عنوان مقاله:

Interferon Beta: A Potential Candidate for The Treat-ment of Alzheimer s Disease

محل انتشار:

بیستمین کنگره بین‌المللی بیولوژی تولید مثل و پانزدهمین کنگره بین‌المللی سلول های بنیادی (سال: 1398)

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خلاصه مقاله:

Interferon beta (IFNβ) is a cytokine with immunomodulatory properties, approved as the first treatment to modify the course and prognosis of the multiple sclerosis. IFNβ also possesses direct effects on the central nervous system, recently gained attention in the context of neuroinflammatory/neurodegenera-tive diseases like experimental autoimmune encephalomyelitis, Parkinson's disease, stroke and spinal cord injury. Considering neuroinflammation, neural cell death and impaired neurogene-sis as major players in Alzheimer's disease (AD), we examined the therapeutic potential of IFNβ in a rat model of AD. Since the brain bioavailbality of IFNβ is low in systemic routes of ad-ministration, we used intranasal (IN) approach which is shown to provide efficient delivery to the cortex and hippocampus and rescue the peripheral side effects. Our results showed that IN IFNβ treatment ameliorates spatial and passive avoidance learn-ing and memory deficits induced by over-expression of mutant human APP gene in the hippocampus of adult rats. At cellular and molecular levels, IFNβ reduced APP expression, Aβ plaque formation, gliosis and pro-inflammatory responses as well as apoptosis in AD rat hippocampus. IFNβ also increased neuro-genesis markers in the dentate gyrus neurogenic niche. Collec-tively, IN IFNβ can be a promising therapeutic approach to halt the disease pathology and improve cognitive performance in AD-like neurodegenerative context.

کلمات کلیدی:

Intranasal Interferon Beta; Alzheimer's Disease; Learning and Memory; Neuroinflammation; Neurogenesis; Ap-optosis

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