

عنوان مقاله:

Decellularization methods of rat kidneys for preparing appropriate an extracellular matrix scaffold

محل انتشار:

اولین کنگره بین المللی مهندسی بافت و پزشکی بازساختی ایران (سال: 1397)

تعداد صفحات اصل مقاله: 1

نویسندگان:

Samira Shahraki - *Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran*

Abolfazl Khajavi Rad - *Neurogenic Inflammation Research Center, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran*

Maryam Moghadam Matin - *Biology group, faculty of science, Mashad Ferdowsi University, Mashhad, Iran*

Ahmad Reza Bahrami - *Department of Urology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran*

خلاصه مقاله:

IntroductionThe incidence of end stage renal disease (ESRD) is increasing broadly. Dialysis and renal transplantation are current therapeutic options for ESRD, which renal transplantation would be the optimum treatment. The development of tissue engineering and regenerative medicine have catalyzed due to a gap between limited organ supply and increasing requests. An important technique in regenerative medicine to prepare an acellular ECM is the decellularization of native tissues. The purpose of this study was to determine the effective method for decellularization of rat kidney and produce the natural scaffolds for rat kidney. **Methods**After removing the kidney, the adipose tissue and the capsule around the kidney were removed. The kidney sections were washed twice with phosphate buffered saline (PBS), followed by decellularization in a solution of either Triton 1% or Sodium dodecyl sulfate 1%(SDS). Sample were decellularized at 4° C in a shaking. The decellularization solution was changed 4 hour after initial tissue harvest and then every 24 hour until tissues was transparent (for 14 days). In order to confirmation of decellularization, Hematoxylin-eosin and DAPI staining were performed on days 2, 5, 10, and 14. **Results**DAPI staining approved the SDS-treated sections were more decellularized than the Triton-treated sections at all times. The results of hematoxylin & eosin staining revealed that in the SDS-treated sections the native ECM architecture, integration of renal vascular and glomerular structures were more preserved than the Triton-treated sections. **Conclusions**We have developed a more effective decellularization method for the preparation of rat ECM scaffold, and it may be possible to use this scaffolds that prepared with this method for kidney transplantation.

کلمات کلیدی:

Kidney, Extracellular matrix scaffold, Decellularization, Sodium dodecyl sulfate

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