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Poster Presentation

Therapeutic Potential of Induced Pluripotent Stem Cells for Spinal Cord Injury

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Abstract

Spinal cord injury (SCI) is a destructive event that often lead to permanent neurologic deficit. Current clinical treatments are aimed at preventing secondary damage, promoting regeneration, and replacing destroyed spinal cord tissue, although effective treatments for SCI remain limited. Cell therapies for treating SCI are promising therapy for replacing dead cells, neuroprotection and axon regeneration. A number of different pluripotent, multipotent, and differentiating stem cells have been investigated so far for the treatment of SCI. Some of these cells have entered or will soon be entering clinical trials. Basic and pre-clinical experimental studies have highlighted the positive effects of Induced pluripotent stem cells (iPSCs) treatment after spinal cord and peripheral nerve injury. iPSCs are a type of pluripotent stem cell that directly can be generated from adult cells and their therapeutic effects are believed to be due to their potential to differentiate into neural precursor cells, neurons, oligodendrocytes, astrocytes and neural crest cells that can act by replacing lost cells or providing environmental support. iPSCs can provide a cell source that has characteristics of embryonic stem cells. However, human iPSCs solve the ethical dilemma posed by human embryonic stem cells research. In addition, they can be sourced from autologous sources, which may decrease the risk of immune rejection.

Keywords: Spinal Cord Injury, Clinical Translation, Neuroprotection, Cell Therapy, Neuroregeneration.

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