



Fall 2017 Seminar Series

Electrical Stimulation of the Nervous System as a Therapy:

What Don't We Know, Why Don't We Know It, and How Do We Address It?

About the Speaker



Dr. Kip Ludwig

Associate Director

*of the Mayo Neural Engineering Laboratories
(NEL), Leader of NEL*

Bioelectronic Medicines Laboratory

Dr. Ludwig currently serves as the Associate Director of the Mayo Neural Engineering Laboratories (NEL) and leads the Bioelectronic Medicines Laboratory within the NEL. Prior to Mayo, Dr. Ludwig served as the Program Director for Neural Engineering at the National Institutes of Health (NIH). He co-led the NIH CREATE Devices translational program, led the NIH translational programs under the White House BRAIN Initiative, and led a trans-NIH planning team in developing the ~250 million dollar SPARC Program to stimulate advances in neuromodulation therapies for organ systems. Dr. Ludwig also worked in the neuromodulation industry as a research scientist where he conceived, developed and demonstrated the chronic efficacy of a next-generation minimally-invasive stimulation device to treat hypertension and heart failure. Through his industry work he oversaw Good Laboratory Practice (GLP) and non-GLP studies enabling clinical trials in Europe and the United States, as well as participated in the protocol development and execution of those trials. Dr. Ludwig's device is now approved for sale in seven countries and has progressed to a Phase III 'Pivotal' trial in the United States for FDA approval. Based on the European data, his electrode concept was awarded LifeScience Alley's 'Life-Saving Breakthrough of the Year' in 2014.

Implantable and non-invasive devices to electrically stimulate the nervous system, commonly known as neuromodulation, bioelectronic medicine, or electroceutical devices, are growing exponentially as a clinical therapy.

In 2015, the Minnesota-based LifeScience Alley Association reported there are over 1000 on-going FDA-regulate clinical neuromodulation trials worldwide, with over 70 companies manufacturing or supporting neuromodulation therapies within the Minnesota area alone. Despite the rapid growth of this market sector, much of the success has been driven by phenomenology without a solid mechanistic understanding of how these therapies work.

In this seminar, Dr. Kip Ludwig will overview the neuromodulation space, and identify key gaps in our understanding of how these therapies work. He will discuss the driving reasons why these gaps have not been address historically, and describe new technologies and strategies he has implemented within his own lab to address these gaps. He will also discuss larger efforts from the wider neuromodulation community.

Tuesday, November 28, 2017
11 AM - 12 PM in 1025 Engineering Centers