NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

Map to Block S3

SEMINAR

Wed, 22 Oct 2025 | 10 am | S3-05-02 Conference Room 1

Hosted by Assistant Prof Phua Siew Cheng

Illuminating the Biochemical Activity Architecture of the Cell

By Jin Zhang

Vice-Chair and Professor, Pharmacology, School of Medicine, University of California, San Diego

The complexity and specificity of cellular processes, such as signal transduction and metabolism, require spatial microcompartmentation and dynamic modulation of the underlying biochemical activities. We hypothesize that cellular biochemical activities are spatially organized into an "activity architecture" and reorganization and restructuring of this activity architecture lead to disease. In this talk, I will introduce a series of genetically encoded or chemigenetic fluorescent biosensors that we have developed to monitor biochemical events in living cells, and then present a couple of studies where we combine quantitative fluorescence imaging with targeted perturbations as well as biochemical and functional assays to probe the spatiotemporal regulation of cell signaling.

About the Speaker

Dr. Jin Zhang received her PhD in Chemistry from University of Chicago in 2000. After completing her postdoctoral work in the laboratory of Roger Tsien at UC San Diego, she joined the faculty of Johns Hopkins University School of Medicine in 2003. She was promoted to Professor of Pharmacology in 2013. In 2015 she moved back to UC San Diego and is currently Professor and vice Chair in Department of Pharmacology. Research in her lab focuses on developing enabling technologies to probe the active molecules in their native environment and characterizing how these active molecules change in diseases including cancer. Dr Zhang is a recipient of several awards, including NIH Director's Pioneer Award, NCI Outstanding Investigator Award, Robert R. Ruffolo Career Achievement Award in Pharmacology, Protein Society Christian B. Anfinsen Award and Biophysical Society Carolyn Cohen Innovation Award.