

عنوان مقاله:

Bovine articular cartilage decellularized matrix as a scaffold for use in cartilage tissue engineering

محل انتشار:

دوفصلنامه علوم و فنون دامپزشکی ایران، دوره 4، شماره 1 (سال: 1391)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Extracellular matrix (ECM) - derived from mammalian tissues have been broadly used in tissue engineering both clinical and preclinical applications. While decellularization of tissues such as bladder, heart valve, knee meniscus and tendon has been performed, there has been a limitation to work with articular cartilage. This study aimed to develop a technique to decellularize bovine articular cartilage as a biological construct for cartilage substitution. For this purpose, alternative decellularization protocols including freeze/thaw cycles and treatment with various concentrations of sodium dodecyl sulfate (SDS) were used. Decellularization was analyzed by histological examination. Treatment with 2% SDS for 5 to 8h followed by 4% SDS for 3h had a significant effect on decellularization process. Treatment with 1% SDS had no effect on cell removal and use of 8% SDS for 5 to 8 hours resulted in complete elimination of cells and significant decrease in cartilage matrix and collagen contents. This study provides a technique to produce acellular ECM derived from articular bovine cartilage which may serve as a xenogenic scaffold for cartilage tissue engineering

کلمات کلیدی:

Bovine articular cartilage, decellularized matrix, sodium dodecyl sulfate, tissue engineering, tissue scaffold

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