Tissue Bioreactor for Modifiable Stretch of DRG Tissue Scaffold

The Technology and Innovation

- Use cylindrical fixtures to stabilize attachment to grips
- Allow grips to be replaceable
- Create independence from bioreactor
- Using conductive glass as heating instrument
- Motor is USB-programmable and allows for high resolution stretch
- Housing can be viewed under microscope

Community/Industry Impact and Value

- Contribution to research in tissue engineering and regeneration
- Instrument used in our Wayne State University Biomedical Engineering laboratories
- Validate research relating to neuronal growth using mechanical stretching

Community/Industry Engagement

- Life Beyond Barriers
- Wayne State College of Engineering
- NIH (National institute of Heath)

Team Composition

- Maxwell Laws, Biomedical Engineering
- Christina Wong, Biomedical Engineering
- Alex Traster, Biomedical Engineering
- Adam Basha, Biomedical Engineering
- Heather Lai, Biomedical Engineering (Faculty Advisor)
- Harini Sundaraghavan, Biomedical Engineering (Faculty Advisor)

Learning Experiences

- Mechanical Stress-Stress Strain
- Tissue Engineering
- 3D Printing
- Prototype fabrication
- Verification and Validation Testing
- Programming
- Circuit Design

Further Research and Development

- Adding electrical stimulation
- Heating component needs to be fixed onto the device
- Validation of Scaffold Stretching
- Run Actual Experiment