



Research Project Proposal
Academic year 2020-2021
Máster en Investigación Biomédica

Project Nº 05

Title: *Implication of guanylin and uroguanylin in the onset of obesity and its associated comorbidities: a translational study*

Department/ Laboratory

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Summary

Guanylin (GUCA2A) and uroguanylin (GUCA2B) are hormones secreted by intestinal epithelial cells in the post-prandial state and participate in the control of food intake and food preference 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 obesity and its associated comorbidities, such as type 2 diabetes and nonalcoholic fatty liver disease. In this sense, we will evaluate the effect of both hormones on lipid metabolism, inflammation and fibrosis of the adipose tissue and liver of patients and transgenic knockout mice lacking GUCA2A, GUCA2B or GUCY2C in the context of obesity. Moreover, we will study in vivo the impact of bariatric surgery (sleeve gastrectomy) and caloric restriction on the expression of the components of the guanylin system (GUCA2A, GUCA2B, GUCY2C and GUCY2D) in metabolic tissues using different techniques of molecular biology. The comprehension of the regulation of the guanylin system in key organs for the control of glucose and lipid metabolism as well as appetite might be useful to design drugs specifically targeting these hormones aimed at obesity and/or type 2 diabetes control.

yes

X

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

no