



PhD Thesis Project Offer

(valid during the calendar year 2025)

Provisional Title of the Doctoral Thesis

Novel Functionalized Nanomaterials as ROS-Generating Agents with Therapeutic Applications

Subject area* / Research line

Sciences / Experimental Sciences

Summary of the Doctoral Thesis (maximum 300 words)

Functionalized nanostructured materials have become one of the most widely used systems in the development of medicinal chemistry and nanomedicine. Controlling the morphological, textural, and compositional properties of nanostructured systems is essential for the rational and effective design of materials that can be exploited in medicine and developed for potential therapeutic or diagnostic applications. This doctoral thesis will explore the use of tailored synthetic methods, a range of characterization techniques, and the controlled modulation of specific morphological parameters, along with the selective functionalization of nanomaterials with derivatives capable of generating reactive oxygen species (ROS). Additionally, the thesis will address the interpretation of potential effects in applications related to diseases such as cancer, bacterial infections, and neurodegenerative disorders from an experimental perspective, through in vitro testing of the synthesized materials.

Is the development of this thesis associated with the execution of any research project? If so, provide details of the project (title, funding entity, and execution period)

Title: ROS-Generating Agents Based on Multifunctional Nanostructured Materials for Environmental and Therapeutic Applications (ROS-FUN) Start Date: 01/09/2023 End Date: 31/08/2026 Funding Agency: Spanish State Research Agency (AGENCIA ESTATAL DE INVESTIGACIÓN) External Reference: PID2022-136417NB-I00 Internal Reference: M3214

Academic Profile of the Student (maximum 200 words)

Bachelor's Degree in Chemistry or Experimental Sciences, with a Master's degree preferably in a field related to nanomaterials, medicinal chemistry, or biological chemistry.

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*See the Subject Areas at <u>https://www.urjc.es/informacion-practica#oferta-proyectos-de-tesis</u>. Each project will be included in a single subject area.