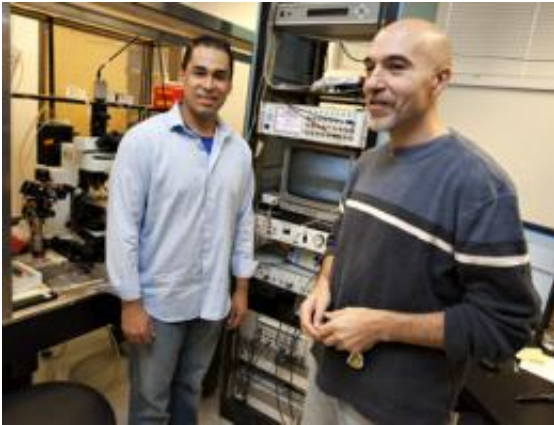


Undergrad's work details protein's role in neurological disorders

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(Medical Xpress) -- A UT Dallas undergraduate's research is revealing new information about a key protein's role in the development of epilepsy, autism and other neurological disorders. This work could one day lead to new treatments for the conditions.

Senior neuroscience student Francisco Garcia has worked closely with Dr. Marco Atzori, associate professor in the School of Behavioral and Brain Sciences (BBS), on several papers that outline their findings about interleukin 6 (IL-6) and hyper-excitability. An article on the project is slated for publication in [Biological Psychiatry](#) later this year.

Scientists know that stress elevates the levels of pro-inflammatory

cytokines (signaling molecules used in intercellular communication) and promotes hyper-excitability conditions within the central nervous system. This hyper-excitability is thought to be a factor in epilepsy, autism and anxiety disorders.

Garcia and Atzori hypothesized that the [protein](#) IL-6 acutely and directly induces hyper-excitability by altering the balance between excitation and inhibition within synaptic communication. In other words, IL-6 is not just present when hyper-excitability occurs in the nervous system. It may actually cause it in some circumstances, Garcia said.

The UT Dallas research team administered IL-6 to rat brain tissue and monitored its synaptic excitability. The brain tissue exhibited higher than normal excitability in their synapses, a symptom that may lead to misfiring of signals in epilepsy and other conditions.

The researchers then injected sgp130 -a novel drug that acts as an IL-6 blocker- into the laboratory animals' brains. The substance limited excitability and appeared to prevent the conditions that lead to related neurological and psychiatric disorders, Garcia said.

“This finding has the potential to lead to eventual new treatments for epilepsy, anxiety disorders or autism,” Garcia said.

The next stage of his research will involve looking at how IL-6 might affect development of other types of neurological problems. Human trials could follow sometime in the future.

Garcia is a native of Mexico, and he plans to pursue his master's degree in neuroscience at UT Dallas after finishing his undergraduate studies. He credits the BBS faculty with allowing him to participate in laboratory experiments and expand his research skills.

“The UT Dallas faculty members have been great about giving me the opportunity to learn the techniques of a lab researcher,” he said. “It’s been a great experience to work as an undergraduate with such highly respected scientists as Dr. Atzori and Dr. Michael Kilgard.”

Atzori also praised Garcia’s efforts.

“Francisco has been an intelligent, hard-working and experimentally gifted student who contributed way more than the average undergraduate to the projects of the laboratory,” Atzori said. “I am proud that a fine piece of research with great potential for research and clinical applications has been carried out thanks to his enthusiasm and dedication. Francisco’s work in my laboratory is an example of the achievements possible when an institution like UT Dallas invests in and nurtures its research environment.”

Provided by University of Texas at Dallas

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