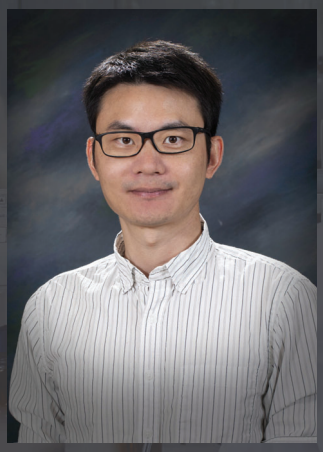
FEATURED SPEAKER



RANJIE XU, PHD

Assistant Professor of Integrative Neuroscience, Purdue University

Dr. Xu earned his Ph.D. in Neuroscience at USTC in 2015 and completed postdoctoral training at Rutgers till 2022. Dr. Xu's prior work includes the development of novel hiPSC models, such as brain organoids and human-mouse chimeras, for the study of neurological disorders (Jin, Xu et al., Cell Stem Cell 2022; Xu et al., Stem Cell Reports, 2021; Xu et al., Nature Communications, 2020; Xu et al., Cell Stem Cell 2019).

In August 2022, Dr. Xu joined the Department of Basic Medical Sciences at the College of Veterinary Medicine as a tenure-track assistant professor. The Xu laboratory aims to develop advanced hiPSC models for investigating human brain development and the pathogenesis of neurological disorders, particularly Alzheimer's disease and Down syndrome, focusing on neuro-immune interactions. The Xu laboratory is also actively involved in developing therapeutic interventions for these diseases, including iPSC-based immune cell therapy.

SPRING 2024

SEMINAR FOR NEUROTRAUMA AND DISEASES

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PRESENTS

TACKLING ALZHEIMER'S DISEASE USING HUMAN IPSC-BASED BRAIN ORGANOIDS AND HUMAN-MOUSE CHIMERIC BRAINS

Date: March 20, 2024 **Time:** 4:00 p.m. - 5:00 p.m. EDT

Location: DLR 131 **Zoom Link:** http://bit.ly/42hhhJG

Meeting ID: 923 5486 2062 **Passcode:** CPR

ABSTRACT

Alzheimer's disease (AD) is the leading cause of dementia, impacting 6.7 million Americans and leading to significant health and socioeconomic challenges. Unfortunately, most AD therapeutics that demonstrated success in animal models have failed in clinical trials significantly due to the substantial species difference between humans and animals. Currently, limited therapy is available to prevent or halt disease progression, highlighting the urgent need for more translational AD models. Building on our previously established human induced pluripotent stem cell (iPSC) models, we generated novel vascularized neuron-immune AD organoid and human-mouse AD chimeric brain models. These human iPSC-based AD models provide a unique opportunity to study AD in human-cell settings and avoid species difference-caused translational failures. We further validated our models by assessing the newly approved AD drugs. In summary, the human iPSC-based brain organoid, and human-mouse chimeric brain models hold great potential in investigating the underlying mechanism, identifying therapeutic targets, and advancing drug development for AD.

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