



LEIBNIZ RESEARCH
INSTITUTE FOR
ENVIRONMENTAL
MEDICINE



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The IUF – Leibniz Research Institute for Environmental Medicine in Düsseldorf 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 „Environmentally-induced Skin Aging” (Director: Professor Krutmann) is offering a position for a DFG-funded

Master’s thesis project:

“Functions of the Aryl Hydrocarbon Receptor (AhR) in Corneal Tissue”

This is a joint project with the University Hospital Cologne, Department of Ophthalmology (Director: Professor Cursiefen) within the SFB/CRC 1607.

Start: summer or autumn 2025

Background:

Corneal diseases are still a major cause of visual disability and blindness. There is an unmet medical need to improve the outcome of inflammatory diseases and high-risk corneal transplant. The Aryl Hydrocarbon Receptor (AhR) pathway is a prominent cellular mechanism in the cellular response to and detoxification of environmental noxae including UV radiation and toxins. It has immunomodulating properties and influence on the outcome of infections. A first-in-class AhR-modulating drug (Tapinarof) has been approved for inflammatory skin diseases. Therefore, the AhR pathway is also a promising target for ophthalmologic disease treatment. However, its functions are incompletely understood since the consequences of its activation are very context-specific. In this project, we want to conduct a comparative study on cutaneous vs. corneal epithelia.

Methods:

- Corneal vs. cutaneous cell cultures, functional in vitro assays (human/murine)
- Ex vivo corneal vs. cutaneous tissue analysis
- Analysis techniques include histology/microscopy, qPCR, Western blot, FACS, ELISA, RNAseq

Tasks & Responsibilities:

- Conduction of experiments within the proposed project and thesis writing
- Collegial cooperation with internal and external coworkers
- Establishment or optimization of protocols as required for the project
- Occasional trips to the cooperating lab in Cologne (~ 40km)
- Participation in general lab organizational matters, working in S2 environment
- Attendance to events of the institute (e. g. seminars, meetings)

Skills & Expertise:

- Intrinsic motivation and self-organisation, curiosity, team spirit
- Scientific background in biomedical sciences/immunology/toxicology
- Conceptual understanding of experiment design, methods and statistics
- Hands-on experience in standard wet lab methods
- Proficiency in scientific English
- Scientific reading/writing/presenting skills
- FELASA B certificate is a plus

We offer:

- Different third-party projects ensure research funding and quality
- A collaborative, international environment with high individual responsibility
- Support in specific methods from our Core Units (FACS, Imaging, Genome Editing)
- Infrastructure of the Leibniz association
- Regular seminars for continuing education
- Possibility to attend project-related workshops and conferences
- Internal and external cooperations
- Modern and family-friendly working conditions, flexible working hours
- Well-equipped personal office and lab workplace
- Follow-up projects may offer perspectives on further employment.

The position is open to students (f/m/d) enrolled in M.Sc. programs in the field of biomedical sciences, immunology, toxicology and related subjects. Specific regulations depending on your university program will be discussed individually.

We promote equal opportunities and diversity. Women are especially invited to apply and will be given preferential consideration in accordance with the LGG NRW. Applications from people with severe disabilities and their peers are also expressly encouraged.

Please address your application (letter of motivation, CV, references, qualification certificates), with the reference "Master Cornea" 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.

