Research Project Proposal
Academic year 2020-2021

Máster en Investigación Biomédica

Project Nº 43

Title: *Deciphering the role of PRDM1 in adipose tissue transcriptome and obesity susceptibility*

Department/ Laboratory *Department of Nutrition, Food Science and Physiology/Centre for Nutrition Research /Area of Molecular Nutrition and Metabolism (University of Navarra)*
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Obesity constitutes a global health problem responsible of 2.8 million deaths every year. Adipose tissues dysfunction plays a crucial role in the development of obesity, type 2 diabetes, metabolic syndrome, and certain types of cancer (including hematologic malignancies). Understanding the factors/processes that underlie adipose tissue development and expandability as well as adipocyte metabolism is critical to fight against the obesity epidemic.

Immune-adipose interactions play a key role in the susceptibility to develop obesity and related metabolic disorders. Studies have suggested that some transcriptional master regulators of the immune system such as IRF4 and BCL6 play a role in the regulation of adiposity. PRDM1 is a transcription factor that regulates the terminal differentiation of B lymphocytes into antibody-secreting plasma cells. Our group has recently identified a previously unreported role of PRDM1 in the control of adipose metabolism. These preliminary results come from the integrated analyses of human samples from obese individuals with those from a novel mouse model with conditional deletion of Prdm1 in adipocytes ($Prdm1^{-adipo\text{-}cre}$ mice). With the aim of unravelling the role of Prdm1 in adipose cell homeostasis, in this project we propose to characterize the impact of Prdm1 deficiency in the adipose tissue transcriptome using whole RNA sequencing (RNAseq). Data will be analyzed by bio-informatic analyses. The implementation of this project will allow the student to be initiated in the development of transgenic mice (adipocyte-specific knockout mice), genotyping protocols, mice phenotyping, the use of omics technologies (RNAseq and bio-informatics), RT-PCR and eventually Western blot and Immunofluorescence techniques.

yes	**X**
no	

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