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Neural Plasticity

Special Issue on

Perineuronal Nets and CNS Plasticity and Repair

CALL FOR PAPERS

The extracellular matrix (ECM) of the nervous system provides a microenvironment that regulates numerous events during development, influencing neurogenesis, gliogenesis, cell migration, axonal outgrowth, and circuitry formation, as well as in adulthood, affecting cell survival, plasticity, damage responses, and regeneration. There are substantial changes in the quantity and the composition of the ECM during the course of development, particularly at the end of critical periods, i.e., temporal windows of superior structural and functional synaptic plasticity. Here, cartilage-like structures called perineuronal nets (PNNs) deposit around many types of neuron, helping in stabilizing the established neuronal connections. In recent years, several other functions of the PNNs have been disclosed, including restriction of neuronal plasticity, neuronal protection, and modulation of the pathogenesis of various CNS diseases, such as Alzheimer's disease, epilepsy, and schizophrenia. The mechanisms through which PNNs act remain unclear, although recent advances promise to shed additional light on this important subject. A better understanding of the structure and function of PNNs in physiological and pathological conditions and of the consequences of manipulating the PNN has clearly a strong potential for the development of therapies to enhance neuronal plasticity and functional recovery after CNS damage.

We invite investigators to contribute original research articles as well as review articles that will stimulate the continuing efforts to understand the role of PNNs in brain physiology and pathology.

Potential topics include, but are not limited to:

- ▶ Molecular contributors to PNN structure and function
- ▶ Role of PNNs in the regulation of neuronal function
- ▶ PNNs and plasticity in various cortical areas
- ▶ Changes of PNNs during structural plasticity, homeostatic plasticity, and learning/memory
- ▶ Role of PNNs in CNS disease, including schizophrenia, Alzheimer's disease, stroke, and neurodevelopmental disorders

Authors can submit their manuscripts via the Manuscript Tracking System at
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Manuscript Due

Friday, 25 September 2015

First Round of Reviews

Friday, 18 December 2015

Publication Date

Friday, 12 February 2016