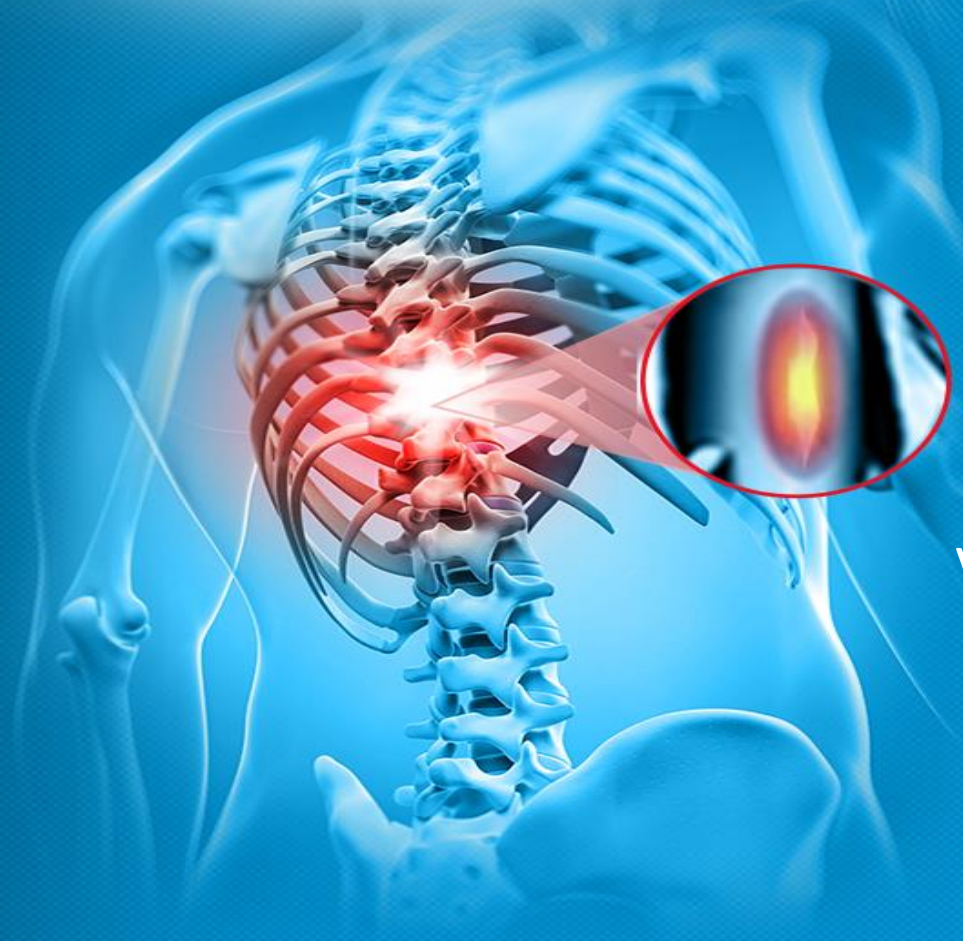
INVIVO THERAPEUTICS™



ISCoS 2016 Annual Scientific Meeting

Clinical Trials Update for 2016

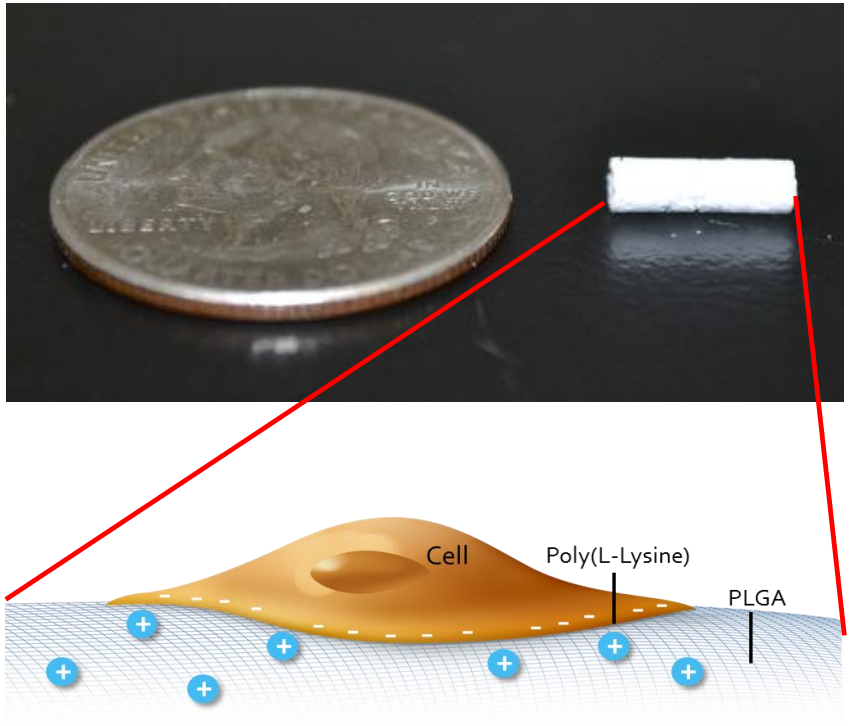
The INSPIRE Study:
Neuro-Spinal Scaffold™

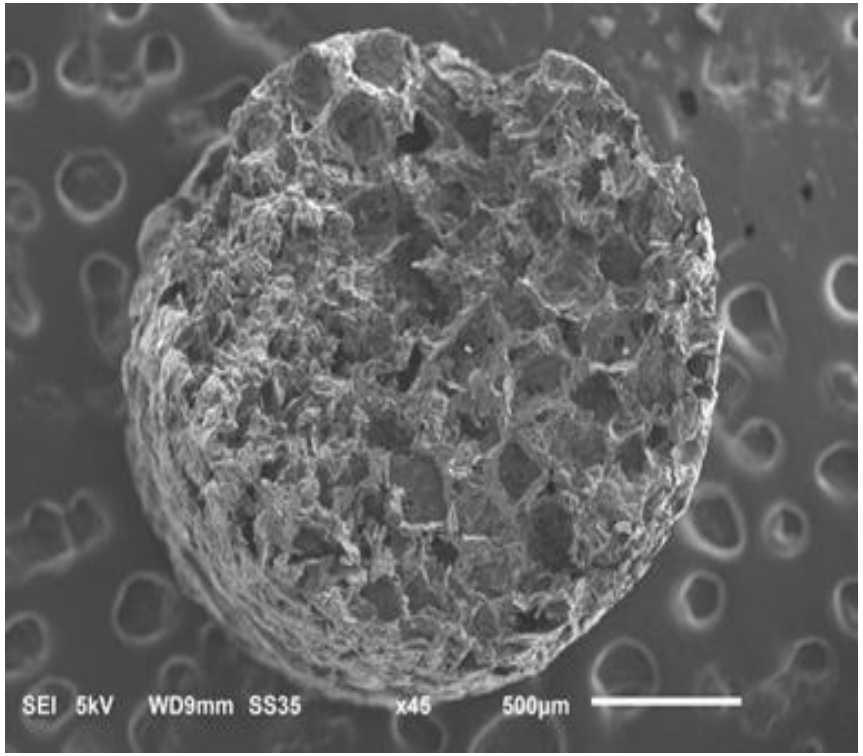
Kristin M. Neff, MSc
VP Clinical Operations & Project Management

Agenda

1. *Neuro-Spinal Scaffold*™
2. Summary of Preclinical Studies
3. The INSPIRE Study
   A. Study Design
   B. Eligibility Criteria
   C. Results to Date
4. Next Steps

Neuro-Spinal Scaffold™ – Designed to Act as a Physical Substrate to Promote Neural Repair





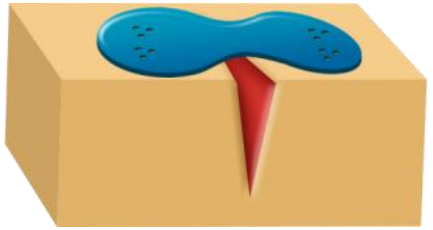
Highly porous biopolymer composition:

- PLGA is the biodegradable cylindrical skeleton along which cells can grow
- Positively charged Poly-L-Lysine promotes cellular adhesion

Company images

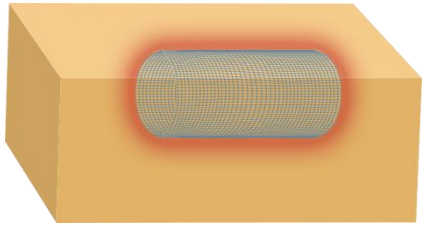
Innovative Approach to Promote Spinal Cord Healing by *Neuro-Spinal Scaffold*™

Butterfly **Bandage**

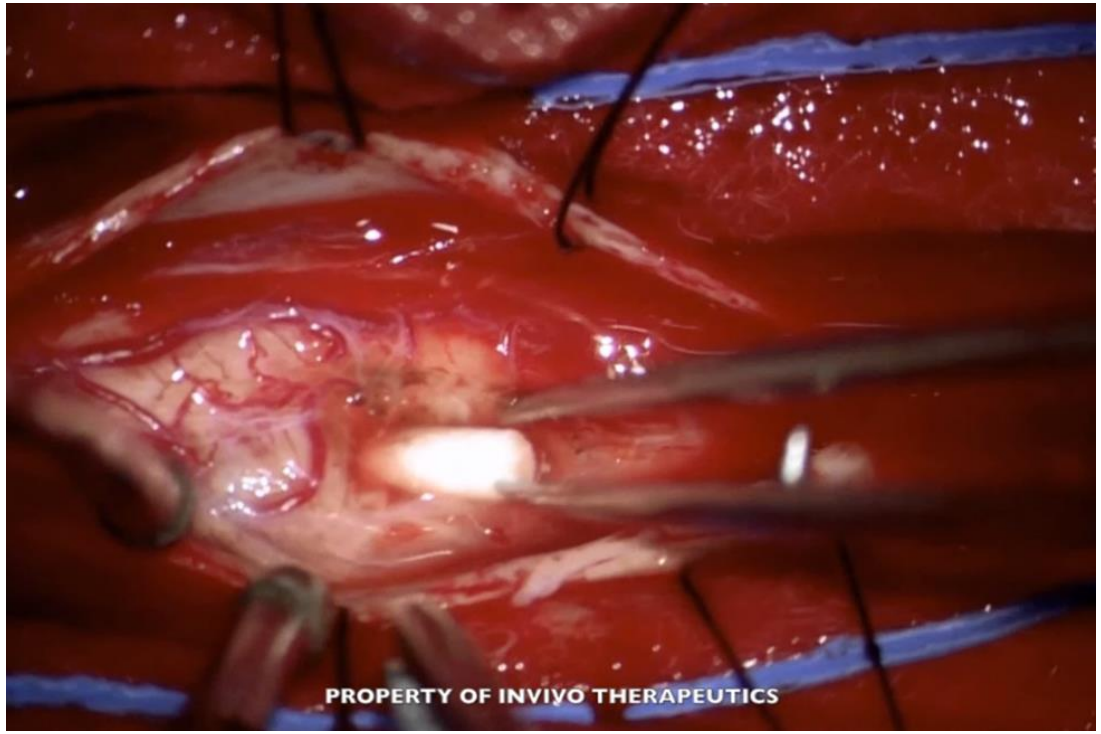


2D Wound Healing

Neuro-Spinal Scaffold



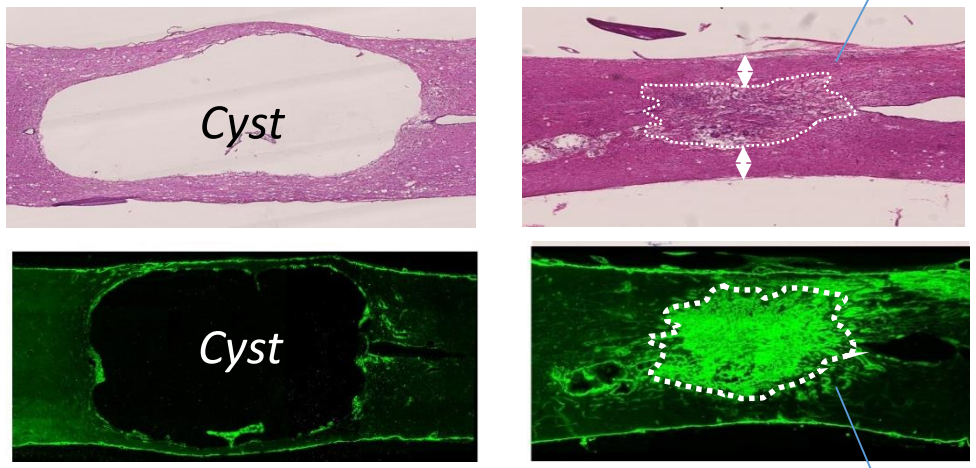
Internal 3D Wound Healing



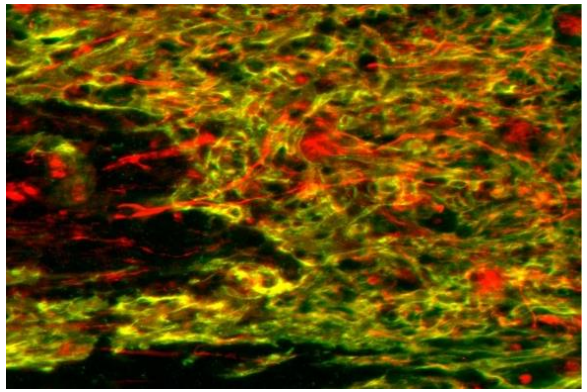
The *Neuro Spinal Scaffold*™ Increases Remodeled Tissue Supporting Neural Regeneration

Control

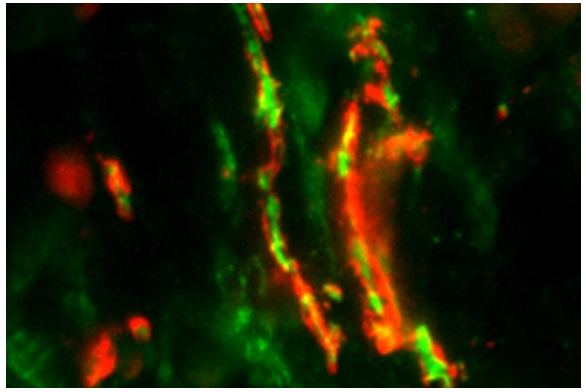
NS Scaffold-treated



Rat Acute Spinal Cord Contusion Injury
(at 12 weeks)



Remodeled tissue at site of Scaffold implantation contains abundant laminin (green) and new axons (red) versus large cyst when untreated

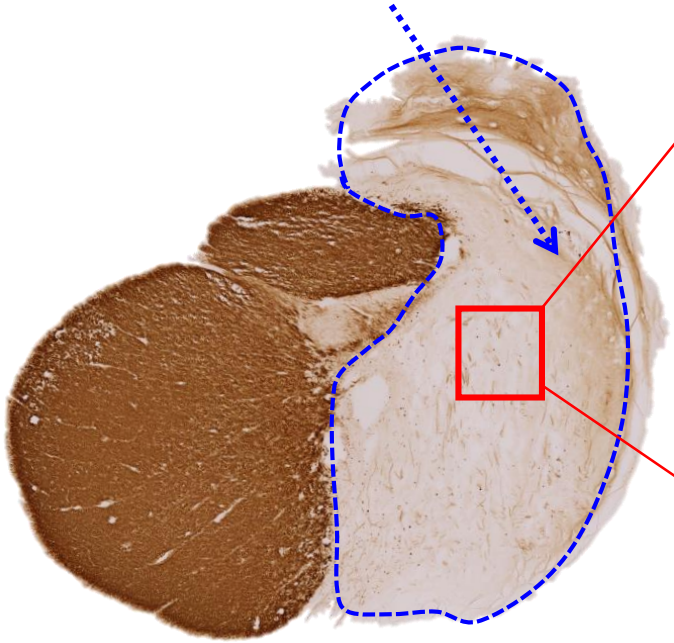


Infiltrating Schwann cells (red) surrounding axons (green)

Neuro-Spinal Scaffold™ Promotes Neural Regeneration and Functional Recovery

Primate Hemicordectomy Model (at 3 Months)

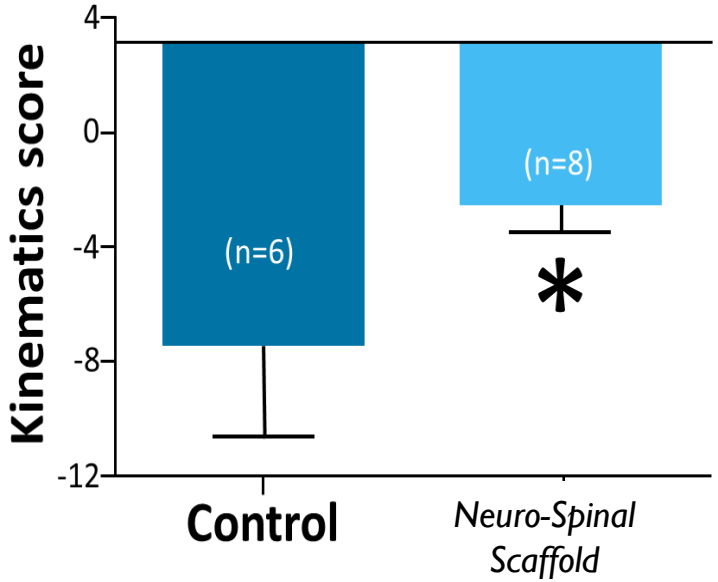
Increased remodeled tissue



Neural regeneration

Myelin basic protein stained axons in remodeled tissue

Improved functional recovery



Slotkin JR *et al.,* manuscript submitted

The INSPIRE Study – Study Design

InVivo Study of Probable Benefit of the *Neuro-**Spi**nal Scaffold*™ for Safety and Neurologic **Re**covery in Subjects with Complete Thoracic AIS A Spinal Cord Injury

- Primary Objective: To evaluate whether the Scaffold is safe and demonstrates probable benefit for the treatment of complete T2-T12/L1 spinal cord injury
- Primary Endpoint: AIS conversion by 6 month follow-up visit
- Objective Performance Criterion: At least 25% of subjects convert from complete paraplegia (AIS A) to partial paralysis by 6 months
  - Large, multinational, natural history databases consistently indicate that only 12-16% of subjects with complete (AIS A) thoracic injury will convert to an improved AIS grade within 6 months after injury
- Additional Endpoints: Sensory and motor scores, bladder and bowel function, Spinal Cord Independence Measure, pain, quality of life
- Plan to enroll 20 subjects
- Currently 23 active sites in the US and Canada, with sites in the UK planned

The INSPIRE Study – Key Eligibility Criteria

InVivo Study of Probable Benefit of the *Neuro-**Spi**nal Scaffold*™ for Safety and Neurologic **Re**covery in Subjects with Complete Thoracic AIS A Spinal Cord Injury

INCLUSION

- Neurological level of injury T2 to T12/L1
- AIS A classification
- 16-70 years of age, inclusive
- Must implant Scaffold within 96 hours from injury
- Non-penetrating SCI (contusion injury) that is no less than approximately 4 mm in diameter by MRI
- Informed consent obtained

EXCLUSION

- Terminally ill subjects
- Significant TBI, coma, or unreliable ISNCSCI
- Penetrating SCI
- Radiographic or visual evidence of parenchymal dissociation or anatomic transection where the contusion completely bridges a full cross-section of the spinal cord
- Requiring long-term ongoing mechanical ventilation
- Clinically significant pre-existing neurological comorbidities, respiratory disease, or infection; documented immune deficiency disorders; recent significant substance abuse or sever mental illness

The INSPIRE Study - Promising Neurologic Outcomes and Favorable Safety Profile

Subject	Date of Implantation	NLI	Neurologic Outcome to Date
1	October 2014	T11	**Converted to AIS C at 1 month**
2	January 2015	T7	Remains AIS A at 12 months
3	June 2015	T4	**Converted to AIS B at 1 month**
4	August 2015	T3	Remains AIS A at 12 months
5	September 2015	T8	**Converted to AIS B at 6 months**
6	February 2016	T10	**Converted to AIS B at 2 months**
7	March 2016	T4	Remains AIS A at 3 months
9	May 2016	T3	**Converted to AIS B at 3 months**

NOTE: Subjects 8 and 10 passed away with the cause of death deemed unrelated to Neuro-Spinal Scaffold™ or implantation

- No Serious Safety Events related to either the Scaffold or the procedure to implant the Scaffold

Neuro-Spinal Scaffold™ for Treatment of Acute Thoracic Complete Spinal Cord Injury

- Designed to promote the formation of neuro-permissive remodeled tissue that supports neural regeneration and re-myelination of denuded axons
- Scaffold implant into spinal cord contusion cavity feasible 9 - 83 hours after injury
- Preliminary results demonstrate 5 of 8 subjects with AIS conversion occurring 1 to 6 months post injury
- Excellent safety profile

InVivo Therapeutics - Next Steps

Acute SCI: *Neuro-Spinal Scaffold* ™

1. The INSPIRE Study
   - ✓ Complete subject enrollment
   - ✓ Results available late 2017
2. Investigate the safety and feasibility of the *Neuro-Spinal Scaffold™* in cervical SCI

Chronic SCI: Bioengineered Neural Trails™ - Novel neural stem cell product for chronic SCI

Thank you!

- Subject 1 walking with aid 12 months after Scaffold implant