PHYSIOLOGY & MEMBRANE BIOLOGY

SCHOOL OF MEDICINE

UNIVERSITY OF CALIFORNIA AT DAVIS

DISTINGUISHED SPEAKER SERIES

Douglas A. Bayliss, Ph.D.

Chair and Professor

Department of Pharmacology

University of Virginia Health System, Charlottesville

"Regulation of Cellular Excitability by Modulation of Background Channels: Mechanisms and Physiological Roles"

In this seminar, I will present our work on K2P channels, a unique gene family of well-modulated background or 'leak' K channels. I will first describe general properties of this gene family and show contributions of two particular channels - K2P3 and K2P9 - to native pH-sensitive background K currents in various neuronal cell types. I will show that these channels underlie a neurotransmitter- and anesthetic-sensitive K current that regulates neuronal excitability. I will then present results addressing mechanisms for this modulation, with a focus on elucidation of a novel signaling pathway for channel inhibition that involves a PLC-independent action of the G protein subunit, $G\alpha_q$. Finally, I will describe our work using new mouse models in which we have examined predicted roles for these channels in a number of physiological settings, including sensitivity to inhaled anesthetics, pH-dependent control of breathing and regulation of aldosterone secretion.

Friday, January 9, 2009

10:00 am

GBSF Auditorium, Room 1005

Refreshments Will Be Served

Contact Information:

Alla Fomina, Ph.D.
affomina@ucdavis.edu
Yu-Fung Lin, Ph.D.
yflin@ucdavis.edu