

**Supplemental Table 1: Abbreviations and accession numbers of proteins used in phylogenetic analyses**

<b>Organism</b>	<b>Annotation</b>	<b>Abbreviation</b>	<b>Accession #</b>	<b>Gene Location</b>
Homo sapien	HsELMOD1	ELMOD1	NP_061182	
Homo sapien	HsELMOD2	ELMOD2	NP_714913	
Homo sapien	HsELMOD3	ELMOD3	NP_115589	
Homo sapien	HsELMO1	ELMO1	NP_055615	
Homo sapien	HsELMO2	ELMO2	NP_877496	
Homo sapien	HsELMO3	ELMO3	NP_078988	
Danio rerio	DrELMOW	ELMOD_B	NP_001074150.1	
Danio rerio	DrELMOX	ELMOD_A	XP_691971.4	
Danio rerio	DrELMOY	ELMO1	NP_998256.1	
Nematostella vectensis	NvELMOX	ELMOD_A	XP_001628072	
Nematostella vectensis	NvELMOY	ELMOD3	XP_001623228	
Nematostella vectensis	NvELMOZ	ELMO	XP_001627551	
Monosiga brevicollis	MbELMOZ	ELMOD	XP_001745572	
Cryptococcus neoformans	CnELMOZ	ELMO	CNAG_05930.2	
Batrachochytrium dendrobatidis	BdELMOY	ELMOD	BDEG_00507.1	
Batrachochytrium dendrobatidis	BdELMOZ	ELMO	BDEG_04078.1	
Drosophila melanogaster	DmELMOY	ELMOD	NP_649695	
Drosophila melanogaster	DmELMOZ	ELMO	NP_609548	
Caenorhabditis elegans	CeELMOY	ELMOD3	NP_497699	
Dictyostelium discoideum	DdELMOA	ElmoA	XP_642091	
Dictyostelium discoideum	DdELMOB	ElmoB	XP_641287	
Dictyostelium discoideum	DdELMOC	ElmoC	XP_639274	
Dictyostelium discoideum	DdELMOD	ElmoD	XP_640972	
Dictyostelium discoideum	DdELMOE	ElmoE	XP_641578	
Dictyostelium discoideum	DdELMOF	ElmoF	XP_647117	
Trichomonas vaginalis	TvELMOY	ELMOD3_A	XP_001581069	
Trichomonas vaginalis	TvELMOZ	ELMOD3_B	XP_001318953	
Trypanosoma brucei	TbELMOY	ELMOD_A	XP_803577	
Trypanosoma brucei	TbELMOZ	ELMOD3	XP_822839	
Leishmania major	LmELMOX	ELMOD_B	XP_001684191	
Leishmania major	LmELMOY	ELMOD_A	XP_001682746	
Leishmania major	LmELMOZ	ELMOD3	XP_001686726	

Naegleria gruberi	NgELMOU	ELMOD_A	XP_002680121	
Naegleria gruberi	NgELMOV	ELMOD_B	XP_002676984	
Naegleria gruberi	NgELMOW	ELMOD3_B	XP_002675911	
Naegleria gruberi	NgELMOX	ELMOD_C	XP_002670995	
Naegleria gruberi	NgELMOY	ELMOD_D	XP_002668667	
Naegleria gruberi	NgELMOZ	ELMOD3_A	XP_002678333	
Arabidopsis thaliana	AtELMOU	ELMOD_A	NP_567097	
Arabidopsis thaliana	AtELMOV	ELMOD_C	NP_564897	
Arabidopsis thaliana	AtELMOW	ELMOD_F	NP_566211	
Arabidopsis thaliana	AtELMOX	ELMOD_E	NP_171859	
Arabidopsis thaliana	AtELMOY	ELMOD_D	NP_189926	
Arabidopsis thaliana	AtELMOZ	ELMOD_B	NP_566027	
Physcomitrella patens	PpELMOZ	ELMOD	XP_001756777	
Chlamydomonas reinhardtii	CrELMOY	ELMOD3		Chlre4 150490 Chlre2_kg.scaffold_32000043
Chlamydomonas reinhardtii	CrELMOZ	ELMOD_A		Chlre4 21823 fgenes1_pg.C_scaffold_80000050
Ostreococcus tauri	OtELMOZ	ELMOD_A	XP_003078509	
Toxoplasma gondii	TxgELMOX	ELMOD_B	EEE21379	
Toxoplasma gondii	TxgELMOY	ELMOD_A	EEE22446	
Toxoplasma gondii	TxgELMOZ	ELMOD_C	EEE29665	
Tetrahymena thermophila	TtELMOW	ELMOD_A	XP_001014395.2	
Tetrahymena thermophila	TtELMOX	ELMOD3_B	XP_001033010.1	
Tetrahymena thermophila	TtELMOY	ELMOD_B	XP_001026931.1	
Tetrahymena thermophila	TtELMOZ	ELMOD3_A	XP_001024802.1	
Phytophthora sojae	PsELMOW	ELMOD_C		Physo1_1 137612 estExt_fgenes1_pg.C_550103
Phytophthora sojae	PsELMOX	ELMOD_B		Physo1_1 128030 estExt_fgenes1_pg.C_30239
Phytophthora sojae	PsELMOY	ELMOD_A		Physo1_1 128030 estExt_fgenes1_pg.C_30239
Phytophthora sojae	PsELMOZ	ELMOD3		Physo1_1 133225 estExt_fgenes1_pg.C_240194
Amphimedon queenslandica	AqELMOX	ELMOD3	XP_003384642	
Amphimedon queenslandica	AqELMOY	ELMOD_A	XP_003387436	
Amphimedon queenslandica	AqELMOZ	ELMO	XP_003386618	
Capsaspora owczarzaki	CoELMOX	ELMOD_A	EFW40932	
Capsaspora owczarzaki	CoELMOY	ELMOD_B	EFW39689	
Capsaspora owczarzaki	CoELMOZ	ELMO	EFW44340	
Thecamonas trahens	TtrELMOV	ELMOD_D	AMSG_00305.1	
Thecamonas trahens	TtrELMOW	ELMOD_C	AMSG_09134.1	

<i>Thecamonas trahens</i>	TtrELMOX	ELMOD_B	AMSG_01964.1	
<i>Thecamonas trahens</i>	TtrELMOY	ELMOD3	AMSG_10099.1	
<i>Thecamonas trahens</i>	TtrELMOZ	ELMOD_A	AMSG_05642.1	
<i>Sphaeroforma arctica</i>	SaELMOZ	ELMOD_A	SARC_01169.1	
<i>Ciona intestinalis</i>	CiELMOZ	ELMO		Cioin2 299311 estExt_fggenes3_kg.C_1560003
<i>Anopheles gambiae</i>	AgELMOZ	ELMO	XP_320013.2	
<i>Canis lupus familiaris</i>	CifELMOX	ELMO3	XP_546883	
<i>Canis lupus familiaris</i>	CifELMOY	ELMO1	XP_852411	
<i>Canis lupus familiaris</i>	CifELMOZ	ELMO2	XP_866738	
<i>Bos taurus</i>	BtELMOX	ELMO1	NP_001106698	
<i>Bos taurus</i>	BtELMOY	ELMO2	NP_001076860	
<i>Bos taurus</i>	BtELMOZ	ELMO3	NP_001095561	
<i>Tetraodon nigroviridis</i>	TnELMOW	ELMO2	CAF96838	
<i>Tetraodon nigroviridis</i>	TnELMOX	ELMO1	CAG10033	
<i>Xenopus laevis</i>	XIELMOY	ELMO1	NP_001089652.1	
<i>Xenopus laevis</i>	XIELMOZ	ELMO2	NP_001083487.1	
<i>Gallus gallus</i>	GgELMOX	ELMO1	NP_001026165	
<i>Gallus gallus</i>	GgELMOY	ELMO2	XP_417479	

**Sampled organisms where no ELMOD family members were found**

*Saccharomyces cerevisiae*  
*Schizosaccharomyces pombe*  
*Acanthamoeba castellani*  
*Entamoeba histolytica*  
*Plasmodium vivax*  
*Takifugu rubripes*