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*Electrophysiologically-anchored Analysis of Synaptic
Dysfunction and Cognitive Deficits in the Continuum of
Alzheimer's Disease Clinical Syndrome*

Dr. Agenor Limon is Associate Professor at the George P. and Cynthia Woods Mitchell Center for Neurodegenerative Diseases at the University of Texas Medical Branch (UTMB). He obtained his Doctorate in Physiological Sciences (Cum laude) from the Institute of Physiology at the Meritorious University of Puebla, and then, moved to UCIrvine to train with Distinguished Professor Ricardo Miledi as a postdoctoral fellow. His current major focus is to elucidate the physiological and pathophysiological processes that underlie synaptic and extrasynaptic remodeling of inhibitory and excitatory signaling in neurological disorders, and how they determine the global excitatory to inhibitory synaptic balance (E/I ratio) that determines the electrical brain activity in the brain. The approach uses electrophysiological data from reactivated, native synaptic receptors extracted from healthy and diseased human brains by Microtransplantation of Synaptic Membranes (MSM), and by integrating this functional information with transcriptomic and clinical data from the same cohort (electrophysiologically-anchored data analysis; EDA). This integrative approach has allowed the analysis of previously overlooked deficits, for example, inhibitory dysfunction in Alzheimer's disease associated to uncoupling of postsynaptic densities, proexcitatory synaptic imbalance in Alzheimer's disease, multimodal convergence on reduced excitatory efficacy of AMPA receptors in schizophrenia.