Scaffold with Conductivity on only Line pattern for Peripheral Nerve Regeneration

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Various researches about scaffold for peripheral nerve regeneration are studied because peripheral nerve injury is one of important clinical disease for its complication of treatment. Among the several treatments, the researches about scaffold that mimics ECM of nerve are more promising methods for treatment because of the limits of autograft. Recent studies of scaffolds in nerve regeneration suggest that topographical cue and electrical stimulation are important factors for guidance to nerve cells. To give more definite direction and guidance, We create a scaffold with conductivity on only line pattern. Polyethylene glycol(PEG) hydrogel is formed with patterns by UV irradiation. PEG hydrogel patterns are coated with polypyrrole. After washing this pattern, PEG hydrogel is formed again by UV on the coated PEG pattern with polypyrrole. Through this simple techniques, this scaffold has conductive line pattern with depth. It can give more definite guidance to nerve cells because the nerve cells can receive both topographical and electrical cues simultaneously. In the future, PC12 cells will grow according to line pattern of scaffold due to its guidance.