ETH zürich

ETH Zurich, the Swiss Federal Institute of Technology (ETHZ), is a world leading University situated in the heart of Europe, pioneering solutions to the global challenges of today and tomorrow. For a project associated to the international COST Action «CA16107 EuroXanth » we are looking for a

PhD student for Resistance Gene Identification in the Xanthomonas - Ryegrass Pathosystem

Ryegrasses such as Lolium multiflorum (Lm) are valuable components of temporary and permanent grasslands, providing the backbone for sustainable livestock production in temperate regions worldwide. **Bacterial wilt**, caused by Xanthomonas translucens pv. graminis (Xtg), is a serious threat to Lm and has been found to cause yield losses of up to 40 %. The employment of resistant Lm cultivars is the only practicable and accepted means to control bacterial wilt in grasslands. By consolidating previously developed knowledge on Lm resistance and Xtg, and by building on resources such as QTL information and draft genome sequences of Lm and Xtg, this project will elucidate the genetic control of bacterial wilt resistance in Lm and develop genomics-based tools to support resistance breeding and the development of superior Lm cultivars in the future.

The successful candidate will work on (i) fine-mapping of the previously identified major QTL for Xtg resistance and characterising novel sources of resistance in Lm breeding germplasm, (ii) improving the Xtg reference sequence, characterising unique virulence factors of Xtg through comparative genomics and identifying their potential targets in Lm, (iii) identifying genes differentially expressed in the host and the pathogen during infection and further characterising the host-pathogen interaction, and (iv) identifying and validating novel candidate resistance genes in Lm for the implementation of more efficient breeding strategies to improve bacterial wilt resistance.

Prerequisites are a master level degree in biology, genetics or a closely related field with excellent grades and good knowledge of statistics and bioinformatics analyses of high-throughput sequencing data. Advanced skills in molecular biology complete your profile. We are seeking a highly motivated, team-oriented candidate with a strong interest in molecular plant breeding and plant pathology. The candidate is expected to elaborate high-quality publications meeting international standards, to have strong communication skills and be proficient in English. German language skill would be an asset. This position will be under SNF salary regulations for a duration of three years. The research will mainly be carried out at MPB's forage crops hub, located at Agroscope Zurich-Reckenholz.

Applicants are invited to submit a cover letter illustrating their suitability for the above position together with a detailed curriculum vitae, including names and addresses of three referees. Please note that we exclusively accept applications submitted through our online application portal. Applications via email or postal services will not be considered. Closing date for applications is **February 28**, 2018, project start is envisioned for April 1, 2018.

For further information about ETH Zurich or COST16107 please visit our websites www.ethz.ch or www.EuroXanth.eu. Questions regarding the position (no applications) should be directed to Roland Kölliker (roland.koelliker[at]usys.ethz.ch).

Apply now