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Mitchell Center for Neurodegenerative Diseases
Neurology
*Pathophysiological Imbalance of Cortical Synaptic AMPA and GABA Receptors in Schizophrenia*

Dr. Limon research in the Mitchell Center for Neurodegenerative Diseases at UTMB focuses on understanding pathophysiological processes that underlie the synaptic remodeling of excitatory and inhibitory signaling in neurological and mental disorders, with the goal to generate better pharmacological strategies to correct abnormal neurotransmission. By using a multidisciplinary approach including the electrophysiological recording of human native receptors affected by disease in Microtransplantation of Synaptic Membranes (MSM) studies, and integrating this functional information with the multiple layers of clinical, histological, transcriptomic and proteomic data from the same subjects, we are gaining novel insights of molecular processes that are most likely occurring in living human brains affected by neurological and psychiatric disorders.

 Dr. Limon graduated from the University of Puebla, Mexico with a Bachelor of Science in Chemistry and Pharmaco-Biology. After obtaining his Doctorate in Science degree (Cum Laude) from the Institute of Physiology in Puebla studying the role of the intrinsic properties of neurons in the diversity of vestibular neurons and the coding of sensory information, he joined Ricardo Miledi's lab as a Postdoctoral Scholar in the University of California at Irvine (UCI), where he demonstrated the possibility to study human neurotransmitter receptors from autopsy brain with long postmortem intervals, and stored frozen for many years, paving the way to access the wealth of physiological information stored in many brain banks. Using this approach, he demonstrated for first time the dysfunction of human native GABA receptors in Alzheimer's disease. Dr. Limon then joined the Psychiatry and Human Behavior department at UCI wherein collaboration with Dr. Sequeira and Dr. Vawter initiated the integration of multidimensional large datasets with the electrophysiological function of synaptic receptors in schizophrenia and major depression. Dr. Limon joined as an Assistant Professor tenure-track in the Neurology department and Mitchell Center for Neurodegenerative diseases at UTMB in 2018, where he studies the role of synaptic mechanisms on schizophrenia and cognitive resilience to Alzheimer's disease in humans.

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