Exploring Brain Rhythms

Laura Colgin
Assistant Professor, Neuroscience

CURRENT RESEARCH

Studying gamma rhythms and their effect on psychiatric disorders and memory

Neuroscience is one of the more understudied fields of biological science, yet it offers promising information that could reduce and/or eliminate a number of psychiatric diseases. Dr. Laura Colgin of The University of Texas at Austin is studying gamma rhythms, or 'gamma waves.' Gamma rhythms are rapid, rhythmic, electrical signals in the brain that regulate many of our thought processes including attention and memory. Gamma rhythms are disturbed in many psychiatric disorders such as schizophrenia, autism, and Alzheimer's disease. Dr. Colgin's lab is studying gamma rhythms in rodents that have been genetically engineered to express psychiatric diseases found in humans. Her team is working to develop methods for restoring healthy gamma rhythms in individuals with these diseases; repairing damaged gamma waves in psychiatric disorders may recover cognitive ability. This data can ultimately be translated from rodents to humans and used to help develop cures for psychiatric disorders caused by aberrant brain rhythms. Dr. Colgin's research is on the verge of not just uncovering valuable data for deeper neurological research, but also providing data that can improve the quality of life for a number of suffering individuals. Dr. Colgin and her team are also working to understand the fundamentals of normal memory in healthy humans.

Current research projects in her lab include:

- While studying mice that have been genetically engineered to express Alzheimer's disease pathology, Dr. Colgin's team found decreases in gamma rhythms and impairments in memory. The lab is currently employing various brain stimulation techniques to induce gamma rhythms in these mice in order to determine whether memory can...

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AFFILIATION

The University of Texas at Austin

EDUCATION

- Ph.D. in Institute for Mathematical Behavioral Sciences 2003 ,University of California, Irvine
- B.S. in Psychology 1994, University of New Orleans

AWARDS

- Office of Naval Research Young Investigator Award, 2014
- Teaching Excellence Award, 2014
- Sloan Research Fellowship, 2012
- Gruber International Research Award in Neuroscience, 2010
- NSF Career Award, 2015

RESEARCH AREAS

Life Science, Neurological / Cognitive, Neurological / Cognitive

FUNDING REQUEST

Your contributions will support the acquisition of graduate researchers and necessary personnel. Animal models (mice and rats) are the subjects in the majority of the research that Dr. Colgin performs, and those which have been genetically altered to exhibit human psychiatric diseases are expensive. Contributions will also be directed toward maintaining laboratory equipment, such as neural stimulation and measurement tools.