



Special Issue on **Neuroinflammation and Brain Plasticity in Health and Disease: Molecular Mechanisms and Therapeutic Interventions**

CALL FOR PAPERS

Intensive work in the last few decades in both animal models and human subjects has implicated neuroinflammation as the main culprit of most clinical conditions that challenge neural control of brain plasticity. These studies have culminated in the explosion of the novel field of brain research (i.e., "Cognitive Neurotherapeutics"), bringing hope that brain plasticity can be used for the remediation of a wide range of cognitive, psychiatric, or neurological conditions.

The immune system primarily has neuroprotective role in brain, but it has also been physiologically implicated in remodeling of synaptic circuits. The crosstalk between neurons, microglia, astrocytes, and other infiltrating immune cells leads to structural and functional changes in neuronal networks. Inflammation can be a reaction to microbes, toxins, trauma, and neural degeneration, triggered by the inflammatory factors and also by neuronal activity. Brain inflammation can modulate neuronal circuits through changes in cellular morphology and electrophysiological properties leading to cognitive impairments and neurodegenerative conditions. Inflammatory pathways triggered by neuronal stimulation in response to changing environmental conditions include signals such as BDNF, ATF, and TNF and interleukins and these affect neuroplasticity in psychological stress, migraine, sleep, learning, mood, and many other conditions.

With this special issue, we want to bring further attention to the field of "Neuroinflammation and Cognitive Neurotherapeutics" with emphasis on brain plasticity. It is aimed at presenting novel original work performed in humans and animal models focusing on the impact of inflammation on brain circuits and behavior. We are seeking original research articles as well as review articles that will stimulate the continuing effort to understand the relationship between neuroinflammation and its impact on brain plasticity and work on therapeutic interventions to restore the brain functions impairment.

Potential topics include, but are not limited to:

- ▶ Modulation of microglia/astrocytes and their effect on brain plasticity in different physiological and pathological conditions
- ▶ Differential regulation of inflammatory signals and neuroplasticity
- ▶ Genetic/epigenetic variants and mitochondrial biology associated with neuroinflammation
- ▶ Pharmacological and behavioral interventions for enhancing brain plasticity: from mechanisms to therapeutics
- ▶ Identification of new biomarkers for neural plasticity in neuroinflammatory diseases

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

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First Round of Reviews

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