



**CHALMERS**

# Industrial PhD in the field of bacterial systems biology using Bifidobacteria as model organisms



## Background

The Discovery and Process functions of the R&D Microbial Platform in Chr. Hansen A/S and the Division of Industrial Biotechnology at the Department of Biology and Biological Engineering in Chalmers University of Technology invite applications for a PhD student position in the field of bacterial systems biology using Bifidobacteria as model organisms.

Bifidobacteria are widely used as probiotics in various commercial products owing to their well-documented health-promoting properties. Despite numerous clinical studies demonstrating their beneficial effects to human health or elucidating underlying mechanisms, the physiological and metabolic characteristics of bifidobacteria remain to be explored in greater depth.

The project is partially funded by Innovation Fund Denmark (Innovationsfonden) and is carried out in collaboration between Chr. Hansen A/S and Chalmers University of Technology. The candidate will be employed at Chr. Hansen A/S and enrolled for PhD education at Chalmers University of Technology for a period of 4 years. The placement of the PhD candidate will be at both Chr. Hansen in Hørsholm, Denmark (~70%) and Chalmers University of Technology in Gothenburg, Sweden (~30%).

## Tasks and Responsibilities

- Collective
- The PhD project aims at employing state-of-the-art constraint-based modeling and data-driven approaches, combined with thorough physiological characterization, to gain deeper insights into the physiology and metabolism of industrially important Bifidobacterium species. The primary objective will be to identify the factors influencing growth and stability of probiotic bifidobacteria.
- The PhD position is an appointment which qualifies the candidate for further research positions within academia or industry, and lasts for four years. The majority of your working time will be devoted to your own research, but will also include course work, participation in project and group meetings, and dissemination via journal articles and international conferences.
- Detailed Tasks
- Reconstructing the metabolic network of a selected Bifidobacterium strain on a genome-wide scale
- Optimizing the cultivation of representative bifidobacterial strains in a chemically defined medium in lab-scale bioreactors
- Generating various omics data, primarily metabolomics and transcriptomics, for achieving systems-level understanding of the physiology of bifidobacteria
- Omics data analysis and integration
- Identifying the correlation between the fermentation process parameters and growth yield and stability of bifidobacteria
- Participating in the preparation of internal reports and scholarly articles for publications

## Qualifications

- MSc degree in Chemical Engineering, Bioengineering, Microbial Biotechnology or similar.
- In-depth understanding of microbial physiology and metabolism.
- Hands-on experience with lab-scale bioreactors.
- Basic command of Matlab, Python and/or R.
- Excellent oral and written communication skills in English.
- Ability to work in a dynamic, multicultural and interdisciplinary environment.

We offer a PhD position for four years and a stimulating, international workplace within a professional organization focused on linking solid scientific research to business opportunities.

If you have any questions for the position, please feel free to contact:

At Chr. Hansen A/S: Ahmad Zeidan, Principal Scientist (Discovery; phone: +4545748361) or Anisha Goel, Research Scientist (Process; email: [dkango@chr-hansen.com](mailto:dkango@chr-hansen.com), phone: +4545748364 ).

Read more about working for Chr. Hansen at: [www.chr-hansen.com/career](http://www.chr-hansen.com/career)

At Chalmers: Associate Professor Carl Johan Franzén (email: [franzen@chalmers.se](mailto:franzen@chalmers.se)) or Professor Lisbeth Olsson (email: [lisbeth.olsson@chalmers.se](mailto:lisbeth.olsson@chalmers.se)).

Read more about Industrial Biotechnology at:

<http://www.chalmers.se/en/departments/bio/research/industrial-biotechnology>

Applications must be submitted online at the Chr. Hansen A/S site - [click here](#) and follow instructions in the form. Here you can enter your details into the Chr. Hansen A/S CV-bank.

**Deadline for application is September 30.**