



MASTER'S DEGREE IN BIOMEDICAL RESEARCH

Research Project Proposal

Academic year 2024-2025

Project Nº 07

Title: High-throughput screening to identify bifunctional immunostimulatory drugs in tumor samples.

Department/ Laboratory: Laboratory of cytokine-based therapies. Program of Immunology and Immunotherapy. Cima Universidad de Navarra

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Summary:

Cancer immunotherapy has revolutionized cancer treatment, yet many patients fail to benefit. Rational design of bifunctional immunostimulatory molecules often fails to identify synergistic compounds. This project aims to discover lead candidates through an unbiased screening platform using bifunctional molecules produced in situ.

The project aims to identify bifunctional immunostimulatory drugs with high-throughput screening in tumor samples. Rather than relying on rational design, the focus is on discovering synergistic compounds through an unbiased screening approach.

The methodology involves testing a library of bifunctional molecules in human tumor samples using several techniques:

Luminex: Utilized for multiplexed analysis of protein expression to assess the immunostimulatory effects of candidate compounds.

Single-cell RNA sequencing (RNAseq): Enables the examination of gene expression profiles at the single-cell level, providing insights into the immune response within the tumor microenvironment.

Multifluorescence microscopy: Allows visualization of cellular interactions and molecular dynamics within the tumor samples, aiding in the identification of potent immunostimulatory compounds.

By combining these techniques, the project aims to identify promising lead candidates for further development as potential cancer immunotherapies.

yes	X
no	

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