EU Marie SKLODOWSKA-Curie European Industrial Doctorate

MIMIC

A European Research Training Network for the development of 3D organ-on-a-chip models

Topic: Mimicking organs on chips for high throughput drug toxicity and efficacy screening and basic research

Call: HORIZON 2020-MSCA-ITN-2015
Proposal Number: 674983

Project title: Establishment and validation of an in vitro model for Lowe syndrome and Dent II disease

Type of position: Early Stage Researcher (ESR)/ PhD position

Short description:
Oculocerebrorenal syndrome of Lowe (Lowe syndrome) is an X-linked disease characterized by defects of the nervous system, the eye and in particular the kidney. Patients with Lowe syndrome show functional kidney abnormalities. Thereby, the renal proximal tubule cells of the kidneys are unable to reabsorb essential nutrients (i.e. albumin, vitamins, calcium) into the bloodstream. Lowe syndrome is caused by mutations in the gene for the inositol-5-phosphatase OCRL1. Mutations in the OCRL gene were also identified in a subset of patients with Dent II disease. Dent II disease, like Lowe syndrome, is a condition which affects the kidney; however, there is no ocular or neuronal phenotype.

The aims of this project are 1.) to develop a human kidney proximal tubule cell line which faithfully recapitulates the kidney phenotype observed in Lowe syndrome and Dent II disease. 2.) to incorporate this cell line in an organ on a chip prototype suitable for high throughput screening (together with MIMETAS) and 3.) to perform experiments demonstrating suitability of this organ on a chip model for high throughput screening to identify drugs increasing megalin surface expression (together with Galapagos).

MIMIC is a collaboration between the University of Sheffield, Galapagos B.V. (Leiden, the Netherlands), and Mimetas B.V. (Leiden). The ESR will be trained at all three locations of which 18 months will be at Sheffield. The ESR will be enrolled in the PhD programme of the University of Sheffield.

Techniques: CRISPR-technology, 3D cell cultures with different mechanical properties, micro-molding using soft-litography, Micropatterning, siRNA-technology, Cell imaging (live confocal spinning disk and super-resolution microscopy, Total-internal reflection microscopy)
Literature:

Job Requirements: BSc or MSc in Biomedical engineering or Life Sciences. Experience in organ on chip or lab on chip technology is desirable.

Host Institute:
University of Sheffield
Department of Biomedical Science &
Centre for Membrane Dynamics and Interactions
Western Bank
Sheffield, S10 2TN
United Kingdom

Supervisor: Dr. Kai Erdmann and Prof. Liz Smythe
e-mail: k.erdmann@sheffield.ac.uk

Eligibility: To this position applies a mobility rule. The respective candidate must not have worked for more than 12 months in the Netherlands within the last three years. Furthermore, the candidate needs to be in his/her first four years of his/her research career. The four years are counted from the date a degree was obtained which formally entitles to embark on a doctorate in the country either in the country in which the degree was obtained or in the country in which the research training is provided

Starting date: 01.04.2016 (or later)

Duration: 36 months

Salary: According to the Marie Curie-ITN rules

How to apply:
Please send your application (preferably by e-mail) to:

Dr. Kai Erdmann
e-mail: k.erdmann@sheffield.ac.uk

Deadline for application: 15-02-2016
For further information: http://www.sheffield.ac.uk/itn-mimic