

Symposium 4: Hypothalamic Tanycytes, the Metabolic Brain and Adult Neurogenesis

Sponsored by the British Society for Neuroendocrinology

Theme: Neuroendocrine and autonomic nervous systems

Monday 10th April, 13:00 – 14:40

The function of brain networks which govern energy homeostasis is critical to survival. Circulating factors from the periphery must cross the blood brain barrier to integrate with higher-order brain nuclei which orchestrate the appropriate whole-body/global response to altered caloric availability and energy expenditure. The resurgent interest in tanycytes, specialised hypothalamic glial cells located in the ependymal wall of the third ventricle, is based on their potential to converse with the cerebrospinal fluid, with the peripheral circulation, and with hypothalamic neurones. Indeed tanycytes have been implicated in the pathophysiology of leptin resistance, ghrelin uptake and the availability of thyroid hormone (T3) via the action of type II iodothyronine-5-deiodinase (DIO2). Furthermore, the microarchitecture of tanycytes change in response to metabolic cues, altering the fenestration and permeability of the median eminence. However, the influence of tanycytes projects beyond their proposed role as nutrient sensors for the metabolic brain. Tanycytes are a neurogenic niche and are implicated in adult neurogenesis and therefore hypothalamic plasticity.

This symposium will present two international experts in the field of tanycytes (Plazcek, Sheffield and Migaud, France) who will each give a 25 minute presentation focusing on their current research into understanding tanycyte biology and the mechanisms controlling their proliferation and fate. The other two speakers will be early stage researchers (Bolborea, Warwick and Lewis, Nottingham) and will focus on neurone-tanycyte interactions and their ability to influence behaviour and physiology. Understanding and manipulation of tanycyte biology may become a valuable tool for modulating hypothalamic function with relevance to the treatment of metabolic disorders and ageing.

Chair: Dr Jo Lewis (University of Nottingham)

Speaker 1: Dr Matei Bolborea (University of Warwick)

'Hypothalamic communication: neuron-tanycyte interactions'

Speaker 2: Professor Marysia Plazcek (University of Sheffield)

'Hypothalamic stem cells and neurogenesis'

Speaker 3: Dr Jo Lewis (University of Nottingham)

'Hypothalamic tanycytes and the metabolic brain'

Speaker 4: Professor Martine Migaud (INRA-CNRS-Université François Rabelais de Tours, France)

'Tanycytes and hypothalamic plasticity'