



10 international PhD fellowships in the European Doctoral Network *BiocatCodeExpander* for a training on innovative biotechnological applications of non-canonical amino acids for biocatalysis, synthetic biology, organic chemistry and computational biology.

PhD fellow # 1

WPI: TOOLS FOR NON-CANONICAL AMINO ACIDS INCORPORATION

HIGH-THROUGHPUT SCREENING AND SELECTION METHODS FOR DEEP MUTATIONAL SCANNING

Organization

Graz University of Technology, Austria

Graz University of Technology (TU Graz) is the oldest science and technology research and educational institute in Austria. TU Graz renders top performances in its five areas of excellence - the Fields of Expertise (advanced materials science, human & biotechnology, information, communication & computing, mobility & production and sustainable systems). To this end we concentrate on intensive collaboration with other research and educational establishments and with business and industry. This enables interdisciplinary teaching and research to be undertaken with the use of the latest infrastructural facilities to the benefit of everyone involved. TU Graz expands its worldwide co-operation projects in a lasting way and promotes the mobility of its employees. The research activities of Graz University of Technology range from high-quality basic research and application-oriented research to industrial implementation. Co-operation projects with science and business play an important role. Graz University of Technology consolidates its competence thematically in the five Fields of Expertise by carrying out top research in important areas of the future. Seeking national and international research funding has been very successful – the funds raised amount to a third of the overall budget. Graz University of Technology is very well networked in Europe and participates in 60 to 70 EU projects annually, one tenth of which are in a co-ordinating role.

Doctoral Supervisor

Prof. Robert Kourist



Enrolment in Doctoral degree

Craz University of Technology (TUG)

Secondments

At Georgia Institute of Technology (Atlanta, United States of America) with Prof. Lynn Kamerlin

& moloX GmbH (Berlin, Germany) with Dr. Bernhard Loll

Objectives

- Development of high-throughput screening and selection methods for functional expression of non-canonical amino acids (NCAA)-containing enzymes
- Develop whole-cell selection assays
- Generation of gene site saturation mutagenesis libraries of NCAA-containing enzymes
- Deep mutational scanning
- Use machine learning for prediction of improved enzyme variants with extended substrate scope
- Structure elucidation and biochemical characterization of improved variants

Fields related to the project

- (1) Synthetic biology
- (2) Computational biology
- (3) Biocatalysis
- (4) Structural biochemistry

Qualifications

- Researchers can be of any nationality
- The researcher must not have carried out his/her main activity (work, studies, etc.) in the country of his/her host organization for more than 12 months in the 3 years immediately prior to recruitment.
- The researcher should not have obtained a PhD degree and should not have more than 4 year full-time or equivalent research experience since obtaining the degree which makes them eligible for starting the PhD degree
- Applicants must demonstrate excellent proficiency in English language to be eligible



- Researchers must demonstrate an excellent academic record. Hold a master's degree (or equivalent) relevant to the project (chemistry, biochemistry, biotechnology, molecular sciences or related disciplines)

We offer

- Full-time contract (36 months) with the recruiting institution, enrolled in a PhD programme
- Salary and benefits are in accordance with the MSCA regulations for PhD students
- *BiocatCodeExpander* promotes gender equality, open science practices and cutting-edge training.
- PhD students will be trained in an international, inter-disciplinary academic and industrial environment through state-of-the-art research
- Two secondments per PhD position and exciting summer schools

Application

The application, in English, must be submitted electronically by email to the *BiocatCodeExpander* email address biocatcodeexpander.beta@vu.nl before the 22/01/2023 (only applications that are complete, in English and submitted before the deadline will be considered eligible)

The preferred starting date is between April-September 2023

Please, submit the following documents in one PDF document:

- A cover letter, stating your motivation to join the doctoral network, and mentioning the choice of project you would prefer to apply for (max. 3 projects)
- CV: a one- to two page synopsis of yourself, your scientific interests, experience, current research work and list of publications
- Two letters of recommendation from former advisors/professors

More information

Web site for additional job details: <http://www.biocatcodeexpander.com/>