



ACIB – the Austrian Centre of Industrial Biotechnology – is one of the leading research centres in the field of industrial biotechnology. ACIB is dedicated to joint research at the industrial-academic interface. Seven Austrian Universities and more than 50 leading industry partners are working together within the ACIB research programme.



SECRETTERS – *A new generation of microbial expression hosts and tools for the production of biotherapeutics and high-value enzymes* – is a recently granted Marie Skłodowska Curie European Innovative Training Network. SECRETTERS is implemented by a European Consortium of universities, research institutions and companies in the field of biotechnology. Main objectives of SECRETTERS are (i) to design **powerful new microbial platforms for production of disulphide-bonded proteins**, (ii) to develop and characterize **super-producing platforms for emerging new-format biotherapeutics** and (iii) to acquire **interdisciplinary and intersectoral skills**. The microbial platforms include *Escherichia coli*, *Bacillus* species and the yeast *Pichia pastoris*.

acib GmbH offers in Vienna, Austria, a

PhD position on

Redox balancing in recombinant protein producing *Pichia pastoris* strains with altered oxidative protein folding (ESR10)

Starting date June/July, 2019

Project description

Yeasts such as *Pichia pastoris* are important hosts for production of industrial enzymes and biopharmaceutical proteins. SECRETTERS aims to develop radically different strategies for production of disulphide-bonded proteins in microbial production hosts.

Objectives:

- 1) Improved understanding on how to balance cellular redox state in relevant *P. pastoris* compartments during recombinant protein secretion.
- 2) Novel strain engineering strategies for stable overproduction of disulphide-bonded proteins in *P. pastoris*, and strains with a more favourable redox balance.
- 3) Novel methods to balance cellular reductive power to the needs of enhanced oxidative protein folding.
- 4) Develop and characterize *P. pastoris* strains with alternative oxidation systems to prevent ROS formation.
- 5) Predict further cell engineering targets for improved production of recombinant disulphide bond-containing secretory proteins.

Research will take place in the working group “Microbial Biotechnology” at the Department of Biotechnology of the University of Natural Resources and Life Sciences Vienna (BOKU) <http://www.biotec.boku.ac.at/15653.html>

Methodology:

- Generation of *P. pastoris* strains secreting disulphide-bond rich recombinant proteins.
- Generation of *P. pastoris* strains engineered in redox metabolism by Golden Gate cloning and CRISPR/Cas9.
- Cultivation of *P. pastoris* in small scale and bioreactor.
- Analysis of product quality and quantity using suitable analytics methods.
- *In vivo* measurement of redox conditions with fluorescent sensors (by flow cytometry, spectrophotometry and fluorescence microscopy).
- Integration of the quantitative redox data into the metabolic model developed at University of Kent for prediction of novel strain-engineering targets

Your benefits

- Be part of a highly interacting interdisciplinary project team – **structured secondments** to other project partners are planned
- Start to build up your **scientific network** – meet and exchange regularly with 14 other PhD students working in the joint project
- Join an embedded and customized **education programme** – gain scientific/technical skills as well as transferable skills to complement your qualification

Your requirements

- **Master's degree** or equivalent in **biotechnology, molecular biology**, biochemistry, or similar study
- Strong background in cell biology, biochemistry, biotechnology or related disciplines.
- Practical experience in molecular biology requested, and practical experience and/or scientific interest in systems biology and bioreactor cultivation desired.
- **Specific Eligibility Criteria** valid at time of recruitment on the H2020 Marie Skłodowska Curie programme:
 - The applicant has to be within the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree.
 - Mobility rule: The applicants may not have resided or carried out main activity (studies, work, etc.) in Austria for more than 12 months in the 3 years prior to the recruitment date.
- **Excellent skills** in spoken and written **English**, an **organized approach** with strong attention to detail and good communication skills with **ability to work well in teams**.
- **Travel** abroad for training purposes is part of the training programme

We are looking forward to receiving **your application in pdf-file** comprising a **detailed CV, publication list, copies of your university degree documents, and contact details of up to 3 academic referees.**

Please submit the application via our application portal application.acib.at (ref. 01_2019).

Application deadline: 1. March 2019

This job advertisement addresses qualified male and female persons equally. ACIB is not part of any collective agreement under Austrian law. It is intended to offer a minimum yearly gross payment of EUR 31,700.-- for the PhD-Position advertised. According to the ITN rules a Mobility and, if eligible, Family Allowance are scheduled in addition.