

Supplementary material Table 1: Genomes

Species	Description	Genome source	Genome version	Downloaded	References
<i>Homo sapiens</i>	Human	EnsEMBL	NCBI 36	06-30-08	[1, 2]
<i>Mus musculus</i>	Mouse	EnsEMBL	NCBI m37 Apr 2007	06-30-08	[3]
<i>Ornithorhynchus anatinus</i>	Platypus	EnsEMBL	v5.0, Dec 2005	06-30-08	[4]
<i>Gallus gallus</i>	Bird	EnsEMBL	WASHUC2, May 2006	06-30-08	[5]
<i>Xenopus tropicalis</i>	Amphibian	EnsEMBL	JGI 4.1, Aug 2005	06-30-08	[6]
<i>Danio rerio</i>	Zebrafish	EnsEMBL	Zv7, Apr 2007	06-30-08	[7]
<i>Fugu rubripes</i>	Puffer fish	EnsEMBL	FUGU 4.0, Jun 2005	06-30-08	[8]
<i>Branchiostoma floridae</i>	Cephalochordate	JGI	v.1.0 (December 5, 2006)	08-06-08	[9]
<i>Ciona intestinalis</i>	Sea squirt	EnsEMBL	JGI 2, Mar 2005	06-30-08	[10]
<i>Strongylocentrotus purpuratus</i>	Sea urchin	Sea Urchin Genome Project	Spur 2.1, Sep 2006	07-30-08	[11]
<i>Caenorhabditis elegans</i>	Nematode	EnsEMBL	WS190, Apr 2008	07-30-08	[12]
<i>Anopheles gambiae</i>	Mosquito	EnsEMBL	AgamP3, February 2006	08-07-08	[13]
<i>Drosophila melanogaster</i>	Fruit fly	EnsEMBL	BDGP 5.4, Nov 2007	07-30-08	[14]
<i>Lottia gigantea</i>	Snale	JGI	v1.0 (July 24, 2007)	08-06-08	[15]
<i>Daphnia pulex</i>	Crustacea	JGI	v.1.0 (July 5, 2007) frozen catalog	08-06-08	[15]
<i>Nematostella vectensis</i>	Sae anemone	JGI	JGI v1.0	07-30-08	[16]
<i>Trichoplax adhaerens</i>	Placozoon	JGI	JGI v1.0 22 July 2007	07-30-08	[17]
<i>Monosiga brevicollis</i>	Choanoflagellate	JGI	JGI v1.0 July 2006	07-30-08	[18]
<i>Encephalitozoon cuniculi</i>	Microsporidium	EMBL	EMBL	07-30-08	[19]
<i>Batrachochytrium dendrobatidis</i>	Chytridiomycete	BROAD	BROAD 3/1/2007	07-30-08	[20]
<i>Phycomyces blakesleeanus</i>	Zygomycete	JGI	JGI v1.0 January 8, 2007	07-30-08	[15]
<i>Rhizopus oryzae</i>	Zygomycete	BROAD	RO3 12/6/05	07-30-08	[21]
<i>Laccaria bicolor</i>	Basidiomycete	JGI	JGI v1.0 May 22, 2006	07-30-08	[22]
<i>Phanerochaete chrysosporium</i>	Basidiomycete	JGI	JGI v2.0 February 2005	07-30-08	[23]
<i>Cryptococcus neoformans</i>	Basidiomycete	BROAD	BROAD v3.0 2/17/2006	07-30-08	[24]
<i>Ustilago maydis</i>	Basidiomycete	BROAD	BROAD v2.0 April 1, 2004	07-30-08	[25]
<i>Schizosaccharomyces pombe</i>	Fission yeast	Sanger	Sanger v19 07/16/2008	07-30-08	[26]
<i>Yarrowia lipolytica</i>	Hemiascomycete	Genolevures	V 2	08-06-08	[27]
<i>Debaryomyces hansenii</i>	Hemiascomycete	Genolevures	V 1	08-06-08	[27]
<i>Candida guilliermondii</i>	Hemiascomycete	BROAD	V 1	08-06-08	[28]
<i>Eremothecium gossypii</i>	Hemiascomycete	EMBL		08-06-08	[29]
<i>Candida glabrata</i>	Hemiascomycete	Genolevures	V 2	08-06-08	[27]
<i>Kluyveromyces lactis</i>	Hemiascomycete	Genolevures	V 2	08-06-08	[27]
<i>Saccharomyces cerevisiae</i>	Baker's yeast	SGD	SGD 06/06/2008	07-30-08	[30]
<i>Aspergillus terreus</i>	Pezizomycete	BROAD	BROAD v1.0	08-01-08	[31]
<i>Coccidioides immitis</i>	Pezizomycete	BROAD	C. immitis RS v2	08-01-08	[32]
<i>Fusarium graminearum</i>	Pezizomycete	BROAD	BROAD v3	08-01-08	[33]
<i>Neurospora crassa</i>	Pezizomycete	BROAD	BROAD v7	08-01-08	[34]

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<i>Sclerotinia sclerotiorum</i>	Pezizomycete	BROAD	BROAD v2.0	08-01-08	[35]
<i>Dictyostelium discoideum</i>	Amoebozoan	DictyDB	created: 03-01-2009 01:29	03-05-09	[36, 37]
<i>Cyanidioschyzon merolae</i>	Red algae	C. merolae Genome Project	April 13 2004 (ORF)	08-07-08	[38]
<i>Ostreococcus tauri</i>	Green algae	JGI	JGI v2	08-01-08	[39]
<i>Chlamydomonas reinhardtii</i>	Green algae	JGI	JGI v3.1	08-01-08	[40]
<i>Volvox carteri</i>	Green algae	JGI	JGI v1.0 June 1, 2007	08-01-08	[41]
<i>Physcomitrella patens ssp patens</i>	Moss	JGI	v.1.1 (March 2007)	08-06-08	[42]
<i>Selaginella moellendorffii</i>	Lycophyte	JGI	v1.0 (December 20, 2007)	08-06-08	[15]
<i>Oryza sativa</i>	Plant monocotyl	Rice Genome Annotation (TIGR)	v5 TIGR January 24, 2007	08-01-08	[43]
<i>Arabidopsis thaliana</i>	Plant dicotyl	Arabidopsis genome initiative	TIER v8	08-01-08	[44]
<i>Populus trichocarpa</i>	Plant dicotyl	JGI	v1.0 (June 2004)	08-07-08	[45]
<i>Phaeodactylum tricorutum</i>	Diatom	JGI	v.2.0 (November 16, 2006)	08-06-08	[46]
<i>Thalassiosira pseudonana</i>	Diatom	JGI	v3.0 (August 2006)	08-06-08	[47]
<i>Phytophthora sojae</i>	Oomycete	JGI	v1.0 (April 2004)	08-06-08	[48]
<i>Phytophthora infestans</i>	Oomycete	BROAD	03-14-07	08-06-08	[49]
<i>Emiliania huxleyi CCMP1516</i>	Coccolithophore	JGI	v.1.0 (April 25, 2008)	08-06-08	[15]
<i>Aureococcus anophagefferens</i>	Pelagophyte	JGI	JGI v1.0 September 27, 2007	08-06-08	[15]
<i>Paramecium tetraurelia</i>	Ciliate	ParameciumDB	V1.21 07/29/2008	08-06-08	[50]
<i>Tetrahymena thermophila</i>	Ciliate	TIGR	Aug 2004	08-06-08	[51]
<i>Cryptosporidium parvum</i>	Apicomplexa	CryptoDB	CryptoDB 3.7	08-06-08	[52]
<i>Plasmodium falciparum</i>	Apicomplexa	PlasmoDB	5,5	08-06-08	[53]
<i>Theileria parva</i>	Apicomplexa	TIGR	1	08-06-08	[54]
<i>Naegleria gruberi</i>	Heterolobosea	JGI	v.1.0 (October 23, 2006)	08-06-08	[55]
<i>Trichomonas vaginalis</i>	Parabasalid	TIGR	02-15-07	08-06-08	[56, 57]
<i>Giardia intestinalis</i>	Diplomonad	GiardiaDB	V1.1 may 2008	08-06-08	[57]
<i>Leishmania major</i>	Kinetoplastid	Sanger	11-05-06	08-06-08	[58]
<i>Trypanosoma brucei</i>	Kinetoplastid	Sanger	May 08 v4	08-06-08	[59]

References

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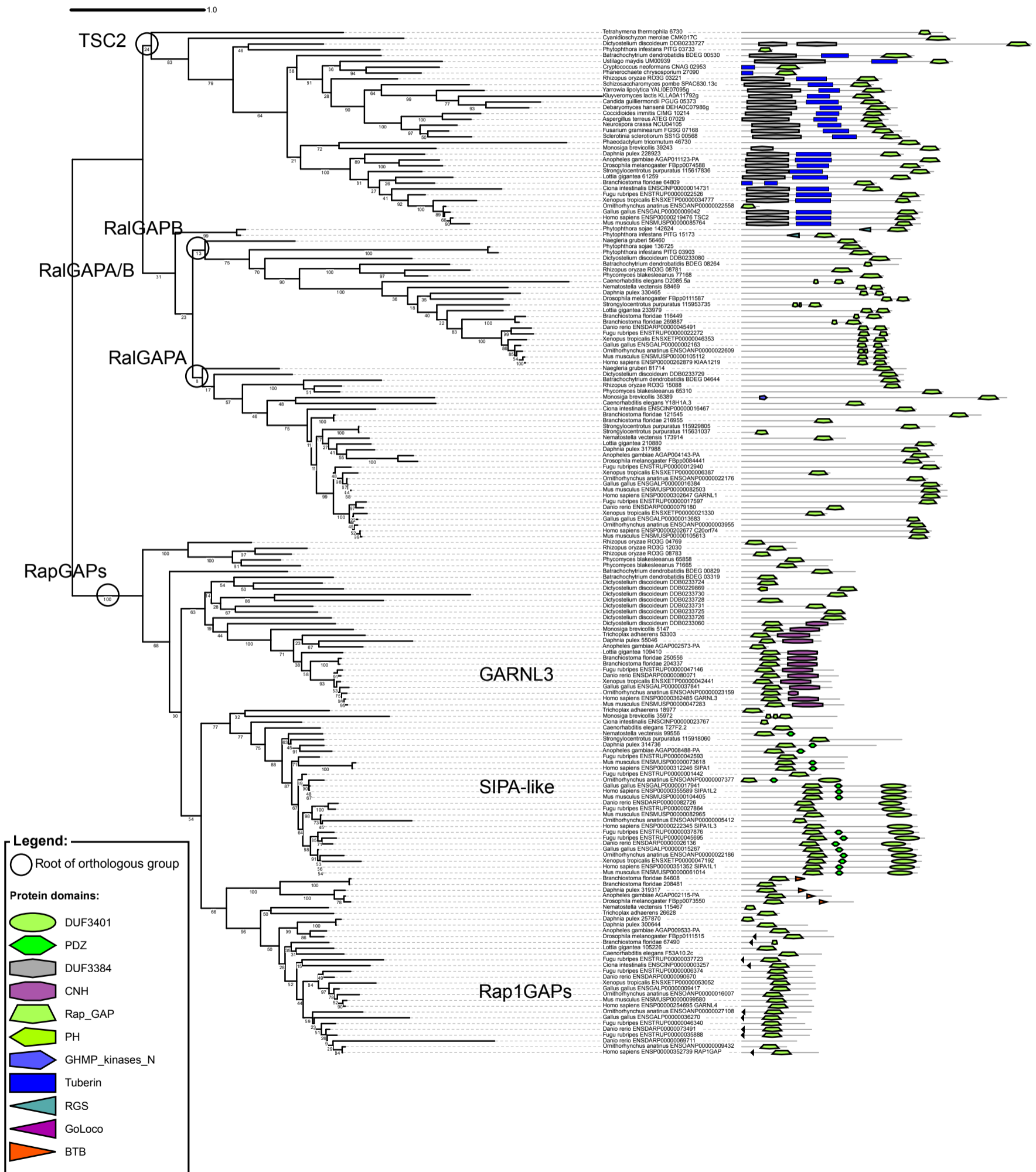
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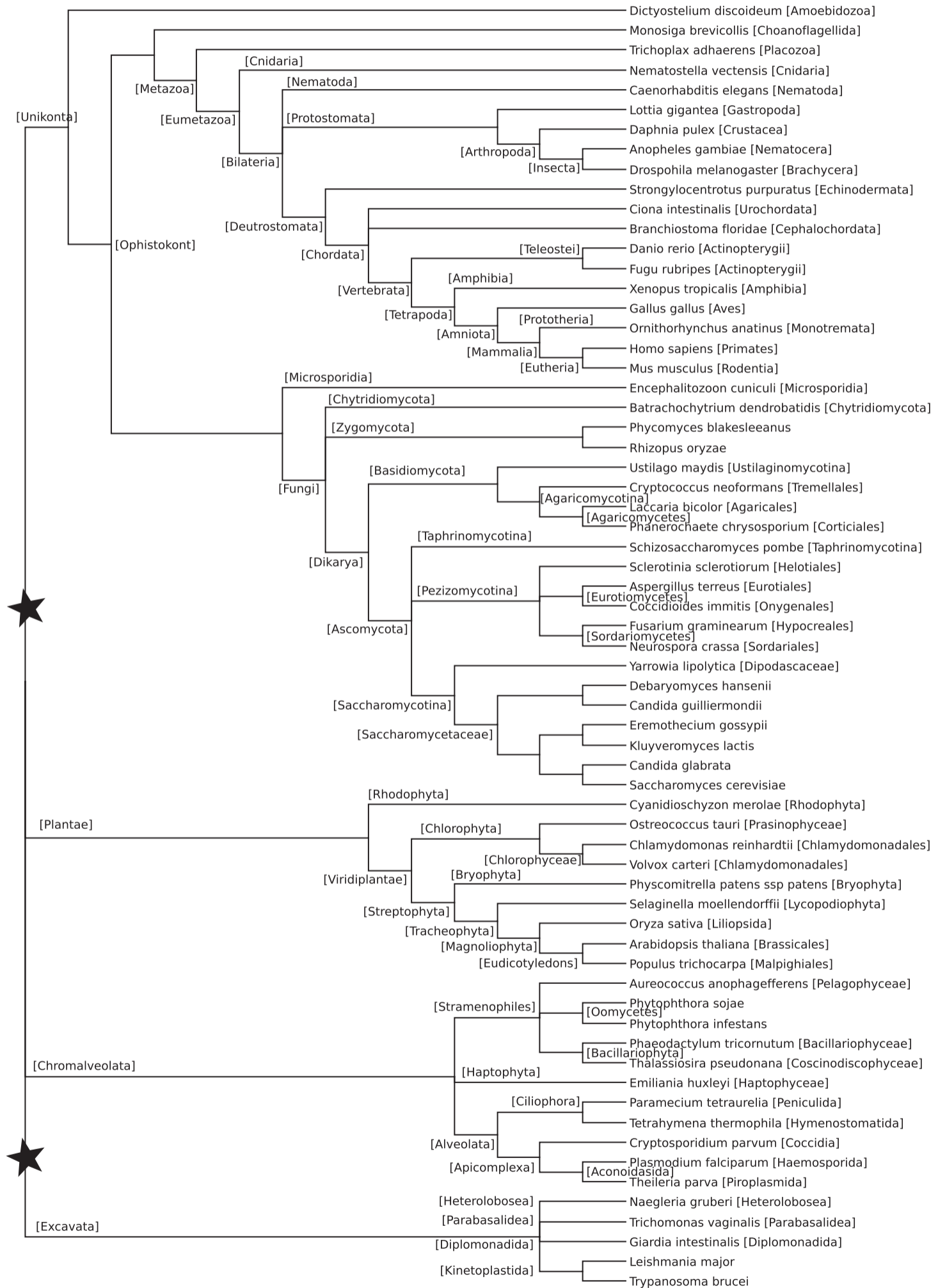
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Figure S1: Phylogenetic tree of the RapGAP domain and domain architecture of full length sequences



(Best viewed electronically)

Figure S3: Phylogenetic tree of the species used in this analysis



Phylogenetic tree of all species used in this analysis. The phylogeny is based on Simpson et al. 2006 and NCBI Taxonomy. The stars indicate possible roots for the eukaryotic species tree.