

PhD Position – Evolutionary Genomics of Forest Pathogens

We are seeking a **highly motivated PhD student** interested in genomics, evolution, and forest ecosystems to join an exciting research project at **Université Laval** (Québec, Canada), on pathogen adaptation under global change. This interdisciplinary project combines population genomics, landscape genomics, and evolutionary ecology.

Project - Convergent adaptation and landscape genomics in forest fungal pathogens

Forests cover nearly 40% of Canada's land area and are essential for biodiversity, climate regulation, and the economy. However, forest diseases are increasing due to climate warming, global trade, and shifting host distributions. Developing proactive disease management strategies requires a strong fundamental understanding of how forest pathogens evolve and adapt. This PhD project addresses this critical knowledge gap. This project investigates the environmental and evolutionary processes shaping adaptation in forest fungal pathogens under global change. The aim is to test two main hypotheses: (i) abiotic factors beyond climate, such as edaphic variables, are key **drivers of fungal adaptation** and (ii) closely related species tend to rely on **shared genes or molecular pathways** to adapt to similar environments. The research focuses on five *Ophiostoma* species using extensive population sampling across eastern North America. Population genomic analyses (genetic structure, diversity, selection scans) will be combined with genotype-environment association methods and comparative genomics to identify shared adaptive loci. The project will provide fundamental insights into the evolutionary basis of forest disease dynamics.

- **Fully funded PhD position for 3 years**
- **Expected start:** Fall 2026 or as soon as possible thereafter
- The student will also be eligible for **numerous competitive faculty- and university-level scholarships**
- Supportive and collaborative research group
- **Opportunities to attend national and international conferences**

Candidate profile

- MSc in **bioinformatics, genomics, evolutionary biology**, or a related field
- Strong interest in evolutionary genomics and/or forest pathology
- Programming skills (R, Python, bash)
- Laboratory experience is appreciated
- Independent, motivated, and curious researcher

Applicants should submit a **resume, academic transcripts**, and contact information for referees to pauline.hessenauer@sbfi.ulaval.ca

Application deadline : 1st of August, 2026