The First International Talent Management Congress

Shefa Neuroscience Research Center, Tehran, Iran, 15-17 December, 2015

The Neuroscience Journal of Shefaye Khatam

Volume 3, No. 3, Suppl. 2

Poster Presentation

Long-Term Potentiation

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Published: ***15 December, 2015***

Abstract

The term synaptic plasticity points to a series of persistent changes related to the activity of synapses. Long-term potentiation (LTP) is a reflection of synaptic plasticity that has an important role in learning and memory. LTP is a long-lasting increase of synaptic activity due to enhancement of excitatory synaptic transmission after a high-frequency train of electrical stimulations. Different types of LTP have been observed in distinctive areas of the central nervous system of mammals, such as the amygdala, cortex, stratum, cerebellum, and nucleus accumbens. LTP can be divided into N-methyl-D-aspartic acid (NMDA) receptor dependent and NMDA receptor independent (by voltage-dependent calcium channels type L). The LTP process can be differentiated into Early (E-LTP) and Late (L-LTP) phases.The early phase of LTP induced by a single train of stimulation. This phase doesn't lead to new protein synthesis. The late phase of LTP produced by repeated trains; results in gene expression. Since, the nervous system is a complex network of neurons and glial cells that are communicated with each other, so the molecular communication between these cells requires further studies.

Keywords: Neuronal Plasticity, Nucleus Accumbens, Cerebellum.

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