

PhD scholarship in “3D perfusion LOCs with integrated bioreactors and sensors for modelling neuronal disorders”

Applications are invited from suitably qualified candidates for a position funded by the Marie Skłodowska-Curie Innovative Training Network (MSCA-ITN) project “Training4CRM” within the Horizon 2020 programme of the European Union. The appointment will be on a temporary basis for a maximum period of 3 years (PhD student) with start May 2017. The student will be employed as a PhD student at the Dept. Micro and Nanotechnology, Technical University of Denmark (DTU Nanotech).

Training4CRM is a four-year project, funded by the European Union Horizon 2020 Programme (H2020-MSCA-ITN-2016) under the MSCA-ITN Grant Agreement No. 722779. The project is highly cross disciplinary and focuses on bridging the existing gaps within Cell-based Regenerative Medicine (CRM) for treatment of neurodegenerative disorders (e.g. Parkinson’s (PD), Huntington’s (HD) Epilepsy (EPI)) by joint training and education of 15 PhD students within and across different scientific disciplines. The goal is to master the design, fabrication, integration and testing of completely new tools and materials within the fields of micro and nanoengineering, biotechnology, and pre-clinical research. The Training4CRM network comprises 6 academic institutes and 3 industry partners from 6 European countries (Denmark, Spain, Sweden, Norway, Italy, and the Netherlands).

Responsibilities and tasks

The PhD student will be a member of this multi-disciplinary team and will be responsible for designing, fabricating and characterising perfusion based Lab on a chip system with integrated sensors for optimising and screening of 3D cell culture conditions and modelling neuronal disorders by:

- Micro-fabrication of a 3D perfusion-based Lab on a chip system
- Integrating 3D electrode systems and/or electrically conducting scaffolds for bioimpedance sensing
- Integration of down-stream sensor arrays (electrochemical and optical) for detection of neurotransmitters
- Real time continuous monitoring of perfusion based differentiation of hSCs on scaffolds.

The candidate must meet the following requirements:

- Participate in training events for researchers and Principal Investigators involved in the Training4CRM program
- Reporting to the Supervisors and Project Coordinator, which includes contributing to periodic scientific reports
- Contributing to the reporting of project milestones and deliverables in accordance with EU deadlines
- Spend required external research stays (secondments) at the project pre-defined partners of Training4CRM; a maximum of 10 months
- Promoting and disseminating results involved in the program, which includes contributing to newsletters and participating in outreach events
- Willingness and ability to collaborate in a multidisciplinary team.

Qualifications

Candidates should have a master's degree in engineering (or a similar degree) with a background in bioanalytical chemistry, biotechnology or medical technology.

Relevant scientific background, including one but preferably several of the following:

- Experience with analytical electrochemistry and biosensing
- Experience in developing bioanalytical microfluidic/flow assays and simulation of fluid dynamics
- Experience with basic microfabrication techniques like casting, moulding and/or 3D printing.

Essential:

- Less than 4 years full time equivalent research experience and not yet been awarded a doctoral degree (PhD)
- Resided less than 12 months in Denmark in the 3 years prior to selection
- Excellent communication and organisation skills
- Fluent in spoken and written English
- Excellent writing and presentation skills

- Flexibility and ability to work in a team environment
- Availability to travel nationally and internationally two to three times a year.

Desirable:

- Experience with outreach events
- A keen interest in pursuing pre-clinical research into neurological diseases

Approval and Enrolment: The scholarships for the PhD degree are subject to academic approval, and the candidates will be enrolled in one of the general degree programmes of DTU. For information about the general requirements [DTU PhD Guide](#).

Assessment: conducted by Prof. Jenny Emnéus and Assoc. Prof. Arto Heiskanen from DTU Nanotech

We offer an interesting and challenging job in an international environment focusing on education, research, scientific advice and innovation, which contribute to enhancing the economy and improving social welfare. We strive for academic excellence, collegial respect and freedom tempered by responsibility. The Technical University of Denmark (DTU) is a leading technical university in northern Europe and benchmarks with the best universities in the world.

Salary and appointment terms

The salary and appointment terms are consistent with the current rules for PhD degree students.

The salary will be in line with the European Commission rules for Marie Skłodowska-Curie grant holders (Early-Stage Researchers, Innovative Training Network) <http://ec.europa.eu/research/mariecurieactions/index.htm>. The period of employment is 3 years.

Further information may be obtained from Jenny Emnéus (DTU Nanotech), telephone: +45 25473548 and Arto Heiskanen +45 45256839.

Application online no later than **March 15th, 2017**. Apply online at www.career.dtu.dk. To apply, please open the link "Apply online", fill in the online application form, and attach **all your materials in English in one pdf file**. The file must include:

- A motivation letter describing your research career goals, skills and experience (cover letter)
- Curriculum vitae
- Grade transcripts and BSc/MSc diploma (official translation into English)
- Excel sheet with translation of grades to the Danish grading system (see guidelines and [excel spreadsheet here](#))
- Two letters of recommendation.

DTU Nanotech is a department at DTU, dedicated to conduct research, education and innovation within micro- and nanotechnology at the highest international level. Being an active player in close to 100 collaborative research projects of which many includes national and international leading companies and institutions, DTU Nanotech has a high degree of external cooperation, urging our professionalism and our competencies to the forefront.

We promote academic excellence by fostering a team-based scientific environment building on the passion, talent and skills of our international and cross-disciplinary staff. DTU Nanotech has around 220 people on its staff of which 90 are PhD students and with 40 % international employees the department constitutes an international environment. DTU is a technical university providing internationally leading research, education, innovation and scientific advice. Our staff of 5,800 advance science and technology to create innovative solutions that meet the demands of society; and our 10,300 students are being educated to address the technological challenges of the future. DTU is an independent academic university collaborating globally with business, industry, government, and public agencies.