

Universität Bern | Universität Zürich vetsuisse-fakultät

UNIVERSITÄT BERN

Institute of Veterinary Bacteriology

PHD POSITION IN BACTERIOPHAGES AND THEIR CONTRIBUTION TO THE EVOLUTION OF BACTERIAL ANTIMICROBIAL RESISTANCE

We are excited to announce the opportunity to join our team at the Gómez-Sanz Lab within a **Starting Grant** from the Swiss National Science Foundation (**SNSF**) on: *"Range of influence of staphylococcal bacteriophages on bacterial populations"*.

While bacteriophages are the most abundant entities on Earth and the most prolific bacterial killers, antimicrobial resistant bacterial infections continue increasing worldwide. In fact, antimicrobial resistance represents one of the major global health problems worldwide. Contradictory enough, bacteriophages can provide bacteria with adaptive features to enhance virulence or to better adapt to harsh conditions. This double-edged sword encumbers bacteriophages as major actors in bacterial evolution and adaptation (1). **This project** builds on the necessity to solve this important paradigm in Biology encompassed with the urge to graze innovative actions to tackle the antimicrobial resistance pandemic.

This PhD project aims at the deep characterization of a unique staphylococcal phage-host library (1) to assess and measure transduction and to select phage candidates with potential translational applications. The PhD candidate will first characterize at phenotypic and genotypic level a unique staphylococcal natural phage collection. Next, she/he will experimentally detect, constitute, and quantify customized transduction events of natural systems and generate a standardized workflow to measure this process by cutting-edge analytical approaches. Subsequently, the PhD candidate will contribute to the development of innovative methodological strategies to visualize transduction dynamics of selected natural systems.

Duration and funding: 3 years with a possible one-year extension. Funding according to SNF guidelines.

Qualifications:

- MSc degree in the field of Life Sciences with a special interest in Microbiology
- Laboratory experience in microbiology and molecular biology techniques
- Prior experience with **bacteriophage** research is an asset
- Familiarity with genomics and bioinformatics analysis is an asset
- Analytical skills and experience with statistical and graphical software is an asset
- Excellent organization skills, proactive and flexible
- English proficiency is requested, German is an asset
- Excellent writing and communication skills
- Ability to work collaboratively as well as to rapidly build the capacity to work independently
- Willingness to supervise and mentor undergraduate and master's students

Please send us your online application including **CV**, **motivation letter** and **1-2 reference letters** (preferred) or contact details of two referees as a single PDF file via email to: <u>barbara.gautschi@unibe.ch</u>. For project specifics, please contact Prof. Elena Gómez-Sanz (<u>elenagomez.titus@gmail.com</u>).

Application deadline is **20th June 2024**. Earliest starting date is **1st November 2024**.

PhD students have to enrol in the Graduate School of Cellular and Biomedical Sciences (<u>https://www.gcb.unibe.ch/</u>) at the University of Bern.

We look forward to passionate individuals with a teamwork spirit to join our enthusiastic growing team!

(1) Multi-species host range of staphylococcal phages isolated from wastewater. Göller PC, et al., Nat Commun. 2021;12(1):6965. doi: 10.1038/s41467-021-27037-6.