Research Project Proposal
Academic year 2019-2020

Project Nº 32	
Title: *Histological characterization of a diet-induced obese zebrafish (Danio rerio) model*	

Department/ Laboratory
Department of Pathology, Anatomy and Physiology, Schools of Medicine and Sciences

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Summary

The incidence of overweight and obesity is rising dramatically in both children and adults, which is having serious health and economic consequences. Our understanding of obesity is due, in large part, to studies made on animals *(Speakman, 2007).* Zebrafish *(Danio rerio) is now firmly recognized as a powerful research model for many areas of biology and medicine, including obesity (Zang, Maddison, & Chen, 2018). We have developed a diet-induced obese (DIO) zebrafish model based on overfeeding with Artemia supplementation. The goal of this project is to characterize histologically the effects of obesity in our DIO zebrafish model. We will use microscopy, immunohistochemistry and image analysis.*

The specific objectives are:

1. *To study the effects of obesity in the different WAT depots (pancreatic, subcutaneous, visceral, esophageal, mandibular, cranial, and tail-fin).*
2. *To describe the histopathological modifications in liver.*
3. *To assess the changes in gastrointestinal and pancreatic endocrine cells.*

We hope that this project contribute to define the mechanisms underlying obesity in zebrafish and provide clues to a better understanding of human obesity.

References:

Speakman, J. (2007). Overview of Animal Models of Obesity. Obesity Reviews, 8, 55–61. https://doi.org/10.1010.1111/j.1467-789X.2007.00319.x

Zang, L., Maddison, L. A., & Chen, W. (2018). Zebrafish as a Model for Obesity and Diabetes. Frontiers in Cell and Developmental Biology, 6(August), 1–13. https://doi.org/10.3389/fcell.2018.00091

yes		**Does the project include the possibility of supervised animal manipulation to complete the training for animal manipulator?**
no	**X**	