

PhD student position

at the University of Neuchâtel, Switzerland



Next-generation framework for the detection of genetically modified organisms in the food and feed supply

The Laboratory of Evolutionary Genetics is searching a highly-motivated PhD student to work on a central scientific question arising from the availability of genetically modified crops.

Advances in genetic engineering make it possible to improve or introduce desired traits in crops at an accelerating pace. The import of genetically modified (GM) crops are tightly regulated. A core mandate of government authorities is to ensure effective monitoring. GM crops of the past decade contained simple, well characterized modifications that can be efficiently recognized by currently implemented screenings. Newer GM technologies (i.e. CRISPR variants) are used to create more precise and more complex modifications, and there is a tremendous acceleration in the commercialization of CRISPR-modified crops worldwide. This creates an urgent need for validated tools that allow the precise identification of genome editing in imported crops. The overarching aim of this PhD project is to produce fundamental knowledge on the feasibility, specificity and sensitivity to detect a large number of individual genetic modifications in different organisms. We aim to develop and validate a reliable and expandable multiplex assay based on NGS to screen all currently catalogued genetic modifications in crops. Furthermore, we aim to generate fundamental knowledge on the feasibility to detect CRISPR/Cas9-based genome editing without *a priori* knowledge of the precise modifications. This will be key to ensure future compliance. Finally, we aim to ascertain the performance of these new analysis approaches by NGS on major crops.

We are a diverse group with backgrounds in genomics, evolutionary biology and microbiology. We put a lot of emphasis on team work and scientific discussions. You can learn more about our research and recent publications on our website (<http://www.pathogen-genomics.org>). The Institute of Biology offers a highly dynamic and diverse research environment and is located at the beautiful Lake Neuchâtel with views of the Swiss Alps. The city of Neuchâtel is centrally located in Switzerland and most other cities can be reached within 0.5 - 2 h. The working language in the group is English.

Candidates must hold a MSc degree in biology. Experience in bioinformatics and/or statistical analyses (e.g. in R) is not required but is a plus. The starting date is ideally Nov-Dec 2019. Applications will be reviewed starting immediately but the position remains open until filled.

Applicants should send documents (as a single pdf) including: A cover letter stating their research interests and motivation to apply for this position. A complete curriculum vitae. Contact information for at least one referee.

Any inquiries about the position and full applications should be sent to: Daniel Croll (daniel.croll@unine.ch). The University of Neuchâtel is committed to promoting equality of opportunity.