

Curriculum Vitae

Amy Brooks-Kayal, MD, FAES, FAAN, FANA

Current Position

Professor and Chair, Department of Neurology
Andrew John Gabor, M.D., Ph.D. Presidential Endowed Chair
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Education

1984	BA	Cornell University, College of Arts and Sciences
1988	MD	Johns Hopkins University
1988-1991		Resident in Pediatrics, Children's Hospital of Philadelphia
1991-1992		Charles A. Dana Fellow in Neuroscience, Institute of Neuroscience
1992-1995		Resident in Child Neurology, Hospital of the University of Pennsylvania and Children's Hospital of Philadelphia

Academic Appointments

1993-1994	Assistant Instructor in Neurology, Department of Neurology, University of Pennsylvania School of Medicine
1994-1995	Instructor in Neurology, Department of Neurology, University of Pennsylvania School of Medicine
1995-2005	Assistant Professor of Neurology at the Children's Hospital of Philadelphia, University of Pennsylvania School of Medicine
2005-2008	Associate Professor of Neurology at the Children's Hospital of Philadelphia, University of Pennsylvania School of Medicine
2008-present	Professor of Pediatrics, University of Colorado School of Medicine
2008-present	Co-director, University of Colorado Translational Epilepsy Research Program
2009-present	Professor of Neurology, University of Colorado School of Medicine
2010-present	Professor of Pharmaceutical Sciences, University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences
2011-present	Tenure, University of Colorado School of Medicine
2020-present	Professor, Department of Neurology, University of California, Davis, School of Medicine

Hospital and/or Administrative Appointments

1995-2008	Medical staff, Children's Hospital of Philadelphia and Hospital of the University of Pennsylvania
2008-present	Medical staff, Children's Hospital Colorado, Aurora, CO

2008-present	Chief, Division of Neurology, Department of Pediatrics, University of Colorado School of Medicine
2008-present	Chair, Department of Neurology, Children's Hospital Colorado, Aurora, CO
2008-present	Ponzio Family Chair in Pediatric Neurology, Children's Hospital Colorado, Aurora, CO
2008-present	Co-Director, Translational Epilepsy Research Program, University of Colorado Anschutz Medical Campus
2009-present	Physician Leader, Neuroscience Institute, Children's Hospital Colorado
2020-present	Chair, Department of Neurology, University of California, Davis, School of Medicine
2020-present	Andrew John Gabor, M.D., Ph.D. Presidential Endowed Chair, University of California, Davis, School of Medicine

Awards, Honors and Membership in Honorary Societies

1980	Cornell National Scholar Award
1984	Cornell Presidential Scholar Award
1984	Phi Beta Kappa, Phi Kappa Pi
1985	Barry Wood Biomedical Research Award
1988	Alpha Omega Alpha
1991	Charles A. Dana Research Fellowship in Neuroscience
1995	American Epilepsy Society Travel Award
1995	MAPS Scholar
1999	American Epilepsy Society Junior Investigator Research Award
1999	Child Neurology Society Young Investigator Award
2001	Child Neurology Foundation Award
2006	Board of Directors, American Epilepsy Society
2006	Elected to American Neurological Association
2007	NIH Epilepsy Benchmark Steward
2007	American Academy of Neurology Leadership Development Program
2008	Ponzio Family Endowed Chair in Pediatric Neurology, The Children's Hospital, Aurora CO
2009	Marquis, Who's Who in America Award
2009	Best Doctor's in America
2010	Nominating Committee, American Epilepsy Society
2011	Tenure, University of Colorado School of Medicine
2011	Executive Board, American Neurological Association
2011	Councilor, Professors of Child Neurology
2011	Chair, Merritt-Putnam Symposium at the American Epilepsy Society
2011-13	US News and World Report "Top Pediatric Neurologist"
2012	2 nd Vice-President, American Epilepsy Society
2013	Fellow, American Neurological Association
2013	Chair, Clinical Neuroplasticity and Neurotransmitters (CNNT) Study Section
2013	1 st Vice-President, American Epilepsy Society
2014-18	Advisory Council, National Institute of Neurological Disorder and Stroke
2014-15	President, American Epilepsy Society
2015-16	Past President, American Epilepsy Society
2016	Vice Chair, Gordon Research Conference on Epilepsy and Neuronal Synchronization, Girona, Spain
2016	Fellow, American Academy of Neurology
2016	Fellow, American Epilepsy Society
2017	Elected Member, North American Commission of the International League Against Epilepsy (term 2018-2021)
2017	Elected Director, American Board of Psychiatry and Neurology (term 2018-2021)

2018	Co-Chair, Gordon Research Conference on Epilepsy and Neuronal Synchronization, Mt. Snow, Vermont
2018	Swebilius Award in Epilepsy from Yale University
2019	Sara Hertafeld Memorial Lecturer, University of Rochester
2019	Founders' Award, American Epilepsy Society

Memberships in Professional and Scientific Societies and Other Professional Activities

International

1991-present	Society for Neuroscience (Scientific Program Committee 2005-2008; Chair of CME Subcommittee 2006-2008; Awards Advisory Committee 2009-present)
1994-present	International League Against Epilepsy (Translational Epilepsy Research Task Force 2012-present; Pediatrics Commission 2014-17; North American Commission 2018-present)

National

1989-2008	American Academy of Pediatrics
1992-present	American Academy of Neurology (Leadership Development Program- 2007; Translational Neurology Subcommittee 2015-2017, Science Committee 2017-2021; elected Fellow- 2016)
1992-present	Child Neurology Society (Scientific Selection committee 2002-2004; Awards committee 2003-2005 and Child Neurology Foundation Advocacy Committee 2004-2012; Nominating Committee 2018-2021)
1994-present	American Epilepsy Society: President - 2014-15, VP 2012-2014; Fellow, Nominations Committee 2016-2018 (Chair); Development Council (Chair) 2016-2018; Research Recognition Award Committee 2012-2014; Merritt-Putnam Symposium (Chair)-2012-2014; Translational Epilepsy Research Task Force 2012-present; ILAE/AES Workshop on Preclinical Development in Epilepsy, Workgroup Chair-2012; Nominating Committee 2010-2012; Board of Directors 2007-2010; Governance Committee 2008-2011 (Chair 2013-2014); Research and Training committee 2007-2010; Basic Science Committee 2006-2010; Chair of Scientific Program Committee 2005; Vice-Chair of Scientific Program Committee 2004; Pediatric Epilepsy Committee 2004-present; Investigators' Workshop committee 2001-2003; Task force on AED Development 2001-2006.
1999-2013	Epilepsy Foundation (Research Council)
2001-2021	American Board of Psychiatry and Neurology (Director 2018-2021; Examiner 2001-2007)
2000-2012	Society for Pediatric Research
2001-2011	National Institutes of Health, National Institute of Neurological Diseases and Stroke, Neurodevelopmental Effects of Anti-Epileptic Drugs Trial, Data and Safety Monitoring Board
2001-2005	National Institutes of Health, National Institute of Neurological Disorders and Stroke Clinical Neurosciences and Disease (CND) Study Section (Regular Member)
2001	National Institutes of Health, National Institute of Neurological Disorders and Stroke

	Special Emphasis Panel for Developmental Pharmacology
2001	National Institutes of Health, National Institute of Neurological Disorders and Stroke Special Emphasis Panel for Fellowships
2002	National Institutes of Health, National Institute of Neurological Disorders and Stroke Workshop, Models for Epilepsy and Epileptogenesis
2002-2003	Partnership for Pediatric Epilepsy Research Study Section
2004	National Institutes of Health, National Institute of Neurological Disorders and Stroke Workshop on Developmental Epilepsy Models
2005-2008	Citizens United for Curing Epilepsy (CURE) Scientific Advisory Board Member
2005-2011	National EpiFellows Foundation (Scientific Advisory Board)
2005-2007	National Institute of Neurological Disease and Stroke Curing Epilepsy 2007 Conference: Translating Discoveries into Treatments (Chair of session "Beyond Seizures-Cognitive and Psychological Co-Morbidities of Epilepsy", Member of Executive Organizing Committee)
2006-present	American Neurological Association: Membership Committee 2009-2011; Executive Board 2010-2013; Nominating Committee 2016-2018; Fellow
2006	National Institutes of Health, Clinical Neuroplasticity and Neurotransmitters (CNNT) Study Section (ad hoc reviewer)
2007-2014	Epilepsy Research Benchmarks, National Institutes of Health, National Institute of Neurological Disorders and Stroke, Benchmark Steward and Co-Chair for Benchmark III, "Co-morbidities of Epilepsy"
2008-present	Professors of Child Neurology: Councilor 2011-2014
2010	National Institute of Neurological Disorders and Stroke (NINDS) workshop "Disease Modification and Antiepileptogenesis (AEG): Alignment of Clinical Targets and Criteria for Preclinical Studies"
2009 - 2010	National Institutes of Health, Developmental Brain Disorders (DBD) Study Section (ad hoc member)
2010 – 2014	National Institutes of Health, Clinical Neuroplasticity and Neurotransmitters (CNNT) Study Section (Regular Member 2010-2013; Chair, 2013- 2014)
2012	National Institutes of Health, National Institute of Neurological Disorders and Stroke Antiepileptic Drug Discovery (ADD) Program Review Panel.
2014	National Institutes of Health, National Institute of Neurological Disorders and Stroke, Center without Walls (U01) for Sudden Unexpected Death in Epilepsy, Chair
2014-18	National Institutes of Health, National Institute of Neurological Disorders and Stroke, National Advisory Neurological Disorders and Stroke Council member
2015-present	National Institutes of Health, National Institute of Neurological Disorders and Stroke Epilepsy Therapy Screening Program External Advisory Board

2017-present	National Institutes of Health, National Institute of Neurological Disorders and Stroke DSMB, PREVENT clinical trial
2018-2021	American Board of Psychiatry and Neurology, Director for Neurology

Specialty Certification

1991	Pediatrics, American Board of Pediatrics (recert 2/99)
1996	Neurology with Special Qualification in Child Neurology, American Board of Psychiatry and Neurology (recertified 8/06 and 11/2016)
1997	Added Qualification in Clinical Neurophysiology, American Board of Psychiatry and Neurology (recert 8/07)
2013	Added Qualification in Epilepsy, American Board of Psychiatry and Neurology

Licensure

2008-present	Colorado
1990-2008	Pennsylvania

Organizing Roles in Scientific Meetings

Apr, 2001	Organizer and Chair, "Neurotransmitter Systems in Development and Epileptogenesis", Spring Epilepsy Research Conference, Grand Cayman, BWI
Dec, 2001	Organizer and Chair, "Gene Arrays in Epilepsy Research", Investigators Workshop at the American Epilepsy Society Annual Meeting Philadelphia, PA
Dec, 2001	Co-chair, "Novel Therapeutic Approaches in Pediatric Epilepsy" Symposium, American Epilepsy Society Annual Meeting Philadelphia, PA
Dec, 2002	Organizer, "Glutamate and GABA Transporters in Epilepsy", Investigators Workshop, American Epilepsy Society Annual Meeting Seattle, WA
May, 2003	Organizer and Chair, "New Approaches to Region and Cell Type Specific Gene Therapy in Epilepsy", Spring Epilepsy Research Conference Grand Cayman, BWI
Sept, 2003	Co-Organizer, CHOP/Pennsylvania Epilepsy Research Seminar Series Present
Dec, 2004	Vice-Chair, Scientific Program Committee, American Epilepsy Society Annual Meeting New Orleans, Louisiana
Dec, 2005	Chair, Scientific Program Committee, American Epilepsy Society Annual Meeting Washington, DC
Oct, 2006	CME Chair and Program Committee Member, Society for Neuroscience Annual Meeting Atlanta, GA
Mar, 2007	National Institute of Neurological Diseases and Stroke "Curing Epilepsy 2007: Translating Discoveries into Therapies" Conference, Member-Executive Organizing Committee, Session Chair "Beyond Seizures-Cognitive and Psychological Co-Morbidities of Epilepsy" Bethesda, MD
Dec, 2007	Organizer and Chair, "Mechanisms of Gene Regulation in Epilepsy", Investigators Workshop at the American Epilepsy Society Annual Meeting Philadelphia, PA
Aug, 2010	Discussion Leader, "Epigenetics, Gene Regulation and microRNAs in Epilepsy", Gordon

Oct. 2011	Research Conferences, 2010 Mechanisms of Epilepsy & Neuronal Synchronization Co-Organizer, "Coming together on epilepsy genetics: From human to model organisms, and back", The Jackson Laboratory, Bar Harbor, ME
April 2012	Co-Chair, Integrated Neuroscience Session: Epilepsy and Channelopathies, American Academy of Neurology Annual Meeting, New Orleans, LA
Sept 2012	Workgroup Chair on Co-Morbidities, ILAE/AES Conference on Preclinical Epilepsy Therapy Development, London, England
Dec 2012	Organizer and Chair, "From Molecules to Cells, Networks and Seizures: How Does a Gene Cause Epilepsy?", Merritt-Putnam Symposium, American Epilepsy Society Annual Meeting, Baltimore, MD
Oct 2013	Co-Chair, "Emerging challenges of epilepsy genetics to clinical practice", Symposium, American Neurological Association Annual meeting.
Dec 2013	Organizer and Chair, "Future Therapies: How we will be preventing and curing epilepsy in 2025", Merritt-Putnam Symposium, American Epilepsy Society Annual Meeting, Washington DC
Dec 2014	Organizer and Chair, "Stress, Cannabinoids and Epilepsy: The Science Behind the Buzz", Merritt-Putnam Symposium, American Epilepsy Society Annual Meeting, Seattle, WA
Apr 2015	Organizer and Co-Chair, "Future Therapies: How We Will Be Treating, Preventing, and Curing Epilepsy in the Year 2025", American Academy of Neurology Annual meeting, Integrated Neuroscience Session, Washington DC
Dec 2015	Organizer and Chair, "Getting to Cure: the challenging road to disease modification and prevention for epilepsy", Presidential Symposium, American Epilepsy Society Annual Meeting, Philadelphia, PA
April 2016	Organizer and Chair, "Precision Neurology I: The Promise and Perils of whole exome sequencing for neurological disorders" Symposium, American Academy of Neurology Annual Meeting, Vancouver, BC Canada
Aug 2016	Vice-Chair, Gordon Research Conference on Epilepsy and Neuronal Synchronization, Girona, Spain
April 2017	Organizer and Chair, "Developing the Treatments of Tomorrow: Taking Molecules from Lab to Human" Symposium, American Academy of Neurology Annual Meeting, Boston, MA
Jan 2018	Organizer and Chair, "Neuroscience in the Clinic: Epilepsy" at the American Academy of Neurology Breakthroughs conference, Orlando, FL
April 2018	Organizer and Chair, "Developing the Treatments of Tomorrow: Taking Molecules from Lab to Human" Symposium, American Academy of Neurology Annual Meeting, Los Angeles
April 2018	Organizer and Moderator, "Controversies in Neurology" Plenary, American Academy of Neurology Annual Meeting, Los Angeles, CA
Aug 2018	Co-Chair, Gordon Research Conference on Epilepsy and Neuronal Synchronization, Mt. Snow, Vt
Oct 2018	Invited Moderator, Sixth Sesquiennial Yale Comprehensive Epilepsy Center Research Retreat, Old Saybrook, Ct
Mar 2019	Invited Moderator, Epilepsy Melbourne @ MBC, Melbourne, Victoria, Australia

Review and Editorial Positions

1996-present	Pediatric Emergency Care, Reviewer
2000-present	Neuroscience Letters, Reviewer
2000-present	Mental Retardation and Developmental Disabilities Reviews, Reviewer
2000-present	Neuropharmacology, Reviewer
2002-present	Journal of Neuroscience, Reviewer
2002-present	Epilepsy Research, Reviewer
2004-present	Neurobiology of Disease, Reviewer
2004-present	Neuroscience, Reviewer
2005-present	Annals of Neurology, Reviewer
2005-2009	Epilepsia, Associate Editor 2006-2009; Editorial Board Member 2005-2006
2011	<u>Jasper's Basic Mechanisms of the Epilepsies</u> . 4th edition. Noebels JL, Avoli M, Rogawski MA, et al., editors. Bethesda (MD): National Center for Biotechnology

	Information (US); 2011 (Section Editor).
2014-present	Proceedings of the National Academy of Science, Reviewer
2015-present	Experimental Neurology, Reviewer
2016-present	Neurotherapeutics, Editorial Board

Academic and Institutional Committees

1994-1995	Fellowship Training Committee, Children's Hospital of Philadelphia
1996-1997	Neuroscience Research Faculty Search Committee, Children's Hospital of Philadelphia
1996-1999	Hearings Committee for the Faculty Grievance Commission, University of Pennsylvania
1996-2002	Women Medical Student Association, Mentor, University of Pennsylvania
1999-2008	Pediatric Housestaff Selection Committee, Children's Hospital of Philadelphia
2000-2003	Neurology Housestaff Selection Committee, Hospital of the University of Pennsylvania
2002-2008	Neuroscience Graduate Group, University of Pennsylvania
2003-2007	Neuroscience Combined Degree (MD, PhD) Admissions Committee, University of Pennsylvania
2006-2008	Comprehensive Neuroscience Center Study Section, University of Pennsylvania
2006-2007	Center for Clinical Epidemiology and Biostatistics, Department of Biostatistics and Epidemiology-6 Year University Internal Review Committee
2007-2008	INS Seminar Committee, University of Pennsylvania
2008-present	Rocky Mountain Neurological Disorders Center (P30) Steering Committee, University of Colorado Denver
2008-present	Neuroscience Program Faculty, University of Colorado Denver
2008-2009	Basic Science Research Committee, The Children's Hospital, Aurora, CO
2008-2014	Child and Maternal Health Planning and Oversight Committee, Colorado Clinical Translational Research Center, University of Colorado Denver
2008-2009	Neurology Chair Search Committee, University of Colorado School of Medicine
2008-present	Neuroscience Institute Governing Committee, Children's Hospital Colorado,
2009-2013	Clinical Capital Committee, Children's Hospital Colorado, Aurora, CO
2009-2017	Steering Committee, Neuroscience Graduate Program, University of Colorado
2009-2010	Strategic Planning & Advisory Committee, University of Colorado School of Medicine Research Retreat
2009-2012	Research Advisory Committee, University of Colorado School of Medicine
2010-2018	Advisory Committee, University of Colorado Neuroscience (CNS)
2011-2015	Boettcher Foundation Webb-Waring Biomedical Research Award Review Committee, University of Colorado
2011-2014	Research Executive Committee, Children's Hospital Colorado
2011-2014	Dean's Advisory Committee (for Dean's Distinguished Lecture Series), University of Colorado School of Medicine (Chair 2013-2014)
2013-2016	Search Committee, Section Head for Genetics, Department of Pediatrics, University of Colorado School of Medicine
2016-2018	Search Committee, Chair, Department of Psychiatry, University of Colorado School of Medicine
2018-2019	Medical Staff Leadership Development Planning Committee, Children's Hospital Colorado
2018-2019	Child Health Research Strategic Planning Committee, University of Colorado and Children's Hospital Colorado
2018-2019	Co-Chair, Work Group on Fundamental (Basic) and Early Translational Science, Child Health Research Strategic Planning Process, University of Colorado and Children's Hospital Colorado

Lectures by Invitation (Last 10 years)

Jan, 2008	"Mechanisms of GABA(A) Receptor Subunit Gene Regulation in Epilepsy", Winter Conference on Brain Research, Snowbird, UT
Feb, 2008	"GABA(A) Receptor Subunit Changes in TLE: Potential new targets for therapy", Neurology Grand Rounds, Stanford University, Palo Alto, CA
Mar, 2008	"GABA(A) Receptor Gene therapy for Epilepsy", New Horizons in the Development of Antiepileptic Drugs Meeting, Dublin, Ireland
April 2008	"GABA(A) Receptor Subunit Changes in TLE: Potential new targets for therapy", Neurology Grand Rounds, University of Pennsylvania, Philadelphia, PA
April 2008	"Mechanisms of Epilepsy in the Developing Brain", Child Neurology Course, American Academy of Neurology Annual Meeting, Chicago, IL
Aug, 2008	"Mechanisms of GABA(A) Receptor Subunit Gene Regulation during Epileptogenesis", Gordon Research Conference on Mechanisms of Epileptogenesis and Neuronal Synchronization, Colby College, Waterville, ME
Sept, 2008	"Molecular Mechanisms of GABA(A) Receptor Subunit Gene Regulation in Epilepsy: Potential new targets for therapy?", Neuroscience Program Seminar, University of Colorado-Denver, Denver, CO
Mar, 2009	"Molecular Mechanisms of GABA(A) Receptor Subunit Gene Regulation in Epilepsy", Plenary Lecture, 40 th Annual American Society for Neurochemistry Meeting, Charleston, SC
Mar, 2009	"Regulation of GABAA receptor subunit expression during epileptogenesis –Implications for therapeutics", Jasper's Basic Mechanisms of the Epilepsies Conference, Yosemite, CA
Mar, 2009	"Found in Translation: Going Bench to Bedside to develop new therapies for Epilepsy", University of Colorado School of Medicine, Neurology Grand Rounds, Denver, CO
May, 2009	"Epilepsy and Autistic Spectrum Disorder: Are there common developmental mechanisms?", International Symposium on Epilepsy in Autistic Spectrum Disorders, Kurume University, Kurume City, Fukuoka, Japan
May, 2009	"GABA _A receptor subunit changes in epilepsy: regulatory mechanisms and new therapeutic targets", John Hopkins University School of Medicine, Neurology Grand Rounds, Baltimore, MD
June 2009	"GABA _A Receptor Subunit Gene Regulation in Epilepsy", University of Colorado School of Medicine Department of Genetics Grand Rounds, Aurora, CO
July 2009	"GABA _A Receptor Subunit Gene Regulation in Epilepsy", University of California Irvine Epilepsy Center Seminar, Irvine, CA
Sept, 2009	"GABA _A Receptor Subunit Regulation during Epileptogenesis- What does it do and what can we do about it?", University of Colorado Neuroscience Program Retreat, Keystone, CO
Oct, 2009	"Molecular Mechanisms of Cognitive and Behavioral Co-Morbidities of Epilepsy in Children", Colorado Clinical Scholars Program, Aspen, CO
Oct, 2009	"New Approaches to Treatment of Neonatal Seizures", Colorado Clinical Scholars Program, Aspen, CO
Oct, 2009	"Effects of Early-Life Experience on Neurotransmitter Systems" in Plenary Session on "Stress and the Developing Brain," Child Neurology Society Meeting, Louisville, KY
Oct, 2009	"Molecular regulation of GABA(A) receptor subunit expression", Synaptic Inhibition in Health and Disease conference, Chicago, IL
Dec, 2009	"Mechanisms underlying Cognitive Impairment in Early- life Epilepsies", Merritt-Putnam Symposium, American Epilepsy Society, Boston, MA
March 2010	"Regulation of GABAA α 1 receptor subunit expression during epileptogenesis –Implications for therapeutics", American Society of Neurochemistry Meeting, Santa Fe, New Mexico
March 2011	"Molecular Mechanisms of GABA(A) Receptor Regulation in Epilepsy", Albert Einstein University, Neuroscience Seminar, Bronx, NY
March 2011	"Epilepsy and Autism: Are there common developmental mechanisms", Montefiore Medical Center, Pediatric Neurology Grand Rounds, Bronx, NY
July 2011	"GABA(A) Receptor Regulation in Epilepsy", Gordon Research Conference, Waterville, ME
Sept 2011	"Gene Regulation in Epilepsy: Novel Pathways and New Therapeutic Targets", American Neurological Association Annual Meeting, Epilepsy Special Interest Group, San Diego CA
Oct. 2011	"Circuits and synapses: Molecular mechanisms of seizures, cognitive deficits, and

	behavioral disorders", Child Neurology Annual Meeting Residents Seminar, Savannah, GA
Oct. 2011	"Circuits and synapses as drug targets for seizure treatment", Child Neurology Society Annual meeting Residents Seminar, Savannah, GA
Nov 2011	"Epilepsy, Intellectual Disability and Autism: Are there common developmental mechanisms", University of Colorado Neurology Grand Rounds, Denver, CO
Dec. 2011	"Cell Signaling Pathways and Epileptogenesis", Investigator's Workshop, American Epilepsy Society Annual Meeting, Baltimore, MD
Dec 2011	"JaK/STAT Signaling in Epilepsy: Potential New Therapeutic Targets", Neuroscience Seminar, Insitituto Mario Negri, Milan, Italy
March 2012	"Mechanisms of cognitive and behavioural co-mobidities in paediatric epilepsies", British Paediatric Neurology Association, Pediatric Epilepsy Therapy 3, Edinburgh, Scotland
April 2012	"Neonatal seizures: why do they happen, what do they do and how can we treat them better?", Grand Rounds, Washington University, St. Louis, MO
April 2012	"Inherited and Acquired Modifications in Neurotransmitter Receptors in Epilepsy", Integrated Neuroscience in Epilepsy Symposium, American Academy of Neurology 64 th annual meeting, New Orleans, LA
May 2012	"GABA(A) Receptor Regulation in Epilepsy", Case Western Reserve University Epilepsy Grand Rounds, Cleveland, OH
May 2012	"Common Mechanisms of Epilepsy and Autism", National Institute of Neurological Disorders and Stroke Workshop on Epilepsy and Autism, Washington DC
June 2012	"GABA(A) Receptor Regulation in Epilepsy", Stanford University Epilepsy Program seminar, Palo Alto, CA
June 2012	"Co-morbidities of Epilepsy", Interagency Conference on Research in Epilepsy, National Institutes of Health, Washington DC
August 2012	"Developmental Epilepsy Syndromes and the questions they raise", Gordon Research Conference on Epilepsy and Neuronal Synchronization", Waterville Valley, NH
Nov 2012	"GABA(A) Receptor Regulation in Epilepsy: following novel pathways to new therapies in Epilepsy", Pharmacology Departmental Seminar, University of Virginia, Charlottesville, VA
Nov 2012	"Mechanisms of Cognitive and Behavioral Co-Morbidities in Pediatric Epilepsy", Neurology Grand Rounds, University of Virginia, Charlottesville, VA
Dec 2012	"From Molecules to Cells, Networks and Seizures: How Does a Gene Cause Epilepsy?", Merritt-Putnam Symposium, American Epilepsy Society Meeting, San Diego, CA
Feb 2013	"GABA _A Receptor Regulation: following novel pathways to new therapies in Epilepsy", Neurology Grand Rounds, Stanford University School of Medicine, Palo Alto, CA
March 2013	"Epilepsy Basics" and "Epileptic Encephalopathies", lectures in Genetics of Intellectual Disabilites Course, University of Colorado Anschutz Medical Campus (Kathleen Gardiner, Course Director)
June 2013	"Neonatal Seizures", Symposium Chair, International Epilepsy Congress, Montreal, Quebec, CA
June 2013	"Current and upcoming therapies for neonatal seizures", Symposium Lecturer, International Epilepsy Congress, Montreal, Quebec, CA
May 2013	"Preclinical Development of Disease Modifying Therapy for Epilepsy", First Annual Resident's Choice Lecture, Department of Neurology, Children's Hospital of Philadelphia and University of Pennsylvania, Philadelphia, PA
May 2013	"Preclinical Development of Disease Modifying Therapy for Epilepsy", Neurosurgery Grand Rounds, University of Colorado School of Medicine, Denver, CO
May 2013	"Preclinical Development of Disease Modifying Therapy for Epilepsy", Neurology Grand Rounds, Cleveland Clinic, Cleveland, OH
Aug 2013	"Overview of Epilepsy Genetics", Symposium, Cook Children's Hospital, Ft. Worth, Tx
Sept 2013	"Preclinical Development of Disease Modifying Therapy for Epilepsy", Neurology Grand Rounds, Einstein University, NY. NY
Sept 2013	"Preclinical Development of Disease Modifying Therapy for Epilepsy", Neurology Grand Rounds, University of Rochester, Rochester, NY
Oct 2013	"Emerging challenges of epilepsy genetics to clinical practice", Co-Chair, Symposium, American Neurological Association Annual meeting.

Nov 2013	"Enduring alterations of transcription in epileptogenesis: Epigenetic or Episodic?", Symposium Speaker, Society for Neuroscience Annual Meeting, San Diego, CA
Jan 2014	"JAK/STAT inhibition to prevent post-traumatic epileptogenesis", Winter conference on Brain Research, Steamboat Springs, Colorado
March 2014	"JAK/STAT inhibition to prevent epileptogenesis", American Society of Neurochemistry Annual Meeting, Long Beach, CA
April 2014	"Catastrophic Epilepsies of infancy and early childhood: What clinical syndromes are we trying to model?", Baylor College of Medicine, Houston, Texas
August 2014	"Co-Morbidities of Network Dysfunction in Epilepsies and Related Disorders", Discussion Leader and Introduction, Gordon Research Conference on Epilepsy and Neuronal Synchronization, West Dover, VT
October 2014	"Preclinical Development of Disease Modifying Therapy for Epilepsy", Grand Rounds, Harvard Medical School / Children's Hospital Boston, Boston, MA
April 2015	"Getting to Cure: Opportunities and Challenges on the Road to Disease Modifying and Preventative Therapies for Epilepsy", Seminar, Boston University, Department of Pharmacology
May 2015	"Comorbid Cognitive and Neuropsychiatric Disorders of Epilepsy and CNS Disorders with Seizures", Anticonvulsant Drug Development Program Symposium "Therapy Development in the Era of Team Science and Big Data: What will the Future Bring to the Patient with Epilepsy?", Park City Utah.
June 2015	"Regulating aberrant plasticity after brain injury; following novel pathways to find new treatments", Symposium on Hippocampal Plasticity in Health and Disease, Spring Hippocampal Research Meeting, Taormina, Sicily, Italy
Sept 2015	"Animal Models of Epilepsy Co-Morbidities: What do they tell us about mechanisms", Parallel Session, International Epilepsy Congress, Istanbul, Turkey
Sept 2015	"JAK/STAT pathway activation as a molecular biomarker of epileptogenesis and cognitive co-morbidities after brain injury", Workshop on the Neurobiology of Epilepsy, Heybeliada Island, Istanbul, Turkey
Sept 2015	"Strategic Planning", Leadership Development Symposium, International Epilepsy Congress, Istanbul, Turkey
Oct 2015	"Cannabinoids", Neurobiology of Disease Symposium, Child Neurology Society Annual Meeting, Washington DC
Nov 2015	"The challenge and promise of developing disease modifying therapies for epilepsy", George Washington University Epilepsy Grand Rounds, Washington, DC
Nov 2015	"BDNF and JAK/STAT regulation after brain injury: potential new targets for disease modification in epilepsy", University of Colorado Neuroscience Retreat, Estes Park, CO
Dec 2015	"Why make the journey: The need for disease modifying and preventative therapies for epilepsy", Presidential Symposium, American Epilepsy Society Annual Meeting, Philadelphia, PA
Jan 2016	"JAK/STAT Regulation after Brain Injury: Potential New Targets for Disease Modification", Winter Conference on Brain Research, Breckenridge, CO.
March 2016	"Getting to Cure: Opportunities and Challenges on the Road to Disease Modifying Therapies for Epilepsy", Department of Biomedical Sciences, College of Veterinary Medicine, Iowa State University, Ames, IA
March 2016	"Cannabinoids for Treatment of Pediatric Epilepsy: The Hype And The Evidence", Marijuana and Cannabinoids: A Neuroscience Research Summit, National Institute for Drug Abuse, NIH Campus, Bethesda, MD
April 2016	JAK/STAT Regulation after Brain Injuries Potential New Targets for Disease Modification for Acquired Epilepsy? Waco, Tx
May 2016	BDNF & JAK/STAT Regulation after Brain Injuries Potential New Targets for Disease Modification for Acquired Epilepsy? University of Aix-Marseille, Marseille, France
Sept 2016	"Getting from mechanism to medicine: Insights from an academic's journey into translational epilepsy research", National Institute of Neurological Disorders and Stroke, Office of Translational Research

Nov 2016	"Getting from mechanism to medicine: Insights from an academic's journey into translational epilepsy research", Yale School of Medicine, Department of Pediatrics, Special Seminar, New Haven, CT.
Feb 2017	"Getting from mechanism to medicine: Insights from an academic's journey into translational epilepsy research", NYU School of Medicine, Pediatric Neurology Grand Rounds, NY, NY
March 2017	"Getting from mechanism to medicine: Opportunities and Challenges in the development of new therapies for epilepsy", Purdue University, Neuroscience Seminar, Lafayette, IN
April 2017	"Epilepsy at the Cutting Edge: Using Novel Models for Therapeutic Advances", American Academy of Neurology Annual Meeting, Frontiers of Neuroscience Plenary Session, Boston, MA
June 2017	"Cannabinoids for Treatment of Pediatric Epilepsy: The Hype and The Evidence", Cannabinoids and Brain Development Symposium, Society for Teratology Annual Meeting, Denver, CO
Oct 2017	"From Mechanism to Medicine: Modifying signaling pathways to prevent post-traumatic epilepsy", International Society of Pediatric Neurosurgeons, Denver, CO
Nov 2017	"Cannabinoids for Treatment of Pediatric Epilepsy: The Hype and The Evidence", Queen Sophia's Hospital for Children, Gothenburg, Sweden
Nov 2017	"Neurobehavioral Co-morbidities in Pediatric Epilepsy", Swedish Epilepsy Society meeting, Linköping, Sweden
Nov 2017	"Advances in Translational Epilepsy", Swedish Epilepsy Society meeting, Linköping, Sweden
Dec 2017	"Epilepsy at the Cutting Edge: using novel models and innovative approaches to make therapeutic advances", the 14 th annual Judith Hoyer lecture, American Epilepsy Society annual meeting, Washington, DC
Dec 2017	"Neurobehavioral Co-morbidities in Pediatric Epilepsy", Merritt-Putnam Symposium, American Epilepsy Society annual meeting, Washington, DC
Jan 2018	"Getting from Mechanisms to Therapies: New Treatments on the Horizon for Epilepsy", American Academy of Neurology Breakthroughs conference, Orlando, FL
Mar 2018	"Getting from Mechanisms to Therapies: New Treatments on the Horizon for Epilepsy", North American Commission/Caribbean League Against Epilepsy Meeting, Trinidad
Apr 2018	"Women in Neuroscience", Research Talk, American Academy of Neurology Annual Meeting, Los Angeles, CA
Apr 2018	"Your Grant was Rejected. Now What?", Research Talk, American Academy of Neurology Annual Meeting, Los Angeles, CA
Jul 2018	"Foundation Funding Mechanisms", Sodium Channelopathies Conference, Denver, CO
Oct 2018	"Signaling pathways abnormalities in epilepsies and cognitive co-morbidities", Plenary Lecture, 6 th Global Symposium on Ketogenic Therapies for Neurological Disorders, Jeju, Korea
Oct 2018	"Epilepsy at the Cutting Edge: using novel models and innovative approaches to make therapeutic advances", Swabius Lecture, Yale University, New Haven, CT
Jan 2019	"Epilepsy at the Cutting Edge: using novel models and innovative approaches to make therapeutic advances", Short Course, Winter Conference on Brain Research, Aspen, CO
Jan 2019	"Role of JAK/STAT signaling in cognitive co-morbidities in acquired epilepsy", in panel "Restoring Cellular and Circuit Function to Prevent Epilepsy and Its Co-Morbidities", Winter Conference on Brain Research, Aspen, CO
Mar 2019	"Epilepsy at the Cutting Edge: using novel models and innovative approaches to make therapeutic advances", Plenary Lecture, Epilepsy Melbourne, Melbourne, Vic, Australia
Mar 2019	"JAK/STAT Regulation of GABA _A receptors after TBI", Epilepsy Melbourne, Melbourne, Vic, Australia
April 2019	Controversies in Neurology Plenary Session at the American Academy of Neurology Annual Meeting, Moderator. Philadelphia, PA

May 2019	"Precision and Disease Modifying Treatments for Epilepsy: Why do we need them and when will we get them?", Sarah Hertafeld Memorial Lectureship, Department of Neurology Grand Rounds, University of Rochester, Rochester, NY
Oct 2019	"Breakfast Seminar: Antiepileptic vs Artisanal Cannabidiol: Ethical Considerations", Child Neurology Society Annual meeting, Charlotte, NC
Dec 2019	"GABAergic Neurotransmission and the role of GAT1", SLC6A1 Conference, Baltimore, MD
Feb 2020	"Optimizing successful transition to independence for early career child health physician scientists", Association of Medical Schools Pediatric Department Chairs Annual Meeting, Long Beach, CA
Feb 2020	"21 st Century Neurology: Making Precision Therapies a Reality for our Patients", UC Davis School of Medicine, Sacramento, CA
Mar 2020	"From Mechanisms to Medicines: The Dawn of Precision and Disease Modifying Therapies for Epilepsy" Johns Hopkins University School of Medicine Neurology Grand Rounds, Baltimore, MD

Thesis Committee Participation (2005-present)

PhD in Pharmacology	Daniel Roberts
Title:	Molecular Determinants of Epileptogenesis
Degree Granted:	2005
Institution:	Boston University
Prelim in Neuroscience	Keith Schutsky
Title:	Molecular and Cellular Mechanisms by which Beta1 signaling Promotes Contextual Memory Retrieval
Prelim Date:	2006
Institution:	University of Pennsylvania. Pharmacology Graduate Group
Prelim in Neuroscience	Matthew Abramian
Title:	Analyzing cell surface stability and function of extrasynaptic GABA(A) receptors
Prelim Date:	2006
Institution:	University of Pennsylvania, Neuroscience Graduate Group
PhD in Pharmacology	Yinghui Hu
Title:	Differential Regulation of GABRA1 Gene Expression in the CNS: A Role for CREB/ICER Transcription Factors and their Relevance to Temporal Lobe Epilepsy
Degree Granted:	2007
Institution:	Boston University
Prelim in Neuroscience	LaTasha Crawford
Title:	Characterizing the changes in the 5-HT and non-5HT neuronal circuitry of the DR on response to chronic social stress.
Prelim Date:	2007
Institution:	University of Pennsylvania, Neuroscience Graduate Group
Prelim in Neuroscience	McLean Pancoast
Title:	Role of GABA(A) Receptors in Interneuron Migration
Prelim Date:	2007
Institution:	University of Pennsylvania, Neuroscience Graduate Group

PhD in Neuroscience	Ingrid Lund
Title:	Regulation of the GABA(A) receptor, submitted in an animal model of temporal lobe epilepsy
Degree Granted:	2008
Institution:	University of Pennsylvania, Neuroscience Graduate Group
PhD in Pharmacology	Rebecca Benham
Title:	JaK/STAT mediated regulation of GABRA1 Gene Expression
Degree Granted:	2012
Institution:	Boston University
PhD in Neuroscience	Shane Rowley (Chair of Thesis Committee)
Title:	Mitochondrial mechanisms underlying epileptogenesis
Degree Granted:	October 2014
Institution:	University of Colorado School of Medicine, Neuroscience Training Program
PhD in Neuroscience	Ajay Thomas
Title:	ProBDNF signaling in epilepsy
Degree Granted:	May 2015
Institution:	University of Colorado School of Medicine, Neuroscience Training Program
PhD in Neuroscience	Daniel Raible
Title:	JaK/STAT signaling in post-traumatic epilepsy
Degree Granted:	October 2014
Institution:	University of Colorado School of Medicine, Neuroscience Training Program
PhD in Neuroscience	Jennifer Pearson
Title:	Targeting Gamma-Ketoaldehydes to Attenuate Cognitive Deficits Associated with Epileptogenesis
Degree Granted:	March 2016
Institution:	University of Colorado School of Medicine, Neuroscience Training Program
PhD in Neuroscience	Matthew Svalina
Title:	Synaptic Plasticity in Fragile X mice
Degree Granted:	Pending
Institution:	University of Colorado School of Medicine, Neuroscience Training Program

Research projects supervised/mentored

Ingrid Lund, PhD, Thesis student, University of Pennsylvania, 2003-2008

Topic: Regulation of GABAR Alpha1 subunit in an animal model of temporal lobe epilepsy.

(*Received individual NRSA grant from NINDS, providing \$120,000 over 3 years to the recipient)

Eric Marsh, MD, PhD*, Post-Doctoral Fellow 7/04-6/06, Children's Hospital of Philadelphia, Instructor 7/06-6/08, University of Pennsylvania School of Medicine (Presently Assistant Professor), Developmental Expression of Topic: Neurotransmitter Receptors in Migrating Inhibitory Neurons

(*Received Epilepsy Foundation Research-in-Training Fellowship for Clinicians, 7/04-6/05 (\$40,000), American Epilepsy Society Young Investigator Award 7/05-6/06 (\$50,000), Alavi-Dabiri Postdoctoral Fellowship Award 7/04 (\$3000) and New Investigator Award 7/07-6/08 (\$26,700) from the Mental Retardation Developmental Disabilities Center at CHOP 7/04-6/05, and a K12 Pediatric Scholars Award 7/05-6/07 (\$200,000; Alan Cohen PI.)

Kayla Metzger, Neuroscience Graduate Rotation Student, University of Pennsylvania, Fall 2006

Topic: ARC promoter activity in dentate gyrus after status epilepticus

Carolyn Walsh, Undergraduate Summer Research Internship- Smith College, Summer 2006
Topic: Changes in Glucocorticoid Receptor Expression in Dentate Gyrus and changes after Early-life Status Epilepticus

Arnav Mukherjee, Undergraduate Independent Study Research- Bioengineering, University of Pennsylvania, Summer 2006-Spring 2007
Topic: Analysis of EEG to detect Biomarkers for Spontaneous Seizures

Ernest Gomez, Undergraduate Independent Study Research- Bioengineering, University of Pennsylvania, Summer 2006-Spring 2007
Topic: Arx Gene Excision: a Potential Mouse Model of Infantile Spasms

Meredith Mayo, Undergraduate Honors Thesis Research- Biology Program, University of Pennsylvania, Spring 2006-Spring 2007
Topic: Glucocorticoid Receptor Expression in Hippocampal Dentate Gyrus and changes after Early-life and Adult Status Epilepticus

Leslie Hope Tanyu, Neuroscience Graduate Rotation Student, University of Pennsylvania, Fall 2007
Topic: EGR3 regulation of ARC and GABRA4 in Hippocampal Dentate Granule Cells

Paulette McRae*, Post-Doctoral Research Fellow, Children's Hospital of Philadelphia, 11/07-present
Topic: Effects of Early-Life Seizure activity on development of the Extracellular Matrix.
(*Received Neurodevelopmental Disabilities Post-Doctoral Research Training Fellowship (\$40,000), 1/08-12/10)

Lauren Frey, M.D., Assistant Professor of Neurology, University of Colorado School of Medicine, 7/08-present. Topic: Mechanisms of Post-Traumatic Epilepsy

Yogendra Raol, Ph.D., Assistant Professor of Pediatrics, University of Colorado School of Medicine, 10/08-present
Topic: Development of novel therapies for Neonatal Seizures
(*Awarded a CCTSI Mentored Pilot Project Grant March 2009; Epilepsy Foundation Research Award Jan 2010)

Marco Gonzalez, PhD., Instructor of Pediatrics, University of Colorado School of Medicine, 10/08-present
Topic: Regulation of GABA(A) receptor assembly and trafficking in Epilepsy
(*applied for K01 award 6/09; scored 17, highly likely to be funded)

Dan Arndt, MD., Epilepsy Fellow, The Children's Hospital, Aurora CO, 7/1/09-6/30/10
Topic: "Continuous EEG monitoring in Pediatric moderate-severe traumatic brain injury"
(*Received a National EpiFellows grant for \$20,000)

Heidi Grabenstatter, PhD., Post-Doctoral Fellow, University of Colorado School of Medicine, 9/09-present
Topic: Inhibition of the JAK/STAT pathway effects on chronic epilepsy
(*Received Epilepsy Foundation Post-doctoral fellowship 1/10- \$45,000)

Dan Raible, Biomedical Sciences Program PhD student rotation, 11/09-2/10
Topic: GABA(A) receptor trafficking in Epilepsy

Ajay Thomas, MSTP rotation student, University of Colorado School of Medicine, 10/09-12/09.
Topic: Role of the JAK/STAT pathway in Neonatal Hypoxia Induced Seizures.

Ajay Thomas, MSTP/Neuroscience thesis student, University of Colorado School of Medicine, 1/10-5/15

Topic: Role of proNeurotrophin signaling in cell death and GABA(A) receptor regulation during epileptogenesis (*Received NINDS F31 Pre-Doctoral Fellowship)

Heidi Grabenstatter, Post-doctoral Fellow, University of Colorado School of Medicine, 4/01/2013-3/31/2018

Topic: Altered phosphorylation of connexin 43 contributes to increased gap-junction coupling. This project explored the role of altered phosphorylation of connexin 43 and gap-junction coupling in epilepsy development (*Received K22 award from NINDS)

Dan Raible: Neuroscience Training Program Thesis Student, 06/10 – 10/14

Topic: Role of JAK/STAT Signaling in Post-traumatic Epilepsy (*Received CTSA TL1 award)

Andrew Carrel, PhD., Post-Doctoral Fellow, University of Colorado School of Medicine, 9/12-4/16

Topic: Development of novel JAK/STAT inhibitors for disease modification in epilepsy

Christopher Ruzas, MD., Pediatric Critical Care Fellow, University of Colorado School of Medicine, 7-12/15

Topic: Role of proBDNF signaling in GABA(A) receptor regulation and pharmacoresistance during status epilepticus.

Katerina Rademacher, Summer Research Student Intern, Brown University, 6-8/2017.

Topic: JAK/STAT and mTOR pathway activation in chronically epileptic rats.

Julie Ziobro, MD, Epilepsy Fellow, 7/2017-7/2018.

Topic: Protein expression patterns in human cortex resected from pediatric patients with refractory epilepsy

Quinlan Marshall, Summer Research Student Intern, 6-8/2018

Topic: JAK/STAT pathway activity in epileptic rats.

Grant Support

Ongoing Research Support

R01 NS051710-14 (NINDS) (Brooks-Kayal and Russek- PIs)

4/01/15-6/30/2020

GABA(A) Receptor Subunit Regulation in Epileptogenesis

The major goals of the proposed project is to elucidate the molecular mechanisms of BDNF and JaK/STAT regulation after status epilepticus, downstream gene regulation and functional impact.

5K12NS089417-02 (NINDS) (Brooks-Kayal and Benke- PIs)

7/1/2015-6/30/2020

Colorado Neurological Sciences Academic Development Award

This proposal will provide training and career development opportunities for early career Pediatric Neurologists focused in basic and translational science research and multidisciplinary, integrated, team science required for translation of basic discoveries into new therapies

K12NS098482-01 (NINDS) (Johnston- PI; Brooks-Kayal- Co-Director)

8/15/16-07/31/21

Child Neurologist Career Development Program (CNCDP)

The goal of this national program is to provide intensive, mentored research training for pediatric neurologists who are within 5 years after finishing their clinical training in pediatrics and pediatric neurology, and who want to pursue an academic research career.

Completed Research Support

Last 5 years:

R21NS083057 (NINDS) Amy Brooks-Kayal and Shelley Russek (PIs) 1/01/2014-12/31/2016
Development of novel JAK/STAT inhibitors for Epilepsy prevention and treatment
The major goal of this project is to optimize novel JAK/STAT inhibitors for epilepsy disease modification

W81XWH-11-1-0501 (DOD) Amy Brooks-Kayal (PI) 7/1/2011—6/30/2014
JAK/STAT Inhibition to prevent post-traumatic epileptogenesis
Goals of the study were to examine the role of the JaK/STAT pathway in post-traumatic epileptogenesis and determine new therapeutic targets for the prevention/treatment of epilepsy following traumatic brain injury.

1K01 NS069583 (NINDS) Marco Gonzalez (PI)/Brooks-Kayal (Mentor) 4/1/2010-3/31/2015
GABA(A) Receptor Trafficking And Epileptogenesis
This proposal will explore the molecular mechanisms regulating GABA-A Receptors (GABAAR) assembly and trafficking during epileptogenesis.

1F31NS078844-01A1(NINDS) Ajay Thomas (PI)/Brooks-Kayal (Mentor) 4/1/2013-6/30/2015
Proneurotrophin signaling in epilepsy
This proposal will explore the role of pro-BDNF and p75 Neurotrophin receptors in epileptogenesis

R01 NS05171-10 (NINDS) Amy Brooks-Kayal and Shelley Russek (PIs) 1/01/2006-8/31/2015
GABA(A) Receptor Subunit Regulation in Epileptogenesis
The major goals of this project are to elucidate the molecular mechanisms underlying the down regulation of the GABA(A) receptor alpha 1 subunit after status epilepticus.

CNS Collaborative Research Amy Brooks-Kayal (Co-PI) 1/1/2013—6/30/2014
in Translational Neuroscience (CCTSI, University of Colorado)
Defining signaling pathway perturbations in epilepsy
The studies used high-throughput protein analysis to analyze activation of signaling pathways in brain tissue from pediatric patients with medically intractable epilepsy & developmental epilepsy models in rodents.

Prior years:

6/11-2/12	Optimizing JAK/STAT inhibitors for primary prevention of epilepsy. Colorado Center for Drug Discovery (C2D2) Research Award; PI, 3% Effort, Annual Total: \$40,000.
7/10-12/11	JaK/STAT inhibition to prevent epilepsy development and progression. Citizens United for Research in Epilepsy (CURE) PI, 5% effort, Total: \$50,000
01/10-12/10	Inhibition of the JAK/STAT pathway effects on chronic epilepsy, Postdoctoral Fellowship Award; mentor to Heidi Grabenstatter (PI), Epilepsy Foundation, Total: \$45,000
01/10-12/10	Role of p75 Neurotrophin receptor signaling in epileptogenesis, American Epilepsy Society, PI, 5% effort, Total: \$50,000
04/06-03/11	Molecular Determinants of GABAR Gene Regulation, NIH R01; Co-PI, 9% effort, NINDS, Total: \$242,578
12/04-11/09	GABA Receptors in Developmental Epileptogenesis, NIH R01; PI, 40% effort, NINDS, Total: \$180,653 (No cost extension 11/09-11/10)
12/05-04/10	GABA(A) Receptor Subunit Regulation in Epileptogenesis, NIH R01; PI, 20% effort, NINDS, Total: \$235,350
07/06-06/08	Neurological Sciences Academic Development Award (K12), Training grant; Co-PI, 0%

	effort, NINDS, Total: \$119,000
07/98-06/08	Neurodevelopmental Disabilities Institutional (K12) Training Grant, Training Grant; Mentor, 0% effort, NICHD, Total: \$203,786
09/06-04/08	KCNQ channel opener efficacy for neonatal seizures, R21; Co-PI, 15% effort, NINDS, Total: \$163,981
01/03-07/06	Cellular Basis for Individual Vulnerability to Stress, Federal Grant; Co-I, 15% effort, Navy, Total: \$256,637
07/04-06/05	Behavioral and Electro-Physiological Characterization of a Novel Murine Model of Infantile Spasms, Private Foundation Grant; PI, 5% effort, Ethyl Brown Foerderer Fund for Excellence, Total: \$39,600
07/04-06/05	Regulation of Seizure-induced Changes in GABA(A) Receptor Expression, Private Foundation Grant; PI, 3% effort, American Epilepsy Society, Total: \$50,000
02/02-01/05	GABA(A) Receptor Gene Transfer to Prevent Epileptogenesis, Federal Grant (R21); Co-PI, 17% effort, NINDS, Total: \$225,000
01/02-12/03	Molecular Characterization of Newly-born DGN in Pediatric Temporal Lobe Epilepsy, Private Foundation Grant; PI, 5% effort, Child Neurology Foundation, Total: \$50,000
04/99-03/04	GABA(A) Receptors in Developmental Epileptogenesis, NIH R01; PI, 40% effort, NINDS, Total: \$250,000
01/97-12/01	Developmental Regulation of GABA(A) Receptor Expression, Federal Grant (K08); PI, 75% effort, NINDS, Total: \$106,525
10/99-09/00	GABA(A) Receptors in Developmental Epileptogenesis, Private Foundation Grant; PI, 5% effort, Child Neurology Society, Total: \$20,000
07/99-06/00	Molecular Mechanisms of Developmental Epileptogenesis, Private Foundation Grant; PI, 20% effort, Epilepsy Foundation, Total: \$40,000
07/96-06/97	Developmental Regulation of GABA(A) Receptor Expression, Private Foundation Grant; PI, 20% effort, Research Foundation, Total: \$15,000
07/95-06/96	Transcriptional Regulation of GABA(A) Receptor Subunit Expression During Development, Private Foundation Grant; PI, 20% effort, McCabe Fund, Total: \$20,000
09/95-08/98	Molecular Aspects of Pediatric Science-CHRC, Training Grant (K12); Investigator, 25% effort, NIH, Total: \$75,000

Bibliography

Research Publications, peer reviewed

1. Hohmann CF, **Brooks, AR** and Coyle JT: Neonatal Lesions of the Basal Forebrain Result in Abnormal Cortical Development. Dev Brain Research Vol. 42: 253-264, 1988.
2. **Brooks-Kayal, AR** and Pritchett DB: Developmental Changes in Human GABAA Receptor Subunit Composition. Annals of Neurology Vol. 34: 687-693, 1993.
3. **Brooks-Kayal, AR**, Liu GT, Menacker S, Heher, KL, Katowitz JA and Bilaniuk LT: Tonic Pupil and Orbital Glial-Neural Hamartoma in Infancy. Am J Ophthalmol Vol. 119: 809-811, 1995.
4. Amin J, **Brooks-Kayal AR** and Weiss DS: Two Tyrosine Residues on the alpha1 Subunit are crucial for Benzodiazepine Binding and Allosteric Modulation of GABAA Receptors. Mol Pharmacol Vol. 51: 833-841, 1997.
5. **Brooks-Kayal AR**, Jin H, Price M and Dichter MA: Developmental Expression of GABAA Receptor Subunit mRNAs in Individual Hippocampal Neurons In Vivo and In Vitro. J Neurochem Vol. 70: 1017-1028, 1998.
6. **Brooks-Kayal AR**, Munir M, Jin H and Robinson MB: The Glutamate Transporter, GLT-1, is expressed in Cultured Hippocampal Neurons. Neurochemistry International Vol. 33: 95-100, 1998.
7. **Brooks-Kayal, AR**, Shumate MD, Jin H, Rikhter TY, Coulter DA: Selective Changes in Single Cell

- GABAA Receptor Expression and Function in Temporal Lobe Epilepsy. Nature Medicine Vol. 4: 1166-1172, 1998.
8. Bergqvist AGC, Chee CM, Lushka LM and **Brooks-Kayal AR**: Treatment of Acquired Epileptic Aphasia with the Ketogenic Diet. J. Child Neurology Vol. 14: 696-701, 1999.
 9. **Brooks-Kayal AR**, Shumate MD, Lin DD, Jin H, Rikhter TY, Coulter DA: Human neuronal gamma-aminobutyric acidA receptors: Coordinated subunit mRNA expression and functional correlates in individual dentate granule cells. J. Neuroscience Vol. 19: 8312-8318, 1999.
 10. Dlugos DJ, Moss E, Duhaime AC and **Brooks-Kayal AR**: Language-related cognitive declines after left temporal lobectomy in children. Pediatr Neurol Vol. 21: 444-9, 1999.
 11. Dlugos DD and **Brooks-Kayal AR**: A 4-Year-Old with Pica, Progressive Incoordination and Decreased Responsiveness. Semin. Pediatr. Neurol Vol. 6: 164-167, 1999.
 12. Strober JB, Zuppa A, and **Brooks-Kayal, AR**: A 15-Year-Old with Back Pain, Fever, and Leg Numbness. Semin. Pediatr. Neurol Vol. 6: 190-195, 1999.
 13. **Brooks-Kayal AR**, Shumate MD, Jin H, Kelly ME, Rikhter TY, Coulter DA: GABAA Receptor subunit expression predicts functional changes during postnatal development of Dentate Granule Cells. J Neurochem Vol. 77: 1266-1278, 2001.
 14. Raol YR, Lynch DR, **Brooks-Kayal AR**: Role of Excitatory Amino Acids in Developmental Epilepsies. Mental Retardation and Developmental Disabilities Research Reviews 7: 254-260, 2001.
 15. Crino PB, Jin H, Robinson MB, Coulter DA, **Brooks-Kayal AR**: Increased Expression of The Neuronal Glutamate Transporter (EAAT3/EAAC1) In Hippocampal and Neocortical Epilepsy. Epilepsia Vol. 43(3): 211-218, 2002.
 16. Porter BE, **Brooks-Kayal AR**, Golden JA: Disorders of Neuronal Development and Epilepsy. Archives of Neurology 59: 361-365, 2002.
 17. Hsu F, Zhang G, Raol YH, Valentino R, Coulter DA, and **Brooks-Kayal, AR**: Repeated handling with maternal separation in the neonatal period permanently alters hippocampal GABAA receptors and behavioral stress responses. Proc Natl Acad Sci USA. 100(21): 12213-12218, 2003.
 18. Raol YH, Budreck EC, **Brooks-Kayal AR**: Epilepsy After Early Life Seizures Is Independent of Structural Hippocampal Injury. Annals of Neurology Vol. 53: 503-511, 2003.
 19. Kao A, Mariani J, McDonald-McGinn DM, Maisenbacher MK, **Brooks-Kayal AR**, Zackai EH, and Lynch DR: Increased Prevalence of Unprovoked Seizures in Patients with a 22q11.2 Deletion. American J. of Medical Genetics 129A(1): 29-34, 2004.
 20. Porter BE, Maronski M, **Brooks-Kayal AR**: Fate of Newborn Dentate Granule Cells after Early Life Status Epilepticus. Epilepsia 45(1): 13-19, 2004.
 21. Zhang G, Raol YH, Hsu FC, Coulter DA, **Brooks-Kayal AR**: Effects of Status Epilepticus on Hippocampal GABAA Receptors are Age-Dependent. Neuroscience 125(2): 299-303, 2004.
 22. Zhang G, Raol YH, Hsu F, and **Brooks-Kayal AR**: Long-term Alterations in Glutamate Receptor and Transporter Expression Following Early-Life Seizures are Associated with Increased Seizure Susceptibility. J Neurochem Vol. 88: 91-101, 2004.
 23. Raizen D. M., **Brooks-Kayal A.R.**, Steinkrauss L., Tennekoon G.I., Stanley C.A., and Kelly A.:

- Central nervous system hyperexcitability associated with glutamate dehydrogenase gain of function mutations. Pediatrics 146(3): 388-394, March 2005.
24. Porter BE, Zhang G, Celix J, Hsu FC, Raol YSH, Telfeian A, Gallagher PR, Coulter DA, **Brooks-Kayal AR**: Heterogeneous GABA(A) Receptor Subunit Expression in Pediatric Epilepsy Patients. Neurobiology of Disease 18(3): 484-489, April 2005.
 25. **Brooks-Kayal AR**: Rearranging Receptors. Epilepsia Vol. 46(Suppl.7): 29-38, 2005.
 26. Raol YSH, Zhang G, Budreck EC, **Brooks-Kayal AR**: Long-term Effects of Diazepam and Phenobarbital Treatment during Development on GABA Receptors, Transporters and GAD. Neuroscience 132(2): 399-407, 2005.
 27. Roberts D, Raol YSH, Budrick E, Lund I, Passini M, Wolfe J, **Brooks-Kayal AR***, Russek SJ*: Egr3 stimulation of GABRA4 promoter activity as a mechanism for seizure-induced upregulation of GABA(A) receptor $\alpha 4$ subunit expression. Proc Natl Acad Sci USA Vol. 102(33): 11894-11899, 2005 (*co-senior authors).
 28. Frye C, Rhodes M, Raol YSH, **Brooks-Kayal AR**: Early postnatal stimulation alters pregnane neurosteroids in the Hippocampus. Psychopharmacology 186(3): 343-50, 2006.
 29. Porter B, Cui X, and **Brooks-Kayal AR**: Status epilepticus differentially alters AMPA and kainate receptor subunit expression in mature and immature dentate granule neurons. Eur J. Neurosci 23(11): 2857-63, 2006.
 30. Raol YSH, Lund I, Porter B, Bandyopadhyay S, Zhang G, Roberts D, Wolfe JW, Russek SJ and **Brooks-Kayal AR**: Enhancing GABA (A) receptor $\alpha 1$ in hippocampal dentate gyrus inhibits epilepsy development in an animal model of TLE. J Neurosci Vol. 26: 11342-11346, 2006.
 31. Raol YSH, Zhang G, Lund I, Porter B, Maronski M and **Brooks-Kayal AR**: Increased GABA (A) receptor $\alpha 1$ subunit expression in hippocampal dentate gyrus after early-life status epilepticus. Epilepsia 47(10): 1665-1673, 2006.
 32. Roberts DS, Hu Y, Lund IV, **Brooks-Kayal AR**, Russek SJ: BDNF-induced synthesis of early growth response factor 3 (EGR3) controls the levels of type-A GABA receptor $\alpha 4$ subunits in hippocampal neurons. J Biol Chem 281(40): 29431, 2006.
 33. Marsh E, **Brooks-Kayal AR**, Porter B: Seizures and Antiepileptic Drugs: Does Exposure Alter Normal Brain Development? Epilepsia 47(12): 1999-2010, 2006.
 34. Marsh ED, Minarcik J, Campbell K, **Brooks-Kayal AR**, Golden JA: FACS-array gene expression analysis during early development of mouse telencephalic interneurons. Dev Neurobiol. 68(4):434-45, 2008.
 35. 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 Partner ICER. J. Biol Chem, 283(14):9328-9340, 2008.
 36. Lund IV, Hu Y, Raol YSH, Benham RS, Faris R, Russek SJ, **Brooks-Kayal AR**: BDNF selectively regulates GABA-A receptor transcription by activation of the JAK/STAT pathway, Science Signaling, 1([1]41ra9), 2008. NIHMS 95677.
 37. Raol YSH, Lapides DA, Keating J, **Brooks-Kayal AR**, Cooper EC: A KCNQ channel opener for neonatal seizures and status epilepticus, Ann Neurol, 65(3):326-336, 2009.

38. Marsh E, Fulp C, Gomez E, Nasrallah I, Minarak J, Sudi J, Christian SL, Manani G, Labosky P, Dobyns W, **Brooks-Kayal A**, Golden JA: Targeted loss of Arx results in a developmental epilepsy mouse model and recapitulates the human carrier phenotype. Brain, 132:1563-76, 2009.
39. Jacobs MP, Leblanc GG, **Brooks-Kayal AR**, Jensen FE, Lowenstein DH, Noebels JL, Spencer DD, Swann JW: Curing Epilepsy: Progress and Future Directions. Epilepsy and Behav, 14:438-445, 2009.
40. **Brooks-Kayal A**: Alteration of Epileptogenesis Genes, Neurotherapeutics, 6(2):312-318, 2009.
41. Kedia S, Stroud B, Parsons J, Schreiner T, Curtis DJ, Bagdure D, **Brooks-Kayal AR**, Glode MP, Dominguez SR. Pediatric Neurological Complications of 2009 Pandemic Influenza A (H1N1). Arch Neurol. 2010 Dec 13.
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43. McRae PA, Baranov E, Sarode S, **Brooks-Kayal AR**, Porter BE. Aggrecan expression, a component of the inhibitory interneuron perineuronal net, is altered following an early-life seizure. Neurobiol Dis. 2010 Sep;39(3):439-48.
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45. Lemos JC, Zhang G, Walsh T, Kirby LG, Akanwa A, **Brooks-Kayal A**, Beck SG. Stress-Hyperresponsive WKY Rats Demonstrate Depressed Dorsal Raphe Neuronal Excitability and Dysregulated CRF-Mediated Responses. Neuropsychopharmacology. 2011 Mar;36(4):721-34.
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50. Kim JH, Roberts DS, Hu Y, Lau GC, **Brooks-Kayal AR**, Farb DH and Russek SJ. Brain-derived neurotrophic factor uses CREB and Egr3 to regulate NMDA receptor levels in cortical neurons. Journal of Neurochemistry 2012, Volume 120(2): 210–219.
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52. Raible DJ, Frey LC, Cruz Del Angel Y, Russek SJ, **Brooks-Kayal AR**. GABA(A) Receptor Regulation after Experimental Traumatic Brain Injury. *J Neurotrauma*. 2012; 29(16): 2548-54.
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