

## عنوان مقاله:

In vitro assessment of aligned electrospun poly (vinyl alcohol)/ poly(glycerol sebacate)/ lignin nanofibrous for peripheral nervous tissue

## محل انتشار:

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

تعداد صفحات اصل مقاله: 1

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## خلاصه مقاله:

**Introduction** Neural tissue engineering has a great promise to reconstruct damaged nerves following infections (e.g., Lyme disease), trauma, tumor resection, and systemic diseases (e.g., diabetes). Mimicking the extracellular matrix (ECM) for creating an artificial nerve graft is one of the major challenges in peripheral neural tissue engineering. Electrospinning technique is a method to produce fibers which can fabricate structure similar to ECM. Biomaterials play an effective role in nerve tissue regeneration due to their inherent properties. **Objectives** Among various biomaterials, lignin as biodegradable biopolymer has shown great potential to nerve regeneration. Furthermore, it has shown that poly (vinyl alcohol) and poly(glycerol sebacate) can prepare a suitable substrate for nerve tissues. Therefore, aligned nanocomposite poly (vinyl alcohol), poly (glycerol sebacate) and lignin scaffold were fabricated by electrospinning and characterized in this study. **Methods** Chemical analysis of scaffold was studied by Fourier-transform infrared (FTIR), the morphology of PVA/PGS/lignin fibers was investigated by scanning electron microscopy (SEM), and modulus of elasticity of the scaffold was determined by the universal testing machine. The PC12 cell line was cultured on the scaffold for 7 days to assess the biocompatibility of scaffold. SEM and MTT assay were utilized for attachment and viability of cells, respectively. **Results** The results showed that the smooth and bead-free morphology of produced fibers. Young's modulus of the scaffold was close to nervous tissue. Furthermore, the MTT assay clearly showed an effective role of lignin in enhancing cell proliferation and viability. **Conclusion** Our results demonstrate that the PVA/PGS/lignin scaffold is a great potential for peripheral nerve regeneration

## کلمات کلیدی:

Peripheral nerve regeneration, Electrospinning, Poly (glycerol sebacate), Poly (vinyl alcohol), Lignin, Nanofibrous

## لینک ثابت مقاله در پایگاه سیویلیکا:

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