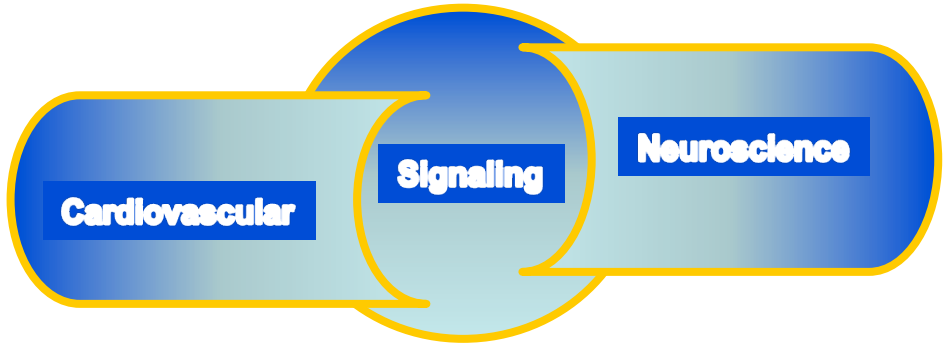

The Department of Pharmacology

Proudly Presents the Seminar Series:

Frontiers in Pharmacology

"Regulated Delivery and Removal of Synaptic Machinery"

Our research explores the molecular machinery that contributes to synaptic function, communication between neurons and neuronal circuits. Our goal is to obtain a mechanistic, soup-to-nuts understanding of how synapses are built, how synapses contribute to information processing by neural circuits, and ultimately how synapses and neural circuits give rise to learning and memory. Although nervous systems vary widely in size and number of neurons, synapses are evolutionarily conserved and remarkably similar. At most synapses, AMPA-type ionotropic glutamate receptors (AMPARs) mediate excitatory synaptic transmission. My laboratory has developed new genetic strategies to uncover the molecular machinery required for AMPA-mediated synaptic transmission. In a series of studies in the nematode *C. elegans*, we have identified new classes of auxiliary subunits that contribute to AMPAR function, shown that they have dramatic effects on *in vivo* glutamate-gated currents, and demonstrated that mutations in these genes predictably modify specific behaviors. We are also interested in how AMPARs are transported to distant synapses. We recently demonstrated the central importance of UNC-116, the homolog of vertebrate kinesin-1 heavy chain (KIF5), for the delivery, and surprisingly, the removal and redistribution of synaptic AMPARs. Transport is essential for the homeostatic maintenance of synaptic strength, and our current efforts are directed towards identifying the molecules that regulate the delivery and removal of AMPARs.

Andres Villu Maricq, M.D., PhD.

Professor of Biology, Adjunct Professor of Neurology
The University of Utah

Tuesday, September 16, 2014
4:00 pm
GBSF Auditorium (Rm. # 1005)

Light refreshments will be served.

Host : Elva Diaz
ediaz@ucdavis.edu