



MASTER'S DEGREE IN BIOMEDICAL RESEARCH
Research Project Proposal
Academic year 2024-2025

Project Nº 26

Title: *Identification and therapeutic validation of novel radiosensitizers and immune boosters in breast cancer*

Department/ Laboratory

Program in Solid Tumors. Lab of Adhesion and Metastasis 2.01 (CIMA).

Director 1 *Rafael Martínez (If there will be two co-directors indicate both)*

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Summary *Short summary of the project with a **maximum extension of 250 words**, including the goals and the methodology that will be used*

Loco-regional failure (LRF) represents a frequent event that occurs after surgery and radiation in breast cancer leading to a dismal prognosis with reduced therapeutic options. Yet, the molecular mechanisms involved are poorly understood. We have recently identified new determinants involved in immunodynamics and radioresistance. Using differential and spatial global transcriptomics in human breast cancer samples, we have identified several potential targets that require validation by CRIPSR/Cas9 editing, image analysis tools and preclinical testing. Complementary to this, we have developed a pipeline to identify new compounds with a dual function as radiosensitizers and immune boosters. We have identified one as a leader compound to be used in combination with immune checkpoints inhibitors in preclinical animal models. The translation of this knowledge into the clinical setting will introduce new treatment strategies increasing patient survival.

yes	X
no	

Does the project include the possibility of supervised animal manipulation to complete the training for animal manipulator?