

Jessy Labbé

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Education and Training:

2009 – 2012, Postdoctoral Research Fellow, Plant System Biology Group, ORNL, Oak Ridge, TN
2009, PhD. Forest biology, Genetics and Microbiology, University of Lorraine (France)
2006, M.S. Agronomy Forest Ecosystems and Environment, University of Lorraine (France)
2005, M.S. Molecular and Cellular Genetics, University of Lorraine (France)
2004, B.S. Cellular Biology and Physiology, University of Lorraine (France)

Research and Professional Experience:

2014 – present, Joint Faculty Assistant Professor at Biochemistry, Cellular and Molecular Biology Department University of Tennessee Knoxville, TN
2012 – present, Plant-Mycologist Staff Scientist, ORNL, Oak Ridge, TN
2010 – 2012, Postdoctoral Research Associate in Mycology, Molecular Genetics and Genomics of Plant-Microbes Interactions, ORNL, Oak Ridge, TN
2006 – 2009, Ph.D.- Student in Fungal Genomics, Ecogenomics of Interactions Group, INRA, Nancy, France
2006 – 2009, Lecturer, Department of Genetics and Microbiology, University of Lorraine, France
2004 – 2006, Research Assistant, Department of Genetics and Microbiology, University of Lorraine, France

Publications:

J Labbé, D Weston, N Dunkirk, D Pelletier and G Tuskan (2014). Newly identified helper bacteria stimulate ectomycorrhizal formation in *Populus*. *Frontier in Plant Sciences, Plant-Microbes interactions* 5(579): 1-10. doi: 10.3389/fpls.2014.00579

J Labbé, J Uehling, T Payen, J Plett (2014). Fungal biology: compiling genomes and exploiting them. *New Phytologist* 203:2

A Deveau, H Gross, E Morin, T Karpinets, S Utturkar, S Mehnaz, F Martin, P Frey-Klett, **J Labbé** (2014). Genome sequence of the mycorrhizal helper bacterium *Pseudomonas fluorescens* BBc6R8. *Genome announcements* 2(1): e01152-13

W Muchero, **J Labbé**, P Ranjan, S DiFazio, and GA Tuskan (2014). Genome resequencing in *Populus*: Revealing large-scale genome variation and implications on specialized-trait genomics. T. Fenning (ed.), *Challenges and Opportunities for the World's Forests in the 21st Century*, Forestry Sciences 81, doi: 10.1007/978-94-007-7076-8_25

M Shakya , N Gottel , H Castro , ZK Yang , L Gunter , **J Labbé**, W Muchero, G Bonito, R Vilgalys, G Tuskan, M podar, C Schadt (2013). A Multifactor Analysis of Fungal and Bacterial Community Structure in the Root Microbiome of Mature *Populus deltoides* Trees. *PLoS ONE* 8(10): e76382. doi:10.1371/journal.pone.0076382

G Bonito, A Gryganskyi, K Hameed, C Schadt, D Pelletier, A Schaefer, G Tuskan, **J Labbé**, F Martin, M Doktycz, K LaButti, R Ohm, I Grigoriev, R Vilglays (2013). Co-evolution of *Mortierella elongata* and its endosymbiotic bacterium. *Phytopathology* 103 (6): 8-19

C Murat, T Payen, D Petitpierre, and **J Labbé** (2013). The Ecological Genomics of Fungi: Repeated Elements in Filamentous Fungi with a Focus on Wood-Decay Fungi." In *The Ecological Genomics of Fungi*, 21, Hoboken, NJ: John Wiley & Sons, Inc. Wiley-Blackwell Publishing

J Guo, JL Morrell-Falvey, **JL Labbé**, W Muchero, UC Kalluri, GA Tuskan, JG Chen (2012). *Populus* protoplast transient expression system. *PLoS ONE* 7(9): e44908. doi: 10.1371/journal.pone.0044908

J Labbé, C Murat, E Morin , GA Tuskan, F Le Tacon , et al. (2012). Characterization of Transposable Elements in the Ectomycorrhizal Fungus *Laccaria bicolor*. *PLoS ONE* 7(8): e40197. doi: 10.1371/journal.pone.0040197

GA Tuskan, S DiFazio, P Faivre-Rampant, M Gaudet, A Harfouche, V Jorge, **JL Labbé**, P Ranjan, M Sabatti, G Slavov, N Street, TJ Tschaplinski and T Yin (2012). The obscure events contributing to the evolution of an incipient sex chromosome in *Populus*: a retrospective working hypothesis. *Tree Genome and Genetics*: doi: 10.1007/s11295-012-0495-6

L Vincenot, K Nara, C Sthultz, **J Labbé**, MP Dubois, L Tedersoo, F Martin and MA Selosse (2012). Extensive gene flow over Europe and possible speciation over Eurasia in the ectomycorrhizal basidiomycete *Laccaria amethystina* complex. *Molecular Ecology* 21(2): 281-299

J Labbé, V Jorge, A Kohler, P Vion, B Marçais, C Bastien, GA Tuskan, F Martin and F Le Tacon (2011). Identification of quantitative trait loci affecting ectomycorrhizal symbiosis in an interspecific F₁ poplar cross and differential expression of genes in ectomycorrhizas of the two parents: *Populus deltoides* and *Populus trichocarpa*. *Tree Genetics and Genomes* 7(3): 617-627

J Labbé, C Murat, E Morin, F Le Tacon and F Martin (2011). Survey and analysis of simple sequence repeats in the *Laccaria bicolor* genome, with development of microsatellite markers. *Current Genetics* 57(2): 75-88

Chapter 15: X. Yang, T. Li, D. Weston, A. Karve, **J. Labbé**, et al., (Sept 2011) "Innovative Biological Solutions to Challenges in Sustainable Biofuels Production." Biofuel Production-Recent Developments and Prospects, InTech, ISBN 978-953-307-478-8

C Murat, C Riccioni, B Belfiori, N Cichocki, **J Labbé**, E Morin, E Tisserant, F Paolocci, A Rubini, F Martin (2011). Distribution and localization of microsatellites in the Perigord black truffle genome and identification of new molecular markers. *Fungal Genetics and Biology* 48(6): 592-601

PE Courty*, **J Labbé***, A Kohler, B Marçais, C Bastien, JL Churin, J Garbaye and F Le Tacon (2011). Effect of poplar genotypes on mycorrhizal infection and secreted enzyme activities in mycorrhizal and non-mycorrhizal roots. *Journal of Experimental Botany* 62 (1): 249-260 * these authors contributed equally.

H Niculita-Hirzel, **J Labbé**, A Kohler, F Le Tacon, F Martin, I Sanders and U Kües (2008). Gene organization of the mating type regions in the ectomycorrhizal fungus *Laccaria bicolor* reveals distinct evolution between the two mating type loci. *New Phytologist* 180: 329-342

J Labbé, X Zhang, T Yin, J Schmutz, J Grimwood, F Martin, G A Tuskan and F Le Tacon (2008). A genetic linkage map for the ectomycorrhizal fungus *Laccaria bicolor* and its alignment to the whole-genome sequence assemblies. *New Phytologist* 180: 316-328

F Martin, A Aerts, D Ahrén, A Brun, E G J Danchin, F Duchaussoy, J Gibon, A Kohler, E Lindquist, V Pereda, A Salamov, H J Shapiro, J Wuyts, D Blaudez, M Buée, P Brokstein, B Canback, D Cohen, P E Courty, P M Coutinho, C Delaruelle, J CDetter, A Deveau, S DiFazio, S Duplessis, L Fraissinet-Tachet, E

Lucic, P Frey-Klett, C Fourrey, I Feussner, G Gay, J Grimwood, P J Hoegger, P Jain, S Kilaru, **J Labbé**, Y C Lin, V Legué, F Le Tacon, R Marmeisse, D Melayah, B Montanini, M Muratet, U Nehls, H Niculita-Hirzel, M P Oudot-Le Secq, M Peter, H Quesneville, B Rajashekar, M Reich, N Rouhier, J Schmutz, T Yin, M Chalot, B Henrissat, U Kües, S Lucas, Y Van de Peer, G K Podila, A Polle, P J Pukkila, P M Richardson, P Rouzé, I R Sanders, J E Stajich, A Tunlid, GA Tuskan & IV Grigoriev (2008). Symbiosis Insights from the Genome of the Mycorrhizal Basidiomycete *Laccaria bicolor*. *Nature* 452: 88-92

Meeting Presentations:

Over the past two years:

J Labbé, Wellington Muchero et al. (2015) Genome re-sequencing reveals a species-specific whole-gene deletion associated with *Populus – Laccaria* mycorrhizal symbiosis **DOE JGI User meeting 10 Walnut Creek, CA**

J Labbé (2015) Investigating the fungal-bacterial interactions within the *Populus* microbiome. **Genomic Science Contractors-Grantees Meeting XIII/USDA-DOE** Sponsored by the U.S. Department of Energy Office of Biological and Environmental Research Biological Systems Science Division, Tyson, VA

J Uehling, G Bonito, K Hameed, **J Labbé**, et al. (2014) Genomic analyses of *Mortierella elongata* and associated *Candidatus Glomeribacter* sp. bacterial endosymbiont. **12th European Conference on Fungal Genetics, Seville, Spain.**

Greg Hurst, Zhou Li, **J Labbé** et al. (2014) **Genomic Science Contractor-Grantee Meeting XII: “Plant-Microbe Interfaces: Proteomic Characterization of Endophyte and Rhizosphere Microorganisms and their Impacts on Plants.” U.S. Department of Energy (DOE), Washington D.C.**

Xiaohan Yang, Hengfu Yin, **J Labbé** et al. (2014) **Genomic Science Contractor-Grantee Meeting XII: “Plant-Microbe Interfaces: Discovery of Small Secreted Proteins in Populus in Response to Symbiotic Fungus Laccaria bicolor.” U.S. Department of Energy (DOE), Washington D.C.**

Wellington Muchero, Juan Wang, **J Labbé** et al. (2014) **Ninth Annual DOE Joint Genome Institute User Meeting: “Understanding the factors shaping microbial community structure within root and rhizosphere microbiome of Populus Species.” U.S. Department of Energy (DOE), Office of Science, Walnut Creek, California**

J Labbé et al. (2014) Plant-Microbe Interfaces: Tripartite plant-fungal-bacterial interactions. **DOE Genomics Science Awardee Meeting, U.S. Department of Energy (DOE), Washington D.C.**

W Muchero, J Wang, **J Labbé**, O Czarnecki, et al. (2014) Genome re-sequencing reveals a species-specific whole-gene deletion associated with *Populus-Laccaria* mycorrhizal symbiosis. **DOE JGI User meeting 9 Walnut Creek, CA**

W Muchero, J Wang, **J Labbé**, O Czarnecki, et al. (2014) Whole genome re-sequencing-enabled discovery and functional validation of allelic variants associated with cell wall chemistry and mycorrhizal symbiosis in *Populus*. **Plant and Animal Genome XXII Conference, San Diego, CA**

J Labbé et al. (2013) Plant-Microbe Interfaces: Dissecting *Populus*-fungal-bacterial systems. **Conferences Jacques Monod: Bacterial-Fungal interactions: a federative field for fundamental and applied microbiology, Roscoff, France**

C Guennoc, B Palin, **J Labbé**, A Deveau (2013) Investigating mycorrhiza helper bacteria determinants by screening *Pseudomonas fluorescens* BBc6R8 mutant library. **Conferences Jacques Monod: Bacterial-Fungal interactions: a federative field for fundamental and applied microbiology, Roscoff, France**

J Labbé et al. (2013) Plant-Microbe Interfaces: Deciphering the genetics of the ectomycorrhizal symbiosis *Populus-Laccaria*. IUFRO Tree Biotechnology Conference, Asheville, NC

J Labbé et al. (2013) Plant-Microbe Interfaces: Deciphering the genetics of the ectomycorrhizal symbiosis *Populus-Laccaria*. Invited Seminar Duke University, Durham, NC

J Labbé et al. (2013) Plants, Mycorrhizal Fungi, and Bacteria: deciphering an intimate alliance within a network of interactions. Invited Seminar University of Tennessee, Knoxville, TN

Before 2013:

· **Joint Meeting:** “*Co-evolution of Mortierella elongate and its endosymbiotic bacterium.*” **The American Phytopathological Society (APS) and The Mycological Society of America (MSA)**, Austin, Texas (August 10-14, 2013)

· **26th New Phytologist Symposium “Bioenergy Trees”:** “*Identification of Quantitative Trait Loci and targeting of genes affecting ectomycorrhizal symbiosis in the Poplar.*” **National Institute of Agronomic Research (INRA)**, Nancy, France (May 17-19, 2011)

· **Joint Meeting: Genomic Science Awardee Meeting XI and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting:** “*Plant-Microbe Interfaces: Identification of Quantitative Trait Loci and Targeting of Genes Affecting Ectomycorrhizal Symbiosis in Populus.*” **U.S. Department of Energy (DOE)**, Crystal City, Virginia (April 10-13, 2011)

· **Joint Meeting: Genomic Science Awardee Meeting XI and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting:** “*Plant-Microbe Interfaces: The Effect of Host Species, Genotype, and Edaphic Factors on Rhizosphere Fungi Associated with Populus deltoides.*” **U.S. Department of Energy (DOE)**, Crystal City, Virginia (April 10-13, 2011)

· **Joint Meeting: Genomic Science Awardee Meeting XI and USDA-DOE Plant Feedstock Genomics for Bioenergy Awardee Meeting:** “*Plant-Microbe Interfaces: Bacterial and Fungal Communities Within the Roots and Rhizosphere of Populus deltoids in Upland and Lowland Soils.*” **U.S. Department of Energy (DOE)**, Crystal City, Virginia (April 10-13, 2011)

· **9th International Mycological Congress (IMC9: The Biology of Fungi):** “*QTL detection and mycorrhizal genes targeting in the Populus-Laccaria bicolor interaction.*” **British Mycological Society**, Edinburgh, UK (August 1-6, 2010)

· **2nd Day of Beckman Coulter CEQ Users:** “*Microsatellite markers and uses population genetics in ectomycorrhizal fungi.*” **Beckman Coulter**, Paris, France (March 24, 2009)

· **3rd Annual Meeting:** “*Simple Sequence Repeat (SSR) markers in the ectomycorrhizal fungus Laccaria bicolor for population genetics of Laccaria species.*” **EVOLTREE**, Baden, Austria (February 2-6, 2009)

· **3rd Annual Meeting:** “*Single Nucleotide Polymorphism (SNP) markers at loci related to adaptation in the ectomycorrhizal fungus Laccaria bicolor.*” **EVOLTREE**, Baden, Austria (February 2-6, 2009)

· **21st New Phytologist Symposium “The ecology of ectomycorrhizal fungi”:** “*The development of simple sequence repeat markers in the ectomycorrhizal fungi Laccaria bicolor and L. amethystina for molecular ecology applications.*” **Centre for Evolutionary & Functional Ecology (CEFE-CNRS)**, Montpellier, France, (December 10-12, 2008)

· **21st New Phytologist Symposium “The ecology of ectomycorrhizal fungi”:** “*Multi-scale structure of populations of the ectomycorrhizal basidiomycete Laccaria amethystina in Europe.*” **Centre for Evolutionary & Functional Ecology (CEFE-CNRS)**, Montpellier, France, (December 10-12, 2008)

- **Workshop: Linkage mapping and QTL analysis in tree species:** “*Genetic linkage mapping in Laccaria bicolor S238N.*” Wageningen University, Wageningen, Netherland (April 7-12, 2008)
- **Laccaria Genome Annotation Consortium:** “*Symbiosis Insights from the Genome of the Mycorrhizal Basidiomycete Laccaria bicolor.*” INRA, Carry-le-Rouet, France (December 11-14, 2006)
- **Third Workshop of the Laccaria Genome Consortium:** “*Construction of a genetic map of Laccaria bicolor.*” INRA-Nancy, Nancy, France (April 4-5, 2006)
- **Second Workshop of the Laccaria Genome Consortium:** “*The most abundant Transposable Elements.*” VIB-Ghent University, Ghent, Belgium (October 14, 2005)
- **First Workshop of the Laccaria Genome Consortium:** “*Biology, Ecology & Genetics of Laccaria bicolor.*” INRA-Nancy, Nancy, France (April 2, 2005)

Intellectual Property:

One invention disclosure related to improvements in plant-microbe Interactions.

Synergistic Activities:

Member of the Review Board of the National Science Foundation
 Member of the Review Board of the Polish National Science Centre (Narodowe Centrum Nauki - NCN)
 Member of the Review Board of the German Research foundation (Deutsche Forschungsgemeinschaft - DFG)
 Member of the American Society for Microbiology (membership)
 Associate Editor for Frontiers in Microbiology, specialty in Systems Microbiology
 Associate Editor for Journal of Plant Genomics
 Associate Editor for Bioinfo Publications Journals, Journal of Plant Genomics responsible for reviewing submissions to that journal

Adjunct reviewer for *Applied Microbiology African Journal of Biotechnology, Applied Microbiology and Biotechnology, Biological Bulletin, Environmental Microbiology and Environmental Microbiology Reports, Journal of Plant Pathology and Microbiology, Current Genetics, Life Science, Microbial Ecology, Mycologia, Mycopathologia, New Phytologist, Plos One, Silvae Genetica, Plant Sytematics and Evolution, Virulence, Forests, FEMS Microbiology letters, Cellular & Molecular Biology Letters, GENE, and BMC Genomics*

Honors and Awards:

- Scientist visiting award 2013 granted by the Laboratory of Excellence ARBRE, France
- The award of the 2010 Ph.D. - Thesis discerned by the Lorraine Council, France
- STAR Mentor 2010 recognition, ORNL and Siemens foundation for participating to the Siemens program: Preparing Science and Technology Leaders for the Future
- ASTRO Fellowship 2006 awarded by Oak Ridge Associated Universities (ORAU)/ORNL
- Graduate Student Fellowship for Innovative Science 2006-2009 awarded by INRA/Lorraine Region, France

Graduate and Postdoctoral Advisors:

Graduate Advisors – Francois Le Tacon and Francis Martin (INRA Nancy, France)
 Postdoctoral Advisor – Gerald A. Tuskan (ORNL)

Advisees:

Former undergraduate Students – A. Jones Murry (Spelman College), S. Charles (Colorado College), D. Schlobinski (University of Marburg), Y. Ryback (Colgate University), C. Barillot (Lorraine University), R. Rose (University of Tennessee Knoxville), A. Norris (University of Tennessee Knoxville)

PhD. Advisees or Co-advisees – C. Guennoc (Lorraine University), B. Looney (University of Tennessee Knoxville), J. Uehling (Duke)

PhD. Committee – C. Guennoc (Lorraine University), J. Uehling (Duke), B. Looney (University of Tennessee Knoxville), E. Harrower (University of Tennessee Knoxville)