



SEMINARIO PRESENCIAL

Viernes, 01 de abril de 2022

12:30 h. Instituto Cajal (CSIC) Madrid

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Determinants of Stemness and Hypothalamic Neurogenesis in Anti-Obesity Treatment

Abstract

Adult neurogenesis generates new functional neurons from resident adult Neural Stem Cells (aNSCs) in the adult brain. New neurons in the hippocampus are critical for learning and mood control and in the hypothalamus for energy homeostasis and feeding behavior. In this talk, I will present recently published and unpublished results on two different projects. First, I will discuss how the transcription factor Zeb1 determines the stemness and astrogliogenesis of aNSCs in the hippocampus. These results uncover new molecular mechanisms that regulate fate choice and cell dynamic of aNSCs. Second, I will present new results suggesting that treatment with a novel anti-obesity compound protects adult neurogenesis in the hypothalamus, which was downregulated by obesity. This preliminary data suggests that new neurons and aNSCs in the adult hypothalamus are responsive to obesity and may represent new therapeutic targets for anti-obesity pharmacotherapy.

Affiliation and short bio

Dr Petrik is a tenured Associate Professor (Senior Lecturer) in Physiology and Neuroscience at School of Biosciences, Cardiff University, UK. His lab focuses on neural stem cells. Dr Petrik obtained Bachelor and Master of Science in Bioengineering in 2003 from the Czech University of Life Sciences in Prague. His Master diploma thesis conducted at the Institute of Experimental Medicine, Prague, investigated the impact of mechanical injury on reactive astrogliosis. He obtained PhD in Biophysics and Physiology in 2008 from The University of Texas Health San Antonio, USA. His thesis supervised by Dr Robert Brenner investigated the role of calcium-dependent potassium channels in temporal lobe epilepsy. Dr Petrik conducted his postdoctoral training in the lab of Prof Amelia Eisch at The University of Texas Southwestern Medical Centre in Dallas, USA (2009-13). He studied the role of transcriptional factors, epigenetics and small molecules on neural stem cells and neurogenesis. As an ERC Marie Curie Fellow and a Senior Scientist in the lab of Prof Magdalena Götz in the Helmholtz Centrum Munich, Germany (2013-19), Dr Petrik identified how mechanical forces regulate adult neurogenesis. In addition, he has collaborated on projects involving direct neuronal reprogramming. He has served as an editor for international peer-reviewed journals and a reviewer for the Swiss National Science Foundation, BBSRC and MRC.

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