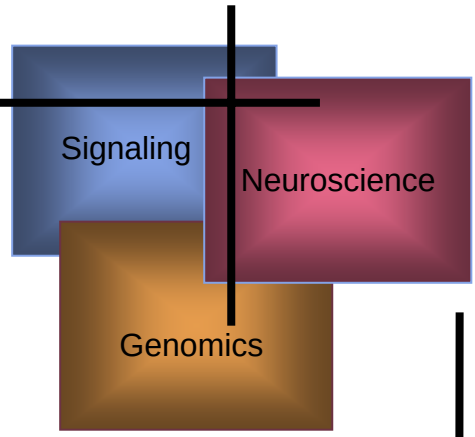
Medical Pharmacology and Toxicology



Proudly Presents the
Seminar Series:

Frontiers in Pharmacology

Professor Bernd Fakler, M.D.

Department of Physiology
University of Freiburg

"Coupling of Cav and BKCa channels analyzed by functional proteomics"

BKCa channels are dually activated by membrane depolarization and elevation of cytosolic Ca2+. Under normal cellular conditions BKCa channel activation requires Ca2+ concentrations that typically occur in close proximity to Ca2+-sources. It is shown that BKCa channels affinity-purified from rat brain are assembled into macromolecular complexes with the voltage-gated calcium channels Cav1.2 (L-type), Cav2.1 (P/Q-type) and Cav2.2 (N-type). Heterologously expressed BKCa-Cav complexes reconstitute a functional 'Ca2+ nano-domain' where Ca2+ influx through the Cav channel activates BKCa in the physiological voltage-range with sub-millisecond kinetics. Complex formation with distinct Cav channels enables BKCa-mediated membrane hyperpolarization that controls neuronal firing pattern and release of hormones and transmitters in the CNS..

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11:00 am