

## 4 PhD positions in inhibitor design against bacterial toxins

As part of our **Sinergia** project DISPERSE (Designing Inhibitors Against Clostridial Pore-Forming Toxins: A Structure-Based Approach) 4 PhD student positions are available, in the laboratories of Profs. J.L. Reymond (Department of Chemistry, Biochemistry and Pharmaceutical Sciences, Science Faculty), B. Zuber (Institute of Anatomy; Medical Faculty) and H. Posthaus (Institute of Animal Pathology; Vetsuisse Faculty).

### Project Information

Bacteria of the genus *Clostridium* cause severe animal and human diseases.  $\beta$ -Pore forming toxins ( $\beta$ PFTs) form a major group of their virulence factors. They are secreted by different pathogenic clostridia and cause cell damage by forming pores in the plasma membrane of host cells.  $\beta$ PFTs share common structures and molecular mechanisms, making them attractive targets for the development of anti-virulence therapies. In a collaborative research approach between three faculties at the University of Bern, we aim to design and validate peptide inhibitors against clostridial  $\beta$ PFTs using a combination of computational peptide design and structural knowledge of the toxins.

**Two PhD student positions** are available in the **Posthaus group**. One project will focus on the identification of the minimal receptor constructs needed for the clostridial  $\beta$ PFTs and *in vitro* validations of inhibitory peptides. A second project will focus on the development of novel *in vivo* models for the investigation of clostridial infections and testing peptide inhibitors. The **student in the Reymond group** will design, synthesize and optimize peptide inhibitors against several clostridial  $\beta$ PFTs. In the **Zuber group**, the **PhD student** will resolve the structure of  $\beta$ PFTs oligomeric pores alone and bound to the minimal receptor constructs. She/he will also assess the effect of peptides on  $\beta$ PFTs biochemically and structurally. All students will collaborate with each other and designated lab members in each group. They will be enrolled in the PhD program of the Graduate School of Cellular and Biomedical Sciences (<http://www.gcb.unibe.ch/>).

We are looking for motivated students with a strong interest in mechanisms of disease, molecular, cellular and structural biology as well as biochemistry and computational peptide design. The positions require a master degree in biochemistry, biology, biomedical sciences, veterinary medicine, medicine or a related field.

We offer an enthusiastic, inspiring, international and highly collaborative research environment as well as state-of-the art research facilities at an attractive working location in Bern. These 4-year positions are available as of April 1<sup>st</sup> 2024 or by agreement. Salary and terms of employment will be in accordance with the SNSF.

### Interested?

Please send your application (letter / CV / contact information of two references) as single pdf document to Christine Herzig ([christine.herzig@unibe.ch](mailto:christine.herzig@unibe.ch)). Please shortly explain your preference of laboratory/ies resp. scientific area(s) you would like to work in. For further information about our institutes and laboratories visit our webpages by clicking on the active links in the text above or contact the respective group leaders (see group webpages).