

Tentative outline of sampling strategy for nonlichenized Ascomycota molecular data in AFTOL.

Notes:

General: The classification used here is that of Eriksson et al 2002 and is largely based on results from rDNA phylogenies.

There are 325 species on this telemorph list. The anamorph list is posted separately and includes 146 species.

AFTOL will sample about 800 species of Ascomycota with 400 being sampled from the taxa listed below and the anamorph list. (See list of lichenized taxa for the remaining 400 to be sampled.) * denotes taxa that are being sampled for the same genes listed in the AFTOL project as part of other research projects.

Numerous genera on this list have been "nominated", but additional refinement is needed in selecting appropriate species representatives.

Please review the list and make any comments to Joey Spatafora with respect to taxon selection and provision of specimens. All data will be immediately returned to the researcher that provided the data and posted on a web accessible AFTOL database. More than one person may offer to provide specimens from the same taxon.

Column 1: Subphylum

Column 2: Order

Column 3: Families and approximate numbers of species to be sampled in each family are given in brackets.

Column 4: Exemplar species that have been nominated or suggested.

Subphylum	Order	Family	Exemplar species
Taphrinomycotina (=Archiascomycetes)			325
Neoelectomyces	Neoelectales	Neoelectaceae [2]	Neoelecta irregularis* Neoelecta vitellii*
Pneumocystidomycetes	Pneumocystidales	Pneumocystidaceae [1]	Pneumocystis carinii
Schizosaccharomycetes	Schizosaccharomycetales	Schizosaccharomycetaceae [2]	Schizosaccharomyces pombe* Saitoella complicata / Sugiyama
Taphrinomycetes	Taphrinales [5]	Taphrinaceae [3]	Taphrina deformans* Taphrina communis Taphrina wiesneri / Sugiyama
		Protomycetaceae [2]	Protomyces inouyei / Sugiyama Protomyces sp.
Saccharomycotina (=Hemiascomycetes)			
	Saccharomycetales	Ascoideaceae [1]	Ascoidea rubescens / Kurtzman
		Cephaloascaceae [1]	Cephaloascus fragrans / Kurtzman
		Dipodascaceae [1]	Dipodascus albidus / Kurtzman
		Endomycetaceae [1]	Stephanoascus ciferrii / Kurtzman
		Eremotheciaceae [?]	
		Lipomycetaceae [1]	Lipomyces starkeyi / Kurtzman
		Metschnikowiaceae [1]	Metschnikowia bicuspidata / Kurtzman
		Saccharomycetaceae [8]	Debaryomyces hansenii / Kurtzman Lodderomyces elongisporus / Kurtzman Pichia canadensis / Kurtzman Pichia angusta / Kurtzman Pichia membranifaciens / Kurtzman Saccharomyces cerevisiae / Kurtzman Wickerhamiella domercqiae / Kurtzman Yarrowia lipolytica / Kurtzman
		Saccharomycodaceae [1]	Nadsonia fulvescens / Kurtzman
		Saccharomycopsidaceae [1]	Saccharomycopsis capsularis / Kurtzman
		Incertae sedis [2]	Starmerella bombicola / Kurtzman Kodamaea ohmeri / Kurtzman
Pezizomycotina (=Euascomycetes)			

Dothideomycetes	Capnodiales (5)	Antennariellaceae [1]	Antennariella californica
		Capnodiaceae [3]	Capnodium citri Capnodium dematum Scoria spongiosa
		Coccodiniaceae [1]	Coccodinium bartschii
		Metacapnodiaceae [?]	
	Dothideales (5)	Dothideaceae [5]	Auerswladia / Samuels Dothidea hippophaes Dothidea insculpta Dothidea sp. Plowwrightia ribesia Styllodothis puccinioides
	Hysteriales (2)	Hysteriaceae [2]	Hysterium pulicare Hysteropatella clavispora
	Myriangiales (2)	Elsinoaceae [1]	Elsinoe veneta
		Myriangiaceae [1]	Myriangium duraci
	Patellariales (2)	Patellariaceae [2]	Arthrorhaphis citrinella Rhytidhysterion rufulum / Berbee, Inderbitzin, Samuels
	Pleosporales (22)	Delitschiaceae [2]	Delitschia didyma Delitschia winteri
		Leptosphaeriaceae [3]	Leptosphaeria bicolor Leptosphaeria maculans Ophiobolus fulgidus
		Lophiostomataceae [6]	Lophiostoma caulium Lophiostoma crenatum Herpotrichia diffusa Herpotrichia nigra Massarina australiensis Massarina bipolaris
		Melanommataceae [4]	Melanomma radicans Melanomma sanguinarium Melanomma / Samuels Trematosphaeria heterospora Trematosphaeria hydrela Trematosphaeria / Samuels
		Montagnulaceae [?]	
		Phaeosphaeriaceae [?]	
		Phaeotrichaceae [?]	
		Pleomassariaceae [?]	
		Pleosporaceae Nitschke [5]	Cochliobolus heterostrophus Cochliobolus sativus Pleospora herbarum Pleospora rudis Pyrenophora tritici-repentis
	Famillies Incertae sedis	Acrospormaceae (2)	Acrospormum compressum Acrospormum graminum

		Aliquandostipitaceae (2)	Aliquandostipite khaoyaiensis / Berbee, Inderbitzin Aliquandostipite sunyatsenii / Berbee, Inderbitzin
		Argynnaceae	
		Arthopyreniaceae	
		Ascoporiaceae	
		Asterinaceae	
		Aulographaceae	
		Botryosphaeriaceae (3)	Botryosphaeria dothidea Botryosphaeria tsugae Botryosphaeria / Wingfield Guignardia citricarpa
		Coccoideaceae	
		Cookellaceae	
		Corynesporaceae	
		Cucurbitariaceae (2)	Cucurbitaria berberidis Cucurbitaria elongata
		Dacampiaceae (1)	Byssothecium circinans
		Diademaceae (1)	Clathrospora diplospora
		Didymosphaeriaceae (2)	Phaeodothis winteri Verruculina enalia
		Dothioraceae (2)	Delphinella strobiligena Sydowia polyspora
		Englerulaceae	
		Eremomycetaceae	
		Euantennariaceae	
		Fenestellaceae (1)	Lojkania striatispora
		Hypsostromataceae	
		Leptopeltidaceae	
		Lichenotheliaceae	
		Meliolinaceae (1)	Meliolina sydowiana
		Mesnieraceae	
		Micropeltidaceae	
		Microtheliopsidaceae	
		Microthyriaceae	
		Montagnulaceae (1)	Montagnula opulenta
		Moriolaceae	
		Mycoporaceae	
		Mycosphaerellaceae (2)	Mycosphaerella graminicol Mycosphaerella populorum
		Mytiliniaceae	
		Naetrocymbaceae	
		Parmulariaceae	
		Parodiellaceae	
		Parodiopsidaceae	

		Phaeosphaeriaceae (3)	Ophiosphaerella herpotrichia Paraphaeosphaeria filamentosa Phaeosphaeria nodorum
		Phaetrichaceae (1)	Phaetrichum benjaminii
		Piedraiaceae (1)	Peidraia hortae
		Planistromellaceae (1)	Comminutispora agavaciensis
		Pleomassariaceae (1)	Pleomassaria siparia
		Polystomellaceae	
		Protoscyphaceae	
		Pseudoperisporiaceae (1)	Raciborskiomyces longisetosum
		Pyrenotrichaceae	
		Schizothyriaceae	
		Sporormiaceae (2)	Sporomia minima Sporomiella
		Tubeufiaceae (3)	Acanthostigmella brevispina Tubeufia helicoma / Berbee, Inderbitzin Tubeufia helicomyces / Berbee, Inderbitzin
		Venturiaceae (2)	Venturia inaequalis / Wynton Venturia liriodendri / Wynton
		Vizellaceae	
		Zopfiaceae	
		Genera incertae sedis (9)	Didymella bryonia Didymella exigua Kirschsteinothelia aethiops / Berbee, Inderbitzin Kirschsteinothelia Elaterascus Aureobasidium pullulans Cenococcum geophilum Helminthosporium solani Helminthosporium velutinum Tyrannosorus pinicola (ex-type) / Untereiner
Laboulbeniomyces	Laboulbeniales (9)	Ceratomycetaceae [2]	Ceratomyces / Weir, Blackwell Autoicomycetes / Weir, Blackwell
		Euceratomycetaceae [2]	Cochliomyces / Weir, Blackwell Euzodiomyces* / Weir, Blackwell
		Herpomycetaceae [1]	Herpomyces* / Weir, Blackwell
		Laboulbeniaceae [4]	Laboulbenia / Weir, Blackwell Stigmatomyces / Weir, Blackwell Zodiomyces / Weir, Blackwell Peyritschella* / Weir, Blackwell
	Pyxidiophorales (2)	Pyxidiophoraceae (2)	Pyxidiophora / Blackwell
Leotiomyces	Cyttariales (2)	Cyttariaceae [2]	Cyttaria berteroi Cyttaria darwinii
	Erysiphales (4)	Erysiphaceae [4]	Erysiphe pisi Blumeria graminis Phyllactinia fraxini Sphaerotheca sp

	Helotiales (55)	Bulgariaceae [1]	Bulgaria inquinans
		Dermateaceae [9]	Atropellis / Stone Blumeriella / Stone Dermea acerina / Stone Durandiella / Stone Fabraea / Stone Mollisia cinerea / Stone Neofabraea sp. / Stone Pezicula carpinea Pyrenopeziza brassicae / Stone
		Geoglossaceae [3]	Geoglossum glabrum Geoglossum nigratum Microglossum viride
		Helotiaceae [10]	Ascocoryne sarcoides Bisporella citrina Cenangium / Stone Chlorociboria aeruginosa Chloroscypha chloromela / Stone Durella Grovesiella / Stone Gremmeniella / Stone Hymenoscyphus ericae / Egger Hymenoscyphus monotropae /
		Hemiphacidiaceae [4]	Didymascella / Stone Fabrella tsugae / Stone Hemiphacidium longisporum / Stone Rhabdocline / Stone
		Hyaloscyphaceae [4]	Hyaloscypha aureliella Lachnellula / Stone Lachnum bicolor / Stone, Spatafora Lachnum virgineum
		Leotiaceae [3]	Leotia lubrica Leotia viscosa Neobulgaria pura
		Loramyctaceae [1]	Loramyces juncicola Loramyces / Stone
		Phacidiaceae [2]	Phacidium coniferarum Phacidium infestans Phacidium / Stone
		Rutstroemiaceae [3]	Lambertella subrenispora Poculum henningsianum Rutstroemia firma

		Sclerotiniaceae [15]	Botryotinia convoluta Ciboria betulae Ciborinia erythronii Coprotinia minutula Cristulariella moricola Dumontinia tuberosa Encoelia helvola Grovesinia pyramidalis Mitrula elegans Monilinia fructicola Pycnopeziza sympodialis Scleromitrlula rubicola Sclerotinia borealis Sclerotinia sclerotiorum Botrytis tulipae
		Vibrisseaceae [1]	Vibrisseum
		?Ascocorticiaceae	
	Rhytismatales	Ascodichaenaceae [1]	Ascodichaena / Stone
		Cryptomycetaceae	
		Cudoniaceae [4]	Cudonia circinans Cudonia confusa Spathularia flavida Spathularia velutipes
		Rhytismataceae [15]	Coccomyces / Stone Colpoma quercinum / Stone Cyclaneusma niveum Davisomycella / Stone Elytroderma deformans / Stone Lirula macrospora / Stone Lophodermella / Stone Lophodermium piceae / Stone Meloderma desmazieresii / Stone Naemacyclus fimbriatus / Stone Ploioderma / Stone Propolis / Stone Rhytisma aggregatum / Spatafora Therrya / Stone Darkera parca Tryblidiopsis / Stone Hypodermella / Stone
	Thelebolales	Thelebolaceae[2]	Ascozonus woolhopensis Thelebolus stercoreus
Orbiliomycetes	Orbiliales	Orbiliaceae [3]	Orbilina auricolor Orbilina fimicola Monacrosporium
Pezizomycetes	Pezizales (60)	Ascobolaceae [2]	Ascobolus viridis Saccobolus
		Ascodesmidaceae [2]	Ascodesmis sphaerospora Eleutherascus peruvianus

		?Carbomycetaceae	
		Discinaceae [6]	Discina macrospora Gyromitra esculenta Gyromitra montana Hydnotrya cerebriformis Hydnotrya tulasnei Pseudorhizina californica
		Glaziellaceae [1]	Glaziella aurantiaca
		Helvellaceae [6]	Balsamia magnata Barssia oregonensis Helvella lacunosa Helvella crispa Underwoodia columnaris Wynnella silvicola
		Karstenellaceae	
		Morchellaceae [5]	Disciotis venosa Morchella elata Morchella esculenta Verpa bohemica Verpa conica
		Pezizaceae [7]	Pachyella clypeata Peziza ammophila Peziza badia Peziza quelepidotia Plicaria carbonaria Plicaria endocarpoides Tarzetta catinus
		Pyronemataceae [9]	Aleuria aurantia / Spatafora Cheilymenia stercorea Geopyxis carbonaria Iodophanus carneus Octospora wrightii Otidea concinna / Spatafora Pyronema domesticum Scutellinia scutellata Trichophaea hybrida Wilcoxina mikolae / Egger Geopora / Egger
		Rhizinaceae [1]	Rhizina undulata
		Sarcoscyphaceae [7]	Cookeina speciosa Microstoma floccosum Nanoscypha tetraspora Phillipsia lutea Pithya cupressina Sarcoscypha coccinea Wynnea sp.

		Sarcosomataceae [7]	Chorioactis geaster Neournula pouchetii Plectania Pseudoplectania nigrella Sarcosoma globosum Sarcosoma mexicanum Urnula craterium
		Tuberaceae [7]	Choiromyces alveolatus Dingleya verrucosa Labyrinthomyces varius Reddellomyces donkii Tuber aestivum Tuber gibbosum Tuber melanosporum
Sordariomycetes	Halosphaeriales	Halosphaeriaceae [2]	Halosphaeria appendiculata Corrollospora maritima
	Hypocreales	Bionectriaceae [2]	Bionectria ochroleuca / Sugiyama Roumeguieriella rufula /
		Clavicipitaceae [4]	Balansia / Spatafora Claviceps purpurea / Spatafora Epichloe typhina / Spatafora Epichloe festucae / Schardl
		"Cordycipitaceae" [2]	Cordyceps militaris / Spatafora Cordyceps cardinalis sp. nov. / Spatafora
		Hypocreaceae [4]	Hypocrea citrina / Samuels Hypocrea lutea / Samuels, Sugiyama Hypocrea schweinitzii / Samuels Hypomyces lactifluum / Spatafora Hypomyces polyporus / Samuels Sphaerostilbella aureonitens / Samuels Pseudonectria / Samuels Peristomialis / Samuels Hydropisphaeria / Samuels
		Nectriaceae [3]	Haematonectria haematococca / Samuels Nectria cinnabarina / Samuels, Sugiyama Giberrella fujikori Lisea (=Gibberella) / Samuels Neonectria (=Nectria) / Samuels
		?Niessliaceae	Niesslia / Samuels
		" Ophiocordycipitaceae" [3]	Cordyceps capitata / Spatafora Cordyceps ophioglossoides / Spatafora Cordyceps sinensis / Spatafora
		Genera incertae sedis [2]	Melanospora fallax Melanospora zamie
	Microascales	?Ceratocystidiaceae [3]	Ceratocystis fimbriata / Harrington Ceratocystis / Wingfield Gondwanomyces / Harrington Sphaeronaemella fimicola / Harrington

		Chadefaudiellaceae [1]	Chadefaudiella
		Microascaceae [2]	Microascus trigonosporus Petriella setifera
	Boloniales	Boliniaceae [1]	Camarops / J. Rogers
		Catabotrydaceae	
	Diaporthales	Melanconidaceae	
		Valsaceae [2]	Leucostoma Valsa
		Vialaeaceae [2]	Diaporthe phaseolarum Cryphonectria parasitica Cryphonectria / Wingfield
	Ophiostomatales	Ophiostomataceae [4]	Ceratocystiopsis minuta / Harrington Ophiostoma huntii / Harrington Ophiostoma piliferum / Harrington Ophiostoma ulmi Ophiostoma / Wingfield
	Sordariales	Annulatascaceae [1]	Annulatascus
		Batistiaceae [1]	Batistia
		Cephalothecaceae	
		Ceratostomataceae	
		Chaetomiaceae [6]	Farrowia longicollela / Untereiner Farrowia malaysiensis(ex-type) / Untereiner Chaetomium bostrychodes / Untereiner Chaetomium globosum / Untereiner Guanomyces polythrix (ex-type) / Untereiner Thielavia cephalothecoides (ex-type) / Untereiner
		Chaetosphaeriaceae [1]	Chaetosphaeria / Samuels
		Coniochaetaceae [1]	Coniochaeta
		Helminthosphaeriaceae	
		Lasiosphaeriaceae [1]	Lasiosphaeria
		Nitschkiaceae [1]	Bertia
		Sordariaceae [2]	Neurospora crassa Sordaria fimicola
	Xylariales	Amphisphaeriaceae [1]	Amphisphaeria
		Clypeosphaeriaceae [1]	Ceratostomella / Harrington
		Diatrypaeaceae [2]	Diatrype / J. Rogers Diatrypella / J. Rogers Eutypa / J. Rogers
		Graphostromataceae [1]	Graphostroma
		Hyponectriaceae [1]	Hyponectria buxi / J. Rogers
		Xylariaceae [4]	Biscogniauxia / J. Rogers Camillia / J. Rogers Hypoxylon / J. Rogers Nemania / J. Rogers Xylaria hypoxylon / J. Rogers, Spatafora Xylaria / Samuels, J. Rogers

Orders incertae sedis	Calosphaeriales	Calosphaeriaceae	Calosphaeria / Samuels
	Lulworthiales	Lulworthiaceae [2]	Lulworthia grandispora Lindra thalassiae
	Meliolales	Meliolales [1]	Meliola niessleana
	Phyllachorales	Phaeochoraceae	
		Phyllachoraceae [2]	Glomerella cingulata Verticillium dahliae
	Trichosphaeriales	Trichosphaeriaceae	Trichosphaeria / Samuels
	Families incertae sedis	Apiosporaceae	Apiospora / Samuels
		Magnaporthaceae [2]	Magnaporthe griseum Gaeumanomyces graminis
		Obryzaceae	
		Papulosporaceae	
		Thyridiaceae	Valsonectria / Samuels
Spathulosporomycetes	Spathulosporales		
	Ascomycota orders incertae sedis		
	Coryneliales		
	Lahmiales		
	Medeolariales		
		Ascomycota families incertae sedis	
		Amorphothecaceae	
		Aphanopsidaceae	
		Aspidotheliaceae	
		Baeomycetaceae	
		Calycidiaceae	
		Coccotremataceae	
		Coniocybaceae	
		Diporothecaceae	
		Eoterfeziaceae	
		Epigloeaceae	
		Gomphillaceae	
		Koralionastetaceae	
		Lautosporaceae	
		Mastodiaceae	
		Microcaliciaceae	
		Moriolaceae	
		Myxotrichaceae	
		Phyllobatheliaceae	
		Pleurotremataceae	
		Protothelenellaceae	
		Pseudeurotiaceae	
		Saccardiaceae	
		Seuratiaceae	
		Strigulaceae	
		Testudinaceae	
		Thelenellaceae	

		Thelocarpaceae	
		Thrombiaceae	
		Xanthopyreniaceae	
			Ascomycota genera incertae sedis
			Scotiosphaeria