

The Office of Technology Management

UNIVERSITY OF TEXAS  ARLINGTON

Mechanisms and Methods for Long-Distance and Selective Nerve Growth

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INVENTOR: Mario I. Romero-Ortega, Nesreen Alsmadi, Sanjay Anand

TECHNOLOGY NEED

In most cases, injured nerves cannot regenerate or heal themselves on their own due to the complexity of the brain. Peripheral nerve injury (PNI) occurs in 3% of all trauma cases, and those that result in gap lesions longer than 3 cm often fail to regenerate and are associated with poor functional recovery. The current “golden” solution for nerve regeneration is autografts despite the need of donor nerve harvest and the associated morbidity of the procedure. However, autografts have been reported to achieve minimal functional recovery in nerve defects that are longer than 3 cm. The generative failure of peripheral nerves are partly due to the lack of appropriate growth substrate and trophic support.

INVENTION DESCRIPTION/SOLUTION

Through research in implantable biosynthetic nerves, we have invented a novel method for controlling the length of nerve regeneration across a long-gap injury that is up to 4 cm long. Moreover, we have derived a synergistic growth formula that can be used in the path of cellular growth to increase the nerves’ growth capacity and to selectively modulate the regeneration of nerves. This technology can be the next optimal option for patients in need of peripheral nerve recovery since it does not require donated nerves and increases the rate of functional recovery of injured nerves.

APPLICATIONS

- Direct Neuropathy: Epineural repair, perineural repair, group fascicular repair
- Nerves grafting: Autografts, allografts, xenografts
- Stem cell therapy
- Neuromodulation surgery

KEY BENEFITS

- Growth substrate for simultaneous cellularization
- Trophic support
- Minimum guidance errors
- Total control over length of regenerated nerves

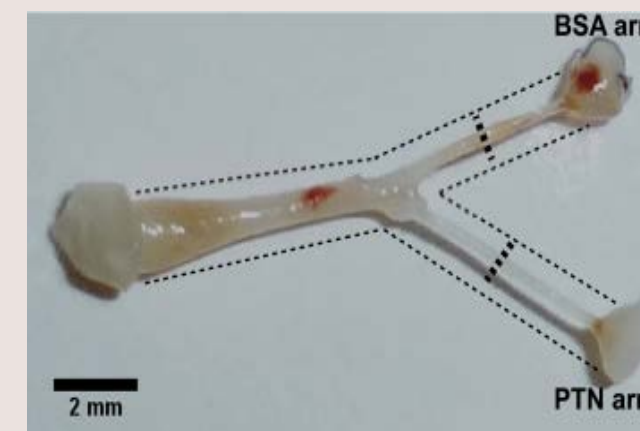
STAGE OF DEVELOPMENT

Prototype

Extensive tests done

INTELLECTUAL PROPERTY STATUS

Provisional



About the Inventors:
Mario I. Romero-Ortega

Contact information
For licensing, please contact
Sharon Ngwenya
sngwenya@uta.edu
otm@uta.edu
P: 817.272.1130

Our mailing Address:
The Office of Technology
Management
701 S Nedderman drive,
Suite 350, Arlington, TX
76019

Connect with us:

