

عنوان مقاله:

Evaluation Three Methods of Ovarian Decellularization by Triton, Ammonium Hydroxide and SDS

محل انتشار:

بیستمین کنگره بین‌المللی بیولوژی تولید مثل و پانزدهمین کنگره بین‌المللی سلول های بنیادی (سال: 1398)

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خلاصه مقاله:

Background: Decellularization is a novel technique in regenerative medicine. Recently decellularized ovary introduced as a scaffold in the field of human fertility preservation. So the aim of the present study was producing a decellularized ovarian scaffold for fertility preservation approaches. **Materials and Methods:** In the present study 2 mm pieces of bovine and human ovarian cortex were prepared. In the SDS group, ovarian cortex was decellularized with 0.1% SDS for 24 h, in the SDS-Triton-ammonium group these pieces were decellularized with 0.5% SDS for 2 hours, 1% Triton and 0.1% Ammonium hydroxide for 22 hours and in SDS-Triton group pieces were decellularized with 0.5% SDS for 3 h and 1% Tri-ton for 9 hours. Human ovarian cortex was decellularized in three steps. First, it was treated with 0.1% SDS for 24 hours then according to freeze and thaw, it was treated with 0.2% SDS for 10 hours. After decellularization all of the scaffolds were washed with deionized water for 24 hours. The intact ovarian cortex was used as a control group. H&E and DAPI staining were applied to prove decellularization. Elastin and Masson's trichrome staining was carried out to evaluate the presence of elastin and collagen respectively in decellularized tissue. Furthermore, MTT test was done to assess the in vitro scaffold's cytocompatibility. **Results:** According to the H&E staining results, the bovine ovarian cortex was decellularized in all groups. No residual nuclei were observed by DAPI staining. Preservation of the ECM content was evaluated by Masson Trichrome and Gomori's aldehyde-fuchsin staining. Elastic and collagen fibers were kept after the decellularization process in all groups. OD values of eluted formazan of MTT test showed that fibroblasts on the SDS-Triton-Ammonium decellularized scaffolds were more viable than other groups. Human ovarian cortex was decellularized completely with mentioned protocol. Furthermore elastic and collagen fibers were kept in decellularized human ovarian cortex too. There was no significant difference in the Proliferation rate of the fibroblast cells in the human decellularized scaffold and two-dimensional conventional culture system. **Conclusion:** In conclusion, human ovarian cortex was decellularized with the combination of different SDS solution. Structure of ECM was not damaged in any groups. However, MTT test results of SDS-Triton-Ammonium was better than other groups.

کلمات کلیدی:

Decellularization, Ovary, Scaffold

