



Wound Healing potential of aloevera/collagen scaffold riched with Wharton's jelly conditioned medium

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Abstract

Recently various stem cells derived conditioned medium are at great interest because of their different therapeutic potentials and greater safety in comparison with stem cells. Combination of these conditioned media with various kind of scaffolds can also mimic the environment of cell in human body. Wharton jelly mesenchymal stem cells derived conditioned medium contains growth factors such as VEGF, IGF and FGF which are the potent factors for tissue damage and wound healing. Collagen scaffolds due to their known advantages for skin disorders can be the best candidates for this combination. In the current study we evaluated the effect of combination of the Wharton's jelly mesenchymal stem cell derived conditioned medium and alovera/ collagen scaffold on physical and biological properties of scaffolds for tissue engineering application. Wharton's jelly mesenchymal cells were cultured using DMEM, supplemented with 10% (v/v) FBS, 10 µg/mL streptomycin and 100 mg/mL penicillin then conditioned medium were obtained using FBS free media for 72 hours and added to prepared alovera/collagen scaffolds according to the protocol. Alovear/Collagen scaffold was evaluated by Fourier transforms infrared spectrometry (FTIR) and scanning electron microscopy (SEM) analysis. The viability and proliferation rate of fibroblast on scaffold was also evaluated. The investigation showed that the scaffold was highly porous with interconnection. The adhesion, viability and proliferation of fibroblast was remarkable. The result suggested that this combination can be a suitable choice for therapeutic purposes, mainly wound healing according to physical and biological properties of the Alovear/collagen scaffold.

Biography

Zahra Khodabandeh is working in Transgenic Technology Research Center, Shiraz University of medical science. She has published more than 20 articles and 267 citations. Her research interests include stem cell and regenerative organ transgenic animals.



14th World Congress on Stem Cell Research, Cell and Gene Therapy
October 30, 2020

Citation: Zahra Khodabandeh, Wound Healing potential of aloevera/collagen scaffold riched with Wharton's jelly conditioned medium, Stem Cell Congress 2020, 14th World Congress on Stem Cell Research, Cell and Gene Therapy October 30, 2020, 05