

**Post-doctoral position at Agroscope (Switzerland)**

**Duration:** 18 months

**Starting date:** March 2017

**Laboratory:** Groupe Virologie & Phytoplasmiologie, Route de Duillier 50, Case Postale 1012, CH-1260 Nyon 1

**Deadline for application:** 16th of February 2016

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## Next generation sequencing for the diagnosis and diversity studies of viral pathogens in Swiss agriculture

Agroscope has been identifying and characterizing viruses present in cultivated and wild plants for decades. However, the recent development of deep sequencing technologies reveals that viruses are more abundant and diverse than expected in most plants. Although new viral diseases continuously emerge in agriculture, the majority of plant viruses appear to persist without causing symptoms and may even benefit plants in some cases. Therefore, the need for the development of unbiased, holistic virus detection methods must parallel detailed investigation, in order to understand plant-virus interactions and potential etiological consequences. A research project has been accepted and funded by European Cooperation in Science and Technology (COST) to address this need.

The COST-funded research project is a multi-institutional initiative proposed by Agroscope and FASTERIS SA, with close collaboration with Dr. M. Pooggin lab at French National Institute for Agricultural Research (INRA) in Montpellier. It includes the appointment of a post-doctoral scientist at Agroscope. Agroscope has years of applied expertise and recently invested massively in deep sequencing technologies to detect and characterize virus populations. Agroscope aims to control emerging diseases and develops cost efficient, large scale detection tools. FASTERIS has become one of the largest private labs in Europe providing NGS and bioinformatic services thanks to considerable improvements in NGS instrumentation, as well as in wet-lab protocols and bioinformatics tools. In collaboration with FASTERIS, M. Pooggin team has contributed to the dissection of molecular mechanisms and genetic requirements for the biogenesis of virus-derived small interfering (si)RNAs and antiviral defense in plants. The successful post-doctoral candidate will benefit from a multi-disciplinary environment and strong support and commitment from all teams.

Existing homemade lab protocols and bioinformatic analytical pipelines will be used to characterize the viromes of vegetatively-propagated crops (potato, tomato and grapevine) and fruit trees (cherry, plum and apple), which have been under investigation at Agroscope. The candidate will also develop low-cost protocols and advanced bioinformatic tools to assist the certification process of seed potato tubers at Agroscope, including multiplexing of samples, enrichment of viral sequences in NGS libraries and using bioinformatic filtering to facilitate virome reconstruction. Together with the project teams, he/she will cooperate with other members of the COST action to exchange NGS protocols and bioinformatic tools in order to progress toward the ultimate goal: developing a universal pipeline for virome reconstruction.

We seek a skilled, fast learner and motivated post-doctoral scientist able to work independently in the frame of this COST-funded research project. The successful candidate will have to undertake computational genomic and experimental approaches to

DNA and RNA plant viruses, based on NGS and bioinformatic analysis of short and long-read RNA or DNA datasets.

Requirements:

Ph.D. in bioinformatics with research experience in molecular biology or Ph.D in genomics or molecular biology with strong background in next-generation sequencing technologies. (Experience in plant viruses is a plus)