Universidad de Navarra
Facultad de Ciencias

MASTER'S DEGREE IN BIOMEDICAL RESEARCH
Research Project Proposal
Academic year 2023-2024

Project Nº 30

Title: UNRAVELING THE PATHOPHYSIOLOGICAL ROLE OF PIGR IN CHOLANGIOCARCINOMA

Department/ Laboratory
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Summary of the project

Introduction: Cholangiocarcinoma (CCA) is an aggressive tumor originating from the biliary epithelium, with limited treatment options and a poor prognosis. Despite advancements in our understanding of the disease, the molecular mechanisms driving CCA development and progression remain poorly comprehended. Recently, we have identified PIGR as a promising liquid biopsy diagnostic biomarker in CCA, as it demonstrates increased abundance in serum extracellular vesicles of patients with CCA (Lapitz A et al, ***Journal of Hepatology*** 2023). Notably, single-cell RNA-sequencing analysis has revealed high expression of PIGR in malignant cholangiocytes within human CCA tumors.

Objective: This proposal aims to elucidate the role of PIGR in cholangiocarcinoma biology.

Methods: We will characterize the expression patterns of PIGR in normal and tumor cholangiocytes, macrophages, and liver immune cells *in vitro*. Additionally, we will quantify the abundance of PIGR protein in extracellular vesicles released by CCA cells and investigate the functional impact of PIGR-enriched vesicles on cancer-related processes. By using PIGR neutralizing antibodies, we will assess the potential therapeutic value of its targeting in CCA tumor cells both *in vitro* and *in vivo*.

Importance: Understanding the pathological role of PIGR in CCA will significantly advance our knowledge of the molecular mechanisms driving cholangiocarcinogenesis. This deeper understanding will pave the way for the exploration of novel therapeutic interventions, offering exciting prospects for potential treatments.

yes	
no	X

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