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Poster Presentation

Mechanisms of TrkB-Mediated Hippocampal Long-Term Potentiation in Learning and Memory

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Abstract

Long-term potentiation (LTP) is a process that certain types of synaptic stimulation lead to a long-lasting enhancement in the strength of synaptic transmission. Studies in recent years indicate the importance of molecular pathways in the development of memory and learning. Tropomyosin receptor kinase B (TrkB) is a member of the neurotrophin receptor tyrosine kinase family, that its ligand is brain-derived neurotrophic factor (BDNF). In recent years, Research has been shown that TrkB has an important role in LTP formation in hippocampus and after ligand binding activates several intracellular signaling cascades. Three important intracellular signaling cascades are triggered by the TrkB receptor includes: Ras–mitogen activated protein kinase (MAPK) pathway, phosphatidylinositol 3-kinase (PI3K)–Akt pathway and PLC γ –Ca²⁺ pathway.

Keywords: Long-Term Potentiation, Neurotrophin Receptor Tyrosine kinase, Brain-Derived Neurotrophic Factor.

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