

عنوان مقاله:

Silk Nanofibrous Scaffold Improves Glial Differentiation of Embryonic Stem Like Cells

محل انتشار:

بیستمین کنگره بین‌المللی بیولوژی تولید مثل و پانزدهمین کنگره بین‌المللی سلول های بنیادی (سال: 1398)

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خلاصه مقاله:

Background: Stem cell therapy accompanied with optimal scaffolds, is a promising treatment in neural tissue engineering strategies via serving an appropriate microenvironment to induce neuroglial differentiation in damaged neural tissue. Here we fabricated a silk Nano fibrous scaffold as a microenvironment for glial guiding differentiation of Embryonic stem like cells. Materials and Methods: Embryonic stem like cells, were seeded and cultured on Silk scaffolds. The glial differentiation was induced using a modified technique includes culturing in the presence of Retinoic acid following addition of neurobasal medium supplemented with 10 ng/ml Epidermal Growth Factor, 20 ng/ml basic Fibroblastic Growth Factor for 10 days. The glial differentiation was analyzed via the evaluation of specific markers; Nestin, Oligodendrocyte transcription factor (Olig2) and O4 via immunocytochemistry and real-time technique. Results: Our dates proved that silk scaffold support the differentiation of Embryonic stem like cells cells in to glial cells. The expression of Nestin, OLIG2 and O4 markers were significantly higher in the experiment group in compare to monolayer control group. Conclusion: This study suggests fabrication of the electrospun silk Nano fibrous scaffold as a biological substitutes for glial differentiation of stem cells that is a crucial step in tissue engineering for neural tissue repair and regeneration.

کلمات کلیدی:

Silk, Differentiation, Tissue Engineering, Embryonic Stem Cells, Scaffold

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