



Post-doc position in Ecotoxicology

Influence of microplastic exposure on the establishment of the host/microbiota relationship in the gut in interaction with the immune system in zebrafish

In the framework of an FNRS Research Project, the Research Unit in Environmental and Evolutionary Biology (Institute of Life, Earth & Environment – ILEE) of the University of Namur is looking for a post-doctoral fellow with international mobility.

The post-doctoral fellow will join Prof. Kestemont's Laboratory of Environmental Physiology and Toxicology (LEPT), which aims to study acclimatization/adaptation mechanisms of aquatic organisms to different types of xenobiotics (endocrine disruptors on the physiology of fish reproduction). In particular, LEPT has acquired a recognized expertise in fish immunology, with the search for alternatives to the use of drugs and chemicals based on immunotherapy in different fish species, including, recently, zebrafish. In addition, the interactions between environmental stressors and the fish immune system have been a growing focus in recent years, based on a combination of various approaches, including the use of classical endocrinological and immunological parameters, high-throughput transcriptomics and quantitative proteomics, and more recently the use of metabarcoding to study host-pathogen interactions. For the last 2 years, LEPT has been interested in the issue of nano and microparticles which represent a growing concern in the field of ecotoxicology. Currently 3 PhD students, 1 post-doc and several Master students are involved in the development of this research topic within the laboratory.

Description of the research

The development of the use of plastics during the twentieth century has led to the appearance of a new type of pollutant: microplastics. These microplastics, with a very long half-life, are small debris (<5mm) resulting from the degradation of plastics in the environment. These particles are widely distributed in the world's fresh and salt waters, at concentrations that can exceed several thousand per m³, and can be easily ingested and accumulate in the tissues of aquatic organisms, leading to toxic effects.

Using zebrafish raised in standard or gnotobiotic conditions as a model, this project aims to determine (i) whether microplastics, alone or in combination with commensal bacteria, can affect the gut microbiota and/or immunity of fish at the larval stage, (ii) what are the molecular and immunological mechanisms involved, and (iii) whether early exposure to these particles can affect the immune status and commensal microbiota of fish in the long term.

Profile

Candidates should have a PhD degree in Life Sciences (Biology, Veterinary Medicine, Pharmaceutical Sciences, etc.), a good knowledge of English or French, a strong motivation for scientific research and an excellent CV. Good communication and interpersonal skills are also essential. To be eligible, the candidate cannot have previously received a PhD or post-doctoral grant in Belgium.

Hard Skills:

Good knowledge in Ecotoxicology, Immunology and host/pathogen relationship.

Strong expertise in molecular biology is required: proteomics and transcriptomics, metabarcoding analysis.

Expertise in gnotobiotic model would be a plus, as well as Laboratory Animal Science certification and expertise in handling, reproducing and experimentation on zebrafish.

For any information, please contact Prof. Patrick Kestemont (patrick.kestemont@unamur.be) or Dr Valérie Cornet (valerie.cornet@unamur.be)

How to apply?

Please send your application letter and CV to Patrick Kestemont (patrick.kestemont@unamur.be) before January 31, 2022