



STAGE DE RECHERCHE M2 ECOLOGIE EVOLUTION GENOMIQUE

Rentrée 2020

Position on fish brain gene expression

Hólar University, Iceland, seeks a MSc student looking for an internship in the field of fish brain gene expression.

The proposed topic is part of an Icelandic Research Fund (RANNIS) project aiming at studying the evolution of cognition in Arctic charr morphs (*Salvelinus alpinus*). The project started in 2019.

Cognitive abilities are involved in the way individuals cope with their environment. To understand individual variation in cognition, it is necessary to consider the ecological and evolutionary context of the species being studied. Fishes experience a wide variety of environments, even within the same species leading to different morphs such as anadromous, benthic and pelagic morphs in Arctic charr (*Salvelinus alpinus*, AC). We hypothesize that divergence along evolutionary and ecologically gradients have shaped cognition abilities through modification of underlying genes expression.

The student will specifically be involved in the part of the project aiming at identifying at molecular level clues underpinning behavioural and cognitive ability differences between population origin, morphs and environment, monitoring genes expression in different brain structures (i.e. telencephalon, optic tecta, cerebellum). The set of genes will include genes involved in neuronal activity, neurons functioning and also possibly, genes involved in the early imprinting of later expression. The student will use an Arctic charr aquaculture strain to develop the methods.

The project is lead by Prof. David Benhaïm (lead PI, Hólar University, Iceland) in collaboration across Hólar Univ. College (Prof. Bjarni K. Kristjánsson, Dr Camille Leblanc), University of Caen, France (Dr. Christelle Jozet), IFREMER, France (Dr. Marie-Laure Bégout, Dr. Benjamin Geffroy), INRA, France (Dr. Xavier Cousin) and University of Iceland (Prof. Zophonias Jónsson). The MSc student will be participating to the brain dissections at Hólar University in the North of Iceland whereas the genetics work will be carried out in Reykjavik at the University of Iceland.

Requirements: the candidates must be enrolled in a BSc degree or a MSc in genetics or biotechnology. The ideal candidate has a strong interest in pluridisciplinary research with an emphasis on molecular biology, enjoy working in a dynamic group. We expect the student to be familiar with RNA extraction and reverse transcription techniques, with quantification of target genes expression by qPCR after determination of appropriate primers concentrations. The student has to be able to work independently as well as a part of a team. Statistical skills will be a plus. A valid driving license is a requirement. Applicants should send an application letter, with a statement of research interests and relevant experience, curriculum vitae as a single pdf to **benhaim@holar.is**. Preferred starting date is January 2021. For further information contact David Benhaïm (Dept. of Aquaculture and Fish Biology, Hólar University) (**benhaim@holar.is**).