The Department of Agricultural Sciences, Institute of Environmental Biotechnology, is currently seeking a

Postgraduate Research Associate

Engineering and oriented immobilization of enzymes on electrodes (Project PhD 3.9)

assigned to research program *Green Cycles of Renewable Materials* of **Cluster of Excellence (CoE) Circular Bioengineering** https://www.circularbioengineering.at

(Reference code 209)

Extent of employment: 30 hours per week
Duration of employment: 1st of November 2025, limited to 31st of October 2029
Workplace: BOKU University, 3430 Tulln, Konrad-Lorenz-Straße 20
Allocation in compliance with the Collective Agreement for University Staff to job group: B1
Gross monthly salary: (depending on previous eligible experience) at least: € 2.786,10 (payable 14 times per year)

Description of project:

Enzymes will be engineered by fusion with metal-binding peptides or protein binding modules to immobilize them on electrode materials (e.g. platinum, gold, carbon). For this purpose, metal-binding peptides are screened by phage display and naturally occurring protein binding modules are engineered. Candidate peptides and proteins will be tagged to the bioelectrocatalysts for oriented immobilization and the reactions electrochemically investigated.

Background: Enzymes as bioelectrocatalysts need to be connected to an electrode. Chemical immobilization methods lead to random orientations of the enzyme on the electrode and deactivation. The oriented immobilization of enzymes in a monolayer can be achieved by peptide or protein sequences/modules that bring the enzymes in productive contact with the electrode.

Research objectives:

- In silico and in vitro screening of peptides and protein binding to electrode materials
- Protein modelling and engineering for fusion proteins, production of fusion proteins
- Biochemical characterization and electrochemical testing

Methods:

- Affinity screening (fluorescence microscopy, SPR)
- Phage display screening of metal-binding peptides using model metal surfaces
- Protein engineering (Rational design) of protein binding modules
- Recombinant protein expression and purification
- Biochemical and electrochemical characterization

Required skills and qualifications

- Diploma degree in biotechnology, biochemistry, chemistry or other equivalent university degree
- Language skills: very good English skills

Desirable skills and qualifications

- Willingness to quickly join this ongoing project
- Motivation to work in an inter- and transdisciplinary team
- Supervision of bachelor's theses, co-supervision of master's theses

Applications can be submitted until: 28th of October 2025

University of Natural Resources and Life Sciences Vienna seeks to increase the number of its female faculty and staff members. Therefore qualified women are strongly encouraged to apply. In case of equal qualification, female candidates will be given preference unless reasons specific to an individual male candidate tilt the balance in his favour.

People with disabilities and appropriate qualifications are specifically encouraged to apply.

Please send your job application to Personnel Management, University of Natural Resources and Life Sciences, Peter-Jordan-Straße 70, 1190 Vienna; E-Mail: recruiting@boku.ac.at. **(Reference code: 209)**

- Please use this **Application form – PhD-positions**
- Please note that we will not be able to process your application without this form and unless it is sent to recruiting@boku.ac.at
- Following additional documents have to be submitted as .pdf files:
  - Curriculum vitae
  - Copy of certificates from the applicant's bachelor and master/diploma studies
  - A translation of the documents is necessary if the original documents are not in English or German

For information on the further application procedure – online hearing and interviews – see https://www.circularbioengineering.at/jobs

We regret that we cannot reimburse applicants travel and lodging expenses incurred as part of the selection and hiring process.

www.boku.ac.at