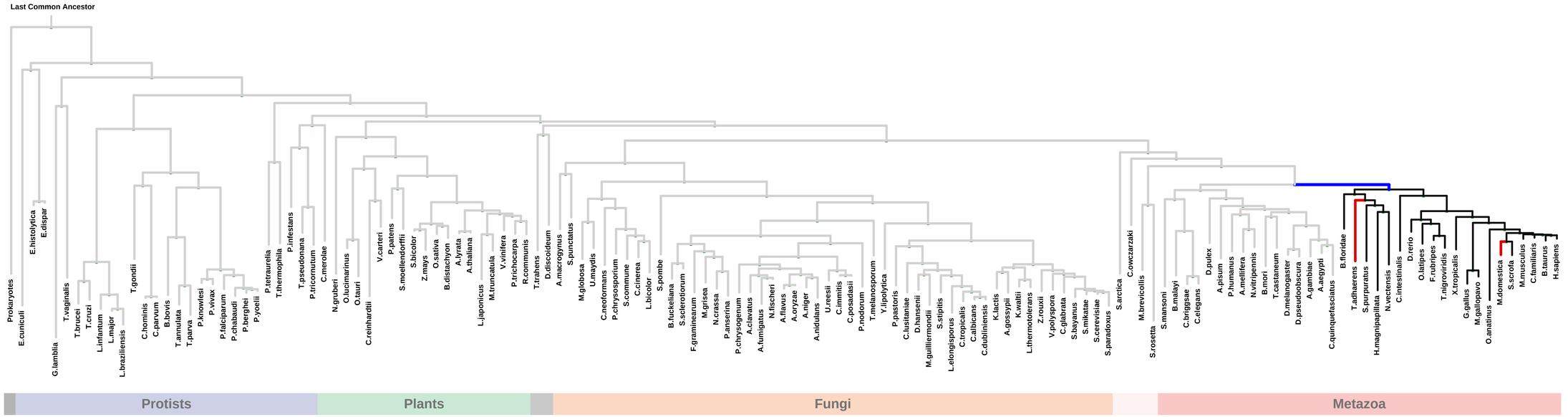


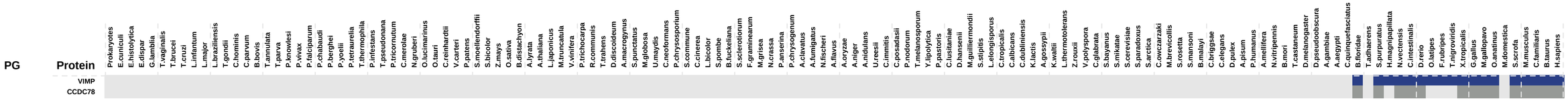
PG	Protein	LLR	Notes
A	RRBP1		1 / 2
B	CT45A1	17.3	
B	CT45A2	17.3	
B	CT45A3	17.3	
B	CT45A4	17.3	
	CT45A6	17.3	
	LAMP3	15.9	3 / 4
C	FAM117B	11.4	
	CBY1	7.5	5 / 6 / 7
B	CT45A5	7.5	
A	KTN1	7.4	
D	BAX	6.9	8 / 9 / 10 / 11
C	GLCCI1	6.4	
	MEA1	6.3	
	GKAP1	5.6	
	TCN2	4.2	
D	BCL2A1	4.2	
D	100289713	3.4	
	SPATA6	3.2	
	ARL14EP	2.9	
	PTGFRN	1.5	
D	BAK1	0.5	10 / 11 / 12

1: integral to endoplasmic reticulum membrane || 2: ribosome || 3: alveolar lamellar body membrane || 4: lysosomal membrane || 5: microtubule basal body || 6: nuclear speck || 7: trans-Golgi network || 8: Bcl-2 family protein complex ||
9: cytosolic part || 10: mitochondrial outer membrane || 11: pore complex || 12: integral to mitochondrial outer membrane

ECM 46, Gene set "integral to endoplasmic reticulum membrane", Page 1

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

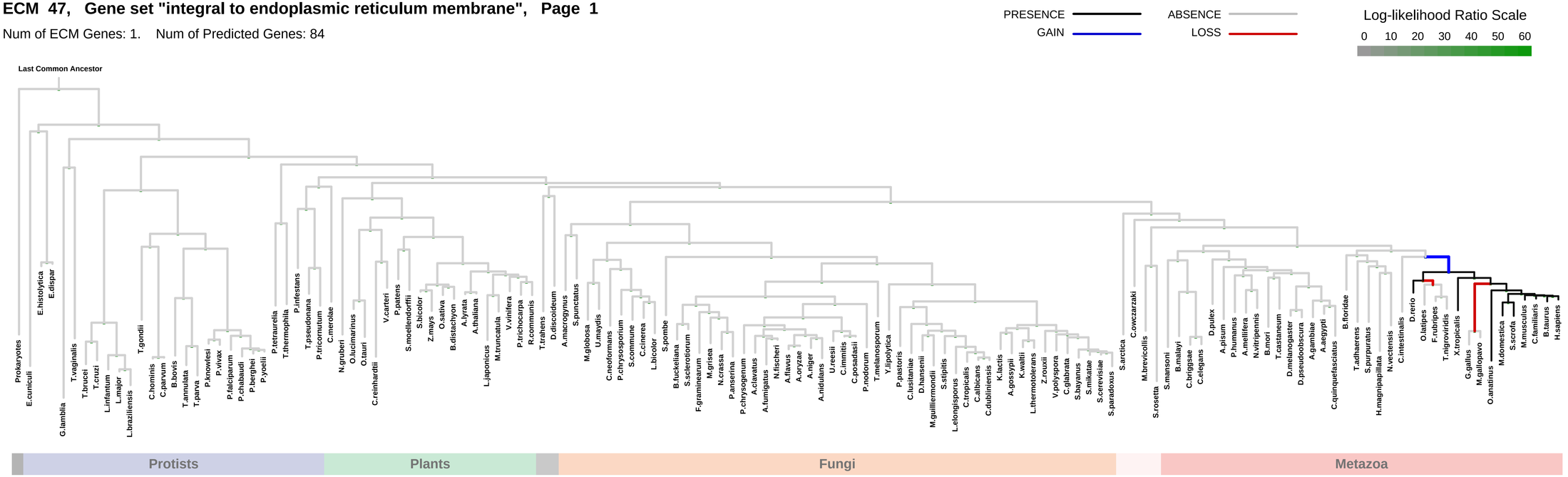


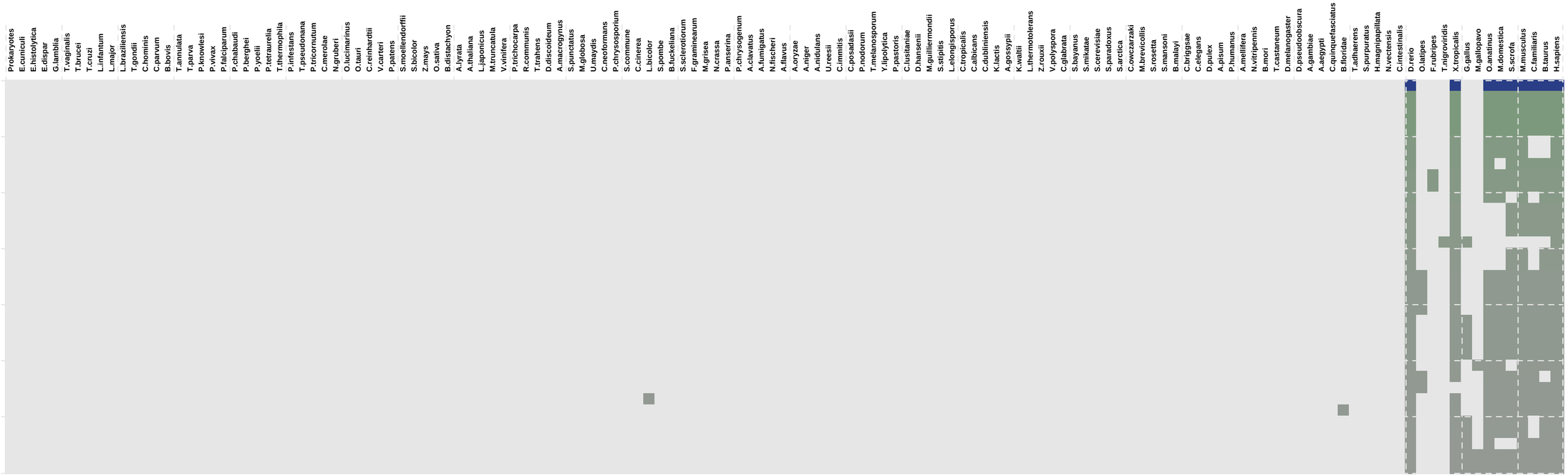


1: integral to endoplasmic reticulum membrane || 2: low-density lipoprotein particle || 3: very-low-density lipoprotein particle || 4: sarcolemma || 5: sarcoplasmic reticulum

ECM 47, Gene set "integral to endoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 84



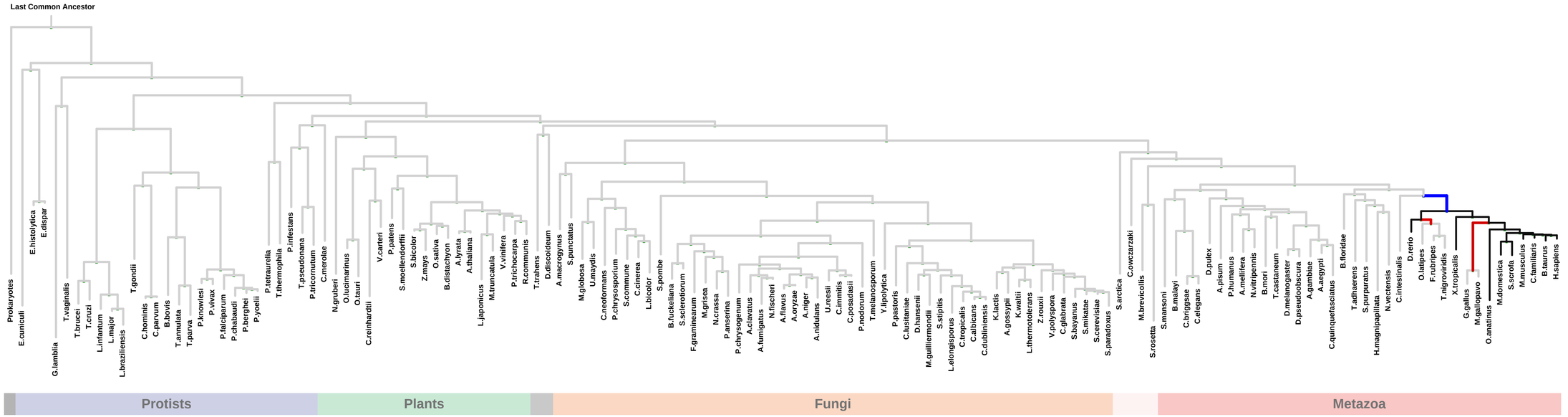


PG	Protein	LLR	Notes
	UPK2		1
	TBATA	12.0	
	SWSAP1	12.0	2
	CMTM5	12.0	
	IZUMO1	12.0	3
	STMND1	9.4	
	TEX15	9.4	
	TMEM218	9.4	
	MARVELD1	8.3	
	PYDC1	8.3	4
	C16orf46	7.7	
	SYCN	6.5	5 / 6
	SMIM10	6.5	
	SMIM1	6.5	
	LOC646543	6.5	
	C2orf80	4.7	
	BCL2L12	4.7	
A	SCAND1	4.4	
B	VN1R5	4.4	
A	ZNF174	4.4	7
A	ZSCAN2	4.4	
	RAD51AP1	4.3	
C	CCDC71	4.3	
D	ALB	4.3	8 / 9
C	CCDC71L	4.3	
	CCDC117	3.6	
	RLN2	3.2	
	APOL5	3.0	
	APOC2	2.8	10 / 11 / 12 / 13 / 14
	TMEM261	2.8	
	MLLT11	2.4	
	PARM1	2.4	15 / 16 / 17
	GRP	2.3	
E	KIR2DS5	2.2	
E	LILRB1	2.2	18

1: integral to endoplasmic reticulum membrane || 2: Shu complex || 3: acrosomal membrane || 4: IkappaB kinase complex || 5: secretory granule membrane || 6: transport vesicle membrane || 7: actin cytoskeleton || 8: basement membrane ||
9: platelet alpha granule lumen || 10: chylomicron || 11: intermediate-density lipoprotein particle || 12: low-density lipoprotein particle || 13: spherical high-density lipoprotein particle || 14: very-low-density lipoprotein particle || 15: early endosome ||
16: endosome membrane || 17: late endosome || 18: external side of plasma membrane

ECM 47, Gene set "integral to endoplasmic reticulum membrane", Page 2

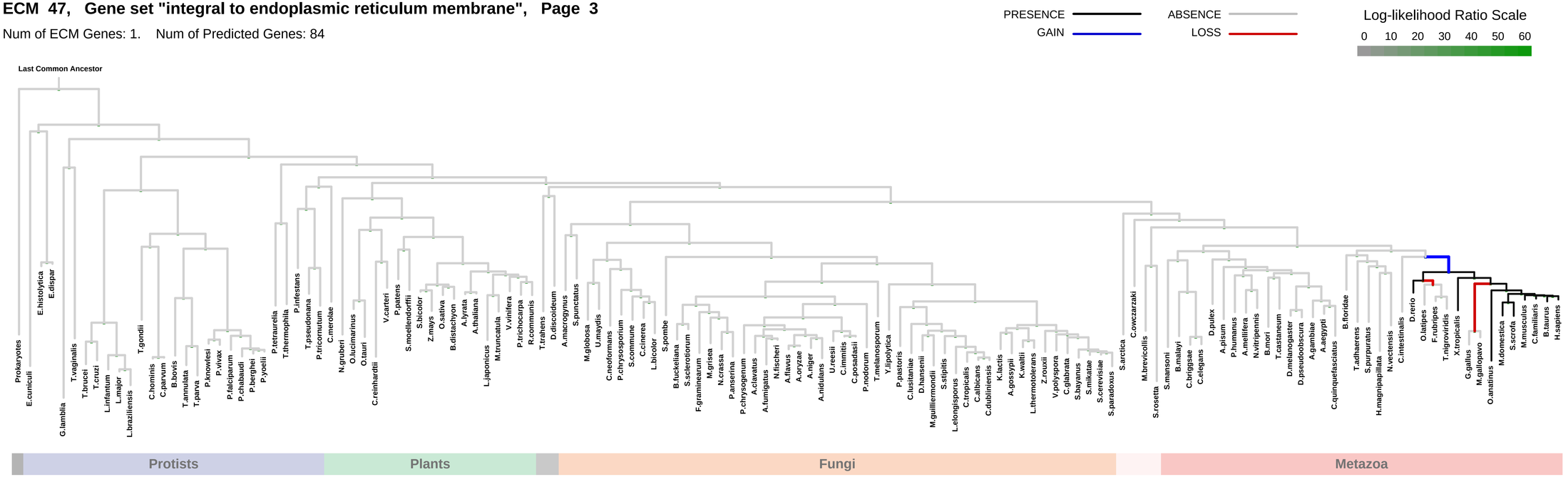
Num of ECM Genes: 1. Num of Predicted Genes: 84

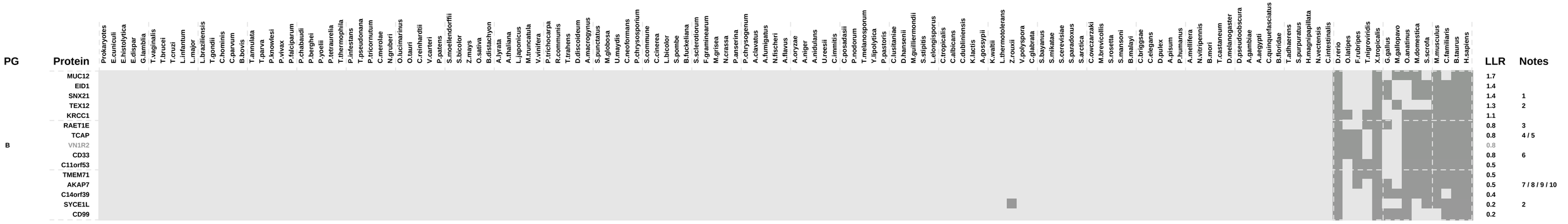


1: compact myelin || 2: internode region of axon || 3: lysosomal lumen || 4: endoplasmic reticulum lumen || 5: secretory granule || 6: angiogenin-PRI complex || 7: basal lamina || 8: growth cone || 9: mitochondrial outer membrane ||
10: platelet alpha granule || 11: chromosome || 12: DNA-directed RNA polymerase I complex || 13: RNA polymerase I transcription factor complex

ECM 47, Gene set "integral to endoplasmic reticulum membrane", Page 3

Num of ECM Genes: 1. Num of Predicted Genes: 84





1: cytoplasmic vesicle membrane || 2: synaptonemal complex || 3: MHC class I protein complex || 4: I band || 5: Z disc || 6: external side of plasma membrane || 7: exocytic vesicle || 8: lateral plasma membrane || 9: sarcoplasmic reticulum || 10: T-tubule