

PhD student positions in the field of wheat microbiome

We are seeking for two (2) PhD students to work on a NSERC-funded project entitled "*Novel holobiont approaches for rapid wheat adaptation to drought stress*". This project uses a multidisciplinary approach targeting plants and associated microorganisms to increase wheat resistance to drought.

Project descriptions:

(1) *Microbial functions linked to improved drought tolerance*: There are well known plant traits that are linked to tolerance to water stress, but much less is known about potential microbial functions. This project will try to identify such key microbial functions.

(2) *Holobiont directed evolution*: To allow rapid plant adaptation to stress, holobiont modifications needs to be transmittable, either vertically (from parent plants to offspring) or horizontally (through microbe recruitment by the plant or via gene fragments acquisition by the microbes from the environment). This project will evaluate different mechanisms that the wheat holobiont could use to rapidly adapt to drought stress.

In both projects, metagenomic/transcriptomic sequencing will be used in conjugation with other more traditional soil microbiological and plant techniques. Experiments will be carried out in the field, greenhouses or in growth chambers.

Requirements: A MSc or equivalent in biology, microbiology, ecology or bioinformatics is required. Candidates should have experience with next-generation sequencing and data analysis in the context of metagenomics/metatranscriptomics. Experience with programming/scripting, Unix command-line environment, multivariate statistics/modeling, genomics, transcriptomics represents additional assets. We are looking for a creative, highly motivated, autonomous scientist with excellent organizational and communication skills and excellent attention to detail.

Duties and responsibilities: Under the guidance of their faculty supervisor, the PhD students will be responsible for experimental planning and set-up, data generation, analysis, management and synthesis, as well as manuscript preparation. Students will work in close collaboration with other students and post-docs on the project.

Appointment and salary: The positions are for 3 years. Salary will be of 18,000 CAN\$ per year. Expected starting date is May 1st, 2017.

Location: Centre INRS - Institut Armand-Frappier, Laval, QC, Canada and/or Institut de Recherche en Biologie Végétale, Montréal, QC, Canada

Additional information: For additional information, please contact Prof. E. Yergeau (Etienne.Yergeau@iaf.inrs.ca, 450-687-5010 ext. 8881).

How to apply: The closing date for application is March 1st 2017. Interested persons are requested to submit a complete CV, a statement of the candidate's interest and suitability for the position, and contact information for three references by email to Etienne.Yergeau@iaf.inrs.ca.