

CURRICULUM VITAE

PERSONAL DETAILS

Name: Roger James Colbran
Date of Birth: March 7, 1961
Marital Status: Married (Janet), 2 children (Laura, Catherine)
Nationality: British
Status in U.S.A.: Permanent Resident
Orcid ID: [0000-0001-7401-8244](https://orcid.org/0000-0001-7401-8244)

EDUCATION

1979-82: University of Bristol, Bristol, England. B.Sc. (Hons) in Biochemistry, Upper 2nd Class
1982-85: Department of Biochemistry, University of Newcastle, Newcastle upon Tyne, England.
Ph.D. completed December 1985. Title of Thesis: "Characterization and Regulation of Hormone-Sensitive Triacylglycerol and Cholesterol Ester Hydrolases from Bovine Tissues".
Supervisor: Dr. S.J. Yeaman. Holder of Medical Research Council Studentship.

EMPLOYMENT

1986-89: Postdoctoral Research Associate with Dr. T.R. Soderling, Department of Molecular Physiology and Biophysics, Vanderbilt University, Nashville, Tennessee, U.S.A.
1989-91: Research Instructor, Department of Molecular Physiology and Biophysics, Vanderbilt University, Nashville, Tennessee, U.S.A.
1992-99: Assistant Professor (Tenure Track), Department of Molecular Physiology and Biophysics, Vanderbilt University, Nashville, Tennessee, U.S.A.
1999-05: Associate Professor (tenured), Department of Molecular Physiology and Biophysics, Vanderbilt University, Nashville, Tennessee, U.S.A.
2006- Professor (tenured), Department of Molecular Physiology and Biophysics, Vanderbilt University, Nashville, Tennessee, U.S.A.
2007-16 Vice-Chair, Department of Molecular Physiology and Biophysics, Vanderbilt University, Nashville, Tennessee, U.S.A.
2016- Interim Chair, Department of Molecular Physiology and Biophysics, Vanderbilt University, Nashville, Tennessee, U.S.A.

VANDERBILT CENTER MEMBERSHIPS

1992-present: Diabetes Center
1996-present: Center for Molecular Neuroscience, Vanderbilt Brain Institute.
1998-present: Vanderbilt-Ingram Cancer Center
2000-present: Investigator and Fellow, John F. Kennedy Center for Research on Human Development
2001-present: Member Pharmacological Sciences Training Program.

MEMBERSHIPS

American Society for Biochemistry and Molecular Biology
Society for Neuroscience
American Association of the Advancement of Science

HONORS

1994-1999: Established Investigator of the American Heart Association
2007: Graduate Education Award, Dept. of Molecular Physiology & Biophysics, Vanderbilt

2013: Mentor of the Year, Neuroscience Graduate Program, Vanderbilt University.

TEACHING (active in **bold**)

- 1990-present: **ME327, Molecular Endocrinology.**
1990-95, 1-2 lecture hours
1996-2011, 8 lecture hours
2012-present, 6 lecture hours
- 1992-2012. IGP300, Signal Transduction
1992-2012, 2-4 Lecture Hours
1992-1995, Coordinator FLEX Time Discussion groups
1992-1995, FLEX discussion group leader (4 hours).
1992. IGP300A, Energetics; 2 lecture hours.
1994. Human Physiology and Molecular Medicine; 1 lecture hour.
1995. IGP Modern Laboratory Techniques, 26 contact hours.
1997. Cellular and Molecular Neurosciences 345 (1 lecture hour)
1998-present: **Molecular Neurobiology (NURO346) (3 lecture hours + 1.5 hour paper discussion)**
1998. Cellular and Integrative Neurosciences 345 (2 lecture hours)
1999. IGP300A, Neuroscience. Paper Discussion (2 contact hours)
2000-02 Introduction to Biomedical Research – Chair student presentation sessions (4 hours)
2002-04. Tutorials in Physiology – Presentation on grant writing tips (1 hour). Help in assessment of proposal abstracts (Spring semester)
2006-2016: Tutorials in Physiology. Co-director. Spring Semester. Research Proposal. (12-16 contact hours, depending on enrollment)
2008-12. Cellular and Molecular Neuroscience (NURO345) (3 lecture hours + 1.5 hour paper discussion) (NOT in 2011)
2011-13. IGP Module: Genetics, Cell Biology, Biochemistry of Parkinson’s Disease. (1 lecture hour)
2013-2016: IGP Module: Protein-protein interactions make cells go round. (Co-developer and Co-director; 2 lecture hours)
2013-2016: IGP IMPACT group discussion leader/mentor (International Students) (approx. 30 contact hours)

QUALIFYING EXAMINATION COMMITTEES

Molecular Physiology and Biophysics:

- 1991: Tim Knittle, Robin Reed and Jeff Smith (Signal Transduction).
1992: Kevin Niswender, Chi-wing Chow (Gene Regulation and Signal Transduction) and Elizabeth Tyler (Biophysics).
1993: James Collins, Hossein Ardehali (Gene Regulation and Signal Transduction) and Qing Zhou (Biophysics Track).
1994: Der Ming Chu, Michelle Fosler, Tamara Haik, and Constance Mobley (Gene Regulation and Signal Transduction).
1995: Sukwoo Choi, Scott Blackman (Biophysics) and Kevin Gerrish (Gene Regulation).
1996: Renee Combs, Homer McCall (Signal Transduction), Suwattsnee Kooptiwut, Kuo-liang Wu (Gene Regulation).
1997: Jeffrey Tang (Biophysics), Kuo-Liang Wu (Gene Regulation)
1998: Christin Bland (Gene Regulation), Jennifer Busch, Robyn Richie-Jannetta (Signal Transduction)
1999: Anthony Couvillon (Chair), Yi-Hui Chen (Chair).
2002: Jacob McCauley (Chair), Amanda Vanhoose
2004: Jeff Raum

2005: Jian Shi, Kim Causey
2006: Derek Claxton (as DGSs representative), Heather Gosnell, Angela Shields.
2007: Sonya Dave, Leah Potter
2009: Charles Day, Marquicia Pierce, Jennifer Rojas.
2010: Jinlong Ding, Elizabeth Meredith, Rachel Lippert
2012: Kristie Aamodt
2014: Kristen Syring, Nicholas Vierra
2015: Caleigh Azumaya, Michael Litt

As Director of Graduate Studies in MPB (1998-2004) I administered the entire examination process each year, sat in as an observer during roughly 50% of the oral examinations (6 or 7 per year) and frequently consulted with students and faculty.

Neuroscience:

2001: Joel Schwartz, Carl Weitlaif.
2002: Michelle Jacobs.
2003: Adam Wegner, Wen-Yi Lo.
2004: Jennifer Steiner, Brandon Lute, Xin Tang (Chair)
2005: Kim Korweck, Vandana Grover (Chair)
2007: DJ Sakrikar
2008: Gunnar Kwayke, Xin Li.
2009: Lead Ramoz, Mike Siuta
2010: Andrew Tidball
2011: Erin Watt, Stephanie Flavin
2012: Daniel Bermingham, Elizabeth Deel
2014: Tracy Fetterly, Monika Murphy, Alyssa Lokits
2015: Allyson Mallya
2016: Aichurok Kamalova, Sahana Nagabhushan-Kalburgi

Chemical and Physical Biology:

2007: Mert Karakas

Chemistry

2012: Francisco Rodriguez

DISSERTATION COMMITTEES (90 total committees; active committees in **bold**)

1991-93: Linda McAllister-Lucas, Molecular Physiology & Biophysics (Mentor: Corbin)
1993-95: Elizabeth Tyler, Molecular Physiology & Biophysics (Mentor: Lovinger)
1994: Dana Thompson, Molecular Physiology & Biophysics
1994-96: Hossein Ardehali, Molecular Physiology & Biophysics (Mentor: Granner)
1994-97: Yu Bai, Molecular Physiology & Biophysics (Mentor: Weil)
1994-99: Steve Edwards, Pharmacology (Mentor: Lee Limbird)
1995-97: Sukwoo Choi, Molecular Physiology & Biophysics (Mentor: Lovinger)
1995-98: Steve Plonk, Molecular Physiology & Biophysics (Mentor: Exton)
1995-98: Constance Mobley, Molecular Physiology & Biophysics (Mentor: Sealy)
1995-98: Tamara Haik, Molecular Physiology & Biophysics (Mentor: Corbin) Chair
1995-00: Hyeon-Gyu Shin, Pharmacology (Mentor: Kathy Murray)
1996-98: Michelle Fosler, Molecular Physiology & Biophysics (Mentor: Corbin)
1996-99: Ed Klebanow, Molecular Physiology & Biophysics (Mentor: Weil)
1996-2001: Brent Wineinger, Molecular Physiology & Biophysics (Mentor: Chalkley)
1997-98: Amy Halseth, Molecular Physiology & Biophysics (Mentor: Wasserman)

1998: Stacey Chapman, Molecular Physiology & Biophysics (Mentor: O'Brien) (Masters)
1998-2000: Jeffrey Tang, Molecular Physiology & Biophysics (Mentor: Lovinger)
1998-2001: Mary Hanlon, Molecular Physiology & Biophysics (Mentor: Sealy).
1998-2002: Jennifer Busch, Molecular Physiology & Biophysics (Mentor: Corbin).
1998-2003: Linda Hutchinson, Pharmacology (Mentor: Emeson)
1998-2004: Renee Combs, Molecular Physiology & Biophysics (Mentor: Emeson)
1999-2003: Ashley Brady, Pharmacology (Mentor: Limbird)
2000-01: Paul Ruest, Cell Biology (Mentor: Hanks)
2001-04: Beth Stadelmaier, Molecular Physiology & Biophysics (Mentor: O'Brien).
2001-05: Carl Weitlauf, Neuroscience (Mentor: Winder) Chair
2001-07: Jamie McConnell, Pharmacology (Mentor: Wadzinski)
2001-04: Regula Egli, Molecular Physiology & Biophysics (Mentor: Winder) Chair
2002-08: Kelie Reece, Pharmacology (Mentor: Wadzinski)
2002-06: Jonathan Sheehan, Biochemistry (Mentor: Chazin)
2002-05: Laurie Earls, Pharmacology (Mentor: Hamm)
2003-05: Amanda Vanhose, Molecular Physiology & Biophysics (Mentor: Winder) Chair
2003-04: Kevin Choo, Molecular Physiology & Biophysics (Mentor: Winder) (Masters) Chair
2003-05: Susan Hanson (Buckheister), Pharmacology (Mentor: Gurevich)
2003-08: William Thiel, Pharmacology (Mentor: Anderson)
2003-05: Brad Grueter, Molecular Physiology & Biophysics (Mentor: Winder) Chair
2003-08: Wen-yi Lo, Neuroscience (Mentor: MacDonald)
2004-07: James Weeks, Molecular Physiology & Biophysics (Mentor: Corbin)
2004-07: Chris Cooper, Molecular Physiology & Biophysics (Mentor: Yu) Chair
2004-07: Eun-ja Yoon, Pharmacology (Mentor: Hamm)
2004-09: Scott Gruver, Pharmacology (Mentor: Chung)
2005-10: Xin Tang, Neuroscience (Mentor: MacDonald) Chair
2005-10: Justin Layer, Molecular Physiology & Biophysics (Mentor: Weil)
2005-08: Xiaohui Yan, Pharmacology (Mentor: Strange)
2005-07: Jian Shi, Molecular Physiology & Biophysics (Mentor: Stewart)
2006-10: Niranjana Vijaykrishnan, Neuroscience (Mentor: Broadie) Chair
2006-09: Kimberly Korweck, Neuroscience (Mentor: Weeber)
2007-10: Derek Claxton, Molecular Physiology & Biophysics (Mentor: Mchaourab)
2007-11: Heather Brown, Molecular Physiology & Biophysics (Mentor: Winder)
2007-09: Angela Shields, Molecular Physiology and Biophysics (Mentor: Winder)
2007-09: Jennifer Madison, Pharmacology (Mentor: Deutch) Switched mentors
2007-10: Blairanne Williams, Neuroscience (Mentor: Bowman) Chair
2007-11: Sylvain Le Marchand, Molecular Physiology & Biophysics (Mentor: Piston)
2007-09: C. Faith Kline, Cellular and Molecular Pathology (Co-mentors: Mohler/Swift)
2008-10: Sabrina E. Doughty Robertson, Neuroscience (Mentor: Galli) Chair
2008-12: Dhananjay (DJ) Sakrikar, Neuroscience (Mentor: Blakely) Chair
2008-09: Jessica Moore, Neuroscience (Mentor: Galli) Chair. Completed Masters degree.
2008-12: Alessandro Ustione, Molecular Physiology & Biophysics (Mentor: Piston)
2009-10: Sheila Kusnoor, Neuroscience (Mentor: Deutch)
2009-12: Aliya L. Frederick, Neuroscience (Mentor: Stanwood)
2009-2015: Michele LeNoue-Newton, Pharmacology (Mentor: Spiller)
2010-2014: Peter Volbrecht, Neuroscience (Mentor: Deutch) Chair
2010-2013: Marquicia Pierce, Molecular Physiology & Biophysics (Mentor: May)
2010-12: Jason Klug, Neuroscience (Mentor: Winder) Chair
2010-13: Yin Shen, Pharmacology (Mentor: Conn)
2011-2015: Nora Kayton, Molecular Physiology & Biophysics (Mentor: Powers) Chair
2011-2014: M. Elizabeth Meredith, Molecular Physiology & Biophysics (Mentor: May) Chair
2012-2014: Laura Buckman, Molecular Physiology & Biophysics (Mentor: Ellacott)

- 2012-13: Erin Watt, Neuroscience (Mentor: Galli) Chair (student left program with Masters)
2012-2015: Mark Grier, Independent Ph.D. program (Mentor: Lagrange)
2012-2016: Daniel Bermingham, Neuroscience (Mentor: Blakely)
2013-2016: Terry-Jo Bichel, Neuroscience (Mentor: Bowman) Chair
2013-present: **Lukasz Wylezinski, MPB (Mentor: Hawiger)**
2013-present: **Elizabeth Ferrick, MPB (Mentor: Emeson)**
2013-2016: Francisco Rodriguez, Chemistry (Mentor: Mchaourab)
2013-2016: Max Joffe, Pharmacology (Mentor: Grueter)
2013-present: **Jordan Feigerle, MPB (Mentor: Weil)**
2013-present: **Amanda Meyer, MPB (Mentor: Weil)**
2014-present: **Cassie Retzlaff, Neuroscience (Mentor: Blakely) Chair**
2014-present: **Megan Capozzi, MPB (Mentor: Penn) Chair**
2014-present: **Courtney Copeland, MPB (Mentor: Kenworthy) Chair**
2015-present: **Monica Murphy, Neuroscience (Mentor: Deutch) Chair**
2015-present: **Bethany Carboneau, MPB (Mentor: Gannon)**
2015-present: **Brandon Turner, Neuroscience (Mentor: Grueter)**
2015-present: **Rebecca Bluett, Neuroscience (Mentor: Patel) Chair**
2015-present: **Nick Vierra, MPB (Mentor: Jacobson)**
2015-present: **Erica Pruett, MPB (Mentor: Cone)**
2016-present: **Nick Harris, MPB (Mentor: Winder)**
2016-present: **Sheridan Carrington, MPB (Mentor: Cone) Chair**
2016-present: **Caleigh Azumaya, MPB (Mentor: Nakagawa) Chair**
2016-present: **Allyson Mallya, Neuroscience (Mentor: Deutch)**

RESEARCH TRAINEES AND CURRENT POSITIONS/FUNDING

Junior faculty (Research Track)

- 2011-2013: A.J. Baucum, Research Instructor in MPB (Assistant Professor of Biology, Indiana University – Purdue University, Indianapolis) (Funded by K01)
2015-present: **Brian C. Shonesy**, Research Instructor in MPB (support: K01 Career Development Award)

Postdoctoral Trainees:

- 1992-93: M. Kevin Smith. Asst Professor of Clinical Medicine, Medical Director Vanderbilt Executive Health, Vanderbilt University Medical Center.
1995-2000: Stefan Strack. Professor of Pharmacology, University of Iowa.
1996-98: Leigh B. MacMillan. Scientific Writer, Vanderbilt University Medical Center, Department of News and Public Affairs.
1999-2002: Susanne Sessoms Sikes, High School Science teacher, Woods Charter School, Chapel Hill, NC
2002-03: Pat Bauman. Senior Research Scientist, Grifols Therapeutics, Research Triangle, NC.
2004-07: Ryan Bartlett. Global Corn Technology: Emerging Technology Platform Lead, Specialty Crops, Monsanto, St. Louis, MO.
2004-10: Yuxia Jiao, Managing Editor, Genomics, Proteomics & Bioinformatics, Beijing Institute of Genomics, Chinese Academy of Sciences, Elsevier.
2006-11: A.J. Baucum (Assistant Professor of Biology, Indiana University – Purdue University, Indianapolis)
2009-15: Brian C. Shonesy (currently Research Instructor in MPB, Vanderbilt University)
2012-15: Johanna (Gandy) Pasek (Regulatory Affairs Specialist, Sarah Cannon Research Institute, Nashville, TN)
2014-present: **Jason Stephenson** (current support: Research Grant)

Postdoc independent fellowship support: Leigh MacMillan (AHA), Suzanne Sikes (AHA), Ryan

Bartlett (AHA), AJ Baucum (UNCF/MERCK), Johanna Gandy (NRSA-NIH).

Graduate Students (Ph.D.):

1993-98: R. Blair McNeil. Principal Process Development Scientist, Alkermes (Cincinnati).
1999-2005: A.J. Robison. Assistant Professor of Physiology/Neuroscience (tenure-track), Michigan State University
2001-06: Abigail Brown. Manager, Outcomes Analysis, BRET Office, Vanderbilt University
2001-07: Leigh Carmody. Research Scientist I-II/Project Lead, Broad Institute, MIT/Harvard (MA)
2002-06: Chad Grueter. Assistant Professor of Internal Medicine (tenure track), University of Iowa
2002-10: Yelyzaveta Nikandrova. Motherhood.
2004-09: Sunday Abiria, Postdoctoral Fellow, Dr. D. Clapham (Harvard)
2006-12: Nidhi Jalan-Sakrikar, Postdoctoral Fellow, Mayo Clinic, Rochester, MN.
2007-10: Richard Gustin, Medical Science Liaison, Novartis/The Medical Affairs Company, FL
2012-present: **Victoria Cavener, IGP/Neuroscience** (current support: Institution)
2012-present: **Xiaohan Wang, IGP/VISP/Neuroscience** (current support: Institution)
2013-present: **Christian Marks, IGP/MPB** (current support: NIH-NRSA)
2014-present: **Tyler Perfit, IGP/MPB** (current support: Molecular Endocrinology Training Grant)

PhD Student independent fellowship support: AJ Robison (NRSA-NIH), Chad Grueter (AHA), Sunday Abiria (AHA), Nidhi Jalan-Sakrikar (AHA), Richard Gustin (NRSA-NIH), Xiaohan Wang (AHA), Christian Marks (AHA/NRSA-NIH).

Graduate Students (other):

2005-06: Saliha Dick (Initiative for Minority Student Development Student)

Undergraduate/Summer Students:

1991 Regina Vidaver
1992 James Bann
1993 Todd Reynolds
1994 Sheri Mural
2002-03: Jordan Murphy (Neuroscience Major)
2007: Brooke Huffsmith (Neuroscience Major)
2012: Nicole Betson (Tougaloo College, MS)
2015: Hala Haddad (Hunter College, NY). BP Endure Program
2016, Spring: Walker Parrish (Senior, Vanderbilt Neuroscience Major).
2016, Fall: Brandon Ansbro (Junior, Vanderbilt Neuroscience Major). Keeley Spiess (Junior, Vanderbilt Neuroscience Major).

High School Student

2007: Rae Ellen Bichell

Co-mentored trainees:

Postdoctoral trainees:

2001-04: Eric Norman (with Danny Winder).

Graduate students

2007-11: Laurel Hoffman (Mentor: Hassane Mchaourab). Now a postdoctoral Fellow, Dr. M.N. Waxham (University of Texas Health Science Center, Houston, TX) (AHA)
2013- Rebecca Bluett (Mentor: Sachin Patel)
2013-16 Max Joffe (Mentor: Brad Grueter)

SERVICE

Departmental:

1995-2004: Member Graduate Education Committee
1995-98: Leader of Signal Transduction Track
1998-2004: Director of Graduate Studies
1999-2001: Member Signal Transduction Faculty Search Committee.
2001-07: Faculty Advisor to Chao-Lan Yu, Assistant Professor, Mol. Physiology & Biophysics
2002-03: Chair of Neuroscience Faculty Search Committee.
2004-07: Faculty Advisor to Ed Weeber, Assistant Professor, Mol. Physiology & Biophysics
2005 **Member, MPB Faculty Advisory Group**
2006-10: Member, MPB Staff Recognition and Reward Committee
2006-07: Member, MPB Task Force on Graduate Education
2010-present: **Member, Faculty Advisory Committee. David Jacobson, Asst. Professor, MPB**
2012 Member, Faculty Search Committee. "Transcription, signaling and epigenetics"
2013-present: **Member, Faculty Advisory Committee. Gregor Neuert, Asst. Professor, MPB**

Institutional:

1994: Reviewer of Pilot and Feasibility Study grants for the Vanderbilt University Diabetes Research and Training Center
1998-2001: Member Graduate Faculty Delegate Assembly.
2000-02: Member Graduate Faculty Council.
2000: Member Kennedy Center Young Scientist and Graduate Student Awards Committee.
2000-05: Member Executive Advisory Committee of the Neuroscience Ph.D. program.
2001-03: Member Executive Committee of the Graduate Faculty Council.
2001-10: Faculty Advisory Committee. Chang Chung, Associate Professor, Pharmacology
2002-03: Vice-Chair, Graduate Faculty Council
2003: Reviewed 2 Pilot and Feasibility Study applications for Vanderbilt DRTC
2004: Reviewed Pilot and Feasibility Study application for Vanderbilt DRTC
2005: Member of Educational Strategic Planning committee
2005-11: Member, Faculty Advisory Committee. Kevin Haas, Asst. Professor, Neurology
2006-09: Member, Faculty Advisory Committee. Bjorn Knollman, Assoc. Professor, Medicine and Pharmacology
2006: Co-organizer (with Brian Wadzinski) of Earl W. Sutherland Jr. Symposium (jointly sponsored by Pharmacology and Molecular Physiology and Biophysics).
2006: Reviewed 8 VUMC Discovery Grant proposals
2006: Reviewed Hobbs Discovery Grant proposal for Vanderbilt Kennedy Center
2007: Reviewed Pilot and Feasibility Study application for Vanderbilt DRTC
2007: Judge of poster competition for the Vanderbilt Postdoctoral Association
2007-2015: Member, Faculty Advisory Committee. Aaron Bowman, Asst. Professor, Neurology
2007: Reviewed VUMC Discovery Grant proposals (5): Chair of "Study Section" meeting.
2007: VUMC Bridge Funding Feasibility Committee. Bih-Hwa Shieh (Pharmacology). Chair.
2007-08: VUMC Basic Science Planning: Communications Subcommittee. Co-Chair.
2008: VUMC Bridge Funding Feasibility Committee. Chang Chung (Pharmacology).
2008: Reviewer, Hobbs Discovery Grant. Vanderbilt Kennedy Center
2008-10 VUSOM Faculty Awards Committee.
2008-09: VUMC Research Enterprise Communications Advisory Committee.
2009-12: Member, Vanderbilt-Kennedy Center Membership Committee
2009-10: VUMC Bridge Funding Feasibility Committee. Richard O'Brien (MPB).
2010: VUMC Bridge Funding Feasibility Committee. Bethanne McLaughlin (Neurology)
2010-2011: Member, Faculty Advisory Committee. Bethanne McLaughlin, Asst. Professor, Neurology
2010 VUMC Advisory Committee: Design of Research Enterprise Web site.

- 2010-11 Member, Center for Molecular Neuroscience, Cores Advisory Committee.
2010-present: **Member, Steering Committee, Vanderbilt International Scholars Program.**
2010-11 Member, Vanderbilt-Kennedy Center 2011 Science Day Planning Committee.
2011: VUMC Bridge Funding Feasibility Committee. Bruce Carter (Biochemistry). Chair.
2011: VUMC Bridge Funding Feasibility Committee. Ariel Deutch (Psychiatry).
2011-present: **Member, DRTC Leadership Council. Co-director, Cell Signaling/Oxidative Stress**
2011-12: Member, Transitional Steering Committee, Vanderbilt Brain Institute
2011-13: Member, Institutional Shared Resources Oversight Committee
2012-present: **Member, Steering Committee, Vanderbilt Brain Institute**
2012-present: **Chair, Research Subcommittee, Vanderbilt Brain Institute**
2012-present: **Member, Biomedical/Biological Sciences Committee for internal review of limited submission opportunity (LSO) applications**
2012: Poster Judge, Vanderbilt Kennedy Center Science Day.
2013-present: **Member, Faculty Advisory Committee. Brad Grueter, Asst. Professor, Anesthesiology**
2013-14: Chair, Planning Committee, 2014 Science Day, Vanderbilt-Kennedy Center
2015: Reviewing Coordinator, Hobbs Discovery Grants, Vanderbilt-Kennedy Center
2015: Poster Judge, Vanderbilt Diabetes Day.
2015: Poster Judge, Vanderbilt Kennedy Center Science Day.

External:

- 1987-present: Manuscript reviews for many scientific journals:
Neuron, Nature Neuroscience, PLOS Biology, J. Biol. Chem. (about 30 manuscripts per year), J. Cell Biol., Proc. Natl. Acad. Sci. U.S.A., Neuropsychopharmacology, J. Neuroscience, Molecular and Cellular Biochemistry, Arch. Biochem. Biophys., J. Neurochem., Biochim. Biophys. Acta, Biochem. J., Second Messengers and Phosphoproteins, Molecular and Cellular Biology, Molecular Biology of the Cell, FEBS Journal (was Eur. J. Biochem.), Eur. J. Neurosci., J. Mol. Biol., Trends in Pharmacological Sciences, FEBS Letters, Protein Expression and Purification, Molecular Pain. BMC Biochemistry, Molecular and Cellular Neuroscience, Oncogene, Neuroscience Letters, Neuropharmacology, Neurobiology of Aging, Biochemistry, J. Neuroscience Methods, Biological Psychiatry.
1995: Organizer of a workshop on "Calcium/calmodulin-dependent protein kinases" for the 9th International Conference on Second Messengers and Phosphoproteins, Nashville, TN
1995-99: Member, Editorial Board of *The Journal of Biological Chemistry*
1998- : Ad-hoc reviewer of grants for NSF
1998-99: Appointed to AHA-Southern Research Consortium Peer Review Group #3 (Molecular Signaling).
2000-03: Member VA Merit Review Subcommittee for General Medical Science
2001: Ad Hoc Grant Reviewer, NIH
2002: Member NIH CSR Special Emphasis Panel, Molecular Cellular and Developmental Neurosciences (ZRG1 SS-P 01)
2003: Member MDCN-5 Special Emphasis Panel (Tele-conference)
2003: Ad Hoc Grant Reviewer, Biotechnology and Biological Sciences Research Council (UK)
2004-05: Ad Hoc Grant Reviewer, Medical Research Council (UK)
2004: Grant Reviewer, Biophysical and Biochemical Sciences, CSR, NIH (ZRG1 F04B 20)
2006: Grant Reviewer, Howard Hughes Medical Institute, International Research Scholars
2006: Grant Reviewer, German-Israeli Foundation for Scientific Research and Development.
2007: Ad Hoc Grant Reviewer. Scientific Advisory Board, National Parkinson Foundation.
2007: Ad Hoc Grant Reviewer, MSFE Review Panel, CSR, NIH
2008: Grant Reviewer, United States-Israel Binational Science Foundation.
2008: Ad Hoc Grant Reviewer. Scientific Advisory Board, National Parkinson Foundation.
2008: Grant Reviewer, Biomedical Research Council (Singapore)

2009-10: Ad Hoc Grant Reviewer. AHA Region 1/2, Cell Transport Review Committee
2009-13: Member, Editorial Board of *The Journal for Biological Chemistry*
2010: Grant Reviewer. Wellcome Trust, UK.
2011: Member, NIH-CSR Special Emphasis Panel, ZRG1-IFCN-T-02
2011: Ad Hoc Grant Review, National Science Foundation
2011: Ad Hoc grant Reviewer, Medical Research Council, UK
2011-13: Member, AHA Region 1/2, Cell Transport Review Committee
2013-present: **Associate Editor, *The Journal of Biological Chemistry***
2014: Ad Hoc grant Reviewer. NIH CSR Special Emphasis Panel. ZRG1 DKUS P 80 S
2014: Ad Hoc Member. NIMH Special Emphasis Panel. ZMH1 ERB-L (06) (K99/R00)
2015: Ad Hoc Member. NIH CSR Panel: F05 U Cell Biology, Developmental Biology, and Bioengineering

AWARDS AND FUNDING HISTORY

Past:

1. Medical Research Council Studentship (1982-85) University of Newcastle upon Tyne, England.
2. Biomedical Research Support Grant (Grant Number RR05424, Project # 30-21). \$6000 awarded for 9/1/91 to 8/31/92. Project title: "Regulation of Ca²⁺/calmodulin-dependent protein kinase II".
3. Pilot and Feasibility Study Grant from the Vanderbilt University Diabetes Research and Training Center. \$10,000 awarded for 1/1/92 to 11/30/92. Project title: "Mechanisms determining the subcellular localization of Ca²⁺/calmodulin-dependent protein kinase II". A possible second year of funding was returned due to funding of the R29 NIH Award.
4. NIH-R29-GM47973. (PI) \$350,000 direct costs awarded for 7/1/92 to 6/30/97. Project title: "Regulation of calmodulin-dependent protein kinase II"
5. American Heart Association (National) Established Investigator 94002850: Salary Award: \$45,000 plus 15% benefits per annum plus project support \$6,000-\$10,000 per annum for 7/1/94 to 6/30/99. Project title: "Regulation of calcium/calmodulin-dependent protein kinase II by protein phosphatases and subcellular localization"
6. American Heart Association (National) Grant-in-Aid 96010040: (PI) \$120,000 direct costs for 7/1/96 to 6/30/99. Project Title: "Interaction of Ca²⁺/calmodulin-dependent protein kinase II with cardiac proteins"
7. American Heart Association (Tennessee) Postdoctoral Fellowship (TN97F101) for Dr. L.B. MacMillan. Period 07/01/97-06/30/99. Project title: "Characterization of cardiac proteins associated with Ca²⁺/calmodulin-dependent protein kinase II"
8. American Heart Association (Southeast) Grant-in-Aid 9950865V. (PI) Total Direct Costs \$70,000 for 07/01/99-06/30/2001 "Identification of targeting determinants in calcium/calmodulin-dependent protein kinase II"
9. American Heart Association (Tennessee) Postdoctoral Fellowship (0120377B) for Dr. S. Sikes. Total direct costs: \$73,000 for 07/01/01-06/30/03. Project title: "Calcium/calmodulin-dependent protein kinase II-mediated modulation of NMDA Receptor function in intact cells".
10. NIH-RO1-NS-37508: (PI) Total Direct Costs \$555,579 for 12/03/98 - 11/30/2002 plus one year unfunded extension to 11/30/2003. Project Title: Targeting of brain protein phosphatase 1.
11. NIH-F31-MH068129 (**Mentor** on Fellowship for A.J. Robison). Annual direct costs: \$25,001 for the period 05/01/03-04/30/05. Project title: "CaMKII anchoring in synaptic plasticity"
12. NIH-R01-HL70250 (Co-investigator) PI: Mark E. Anderson. Annual direct costs requested: \$250,000 for the period 3/1/02-9/30/05. Project title: "Cardiac-targeted calmodulin kinase II inhibition". Terminated due to departure of Anderson to Univ. Iowa.
13. NIH P01 HL46681 (Co-investigator on subproject directed by Mark E. Anderson; PPG leader Dan Roden) Annual direct costs requested \$1,259,091 for the period 8/1/02-9/30/05. PPG Title: Biology of arrhythmia susceptibility. Subproject title: "Calmodulin kinase and arrhythmias in cardiomyopathy". Terminated due to departure of Anderson to Univ. Iowa.
14. NIH-RO1-HL62494: (Co-Investigator). PI: Mark E. Anderson. Project period; 04/01/99 - 09/30/2005. Project Title: "Calmodulin kinase II and early after depolarizations". Terminated due to departure of Anderson to Univ. Iowa.
15. NIH-1-R37-AA08986-11: (Co-investigator). PI: Danny Winder. Annual direct costs \$225,000 for

- the period 04/01/00-03/31/05, plus one year unfunded extension to 03/31/06. Project title: "Ethanol inhibition of NMDA receptor mediated responses".
16. NIH-1-RO1-MH63232-01 (PI) Total Direct Costs: \$925,000 for 05/15/2001-03/31/2006. Project Title: "Mechanisms of CaM kinase II signal transduction".
 17. NIH-RO1-HL62494: (Co-Investigator). PI: Mark E. Anderson (Subcontract from Univ. Iowa). Direct costs: \$16,642. Project period; 10/01/05 - 03/31/2006. Project Title: Calmodulin kinase II and early after depolarizations.
 18. AHA Predoctoral Award 0415157B (**Mentor** on Predoctoral Fellowship for Chad Grueter). Annual Direct Costs \$18,000 for the period 07/01/2004-06/30/2006. Project Title: "Regulation of Cardiac L-Type Calcium Channels by Beta Subunits and CaMKII"
 19. AHA-0625289B (**Mentor**, Postdoctoral Fellowship for Ryan K. Bartlett). 07/01/2006-06/30/2008. "Structural Dynamics of CaMKII-NR2B Complexes". Annual Direct Costs: \$37,500. Terminated early due to departure of Bartlett.
 20. NIH-P01-NS44282 (**PI of subproject #2**; PPG leader Ariel Deutch) Application titled *Dendritic plasticity in Parkinson's Disease*. Annual subproject specific direct costs requested \$136,638 for 07/01/02-06/30/08 (with no cost extension). Subproject title: *Modulation of dendritic CaMKII by dopamine*.
 21. VU Kennedy Center Hobbs Discovery Grant (**PI**) 11/01/07-6/30/09. *CaMKII signaling complexes during development*. Total Direct Costs: \$30,000.
 22. AHA Predoctoral Award 0715137B (**Mentor** on Predoctoral Fellowship for Sunday A. Abiria). Annual Direct Costs \$19,000 for the period 07/01/2007-06/30/2009. Project Title: *Mechanism of CaMKII-dependent Regulation of L-type Calcium Channels*.
 23. UNCF-MERCK Fellowship (**Mentor** on Postdoctoral Award for Anthony J. Baucum, Ph.D.) Annual Direct costs \$35,000 plus one time \$15,000 research support. Project period: 09/01/07 - 08/31/09. Project title: *Effects of a Model of Parkinson's Disease on Striatal Phosphoprotein Expression and Interactions*.
 24. NIH-1 F31 NS061537-01. (**Mentor** on Predoctoral fellowship for Richard M. Gustin). 12/01/2008-11/30/2009. Project title: *Mechanisms of Angelman Syndrome Pathology*.
 25. Michael J Fox Foundation Target Validation Program (**PI**). 07/01/2008-06/30/2010. Project title: *CaMKII as a therapeutic target in Parkinson's Disease*. Total direct costs: \$200,000.
 26. Michael J Fox Foundation Target Validation Program (**Co-investigator: PI: Winder**). 07/01/2008-06/30/2010. Project title: *NR2B as a therapeutic target in Parkinson's Disease*. Total direct costs: \$200,000.
 27. AHA Predoctoral Award (**Mentor** on Predoctoral Fellowship for Nidhi Jalan-Sakrikar). Annual Direct Costs \$21,770 for the period 07/01/2008-06/30/2010. Project Title: *Role of alpha-actinin in CaMKII-dependent regulation of NMDA receptor*.
 28. VUMC Ideas Grant (Co-PI with Mchaourab) 7/1/2010-6/30/2012. Project title: *Structural dynamics of calcium/calmodulin-dependent protein kinase II*. Total direct costs: \$269,000.
 29. NIH 1 K01 NS073700-01A1 (Baucum) 04/01/2012-07/31/2013. *Spinophilin Signaling in the Striatum*. Role: Mentor (0 calendar months). This is a career development award to support the transition of a trainee to an independent faculty position.
 30. NIH 1F32 MH100747-01-A1 (Gandy) 01/01/14-12/31/14. *Modulation of CaMKII and endocannabinoid signaling by Calcium Channels*. Role: Mentor (0 calendar months). This is a postdoctoral fellowship to support the training of Dr. Johanna Gandy. Role: **Mentor**
 31. AHA-SE 14PRE18420020 (Wang) 01/01/2014-12/31/2015. *Mechanisms of Ca_v1.3 calcium channel regulation by CaMKII*. Role: Mentor (0 calendar months). This is a predoctoral fellowship to support the training of Xiaohan Wang. Role: **Mentor**
 32. AHA-SE 15PRE25110020 (Marks) 07/01/2015-06/30/2017. *Reciprocal mGluR5-CaMKII regulation*. This is a pre-doctoral fellowship award to support the stipend of Christian Marks. Role: **Mentor**.

Active:

33. **NIH-2-RO1-MH63232-11** (Colbran) Total Direct Costs: \$1,538,880 for 02/03/2011-12/31/2016 (NCE). Project title: *Mechanisms of CaM kinase II signal transduction*. **Role: PI** (4.2 calendar months). Goal: This is the third contiguous period for support of this project, which investigates the role of specific protein-protein interactions in targeting CaM Kinase II to specific subcellular

locations in the brain and their impact on CaM kinase II signaling. Four Aims were proposed: 1: Test the hypothesis that β subunits and densin differentially target CaMKII isoforms to regulate LTCCs. 2: Test the hypothesis that α -actinin modulates CaMKII regulation of NMDARs. 3: Test the hypothesis that CaMKII interactions with specific SAP97 splice variants regulate AMPARs. 4: Test the hypothesis that CaMKII plays a non-catalytic, structural role in postsynaptic densities (PSDs).

34. **NIH 2-P30 DK020593-34** (Powers). 04/01/2012-03/31/2017. **Role: Research Group Leader** (0.12 calendar months). Goal: This grant partially supports the Vanderbilt Diabetes Center, a comprehensive center with over 129 investigators spanning clinical basic science research related to diabetes and/or its complications. I am a co-leader of the Cell Signaling and Oxidative Stress research group, which includes investigators studying neuroendocrine physiology, one of 5 similar groups within the Diabetes Center.
35. **NIH 1R01 MH077298-01A1** (Deutch) 07/01/2012-06/30/2017. *Dopaminergic Regulation of Pyramidal Cells*. **Role: Co-investigator** (0.6 calendar months). Goal: This project proposes to examine the regulation of cortical pyramidal cells by dopamine. My role is to advise on biochemical analyses of samples generated in this project.
36. **NIH-1-R01-NS078291-01A1** (Colbran) Total direct costs: \$979,795 (pending increase) for 09/01/2012-06/30/2017. *CaMKII, endocannabinoids, synaptic plasticity and motor function*. **Role: PI** (3.6 calendar months). Goal: Three proposed Aims test an over-arching hypothesis that CaMKII differentially regulates excitatory synapses in the two striatal MSN subtypes to modulate motor function. Aim 1 tests the hypothesis that Ca^{2+} -dependent synthesis of the major brain endocannabinoid (2-arachidonylglycerol) is modulated by CaMKII. Aim 2 tests the hypothesis that CaMKII differentially modulates endocannabinoid-dependent long-term depression in D1/D2-MSNs and examines interactions with DA signaling. Aim 3 tests the hypothesis that CaMKII modulates 2-arachidonylglycerol- and dopamine-dependent motor activity.
37. **NIH 2R01 DK060667-10-A1** (Shiota) 07/01/2013-06/30/2018. *Liver Glucose Flux in Obesity and Diabetes*. **Role: Co-investigator** (0.6 calendar months). Goal: This project examines the impact of plasma glucose concentrations on the subcellular distribution of glucokinase. My role is to advise on biochemical analyses of samples generated in this project.
38. **Hobbs Discovery Grant (Vanderbilt-Kennedy Center)** (Colbran). 03/01/2016-02/28/2017. *CaMKII in Autism Spectrum Disorder*. This grant provides seed funding to explore the role of CaMKII in ASD. **Role: PI**.
39. **NIH- 1 F31-MH109196-01** (Marks). 03/01/2016-02/28/2018. *Reciprocal mGluR5-CaMKII regulation*. This is a pre-doctoral fellowship award to support the stipend of Christian Marks, replacing the currently active AHA award. **Role: Mentor**.
40. **Vanderbilt Diabetes Center Discovery Grant** (Colbran). 07/01/2016-06/30/2018. Total Costs Requested: \$100,000 for. HTS Screen for CaMKII-targeted small molecules. This grant will attempt to optimize HTS strategies to identify small molecules that disrupt CaMKII interactions with other proteins.

Pending:

NIH-1-R01-MH112712-01 (Colbran). Requested Total Direct Costs: \$1,773,109. Requested dates: 04/01/2017-03/31/2022. Project title: *Mechanisms of CaM kinase II signaling*. **Role: PI** (4.2 calendar months). This is a new application that replaces the MH063232 grant. This project explores the potential role of CaMKII as a postsynaptic signaling nexus in autism spectrum disorder. Submitted: 06/05/2016.

LECTURES/PRESENTATIONS

Universities:

- 03/02/92: Department of Pharmacology, University of South Alabama, Mobile, AL.
- 03/19/92: Program in Molecular Medicine, U. Mass. Medical School, Worcester, MA.
- 03/02/94: Department of Pharmacology/Neuroscience Program, Vanderbilt Univ., Nashville, TN
- 10/12/94: Department of Molecular Biology, Vanderbilt University, Nashville, TN
- 10/18/94: Department of Pharmacology, Vanderbilt University, Nashville, TN
- 05/01/95: Department of Cardiac Medicine, National Heart and Lung Institute, Royal Brompton

Hospital, London, U.K.

- 05/03/95: Department of Biochemistry and Genetics, University of Newcastle, Newcastle upon Tyne, U.K.
- 05/09/95: Department of Biochemistry, University of Bristol, Bristol, U.K.
- 04/08/96: Department of Biochemistry and Molecular Biology, University of North Texas Health Science Center at Fort Worth, TX
- 12/12/96: Department of Pharmacology, University of Virginia
- 03/13/97: Geisinger Clinic, Weis Center for Research, Danville, PA
- 12/04/97: Department of Biochemistry, Emory University
- 05/06/98: Department of Biology, Brandeis University, Waltham, MA
- 10/30/98: Department of Biochemistry, Virginia Polytechnic Institute and State University
- 02/11/99: Department of Biochemistry, University of Mississippi
- 03/29/99: Department of Physiology, University of Texas Southwestern Medical Center
- 04/25/03: Department of Biology, Murray State University, Murray, KY
- 10/03/03: Department of Chemistry, Austin Peay State University, Clarksville, TN
- 12/11/03: National Institute of Alcohol Abuse and Alcoholism
- 04/15/04: School of Biological Sciences, University of Missouri, Kansas City
- 04/26/04: University of Utah, Salt Lake City, UT
- 06/22/04: Institute of Biomedical & Life Sciences, University of Glasgow, Scotland
- 07/14/05: Department of Medicine, University of Iowa
- 04/25/06: Department of Pharmacology, Emory University
- 05/08/06: Department of Pharmacology, University of Colorado
- 09/08/06: Department of Pharmacology and Toxicology, Medical College of Georgia
- 12/09/08: Department of Neurobiology, University of Alabama at Birmingham
- 03/16/11: Department of Pharmacology, University of Tennessee Health Sciences Center, Memphis.
- 10/19/11: Center for Neuroscience, West Virginia University, Morgantown.
- 12/12/11: Laboratory of Signal Transduction, NIEHS, Research Triangle Park, North Carolina
- 03/30/12: Vollum Institute, Oregon Health Sciences University, Portland, OR
- 05/03/12: Stark Neurosciences Research Institute, Indiana University School of Medicine, Indianapolis
- 05/10/12: Department of Physiology, University of South Alabama, Mobile, AL
- 05/15/13: Department of Pharmacology, Vanderbilt University, Nashville, TN
- 06/04/13: Neuroscience Program, University of Iowa, Iowa City, IA
- 06/07/13: Department of Neuroscience, University of Minnesota, Minneapolis, MN
- 04/02/14: Developmental Disabilities Grand Rounds, Vanderbilt Kennedy Center, Nashville, TN.

Meetings:

- 10/28/95: Speaker in workshop on “Subcellular Targeting of Signal Transduction Components” at the 9th International Conference of Second Messengers and Phosphoproteins held at Vanderbilt University
- 10/12/96: ASBMB Fall Symposium on “Subcellular Targeting of Signal Transduction Enzymes”; Snowbird Utah
- 01/25/97: Thirtieth Annual Winter Conference on Brain Research: Session, Calmodulin-dependent protein kinases. Breckenridge, CO.
- 05/16/98: ASBMB Satellite Meeting on Specificity of Signal Transduction by Targeting and Anchoring, Washington DC. Talk selected from submitted abstracts titled: “Association of Ca²⁺/calmodulin-dependent protein kinase II with N-methyl-D-aspartate receptors”.
- 05/30/98: North Dakota EPSCoR Conference on Protein-Protein Interactions, Grand Forks ND. Invited talk titled: “Neuronal targeting and regulation of CaM-kinase II and protein phosphatase 1”.
- 10/27/99: Society for Neuroscience Annual Meeting, Miami, FL. Talk selected from submitted abstracts titled: “Spinophilin and neurabin: synaptic targeting subunits for selected protein phosphatase 1 isoforms”.

- 06/04/00: International Symposium on Neuronal Signaling and Protein Phosphorylation-Dephosphorylation, Fukuoka, Japan. Invited talk titled: "Regulation of dendritic CaM kinase II by a protein phosphatase holoenzyme containing PP1 γ 1, spinophilin and neurabin."
- 06/07/00: ASBMB/ASPET Joint Annual Meeting, Boston, MA. Talk selected from submitted abstracts titled: "Synaptic targeting mechanisms of CaM kinase II"
- 09/18/00: Structure, mechanism and function of CaMKII. The Banbury Center at Cold Spring Harbor Laboratory, Long Island, NY. Invited talk titled: "Mechanisms of CaMKII association with postsynaptic densities"
- 07/10/01: EMBO Conference of Protein Phosphorylation and Protein Phosphatases. Marburg Germany. Invited Talk: "Spinophilin and neurabin target selected PP1 isoforms to synapses and bind α 2 adrenergic receptors".
- 05/07/04: Spring Hippocampal Research Conference. Grand Cayman, West Indies. Invited talk in session titled: "Signal Compartmentalization in Hippocampal Pyramidal Cells"
- 03/16/05: Spring Brain Conference, Sedona, AZ. Invited talk: "CaMKII signaling complexes associated with the NMDA receptor".
- 06/13/06: 28th Annual Meeting of the International Society for Heart Research, Toronto, Canada. Invited Talk: "Calmodulin kinase II Regulation of L-type Calcium Channels".
- 01/2012: Winter Conference on Brain Research, Keystone, CO. Invited talk: "Mechanisms of dendritic CaMKII signaling".
- 10/12/12: SfN Satellite Conference: "Phosphatases in Neuroscience". New Orleans, LA. Invited talk titled: "Spinophilin-PP1 Interactome in Adult Striatum: Novel Interactions with CaMKII"
- 01/2013: Winter Conference on Brain Research, Breckenridge, CO. Invited talk: "A novel synaptic role for striatal CaMKII".
- 10/2016: National Congress of Biochemistry and Molecular Biology, Chinese Society of Biochemistry and Molecular Biology, Hangzhou, China. Invited talk: "CaMKII: a multifunctional mediator of calcium signals in diverse tissues"

BIBLIOGRAPHY

Total of 116 publications listed on PubMed on 09/05/2016

PubMed Listing: <https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/40017550/?sort=date&direction=descending>

h index: 58 (Google Scholar: 09/05/2016)

Google Scholar Record: <https://scholar.google.com/citations?user=w4RsNfkAAAAJ&hl=en>

Times Cited information for top 20 articles shown in blue.

Invited Reviews and Book Chapters:

1. Acute hormonal regulation of lipolysis and steroidogenesis. Yeaman SJ, Cordle SR, **Colbran RJ**, Garton AJ, Honor RC (1987) in "Signal Transduction and Protein Phosphorylation" (L.M.G. Heilmeyer, Ed.) pp.231-7, Plenum Press, New York.
2. Calcium/calmodulin-dependent protein kinase II. **Colbran RJ**, Schworer CM, Hashimoto Y, Fong YL, Rich DP, Smith MK, Soderling TR (1989) *Biochem. J.* **258**, 313-25. **Times Cited: 410**
3. Regulation of brain Ca²⁺/calmodulin-dependent protein kinase II. Soderling TR, Fukunaga K, Rich DP, Fong, YL, Smith MK, **Colbran RJ** (1990) *Adv. Second Messengers & Phosphoprotein Res.* **24**, 206-11.
4. Calcium/calmodulin-dependent protein kinase II. **Colbran RJ**, Soderling TR (1990) *Curr. Topics Cell. Regul.* **31**, 181- 221.
5. Molecular and cellular studies on brain calcium/calmodulin-dependent protein kinase II. Soderling TR, Fukunaga K, Brickey DA, Fong YL, Rich DP, Smith K, **Colbran RJ** (1991) *Prog. Brain Res.* **89**, 169-83.
6. Regulation and role of brain calcium/calmodulin-dependent protein kinase II. **Colbran RJ** (1992) *Neurochem. Int.* **21**, 469-97.

7. Dendritic Targeting and Function of Protein Phosphatases. **Colbran RJ** (2003) In “Handbook of Cell Signaling” (Bradshaw, R.A. and Dennis, E.A., eds.). Vol. 2, Chapter 188, pp. 397-403. Elsevier-Academic Press, San Diego, CA, USA.
8. Targeting of Ca²⁺/calmodulin-Dependent Protein Kinase II. **Colbran RJ** (2004) *Biochem. J.* **378**, 1-16. [Times Cited: 221](#)
9. Calcium/calmodulin-dependent protein kinase II and synaptic plasticity. **Colbran RJ**, Brown AM (2004) *Curr. Opin. Neurobiol.* **14**, 318-27. [Times Cited: 253](#)
10. Calmodulin-dependent protein kinases. Robison AJ, **Colbran RJ** (2004) In: “Encyclopedia of Biological Chemistry” (Lennarz WJ, Lane MD, eds.). Elsevier, Oxford, Vol. 1, pp. 281-286.
11. Protein phosphatases and CaMKII-dependent synaptic plasticity. **Colbran RJ** (2004) *J. Neurosci.* **24**, 8404-9.
12. CaMKII, an Emerging Molecular Driver for Calcium Homeostasis, Arrhythmias and Cardiac Dysfunction. Grueter CE, **Colbran RJ**, Anderson ME (2007) *J. Mol. Med.* **85**, 5-14. [PMID:17119905]
13. Striatal plasticity and medium spiny neuron dendritic remodeling in parkinsonism. Deutch AY, **Colbran RJ**, Winder DJ (2007) *Parkinsonism Relat Disord* **13**: S251-258. [PMID:18267246]
14. CaMKII: Mechanisms of a Prototypical Memory Molecule. **Colbran RJ** (2008) In “*Molecular Mechanisms of Memory*”. (Ed. Sweatt JD), Vol. 4 of *Learning and Memory: A Comprehensive Reference*, 4 vols. (J.Byrne Editor), pp. 469-488. Oxford: Elsevier.
15. Dendritic Targeting and Function of Protein Phosphatases. Baucum AJ **Colbran RJ** (2009) In “*Handbook of Cell Signaling*” (Eds: Bradshaw RA, Dennis EA). 2nd Edition. Oxford-Academic Press. pp. 1343-1352.
16. Synaptic triad in the neostriatum: dopamine, glutamate and the MSN. Klug JR, Deutch AY, **Colbran RJ**, Winder DG (2011) In: *Dopamine-glutamate interactions in the basal ganglia* (Ed: S Jones). *Frontiers in Neuroscience*. Taylor & Francis / CRC Press. pp. 71-104.
17. Calmodulin-dependent protein kinases. Robison AJ, **Colbran RJ** (2013) In: “*Encyclopedia of Biological Chemistry*” (Lennarz WJ, Lane MD, eds.). pp. 304-309. Elsevier, Oxford.
18. CaMKII: A molecular substrate for synaptic plasticity and memory. Shonesy BC, Jalan-Sakrikar N, Cavener VS, **Colbran RJ** (2014) In “*Progress in Molecular Biology and Translational Science*” (Eds: Zafar U. Khan, E. Chris Muly) Vol. 122, pp. 61-87. Burlington: Academic Press. [PMID:24484698]
19. Thematic Mini-Review Series: Molecular Mechanisms of Synaptic Plasticity. **Colbran RJ** (2015) *J Biol Chem* **290**, 28594-5. PMC4661373. (This article is a brief introduction to a series of related mini-review articles that I solicited for JBC).

Commentaries

1. A non-catalytic role for CaMKII α : Scaffolding proteasomes to synapses. Jalan-Sakrikar N, **Colbran RJ** (2010) *Cell Science Reviews* (Online: <http://www.cellscience.com/journal/journalindex.asp>)
2. REEPing the benefits of an animal model of hereditary spastic paraplegia. Deutch AY, Hedera P, **Colbran RJ** (2013) *J Clin Invest* **123**, 4134-6. PMC3784552
3. The Anxiolytic Actions of 2-Arachidonoylglycerol: Converging evidence from two recent genetic endocannabinoid deficiency models. Patel S, Shonesy BC, Bluett R, Winder, DG, Colbran RJ (2015) *Biol. Psychiatry* **79**, e78-9. PMID:26212898.
4. Transparency is the key to quality. Fosang AJ, **Colbran RJ** (2015) *J Biol Chem* **290**, 29692-4. PMC4705984

Research Papers

1. The identity of cholesterol ester hydrolase of bovine corpus luteum. Cook KG, **Colbran RJ**, Yeaman SJ (1983) *Biochem. Soc. Trans.* **11**, 703.
2. Cytosolic cholesterol ester hydrolase from bovine corpus luteum: its purification, identification and relationship to hormone-sensitive lipase. Cook KG, **Colbran RJ**, Snee J, Yeaman SJ (1983) *Biochim. Biophys. Acta* **752**, 46-53.
3. Reversible phosphorylation of cholesterol ester hydrolase. **Colbran RJ**, Yeaman SJ (1985) *Biochem. Soc. Trans.* **31**, 874-5
4. Characterization and regulation of hormone-sensitive triacylglycerol and cholesterol ester hydrolases from bovine tissues. **Colbran RJ** (1985) Ph.D. Thesis, University of Newcastle upon Tyne, U.K.
5. Purification of hormone-sensitive lipase from bovine adipose tissue. Cordle SR, **Colbran RJ**, Yeaman SJ (1986) *Biochem. Soc. Trans.* **14**, 327-8.
6. Hormone-sensitive lipase from bovine adipose tissue. Cordle SR, **Colbran RJ**, Yeaman SJ (1986) *Biochim. Biophys. Acta* **887**, 51-7.
7. Regulation of cholesterol ester hydrolase by cyclic AMP-dependent protein kinase. **Colbran RJ**, Garton AJ, Cordle SR, Yeaman SJ (1986) *FEBS Lett.* **201**, 257-61.
8. Reversible generation of a Ca^{2+} -independent form of Ca^{2+} /calmodulin-dependent protein kinase II by an autophosphorylation mechanism. Schworer CM, **Colbran RJ**, Soderling TR (1986) *J. Biol. Chem.* **261**, 8581-4. [Times Cited: 216](#)
9. Autophosphorylation of Ca^{2+} :calmodulin-dependent protein kinase II: Effects on total and Ca^{2+} -independent activities and kinetic parameters. Hashimoto Y, Schworer CM, **Colbran RJ**, Soderling TR (1987) *J. Biol. Chem.* **262**, 8051-5.
10. Calcium/calmodulin-dependent protein kinase II: Characterization of distinct calmodulin-binding and inhibitory domains. Payne, M.E., Fong, Y.L., Ono T, **Colbran RJ**, Kemp BE, Soderling TR, Means AR (1988) *J. Biol. Chem.* **263**, 7190-5. [Times Cited: 203](#)
11. Calcium/calmodulin-dependent protein kinase II: Identification of a regulatory autophosphorylation site adjacent to the inhibitory and calmodulin-binding domains. Schworer CM, **Colbran RJ**, Keefer JR, Soderling TR (1988) *J. Biol. Chem.* **263**, 13486-9. [Times Cited: 161](#)
12. Regulatory interactions of the calmodulin-binding, inhibitory and autophosphorylation domain of Ca^{2+} /calmodulin-dependent protein kinase II. **Colbran RJ**, Fong YL, Schworer CM, Soderling TR (1988) *J. Biol. Chem.* **263**, 18145-51.
13. Regulatory domain of calcium/calmodulin-dependent protein kinase II: Mechanism of inhibition and regulation by phosphorylation. **Colbran RJ**, Smith MK, Schworer CM, Fong YL, Soderling TR (1989) *J. Biol. Chem.* **264**, 4800-4.
14. Regulatory properties of calcium/calmodulin-dependent protein kinase II in rat brain postsynaptic densities. Rich DP, **Colbran RJ**, Schworer CM, Soderling TR (1989) *J. Neurochem.* **53**, 807-16.
15. Phosphorylation of bovine hormone-sensitive lipase by the AMP-activated protein kinase. Garton AJ, Campbell DG, Carling D, Hardie DG, **Colbran RJ**, Yeaman SJ (1989) *Eur. J. Biochem.* **179**, 249-54. [Times Cited: 249](#)
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17. Calcium/calmodulin-independent autophosphorylation sites of calcium/calmodulin-dependent protein kinase II: Studies on the effect of phosphorylation of threonine 305/306 and serine 314 on calmodulin binding using synthetic peptides. **Colbran RJ**, Soderling TR (1990) *J. Biol. Chem.* **265**, 11213-9.

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19. Expression and characterization of the alpha subunit of Ca²⁺/calmodulin-dependent protein kinase II using the baculovirus expression system. Brickey DA, **Colbran RJ**, Fong YL, Soderling TR (1990) *Biochem. Biophys. Res. Commun.* **173**, 578-84.
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26. Protein serine/threonine phosphatases 1 and 2A associate with and dephosphorylate neurofilaments. Strack S, Westphal R, **Colbran RJ**, Ebner, FF, Wadzinski BE (1997) *Mol. Brain Res.* **49**, 15-28.
27. Carboxyl methylation of nuclear protein serine/threonine phosphatase X. Kloeker S, Bryant JC, Strack S, **Colbran RJ**, Wadzinski BE (1997) *Biochem. J.* **327**, 481-6.
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32. Brain actin-associated protein phosphatase 1 holoenzyme (PP1_A) containing spinophilin, neurabin and selected catalytic subunit isoforms. MacMillan LB, Bass MA, Cheng N, Howard EF, Tamura M, Strack S, Wadzinski BE, **Colbran RJ** (1999) *J. Biol. Chem.* **274**, 35845-54.
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Statement: 2015 retractions of 7 publications published in collaboration with Dr. Anderson

In November 2014, the NIH Office of Research Integrity concluded an investigation of Dr. Igor Dzhura, a former postdoc with one of my collaborators, Dr. Mark E. Anderson. The ORI report (published 11/2014) details data falsification/fabrication issues when he subsequently worked with a different PI in another department at Vanderbilt (<https://ori.hhs.gov/content/case-summary-dzhura-igor>). Re-examination of Dzhura's work with Dr. Anderson found that exemplar traces of Ca_v1.2 LTCC single channel activity were inappropriately re-used in multiple figures/papers. As a result, 7 collaborative papers published before 2007 have been retracted or corrected, as indicated in the list of papers above:

- Dzhura et al., 2000. *Nature Cell Biology* **2**:173-177. RETRACTED
- Wu et al., 2001. *J. Physiol.* **535**:679-687. RETRACTED
- Wu et al., 2002. *Circulation* **106**:1288-1293. STATEMENT OF CONCERN PUBLISHED.
- Dzhura et al., 2002. *J. Physiol.* **545**:399-406. RETRACTED.
- Dzhura et al., 2003. *J. Physiol.* **550**:731-738. RETRACTED.
- Zhang et al., 2005. *FASEB J.* **19**:1573-1585. RETRACTED.
- Grueter et al., 2006. *Molecular Cell* **23**:641-650. RETRACTED.

Despite this issue, Dr. Anderson and I believe that the overall conclusions from these studies (that CaMKII activates Ca_v1.2 Ca²⁺ channels and facilitates Ca_v1.2 currents via the β_{2a} subunit) remain valid because the observations have been extensively validated in other publications. Indeed, Dr. Anderson's lab fully replicated findings reported in the single figure/experiment (Fig. 3) that Dzhura contributed to the paper published in *Molecular Cell*, confirming that phosphorylation of Thr498 in the β_{2a} subunit is required for CaMKII, but not PKA, to increase Ca_v1.2 open channel probability. Moreover, Dzhura was not involved in later studies showing that CaMKII facilitates Ca_v1.2 channels in cardiomyocytes by binding to and phosphorylating the β_{2a} subunit (Koval et al., 2010. *Proc Natl Acad Sci USA* **107**:4996).