

03.09.2019



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.

At the IUF, several research groups are working on how environmental and nutritional factors affect the pathophysiology of different organs and of whole organism. The working group “Mitochondrial adaptive responses in environmentally induced neuronal aging” primarily exploits the nematode *Caenorhabditis elegans* as a model organism and use state-of-the-art genetic, biochemical and behavioural approaches to address a very exciting and fundamental question: *How environmental and dietary factors influence mitochondrial-associated disorders and aging?*

The laboratory of Dr. med Natascia Ventura at the Leibniz Research Institute for Environmental Medicine in Düsseldorf is looking for two highly motivated

### **PhD students (f/m/d)**

The position is to be filled at IUF and can start as early as of October 1<sup>st</sup>, 2019

### **Position and projects**

Both projects will primarily (but not only) exploit the nematode *C. elegans*, an elective model organism for aging and toxicology studies. One of the conserved mechanisms regulating the aging process is partial reduction of mitochondrial function and it is deeply investigated in our laboratory (Schiavi et al., *Curr Biol*, 2015; Torgovnick\*, Schiavi\* et al., *EMBO Reports*, 2018; Maglioni et al. *Aging*, 2019). We also discovered that reduced expression of a transcription factor - the Aryl-hydrocarbon-Receptor (AhR) - which mediates the toxic effects of high affinity ligands such as xenobiotics, also provides evolutionarily conserved anti-aging effects (Eckers\*, Jacob\* et al., *Sci Rep*, 2016). Toxic materials and nutritional interventions may have respectively detrimental or beneficial effects on healthy aging, and both can in principle influence mitochondria activity. The two distinct projects will be addressing (i) the beneficial effects of dietary nutrients or (ii) the toxic effects of pollutant related nanomaterials (e.g. nanoplastics) on mitochondria-regulated aging and associated neuronal pathologies.

### **The Lab**

We are a friendly and international team belonging to the Heinrich Heine University (HHU) and the Leibniz Research Institute for Environmental Medicine (IUF) of Duesseldorf. Thanks to the close cooperation between the different groups at the IUF as well as at the HHU and Hospital, we have access to different infrastructures and state-of-the-art facilities and combine cross-disciplinary basic research with applied and translational research. Duesseldorf is a modern international city on the Rhine and the capital of the NRW, with an excellent scientific and cultural environments thanks also to the close vicinity to other vibrant cities (e.g. Cologne and Frankfurt) and states (e.g. France, Nederland, Belgium). Duesseldorf is located in the core of Europe with a big international airport connected daily to all EU and non-EU countries.

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### Candidate Profile and Responsibilities

The optimal candidate should display:

- Previous experience with mammalian cell culture biochemistry and molecular techniques;
- Previous experience with *C. elegans* genetics and behaviors is a plus (but not mandatory);
- Excellent social and scientific English communication' skills (knowledge of German is a plus);
- Eagerness to work independently by developing novel assays and approaches, as well as part of a team by constructively providing intellectual and technical inputs to the other ongoing laboratory projects.

The positions can start as early as October 2019 and are for 3 years. The weekly working time totals 25 hours and 54 minutes. Remuneration is given in accordance with the provisions of the collective agreement for the employees of the states (TV-L). Salary will be according to TV-L (E13).

Please address your application (incl. letter of motivation, CV, references, qualification certificates), preferably electronically, to:

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<http://www.iuf-duesseldorf.com/ventura-lab.html>

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

