California State University, Fresno, Department of Biology presents:

"**Seeing Neuropharmacology In A New Light**"

Dozens of $GABA_A$ receptor isoforms that mediate synaptic inhibition in the mammalian brain differ in their kinetics and cellular expression, and are the primary targets of first-line neuropharmacology. We created an Optogenetic Pharmacology toolkit with knock-in mouse for $GABA_A$ receptors. It enables us to use light to manipulate $GABA_A$ receptors with temporal and spatial precision in addition to the isoform specificity. We showed that this technology is capable of both *in vitro* and *in vivo* applications. With the assistance of this new technology, I will be presenting my latest result: the first functional survey of "receptor connectome" of α1-containing $GABA_A$ receptor (α1-$GABA_AR$) in cortical inhibitory microcircuit. The receptor connectome result implies that the cortical neural circuit dynamics might be constrained by the synaptic inhibition kinetics differences at cortical inhibitory microcircuit as a result of the differential expression of the α1-$GABA_A$ receptor. We will take the advantage of this new circuit level of information of α1-$GABA_AR$ to further our knowledge regarding the site of action of current $GABA_AR$ medicine and, therefore, to facilitate future drug discovery.

Dr. Ming-Chi Tsai
Department of Molecular and Cell Biology at the University of California, Berkeley.

Friday, August 31, 2018
3:00 – 4:00 PM
Science 2, room 109

If you need a disability-related accommodation or wheelchair access, please contact Lindasue Garner at the Department of Biology at 278-2001 or e-mail lgarner@csufresno.edu (at least one week prior to event).