

PhD position on combining 3D cardiac tissues with microfluidic automation technology

Project description:

Cardiovascular diseases are the leading cause of death worldwide. However, bringing new drugs to the market is a long and very expensive process with a high late stage failure rate. For cardiac drug candidates, 3D cardiac tissues (3Dct) consisting of human stem cell-derived cardiomyocytes have the potential to provide better predictive information than the currently available *in vitro* models. However, the 3Dct are at present formed and cultured using manual pipetting techniques, limiting their use in high throughput screening assays which are essential for drug testing.

The aim of this project is to develop an automation system based on programmable microfluidic components which can be used for the high throughput formation and culture of 3Dct. This is a highly multidisciplinary project which combines microfluidic component design (e.g. using 3D CAD software), practical fabrication skills, basic cell culturing, and image-based analysis.

Your profile:

- We are looking for candidates with a Master's degree in a relevant field, e.g. biomedical engineering, electrical engineering, mechanical (micro) engineering, (bio)physics or bioinformatics. A Master's degree is required (it must be completed before the start of the project) and the candidate must be interested in obtaining a PhD degree (postdoctoral researchers need not apply).
- A highly motivated person with a researcher's mentality.
- You enjoy planning, designing and building devices.
- Knowledge of microfabrication techniques and/or microfluidics is a key advantage.
- Basic programming skills are a plus.
- Very good English skills in both speaking and writing are required.
- Very good organizational and communication skills are required.
- You enjoy working in a multidisciplinary setting with colleagues from various backgrounds.

What we offer:

- Opportunity of doing a PhD in a company setting, which combines the best of two worlds - flexibility of academic research with the commercial product-targeted R&D approach.
- A full time position for 3 years in a stimulating, multidisciplinary, and international environment.
- Work environment embedded in academic environment with an active social programme.



UNIVERSITY OF TWENTE.

About the company and university research group:

[River Biomedics](#) is a drug discovery company combining cardiac biology knowhow with expertise in bio-engineering and human induced pluripotent stem cells (hiPSC). In addition, the company uses microfluidic technology to develop different types of 3D cardiac *in vitro* models for drug discovery.

[The BIOS Lab on a Chip group](#) ("Miniaturized systems for biomedical and environmental applications") at the University of Twente focuses on developing novel lab-on-a-chip (LOC) devices for a variety of applications ranging from electrochemistry to cell biology.

Contact

Are you interested in this position? Then please send your CV and motivation letter with your earliest available starting date to anke.vollertsen@riverbiomedics.com by **May 18th, 2023**. After we have a clear picture of all the submitted applications by this date, a selection of the top candidates will be made and they will be invited for a Teams interview in the beginning of June.

For questions about this position, you can contact Dr. Anke Vollertsen (anke.vollertsen@riverbiomedics.com), Dr. Marcelo Ribeiro (marcelo.ribeiro@riverbiomedics.com), or Prof. dr. ir. Mathieu Odijk (m.odijk@utwente.nl).