

Special Issue on **Synaptic Plasticity Changes: Hallmark for Neurological and Psychiatric Disorders**

CALL FOR PAPERS

Plasticity can be evaluated at multiple levels, from microscopic changes in individual neurons to larger-scale systemic changes such as cortical remapping in response to injury. Here we would focus on short-term and long-term changes of synaptic plasticity, that is, the ability to modify the strength of a synapse. Long-term synaptic potentiation (LTP) was discovered in the rabbit hippocampus by Lømo in 1966, while long-term depression (LTD) was discovered in the cerebellum in the early 1980s. In the last 20 years, synaptic plasticity has been studied in physiological and pathological conditions in hippocampus, striatum, cerebral cortex, and cerebellum.

Many molecular mechanisms cooperate to produce synaptic plasticity changes. These include alterations changes in neurotransmitter release and in how effectively cells respond to those neurotransmitters. Defining and understanding how these mechanisms are involved in neuropathological conditions are a major challenge in the neuroscience of the third millennium.

It is well known, from transgenic animal models, that abnormal plasticity is a major pathophysiological mechanism in the pathophysiology of several movement disorders and psychiatric conditions. These studies have been translated to the human side and we know that abnormal plasticity is a key pathogenetic factor in several neuropsychiatric disorders such as dystonia, dyskinesias, tinnitus, schizophrenia, and depression.

Many studies on the mechanisms of synaptic plasticity have been performed on transgenic animal models of human neurological and psychiatric pathologies.

Therefore, the aim of this special issue is to highlight original articles reporting both basic and translational clinical studies on synaptic plasticity changes in several neuropsychiatric disorders. In particular, papers that review mechanisms that cause failure of plasticity (corticostriatal, hippocampal, or cerebellar plasticity) and the neuropathological and clinical consequences of this deficiency are also welcome.

Potential topics include but are not limited to the following:

- ▶ Impaired intracortical and extracortical brain plasticity
- ▶ Neurotransmitters aberrant signaling
- ▶ Cerebellar processing of sensory inputs primes motor cortex plasticity
- ▶ Synaptic plasticity in movement disorders: hypokinetic movement disorders (Parkinson's disease, parkinsonism, striatonigral degeneration, progressive supranuclear ophthalmoplegia, etc.) and hyperkinetic movement disorders (dystonia, essential tremor, myoclonus, chorea, Huntington's chorea, dyskinesia, etc.)

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/np/spchd/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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