Special Issue

Cellular and Molecular Mechanisms Regulating Neuronal Function, Homeostasis, and Disease

Message from the Guest Editors

Neuronal activity is governed by intricate signaling pathways, ion channel dynamics, and synaptic mechanisms, which together influence processes such as neurotransmission, plasticity, and metabolic regulation. An optimal interplay among distinct cellular and molecular mechanisms not only sustains normal neuronal function and homeostasis but also influences the onset and progression of neurodegenerative diseases and other pathologies of the central nervous system. This Special Issue aims to explore the cellular and molecular mechanisms regulating neuronal function and homeostasis. We invite research that explores topics such as the regulation of ion channels and receptors, synaptic plasticity, cellular trafficking, neuronal metabolism, and the critical interplay between neurons and glial cells. Studies examining how alterations in these mechanisms contribute to neurodegenerative diseases, as well as those identifying potential biomarkers or therapeutic targets, are of particular interest. Submissions utilizing advanced genomic, proteomic, imaging, or electrophysiological techniques to elucidate these complex pathways are especially welcome.

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