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Stratifying Heterogeneous Dimension of Neurodegenerative Diseases: Intervention for Stipulating Epigenetic Factors to Combat Oxidative Stress in Human Brain

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Abstract

© 2016, Springer Science+Business Media New York. Neurodegenerative diseases affect the neurons of the human brain and decline the neural activities causing neurocognitive dysfunctions and brain and behavioral disorders. An intensive immunotherapy is used to alter the course of multiple sclerosis, a common form of neurodegeneration, by controlling oxidative stress, recovering mitochondrial injury, and rehabilitating channelopathy dysfunctions. However, little is known about how the epigenetic factors can regulate atrophy genesis at hippocampal region, which prevents neurodegeneration. Further, traumatic brain injury leads to neurodegeneration. However, the onset of the later is not yet successfully monitored. Simultaneously, discrimination between neurodegeneration due to ageing and traumatic brain injury has not been addressed in the existing literature. Therefore, we present different forms of traumatic brain injury that trigger neurotoxicity, leading to the classification of onset stage of neurodegenerative pathways. We discuss how the immune system orchestrates changes in neurogenesis in presence of physiological stimuli. In our view, the epigenetic mode of treatment successfully intervenes all forms of neurodegenerative disease in both ageing and traumatic condition. Here, we establish a cross talk between epigenetic factors and neural immunology to balance oxidative stress at hippocampal regions.

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Keywords

Cognitive dysfunction, Epigenetic, Hippocampus, Immunology, Neurodegeneration, Traumatic brain injury