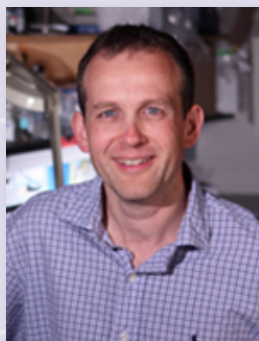


# Neural Prosthesis Seminar

## “Biomaterial Bridges and Delivery Systems in CNS Repair”

Friday, November 21<sup>st</sup>, 2014 • 8:30 AM

Biomedical Research Building 105  
Case Western Reserve University



Lonnie Shea, PhD

### Lonnie D. Shea, PhD

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#### Abstract

Systems and strategies for promoting tissue growth provide enabling technologies for either enhancing regeneration for diseased or injured tissues, or to investigate abnormal tissue formation such as cancer. Given the complexity inherent in tissues, my laboratory is working towards the concept of "Systems Tissue Engineering", which indicates the dual need i) to develop systems capable of presenting combinations of factors that drive tissue growth, as well as ii) to incorporate systems biology approaches that can identify the appropriate combination of factors. Biomaterial scaffolds represent a central component of many approaches and provide the enabling tools for creating an environment and/or deliver factors that can direct cellular processes toward tissue formation. We have developed scaffolds with the objective of providing factors to stimulate growth and also blocking factors that inhibit regeneration, and will illustrate this approach through our work in the area of spinal cord injury, as well as the development of nanoparticles for modulating the immune response in a model of multiple sclerosis.

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