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Poster Presentations

P-62

Investigation the effect of avocado soybean unsaponifiables and icariin on the chondrogenesis of human adipose derived stem cells on poly (Lactic-Co-Glycolic) acid/fibrin hybrid scaffold

Hashemibeni B¹, Pourentezari M², Mardani M¹, Dourtaj H³, Valiani A¹, Yadegari M², Rajabi A², Izadi S², Zakizadeh F², Ghaderi N², Shahedi A².

1. Department of Anatomical Sciences and Molecular Biology, Isfahan University of Medical Sciences, Isfahan, Iran.

2. Department of Biology and Anatomical Sciences, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

3. Department of Tissue Engineering and Applied Cell Science, Shiraz University of Applied Medical Science and Technologies, Shiraz, Iran.

Email: abbasshahedi1355@gmail.com

Background: Avocado soybean unsaponifiables (ASU) and icariin (ICA) components are described to have a chondroprotective.

Objective: The aim of this study was to investigate the effect of ASU and ICA on the chondrogenesis of human adipose derived stem cells (hADSCs) on poly (lactic-co-glycolic) acid (PLGA)/fibrin hybrid scaffold.

Materials and Methods: hADSCs seeded in PLGA/fibrin scaffold and cultured in chondrogenic

media. These cells divided into 5 groups (control, TGFβ-3, ASU, ICA and ASU/ICA). After 14 days, the viability of cells in all groups were calculated by MTT. The gene expression of chondrogenic was quantified by real time PCR. Protein expression levels were evaluated by Western blotting.

Results: The cell viability in ASU/ICA group significantly increased in comparison with the TGF-β3 group. Genes expression levels of type II collagen (Col II) and SOX9 significantly increased in all groups in comparison with the control group. Aggrecan (AGG) gene significantly increased in TGF-β3, ASU and ASU/ICA groups in comparison with the control group. Type X collagen (Col X) gene significantly increased in TGF-β in comparison with the all groups. Genes expression levels of type X collagen (Col I) significantly increased in TGF-β3 group in comparison with the ASU/ICA group. Protein levels of Col II significantly increased in all groups in comparison with the control group. Protein levels Col X significantly decreased in the groups of ASU, ICA and ASU/ICA in comparison with TGF-β3.

Conclusion: Using ASU, ICA and particularly synergist form can induce chondrogenesis in hADSCs in PLGA/Fibrin composite scaffold.

Key words: Human adipose-derived stem cells, Avocado/Soybean, Icariin.