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Orientation: Sustainable Use of Marine Resources
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Research Area: 2.15 Genetics and genomics applied to aquaculture



PhD project: Usefulness of vitellogenin as a potential biomarker for endocrine disruption in the marine mussel *Mytilus galloprovincialis* revisited from direct analysis at transcriptomic and proteomic level.

Supervisors: Dr. Paula Sánchez Marín (Instituto Español de Oceanografía)
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Summary: It has been observed that exposure to certain pollutants called endocrine disruptor chemicals or EDCs can cause alterations in organism related to reproduction and behavior in many animals. In marine ecosystems, mussels of the genus *Mytilus* are one of the most used species in order to monitor marine pollution. Currently, there are a great variety of biomarkers that are used in marine mussels; however, no specific biomarker has yet been developed to detect the effects of EDCs in these organisms. In order to try to overcome this matter, many authors have proposed vitellogenin (Vtg) levels as a biomarker of exposure to estrogenic EDCs. Vtg is the precursor of yolk proteins, which is normally produced in response to endogenous estrogens in mature female oviparous vertebrates, such as fish. This doctoral thesis has as its main objective to study the suitability of Vtg as a biomarker of endocrine disruption in the marine mussel *M. galloprovincialis*. For that purpose, the gene expression of Vtg is studied both at the transcript level and at the protein level after the exposure to a model estrogenic compound: the synthetic hormone 17 α -ethinylestradiol (EE2).

