

PHD POSITION TO APPLY TO THE SPANISH FPU PROGRAM

Research Project – **Urban-dwelling gulls as both spreaders and sentinels of zoonotic bacteria in urban environments from a One Health perspective**

PhD Supervisors: Joan Navarro, Víctor Martín-Vélez

Centre: Institut de Ciències del Mar (ICM-CSIC)

Project description

Urban environments are increasingly recognized as hotspots for the emergence and spread of zoonotic and antibiotic-resistant bacteria (ARB). Synanthropic wildlife, particularly gulls, can act as both reservoirs and vectors of these pathogens, linking urban, peri-urban, and natural habitats. However, the sources, transmission pathways, and spatial dynamics of ARB in human-dominated landscapes remain poorly understood. This PhD thesis will investigate the distribution and transmission of zoonotic and antibiotic-resistant bacteria in urban environments using the yellow-legged gull (*Larus michahellis*) as a sentinel species in Barcelona. Integrating biologging, trophic ecology, microbiological analyses, and spatial modelling within a One Health framework, the project aims to identify ARB sources, movement pathways, and areas of elevated transmission risk. Specifically, the thesis will: (1) characterize the movement, habitat use, and trophic ecology of urban gulls; (2) detect and characterize zoonotic and antibiotic-resistant bacteria in gulls, their prey, and key habitats; (3) assess individual specialization and co-occurrence patterns at potential transmission hotspots; and (4) model the spatial risk of ARB transmission to humans, wildlife, and domestic animals. By linking pathogen occurrence with animal movements and urban resource use, this research will provide novel insights into ARB ecology and support more effective surveillance and management strategies under a One Health approach.

Hosting research team

The successful candidate will join the iMARES research group, a dynamic team of PhD students and postdoctoral researchers based at the ICM-CSIC, a leading marine research centre awarded the prestigious Severo Ochoa Centre of Excellence distinction. The group is committed to providing an excellent training environment through participation in courses, conferences, research stays, and seminars, while fostering an inclusive and supportive





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research culture. This PhD project is embedded within several ongoing research initiatives led by Joan Navarro and Víctor Martín-Vélez, particularly the ALLIES project (“Synanthropic wildlife as allies in monitoring global ecosystem health and the early detection of pollutants and pathogens in urban environments from an integrative One Health perspective”, PID2024-162418OB-I00), funded by the Spanish Government. The project will provide the resources, infrastructure, and collaborative network necessary for the proposed research, including partnerships with ASPB and ISGLOBAL.

Interested candidates, please contact the Principal Investigators:
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