



MÁSTER EN INVESTIGACIÓN BIOMÉDICA

Research Project Proposal

Academic year 2022-2023

Project Nº 19

Title: *Implication of guanylin peptides in the onset of pancreas steatosis and inflammation: a translational study in preclinical models and patients with obesity and type 2 diabetes*

Department/ Laboratory *Laboratory where the project will be carried out indicating Department, Area, Faculty, CUN, CIMA etc.*

Metabolic Research Laboratory, Department of Endocrinology & Nutrition, Clínica Universidad de Navarra

Director 1 *Amaia Rodríguez*

Contact: *arodmur@unav.es*

Codirector: *Gema Frühbeck*

Contact: *gfruhbeck@unav.es*

Summary

Guanylin (GUCA2A) and uroguanylin (GUCA2B) are hormones secreted by intestinal epithelial cells that participate in the control of food intake, food preference and adiposity through their hypothalamic receptors, the guanylate cyclases C (GUCY2C) and D (GUCY2D). The aim of the present project is to get deeper insight into the beneficial effects of guanylin and uroguanylin on the molecular mechanisms involved in the onset of pancreatic steatosis and inflammation, which is a major determinant for the development of insulin resistance and metabolic disease. In this sense, we will evaluate the effect of both hormones on lipid metabolism, inflammation and fibrosis of the pancreas of preclinical models of obesity as well as in transgenic knockout mice lacking GUCA2A, GUCA2B or GUCY2C in the context of obesity using different techniques of molecular biology. Moreover, we will evaluate the circulating concentrations of GUCA2A and GUCA2B in patients with obesity and type 2 diabetes before and after bariatric surgery and its potential association with markers of pancreatic function. The comprehension of the regulation of the guanylin system in the pancreas might be useful to design drugs specifically targeting these hormones aimed at obesity and/or type 2 diabetes control.

yes



no

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