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Poster Presentations

P-132

Stabilization and immobilization of decellularized amniotic membrane as scaffold using a simple plastic ring composed of polyethylene terephthalate

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Background: Recently, the amniotic membrane (AM) has attracted the attention of researchers as an significant potential source for scaffolding material. The AM is the innermost layer of the placenta and made up of a basement membrane which contains blood vessels and epithelial cells. Its structure and biological nature make it a good candidate for use as a scaffold in tissue engineering studies.

Objective: The study was aimed to resolve the problem of using AM as scaffold in culture condition, i.e. floatation on the surface of culture medium. For stabilization and immobilization of AM scaffold on

the culture plate, we used the ring used for holding the plastic bottle cap of mineral water composed of Polyethylene Terephthalate (PET).

Materials and Methods: The PET ring was firstly cleaned by 70% ethanol and then autoclaved at 121°C and 1.5 bar. To decellularized AM, it was agitatedly incubated by 0.25% trypsin-EDTA on shaker for 30 min at 100 rpm, three times. Finally, AM was cut up in 3 cm pieces and used for as scaffold to culture amniotic fluid-derived mesenchymal stem cells (AF-MSCs), characterized in previous studies. The cells were cultured in DMEM supplemented with 10% FBS, 1% Pen-Strep and 0.5% fungizone, during 21 days.

Results: No contamination and toxic effect was observed during a 3 wk monitoring of cultures contained the PET ring-immobilized AM scaffold compared to the cells only cultured on vessels. Decellularization and attachment of the cells to the AM was confirmed with scanning electron microscope (SEM).

Conclusion: The results of this study showed that the use of PET rings does not have a significant negative effect on cell growth and their ability to attach to the AM scaffold. It seems that these simple plastic rings can be used in studies of scaffolds that have difficulty of floating in culture medium.

Key words: Amniotic membrane, Scaffold, Decellularized, Stabilization.