

عنوان مقاله:

Effects of Lignin on Proliferation and Differentiation of PC12 Cells in Electrospun Poly(Glycerol Sebacate)/Poly(vinyl Alcohol) Fibers

محل انتشار:

سومین جشنواره ملی و کنگره بین المللی علوم و فناوری های سلول های بنیادی و پزشکی بازساختی (سال: ۱۳۹۷)

تعداد صفحات اصل مقاله: ۱

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خلاصه مقاله:

Background and Aim: Peripheral nervous tissue injury is relatively common which could result from tumor resection, trauma, systemic diseases (e.g., diabetes), and infections (e.g., Lyme disease). Electrospinning of natural and synthetic polymers is one of the most practical approaches for using in tissue engineering. Lignin is considering as an antioxidant and antiviral material promoting neural cell differentiation. Poly(glycerol sebacate) (PGS) and poly(vinyl alcohol) (PVA) has also introduced as a promising biomaterial for nerve tissue engineering. Methods: In the current study, aligned PGS/PVA/lignin fibers were fabricated using electrospinning technique to assess proliferation and differentiation of PC12 cell culture. MTT assay, scanning electron microscopy (SEM), DAPI was utilized to the evaluation of cell proliferation, adhesion, and viability. To study the study differentiation, SEM was used to measure the length of neurites. Results: The results show the effective role of lignin on the proliferation and differentiation of PC12 cells. Conclusion: Our results suggest that PVA/PGS/lignin is a promising nanocomposite scaffold for peripheral nerve regeneration.

کلمات کلیدی:

Poly(glycerol sebacate); Nerve regeneration; Poly(vinyl alcohol); Lignin; Electrospinning

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