

08.11.2018



The IUF – Leibniz Research Institute for Environmental Medicine investigates the molecular mechanisms through which particles, radiation and environmental chemicals harm human health. The main working areas are environmentally induced aging of the cardiopulmonar system and the skin as well as disturbances of the nervous and immune system. Through development of novel model systems the IUF contributes to the improvement of risk assessment and the identification of novel strategies for the prevention / therapy of environmentally induced health damage. The research group of Prof. Dr. Ellen Fritsche offers a

Master Thesis position.

Topic: 3D Bioprinting for Substance Development

Toxicological screening is crucial for safety assessment of compounds, i.e. chemicals and pharmaceuticals. In line with the paradigm shift in toxicology, in vitro tests based on human cells are thought to be a predictive alternative to the apical animal testing that is currently still the gold standard for hazard assessment. To produce human cell-based neural in vitro systems for neurotoxicity testing is a challenge, especially due to the complexity of the human brain. One issue that needs tackling is the generation of neuronal networks for compound testing that can be produced stably and reproducibly in a relative short period of time in a multi-well format. The so far established networks using e.g. embryonic or induced pluripotent stem cells have a high variability and take a very long time to establish.

Therefore, in an interdisciplinary approach, the 3D bioprinting technology shall be used to fabricate hydrogel-based neuronal networks based on human induced pluripotent stem cell (iPSC)-derived neurons and glia cells for neurotoxicity in vitro testing. These organoid structures are thought to mimic human in vivo neuronal functions and are thus of interest for industrial medium-throughput applications.

For this challenging project, we seek for a highly motivated individual who has experience either with hydrogel preparation/characterization, stem cells, tissue engineering, 3D cell culture, or molecule crosslinking techniques. Ideally students of Biochemistry or Biomedical Engineering, or others with expertise in the mentioned research fields are welcome. Knowledge in Neurosciences, fluorescence imaging, IT affinity, and previous working experiences with cell cultures is a plus. We expect a team player with an outstanding commitment and fun at work. We offer an interdisciplinary and industrially funded project in Applied Science, an intensive on-the-job training, and a stimulating working atmosphere. Starting date is from December 2018.

08.11.2018

Please send your application as one PDF file incl. cover/motivation letter and your CV to:

IUF – Leibniz-Institut für umweltmedizinische Forschung gGmbH

Dr. rer. nat. Ines Lauria

Auf'm Hennekamp 50

40225 Düsseldorf

Ines.Lauria@IUF-Duesseldorf.de

