Study of the impact of human activity on the* light signal integration pathway regulating the reproductive function *in teleosts

We are seeking for a motivated and ambitious postdoc who would be interested in developing a proposal to investigate effect of different aspects of human activity on the pathway for light signal integration by the pituitary gonadotropes in the model fish medaka (Oryzias latipes). We will help the candidate to write the application for the Marie Curie postdoctoral fellowship (deadline: September 2021). If granted, the funding will provide salary to the applicant for **two years at the Norwegian University of Life Sciences** (Ås, Norway). This project is expected to include among others, calcium imaging, RNAscope (multiplex fluorescent in situ hybridization), immunofluorescence and advanced imaging techniques, in vivo and in vitro work. This work will be done under the supervision of **Dr. Romain Fontaine**, in the laboratory of **Prof. Finn-Arne Weltzien** (international environment) that is located in the brand-new veterinary faculty building with a new state of the art model fish facility, and in close collaboration with **Prof. Trude M. Haug** at the **University of Oslo** (Oslo, Norway).

The pituitary is an endocrine gland found in all vertebrates which regulates essential physiological functions such as growth, homeostasis, stress and reproduction. Located below the brain, the pituitary receives a myriad of signals from the brain which itself integrates internal and environmental signals. According to these signals, the pituitary modulates the number and activity of the different endocrine cell types that it is composed of, allowing to adjust hormone production to the needs which is changing during the life of an animal.

Among these signals, light is an important one. Although reproduction is highly dependent on light, the mechanisms by which it acts to regulate pituitary gonadotropes, which control the reproductive function, remain unclear in teleosts. Our laboratory has recently developed two **transgenic lines** in the teleost fish model medaka (similar to zebrafish in many aspects but with genotypic sex determination system and less complex genome) where the green and red fluorescent protein are produced in the two gonadotrope cell populations. We are now interested in investigating how these cells integrate the light signal and how they are affected by light which is highly relevant in the context of global warming where wild populations are migrating to escape warmer temperature and thus exposed to different light regimes.

For any further information or question, please contact Dr Fontaine:
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