

UAMH CENTRE FOR GLOBAL MICROFUNGAL BIODIVERSITY

Owned and operated by the Gage Research Institute

Telephone 416 946 8778; Fax 416 978 2608; email: james.scott@utoronto.ca website: <http://www.uamh.ca>

SUMMARY OF ACTIVITIES FOR 2016

Supporting fungal research for over 50 years

Staff, Students, Volunteers

Director: **J. Scott**
Division of Occupational & Environmental Health
Dalla Lana School of Public Health, University of Toronto
223 College St., Toronto ON Canada M5T 1R4

Curator: **C. Gibas** (January 1 - April 30, 2016)
Y. Guardiola (May 1, 2016 - present)

Students: **W. Shahid (MPH)** (September 1, 2016 - present)
C. Lepine (MPH)

Materials Received, Distributed and Accessioned

Cultures received for identification, deposit or in exchange (Table 1)	38
Cultures distributed on request or in exchange (Table 2).....	70
Herbarium specimens loaned.....	1
<i>Culture Collection and Herbarium Accessions</i>	
Accessions processed to December 31, 2016.	38

Collection Activities

- Beginning in January 2016, the collection was up and running in its new home in Toronto. Connie Gibas was instrumental in the move of the collection from the Devonian Botanical Gardens to Toronto. Connie served as transitional curator of the collection in Toronto until she accepted a position at the Fungus Testing Lab at the Department of Pathology, University of Texas Health Science Centre in San Antonio. We will miss Connie but wish her well in her new position.
- Yordanka Guardiola took over as curator of the collection in May 2016. Yordanka holds a masters degree in mycology from the University of Havana where she worked extensively with the fungal culture collection. Prior to joining to collection Yordanka was an analyst at Sporometrics Inc. in Toronto, Canada.
- As part of the transition to Toronto, the web portal, public database and curatorial database of the collection all received an overhaul. The progenitor system was Windows-based, and our hope was to convert everything to a Linux-based, open source platform accessible anywhere by web portal. By spring of 2016, the transition was largely completed to the new system. The new UAMH database is written in MySQL and accessed through a PHP-based web front-end assembled using scripts in a very useful package called DaDaBiK. This approach has allowed us to perform all of the design and maintenance of the database in-house at very low cost without the need for a programmer. The public search portal is adapted from the code that was written (also in PHP) by Patrick Ball from the University of Alberta. Patrick was extremely helpful in assisting with the recoding of portions of the portal in order to integrate it into the new Linux-based server. The new public database includes access to the extensive library of in-house UAMH images through a javascript viewer. Additionally, geographic metadata for all collection materials were edited and expanded to include multiple, harmonized fields and geocodes that are rendered on a Google Maps app using Google Fusion Tables. A search engine was built to access all publications referencing UAMH strains (scraped from Google Scholar). Finally, a searchable BLAST database was constructed incorporating all in-house and public sequences of UAMH strains using a free

software package called SequenceServer. We hope that all of these upgrades enhance the user experience and provided for increased value and accessibility to UAMH strains.

- 70 isolates were distributed for research purposes to scientists in universities, government and industry consisting of 59 distributed within Canada and the US, and 11 sent internationally (**Tables 1 and 2**). 46 isolates were supplied to the non-profit sector and 24 were provided to the for-profit/ industrial sector.
- 1 herbarium specimen was loaned (S. Boonmee, Mae Fah Luang University, Thailand)
- 38 strains received for deposit consisting of:
 - 14 strain from Dr. J. Scott
 - 21 strains from Dr. R. Summerbell (Sporometrics Inc., Toronto, ON)
 - 2 strains Dr. W. Untereiner (Brandon University, Brandon MB), and
 - 1 strain from Dr. J. Yoder (Wittenberg University, Springfield, OH).
- 78 articles published in 2016 cited strains from UAMH including peer-reviewed journal articles, book chapters, dissertations and patents. A total of 184 UAMH strains were referenced in publications in 2016 (148 unique strains were cited including some strain numbers that were referenced multiple times independently in different articles). Three articles published in 2016 included general reference to the UAMH collection.
- 12,198 sequences relating to UAMH strains were released on GenBank in 2016.

Financial Support (\$CAD)

Cash

Grant funding	0
Income from all services (cultures distributed, identifications)	13,716

In kind

Curator salary (January - March, 2016, from Univ of Alberta)	11,717
Curator salary (January - March, 2016, from Sporometrics Inc.)	19,807
Curator salary (May - December, 2016, from Sporometrics Inc.)	51,264

TOTAL FUNDING	96,504
----------------------	---------------

Other Activities

In-House and Collaborative Research

Refereed Journal Articles Published

JA Scott, RC Summerbell. Biology of the Whiskey Fungus. *In*: Biology of Microfungi - Fungal Biology Series, DW Li (ed), Springer: New York NY, pp 413-428, 2016.

Strain(s) cited: UAMH 10808

JA Scott, JO Ewaze, RC Summerbell et al. 2016. Multilocus DNA sequencing of the whiskey fungus reveals a continental-scale speciation pattern. *Persoonia* 37: 13-20.

Strain(s): UAMH 10761; UAMH 10762; UAMH 10763; UAMH 10764; UAMH 10808; UAMH 10809; UAMH 10810; UAMH 10811; UAMH 10812; UAMH 10814; UAMH 10839; UAMH 11550; UAMH 11551; UAMH 11552; UAMH 11553; UAMH 11554; UAMH 11555; UAMH 11556; UAMH 11557

Additional Publications Citing UAMH Cultures or Assistance

1. S Akanuma, A Yamagishi. 2016. A strategy for designing thermostable enzymes by reconstructing ancestral sequences possessed by ancient life. *Biotechnology of Extremophiles: Grand Challenges in Biology and Biotechnology* 1: 581-596.
Strain(s): UAMH 3641
2. Y Anwar, AAEL Hanafy, JSM Sabir, SM Al-Garni, MMM Ahmed. 2016. Microbes using PAHs as energy source: relationship with diseases. *Research Journal of Biotechnology* 11(9): 94-109.
Strain(s): UAMH 8260
3. L Bernier. 2016. Genome-wide analysis of parasitic fitness traits in a non-model tree pathogen. *Canadian Journal of Plant Pathology* 32(2): 153-163.
Strain(s): UAMH 11346
4. IM Bilotto, G Hausner. 2016. The diversity of mtDNA rns introns among strains of *Ophiostoma piliferum*, *Ophiostoma pluriannulatum* and related species. *SpringerPlus* 5: 1408.
Strain(s): UAMH 2024; UAMH 7233; UAMH 7459; UAMH 9556; UAMH 9557; UAMH 9559; UAMH 9695
5. A Boonloed, GL Weber, KM Ramzy, VR Dias et al. 2016. Centrifugal partition chromatography: A preparative tool for isolation and purification of xylindrin from *Chlorociboria aeruginosa*. *Journal of Chromatography A* 1478: 19-25.
Strain(s): UAMH 11657
6. KL Boundy-Mills, E Glantschnig, IN Roberts, A Yurkov et al. 2016. Yeast culture collections in the twenty-first century: New opportunities and challenges. *Yeast* 33 Special Issue (7): 243-260.
Strain(s): UAMH collection
7. EM Brown, LR McTaggart, SX Zhang, DE Low et al. 2016. Correction: Phylogenetic analysis reveals a cryptic species *Blastomyces gilchristii*, sp. nov. within the human pathogenic fungus *Blastomyces dermatitidis*. *PLOS ONE*.
Strain(s): UAMH 4042; UAMH 5634; UAMH 5635; UAMH 5584; UAMH 7800; UAMH 10245; UAMH 10246; UAMH 12051
8. JA Cale, RM Collignon, JG Klutsch, SS Kanekar et al. 2016. Fungal volatiles can act as carbon sources and semiochemicals to mediate interspecific interactions among bark beetle-associated fungal symbionts. *PLOS ONE* 11(9): e0162197.
Strain(s): UAMH 4838
9. PA Campos, LN Levin, SA Wirth. 2016. Heterologous production, characterization and dye decolorization ability of a novel thermostable laccase isoenzyme from *Trametes trogii* BAFC 463. *Process Biochemistry* 51(7): 895-903.
Strain(s): UAMH 8260
10. Y Chen, SF Ran, DQ Dai, Y Wang, KD Hyde, YM Wu et al. 2016. *Mycosphere Essays* 2. *Myrothecium*. *Fungal Diversity* 7(1): 64-80.
Strain(s): UAMH 6417; UAMH 6594
11. RVK Cochrane, R Sanichar, GR Lambkin et al. 2016. Production of new Cladosporin analogues by reconstitution of the polyketide synthases responsible for the biosynthesis of this antimalarial agent. *Angewandte Chemie* 128(2): 674-678.
Strain(s): UAMH 5063
12. P Coelho, MMY Chen, P Meinhold, CM Cho, V Bui et al. 2016. Synthesis of olefinic alcohols via enzymatic terminal hydroxylation. US Patent 20,160,108,436.
Strain(s): UAMH 1704; UAMH 7654; UAMH 10762; UAMH 11150; UAMH 11346

13. S Covino, T Stella, T Cajthaml. 2016. Mycoremediation of organic pollutants: principles, opportunities, and pitfalls. *Fungal Applications in Sustainable Environmental Biotechnology (Fungal Biology Series)* pp 185-231.
Strain(s): UAMH 8260
14. DQ Dai, R Phookamsak, NN Wijayawardene, WJ Li et al. 2016. Bambusicolous fungi. *Fungal Diversity* 1-105.
Strain(s): unknown
15. A de Errasti, ZW de Beer, MPA Coetzee, J Roux et al. 2016. Three new species of Ophiostomatales from *Nothofagus* in Patagonia. *Mycological Progress* 15: 17.
Strain(s): UAMH 9559
16. GS de Hoog, K Dukik, M Monod, A Packeu, D Stubbe et al. 2016. Toward a novel multilocus phylogenetic taxonomy for the dermatophytes. *Mycopathologia* DOI 10.1007/s11046-016-0073-9.
Strain(s): UAMH 873; UAMH 2534; UAMH 2620; UAMH 2820; UAMH 3244; UAMH 3367; UAMH 3368; UAMH 3431; UAMH 3441; UAMH 3442
17. I Desance. 2016. The Biotransformation of bitumen. MSc Thesis, University of Calgary.
Strain(s): UAMH 6944; UAMH 8168; UAMH 11620
18. LB Duff, TM Urichuk, LN Hodgins, JR Young. 2016. Diversity of fungi from the mound nests of *Formica ulkei* and adjacent non-nest soils. *Canadian Journal of Microbiology* 62(7): 562-571.
Strain(s): UAMH 11867; UAMH 11868
19. M Ferhan. 2016. Investigation of biological process for the conversion of bark biomass to bio-based polyphenols. PhD Thesis, University of Toronto.
Strain(s): UAMH 7992; UAMH 11209
20. G Friebes, WM Jaklitsch, S García, H Voglmayr. 2016. *Lopadostoma taeniosporum* revisited and a new species of *Coniochaeta*. *Sydowia* 68: 87-97.
Strain(s): UAMH 11702
21. VA Funk, NJ Turland. 2016. Institutional Votes at the XIX International Botanical Congress, Shenzhen, 2017: Report of the Special Committee on Institutional Votes. *Taxon* 65(6): 1449-1454.
Strain(s): UAMH collection
22. GM Gadd. 2016. Fungi and industrial pollutants. *Environmental and Microbial Relationships, The Mycota IV*: 99-125.
Strain(s): UAMH 8260
23. YK Goh, NF Marzuki, TK Goh, SY Tan, YK Goh, KJ Goh. 2016. Mycoparasitic *Scytalidium parasiticum* as a potential biocontrol agent against *Ganoderma boninense* basal stem rot in oil palm. *Biocontrol Science and Technology* 26(10): 1352-1365.
Strain(s): UAMH 10321; UAMH 10840
24. G Grunewaldt-Stöcker, H von Alten. 2016. Is the root-colonizing endophyte *Acremonium strictum* an ericoid mycorrhizal fungus?. *Mycorrhiza* 26(5): 429-440.
Strain(s): UAMH 6563
25. JG Han, MW Hyun, CS Kim, JW Jo, JH Cho, KH Lee et al. 2016. Species identity of *Phellinus linteus* (sanghuang) extensively used as a medicinal mushroom in Korea. *Journal of Microbiology* 54(4): 290-295.
Strain(s): UAMH 10376
26. MA Hanson, PT Hamilton, SJ Perlman. 2016. Immune genes and divergent antimicrobial peptides in flies of the subgenus *Drosophila*. *BMC Evolutionary Biology* 16: 228.
Strain(s): UAMH 1514

27. VA Hernandez, F Galleguillos, S Robinson. 2016. Fungal pigments from spalting fungi attenuating blue stain in *Pinus* spp. *International Biodeterioration & Biodegradation* 107: 154-157.
Strain(s): UAMH 11517; UAMH 10320; UAMH 11657
28. EM Hinsch, SC Robinson. 2016. Mechanical color reading of wood-staining fungal pigment textile dyes: an alternative method for determining colorfastness. *Coatings*, 6(3): 25.
Strain(s): UAMH 10320; UAMH 11517; UAMH 11657
29. NH Hoang, ME Kane, EN Radcliffe, LW Zettler et al. 2016. Comparative seed germination and seedling development of the ghost orchid, *Dendrophylax lindenii* (*Orchidaceae*), and molecular identification of its mycorrhizal fungus from South Florida. *Annals of Botany* mcw220: 1-5.
Strain(s): UAMH 11750
30. C Hori, D Cullen. 2016. Prospects for bioprocess development based on recent genome advances in lignocellulose degrading basidiomycetes. *Gene Expression Systems in Fungi: Advancements and Applications* (Fungal Biology Series), pp 161-181.
Strain(s): UAMH 8260
31. S Humphrey, S Alexander, HJ Ha. 2016. Detection of *Paranannizziopsis australasiensis* in tuatara (*Sphenodon punctatus*) using fungal culture and a generic fungal PCR. *New Zealand Veterinary Journal* 64(5): 298-300.
Strain(s): UAMH collection
32. D Isola, L Zucconi, S Onofri, G Caneva, GS de Hoog et al. 2016. Extremotolerant rock inhabiting black fungi from Italian monumental sites. *Fungal Diversity* 76(1): 75-96.
Strain(s): UAMH 10396; UAMH 11090
33. T Jagielski, M Sandoval-Denis, J Yu, L Yao, Z Bakula et al. 2016. Molecular taxonomy of scopulariopsis-like fungi with description of new clinical and environmental species. *Fungal Biology* 120(4): 586-602.
Strain(s): UAMH 952; UAMH 2643; UAMH 9140; UAMH 9169
34. S Jančič, JC Frisvad, D Kocev, C Gostinčar, S Džeroski et al. 2016. Production of secondary metabolites in extreme environments: food-and airborne *Wallemia* spp. produce toxic metabolites at hypersaline conditions. *PLOS ONE*.
Strain(s): UAMH 2757; UAMH 6689
35. S Jančič, P Zalar, D Kocev, HJ Schroers, S Džeroski et al. 2016. Halophily reloaded: new insights into the extremophilic life-style of *Wallemia* with the description of *Wallemia hederæ* sp. nov. *Fungal Diversity* 76(1): 97-118.
Strain(s): UAMH 2817; UAMH 2651; UAMH 2757; UAMH 6689
36. T Kadri, T Rouissi, SK Brar, M Cledon, S Sarma et al. 2016. Biodegradation of polycyclic aromatic hydrocarbons (PAHs) by fungal enzymes: A review. *Journal of Environmental Sciences*, DOI: 10.1016/j.jes.2016.08.023.
Strain(s): UAMH 8260
37. AKS Kameshwar, W Qin. 2016. Qualitative and quantitative methods for isolation and characterization of lignin-modifying enzymes secreted by microorganisms. *BioEnergy Research* 9: 1-19.
Strain(s): UAMH 8260
38. DG Knapp, GM Kovács. 2016. Interspecific metabolic diversity of root colonizing endophytic fungi revealed by enzyme activity tests. *FEMS Microbiology Ecology* 92 (12): fiw190.
Strain(s): UAMH 1403; UAMH 1523; UAMH 8151
39. A Kohler, F Martin. 2016. The evolution of the mycorrhizal lifestyles—a genomic perspective. In: *Molecular Mycorrhizal Symbiosis*, Wiley (F Martin, ed.).
Strain(s): UAMH 7357

40. RD Koyani, R Vazquez-Duhalt. 2016. Laccase encapsulation in chitosan nanoparticles enhances the protein stability against microbial degradation. *Environmental Science and Pollution Research* 23(18): 18850-18857.
Strain(s): UAMH 8260
41. L Lah, U Löber, T Hsiang, S Hartmann. 2016. A genomic comparison of putative pathogenicity-related gene families in five members of the *Ophiostomatales* with different lifestyles. *Fungal Biology* dx.doi.org/10.1016/j.funbio.2016.12.002.
Strain(s): UAMH 11346
42. Q Li, C Chen, P Penttinen, C Xiong, L Zheng, W Huang. 2016. Microbial diversity associated with *Tricholoma matsutake* fruiting bodies. *Microbiology* 85(5): 531-539.
Strain(s): UAMH 10998
43. J Li, J Peng, Y Zhang, Y Ji, H Shi, L Mao et al. 2016. Removal of triclosan via peroxidases-mediated reactions in water: Reaction kinetics, products and detoxification. *Journal of Hazardous Materials* 310: 152-160.
Strain(s): UAMH 8260
44. DW Li, NP Schultes, C Vossbrinck. 2016. *Olpitrichum sphaerosporum*: a new USA record and phylogenetic placement. *Mycotaxon* 131(1): 123-133.
Strain(s): UAMH 11865
45. CG Lin, Y Chen, EHC McKenzie, DJ Bhat et al. 2016. The genus *Fusariella*. *Mycological Progress* 15: 1313-1326.
Strain(s): UAMH 6417
46. JM Lorch, S Knowles, JS Lankton, K Michell et al. 2016. Snake fungal disease: an emerging threat to wild snakes. *Phil. Trans. R. Soc. B*, 371(1709): 20150457.
Strain(s): UAMH 11863
47. H Madrid, M Hernández-Restrepo, J Gené, J Cano et al. 2016. New and interesting chaetothyrialean fungi from Spain. *Mycological Progress* 15(10): 1179-1201.
Strain(s): UAMH 10998
48. D Malloch, L Sigler, S Hambleton, KJ Vanderwolf et al. 2016. Fungi associated with hibernating bats in New Brunswick caves: the genus *Leuconeurospora*. *Botany* 94(12): 1171-1181.
Strain(s): UAMH 9397
49. NJ Masters, S Alexander, B Jackson, L Sigler et al. 2016. Dermatomycosis caused by *Paranannizziopsis australasiensis* in five tuatara (*Sphenodon punctatus*) and a coastal bearded dragon (*Pogona barbata*) in a zoological collection in New Zealand. *New Zealand Veterinary Journal* 64(5): 301-307.
Strain(s): UAMH 11644; UAMH 11645; UAMH 11665; UAMH 11719
50. J Meng, X Wang, D Xu, X Fu, X Zhang, D Lai, L Zhou et al. 2016. Sorbicillinoids from fungi and their bioactivities. *Molecules* 21(6): 715.
Strain(s): UAMH 4159
51. DJ Midgley, CP Rosewarne, P Greenfield, D Li et al. 2016. Genomic insights into the carbohydrate catabolism of *Cairneyella variabilis* gen. nov. sp. nov., the first reports from a genome of an ericoid mycorrhizal fungus from the southern hemisphere. *Mycorrhiza* 26(4): 345-352.
Strain(s): UAMH 5794; UAMH 8861; UAMH 9525; UAMH 10107; UAMH 10294
52. C Montalva, K Collier, LFN Rocha, PW Inglis, RB Lopes et al. 2016. A natural fungal infection of a sylvatic cockroach with *Metarhizium blattodeae* sp. nov., a member of the *M. flavoviride* species complex. *Fungal Biology* 120(5): 655-665.
Strain(s): UAMH 11028
53. JP Munyampundu, YP Xu, XZ Cai. 2016. Phi class of glutathione S-transferase gene superfamily widely exists in nonplant taxonomic groups. *Evolutionary Bioinformatics Online* 12: 59-71.
Strain(s): UAMH 7357

54. KP Ng, CL Chan, SM Yew, SK Yeo, YF Toh, HK Looi et al. 2016. Identification and characterization of *Daldinia eschscholtzii* isolated from skin scrapings, nails, and blood. PeerJ 4: e2637.
Strain(s): UAMH 7406; UAMH 11227
55. GE Ortiz, DG Nosedá, MC Ponce Mora et al. 2016. A comparative study of new *Aspergillus* strains for proteolytic enzymes production by solid state fermentation. Enzyme Research 3016149: 1-11.
Strain(s): UAMH 1623
56. SC Paulo. 2016. New structural insights into Golgi Reassembly and Stacking Protein (GRASP) in solution. Scientific Reports 6: 29976 (Supplemental Information).
Strain(s): UAMH 11346
57. L Paun. 2016. UV- und Transposon-vermittelte Mutagenese mariner und terrestrischer Ascomyceten. Dissertation: Mathematisch-Naturwissenschaftliche Fakultät.
Strain(s): UAMH 11346
58. MSC Pedras, A Abdoli. 2016. Biotransformation of rutabaga phytoalexins by the fungus *Alternaria brassicicola*: Unveiling the first hybrid metabolite derived from a phytoalexin and a fungal polyketide. Bioorganic & Medicinal Chemistry 25: 557-567.
Strain(s): UAMH 7474
59. M Réblová, WA Untereiner, V Štěpánek, W Gams. 2016. Disentangling *Phialophora* section *Catenulatae*: disposition of taxa with pigmented conidiophores and recognition of a new subclass, *Sclerococcomycetidae* (*Eurotiomycetes*). Mycological Progress 16(1): 27-46.
Strain(s): UAMH 9756
60. P Romón, A Goldarazena, JC Iturrondobeitia. 2016. Variation in virulence of *Beauveria bassiana* and *B. pseudobassiana* to the pine weevil *Pissodes nemorensis* in relation to mycelium characteristics and virulence genes. Fungal Biology dx.doi.org/10.1016/j.funbio.2016.11.008.
Strain(s): UAMH 298; UAMH 299; UAMH 301; UAMH 1069; UAMH 1076; UAMH 4510
61. M Sandoval-Denis, J Gené, DA Sutton, JF Cano-Lira et al. 2016. Redefining *Microascus*, *Scopulariopsis* and allied genera. Persoonia 36: 1-36.
Strain(s): UAMH 2643; UAMH 5592; UAMH 7879; UAMH 8710; UAMH 8848; UAMH 8858; UAMH 9029; UAMH 9169
62. M Sandoval-Denis, J Guarro, JF Cano-Lira, DA Sutton et al. 2016. Phylogeny and taxonomic revision of *Microascaceae* with emphasis on synnematous fungi. Studies in Mycology 83: 193-233.
Strain(s): UAMH 1348; UAMH 1532; UAMH 3585; UAMH 9126; UAMH 9209; UAMH 9365
63. M Schlegel, M Münsterkötter, U Güldener et al. 2016. Globally distributed root endophyte *Phialocephala subalpina* links pathogenic and saprophytic lifestyles. BMC Genomics 17: 1015.
Strain(s): UAMH 11012
64. E Sobek. 2016. Composition, device, and method for biological air sampling. US Patent 20,160,032,352.
Strain(s): UAMH 7863
65. Y Su, H Xian, S Shi, C Zhang, SMN Manik, J Mao et al. 2016. Biodegradation of lignin and nicotine with white rot fungi for the delignification and detoxification of tobacco stalk. BMC Biotechnology 16: 81.
Strain(s): UAMH 8260
66. Y Su, H Zhang, S Shi¹², SMN Manik, J Mao et al. 2016. Selective remove of lignin in tobacco stalk by *Bacillus* and its laccase producing characteristic. International Journal of Simulation - Systems, Science & Technology 17(29): 1-5.
Strain(s): UAMH 8260

67. CC Tsang, JFW Chan, WM Pong, JHK Chen et al. 2016. Cutaneous hyalohyphomycosis due to *Parengyodontium album* gen. et comb. nov. *Medical Mycology* 54(7): 699-713.
Strain(s): UAMH 1441; UAMH 4512; UAMH 8313; UAMH 9836; UAMH 10043; UAMH 11234
68. SM Vega Gutierrez, PT Vega Gutierrez, A Godinez et al. 2016. Feasibility of coloring bamboo with the application of natural and extracted fungal pigments. *Coatings* 6:37.
Strain(s): UAMH 4801; UAMH 10320; UAMH 11657
69. M Villarino, A De Cal, P Melgarejo et al. 2016. The development of genetic and molecular markers to register and commercialize *Penicillium rubens* (formerly *Penicillium oxalicum*) strain 212 as a biocontrol agent. *Microbial Biotechnology* 9(1): 89-99.
Strain(s): UAMH 5148
70. N Wadke, D Kandasamy, H Vogel, L Lah, BD Wingfield et al. 2016. The bark-beetle-associated fungus, *Endoconidiophora polonica*, utilizes the phenolic defense compounds of its host as a carbon source. *Plant Physiology* 171(2): 914-931.
Strain(s): UAMH 11346
71. GL Weber, A Boonloed, KM Naas, MT Koesdjojo et al. 2016. A method to stimulate production of extracellular pigments from wood-degrading fungi using a water carrier. *Current Research in Environmental & Applied Mycology* 6 (3): 218-230.
Strain(s): UAMH 4802; UAMH 7615; UAMH 10320; UAMH 11517; UAMH 11657
72. X Wei, J Chen, C Zhang, D Pan. 2016. A new *Oidiodendron maius* strain Isolated from *Rhododendron fortunei* and its effects on nitrogen uptake and plant growth. *Frontiers in Microbiology* 7: 1377.
Strain(s): UAMH 1525; UAMH 1540; UAMH 1991
73. H Xu, A Navarro-Ródenas, JEK Cooke, JJ Zwiazek. 2016. Transcript profiling of aquaporins during basidiocarp development in *Laccaria bicolor* ectomycorrhizal with *Picea glauca*. *Mycorrhiza* 26(1): 19-31.
Strain(s): UAMH 8232
74. X Yuan, G Tian, Y Zhao, L Zhao, H Wang, TB Ng. 2016. Biochemical characteristics of three laccase isoforms from the basidiomycete *Pleurotus nebrodensis*. *Molecules* 21(2): 203.
Strain(s): UAMH 8260
75. BR Ziesman. 2016. Development and validation of a *Sclerotinia sclerotiorum*-specific quantitative PCR assay to assess risk of Sclerotinia stem rot of canola (*Brassica napus*). PhD Thesis, University of Alberta.
Strain(s): UAMH 16; UAMH 1784; UAMH 4514; UAMH 6321; UAMH 9192
76. Q Yang, H Wang, H Zhang, X Zhang, MT Apaliya et al. 2017. Effect of *Yarrowia lipolytica* on postharvest decay of grapes caused by *Talaromyces rugulosus* and the protein expression profile of *T. rugulosus*. *Postharvest Biology and Technology* 126: 15-22.
Strain(s): UAMH 11346

GenBank Sequences of UAMH Strains released in 2016

A total of 12,198 sequences relating to UAMH strains were released on NCBI GenBank in 2016 [based on GenBank search string: UAMH AND ("2016/01/01"[PDAT] : "2016/12/31"[PDAT])]

Table 1. Cultures Received in 2016

Person or industry or culture collection and address		Purpose	Total
1.	Scott J, DLSPH - Univ of Toronto, Toronto, ON	D	14
2.	Summerbell R, Sporometrics Inc., Toronto, ON	D	21
3.	Untereiner W, Dept of Biology, Brandon Univ, Brandon, MB	D	2
4.	Yoder J, Dept of Biology, Wittenberg University, Springfield, OH	ID/D	1

Cultures received from:

Canada	37
US	1
International	–

Total cultures received **38**

Codes: **D**= Deposit; **ID**= Identification

Table 2. Cultures Distributed in 2016

Person or industry or culture collection and address		Purpose	Total
1.	Guardiola Y, Sporometrics Inc., Toronto, ON	PT	2
2.	Saleh M, Sporometrics Inc., Toronto, ON	EX	1
3.	Corrigan J, Microbiologics Inc., St. Cloud, MN	PT	2
4.	Bialoskorski S, Bee Vector Technologies Inc., Mississauga, ON	-	1
5.	Brown D, MycodevGroup, College Communautaire du Nouveau, G Falls, NB	M	1
6.	Lee SJ, Dept of Biol Sci, Université de Montréal, Montréal, QC	-	7
7.	Cowen L, Dept of Molecular Genetics, University of Toronto, Toronto, ON	RG	1
8.	Facchini P, Biological Science, University of Calgary, AB	-	1
9.	Vialle A, Biopterre, La Pocatière, QC	-	8
10.	Corrigan J, Microbiologics Inc., St. Cloud, MN	PT	2
11.	Dostie P, École de Technologie Supérieure, Montreal, QC	RG	1
12.	Vijay H, VLN Biotech Inc. Ottawa, ON	EX	4
13.	Zieleman E, Sigma Aldrich, Jerusalem, Israel	RG	2
14.	de Hoog S, CBS-KNAW Fungal Biodiversity Center, Utrecht, The Netherlands	EX	2
15.	Nicol R, Ridgetown Campus, University of Guelph, ON	RG	4
16.	Untereiner W, Dept of Biology, Brandon Univ, Brandon, MB	RG	1
17.	Saleh M, Sporometrics Inc. Toronto, ON	RG	1
18.	Bruns T, Dept of Plant and Microbial Biology, University of California, Berkeley, CA	RG	1
19.	Lorch J, Biological Resources Division, National Wildlife Health Center, Madison, WI	RG	17
20.	Vandermeulen E, Dept Biology, Thompson Rivers University, BC	TE	1
21.	Jacobs J, Troy Corporation, Florham Park, NJ	QC/PT	1
22.	Navaud O, Laboratoire des Interactions Plantes Micro-organismes, Auzeville, France	RE	1
23.	Vohnik M, Dept of Experimental Plant Biology, Charles University, Prague, Czech Republic	RE	5
24.	Tanney J/ Seifert K, Agriculture and Agri Food Canada, Ottawa, ON	RE	1
25.	Newsham K, NERC British Antarctic Survey, Cambridge, UK	RE	1
26.	Friesen T, Dept of Chemistry, University of Saskatchewan, SK	RE	1

Cultures distributed to:

Canada External Users	36
USA	23
International	11

Total cultures distributed**70**

Codes: **B** – Biocontrol; **BD** – Biodegradation; **BR** – Bioremediation; **CR** – Collaborative Research; **EX** – Exchange; **FG** – Fungal Genetics; **IAQ** – Indoor Air Quality; **M** – Metabolites; **MR** – Mycorrhizae; **MS** – Molecular Systematics; **P** – Pathogenicity; **QC/PT** – Quality Control / Proficiency Testing; **RD** – Research Diagnostics; **RG** – Research General; **T** – Taxonomy; **TE** – Teaching.