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

Metabotropic Glutamate Receptor-Dependent Role in the Formation of Long-Term Potentiation

Ali Jahanbazi Jahan-Abad*

Shefa Neuroscience Research Center, Khatam Alanbia Hospital Tehran, Iran

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

Abstract

Long-term potentiation (LTP) is a reflection of synaptic plasticity that induced by specific patterns of synaptic activity and has an important role in learning and memory. The first clue of the potential role of glutamate receptors in LTP was in 1991 with the observation that the mGluR agonists 1-amino-1, 3-cyclopentanedicarboxylic acid (ACPD), increased LTP. Studies have shown that ACPD induce LTP in CA1 and in the dentate gyrus. Scientists suggest that the modulatory impact of mGluR activation on LTP varied in N-methyl-D-aspartic acid (NMDA)-dependent and NMDA-independent pathways because LTP was unimpaired in mutant mice with mGluR1 mutation and produced with full strength in NMDA-dependent pathways of the hippocampus but was attenuated in NMDA-independent LTP in the mossy fiber synapses on CA3. Consequently, research has shown that in mutant mice lacking mGluR5 the potentiation of the NMDA response was absent but the potentiation of the AMPA response was maintained. The findings suggest that mGluR5 activation plays an important role in expression of NMDA receptor-dependent LTP.

Keywords : Synaptic Plasticity, Long-Term Potentiation, Glutamate Receptors.

Corresponding Author: Ali Jahanbazi Jahan-Abad

E-mail: *a.jahanbazi65@yahoo.com*

[Downloaded from shefayekhatam.ir on 2026-10-08]