Universidad de Navarra
Facultad de Ciencias

MÁSTER EN INVESTIGACIÓN BIOMÉDICA
Research Project Proposal
Academic year 2026-2027

Project Nº 48

Title: *Targeting Resistance: Exploring Novel Therapies for Myeloid Neoplasms*

Department/ Laboratory *Myeloid neoplasms laboratory, Hematology-oncology department, CIMA*

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Summary

Myelodysplastic syndromes (MDS) are blood disorders where the bone marrow fails to produce healthy blood cells, often leading to anemia, infections, and progression to leukemia. While hypomethylating agents are the standard therapy, most patients eventually relapse, highlighting an urgent need for better strategies.

In this project, the student will investigate mechanisms driving resistance to these drugs. Using single-cell analyses of patient samples at diagnosis and relapse, we have identified genes and pathways potentially involved in therapy resistance. The student will validate one of these targets in combination with hypomethylating agents to see if it can enhance treatment effectiveness and eliminate the disease-initiating stem cells.

The work will involve a variety of advanced techniques, including high-dimensional flow cytometry, handling and analysis of primary bone marrow samples, in vitro myeloid-erythroid differentiation assays, drug screening data analysis, and patient-derived iPSC models. By combining these approaches, the student will test whether targeting specific genes or pathways can improve drug response and reduce the risk of relapse.

This project offers a unique opportunity to contribute directly to understanding resistance in MDS and to explore innovative strategies that could lead to more effective therapies for patients who currently have limited options.

yes	
no	x

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