## عنوان مقاله:

Formation of organoid-like structures in the decellularized rat testis

## محل انتشار:

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## خلاصه مقاله:

Objective(s): In testis, the extracellular matrix (ECM) in addition to the supportive role for cells in the seminiferous epithelium, is also essential for the accurate functioning of these cells. Thus, using a decellularized testicular ECM (DTECM), as a scaffold for three-dimensional (۳D) culture of testicular cells can mimic native ECM for studying in vitro spermatogenesis. Materials and Methods: The rat testis was decellularized via perfusion of ۰.۵% sodium dodecyl sulfate (SDS) for ۴۸ hr, followed by ۱% Triton X-۱۰۰ for ۶ hr, and then ۱% DNase I for ۱ hr. The efficiency of decellularization was evaluated by histology, immunohistochemistry (IHC), scanning electron microscopy (SEM), and MTT test. The prepared scaffolds were recellularized with testicular cells and cultured and assessed with hematoxylin-eosin (H&E) staining after two weeks. Results: Based on the H&E image, no trace of cell components could be observed in DTECM. IHC images demonstrated collagen types I and IV, laminin, and fibronectin were preserved. Masson's trichrome and alcian blue staining revealed that collagen and glycosaminoglycans (GAGs) were retained, and the SEM image indicated that ۳D testicular architecture remained after the decellularization process. Based on the results of the MTT test, DTECM was cytocompatible, and H&E images represented that DTECM supports testicular cell arrangements in seminiferous tubule-like structures (STLSs) and organoid-like structures (OLSs). Conclusion: The results showed that the applied protocol successfully decellularized the testis tissue of the rat. .Therefore, these scaffolds may provide an appropriate vehicle for in vitro reconstruction of the seminiferous tubule

## کلمات کلیدی:

Decellularization, Extracellular matrix, Organoid, Seminiferous tubule, Testis