

Dr. Jessy Labbé

Work address

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◆ Education

- Ph.D. – 2009 – Forest biology, genetics and microbiology, Nancy-University, France
- M.Sc. – 2006 – Agronomy, forest ecosystems and environment, Nancy-University, France
- M.Sc. – 2005 – Molecular and cellular genetics, Nancy-University, France
- B.Sc. – 2004 – Cellular biology and physiology, Nancy-University, France

◆ Professional experience

Feb 2010 - present **Post-Doctoral Research Associate in mycology, molecular genetics and genomics of plant-microbes interactions**

Plant Systems Biology Group, Biosciences Division, Oak Ridge National Laboratory. Supervisor: Gerald A. Tuskan.
Fellowship ORAU/ORISE managed by the UT-Battelle LLC for the Department of Energy, Grant from Plant-Microbe Interfaces Scientific Focus Area project at Oak Ridge National Laboratory (ORNL) sponsored by Office of Biological and Environmental Research at the U.S. Department of Energy Office of Science.

Research interests: my project is a multidisciplinary project which encompasses proteomics, metabolomics, genomics and quantitative genetics of the Populus-microbes interactions. Genetic basis of the ectomycorrhizal symbiosis development, hunting symbiosis genes in the symbiotic model Laccaria bicolor/Populus, genetic mapping and genetic association studies, genome organization and evolution of mycorrhizal fungi (transposable elements and repeated sequences). I am interested in understanding the mechanisms of interaction between Populus and its microbial community, tripartite plant-fungus-bacteria interactions as well.

Sep 2009 - Feb 2010 **Research Associate**

Ecogenomics of Interactions Group, Trees – Microbes interactions Lab, French National Institute for Agricultural Research (INRA), Nancy, France.

Research interest: Fungal genomics of Basidiomycete

Sep 2006 - Aug 2009 **Ph.D. - Student,**

Ecogenomics of Interactions Group, Trees – Microbes interactions Lab, French National Institute for Agricultural Research (INRA),

Nancy, France. Supervisors: Francois Le Tacon & Francis Martin.
Fellowship grants: INRA and Lorraine region of France (\$400,000).

Thesis: Contribution to the study of the structure and the polymorphism of the genome of the ectomycorrhizal basidiomycete Laccaria bicolor (Maire) Orton and quantitative genetics of the symbiotic Populus-Laccaria interactions.

Sep 2006 - Sep 2009 **Teaching Assistant, Lecturer (total 200 hrs.)**

Department of Genetics and Microbiology (LGM), Nancy-University UHP-Nancy, France.

Lab instructor and lecturer in biology of microorganisms and virology to more than 150 students. Lecturer in population genetics to more than 100 students. Lecturer in dynamics of population lectures to more than 50 students. Lab instructor in molecular genetics to more than 50 students.

Sep 2005 – Sep 2006 **Research assistant and Master student**

Ecogenomics of Interactions Group, Trees – Microbes interactions Lab, French National Institute for Agricultural Research (INRA), Nancy, France. Supervisor: Francois Le Tacon

Thesis: Molecular genetics and fungal ecology of Laccaria, approach by genome sequencing and molecular tools development

Sep 2004 - Sep 2005 **Research assistant**

Department of Genetics and Microbiology (LGM), UMR INRA-UHP 1128), Nancy-University UHP-Nancy, France. Supervisors: Bernard Decaris & Pierre Leblond.

Research interest: contribution to the study of the orf 14.9 of the eps locus in Streptococcus thermophilus NST2280 for probiotic development.

◆ Undergraduate and graduate advisees

Undergraduate advisees – E. Delaruelle (University of Medicine of Nancy), D. Schlobinski (University of Marburg), R. Thomasson (University of Tennessee), Y. Ryback (Colgate University), N Dunkirk (University of Tennessee).

Graduate advisees – C. Barillot (Nancy-University), A Norris (University of Tennessee)

◆ Awards, honors and grants

- STAR Mentor 2010 recognition, ORNL and Siemens foundation for participating to the Siemens program: Preparing Science and Technology Leaders for the Future
- The 2nd award of the 2010 Ph.D. - Thesis discerned by the Lorraine Council, France
- The 2010 young researcher award discerned by the Lorraine council, France
- Travel Grant (\$550), New Phytologist Symposium 2008 - The Ecology of Ectomycorrhizal Fungi

◆ Professional affiliations

- Member of the European network of excellence EVOLTREE
- Member of the *Laccaria bicolor* genome consortium
- Member of the French society of phytopathology (SFP)
- Reviewer: New Phytologist, Biological Bulletin, Applied Microbiology and Biotechnology, Microbial Ecology
- Associate editor in Journal of Plant Genomics

◆ Publications

1. **J Guo**, JL Morrell-Falvey, **JL Labbé**, W Muchero, UC Kalluri, GA Tuskan, JG Chen. Populus protoplast transient expression system, in review to *Plant Methods*
2. **J Labbé**, C Murat, E Morin, GA Tuskan, F Le Tacon and F Martin. Characterization of Transposable Elements in the *Laccaria bicolor* Genome, (2012) *PLoS ONE* in press
3. 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 & T Yin. The obscure events contributing to the evolution of an incipient sex chromosome in Populus: a retrospective working hypothesis (2012) *Tree Genome and Genetics*: DOI 10.1007/s11295-012-0495-6
4. L Vincenot, K Nara, C Sthultz, **J Labbé**, MP Dubois, L Tedersoo, F Martin and MA Selosse. Extensive gene flow over Europe and possible speciation over Eurasia in the ectomycorrhizal basidiomycete *Laccaria amethystina* complex (2012) *Molecular Ecology* 21(2): 281-299
5. **J Labbé**, V Jorge, A Kohler, P Vion, B Marçais, C Bastien, GA Tuskan, F Martin and F Le Tacon. 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* (2011) *Tree Genetics and Genomes* 7(3): 617-627
6. **J Labbé**, C Murat, E Morin, F Le Tacon and F Martin. Survey and analysis of simple sequence repeats in the *Laccaria bicolor* genome, with development of microsatellite markers (2011) *Current Genetics* 57(2): 75-88
7. C Murat, C Riccioni, B Belfiori, N Cichocki, **J Labbé**, E Morin, E Tisserant, F Paolocci, A Rubini, F Martin. Distribution and localization of microsatellites in the Perigord black truffle genome and identification of new molecular markers (2011) *Fungal Genetics and Biology* 48(6): 592-601
8. PE Courty*, **J Labbé***, A Kohler, B Marçais, C Bastien, JL Churin, J Garbaye and F Le Tacon. Effect of poplar genotypes on mycorrhizal infection and secreted enzyme

- activities in mycorrhizal and non-mycorrhizal roots (2011) *Journal of Experimental Botany* 62 (1): 249-260 * these authors contributed equally.
9. H Niculita-Hirzel, **J Labbé**, A Kohler, F Le Tacon, F Martin, I Sanders and U Kües. Gene organization of the mating type regions in the ectomycorrhizal fungus *Laccaria bicolor* reveals distinct evolution between the two mating type loci (2008) *New Phytologist* 180: 329-342
 10. **J Labbé**, X Zhang, T Yin, J Schmutz, J Grimwood, F Martin, G A Tuskan and F Le Tacon. A genetic linkage map for the ectomycorrhizal fungus *Laccaria bicolor* and its alignment to the whole-genome sequence assemblies (2008) *New Phytologist* 180: 316-328
 11. 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 C Detter, 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 Symbiosis Insights from the Genome of the Mycorrhizal Basidiomycete *Laccaria bicolor* (2008) *Nature* 452: 88-92

◆ Book and book chapter

1. Yang X, Li T, Weston D, Karve AA, **Labbé JL**, Gunter LE, Sukumar P, Borland A, Chen J-G, Wullschleger SD, Tschaplinski TJ, Tuskan GA. Innovative biological solutions to challenges in sustainable biofuels production. In *Biofuel/Book 2*, InTech, ISBN 978-953-307-478-8 (2011)
2. **J Labbé**. Book: Structure et polymorphisme du génome de *Laccaria bicolor*, Editions Universitaires Européennes, ISBN 978-613-1-51892-8 (2010)

◆ Talks

J Labbé, F Le Tacon & G A Tuskan Living in harmony in Forest ecosystems: the ectomycorrhizal symbiosis, Science at the Lorraine council 9 December 2010 (Metz, France)

J Labbé, F Martin, F Le Tacon & G A Tuskan QTL detection and mycorrhizal genes targeting in the *Populus-Laccaria bicolor* interaction, ICM9 1-6 August 2010 (Edinburg, UK)

J Labbé, S Hortal, L Vincenot, F Le Tacon et F Martin Marqueurs microsatellites et utilisations en génétique des populations chez les champignons ectomycorhiziens, 2^{ème} Journée des Utilisateurs CEQ Beckman Coulter 24 March 2009 (Paris, France)

J Labbé, S Hortal, L Vincenot, F Martin and MA Selosse Simple Sequence Repeat (SSR) markers in the ectomycorrhizal fungus *Laccaria bicolor* for population genetics of *Laccaria* species, third annual meeting of European Network of Excellence Evoltree 2-6 February 2009 (Baden, Austria)

J Labbé, S Hortal, L Vincenot, F Martin and MA Selosse Single Nucleotide Polymorphism (SNP) markers at loci related to adaptation in the ectomycorrhizal fungus *Laccaria bicolor*, third annual meeting of European Network of Excellence Evoltree 2-6 February 2009 (Baden, Austria)

J Labbé Genetic linkage mapping in *Laccaria bicolor* S238N, Workshop of linkage mapping and QTL analysis in tree species, 7-12 April 2008 (Wageningen, Netherland)

J Labbé & F Le Tacon Construction of a genetic map of *Laccaria bicolor*, third workshop of the *Laccaria* genome consortium, 4-5 April 2006 (Nancy, France)

J Labbé The most abundant Transposable Elements, Second Workshop of the *Laccaria* Genome Consortium, 14 October 2005 (Ghent, Belgium)

J Labbé Development of molecular markers for a genetic map of *Laccaria bicolor*, First Workshop of the *Laccaria* Genome Consortium, 2 April 2005 (Nancy, France)

◆ Posters

J Chen, **J Labbé**, J Morrell-Falvey, S Melton, J Guo, UC Kalluri, D Weston, D Pelletier, GA Tuskan, MJ Doktycz. Plant-Microbe Interfaces: Emerging research directions in plant-microbe signaling, DOE contractors meeting, 4-8 March 2012 (Washington DC, USA)

CW Schadt, M Shakya, N Gottel, H Castro, Z Yang, M Kerley, G Bonito, D Pelletier, T Karpinets, G Kora, **J Labbé**, Euberbacher, W Muchero, G Tuskan, M Podar, R Vilgalys and M J Doktycz. Plant-Microbe Interfaces: Genotype-by-Environment Interactions Driving Root Associated Microbiome Composition in Natural Populations of *Populus deltoides*, DOE contractors meeting, 4-8 March 2012 (Washington DC, USA)

M Shakya, N Gottel, H Castro, Z Yang, M Kerley, **J Labbé**, W Muchero, G Tuskan, M Podar, MJ Doktycz, and C W Schadt. Plant-Microbe Interfaces: Microbiome Dynamics of *Populus deltoides*, DOE contractors meeting, 4-8 March 2012 (Washington DC, USA)

T Li, J Plett, C Ye, GB Hurst, **J Labbé**, W Muchero, P Ranjan, H Yin, GA Tuskan, TJ Tschapinski, F Martin, X Yang. Genome-wide Identification of *Populus* Small

Proteins Responsive to Mycorrhizal Symbiosis, DOE contractors meeting, 4-8 March 2012 (Washington DC, USA)

N Dunkirk, D Weston, D Pelletier, GA Tuskan and **J Labbé**. Phenotyping of bacterial effects on the growth and morphology of the ectomycorrhizal fungus *Laccaria bicolor* and identification of Mycorrhizal Helper Bacteria in *Populus*, ORNL SULI Summer 2011, August 2011 (Oak Ridge TN, USA)

Y Rybak, A Karve, GA Tuskan and **J Labbé**. A New Enzyme-Linked Immunosorbent Assay (ELISA) Test for Mycorrhizal Activity, ORNL SULI Spring 2011, April 2011 (Oak Ridge TN, USA)

J Labbé, W Muchero, LE Gunter, A Kohler, V Jorge, C Bastien, F Martin, F Le Tacon, GA Tuskan and MJ Doktycz. Plant-Microbe Interfaces: Identification of Quantitative Trait Loci and targeting of genes affecting ectomycorrhizal symbiosis in the Poplar, DOE contractors meeting, 10-13 April 2011 (Washington DC, USA)

G Bonito, H Reynolds, C Schadt, **J Labbé**, GA Tuskan and R Vigalys. Plant-Microbe Interfaces: The effect of host species, genotype, and edaphic factors on rhizosphere fungi associated with *Populus deltoides*, DOE contractors meeting, 10-13 April 2011 (Washington DC, USA)

A Norris, L Gunter, GA Tuskan and **J Labbé**. Identifying ectomycorrhizal fungi by ITS sequencing and SSRs screening in *Populus deltoides*, Genome Science and Technology at the University of Tennessee Knoxville, August 2010 (Knoxville TN, USA)

L Vincenot, **J Labbé**, MP Dubois, MA Selosse Multi-scale structure of populations of the ectomycorrhizal basidiomycete *Laccaria amethystina* in Europe, 21st New Phytologist Symposium 10-12 December 2009 (Montpellier, France)

J Labbé, L Vincenot, F Le Tacon, F Martin and MA Selosse Survey of Simple Sequence Repeat (SSR) in the ectomycorrhizal fungus *Laccaria bicolor* genome sequence and development of microsatellite markers for molecular ecology applications, 21st New Phytologist Symposium 10-12 Décembre 2009 (Montpellier, France)

C Murat, **J Labbé**, F Le Tacon, P Bonfante, F Martin, P Winckler et Génoscope Identification des microsatellites dans le génome de la truffe noire du perigord JFM 3-4 September 2008 (Dijon, France)

J Labbé, X Zhang, T Yin, J Schmutz, J Grimwood, F Martin, GA Tuskan and F Le Tacon. Cartographie génétique et identification des gènes de symbiose chez le champignon ectomycorhizien *Laccaria bicolor*, Séminaire Ecole doctorale RP2E, 17 January 2008, ISBN 2-9518564-6-6 (Nancy, France)

J Labbé, X Zhang, T Yin, J Schmutz, J Grimwood, F Martin, GA Tuskan and F Le Tacon. Cartographie génétique et identification des gènes de symbiose chez le

champignon ectomycorhizien *Laccaria bicolor*, JJC 2008, 20-24 January 2008 (Aussois, France)