

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

## Dataset:

Num of genes in input gene set: 2  
Total number of genes: 20834  
Prediction LLR threshold: 0

The CLIME PDF output two sections:

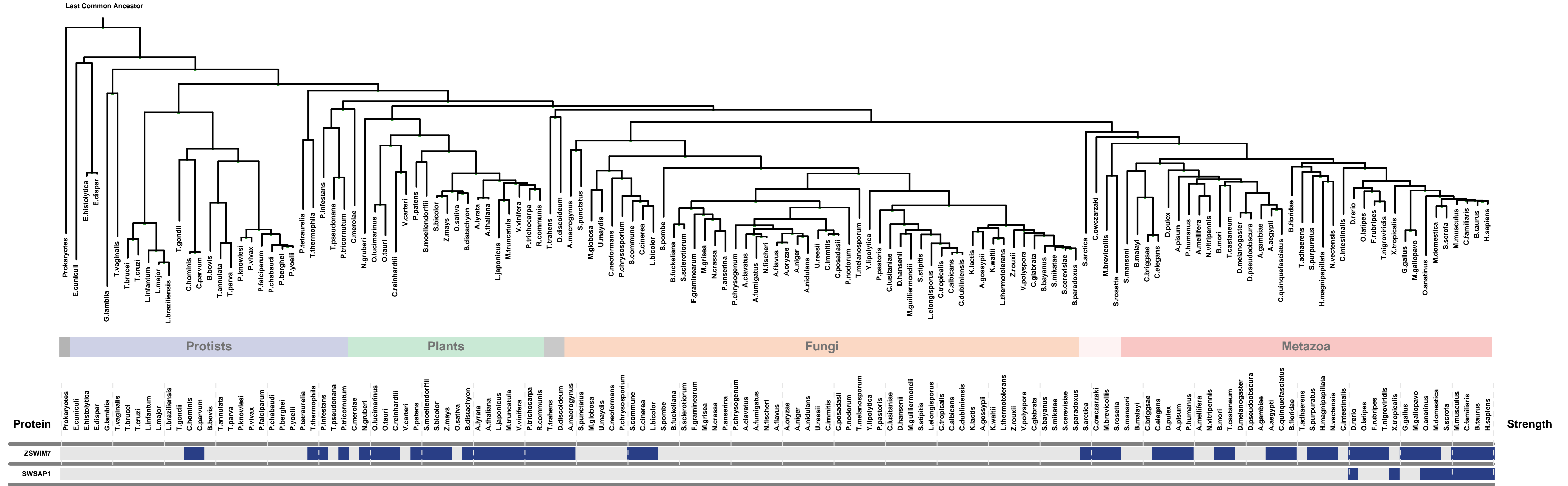
### 1) Overview of Evolutionarily Conserved Modules (ECMs)

- 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+

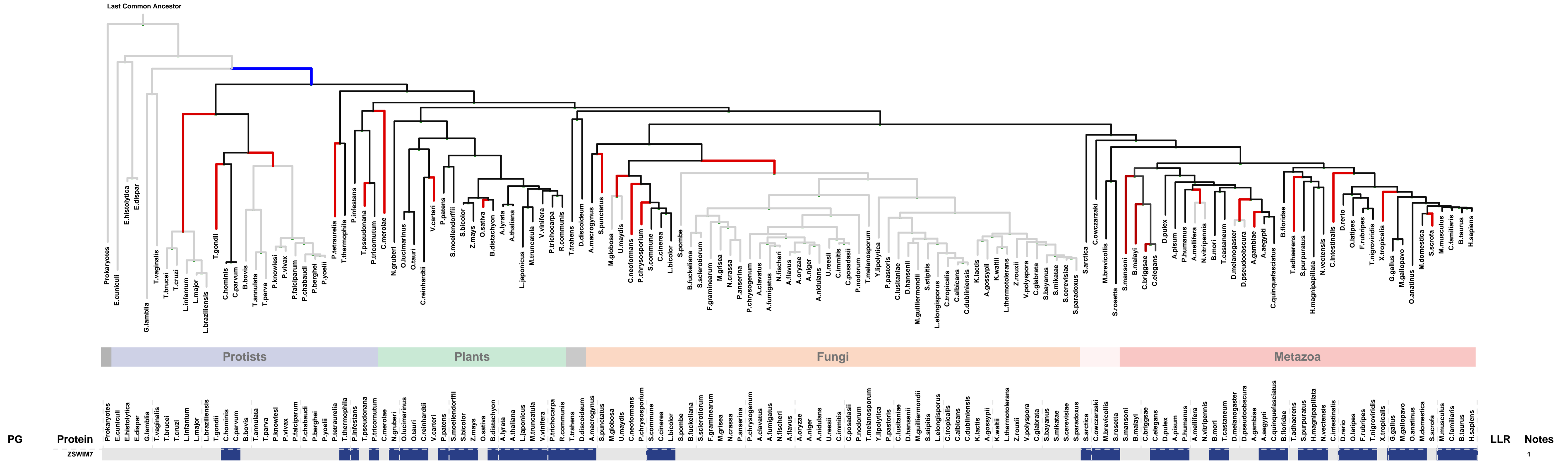
- Top panel shows the inferred evolutionary history on the predefined species tree. Branch color shows the gain event (blue) and loss events (red color, with brighter color indicating higher confidence in loss). Branches before the gain or after a loss are shown in gray.
- Bottom panel shows the input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

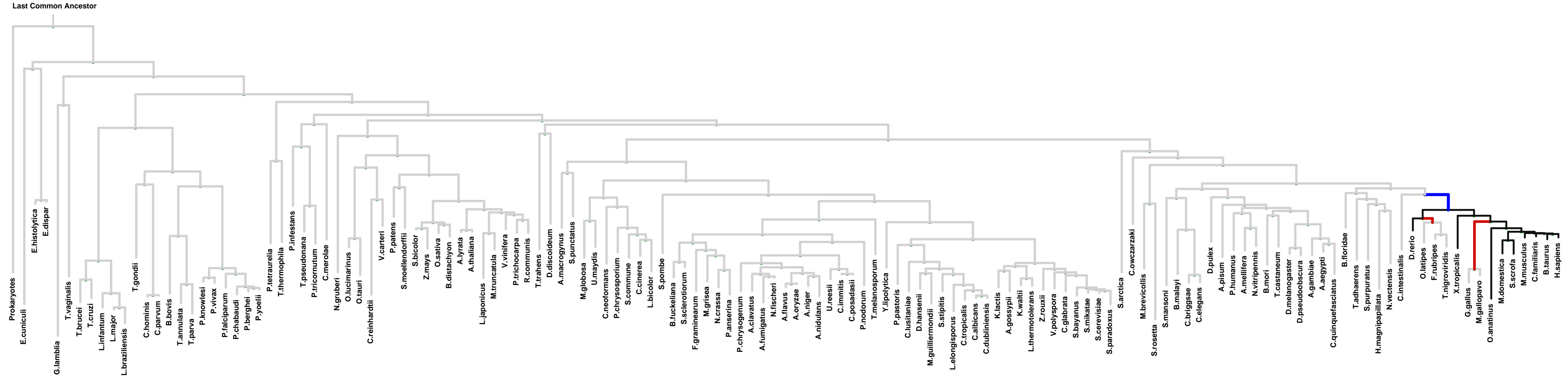
Num of ECM Genes: 1. Num of Predicted Genes: 0



1: Shu complex

ECM 2, Gene set "Shu complex", Page 1

Num of ECM Genes: 1. Num of Predicted Genes: 97

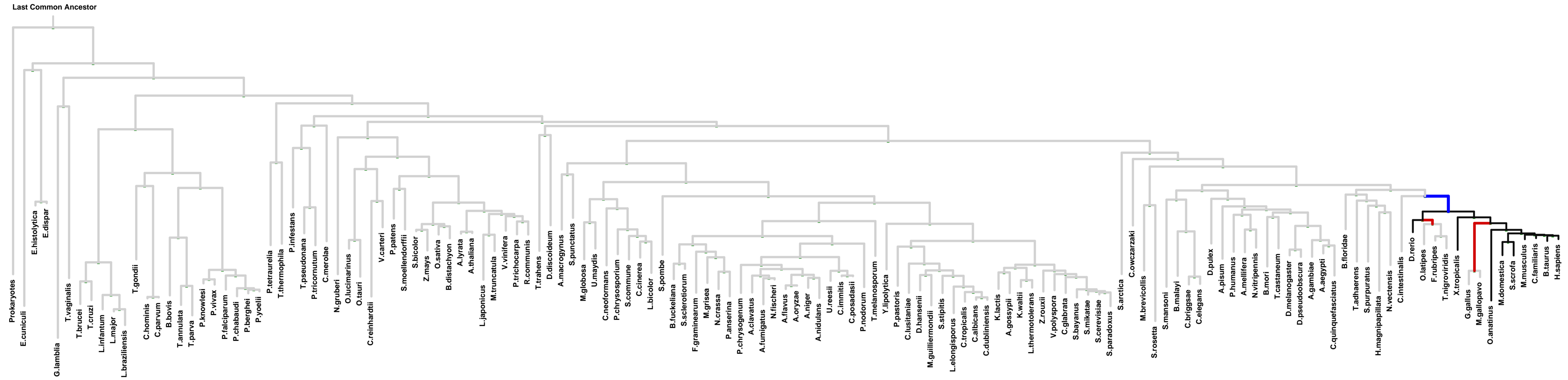


PG	Protein	LLR	Notes
	SWSAP1	12.0	1
	TBATA	12.0	
	CMTM5	12.0	
	IZUMO1	12.0	2
	UPK2	12.0	3
	TEX15	9.3	
	STMND1	9.3	
	TMEM218	9.3	
	PYDC1	8.3	4
	MARVELD1	8.3	
	C16orf46	7.6	
	SMIM10	6.4	
	SMIM1	6.4	
	SYCN	6.4	5/6
	LOC646543	6.4	
A	SCAND1	5.1	
B	VN1R5	5.1	
A	ZNF174	5.1	7
A	ZSCAN2	5.1	
	BCL2L12	4.6	
	C2orf80	4.6	
C	CCDC71	4.0	
D	ALB	4.0	8/9
C	CCDC71L	4.0	
	RAD51AP1	4.0	
	RLN2	4.0	
	APOL5	3.7	
	CCDC117	3.3	
	APOC2	2.8	10/11/12/13/14
	TMEM261	2.8	
	CD3EAP	2.6	15/16/17
	PARM1	2.2	18/19/20
	MLLT11	2.2	
E	LILRB1	2.1	21
E	LILRB4	2.1	

1: Shu complex || 2: acrosomal membrane || 3: integral to endoplasmic reticulum 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: chromosome || 16: DNA-directed RNA polymerase I complex || 17: RNA polymerase I transcription factor complex || 18: early endosome || 19: endosome membrane || 20: late endosome || 21: external side of plasma membrane

ECM 2, Gene set "Shu complex", Page 2

Num of ECM Genes: 1. Num of Predicted Genes: 97

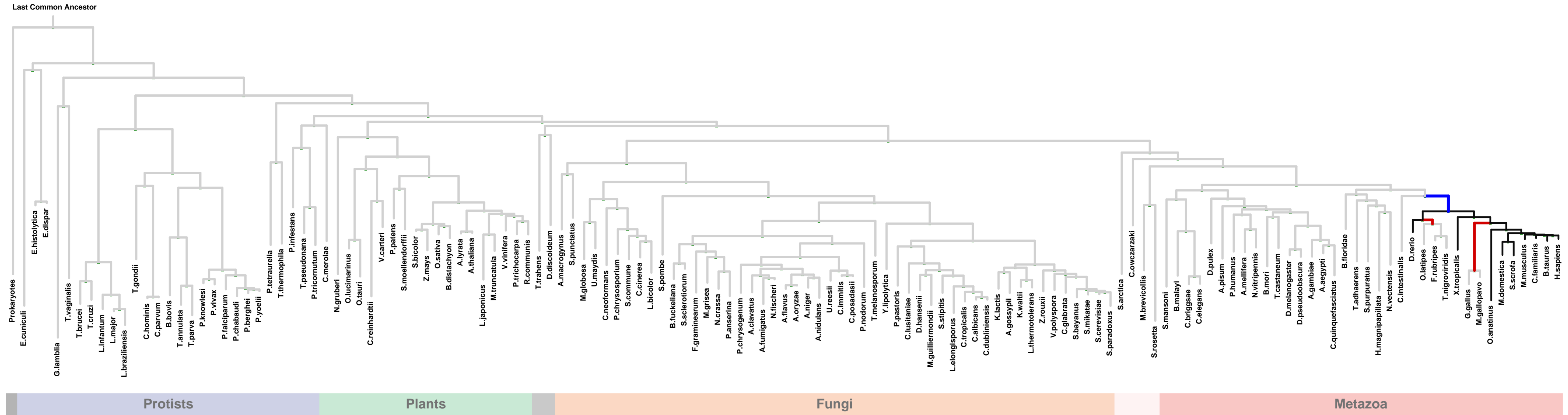


PG	Protein	Protists	Plants	Fungi	Metazoa	LLR	Notes
F	ANG					2.1	1 / 2 / 3
	CXCL11					2.1	
	LRRC41					2.1	
D	AFP					2.1	
	MBP					2.1	4 / 5
	CCL22					2.1	
	OSTN					2.1	
D	GC					2.1	6
	GIP					2.1	7 / 8
D	AFM					2.1	
	KIAA1210					2.1	
F	RNASE1					2.1	
F	RNASE12					2.1	
F	RNASE4					2.1	
	KIR2DL2					2.1	
	SNN					2.1	9
E	KIR2DL2					2.1	
G	TAS2R10					2.1	
G	TAS2R31					2.1	
G	TAS2R41					2.1	
G	TAS2R45					2.1	
G	TAS2R50					2.1	
G	TAS2R60					2.1	
	TAS2R64P					2.1	
G	TAS2R7					2.1	
E	KIR2DL3					2.1	
E	KIR2DL5A					2.1	
	TREML1					2.1	10
E	KIR2DL5B					2.1	
E	KIR2DS1					2.1	
E	KIR2DS2					2.1	
E	KIR2DS5					2.1	
	100508943					2.1	
	GRP					2.1	
	C11orf53					1.9	

1: angiogenin-PR1 complex || 2: basal lamina || 3: growth cone || 4: compact myelin || 5: internode region of axon || 6: lysosomal lumen || 7: endoplasmic reticulum lumen || 8: secretory granule || 9: mitochondrial outer membrane || 10: platelet alpha granule

ECM 2, Gene set "Shu complex", Page 3

Num of ECM Genes: 1. Num of Predicted Genes: 97



PG	Protein	Protists	Plants	Fungi	Metazoa	LLR	Notes
	TMEM71					1.9	
	CRLF2					1.5	
	MUC12					1.5	
	KRCC1					1.4	
	EID1					1.2	
	SNX21					1.2	1
	CD33					1.1	2
B	VN1R2					1.1	
	TCAP					1.1	3/4
	TEX12					1.0	5
	C19orf26					0.8	
	RAET1E					0.6	6
	AKAP7					0.3	7/8/9/10
	TINF2					0.3	11/12/13
H	C11orf84					0.3	
	OTOS					0.3	
	SYNE4					0.3	
	TUSC5					0.3	
	PROCA1					0.3	
H	C11orf95					0.3	
B	VN1R4					0.3	14
	CXorf21					0.3	
	C14orf28					0.3	
	RHBD3					0.3	
	APOM					0.3	
	C14orf39					0.3	15/16/17/18
	SYCE1L					0.1	5
	CD99					0.0	

1: cytoplasmic vesicle membrane || 2: external side of plasma membrane || 3: I band || 4: Z disc || 5: synaptonemal complex || 6: MHC class I protein complex || 7: exocytic vesicle || 8: lateral plasma membrane || 9: sarcoplasmic reticulum || 10: T-tubule || 11: chromosome, telomeric region || 12: nuclear matrix || 13: nuclear telomere cap complex || 14: actin cytoskeleton || 15: high-density lipoprotein particle || 16: low-density lipoprotein particle || 17: spherical high-density lipoprotein particle || 18: very-low-density lipoprotein particle