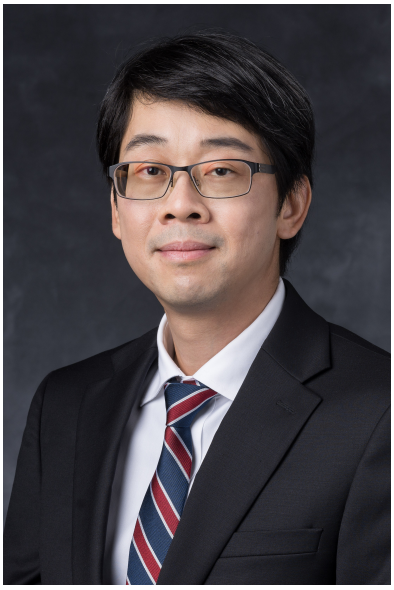

The 11th Annual Exhibition of Undergraduate Research and Creative Activities - EXPO 2024

GUEST SPEAKER

Yuan-Hung Lo, Ph.D.

Assistant Professor- Department of Molecular and Cellular Oncology

University of Texas MD Anderson Cancer Center

April 19, 2024 - 3:30 to 4:15 p.m.

Live Oak Ballroom - Setzer Center

SHORT BIOGRAPHY:

Dr. Yuan-Hung Lo is a tenure-track Assistant Professor at the University of Texas MD Anderson Cancer Center. Before joining MD Anderson, he obtained his Ph.D. at Baylor College of Medicine and completed his postdoctoral fellowship at Stanford University. Dr. Lo's research focuses on developing and applying primary 3D organoid models to study gastrointestinal (GI) tract function and dysfunction. His lab employs cutting-edge genetic approaches to investigate the pathogenic mechanisms of GI diseases, including innovative functional genomic platforms to elucidate how genomic alterations regulate stem cell function, cell lineage differentiation, tumor heterogeneity, and cell vulnerability during cancer development. His recent work has leveraged CRISPR/Cas9-engineered tumor organoid models to investigate the oncogenic transformation of ARID1A-deficient gastric cancer. He has received numerous awards for his work, including the NIH/NCI Pathway to Independence Award (K99/R00) and the NIH/NCI Predoctoral to Postdoctoral Fellow Transition Award (F99/K00

LECTURE: Modeling Gastric Cancer in 3D Organoids

Gastric cancer (GC) is the fourth leading cause of cancer-related deaths worldwide and the fifth most diagnosed cancer, posing a notable global health challenge. Under physiological conditions, intrinsic signaling pathways control epithelial stem cell activity and guide stem cells toward specific cell lineages, thereby maintaining the homeostasis of the epithelium. This delicate balance is often disrupted during cancer development, leading to dynamic changes in cell states. These alterations in cell states are crucial in driving tumor development and contributing to the heterogeneous nature of malignancy. As a result, they significantly impact the response of cancer cells to existing therapies, ultimately leading to unfavorable clinical outcomes. However, GC research has been hindered over the past decades due to the lack of functional genomics human models that can recapitulate essential attributes of human stomachs. To overcome these challenges, we have established a broad range of 3D human gastric organoid models. Our pre-cancerous human gastric organoid models accurately mirror genetic and molecular heterogeneity, preserve histological variables of pre-malignant lesions, and replicate multilineage differentiation, providing a unique opportunity to unveil the molecular mechanism underlying GC initiation and unearth new therapeutic strategies.

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