Institut de Ciències del Mar

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Barcelona, 02th of May 2022

Position: Master Thesis (TFM) - Internship

Place: *Institut de Ciències del Mar* (ICM), CSIC, Barcelona
Contract period: October-June

Institute of Marine Science – CSIC

The Institute of Marine Science (*Institut de Ciències del Mar*, ICM-CSIC) is the fourth largest research institute of the Spanish National Research Council (CSIC) and the largest dedicated to marine research. Under the motto “Ocean Science for a Healthy Planet,” the ICM conducts frontier research and foster both knowledge and technology transfer on topics related to ocean and climate interactions, conservation and sustainable use of marine life and ecosystems, and impact mitigation of natural and anthropogenic hazards. In-depth knowledge, determined action, and coordinated management are essential to confronting these global challenges, thereby driving sustainable development of humankind.

CSIC and all its research center were awarded with the "HR Excellence in Research" seal in 2021. This recognition reflects our commitment to continuously improving our human resources policies in line with the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers. Recruitment at ICM is open, transparent and merit-based, and all applicants compete on the same terms.

What we are looking for

We are looking for an enthusiastic master student with high academic scores in her/his degree (up to 8 out of 10). Academic degree of the applicant should be related to Biological Science, including bioinformatics. The proposed project involves working, among others, with live fish, molecular techniques in the lab and in silico analysis by handling bioinformatics data. Candidates with working experience in these fields are especially encouraged to apply. The position requires good organizational skills, independence and ability to work well with others.

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Work conditions

In fish, data on the crosstalk between disease-epigenetic-phenotype is almost non-existent. Current data in the team have shown that immune stimulation during early stages of development in zebrafish (*Danio rerio*) were able to alter the methylation of genes related to the immune system and differences between ovarian and testicular methylation pattern were observed. Further, it was also observed that in specific conditions, the activation of the immune system during sex differentiation was able to increase the number of females. However, the epigenetic consequences that these temporary infections can cause to fish in adulthood are not known. The main aim of the present master project is to study the interactions between the immune and reproduction systems from an epigenetic perspective, a field barely explored. This project will further study if environmental challenges (e.g., infections, temperature and even gravity) where animals are reared have an influence of the epigenome and so affect the final phenotype. The project will be based on identifying novel molecular markers. Thus, it will be developed by using genomic technologies (e.g., DNA/RNA sequencing and metabolomics) together with traditional methods (e.g., cell cultures). A better comprehension of the immune-reproduction systems from a molecular point of view will help to develop biomolecular markers that will contribute to improve breeding programs that can help the increase of aquaculture productivity.

Contact

Interested candidates, please contact Laia Ribas, lribas@icm.csic.es.

The position will be opened until filled.

References

https://ribasreproimmuneteam.wordpress.com