

## PRGD/PDLLA CONDUIT POTENTIATES RAT SCIATIC NERVE REGENERATION AND THE UNDERLYING MOLECULAR MECHANISM

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Peripheral nerve injury requires optimal conditions in both macro-environment and micro-environment for reestablishment. Though various strategies have been carried out to improve the macro-environment, the underlying molecular mechanism of axon regeneration in the micro-environment provided by nerve conduit remains unclear. In this study, the rat sciatic nerve of 10 mm defect was made and bridged by PRGD/PDLLA nerve conduit. We investigated the process of nerve regeneration using histological, functional and real time PCR analyses after implantation from 7 to 35 days. Our data demonstrated that the ciliary neurotrophic factor highly expressed and up-regulated the downstream signaling pathways, in the case of activated signals, the expressions of axon sprout relative proteins, such as tubulin and growth associated protein-43, were strongly augmented. Taken together, these data suggest a possible mechanism of axon regeneration promoted by PRGD/PDLLA conduit, which created a micro-environment for enhancement of diffusion of neurotrophic factors secreted by the injured nerve stumps, and activation of molecular signal transduction involved in growth cone, to potentiate the nerve recovery.

**Keywords:** *Nerve Regeneration, PRGD/PDLLA conduit, PCR analysis*