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Nationality: Spanish

Orientation: Sustainable use of Marine Resources
Specialization Area: Aquaculture
Research Area: 2.15 Genetics and Genomics Applied to Aquaculture

PhD project: **Genomic variability in marine organisms with high levels of polymorphisms.**

Supervisors: Dr. Carlos A. Canchaya Sánchez (Universidade de Vigo)

Summary: Genome surveys have shown that some marine organisms are among those with the highest levels of genome variability. The main objective of my thesis project will be to study the main types of polymorphisms that can be responsible of this high variability in those organisms. The importance to study this genomic variation lies in the fact that they could cast light over the sources that play a crucial role in the adaptation and evolution of all organisms. I will use in silico tools to study non-model marine organisms with high levels of polymorphisms by using simulated and real transcriptomic and genomic data. The first part of my thesis work will deal with data simulation, and the assessment, selection, and also development of bioinformatics pipelines and tools. This assessment will be done using simulated NGS data under different genomic variability scenarios. Then, once we have suitable tools to measure this variability, we will use available transcriptomic and genomic data from marine organisms (*Ciona* spp., *Mytilus* spp., and *Crassostrea gigas*) in public and in-house databases to properly characterize and quantify intra- and interspecific variation. Study of this variation and its different sources will shed light onto the evolutionary forces that came into play during the life history of these organisms.