Universidad de Navarra

Máster en Investigación Biomédica
Facultad de Ciencias

Research Project Proposal
Academic year 2016-2017

Project Nº 44
Title: ADIPOCLYN. Cell cycle and metabolism: who regulates whom? Control of adipocyte metabolism by CDK and cyclins.
Department/ Laboratory Centro de Investigación en Nutrición (CIN).
Director Dr. Xavier Escoté Miró **Contact:** xescote@unav.es **Codirector:** Dra. María Jesús Moreno Aliaga **Contact:** mjmoreno@unav.es
Summary Sedentary lifestyles and caloric overconsumption underlie the current epidemics of obesity. However, the mechanisms regulating body adiposity and the links between adipose tissue dysfunction and its comorbidities are scarce known. The machinery that controls the cell cycle is a well-established determinant for cancer initiation. Importantly, recent studies have found new roles for CDKs in metabolism, suggesting new connections between obesity and cancer. Preliminary results from our lab have revealed expression of all these CDKs in adipose tissue, indicating a presumed role in the adipocyte metabolism. In contrast, latest studies have demonstrated that just CDK1 is essential for a proper the cell cycle control. The burning question is: What is the purpose of the other CDKs found in adipocytes? The answer can be found in the fine-tuning regulation that may be performed by CDKs in specific environmental situations. The objective of this project is to elucidate the role CDK3, CDK7 and CDK8 involvement in the metabolism of adipose tissue.. Methods: - To analyze the expression of CDKs in white and brown adipose tissue and their possible variation with obesity and insulin resistance. -Study of the CDK role played in the regulation of adipocyte metabolism in vitro cell cultures: To determine the role of these CDKs in the metabolism of adipocytes in key processes such as differentiation, lipolysis, lipogenesis or glucose uptake.

References

Lagarrigue et al. J Clin Invest. 126(1):335-48 (2016)

Escoté X & Fajas L. Cancer Lett. 356:171-5 (2015)

Aguilar V et al. Endocrinology. 151 (11): 5247-54 (2010)

POSSIBILITY OF PhD

YES*

* (PhD grant required)