

2 PhD positions in Plant Biology in Neuchâtel, Switzerland

The Laboratory of Plant Molecular and Cell Biology headed by Prof. Joop Vermeer is recruiting **two** PhD students. The **first** position is available from **August, 2024** and the **second** position is available from **February, 2025**.

The Vermeerlab investigates how intercellular communication accommodates the formation of new organs, using lateral root formation as a model. We are using *Arabidopsis thaliana*, *Cardamine hirsuta* as well as *Brachypodium distachyon* as experimental systems. We have previously shown that communication between the pericycle and the endodermis is essential for lateral root formation in Arabidopsis. We are using the pericycle / endodermis communication to better understand how biochemical and mechanical signals are integrated during three dimensional differential growth. The goal is to better understand the networks that regulate root branching to eventually link these to environmental signals.

We use and develop genetic and molecular tools to manipulate signaling in specific cell layers, high-resolution- and live-imaging at multiple scales, transcriptomics, proteomics, histology and plant physiology to understand the regulation of root branching in diverse plant species.

From august 2024:

Project 1: Fast phosphoproteomics to better understand pericycle/endodermis communication during LR formation. In collaboration with the lab of Prof. Dolf Weijers (WUR, NL) we have obtained a set of candidates that are differentially phosphorylated between wild type and spatial accommodation mutants. The goal of the project is to characterize these candidates.

From February 2025:

Project 2: Understanding endodermis dedifferentiation during lateral root formation. We recently have generated an atlas of lateral root development in Brachypodium in which we showed that the endodermis dedifferentiates during lateral root formation. The goal of the project is to investigate how this works. In addition, the project aims at understanding the role of local auxin signaling in the exodermis during lateral root formation.

Requirements:

- Master's degree in biology
- Proficiency in English (oral and written)
- Willing to assist with practical courses
- Previous experience in one or several of the following fields:
 - (Molecular) genetics
 - Cytoskeleton
 - Confocal microscopy and/or histology
 - Plant physiology
 - Statistical analyses and computational approaches (e.g. using R, Python, Alphafold) is advantageous.

We offer:

- Fully funded employment with social benefits
- Networking and workshops through membership in the CUSO Molecular Plant Science doctoral program (<https://biologie.cuso.ch>)

Located at the Lac de Neuchâtel and with spectacular views over the Alps, the plant sciences at UniNE offer a collaborative and dynamic environment. We are part of the Institute of Biology (www.unine.ch/biologie), which covers further disciplines such as microbiology, ecology, and evolutionary biology.

Western Switzerland provides a fantastic environment for plant research. Its collegial and diverse research community combined with easy and efficient national and international travel provide exceptional possibilities for collaborations and access to state-of-the-art technical platforms.

For further information, please contact Joop Vermeer via email (joop.vermeer@unine.ch). **To apply, please send your letter of motivation, CV, and names and contact details of two referees to joop.vermeer@unine.ch.** Positions will remain opened until filled. Starting dates: negotiable but preferably August 2024 for project 1 and February 2025 for project 2.