

Supplement

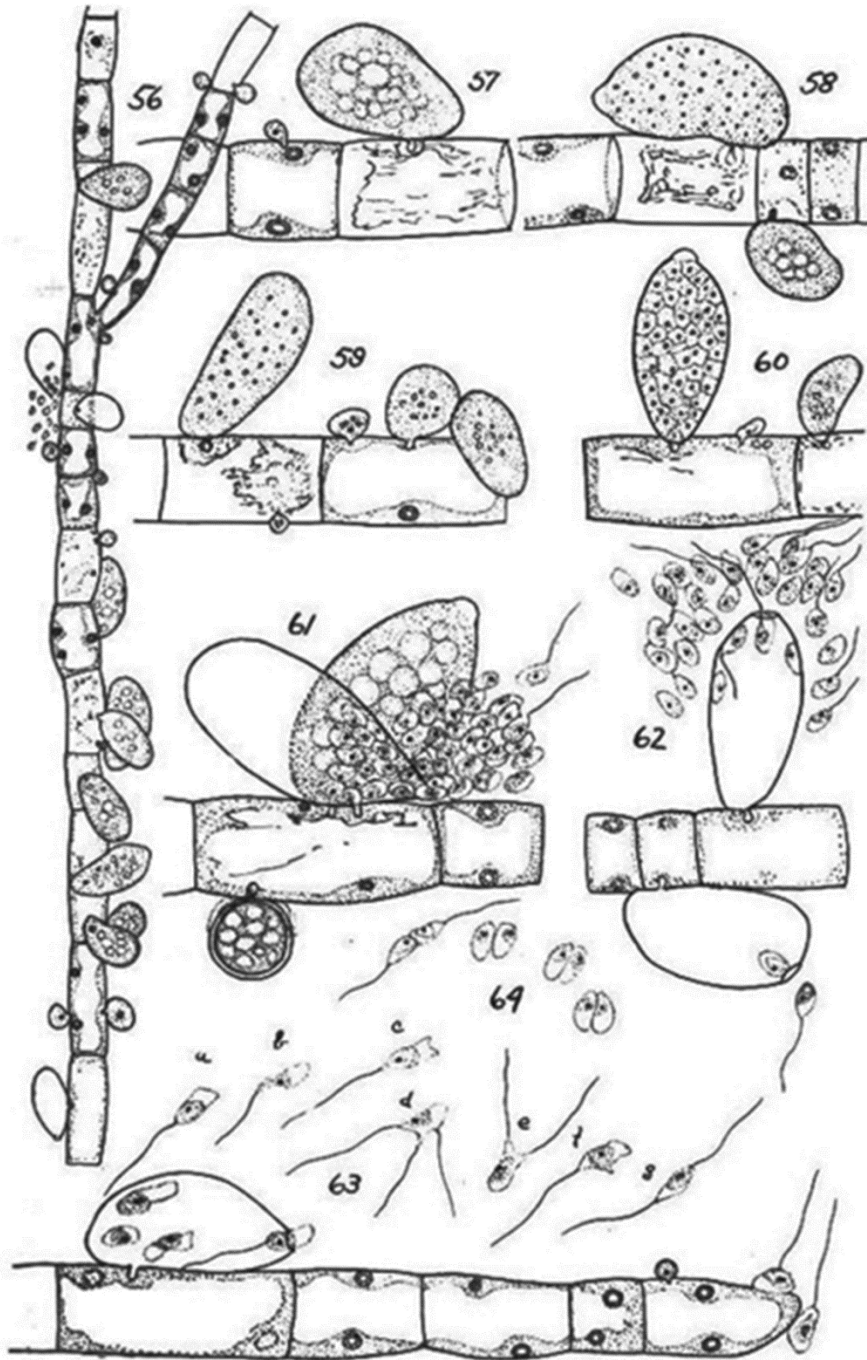
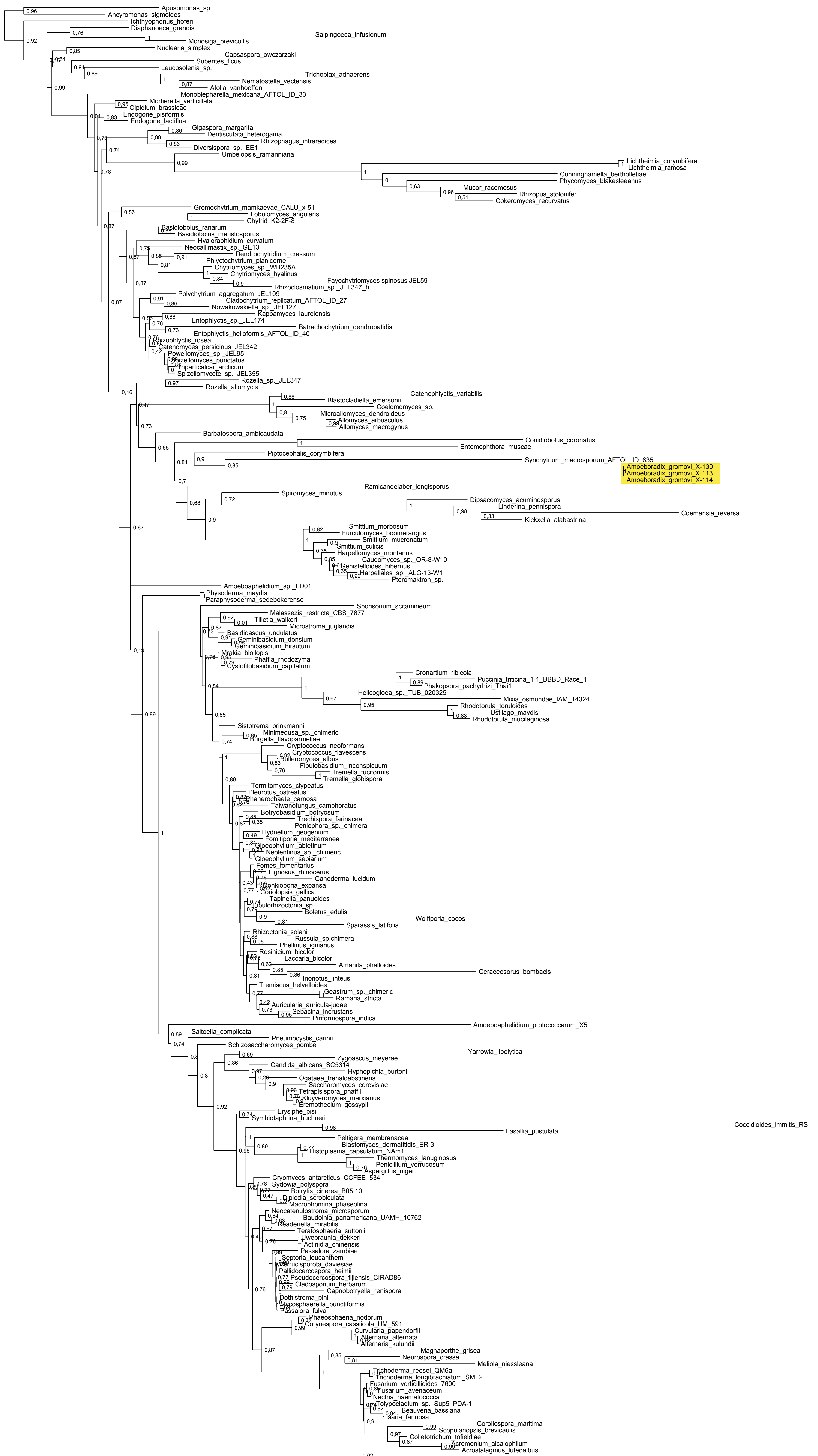


Fig. S1. Copy of Fig. 56-64 by Couch (1935): *Plectidium anatropum* (Braun) Sparrow. 56, habit sketch showing numerous parasites on thread of *Stigeoclonium*: 57-60, Sporangia in various stages of development. The large sporangium in figure 57 and the smaller one in figure 58 show thick peripheral, hyaline zone of cytoplasm surrounding central region of globules. Larger sporangia, figure 58 and 59, show minute droplets, one for each spore; 61-63, sporangia with spores in the act of emerging. Note how spores hover around sporangial mouth, figure 61 and 62. In figure 63 the letters show successive changes in the same spore as it was watched during a period of several minutes. In figure 61 one resting sporangium is shown; 64, gametes in act of fusion. Four pairs are shown. Many such were seen. Fig. 56 x620; others x1250.



Supplementary Figure S2. Bayesian phylogenetic tree of fungi including *Amoeboradix gromovi* strains X-113, X-114 and X-130. The tree is based on 18S rRNA sequences (1352 conserved sites) and is rooted on 12 opisthokont sequences. Numbers at nodes are Bayesian posterior probability values.

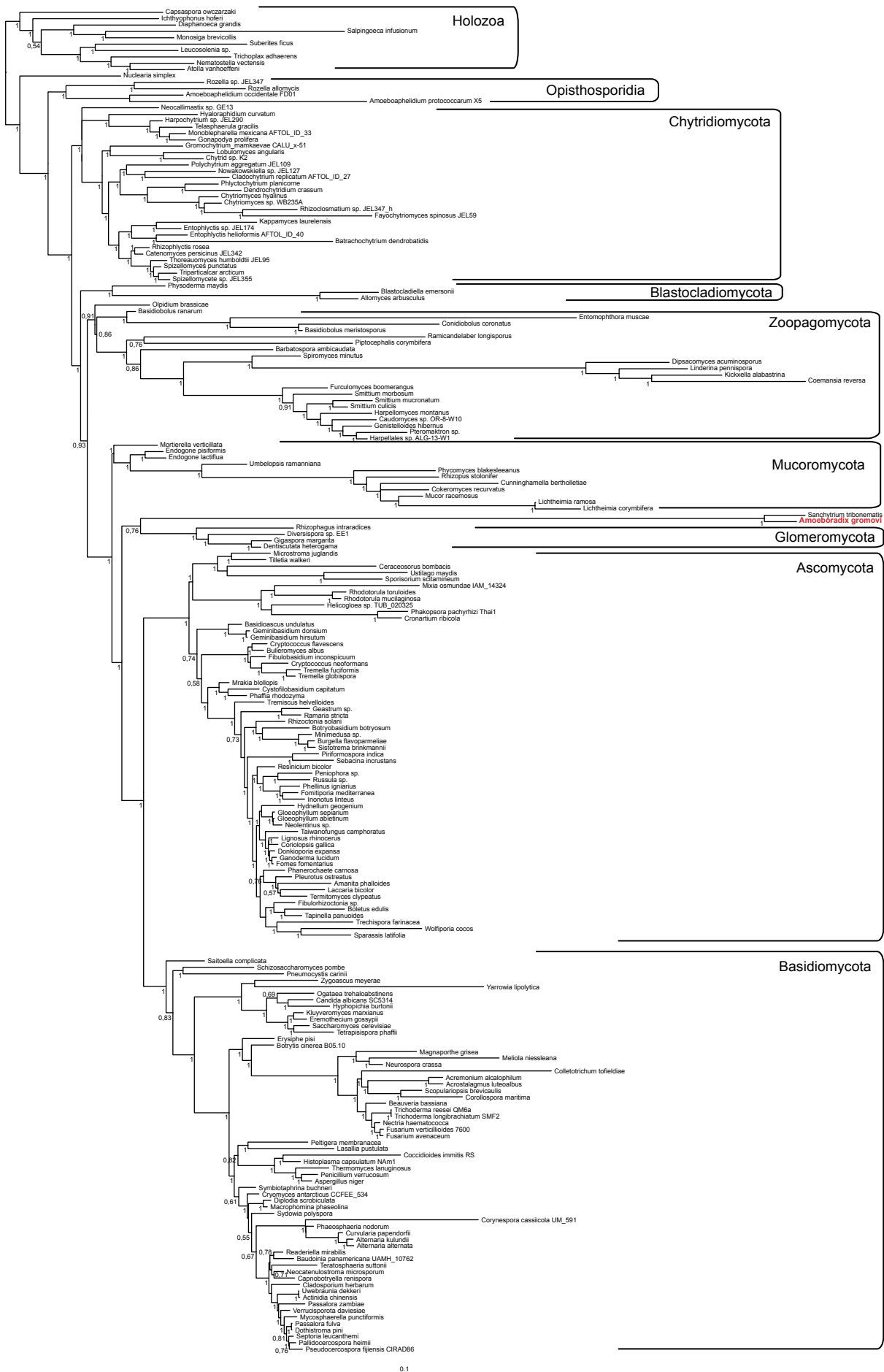


Figure S3. Bayesian phylogenetic tree of fungi corresponding to Figure 9 (main text).

Table S1. Accession numbers of the 18S and 28S rRNA gene sequences used in this work.

Species	18S rRNA	28S rRNA
<i>Acremonium alcalophilum</i>	JX158486.1	JX158443.1
<i>Acrostalagmus luteoalbus</i>	KJ443096.1	KJ443141.1
<i>Actinidia chinensis</i>	AONS01020919	AONS01020919
<i>Allomyces arbusculus</i>	NG_017166.1	AY552525.1
<i>Alternaria alternata</i>	U05194.1	LMXP01000007
<i>Alternaria kulundii</i>	KJ443084.1	KJ443132
<i>Amanita phalloides</i>	HQ539826.1	DQ071721.2
<i>Amoebophilidium protococcarum</i> X5	JX507298.1	JX507298.1
<i>Amoebophilidium occidentale</i> FD01	JX967274.1	JX967274.1
<i>Amoeboradix gromovi</i>	MG256970	MG256970
<i>Aspergillus niger</i>	AM270052.1	AM270052.1
<i>Atolla vanhoeffeni</i>	AF100942.1	AY026368
<i>Barbatospora ambicaudata</i>	KC297614.1	KF848899.1
<i>Basidioascus undulatus</i>	JX242889.1	JTLS01001059
<i>Basidiobolus meristosporus</i>	JX242609.1	JNEO01020332
<i>Basidiobolus ranarum</i>	NG_017184.1	NG_027562.1
<i>Batrachochytrium dendrobatidis</i>	AF051932.1	NG_027619.1
<i>Baudoinia panamericana</i> UAMH 10762	EF137355.1	AEIF01000034
<i>Beauveria bassiana</i>	EU334677.1	EU334677.1
<i>Blastocladiella emersonii</i>	AY635842.1	DQ273808.1
<i>Boletus edulis</i>	DQ534675.1	DQ071747.2
<i>Botryobasidium botryosum</i>	AY662667.1	AYEP01001617
<i>Botrytis cinerea</i> B05.10	AAID02000333	AAID02000582
<i>Bulleromyces albus</i>	X60179.1	KU179840.1
<i>Burgella flavoparmeliae</i>	DQ915455.1	DQ915469.1
<i>Candida albicans</i> SC5314	XR_002086442.1	CP017630.1
<i>Capnobotryella renispora</i>	Y18698.1	GU214398.1
<i>Capsaspora owczarzaki</i>	AF349564.1	AY724688.1
<i>Catenomyces persicinus</i> JEL342	AY635830.1	DQ273789.1
<i>Caudomyces</i> sp. OR-8-W10	KC297620.1	KF848906.1
<i>Ceraceosorus bombacis</i>	DQ875377.1	CCYA01000118
<i>Chytriomycetes hyalinus</i>	AB586078.1	DQ273836.2
<i>Chytriomycetes</i> sp. WB235A	DQ536486.1	DQ536493.1
<i>Fayochytriomycetes spinosus</i> JEL59	AH009063.2	DQ273839.1
<i>Cladochytrium replicatum</i> AFTOL ID 27	NG_017169.1	NG_027614.1
<i>Cladosporium herbarum</i>	EU343068.1	GU214410.1
<i>Coccidioides immitis</i> RS	XR_001099882.1	XR_001099875.1
<i>Coemansia reversa</i>	AY546685.1	NG_027615.1
<i>Cokeromyces recurvatus</i>	AF113416.1	DQ273812.1
<i>Colletotrichum tofieldiae</i>	LFHR01000284	LFHQ01000284
<i>Conidiobolus coronatus</i>	AF296753.1	NG_027617.1
<i>Corioliopsis gallica</i>	AY336772.1	GBYM01000018
<i>Corollospora maritima</i>	GDFX01000012	GDFX01000030
<i>Corynespora cassiicola</i> UM 591	GU296145.1	JAQF01001762
<i>Cronartium ribicola</i>	M94338.1	GBSG01008323
<i>Cryomyces antarcticus</i> CCREE 534	AYQD01000402	AYQD01000402
<i>Cryptococcus flavescens</i>	AB085796.1	CAUG01000044
<i>Cryptococcus neoformans</i>	CP022322.1	CP022322.1
<i>Cunninghamella bertholletiae</i>	DQ155289.1	JNEG01000571

<i>Curvularia papendorffii</i>	JXCC01000148	JXCC01000148
<i>Cystofilobasidium capitatum</i>	D12801.1	FJ644524.2
<i>Dendrochytridium crassum</i>	AY635827.1	DQ273785.1
<i>Dentiscutata heterogama</i>	AJ306434.1	NG_027651.1
<i>Diaphanoeca grandis</i>	AF084234.1	EU011939.1
<i>Diplodia scrobiculata</i>	LAEG01000342	LAEG01000342
<i>Dipsacomyces acuminosporus</i>	AF007534.1	KF848901.1
<i>Diversispora</i> sp. EE1	HE863862.1	HE863901.1
<i>Donkioporia expansa</i>	AJ540307.1	AJ583428.1
<i>Dothiostroma pini</i>	GU214532.1	GU214426.1
<i>Endogone lactiflua</i>	JF414201.1	DQ273788.1
<i>Endogone pisiformis</i>	X58724.1	NG_027563.1
<i>Entomophthora muscae</i>	NG_017183.1	NG_027647.1
<i>Entophlyctis helioformis</i> AFTOL ID 40	AY635826.1	DQ273784.1
<i>Entophlyctis</i> sp. JEL174	AY635824.1	DQ273782
<i>Eremothecium gossypii</i>	NR_149589.1	NR_149706.1
<i>Erysiphe pisi</i>	CACM01000325	CACM01000006
<i>Fibulobasidium inconspicuum</i>	JN043552.1	EF551315.1
<i>Fibulorhizoctonia</i> sp.	AY654887.1	LNCK01003549
<i>Fomes fomentarius</i>	U59069.1	DQ208418.1
<i>Fomitiporia mediterranea</i>	AY662664.1	AEJJ01002640
<i>Furculomyces boomerangus</i>	AF007535.1	DQ273809.1
<i>Fusarium avenaceum</i>	JQGD01000001	JQGD01000001
<i>Fusarium verticillioides</i> 7600	XR_001989355.1	XR_001989352.1
<i>Ganoderma lucidum</i>	FJ379281.1	DQ208410.1
<i>Geastrum</i> sp.	AF026620.1	FJ644508.2
<i>Geminibasidium donsium</i>	JX242892.1	NG_042694.1
<i>Geminibasidium hirsutum</i>	JX242894.1	NG_042695.1
<i>Genistelloides hibernus</i>	AF007536.1	KF848908.1
<i>Gigaspora margarita</i>	AJ852603.1	HF968961.1
<i>Gloeophyllum abietinum</i>	AJ560802.1	AJ583431.1
<i>Gloeophyllum sepiarium</i>	AF026608.1	JX507713.1
<i>Gonapodya prolifera</i>	KJ668057.1	KJ668096.1
<i>Gromochytrium mamkaevae</i>	KF586842.1	KF586842.1
<i>Harpellales</i> sp. ALG-13-W1	JX155624.1	KF848905.1
<i>Harpellomyces montanus</i>	JQ302887.1	KF848903.1
<i>Harpochytrium</i> sp. JEL290	KJ668051.1	KJ668090.1
<i>Helicogloea</i> sp. TUB 020325	KF061294.1	KF061297.1
<i>Histoplasma capsulatum</i> NAM1	X58572.1	AAJI01002279
<i>Hyaloraphidium curvatum</i>	NG_017172.1	NG_027646.1
<i>Hydnellum geogenium</i>	AY752971.1	AY631900.1
<i>Hyphopichia burtonii</i>	AB018177.1	NG_054819.1
<i>Ichthyophonus hoferi</i>	U43712.1	AY026370.1
<i>Inonotus linteus</i>	HQ593855.1	AY839831.1
<i>Kappamyces laurelensis</i>	DQ536478.1	DQ273824.1
<i>Kickxella alabastrina</i>	AF007537.1	KF848900.1
<i>Kluyveromyces marxianus</i>	CP023460.1	CP023460.1
<i>Laccaria bicolor</i>	JN939989.1	AC156603.2
<i>Lasallia pustulata</i>	JYIL01000614	JYIL01000498
<i>Leucosolenia</i> sp.	AF100945.1	AY026372.1
<i>Lichtheimia corymbifera</i>	HM590662.1	FJ345350
<i>Lichtheimia ramosa</i>	JQ004933.1	LK023322

<i>Lignosus rhinocerus</i>	FJ899144.1	FJ899145.1
<i>Linderina pennispora</i>	AF007538.1	KF848902.1
<i>Lobulomyces angularis</i>	AF164253.2	DQ273815.1
<i>Macrophomina phaseolina</i>	EF570502.1	LHTN01002497
<i>Magnaporthe grisea</i>	AF021794.1	LOFB01000049
<i>Meliola niessleana</i>	AF021794.1	KC833049.1
<i>Microstroma juglandis</i>	DQ363313.1	KP413052.1
<i>Minimedusa</i> sp.	DQ915463.1	DQ915476.1
<i>Mixia osmundae</i> IAM 14324	D14163.1	AYOQ01000026
<i>Monoblepharella mexicana</i> AFTOL ID 33	AF164337.1	DQ273777.1
<i>Monosiga brevicollis</i>	AF100940.1	EU011940.2
<i>Mrakia blollopis</i>	BBPU01000016	BBPU01000016
<i>Mucor racemosus</i>	X54863.1	AJ271061.1
<i>Mycosphaerella punctiformis</i>	AY490775.2	AY490776.2
<i>Nectria haematococca</i>	AC166539	AC166539
<i>Nematostella vectensis</i>	AF254382.1	ABAV01023333
<i>Neocallimastix</i> sp. GE13	DQ322625.1	DQ273822.1
<i>Neocatenulostroma microsporum</i>	GU214520.1	EU019255.2
<i>Neolentinus</i> sp.	AF334920.1	JX507692.1
<i>Neurospora crassa</i>	FJ360521.1	FJ360521.1
<i>Nowakowskiella</i> sp. JEL127	AY635835.1	DQ273798.1
<i>Nuclearia simplex</i>	AF349566.1	AY148095.1
<i>Ogataea trehaloabstinens</i>	EU011694.1	NG_055139.1
<i>Olpidium brassicae</i>	NG_017176.1	NG_027564.1
<i>Pallidocercospora heimii</i>	GU214541.1	GU214438.1
<i>Passalora fulva</i>	AY251109.2	DQ008163.2
<i>Passalora zambiae</i>	GU214562.1	EU019272.2
<i>Peltigera membranacea</i>	JX181776.1	JX181776.1
<i>Penicillium verrucosum</i>	JN938976.1	AF510496.1
<i>Peniophora</i> sp.	U59085.1	JX507719.1
<i>Phaeosphaeria nodorum</i>	EU189212.1	EF590320.2
<i>Phaffia rhodozyma</i>	KF036689.1	LSVH01000344
<i>Phakopsora pachyrhizi</i> Thai1	GACM01000695	GACM01000003
<i>Phanerochaete carnosa</i>	AEHB01001395	AEHB01001395
<i>Phellinus igniarius</i>	AF026614.1	AY839834.1
<i>Phlyctochytrium planicorne</i>	DQ536473.1	DQ273813.1
<i>Phycomyces blakesleeanus</i>	NG_017190.1	NG_027559.1
<i>Physoderma maydis</i>	NG_017165.1	NG_027645.1
<i>Piptocephalis corymbifera</i>	NG_017192.1	NG_027616.1
<i>Piriformospora indica</i>	AY293147.1	AY505557.1
<i>Pleurotus ostreatus</i>	NG_013165.1	AYUK01000002
<i>Pneumocystis carinii</i>	XR_486829.3	M86760.1
<i>Polychytrium aggregatum</i> JEL109	NG_017168.1	NG_027613.1
<i>Thoreauomyces humboldtii</i> JEL95	AF164245.2	DQ273776.1
<i>Pseudocercospora fijiensis</i> CIRAD86	AIHZ01000434	AIHZ01000434
<i>Pteromaktron</i> sp.	JX155623.1	KF848907.1
<i>Ramaria stricta</i>	AF026638.1	FJ644512.2
<i>Ramicandelaber longisporus</i>	KC297615.1	KF848913.1
<i>Readeriella mirabilis</i>	EU754110.2	EU019291.2
<i>Resinicium bicolor</i>	AF026615.1	JQ768394.1
<i>Rhizoclosmatium</i> sp. JEL347 h	AY601709.1	DQ273769.1
<i>Rhizoctonia solani</i>	D85629.1	HG345191

<i>Rhizophagus intraradices</i>	AJ852526.1	FJ235573.1
<i>Rhizophlyctis rosea</i>	NG_017175.1	NG_027649.1
<i>Rhizopus stolonifer</i>	JN974022.1	JNDS01000881
<i>Rhodotorula mucilaginosa</i>	AB021668.1	JWTJ01000032
<i>Rhodotorula toruloides</i>	DQ647614.2	CWKI01000013
<i>Rozella allomycis</i>	NG_017174.1	NG_027561.1
<i>Rozella</i> sp. JEL347	AY601707.1	DQ273766.1
<i>Russula</i> sp,	U59093.1	FJ644471.2
<i>Saccharomyces cerevisiae</i>	J01353.1	CP011558.1
<i>Saitoella complicata</i>	JQ698935.1	JQ689076.1
<i>Salpingoeca infusionum</i>	AF100941.1	KT757478.1
<i>Sanchytrium tribonematis</i>	KY652374.1	KY652373.1
<i>Schizosaccharomyces pombe</i>	NR_151432.1	AY048171.1
<i>Scopulariopsis brevicaulis</i>	AY083220.1	KJ443117.1
<i>Sebacina incrustans</i>	FJ641901.1	FJ644513.2
<i>Septoria leucanthemi</i>	GU214586.1	GU214492.1
<i>Sistotrema brinkmannii</i>	DQ898712.1	JX535170.1
<i>Smittium culicis</i>	AF277012.1	KF848909.1
<i>Smittium morbosum</i>	AF277014.1	KF848911.1
<i>Smittium mucronatum</i>	AF277030.1	KF848910.1
<i>Sparassis latifolia</i>	KF309253.1	GELB01011123
<i>Spiromyces minutus</i>	AF007542.1	NG_042415.1
<i>Spizellomyces punctatus</i>	NG_017173.1	ACOE01000320
<i>Spizellomycete</i> sp. JEL355	DQ536477.1	DQ273821.1
<i>Sporisorium scitamineum</i>	LK056672.1	CP010935.1
<i>Suberites ficus</i>	AF100947.1	AY026381.1
<i>Sydowia polyspora</i>	AY150054	JQ768401.1
<i>Symbiotaphrina buchneri</i>	AY227716.1	DQ248313
<i>Taiwanofungus camphoratus</i>	AJ487670.1	JNBV01000010
<i>Tapinella panuoides</i>	AF026628.1	DQ071746.2
<i>Teratosphaeria suttonii</i>	GU214615.1	FJ493222.2
<i>Termitomyces clypeatus</i>	M036341.1	HM036342.1
<i>Tetrapisispora phaffii</i>	XR_002431954.1	NG_055035.1
<i>Thermomyces lanuginosus</i>	EF468714.1	EF468715.1
<i>Tilletia walkeri</i>	LWDG01000971	LWDG01000971
<i>Trechispora farinacea</i>	EU909231.1	EU909231.1
<i>Tremella fuciformis</i>	JN043523.1	LBGW01000159
<i>Tremella globispora</i>	KF036703.1	EF551317.1
<i>Tremiscus helvelloides</i>	DQ520100.1	FJ644523.2
<i>Trichoderma longibrachiatum</i> SMF2	FJ605099.1	ANBJ01000173
<i>Trichoderma reesei</i> QM6a	CP016237.1	CP016237.1
<i>Trichoplax adhaerens</i>	L10828.1	AY603697.1
<i>Triparticalcar arcticum</i>	DQ536480.1	DQ273826.1
<i>Umbelopsis ramanniana</i>	NG_017189.1	NG_027558.1
<i>Ustilago maydis</i>	KP322952.1	FJ644528.2
<i>Uwebraunia dekkeri</i>	AY251101.2	EU019268.2
<i>Verrucisporota daviesiae</i>	GU214620.1	FJ839669.2
<i>Wolfiporia cocos</i>	AB022187.1	EF397598.1
<i>Yarrowia lipolytica</i>	AB018158.2	AJ616903.1
<i>Zygoascus meyeriae</i>	AJ508278.1	DQ438189.1