Perimaix

An increasing number of biomaterial nerve conduit has been developed that await direct comparative testing with the 'gold-standard' autologous nerve graft in functional repair of peripheral nerve defects. In the present study, 20 mm rat sciatic nerve defects were bridged with either a collagen-based micro-structured nerve guide (Perimaix) or an autologous nerve graft. Axons regenerated well into the Perimaix scaffold and, the majority of these axons grew across the 20 mm defect into the distal nerve segment. In fact, both the total axon number and the number of retrogradely traced somatosensory and motor neurons extending their axons across the implant was similar between Perimaix and autologous nerve graft groups. Implantation of Schwann cell-seeded Perimaix scaffolds provided only a beneficial effect on myelination within the scaffold. Functional recovery supported by the implanted, non-seeded Perimaix scaffold was as good as that observed after the autologous nerve graft, despite the presence of thinner myelin sheaths in the Perimaix implanted nerves. These findings support the potential of the Perimaix collagen scaffold as a future off-the-shelf device for clinical applications in selected cases of traumatic peripheral nerve injury [1)].

1)
Bozkurt A, Boecker A, Tank J, Altinova H, Deumens R, Dabhi C, Tolba R, Weis J, Brook GA, Pallua N, van Neerven SG. Efficient bridging of 20 mm rat sciatic nerve lesions with a longitudinally micro-structured collagen scaffold. Biomaterials. 2015 Oct 8;75:112-122. doi: 10.1016/j.biomaterials.2015.10.009. [Epub ahead of print] PubMed PMID: 26496383.