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

Dataset:

Num of genes in input gene set: 24
Total number of genes: 20834
Prediction LLR threshold: 0

The CLIME PDF output two sections:

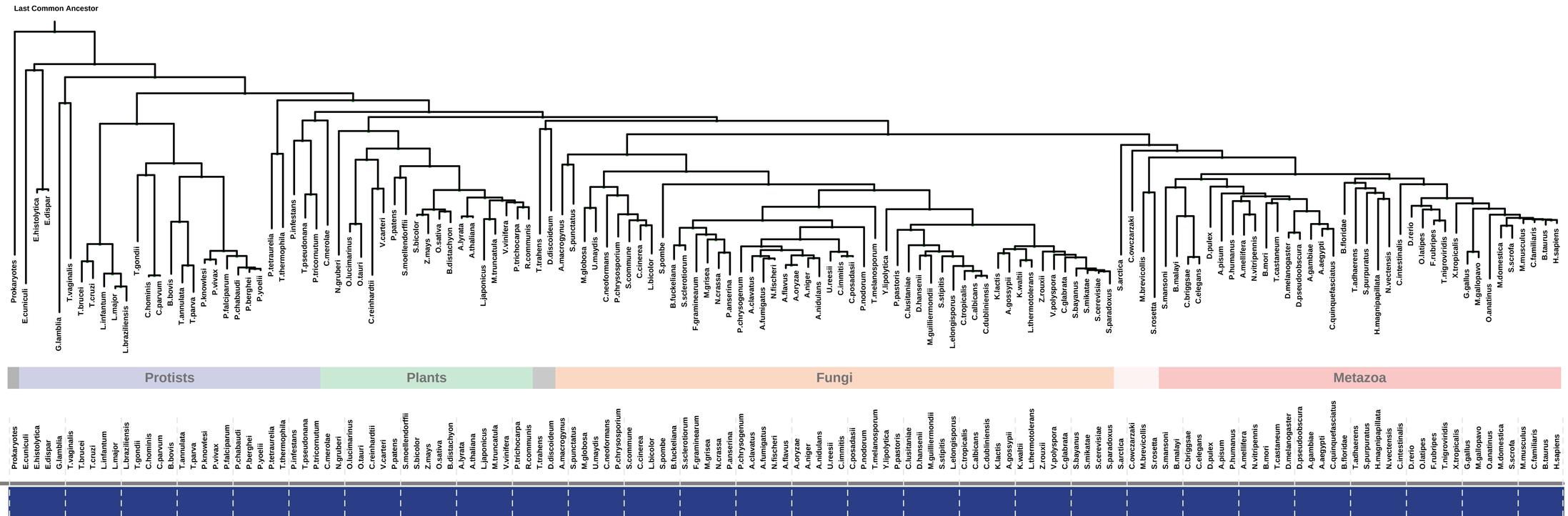
1) Overview of Evolutionarily Conserved Modules (ECMs)

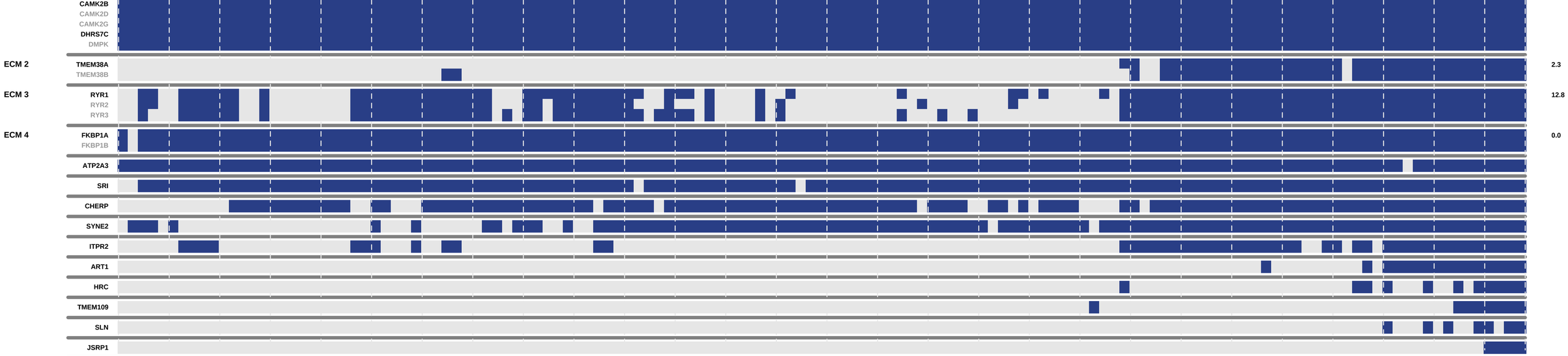
- Top panel shows the predefined species tree.
- Bottom panel shows the partition of input genes into Evolutionary Conserved Modules (ECMs), ordered by ECM strength (shown at right), and separated by horizontal lines.
- Each row show one gene, where the phylogenetic profile indicates presence (blue)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

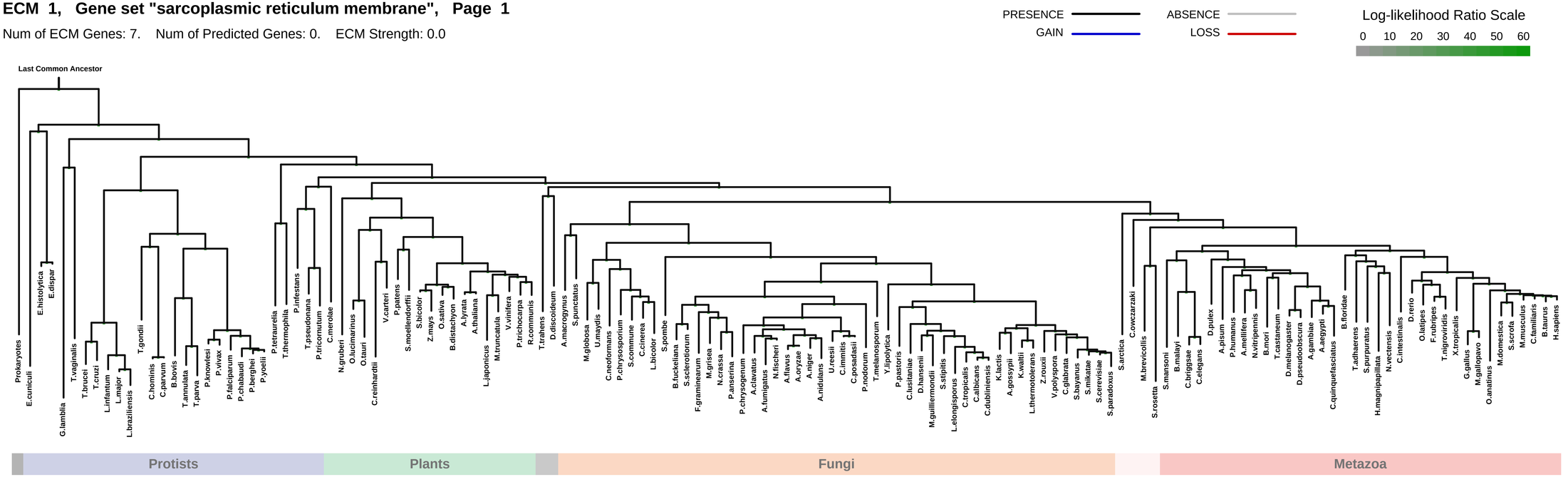
Overview of Evolutionarily Conserved Modules (ECMs)

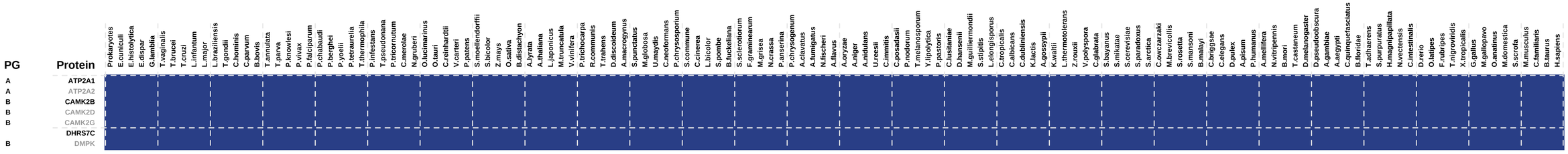




ECM 1, Gene set "sarcoplasmic reticulum membrane", Page 1

Num of ECM Genes: 7. Num of Predicted Genes: 0. ECM Strength: 0.0

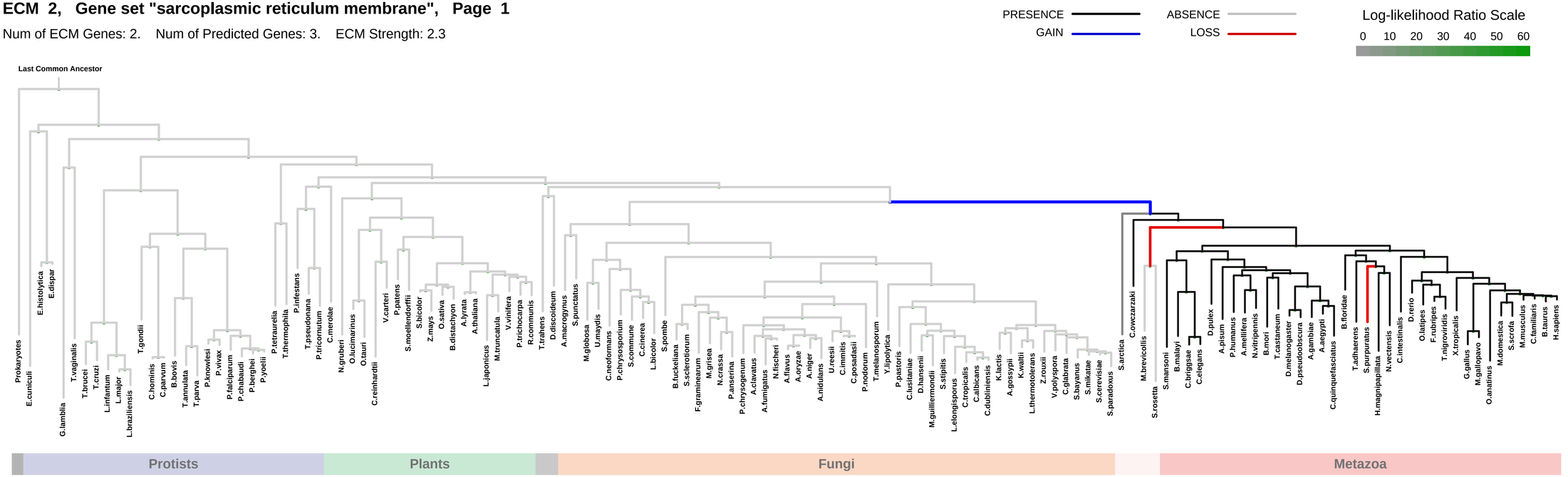




1: calcium channel complex || 2: endoplasmic reticulum-Golgi intermediate compartment || 3: H zone || 4: I band || 5: platelet dense tubular network membrane || 6: sarcoplasmic reticulum || 7: sarcoplasmic reticulum membrane ||
8: endocytic vesicle membrane || 9: microtubule organizing center || 10: spindle midzone || 11: calcium- and calmodulin-dependent protein kinase complex || 12: neuromuscular junction || 13: T-tubule || 14: integral to mitochondrial outer membrane ||
15: nuclear membrane || 16: nuclear outer membrane

ECM 2, Gene set "sarcoplasmic reticulum membrane", Page 1

Num of ECM Genes: 2. Num of Predicted Genes: 3. ECM Strength: 2.3

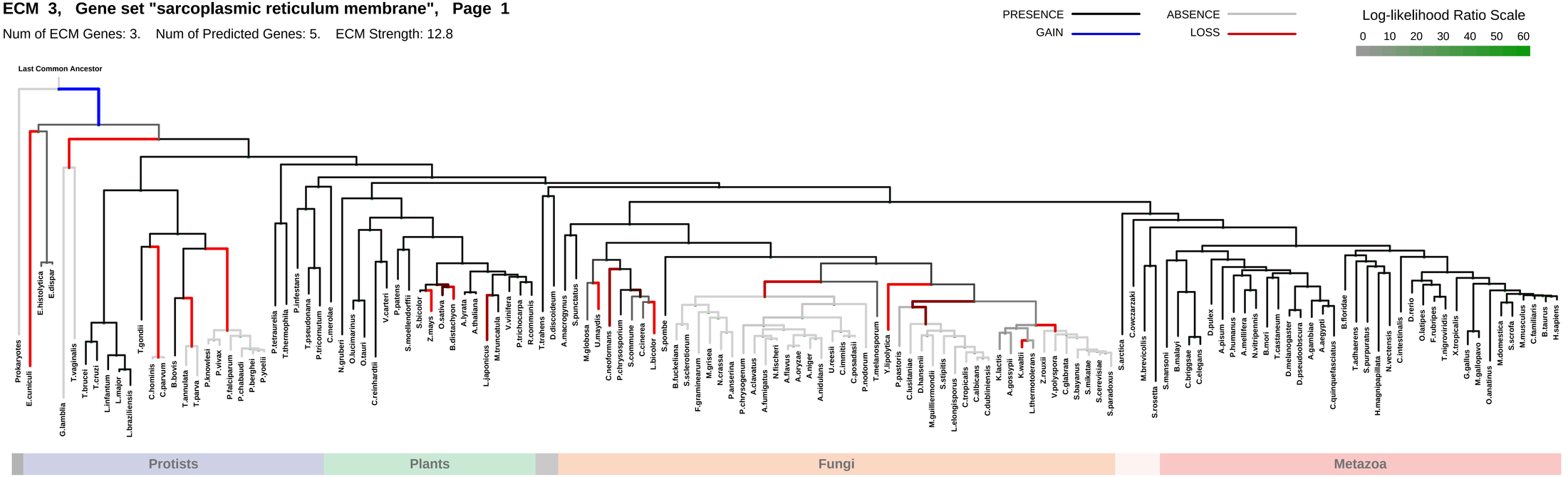


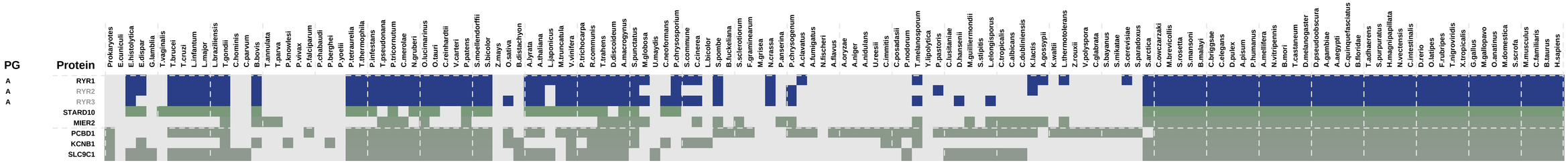
PG	Protein	LLR	Notes
A	TMEM38A		1 / 2
A	TMEM38B		1 / 2
	MXD3	6.1	
	HAND1	0.6	
	SPRYD7	0.6	

1: nuclear membrane || 2: sarcoplasmic reticulum membrane

ECM 3, Gene set "sarcoplasmic reticulum membrane", Page 1

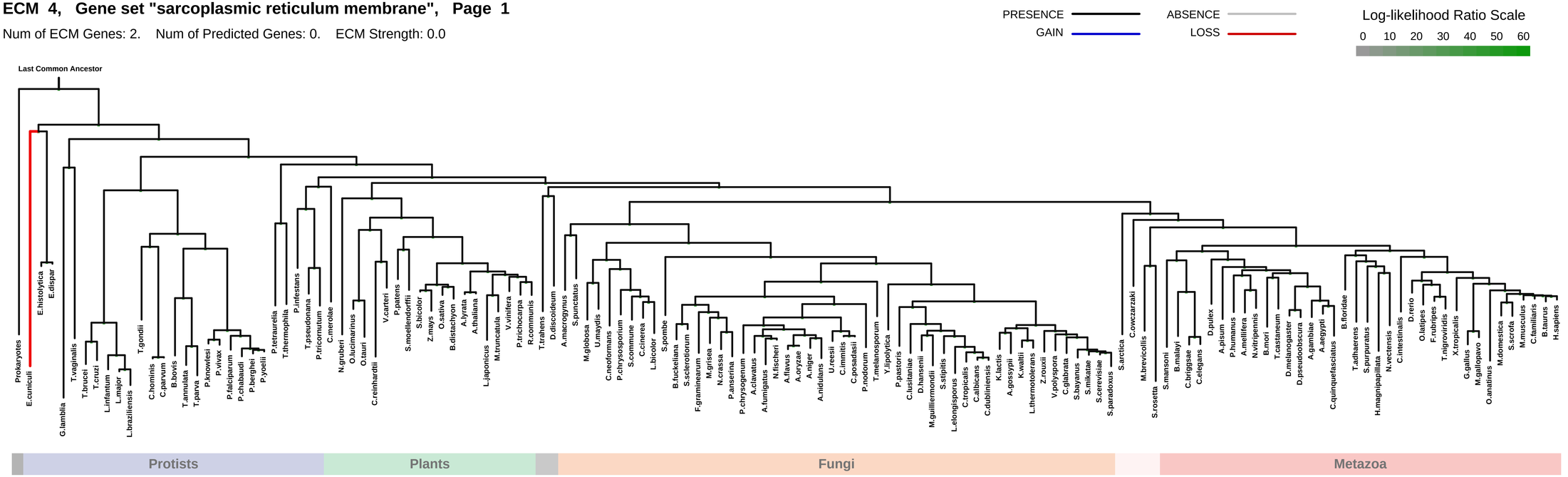
Num of ECM Genes: 3. Num of Predicted Genes: 5. ECM Strength: 12.8





ECM 4, Gene set "sarcoplasmic reticulum membrane", Page 1

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

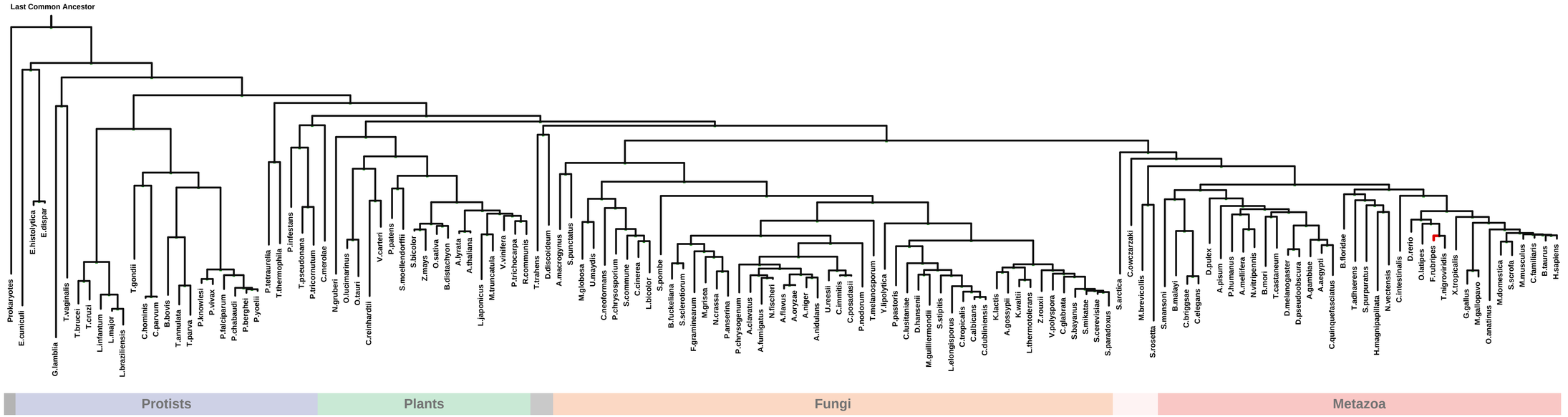


PG	Protein	LLR	Notes
A	FKBP1A		1 / 2 / 3
A	FKBP1B		2 / 4

1: axon || 2: sarcoplasmic reticulum membrane || 3: terminal cisterna || 4: calcium channel complex

ECM 5, Gene set "sarcoplasmic reticulum membrane", Page 1

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

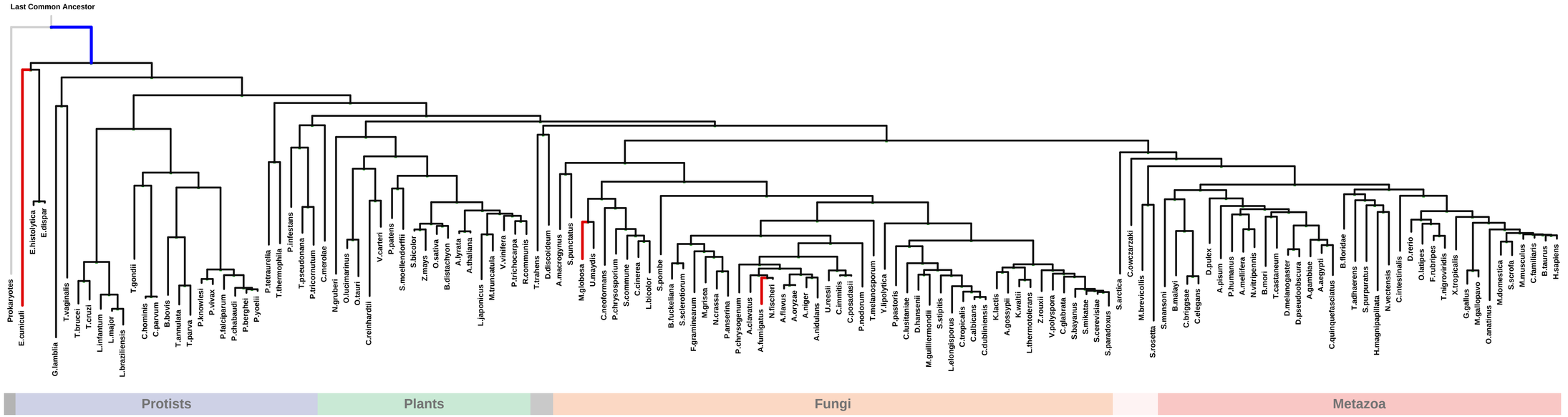


PG	Protein	LLR	Notes
	ATP2A3		1 / 2 / 3 / 4

1: nuclear membrane || 2: platelet dense tubular network membrane || 3: sarcoplasmic reticulum || 4: sarcoplasmic reticulum membrane

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 1

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

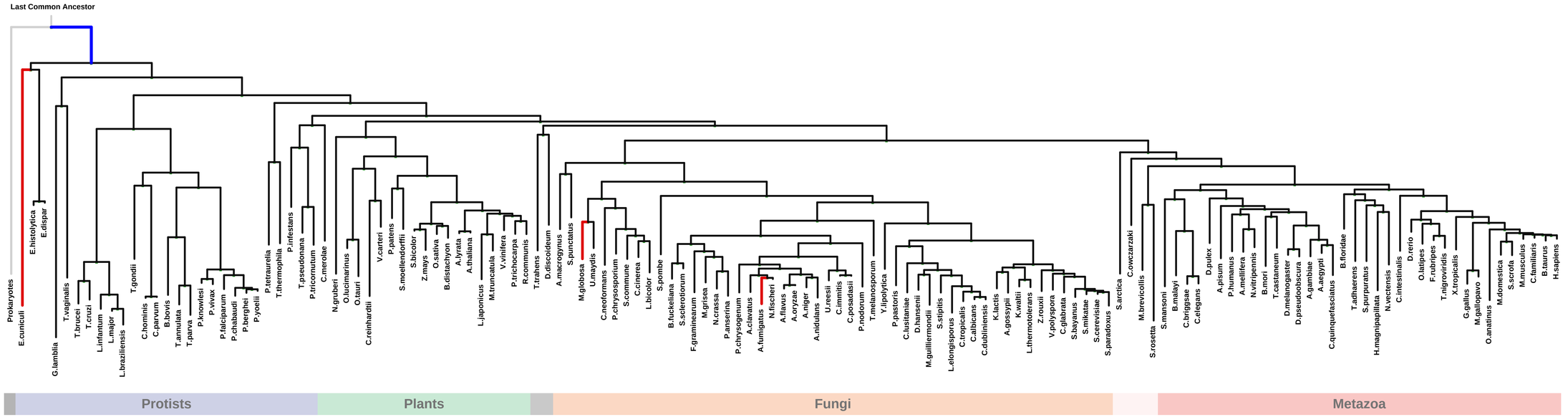


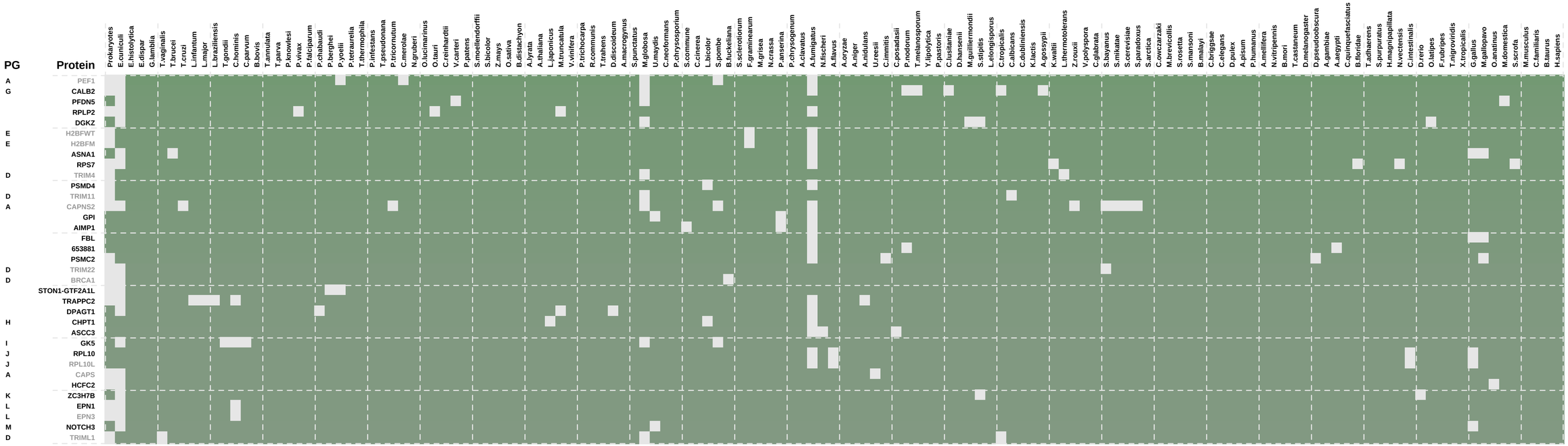
PG	Protein	LLR	Notes
A	**SRI**		**1 / 2 / 3**
B	**H2AFB1**	**21.9**	**4 / 5**
B	H2AFB2	21.9	**4 / 5**
B	H2AFB3	21.9	
B	H2AFV	21.9	**6**
B	H2AFZ	21.9	**6 / 7**
C	**TRMT10C**	**21.9**	
C	TRMT10A	21.9	
C	TRMT10B	21.9	
D	**TRIM10**	**20.6**	
A	CAPNS1	20.3	
E	**HIST1H2BE**	**19.8**	
E	HIST1H2BF	19.8	
E	HIST1H2BG	19.8	
E	HIST1H2BH	19.8	**6**
E	HIST1H2BI	19.8	
E	HIST1H2BJ	19.8	**6**
E	HIST1H2BK	19.8	**6**
E	HIST1H2BL	19.8	**6**
E	HIST1H2BM	19.8	**6**
E	HIST1H2BN	19.8	**6**
E	HIST1H2BO	19.8	**6**
E	HIST2H2BE	19.8	**6**
E	HIST2H2BF	19.8	**6**
E	HIST3H2BB	19.8	**6**
E	LOC100506545	19.8	
E	HIST1H2BA	19.8	**6 / 8**
E	HIST1H2BB	19.8	**6**
E	HIST1H2BC	19.8	**6**
E	HIST1H2BD	19.8	**6**
E	100507927	19.8	
	VPS35	**19.4**	**9**
F	**NAPA**	**17.2**	**10**
F	NAPB	17.2	**10**
D	TRIM60	16.6	

1: sarcoplasmic reticulum membrane || 2: vesicle || 3: Z disc || 4: nuclear nucleosome || 5: transcriptionally active chromatin || 6: nucleosome || 7: Barr body || 8: extrinsic to plasma membrane || 9: endosome || 10: synaptobrevin 2-SNAP-25-syntaxin-1a complex

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 2

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

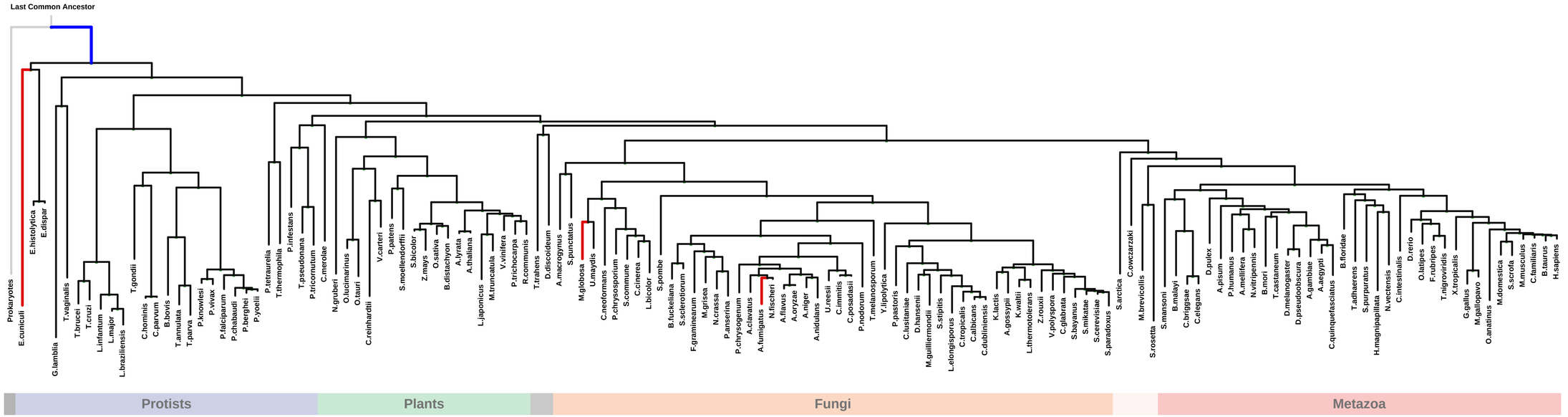


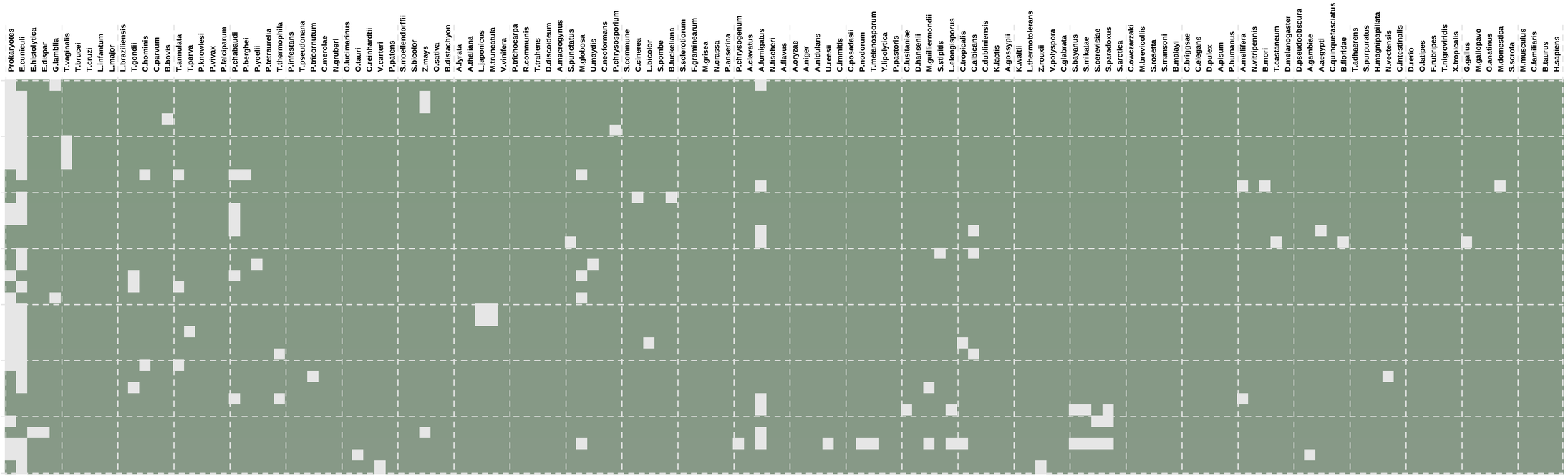


1: gap junction || 2: prefoldin complex || 3: cytosolic large ribosomal subunit || 4: lamellipodium || 5: nuclear membrane || 6: nucleosome || 7: 90S preribosome || 8: cytosolic small ribosomal subunit || 9: microtubule organizing center ||
10: ribonucleoprotein complex || 11: ribosome || 12: small-subunit processome || 13: proteasome accessory complex || 14: proteasome complex || 15: aminoacyl-tRNA synthetase multienzyme complex || 16: transport vesicle ||
17: box C/D snoRNP complex || 18: Cajal body || 19: granular component || 20: nuclear speck || 21: BRCA1-A complex || 22: BRCA1-BARD1 complex || 23: chromosome || 24: filamentous actin || 25: focal adhesion ||

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 3

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





1: eukaryotic translation initiation factor 4F complex || 2: trans-Golgi network || 3: ruffle || 4: early endosome || 5: late endosome membrane || 6: lysosomal membrane || 7: recycling endosome || 8: secretory granule membrane ||
9: SNARE complex || 10: COPI-coated vesicle || 11: COPI-coated vesicle membrane || 12: endoplasmic reticulum-Golgi intermediate compartment || 13: endoplasmic reticulum-Golgi intermediate compartment membrane || 14: Golgi cisterna membrane ||
15: zymogen granule membrane || 16: trans-Golgi network transport vesicle || 17: exosome (RNase complex) || 18: extrinsic to internal side of plasma membrane || 19: heterotrimeric G-protein complex || 20: membrane raft || 21: midbody ||

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 4

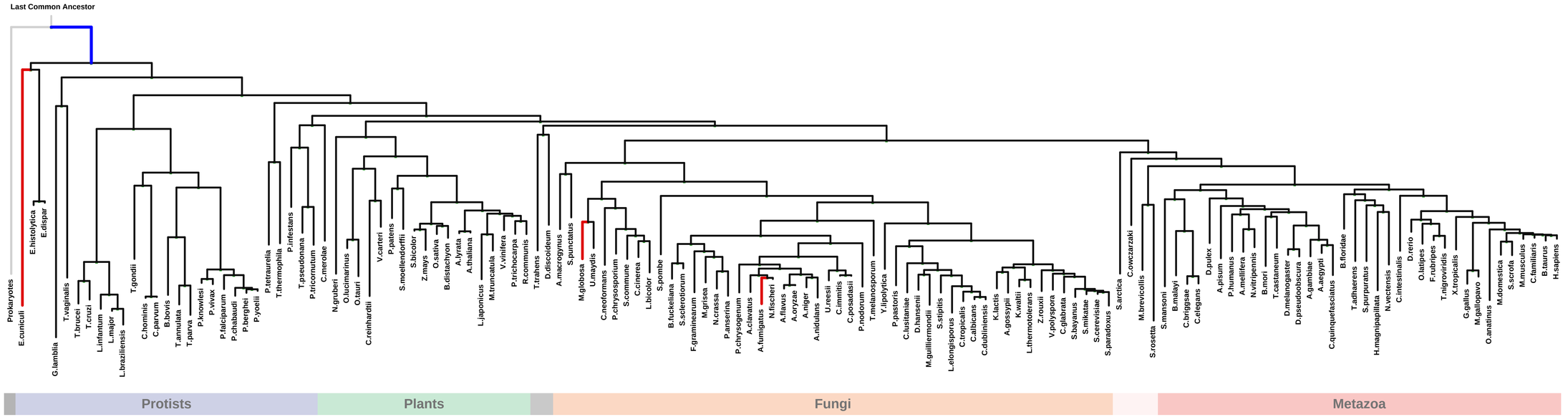
Num of ECM Genes: 1. Num of Predicted Genes: 500

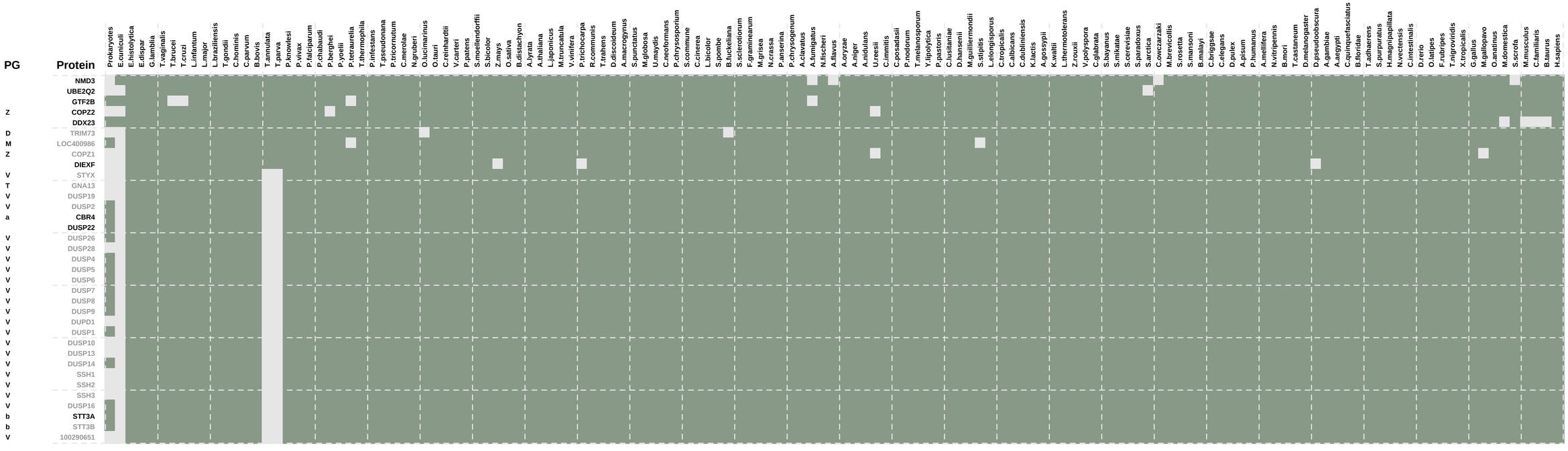
PRESENCE ABSENCE

GAIN LOSS

Log-likelihood Ratio Scale

0 10 20 30 40 50 60

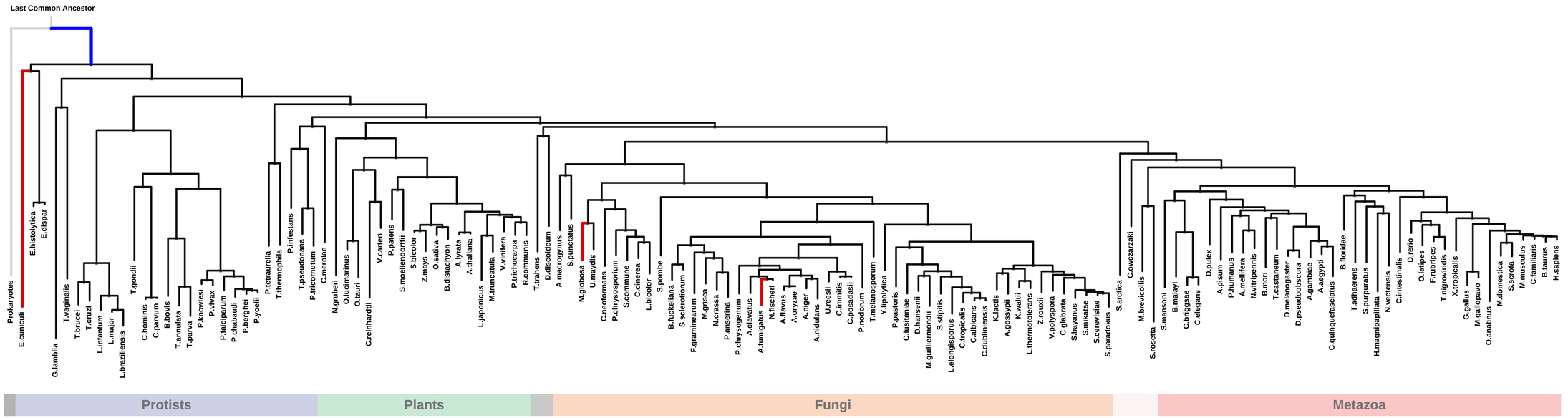


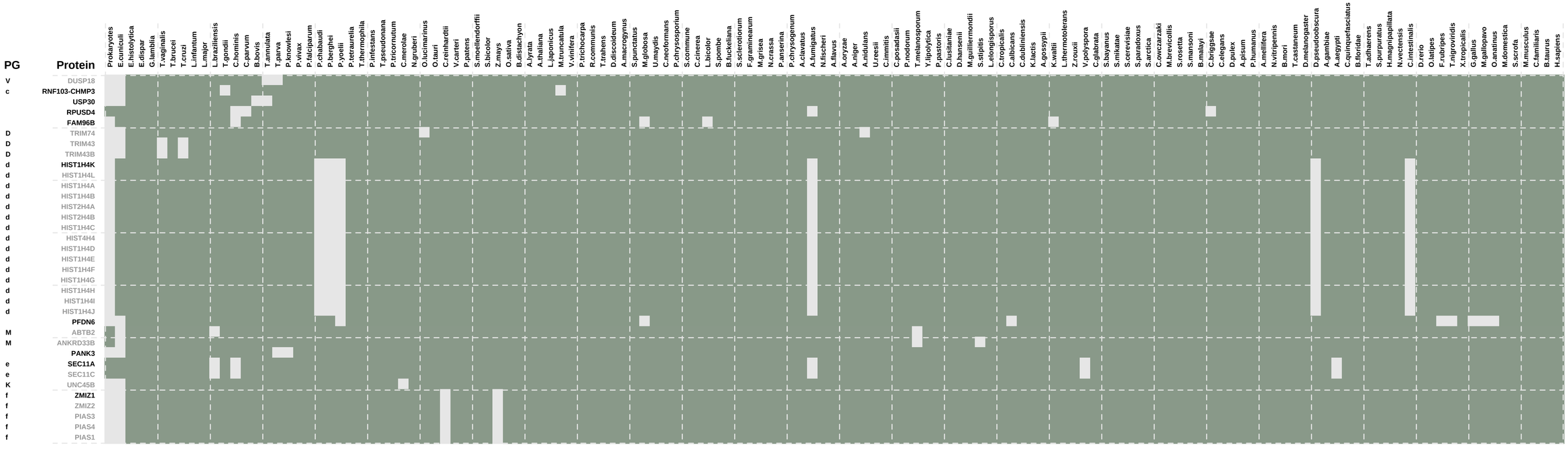


1: cis-Golgi network || 2: COPI vesicle coat || 3: catalytic step 2 spliceosome || 4: U5 snRNP || 5: brush border membrane || 6: extrinsic to internal side of plasma membrane || 7: heterotrimeric G-protein complex || 8: melanosome ||
9: cleavage furrow || 10: lamellipodium || 11: midbody || 12: cytoplasmic membrane-bounded vesicle || 13: oligosaccharyltransferase complex

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 5

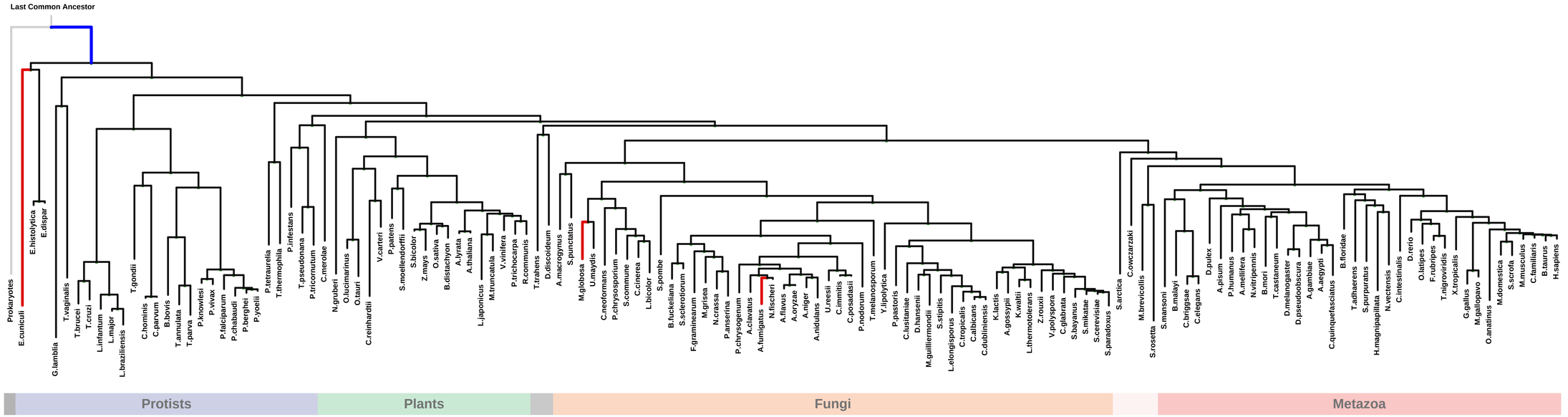
Num of ECM Genes: 1. Num of Predicted Genes: 500

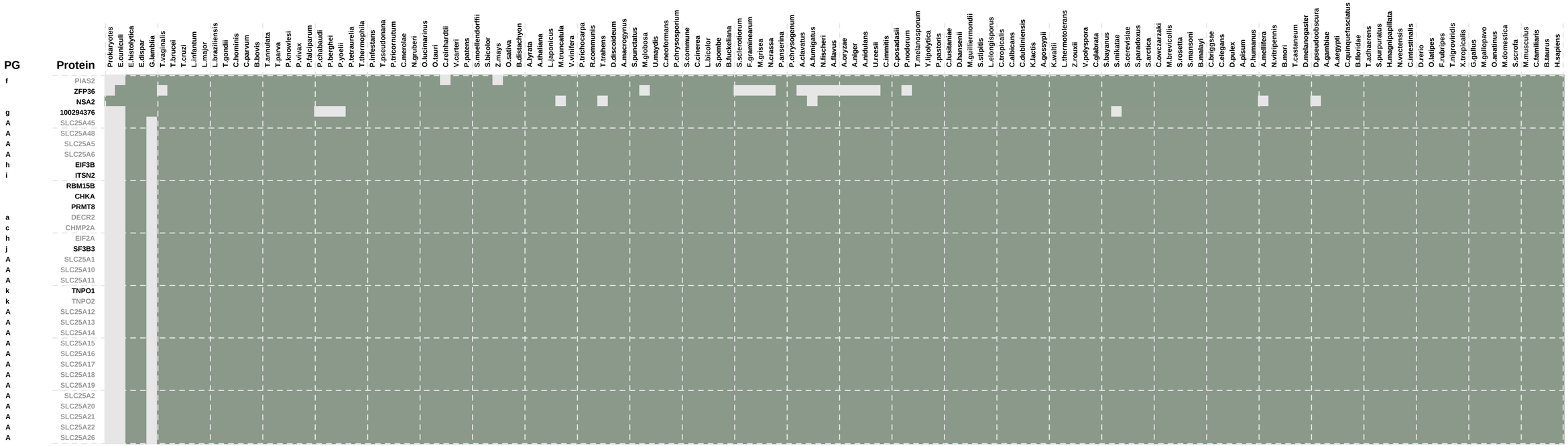




ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 6

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

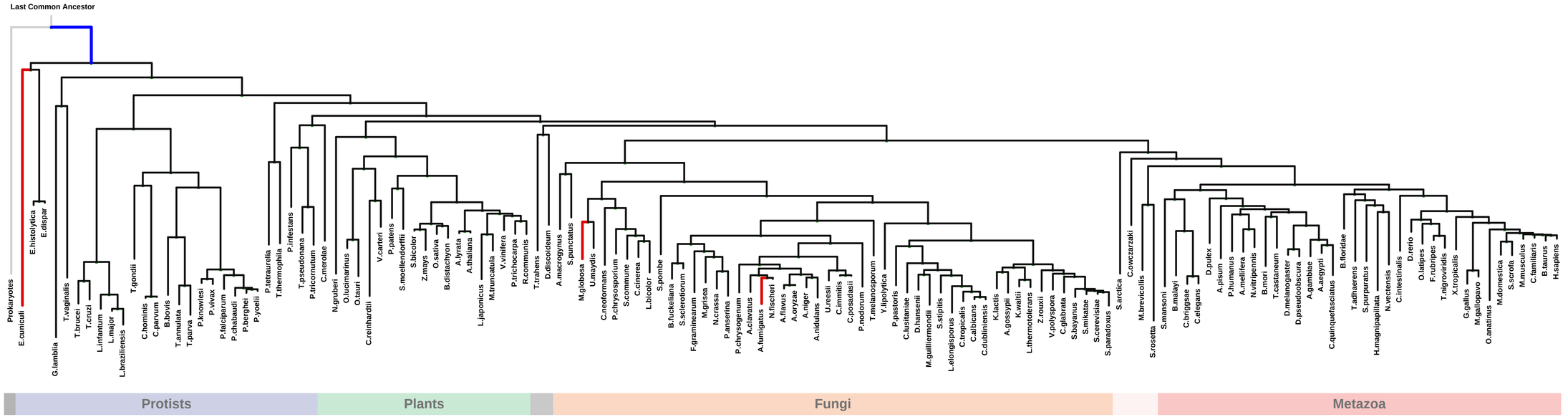




1: nuclear speck || 2: PML body || 3: cytoplasmic stress granule || 4: ribonucleoprotein complex || 5: mitochondrial nucleoid || 6: MMXD complex || 7: mitochondrial inner membrane presequence translocase complex || 8: eukaryotic translation initiation factor 3 complex || 9: peroxisome || 10: late endosome membrane || 11: eukaryotic translation initiation factor 2 complex || 12: catalytic step 2 spliceosome || 13: small nuclear ribonucleoprotein complex || 14: spliceosomal complex || 15: U12-type spliceosomal complex || 16: nuclear pore || 17: integral to peroxisomal membrane || 18: peroxisomal membrane

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 7

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

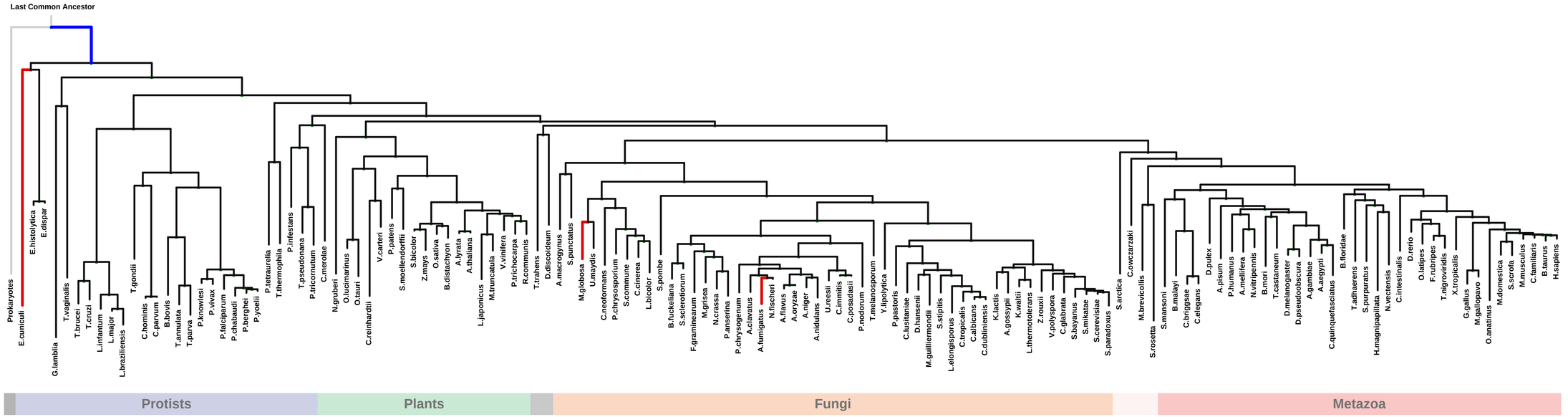


PG	Protein	LLR	Notes
A	SLC25A28	6.5	
A	SLC25A29	6.5	
A	UCP1	6.5	
A	UCP2	6.5	
A	UCP3	6.5	
A	SLC25A3	6.5	
A	SLC25A30	6.5	
A	SLC25A31	6.5	1 / 2
A	SLC25A32	6.5	
A	SLC25A33	6.5	
A	SLC25A34	6.5	
A	SLC25A36	6.5	
A	SLC25A37	6.5	
A	SLC25A38	6.5	
A	SLC25A39	6.5	
A	SLC25A4	6.5	3
A	SLC25A40	6.5	
A	SLC25A41	6.5	
A	SLC25A42	6.5	
A	SLC25A43	6.5	
A	SLC25A44	6.5	
A	100508457	6.5	
A	100510457	6.5	
J	100293539	6.2	
I	**NACAD**	**6.2**	
I	NACA2	6.2	
	PCCB	**6.2**	
M	729549	6.1	
M	ANKRD36	6.0	
M	KANK4	6.0	
N	EIF4G3	5.9	4
	RER1	**5.9**	5
T	GNA14	5.8	6 / 7
T	GNAQ	5.8	6 / 7 / 8
	TLDC2	**5.7**	

1: cilium || 2: flagellum || 3: mitochondrial outer membrane || 4: eukaryotic translation initiation factor 4F complex || 5: integral to Golgi membrane || 6: extrinsic to internal side of plasma membrane || 7: heterotrimeric G-protein complex || 8: nuclear membrane

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 8

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

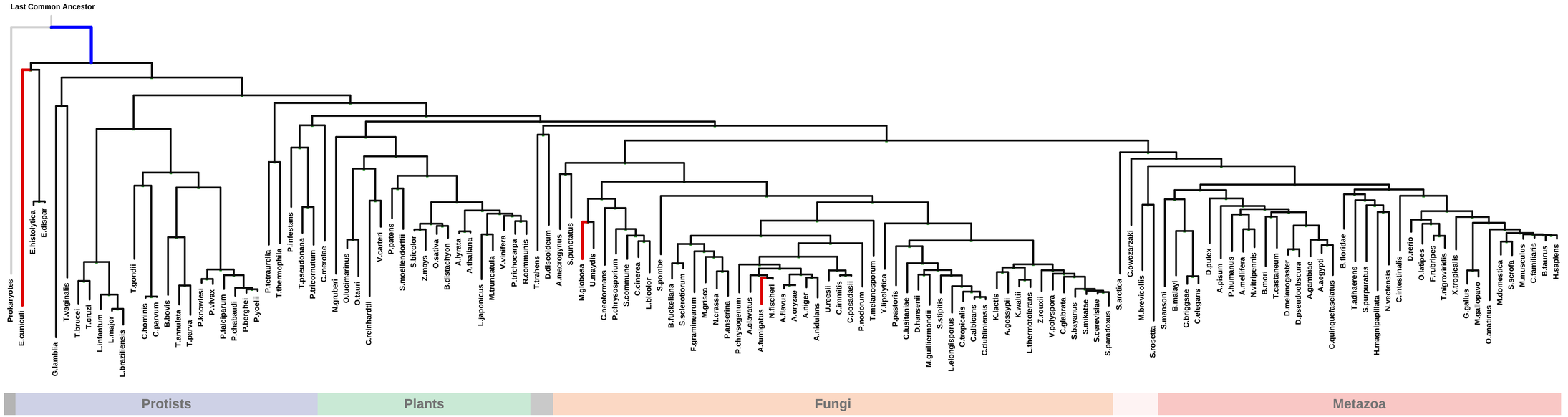


PG	Protein	LLR	Notes
m	TXNL4A	5.7	1
m	TXNL4B	5.7	1
n	PFKFB4	5.6	
o	NAA15	5.5	
p	EIF2B4	5.5	2
q	TGDS	5.5	
p	EIF2B1	5.5	2 / 3
p	EIF2B2	5.5	2
	RRP8	5.4	4 / 5
r	RPS17L	5.3	6
r	RPS17	5.3	6 / 7
a	DHRS4L1	5.3	
s	PRPS1	5.3	
s	PRPS1L1	5.3	
s	PRPS2	5.3	
t	ARHGAP22	5.2	
u	METTL21A	5.2	
	KIAA0020	5.1	
M	ANKRD33	5.1	
	DNAJC28	5.1	
v	MCM3	5.1	8 / 9
	RPS14	5.1	7
Y	TRAPPC3	5.0	10
w	DNAJC6	5.0	
D	LNX1	4.9	
x	TAF1L	4.9	11
y	AHCYL1	4.8	
y	AHCYL2	4.8	
y	AHCY	4.8	12
	DBR1	4.8	
M	ANKRD40	4.8	
	PSMD9	4.8	13 / 14
z	ALDH1B1	4.7	
z	ALDH9A1	4.7	
z	ALDH1A1	4.7	

1: spliceosomal complex || 2: eukaryotic translation initiation factor 2B complex || 3: eukaryotic translation initiation factor 2 complex || 4: chromatin silencing complex || 5: rDNA heterochromatin || 6: ribosome || 7: cytosolic small ribosomal subunit ||
8: alpha DNA polymerase:primase complex || 9: MCM complex || 10: TRAPP complex || 11: transcription factor TFIID complex || 12: melanosome || 13: proteasome regulatory particle || 14: proteasome regulatory particle, base subcomplex

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 9

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

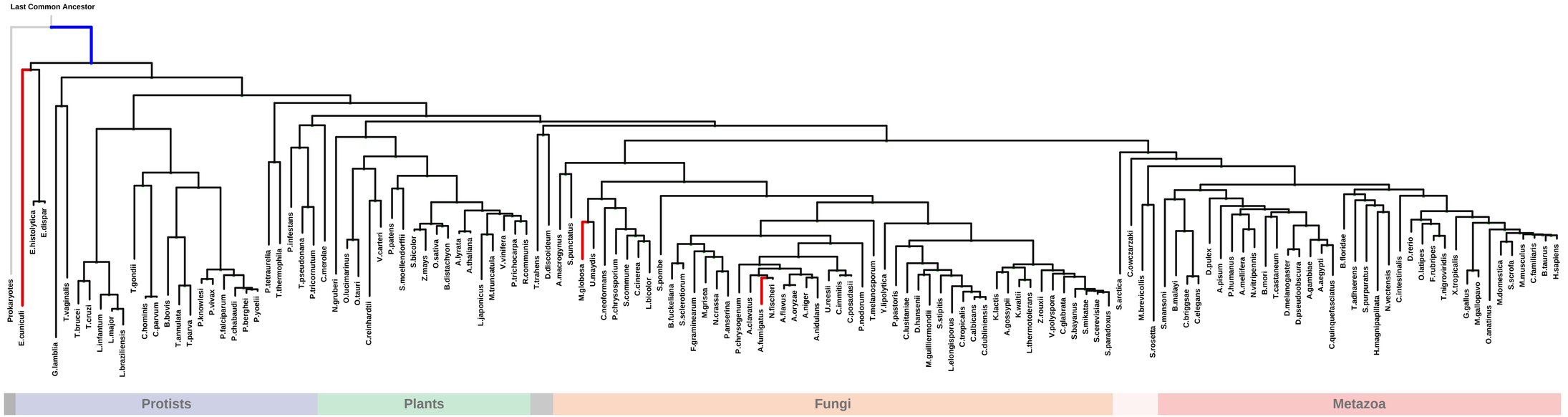


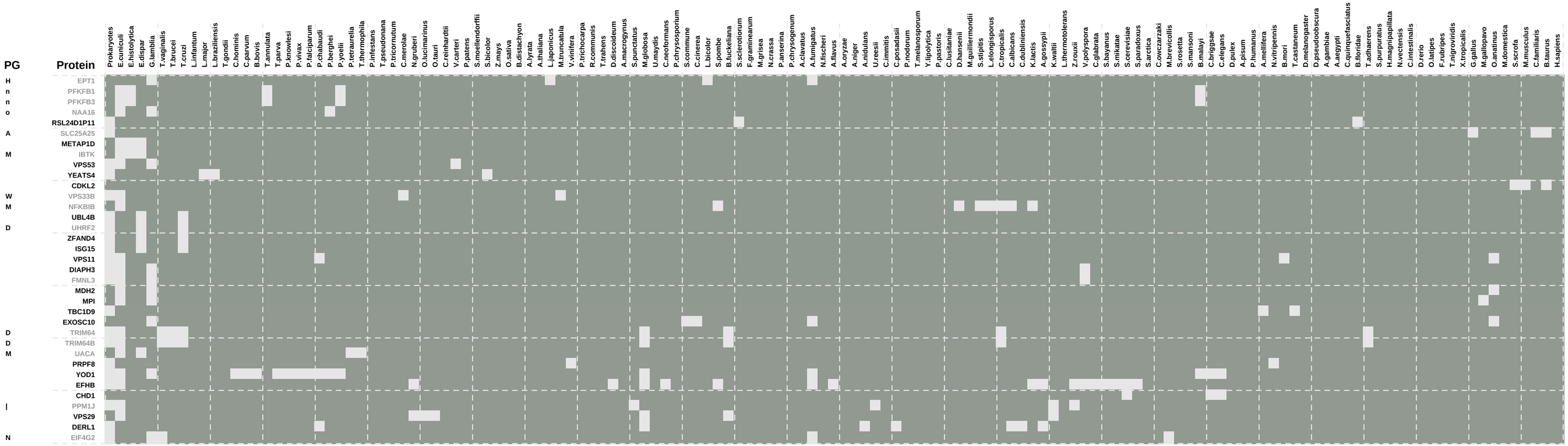
PG	Protein	LLR	Notes
S	MOB1B	4.7	
S	MOB3A	4.7	
S	MOB3B	4.7	
S	MOB1A	4.7	
	NIP7	**4.7**	
D	RNF41	4.6	
u	METTL21B	4.6	
w	PTEN	4.6	1 / 2 / 3 / 4 / 5 / 6
t	ARHGAP24	4.6	1 / 7
{	**LRRC46**	**4.5**	
|	**PPM1M**	**4.5**	
j	DDB1	4.5	8 / 9 / 10
j	100290337	4.5	
T	GNA15	4.5	11 / 12
a	WWOX	4.4	13
D	TRIM25	4.4	
M	NFKBID	4.4	
	PTPLAD1	**4.4**	
}	**ATP6V1E1**	**4.2**	13 / 14 / 15 / 16
}	ATP6V1E2	4.2	16 / 17
	BYSL	**4.2**	
	WRNIP1	**4.2**	
q	GALE	4.2	
	TBPL1	**4.2**	18
	CGRRF1	**4.2**	
M	SNCAIP	4.1	19
	PSMD3	**4.1**	20 / 21
	RAD23A	**4.1**	21
T	GNAT2	4.1	11 / 12 / 22 / 23 / 24
	SRR	**4.1**	25
~	**SEC14L5**	**4.1**	
k	IPO4	4.1	26
	MCCC1	**4.1**	
~	SEC14L1	4.1	
H	CEPT1	4.0	27

1: cell projection || 2: internal side of plasma membrane || 3: myelin sheath adaxonal region || 4: neuron projection || 5: PML body || 6: Schmidt-Lanterman incisure || 7: focal adhesion || 8: Cul4A-RING ubiquitin ligase complex ||
9: Cul4B-RING ubiquitin ligase complex || 10: Cul4-RING ubiquitin ligase complex || 11: extrinsic to internal side of plasma membrane || 12: heterotrimeric G-protein complex || 13: microvillus || 14: endosome || 15: proton-transporting two-sector ATPase complex ||
16: proton-transporting two-sector ATPase complex, catalytic domain || 17: acrosomal vesicle || 18: transcription factor TFIIA complex || 19: presynaptic membrane || 20: proteasome accessory complex || 21: proteasome complex || 22: photoreceptor inner segment ||

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 10

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

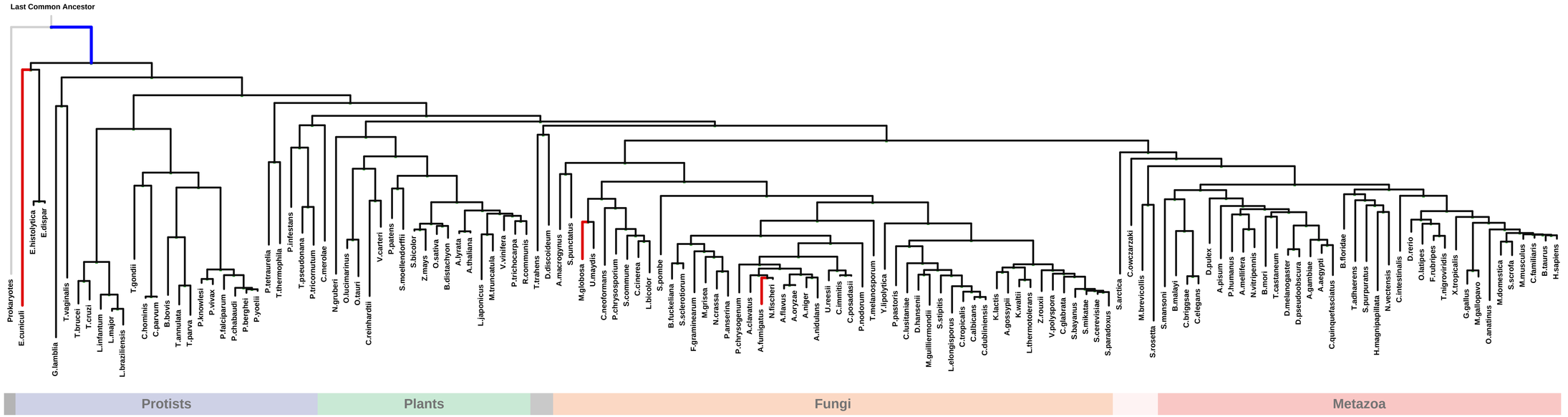




1: endosome membrane || 2: GARP complex || 3: NuA4 histone acetyltransferase complex || 4: nuclear matrix || 5: HOPS complex || 6: late endosome || 7: late endosome membrane || 8: lysosomal membrane || 9: lysosome ||
10: platelet alpha granule || 11: nuclear heterochromatin || 12: endocytic vesicle || 13: endosome || 14: exosome (RNase complex) || 15: nuclear exosome (RNase complex) || 16: transcriptionally active chromatin || 17: apoptosome ||
18: nuclear envelope || 19: catalytic step 2 spliceosome || 20: nuclear speck || 21: U5 snRNP || 22: early endosome || 23: integral to endoplasmic reticulum membrane || 24: eukaryotic translation initiation factor 4F complex

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 11

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

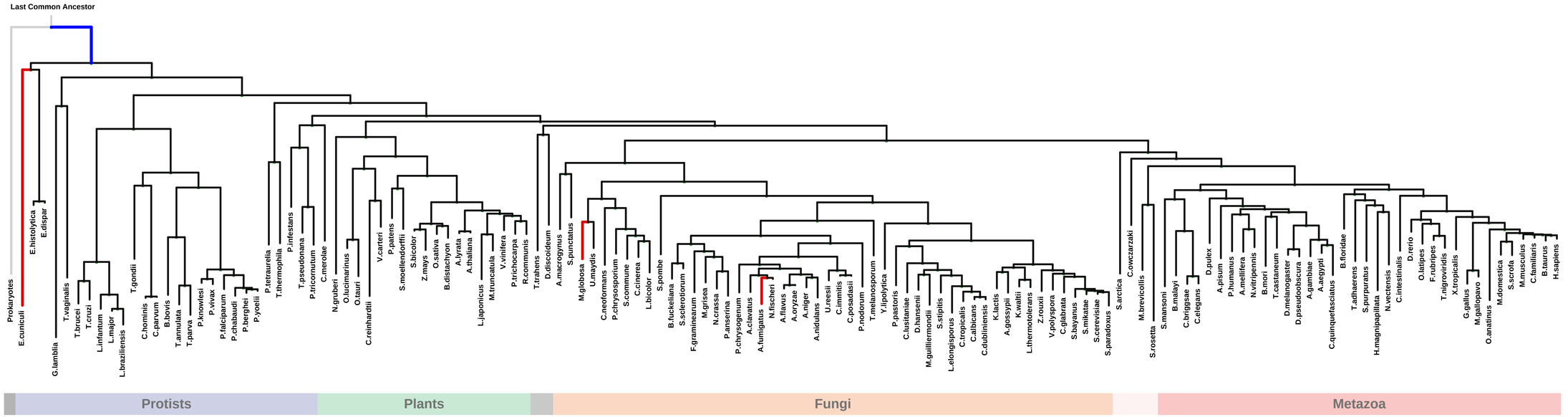


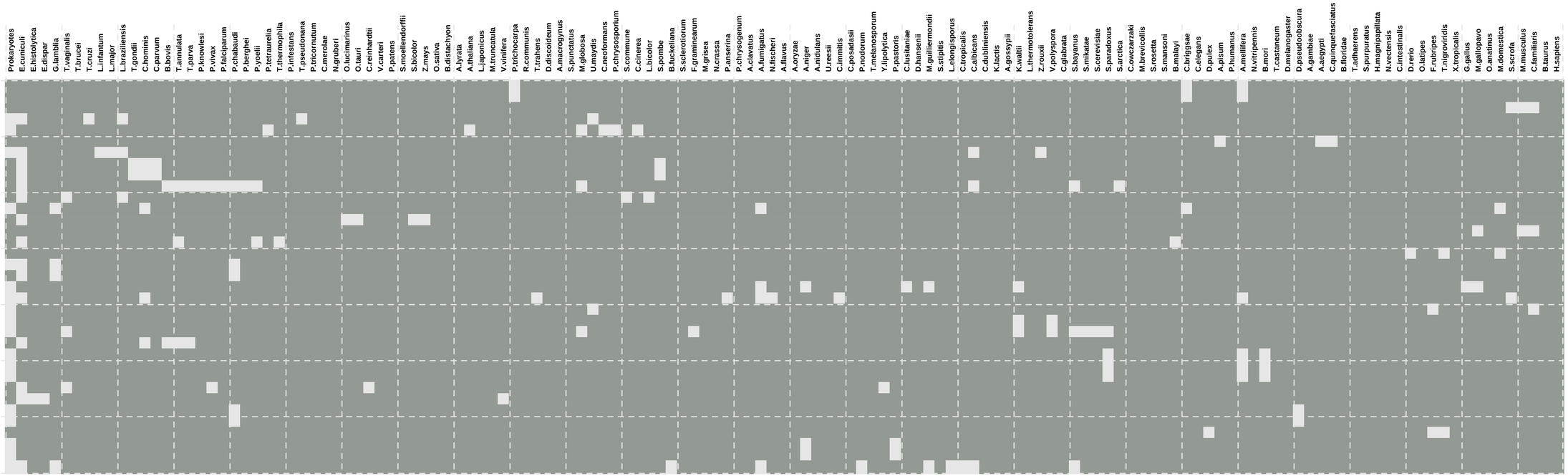
PG	Protein	LLR	Notes
D	RNF135	3.5	
	XRN1	**3.4**	1
	LENG8	**3.4**	
	NSFL1C	**3.4**	2 / 3
i	ITSN1	3.4	4 / 5 / 6 / 7 / 8
L	CLINT1	3.4	9
	SDAD1	**3.4**	
z	ALDH1L2	3.4	
	TINAGL1	**3.3**	10
	TINAG	3.3	11
	CTSB	3.3	12 / 13 / 14 / 15 / 16 / 17
	CTSF	3.3	15 / 18
	CTSH	3.3	15 / 19
	CTSL	3.3	13 / 15 / 18
	CTSV	3.3	7 / 14 / 18 / 20 / 21 / 22 / 2
	CTSO	3.3	15
	CTSS	3.3	13 / 15 / 18
	CTSW	3.3	
	CTSZ	3.3	15
	CTSK	3.3	13
a	HPGD	3.3	
a	HSD17B14	3.3	
	CEBPZ	**3.3**	
O	FBXO8	3.3	24 / 25
	RALYL	**3.2**	
a	HSD17B7	3.2	
	SLC9A9	**3.2**	26 / 27
	SLC9A1	3.2	28 / 29
	SLC9A3	3.2	30 / 31
	SLC9A7	3.2	24 / 32
	SLC9A8	3.2	
	ATP6V1H	**3.2**	33
w	TPTE2	3.2	
	PRPF39	**3.1**	
	TMEM30A	**3.1**	

1: intermediate filament cytoskeleton || 2: chromosome || 3: Golgi stack || 4: coated pit || 5: endocytic vesicle || 6: lamellipodium || 7: neuron projection || 8: synapse || 9: clathrin-coated vesicle || 10: extracellular matrix || 11: basement membrane || 12: caveola || 13: endolysosome lumen || 14: external side of plasma membrane || 15: lysosome || 16: melanosome || 17: sarcolemma || 18: lysosomal lumen || 19: alveolar lamellar body || 20: apical part of cell || 21: microvillus || 22: perikaryon || 23: secretory granule || 24: trans-Golgi network || 25: ubiquitin ligase complex || 26: late endosome membrane || 27: recycling endosome || 28: basolateral plasma membrane

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 12

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

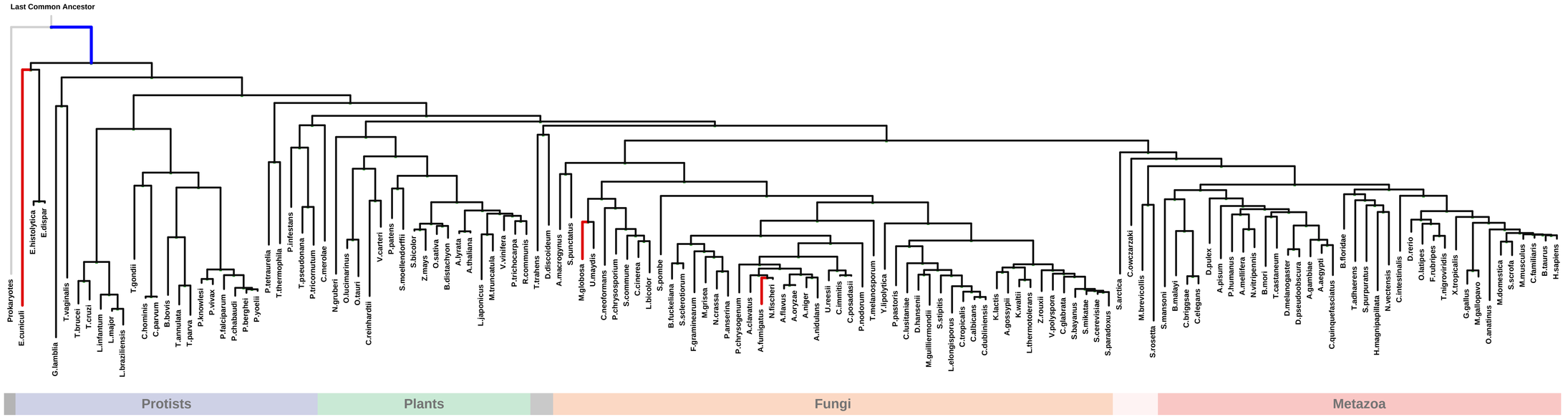


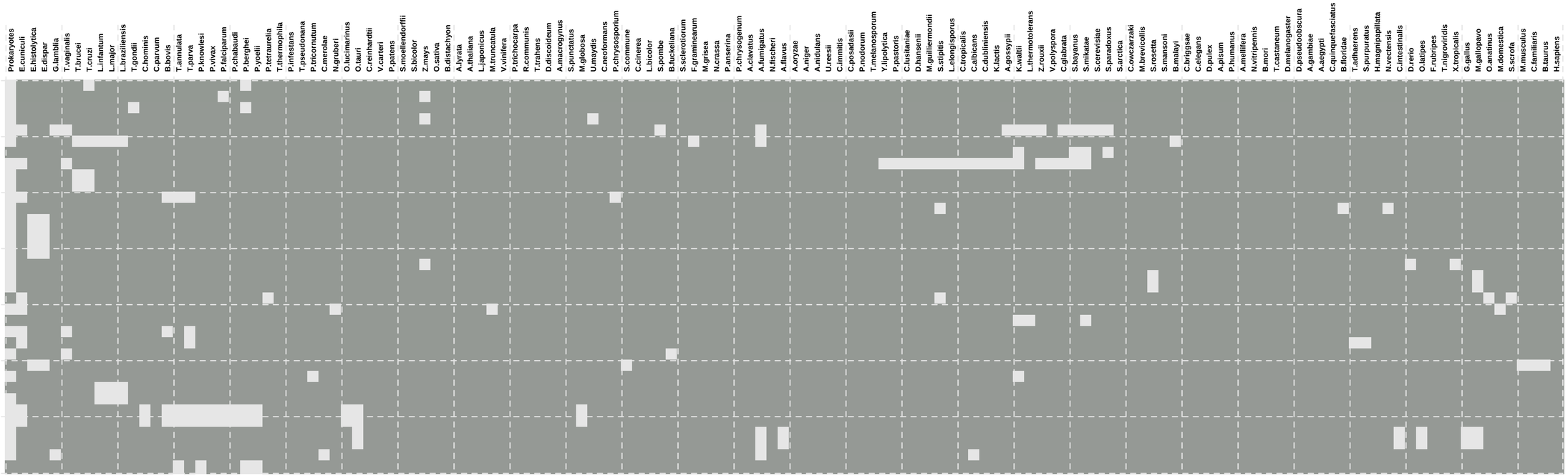


1: endoplasmic reticulum-Golgi intermediate compartment || 2: endoplasmic reticulum-Golgi intermediate compartment membrane || 3: melanosome || 4: mitochondrial outer membrane || 5: tRNA (m1A) methyltransferase complex || 6: condensed chromosome ||
7: condensin complex || 8: nuclear chromosome || 9: pronucleus || 10: early endosome || 11: internal side of plasma membrane || 12: spindle || 13: nuclear cyclin-dependent protein kinase holoenzyme complex || 14: nuclear speck ||
15: Cajal body || 16: U7 snRNP || 17: basal plasma membrane || 18: integral to endoplasmic reticulum membrane || 19: cytosolic large ribosomal subunit || 20: nuclear matrix || 21: U12-type spliceosomal complex || 22: U2 snRNP ||

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 13

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

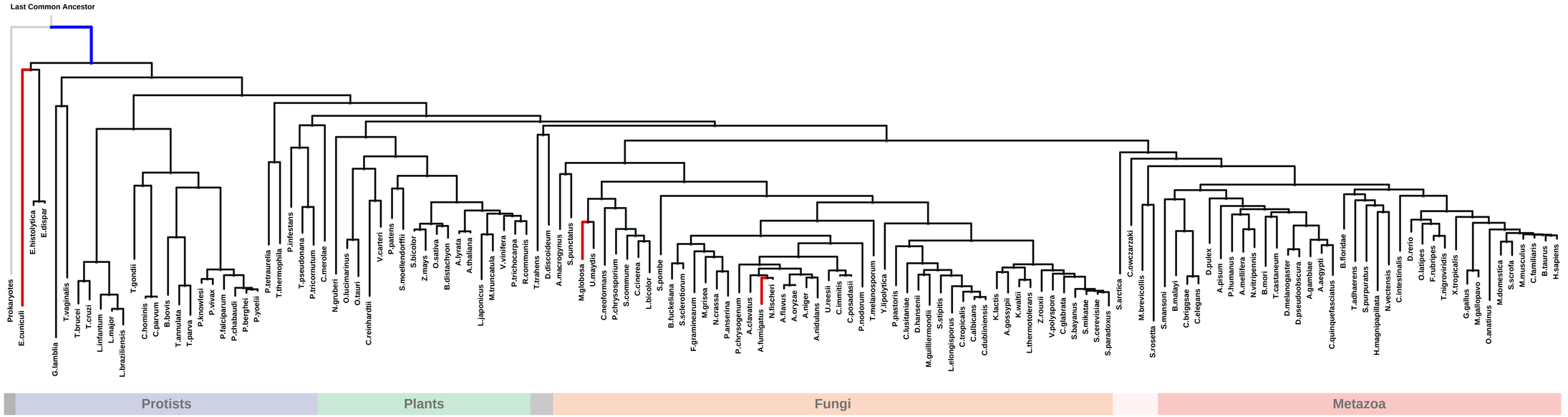




1: aggresome || 2: inhibitory synapse || 3: postsynaptic membrane || 4: trans-Golgi network || 5: basolateral plasma membrane || 6: cell-cell junction || 7: membrane raft || 8: midbody || 9: transport vesicle || 10: transport vesicle membrane ||
11: SAGA-type complex || 12: STAGA complex || 13: catalytic step 2 spliceosome || 14: BLOC-1 complex || 15: endosome membrane || 16: phagocytic vesicle || 17: SNARE complex || 18: axoneme || 19: cilium || 20: flagellum ||
21: microtubule cytoskeleton || 22: postsynaptic density || 23: chromatin remodeling complex || 24: chromatin || 25: acrosomal vesicle || 26: MAML1-RBP-Jkappa- ICN1 complex || 27: MCM complex || 28: axon || 29: dendritic shaft ||

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 14

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

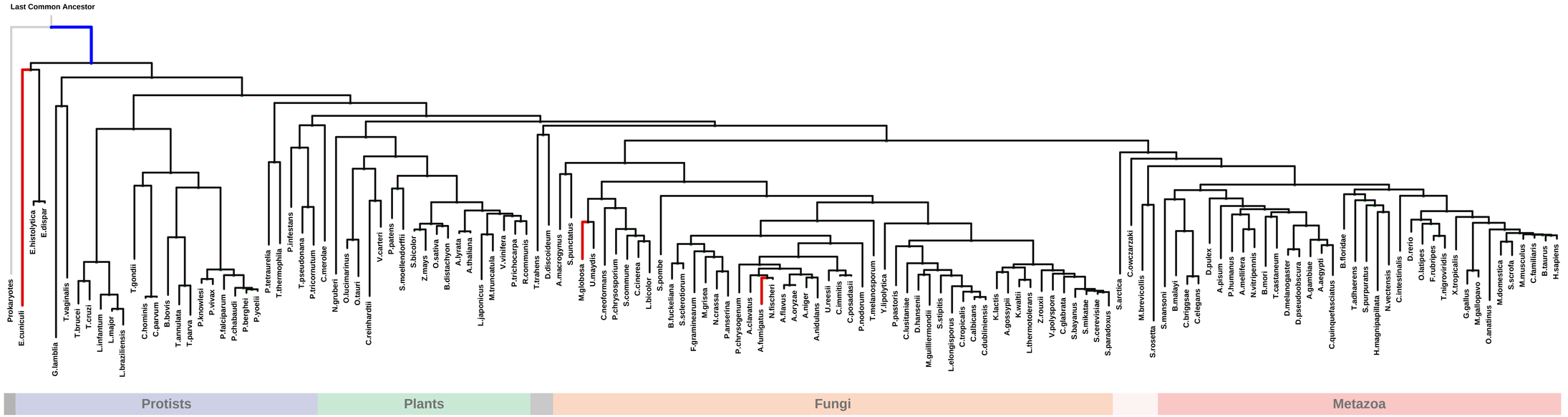


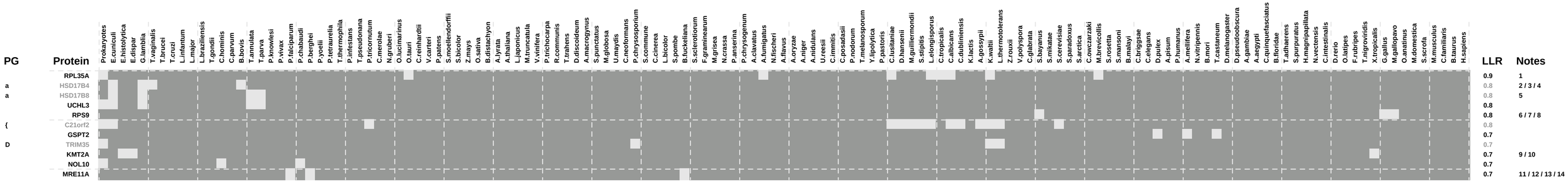
PG	Protein	LLR	Notes
	EML4	1.7	
D	TRIM62	1.7	
	RPS5	1.7	1 / 2
D	PCGF1	1.6	3
	ATR	1.6	4 / 5 / 6
O	ARFGEF1	1.6	7 / 8 / 9
O	ARFGEF2	1.6	9 / 10 / 11 / 12 / 13 / 14 / 1
	HIPK2	1.6	
g	SRD5A1	1.5	18 / 19
	ORC4	1.5	20 / 21
	PIK3C2B	1.5	22
	KRR1	1.5	2
	WIPI1	1.4	9 / 23 / 24 / 25 / 26 / 27
	UCKL1	1.4	
	TADA2A	1.4	4 / 28
	ZC3H4	1.4	
q	NSDHL	1.3	29
	UBXN2B	1.3	
	ATP6V1C1	1.3	13 / 30 / 31 / 32
	AKTIP	1.3	33 / 34
	SMYD2	1.3	
	SLC9A2	1.2	
Q	STX5	1.2	35 / 36
Q	100510546	1.2	
	POLR3F	1.1	37
	UBTD2	1.1	
	UBTD1	1.1	
P	VAMP3	1.1	16 / 24 / 36 / 38 / 39 / 40
	MOCOS	1.1	
M	KLHL9	1.1	41 / 42
	SV2C	1.1	43
	PDCD2L	1.1	
	DUS3L	1.1	
	SF3A3	1.0	44 / 45 / 46
	XAB2	0.9	44

1: cytosolic small ribosomal subunit || 2: ribonucleoprotein complex || 3: PcG protein complex || 4: chromosome || 5: PML body || 6: XY body || 7: nuclear matrix || 8: small nuclear ribonucleoprotein complex || 9: trans-Golgi network ||
10: asymmetric synapse || 11: axonemal microtubule || 12: cytoplasmic membrane-bounded vesicle || 13: cytoplasmic vesicle || 14: dendritic spine || 15: microtubule organizing center || 16: recycling endosome || 17: symmetric synapse ||
18: cell body fiber || 19: myelin sheath || 20: nuclear origin of replication recognition complex || 21: origin recognition complex || 22: endocytic vesicle || 23: autophagic vacuole membrane || 24: clathrin-coated vesicle || 25: endosome membrane ||

ECM 6, Gene set "sarcoplasmic reticulum membrane", Page 15

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

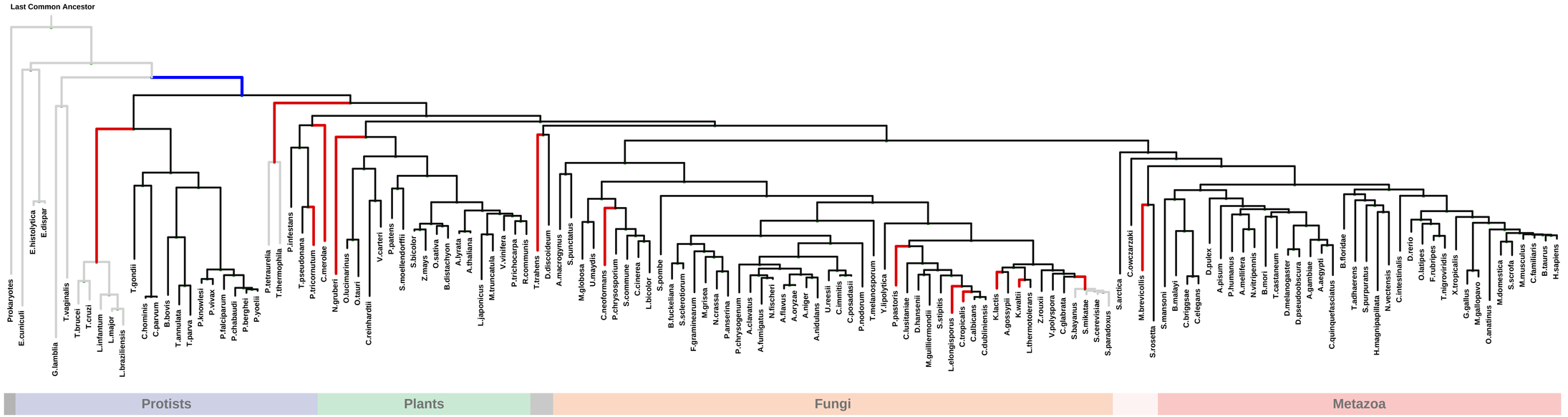


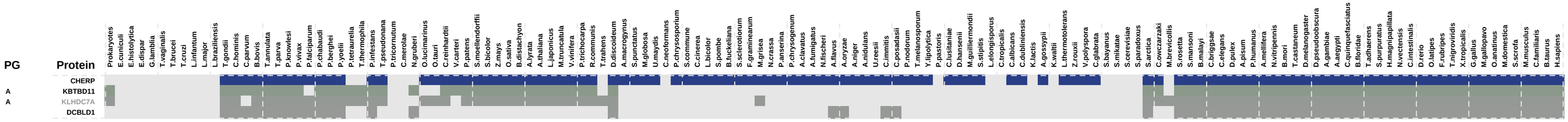


1: cytosolic large ribosomal subunit || 2: peroxisomal matrix || 3: peroxisomal membrane || 4: peroxisome || 5: mitochondrial envelope || 6: cytosolic small ribosomal subunit || 7: ribonucleoprotein complex || 8: ribosome ||
9: histone methyltransferase complex || 10: MLL1 complex || 11: chromosome, telomeric region || 12: condensed nuclear chromosome || 13: Mre11 complex || 14: nuclear chromatin

ECM 7, Gene set "sarcoplasmic reticulum membrane", Page 1

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

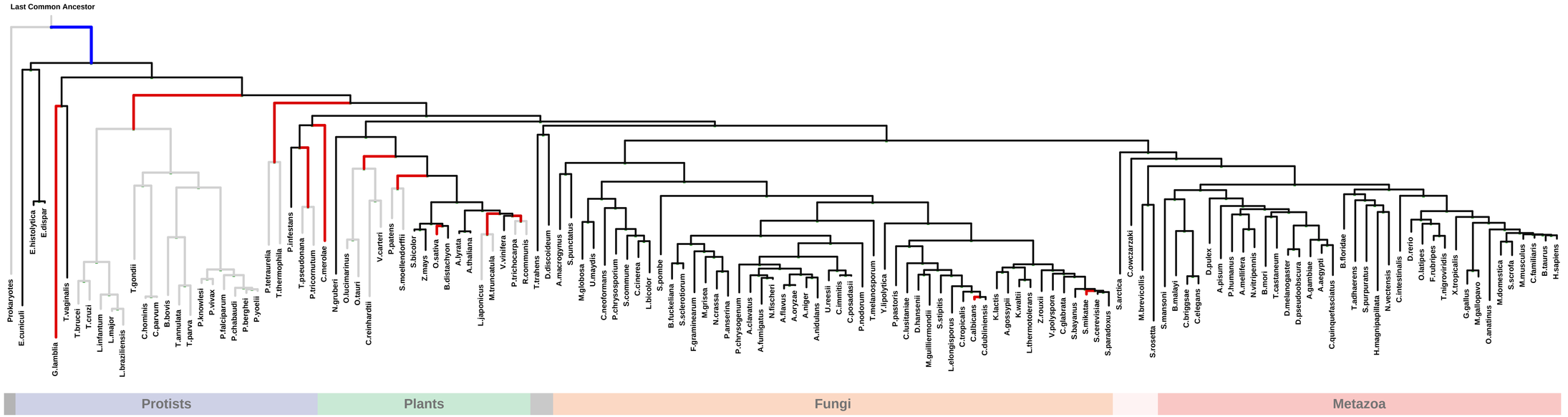


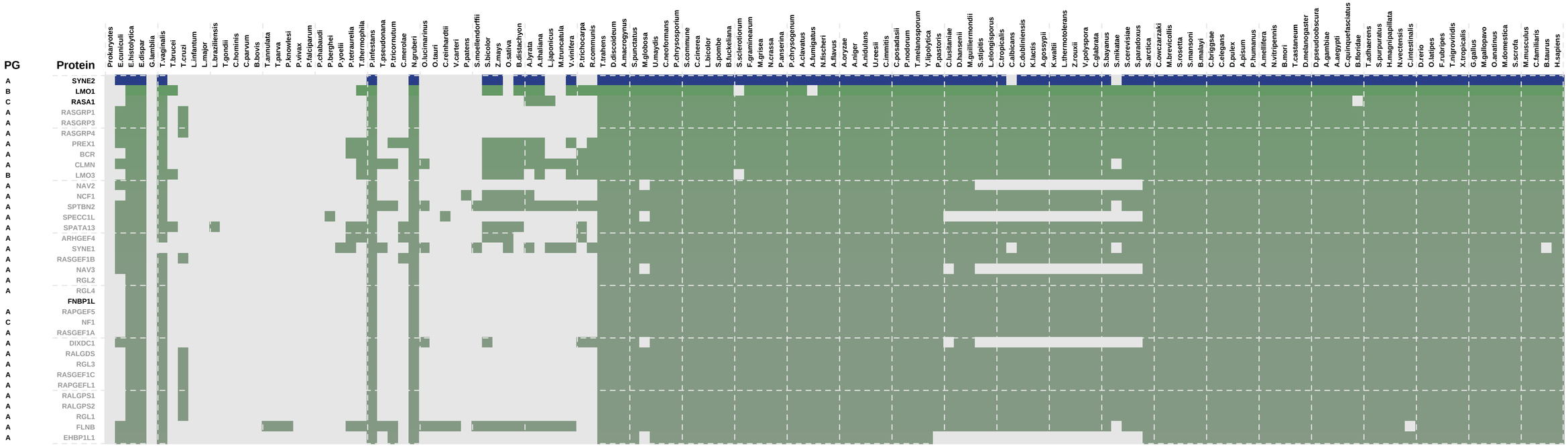


1: sarcoplasmic reticulum membrane

ECM 8, Gene set "sarcoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 68

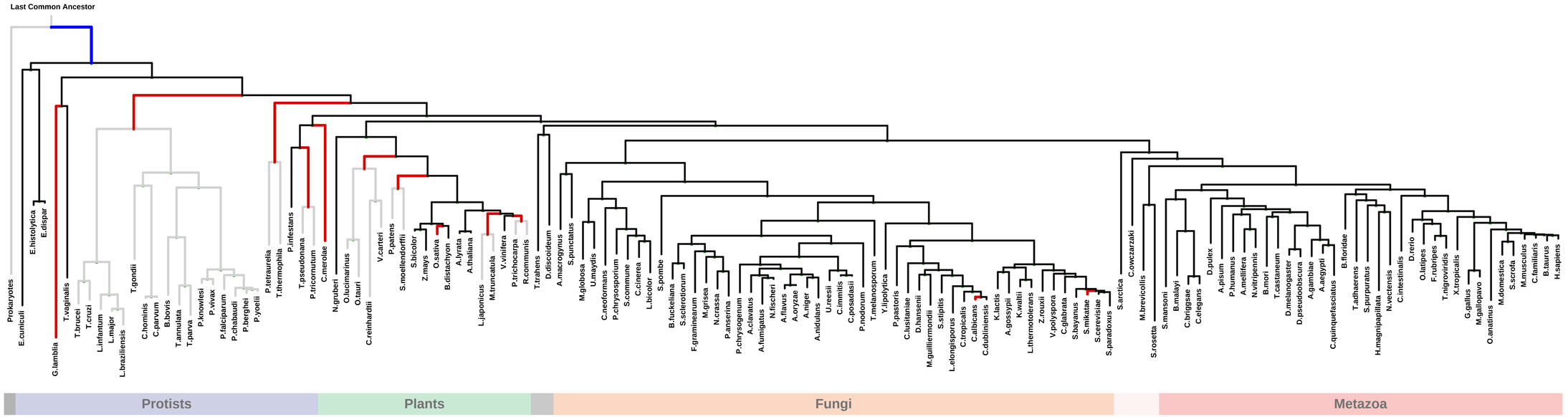




1: filopodium membrane || 2: focal adhesion || 3: lamellipodium membrane || 4: mitochondrial part || 5: nuclear envelope || 6: nuclear lumen || 7: nuclear membrane || 8: nuclear outer membrane || 9: sarcoplasmic reticulum ||
10: sarcoplasmic reticulum membrane || 11: SUN-KASH complex || 12: Z disc || 13: intrinsic to internal side of plasma membrane || 14: ruffle || 15: guanyl-nucleotide exchange factor complex || 16: interstitial matrix || 17: NADPH oxidase complex ||
18: phagolysosome || 19: spectrin || 20: gap junction || 21: spindle || 22: filopodium || 23: lamellipodium || 24: ruffle membrane || 25: postsynaptic membrane || 26: sarcomere || 27: early endosome || 28: late endosome ||

ECM 8, Gene set "sarcoplasmic reticulum membrane", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 68

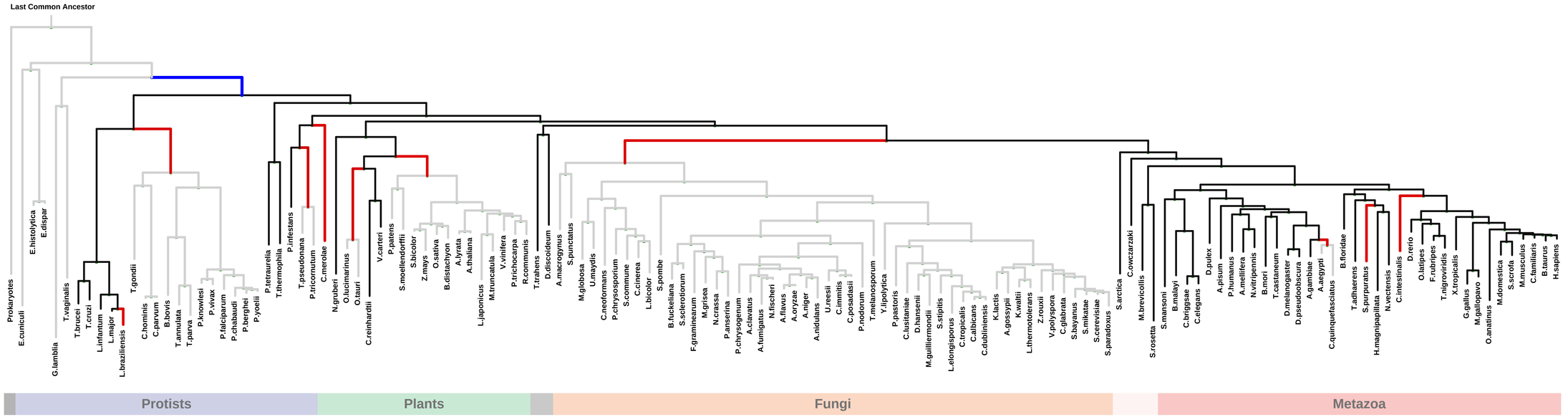


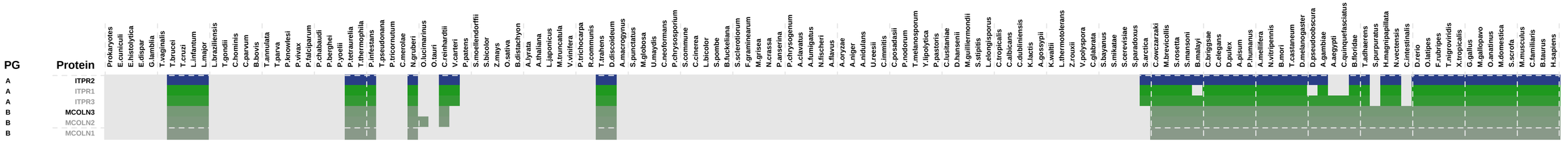
PG	Protein	LLR	Notes
A	EHBP1	8.5	
A	MICALL1	7.6	
B	LMX1B	7.1	
A	PLEKHG2	6.5	
	EPB41L5	**6.3**	**1 / 2 / 3**
	CNKSR2	**6.1**	**4 / 5**
	TMED1	**5.4**	**6 / 7**
A	ARHGEF10	4.9	
C	RASAL3	4.4	**8**
A	SMTNL2	4.3	
A	SMTN	4.3	**9**
A	ARHGAP29	4.3	
A	GMIP	4.3	
A	ARHGAP18	4.3	
A	PLEKHG4B	4.1	
A	SPTA1	4.0	**8 / 9 / 10 / 11 / 12**
A	DBNL	3.8	**13 / 14 / 15 / 16**
A	SMTNL1	3.6	**17 / 18 / 19**
A	ARHGEF19	3.6	
A	STAC2	3.6	
A	ARHGEF9	3.2	
A	TIAM2	3.2	**14 / 20 / 21**
A	ARHGEF3	3.2	
	HUS1	**3.2**	**22**
A	RAPGEF1	3.1	**23**
B	LHX5	2.8	
A	PREX2	2.5	
A	ARHGEF37	2.5	
A	SPTBN5	2.4	**11**
	ZNF524	**1.7**	
	ZNF831	**1.4**	
A	NGEF	0.9	**21**
	CELSR1	**0.8**	
A	SPTBN1	0.2	**10 / 11 / 12 / 19**

1: extrinsic to membrane || 2: focal adhesion || 3: ruffle membrane || 4: neuron projection || 5: postsynaptic membrane || 6: endoplasmic reticulum-Golgi intermediate compartment || 7: endoplasmic reticulum-Golgi intermediate compartment membrane || 8: intrinsic to internal side of plasma membrane || 9: actin cytoskeleton || 10: cuticular plate || 11: spectrin || 12: spectrin-associated cytoskeleton || 13: cell cortex || 14: lamellipodium || 15: postsynaptic density || 16: ruffle || 17: contractile fiber || 18: I band || 19: M band || 20: filopodium || 21: growth cone || 22: checkpoint clamp complex || 23: endosome

ECM 9, Gene set "sarcoplasmic reticulum membrane", Page 1

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

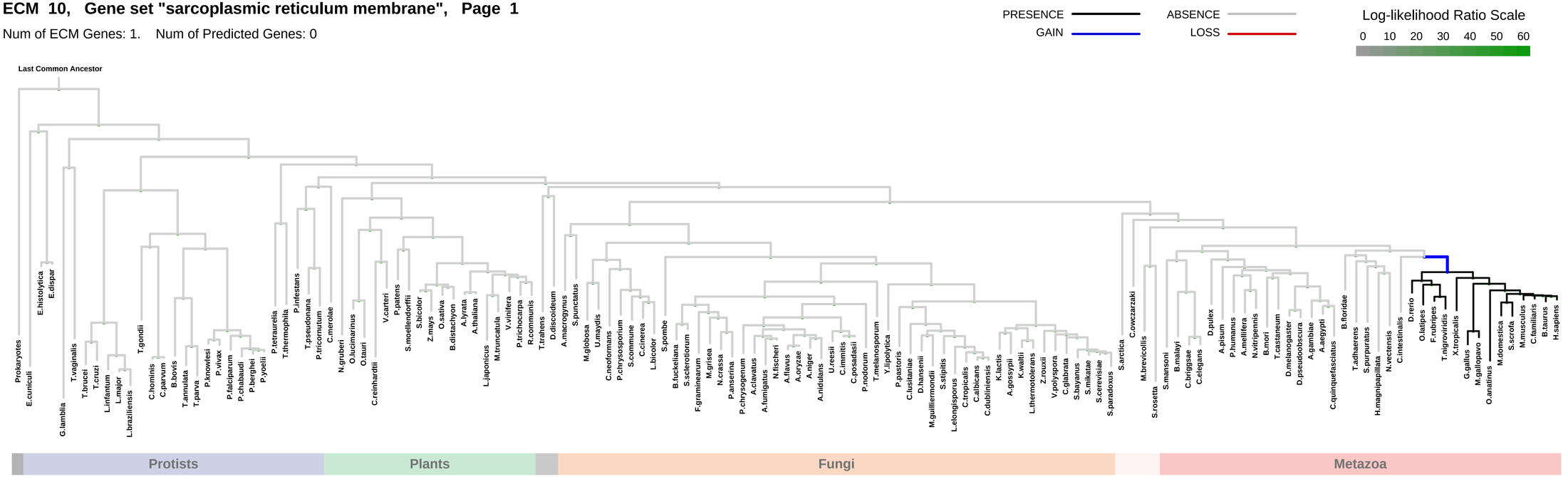




1: cell cortex || 2: platelet dense tubular network membrane || 3: sarcoplasmic reticulum membrane || 4: platelet dense granule membrane || 5: platelet dense tubular network || 6: apical part of cell || 7: brush border || 8: myelin sheath ||
9: nuclear outer membrane || 10: endosome membrane || 11: late endosome membrane || 12: lysosomal membrane

ECM 10, Gene set "sarcoplasmic reticulum membrane", Page 1

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

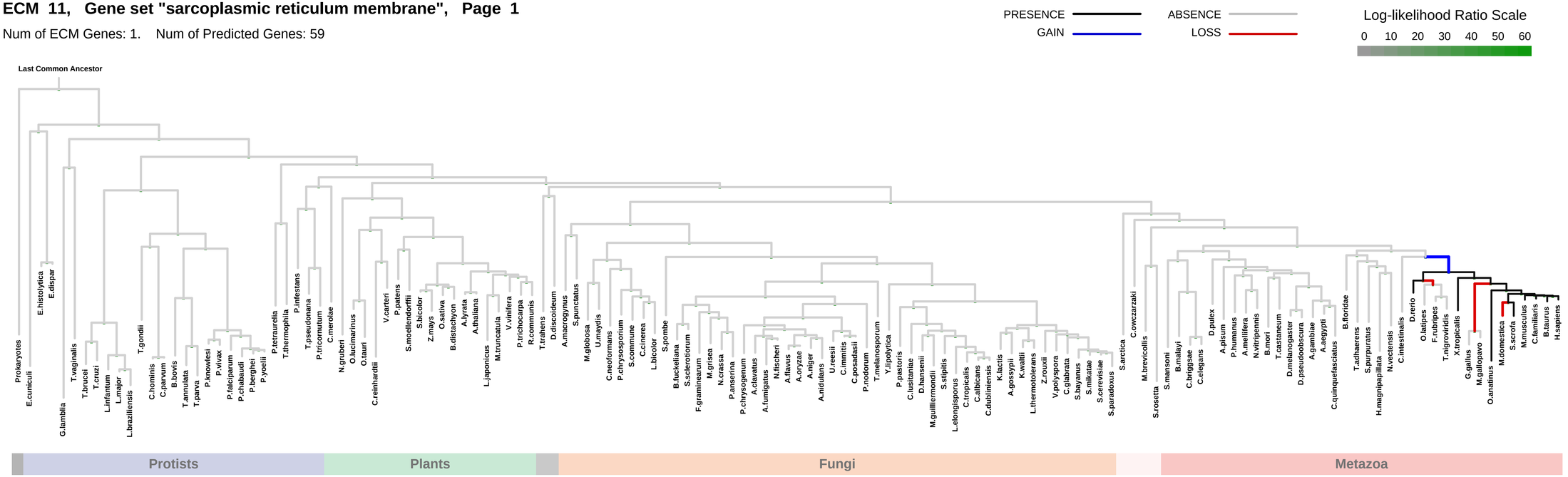


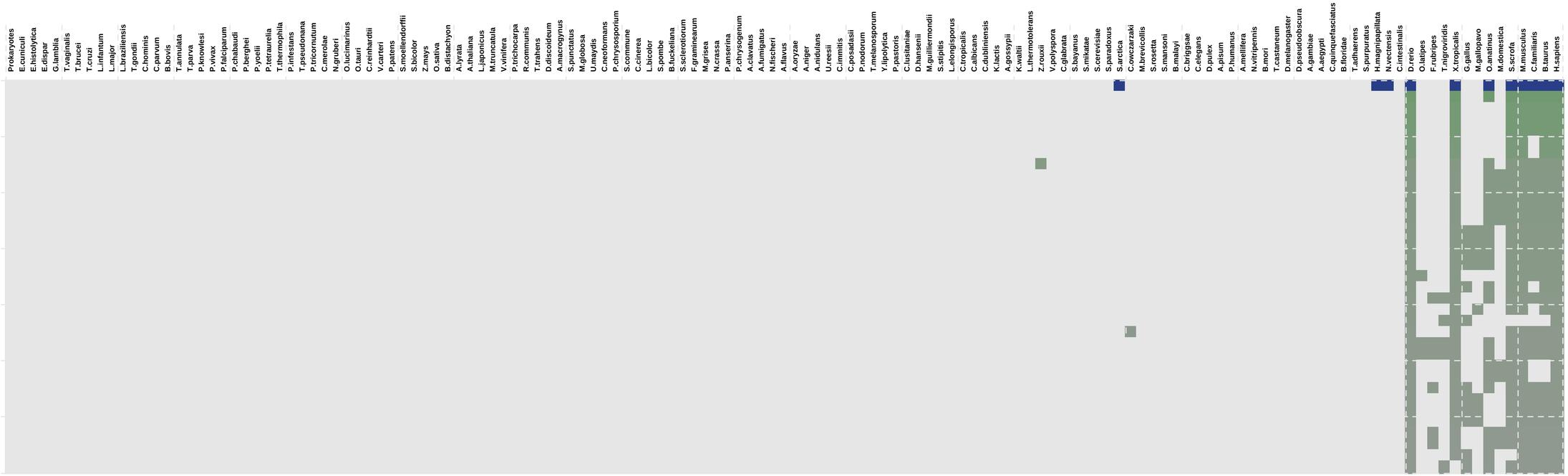
PG	Protein	LLR	Notes
	ART1		1 / 2

1: anchored to membrane || 2: sarcoplasmic reticulum membrane

ECM 11, Gene set "sarcoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 59

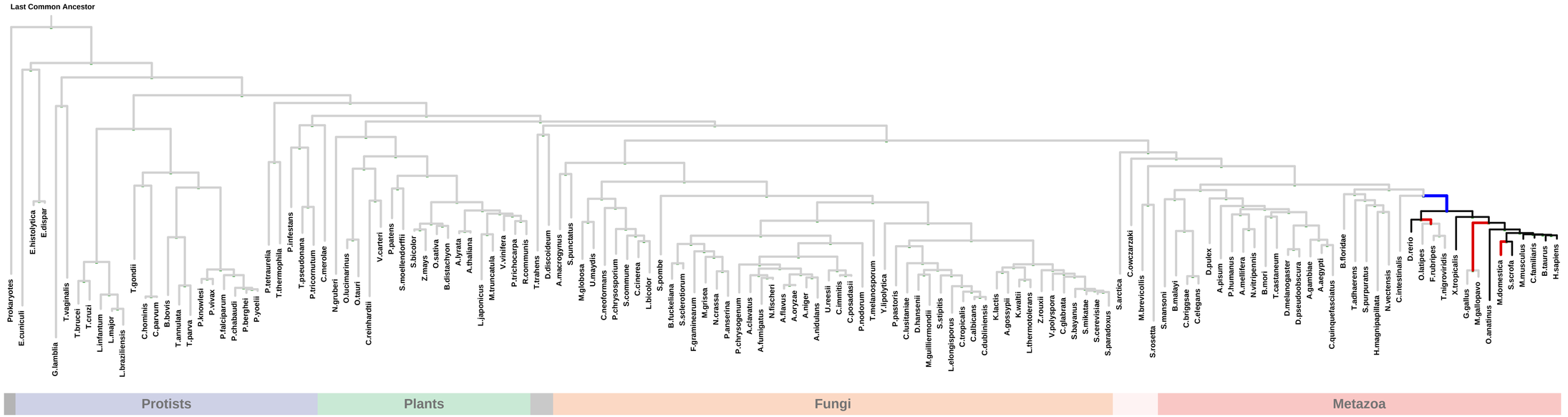


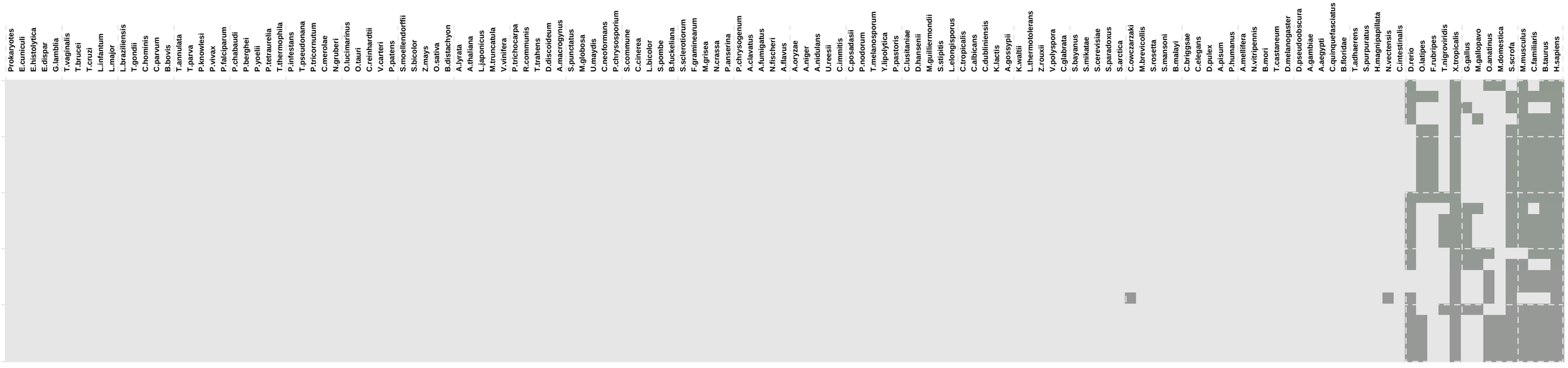


1: sarcoplasmic reticulum lumen || 2: sarcoplasmic reticulum membrane || 3: secretory granule membrane || 4: transport vesicle membrane || 5: synaptonemal complex || 6: Shu complex || 7: acrosomal membrane || 8: integral to endoplasmic reticulum membrane || 9: external side of plasma membrane || 10: high-density lipoprotein particle || 11: low-density lipoprotein particle || 12: sarcoplasmic reticulum || 13: chromosome, centromeric region || 14: condensed chromosome kinetochore || 15: mitotic cohesin complex || 16: IkappaB kinase complex || 17: mast cell granule || 18: platelet alpha granule lumen || 19: zymogen granule

ECM 11, Gene set "sarcoplasmic reticulum membrane", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 59





1: axon || 2: synaptonemal complex || 3: anchored to membrane || 4: mitochondrial outer membrane translocase complex || 5: nuclear chromosome || 6: protein-DNA complex || 7: senescence-associated heterochromatin focus ||
8: SMAD protein complex || 9: chromosome, centromeric region || 10: condensed chromosome kinetochore || 11: kinetochore || 12: nuclear matrix || 13: actin cytoskeleton

ECM 12, Gene set "sarcoplasmic reticulum membrane", Page 1

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

PRESENCE GAIN ABSENCE LOSS

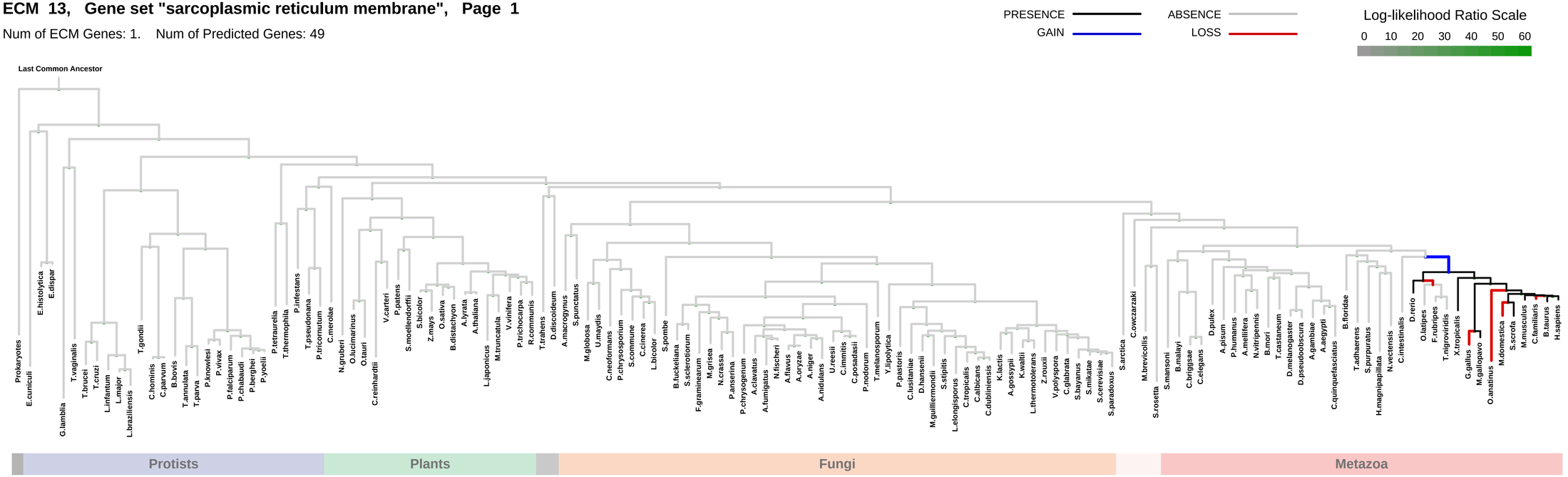
Log-likelihood Ratio Scale

0 10 20 30 40 50 60

1: nuclear membrane || 2: nuclear outer membrane || 3: sarcoplasmic reticulum membrane

ECM 13, Gene set "sarcoplasmic reticulum membrane", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 49

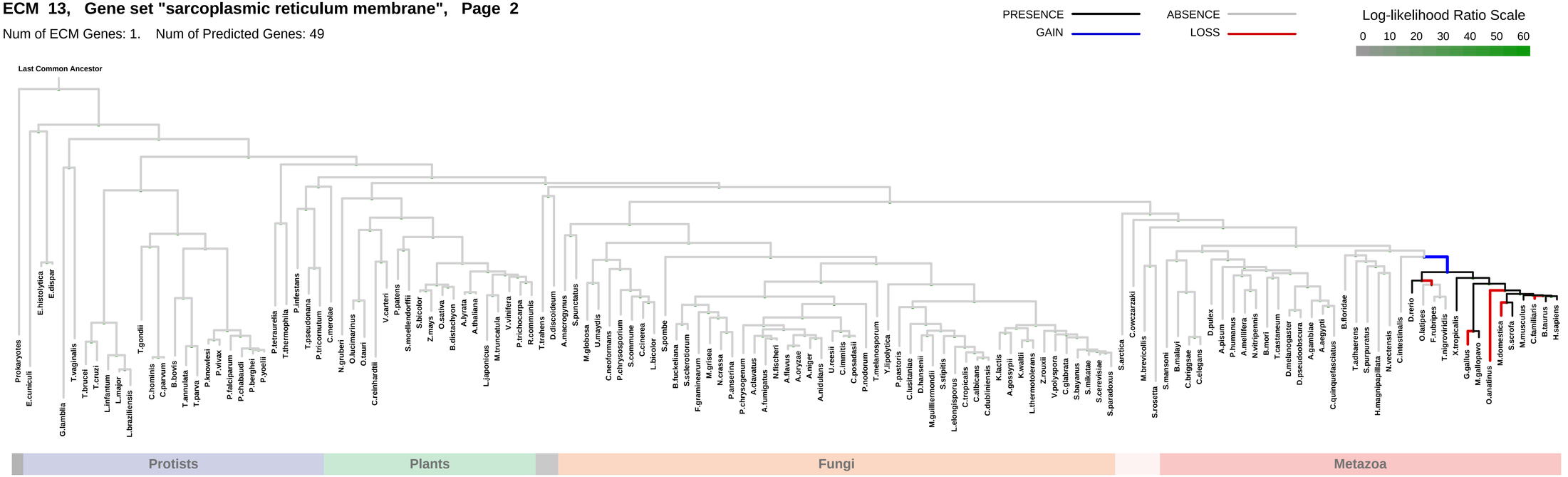


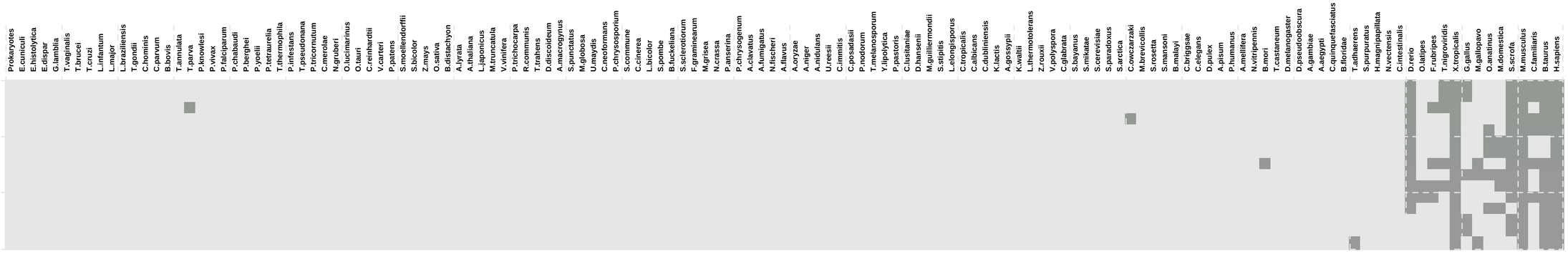
PG	Protein	LLR	Notes
	SLN		1 / 2
	BCL2L12	21.5	
	C2orf80	21.5	
	C12orf75	19.3	
	TMEM221	18.2	
	HMGA2	18.1	3 / 4 / 5 / 6
	TRIQK	15.3	
	TEX12	15.3	7
	TMEM240	14.5	
	C2orf72	14.1	
	C11orf96	11.7	
	IGSF6	11.7	
	SYCN	11.1	8 / 9
	SMIM10	11.1	
	SMIM1	11.1	
	SYCE3	9.6	10 / 11
	SLX4IP	9.6	
	MUC12	9.1	
	GNRH2	9.1	
	TCOF1	8.9	
	SLC51B	8.9	
	RAD54B	8.9	
	NPFF	8.4	
	KIAA1644	7.9	
	C17orf72	7.2	
	MPLKIP	7.0	12
	CENPW	5.5	13 / 14 / 15 / 16
	SERTM1	5.0	
	LOC646543	4.6	
	LOC649201	4.5	
	PRLH	4.1	
	LOC100507035	3.8	
	IL9	3.0	
	AC010731.4	3.0	
A	LOC100129626	2.7	

1: sarcoplasmic reticulum || 2: sarcoplasmic reticulum membrane || 3: nuclear chromosome || 4: protein-DNA complex || 5: senescence-associated heterochromatin focus || 6: SMAD protein complex || 7: synaptonemal complex ||
8: secretory granule membrane || 9: transport vesicle membrane || 10: central element || 11: chromosome || 12: midbody || 13: chromosome, centromeric region || 14: condensed chromosome kinetochore || 15: kinetochore ||
16: nuclear matrix

ECM 13, Gene set "sarcoplasmic reticulum membrane", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 49



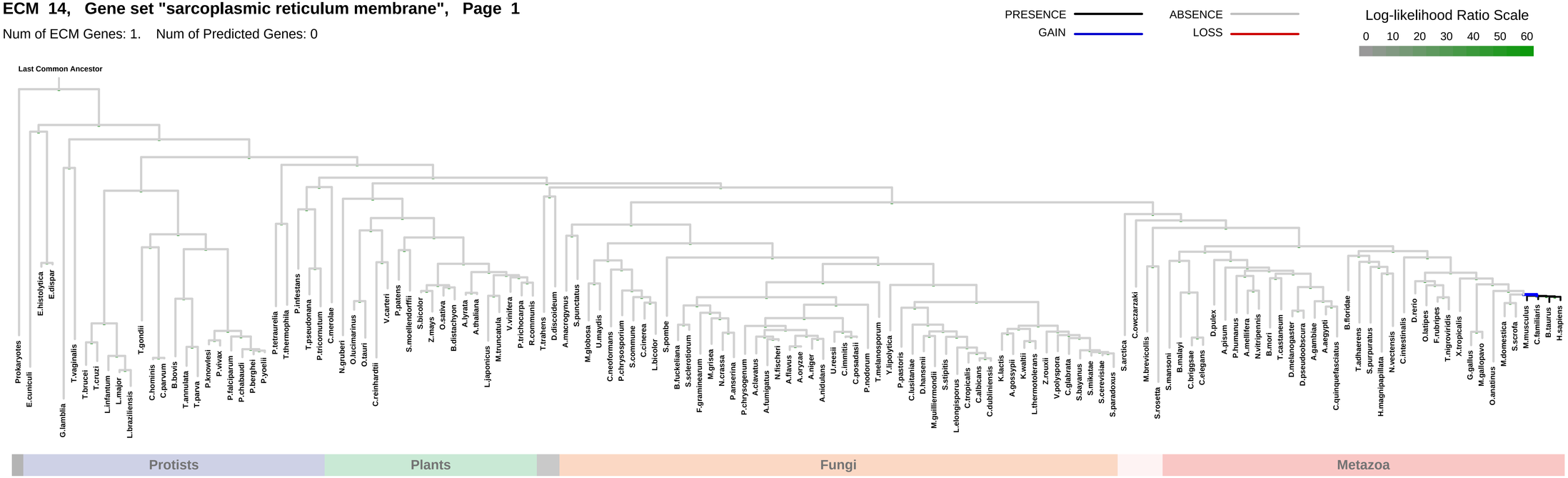


PG	Protein	LLR	Notes
A	TOMM5	2.7	1
A	100510530	2.7	
	TMEM202	2.6	
	C19orf66	2.0	
	TMEM218	1.8	
	TEX15	1.5	
	STMND1	1.5	
	C8orf59	1.2	
	C14orf39	0.5	
	REP15	0.4	2
	OMP	0.4	3
	C16orf46	0.2	
	COX8C	0.2	
	C9orf152	0.2	
	ZMYM6NB	0.2	

1: mitochondrial outer membrane translocase complex || 2: early endosome membrane || 3: axon

ECM 14, Gene set "sarcoplasmic reticulum membrane", Page 1

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



PG	Protein	LLR	Notes
	JSRP1		1

1: sarcoplasmic reticulum membrane