Value Proposition

For patients suffering from peripheral nerve injury and the clinicians who serve them, NeuroGel is a flexible, easy to use gel that promotes nerve regeneration and restoration of function. Where surgery currently provides less than satisfactory recovery of function and current nerve guides can only be used in limited situations, NeuroGel provides a solution that is uniquely versatile and better able to promote nerve regrowth and functional regeneration.

Market Opportunity

Almost a million surgeries occur every year to repair nerve injuries of the extremities. The costs of these procedures add up to $1.68 B annually, but the total associated cost of care approaches $7 B in US every year. Based on interviews with clinicians, we have identified a need for a product that would improve recovery after surgical repair of nerves that does not exist today and NeuroGel is uniquely qualified to fill this gap in the market.

Competitive Landscape

Nerve injury exists on a spectrum from mild to severe involving a range of injury types from compression, severing, and gap, respectively. The injectable nature of NeuroGel allows for use in multiple contexts, including all three basic injury types. This provides a distinct advantage for NeuroGel.

While competition exists in the nerve gap market, very little exists on the market to assist in the repair of severed or compressed nerves. In addition, the major competition in the market of repair of severed nerves, AxoGuard has only gained a fraction of a percent of the total market after 11 years on the market.

Technology

NeuroGel is an injectable gel that is made from the proteins and growth factors contained in nerves. While, similar protein or extracellular matrix scaffolds have been used to treat over a million patients in other applications successfully, NeuroGel is the only product using nerve specific components for nerve repair. We have shown in several pre-clinical animal studies that Neurogel promotes nerve regrowth so that patients can regain function sooner.

Stage of Development

NeuroGel is currently being investigated in several pre-clinical studies covering multiple nerve injury types, with a goal of FDA pre-submission by the end of this year. Early pre-clinical studies have already shown positive results using NeuroGel in supporting direct repair of a severed nerve. Preliminary results from current studies suggest positive results in nerve gap repair and nerve graft support as well.

IP Status

Strong IP exists to protect our novel product. The University of Pittsburgh holds an issued US patent covering extracellular matrix gels. A PCT application claiming composition of matter, methods of use, and manufacturing of NeuroGel is pending.

Funding

This project has been largely funded by discretionary funds of Drs. Bryan Brown and Jonathan Cheetham. We have also received a small grant to perform our pilot studies from the Cornell Research in Animal Health Program.
Dr. Bryan Brown is now an Assistant Professor of Bioengineering as well as Obstetrics, Gynecology, and Reproductive Sciences, and a core faculty member of the McGowan Institute for Regenerative Medicine. Additionally, Bryan is an Adjunct Assistant Professor of Clinical Sciences at the Cornell University College of Veterinary Medicine. The Brown laboratory seeks to couple a mechanistic understanding of the host inflammatory response in injury and disease with the development of context-dependent biomaterials for regenerative medicine strategies. The focus of the Brown Laboratory is upon clinical applications where few effective solutions currently exist. Bryan has significant experience in developing extracellular matrix based scaffold materials for use in "inductive" approaches to tissue reconstruction. These efforts are currently funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institute on Aging, National Institute of General Medical Science, and the Office of Research on Women’s Health.

**Education**
PhD in Bioengineering, University of Pittsburgh; 2010
BS in Mechanical Engineering, University of Pittsburgh; 2005

**Publications**
