

**Fontenla Iglesias, Francisco**

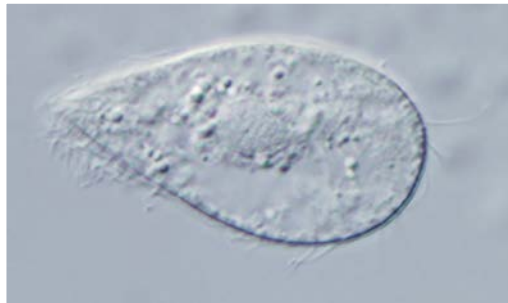
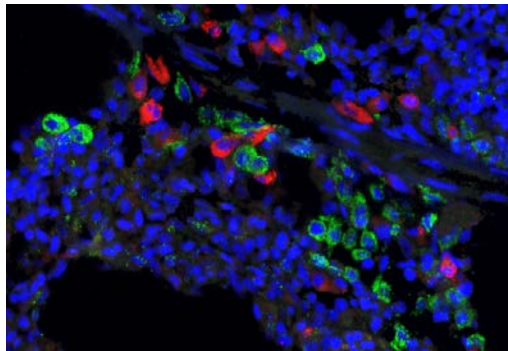
University of Santiago de Compostela

Nationality: Spanish

Orientation: Sustainable use of marine resources

Specialization Area: Aquaculture

Research Area: 2.13 Pathology and immunology of cultured organisms



**PhD project: Fish Vaccination. Development of new adjuvants and analysis of the immune response**

**Supervisors:** Dr. Jesús Lamas Fernández (University of Santiago de Compostela)

Dr. Manuel Noia Guldrís (University of Santiago de Compostela)

**Summary:** The adjuvants currently used in fish vaccines cause significant adverse effects at the injection site. This PhD thesis will address the development of adjuvants based on microspheres and hydrogels composed of chitosan and / or ulvans, to induce a good immune response against the antigen, but causing less adverse effects than conventional adjuvants. *Philasterides dicentarchi* membrane antigens will be linked to microspheres or mixed with hydrogels, which will be used to vaccinate the fish intraperitoneally. The immune response generated in turbot will be analyzed in terms of serum IgM, IgT and IgD production, as well as Ig expression levels and lymphocyte number and distribution in immune organs. The protection generated in turbot will be determined in experimental infections.