

Poly-caprolactone(PCL) scaffold as a mimic Extracellular matrix in differentiation and proliferation of hiPS derived neural progenitor cells in vitro

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Objective: Nanofiber scaffolds have demonstrated their potentials as medical implant biomaterials. Neural stem cells (NSCs) grown on nanofiber scaffold may be useful for repairing nervous system injury. The aim of this study was to produce neural stem cells from human induced pluripotent stem (hiPS) cells and assay their proliferation on PCL scaffold in vitro.

Methods: To investigate this possibility, NP cells grown on the PCL scaffold were characterized regarding expression of specific genes such as Nestin, Pax6, in vitro by RT-PCR. And their proliferation was evaluated by MTT assay in two groups (scaffold-without scaffold). Statistical analysis was performed using SPSS software.

Results: These results showed that in scaffold group cell proliferation capacity compared to without scaffold group at 24-48 and 72 hour significantly increased ($P < 0.05$) and suggested that PCL has a significant role in cell interactions and their behavior more like in vivo counterparts.

KeyWords: Poly-caprolactone scaffold-Human induced pluripotent stem cells-neural cells