23.10.2023

IUF

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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 "Alternative method development for environmental toxicity testing" led by Prof. Ellen Fritsche is looking for

A student (f/m/d) for a Master Thesis with the title:

Screening of possible developmental immunotoxic substances in a human induced pluripotent stem cell (hiPSC)-based *in vitro* assay for primitive hematopoiesis.

The project: The mammalian immune system is a highly complex, interactive network of cells that facilitates innate and adaptive immune responses. The neonatal immune system may be more susceptible to chemical perturbations than that of the adult and hence the effects of immunotoxicants during development may not be fully detected in toxicity studies performed on adult animals. Furthermore, the majority of regulatory agencies worldwide do not routinely require developmental immunotoxicity (DIT) testing for chemicals and pharmaceuticals. DIT studies are resource-intensive as they take almost one year, produce high costs and use a large number of animals. Moreover, developmental differences in immune system development are evident among species compared to humans, making extrapolation from rodents to humans difficult. Therefore, the aim of this thesis is to take a first step on the road to the development of a human cell based *in vitro* DIT battery using hiPSC-based development of the different immune cells covering the first critical developmental step of primitive hematopoiesis. In a previously established assay, compounds will be tested for their DIT potential. In addition, parallel work will be done to establish a physiological map of the developing immune system based on the critical developmental steps. This is based on an intensive literature research and the results will afterwards be visualized using an adequate software. The project therefore includes both laboratory work and literature research.

Your profile: Our working group is looking for a motivated employee with a high level of commitment, fun at work, motivation, communication skills and team spirit. The applicant should have a completed bachelor's degree in life sciences, ideally in the field of immunology. An additional (master) training in the field of immunology is a plus, hands on experience with stem cells and the safe handling of standard immunological methods such as FACS and immunocytochemistry is desirable. Furthermore, good knowledge of English is mandatory.

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We offer: We are an interdisciplinary, international team with a pleasant working atmosphere. We offer thorough training in a highly topical, challenging area of research. The project takes place in a team with other scientists, in part from industry, with whom there will be an intensive exchange of content on project-relevant results.

Start: As soon as possible

Please address your application by e-mail (letter of motivation, CV, references, qualification certificates) with the reference “Master Fritsche” in the subject line to Bewerbung@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.