

NanoStem Biotech: Executive Summary

Unmet Market Need

- **No effective treatment of central nervous system (CNS) injuries**
- **Significant hurdles in stem cell therapy**
 - Low cell survival rate
 - Incomplete differentiation
 - Limited neurite growth
- **Key challenges with bioscaffolds today**
 - Burst release of drugs
 - Insufficient cellular adhesion support
 - Slow scaffold degradation

Market Opportunity

- U.S.: 291k SCI patients today; 18k new annually
- Direct costs (depending on severity/category):
 - 1st year: \$350k to >\$1M
 - Annual recurring: \$40k to >\$200k
- Current neurological categories (incomplete vs. para/tetraplegic) imply a large unmet market opportunity, which we estimate to be \$30B+

Current State of Technology

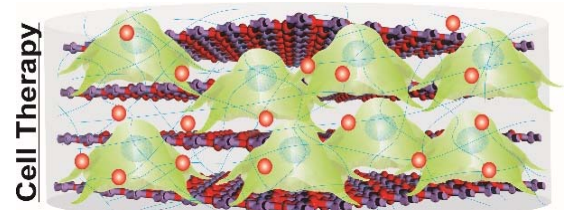
- **PCT patent filed Nov 2018**
 - Covers material, methods of use, and manufacture thereof
 - Strong in vitro and in vivo data
 - *Extensive dataset available upon request*
- **Near-term goals**
 - TOX and additional in vivo tests in progress
 - Target IND filing in 2021

"THE ASK"

- We are looking for a seasoned entrepreneur:
 - Become a business co-founder
 - Help refine market direction & strategy
 - Help raise dilutive/non-dilutive capital
 - Help guide us through IND-enabling studies, and liaise with CROs/CMOs
- We also welcome partnerships with clinicians and industry participants with deep, relevant knowledge

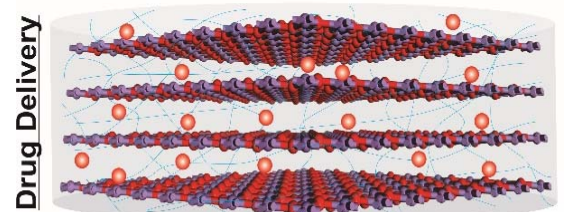
Our Solution

- **Biodegradable MnO₂ nanoscaffold**
 - 3D biomimicry scaffold for stem cell therapy
 - Stem cell / neuronal differentiation
 - Upregulated ECM-protein binding affinity
 - Efficient drug loading with sustained delivery
 - MRI/FRET-based monitoring of drug release
- **Primary target market: spinal cord injury (SCI)**
 - Significant market opportunity
 - Our team's direct access to leading SCI experts:
 - Wise Young, MD, PhD, Distinguished Professor, Rutgers
 - Potential for platform technology with other fields of use: cardiovascular, musculoskeletal, skin, etc.
- **Our Scientific Team:**
 - KiBum Lee, PhD; Professor, Dept. of Chemistry & Chemical Biology, Rutgers
 - Letao Yang, PhD; Postdoc Research Assoc.
 - Dean Chueng, PhD; Postdoc Research Assoc.



Drugs, ECM proteins, and Stem Cells

Key scaffold composition:
MnO₂ +ECM proteins



Drugs, ECM proteins

Current Methods of Treatment for SCI

- As a reminder, no effective treatments today.
- Direct Cell Injection and Transplantation:
 - Nipro, Athersys, Brainstorm Cell
- Scaffold-based Cell Transplantation:
 - Allegro 3D, Vericell