

# PhD position

## Process intensification of CYP reactions in batch and continuous reactors

within Horizon Europe Marie Skłodowska-Curie Action doctoral network **ELEGANCE**

(DC position 6: recruiting institution: ACIB GmbH (TU Graz)/Austria)

### Organization

Graz University of Technology (TU Graz) is a leading science and engineering university in Austria with a strong international orientation and close ties to industry. In global rankings, TU Graz is typically placed in the upper segment of universities worldwide; and is consistently among the top ten universities in Austria, reflecting solid performance in research, teaching, and internationalization indicators. Biotechnology is one of TU Graz's key strategic fields of expertise, where molecular biosciences, bioprocess engineering and data-driven methods are combined to address challenges in health, environment and a sustainable bioeconomy. TU Graz collaborates with leading universities and research institutions across Europe, North America and Asia through around 200 partner universities, Erasmus+ networks, joint degree programmes and specialised research alliances, ensuring student and staff mobility and joint projects at the highest international level. With this profile, TU Graz offers an attractive environment for international students, researchers and partners in biotechnology and related life science technologies.

The doctoral candidate (DC) will work at ACIB (Institute of Biotechnology and Biochemical Engineering, TU Graz), which was established as one of the leading research centres in the field of industrial biotechnology. ACIB bridges the gap between academic research and producing industries and connects 180+ international scientific and industrial partners. Around 200 ACIB employees develop new, environmentally friendly, economically and technically advanced processes for the biotechnological, pharmaceutical and chemical industry. ACIB is tightly connected to and mainly located at leading Austrian universities in Graz, Vienna, Tulln and Linz.

### Roles and responsibilities

The PhD will be carried out in approximately 3 years at ACIB under the supervision of Prof. Bernd Nidetzky (TU Graz). Within this time, it is expected that two to three research stays (2-3 months) will be conducted, two in academic groups in Denmark and Italy and one industrial stay in Sweden. The Horizon Europe Marie Skłodowska-Curie Action (MSCA) doctoral network (DN) project starts in January 2026. The date of recruitment and start of the PhD project is planned for June 2026 and latest by December 2026. Your PhD degree will be awarded based on successful completion of the research work at ACIB (TU Graz). You will also be required to participate in the training events organized by the DN and you are expected to contribute with the dissemination of your PhD results via social media and public engagement.

### The PhD project will focus on:

- Making reactions of cytochrome P450 (CYP) enzymes efficient for production
- Process intensification with CYP enzymes in reactions dependent on O<sub>2</sub> or H<sub>2</sub>O<sub>2</sub>
- Comparison of CYP variants (developed jointly with project partners) in terms of process efficiency
- Evaluation of process metrics for different CYP enzymes
- Development of scale-up criteria for reactions catalysed by promising CYP enzymes
- Applying machine learning-guided process optimization in collaboration with project partners
- Development of continuous (flow) transformations with selected CYP enzymes

**Main supervisor:** Bernd Nidetzky, Austrian Centre of Industrial Biotechnology & TU Graz, Austria

**Co-supervisor 1:** Carlos Acevedo-Rocha, Technical University of Denmark, Lyngby, Denmark

**Co-supervisor 2:** Giovanna Di Nardo, Life Sciences & Systems Biology, University of Torino, Italy

**Co-supervisor 3:** Monica Guevera Martinez, EnginZyme, Sweden

### Qualifications:

- MSc in biotechnology, biochemistry, chemistry or related engineering disciplines
- Experience in experimental studies of proteins/enzymes
- Experience in biochemical/reaction engineering in experiment and with modeling
- Excellent English proficiency in written and oral form
- Excellent communication skills for working within an interdisciplinary research team
- Strong analytical skills and ability to work independently

### Preferred qualifications but not mandatory:

- Experience with enzyme kinetic characterization and enzyme immobilization
- Experience with enzymatic (biocatalytic) reaction engineering and hands-on bioreactor development
- Experience with kinetic modeling and process modeling
- Interest in reaction scale up and biotechnology for production
- Interest in entrepreneurship to make a positive impact on planetary and human health

### Eligibility criteria

You must have a two-year master's degree (120 ECTS points) or a similar degree with an academic level equivalent to a two-year master's degree. According to the mobility rule for DN, researchers must not have resided or carried out their main activity (work, studies, etc.) in Austria for more than twelve months in the three years immediately before the start of employment.

### Approval and Enrolment

The scholarship for the PhD degree is subject to academic approval, and the candidate will be enrolled in the Doctoral School of Molecular Biosciences and Biotechnology at TU Graz. For information about our enrolment requirements and the general planning of the PhD study programme, please see [TUG's rules for the PhD education](#).

### We offer

TU Graz (ACIB) is a leading technical university globally recognized for the excellence of its research, education, innovation and scientific advice. We offer a rewarding and challenging job in an international environment. We strive for academic excellence in an environment characterized by collegial respect and academic freedom tempered by responsibility. A package of voluntary social benefits (e.g. meal vouchers or tickets for public transport) is also part of our modern corporate culture.

### Conditions of employment

- The preferred starting date is **1<sup>st</sup> June 2026** or according to mutual agreement.
- The position is full time (40h/week).
- The period of employment is 3 years.
- The annual gross salary is **around EUR 40.000 + a monthly mobility allowance**.
- This corresponds to a monthly net amount of EUR 2.084,04 (paid 14 times a year). In addition, a Mobility Allowances of EUR 710,00 net per month is due.

### Further information

Further information may be obtained from Bernd Nidetzky: [bernd.nidetzky@tugraz.at](mailto:bernd.nidetzky@tugraz.at)

Bernd Nidetzky's ORCID profile: <https://orcid.org/0000-0002-5030-2643>

Website about MSCA doctoral network ELEGANCE: <https://elegance.dtu.dk/>

More information about ACIB GmbH: [www.acib.at](http://www.acib.at)

IBB group: <https://www.tugraz.at/institute/biote/home>

If you are applying from abroad, you may find useful information on working in Austria and at TU Graz at [TU Graz – Moving to Austria](#).

### Application procedure

Your complete online application must be submitted no later than **January 31<sup>st</sup> 2026 (23:59 CET)**. Applications must be submitted as **one PDF file** containing all materials to be given consideration.

To apply, please open the link "Apply now", fill out the online application form, and attach **all your materials in English in one PDF file**. The file must include:

- A letter motivating the application (cover letter)
- Curriculum vitae
- Grade transcripts and BSc/MSc diploma (in English) including official description of grading scale

You may apply prior to obtaining your master's degree but cannot begin before having received it. Applications received after the deadline will not be considered.

It is particularly important to us that our job offers appeal to all people, regardless of gender, sexual orientation, origin, age, nationality or religion.

**To apply, click [here!](#)**