The Brooks - Kayal Lab

Research in the Brooks-Kayal Lab focuses on understanding the molecular and cellular mechanisms that result in development of epilepsy in order to develop new ways to prevent and treat this disorder. The lab uses a variety of molecular, neurophysiological and histological techniques and animal models of epilepsy. Current studies focus on the role of signal transduction pathways, including CREB, JAK/STAT, BDNF and Egr on GABA(A) receptor expression and trafficking. The lab also studies the effects of early-life seizure activity and seizure treatment on brain development.

Dr. Amy Brooks-Kayal is the Chief of Child Neurology and the Ponzio Family Chair in Pediatric Neurology. Dr. Brooks-Kayal came to the University of Colorado Denver in July 2008 from The Children’s Hospital of Philadelphia (CHOP) and University of Pennsylvania (Penn) School of Medicine. She is internationally recognized for clinical care and research in epilepsy, and is a member of the Board of Directors of the American Epilepsy Society and a previous editor of Epilepsia, the journal of the International League against Epilepsy.

Lab Personnel

Amy Brooks-Kayal, M.D. (Professor)
Yogendra Raol, Ph.D. (Assistant Professor)
Marco Gonzalez, PhD. (Instructor)
Heidi Grabenstatter (Postdoctoral Fellow)
Yasmin Cruz (PRA)
Lauren Goldstein (PRA)
Dusty Christian, (Staff Assistant)
James Simpson (Finance Administrator)

Location

University of Colorado Denver- Anschutz Medical Campus
Research Complex II, Room 4122
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Current NIH Funded Studies

Research Studies Molecular Determinants of GABAR Gene Regulation
Co-PI: Amy Brooks-Kayal, MD
Source: NIH R01; NINDS
Amount: $242,578
Term 04/06-03/11

GABA(A) Receptor Subunit Regulation in Epileptogenesis
PI, Amy Brooks-Kayal, MD
Source: NIH R01; NINDS
Amount: $235,350
Term: 12/05-12/09

GABA(A) Receptors in Developmental Epileptogenesis
PI, Amy Brooks-Kayal, MD
Source: NIH R01; NINDS
Amount: $180,653
Term: 12/04-11/09

Recent Publications
2006


2008

Hu Y, Lund IV, Gravielle M, Farb DH, Brooks-Kayal AR, Russek SJ: Surface Expression of GABA-A Receptors is transcriptionally controlled by the interplay of CREB and its Binding


2009


Translational Epilepsy Research Program

The Translational Epilepsy Research Program formed jointly between the School of Medicine and the School of Pharmacy brings together expertise of researchers in molecular biology, pharmacology, neurochemistry, cellular and in vivo physiology and animal models of epilepsy. This research program includes members from the School of Pharmacy and members of the Departments of Pediatrics and Neurology in the School of Medicine including Drs. Manisha Patel, Amy Brooks-Kayal, Tim Benke, Andy White, Lauren Frey, Yogendra Raol, Marco Gonzalez and Audrey Yee. This state of the art trans-school program provides shared research infrastructure needed by multiple investigators (ie., core facilities for rodent EEG monitoring, cell and tissue culture, microscopy/imaging, electrophysiology, cognitive and behavioral testing, and molecular biology), and provides an essential bridge between the University's strengths in basic neuroscience, medicinal chemistry and targeted therapeutic compound development and its strong clinical programs to facilitate more rapid development and translation of new therapies for neurological disease from target identification to pre-clinical development to clinical trials. The Rodent Neurophysiology Core also benefits all members of the University research community working in rodent models of neurological disease, providing state-of-the-art neurophysiological (EEG,Sleep) monitoring for models of CNS disorders, including head trauma, stroke, neurodevelopmental and neurodegenerative diseases as well epilepsy.