

Universität Bern | Universität Zürich vetsuisse-fakultät

UNIVERSITÄT BERN

Institute of Veterinary Bacteriology

PHD POSITION IN STAPHYLOCOCCCAL BACTERIOPHAGES AND THEIR ROLE IN BACTERIAL ADAPTATION

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 measuring the contribution of staphylococcal temperate phages (and prophages) to bacterial adaptation to antibiotics. The PhD candidate will generate an unprecedented baseline of staphylococcal temperate phages from clinically relevant bacteria at the genomic and functional level with predicted value. She/he will then experimentally assess unexplored bacterial infection ranges as means to assess their relevance in bacteria modulation. The PhD candidate will evaluate their transduction ability by experimental and bioinformatic analyses. Finally, following cutting-edge methodological approaches, she/he will generate a battery of phage lytic variants that may be suitable for translational avenues.

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
- Prior experience in genome sequencing techniques and bioinformatic analyses
- Laboratory experience in microbiology and molecular biology techniques
- Prior experience with bacteriophage research is an asset
- Prior experience with statistical and graphical software is an asset
- Excellent analytical and 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 **30th July 2024**. Earliest starting date is **1st January 2025**.

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.