

Iain L. O. Buxton
Regents Professor 2011; Foundation Professor 2013
Curriculum Vitae

PERSONAL Born in Buckinghamshire, England, 1950 (<http://www.royalbucks.co.uk/>)
Immigrated to the United States on the Queen Mary, 1961
U.S. citizen, 1975
Married, 1981: one child; *Noah David*, born 1984

ADDRESS Department of Pharmacology
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University of Nevada School of Medicine
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Reno, Nevada 89557
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EDUCATION **Bachelor of Arts, (BA)** University of California, San Diego
1972, Major: Cell and Molecular Biology
PhD Graduate Studies, Biochemistry Graduate Program
1975 Major: Enzymology, (PhD pgm.) North Carolina State, Raleigh, NC
Doctor of Pharmacy, (PHMD), University of the Pacific,
1978, Major: Pharmaceutical Sciences
Licenses: RPh, CA License CS12899 (inactive); US DEA RB0387402 (active)

EXPERIENCE

7/2015-Present **President and CEO, ExCyte Therapeutics**, a Nevada Corporation developing basic research discoveries into new treatments to help patients.

5/2010-Present **President**, Western Pharmacology Society, Registered non-profit 501(c)3.

4/2013-Present **Foundation Professor**

7/2014-1/31/18 **President**, Campus Pharmacy Corporation, University of Nevada School of Medicine

2/2011-12/2017 **Chair, Department of Pharmacology**

11/2003-6/2008 Dean (Planning and Implementation) University of Nevada School of Pharmacy

5/2010-7/2012 Director, UNR Center for Advanced Studies

7/1995 **Professor**, Department of Pharmacology, University of Nevada School of Medicine, Reno, NV

12/2001 Professor, Department of Obstetrics & Gynecology,
University of Nevada, Southern Campus, Las Vegas, NV

1/2005-7/2006 President, Pharmaceutical Education and Research Foundation
of Nevada (A Nevada Non-Profit Corporation; 501 c3)

6/2003-2009 Adjunct Professor, Nevada Cancer Institute, 10000 W. Charleston Blvd. Suite
260, Las Vegas, NV

7/1995-6/2014 Director, School of Medicine Performance Compensation Plan
University of Nevada School of Medicine, Reno, NV

9/2001-7/2003	Director, Biochemistry Graduate Program, University of Nevada, Reno, NV; Interdisciplinary Program; Colleges of Agriculture, Arts & Science and Medicine
7/1997-6/2002	Faculty Director, University of Nevada Flow Cytometry Laboratory University of Nevada School of Medicine, Reno, NV
1/1998-7/2001	Co-Chair, President's School of Pharmacy Task Force
7/1996-1/1998	Associate Dean for Research & Director, Office of Medical Research University of Nevada School of Medicine, Reno, NV
4/1993-6/30/96	Assistant Dean for Research & Director, Office of Medical Research University of Nevada School of Medicine, Reno, NV
4/1989-4/30/95	Director, Tissue, Cell and Tissue Culture Research Core, UNR Program Project in Colonic Motility
7/1989-6/30/95	Associate Professor (with tenure), Department of Pharmacology, University of Nevada School of Medicine, Reno, Nevada
4/1985-6/1989	Assistant Professor, Department of Pharmacology University of Nevada School of Medicine, Reno, Nevada
5/1984-4/1985	Assistant Research Pharmacologist, Department of Medicine, Division of Pharmacology, University of California, San Diego
5/1981-5/1984	Postdoctoral Fellow with Dr. L.L. Brunton, Department of Medicine, Divisions of Pharmacology & Cardiology, U.C. San Diego
7/1980-2/1981	Clinical Pharmacist, Veterans Administration Medical Center, San Diego, California <i>Supervisor:</i> Drug Information Section <i>Head:</i> Investigational Drug Studies Section
7/1979-6/1980	Clinical Fellow, Veterans Affairs Medical Center, San Diego, CA
7/1978-6/1979	Clinical Resident, Veterans Affairs Medical Center, San Diego, CA
9/1974-7/1975	Research Associate with Dr. H.L. Leffert, Cell Biology Laboratory, Salk Institute for Biological Studies, La Jolla, California
7/1973-8/1974	Research Associate (PhD Program) with Dr. R.A. Main, Biochemistry Dept. North Carolina State University, Raleigh, NC
7/1972-6/1973	Research Assistant with Dr. R. Holley, (<i>Nobel '68</i>), Cancer Biology Laboratory, Salk Institute for Biological Studies, La Jolla, CA

TEACHING EXPERIENCE

4/1985-Present	Faculty in Pharmacology, University of Nevada, School of Medicine
5/1981-5/1985	Laboratory instruction of UCSD Physiology/Pharmacology Program Medical and Graduate Students
9/1978-5/1981	Adjunct Clinical Instructor, University of the Pacific School of Pharmacy, Clinical Clerkship Program, San Diego Region
9/1978-5/1981	Adjunct Clinical Faculty, University of Southern California Clinical Internship Program, San Diego Region

TEACHING EXPERIENCE (*continued*)

9/1979-4/1980 Instructor of Pharmacology, National University, San Diego, CA.
8/1975-6/1977 Teaching Assistant, University of the Pacific, Stockton, California.
Biochemistry Lab (Dr. F. Sayre). Cell & Tissue Culture (Dr. D. Pace)

Current BOARDS

President Elect and Member of the Board, American Heart Association, Nevada Chapter, Western States Affiliate

Past BOARDS

Member of the Board, Integrated Clinical Services, University of Nevada School of Medicine Clinical Practice Plan
Voting Member, Southern Regional Executive Committee (2010-2017)
Voting Member, Northern Regional Executive Committee (2010-2017)
Treasurer, Northern Regional Executive Committee (2017)

EDITORIAL EXPERIENCE

Editor-in-Chief, Proceedings of the Western Pharmacology Society [ISSN: 0083-8969]. Elected 2/1/2003; to 6/30/2012. Responsible for reviews, editing and publication of the annual Proceedings of the Society.

Editorial Board Member; Annals of Pharmacotherapy [ISSN: 1060-0280]. 7/1/2003-7/1/2008. Handling manuscript reviews in the area of clinical pharmacology.

Editorial Board Member; Journal of Signal Transduction [ISSN: 2090-1739; eISSN: 2090-1747]. 9/27/2009-7/2017. Handling manuscripts in all areas of signaling in mammalian cells and tissues.

Associate Editor (2004-2008), Access Medicine; Goodman & Gilman for on-line pharmacology web-based text of the 11th Edition of Goodman & Gilman's Pharmacological Basis of Therapeutics, McGraw-Hill Publishers.

Author/Editor, "Goodman & Gilman's Manual of Pharmacology and Therapeutics" Student text book *in press*, McGraw-Hill, Buxton, IL, Blumenthal, D and Brunton LL, Parker, K. Editors, pp. 1-1219.

Author, Goodman & Gilman Textbook, "The Pharmacological Basis of Therapeutics". McGraw-Hill [ISBN: 0-07-1345469-7] *for the* 11th Edition. Chapter 1 : Pharmacodynamics and Pharmacokinetics: The Dynamics of Drug Absorption, Distribution, Action and Elimination *and* Appendix I: Principles of Prescription Order Writing and Patient Compliance.

For the 12th Edition: Buxton, I.L.O. and Leslie Z. Benet. *Chapter 2*, Pharmacokinetics. In: Goodman and Gilman's The Pharmacologic Basis of Therapeutics. 12th Edition, 2009, Ed: L.L.Brunton. McGraw-Hill, New York.

For the 12th Edition: Buxton, I.L.O. *Appendix 1*, Principles of Prescription Order Writing and Patient Compliance. In: Goodman and Gilman's The Pharmacologic Basis of Therapeutics. 12th Edition, 2009, Ed: L.L.Brunton. McGraw-Hill, New York.

For the 13th Edition: Buxton, I.L.O. *Chapter 2*, Pharmacokinetics. and *Appendix 1*, Principles of Prescription Order Writing and Patient Compliance. In: Goodman and Gilman's The Pharmacologic Basis of Therapeutics. 13th Edition, 2017 *in press*, Ed: L.L.Brunton. McGraw-Hill, New York.

MAJOR ACADEMIC PROJECTS

Planning Dean, University of Nevada, School of Pharmacy. Lead role in planning for curriculum, staffing, budget, recruitment and governance. Proposal to include UNR and UNLV as equal partners in a statewide program granting the PharmD degree. Presented to and approved by the Regents of the NSHE August 2000, and again in 2004. The school remains unfunded due to the down-turn in the Nevada economy and will require future legislative action.

President, University of Nevada Campus Pharmacy Services. Supervision of pharmacy business and clinical operations for the School of Medicine.

FORMAL TEACHING ACTIVITIES

Medical Pharmacology (Block Curriculum) Content Coordinator: Core basic science course in the MD curriculum taken in the spring semester of the sophomore year. Seventy-two students per year are taught in both the lecture and problem-solving small group format in the blocks in both years one and two that total one-hundred-fifty hours of instruction. Dr. Buxton is the content coordinator and teaches in several sections of the course; Basic Principles, Pharmacokinetics, Autacoids and Eicosanoid Pharmacology and NSAID Pharmacology, Toxicology, Drug side effects. Dr. Buxton also provides therapeutic correlation of basic science in pharmacology for Diabetes, Rheumatoid Arthritis, Gout, Hypertension and Drugs in the Elderly. Dr. Buxton's student evaluations are in the excellent range from 4.3 to 4.5 on a 1-5 scale. Dr. Buxton has been given an evaluative rating of Excellent in teaching continuously since first presenting lectures to medical students in Nevada in 1985.

Molecular Pharmacology (PHAR 710) Course Coordinator from inception till 2013: Fall semester, three units. Course details the development of our current understanding of receptor signal transduction in mammalian systems. Designed for graduate students earning the PhD and interested in careers in biomedical research and development in academia or industry. The course focuses on the molecular biochemistry of receptor structure; mass action considerations governing ligand-receptor binding interactions; molecular pharmacology of transduction of the receptor signal and specific considerations of receptors as pharmaceutical targets.

Reproductive Pharmacology (PHAR 770): Spring semester, three units/semester; graduate student lectures and discussion in placental organization and function, parturition and problems of Pregnancy.

Medical Student Clerkship (MED 651): Basic Science Correlations. Mentoring for medical students in the third year during their OB/Gyn clerkship. One student in 2019.

Molecular Cell Biology (CMB 710): Spring semester, four units. Advanced studies of the structure and function of cells provided for PhD students in Cell & Molecular Biology, Cell & Molecular Pharmacology and Physiology, and Biochemistry Graduate Programs. Dr. Buxton contributes lectures in Receptor Signal Transduction during eight hours of lecture.

Cancer Biology (Micro 787): Fall semester, three units. Contributing lectures in the area of metastasis and angiogenesis in the invasion and progression of breast and other human cancers.

Experimental Biochemistry II (BCH 702): Fall, Spring and Summer semesters, three units/semester. Graduate student laboratory rotation in preparation of dissertation research for the PhD degree. Dr. Buxton is both mentor and instructor of record providing students with research experience and advising students on the selection of rotation experiences.

Senior Thesis (BCH 407-408): Fall/Spring (3+3 units). Laboratory research project required of undergraduate biochemistry majors (capstone course). Students participate in current research projects and prepare abstracts and research papers of their work as appropriate.

FORMAL TEACHING ACTIVITIES (*continued*)

Cellular and Molecular Pharmacology (PHAR 799): Fall, Spring and Summer semesters, eight units/semester; one student in 2019. Teaching of PhD candidates in the laboratory.

Dissertation (BCH 799; CMB 799): Fall, Spring and Summer semesters, eight units/semester. Teaching of PhD students in the laboratory.

PAST COURSES

Introduction to Human Pharmacology (PHAR 400/600): Spring semester, three units. Undergraduate elective for BS students in the sciences taught by Dr. Buxton (47 hours; selected years). The Introduction to Human Pharmacology course addresses the basic scientific principles that govern the disposition of drugs in the body, the fundamental principles that determine the action of drugs on specific cellular and non-cellular targets and details the mechanism of action(s) and therapeutic usefulness of specific agents associated with particular organ systems or diseases. Though based on the lecture format, self-directed learning and group discussions are employed to permit the most effective and enjoyable format for learning. The class benefits students interested in the health professions such as pharmacy, medicine or nursing as well as graduate study in the areas of pharmacology and physiology.

OB/Gyn Residency: Basic Science Correlations: Year-round required course. Dr. Buxton serves as consultant to residents on the basic science aspects of required reading and preparation of resident presentations.

RESEARCH ACTIVITIES**Regulation of Contraction Associated Targets in Myometrium by S-Nitrosation**

Discovery of the molecular mechanisms subserving human uterine quiescence during pregnancy and their dysregulation in spontaneous preterm labor is the objective of my research. We are testing the hypothesis that failure of preterm human myometrium to relax to nitric oxide (NO) is the result of dysregulated S-nitrosation of specific smooth muscle contractile proteins.

Our long-term goal is to find new effective tocolytics to treat women who enter labor too soon. Preterm labor leads to preterm delivery, a global problem accounting for 75% of fetal morbidity and mortality. No drugs reliably prevent labor in patients who enter labor preterm, thereby allowing their pregnancies to go to term. Therapeutic approaches to manage spontaneous preterm labor (SPTL) are employed without clear evidence of benefit for acute or maintenance tocolysis.

NO-mediated relaxation of myometrium is cGMP-independent. Preterm myometrium fails to relax to NO. Discovering the mechanism of action of S-nitrosated contractile proteins can suggest new therapeutic targets to manage SPTL. We propose that gestational quiescence until term results from regulated post-translational S-nitrosation of myosin light chain kinase (MLCK), the regulatory light chain (MYL9) and profilin-1 (PFN1). Addition of NO relaxes term, but not preterm laboring tissues as a result of S-nitrosation differences that alter the function of these CAPs in SPTL.

We have also proposed that in women, uterine quiescence during gestation until term is the result of regulated S-nitrosation of connexin 43 (Cx43) following endogenous, regional production of S-nitrosoglutathione (GSNO). GSNO relaxes term, but not preterm laboring tissues as a direct result of decreased Cx43 S-nitrosation due to increased GSNO reductase activity that results in altered connexin hemichannel activity.

Discovering the effect of regulated S-nitrosations on the mechanism of contractile protein action in term tissues, term tissues from patients in labor and in SPTL (with controls for gestational timing, tocolytic and antenatal steroid use, infection, and gestational length) will establish whether or not NO is an endogenous relaxation signal. Comparison of this S-NO fingerprint with that measured following

relaxation of the tissue by NO addition in each pregnancy state is novel because SPTL is not simply early labor, will likely be influenced by infection and/or gestational length and because NO-induced relaxation of spontaneous and oxytocin-induced contractions of preterm myometrium is blunted. S-nitrosation differences between labor and SPTL point to altered quiescence mechanisms. Completion of this research will suggest therapeutic strategies for the treatment of SPTL such as the S-nitrosogluthione reductase that regulates S-nitroso protein levels and is known to provide therapeutic benefit in asthma and for which an inhibitor is in development.

Stretch-Activated 2-pore Potassium Channels in Preterm Labor. In 2005 our lab was the first to discover expression of two stretch-activated potassium channels, TRAAK and TREK-1 in human myometrium and demonstrated that the TREK-1 channel is gestationally regulated. We were funded for this work by the *March of Dimes* and the *Bill and Melinda Gates Foundation* (the first gates Research Grant ever awarded at UNR). The objective of this research is to contribute to an understanding of the probable cause(s) of preterm labor in some women that may possess dysfunctional TREK-1 channels. Preterm birth remains a significant health issue in industrialized nations accounting for 12.5% of all live births in the United States and 80% of all perinatal complications and death. The incidence of preterm birth is unacceptably high. Tocolytic agents do not work. Prematurity costs over 30 billion annually and causes unacceptable morbidity and mortality. We must better understand the physiological mechanisms of pregnancy in women if we are to discover new approaches to the treatment of preterm labor.

The stretch-activated channels make up a unique subset of K⁺ channels that are mechano-sensitive and belong to a family of channels characterized by four transmembrane segments and two pore (2P) domain regions. TREK-1 (TWIK-related K⁺ channel), and TRAAK (TWIK-related arachidonic acid-stimulated K⁺ channel) channels are activated by free fatty acids, nitric oxide and increased membrane tension, each of which occur with pregnancy. These channels play an essential role in setting the resting membrane potential of the muscle cell. Thus, the possibility that TREK-1 is involved in the maintenance of relaxation of the human uterine smooth muscle prior to the onset of labor is of interest and we have discovered genetic variants of the channel in women that deliver preterm. These gene variants encode channels that are non-functional and dimerized with full-length TREK-1 leading to blockade of the TREK-1 current.

We hypothesize that SAK channels are gestationally regulated and maintain uterine quiescence prior to the onset of labor. Thus, activation of these channels by stretch, nitric oxide and/or arachidonic acid or its metabolites during pregnancy maintains hyperpolarization of the uterine smooth muscle helping to sustain relaxation and thereby prevent organized contractions. In women who commence labor too soon with the absence of premature rupture of membranes or intrauterine infection, there is a failure of TREK-1 based on the expression of variant channels that are non-functional, dysregulated or uncoupled and thus, pro-contraction forces cannot be overcome.

Origins of Uterine Dysfunction. While studying the functional effect of cholesterol withdrawal from uterine smooth muscle we discovered that the uterine muscle is activated by this treatment while other smooth muscle is depressed. Cholesterol overloading resulted in depression of myometrium. This result suggested the possibility that dysfunctional labors that occur in obese women may be the result of hypercholesterolemia. Labor progression is delayed in obese women and associated with complications and use of oxytocin (OT). We treated guinea pig myometrium to remove cholesterol expecting suppression of spontaneous activity and uncoupling of agonist specific relaxation as has been demonstrated in other muscles. Treatment of myometrium with 15 mM β -MeCD however led to enhancement of spontaneous activity that was further increased following a second β -MeCD treatment. This result was unexpected. Our findings suggest that cholesterol selectively uncouples relaxation signaling. We propose that suppression of myometrial activity by hypercholesterolemia may be the mechanism underlying uterine dysfunction in obese women.

Regulation of Breast Cancer-mediated Angiogenesis. This project has been funded by the *Clayton Foundation for Research* and the *Congressionally Directed Medical Research, Breast Cancer Program, and the Women's Health Research Grant Program*. The goal of our research is to delineate the role of extracellular Nucleotide Diphosphate Kinase (NDPK/NM23) and its regulation of nucleotide levels in human breast cancer angiogenesis. Human breast cancer cells secrete exosomes, minute membrane encapsulated vesicles that contain a factor that supports the growth, differentiation, and permeability of endothelial cells *in vitro* consistent with a pro-angiogenic potential that subserves breast cancer metastasis. Using LC-MS/MS proteomic methods, we discovered that human breast cancer cell exosomes contain NM23. We have identified a pharmacophore for the development of inhibitors of this enzyme factor (NDPK) and find these compounds to be anti-angiogenic. Learning how exosomal NDPK and its regulation of extracellular nucleotides, blocked by catechin gallates, can induce breast cancer angiogenesis will reveal new therapeutic targets in the treatment of breast cancer and its lethal metastatic spread. Extracellular purine nucleotides have recently emerged as a novel class of proliferative agents with a putative role in cancer and angiogenesis. Our data demonstrate that P2Y receptor activation promotes a significant pro-angiogenic response by transactivating the VEGF receptor. Coupled with our discovery of the generation and action of nucleotides in the blood stream, *The Nucleotide Axis Hypothesis*, progress on the aims described here may help explain aspects of cancer metastasis heretofore unrecognized. Progress on this work has appeared in the *British Journal of Cancer*, *Cancer Letters*, *Cancers*, and a patent has been issued.

In collaboration with C Iosef, we discovered that the methyl transferase EZH2, the transcription factor NFκB and the long non-coding RNA, NKILA are linked functionally and this led us to hypothesize that their interaction could impact patient responses to EZH2 inhibitors suggesting the development of novel therapeutics for NFκB-mediated metastasis. Our preliminary results suggest the incorporation of glycemic regulation to combat the harmful effects on noncancerous breast epithelial cells following delivery of these adjuvants. The findings from the study will be significant because they will lead to improved treatment for breast cancer patients that reduces adverse side effects while maximizing the efficiency of EZH2 inhibitors in patients with high BMI (>30) and type-2 diabetes (T2D).

EXPERT WITNESS ACTIVITIES

Dr. Buxton is an experienced expert in the field of medical pharmacology and has served as an expert in cases ranging from wrongful death to testamentary capacity, capital murder, and medical mal practice. Dr. Buxton has expertise in both the scientific and regulatory aspects of pharmaceutical and medical practice including pharmaceutical compounding, active ingredient solubility and storage; evidence-based medical practice, actions of drugs in the human body, their therapeutic, unwanted, adverse and toxic effects and outcomes, the pharmacogenomic basis of adverse drug reactions and standard of care in medicine and pharmacy.

Recent Cases:

In 2017, Dr. Buxton was retained to offer testimony to the California State Board of Appeals in a criminal matter involving wrongful death and violence caused by prescription medication.

In 2013 and 2014, Dr. Buxton provided expert witness services in litigation in Nevada involving pharmacy training, staffing, compensation, and disciplinary practices that contribute to pharmacy errors that harm patients.

In 2012 and 2013, Dr. Buxton provided expert witness services for the defense looking to avoid the death penalty in a double homicide case involving the use by the defendant of synthetic cannabinoids.

In 2012, Dr. Buxton provided expert witness services to defendant's attorney in a medication adverse reaction case involving sedative hypnotics.

In 2011-2012, Dr. Buxton provided expert witness services to defendant's attorney involving the dispensing of an adulterated drug product.

In 2009-2010, Dr. Buxton provided expert witness in a wrongful death case. The case was filed in Second District Court, State of Nevada. Buxton was retained by plaintiffs' attorney to consult on the proximate cause of death and the standard of medical and pharmacy practice.

In 2008, Dr. Buxton provided expert opinion on behalf of the defendant in a matter filed in the District Court, Clark County, Nevada involving a pharmacy services provider.

In 2007, Dr. Buxton provided expert opinion in a wrongful death matter filed in the Circuit Court of the 11th District in and for Miami-Dade County, Florida. Dr. Buxton was retained on behalf of the defendant a health care provider and its physicians.

In 2006, Dr. Buxton was retained to examine prescription records and evaluate the potential that a driver with multiple claims for damages from automobile accidents was chronically impaired.

In 2005, Dr. Buxton rendered an opinion on behalf of the plaintiff in a medical malpractice case involving prescription medications.

UNIVERSITY FUNDRAISER

Planning and Development Grant for the University of Nevada Cell Cytometry Center

Barbara Geanoli Foundation, \$380,000, 1997-1998.

Capital Campaign, Pennington Medical Education Building

Redfield Foundation, \$500,000, 2001-2002.

University of Nevada School of Pharmacy

Campaign: \$275,000 (pledges and gifts) 1998-2004

University of Nevada, Reno. Proteomics Center (*assisted*)

Equipment: \$1,250,000, 2014

Research Gift, Department of Pharmacology 2016

Equipment: \$200,000

CURRENT FUNDING (Principal Investigator/Co-investigator)***Awarded Grants***

- Regulation of CAP Protein S-Nitrosation in Preterm Labor. NIH R01 HD091114-01A1. PI Buxton 10/2018-09/2022; \$1,968,000 total costs.
- EZH2 inhibition and regulators of NFkB and NKILA represent a novel breast cancer therapy. NIH-NCI Huntsman GMap grant 2018-2019 (\$20,000). PI S. Duan, Mentor Buxton.

Recently Awarded Grants

- Exosomal NM23 in Breast Cancer Metastasis UNSOM Women's health Grant 7/01/2015-6/30/2017; \$240,000 direct
- Super-Resolution Microscopy: Leica DMI8 with SR GSD 3D System UNSOM Women's Health Research Program 7/01/2015-6/30/2016; \$420,000
- Cell Biology of Signaling Across Membranes NIH 8P20GM103554-02 (Von Bartheld PI/Buxton Mentor), 4/2012 – 3/2017; \$5,000,000

Pending Grants

- Dysregulation of Cx43 Underlies Spontaneous Preterm Labor. NIH R21 HD096257-01A1. PI Buxton 4/2019-9/2021; \$275,000 direct costs.
- EZH2 inhibition alters NFkB immune-homeostasis and the anti-tumoral capacity of NKILA. NIH R21 PI Iosef, Co-I Buxton. 4/2019-9/2021; \$275,000 direct costs.

HONORS AND AWARDS

- Health Care Heroes Innovator Award 2016 Nevada Business Magazine
- University of Nevada Foundation Professor 2013
- Regents Researcher Award, 2011. Statewide Award, NSHE
- Vada Trimble Outstanding Graduate Mentor Award, 2011
- E.W. Richardson Excellence in Teaching Award, School of Medicine, *Nom.* 2010
- UNR Outstanding Researcher of the Year Award 2008
- E.W. Richardson Excellence in Teaching Award, *Nom.* 2002, 2008.
- Regents Graduate Advisement Award: UNR, *Nom* 2002
- Fellow, AHA Council on Basic Cardiovascular Sciences, 2001
- UNR Researcher of the Year, *Nom.* 1997.
- "Heart of Gold Award" AHA, Las Vegas 1995
- NIH New Investigator, 1984-1987
- NIH Postdoctoral Trainee 1981-1984
- Rho Chi Research Award, UOP, 1977
- Dami Foundation Award, UOP, 1976

PROFESSIONAL ASSOCIATIONS

- American College of Clinical Pharmacy
- Am. Assoc. of Colleges of Pharmacy
- American Society for Pharmacology & Experimental Therapeutics
- American Society for Biochemistry & Molecular Biology
- American Physiological Society
- Human Proteome Society (HUPO)
- Society Delegate: United States Pharmacopeal Convention, 1985-1995; 2010-2015
- Alliance for Cellular Signaling
- American Heart Association
- Sigma Xi Research Society
- Society for Gynecological Investigation
- New York Academy of Sciences
- Am. Association for the Advancement of Science
- International Society for Analytical Cytology 1988-1995
- Am. Assoc. Medical Colleges: Ed. Affairs
- AMSPC (Pharmacology Chairs Group)
- AM. Association for Cancer Research

PROFESSIONAL POSITIONS

- Member of the Board, UNSOM *Integrated Clinical Services Inc.* 2011-2017
- Member, *Northern Regional Executive Committee*, School of Medicine Practice
- Member, *Southern Regional Executive Committee*, School of Medicine Practice
- Academic Health Center Task Force, UNSOM-UMC 2010
- Director, School of Medicine Performance Compensation Plan 1995-2014
- Vice Chair, Research Committee of the AHA (MWPRC 1994)
- Chairman, AHA National Affiliate Study Section A (1995-96 Vascular Wall Biology)
- President Elect, American Heart Association, Nevada Affiliate 1992-1993
- Chair, Research Allocations Committee, AHA, Nevada 1990-92
- President, American Heart Association, Nevada Affiliate 1993-1995
- Member, Board of Directors, AHA, Nevada Affiliate 1990-1997.
- Member, Executive Committee, AHA Nevada Affiliate, 1992-1997.
- Member, Research Allocations Committee, AHA, Nevada 1989-96
- Member; ACCP Research Affairs Committee 1987-1988; 1997; Credentials Committee 1990-1993.
- Councilor, Western Pharmacology Society, 2000-2002
- President, Western Pharmacology Society, 2002-2003
- Editor-in-Chief & Treasurer, Western Pharmacology Society, 2003-Present
- Member, Science Advisory Board, Bioinformatics, LLC. 2001-Present
- Member, The Gerson Lehman Group Council of Healthcare Advisors, 2002

ADVANCED TRAINING

- HPLC Methods & Applications, Hewlett Packard, Pleasanton, California 1989.
- Operator Course, Coulter EPICS Elite ESP cytometer/cell sorter, FL, 1998.
- Course in Apoptosis, FASEB Annual Meeting, San Francisco, CA, 1998.
- Course in Flow Cytometry Methods, Bowdoin, Maine, 1998.
- Ideas for Professors: Effective College Teaching, Reno, 1999.
- Course in Functional Genomics, FASEB Annual Meeting 2000

CURRENT ACADEMIC COMMITTEES

- Chair, Radiation Safety Committee, University of Nevada, Reno
- Member, Laboratory Safety Committee, University of Nevada, Reno
- Member Clinical Decision Making Educational Group, University of Nevada, Reno School of Medicine

PAST ACADEMIC COMMITTEES

- University Academic Standards Committee (1985-1987)
- University Human Subjects Committee (1986-1992)
- School of Medicine Search Committee: Chairman of Surgery (1987-1988)
- School of Medicine Search Committee: Chairman of OB/GYN (1989-1991)
- School of Medicine Library Committee (1989-1992)
- University of Nevada, Research Advisory Board (1989-1991)
- University of Nevada Search Committee: Radiation Health Physicist (1989-1990)
- Department of Pharmacology Search Committee: Assistant Professor (1989)

PAST ACADEMIC COMMITTEES *(continued)*

- Chairman, Generalist Initiative, Basic Science Task Force (1991-1992)
- Chairman, CMPP Graduate Student Recruitment and Admissions (1990-1995)
- Member, Personnel Committee of the School of Medicine (1992-1994)
- University of Nevada Search Committee: Exercise Physiologist (1991-1992)
- Chairman, Personnel Committee of the School of Medicine (1992-1994)
- Chairman, Basic Science Chairs Committee, UN, School of Medicine (93-97)
- Chair, Medical Student Research Comm., School of Medicine (1993-97) Chairman, School of Medicine Research Committee (1995-1997)
- Member, Science and Technology Day Committee, UNR (1993-1996)
- UCCSN, Search Committee: Director of Environmental Health and Safety (1994)
- University of Nevada, Search Committee: Professor of Biochemistry (1994)
- School of Medicine, Faculty Steering Committee (1994-1996)
- Member, University LCME Accreditation Self-Study Committee: Finance (1996-97)
- Member, CMPP Graduate Student Recruitment and Admissions Committee (1996-1998)
- Member, School of Medicine Search Committee; Senior Associate Dean (1996-1997)
- Member, School of Medicine Computers in Medical Education Working Group
- Co-Chair, President's Task Force, School of Pharmacy (1998-2004)
- School of Medicine Radiation Hazards Committee (1987-1998)
- Member, Search Committee, Research Director, Sanford Center for Aging (1998)
- Member, Search Committee, Ass. Prof., Speech Pathology & Audiology (1998)
- Member, UNSOM Education Building Fundraising Committee; Education Building (1997-2002)
- Member, Search Committee, Assistant Professor of Biochemistry, (1999-2000)
- Advisory Board Member, University of Nevada, Reno Excellence in Teaching Program (2000-2003)
- Member, University of Nevada Medical Admissions Committee (2001-2005)
- Member, Planning Committee; Inter-disciplinary Graduate Program. Molecular Biosciences and Biotechnology (2002-2003)
- Chairman, Personnel Committee of the School of Medicine (2004-2005)
- Member, Personnel Committee of the University of Nevada (2004)
- Member, UNSOM Faculty Senate, Faculty Development Subcommittee (2004)
- Member, School of Medicine Executive Committee (2005-2015). Member, Health Science Center Planning Committee (2006)
- Member, Scholarship Committee, Sanford Center for Aging. (2002-2009)
- Member, Nevada System of Higher Education Radiation Safety Committee. 2000-2015.
- Chair, Nevada System of Higher Education, Radiation Safety Committee. 2015-present
- School of Medicine Course Coordinators Committee: Year 1-2, 2008-present.
- Selection Committee; UNSOM; Chairman, Obstetrics and Gynecology. 2010.
- Selection Committee; UNSOM; Vice President for Health Sciences and Dean of the School of Medicine. 2010.

PAST ACADEMIC COMMITTEES *(continued)*

- Curricular Reform Task Force UNSOM; 2010-2011.
- Search Committee; UNSOM; Director, Marketing and Communications, 2012
- Search Committee; UNSOM; Director, Faculty Compensation/Productivity, 2012
- Member, LCME Reaccreditation Steering Committee, 2016-2017
- Co-Chair, Educational Resources Committee, LCME Reaccreditation 2016-2017

PEER REVIEWGrant Reviewer

- Research Committee of the American Heart Association (MWPRC 1988-1995)
- Ad Hoc Member, NIH Study Section (SSS - Fluorescence Techniques; 1989)
- Ad Hoc Member, NIH Study Section (Biochemical Endocrinology, 1992)
- Ad Hoc Reviewer, Genentech Fellowship in Pharmacotherapy, 1992, 1993.
- Reviewer, Election of Fellows, ACCP, '92, '93
- Member, NIH Study Section, CV Sciences, (1993-1995)
- Chairman, National Affiliate Study Section A (1995 Vascular Wall Biology)
- Reviewer; Cottrell New Investigator Awards, Research Corporation, 1998-99
- Member, NIH Review Panel, RCMI Program DRR 1999.
- Reviewer, US Army Breast Cancer Research, Cell Signaling Section, 1999
- Hatch Research Grants: Biochemistry (1989-97, 2000-2004)
- Ad Hoc Reviewer: VA Merit Awards, 2001
- Member, Collaborative Research Panel, CA Breast Cancer Program, 2000-2002.
- Reviewer, Excellence in Diversity Graduate Fellowships, UNR, 2002-3.
- Proposal Referee for The Wellcome Trust, London, England 2002-2007.
- Community Grants. Susan G. Komen for the Cure. 2008
- NIH Study Section Member; Pregnancy and Perinatology. Fall 2008
- Ad Hoc Reviewer, UK Action Medical Research, 2008
- NIH Study Section Reviewer ,ZRG1 EMNR-C Challenge Grants Panel 15, 2009
- NIH Study Section Reviewer 2010/08 ZRG1 EMNR-C (55) 06/29/2010; PN 2011-2012.
- Proposal Referee for The Wellcome Trust, London, England 2010-2012.
- Medical Research Grant Reviewer for the State of Arizona. 2014
- NIH Special Emphasis Panel. Obstetric-Fetal Pharmacology Research Centers (OPRC) ZHD1 DSR-A 50 1, April 2015-2016
- FDA Review Panel advisory Preparatory Meeting, Clarus Therapeutics. 12/2017
- Member, NIH Study Section Reviewer, ZRG1 EMNR-C (02). 2018.

PEER REVIEW *(continued)*Manuscript Reviewer (16 manuscripts reviewed in 2018)

- American Journal of Obstetrics and Gynecology (since 1994)
- Journal of Pharmacology & Experimental Therapeutics (since 1984)
- American Journal of Physiology (since 1985)
- Journal of Applied Physiology (since 1996)
- Journal of Physiology (London; since 1997)
- Journal of Cardiovascular Pharmacology (since 1985)
- Circulation (since 1992)
- Circulation Research (since 1998)
- Journal of Biological Chemistry (since 1988)
- Life Sciences (since 1986)
- Pharmacotherapy (since 1989)
- Pharmacological Reviews (since 1992)
- Nature-Laboratory Investigation (Since 2017)
- Annals of Pharmacotherapy (since 1992); Editorial Board Member, Clinical Pharmacology (2003-2008)
- The Journal of Cell Biology (since 1992)
- Clinical & Experimental Pharmacology and Physiology (since 1993)
- Regulatory Peptides (1996-1998)
- Molecular Pharmacology (since 1989)
- Experimental Aging Research (since 2000)
- Proceedings, Western Pharmacology Society Editor-in-Chief since 2003.
- The Medical Letter (since 2003)
- American Journal of Pharmaceutical Education (since 2006)
- Journal of Clinical Pathology (since 2010)
- Nature 2014
- British Journal of Medicine and Medical Research

Scientific Abstract Reviewer

- Society for Reproductive Investigation, Annual Meeting (1997-2016)
- American College of Clinical Pharmacy, Scientific Sessions (1983-88; 1994-96)
- American Heart Association National Annual Meeting & Scientific Sessions (1993-2000)
- Western Pharmacology Society, Annual Meeting & Scientific Sessions, 2003-2010

Program Reviewer

- Site Visit Reviewer, NIH Program Project in Cellular Fluorescence Techniques. PI: D. Lansing Taylor, Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA; On-site review 1989
- FDA Preparation Review Panel Member, Nashville Tennessee, 2017.
- NIH Program Project in Endothelial Cell Gene Transplantation. PI: Fritz H. Bach, Depart. of Surgery, Harvard Medical School and Deaconess Hospital, Boston, MA; 1997
- American Heart Association New Hampshire Affiliate, Reaffiliation Site Visit 1994-1995
- NIH-NCRR Core Facility in Toxicology and Flow Cytometry; RCMI Principal Investigator: Alfred Nyanda, Department of Pharmacology Meharry Medical College, Nashville, On-Site Review, December 1999.

RESEARCH FUNDING HISTORY (funded as Principal Investigator or Co Investigator)

- Subcellular Compartmentation of Hormone Action in Heart. Training in Cardiovascular Pharmacology. NIH NRSA HL 07444, 4/81-6/84.
- Mechanisms of α_1 -Adrenoceptors on Cardiac Myocytes. NIH R23 HL 32928, PI: Buxton 7/84-6/87, \$105,000 *direct costs*.
- Development of a Cellular Model of Mammalian Ventricle. UCSD BRSG, Faculty Research Grant, PI: Buxton (6-510124) 1984 \$2,272 *direct costs*.
- Mechanisms of α_1 -Adrenoceptors on Cardiac Myocytes. NIH RO1 HL35416, PI: Buxton 7/87-6/91, \$310,453 *direct costs*.
- Activation of Cardiomyocyte Phosphodiesterase. AHA Nevada Affiliate Grant-in-Aid, PI: Buxton 7/85-6/86, \$15,895 *direct costs*.
- Compartmentation of Hormone Action in 3T3-L1 Adipocytes. UNR-RAB, Junior Faculty Award PI: Iain Buxton 7/86-6/87, \$9,500 *direct costs*.
- Hormone Signal Transduction in Cardiac Myocytes. AHA Affiliate Grant-in-Aid, PI: Buxton 7/86-6/88, \$32,533 *direct costs*.
- Regulation of Calcium Action in the Heart. Max Baer Heart Fund, PI: Buxton 5/87-9/87, \$5,000 *direct costs*.
- Gradient HPLC. NIH Small Instrumentation Grant. NIH S15 HL 39506, PI: Iain Buxton 7/87-6/88, \$15,487 *direct costs*.
- Phillips CM10 Transmission Electron Microscope. NIH Shared Instrumentation Grant, NIH S10 RR 03453 Co-PI 10/86-9/87, \$188,370 *direct costs*.
- Automated Fluorescence Analysis of Cells. NIH Shared Instrumentation Grant, NIH S10 RR 04160 Co-PI 10/87-9/88, \$246,000 *direct costs*.
- Purinergic Mechanisms in Cardiac Blood Vessels. UNR-RAB Award, PI: Buxton 4/90-3/91, \$5,000 *direct costs*.
- Receptor-Signal Transduction in the Vasculature in Diabetes. ADA National Research Program, PI: Buxton 7/88-6/90, \$69,828 *direct costs*.
- Receptors for Adenyl Purines in Uterus. UNR-RAB Award, PI: Buxton 5/89-4/90, \$5,000 *direct*.
- Radioactive Flow Detector for HPLC. NIH Small Instrumentation Grant NIH S15 HL 41739, PI: Buxton 7/88-6/89, \$16,500 *direct costs*.
- Quantitative Fluorescence Detection System. NIH Shared Instrumentation Grant, NIH S10 RR 05876, PI: Buxton 12/89-11/91, \$100,000 *direct costs*.
- Fluorescence Imaging Laboratory. Facilities Enhancement; UNR, VPAA, PI: Buxton 1/91-11/92, \$16,000 *direct costs*.
- Real-Time Fluorescence Video Imaging of Calcium Distributions in Living Cells. Reno Cancer Center, PI: Buxton 10/91-9/93, \$4,000 *direct costs*.
- Role of Adenyl Purines in Myometrial Function. NIH RO1 HD 26227 9/89 - 12/94, PI: Buxton \$569,897 *direct costs*.
- Receptor-signal Transduction in Colonic Muscle. NIH PO1 DK 41315 (Project 4 PI: Buxton) 4/94-3/95, \$116,000 *direct costs*.
- The Role of Ecto-ATP Generation in Breast Cancer Metastasis. PI: Buxton; Reno Cancer Foundation, 1994, \$3,000 *direct*.
- Receptor-Signal Transduction in Colonic Muscle. NIH PO1 DK 41315 (Project 4 PI: Buxton), 4/89-3/94, \$456,000 *direct costs*.
- Acquisition of a Quadrapole Mass Spectrometer. NSF DIR-9102839 Equipment Grant, Buxton: Principal User 20%, \$304,322 *direct costs*.

RESEARCH FUNDING HISTORY (funded as PI or Co I continued)

- Cell and Tissue Culture Core B: Receptor-Signal Transduction in Colonic Muscle. NIH PO1 DK 41315, (Director Core B; I. Buxton) 4/89-3/95, \$480,000 *direct costs*
- Bio-Rad MRC-600 Confocal Imaging System. NIH Shared Instrumentation Grant; NIH S10 RR 06507-01 Buxton: Principal User 20%, \$135,000 *direct costs*.
- Digital Camera for Cell Motion Analysis. PI: Buxton Reno Cancer Foundation, 10/95-9/96, \$3,400 *direct costs*.
- The Effect of Age on the Purinergic Axis of Cardiac Blood Vessels. PI: Buxton, Sanford Center for Aging, 11/95-10-96 \$10,000 *direct costs*.
- Role of ATP in Vascular Neuroeffector Processes. NIH RO1 HL 38126, Dr. D. Westfall, PI; Buxton Co-Investigator, 10% effort, 4/92-4/97 \$497,644 *direct costs*.
- Postjunctional Mechanisms in Airway Hyperreactivity. NIH RO1 HL 48183, Dr. Gerthoffer, PI; 10% effort, 2/92-1/97 \$636,673 *direct costs*.
- Automated DNA Sequenator (ABI 310; \$65,000.00). PI: Buxton; Gianoli Foundation, 1997.
- Fluorescence-Activated Cell Sorting (Coulter Epix; \$380,000.00). PI: Buxton; Gianoli Foundation, 1997
- Molecular Basis of Nitric Oxide Action in Primate Myometrium. NIH R29 HD33430, Dr. M. Bradley, PI; Buxton Co-I, 5% effort, 4/96 - 3/98 \$505,050 *total costs*.
- Purinergic Mechanisms in Cardiac Endothelial Cells. American Heart Association, National Grant-in-Aid Program 96006430; 1996-99 PI: Buxton \$132,000 *total costs*.
- Pre and In-flight Countermeasures to Sarcopenia. PI: Buxton, Nevada Space Grant Program; 9/02-8/03, \$4,200 *direct costs*.
- Role of Ecto-ATP Generation in Breast Cancer Metastasis. Clayton Foundation for Research NV-03 1/95-12/06 \$1,250,000 *total costs*; 05-06 \$83,332 *total costs*.
- Functional Compartmentation of Nucleotide Receptors in Endothelial Cells. Robert Z. Hawkins Foundation 8/15/05 – 8/14/06; \$22,500 *direct costs*.
- Roche Pharmaceuticals WPS Pgm. Support 2004-2006; \$25,000.
- Purinergic Mechanisms in Coronary Blood Vessels. NIH RO1 HL56422-01 12/96-11/02 (*Percentile Ranking 1.5*) \$1,249,694 *total costs*.
- Control of Rectoanal Motility. NIH 1R01 DK 054490. PI Keef; Buxton, 5% effort, 8/00–7/02 \$850,000 *direct costs*.
- AHA Meeting Grant: WPS Annual Meeting 2/2/2003-2/6/2004, \$2,000
- NV Biomedical Resources Infrastructure Network. NIH BRIN 2002-2003 Core Use Grants, \$8,000 *direct costs*.
- Cloning and Expression of the Coronary P2y Receptor. Robert Z. Hawkins Foundation 8/15/01 – 7/31/04; \$69,500 *direct costs*.
- Regulation of Smooth Muscle Myosin Phosphatase in Microgravity. NASA, \$15,820 *direct costs*, 3/1/04-2/28/05.
- CSI-6000 Health Station Performance Study: AML/ANSI Standards (SP-10): Computerized Screening Inc. \$6,500, Buxton PI; 2007.
- 2007 Annual Meeting Program Support for Western Pharmacology Society: NIH Office of Rare Diseases \$15,000.

RESEARCH FUNDING HISTORY (funded as PI or Co I continued)

- Stretch-Activated 2-Pore K⁺-Channels, TREK-1 and TRAAK in Preterm Labor. March of Dimes, 3/07 – 3/10; PI: Buxton \$301,386 *direct costs*.
- Effective Treatment to Prevent Preterm Delivery. Gates Grand Challenges. Round-6, Phase I, 5/1/11 – 3/31/13.
- Regulation of Myometrial Relaxation: Agonist-specific cGMP Action. NIH RO1 HD053028; 2007-2013; \$1,300,000 Inc. ARRA Supplement; *direct costs*. PI: Buxton.
- Stretch-Activated Two-Pore Potassium Channel Variants in Preterm Labor. MOD 2010-2013) PI: Buxton, \$394,226 *total cost*
- Post-Translational S-nitrosation of Therapeutic Targets in Pregnancy and Labor. NIH 1U54GM 104944-01. CTR Pilot \$50,000 1/2014-12/2014.

RESEARCH FUNDING HISTORY (Mentor/Sponsor)

- Purinergic Receptor-mediated Angiogenesis in Breast Cancer. CDMRP BCRP Grant 10207692. PI: N. Yokdang, Mentor Buxton, \$84,000 *direct costs*.
- The Human Myometrial Nitroproteome in Pregnancy and Labor. PhRMA Found. 2012-2014, \$60,000 Craig Ulrich, Mentor Buxton.
- Precollege Science Education in Nevada. Howard Hughes Medical Institute, HHMI #72594-537601, 7/94-6/99; \$200,000 *direct costs*.
- Washoe County Precollege Science Initiative. Washoe County School District. PI: Buxton 1996-1999. \$54,000 *direct costs*.
- Cell and Molecular Cancer Research Training in Nevada. NIH T32 CA 09563 PI: D. Hudig. Buxton; Co-I. 12/97-11/03.
- Vascular Smooth Muscle in Microgravity. NASA EPSCoR Student Fellowship Grant. Erica Gipson, \$8,000 *direct costs*.
- Pre-Doctoral Training Award, B. Oxhorn, Agonist-Specific ATP Release from Endothelial Cells. NIH F31 NR07379, 1998-2002, \$95,000 *direct costs*.
- Pre-Doctoral Training Award, Robert Kaiser, Cloning and Characterization of a P2y4-like Uridine Receptor from Endothelial Cells. AHA Western States Affiliate, 2000-2002, \$43,000 *direct costs*.
- Post-Doctoral Training Award, Michael Bradley, Adenosine A1 Receptors in Myometrium. F32HD07448-02, 1990-93, \$80,000 *direct costs*.
- Post-Doctoral Training Award, S. Yang, ATP Release from Endothelial Cells. AHA-Nevada, 1990-92, \$40,000 *direct costs*.
- Pre-Doctoral Training Award, Dennis Cheek, Purinergic Regulation in Cardiac Blood Vessels. NIH F31 NR06867, 93-96, \$90,000 *direct costs*.
- Post-Doctoral Training Award, Dennis Cheek, Purine Metabolism by Cardiac Endothelial Cells. AHA-Nevada, 1994-95, \$22,000 *direct*.
- Vascular Smooth Muscle in Microgravity. NASA EPSCoR Student Fellowship Grant. Erica Gipson 2002, \$8,000 *direct costs*.
- Purinergic Regulation of Breast Cancer Metastasis. INBRE Undergraduate Fellows Program Whitney Law 2005; \$5,000 *direct*.
- Stretch-Activated 2-pore Potassium Channels in Myometrium. INBRE Undergraduate Fellows Program. Eric Hansen 2006; \$5,000 *direct costs*.
- TREK-1 Currents in Uterine Myocytes. INBRE Undergraduate Fellows Program. Mike Lee 2013; \$5,000 *direct costs*.

RESEARCH FUNDING HISTORY (*Mentor/Sponsor*)

- Angiogenic Mechanisms; 3D Culture. INBRE Undergraduate Fellows Program. Katie Speirs 2011-13; \$10,000 direct costs.
- Purinergic Receptor-Mediated Angiogenesis in Breast Cancer. CDMRP BCRP Grant 10207692. PI: N. Yokdang, 2010-2013; Mentor Buxton, \$84,000 direct costs.
- EZH2 inhibition and regulators of NFkB and NKILA represent a novel breast cancer therapy. NIH-NCI Huntsman GMap grant 2018. Suzann Duan, Mentor Buxton.
- Proteomic Discovery in Human Myometrium. PhRMA Foundation Predoctoral Fellowship. 2010-2013 \$75,000.
- Integrin Regulation of Stretch-Activated Myometrial Signaling During Pregnancy and Labor. NIH HD067342 7/2011-6/2016, PI Burkin, Mentor Buxton; \$689,669 direct

UNDERGRADUATE TRAINING IN RESEARCH

- Dr. Buxton regularly takes medical students into the lab for research rotations in the summer between their freshman and sophomore years. Thirty-five students have been mentored from 1986 through the present.
- Dr. Buxton is a Research Mentor for the undergraduate major in Biochemistry. Students engage in a two semester research experience and write an Undergraduate Thesis, and present their work in a public forum at the end of the academic year. Forty-eight students have been mentored since 1987 to the present.
- Dr. Buxton serves as a mentor for students majoring in Biochemistry, Biophysics and Molecular Biology from Whitman College, Wala Wala, Washington and Pharmacy students from Washington, Utah and Colorado.

GRADUATE PROGRAM AFFILIATIONS & TRAINING OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS:

- Founding Member, Cell and Molecular Pharmacology and Physiology, School of Medicine, University of Nevada, Reno
- Member and Director (*past*), Biochemistry Graduate Program, Colleges of Medicine, Science and Agriculture, University of Nevada, Reno
- Member, Cell and Molecular Biology Graduate Program, Colleges of Medicine, Science and Agriculture, University of Nevada, Reno

Graduate Training: (➤ denotes Dr. Buxton as Major Advisor)

<i>Name</i>	<i>Program</i>	<i>Role</i>	<i>Date Received</i>
➤ Merton A. Smith	M.D./Ph.D. (Pharm.)	Advisor	Ph.D. (1989)
➤ Kurt O. Doggwiler	Pharmacology	Advisor	Ph.D. (1991)
Padraig Hart	Pharmacology/Physiology	Member	Ph.D. (1994)

Dawn Duval	Pharmacology/Physiology	Member	Ph.D. (1994)
John Dover	Chemistry	Member	Ph.D. (1996)
➤ Karri Kuenzli	Pharmacology/Physiology	Advisor	Ph.D. (1996)
➤ Dennis Cheek	Pharmacology/Physiology	Advisor	Ph.D. (1996)
Jeanette McHugh	Pharmacology/Physiology	Member	Ph.D. (1996)
Shelly VonBerg	Speech Pathology/Audiology	Member	M.S. (1996)
Christopher Porada	Pharmacology/Physiology	Member	Ph.D. (1998)
Rich Eigenheer	Biochemistry	Member	Ph.D. (2001)
➤ Jasmine Vittori	Cell & Molecular Biology	Advisor	M.S. (W)
Leah Skladany	Speech Pathology/Audiology	Member	Ph.D. (2001)
Nicole Kiel	Speech Pathology/Audiology	Member	M.S. (2000)
Jennifer Dreyer-Ladue	Speech Pathology/Audiology	Member	M.S. (2000)
Brett Martin	Pharmacology/Physiology	Member	M.S. (1999)
Lorraine Wolf	Speech Pathology/Audiology	Member	M.S. (1999)
Peter Wolf (nr)	Speech Pathology/Audiology	Member	M.S. (1999)
Rebecca E. Dendauw	Speech Pathology/Audiology	Member	M.S. (1999)
➤ Robert Kaiser	Biochemistry	Advisor	Ph.D. (2002)
➤ Brian Oxhorn	Pharmacology/Physiology	Advisor	Ph.D. (2002)
➤ Stephen Tichenor	Pharmacology/Physiology	Advisor	Ph.D. (2004)
➤ Jennifer N. Mazzone	Cell & Molecular Biology	Advisor	M.S. (2004)
Kimberly Baker	Cell & Molecular Biology	Member	Ph.D. (2004)
➤ Sharif Rumjahn	Biochemistry	Advisor	Ph.D. (2008)
Vincent Lombardi	Biochemistry	Member	Ph.D. (2006)
Sonemany Salinthone	Cell & Molecular Biology	Member	Ph.D. (2006)
➤ Jennifer N. Tichenor	Cell & Molecular Biology	Advisor	Ph.D. (2008)
➤ Mark Gore	U. Colorado, PharmD Pgm.	Advisor	Pharm.D.(2007)
Sunny Xiang	Pharmacology/Physiology	Member	Ph.D. (2008)
Tim O'Donnell	Pharmacology/Physiology	Member	Ph.D. (W)
Sreenivasa Anugu	Chemistry	Member	Ph.D. (2009)
Michael Mouradian	Biochemistry	Member	Ph.D. (2012)
➤ Nucharee Yokdang	Cell & Molecular Biology	Advisor	Ph.D. (2011)
➤ Craig Ulrich	Biochemistry	Advisor	Ph.D. (2012)
➤ Yi-Ying Wu	Biochemistry	Advisor	Ph.D. (2013)
➤ Scott Barnett	Pharmacology/Physiology	Advisor	Ph.D. (2017)
➤ Senny Wong	Biochemistry	Advisor	Ph.D. (2018)
➤ Suzanne Duan	Pharmacology/Physiology	Advisor	Ph.D. (2019)

Training of Postdoctoral Fellows:

<i>Name/Fellowship</i>	<i>Doctoral Program/Year</i>	<i>Current Position</i>
➤ Lubo Zhang, Ph.D. 1990-1993	Pharmacology Iowa State University, Ames, 1989	Professor Loma Linda Univ. College of Medicine, CA
➤ Michael Bradley, Ph.D. 1990-1993	Physiology USC, Los Angeles, 1990	Professor of Biology, Newman Univ. Division of Science
➤ Shumei Yang, Ph.D. 1991-1993	Chemistry, Iowa State Univ. Ames, Iowa, 1991	Professor, Chemistry Cal State University, CA
➤ Elizabeth Berge, M.D. 1992-1993	Medicine, University of Nevada, Reno, 1992	Adj. Assoc. Professor OB/Gyn UNSOM, Las Vegas, NV
➤ James Barber, M.D. 1993-1994	Medicine, University of Nevada, Reno, 1993	Adj. Assoc. Professor OB/Gyn UNSOM, Las Vegas, NV
➤ Sandra Brave, Ph.D. 1993-1996	Pharmacology, King's College London, UK 1993	Senior Scientist Burroughs Wellcome, UK
➤ W. Zaman, M.D., Ph.D. 1994-1996	Biochemistry Kyushu Univ. Japan 1993	Associate Member, Sanjay Gandhi Medical Institute, Lucknow, India
➤ S. Mathew, M.D., Ph.D. 1996-1997	Medicine, Biochemistry Univ. of Nevada Reno, 1996	Associate Professor Pediatrics UNSOM, Reno, NV
➤ D.J. Cheek, Ph.D. 1996-1997	Pharmacology University of Nevada, Reno, 1996	Professor TCU Nursing School Fort Worth, TX
➤ L. Jones, Pharm.D. 2004-2005	Purdue University, 2002 College of Pharmacy	Associate Professor, Loma Linda College of Pharmacy, California
➤ S. Rumjahn, Ph.D. 2008-2011	University of Nevada 2008 Pharmacological Sciences	Research Scientist, Charles River Labs, Reno, Nevada
➤ Nate Heyman, Ph.D. 2010-2012	University of Arizona, 2007 Physiology and Biophysics	Assistant Professor, California Baptist Univ., Riverside California
➤ Heather R. Burkin, Ph.D. 2010-2012	University of Illinois, 2003 Reproductive Biology	Assistant Professor, Univ. of Nevada, Dept. of Pharmacology
➤ Joseph Tellez, Ph.D. 2011-2012	University of Nevada, 2010 Biology	Postdoctoral Scholar, Univ. of California, Davis Cancer Center
➤ Chad Cowles, Ph.D. 2012-2016	University of Nevada, 2012 Biomedical Engineering	Postdoctoral Fellow, Univ. of Arizona, Dept. of Pharmacology

PUBLICATIONS**Books**

Brunton, L.L., Parker, K., Blumenthal, D. and Buxton, I.L.O. *The Goodman and Gilman Manual of Pharmacology and Therapeutics* (First Edition.), McGraw-Hill, New York, 2007.

Journals Published as Editor-in-Chief

Buxton, I.L.O. (Editor) *Proceedings of the Western Pharmacology Society*. Volume 46:pgs. 1-205, 2003. WPS, Reno, NV.

Buxton, I.L.O. (Editor) *Proceedings of the Western Pharmacology Society*. Volume 47: pgs. 1-235, 2004. WPS, Reno, NV.

Buxton, I.L.O. (Editor) *Proceedings of the Western Pharmacology Society*. Volume 48: pgs. 1-220, 2005. WPS, Reno, NV

Buxton, I.L.O. (Editor) *Proceedings of the Western Pharmacology Society*. Volume 49: pgs. 1-235, 2006. WPS, Reno, NV

Buxton, I.L.O. (Editor) *Proceedings of the Western Pharmacology Society*. Volume 50: pgs. 1-239, 2007. WPS, Reno, NV

Buxton, I.L.O. (Editor) *Proceedings of the Western Pharmacology Society*. Volume 51: pgs. 1-147, 2008. WPS, Reno, NV

Buxton, I.L.O. (Editor) *Proceedings of the Western Pharmacology Society*. Volume 52: pgs. 1-131, online open access: <http://www.medicine.nevada.edu/wps/vol52.html> (2009). WPS, Reno, NV

Book Chapters/Invited Reviews

Buxton, I.L.O. and Barnett, S.D. (2018) Nitric Oxide and S-Nitrosoglutathione. Chpt. 14: In, Glutathione Leopold Flohé, Ed. CRC Press. Published October 8, 2018 ISBN 9780815365327.

Buxton, I.L., Chapter 2, Pharmacokinetics In: Goodman & Gilman's, The Pharmacological Basis of Therapeutics. McGraw-Hill [ISBN: 978-1-25-958473-2] 13th Edition, (2018), Eds. L.L. Brunton, Hilal-Dandan, R. and Knollmann, B.C.

Buxton, I.L. , Appendix I. Prescription Writing and Patient Compliance In: Goodman & Gilman's, The Pharmacological Basis of Therapeutics. McGraw-Hill [ISBN: 978-1-25-958473-2] for the 13th Edition, (2018), Eds. L.L. Brunton, Hilal-Dandan, R. and Knollmann, B.C.

Buxton, I.L.O. and Leslie Benet. *Chapter 2, Pharmacokinetics*. In: Goodman and Gilman's The Pharmacologic Basis of Therapeutics. 12th Edition, 2009, Ed: L.L. Brunton. McGraw-Hill, New York.

Buxton, I.L.O. *Appendix 1, Principles of Prescription Order Writing and Patient Compliance*. In: Goodman and Gilman's The Pharmacologic Basis of Therapeutics. 12th Edition, 2009, Ed: L.L. Brunton. McGraw-Hill, New York.

Buxton, I.L.O. *Chapter 1, Pharmacokinetics and Pharmacodynamics: The Dynamics of Drug Absorption, Distribution, Action and Elimination*. Pg. 1-39 In: Goodman and Gilman's The Pharmacologic Basis of Therapeutics. 11th Edition, 2005, Eds: L.L.Brunton, J.S. Lazo and K.L. Parker. McGraw-Hill, New York.

Buxton, I.L.O. *Appendix 1, Principles of Prescription Order Writing and Patient Compliance*. Pg. 1777-1786 In: Goodman and Gilman's The Pharmacologic Basis of Therapeutics. 11th Edition, 2005, Eds: L.L.Brunton, J.S. Lazo and K.L. Parker. McGraw-Hill, New York.

PUBLICATIONS***Book Chapters/Invited Reviews (continued)***

Buxton, I.L.O. Rethinking Drug Action in Light of Current Models of Receptor Pharmacology. November 2005, Goodman and Gilman's The Pharmacologic Basis of Therapeutics. 11th Edition OnLine at Access Medicine (<http://www.accessmedicine.com/updatesContent.aspx?aid=1000643>).

Matthews, J., Pingle, M., Sullivan, R., Ferguson, P., Rogers, J.E. and Buxton, I.L.O. (2005) Invited Review: Economic justification for a Public School of Pharmacy: Lessons for Nevada. *Proc. West. Pharmacol. Soc.* 48:1-12.

Buxton, I.L.O. (2003) Invited Review: What is it about the uterus anyway? *Proc. West Pharmacol. Soc.* 46: 1-8.

Pathophysiology. Advanced Practice in Acute and Critical Care. AACN Clinical Issues Vol. 11(2) pp. 157-331, (May 2000), Editors: Cheek, D.J. and Buxton, I.L.O.

Zhang, L. and Buxton, I.L.O. (1998) Measurement of phosphoinositols and phosphoinositides using radio-high-performance liquid chromatography flow detection. *Methods in Molecular Biology*: Humana Press 105:47-64.

Buxton, I.L.O. and Cheek, D.J. (1995) On the origin of extracellular ATP in cardiac blood vessels: A dual role for endothelium. In: *Proceedings 5th. International Symposium on Adenosine and Adenine Nucleotides*: Ed. L. Bellardinelli and A. Pelleg, Kluwer, MA, PP. 193-198.

Buxton, I.L.O. Westfall, D.P. and Schiemann, W.P. A role for adenosine in myometrial function? In: *Role of Adenosine and Adenine Nucleotides in the Biological System*. Ed: S. Imai and M. Nakazawa, Elsevier, Amsterdam (1991), Chapter 45, Pg. 499-506.

Westfall, D.P., Sedaa, K.O., Shinozuka, K., Bjur, R.A. and Buxton, I.L.O. (1990) ATP as a cotransmitter. In: *The Biological Actions of ATP* (Dubiak and Fedan, Ed.) *Annals of the New York Academy of Science*. 603: 300-310.

Buxton, I.L.O., Walther, J. and Westfall, D.P. (1990) α -adrenergic receptor-stimulated release of ATP from cardiac endothelial cells in primary culture. In: *The Biological Actions of ATP* (Dubiak and Fedan, Ed.) *Annals of the New York Academy of Science*. 603: 503-506.

Bierkamper, G.G. and Buxton, I.L.O. Neurotoxicology of Organotin Compounds In: Biological Effects of Heavy Metals. Vol I Ed. E.C. Foulkes, CRC Press, Boca Raton, FL, (1989) pp.97-165.

Buxton, I.L.O. and Brunton, L.L. (1988) Characterization of hormone receptors on the adult cardiac myocyte. In: *Biology of the Isolated Cardiac Myocyte*. Ed. W.A. Clark, Elsevier Publishing Co., New York. pp. 90-107.

Buxton, I.L.O. (1988) α_1 -adrenergic receptor signal transduction in the adult rat cardiac myocyte In: *Biology of the Isolated Adult Cardiac Myocyte*. Ed. W.A. Clark, Elsevier Publishing Co., New York, Pg. 248-252.

Buxton, I.L.O. and Brunton L.L. (1986) Compartmentation of hormone action in mammalian cardiomyocytes. In: *Advances in Experimental Biology and Medicine*, Ed. N. Bratbar V. 194 Pg. 117- 127, Plenum, New York.

Buxton, I.L.O. (1983) The use of drugs in renal failure. In: Critical Care Nursing Review, Ed. by B. Meador. Medical Economics Publication, Oradell, New Jersey, Chapter 23.

PUBLICATIONS***Professional News Letters/Letters to the Editor/Book Reviews***

Buxton I.L.O. (1979) Rebound phenomena following abrupt withdrawal of propranolol. Veterans Administration, San Diego, *Drug Information Newsletter* 2:2,1-4.

Buxton, I.L.O. (1993) Adenyl purines: Neurotransmitters and local hormones. *ACCP report* 13: 12.

Buxton, I.L.O. (1996) HHMI Awards. *Science* 271: 895.

Buxton, I.L.O. (2004) Clinical Pharmacology 9th Edition. A Book Review, *The Annals of Pharmacotherapy*, 38:906-907.

Original Research Data-Base & World Wide Web Contributions

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Buxton, I.L.O. and Tichenor, S.D. (2004) Functional compartmentation of cyclic GMP-PKG and myosin phosphatase in myometrium. Oral Presentation, 51st Annual Meeting of the Society for Gynecological Investigation, Houston Texas.

Mazzone, J.N. and Buxton, I.L.O. (2004) Down Regulation of Apamin Sensitive Ca²⁺-Activated Potassium Channels in the Human Myometrium during Pregnancy. *Proc. West Pharmacol. Soc.* 47: 165a.

Rumjahn, S.M and Buxton, I.L.O. (2004) Effects of endostatin, EGCG and ellagic acid on angiogenic and metastatic potential of human breast cancer cells. *Proc. West Pharmacol. Soc.* 47: 170a.

Tichenor, S.D. and Buxton, I.L.O. (2004) Compartmentation of cGMP signaling in human myometrium. *Proc. West Pharmacol. Soc.* 47: 154a.

Rumjahn, S.M and Buxton, I.L.O. (2004) Inhibitory effects of epigallocatechin gallate and ellagic acid on the angiogenic potential of human endothelial cells and growth of human breast cancer cells. Gordon Research Conference: Cancer Models and Mechanisms, Salve Regina University, RI.

PUBLICATIONS**Research Abstracts (continued)**

Rumjahn, S.M and Buxton, I.L.O. (2005) Inhibitors of MDA-MB-435s human breast cancer cell secreted NM23 prevent angiogenic stimulation *in vitro*. Research Presentation at: Gordon Research Conference: Angiogenesis and Microcirculation, Salve Regina University, RI.

Vittori, J.C. and Buxton, I.L.O. (2005) Cholesterol removal enhances both spontaneous and agonist-evoked uterine smooth muscle contractions in a reversible manner. *Proc. West Pharmacol. Soc.* 48: 179-1

Rumjahn, S.M. and Buxton, I.L.O. (2005) Epigallocatechin gallate and ellagic acid inhibit the angiogenic potential of CD31⁺ human endothelial cells. *Proc. West Pharmacol. Soc.* 48: 179-2
Awarded Top Honor as Outstanding Poster Presentation of the Meeting

Tichenor, J.N., Tichenor, S.D. and Buxton, I.L.O. (2005) Compartmentation of cGMP action in myometrial signaling domains: I. Effects of uroguanylin on particulate guanylyl cyclase. *FASEB Journal* 19(4) A538.

Buxton, I.L.O., Tichenor, J.N. and Tichenor, S.D. (2005) Compartmentation of cGMP action in myometrium signaling domains: II. Expression of both PKGI and PKGII in human myometrium. *FASEB Journal* 19(4): A538.

Tichenor, J.N., Gipson, E.K., Tichenor, S.D. and Buxton, I.L.O. (2005) Organization of the myometrial signaling domain explains the failure of global elevation of cGMP to relax the uterus. *Proc. West Pharmacol. Soc.* 48: 179-3.

Gipson, E.K., Tichenor, J.N., Tichenor, S.D. and Buxton, I.L.O. (2005) Compartmentation of cGMP signaling in human myometrium: III. Expression of multiple isoforms of myosin phosphatase myosin binding subunit. *FASEB Journal* 19(4): A538-9.

Vittori, J.C., Roberts, D.L. and Buxton, I.L.O. (2005) Reversible effects of cholesterol on myometrial contraction are consistent with a role for hypercholesterolemia in uterine dysfunction. *FASEB Journal* 19(4): A537-8.

Rumjahn, S.M. and Buxton, I.L.O. (2005) Effects of Endostatin, epigallocatechin gallate and ellagic acid on the angiogenic potential of CD31⁺ human endothelial cells. *FASEB Journal* 19(4): A550.

Rumjahn, S. and Buxton, I.L.O. (2006) Nm23 secreted by human breast cancer promotes angiogenesis. *Proc. West Pharmacol. Soc.* 49:193.

Rumjahn, S. and Buxton, I.L.O. (2006) Inhibitors of nm23 suppress MDA-MB-435 human breast carcinoma mediated angiogenesis *in vitro*. *FASEB Journal* Abstract # 462.2.

Tichenor, J.N., Hansen, E.T. and Buxton, I.L.O. (2006) Expression of TREK and TRAAK is differentially regulated during pregnancy in humans. *FASEB Journal* Abstract # 426.14.

Tichenor, J.N., Hansen, E.T. and Buxton, I.L.O. (2006) Two-pore potassium channel expression in human myometrium. *Proc. West Pharmacol. Soc.* 49:193.

Tichenor, J.N., Hansen, E.T. and Buxton, I.L.O. (2007) Stretch-activated potassium channels in human myometrium. *Reproductive Sciences*. 14(1) 230A.

Tichenor, J.N., Hansen, E.T. and Buxton, I.L.O. (2007) Blockade of stretch-activated 2-pore K⁺ channels by tarantula toxin modulates uterine contractions. *Proc. West Pharmacol. Soc.* 50: 230.

PUBLICATIONS**Research Abstracts (continued)**

Rumjahn, S. and Buxton, I.L.O. (2007) Breast cancer cells secrete an angiogenic factor that activates endothelial P2Y₁ receptors. *Proc. West Pharmacol. Soc.* 50: 207.

Jeanblanc, C., Xiang, S., Duan, D., and Buxton, I.L.O. (2008) Mitochondrial GSH levels are decreased in hearts from CFTR-knockout mice. *Proc. West. Pharmacol. Soc.* 51: 99-100.

Milton, D., Denemeyer, S. and Buxton, I.L.O. (2008) Co-immunoprecipitation of cGMP-protein kinase type I & II and myosin phosphatase suggest a role for their functional interaction in human uterine quiescence at term. *Proc. West. Pharmacol. Soc.* 51: 103-104.

Tichenor, J.N., McGlothlin, K. and Buxton, I.L.O. (2008) Dissociation of mRNA and protein levels for human myometrial TREK-1 suggests a non-genomic role for TREK-1 expression during labor. *Proc. West. Pharmacol. Soc.* 51: 95.

Yokdang, N., Rumjahn, S.M. and Buxton, I.L.O. (2008) Endothelial P2Y receptors transactivate endothelial VEGF receptors consistent with a role in angiogenesis stimulation. *Proc. West. Pharmacol. Soc.* 51: 96.

Rumjahn, S.M., Baldwin, K. and Buxton, I.L.O. (2008) Purinergic regulation of angiogenesis via vascular endothelial growth factor receptor 2 signaling. *Proc. West. Pharmacol. Soc.* 51: 97.

Rumjahn, S.M., Tichenor, J.N., and Buxton, I.L.O. (2009) Functional expression of stretch-activated potassium channels (TREK-1) in pregnant human and guinea pig myometrium. *Proc. West. Pharmacol. Soc.* 52, A5

Yokdang, N., Cui, T., Thai, J., Rumjahn, S.M. and Buxton, I.L.O. (2009) The activation of P2Y₁ nucleotide receptor mediated breast cancer angiogenesis via transphosphorylation of VEGF receptor-2 Accepted abstract *Proc. West. Pharmacol. Soc.* 52, A4.

Wu YY, Buxton ILO, (2010) TREK-1 splice variants may lead to failure of human myometrial relaxation and contribute to preterm labor. *Proc West Pharmacol. Soc.* 53, San Diego.

Ulrich CC, Buxton ILO (2010) S-Nitrosylation in human myometrial smooth muscle. *Proc West Pharmacol. Soc.* 53, San Diego.

Yokdang, Wu YY, and Buxton, I.L.O. (2010) The release of extracellular NDPK-B from human breast cancer cells acts as an angiogenic factor *in vivo*. *Proc West Pharmacol. Soc.* 53, San Diego.

Wu, Y-Y, Singer, C.A. and Buxton, I.L.O. (2011) Trek-1 splice variants may lead to failure of human myometrial relaxation and contribute to preterm labor. FASEB J EB2011 Abstracts A435, Page 391.

Heyman, N., Barnett, S., Wu, Yi-Ying, Singer, C.A., Leblanc, N., Hume, L. and Buxton, I.L.O. (2011) TREK-1 currents in smooth muscle cells from pregnant human myometrium. FASEB J EB2011 Abstracts A434, Page 391.

Ulrich, C., Nordmeier, A., Schegg, K., Quilici, D. and Buxton, I.L.O. (2011) Discovery of the nitro-proteome in human myometrium. FASEB J EB2011 Abstracts B206, Page 302.

PUBLICATIONS**Research Abstracts (continued)**

- Buxton, I.L. (2011) Purinergic mechanisms in breast cancer metastasis. ASCO, San Francisco, 2011
- Burkin, H.R., Singer, C.A. and Buxton, I.L. (2012) Integrin localization to focal adhesion sites in pregnant human myometrium. Accepted Abstract, SGI Reproductive Sciences, 19: 29A T246.
- Ulrich, C. and Buxton, I.L. (2012) The myometrial nitroproteome in pregnancy. Accepted Abstract, SGI Reproductive Sciences, 19: 30A T268.
- Wu, Y-Y, Singer, C.A. and Buxton, I.L. (2012) Splice variants of the K2P channel TREK-1 associated with preterm labor. Accepted Abstract, SGI Reproductive Sciences, 19: 30A T270.
- Heyman, N., Barnett, S. and Buxton, I.L. (2012) Characterization of human myometrial TREK-1 potassium channel currents. Accepted Abstract, SGI Reproductive Sciences, 19: 29A, T-255.
- Ulrich, C., Quilici, D., Schegg, K., Buxton, I.L.O., Scott Barnett, and Nathanael Heyman (2012) The uterine smooth muscle S-nitrosylproteome in pregnancy and functional effects of S-nitrosoglutathione FASEB J March 29, 2012 26:985.3
- Wong, S., Yokdang, N., Speirs, K. and Buxton, I.L.O. (2013) Purinergic mechanisms in breast cancer development: A role for nucleoside diphosphate kinase. FASEB J April 9, 27:1104.9
- Barnett, S.D., Ulrich, C., Baker, J. and Buxton, I.L.O. (2013) The role of S-nitrosylated profilin-1 and myosin regulatory light chain 9 in human myometrial contractile dynamics. FASEB J April 9, 27:879.1
- Burkin, H. and Buxton, I.L.O. (2014) Differential expression of integrins, ECM molecules, and signaling proteins in the term and preterm human myometrium. Session Info: Poster Session: Basic Parturition, Prematurity Thursday, March 27, [T-017] 10:00 am.
- Copley-Salem, C, Ulrich, CC, Quilici, D, Schlauch, K, Burkin, HR, and Buxton, ILO. Stretch Induced Phosphoproteomic Signaling Networks in Pregnant Human Myometrial Cells. Reproductive Sciences, vol. 21, no. 3, pp. 138A
- Chad L Cowles, Yi-Ying Wu, Cindy Valverde, Michael T Lee, Heather R Burkin, Iain LO Buxton [T-030] Characterization of Variants of Stretch-Activated 2-Pore Potassium Channel TREK-1. Poster Session: Basic Parturition, Prematurity, Thursday, March 27, 2014, 10:00 am.
- Craig C Ulrich, David R Quilici, Karen Schlauch, Heather R Burkin, Iain LO Buxton[S-033] Proteomic Network Analysis of Human Uterine Smooth Muscle in Pregnancy, Labor, and Preterm Labor. Poster Session: Basic Parturition, Prematurity Saturday, March 29, 2014, 10:00 am.
- Chad L Cowles, Michael T Lee, Heather R Burkin, Iain LO Buxton. Characterization of TREK1 Currents in Freshly Isolated Myocytes. *Reproductive Sciences* S-109 333a, 2015
- Scott D Barnett, Craig Ulrich, Josh Baker, Iain LO Buxton. Role of S-Nitrosated Myosin Regulatory Light Polypeptide 9 in Uterine Smooth Muscle Contraction. *Reproductive Sciences* S-107 332a, 2015
- Senny Wong, Katie Spiers, Suzann Duan, Iain LO Buxton. MDA-MB-231 Cell Exosomes Contain Nucleoside Diphosphate Kinase. *Reproductive Sciences* T-041, 121a, 2015

PUBLICATIONS**Research Abstracts** (*continued*)

Iain L. O. Buxton, Craig Ulrich and Heather R. Burkin. Nitric Oxide-Mediated Relaxation of Spontaneously Active and Agonist-Evoked Contraction of Human Pregnant Myometrium is Blunted in Preterm Tissues. *SSR Abstracts* 198a, pg. 79, 2015

Craig C. Ulrich, Christian Copley-Salem, David Quilici, Karen Schlauch, Iain L. Buxton and Heather R. Burkin. Stretch Induced Phosphoproteomic Signaling Networks in Pregnant Human Myometrial Cells Highlight the Importance of the Integrin Signaling Pathway. *SSR Abstracts* 199a, pg. 79, 2015

Heather R. Burkin, Carolina B. Wandscheer, Craig C. Ulrich and Iain L. Buxton. MMP2 and MMP9 Expression and Upregulation in Preterm Myometrium. *SSR Abstracts* 200a, pg. 80, 2015.

Ulrich, Craig C., Christian Copley-Salem, David Quilici, and Heather R. Burkin. (Buxton Lab Group) Global Phosphoproteomic Signaling Network Changes During a Biaxial-Stretch Model of Human Uterine Distension. *Reproductive Sciences*, vol. 22, pp. 336A-336A, 2015.

Cowles, C., Burkin, H., Ulrich, C., Lee, M. and Buxton, I.L.O. Transport of Nitric Oxide in Human Uterine Myocytes. *Reproductive Sciences* 23(1) 216A. 2016

Ulrich, C., Copley-Salem, C., Von Schimmelmänn, K., Buxton, I.L.O. and Burkin, H. mTOR signaling is activated in response to myometrial stretch: Implications for preterm labor. *Reproductive Sciences* 23(1) 217A. 2016

Barnett, S.D., Burkin, H. and Buxton, I.L.O. GSNOR expression and Regulation in preterm laboring myometrium. *Reproductive Sciences* 23(1) 299A. 2016

Suzann Duan, Senny Nordmeier, Iain L.O. Buxton. Exploring the metastatic potential of exosomal NM23 signaling using a triple negative breast cancer model in mice. *AACR Abstracts*, 4175, 2016.

Senny Nordmeier, Suzann Duan, Iain L.O. Buxton. Purinergic regulation of tumor-mediated angiogenesis: A role for exosomal NM23. *AACR Abstracts*, 3396, 2016.

Nordmeier, S, Duan, S, and Buxton, ILO. Exosomal NM23 Mediates Purinergic Regulation of Breast Cancer Angiogenesis [abstract]. In: *Molecular Biology of the Cell*; 2016 Dec 3-7; San Francisco, California (CA); ASCB; 2016.

Salem, CC, Ulrich, C, Quilici, D, Woosley, R. Buxton, IL and Burkin, HR Isobaric TMT 10-plex Labeled MultiNotch MS3 Analysis of Human Uterine Smooth Muscle in Disparate States of Pregnancy; *Journal of The American Society for Mass Spectrometry*, Volume 27, Supplement 1, pp 1–266. 2016

Suzann Duan, Senny Nordmeier, Iain L.O. Buxton. Establishing the involvement of exosomal NM23 in pro-angiogenic communication between triple negative breast cancer cells and their vascular targets. In: *Mol. Bio. Cell* 27, page 1977. American Society for Cell Biology Annual Meeting; 2016 Dec 3-7; San Francisco, CA.

Iain L. O. Buxton, Craig Ulrich, Scott D. Barnett, and Heather R. Burkin. Altered S-Nitrosation of Contractile Proteins Underlies Dysfunctional Quiescence in Human Preterm Labor. *Pelvic Floor Society Meeting*, Charleston, SC December 2016.

PUBLICATIONS***Research Abstracts (continued)***

Craig Ulrich, Carolina Wandscheer, Christian Copley Salem, Veronica Arinze, Jenny Wong, Iain Buxton, Heather Burkin, 49th Annual Meeting, MMP2 and MMP9 Expression and Influence on Contraction in Pregnant Human Myometrium. Society for the Study of Reproduction, San Diego, CA, United States. (July 19, 2016).

Craig Ulrich, Veronica Arinze, Christian Copley Salem, Iain Buxton, Heather Burkin. MMP2/9 Upregulation in Preterm Laboring Uterine Myometrium May Exacerbate Contractility. Biology of Reproduction a552 Abstracts 2017.

Craig Ulrich, Christian Copley Salem, David Quilici, Rebekah Woosley, Iain Buxton, Heather Burkin, Karen Schlauch. Isobaric TMT 10-plex labeled MultiNotch MS3 analysis of biological and technical variance in human uterine smooth muscle tissue. ASMS, TP613 2017

Barnett, S., Lambert, J. Maged, V., Petereit, J., Ulrich, C., Buxton, I.L. and Burkin, H. (2018) Association of GSNOR Levels with Preterm Birth in African American Women and Therapeutic Potential of GSNOR Inhibition. Mountain West CTR-IN Consortium Annual Meeting June 11-12, 2018. Las Vegas, NV.

PATENTS

US Patent: Polyphenol Inhibition of Nucleoside Diphosphate Kinase-B Activity and Cancer Metastasis. December 30, 2009; Patent No. 7,678,549.

US Patent Pending: GSNOR Inhibition in Preterm Laboring Myometrium restores quiescence: Prevention of Spontaneous Preterm Birth.

INVITED LECTURES***Invited Leadership Presentations:***

Organization and Management Structures for Research & Practice in Schools of Pharmacy: Role of the Dean. New Mexico Health Sciences Center, Albuquerque, April 25, 2002.

Development of a New School of Pharmacy Under Revised ACPE Accreditation Guidelines. Samuel Merritt College, Oakland California, July 2008.

Invited Research Presentations:

Mechanisms of Dysfunctional Quiescence in Spontaneous Preterm Labor. Invited Plenary, Society for Reproductive Investigation, Myometrial Satellite, Orlando Florida, March 2017.

Therapeutic Inhibition of GSNOR in the Management of Preterm Labor. Platform Presentation at the 3rd Annual Clinical Translational Research Meeting (CTR-IN), Las Vegas, NV June 2016.

Intimations on the Metastatic Process in Breast Cancer: *Incommodus Verum* Invited Speaker, (the International Congress of the NDPKinase/Nm23/awd Gene Family a New Frontier in Cell and Cancer Biology. July 31st-Aug. 4th, 2013. Boston University, Boston, Massachusetts, USA

Current Research in Pharmacology and Medicine Milan Institute, October, 2012

New Therapeutic Targets in the Regulation of Myometrial Relaxation. Department of Obstetrics and Gynecology, University of Colorado, Denver. October 11, 2011.

Incommodus Verum: Extracellular Nm23 Signaling in Breast Cancer. Plenary Lecture. Western Pharmacology Society Annual Meeting, Mexico City, Mexico, May 16, 2011

Suppression of Breast Cancer Metastasis by Polyphenols. Plenary Lecture, Western Pharmacology Society Annual Meeting, San Diego, February 8, 2010.

Regulation of human uterine relaxation at term by stretch-activated potassium channels. Plenary Lecture, Western Pharmacology Society Annual Meeting, Acapulco, Mexico, February 12th 2009.

The Physiology of Pregnancy and Parturition. _Obstetrics and Gynecology Department, University of Nevada School of Medicine, April 2006

Functional Organization of Myometrial Relaxation Signaling During Labor in Humans. Myometrial Satellite Symposium; Annual Society for Gynecological Investigation Meeting 2005.

Departmental Research Rounds, Regulation of Uterine Contraction in Prematurity, Obstetrics and Gynecology Department, University of Nevada School of Medicine, April 2005

Regulation of Relaxation Signaling in Human Myometrium Plenary Lecture, Western Pharmacology Society Annual Meeting, Honolulu, Hawaii, January 25th 2004.

New Therapeutic Targets in Preterm Labor Research Grand Rounds. Department of Obstetrics and Gynecology, University Medical Center, Las Vegas, NV. October, 2001.

Nitric Oxide Signaling in the Human Pregnant Myometrium. IUPS; XXXIVth International Congress of Physiological Sciences, from Molecule to Malady, Satellite Meeting; Physiology of Pregnancy and Parturition, Auckland, New Zealand, August 2001.

Mechanisms in Vascular Regulation Texas Tech University of the Health Sciences, Amarillo, March 2000.

Role of Nm23 in Human Breast Cancer Metastasis University of Nevada Las Vegas/UNSOM Research Conference, Las Vegas, Nevada, June 1999.

Agonist-mediated ATP Release in Coronary Artery: Evidence in Support of the Purinergic Axis Hypothesis *Conference on Endothelial Regulation of Vascular Tone: Molecular to Integrative Physiology*; American Physiological Society, Augusta, Georgia, 1998.

Role of Protein S-nitrosations in the Regulation of Myometrial Function Invited Lecture, Society for the Study of Reproduction, Puerto Rico, June 20, 2015.

Mammalian Cloning and the Future of Medicine and Society. A scientific primer delivered to the Trustees of the University of Nevada, Reno Foundation, 1997.

The Purinergic Axis in Blood Vessels. University of Maryland, School of Pharmacy, Baltimore, Maryland, July 1997.

Cyclic GMP-Independent Actions of Nitric Oxide in Human Myometrium. Loma Linda School of Medicine, Department of Physiology, Division of Perinatal Biology, Loma Linda, CA, April 1997.

Origin, Sources and Fates of Nucleotides in the Coronary Vasculature. University of Nevada Las Vegas, Invited Seminar, Department of Biology, Las Vegas, Nevada, June 1997.

Nucleotide Regulation of the Coronary Vasculature. University of California Davis, Division of Cardiovascular Sciences, Department of Medicine, October 1996.

On the Nucleotide Axis in Cardiac Blood Vessels. Basic Pharmaceutical Sciences, West Virginia University School of Pharmacy, July 1996.

The Purinergic Axis in Cardiac Blood Vessels. Department of Pharmaceutical Sciences, University of Montana, Missoula, April 1996.

Endothelial Cell Purinergic Mechanisms in Coronary Arteries. Department of Pharmacology, Quillen College of Medicine, Johnson City, Tennessee, April, 1996.

A Role for NO in the Onset of Labor. Symposium; Regulation of Onset of Labor (Chair, I.L.O. Buxton) Society for Gynecological Investigation, Annual Meeting, Philadelphia, 1996

Novel Mechanisms of Purine Nucleotides in Coronary Artery. Symposium; The Purinergic Axis in Blood Vessels. Western Pharmacology Society. Maui Intercontinental, Hawaii. January, 1995.

On the Origin of Extracellular ATP in Cardiac Blood Vessels: A Dual Role for Endothelium. Fifth International Symposium on Adenosine and Adenine Nucleotides. Philadelphia, Penn. May, 1994.

A Purinergic Axis in Blood Vessels. Symposium; *The Role of Adenosine Triphosphate in Peripheral and Central Neurotransmission*. Experimental Biology, Anaheim, Cal. April, 1994.

A Role for Adenyl Purines in Myometrial Function. Loma Linda School of Medicine, Department of Physiology, Division of Perinatal Biology, Loma Linda, CA. June 1993.

Role of Adenyl Purines in Myometrial Function. Department of Pharmacology, University of California, San Diego, December 1992.

Adenosine Receptor Mechanisms in Parturition. Division of Perinatal Biology, Loma Linda School of Medicine, February 1992.

The Role of Adenyl Purines in Myometrial Function. Fourth International Symposium on Adenosine and Adenine Nucleotides. Lake Yamanaka, Japan. May 1990.

α_1 -adrenergic Receptor Signal Transduction in the Adult Rat Cardiac Myocyte. Biology of the Isolated Adult Cardiac Myocyte NHLBI RFA Meeting, Asilomar Conference Center, 1987.

INVITED LECTURES***Lectures Presented in Conjunction With Professional Continuing Education Programs:***

New Approaches to the Prevention of Preterm Delivery. March of Dimes Women's Health Symposium, Friday, November 19, 2010, Tuscan Suites and Casino, Las Vegas, NV.

Potassium Channel Variants in Spontaneous Preterm Labor. Ob-Gyn Resident Lecture Series, September 2009, Las Vegas, NV

Preterm Labor Treatment: Lack of Efficacy in Current Tocolytics. Continuing Education for Physicians and Nurses, Saint Mary's Perinatal Conference. October 2008, Reno, NV.

Two-Pore Potassium Channels: Basic Updates from Bench to Bedside. *Keynote Lecture* Continuing Education for Physicians and Nurses, Saint Mary's Perinatal Conference, "Autumn in the Sierra: Concepts in Perinatal Care Conference" October, 2007, Reno, NV.

Therapeutic Targets in the Treatment of Preterm Labor. Continuing Education for Physicians and Nurses, Saint Mary's Perinatal Conference, "Autumn in the Sierra: Concepts in Perinatal Care Conference" August, 2003, Reno, NV.

Pharmacotherapy of Joint Diseases. Continuing Education for Physicians and Pharmacists. UNR Department of Continuing Education Program, August, 1999, Reno, NV.

Pharmacology: Introductions to a Basic Medical Science Discipline: Howard Hughes Teacher Fellows Conference, University of Nevada School of Medicine, 1998.

Receptor Theory: The Road to How and Why: Howard Hughes Teacher Fellows Conference, University of Nevada School of Medicine, 1997.

Pharmacology in the Classroom: Howard Hughes Teacher Fellows Conference, University of Nevada School of Medicine, 1996.

Pharmacognosy: Drugs from Plants. Howard Hughes Teacher Fellows Conference, University of Nevada School of Medicine, 1995.

Humanizing Research. Presented to the American Heart Association Delegate Assembly, Las Vegas, Nevada September 1992.

Diabetes Research: The State of the Art Lecture to Physicians and Nurses sponsored by the American Diabetes Association, Las Vegas, Nevada, January 20, 1990.

The Biochemistry of Diabetic Blood Vessels. Lecture to Physicians. Annual Meeting, American Diabetes Association, Las Vegas, NV. May 1989.

Digoxin Use and Misuse: Toxicity and Pharmacokinetics. VA Medical Center Grand Rounds, San Diego, 1984.

Catecholamine Receptor Regulation of Inotropy in Mammalian Heart. Department of Medicine, University of California, Los Angeles, 1984.

Special Intensive Care Unit Pharmacology. American Lung Association, (Provided as Continuing Education credit for Nurses), 1982.

Amrinone in Congestive Cardiomyopathy. Pharmacy Grand Rounds, Veterans Administration Medical Center, 1980.

Propranolol in the Treatment of Angina Pectoris. Veterans Administration Medical Center, 1979. (Provided as Continuing Education credit for Pharmacists.)

Biopharmaceutics and Pharmacokinetics. California Nursing Association, 1979. (Provided as Continuing Education credit for Registered Nurses.)

Public Education/Awareness Lectures

Curing Breast Cancer Invited Keynote Speaker. Annual Meeting, Nevada Chapter, Komen for the Cure, 2015.

The path to New Drug Development Invited remarks for the *Whittemore Peterson Institute* fundraising gala, October 2014.

Incommodus Verum: Failing to Understand Breast Cancer Then, What About Now? University of Nevada Honors Program Lecture Series, October, 2011.

Women's Health Research in Nevada Reno Soroptomists Club, April, 2007

Pharmacotherapy Advances in Health Care Delivery Reno Centennial Rotary Club, 2006.

Trouble with the Miracle. Presented to the Reno Lions Club, May 13, 2004.

Real Axis of Evil: Discovery of Pathways to Prevent Disease Sanford Center for Aging: Silver Series Lectures, February 2004.

Why They Couldn't Stop Your Labor. Presented to the Premi Support Group (A parents of premature infants support group), Reno, NV, June 2003.

Current Therapies for Cancer. Presented to the Sparks, NV Veterans of Foreign Wars Auxiliary, October, 1999.

INVITED LECTURES**Public Education/Awareness Lectures (continued):**

Science and Medicine: Ethical Conundrums. Presented to the Sparks Sertoma Club, December, 1998.

Human Gene Cloning and Our Responsibility. Presented to the Trustees of the University of Nevada Foundation, November, 1997.

Science, Medicine, Ethics and Cloning. Public lecture given to the Sparks Chapter of the Rotary Club, June 1997.

Hello Dolly: Human Genetics in the 21st Century. Public lecture given to the Reno Chapter of the Rotary Club, April 1997.

Science and Ethics in the Age of Genetic Engineering. Public lecture given to the Universalist Christian Alliance, Reno, November 13, 1996.

Shaping a Healthy Future: The Anatomy and Physiology of the Heart and Blood Vessels. Public lecture given to Washoe County school teachers, Sparks Middle School, February 5, 1996.

The Human Genome Project: Where do we stand? A scientific lecture invited by the liberal clergy of the Truckee Meadows, March 13, 1996.

The Birth of a Baby: Trouble with the Miracle. Rotary Club: Reno Chapter, September 16, 1994.

Let the Beat Go On: Anatomy and Physiology of the Heart and Blood Vessels. University of Nevada School of Medicine: Mini Medical School 1994. Las Vegas. March 2nd, 1994; Reno, March 30th, 1994.

Cells: The Object of Our Fancy! University of Nevada School of Medicine: Mini Medical School 1993. Public Lecture, Las Vegas March 24, 1993; Reno, March 25, 1993.

The State of Cardiovascular Research in the United States. Fraternal Order of Eagles, State Meeting, 1986.