FASEB
Federation of American Societies for Experimental Biology

Science Research Conferences

The Understudied Druggable Proteome Conference

Organizer Bio: Lily Jan, PhD

HHMI Investigator and Professor, Physiology and Biophysics, University of California, San Francisco, USA

After earning her physics degree at National Taiwan University, Lily Jan began her graduate studies at Caltech in 1968, first in physics, then in biology under the influence of Max Delbrück.

She completed her postdoctoral training at the California Institute of Technology with Seymour Benzer and Steve Kuffler. It was in Kuffler's lab that she began her long-term collaboration with her husband, Yuh-Nung Jan, PhD, beginning with studies that uncovered potassium channel abnormalities as the basis for the neurological phenotypes of *Shaker* mutant flies. Together, they continued their training at Harvard Medical School to demonstrate that peptides can function as neurotransmitters.

At the Jan Lab at the University of California, San Francisco, cloning of the first potassium channel gene *Shaker* and its mammalian homolog—combined with studies in Oregon Health & Sciences University, showing that neurological syndromes of patients with episodic ataxia type I are due to mutations of a human homolog of the *Shaker* voltage-gated potassium channel—attest to the evolutionary conservation of potassium channel functions.

The Jan Lab has followed up studies of the voltage-gated potassium channel family with expression cloning of a founding member of another large family of potassium channels (the inwardly rectifying potassium channels that control neuronal excitability) and the founding member of a novel calcium-activated chloride channel family, leading to molecular and cell biological studies of how these ion channels work and how they contribute to neuronal signaling.

In parallel to these ion-channel studies, the Drs. Jan began their work on neural development in order to understand how neurons acquire their specific cell fate and morphology. More recently, they have begun unraveling the logic and underlying mechanisms for generating diversity in neuronal morphology (especially dendritic morphology) and learning how such diversity contributes to the wiring of the nervous system.