

PhD position / Promotionsstelle

Universität Bielefeld (CeBiTec)
Biologie & Life Sciences
Forschung und Entwicklung

The Center for Biotechnology – CeBiTec – of Bielefeld University, Proteome and Metabolome Research (Prof. Dr. Karsten Niehaus, Prof. Dr. Alfred Pühler) offers a

PhD position

in the working group of Prof. Dr. Karsten Niehaus and Prof. Dr. Alfred Pühler.

Project Title:

“Establishment of genetic tools to analyse and enhance the production of polysaccharides by *Sphingomonas elodea* and other bacteria”

Application deadline: 31. March 2023

Project Description:

This project is part of a larger industrially funded research project focused on microbial extracellular polysaccharide production. Microbial exopolysaccharides are used in the food and cosmetic industry as well as for technical applications. Polysaccharide production is energetically expensive for natural microbial producers, and the long sugar chains cannot always be re-metabolized by the producing microorganism. Therefore, there are trade-offs between investing intracellular resources into either growth or polysaccharide production. The study of the physiology of natural exopolysaccharide producers offers both an intriguing academic challenge, and also the potential to find principles for improved industrial production.

In the PhD project described here, you **study bacteria that naturally produce industrially relevant polysaccharides**. The overarching goal of the project will be to gain a deeper insight into **gellan synthesis and its regulation** in the Gram negative bacterium *Sphingomonas elodea*.

Key focus points:

- Application and improvement of **molecular toolboxes for genetic modification** of polysaccharide-producing bacteria
- Studying gellan synthesis by *Sphingomonas elodea* through the use of various **omics technologies**

Research group

Our group has many years of experience working with the γ -proteobacterium *Xanthomonas campestris* (Xcc), a natural producer of xanthan. Previously, the genome sequence of Xcc strain B100 (Vorhölter et al. 2008, Alkhateeb et al. 2017) was established, and extensive research was carried out on the transcriptome, proteome and metabolome level (Alkhateeb et al., 2016, 2017; Schatschneider et al., 2014, 2011; Frese et al., 2014).

Qualification profile

Applicants must have a Master's degree in an area relevant to the project, such as biotechnology, biochemistry or genetics. Besides creativity, a strong ability for problem solving through analytical thinking combined with an enthusiasm for scientific research is highly desirable. Additionally, we expect excellent communication, writing and organizational skills and the ability to work in a team.

What we offer

The Centre for Biotechnology (CeBiTec) at Bielefeld University offers an infrastructure that comprises state-of-the-art instrumentation and bioinformatics plus long standing experience in wet lab techniques and mathematical modelling. In this PhD project, you will be working alongside and collaborate with other PhD students that are part of this larger industrially funded project. You will receive a salary based on an industrially funded scholarship.

Are you interested? Then please do the following:

1. Write an application letter. In this letter, please describe your motivation and qualification to participate in this program. Give a brief outline of your scientific interests.
2. Include a curriculum vitae (cv) and any relevant certificates.
3. Include certified English or German translations of all of official documents that are not in English or German.
4. Include certified English or German translations of all of official documents that are not in English or German.
5. Optional: Include copies of your publications and theses.

Contact

Please submit your application including cover letter, CV and certificates by email as one PDF document at stipendium-biotech@ceBiTec.Uni-Bielefeld.de.

Reference code: **Xanthomonas_230214**

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