

The 1st International Neuroinflammation Congress and 1st Student Festival of Neuroscience



Shefa Neuroscience Research Center, Tehran, Iran, 11-13 April, 2017

The Neuroscience Journal of Shefaye Khatam

Volume 5, No. 2, Suppl 2

Poster Presentation

P2x7 Receptors: as a Novel Targets for the Treatment of Neuroinflammation

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Published: 11 April, 2017

Abstract

P2x7 receptors are Purinergic receptors that are extracellular ATP-gated ion channel. These receptors require high dose or prolonged exposure to ATP for initial activation. The Activation of these receptors facilitates the formation of inflammasome which activates caspase 1. The P20 and P10 subunits of caspase 1 form active enzyme that then releases active interleukin (IL)-1 β and IL-18, tumor necrosis Factor- α (TNF- α), IL-6 important proinflammatory cytokines which can induce inflammation Although other cytokines such as, IL-8, IL-1 α , IL-2, IL-4, IL-13 Can be released by activation p2x7 receptors. P2X7 receptors are widely expressed in neurons, microglia, astrocytes, oligodendrocytes and Schwann cells where they can induce neuroinflammation also neuroinflammation is an essential step in neurodegenerative inflammatory diseases which include: multiple Sclerosis, Alzheimer's, Parkinson's, Huntington's disease, atrophic lateral sclerosis, frontotemporal dementia, and traumatic brain injury also previous study in recent years reports overexpression of p2x7 receptors in neuroinflammation subsequently neurodegenerative diseases. In this study we aim to overview the role of p2x7 receptors in neuroinflammation as a novel targets for the treatment of neuroinflammation. P2X7R emerges as a promising target to treat neuroinflammation because this receptor is involved in the release of proinflammatory cytokines that play an essential role in the development of neuroinflammation subsequently neurodegenerative diseases so an antagonist for this receptor might halt the inflammatory cascade and thus further progression of neurodegeneration.

Keywords: Neuroinflammation, p2x7r, Treatment, Neurodegenerative

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