Symposium 31: Long-term effects of early life activation of the hypothalamic pituitary adrenal (HPA) axis: a comparative approach

In association with The Physiological Society

Theme: The neurobiology of stress

Wednesday 12th April, 13:20 – 15:00

Even before it is born, the conditions an animal experiences can have a significant impact on later life. Several studies have shown that detrimental developmental conditions can have long lasting effects on a range of important phenotypic traits and the main candidate mechanism is activation of the HPA axis and increased exposure to glucocorticoid hormones. This neuroendocrine response to stress has the power to program a wide range of traits, from behavioural to neural and there is now a consensus of just how important proper regulation of the HPA axis is in mediating health and well-being in humans and other animals. Here we showcase the cutting edge of the research currently underway in this field of glucocorticoid programming, focussing on integrating information from behavioural data (cognitive abilities), neuroendocrine responses (HPA axis regulation and the effects on behaviour), epigenetic mechanisms underlying gene expression changes in the brain (specifically changes to DNA methylation of specific genes involved in stress responses) and the potential for programming of resilience to stress. We present data from a range of animal models and will take a comparative approach to understanding the pervasive effects of early life adversity.

Chair: Dr Pralle Kriengwatana (University of St Andrews)

Speaker 1: Dr Tania Roth (University of Delaware, USA)

'Early life stressful conditions and epigenetic mechanisms'

Speaker 2: Dr Pralle Kriengwatana (University of St Andrews)

'Post-natal stress and the long-term effects on cognitive abilities'

Speaker 3: Dr Karen Spencer (University of St Andrews)

'Early life adversity and programming of the physiological stress response'

Speaker 4: Magdalena Weidner (Maastricht University, The Netherlands)

'Pre-natal stress and the programming of resilience'