

10.10.2019



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 team of "UV-induced skin carcinogenesis and skin aging" lead by Prof. Petra Boukamp is looking for

**a student (f/m/d) for Master Thesis
in the field of organotypic models and experimental sunlight.**

Thesis topic:

Studies of single solar irradiation response in a human skin equivalent.

Our group is particularly interested in understanding the underlying biological mechanisms, which give rise to skin cancer. We use long-term skin equivalents (3D in-vitro models) that have been developed in our group to address questions related to the overall effects of sun exposure in models that represent not only normal adult skin, but also aged skin and different tumorigenic states.

Background to the topic:

Even though the influence of UV irradiation on our skin has been studied for many years, we still are lacking information regarding the biological effects of sun exposure as a whole. Until now most of research has been concentrating on the influence of UV. More recently we have also been able to add more knowledge by including infrared light and visual light (IRA, VIS). While this research was conducted either with single wavelength doses or sequential irradiation, sun doesn't include a segmental or sequential form of irradiation, but a simultaneous exposure to UV, VIS and IRA. This is why our German consortia, KAUVIR (combination instead of addition: UV to IR radiation in skin cancer and skin aging), is studying the effects of sun exposure by using a state of the art lamp that allows simultaneous irradiations with spectra similar to the sun. These studies are essential in order to get a better understanding of the "damaging" effects of "sun light" and in consequence more relevant risk estimation and prevention.

The project:

In this master thesis you will be studying the immediate as well as the long-lasting effects of single UV and experimental sunlight exposure on a 3-D model of human skin based on normal human keratinocytes or HaCaT cells. Endpoints that will be addressed are proliferation, differentiation, tissue damage, and molecular deregulation.

Your background:

We are looking for a student (f/m/d) with a background in biology, toxicology or related field of study.

You will bring:

A practical Bachelor thesis. A great knowledge in English both spoken and written as you will be

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working in an international atmosphere. True interest in biological systems and bioengineering, which shows in the form of enthusiasm and high motivation. Furthermore our daily cell culture work and models require that you are meticulous in practical work and well organized both inside and outside the lab. It would be desirable if you have worked in a cell culture environment and have performed regular protein and molecular biology analysis (ELISA, PCR, western blot) before.

What we can offer you:

We are a friendly and collaborative team that offers you the chance to develop your skills in the fields of skin biology, skin cancer and bioengineering.

When can you start:

From Feb-March 2020, we are flexible.

Please address your application (a short cover letter and your CV), preferably electronically, to:
Prof. Petra Boukamp, p.boukamp@dkfz-heidelberg.de and Dr. Elizabeth Pavez Lorie, elizabeth.pavezlorie@iuf-duesseldorf.de

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We will contact you to arrange a meeting after the application **deadline 15th of November 2019**.

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

