

# Comparative Effects of Stimulated Mesenchymal Stem Cell with Compound of LPS and Poly-I-c with Stimulated Mesenchymal Stem Cell with Poly-I-c in burn Wound Healing

Leyla Soleymani <sup>1</sup>, Rahim Hobbenaghi <sup>2</sup>, Kiavash Hushmandi <sup>3</sup>

1. Department of Biology, Faculty of Science, Urmia University, Urmia, Iran

2. Department of Pathobiology, Faculty of Veterinary Medicine, Urmia University, Urmia, Iran

3. Department of Veterinary Science, Shahid Chamran University, Ahvaze, Iran

Corresponding Author: Leyla Soleymani, E-mail: lsoleimany@yahoo.com

## ABSTRACT

**Background:** The therapeutic management of severe burns remains a challenging topic. Results derived from several studies indicate a benefit for tissue regeneration by Stimulated mesenchymal stem cells (SMSCs) with LPS or Poly-I-C cells. The aim of this study was to investigate the effects of SMSCs with compound LPS and Poly-I-C at the same time on burn healing and compared with SMSCs just with Poly-I-C.

**Material and Methods:** In this study mesenchymal stem cells were activated with compound of LPS (10ngr/lit) and Poly-I-C (5µg/lit) at the same time and with just Poly-I-C (5µg/lit). 18 healthy 7-8 week old mic randomly divided into two groups and burn was created with metal heated rod on shaved back of all mics for 9 second. SMSCs with compound LPS and Poly-I-C were injected subcutaneously around of burn area (106 cell in 400 µl) in one group and SMSCs with just Poly-I-C in the other group. Prepared section at 7, 14 and 21 days after induction of burn injury, were stained with hematoxylin eosin and masons trichrome to study histopathological effect of SMSCs with compound of LPS and Poly-I-C in comparison with SMSCs with only Poly-I-C in burn wound healing.

**Results:** In this study some parameters of wound healing such as formation of granulation tissue (Respectively on day 14  $p \leq .013$ ), fibroblast number (Respectively on day 14  $p \leq .034$ ) speed of contraction of wound and collagen deposition were evaluated. Result demonstrate that treat group with SMSCs with compound LPS and Poly-I-C at the same time has no acceptable regenerative effect on

wound healing in comparison SMSCs with only LPS.

**Conclusion:** These data suggest that separate Agonist (Poly-I-C or LPS) to activate cells more effective than compound it (Poly-I-C and LPS) in burn wound healing.

**Keywords:** Burn, Healing, Stimulated Bone marrow-derived, Mesenchymal Stem Cell, Poly-I-C, LPS.