Neural Plasticity

Hindawi

Special Issue on

Hormonal Regulation of Neural Plasticity: Implications for Psychiatric and Neurodegenerative Diseases

CALL FOR PAPERS

The adult brain has an excellent ability to adapt and change with experience. Neural plasticity, including dendritic remodeling, synapse turnover, and neurogenesis, is a feature of the adult brain's response to the environment. Hormones play a vital role in adapting to the endogenous neuroplasticity of the brain in response to the continuous modifications in external and internal environments. Hormonal actions on neural plasticity involve both direct and indirect genomic actions, as well as regulation of signaling pathways that affect neuronal excitability, metabolism, and survival. Recent studies have demonstrated that contrasting neuroplastic changes occur within the hippocampus and amygdala due to prolonged exposure to stress hormones and such changes are associated with the onset of depression, anxiety, and other mood disorders. Development of transgenic and knockout mouse models and sophisticated imaging technologies have provided insight into the mechanisms of action of gonadal hormones on neuronal and synaptic plasticity and how they might play a role in disorders associated with memory and cognition. A better understanding of the cellular and molecular basis of hormonally regulated structural remodeling in the brain is likely to provide new avenues for treatment of major psychiatric illnesses and to develop strategies to repair the neuronal loss in neurodegenerative disorders.

We invite investigators to contribute original research and review articles that seek to address recent advances in our understanding of hormonal modulation of neural plasticity and its implications for psychiatric and neurodegenerative diseases. We are particularly interested in articles that critically analyze current challenges in this area and provide insights on the translational relevance of studies investigating the role of hormonal agents targeting neural plasticity in the treatment of cognitive and mood disorders.

Potential topics include, but are not limited to:

- Cellular and molecular mechanisms of synaptic remodeling by gonadal steroids
- Influence of CRH and other stress hormones on neuronal and synaptic plasticity
- Role of oxytocin in mediating neuroplastic changes during motherhood
- Hormone replacement therapy and functional brain plasticity in postmenopausal women
- Sex differences in synaptic remodeling by steroid hormones in the adult brain
- Role of neurohormones as neuronal growth promoters in relation to developmental plasticity
- Molecular mechanisms of hormonal modulation of neural plasticity in the pathogenesis of cognitive and affective disorders
- Hormonal regulation of neural plasticity in normal aging and Alzheimer's disease

Authors can submit their manuscripts via the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/np/hrnp/.

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