The 2nd International Neuroinflammation Congress and 2nd Student Festival of Neurosience

Shefa Neuroscience Research Center, Tehran, Iran, 17-19 April, 2018

The Neuroscience Journal of Shefaye Khatam

Volume 6, No. 2, Suppl 1

Oral Presentation

Targeted Delivery of siRNA in a Nano-Particle Suppress Glioblastoma Stem Cells

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Published: *17 April, 2018*

Abstract

Cancer stem cells (CSCs) are suggested as the most dominant causes of recurrence due to their permanent self-renewal and resistance to common cancer treatment in glioblastoma multiform (GBM) which is recognized as the mos t malignant of brain tumor. It has been indicated that Retinoblastoma-binding protein 5 (RBBP5), a main part of Mixed lineage leukemia protein-1 (MLL1), plays a significant role in cancer stem cell survival. In this study the viability of CSCs derived from human GBM will be evaluated by knocking down the RBBP5 via their SiRNA. To enhance passing the SiRNA thorough the blood-brain barrier, PLGA nanocarrier will be used. CSCs isolated from Human GBM and cultured. To target specific stem cells involved in the growth and spread of cancer cells, CD133+ as a CSCs antigen will be conjugated on the surface of PLGA and then conjugated to SiRNA. The viability, proliferation, apoptosis, and differentiation of CSCs will be performed as a primary outcome. The expression of self-renewal markers such as NANOG, SOX2, CD133+, and Ki67 will be assessed as a secondary outcome. The probable prediction is descending the population of CSCs in the tumors that supposed to recurrence and short life expectancy. In conclusion, the nano drug can decrease the number of CSCs and increase the survival time in the GBM patients.

Keywords: Glioblastoma, Cancer Stem Like Cells, Nanoparticle

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