ELEGANCE: machinE LEarning for inteGrated multi-parAmetric eNzyme and bioproCess dEsign

DC10: Continuous flow oxyfunctionalisations of allylic substrates catalysed by UPOs

Organization
Department of Biological and Chemical Engineering was established on January 1, 2021, in connection with Aarhus University's reorganization of the engineering area. The department employs around 175 people and is responsible for research and education within the department's scientific areas. We educate both Bachelors and Masters of Science in Engineering and around 825 students are enrolled in our study programs. Furthermore, we also offer an ambitious PhD program. Our PhD students have high academic ambitions and deliver high-quality results for both the private and the public sectors.
At the Department of Biological and Chemical Engineering, focus is on living systems, the biology of organisms, efficient production, and transformation of chemicals, materials, and energy. We translate knowledge within biotechnology, food technology, environmental technology, chemical engineering, industrial biotechnology, medical biotechnology, and electrochemical engineering, and more into new technologies and value-creating solutions that can also be used in the business community.
Many of our research and development activities are based on companies' specific innovation needs or specialist application areas. Close collaboration with the public sector and private businesses ensures that the knowledge and technology generated in the department's research environments has a clear anchoring in reality and benefit the surrounding society. We also provide research-based public sector consultancy and advice on technology in agriculture and food.

Roles and responsibilities
The PhD will be carried out in 3 years at Aarhus University within the Department of Biological and Chemical Engineering under the supervision of Prof. Dr. Selin Kara. Within this time, it is expected that two research stays (3-6 months) in industry will be conducted, in Spain and in Sweden. The Horizon Europe Marie Skłodowska-Curie Action (MSCA) doctoral network (DN) project starts in January 2026. The date of recruitment and the state of the PhD project are planned for June 2026 and by December 2026. Your PhD degree will be awarded based on successful completion of the research work at AU. You will also be required to participate in the training events organized by the DN, and you are expected to contribute to the dissemination of your PhD results via social media and public engagement.

The PhD project will focus on the below tasks to:
- construct and operate flow bioreactors,
- immobilize enzymes for stability and reusability,
- optimize process parameters (immobilization conditions, flow parameters, reactor geometry and dimensions, substrate dosing, etc.),
- screen enzymes, particularly unspecific peroxygenases from both short- and long-type families,
- have 3-6 months secondments in industry (Spain and Sweden),
- join the workshops, seminars, and schools belonging to the doctoral network training agenda of ELEGANCE,
- be active in the dissemination, communication, and public engagement of ELEGANCE,
- collaborate with ELEGANCE's other doctoral candidates.

Main supervisor: Selin Kara, Aarhus University, Aarhus, Denmark
Co-supervisor 1: Javier Viña, EVOENZYME SL, Madrid, Spain
Co-supervisor 2: Martin Hayes, AstraZeneca AB, Sodertaelje, Sweden

Qualifications:
- Completed MSc. in the field of biotechnology, bioprocess engineering, biochemical engineering, or a relevant,
- Strong background in biocatalysis (protein expression and purification, enzyme characterization, enzyme kinetics - kinetic modeling and data interpretation),
- Expertise in bioreactor design and operation
- Practical experience in molecular biology techniques - Enzyme screening and engineering skills,
- Expertise in high-throughput experimentation and data analysis,
- Expertise in standard chemical analysis methods,
- Experience in multienzyme system design,
- Strong analytical and problem-solving skills,
- Interest in interdisciplinary work combining biocatalysis, engineering, and computational tools,
- Self-motivated, pro-active, team- and goal-oriented personality,
- Full command of the English language,

- MSCA Fellow Rule: The candidate must not have resided in Denmark for more than 12 months during the 3 years immediately preceding the start date of the contract.

Conditions of employment
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.

Approval and Enrolment
The scholarship for the PhD degree is subject to academic approval, and the candidate will be enrolled in one of the general degree programmes at AU. For information about our enrolment requirements and the general planning of the PhD study programme, please see

We offer
The Department of Biological and Chemical Engineering offers:
- a well-developed research infrastructure, laboratories, and access to shared equipment
- an exciting interdisciplinary environment with many national, international, and industrial collaborators
- a research climate encouraging lively, open, and critical discussion within and across different fields of research
- a work environment with close working relationships, networking, and social activities
- a workplace characterised by professionalism, equality, and a healthy work-life balance.

Salary and appointment terms
Salary and terms of employment are in accordance with applicable collective agreement. Furthermore, the PhD salary will be based on the Marie S. Curie compensation scheme conditions and according to the grant agreement. Based on seniority the candidate will receive a minimum of DKK 29.701,83 (base salary) and 1.551,00 (PhD supplement). In addition, Aarhus University will also pay pension consisting of 18,07%. Finally, it is possible to apply for family allowance.

Further information
Further information may be obtained from Selin Kara: selin.kara@bce.au.dk
Website about MSCA doctoral network ELEGANCE: https://elegance.dtu.dk/
Google Scholar profile:
More information about Department of Biological and Chemical Engineering: https://bce.au.dk/en/
BioBio Group: https://bce.au.dk/en/research/key-areas-in-research-and-development/industrial-biotechnology/biocatalysis-and-bioprocessing

Application procedure
Your complete online application must be submitted no later than **January 31st, 2026 (23:59 Danish time)**. 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 an official description of the grading scale

You may apply before obtaining your master's degree, but you cannot begin before having received it.

Applications received after the deadline will not be considered.

All interested candidates, irrespective of age, gender, disability, race, religion, or ethnic background, are encouraged to apply.