

Marie Skłodowska-Curie Actions PF 2021

Call for Expressions of Interest
Institute of Marine Research (IIM-CSIC)

NOW OPEN



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CSIC

INSTITUTO DE INVESTACIONES MARÍTIMAS

The Institute of Marine Research ([IIM-CSIC](#)) offers 6 Research Topics to apply with us for post-doctoral contracts within the Marie Skłodowska-Curie Actions – PF 2021 programme.

Candidates should have finished their PhD by the call deadline and have less than 8 years of postdoctoral experience.

Why the IIM?

The Institute belongs to the [Spanish National Research Council \(CSIC\)](#), the main research organization in Spain, the third in Europe and the seventh in the world.

The IIM-CSIC is one of the top marine research institutes in Spain, with a truly diverse research activity and its own transversal support services of Internationalization and Public Engagement. We offer a lively research environment to foster researchers' careers, widening their collaborative networks & increasing their impact on society.

CSIC | A framework for excellent research



120 Institutes
(6 for Marine Science)



4 Oceanographic Vessels
1 Antarctic Base



> 10.000 Researchers +
Support Staff



> 200 MSCA Grants
in 2019

The Institute of Marine Research (IIM – CSIC) | Figures for 2020



67 Active Projects
>11M€ Funding
(52% International)



24 R&D Industrial
Contracts



167 Research Papers
>100 Outreach Activities



≈ 180 Researchers +
Support Staff

The research you want with a global perspective

AT IIM, WE GENERATE KNOWLEDGE...

OCEAN AND
COASTAL SYSTEMS

MARINE LIFE AND ECOSYSTEMS

BIOLOGICAL PROCESSES
AND SYSTEMS

CO₂ and acidification

Ocean currents

Nutrient cycles

Phytoplankton and pigments

Metals and rare earth elements

Sustainable fishing

Sustainable aquaculture

New aquaculture species

Vulnerable species

Fish and shellfish diseases

Food safety

Quality and traceability

Bioactive compounds

Bioprocess engineering

Systems biology

...TO ACHIEVE OUR GOALS

The IIM-CSIC is a multidisciplinary research centre which aims to contribute to the UN Sustainable Development Goals through 3 Main Research Objectives which structure our work, responding to global challenges and to local concerns:

1. Oceans and Climate to predict climate change and develop actions to combat or mitigate its impacts.
2. Marine biodiversity and conservation to sustainably use the ocean and marine resources.
3. Food, bioproducts and health to achieve food security, improved nutrition, healthy lives, and well-being.



In addition to these 3 Main Research Goals, the IIM's work contributes to other transversal goals related to talent development, knowledge, and technology transfer, as well as the engagement with society for sustainable development and ethical values.



Application process & project topics

Try contacting the supervisor for the topic of interest **by August 2021**

Click here
for + info

iim.csic.es

Check the research topic summaries below and contact the supervisor with your CV to start the application process by August 2021.

Beware that, once the candidate has contacted their potential supervisor, and if selected, they will have to discuss, write & submit a final application together to the European Commission. We advise you to contact your potential supervisor as soon as possible.



REGISTER HERE FOR AN SPECIAL INFO DAY

Get more info about IIM-CSIC and our offer on the 13th July. **Register to stay updated.**

Multi-scale dynamic modelling of microbial populations

Microbial populations have enormous potential to perform metabolically complex tasks for industrial biotechnology. Their design requires defining the species to be combined, their relative starting abundances, and the optimal environmental conditions. Answering these questions is a challenging task that entails integrating various omics data into models.

We aim at developing computational methods and multi-scale dynamic models to shed light on interspecies interactions and the environmental factors leading to the emergence of competence and cooperation among species. These models will play a critical role in the rational design and optimal control of novel bioprocesses.

Applications include fermentation processes of interest for the food industry.

Supervisoras/es 

Eva Balsa Canto

ebalsa@iim.csic.es



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Environmental, fisheries and life history spatio-temporal interactions shaping recruitment in Flemish Cap

Atlantic cod and redfish stocks are highly relevant for fisheries and demersal ecosystems at the Flemish Cap fishing ground.

The Fisheries Ecology research group at IIM is offering a postdoc position to disentangle the mixed effects of fisheries and environment in population dynamics of these key species. Using long time series (33 years) on biological data and key life-history parameters related with mortality, growth, maturation, and productivity, as well as dendrochronology techniques, the spatial & temporal variations will be linked with habitat use and trophic web, but also with fisheries and environmental pressure. Regime shifts will be estimated, as well as the vulnerability of the species to provide a better understanding of the resilience of the exploited species.

Supervisor 

Fran Saborido Rey

fran@iim.csic.es



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Application of DNA HTS methodologies to fisheries ecology studies

Fish stock assessment is crucial for fisheries management. The Fisheries Ecology research group at IIM is working on the implementation of DNA High Throughput Sequencing (HTS) methodologies to complement traditional methods for fisheries management.

These methodologies include the close-kin mark-recapture (CKMR) method which provides a new way to estimate abundance - and other key demographic parameters - using genetics to affordably and reliably identify parent-offspring pairs (POPs; and conceivably other types of kin) and then analyse the number and pattern of pairs in a mark-recapture framework.

Novel HTS methods offer as well the possibility to infer other important parameters, including stock boundaries and connectivity or fine-scale population structure and molecular sexing, which are essential for fisheries management.

The post-doctoral candidate will join the research group to explore different applications of DNA-HTS to fisheries ecology studies.

Supervisoras/es 

Fran Saborido Rey

fran@iim.csic.es

Laura Casas

lauracasas@iim.csic.es



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Microbial interactions in macroalgae with implications in aquaculture

Bacterial communities associated with *Ulva* spp. play an important functional role both in morphogenesis and reproduction, considering *Ulva* and its associated microbiota as a singular functional entity or holobiont. Moreover, *Ulva* spp. host Antibiotic-Producing Bacteria (APB, e.g. *Phaeobacter* sp.) with known antagonism against fish pathogens. Using a multi-disciplinary approach, including -omic techniques, this research project will contribute to the understanding of the role of those APB, and the conditions that favour their predominance in *Ulva* spp., with implications in disease control in fish-algae IMTA-RAS systems.

Supervisor 

José Pintado

pintado@iim.csic.es



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Dietary Biomarkers for Healthy Aging: an approach to Brain Lipidomics

Our research line on "Dietary Biomarkers for Healthy Aging" aims to understand the beneficial effect that diets rich in algae and seafood can have during aging, with a particular emphasis on the effect on neuroinflammation and, therefore, on related neurological and neurodegenerative disorders.

Current research on the role of foods of marine origin in mental health, focuses on the intake of marine lipids and especially omega-3 polyunsaturated fatty acids (PUFA n-3), in improving inflammation, oxidative stress and aging of immune cells. In this scenario, the formation of oxidized metabolites derived from n-3 PUFAs, such as EPA and DHA, is addressed as a crucial mechanism in the progression of inflammation and brain aging. Liquid Chromatography applications coupled to Mass Spectrometry will be developed to address the epilipidoma resulting from enzymatic and non-enzymatic lipid oxidative modifications, in samples from cell cultures and animal experimentation. The results will be integrated with the information available on signalling pathways focused on lipids and oxidative modifications of proteins.

The project will highlight the convenience of the intake of fish and products of marine origin during aging, as significant components of personalized nutrition for targeting a majority segment of the European population.

Supervisoras/es

Isabel Medina

medina@iim.csic.es

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One genome for two body plans?: Flatfish as a base-case model

How does one genome create two completely different body plans in one animal? Our project proposes to investigate the 'deconstruction' of the gene regulatory networks (GRN) responsible for metamorphic remodelling in the flatfish (*Scophthalmus maximus*) as case study.

We focus on understanding how the information encoded in the DNA is used by cells to perform the physiological functions required during metamorphosis. The access to this information is tightly regulated by an intricate system of different regulatory layers involving, for example, the recognition of specific sequences in the DNA by transcription factors, the positioning of nucleosomes in the chromatin, associated methylation marks at key locations in the DNA, or the higher-order dynamics where chromatin folds into discrete 3D structures. The disruption of these regulatory mechanisms may cause many developmental abnormalities such as morphological deformities.

We aim to reveal the functioning of some of these mechanisms to better understand the cause of the associated dystrophies. We will employ diverse cutting-edge technologies including high-throughput techniques (ATAC-seq, RRBS & RNA-seq) to study individual genes and the genome, measuring changes in regulatory mechanisms at a global scale. The observation of patterns in the datasets, after a computational analysis alone or combined, will allow us to test our hypotheses and draw conclusions.

Supervisoras/es

Josep Rotllant

rotllant@iim.csic.es

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INFO DAY

13th July 2021

How will your Post-Doc be at IIM?

Don't miss our Info Day when you will find out more about all the things we offer to our Post-Docs at the Institute of Marine Research (IIM-CSIC)

Register here to stay updated



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