

CONTRATOS PREDOCTORALES 2022 SEVERO OCHOA

PROJECT TITLE / JOB POSITION TITLE:

Understanding Electromagnetic fields on our health using *C. elegans*

JOB POSITION RESEARCH LINE:

RL5 - BIOACTIVE MATERIALS FOR THERAPY AND DIAGNOSIS

RESEARCH PROJECT / RESEARCH GROUP DESCRIPTION:

In our highly connected society, electromagnetic fields (EMF) are present in a large range of environments from the workplace to our homes. There are much controversial data and news about EMF, and in many cases opinions, which are not sustained by scientific arguments.

This Ph.D. project is framed within the European project "NEXTGEM: Next Generation Integrated Sensing and Analytical System for Monitoring and Assessing Radiofrequency Electromagnetic Field Exposure and Health".

At the ICMAB we want to evaluate the effects of EMF on the model animal *C. elegans*. *C. elegans* is a 1-mm long nematode, which is simple and genetically amenable and shares fundamental biological functions with mammals. These worms have many molecular bases and cellular pathways, and therefore it is used for elucidating the biological pathways involved in complex human diseases and the routes activated after nanomaterials or other stimuli exposure.

In this project, the Student will learn to maintain and culture *C. elegans*, and comprehend the biological effects and molecular mechanisms after exposure at 3G, 4G, and 5G, which could also be mixed with other agents. *In vivo* (*C. elegans*) exposure will be harmonized with experimental protocols for cell culture and techniques of -omics to identify genes, proteins, and biological pathways will be applied.

The student will work on a highly interdisciplinary project with groups from all Europe joining to understand the effects of EMF on health.

Group's recent publications on *C. elegans* :

1. Pushing the limits on the intestinal crossing of Metal-Organic Frameworks: an ex vivo and in vivo detailed study, S. Rojas, T. Hidalgo, Z. Luo, D. Ávila, A. Laromaine*, and P. Horcajada*, *ACS Nano* 2022, 16, 4, 5830–5838.
2. Toxicogenomics of iron oxide nanoparticles in the nematode *C. elegans* L. Gonzalez-Moragas, Si-Ming Yu , N. Benseny-Cases, S. Sturzenbaum , A. Roig, A. Laromaine, *Nanotoxicology.*, 2017,11,5, 647-657.

3. Materials and toxicological approaches to study metal and metal-oxide nanoparticles in the model organism *Caenorhabditis elegans* L. Gonzalez-Moragas, L. L. Maurer, V. M. Harms, J N. Meyer, A Laromaine*, A Roig* *Mater. Horiz.*, 2017,4, 719-746.

JOB POSITION DESCRIPTION:

We are seeking an enthusiastic PhD candidate who graduated in biotechnology, biology, biochemistry, or biomedicine and an MSc in similar fields.

Other requirements

- A high level of English.
- Highly motivated toward highly interdisciplinary projects to interact with different European labs and scientists from different disciplines.
- Working aptitudes in a collaborative group and self-initiative.
- Good communicator

The candidate will join a great interdisciplinary and multicultural team!

Please visit the Nanoparticles and Nanocomposites Group web (nn.icmab.es) and twitter (@NNgroupICMAB) to know more about us.

GROUP LEADER:

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