PhD POSITION

SUBJECT: RELATIONSHIP AND INTERPLAY BETWEEN ENDOSOMAL MICROAUTOPHAGY AND CHAPERONE-MEDIATED AUTOPHAGY IN FISH MODELS

PhD director: Dr I SEILIEZ (UMR1419 INRAE-UPPA NuMeA)
PhD Co-director: Dr A HERPIN (UR1037 INRAE LPGP)

Hosting laboratory: UR1037 INRAE LPGP, Rennes, France.

Starting Date: 01 October 2020
Duration: 36 months
Gross monthly salary: 1770 €

PROJECT:

Autophagy (literally meaning, "self-eating") is an evolutionarily conserved process in eukaryotes that encompasses different types of mechanisms by which cells deliver cytoplasmic constituents to the lysosome for degradation and whose defects have been associated with several human pathologies. Interestingly, two different autophagic pathways, (i) the Chaperone-Mediated Autophagy (CMA) and (ii) the endosomal microautophagy (eMI), both rely on the use of the same cytosolic chaperone HSPA8 (also known as HSC70) for targeting substrates to the lysosome. Although our knowledge of the mechanisms specifically involved within these two distinct autophagic routes has greatly improved in recent years, little is currently known about their molecular and physiological interrelationships. In particular, the mechanisms underlying the transport of substrates by HSPA8 to either degradation pathway remain to be explained. In this context, **we propose to use the medaka model fish species (*Oryzias latipes*) to decipher and improve our knowledge regarding to the existing interplays between CMA and eMI.** Due to their short generation time, their relatively small genome (~800 mega base pairs, half the size of the genome of another popular model fish, the zebrafish), and the possibility to produce transgenic animals, medaka emerged these last years as an excellent model system in various fields of biology.

WORKING ENVIRONMENT

The PhD project will be conducted under the co-supervision of Iban SEILIEZ (Research Director) and Amaury HERPIN (researcher). Research carried out by Iban SEILIEZ aims, through *in vivo* and *in vitro* studies, to improve our understanding of the nutritional control of autophagy and its role in the regulation of metabolism in teleost fish. I.S. has produced and/or participated to the production of original results published in 63 articles in international journals. He participated to or managed several collaborative national (Conseil regional Aquitaine, ANR, FEAMP) and international (NORC from the University of Alabama) research projects. Researches performed by Amaury HERPIN are focused on the use of medaka as a model organism for studying gonadal development via functional genomics approaches. He developed know-how on gene editing in this model and has been involved in the production of original results published in more than 40 articles. Overall, this PhD project will benefit of the synergy between these two partners with highly complementary expertise and skills in autophagy and fish genomics.

REQUIRED SKILLS AND KNOWLEDGE

Solid bases in molecular biology are required. Good communication skills in oral and written English are essential.

REQUIRED DOCUMENTS

CV ; Letter of Motivation ; Transcript of Records and Rankings; Recommendation letter and contact information of 2-3 references

APPLICATION DEADLINE: 30/06/2020

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