



## The Department of Pharmacology

Proudly Presents the Seminar Series:

### *Frontiers in Pharmacology*

#### **“Spatial and Temporal Aspects of cAMP Signaling in Cardiac Myocyte”**

The second messenger cAMP is involved in regulating a variety of responses in virtually every cell in our bodies. A prime example is in the heart, where both beta-adrenergic and muscarinic receptors mediate sympathetic and parasympathetic effects on electrical and mechanical properties of cardiac myocytes through changes in cAMP production. However, not all responses can be explained by uniform changes in cAMP activity throughout the entire cell. Using a variety of experimental techniques, including targeted FRET-based biosensors, together with computational models of compartmentalized cell signaling, we have obtained evidence that compartmentation of cAMP signaling can explain temporal as well as spatial aspects of receptor mediated responses. Key factors include the non-uniform production of cAMP by receptors and adenylyl cyclase isoforms in different membrane microdomains, as well as limited diffusion of cAMP that may be due at least in part to buffering by mitochondrial protein kinase A.

**Robert Harvey, Ph.D**  
**Professor,**  
*Department of Pharmacology,*  
*University of Nevada, Reno*

**Tuesday, December 18, 2014**  
**11:00 am**  
**GBSF Auditorium**  
**(Rm. # 1005)**

*Light refreshments will be served.*

*Host : Colleen Clancy*  
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