



MASTER'S DEGREE IN BIOMEDICAL RESEARCH

Research Project Proposal

Academic year 2023-2024

Project Nº 33

Title: Role of long non-coding RNAs in ovarian cancer senescence

Department/ Laboratory

Biología y terapias de ARN – LncRNAs RNAs and Regulation of Gene Expression in Cancer (4.07, CIMA)
Solid Tumors Department- Laboratory of Translational Oncology (2.04 CIMA)

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Summary

Ovarian cancer is one of the most lethal gynecological cancers. 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. Depletion of this lncRNA results in decrease proliferation and increased apoptosis.

In this study, we will generate tools to deplete lncRNAs (mainly linc01133) in human ovarian cancer cell lines expressing luciferase using lentiviral system. Furthermore, in-vivo experiments will be carry-out in xenograft mice by injecting the cells produced in-vitro and tumor growth and proliferation will be quantified over the time in order to elucidate the role of lncRNAs in ovarian cancer senescence.

yes	X
no	

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