DOCTORATE PROJECT: Hepatopancreatic microsporidiosis in shrimp: development of new laboratory techniques for studying pathogenesis and defense.

Background

Aquaculture of shrimp has become an important industry worldwide, but disease outbreaks remain a major problem. One of the most recently discovered pathogens in shrimp is the microsporidia Enterocytozoon hepatopenaei (EHP). Microsporidia are fascinating organisms, obligate intracellular parasites that belong phylogenetically to the fungi but share some properties with viruses. EHP has been associated with disease of the digestive system (hepatopancreatic microsporidiosis) and retarded growth. However, many aspects of this disease are not yet well understood, such as the pathogenesis and immune response of the shrimp. In addition, there are specific challenges associated with working with microsporidia in the laboratory that need to be addressed first.

This PhD project will be carried out in a collaboration between IMAQUA and Ghent University.

IMAQUA is a professional Contract Research Organization (CRO) established in 2015 as a spin-off company of Ghent University to conduct contract research for the shrimp farming industry. At IMAQUA, shrimp diseases and host defenses are studied in detail to establish science-based disease models.

The Aquaculture Laboratory at the Faculty of Bioscience Engineering of UGent has a very long experience and proven track record in (doctoral) research. Besides its role as Artemia Reference Center (ARC), the research group has an extensive international network in countries with shrimp aquaculture and close collaboration with other faculties at UGent.

To make this PhD project possible, an application for a Baekeland mandate will be submitted to VLAIO, the Agency for Innovation and Entrepreneurship of the Flemish Government. Baekeland mandates aim to offer researchers the opportunity to perform a PhD in close collaboration with a company.

Assignment of the doctoral candidate and research proposal

- Implementation of the research project in collaboration with IMAQUA and Ugent (employed at IMAQUA, enrolled as a PhD at Ugent).
- The main activity is scientific research, including literature study, practical work in laboratories and with live laboratory animals. This work will be carried

out at both UGent and IMAQUA based on the cooperation agreement between the two organizations.
- PhD candidate will also support the execution of contract research at IMAQUA.
- The ultimate goal of this research is to complete a dissertation within a four-year period, based on published articles in scientific journals.
- Furthermore, the doctoral candidate will also present his/her results at international scientific conferences and workshops.
- The plan of the research project has already been worked out by the promoters.
- The doctoral candidate will have to defend the submitted project before a jury of VLAIO, where especially the motivation and scientific attitude of the candidate will be evaluated.

Profile of the candidate

- You have a Master's degree in veterinary medicine, bioengineering sciences or similar biomedical field.
- You have a basic knowledge in laboratory techniques (pipetting, sterile working,...) and biosafety concepts.
- You have a strong interest in research and want to master a subject in a systematic and scientific way.
- You are a go-getter, with self-reliance, but also good to work in a team.
- You are motivated and determined to work hard for 4 years and make a PhD thesis.
- Your English language skills are impeccable (verbal and written).
- You are willing to work partly in Ghent and partly in Lochristi.

We offer you

- The possibility to obtain a PhD within the duration of the mandate. A mandate lasts in principle four years (2 years, and after positive evaluation a second term of 2 years).
- The opportunity to participate in a breakthrough in the research of a pathogen that is still little understood. In addition, microsporidia occur in most animal species, including humans where the discovery occurred only in the 1980s in HIV patients, providing many career opportunities toward the future.
- Support from a dynamic team of colleagues for hands-on work.
- Support by experienced scientists and professors for publishing and presenting your research work in scientific journals and at international conferences.

- Employment at IMAQUA with salary package corresponding to the rules of PC207.

Contact and timing

- Submit application and CV: mail to hr@imaqua.eu.
- The application period runs until March 1, 2023.
- Selected candidates will be invited for a personal interview in the first week of March 2023.