The 2nd International Neurotrauma Congress &
the 4th International Roads Safety Congress

Shefa Neuroscience Research Center, Tehran, Iran, 18-20 February, 2015

The Neuroscience Journal of Shefaye Khatam

Volume 2, No. 4, Suppl. 3

Poster Presentation

Self-Assembling Peptide Nanostructures as a Good Scaffold for Treatment of Spinal Cord Injury

Sajad Sahab Negah[1, 2], Hadi Aligholi[1], Sayed Mostafa Modarres Mousavi[1], Zabihollah Khaksar[2], Hadi Kazemi[1, 3], Shahin Mohammad Sadeghi[4*]

[1]Shefa Neuroscience Research Center, Khatam Alanbia Hospital, Tehran, Iran.
[2]Histology and Embryology Group, Basic Science Department, Veterinary Medicine Faculty, Shiraz University, Shiraz, Iran.
[3]Pediatric Department, Shahed University, Tehran, Iran.
[4]Department of Plastic and Reconstructive Surgery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Published: ***18 February, 2015***

Abstract

To date, various approaches have been used in attempt to treat spinal cord injury (SCI) but there is no definite treatment for repair of the damaged tissue. It is well known that SCI results in a loss of neural tissues and formation of cystic cavities that inhibit regeneration of axons. Tissue engineering, in which cells, signals and scaffolds are combined, is one of the most promising areas of research due to its potential to regenerate damaged or lost tissues. Peptide nanostructures formed through molecular self-assembly are increasingly important for material science and regenerative medicine. Peptide self-assembly allows the design and fabrication of supramolecular architectures at nanoscale. Self-assembling peptides (SAPs) have been developed under physiological conditions that can form 3 dimension structures of nanofibers. SAPs are amenable to injection due to their water solubility and exhibit dramatic morphology changes immediately after injection due to the addition of salts from the cerebro- spinal fluid. SAPs can reduce the glial reaction and support the host cells to migrate and fill the cavity. In addition, SAPs provide a 3 dimensional environment for axonal elongation and angiogenesis.With application of the biocompatible, non-toxic and biodegradable SAPs in SCI, we can help the injured tissue to repair and reconstruct.

Keywords: SAPs, Scaffold, Spinal Cord Injury.

Corresponding Author: Shahin Mohammad Sadeghi

E-mail: *drshmsadeghi@gmail.com*