Network for Cross-disciplinary assessment of Endocrine Disrupting compounds
https://www.nexed.eu

Doctoral candidate 5:

Species differences in physiology and sensitivity to thyroid hormone system disrupting chemicals

Host Institution	Watchfrog, France
PhD enrolment	Paris Museum of Natural History, France
Lead Supervisor	David Du Pasquier, Watchfrog
Subject area	Aquatic embryos, thyroid disrupters, comparative physiology

About this vacancy

NeXED is a Marie Skłodowska-Curie Actions (MSCA) Doctoral Network, funded by the European Union. NeXED will in total recruit 15 enthusiastic, talented and driven Doctoral Candidates (DCs) who are highly motivated to be part of a new generation of cross-disciplinary toxicologists specialised in using harmonised approaches in a One Health framework to develop and support the implementation of innovations in the field of endocrine disruptor assessment. This vacancy is one of those 15 opportunities. Make sure to also read the general eligibility and selection criteria!

Host institution and research group

This DC position will be hosted by Watchfrog (https://www.watchfrog.fr/). Watchfrog is a pioneering French biotechnology company that was established in 2006. Its primary focus lies in developing cutting-edge solutions for detecting endocrine activity in various samples, including water samples, chemical solutions, and cosmetics. Watchfrog's innovative tests are closely aligned with the principles of the 3Rs (Replace, Reduce, Refine) animal protection policies, aiming to minimize the reliance on animal models.

At our state-of-the-art laboratory, we specialize in the development of assays based on transgenic amphibian (Xenopus) and fish (Medaka) embryos. These embryos exhibit fluorescence when a particular biological function is activated or altered. By automating the process of *in vivo* fluorescence quantification, we can efficiently screen a large number of samples.

Watchfrog has made significant strides in the field of endocrine disruption assays. Currently, three of our assays have been validated and published as OECD (Organization for Economic Cooperation and Development) test guidelines. These validated assays are now utilized for the regulatory assessment of endocrine activities associated with pesticides and biocides in Europe. Our company possesses a fully equipped technical platform that adheres to rigorous quality standards. We also operate a specialized technical center dedicated to the breeding and rearing of aquatic animal models.

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The research project

The primary objective is to clarify species-specific differences in physiology and sensitivity to thyroid hormone system-disrupting chemicals and their mixtures. This research will employ a comparative physiology approach, utilizing both transgenic eleuthero-embryonic models of fish and amphibians, as well as human *in vitro* assays.

Initially, the doctoral candidate will investigate variations in sensitivity among these models to reference thyroid hormone system-disrupting chemicals with well-characterized modes of action. Following this, the study will investigate the synergistic or additive effects of chemicals with different modes of action on the thyroid hormone system *in vivo* and *in vitro*. This will involve testing mixtures of two or three chemicals with distinct mechanisms, such as a thyroid hormone transporter inhibitor combined with a thyroid receptor antagonist or a deiodinase inhibitor paired with sodium-iodide symporter inhibitors.

Additionally, the well-documented interaction between glucocorticoids and thyroid hormones in certain species will be explored using these models. This will be achieved by testing mixtures of thyroid hormone system-disrupting chemicals with modulators of the glucocorticoid system, as well as real-life chemical mixtures.

Your tasks

You will

- Enrol in the Paris Museum of Natural History Doctoral School "Natural and Human Sciences: Evolution and Ecology" and comply with the doctoral training requirements
- Write **project reports** on a regular basis, and **publish** high-quality research results related to the research project in international conference proceedings and peer-reviewed scientific journals
- **Participate actively** in the NeXED training, dissemination, communication and exploitation activities
- Work actively on the preparation and defence of a **doctoral thesis** in the field of endocrine disruption

Secondments

The following research stays are planned:

- Intersectoral secondment: Understanding of ED mechanisms (2 months) at Vrije Universiteit (Netherland)

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- Interdisciplinary secondment: Exposomics and metabolomics (2 months) at University of Antwerp (Belgium)

What we offer

- The selected candidate will be employed full-time by Watchfrog on the MSCA-Doctoral Network project for a period of **36 months**
- Doctoral candidates are offered an employment contract, including social security coverage, with a **competitive remuneration** based on the MSCA allowances in line with the MSCA WP 2023-2025
- The gross monthly amount at Watchfrog corresponds to approximatively 2700 Euros
- Funding is available for technical and personal skills training and participation in international research events
- The **expected start date** is between November 2025 and December 2025. Last-year master students expected to graduate by this time are encouraged to already apply
- Read more about working at Watchfrog here

Specific requirements

In addition to the general eligibility and selection criteria of the NeXED Doctoral Network,

- You hold a master in toxicology, ecotoxicology, biotechnology, endocrinology or a related field
- You are very keen to join the R&D team of the first private laboratory dedicated to the assessment of endocrine disruptors
- You are motivated to use and promote NAMs (New Approach Methodologies) using embryos of aquatic organisms (fish and frogs) in an ecotoxicological context
- You are well-organized and have good communication skills.
- You speak and write fluent English and have the ability to work effectively and collaboratively
- You are an enthusiastic and motivated person, ready to participate in personal training, international travel and public awareness activities

Application procedure

Applications must be submitted through the NeXED job application platform (https://www.uantwerpen.be/en/projects/nexed/job-openings/apply/).

Deadline for applications: April 21, 2025, 23:59 CET. More information about the application procedure for NeXED PhD positions can be found here.

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Contact

For additional information about this vacancy, please contact David Du Pasquier (pasquier@watchfrog.fr)

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