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Neuroregulation of the Hypothalamus-Pituitary-Adrenal

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Deadline for manuscript submissions:
closed (20 May 2021)

Message from the Guest Editor

The hypothalamus-pituitary-adrenal (HPA) axis is a neuroendocrine system exerting a variety of effects at both the central and peripheral level, through the action of glucocorticoids.

Alterations in the balance of central activating and inhibiting neurotransmission on the HPA axis might be involved in the pathophysiology of some diseases such as psychiatric disorders, anorexia, and obesity, characterized by a functional hyperactivity of this axis. On the other hand, glucocorticoids influence most aspects of behavior and, in turn, many behaviors can influence HPA axis activity.

The glucocorticoid negative feedback action is mediated by both glucocorticoid (GR) and mineralocorticoid (MR) receptors activation at the central level, mainly in the hippocampus. In agreement with animal studies, MRs seem to play a crucial role in the maintenance of the circadian ACTH and cortisol rhythm, through the modulation of CRH and AVP release.

This special issue aims to review the present knowledge about some new aspects of the neuroendocrine control of the HPA axis in humans, in both physiological and some pathological conditions.