

PhD position

Impact of the microbiome on plant health

A PhD student position is available at the **Department of Biology of the University of Fribourg**, Switzerland, for a motivated young researcher with an interest in understanding **how microbiomes protect plants against diseases**. Recent evidence using *Arabidopsis* indicates that plants are able to recruit beneficial microbes from the rhizosphere¹ upon pathogen infection. In this project, we will test whether we can take advantage of such microbiome recruitment to design new microbial-based crop protection strategies as alternatives to synthetic fungicides. As model pathogen, we will use the oomycete *Phytophthora infestans*, causing potato late blight, one of the most devastating diseases worldwide. **We will perform next generation sequencing (NGS) to compare the ability of different potato cultivars to recruit health-protecting bacteria when exposed to late blight infection.** In addition, we will **isolate representative microbiome inhabitants and characterize their protective potential** against late blight and their suitability as protecting agents **using laboratory, greenhouse and field experiments**. Field experiments will be performed in collaboration with Agroscope. The PhD student will be co-supervised by Prof. Laure Weisskopf (UNIFR, microbiology), Dr. Laurent Falquet (UNIFR, bioinformatics) and Dr. Brice Dupuis (Agroscope, phytopathology)².

Requirements: Candidates should hold a degree comparable to a Swiss University M.Sc. in Biology or Bioinformatics. The candidate should have a strong background in microbiology (isolation, cultivation and molecular characterization of bacteria) and/or in bioinformatics (knowledge of programming in a UNIX environment, either in Python, Perl or C++, and proficiency with the R package). Previous experience in analysis of NGS-generated microbiome data will be an asset, as well as expertise in phytopathology and/or agronomy.

We offer: i) an interdisciplinary research project in a stimulating, international scientific environment, ii) a graduate education provided by the FGLS (Fribourg Graduate School of Life Sciences) with a wide offer of scientific and transferable skill courses in Fribourg and neighboring Universities, iii) a three-year fellowship with a salary based on SNF standards (www.snf.ch).

Application: Please send your CV, letter of motivation and contact information of two referees **in a single pdf file via email** to Prof. Laure Weisskopf (laure.weisskopf@unifr.ch).

Deadline: The position will remain open until a suitable candidate has been found (earliest start: April 2019).

¹ Berendsen, R. L. *et al.* Disease-induced assemblage of a plant-beneficial bacterial consortium. *ISME J.* **12**, 1496–1507 (2018).

² For more information on supervisors, please see:

<https://www3.unifr.ch/bio/en/groups/weisskopf/>

<https://www3.unifr.ch/bio/en/groups/falquet>

https://www.researchgate.net/profile/Brice_Dupuis2