

Two PhD positions in food microbiology and nutritional sciences

In collaboration with Agroscope at the Federal Office of Agriculture, the University of Bern is offering **two PhD positions** in the fields of bacterial genomics, food microbiology and nutritional sciences. The two PhD theses are central contributions to the *Polyfermenthealth* project funded by the Gebert Rüt Stiftung. The objective of *Polyfermenthealth* is to demonstrate, in murine models, that the genetic diversity contained in a collection of lactic acid bacteria can be translated, via fermented food, into diverse and beneficial metabolic *in vivo* profiles. Nutrient diversity as well as metabolic and immunomodulatory pathways will be the primary functional targets of the project.

The project will encompass the functional screening of the genomic content of a collection of over 500 sequenced and annotated lactic acid bacteria, the metabolic profiling (GC-MS and LC-MS) of polyfermented yogurts prepared with strains selected from this collection, and the characterization of the impact of the ingestion of these yoghurts in a range of murine models (germ-free mice, gnotobiotic mice, mice infected with *Candida albicans*).

PhD1 will focus on *in silico*/bioinformatics analyses of bacterial genomes. This will include predictive genome-scale modeling of the bacterial culture collection, the analysis of experimental genomic as well as transcriptomic data from bacterial communities in yoghurts and along the gastrointestinal tract of mice having ingested these products.

PhD2 will focus on the experimental part of the project, including the development of polyfermented yoghurts and the conductance of the nutritional intervention studies in mice. The work will further require a characterization of the metabolomes of yoghurts and murine biofluids as well as of the genome and/or transcriptome of the gut microbiota of the mice.

Both PhDs will collaborate closely on the project to foster the links between genotype and phenotype as well as between food and nutrition.

Applicants for these PhD positions should hold a master degree in a molecular or biological science, ideally biostatistics for PhD1, and be strongly interested in multidisciplinary work focusing on the *in silico* (PhD1) and experimental (PhD2) analyses of large datasets. Excellent knowledge of English is required and German would be an asset.

The start of the project is planned in the second quarter of 2018.

PhD1 will be directed by **Dr Rémy Bruggmann** at the Interfaculty Bioinformatics Unit of the University of Bern, Switzerland. PhD2 will be directed by **Prof Dr med Andrew J.**

Macpherson, Department for BioMedical Research, Inselspital, Bern, Switzerland. The working place for both PhD students will be Bern (University of Bern and Agroscope).

The conditions of the PhD theses follow the regulations of the Graduate School for Cellular and Biomedical Sciences (GCB: <http://www.gcb.unibe.ch>).

If interested, please send your application, including CV, letter of motivation and contact details of references, via mail to **PD Dr Guy Vergères**, Head *Polyfermenthealth*, Agroscope, Schwarzenburgstrasse 161, CH-3003 Berne, Tel. +41 (0)58 463 81 54, guy.vergeres@agroscope.admin.ch