

Special Issue

Role of Extracellular Matrix Molecules in CNS Injury, Aging and Neurodegenerative Disease

Message from the Guest Editor

In the central nervous system, the composition of the extracellular matrix (ECM) plays a crucial role in almost every step of cellular interactions, from the regulation of diffusion parameters and neuronal excitability to inhibition/activation of synaptic plasticity and axonal growth. All ECM structures, including perisynaptic, perinodal matrix or perineuronal nets (PNNs), respond to neuronal and glial activity in processes of memory and learning. Within the processes of aging, after CNS injury or in the progress of neurodegenerative disease, alternation in composition and structure of the ECM niche is significant. This results in an environment which is inhibitory to axonal growth or shows disbalance in synaptic plasticity. Enzymatic digestion experimental therapies and individual/multiple components knockouts have been shown to increase plasticity and regenerative potential under these circumstances and, in cases of neurodegenerative disorders, to reduce memory and learning deficiencies. The role of individual components of ECM, their alteration or their surface modifications is of long-term interest.

Guest Editor

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