

**When:** May 19, 2017 11:00a – 12:00p

**Where:** Cleveland Clinic Lerner Research Institute, NE1-205

**Title: Neural Culture Screening Platform to Accelerate Regenerative Electrode Design**

**Abstract:** The long-term performance of regenerative neural electrodes is determined in large part by the biological effects of material surfaces at the neural interface and by the bulk material properties beneath the biological interface. We have started to explore known morphogenic cues presented in the form of biologically-active surface coatings to guide axon extension and to afford precise spatial control over axon placement. We have developed a neural culture platform that can be used to screen biologically-active surface coatings and mechanical properties in a relevant 3D context. This platform can be used as a research tool to guide material selection in the development of neural electrodes, in drug screening, or as selective neural guide where precise spatial control over axon placement is required either pre- or post-extension.

**Biography:** LTC Luis M. Alvarez is an Academy Professor in the Department of Chemistry and Life Science at the United States Military Academy and Director of the Center for Molecular Science. He is also the founding Principal Investigator of the Regenerative Biology Research Group ([www.regenbiogroup.org](http://www.regenbiogroup.org)) at the National Cancer Institute where he leads a team of investigators to develop translational regenerative medical approaches to address loss of function resulting from combat trauma and cancer. LTC Alvarez earned a bachelor's degree in Chemistry and Life Science from the United States Military Academy in West Point, New York, (1997) and was commissioned as a military intelligence officer. He continued his education at the Massachusetts Institute of Technology where he earned a master's degree in Chemical Engineering (1999). In 2006, LTC Alvarez returned to MIT to earn a doctor of philosophy degree in Biological Engineering (2009). Luis also holds the Project Management Professional (PMP) certification (2012).

