

06.01.2020



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 pulmonary 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 working group “Modern risk assessment and sphere biology” at the IUF - Leibniz Research Institute for Environmental Medicine in Düsseldorf is looking for

**a student (f/m/d) for a Master Thesis
in the field of embryotoxic hazard assessment**

Thesis topic:

The human induced pluripotent stem cell (hiPS) test for embryotoxic hazard assessment.

Background to the topic:

Due to chemical regulations from international agencies the amount of animal testing for developmental toxicity is intense, using a high number of animals, time and money. To provide an alternative, e.g. for screening and prioritization, we are establishing the human induced pluripotent stem cell (hiPS) test as a human orthogonal assay for the mouse embryonic stem cell test (mEST), which is based on mouse embryonic stem cells differentiating into cardiomyocytes. This test was previously validated by ECVAM as an alternative method for embryotoxicity testing. However, due to the issue of species differences, alternative methods based on human cells are preferred. Human iPSC bear no ethical concerns and deliver unrestricted amounts of cell material. Therefore, they are currently the preferred source of human cell material.

The project:

In this master thesis you will learn how to handle hiPSC. You will differentiate hiPSC into beating cardiomyocytes in culture. Using this protocol for screening, you will test substances for their hazard on human cardiomyocyte differentiation. Endpoint determinations on day 10 of the protocol include measures of cell viability and cytotoxicity, FACS analyses, PCR and video analyses using ImageJ. You will learn about hazard identification and basic risk assessment processes.

You will bring:

We are looking for a student (f/m/d) with a background in biology, toxicology or a related field of study. You need to have scientific drive and willingness to achieve your scientific goals. Good English skills are mandatory, as we are an international working group and all meetings are held in English. Experience in cell culture and knowledge about common molecular and cellular analysis methods e.g. PCR, FACS, cell viability assays are a plus. A circumspect behavior inside and outside the lab and a good self-organization is needed to successfully work on this project.

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What we offer:

We offer a scientifically inspiring working atmosphere with a broad variety of cell biological techniques to learn. We are a working group of 23 people that work in a team spirit. The topic you will work with is highly demanded in the field of alternative method research and up-to-date. We will help you to develop your skills in the laboratory work, data analyses and project presentation. The goal is a peer-reviewed publication of the data that you produce.

Start:

As early as possible.

Please submit your application (a short cover letter and your complete CV) by e-mail as one pdf-file to: ellen.fritsche@iuf-duesseldorf.de

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Application documents submitted by post are not returned. Documents for applicants not considered are destroyed appropriately once the procedure is complete.

