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Poster Presentation

Neurodegeneration Induced by Tau protein

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Abstract

Tau is one of several types of microtubule-associated proteins (MAPs), responsible for the assembly and stability of microtubule networks that is present only in neurons and predominantly localized in axons which its functions are tightly regulated by phosphorylation. Via as yet unknown mechanisms, tau becomes hyperphosphorylated and accompanies with neuronal degeneration, loss of synapses, aberrant calcium homeostasis, imbalanced neurotransmitter release, and ultimately with neuronal death which aggregated in several neurodegenerative diseases, collectively known as tauopathies including Alzheimer's disease (AD), several frontotemporal dementias and etc. Neurodegeneration is the progressive loss of structure or function of neurons and neuroinflammation is a critical marker of these diseases, in addition to protein aggregates. This review looks at various factors that are considered for explaining mechanism of tau proteins that can induce neurodegeneration. These different factors include two conformations of phosphorylated tau (cis p-tau and trans p-tau), the level of PH-tau expression, hyper phosphorylation of certain amino acids in tau proteins, mutations in the tau gene (MAPT), tau neurotoxicity and etc. Taking together, these results help to consider tau as a remarkable factor for treatment of tauopathies. The effect of tau disturbances on neurodegenerative disorders has been looked in many different ways. According to these results, tau can be studied as a potential target for drug development especially in the field of AD and other treatment options including immunotherapy.

Keywords: Tau proteins, Neurodegenerative diseases, Neuroinflammation

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