Universidad de Navarra
Facultad de Ciencias

MÁSTER EN INVESTIGACIÓN BIOMÉDICA
Research Project Proposal
Academic year 2022-2023

Project Nº 42

Title: Studying the role of the lncRNA Linc01133 in cancer senescence

Department/ Laboratory
CIMA
Department of: Terapia génica y regulación de la expresión génica
Laboratory: LncRNAs RNAs and Regulation of Gene Expression in Cancer

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Summary

Current cancer treatments which are often insufficient, include the use of chemotherapy and radiation that induce tumor cell arrest. This process termed as therapy-induced senescence (TIS) has been considered a positive outcome for cancer therapy. However, there is evidence that TIS can be reversible leading to an aggressive phenotype and disease relapse. A big effort in the field is oriented towards the development of strategies to specifically remove the cancer senescent cells. However, side-effects and toxicity have been major obstacles for their use in the clinic. In order to identify new therapeutic targets, this project will explore the role of long non-coding RNAs (lncRNAs) in TIS. LncRNAs are highly specific in their expression patterns and they are capable of fine-tuning important processes in the cell. Based on publicly available data, we have identified a list of lncRNAs dysregulated in cancer upon TIS. One promising candidate is linc01133, induced in different cancer cell lines after treatment with chemotherapy drugs.
Aim1: Deep characterization of linc01133. We will perform molecular biology techniques (e.g., Quantitative reverse transcription-PCR and RNA-Fluorescence In situ hybridization (RNA-FISH) to determine the expression and localization of linc01133).
Aim2: Study the effect of the depletion on linc01133 in cancer cells. Using antisense oligonucleotides, we will knock-down the lncRNA and perform proliferation and senescence assays in cancer cell lines to determine the phenotype.
Aim 3: Study the effect of the overexpression of linc01133 in cancer cells. Using different cloning strategies and performing proliferation and senescence assays we will determine the phenotype.

yes	
no	X

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