

CURRICULUM VITAE**GORDON S. MITCHELL**

Preeminence Professor of Neuroscience
 Professor of Physical Therapy
 Director of the Center for Respiratory Research and Rehabilitation and
 McKnight Brain Institute

Department of Physical Therapy
 University of Florida
 P.O. Box 100154
 Gainesville, FL 32610-0154

Tel: 352-273-6107

Email: gsmitch@p.php.ufl.edu

RESEARCH INTERESTS

Cellular mechanisms of intermittent hypoxia induced spinal respiratory motor plasticity
 Intermittent hypoxia-induced respiratory and non-respiratory motor recovery after spinal injury
 Compensatory respiratory plasticity in motor neuron disease (ALS)
 Inflammation and spinal plasticity
 Intermittent hypoxia and brain function (inflammation, growth factor regulation, plasticity)
 Developmental plasticity

EDUCATION

	<u>Degree</u>	<u>Date</u>	<u>Specialization</u>
University of California Irvine, California	B.S.	6/75	Biological Sciences
University of California Irvine, California	Ph.D.	9/78	Developmental and Cell Biology (specialization: Physiology)

HONORS, AWARDS AND SPECIAL TRAINING

- MERIT Award from the National Heart, Lung and Blood Institute (2002-2013)
- Fellow of the American Physiology Society (since 2015)
- Steenbock Professor of Behavioral and Neural Sciences, U. Wisconsin (2011-2014)
- Walter F. Renk Distinguished Professor Award, U. Wisconsin (1997)
- Pfizer/Zoetis Award for Research Excellence, U. Wisconsin (1995, 2002, 2007 and 2014)
- Norden Distinguished Teacher Award, U. Wisconsin (1995; nominated: 1988-89, 1994)
- Research Career Development Award from NIH (1985-1990)
- Director of NIH Institutional Training Grants: Respiratory Neurobiology (2002-2013) and Breathing Research and Therapeutics (2017-2022).
- NIH study-sections (RAP, 1995-1999; Systems Biology, 2006-08; RIBT, 2012-2018)
- NIH study-section boundary team, Pulmonary IRG (2002)
- Council of Scientific Advisors, Francis Families Foundation (2001-2005)
- Editorial Boards: *Respiratory Physiology & Neurobiology*, *J. Appl. Physiology*, *Journal of Neurophysiology*, *Experimental Neurology*.
- Editor, *Comprehensive Physiology*, Control of Breathing (2008-present).
- Leadership training, Center for Creative Leadership, Greensboro, North Carolina (1988)
- Organizer of American Physiological Society Conference: "Neural Control of Breathing: Molecular to Organismal Perspectives" (1996)
- Program Committee, Society for Neuroscience (2002-2005).
- Councilor, American Physiological Society (2008-2011).
- Special Lecture, Society for Neuroscience, Washington, D.C. (2008).
- Julius H. Comroe Distinguished Lecture, APS, San Diego, CA (2014).
- Guyton Distinguished Lecture Award, ACDP, Panama (2014).
- Keynote Lecture, American Spinal Injury Association (ASIA), Albuquerque, NM (2017).

PROFESSIONAL POSITIONS

Current appointments:

- Preeminence Professor, Department of Physical Therapy, Univ. Florida (2014 to present).
- Director, Center for Respiratory Research and Rehabilitation, University of Florida.
- Director, Breathing Research and Therapeutics Training Program (BREATHE)
- Affiliate appointments: Neuroscience, Biomedical Engineering, Neurology
- McKnight Brain Institute

Previous appointments:

- Professor, Department of Comparative Biosciences, Univ. Wisconsin (1992-2014).
- Chair, Department of Comparative Biosciences, University of Wisconsin (1997 to 2014).
- Affiliate appointments: Center for Neuroscience, Department of Neurology, Department of Pediatrics, Neuroscience Training Program and Comparative Biomedical Sciences Training Program (1992 to 2014).

- Director of Respiratory Neurobiology Training Program (2001 to 2014).
- Steenbock Professorship in Behavioral and Neural Sciences, University of Wisconsin-Madison. 10-year competitive award for research accomplishment (2011 to 2014).
- Visiting Professor, Department of Neurobiology, UCLA (2005 to 2009).
- Visiting Professor, Department of Zoology, Univ. British Columbia, Canada (1993).
- Assistant Professor (1981-1987) and Associate Professor (with tenure, 1987-1992), Department of Comparative Biosciences, University of Wisconsin.
- Visiting Scientist, Department of Physiology, School of Medicine, University of Auckland, New Zealand (1989).
- Visiting Scientist, Division of Physiology, Department of Medicine, UCSD (1986).
- Visiting Scientist, Department of Zoology, Univ. of British Columbia, Canada (1985).
- Postdoctoral Trainee, Department of Preventive Medicine, School of Medicine, University of Wisconsin-Madison, WI (supervisor: Dr. J.A. Dempsey; 1980 to 1981).
- Postdoctoral trainee, Abteilung Physiologie, Max-Planck-Institut für experimentelle Medizin, Göttingen, Germany (supervisor: Dr. P. Scheid; 1978 to 1980).
- Graduate student (research and teaching assistantships), Departments of Physiology and Developmental and Cell Biology, University of California, Irvine, CA (supervisor: Dr. J.L. Osborne; 1975 to 1978).

TEACHING

Graduate school teaching (University of Florida):

- Neuroscience course for Physical Therapy Students (Spring 2017). Lectures on brainstem, autonomic nervous system and neuroplasticity.
- Respiratory Neurobiology Journal Club (Fall & Spring semesters; Fall 2016 to present). (RSD: 6930; ~10 registered students, ~20 additional unofficial participants).
- Graduate course: *Control of Breathing and Airway Defense: Implications for Rehabilitation* (PHT 6935C; 3 credits; first offered in spring semester, 2016).
- Facilitator for Rehabilitation Sciences Seminar Series, Spring 2015.
- Selected lectures in graduate courses in Rehabilitation Sciences Graduate Program (lecture on translation in biomedical research).

Professional school teaching (University of Wisconsin):

- Veterinary Physiology (4 credits): lectures in respiratory physiology (1984-2014), also: physiological principals, acid-base, renal, exercise and thermoregulatory physiology. Norden Distinguished Teacher Award (1995; also nominated: 1988, 1989 and 1994). UW Distinguished Teaching Award nominee (1992, 1996).
- Physiology/Pharmacology Laboratory (1984-1990). Discontinued due to budget cuts.
- Computer software development for teaching lecture/demonstrations: 1) lung mechanics (dynamic airway compression); 2) pulmonary gas exchange (causes of arterial hypoxemia); 3) ventilatory control simulation (graduate student/postdoc teaching); 4) acid-base physiology; 5) acid-base "calculator" (classical and strong ion difference); and

- 6) neural deficits/therapeutic options in clinical disorders that compromise breathing.
- Avian respiratory system, guest lecturer; Special Species Medicine (1988-1994).
- Fall semester coordinator (1994-1995).
- Lectures in Medical Neurophysiology (sleep, neurotransmitter biology). Visiting Professor, School of Medicine, University of Auckland, New Zealand (1989).

Undergraduate teaching (UW):

- Responsibility for Vertebrate Physiology course (Comparative Biosciences 404). Lectures and laboratories for 25-50 undergraduates. Discontinued in 2010 (budget cuts).
- Sponsor for undergraduate and/or veterinary student research (1 to 5 per year).
- Lectures on brainstem function in "Demystifying the Brain" (1997-98).
- "Undergraduate Seminars in Neuroscience" (Neuroscience 675). Lectures on research; assigned papers on selected topics (2000-2013).
- Human exercise physiology demonstrations for undergraduate physiology course as Postdoctoral Fellow, School of Medicine, University of Wisconsin-Madison (1981).
- Teaching Assistant, University of California, Irvine (1975-1978).
 - Coordinator, undergraduate physiology course (administrative/academic duties for course with > 600 students).
 - Design and implementation of laboratory sessions on pulmonary function, exercise and muscle physiology (undergraduate physiology course).
 - Laboratory instructor/discussion leader-general physiology (3 quarters, 1976-78).
 - Laboratory instructor - evolutionary biology (2 quarters, 1975-76).

Graduate and Postdoctoral Education (UW):

- Graduate courses: "Special Topics in Respiratory Neurobiology;" first in 1985. Topics: acid-base physiology, neurotransmitters in ventilatory control, control of airways, nonlinear dynamical analysis of physiological systems, neurotransmitter biology, cellular/molecular neurobiology, RNA interference.
- Annual coordination of Respiratory Neurobiology Seminar Series (weekly).
- Additional seminars/journal clubs formed and/or created:
 - Respiratory Neurobiology Journal/Data Club (annual, 6 lab groups).
 - Journal Club, Spinal Neuromodulation and Plasticity (1994).
 - Neuroplasticity Seminar Series (2005).
- Organizer or Co-organizer of annual Midwest Regulation of Respiration Conference at Kemp Station, Minoqua, WI. Participants from Universities in Wisconsin, Minnesota, Illinois and Iowa (annual, 1987-2013; ~40-80 participants).
- Professional Development Course, Neuroscience Training Program: "How to give a seminar," "How to write a grant" and "How to interview for an academic job."
- Professional Development Course, ICTR: "The anatomy of a grant"
- Professional Ethics and Survival Skills, School of Veterinary Medicine: "Written and oral presentations of data;" and "Keeping adequate data records."
- Presentations to the American College of Veterinary Internal Medicine Review on respiratory pathophysiology, blood gas interpretation (1992, 1994, 1996-98).

- Coordinate graduate student subgroups on “Serotonin-dependent plasticity” (1997, 2005); “Hypoxia and the Brain” (2007) and "Inflammation and Neuroplasticity" (2011).
- Lectures in Sleep Mechanisms and Sleep Disorders (NTP 675; 2007-08).
- Trainer in graduate degree programs at the University of Wisconsin: Neuroscience Training Program, Comparative Biomedical Sciences Training Program, Physiology Training Program, Clinical Investigation Training Program.
- Trainer in graduate degree programs at the University of Florida: Rehabilitation Sciences Graduate Program, Interdisciplinary Program in Neuroscience.
- Discussion leader, Rehabilitation Sciences Seminar (2014).
- Lecture on Translation in Rehabilitation Sciences Research (2015)
- Course in development: Advanced Respiratory Biology and Rehabilitation (Spring, 2016)

Graduate Students Supervised:

- Susan Schaefer, Completed: M.S., 1988 (Vet. Science Training Program); currently clinical assistant professor of veterinary surgery.
- Josue Pizarro, Completed: M.S., 1989 (Vet. Science Training Program; URM); current position unknown.
- Margaret Warner, D.V.M., Completed: M.S., 1990 (Vet. Science Training Program); current position unknown.
- Mark Douse, Completed Ph.D., 1990 (Pulmonary Training Program/Vet. Science Training Program); currently Animal Resource Center administrator and Research Assistant Professor, V.A. Medical Center/University of Colorado Medical School;
- Steven Lemos, Completed: M.S., 1990; M.D., 1995; Ph.D., 2003 (Vet. Science Training Program). Currently: orthopedic surgeon/team physician for Detroit Tigers and Pistons;
- Patricia Martin, Completed M.S., 1990 (Vet. Science Training Program); current position unknown;
- Karen B. Bach, Completed Ph.D., 1997 (Neuroscience Training Program). Current position unknown;
- Darlene Konkle, D.V.M., Completed: Residency/M.S., 1997 (Vet. Science Training Program); current position unknown.
- Tracy L. Baker-Herman, M.S., Completed: Ph.D. 2001 (Neuroscience Training Program); currently Assistant Professor, Dept. Comparative Biosci., Univ. Wisconsin.
- Rebecca Johnson, D.V.M., A.C.V.A., Completed: M.S. 1997; Ph.D. 2002 (Veterinary Science Training Program); currently Clinical Associate Professor, Dept. Surgical Sciences, Univ. Wisconsin;
- Julia Wilkerson (URM) Completed: Ph.D. 2006 (Neuroscience Training Program). Currently postdoctoral fellow, University of Texas Southwestern Medical Center.
- Charity Gottfredsen, D.V.M. Completed: M.S. 2007 (Comparative Biomedical Sciences Training Program). Currently Professional Services Veterinarian, Boehringer Ingelheim;
- Mary Rachel Lovett Barr, Completed: Ph.D. 2008 (Neuroscience Training Program); current position unknown.
- Jenny Dahlberg, Completed: M.S. 2009 (Comparative Biomedical Sciences Training

Program). Currently Program Administrator, Dean's office, School of Veterinary Medicine, University of Wisconsin;

- Christine Sibigroth, D.V.M./M.S. program. Completed: M.S. 2009 (Comparative Biomedical Sciences Training Program). Currently neurology resident/PhD student, University of Missouri;
- Michael Hoffman (URM) M.D./PhD Program. Completed: Ph.D. 8/2010 (MSTP/Physiology Graduate Program). Currently: Pulmonary and Critical Care Faculty, University of Iowa.
- Courtney Guenther, Completed: Ph.D. 11/2010 (Neuroscience Training Program). Former: Associate Professor and Chair, Dept. of Natural and Physical Sciences, Horry-Georgetown Technical College, Myrtle Beach, SC. Current: Assistant Professor of Biology, Winthrop University, South Carolina.
- Lisa Nashold, D.V.M. Completed: Ph.D. 12/2010 (Comparative Biomedical Sciences Training Program). Last position known: Lecturer, Dept. Zoology, Univ. Wisconsin.
- Erica Dale, Completed: Ph.D. 5/2011 (Comparative Biomedical Sciences Training Program). Currently Research Assistant Professor, UCLA.
- Michael Devinney, UW M.D./PhD Program, completed PhD in Neuroscience in 2013 and MD in 2015. Currently Anesthesiology Resident, Duke University.
- Angela Andrea Navarrete Opazo, M.D. PhD completed in 2014 (Neuroscience Training Program). Former: Clinical Researcher and Research Editor, Teleton, Santiago, Chile, Teleton Institute, Santiago, Chile; Current: IRB Analyst, Children's Hospital of Wisconsin, Milwaukee, WI.
- Joel Weltman, DVM, PhD program since 9/2013 (Comparative Biomedical Sciences). Transferred to the T.L. Baker laboratory when I left UW.
- Ibis Agosto, (URM) PhD Program, completed PhD in 10/2015 (Neuroscience Training Program). Funded by NIH Underrepresented Minority Supplement to Grant HL11598.
- Daryl Fields (URM), MD/PhD program in UW Comparative Biomedical Sciences beginning 7/2012. Formally transferred to T. Baker laboratory when I left UW; continued work in Mitchell UF laboratory until 4/2016. Degree completed in 6/2016. Funded by NIH F30 and a Merk/United Negro College Fund Fellowship.
- LaToya Allen (URM), PhD program in IDP Neuroscience beginning 7/2013.
- Marissa Ciesla, PhD program in IDP Neuroscience beginning 9/2015.
- Mia Kelly, PhD program in Rehabilitation Sciences beginning 9/2016.
- Elaheh Sajjadi, MS, PT, PhD program in Rehabilitation Sciences beginning 2016.
- Juan Santiago-Moreno (URM), MS program in Biomedical Sciences beginning 9/2016.
- Alec Simon, MS program in Biomedical Engineering beginning 9/2016.

Postdoctoral Trainees:

- Harry E. Sloan, Ph.D., 1989 to 1991. (Environmental Tox. Training Program);
- Molly Lutcavage, Ph.D., 1991 to 1992. (Pulmonary Training Program); Director of Large Pelagics Research Center and Associate Professor of Zoology, Univ. Mass. Amherst
- Duncan Turner, Ph.D., 1/93 to 9/94; currently: Professor of Restorative Neuroscience and Rehabilitation, Univ. East London, School of Health and Bioscience, London, U.K.

- Liming Ling, Ph.D., 8/92 to 6/98; was Assistant Professor of Medicine, Harvard University until 2012. Retired from science.
- Steve Johnson, M.D., Ph.D., 1/95 to 4/98; currently: Associate Professor of Comparative Biosciences, University of Wisconsin.
- Richard Kinkead, Ph.D., 8/95 to 8/98; currently: Professor, Unite de Recherche de Pediatrie, University of Quebec, Canada.
- Danny Henderson, Ph.D., 8/95 to 8/2000, currently: Assistant Professor, Department of Kinesiology, Hendrix College, Conway, Arkansas.
- Andrea Zabka, Dr. Med. Vet., Ph.D. 7/99 to 7/2000. Study Director, Developmental Toxicology, Covance Laboratories, Madison, WI for 10 years; currently: Research Coordinator, Imaging Duchene Muscular Dystrophy (iDMD), University of Florida.
- David Fuller, Ph.D., 1/99 to 12/02; currently: Professor of Physical Therapy and Associate Director, Center for Respiratory Research and Rehabilitation, Univ. Florida.
- Ryan Bavis, Ph.D., 6/2000 to 8/2003; currently Professor of Biology, Bates College, Maine.
- Rebecca Johnson, D.V.M., Ph.D., ACVA, 12/02 to 10/03; currently: Clinical Associate Professor of Surgical Sciences, University of Wisconsin.
- Tracy Baker-Herman, Ph.D., 6/01 to 6/04. Currently: Associate Professor of Comparative Biosciences, University of Wisconsin.
- Akira Nakamura, M.D., 10/03 to 6/05, currently: Professor, Chiba University, Japan.
- Frank Golder, D.V.M., Ph.D., ACVA, 7/02 to 6/06. Last known position: Head of Biology, Galleon Pharmaceuticals, Inc. Horsham, PA. Former (2006-11): Assistant Professor of Anesthesiology, School of Veterinary Medicine, University of Pennsylvania.
- Julia Wilkerson, Ph.D., 5/06 to 7/07. Currently: Instructor, Department of Neuroscience, University of Texas Southwestern Medical School, Dallas (URM).
- Irawan Satriotomo, M.D., Ph.D., 9/05 to 5/08 (from Kagawa Medical University, Japan). Currently: Scientist, University of Florida.
- Safraaz Mahamed, Ph.D., 9/04 to 1/09 (from University of Toronto, Canada). Current position unknown.
- Peter McFarlane, Ph.D., 3/05 to 1/2011 (from LaTrobe University, Australia). Currently Assistant Professor, Department of Pediatrics, Case Western Reserve University.
- Jim Windelborn, Ph.D., 1/07 to 12/2010 (from University of Wisconsin). Currently Assistant Professor of Biology at Washington College, MD.
- Jiro Terada, M.D., Ph.D., 3/09 to 3/11 (from Chiba University, Japan). Currently Associate Professor and Chief of Respiriology, Chiba University, Japan.
- Stephane Vinit, Ph.D., 6/07 to 5/12 (from Université Paul Cézanne Aix-Marseille III, France). Currently: Associate Professor, Chair of Excellence, Universities of Paris; School of Medicine, Université de Versailles St Quentin en Yvelines.
- Faiza Ben Mabrouk, Ph.D., 6/10 to 3/12 (from University of Luminy Aix-Marseille II, France). Currently: homemaker in the UK.
- Erica Dale-Nagle, Ph.D., 6/11 to 1/13 (from University of Wisconsin, Madison). Currently: Research Assistant Professor, UCLA.

- Adrienne Huxtable, Ph.D., 5/09 to 12/14 (from University of Alberta, Canada). Currently: Assistant Professor, University of Oregon.
- Nicole Nichols, Ph.D., 6/08 to present (from Wright State University). Currently: Assistant Professor, University of Missouri.
- Brendan Dougherty, P.T., PhD, 3/12 to 2/2015 (University of Florida). Currently: Assistant Professor, Department of Rehabilitation Medicine, University of Minnesota.
- Yasin Seven, PhD, 6/14 to present (Mayo Clinic).
- Raphael Perim, PhD, 6/15 to present (University of São Paulo, Ribeirão Preto, Brazil).
- Arash Tadjalli, PhD, 3/16 to present (University of Toronto, Canada)

Scientists and Research Assistant Professors sponsored:

- Liming Ling, Ph.D. Assistant Scientist, 7/98 to 12/98. (Assistant Professor, Harvard University--Retired).
- Steve Johnson, M.D., Ph.D. Assistant Scientist 4/98 to 7/99; Associate Scientist, 7/99 to 12/02. (Currently Associate Professor, University of Wisconsin).
- David Fuller, Ph.D., Assistant Scientist, 12/02 to 12/2003. (Currently Professor, University of Florida).
- Tracy Baker-Herman, Ph.D., Assistant Scientist, 4/05 to 6/06 and 7/08 to 1/09 (6/06 to 6/08: 2 years part-time while living in New York). (Currently Associate Professor, University of Wisconsin).
- Gillian Muir, DVM/Ph.D., Visiting Professor, University of Saskatchewan, Canada, 7/06 to 6/07.
- Irawan Satriotomo, MD/Ph.D., Assistant Scientist at the University of Wisconsin, 5/08 to 3/12. Rejoined laboratory at the University of Florida, 7/15 to present.
- Elisa Gonzalez Rothi (URM) DPT/Ph.D., Research Asst. Professor, 9/2015 to present.

Honors and Awards to laboratory trainees:

- Karen Birgit Bach, Ph.D. Student: Travel Award, American Thoracic Society, 1996.
- Karen Birgit Bach, Ph.D. Graduate Student Award for an Outstanding Abstract, American Physiological Society, 1996.
- Rebecca Pipo Johnson, D.V.M.; ANESCO Resident Research Award; American College of Veterinary Anesthesiologists, 1996.
- Tracy Baker, Ph.D Student, WARF Fellowship, University of Wisconsin, 1997.
- Steve Johnson, M.D./Ph.D.; Invited participant in symposium on “Comparative perspectives on ventilatory control,” Experimental Biology Meeting, 1998.
- Steve Johnson, M.D./Ph.D.; Giles Filley Award for Excellence in Respiratory Research; American Physiological Society, 1999.
- Rebecca Pipo Johnson, D.V.M.; Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 1999.
- Julia Rives Wilkerson, Pre-doctoral fellowship, National Science Foundation, 2000.
- Tracy Baker, Ph.D. Student, Invited participant in symposium on “Intermittent Hypoxia: Cell to System,” Experimental Biology Meeting, 2001.

- Julia Rives Wilkerson, Ph.D. Student, American Physiological Society Minority Travel Award, 2001.
- Tracy Baker, Ph.D. Student, Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2001.
- Rebecca Pipo Johnson, D.V.M.; Ph.D. Student, Young Investigator Award, Central Nervous System Section, American Physiological Society, 2001.
- David Fuller, Ph.D. Invited speaker in symposium on “Plasticity and repair of the phrenic motor system following cervical spinal injury: current concepts.” Experimental Biology Meeting, 2001.
- Ryan Bavis, Ph.D. Travel Award, Comparative Section, American Physiological Society, 2002.
- Jessica Gruenwald, D.V.M. Student, U.W. School of Veterinary Medicine Student Research Award, April 2002.
- Ryan Bavis, Ph.D. Invited participant in symposium on “Acclimatization to hypoxia: supply vs. demand strategies.” APS Intersociety Meeting, San Diego, CA, August, 2002.
- Ryan Bavis, Ph.D. Invited speaker in symposium on “Ontogeny of cardiorespiratory mechanisms: an evolutionary perspective.” Experimental Biology Meeting, 2002.
- Ryan Bavis, Ph.D. Invited speaker in symposium on “Central and peripheral mechanisms of oxygen sensing.” Experimental Biology Meeting, 2002.
- Ryan Bavis, Ph.D. Invited speaker in symposium at 6th International Congress of Comparative Physiology and Biochemistry. “Developmental plasticity in ventilatory chemosensitivity: comparative aspects.” Mt. Buller, Australia. February, 2003.
- Ryan Bavis, Ph.D. Organizer and chair of mini-symposium on “Developmental Plasticity of Respiratory Control.” Experimental Biology Meeting, San Diego, CA, April, 2003.
- Frank Golder, BVSc; Ph.D. Young Investigator Award, Central Nervous System Section, American Physiological Society, 2003.
- Tracy Baker-Herman, Ph.D. Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2003.
- Ryan Bavis, Ph.D. Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2003.
- Julia Rives Wilkerson, Ph.D. Student, American Physiological Society Minority Travel Award, 2003.
- Tracy Baker-Herman, Ph.D., Young Investigator Award, Respiration Section, American Physiological Society, 2003.
- Charity Gottfredsen, Young Investigator Award, Respiration Section, American Physiological Society, 2003.
- Ryan Bavis, Ph.D., Chair and organizer of featured topic session on Developmental Plasticity in Ventilatory Control at EB meeting, San Diego, 2003.
- David Fuller, Ph.D., Chair and organizer of EB Symposium on “Breathing and walking after spinal cord injury.” Washington D.C., 2004.
- Tracy Baker-Herman, Ph.D. Young Investigator Award, Central Nervous System Section, American Physiological Society, 2004.

- Frank Golder, BVSc, Ph.D. Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2004.
- Jenny Dahlberg, B.S., 3rd Wisconsin Biotechnology and Medical Device Association (undergraduate) Poster Competition, University of Wisconsin, 2004.
- Tracy Baker-Herman, PhD. JE Rose Award for excellence in research, Neuroscience Training Program, University of Wisconsin, 2004.
- Julia Wilkerson, PhD Student/postdoc, American Physiological Society Minority Travel Award, 2004, 2005, 2006, 2007.
- Julia Wilkerson, PhD Student, Neuroscience Training Program Travel Award, 2005/2006.
- Tracy Baker-Herman, PhD. Invited speaker at international symposium on Brainstem and Spinal Cord Mechanisms, Madison, WI, 2005.
- Frank Golder, D.V.M., Ph.D. Organizer of Featured Topic at EB Meeting, San Francisco, 2006.
- Safraaz Mahamed, Ph.D. Excellence in Research Award, CNS Section of American Physiological Society, 2006.
- Julia Wilkerson, PhD Student, Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2006.
- Julia Wilkerson, invited speaker at symposium on “Respiratory plasticity after changes in oxygen supply and demand” at the International Congress of Respiratory Biology, Bonn, Germany, August, 2006.
- Julia Wilkerson, Young Investigator Award, Respiration Section, American Physiological Society, 2006.
- Safraaz Mahamed, Ph.D., Young Investigator Award, CNS Section, American Physiological Society, 2007.
- Michael Hoffman, M.D./Ph.D. student, Respiration Section Research Recognition Award, Experimental Biology Meeting, American Physiological Society, 2007,
- Michael Hoffman, M.D./Ph.D. student, Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Soc., 2007.
- Michael Hoffman, M.D./Ph.D. student, American Physiological Society/NIDDK Minority Travel Fellowship Award, 2007.
- Erica Dale, Ph.D. student, Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2007.
- Michael Hoffman, M.D./Ph.D. student, American Physiological Society Minority Travel Award, 2007.
- Julia Wilkerson, Ph.D., American Physiological Society/NIDDK Minority Travel Fellowship Award, 2007.
- Michael Hoffman, M.D./Ph.D. student, American Physiological Society/NIDDK Minority Travel Fellowship Award, 2008.
- James Windelborn, PhD., Postdoctoral Poster Award Finalist, Experimental Biology Meeting, American Association of Anatomists, 2008.
- Courtney Guenther, Ph.D. student, Respiration Section Research Recognition Award,

Experimental Biology Meeting, American Physiological Society, 2008.

- James Windelborn, Ph.D., American Association of Anatomists Postdoctoral Poster Presentation Award, 2009.
- Courtney H. Guenther, Ph.D. student, Graduate Student Poster Award, Experimental Biology Meeting, American Association of Anatomists, 2010.
- Peter M. MacFarlane, Ph.D., Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2010.
- Stephane Vinit, Ph.D., Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2010.
- Nicole L. Nichols, Ph.D., Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2010.
- James Windelborn, Ph.D., Respiration Section Research Recognition Award, Experimental Biology Meeting, American Physiological Society, 2010.
- Nicole Nichols, Ph.D., CNS Section Research Recognition Award, Experimental Biology Meeting, American Physiological Society, 2011.
- Nicole Nichols, Ph.D., APS Physiologists in Industry Committee Postdoctoral Novel Disease Model Award, 2011.
- Michael Devinney, M.D./Ph.D. student, Graduate Student Award: Cellular and Network Functions in the Spinal Cord 2012, Madison, Wisconsin.
- Michael Devinney, Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2012.
- Nicole Nichols, Ph.D., Respiration Section Research Recognition Award, American Physiological Society, San Diego, CA. 2012.
- Nicole Nichols, Ph.D., Travel award, 5th SFN Satellite Symposium on Motor Systems, Bethesda, MD, 2012.
- Timothy Peterson, APS Undergraduate Summer Research Fellow, 2012.
- Brendan Dougherty, P.T., Ph.D., travel award to the 15th International Symposium on Neural Regeneration, Asilomar, CA, December 2013.
- Latoya Allen, Ph.D. student, APS minority travel award to attend Experimental Biology Meeting in San Diego, CA, April, 2014.
- Ibis Agosto, Respiration Section Research Recognition Award, American Physiological Society, San Diego, CA. 2014.
- Daryl P. Fields, Caroline Tum Suden/Francis B. Hellenbrandt Professional Opportunity Award; American Physiological Society, 2016.
- Latoya Allen, Ph.D. student, APS minority travel award to attend Experimental Biology Meeting in Chicago, IL, April, 2017.
- Juan Santiago-Moreno, MS student, APS minority travel award to attend Experimental Biology Meeting in Chicago, IL, April, 2017.
- Raphael Perim, Postdoctoral Fellow, Respiration Section Research Recognition Award, April, 2017.
- Raphael Perim, Postdoctoral Fellow, McKnight Brain Institute Travel Award, 2017
- Six former post-doctoral trainees awarded the Giles Filley Award for Excellence in

Respiratory Research; American Physiological Society (S. Johnson, 1999; D. Fuller, 2005; R. Bavis, 2006; F. Golder, 2007; T. Baker-Herman, 2012; N. Nichols, 2015).

Other Graduate Committees:

- Douglas Miller, PhD Program, IDP Neuroscience, UF, Supervisor H. Koshbouei
- Michael Sunshine, PhD Program, Rehabilitation Sciences, UF, Supervisor D. Fuller.
- Shakeel Ahmed, PhD Program, Rehabilitation Sciences, UF, Supervisor D. Martin.
- Tommy Sutor, PhD Program, Rehabilitation Sciences, UF, Supervisor E. Fox.
- Caitlin Banks, Ph.D. Program, Rehabilitation Sciences, UF, Supervisor C. Patten.
- Lauren Tabor, PhD Program, Rehabilitation Sciences, UF, Supervisor E. Plowman.
- Brendan Doyle, PhD Program, Rehabilitation Sciences, UF, Supervisor D. Fuller.
- Qian Ding, Ph.D. Program, Rehabilitation Sciences, UF, Supervisor C. Patten.
- Elizabeth Kiernen, Ph.D. Program (Neuroscience Training Program, Supervisor J. Watters; withdrew due to departure from UW).
- Kendra Braegelman, Ph.D. Program (Comp. Biomedical Sci., supervisor: T. Baker-Herman; withdrew due to departure from UW).
- Kate Sprecher, Ph.D. Program, Neuroscience Training Program, Supervisor R. Benca (withdrew due to departure from UW).
- Gary C. Mouradian, completed Ph.D. program in 2014; Physiology, Medical College of Wisconsin, Milwaukee, WI (Supervisor: M. Hodges).
- Nathan Baertsch, completed Ph.D. program in 2014 (Comp. Biomedical Sci., supervisor: T. Baker-Herman).
- Stephanie Smith, completed Ph.D. program in 2014 (Comp. Biomedical Sci., supervisor: J. Watters).
- Justin Miller, completed Ph.D. program in 2013; Physiology, Medical College of Wisconsin, Milwaukee, WI (supervisor: H.V. Forster).
- Elisa Gonzalez-Rothi, completed PhD program in 2013, in Physical Therapy, University of Florida, Gainesville, FL (supervisor: D.D. Fuller).
- Kristi Strey/Streeter, completed Ph.D. in 2013 (Comp. Biomedical Sci.; supervisor: T. Baker-Herman).
- Sara M.F. Turner, completed Ph.D. in 2013 (Comp. Biomedical Sci.; supervisor: S. Johnson).
- Tao (Dan) Xing, Ph.D. External Examiner, completed 2010. McQuarry University, Sidney, Australia (supervisor: P. Pilowsky).
- Wyatt Potter, Ph.D. completed 2012 (Neuro. Training Program, supervisor: A. Roopra).
- Maria Nikodemova, MPH program completed (Department of Public Health, 2011, supervisor: P. Peppard).
- Robert Krencik, Ph.D. completed (Neuro. Training Prog., 2010, supervisor: S.C. Zhang)
- Keith Hengen, Ph.D. completed (Neuro. Training Program, 2010, supervisor: M. Behan)
- Scott Friedle, Ph.D. completed (Cell/Molecular Bio., 2010, supervisor: J. Watters)
- Noah Marcus, Ph.D. completed (Kinesiology, 2009, supervisor: B. Morgan)
- Richard Chen, Ph.D. completed (Neuro. Training Prog., 2009, supervisor: D. Sun)

- S. Klein, Ph.D. completed (Physiology Program, 2008, supervisor: C. Svendsen)
- C. Hai, Ph.D. completed (Neuro. Training Program, 2007, supervisor: D. Sun)
- J. Teng; Ph.D. completed (Comp. Biomedical Sci., 2007, supervisor: D. Bjorling)
- A. Nelson, Ph.D. completed (NTP, 2006, supervisor: C. Svendsen)
- E. Hanlon, Ph.D. completed (NTP, 2005, supervisor: R. Benca)
- E. Bua; Ph.D. completed, (Comp. Biomedical Sci., 2004, supervisor: J. Aiken)
- R. Prichard; Ph.D. completed (NTP, 2004; supervisors: M. Behan and R. Benca)
- C. Mantilla; M.D./Ph.D. completed, Mayo Clinic, Rochester, MN (Physiology, 2003, supervisor: G. Sieck).
- J. Rhodes; Ph.D. completed (Zoology; 2002, supervisor: T. Garland).
- A. Serra, Ph.D. completed, Medical College of Wisconsin (Physiology, 2001, supervisor: H.V. Forster).
- A. Alexander, D.V.M.; Ph.D. completed (Vet. Sci., 2000; supervisor: H. Carey).
- D. Johnson, Ph.D. completed (NTP, 1999; supervisor: M. Behan and L. Haberly).
- T. Lowery, Ph.D. completed; Medical College Wisconsin (Physiology, 1998, supervisor: H.V. Forster).
- A. Elliott-Zaiser, Ph.D. completed (Env. Tox., 1997; supervisor: V. Miletic).
- P. Janssen, M.S.; Ph.D. completed (Vet. Science, 1997; supervisor: G. Bisgard).
- K. Lunn, D.V.M.; Ph.D. completed (NTP, 1996; supervisor: I. Duncan).
- M. Ryan Dwinel; Ph.D. completed (Vet. Sci., 1996; supervisor: G. Bisgard).
- T. Curro, D.V.M.; M.S. completed (Vet. Sci., 1994; supervisor: D. Brunson).
- C. Saupe, M.S.; Ph.D. completed (Physiology, 1994; supervisor: J. Dempsey).
- K. Morris; Ph.D. completed, Dept. of Physiology, Univ. South Florida (External Examiner, 1993; supervisor: B. Lindsey).
- B. Johnson; Ph.D. completed (Kinesiology, 1991; supervisor: J. Dempsey).
- L. Daristotle, D.V.M.; M.S. and Ph.D. (Vet. Sci., 1990; supervisor: G. Bisgard).
- J. Nelson; Ph.D. completed (Zoology, 1987; supervisor: J. Magnusson).
- K. Hinchcliff, D.V.M.; M.S. completed (Vet. Sci., 1986; supervisor: S. McGuirk).
- R. Sorkness; Ph.D. completed (Physiology, 1986; supervisor E. Vidruk).

K Award Mentoring

- Rebecca A. Johnson, D.V.M./Ph.D., Clinical Assistant Professor, Department of Surgical Sciences, 7/2010 to 6/2013.
- Michael Wilhelm, M.D., Assistant Professor, Department of Pediatrics, School of Medicine and Public Health, 7/2012 to 11/2014.
- Pelin Cingez, M.D., Clinical Assistant Professor, Department of Pediatrics, School of Medicine and Public Health, 1/2013 to 11/2014.
- Randy Trumbower, P.T., PhD, Assistant Professor, Department of Rehabilitation Medicine, Emory University, ~2010 to 2015.
- Nicole, Nichols, Ph.D., Postdoctoral Fellow/Research Associate, Department of Comparative Biosciences, University of Wisconsin, K99/R00 award, 2/2014 to 2/2015.
- Elisa Gonzalez-Rothi (URM), DPT/Ph.D., Research Assistant Professor, K12 mentor in

Rehabilitation Sciences, 9/1/2015 to present.

Other Mentoring

- Faculty mentoring of junior faculty in the UF School of Public Health and Health Professions, Departments of Physical Therapy (D. Rose, B. Smith, D. Lott, S. Forbes, E. Fox, J. Beneciuk, E. Gonzalez Rothi, H. Ross and M. Alappattu), Occupational Therapy (C. Kreider), Speech Language and Hearing Sciences (E. Plowman, K. Hegland) and the College of Veterinary Medicine (D. Baekey).
- Faculty mentor committees at UW:
 - *School of Veterinary Medicine*: Depts. of Comparative Biosciences, Surgical Sciences, Medical Sciences, Animal Health and Biomedical Sciences. Mentoring committees of: V. Miletic, H. Carey, R. Broadstone, B. Derion, L. Smith, R. Stepien, D. Brunson, L. Trepanier, F. Adamo, N. Perna, J. Bach and R. Johnson.
 - *School of Medicine and Public Health*: Departments of Neurology, Neuroscience, Neurosurgery, and Pediatrics. Mentoring committees of: R. Vemuganti (Neurological Surgery), A. Roopra (Neurology/Neuroscience), M. Wilhelm (Pediatrics), P. Cingez (Pediatrics), C. Burger (Neurology).

ADMINISTRATIVE AND ACADEMIC SERVICE

University Service:

- McKnight Brain Institute Executive Committee (2016-present)
- Chair, McKnight Brain Institute Seminar Committee (2017-present)
- PHHP Research Committee (2016-present)
- Center Director, Center for Respiratory Research and Rehabilitation, University of Florida. New Center created July, 2015; kickoff event in August, 2015.
- Search Committee, UF Department of Neurology, Neurology of Neuromuscular Diseases, 2015 to present.
- Chairman, Department of Comparative Biosciences (July 1, 1997 to June 15, 2014). Hired 12 tenure track faculty members.
- Administrative Advisory Council, School of Veterinary Medicine (1997 to 2014).
- Chairman of Space Committee, School of Veterinary Medicine (1992-97). Member (1985-86; 1987-88; 1990-91; 1997). Space task force, proposal to State of Wisconsin.
- Graduate Faculty Executive Committee, University of Wisconsin (Elected terms: 1997-2001; 2003-2007).
- Graduate School Academic Planning Council (2000-01, 2006-07).
- Neuroscience Planning and Search Committee; appointment by the Council of Bio-Deans to: 1) create strategic plan for Center for Neuroscience; and 2) conduct search for new Center Director (1997-2001). Committee on future of Center for Neuroscience (2012).
- Academic Planning Council (Dean's faculty advisory committee) (1993-96).
- Scientific Advisory Committee, Lilly's Fund for Epilepsy Research, 2010-2012.

- Founding Chair of Admissions Committee, School of Veterinary Medicine (1982-84). *Post hoc* statistical analysis of the admissions process for the School of Veterinary Medicine (special request of the Committee, 1988, 1994, 1996, 2000, 2002). Admissions Advisory Committee (1981-82).
- Faculty search committees: Biochemistry (1982), director of Physical Therapy Program (1993), Veterinary Anesthesiology (1996-7), Microbial Genomics (2001-02), Director of Center for Neuroscience (2000-2001), Cluster Hires on Zebra Fish Biology (1999-2000) and Brain Plasticity (2001-02), Chair of new Department of Neuroscience (2011), Endowed Chair in Veterinary Oncology (2011).
- Committee on Teaching Assistant Policies and Procedures (1984-85).
- Information and Technology Advisory Committee, (1984-85; chairman, 1985-88).
- Student/Faculty Liaison Committee, School of Vet. Medicine (1984-85; 1987-88).
- Chairman of Department committees:
 - To investigate feasibility of initiating a graduate degree program (1987).
 - To establish policies for equitable distribution of departmental teaching and research assistantships (1987-88).
 - Salary committee (1988, 97-present).
 - To conduct departmental self-evaluation (1990).
 - To implement School of Veterinary Medicine Research Day (1991-93).
 - To reassign departmental teaching support staff (1992).
- Educational Policy Committee (1991-1992).
- Task Force on Learning and Education. Task force to investigate teaching strategies that utilize active student learning (*eg.* Problem Based Learning) (1993-95). Semester coordinator to implement integrative teaching strategies (1994).
- Promotions and Tenure Committee (2002 – present; chair 2004 to 2007).
- Center for Neuroscience and Neuroscience Training Program, UW Madison:
 - Member of Training Committee
 - Seminar Topics Committee (1992-1995).
 - Admissions Committee (1993-1995).
 - First Year Committee (chairman, 1995; Member, 1996-98, 2005 to present)
 - Steering Committee of Neuroscience Training Program (2004 to 2008)
 - Executive Committee, Center for Neuroscience (1996-2012).
 - Steering Committee, Center for Neuroscience (2006 to 2012).
- Advisory Committee, Center for Womens' Health, UW Madison (2005 to present).
- External Review Committees for the College of Letters and Sciences (Zoology), University of Wisconsin System (Chair, Population Health Graduate Program) and Medical School (Physiology Graduate Training Program).
- Review Committee, Dean of the Graduate School (2007-08).
- Chair of Clinical Practice Committee (2000-2001). Charge to review and revise school policies concerning clinical consulting by faculty.
- Futures Committee, Department of Animal Health and Biomedical Sciences, University of Wisconsin (2000-2001).
- Veterinary Medical Teaching Hospital Advisory Board (1997-present). *Ad hoc*

Committee on Clinical Programs, School of Veterinary Medicine.

- Long Range Planning Committee, School of Veterinary Medicine (2001). *Ad hoc* committee to develop School vision statement. (2001). Research Resources Committee (2001). Assist fundraising efforts by making presentations. Strategic Planning Committee, School of Veterinary Medicine, 2006.
- Ad hoc committee for post-budget reduction planning (2002-2003). Associated committee to evaluate School policies regarding salaries on grants.
- Search Committee: Associate Vice Chancellor, University of Wisconsin (2004) and Associate Dean for Biological Sciences (2005).
- Search Committee, Chair, Department of Neuroscience, University of Wisconsin (2012-2014).
- Teaching evaluations for clinical/basic science faculty: P. Lunn, A. Kiorpes, P. Miller, S. West, J. Macanulty, R. Pinckney.

National/International Service:

- Journal editorial service
 - Editor, Control of Breathing sections, *Comprehensive Physiology*, American Physiological Society.
 - Editorial Boards of *Respiratory Physiology and Neurobiology*, *Journal of Applied Physiology*, *Journal of Neurophysiology* and *Current Respiratory Medicine Reviews*.
 - Guest editor, special editions of professional journals:
 - *Respiration Physiology and Neurobiology*"
 - a. "Neural Control of breathing: Molecular to Organismal Perspectives;" Vol. 110, November, 1997
 - b. "Mechanisms and variables determining the cardiopulmonary responses to hypoxia;" Vol. 121, July, 2000).
 - c. "Lessons from comparative respiratory physiology," 2004 and 2006 (2 editions).
 - d. "CNS neurochemicals in the neural control of breathing".
- Guest editor of *Highlighted Topics* series on Respiratory Plasticity, *Journal of Applied Physiology* (2002).
- Guest editor, Special Issue on Respiratory Plasticity, *Experimental Neurology* (2016).

Ad hoc reviewer for professional journals including:

American Journal of Physiology

American Journal of Veterinary Research

American Review of Pulmonary and Critical Care Medicine

Brain Research

Comparative Biochemistry and Physiology

Comprehensive Physiology

Croatian Medical Journal

European Journal of Neuroscience
Experimental Neurology
Journal of Applied Physiology
Journal of Comparative Physiology
Journal of Experimental Biology
Journal of Neuroscience
Journal of Neurophysiology
Journal of Physiology (London)
Life Sciences
Nature
Nature Neuroscience
Neuroscience
Physiological Genomics
P.N.A.S.
Pflügers Archiv
Respiratory Physiology and Neurobiology
Science
Others

- Reviewer for grant agencies including:
 - NIH Respiratory Integrative Biology and Translational Research (RIBT) study section member: 10/2012 to 6/2018 (6 year term).
 - NIH Respiratory and Applied Physiology study section member: 7/95 to 6/99.
 - NIH *Ad hoc* study sections: 2/92, 3/92, 3/93, 2/94; 3/2000; 5/02; 11/02; 2/03 (chair); 3/03 (chair); 7/03 (chair); 2/05 (chair); 6/06; 6/07; Program project grant site visitor: 10/93, 5/94; multiple others).
 - Reviews for NIH Pioneer Awards (3 occasions).
 - NIH Systems Biology Special Emphasis Panel, NHLBI, 2006-08.
 - Francis Family Foundation, Scientific Advisory Board; 1/01 to 1/05.
 - Spinal Cord Injury Research Program, State of New York; 6/05.
 - National Science Foundation
 - American Heart Association
 - C.I.H.R., Canada
 - N.S.E.R.C., Canada
 - Alberta Heritage Foundation (Canada)
 - Veterans Administration
 - B.A.R.D. (Binational U.S./Israel research support)
 - Auckland Medical Research Foundation
 - Health Research Council of New Zealand
 - Health Research Board of Ireland
 - Neurological Foundation, New Zealand
 - Kansas Biomedical Research Infrastructure Network
 - Other

- Service to Professional Scientific Organizations:
 - American Physiological Society
 - Councilor (2008-2011).
 - Editor of *Comprehensive Physiology*, Control of Breathing.
 - Organizer of multiple symposia and featured topics at EB meeting.
 - Organizer, International Conference of the American Physiological Society on "Neural control of breathing: molecular to organismal perspectives." (Madison, WI, 1996).
 - Nominations Committee, Comparative Section (1992).
 - Treasurer of Comparative Section (1993-99)
 - Programming Committee, Comparative Section (1993-99).
 - *Ad hoc* committee to program respiratory control abstracts at the EB Meeting (1997-2000).
 - Programming committee, Respiration Section (1998-2001; 2005-present).
 - FASEB Summer Research Conferences Advisory Committee (2011-2014)
 - Society for Neuroscience
 - Programming Committee (2002-05). Chair of Theme D Subcommittee (Homeostatic and Neuroendocrine Systems, 2004-05).
- Other service:
 - Scientific Advisory Committees (NIH): Special Neuroscience Emphasis Research Program (SNERP) advisory board, University of Texas at San Antonio; Center of Biomedical Research Excellence (COBRE) advisory board, University of South Dakota. Additional efforts with SNERP program at Howard University.
 - NIH Study Section Boundary Team. Pulmonary Sciences Integrated Review Group (10/02). Team leader for proposed Respiratory Integrative Biology and Translational Research (RIBT) study section.
 - NHLBI/NIH workshops on "Development of the upper airway" (March 5-6, 2009) and "Division of Lung Diseases Specialized Centers of Clinically Oriented Research (SCCOR) programs" (September 9-10, 2009). Pending workshop on Contributions of Sleep Disturbances to Chronic Pain (May, 2014).

RESEARCH AWARDS, GRANT SUPPORT AND CONTRACTS

Currently Active Extramural Research Awards:

1. N.I.H. (P.I. G.S. Mitchell, 18% effort; Co-P.I. J.J. Watters). "Intermittent Hypoxia-Induced Inflammation Modulates Respiratory Plasticity." 1/15/12 to 12/31/17. Annual direct costs: \$345,115 (total costs: \$2,686,679). (R01 HL111598; priority score on first submission: 1.0; sub-award to University of Florida).
2. N.I.H. R01 Research Grant (P.I., 20% effort). "Respiratory plasticity and spinal cord injury;" 2/2014 to 2/2018; annual direct costs: ~\$267,000. (MERIT Award renewal, R37 HL69064; 4 percentile score; transferred to University of Florida).
3. DoD SCIRP (PI Mitchell, 8% effort; co-I G. Muir). "Recovery of Breathing and Forelimb Function after Prolonged Exposure to Repetitive Acute Intermittent Hypoxia." 8/2015 to

- 7/2019; \$200,000 annual direct costs (SC130298).
4. NIH R01 Research Grant (Co-I, 3% effort; PI R. Trumbower, Emory University). "Mechanisms of intermittent hypoxia-induced motor recovery in persons with chronic SCI." 9/2014 to 8/2019.
 5. NIH (Co-I, 3% effort; PI M. Suzuki, U. Wisconsin). "Muscle stem cells: new ALS therapy and disease model." 1/2015 to 12/2020; R01 NS091540.
 6. SPARC OT2OD023854 NIH Directors Commons Fund (Project PI, Mitchell; Program PI Bolser). "Functional mapping of peripheral and central circuits for airway protection and breathing." 9/2016 to 8/2019 (annual contracts). \$2,654,317 total annual (~\$360,157 direct to Mitchell laboratory).
 7. NHLBI Institutional Training Grant (Director GS Mitchell). "Breathing Research and Therapeutics." 4/2017 to 4/22, \$2,082,823 (T32 HL134621-01).
 8. Craig H. Nielsen Foundation, SCIRTS Pilot Research Grant (Co-PI Mitchell; PI Gonzalez-Rothi). "Combinatorial Therapies to Treat Breathing Impairments After Cervical SCI." 5/2017-4/2020 \$164,826 total project.
 9. Department of Defense CDMRP SCIRP (Co-PI Mitchell; PI Gonzalez-Rothi). "Chronic Intermittent Hypoxia-Induced Neuroinflammation Undermine Respiratory Motor Plasticity after Chronic Incomplete Cervical Spinal Cord Injury." 7/01/17-6/30/19. \$450,000 total directs (W81XWH-16-SCIRP-IIRA).

Currently Active Training Grants and Fellowships:

1. NIH F30 to Daryl P. Fields, MD/PhD student. "Repetitive acute intermittent hypoxia elicits respiratory metaplasticity." 7/2015 to 6/2018 (HL126351). Total funds: \$221,622.

Pending Grant Applications: None

Completed Extramural Research Awards:

1. N.A.T.O. Postdoctoral Fellowship in Science (1978, declined).
2. Postdoctoral Fellowship from National Institutes of Health (1980-1981; 3 year award).
3. American Lung Association (Principal Investigator): "Mechanoreceptor-chemoreceptor interactions in modulating respiratory activity." 7/82 to 7/84; \$29,668.
4. N.I.H. (Principal Investigator): "Sensory interactions in respiratory control." 1/83 to 12/85, direct costs: \$131,021 (total costs: \$188,670); (RO1-HL29607).
5. Natural Sciences and Engineering Research Council of Canada. "Effects of temperature and maintained lung inflation on pulmonary receptor discharge." International Scientific Exchange Award to work in the laboratory of Dr. W.K. Milsom, Dept. of Zoology, University of British Columbia; 1985; \$1,800.
6. N.I.H. Research Career Development Award; "Interactions in respiratory control." 7/85 to 6/90; direct costs \$248,086 (total: \$267,933); (HL01494).
7. Morris Foundation. (Co-investigator). "Inhalation anesthesia of avian species: minimum effective dose of halothane in birds." 7/85 to 6/86; \$6,800.
8. N.I.H. (Principal investigator). "Interactions in ventilatory control during exercise." 7/87 to 6/91; direct costs: \$348,552; (RO1-HL36780).
9. N.I.H. (Co-investigator). "Neurotransmitters and ventilatory control in awake rats." 7/88

- to 6/91; direct costs: \$322,000; (RO1-HL31430).
10. N.I.H. (Principal investigator). "Interactions in ventilatory control during exercise." 7/91 to 6/95; direct costs: \$348,962 (total: \$499,016); (RO1-HL36780; funded on first submission).
 11. N.I.H. (Principal Investigator). "Developmental plasticity in ventilatory control." 12/94 to 11/97; direct costs: \$389,879 (total: \$557,527); (RO1-HL53319; funded on first submission; 5th percentile).
 12. NIH (Principal Investigator). "Interactions in ventilatory control during exercise." 7/95 to 6/2000; direct costs: \$546,911 (total: \$782,083); (RO1-HL36780; funded on first submission; 3rd percentile).
 13. N.I.H. (Principal Investigator). "Developmental plasticity in ventilatory control." 12/97 to 11/02; direct costs: \$812,256 (total: \$1,169,649); (RO1-HL53319; funded on first submission; 12th percentile).
 14. N.I.H. (P.I.: G.E. Bisgard; co-I. G.S. Mitchell). "Perinatal hyperoxia and adult arterial chemoreception." 1/01 to 12/05. Direct costs: \$1,250,000 (RO1-HL68255).
 15. Christopher Reeves Paralysis Foundation (P.I.: D. Fuller; co-I: G.S. Mitchell). "Plasticity in spinal respiratory pathways following treadmill exercise." \$75,000 per year (\$150,000 total), 7/03 to 7/2005.
 16. N.I.H. (Principal Investigator). "Plasticity in respiratory motor control." 7/2000 to 6/2005; annual direct costs: \$200,000; total direct costs: \$1,000,000 (total costs: \$1,440,000). (RO1-HL65383; funded on first submission with a 4th percentile).
 17. N.I.H. (P.I. M. Behan; co-I.: G.S. Mitchell). "Age, gender and respiratory control." 7/01 to 6/06; direct costs: \$175,000 per year (Total costs: \$1,260,000). (RO1-AG18760).
 18. A.L.S. Association (co-PI with C. Svendsen). "Combined delivery of growth factors and astrocytes as potential ALS treatment." 2/05 to 1/08; Annual direct costs: \$150,000 (total costs: \$450,000).
 19. N.I.H. (Principal Investigator). "Mechanisms of respiratory long-term facilitation." 7/05 to 6/09; annual direct costs: \$250,000 (approx. total costs: \$1,470,000). (RO1 HL80209; funded first submission).
 20. N.I.H. Program Project Grant (Director of Project 1 and Animal and Behavior Core: G.S. Mitchell): "Respiratory plasticity in the SOD1^{G93A} Rat;" Program Grant: "Stem cell and growth factor therapy for ALS." (PI: C. Svendsen). 9/07 to 4/2012; Annual direct costs, Project 1: \$215,000. Total annual costs: \$1,177,171 (P01 NS057778).
 21. N.I.H. (P.I. M. Behan; Co-I.: G.S. Mitchell). "Age, gender and respiratory control." 3/2007 to 5/2012. Annual direct costs: \$225,000 (approximate total costs: \$1,653,750). (RO1-AG18760).
 22. N.I.H. MERIT Award (Principal Investigator). "Respiratory plasticity and spinal cord injury." 12/01 to 12/12; annual direct costs: \$275,000 (approx. total costs: \$3,858,750). (R37 HL69064; funded on first submission with a 2nd percentile).
 23. Department of Defense (Principal Investigator). Translational Research Partnership Award: "Intermittent hypoxia elicits prolonged restoration of motor function in human SCI." Multi-center grant with components at the University of Wisconsin (G.S. Mitchell), University of Saskatchewan (G. Muir), Rehabilitation Institute of Chicago (W.Z. Rymer) and Emory University (R. Trumbower). 9/2010 to 10/2013. Annual direct costs:

- \$375,000 (~total costs: \$1,113,750). (SC090355P2).
24. N.I.H. (Principal Investigator, 20% effort). "Mechanisms of respiratory long-term facilitation." 1/10 to 12/14; annual direct costs: \$250,000 (approx. total costs: \$1,470,000). (R01 HL80209; competitive renewal, priority score: 1.0).
 25. NIH/NIDDK U24 DK76169-08 (Co-I, 5% effort; PI C.Vezina). DiaComp Pilot and Feasibility Study: "Intermittent Hypoxia and Urologic Complications of Diabetes." 10/2013 to 9/2014. \$65,001 total costs (UW Sub-award from University of Georgia).
 26. AKC Canine Health Foundation (PI). "Reversing Paresis and Paralysis after Intervertebral Disc Disease with Therapeutic Intermittent Hypoxia." \$11,903 (returned due to change of institutions).
 27. Craig H Neilsen Foundation (PI, 1% effort). Funds provided to support workshop on: "Therapeutic intermittent hypoxia and functional recovery of respiratory and non-respiratory motor function with chronic incomplete SCI: a road map to clinical translation." This workshop will be held July 27 to 29, 2016 in Jacksonville, FL. Total funding: \$37,000. Additional funding provided by Wings For Life Foundation (Austria) to support trainee participation in the workshop (€4000).
 28. DoD SCIRP (P.I. G. Mitchell, 10% effort; Co-P.I. T. Baker-Herman). "Respiratory Plasticity Following Spinal Injury: Role of Chloride-Dependent Inhibitory Neurotransmission." 9/2013 to 8/2016. Annual direct costs: \$225,000 (SC120226).

Completed Intramural Research Awards:

1. Postdoctoral Fellowship from the Max-Planck-Gesellschaft (1978-1980).
2. N.I.H. Biomedical Research Support Grant, University of Wisconsin (Principal Investigator): "Chemical control of ventilation: CO₂-temperature interactions in reptiles." 4/82 to 4/83; \$5,400.
3. University of Wisconsin Graduate School (Principal Investigator): "Interactions in respiratory control." 7/85 to 6/86; \$17,920.
4. School of Veterinary Medicine (Co-investigator; P.I.: J. Ludders). "Inhalation anesthesia in avian species: Minimal anesthetic dose of halothane in birds." 8/85 to 6/87; \$2,393.
5. University of Wisconsin Graduate School (Principal Investigator) "Interactions in ventilatory control." 7/86 to 6/87; \$15,800.
6. N.I.H. Biomedical Research Support Grant. (Co-investigator; P.I.: J. Ludders). "Effects of halothane on the chemical control of ventilation in birds." 7/87 to 6/88, \$6,465.
7. School of Veterinary Medicine Hilldale Award (Co-Investigator; award for collaboration between clinician and basic scientist). "Cardiorespiratory adjustments to exercise with acute pulmonary arterial obstruction: a model of pulmonary embolism." 7/95 to 6/96; \$10,000.
8. School of Veterinary Medicine, Veterinary Summer Research Fellowship (Sponsor, trainee: J. Gruenwald). 7/01 to 9/01.
9. UW Institute for Clinical and Translational Research (ICTR), "Phrenic Motor Neuron Derivation and Transplantation." \$50,000 (at UW).

Completed Contracts and Gifts:

1. Meridian Medical Corporation, Seattle, WA (Principal Investigator). "Accurate alcohol

breath testing." 7/88 to 6/89; Total costs \$23,150.

2. Anaquest (Madison, WI). (Co-investigator; P.I.: J. Ludders), Gift to support research. "Avian anesthesia: a comparison of the cardiovascular effects of halothane and isoflurane." 1987; \$5,000.

Completed Training Grants and Fellowships:

1. N.I.H. Training Grant (one of 5 trainers; director: J.A. Dempsey). "Pulmonary Physiology and Pathophysiology." 9/87 to 8/92; (T32-HL07654).
2. N.I.H. Training Grant (one of 5 trainers; director: J.A. Dempsey). "Pulmonary Physiology and Pathophysiology." 9/92 to 8/97; direct costs: \$545,910; (T32-HL07654).
3. N.I.H. National Research Service Award (Sponsor; postdoctoral fellow: L. Ling). "Developmental plasticity in the hypoxic ventilatory response." 7/94 to 6/97. Declined.
4. Medical Research Council of Canada (Sponsor; postdoctoral fellow: R. Kinkead). "Neuromodulation of respiratory motor output." 8/95 to 12/98.
5. Parker B. Francis Foundation (Sponsor; postdoctoral fellow: S. Johnson). "Cellular mechanisms of opioid-induced respiratory depression." 7/95 to 6/98; Direct costs: \$108,000.
6. N.I.H. Conference Grant (Chair of the Organizing Committee; P.I.: Martin Frank, Executive Director, American Physiological Society). "Conference on the Neural Control of Breathing." Direct costs: \$22,000, 7/96 (HL 56682).
7. Wellcome Trust, Research Travel Grant (Sponsor; Visiting Scientist: D. Turner); 7/96 to 9/96; Direct costs: \$4656.
8. N.I.H. Training Grant (one of 5 trainers; director: J.A. Dempsey). "Pulmonary Physiology and Pathophysiology." 9/97 to 8/02; (T32-HL07654).
9. N.I.H. National Research Service Award (Sponsor; postdoctoral fellow: D. Henderson). "Spinal modulation of the exercise ventilatory response." 12/97 to 11/2000.
10. N.I.H. K08 (Sponsor; Mentored Clinician Scientist Award; post-doctoral graduate student: R. Johnson). "Dopamine and plasticity in respiratory control." 8/98 to 7/03; Direct costs: \$347,250 (Total costs: \$375,030).
11. Parker B. Francis Fellowship in Pulmonary Research (Sponsor; postdoctoral fellow: D. Fuller). "Spinal cord injury and plasticity in respiratory motor control." 3/01 to 6/04; Direct costs: \$120,000.
12. N.I.H. National Research Service Award (Sponsor; postdoctoral fellow: D. Fuller). "Spinal cord injury and plasticity in respiratory motor control." 7/01 to 6/04. (HL67648; 0.2 percentile; Declined).
13. N.I.H. National Research Service Award (Sponsor; postdoctoral fellow: R. Bavis). "Evoked recovery of impaired respiratory control." \$44,212, 6/02 to 6/03 (HL70506; funded on first submission).
14. Christopher Reeves Paralysis Foundation Postdoctoral Fellowship (Trainee: F. Golder; Sponsor: G.S. Mitchell). "Respiratory functional recovery after cervical spinal cord injury: strengthening existing synaptic pathways." 7/03 to 7/2005. Annual direct costs: \$75,000 (Total: \$150,000).
15. Parker B. Francis Fellowship in Pulmonary Research (Sponsor; postdoctoral fellow: T.L. Baker-Herman). "Roles of BDNF and ERK in phrenic long-term facilitation following

- intermittent hypoxia.” 3/04 to 7/06; Total direct costs: \$126,000.
16. NRSA (mentor committee; Trainee: S. Reeves, M.D./Ph.D. Student; Supervisor: D. Gozal, University of Louisville). “Postnatal intermittent hypoxia and respiration.”
 17. N.I.H. Institutional Training Grant (Director: G.S. Mitchell). “Respiratory Neurobiology.” (T32 HL07654). 4 pre-doctoral and 4 post-doctoral stipends; total costs: \$2,389,084 (\$464,125 direct per year); 2002-2007.
 18. CIHR Postdoctoral Fellowship, Canada (Sponsor for postdoctoral fellow: S. Mahamed). “Does simulated apnea elicit respiratory long-term facilitation?” 7/05 to 6/08.
 19. Ruth Kirschstein National Research Service Award (Sponsor of MD/PhD student M.S. Hoffman). “Enhancement of phrenic long-term facilitation following intermittent hypoxia.” (F31HL092785-01); 4 years awarded to fund Ph.D. thesis research followed by M.D. clinical years.
 20. Francis Families Foundation, Parker B. Francis Fellowship (Sponsor of postdoctoral fellow: P. MacFarlane). “Serotonergic modulation of spinal NADPH Oxidase is necessary and sufficient for intermittent hypoxia-induced phrenic long-term facilitation.” 7/08 to 6/11. Annual direct costs: \$50,000.
 21. Craig H. Neilsen Foundation (Sponsor of postdoctoral fellow: S. Vinit). “Intermittent hypoxia elicits respiratory recovery after spinal cord injury.” 7/09 to 6/11. Annual direct costs: \$60,000.
 22. American Physiological Society Summer Research Fellowship to Timothy Peterson, 2012. ~\$5000.
 22. NIH Institutional Training Grant (Director: G.S. Mitchell). “Respiratory Neurobiology.” (T32 HL07654-21). 4 predoctoral and 4 postdoctoral stipends plus institutional allowances; total costs: \$2,308,162 (\$421,750 direct per year); 2007-2013.
 23. Merck-Mariel Summer Fellowships to support research by DVM students S. Springborn and L. Bauernschmidt. ~\$4000 per student.
 24. Francis Families Foundation, Parker B. Francis Fellowship (Sponsor of postdoctoral fellow: N. Nichols). "Novel strategies to improve respiratory function in a rat model of ALS." 7/2011 to 6/2014. Annual direct costs: \$52,000.
 25. NIH NHLBI Research Supplement to Promote Diversity in Health-Related Research (Sponsor of MD/PhD candidate D. Fields). "Cross-talk inhibition in phrenic motor facilitation: role of NADPH oxidase." 1/13 to 12/13. Total award: \$61,172.
 26. Fullbright Scholarship to M.D. graduate student A. Navarette Opazo. 6/2000 to 6/2014.
 27. Parker B. Francis Postdoctoral Fellowship (Sponsor of postdoctoral trainee: A. Huxtable). "Inflammation impairs respiratory plasticity." 7/2013 to 6/2016. Annual direct costs: \$52,000. Transferred to University of Oregon, 12/14.
 28. NIH Pathway to Independence Award (K99/R00; Sponsor of postdoctoral trainee: N. Nichols). "Enhanced respiratory plasticity in models of respiratory motor neuron death." February 1, 2014 to January 31, 2019. Total costs: \$957,904.
 29. Craig H. Neilsen Foundation (Sponsor of postdoctoral fellow: B. Dougherty). “Mechanisms of intermittent hypoxia induced recovery following cervical SCI.” 7/13 to 6/15. Annual direct costs: \$60,000.
 30. NIH NHLBI Research Supplement to Promote Diversity in Health-Related Research (Sponsor of PhD candidate I. Agosto). "Intermittent Hypoxia-Induced Inflammation

Modulates Respiratory Plasticity." 7/13 to 6/16. Total direct costs: \$156,374.

Completed Grant Awards Sponsored within Laboratory:

1. N.I.H. (assistant scientist: S. Johnson). "Plasticity of spinal respiratory synaptic transmission." 4/98 to 3/02; direct costs: \$280,000 (Total costs: \$400,400) (funded on first submission, 16 percentile; RO1- HL60028).
2. N.I.H. (assistant scientist: L. Ling). "Intermittent hypoxia induces ventilatory plasticity." 7/98 to 6/03; direct costs: \$350,000 (Total costs: \$500,500) (funded on first submission, 4.7 percentile). Transferred to Harvard University, 1/99.
3. Re-entry supplement awarded to fund Tracy Baker-Herman (supplement to MERIT Award R37 HL69064); "Respiratory plasticity following spinal cord injury." 7/08 to 6/11; annual direct costs: \$92,636 (approx. total costs: \$422,331).
4. NIH Pathway to Independence Award (K99/R00; Sponsor of postdoctoral trainee: N. Nichols). "Enhanced respiratory plasticity in models of respiratory motor neuron death." February 1, 2014 to January 31, 2019. Total costs: \$957,904.

Consultant for Research Grants:

1. N.I.H. NS24742 (P.I.: J.L. Feldman, UCLA). "Transmission of respiratory drive to phrenic motoneurons;" 4/94 to 3/99.
2. N.I.H. (P.I.: C.A. Smith, Dept. of Preventive Medicine). "Chemo- and baroreceptors' role in apnea and hyperpnea;" 7/95 to 6/2000.
3. N.I.H. HL25739 (P.I.: H.V. Forster, Medical College of Wisconsin). "Control of breathing during physiologic conditions." 7/01 to 6/06.
4. N.I.H. HL25739 (P.I.: H.V. Forster, Medical College of Wisconsin). "Control of breathing during physiologic conditions." 7/06 to 6/11. (Renewal pending).
5. N.I.H. R01 NS24742 (PI: Dr. J. Feldman, UCLA). "Functional plasticity in hypoglossal motoneurons;" 7/05 to 6/09.
6. N.I.H. R01 NS049033 (PI: Dr. J. Watters). "Microglia, adenine nucleotides and hypoxia;" 7/05 to 6/10.
7. N.I.H. R01 HL105511 (PI: Dr. T. Baker-Herman). "Mechanisms of inactivity-induced respiratory plasticity" 1/11 to 12/16.
8. Wings for Life (PI: R. Trumbower, Emory University). "Repetitive exposure of intermittent hypoxia to enhance walking recovery in persons with chronic spinal cord injury." 2014 to 2016.
9. DOD Joint Warfighter Medical Research Program (PI: R. Trumbower, Emory University). "Intermittent Hypoxia-Induced Recovery of Overground Walking in Persons with Subacute SCI." 2015 to 2019; requested direct costs: \$436,341 in year 1.

INVITED RESEARCH PRESENTATIONS SINCE 1999

(Job interviews and "in-house" seminars not listed)

46. Department of Pharmacology, University of Texas, San Antonio. Seminar: "Serotonin, plasticity and respiratory motor control." Host: S. Mifflin. February 24, 1999.
47. Department of Anesthesiology, Medical College of Wisconsin. Seminars on: "Developmental plasticity in ventilatory control" and "Serotonin, plasticity and

- respiratory motor control." Host: E. Zuperku. March 21-22, 1999.
48. 32nd Winter Conference on Brain Research, Snowmass, CO, session on: "Heavy breathing in Snowmass: Serotonin and the respiratory response to altitude." Organizer: G. Richerson. January 26, 1999.
 49. Experimental Biology Meeting, Washington D.C. session entitled "Time domains of the hypoxic ventilatory response: adaptive mechanisms in short- and long-term responses." Organizer: T. Dick. April 18, 1999.
 50. Association of Professional Sleep Societies, Orlando, FL. Plenary talk entitled: "Plasticity in respiratory motor control: serotonin-dependent mechanisms elicited by intermittent hypoxia." June 23, 1999.
 51. Department of Physiology and Biophysics, SUNY Buffalo. "Serotonin-induced plasticity in respiratory motor control." Host: J. Krasney. October 11, 1999.
 52. Respiratory Neurobiology and Sleep Center, University of Pennsylvania "Serotonin-dependent plasticity in respiratory motor control" Host: A. Pack, March 3, 2000.
 53. Experimental Biology Meeting, San Diego, CA, "Serotonin-dependent plasticity in respiratory control" in symposium entitled: "Plasticity and redundancy in ventilatory control." Organizers D. Gozal and H.V. Forster. April 16, 2000.
 54. International Symposium on "Central Chemosensitivity 2000," Bochum, Germany. Continuous versus intermittent chemoreceptor stimulation: differential roles in respiratory plasticity." Organizer: P. Scheid. August, 2000.
 55. Department of Biology, Georgia State University, "Continuous versus intermittent chemoreceptor stimulation: differential roles in respiratory plasticity." Host: C. Jiang, September 19, 2000.
 56. Department of Biology, Section of Neuroscience, University of Texas at San Antonio, "Serotonin-dependent plasticity in respiratory motor control," Host: M. Gdovin, October 19, 2000.
 57. Autonomic Mixer, Society for Neuroscience Meeting, New Orleans, LA, November, 2000. Data presentation on "Serotonin Dependent Plasticity in Respiratory Control." Organizer: G. Nattie.
 58. Spring Brain Conference, session on: "Chemosensation and Breathing," Sedona, Arizona, March, 2001 ("Serotonin-dependent plasticity in respiratory control"); Organizers J. Feldman and R. Fregosi.
 59. Physiological Society, session on "Development and plasticity of respiratory control," Oxford, UK, March, 2001 ("Plasticity in central respiratory control"). Organizer: D. Corfield.
 60. Specialized Neuroscience Research Program, Department of Physiology, Howard University School of Medicine, Washington, D.C., Hosts: B. Coleman and M. Haxhiu (4/01).
 61. American Thoracic Society, session on "Neuroplasticity and control of breathing," ("Central serotonergic mechanisms involved in long-term facilitation"). San Francisco, CA, Organizer: E. Gauda (5/01).
 62. Departments of Pediatrics and Neurosurgery, University of Louisville, Louisville, KY. "Spinal serotonin-dependent respiratory plasticity following intermittent hypoxia" and "Exercise-induced neurotrophin expression in the spinal cord." Hosts: D. and E. Gozal

- (5/01).
63. Association of Professional Sleep Societies session on “Intermittent Hypoxia” (“Serotonin-dependent respiratory plasticity following intermittent hypoxia.”) Chicago, IL, Organizer: D. Gozal (6/01).
 64. International Symposium: "Central Neural Control of Breathing," Rotorua, New Zealand. “Spinal serotonin-dependent respiratory plasticity.” Organizer: G. Funk, 9/2001.
 65. Organizer of symposium on “Serotonin-induced neuroplasticity” at the Society for Neuroscience Meeting, San Diego, CA, November 12, 2001. Individual talk: “Spinal, serotonin-dependent plasticity in respiratory motor control.”
 66. Department of Anatomy and Cell Biology, Wayne State University, Detroit, MI. “Spinal, serotonin-dependent plasticity in respiratory motor control;” Host: H. Goshgarian, December 4-5, 2001.
 67. Neurochemistry Winter Symposium, “Spinal serotonin-dependent respiratory plasticity,” Soelden, Austria, April 7-10, 2002. Organizer: S. Schwarzacher.
 68. Department of Medicine, Robert Wood Johnson School of Medicine and Dentistry of New Jersey, Michael S Dekin Memorial Lecture, “Serotonin-dependent plasticity in respiratory motor control.” March 14, 2003. Host: J. Neubauer.
 69. Co-organizer of International Conference to honor the career of Peter Scheid: Respiratory Physiology and Neurobiology. San Diego, CA, April 9-10, 2003.
 70. American Thoracic Society, “Hyperoxia induced neuroplasticity: early development—a vulnerable period.” Seattle, WA, May, 2003. Organizers: E. Gauda and D. Gozal.
 71. Wenner-Gren Symposium, Neurobiological Control of Breathing, "Effects of developmental hyperoxia and hypoxia on adult hypoxic ventilatory responses," May 24-27, 2003. Stockholm, Sweden. Organizer: H. Lagercrantz.
 72. International Society of the Autonomic Nervous System, “Hypoxia and respiratory control: role in plasticity.” Calgary, Canada, July 5-9, 2003. Organizer: R. Wilson.
 73. Rehabilitation Institute of Chicago, Northwestern University, "Spinal plasticity following intermittent hypoxia: implications for spinal cord injury." August 18-19, 2004. Host, Z. Rymer.
 74. FASEB Summer Research Conference: Neural Mechanisms in Cardiovascular Regulation. Session on: Sleep Apnea and Central Cardio-Respiratory Integration. Talk: “Respiratory plasticity following intermittent hypoxia: cellular/synaptic mechanisms.” Snowmass, CO, July 24-29, 2004. Organizer: N. Prabhakar.
 75. Eighth International Sleep & Breathing Meeting, “Cellular and synaptic mechanisms of respiratory long-term facilitation following intermittent hypoxia.” October 13-16, 2004. Newport, Rhode Island. Organizer: W. Weiss. 76.
 76. National Neurotrauma Society, 22nd annual meeting. Session on Gene and Cell Based Therapies. “Manipulation of spinal plasticity with RNA interference.” San Diego, CA, October 20-22, 2004. Organizer: C. Hulsebosch (Society President).
 77. Department of Physiology, University of Arizona, Tucson, AZ. “Respiratory plasticity following intermittent hypoxia: cellular/synaptic mechanisms in vivo”. Host: R. Fregosi, February 25, 2005.
 78. IUPS/EB Meeting. Organizer and speaker in Featured Topic Session on: Respiratory Long-Term Facilitation: Mechanisms and Implications. Presented sequential talks:

- “Introduction to long-term facilitation” and “Cellular mechanisms of long-term facilitation *in vivo*.” April, 2005.
79. International Society for Autonomic Neuroscience, Marseilles, France. July 12-16, 2005. “Mechanisms of respiratory long-term facilitation following intermittent hypoxia.” Organizer of session: R. Monteau.
 80. Rankin Memorial Symposium, “RNAi: Potential therapeutic approach to sleep disordered breathing?” Madison, WI, November 3, 2005.
 81. Biomedical Sciences Graduate Program, “Mechanisms of serotonin-dependent respiratory plasticity in the mammalian spinal cord.” Marquette University, November 28, 2005.
 82. Canadian Physiological Society. Symposium: models of synaptic plasticity. “Mechanisms of respiratory plasticity in the mammalian spinal cord.” Lake Louise, Canada, February 1-4, 2006.
 83. Department of Medicine, University of Toronto, “Mechanisms of respiratory plasticity following intermittent hypoxia: suggestions for novel strategies to treat sleep apnea?” Toronto, Canada, March 8, 2006.
 84. Department of Zoology, University of Toronto, “Mechanisms and implications of serotonin-dependent respiratory plasticity in the mammalian spinal cord.” Toronto, Canada, March 9, 2006.
 85. ALS Association Workshop: Invited Lecture: ‘Respiratory Plasticity in the SOD1^{G93A} Rat,’ Boston, MA, March 30, 2006.
 86. Experimental Biology Meeting. Featured speaker in session on: Modulation and Plasticity in the Exercise Ventilatory Response. “Layers of exercise hyperpnea: modulation and plasticity.” San Francisco, April 5, 2006.
 87. Interdisciplinary Neuroscience Program, University of Missouri, “Spinal Respiratory Plasticity following Intermittent Hypoxia: Mechanisms and Implications.” April 27, 2006.
 88. Plenary Lecture, Respiratory Research, Société de Pneumologie de Langue Française, “Respiratory Plasticity Following Intermittent Hypoxia: Implications for Ventilatory Control Disorders.” Tours, France, October 27, 2006.
 89. Department of Pediatrics, Laval University, “Spinal serotonin-dependent respiratory plasticity: mechanisms and implications.” Quebec City, Canada, September 11, 2006.
 90. Winter Conference for Brain Research, panel discussion: “Pattern-sensitivity of hypoxia-induced respiratory plasticity.” Snowmass, Colorado, February 1, 2007.
 91. Experimental Biology Meeting, Symposium: What Have We Learned about Respiratory Control from the Use of Transgenic Models? Talk on: “Respiratory plasticity in a rat model of amyotrophic lateral sclerosis (ALS).” Washington D.C. May 2, 2007.
 92. Department of Physiology, Northwestern University Medical School. “Respiratory plasticity following intermittent hypoxia: implications for spinal cord injury and ALS.” Chicago, IL April 6, 2007.
 93. International Conference on Cellular and Network Functions in the Spinal Cord. “Compensatory respiratory plasticity in a rodent model of ALS: the SOD1^{G93A} rat.” Madison, WI, June 12-15, 2007.
 94. Life Sciences 2007, Symposium: Mechanisms and modulators of respiratory

- neurogenesis. Talk on "Respiratory plasticity induced by intermittent hypoxia: roles of phosphatases and reactive oxygen species." Glasgow, Scotland, July 12, 2007.
95. 7th International Congress of Comparative Physiology and Biochemistry, Symposium: Control of breathing in vertebrates. "Respiratory neuroplasticity: life-long adjustments of a critical homeostatic system." Salvador, Bahia, Brazil, August 12-16, 2007.
 96. "Meet the Experts" session at the Society for Neuroscience Meeting in San Diego, CA, November, 2007.
 97. Barshop Institute Seminar Series, The San Antonio Comparative Biology of Aging Center. "Motor neuron plasticity following intermittent hypoxia: implications for sleep apnea." University of Texas Health Sciences Center, San Antonio, February 20, 2008.
 98. Spring Conference for Brain Research, Palm Springs, CA, March 12-15. Symposium speaker: Respiratory plasticity induced by intermittent hypoxia: roles of phosphatases and reactive oxygen species." In symposium entitled: "To breathe, perchance to exhale - ay, there's the rub."
 99. Safety Pharmacology Society. Speaker in session: "Sleep Disordered Breathing: Pathological Consequences and Potential Therapeutic Approaches." Madison, Wisconsin, September, 2008.
 100. Society for Neuroscience, Special Lecture, "Plasticity in brainstem and spinal cord: implications for spinal injury, ALS and sleep apnea." Washington, D.C., Nov., 2008.
 101. Experimental Biology, Organizer, Symposium on: "Ventilatory control disorders." New Orleans, LA, April, 2009.
 102. American Thoracic Society, Symposium: "Hypoxia and hypercapnia in sleep: the good and the bad." San Diego, CA, May, 2009.
 103. American College of Sports Medicine, Symposium: "Modulation and plasticity of the exercise ventilatory response." Seattle, WA, May, 2009.
 104. Conference on "Cellular and network functions in the spinal cord." Madison, WI, 6/23 to 6/26, 2009.
 105. Symposium on "Physiological and pathophysiological effects of intermittent hypoxia on cardiorespiratory function: implications for sleep-disordered breathing." Physiological Society Main Meeting, Dublin, Ireland, July 6-10, 2009.
 106. Invited speaker and chair of session on Respiratory Plasticity, 11th Oxford Conference on Modeling and Control of Breathing, Nara, Japan, 7/23 to 7/26, 2009.
 107. Division of Neonatology, Rainbow Babies & Children's Hospital, Case Western Reserve University, seminar entitled "Respiratory (and somatic) motor plasticity following intermittent hypoxia: surprising lessons from sleep apnea." 10/1, 2009.
 108. 3rd Annual Pre-Neuroscience Motor Control Meeting. Talk entitled: "Spinal plasticity following spinal injury: implications for spinal cord injury." 10/16, 2009.
 109. Institute for Exercise and Environmental Medicine, Presbyterian Hospital of Dallas; Seminar: "Modulation and Plasticity in Respiratory Motor Control." March, 2010.
 110. Faculty of Neuroscience Seminar, Texas A&M University; Seminar title: "Intermittent hypoxia improves respiratory and somatic motor function following spinal injury." March, 2010.
 111. Caymanian IX: Peptides in Health and Disease, Barbados. Presentation and discussion of "Functional peptide biology: Gasping for air--peptide modulation of respiratory

- networks." October, 2010.
112. Symposium on Neuromotor Plasticity, University of Florida; Plenary talk entitled: "Respiratory and Somatic Motor Plasticity Following Intermittent Hypoxia: Implications for Spinal Injury." Gainseville, FL, March, 2011.
 113. American Society for Neurochemistry, Symposium chair: Neurochemical Mechanisms of Spinal Plasticity; Talk entitled: "Spinal plasticity following intermittent hypoxia: implications for spinal injury and ALS. St. Louis, MO, March, 2011.
 114. Association of Professional Sleep Societies, Symposium on "Advances in the basic science and clinical understanding of sleep related breathing disorders;" Talk entitled: "Mechanisms and implications of intermittent hypoxia induced respiratory motor plasticity." Minneapolis, MN, June, 2011.
 115. Seminar at Pennsylvania State University, Department of Kinesiology. Seminar titled: "Modulation and Plasticity in Respiratory Control," October, 2011. Host: J. Pawelczyk.
 116. Seminar at the University of Chicago, Center for Integrative Physiology. Seminar titled: "Respiratory and somatic motor plasticity following intermittent hypoxia: a guide to new treatments for spinal injury." December, 2011. Host: N. Prabhakar.
 117. Gilboe Memorial Lecture, Department of Neurological Surgery, University of Wisconsin. "Respiratory and somatic motor plasticity following intermittent hypoxia: a guide to novel treatments for spinal injury." December, 2011. Host: R. Dempsey.
 118. Seminar at Medical College of Wisconsin, Department of Cell Biology, Neurobiology and Anatomy. "Respiratory and somatic motor plasticity following intermittent hypoxia: implications fro spinal injury." January, 2012. Host: M. Wong-Riley.
 119. Cellular and Network Functions in the Spinal Cord 2012. Talk entitled: "Multiple pathways to spinal respiratory motor facilitation: functional implications." Symposium in Madison, Wisconsin, May 22-25, 2012. Organizer: L. Ziskind-Conhaim.
 120. Conference on Risks, Benefits, and Challenges of Human Research in Sleep Apnea, Johns Hopkins University, Baltimore, MD. Talk entitled: "Beneficial effects of intermittent hypoxia in animal models." March, 2012. Organizer: N. Punjabi.
 121. American Physical Therapy Association - Section on Research; Regenerative Medicine and Rehabilitation; Beaver Hollow, New York. August, 2012; Host: C. Patten.
 122. Oxford Conference, Arnelo, Netherlands. "Multiple pathways to phrenic motor facilitation: functional implications." August, 2012; Organizers: H. Subramanian.
 123. Reeve-Irvine Center for Spinal Cord Injury Research. Seminar entitled: "Spinal motor plasticity following intermittent hypoxia: implication for spinal cord injury." October 8, 2012. Host: O. Steward.
 124. Cayman X: Peptides in Health and Disease. Lead session entitled: "Neuronal plasticity: what starts the ball rolling?" Turks and Caicos, November 6-10, 2012. Organizers: R. Salmon and A. Ferguson.
 125. Seminar at The Ohio State University, Neuroscience Seminar, "Spinal plasticity following intermittent hypoxia: implications for spinal injury." January, 2013. Host: P. Popovich.
 126. Seminar at Case Western Reserve University, Department of Physiology Seminar, "Spinal plasticity following intermittent hypoxia: implications fro spinal injury." February, 2013. Host: C. Smith.

127. Seminar at University of Kentucky, Spinal Cord Injury and Brain Injury Center, "Spinal plasticity following intermittent hypoxia: implications for spinal injury. March 13, 2013. Host: A. Rabchevski.
128. Spring Conference for Brain Research, Sedona, AZ, March 20-23, 2013. Symposium speaker: "Learning to breathe (and walk) after spinal cord injury." Symposium: New insights into the control of breathing.
129. Grand Rounds, Pulmonary and Critical Care Medicine, University of California, San Diego. "Respiratory motor plasticity following intermittent hypoxia: time to translate." August 22, 2013, Host: A. Malhotra.
130. Seminar at University of Florida, Department of Physical Therapy, "Breathing and walking after spinal cord injury: translating novel therapeutic approaches." December, 2013, Host: D. Fuller.
131. International Symposium on Neural Regeneration, Asilomar, CA, December, 11-15, 2013. "Intermittent hypoxia improves respiratory (and non-respiratory) motor function with chronic, incomplete cervical injury."
129. Seminar: Department of Neuroscience, Baylor College of Medicine. "Intermittent hypoxia induces spinal motor plasticity, implications for spinal cord injury." January, 2014. Host: R. Ray.
130. Seminar: Department of Physiology, Northwestern University, "Intermittent hypoxia induces spinal motor plasticity: implications for spinal cord injury." January, 2014. Host: D. McCrimmon.
131. Julius H. Comroe, Jr. Distinguished Lecturer of the Respiration Section. Experimental Biology Meeting, San Diego, CA. April 29, 2014.
132. Plenary talk: "Inspiration from Victoria and Louise: "Time domains of the hypoxic ventilatory response and what we can do with them!" SEB satellite conference on "Fueling the Fire of Life: A tribute to the Career of Prof. Bill Milsom," June 24-27th, 2014, Scotland.
133. Keynote speaker: "Spinal plasticity following intermittent hypoxia: breathing and walking after spinal injury." Pan American Conference of Physiology, Iguassu Falls, Brazil, August 2-6, 2014.
134. Spinal Research Network Meeting, International Spinal Research Trust. "Mechanisms of intermittent hypoxia-induced functional recovery after spinal cord injury," London, UK, September 5, 2014.
135. LifeScience Svedberg Seminar Series, "Intermittent hypoxia induced motor facilitation: implications for spinal injury and motor neuron disease," Upsala University, Sweden, September 8, 2014, host: Elena Kozlova.
136. Arthur C. Guyton Distinguished Lectureship Awardee, Gamboa Rainforest Resort, Panama, December 4-7, 2014. Host: N. Delamere, President of Association of Chairs of Departments of Physiology (ACDP).
137. Experimental Biology, Featured speaker: "Diverse cellular mechanisms of respiratory motor plasticity: functional implications," Session on "Spinal Plasticity," Boston, April, 2015.
138. Experimental Biology, Lecture: "The brain and respiratory system," Session on "It's all in your head - A refresher course on the brain and systems control," Boston, April, 2015.

139. Society for the Neural Control of Movement satellite meeting: Neural Mechanisms of Rehabilitation. "Harnessing intermittent hypoxia-induced spinal motor plasticity: breathing and walking after spinal injury," Charleston, S.C. April, 2015.
140. Center for Integrative Brain Research, Seattle Children's Research Institute; "Intermittent hypoxia induced spinal plasticity: breathing and walking after spinal injury. Seattle, WA September, 2015.
141. Miami Project to Cure Paralysis, "Intermittent hypoxia induced spinal plasticity: breathing and walking after spinal injury." Miami, FL, October 2015, Host: D. Dieterich.
142. Alley Memorial Lecture, Department of Health and Human Physiology, University of Iowa, "Intermittent hypoxia induced spinal plasticity: implications for spinal injury." February, 2016. Host. M. Bates.
143. Organizer, symposium on "Neurostimulation to Restore Breathing with Neuromuscular Disorders," Experimental Biology, San Diego, CA, April, 2016
144. Conference on: Preconditioning: Adaptive Responses in Biology and Medicine, "Intermittent hypoxia induced spinal motor plasticity: implications for spinal injury." University of Massachusetts, April, 2016.
145. FASEB Conference on Neural Mechanisms in Cardiovascular Regulation: Novel Research and Disease Treatment Strategies, "Intermittent hypoxia and spinal plasticity: implications for spinal cord injury." Saxton's River, VT, July 2016.
146. Organizer and Speaker, Workshop on Therapeutic intermittent hypoxia and functional recovery of respiratory and non-respiratory motor function with chronic, incomplete SCI: a "road map" to clinical translation. Atlantic Beach, FL, July, 2016.
147. Symposium speaker at Annual meeting of the Paralyzed Veterans of America, "Sleep Disorders in Spinal Cord Injury: Challenges and Opportunities." "Intermittent hypoxia induced motor plasticity: walking and breathing after spinal injury." Orlando, FL, August, 2016.
148. Invited Seminar at the University of Versailles, U1176 INSERM, France. "Intermittent hypoxia and spinal plasticity: walking and breathing after spinal injury." September 13, 2016. Host: S. Vinit, PhD.
149. Invited speaker, 3rd International Neurosciences Conference: in tribute to Laurent Vinay, Spinal cord research from bench to bedside. Talk entitled: "Doing more with less: harnessing plasticity to treat spinal injury." Marseilles, France, September, 16, 2016. Host: Professor F. Brocard
150. Featured Speaker, Annual meeting of the Veterinary Comparative Respiratory Society, Michigan State University, E. Lansing, MI, September, 2016. Host: S. Carey, DVM/PhD.
151. Invited speaker, 1st Annual Neuroengineering Symposium, "Intermittent hypoxia induced spinal plasticity and functional recovery from spinal injury." University of Miami, FL. October, 2016. Hosts: M. Perez and D. Dieterich.
152. Cayman XI: Peptides in Health and Disease. "Tricking the transcriptome." Turks and Caicos, November, 2016. Organizers: R. Samson and A. Furguson.
153. Invited seminar, Department of Physiology and Pharmacology, University of South Florida, "Intermittent hypoxia and spinal plasticity: breathing and walking after spinal injury;" January 2017. Hosts: K. Morris and T. Taylor-Clark.
154. Symposium, Combined Sections Meeting, Am. Physical Therapy Association,

- “Intermittent hypoxia and spinal plasticity: breathing and walking after spinal injury.” February 2017. Organizer: M. Eastlack
155. Featured speaker, Center for Physiological Genomics of Low Oxygen, University of California at San Diego; “Intermittent hypoxia induced neuroplasticity: restoring Breathing and walking after spinal injury,” March, 2017; Organizer: T. Simonson.
 156. Symposium, “Bench to Bedside: central neuromodulation in the control of breathing in animals and humans.” Exp. Biology, Chicago, IL, April 2017. Co-chair with F. Garcia.
 158. Keynote Lecture, Association of Spinal Injury of America (ASIA), “Can we harness spinal plasticity triggered by intermittent hypoxia to improve breathing and walking after spinal cord injury? Albuquerque, NM, April 2017.
 159. Discussion Facilitator, Association of Spinal Injury of America (ASIA), round-table discussion: “Bench to Bedside and Back: Barriers to Clinical Translation;” Albuquerque, NM, April, 2017.
 160. Seminar, Department of Physiology, Emory University. “Compensatory respiratory plasticity in motor neuron disease: the trick is to keep breathing.” May, 2017. Host, S. Garraway.

Pending:

- Two symposia organized for the upcoming Oxford Conference on Modeling and the Control of Breathing, Oxford, UK, September 2017. Speaking in session on: “Breathing with neuromuscular disease: causes and compensation.” Oxford, UK. September, 2017.
- Plenary Lecture Canadian Spinal Cord Injury Rehabilitation Association, Niagra Falls, Ontario, Canada, November, 2017.

PATENTS

1. Patent approved: P04058US “Trophic Factor Cocktails for Nervous System Treatment.” August, 2005 (with C. Murphy and J. McAnulty).
2. Provisional patent pending: P150330US01 “The use of trans-retinoic acid to treat central neural apneas and impaired breathing capacity.” (co-inventors: D. Fields, T.L. Baker, G.S. Mitchell)

PUBLICATIONS

1. Osborne, J.L., G.S. Mitchell and F.L. Powell (1977). Ventilatory responses to CO₂ in the chicken: Intrapulmonary and systemic chemoreceptors. *Respir. Physiol.* 30: 369-382.
2. Osborne, J.L. and G.S. Mitchell (1977). Regulation of arterial PCO₂ during inhalation of CO₂ in chickens. *Respir. Physiol.* 31: 357-364.
3. Osborne, J.L. and G.S. Mitchell (1978). Ventilatory responses during arterial homeostasis of PCO₂ at low levels of inspired carbon dioxide. In: *Respiratory Function in Birds, Adult and Embryonic*. Ed. J. Piiper. Berlin: Springer-Verlag, p. 168-174.
4. Mitchell, G.S. and J.L. Osborne (1978). Avian intrapulmonary chemoreceptors: respiratory response to a step decrease in PCO₂. *Respir. Physiol.* 33: 251-261.
5. Osborne, J.L. and G.S. Mitchell (1978). Intrapulmonary and systemic CO₂-chemoreceptor interaction in the control of avian respiration. *Respir. Physiol.* 33: 349-57.
6. Mitchell, G.S. (1978). Regulation of the Arterial Carbon Dioxide Tension During

- Inhalation of Carbon Dioxide in Birds and Mammals. Ph.D. Dissertation, University of California, Irvine.
7. Mitchell, G.S. and J.L. Osborne (1979). Ventilatory responses to carbon dioxide inhalation after vagotomy in chickens. *Respir. Physiol.* 36: 81-88.
 8. Mitchell, G.S. and J.L. Osborne (1980). A comparison between carbon dioxide inhalation and increased dead space ventilation in chickens. *Respir. Physiol.* 40: 227-239.
 9. Gleeson, T., G.S. Mitchell and A.F. Bennett (1980). Cardiovascular responses to graded activity in the lizards *Varanus* and *Iguana*. *Am. J. Physiol.* 239: R174-R179.
 10. Mitchell, G.S., B.A. Cross, T. Hiramoto and P. Scheid (1980). Effects of intrapulmonary CO₂ and airway pressure on phrenic activity and pulmonary stretch receptor discharge in dogs. *Respir. Physiol.* 41: 29-48.
 11. Mitchell, G.S., T.T. Gleeson and A.F. Bennett (1981). Ventilation and acid-base balance during graded activity in lizards. *Am. J. Physiol.* 240: R29-R37.
 12. Mitchell, G.S., T.T. Gleeson and A.F. Bennett (1981). Pulmonary oxygen transport during activity in lizards. *Respir. Physiol.* 43: 365-375.
 13. Mitchell, G.S., B.A. Cross, T. Hiramoto and P. Scheid (1982). Interactions between lung stretch and PaCO₂ in modulating ventilatory activity in dogs. *J. Appl. Physiol.* 53: 185-191.
 14. Mitchell, G.S., C.A. Smith, L.C. Jameson, E.H. Vidruk and J.A. Dempsey (1983). The effects of p-chlorophenylalanine on ventilatory control in goats. *J. Appl. Physiol.* 54: 277-283.
 15. Smith, C.A., G.S. Mitchell, L.C. Jameson, T.I. Musch and J.A. Dempsey (1983). Ventilatory response of goats to treadmill exercise: grade effects. *Respir. Physiol.* 54: 331-341.
 16. Musch, T.I., J.A. Dempsey, C.A. Smith, G.S. Mitchell and N.T. Bateman (1983). Metabolic acid production and pH regulation in brain tissue during acclimatization to chronic hypoxia. *J. Appl. Physiol.* 55: 1486-1495.
 17. Dempsey, J.A., G.S. Mitchell and C.A. Smith (1984). Exercise and chemoreception. *Am. Rev. Respir. Dis.* 129: 531-534.
 18. Smith, C.A., L.C. Jameson, G.S. Mitchell, T.I. Musch and J.A. Dempsey (1984). Central-peripheral chemoreceptor interaction in the awake CSF-perfused goat. *J. Appl. Physiol.* 56: 1541-1549.
 19. Mitchell, G.S., C.A. Smith and J.A. Dempsey (1984). Changes in the V_I:VCO₂ relationship during exercise: Role of carotid bodies. *J. Appl. Physiol.* 57: 1894-1900.
 20. Dempsey, J.A., E.H. Vidruk and G.S. Mitchell (1985). Pulmonary control systems in exercise: Update. *Federation Proc.* 44: 2260-2270.
 21. Mitchell, G.S. and T.T. Gleeson (1985). Acid-base balance during lactic acid infusion in the lizard *Varanus salvator*. *Respir. Physiol.* 60: 253-266.
 22. Mitchell, G.S. and E.H. Vidruk (1985). Neural and humoral factors in the control of tracheal caliber. *J. Appl. Physiol.* 59: 198-204.
 23. Nielsen, A., G. E. Bisgard and G.S. Mitchell (1986). Phrenic nerve responses to hypoxia and CO₂ in decerebrate dogs. *Respir. Physiol.* 65: 267-283.
 24. Mitchell, G.S. (1987). Effects of hypoxemia on phrenic nerve responses to static lung inflation in anesthetized dogs. *Respir. Physiol.* 67: 183-195.

25. Mitchell, G.S. and B.D. Selby (1987). Effects of carotid denervation on interactions between lung inflation and PaCO₂ in modulating phrenic activity. *Respir. Physiol.* 67: 367-378.
26. Mitchell G.S. and E. H. Vidruk (1987). Effects of hypercapnia on phrenic and stretch receptor responses to lung inflation. *Respir. Physiol.* 68: 319-330.
27. Ludders, J.W., G.S. Mitchell and S.L. Schaefer (1988). Minimum anesthetic dose and cardiopulmonary response for halothane in chickens. *Am. J. Vet. Res.* 49: 929-932.
28. Mitchell, G.S. and B.D. Selby (1988). Ventilatory responses to lung inflation and arterial CO₂ in halothane anesthetized dogs. *J. Appl. Physiol.* 64: 1433-1438.
29. Douse, M.A. and G.S. Mitchell (1988). Temperature effects on CO₂-sensitive intrapulmonary chemoreceptors in the lizard, *Tupinambis nigropunctatus*. *Respir. Physiol.* 72: 327-342.
30. Powell, F.L., W.K. Milsom and G.S. Mitchell (1988). Effects of intrapulmonary CO₂ and airway pressure on pulmonary vagal afferent activity in the alligator. *Respir. Physiol.* 74: 285-298.
31. McLean, H.A., G.S. Mitchell, and W.K. Milsom (1989). Effects of prolonged inflation on pulmonary stretch receptor discharge in turtles. *Respir. Physiol.* 75: 75-88.
32. Ludders, J.W., J. Rode and G.S. Mitchell (1989). Isoflurane anesthesia in Sandhill cranes (*Grus canadensis*): Minimum anesthetic level and cardiopulmonary dose response during spontaneous and controlled breathing. *Anesthesia and Analgesia* 68: 511-516.
33. Ludders, J.L., J.A. Rhode, G.S. Mitchell and E.V. Nordheim (1989). Effects of ketamine, xylazine and a combination of ketamine and xylazine in Pekin ducks. *Am. J. Vet. Res.* 50: 245-249.
34. Schaefer, S.L. and G.S. Mitchell (1989). Ventilatory control during exercise with peripheral chemoreceptor stimulation: hypoxia versus domperidone. *J. Appl. Physiol.* 67: 2438-2446.
35. Douse, M.A., F.L. Powell, W.K. Milsom, and G.S. Mitchell (1989). Temperature effects on pulmonary receptor responses to airway pressure and CO₂ in *Alligator mississippiensis*. *Respir. Physiol.* 78: 331-343.
36. Ludders, J.W., G.S. Mitchell and J. Rode (1990). Minimal anesthetic dose (MAD) and cardiopulmonary dose-response of isoflurane in ducks. *Vet. Surgery* 19: 304-307.
37. Mitchell, G.S. (1990). Phrenic responses to lung inflation and hypercapnia in decerebrate dogs. *Pflügers Archiv.* 416: 580-585.
38. Mitchell, G.S., M.A. Douse and K.T. Foley (1990). Receptor interactions in modulating ventilatory activity. *Am. J. Physiol.* 259: R911-R920.
39. Mitchell, G.S. (1990). Ventilatory control during exercise with increased respiratory dead space in goats. *J. Appl. Physiol.* 69: 718-727.
40. Pizarro, J., M.A. Douse, J.L. Ludders and G.S. Mitchell (1990). Halothane effects on ventilatory responses to intrapulmonary CO₂ in geese. *Respir. Physiol.* 82: 337-348.
41. Warner, M.M. and G.S. Mitchell (1990). Ventilatory responses to hyperkalemia and exercise in normoxic and hypoxic goats. *Respir. Physiol.* 82: 239-249.
42. Douse, M.A. and G.S. Mitchell (1990). Episodic respiratory related discharge in turtle cranial motoneurons: *in vivo* and *in vitro* studies. *Brain Res.* 536: 297-300.
43. Jiang, C., G.S. Mitchell and J. Lipski (1991). Prolonged augmentation of respiratory

- discharge in hypoglossal motoneurons following superior laryngeal nerve stimulation. *Brain Res.* 538: 215-225.
44. Douse, M.A. and G.S. Mitchell (1991). Time course of temperature effects on arterial acid-base status in *Alligator mississippiensis*. *Respir. Physiol.* 83: 87-102.
 45. Warner, M.M. and G.S. Mitchell (1991). Role of catecholamines and alpha-receptors in the ventilatory response during hypoxic exercise. *Respir. Physiol.* 85: 41-53.
 46. Douse, M.A. and G.S. Mitchell (1992). Episodic breathing in alligators: role of sensory feedback. *Respir. Physiol.* 87: 77-90.
 47. Douse, M.A. and G.S. Mitchell (1992). Effects of vagotomy on ventilatory responses to CO₂ in alligators. *Respir. Physiol.* 87: 63-76.
 48. Nelson, J.A. and G.S. Mitchell (1992). Blood chemistry response to acid-exposure in yellow perch (*Perca flavescens*): Comparison of populations from naturally acidic and neutral environments. *Physiol. Zool.* 65: 493-514.
 49. Mitchell, G.S., H.E. Sloan, C. Jiang, V. Miletic, F. Hyashi and J. Lipski (1992). 5-Hydroxytryptophan augments spontaneous and evoked phrenic motoneuron discharge in spinalized rats. *Neurosci. Lett.* 141: 75-78.
 50. Pizarro, J., M.M. Warner, M. Ryan, G.S. Mitchell and G.E. Bisgard (1992). Intracarotid norepinephrine infusions inhibit ventilation in goats. *Respir. Physiol.* 90: 299-310.
 51. Bach, K.B., M. Lutcavage and G.S. Mitchell (1993). Serotonin is necessary for short term modulation of the exercise ventilatory response. *Respir. Physiol.* 91: 57-70.
 52. Mitchell, G.S., K.B. Bach, P.A. Martin and K.T. Foley (1993). Modulation and plasticity of the exercise ventilatory response. *Functionsanalyse Biologischer Systeme* 23: 269-277.
 53. Hayashi, F., S.K. Coles, K.B. Bach, G.S. Mitchell and D.R. McCrimmon (1993). Time dependent phrenic nerve responses to carotid afferent activation: intact vs. decerebellate rats. *Am. J. Physiol.* 265: R811-R819.
 54. Martin, P.A. and G.S. Mitchell (1993). Long term modulation of the exercise ventilatory response. *J. Physiol. (London)*. 470: 601-617. PMID: PMC1143936
 55. Lipski, J., C. Barton, D. de Castro, C. Jiang, I. Llewellyn-Smith, G.S. Mitchell, P.M. Pilowsky, M.D. Voss and H.J. Waldvogel (1993). Neurotransmitter content of respiratory neurons and their inputs: double-labelling studies using intracellular tracers and immunohistochemistry. In: *Respiratory control: central and peripheral mechanisms*. Eds. D.R. Speck, M.S. Dekin, W.R. Revelette and D.T. Frazier. University Press of Kentucky, Lexington, KY. pp. 62-65.
 56. Mitchell, G.S. (1993). *In vitro* studies on respiratory control: an overview. In: *Respiratory control: central and peripheral mechanisms*. Eds. D.R. Speck, M.S. Dekin, W.R.Revelette and D.T. Frazier. University Press of Kentucky, Lexington, KY. pp. 30-33.
 57. Bisgard, G., M. Warner, J. Pizarro, W. Niu and G. Mitchell (1993). Noradrenergic inhibition of the goat carotid body. In: *Neurobiology and Cell Physiology of Chemoreception. Advances in Experimental Medicine and Biology*, Vol. 337; Ed.: P.G. Data, H. Acker and S. Lahiri, Plenum Press, New York, pp. 259-263.
 58. Fregosi, R.F. and G.S. Mitchell (1994). Long term facilitation of inspiratory intercostal nerve activity following repeated carotid sinus nerve stimulation in cats. *J. Physiol. (London)*. 477: 469-479. PMID: PMC1155611

59. Ling, L., K.B. Bach and G.S. Mitchell (1994). Serotonin reveals ineffective spinal pathways to contralateral phrenic motoneurons in spinally hemisected rats. *Exp. Brain Res.* 101: 35-43.
60. Kinkead, R., W.G. Filmeyer, G.S. Mitchell and W.K. Milsom (1994). Vagal input enhances responsiveness of respiratory discharge to central changes in pH/ CO₂ in bullfrogs. *J. Appl. Physiol.* 77: 2048-2051.
61. Ling, L., K.B. Bach and G.S. Mitchell (1995). Phrenic responses to contralateral spinal stimulation in rats: effects of old age or chronic spinal hemisection. *Neurosci. Lett.* 188: 25-28.
62. McCrimmon, D.R., M.S. Dekin and G.S. Mitchell (1995). Glutamate, GABA and Serotonin in Ventilatory Control. In: Lung Biology in Health and Disease, vol. 79. "Regulation of Breathing: Central Nervous Control." Eds: J.A. Dempsey and A.I. Pack. Marcel-Dekker, New York, pp. 151-218.
63. Turner, D.L., P.A. Martin and G.S. Mitchell (1995). Hypoxic exercise does not elicit long term modulation of the normoxic exercise ventilatory response in goats. In: Modeling and Control of Ventilation. *Advances in Experimental Medicine and Biology*, Vol. 393; Ed.: S.J.G. Semple, L. Adams and B.J. Whipp, Plenum Press, New York, pp. 245-248.
64. Bach, K.B. and G.S. Mitchell (1996). Hypoxia induced long term facilitation of respiratory nerve activity is serotonin dependent. *Respir. Physiol.* 104: 251-260.
65. Ling, L., E.B. Olson, E.H. Vidruk and G.S. Mitchell (1996). Attenuation of the hypoxic ventilatory response in adult rats following one month of perinatal hyperoxia. *J. Physiol. (London)* 495: 561-571. PMID: PMC1160814
66. Turner, D.L. and G.S. Mitchell (1997). Long term facilitation of ventilation following repeated hypoxic episodes in awake goats. *J. Physiol. (London)* 499: 453-460. PMID: PMC1159325
67. Ling, L., E.B. Olson, Jr., E.H. Vidruk and G.S. Mitchell (1997). Integrated phrenic responses to carotid afferent stimulation in adult rats following perinatal hyperoxia. *J. Physiol. (London)* 500: 787-796. PMID: PMC1159424
68. Turner, D.L., K.B. Bach, P.A. Martin, E.B. Olson, M. Brownfield, K.T. Foley and G.S. Mitchell (1997). Modulation of ventilatory control during exercise. *Respir. Physiol.* 110: 277-285.
69. Ling, L., E.B. Olson, Jr., E.H. Vidruk and G.S. Mitchell (1997). Developmental plasticity of the hypoxic ventilatory response. *Respir. Physiol.* 110: 261-268.
70. Ling, L., E.B. Olson, Jr., E.H. Vidruk and G.S. Mitchell (1997). Phrenic responses to isocapnic hypoxia in adult rats following perinatal hyperoxia. *Respir. Physiol.* 109: 107-116.
71. Johnson, S.M., R.A. Johnson and G.S. Mitchell (1998). Hypoxia, temperature and pH/CO₂ effects on respiratory discharge in a turtle brainstem preparation. *J. Appl. Physiol.* 84: 649-660.
72. Bach, K.B. and G.S. Mitchell (1998). Hypercapnia induced long term depression of respiratory activity requires alpha-2 adrenergic receptors. *J. Appl. Physiol.* 84: 2099-2105.
73. Johnson, R.A., S.M. Johnson and G.S. Mitchell (1998). Catecholaminergic modulation of respiratory rhythm in an *in vitro* turtle brainstem preparation. *J. Appl. Physiol.* 85: 105-

- 114.
74. Ling, L.L., E.B. Olson, Jr., E.H. Vidruk and G.S. Mitchell (1998). Slow recovery of impaired phrenic responses to hypoxia following perinatal hyperoxia in rats. *J. Physiol. (London)* 511: 599-603. PMID: PMC2231139
 75. Erickson, J.T., C. Mayer, A. Jawa, L. Ling, E.B. Olson, E.H. Vidruk, G.S. Mitchell and D.M. Katz (1998). Chemoafferent degeneration and carotid body hypoplasia following chronic hyperoxia in newborn rats. *J. Physiol. (London)*. 509: 519-526. PMID: PMC2230960
 76. Kinkead, R., W.Z. Zhan, Y.S. Prakash, K.B. Bach, G.C. Sieck and G.S. Mitchell (1998). Cervical dorsal rhizotomy enhances serotonergic innervation of phrenic motoneurons and serotonin-dependent long-term facilitation of respiratory motor output in rats. *J. Neurosci.* 18: 8436-8443.
 77. Johnson, S.M. and G.S. Mitchell (1998). NMDA-mediated bulbospinal respiratory drive is pH/PCO₂-insensitive in turtle brainstem-spinal cord preparation. *Respir. Physiol.* 113: 201-212.
 78. Powell, F.L, W.K. Milsom and G.S. Mitchell (1998). Frontiers in Respiration Physiology: Time domains of the hypoxic ventilatory response. *Respiration Physiology*. 112: 123-134.
 79. Bach, K.B., R. Kinkead and G.S. Mitchell (1999). Post-hypoxia frequency decline in rats: sensitivity to repeated hypoxia and alpha-2 adrenoreceptor antagonism. *Brain Research* 817: 25-33.
 80. Henderson, D.R., D.M. Konkle and G.S. Mitchell (1999). Effects of chronic serotonin reuptake inhibition on ventilatory control in goats. *Respir. Physiol.* 115: 1-10.
 81. Kinkead, R. and G.S. Mitchell (1999). Time-dependent hypoxic ventilatory responses in rats: effects of ketanserin and 5-carboxamidotryptamine. *Am. J. Physiol.* 277: R658-R666.
 82. Herman, J.K., K.D. O'Halloran, G.S. Mitchell and G.E. Bisgard (1999). Methysergide augments the acute, but not the sustained, hypoxic ventilatory response in goats. *Respir. Physiol.* 118: 25-37.
 83. McGaghie, D.R. McCrimmon, J.A. Thompson, M. Ravitch and G.S. Mitchell (2000). Medical and veterinary student structural knowledge of pulmonary physiology concepts. *Academic Medicine* 75: 362-368.
 84. Fuller, D.D., K.B. Bach, T.L. Baker, R. Kinkead and G.S. Mitchell (2000). Long term facilitation of phrenic motor output. *Respir. Physiol.* 121: 135-146.
 85. Henderson, D.R., D.M. Konkle and G.S. Mitchell (2000). Serotonin reuptake inhibition, does not enhance short-term modulation of the exercise ventilatory response. *Respir. Physiol.* 121: 45-52.
 86. Johnson, S.M. and G.S. Mitchell (2000). Activity-dependent plasticity of descending synaptic inputs to spinal respiratory motoneurons in an in vitro turtle brainstem-spinal cord preparation. *J. Neurosci.* 200: 3487-3495.
 87. McGaghie, D.R. McCrimmon, G.S. Mitchell, J.A. Thompson and M. Ravitch (2000). Quantitative concept mapping in pulmonary physiology: comparison of student and faculty knowledge structures. *Am. J. Physiol: Adv. Physiol. Edu.* 23: 72-81.
 88. Wang, Z.Y., T.L. Baker, I. Keith, G.S. Mitchell and G.E. Bisgard (2000). Continuous but

- not episodic hypoxia induces CREB phosphorylation in rat carotid body type I cells. In: Oxygen Sensing: Molecules to Man. *Advances in Experimental Medicine and Biology*, Vol. 475; Ed.: S. Lahiri, N. Prabhakar and R.E. Forster, II, Plenum Press, New York, pp. 631-635.
89. Johnson, R.A., A.J. Okragly, M. Haak-Frendscho and G.S. Mitchell (2000). Cervical dorsal rhizotomy increases brain-derived neurotrophic factor and neurotrophin-3 expression in the ventral spinal cord. *J. Neuroscience* 20: RC77, 1-5.
 90. Bach, K.B. and G.S. Mitchell (2000). Effects of phenicotomy and exercise on hypoxia-induced changes in respiratory output. *J. Appl. Physiol.* 89: 1884-1891.
 91. Mitchell, G.S., K.B. Bach, P.A. Martin, K.T. Foley, E.B. Olson, Jr., M.S. Brownfield, V. Miletic, M. Behan, S.M. McGuirk and H.E. Sloan (2000). Increased spinal monoamine concentrations following chronic thoracic dorsal rhizotomy in goats. *J. Appl. Physiol.* 89: 1266-1274.
 92. Henderson, D.R. and G.S. Mitchell (2000). Short term modulation of the exercise ventilatory response in goats: effects of 8-OHDPAT and MPPI. *Am. J. Physiol.* 279: R1880-R1888.
 93. Baker, T.L. and G.S. Mitchell (2000). Episodic, but not continuous hypoxia elicits long-term facilitation of phrenic motor output. *J. Physiol. (London)* 529: 215-219. PMID: PMC2270180
 94. Dick T.E. and G.S. Mitchell. (2000). Mechanisms and variables determining the cardiopulmonary responses to hypoxia. *Respir. Physiol.* 121:85-86.
 95. Vidruk, E.H., E.B. Olson, Jr., L. Ling and G.S. Mitchell (2001). Responses of single-unit carotid body chemoreceptors in adult rats. *J. Physiol. (London)* 53: 165-170. PMID: PMC2278456
 96. Mitchell, G.S., F.L. Powell, S.R. Hopkins and W.K. Milsom (2001). Time domains of the hypoxic ventilatory response in ducks: short-term and episodic hypoxia. *Respir. Physiol.* 124: 117-128.
 97. Fuller, D., T.L. Baker, M. Behan and G.S. Mitchell (2001). Expression of hypoglossal long term facilitation differs between sub-strains of Sprague Dawley rats. *Physiol. Genomics* 4: 175-181.
 98. Kinkead, R., K.B. Bach, S.M. Johnson, B.A. Hodgeman and G.S. Mitchell (2001). Plasticity in respiratory motor control: intermittent hypoxia and hypercapnia activate opposing serotonergic and noradrenergic modulatory systems. *Comp. Biochem. Physiol.* 130: 207-218.
 99. Fuller, D.D., A.G. Zabka, T.L. Baker and G.S. Mitchell (2001). Phrenic long-term facilitation requires 5-HT receptor activation during but not following episodic hypoxia. *J. Appl. Physiol.* 90: 2001-2006 (Featured Paper).
 100. Zabka, A.G., M. Behan and G.S. Mitchell (2001). Serotonin-dependent long-term facilitation of respiratory motor output decreases with age in male rats. *J. Physiol. (London)* 531: 509-514. PMID: PMC2278467
 101. Mitchell, G.S., T.L. Baker, S.A. Nanda, D.D. Fuller, A.G. Zabka, B.A. Hodgeman, R.W. Bavis, K.J. Mack and E.B. Olson, Jr. (2001). Intermittent hypoxia and respiratory plasticity *J. Appl. Physiol.* 90: 2466-2475.
 102. Olson, E.B., Jr., C.J. Bohne, M.R. Dwinell, A. Podolsky, E.H. Vidruk, D.D. Fuller, F.L.

- Powell and G.S. Mitchell (2001). Ventilatory long-term facilitation in unanesthetized rats. *J. Appl. Physiol.* 91: 709-716.
103. Ling, L., D.D. Fuller, K.B. Bach, R. Kinkead, E.B. Olson, M. Behan and G.S. Mitchell (2001). Chronic intermittent hypoxia elicits serotonin-dependent plasticity in the central neural control of breathing. *J. Neuroscience* 21: 5381-5388.
 104. Rhodes, J.S., G.R. Hosack, I.A. Girard, A.E. Kelley, G.S. Mitchell and T. Garland, Jr. (2001). Differential sensitivity to acute administration of cocaine, GBR 12909 and fluoxetine in mice selectively bred for hyperactive wheel-running behavior. *Psychopharmacology* 158: 120-131.
 105. Fuller, Z. Wang, D., L. Ling, E.B. Olson, G.E. Bisgard and G.S. Mitchell (2001). Induced recovery of hypoxic phrenic responses in adult rats exposed to hyperoxia for the first month of life. *J. Physiol. (London)* 536: 917-926. PMID: PMC2278901
 106. Baker, T.L., D.D. Fuller, A.G. Zabka and G.S. Mitchell (2001). Respiratory plasticity: differential actions of continuous and episodic hypoxia and hypercapnia. *Respiration Physiology* 129: 25-35.
 107. Johnson, R.A. and G.S. Mitchell (2001). P-chlorophenylalanine eliminates long term modulation of the exercise ventilatory response in goats. *Respiration. Physiol.* 128: 161-169.
 108. Johnson, S.M., J.E.R. Wilkerson, D.R. Henderson, M.R. Wenninger and G.S. Mitchell (2001). Serotonin elicits long-lasting enhancement of rhythmic respiratory activity in turtle brainstems in vitro. *J. Appl. Physiol.* 91: 2703-2712.
 109. Zabka, A.G., M. Behan and G.S. Mitchell (2001). Time-dependent hypoxic respiratory responses in female rats are influenced by age and by the estrus cycle. *J. Appl. Physiol.* 91: 2831-2838 (Featured Paper).
 110. Fuller, D.D., R.W. Bavis, E.H. Vidruk, Z.-Y. Wang, E.B. Olson, Jr., G.E. Bisgard and G.S. Mitchell (2002). Life-long impairment of hypoxic phrenic responses in rats following one month of developmental hyperoxia. *J. Physiol. (London)*. 538: 947-955. PMID: PMC2290109
 111. Bavis, R.W., E.B. Olson, Jr. and G.S. Mitchell (2002). Critical developmental period for hyperoxia-induced blunting of hypoxic phrenic responses in rats. *J. Appl. Physiol.* 92: 1013-1018.
 112. Fuller, D.D., S.M. Johnson, R.A. Johnson and G.S. Mitchell (2002). Chronic cervical spinal sensory denervation reveals ineffective spinal pathways to phrenic motoneurons. *Neurosci. Lett.* 323: 25-28.
 113. Baker-Herman, T.L. and G.S. Mitchell (2002). Phrenic long-term facilitation requires spinal serotonin receptor activation and protein synthesis. *J. Neurosci.* 22: 6239-6246.
 114. Johnson, S.M. and G.S. Mitchell (2002). Activity-dependent plasticity in descending synaptic inputs to respiratory spinal motoneurons. *Respir. Physiol. Neurobiol.* 131: 79-90.
 115. Behan, M., A.G. Zabka and G.S. Mitchell (2002). Age and gender effects on serotonin-dependent plasticity in respiratory motor control. *Respir. Physiol. and Neurobiol.* 131: 65-77.
 116. Johnson, S.M., J.E.R. Wilkerson, M.R. Wenninger, D.R. Henderson and G.S. Mitchell (2002). Role of synaptic inhibition in turtle respiratory rhythm generation. *J. Physiol.*

- (London). 544: 253-265. PMID: PMC2290555
117. Bavis, R.W. and G.S. Mitchell (2003). Intermittent hypoxia induces phrenic long-term facilitation in carotid denervated rats. *J. Appl. Physiol.* 94: 399-409.
 118. Mitchell, G.S. and S.M. Johnson (2003). Neuroplasticity in respiratory motor control. *J. Appl. Physiol.* 94: 358-374.
 119. Fuller, D.D., S.M. Johnson, E.B. Olson and G.S. Mitchell (2003). Synaptic pathways to phrenic motoneurons are enhanced by chronic intermittent hypoxia after cervical spinal cord injury. *J. Neuroscience.* 23: 2993-3000.
 120. Behan, M., A.G. Zabka, C.F. Thomas and G.S. Mitchell (2003). Sex steroid hormones and the neural control of breathing. *Respir. Physiol and Neurobiol.* 136: 249-263.
 121. Feldman, J.L., G.S. Mitchell and E.E. Nattie (2003). Breathing: rhythmicity, plasticity and chemosensitivity. *Annual Review of Neuroscience.* 26: 239-266.
 122. Rhodes, J.S., H. vanPragg, S. Jeffrey, I. Girard, G.S. Mitchell, T. Garland, Jr. and F.H. Gage (2003). Exercise increases hippocampal neurogenesis to high levels but does not improve spatial learning in mice bred for increased voluntary wheel running. *Behavioral Neurosci.* 117: 1006-1016. [Correction *Behav. Neurosci.* 118: 305, 2004].
 123. Johnson, R.A., J.S. Rhodes, S.L. Jeffrey, T. Garland, Jr. and G.S. Mitchell (2003). Hippocampal brain derived neurotrophic factor but not neurotrophin-3 increases more in mice selected for increased voluntary wheel running. *Neuroscience.* 121: 1-7.
 124. Bisgard, G.E., E.B. Olson, Jr., Z-Y Wang, R.W. Bavis, D.D. Fuller and G.S. Mitchell (2003). Duration of postnatal hyperoxia determines function of the adult carotid body. *J. Appl. Physiol.* 95: 946-952.
 125. Johnson, R.A. and G.S. Mitchell (2003). Exercise-induced changes in hippocampal brain derived neurotrophic factor and neurotrophin-3: effects of rat strain. *Brain Res.* 983: 108-114.
 126. Bavis, R.W., E.B. Olson, Jr., E.H. Vidruk, G.E. Bisgard and G.S. Mitchell (2003). Level and duration of perinatal hyperoxia influence subsequent impairment of hypoxic phrenic responses in rats. *J. Appl. Physiol.* 95: 1550-1559.
 127. Zabka, A.G., G.S. Mitchell, E.B. Olson and M. Behan (2003). Chronic intermittent hypoxia enhances respiratory long-term facilitation in geriatric female rats. *J. Appl. Physiol.* 95: 2614-2623.
 128. Wilkerson, J.E.R., M.R. Wenninger, G.S. Mitchell and S.M. Johnson (2003). Time-dependent changes in spontaneous respiratory activity in turtle brainstems in vitro. *Respir. Physiol. Neurobiol.* 138: 253-263.
 129. McGaghie, W.C., D.R. McCrimmon, G. Mitchell and J.A. Thompson (2004). Concept mapping in pulmonary physiology using pathfinder scaling. *Adv Health Sci Educ Theory Pract.* 9: 225-240.
 130. Baker-Herman, T.L., D.D. Fuller, R.W. Bavis, A.G. Zabka, F.J. Golder, N.J. Doperalski, R.A. Johnson, J.J. Watters and G.S. Mitchell (2004). BDNF is necessary and sufficient for spinal respiratory plasticity following intermittent hypoxia. *Nature Neuroscience* 7: 48-55. [Featured in News and Views, *Nature Medicine* 10: 25-26].
 131. Bavis, R.W., E.B. Olson, Jr., E.H. Vidruk, D.D. Fuller and G.S. Mitchell (2004). Developmental plasticity of the hypoxic ventilatory response induced by neonatal hypoxia. *J. Physiol. (London)* 557: 645-660. PMID: PMC1665091

132. Powell, F.L., H. Shams, S. Hempleman and G.S. Mitchell (2004). Breathing in thin air: Acclimatization to altitude in ducks. *Respir. Physiol. Neurobiol.* 144: 225-235.
133. Mitchell, G.S. (2004). News and Views. Back to the future: carbon dioxide chemoreceptors in the mammalian brain. *Nature Neuroscience* 7: 1288-1290.
134. Golder, F.J., A.G. Zabka, R.W. Bavis, T.L. Baker-Herman, D.D. Fuller and G.S. Mitchell (2005). Differences in time-dependent hypoxic phrenic responses among inbred rat strains. *J. Appl. Physiol.* 98: 838-844.
135. Fuller, D.D., G.S. Mitchell and R.W. Bavis (2005). Respiratory neuroplasticity: respiratory gases, development and spinal injury. In: *Pharmacology and Pathophysiology of the Control of Breathing*. Ed.: D.S. Ward, A. Dahan and L. Teppema. Boca Raton: Taylor & Francis, p.155-223.
136. Zabka, A.G., G.S. Mitchell and M. Behan (2005). Aging and gonadectomy have similar effects on hypoglossal long-term facilitation in male Fisher rats. *J. Physiol. (London)*. 563: 557-568. PMID: PMC1665590
137. Bisgard, G.E., E.B. Olson, Jr., R.W. Bavis, J. Wenninger, E.V. Nordheim and G.S. Mitchell (2005). Carotid chemoafferent plasticity in adult rats following developmental hyperoxia. *Respir. Physiol. Neurobiol.* 145: 3-11.
138. Fuller, D.D., T.L. Baker-Herman, F.J. Golder, N.J. Doperalski, J.J. Watters and G.S. Mitchell (2005). Cervical spinal cord injury upregulates ventral spinal 5-HT_{2A} receptors. *J. Neurotrauma*. 22: 203-213.
139. Golder, F.J and G.S. Mitchell (2005). Spinal synaptic enhancement with acute intermittent hypoxia improves respiratory function after chronic cervical spinal cord injury. *J. Neuroscience*. 25: 2925-2932.
140. Wenninger, J.M., E.B. Olson, Jr., Z. Wang, I.M. Keith, G.S. Mitchell and G.E. Bisgard (2006). Carotid sinus nerve responses and ventilatory acclimatization to hypoxia in adult rats following 2 weeks of postnatal hyperoxia. *Respir. Physiol. & Neurobiol.* 150: 155-164.
141. Bavis, R.W., R.A. Johnson, K.M. Ording, J.P. Otis and G.S. Mitchell (2006). Respiratory plasticity after perinatal hypercapnia in rats. *Respir. Physiol. & Neurobiol.* 153: 78-91.
142. Fuller, D.D., F.J. Golder, E.B. Olson Jr. and G.S. Mitchell (2006). Recovery of phrenic activity and ventilation following cervical spinal hemisection in rats. *J. Appl. Physiol.* 100: 800-806.
143. Reeves, S.R., G.S. Mitchell and D. Gozal (2006). Early postnatal chronic intermittent hypoxia modifies hypoxic respiratory responses and long-term phrenic facilitation in adult rats. *Am J Physiol Regul Integr Comp Physiol.* 290: R1664-R1671.
144. Mitchell, G.S., T.G. Babb (2006). Layers of exercise hyperpnea: modulation and plasticity. *Respir. Physiol. & Neurobiol.* 151: 251-266.
145. Lovett-Barr, M.R., G.S. Mitchell, I. Satriotomo and S.M. Johnson (2006). Serotonin-induced in vitro long-term facilitation exhibits differential pattern sensitivity. *Neuroscience* 142: 885-892.
146. Milsom, W.K. F.L. Powell and G.S. Mitchell (2006). Foreword. *Respir. Physiol. Neurobiol.* 154: 1-3.
147. Zabka, A.G., G.S. Mitchell and M. Behan (2006). Conversion from testosterone to oestradiol is required to modulate respiratory long-term facilitation in male rats. *J Physiol*

- (London) 576: 903-912. PMID: PMC1890403
148. Mahamed, S. and G.S. Mitchell (2007). Sleep Apnoea & Hypertension: Physiological bases for a causal relation: Is there a link between intermittent hypoxia-induced respiratory plasticity and obstructive sleep apnoea? *Exp. Physiol.* 92: 27-37.
 149. Neverova, N.V., S.A. Saywell, L.J. Nashold, G.S. Mitchell and J.L. Feldman (2007). Episodic stimulation of alpha1-adrenoreceptors induces PKC-dependent persistent changes in motoneuronal excitability. *J. Neuroscience* 27: 4435-42.
 150. Mitchell GS (2007). Respiratory plasticity following intermittent hypoxia: a guide for novel therapeutic approaches to ventilatory control disorders. In: Genetic Basis for Respiratory Control Disorders (Gaultier C, ed). New York: Springer Publishing Company: 291-311.
 151. Wilkerson, J.E.R., P.M. MacFarlane, M.S. Hoffman and G.S. Mitchell (2007). Respiratory plasticity following intermittent hypoxia: roles of protein phosphatases and reactive oxygen species. *Biochem Soc Trans* 35: 1269-1272.
 152. Bavis, R.W., J.M. Wenninger, B.M. Miller, E.F. Dmitrieff, E.B. Olson, Jr., G.S. Mitchell and G.E. Bisgard (2008). Respiratory plasticity after perinatal hyperoxia is not prevented by antioxidant supplementation. *Respir. Physiol. Neurobiol.* 160: 301-12. PMID: PMC2431464
 153. Wood, H.E., G.S. Mitchell and T.G. Babb (2008). Short-term modulation of the exercise ventilatory response in young men. *J. Appl. Physiol.* 104: 244-52. Accepted for publication prior to April 7, 2008 – NIH Policy does not apply.
 154. Wang, Z.Y., E.B. Olson, D. Bjorling, G.S. Mitchell and G.E. Bisgard (2008). Sustained hypoxia-induced proliferation of carotid body type I cells in rats. *J. Appl. Physiol.* 104: 803-8. Accepted for publication prior to April 7, 2008 – NIH Policy does not apply.
 155. Bavis, R. and G. Mitchell. (2008). Long-term effects of the perinatal environment on respiratory control. *J. Appl. Physiol.* 104: 1220-9. Accepted for publication prior to April 7, 2008 – NIH Policy does not apply
 156. MacFarlane, P.M. and G.S. Mitchell (2008). Respiratory long-term facilitation following intermittent hypoxia requires reactive oxygen species formation. *Neuroscience.* 152: 189-97. PMID: PMC2570770
 157. Mahamed, S. and G.S. Mitchell (2008). Respiratory long-term facilitation: Too much or too little of a good thing? *Adv. Exp. Med. Biol.* 605: 224-227. Accepted for publication prior to April 7, 2008 – NIH Policy does not apply.
 158. Golder, F.J., L. Ranganathan, I. Satriotomo, M. Hoffman, M.R. Lovett-Barr, J.J. Watters, T.L. Baker-Herman and G.S. Mitchell (2008). Spinal adenosine A2A receptor activation elicits long-lasting phrenic motor facilitation. *J. Neuroscience.* 28: 2033-2042. Accepted for publication prior to April 7, 2008 – NIH Policy does not apply.
 159. Wilkerson, J.E.R., P.M. MacFarlane, M. Hoffman, I. Satriotomo, T.L. Baker-Herman, J.J. Watters and G.S. Mitchell (2008). Okadaic acid-sensitive protein phosphatases constrain phrenic long-term facilitation following sustained hypoxia. *J. Neuroscience* 28: 2949-2958. Accepted for publication prior to April 7, 2008 – NIH Policy does not apply.
 160. Mahamed, S. and G.S. Mitchell (2008). Simulated apneas elicit respiratory long-term facilitation in anesthetized rats. *J. Physiol. (London)* 586: 2171-81. PMID:

PMC2465200

161. Mitchell, G.S., D.L. Turner, D.R. Henderson and K.T. Foley (2008). Spinal serotonin receptor activation modulates the exercise ventilatory response with increased dead space in goats. *Respir. Physiol. & Neurobiol.* 161: 230-8. PMID: PMC2430025
162. Baker-Herman, T.L. and G.S. Mitchell (2008). Determinants of frequency long-term facilitation following acute intermittent hypoxia in vagotomized rats. *Respir. Physiol. & Neurobiol.* 62: 8-17. PMID: PMC2504692
163. MacFarlane, P., J.E.R. Wilkerson, M.R.L. Barr and G.S. Mitchell (2008). Reactive oxygen and respiratory plasticity following intermittent hypoxia. *Respir. Physiol. & Neurobiol.* 164: 263-71. PMID: PMC2642907
164. McCrimmon, D.R., G.S. Mitchell and G.F. Alheid (2008). Overview: the neurochemistry of respiratory control. *Respir. Physiol. & Neurobiol.* 164: 1-2. PMID: PMC2642897
165. Feldman, J.L., D.R. McCrimmon, G.S. Mitchell and C.A. Del Negro (2009). Brainstem Respiratory Circuits. In: Squire L.R. (ed.) *Encyclopedia of Neuroscience*, volume 2, pp. 463-470. Oxford: Academic Press. Book Chapter – NIH policy does not apply.
166. McCrimmon, D.R., G.S. Mitchell, J.L. Feldman and G.F. Alheid (2009). Network Control. In: Squire L.R. (ed.) *Encyclopedia of Neuroscience*, volume 6, pp. 79-89. Oxford: Academic Press. Book Chapter – NIH policy does not apply.
167. Mitchell, G.S., D.R. McCrimmon, J.L. Feldman and T.L. Baker-Herman (2009). Respiration. In: Squire L.R. (ed.) *Encyclopedia of Neuroscience*, volume 8, pp. 121-130. Oxford: Academic Press. Book Chapter – NIH policy does not apply.
168. Wilkerson, J.E.R. and G.S. Mitchell (2009). Daily intermittent hypoxia augments spinal BDNF levels, ERK phosphorylation and respiratory long-term facilitation in Brown Norway rats. *Experimental Neurology* 217: 116-123. PMID: PMC2691872
169. MacFarlane, P., I. Satriotomo, J.A. Windelborn, and G.S. Mitchell (2009). NADPH oxidase activity is necessary for acute intermittent hypoxia-induced phrenic long-term facilitation. *J. Physiol. (London)*. 587: 1931-1942. PMID: PMC2689334
170. Wood, H.E., G.S. Mitchell and T.G. Babb (2009). Breathing mechanics during exercise with added external dead space reflect mechanisms of ventilatory control. *Respir. Physiol. Neurobiol.* 168: 210-7. Not NIH funded.
171. Marcus, C., R.J.H. Smith, L. Mankarious, R. Arens, G.S. Mitchell, R.G. Elluru, V. Forte, S. Goudy, E.W. Jabs, E. Katz, D. Paydarfar, R.H. Reeves, J.T. Richtsmeier, R.L. Ruiz, B.T. Thach, D.E. Tunkel, J.A. Whitsett, D. Wootton and C.J. Blaisdell (2009). Developmental aspects of the upper airway: Report from an NHLBI Workshop March 5-6, 2009. *Proc. Am. Thorac. Soc.* 6: 513-20. Conference Proceedings – NIH policy does not apply.
172. Vinit, S., M.R. Lovett-Barr and G.S. Mitchell (2009). Intermittent hypoxia induces functional recovery following cervical spinal injury. *Respir. Physiol. & Neurobiol.* 169: 210-217. PMID: PMC2783733.
173. MacFarlane, P. and G.S. Mitchell (2009). Episodic spinal serotonin receptor activation elicits long-lasting phrenic motor facilitation by an NADPH oxidase-dependent mechanism. *J. Physiology (London)* 587: 5469-81. PMID: PMC2793877
174. Hoffman, M.S., F.J. Golder, S. Mahamed and G.S. Mitchell (2010). Spinal adenosine 2A receptor inhibition enhances phrenic long term facilitation following acute intermittent

- hypoxia. *J. Physiol. (London)* 588: 255-266. PMID: PMC2821563
175. Baker-Herman, T.L., Bavis, R.W., Dahlberg, J., A.Z. Mitchell, J.E. Wilkerson, P.M. MacFarlane, J.J. Watters, M. Behan and G.S. Mitchell (2010). Differential expression of respiratory long-term facilitation among inbred rat strains. *Respir. Physiol. Neurobiol.* 170:260-267. PMID: PMC2844459
 176. Dale-Nagle, E.A., M.S. Hoffman, P.M. MacFarlane and G.S. Mitchell (2010). Multiple pathways to long-lasting phrenic motor facilitation. *Adv. Exp. Med. Biol.* 669: 225-30. PMID: PMC3021942.
 177. Dale-Nagle, E.A., M.S. Hoffman, P.M. MacFarlane, I. Satriotomo, M.R. Lovett-Barr, S. Vinit and G.S. Mitchell (2010). Spinal plasticity following intermittent hypoxia: implications for spinal injury. *Ann. N.Y. Acad. Sci.* 1198: 252-59. PMID: PMC3030965.
 178. Babb, T.G., H.E. Wood and G.S. Mitchell (2010). Short and long term modulation of the exercise ventilatory response. *Med Sci Sport Exerc.* 42: 1681-1687. PMID: PMC3022007.
 179. Nakamura, A., Olson, E.B., Jr., J. Terada, Jr., J.M. Wenninger, G.E. Bisgard and G.S. Mitchell (2010). Sleep-state dependence of ventilatory long-term facilitation following acute intermittent hypoxia in Lewis rats. *J. Appl. Physiol.* 109: 323-331. PMID: PMC2928603.
 180. Guenther, C.H., S. Vinit, J.A. Windelborn, M. Behan and G.S. Mitchell (2010). Atypical Protein Kinase C expression in phrenic motor neurons. *Neuroscience.* 169: 787-793. PMID: PMC2904407.
 181. Johnson, R.A., T.L. Baker-Herman, I.D. Duncan and G.S. Mitchell (2010). Ventilatory impairment in the dysmyelinated Long Evans shaker (les) rat. *Neuroscience* 169: 1105-1114. PMID: PMC2927872.
 182. Wood, H.E., G.S. Mitchell and T.G. Babb. (2010). Short-term modulation of the exercise ventilatory response in older men. *Respir. Physiol. & Neurobiol.* 173: 37-46. PMID: PMC Journal in Process.
 183. Sibigtroth, C.M. and G.S. Mitchell (2011). Carotid chemoafferent activity is not necessary for phrenic long-term facilitation following intermittent hypoxia. *Respir. Physiol. & Neurobiol.* 176: 73-79. PMID: PMC Journal in Process.
 184. Mahamed, S., K.A. Strey, G.S. Mitchell and T.L. Baker-Herman (2011). Reduced respiratory neural activity elicits phrenic motor facilitation. *Respir. Physiol & Neurobiol.* 175: 303-309. PMID: PMC3062195.
 185. MacFarlane, P.M., I. Satriotomo and G.S. Mitchell (2011). Serotonin 2A and 2B receptor induced phrenic motor facilitation: differential requirement for NADPH oxidase activity. *Neurosci.* 178: 45-55. PMID: PMC Journal in Process.
 186. Hoffman, M.S. and G.S. Mitchell (2011). Spinal 5-HT₇ Receptor Activation Induces Long-Lasting Phrenic Motor Facilitation. *J. Physiol. (London)* 589: 1397-1407. PMID: PMC3082099.
 187. Vinit, S., J.A. Windelborn and G.S. Mitchell (2011). Lipopolysaccharide impairs phrenic long term facilitation following acute intermittent hypoxia in rats. *Respir. Physiol. & Neurobiol.* 176: 130-135. PMID: PMC3096524.
 188. Terada, J. and G.S. Mitchell (2011). Diaphragm long-term facilitation following acute intermittent hypoxia during wakefulness and sleep. *J. Appl. Physiol.* 110(5):1299-310.

- PMCID: PMC3098661.
189. Mitchell, G.S. and J. Terada (2011). Invited commentary: Should we standardize protocols and preparations used to study respiratory plasticity? *Respir. Physiol. & Neurobiol.* 177(2):93-7. PMCID: PMC Journal in Process.
 190. Dale-Nagle, E.A., I. Satriotomo and G.S. Mitchell (2011). Spinal vascular endothelial growth factor induces phrenic motor facilitation via ERK and Akt signaling. *J. Neurosci.* 31(21):7682-90. PMCID: PMC Journal in Process.
 191. Golder, F.J., D.D. Fuller, M.R. Lovett-Barr, S. Vinit, D.K. Resnick and G.S. Mitchell (2011). Breathing patterns after mid-cervical spinal contusion in rats. *Exp Neurol.* 231: 97-103. PMCID: PMC Journal in Process.
 192. Huxtable, A.G., S. Vinit, J.A. Windelborn, S.M. Crader, C.H. Guenther, J.J. Watters and G. S. Mitchell (2011). Systemic inflammation impairs respiratory chemoreflexes and plasticity. *Respir. Physiol. & Neurobiol.* 178(3):482-9.
 193. Wood, H.E., G.S. Mitchell and T.G. Babb (2011). Short-term modulation of the exercise ventilatory response in younger and older women. *Respir. Physiol. & Neurobiol.* 179(2-3): 235-47.
 194. Trumbower, R.D.*, A. Jayaraman, G.S. Mitchell and W.Z. Rymer (2012). Exposure to acute intermittent hypoxia augments somatic motor function in humans with incomplete spinal cord injury. *Journal of Neurorehabilitation and Neural Repair.* 26(2):163-72.
 195. Windelborn, J.A. and G.S. Mitchell (2012). Persistent spinal glial activation below a chronic cervical spinal injury. *Respir. Physiol. & Neurobiol.* 180(1):61-8.
 196. Hengen K.B., N.R. Nelson, K.M. Stang, S.M. Johnson, S.M. Crader, J.J. Watters, G.S. Mitchell and M. Behan (2012). Increased GABA_A receptor ϵ -subunit expression on ventral respiratory column neurons protects breathing during pregnancy. *Plos One* 7(1): e30608.
 197. Johnson, R.A., M. Lam, A.M. Punzo, H. Li, B.R. Lin, K. Ye, G.S. Mitchell, and Q. Chang (2012). 7,8-dihydroxyflavone exhibits therapeutic efficacy in a mouse model of Rett syndrome. *J. Appl. Physiol.* 12(5):704-10.
 198. Lovett-Barr, M.R.*, I. Satriotomo*, G. Muir*, J.E.R. Wilkerson, M.S. Hoffman and G.S. Mitchell (2012). Repetitive intermittent hypoxia induces respiratory and somatic motor recovery following chronic cervical spinal injury. *J. Neuroscience.* 32: 3591-3600.
 199. Guenther, C.H., J.A. Windelborn, T.C. Tubon, J.C.P. Yin and G.S. Mitchell (2012). Increased atypical PKC expression and activity in the phrenic motor nucleus following cervical spinal injury. *Experimental Neurology.* 234:513-520.
 200. Nichols, N.L., E.A. Dale-Nagle and G.S. Mitchell (2012). Severe acute intermittent hypoxia elicits long-lasting phrenic motor facilitation by a novel adenosinergic mechanism. *J. Appl. Physiol.* 112: 1678-1688.
 201. Dale-Nagle, E.A., I. Satriotomo and G.S. Mitchell (2012). Spinal erythropoietin induces phrenic motor facilitation via ERK and Akt signaling. *J. Neurosci.* 32:5973-5983.
 202. Satriotomo, I., E.A. Dale, J.M. Dahlberg and G.S. Mitchell (2012). Repetitive acute intermittent hypoxia increases expression of proteins associated with plasticity in the phrenic motor nucleus. *Experimental Neurology* 237:103-115.
 203. Hoffman, M.S., N. Nichols, P.M. MacFarlane and G.S. Mitchell (2012). Phrenic long term facilitation following acute intermittent hypoxia requires spinal ERK activation but

- not TrkB synthesis. *J. App. Physiol.* 113: 1184-1193.
204. Nichols, N.L., A.M. Punzo, I.D. Duncan, G.S. Mitchell and R.A. Johnson (2012). Cervical spinal demyelination with ethidium bromide transiently impairs respiratory (phrenic) and forelimb motor behavior in rats. *Neuroscience* 229: 77-87.
 205. Dale, E.A., I. Satriotomo and G.S. Mitchell (2013). Spinal vascular endothelial growth factor (VEGF) and erythropoietin (EPO) induced phrenic motor facilitation after repetitive acute intermittent hypoxia. *Respir. Physiol. & Neurobiol.* 185: 481-488.
 206. Nichols, N.L., G. Gowing, I. Satriotomo, L.J. Nashold, E.A. Dale, M. Suzuki, P. Avalos, P. Mulcrone, J. McHugh, C.N. Svendsen and G.S. Mitchell (2013). Intermittent hypoxia and stem cell implants preserve breathing capacity in a rat model of ALS. *Am. J. Resp. Crit. Care Med.* 187(5):535-42.
 207. Huxtable, A.G., S.M. Smith, S. Vinit, J.J. Watters and G.S. Mitchell (2013). Systemic LPS induces spinal inflammatory gene expression and impairs phrenic long-term facilitation following acute intermittent hypoxia. *J. Appl. Physiol.* 114(7):879-87.
 208. Devinney, M.J., A.G. Huxtable, N.L. Nichols and G.S. Mitchell (2013). Hypoxia-induced phrenic long-term facilitation: emergent properties. *Ann. N.Y. Acad. Sci.* 1279:143-53.
 209. Hoffman, M.S. and G.S. Mitchell (2013). Spinal 5-HT7 receptors and protein kinase A constrain intermittent hypoxia-induced phrenic long-term facilitation. *Neuroscience.* 250: 632-643.
 210. Johnson, R.A. and G.S. Mitchell (2013). Common mechanisms of compensatory respiratory plasticity in spinal neurological disorders. *Respir. Physiol. & Neurobiol.* 189: 419-428.
 211. Nichols, N.L., J. Van Dyke, L. Nashold, I. Satriotomo, M. Suzuki and G.S. Mitchell (2013). Ventilatory control in ALS. *Respir. Physiol. & Neurobiol.* 189: 429-437.
 212. Smith, S.M., G.S. Mitchell, S.A. Friedle, C.M. Sibigtroth, S. Vinit and J.J. Watters (2013). Hypoxia attenuates purinergic P2X receptor-induced inflammatory gene expression in brainstem microglia. *Hypoxia* 1:1-11. (NIHMSID: 518440).
 213. Dale, E.A., F. Ben Mabrouk and G.S. Mitchell (2014). Unexpected benefits of intermittent hypoxia: enhanced respiratory and non-respiratory motor function. *Physiology* 29: 39-48.
 214. Hayes, H.B., A. Jayaraman, A., M. Herrmann, G.S. Mitchell, W.Z. Rymer and R.D. Trumbower (2014). Daily intermittent hypoxia enhances walking after chronic spinal cord injury: a randomized trial. *Neurology* 82: 104-13.
 215. Ramirez, J.M. and G.S. Mitchell (2013). Clinical challenges to ventilatory control. *Respir. Physiol. & Neurobiol.* 189: 211-212.
 216. Nikodemova, M., A.L. Small, S.M. Smith, G.S. Mitchell and J.J. Watters (2014). Spinal but not cortical microglia acquire an atypical phenotype with high VEGF, galectin-3 and osteopontin, and blunted inflammatory responses in ALS rats. *Neurobiology of Disease* 69: 43-53.
 217. Smith, S.M.C., G.S. Mitchell, S.A. Friedle and J.J. Watters (2013). Chronic intermittent hypoxia exerts CNS region-specific effects on rat microglial inflammatory and TLR4 gene expression. *PLoS One* [Epub ahead of print] PMID: 24377098.
 218. Kelly, S.A., E. L. Rezende, M.A. Chappell, F.R. Gomes, E.M. Kolb, J.L. Malisch, J.S. Rhodes, G.S. Mitchell and T. Garland, Jr. (2014). Exercise training effects on hypoxic

- and hypercapnic ventilatory responses in mice selected for increased voluntary wheel running. *Experimental Physiology* 99: 403-413.
219. Huxtable, A.G., P.M. MacFarlane, S. Vinit, N.L. Nichols, E.A. Dale and G.S. Mitchell (2014). Adrenergic $\alpha 1$ receptor activation is sufficient, but not necessary for phrenic long-term facilitation. *J. Appl. Physiol.* 116: 1345-1352.
 220. MacFarlane, P.M., S. Vinit and G.S. Mitchell (2014). Spinal nNOS regulates phrenic motor facilitation by a 5-HT_{2B} receptor- and NADPH oxidase-dependent mechanism. *Neuroscience* 269:67-78.
 221. Nichols, N.L., R.A. Johnson, I. Satriotomo and G.S. Mitchell (2014). Neither Serotonin nor Adenosine-dependent Mechanisms Preserve Ventilatory Capacity in ALS rats. *Respir. Physiol. & Neurobiol.* 197: 19-28.
 222. Navarette-Opazo, A., E.A. Dale and G.S. Mitchell (2014). Therapeutic potential of intermittent hypoxia: lessons from respiratory motor plasticity (2014). In: Adaptations and maladaptations to hypoxia, Editors: S.B. Singh, N.R. Prabhakar and S.N. Pentylala. Springer India (Pvt) Ltd, New Delhi, India.
 223. Navarrete Opazo A. and G.S. Mitchell (2014). Recruitment and plasticity in accessory respiratory muscles in unanesthetized rats. *Journal of Applied Physiology* 117: 180-188.
 224. Navarrete Opazo A., S. Vinit and G.S. Mitchell (2014). Adenosine 2A receptor inhibition enhances acute intermittent hypoxia-induced diaphragm but not intercostal long-term facilitation. *J. Neurotrauma.* 31(24):1975-84.
 226. Navarette-Opazo, A. and G.S. Mitchell (2014). Therapeutic Potential of Intermittent Hypoxia: A Matter of Dose. *American Journal of Physiology: Regulatory, Integrative and Comparative.* 307: R1181-97.
 227. Nichols, N.L., S. Vinit, L. Bauernschmidt and G.S. Mitchell (2014). Respiratory function after selective respiratory motor neuron death from intrapleural CTB-saporin injections. *Exp Neurol.* 267:18-29.
 228. Fields, D. and G.S. Mitchell (2015). Spinal Metaplasticity in Respiratory Motor Control. *Front. Neural Circuits.* 9: 2 eCollection.
 229. Navarrete-Opazo, A., S. Vinit, B.J. Dougherty and G.S. Mitchell (2015). Daily acute intermittent hypoxia elicits functional recovery of diaphragm and inspiratory intercostal muscle activity after acute cervical spinal injury. *Exp Neurol* 266:1-10.
 230. Hengen, K.B., N.R. Nelson, K.M. Stang, S.M. Johnson, S.M. Crader, J.J. Waters, G.S. Mitchell and M. Behan (2015). Daily isoflurane exposure increases barbiturate insensitivity in medullary respiratory and cortical neurons via expression of ϵ -subunit containing GABAARs. *PLoS One.* 10: e0119351.
 231. Prosser-Loose, E., A. Hassan, G.S. Mitchell and G.D. Muir (2015). Delayed intervention with intermittent hypoxia improves forelimb function in a rat model of cervical spinal injury. *J. Neurotrauma* 32:1403-12.
 232. Huxtable, A.G., S.M.C. Smith, T. Peterson, J.J. Watters and G.S. Mitchell (2015). Intermittent hypoxia-induced spinal inflammation impairs respiratory motor plasticity by a spinal p38 MAP kinase-dependent mechanism. *J. Neuroscience* 35: 6871-80.
 233. Devinney, M.J., D.P. Fields, A. Huxtable, T. Peterson, E.A. Dale and G.S. Mitchell (2015). Phrenic long-term facilitation requires PKC θ activity within phrenic motor neurons. *J. Neuroscience* 35: 8107-17.

234. Gonzalez-Rothi, E.J., K.Z. Lee, E.A. Dale, P.J. Reier, G.S. Mitchell and D.D. Fuller (2015). Intermittent hypoxia and neurorehabilitation. *J. Appl. Physiol.* 119:1455-65.
235. Peters, M.E., R.S. Kimyon, G.S. Mitchell and J.J. Watters (2015). Repetitive Acute Intermittent Hypoxia Does Not Promote Generalized Inflammatory Gene Expression in the Rat CNS. *Respiratory Physiology & Neurobiology* 218:1-10.
236. Dougherty, B.J. D.P. Fields and G.S. Mitchell (2015). Mammalian target of rapamycin is required for phrenic long-term facilitation following severe but not moderate acute intermittent hypoxia. *J Neurophysiol.* 114:1784-91.
237. Fields, D.P., S. Springborn and G.S. Mitchell (2015). Spinal 5-HT7 receptors induce phrenic motor facilitation via EPAC-mTORC1 signaling. *J Neurophysiol.* 114: 2015-22.
238. Nichols, N.L., I. Satriotomo, D.J. Harrigan and G.S. Mitchell (2015). Acute intermittent hypoxia induced phrenic long-term facilitation despite increased SOD1 expression in a rat model of ALS. *Exp Neurol.* 273:138-50.
239. Nichols, N.L. and G.S. Mitchell (2015). Quantitative assessment of integrated phrenic nerve activity. *Respir. Physiol. & Neurobiol.* 226: 81-86.
240. Lynch, M., L. Duffell, M. Sandhu, S. Srivatsan, K. Deatsch, A. Kessler, G.S. Mitchell, A. Jayaraman and W.Z. Rymer (2017). Effect of Acute Intermittent Hypoxia on Motor Function in Individuals with Chronic Spinal Cord Injury Following Ibuprofen Pretreatment: A Pilot Study. *J Spinal Cord Med.* 40: 295-303.
241. Kiernan, E.A., S.M.C. Smith, G.S. Mitchell and J.J. Watters (2016). Mechanisms of microglial activation in models of inflammation and hypoxia: implications for chronic intermittent hypoxia. *J. Physiol. (London)* 594:1563-77.
242. Satriotomo, I., Nichols N.L., E.A. Dale-Nagle, J. Dahlberg and G.S. Mitchell (2016). Repetitive acute intermittent hypoxia increases growth/neurotrophic factor expression in non-respiratory motor neurons. *Neuroscience* 322:479-88.
243. Navarrete-Opazo, A., B.J. Dougherty and G.S. Mitchell (2017). Enhanced recovery of breathing capacity from combined adenosine 2A receptor inhibition and daily acute intermittent hypoxia after chronic cervical spinal injury. *Exp. Neurol.* 287: 93-101.
244. Dale, E.A., D. P. Fields, M.J. Devinney and G.S. Mitchell (2017). Phrenic motor neuron TrkB expression is necessary for acute intermittent hypoxia-induced phrenic long-term facilitation. *Exp. Neurol.* 287: 130-136.
245. Fuller, D.D. and G.S. Mitchell (2017). Respiratory Neuroplasticity – overview, significance and future directions. *Exp. Neurol.* 287: 144-152.
246. Devinney, M.J., N.L. Nichols and G.S. Mitchell (2016). Sustained hypoxia elicits competing spinal mechanisms of phrenic motor facilitation. *J. Neuroscience* 36: 7877-85.
247. Fields, D.P. and G.S. Mitchell (2016). Divergent cAMP signaling differentially regulates serotonin-induced spinal motor plasticity. *Neuropharmacology* 113: 82-88.
248. Agosto-Marlin, I.M., N.L. Nichols and G.S. Mitchell (2016). Adenosine-dependent phrenic motor facilitation is inflammation resistant. *J Neurophysiology* 117: 836-845.
249. Bernhardt, V., G.S. Mitchell, W.Y. Lee and T. Babb. Short-Term Modulation of the Ventilatory Response to Exercise is Preserved in Obstructive Sleep Apnea. *Respir. Physiol & Neurobiol.* 236:42-50.
250. Nichols, N.L., I. Satriotomo, L.L. Allen, A.M. Majewski, D.J. Harrigan and G.S. Mitchell (2017). Mechanisms of enhanced phrenic long-term facilitation in SOD1^{G93A} rats. *J.*

- Neuroscience* 37: 5834-5845.
251. Dougherty, B.J., J. Terada, S. Vinit, P. MacFarlane and G.S. Mitchell (and others). Methysergide blocks functional recovery of breathing capacity induced by daily acute intermittent hypoxia in rats with chronic, but not acute cervical spinal hemisection. Epub ahead of print: PMID: 28549897.
 252. Reier, P.J, D.R. Howland, G.S. Mitchell, J.R. Wolpaw, D. Hoh and M.A. Lane (2017). Spinal Cord Injury: Repair, Plasticity and Rehabilitation. In: eLS., John Wiley & Sons, Ltd: Chichester. DOI: 10.1002/9780470015902.a0021403.pub2

ABSTRACTS SINCE 2010 (Total abstracts: >345)

275. Guenther, C.H., T. Tubon, J. Yin and G.S. Mitchell (2010). Alterations in atypical PKC expression and activity near the phrenic motor nucleus following cervical spinal injury. *FASEB J.*
276. Johnson, R.A. and G.S. Mitchell (2010). Ventilatory effects of focal spinal demyelination within descending respiratory-related pathways. *FASEB J.*
277. Windelborn, J.A. and G.S. Mitchell (2010). Systemic inflammation suppresses hypoxic and hypercapnic ventilatory responses in rats *FASEB J.*
278. Nichols, N.L. and G.S. Mitchell (2010). Enhanced phrenic but not XII long-term facilitation (LTF) following acute intermittent hypoxia (AIH) in a rat model of amyotrophic lateral sclerosis (ALS) *FASEB J.*
279. Vinit, S., I. Satriotomo, P.M. MacFarlane and G.S. Mitchell (2010). Enhanced Phrenic Long-Term Facilitation (pLTF) Following Repetitive Acute Intermittent Hypoxia *FASEB J.*
280. MacFarlane, P.M., S. Vinit, A. Roopra and G.S. Mitchell (2010). Enhanced Phrenic Long-Term Facilitation Following Repetitive Acute Intermittent Hypoxia: Role of Glycolytic Flux. *FASEB J.*
281. Satriotomo, I. S. Vinit, A.L. Flom and G.S. Mitchell (2010). Repetitive Acute Intermittent Hypoxia Increases BDNF and TrkB Expression in Respiratory Motor Neurons: Dose Effects. *FASEB J.*
282. Dale, E.A., I. Satriotomo and G.S. Mitchell (2010). Erythropoietin (EPO)-induced phrenic motor facilitation (PMF) requires ERK activation. *FASEB J.*
283. Watters, J.J., S.A. Friedle, C.M. Sibigroth, S. Vinit and G.S. Mitchell (2010). Oxygen History Influences Purinergic Receptor Effects on Microglial Inflammatory Gene Expression. *J. Neurochem.*
284. Vinit, S., I. Satriotomo and G.S. Mitchell (2010). Intermittent hypoxia: a novel treatment to induce spinal plasticity. Proc. International Symposium on Neural Regeneration.
285. Gowing, G., N.L. Nichols, M. Suzuki, J. McHugh, A. Hayes, P. Mulcrone, G.S. Mitchell and C.N. Svendsen (2010). Targeting of human neural progenitor cells expressing GDNF to the cervical spinal cord of a rat model of ALS. *SFN Abstracts.*
286. Nichols, N.L., G. Gowing, M. Suzuki, C.N. Svendsen and G.S. Mitchell (2010). GDNF-secreting stem cell implants strengthen phrenic motor output in a rat model of Amyotrophic Lateral Sclerosis (SOD1^{G93A} rats). *SFN Abstracts.*
287. MacFarlane, P.M., S. Vinit, G.S. Mitchell, A. Roopra and A. Flom (2010). Differential expression of phrenic and hypoglossal metaplasticity among two inbred colonies of

- Lewis rats: effects of repetitive intermittent hypoxia and 2-deoxyglucose. *SFN Abstracts*.
288. Trumbower, R.D., A. Jayaraman, C.K. Thompson, G.S. Mitchell and W.Z. Rymer (2010). One-day exposure of acute intermittent hypoxia on somatic motor function in human SCI. *SFN Abstracts*.
 289. Vinit, S., P.M. MacFarlane and G.S. Mitchell (2010). Phrenic and hypoglossal long term facilitation differs among colonies of LEWIS rats. *SFN Abstracts*.
 290. Huxtable, A.G., P.M. MacFarlane and G.S. Mitchell (2010). Episodic spinal α 1 receptor activation induces phrenic motor facilitation in adult rats. *SFN Abstracts*.
 291. Dale-Nagle, E.A. and G.S. Mitchell (2010). ERK-dependent Erythropoietin (EPO)-induced phrenic motor facilitation (PMF) also requires Akt activation. *SFN Abstracts*.
 292. Dale-Nagle, E.A., N.L. Nichols, K. Bowen and G.S. Mitchell (2011). Severe acute intermittent hypoxia elicits long-lasting phrenic motor facilitation by an adenosinergic mechanism. *FASEB J*.
 293. MacFarlane, P.M., S. Vinit and G.S. Mitchell (2011). Spinal nitrenergic-serotonergic signaling in phrenic long-term facilitation following acute intermittent hypoxia. *FASEB J*.
 294. Johnson, R.A., Q. Chang, A. Punzo, H. Li, M. Lam and G.S. Mitchell (2011). Ventilatory control in *mecp-2* knockout mice: effects of 7,8 dihydroxyflavone (7,8-DHF). *FASEB J*.
 295. Nichols, N.L., P. Mulcrone, J.J. Watters, C.N. Svendsen and G.S. Mitchell (2011). Enhanced phrenic long-term facilitation (pLTF) following intermittent hypoxia in a rat ALS model (SOD1^{G93A}) is attenuated by spinal siRNAs targeting BDNF and TrkB synthesis. *FASEB J*.
 296. Ben Mabrouk, F., S. Vinit and G.S. Mitchell (2011). C2 hemisection affects the balance between KCC2 and NKCC1 in phrenic motoneurons, required for normal rhythmic nerve activity. *FASEB J*.
 297. Terada, J. and G.S. Mitchell (2011). Diaphragm and genioglossus long-term facilitation following acute intermittent hypoxia during sleep in unanesthetized rats. *Proceedings of the American Thoracic Society*.
 298. Mitchell, G.S. (2011). Spinal plasticity in ALS and spinal injury: therapeutic implications. *Proceedings of the American Society for Neurochemistry*.
 299. Huxtable, A.G., S.M. Crader, J.J. Watters and G.S. Mitchell (2011). Systemic inflammation induced by lipopolysaccharide or severe intermittent hypoxia impairs respiratory plasticity. *SFN Abstracts*.
 300. Ben Mabrouk, F., S. Vinit and G.S. Mitchell (2011). Intermittent hypoxia restores the KCC2-NKCC1 balance following C2 hemisection. *SFN Abstracts*.
 301. Satriotomo, I. and G.S. Mitchell (2011). Differential expression of VEGFs and VEGF receptors in cell types of phrenic motor neurons of SOD1 mutant rats. *SFN Abstracts*.
 302. Nichols, N.L., E.A. Dale-Nagle and G.S. Mitchell (2011). Severe acute intermittent hypoxia induces adenosine (not serotonin) dependent phrenic long-term facilitation. *SFN Abstracts*.
 303. Nichols, N.L. M.J. Devinney and G.S. Mitchell (2012). Severe sustained hypoxia elicits long-lasting phrenic motor facilitation by an adenosinergic mechanism. *FASEB J*.

304. Devinney, M.J., N.L. Nichols and G.S. Mitchell (2012). A_{2A} receptor blockade reveals phrenic motor facilitation (pMF) following moderate sustained hypoxia. *FASEB J*.
305. Huxtable, A.G., T. Peterson, S.M. Crader, J.J. Watters and G.S. Mitchell (2012). Spinal respiratory plasticity is impaired by two models of systemic inflammation, lipopolysaccharide and severe intermittent hypoxia. *FASEB J*.
306. Dale, E.A., I. Satriotomo and G.S. Mitchell (2012). Spinal VEGF induced phrenic motor facilitation is unaffected by pretreatment with repetitive acute intermittent hypoxia. *FASEB J*.
307. Hayes, H.B., I.J. Cooke, A. Jayaraman, M. Hermmann, K. Tansey, L.R. VanHiel, G.S. Mitchell, W.Z. Rymer and R.D. Trumbower (2012). Effects of daily acute intermittent hypoxia on over-ground walking performance in persons with chronic, incomplete spinal cord injury. *ISCOS Abstracts*.
308. Nichols, N.L., J.J. Watters and G.S. Mitchell (2012). Enhanced phrenic long-term facilitation following intermittent hypoxia requires spinal BDNF synthesis and ERK activation in SOD1^{G93A} rats. Proceedings of the Symposium on: "Cellular and Network Functions in the Spinal Cord." Madison, Wisconsin.
309. Devinney, M.L., N.L. Nichols and G.S. Mitchell (2012). Serotonin/adenosine interactions impart pattern sensitivity to intermittent hypoxia-induced phrenic long-term facilitation. Proceedings of the Symposium on: "Cellular and Network Functions in the Spinal Cord." Madison, Wisconsin.
310. Nikodemova, M., S. Crader-Smith, G.S. Mitchell and J.J. Watters (2012). Spatial and temporal changes in microglial phenotype in a rat ALS model. Proceedings of the Symposium on: "Cellular and Network Functions in the Spinal Cord." Madison, Wisconsin.
311. Mitchell, G.S. (2012). Multiple pathways to spinal respiratory motor facilitation: functional implications. Proceedings of the Symposium on: "Cellular and Network Functions in the Spinal Cord." Madison, Wisconsin.
312. Hayes, H.B., L.H. Ting, W.Z. Rymer, G.S. Mitchell and R.D. Trumbower (2012). Effect of single-day acute intermittent hypoxia on over-ground walking speed and muscle coordination in persons with incomplete spinal cord injury. *SFN Abstracts*.
313. Huxtable, A.G., S.M. Smith, T. Peterson, J.J. Watters and G.S. Mitchell (2012). Severe intermittent hypoxia causes systemic inflammation and impairs respiratory plasticity. *SFN Abstracts*.
314. Devinney, M.J., N.L. Nichols and G.S. Mitchell (2012). Interactions between serotonergic and adenosinergic mechanisms confer pattern sensitivity to hypoxia-induced phrenic long-term facilitation (pLTF). Proceedings of the Oxford Conference for Modeling and the Control of Breathing. Holland, August, 2012.
315. Mitchell, G.S., E.A. Dale, N.L. Nichols and M.S. Hoffman (2012). Multiple pathways to spinal respiratory motor facilitation: functional implications. Proceedings of the Oxford Conference for Modeling and the Control of Breathing. Holland, August, 2012.
316. Watters, J.J., S.M. Smith, A.G. Huxtable and G.S. Mitchell (2012). Inflammation impairs spinal respiratory plasticity following acute intermittent hypoxia. Proceedings of the Oxford Conference for Modeling and the Control of Breathing. Holland, August, 2012 .
317. Nichols, N.L. and G.S. Mitchell (2012). Enhanced phrenic long-term facilitation

- following intermittent hypoxia requires spinal BDNF synthesis and ERK activation in a rodent model of amyotrophic lateral sclerosis (SOD1^{G93A} rats). Proceedings of the Oxford Conference for Modeling and the Control of Breathing. Holland, August, 2012.
318. Devinney, M.J., D.P. Fields and G.S. Mitchell (2013). Spinal PKC- θ activity is required for phrenic long-term facilitation after acute intermittent hypoxia. *FASEB J.*
319. Dale, E.A., D.P. Fields and G.S. Mitchell (2013). Intraleural siRNAs targeting TrkB attenuate acute intermittent hypoxia (AIH)-induced phrenic long-term facilitation (pLTF). *FASEB J.*
320. Nichols, N.L., S. Vinit and G.S. Mitchell (2013). Intraleural CTB-saporin selectively kills phrenic motor neurons: a motor neuron disease model. *FASEB J.*
321. Navarrete Opazo, A.A., B. Wathen and G.S. Mitchell (2013). Inspiratory intercostal long-term facilitation in unanesthetized rats. *FASEB J.*
322. Peterson, T.J., A.G. Huxtable, A.G. and G.S. Mitchell (2013). Intermittent hypoxia-1 activated p38 MAP kinase in phrenic motor neurons and nearby microglia. *FASEB J.*
323. Mitchell, G.S. (2013). Intermittent hypoxia improves respiratory (and non-respiratory) motor function with chronic, incomplete cervical injury. *Proceedings of the International Society of Neural Regeneration.*
324. Dougherty, B.D., S.R. Springborn and G.S. Mitchell (2013). Mechanisms of intermittent-hypoxia induced functional recovery after cervical spinal cord injury. *Proceedings of the International Society of Neural Regeneration.*
325. Nichols, N.L. and G.S. Mitchell (2014). Enhanced phrenic long-term facilitation (pLTF) in rats with motor neuron death from intraleural CTB-saporin injections. *FASEB J.*
326. Dougherty, B.D., S.R. Springborn and G.S. Mitchell (2014). Mechanisms of intermittent hypoxia-induced recovery of breathing capacity in rats with chronic spinal injuries. *FASEB J.*
327. Huxtable, A.G., T.J. Peterson, E.S. Kopp and G.S. Mitchell (2014). Spinal protein phosphatase 1 constrains respiratory plasticity after sustained hypoxia. *FASEB Journal.*
328. Agosto, I.M., N.L. Nichols and G.S. Mitchell (2014). Systemic inflammation impairs phrenic long-term facilitation following moderate, but not severe acute intermittent hypoxia. *FASEB J.*
329. Small, A.L., M. Nikodemova, B.J. Dougherty, G.S. Mitchell and J.J. Watters (2014). Acute intermittent hypoxia differentially affects CD11b⁺ cell phenotypes above and below a C2 cervical spinal hemisection. *FASEB J.*
330. Dougherty B.J., S.R. Springborn, A.S. Roopra, K.K. Bowen, G.S. Mitchell and J.J. Watters (2014). PIAS1 may play a role in repetitive acute intermittent hypoxia induced down-regulation of spinal inflammatory gene expression in rats. *SFN Abstracts.*
331. Dougherty, B.J., G.S. Mitchell and J.J. Watters (2014). Repetitive acute intermittent hypoxia down-regulates inflammatory gene expression in the rat ventral cervical spinal cord. *APTA-CSM.*
332. Mitchell, G.S. (2014). Mechanisms of intermittent hypoxia-induced functional recovery after spinal cord injury. *Proceedings of the Int. Spinal Res. Trust.*
333. Nichols, N.L., I. Satriotomo, D.J. Harrigan and G.S. Mitchell (2014). Phrenic long-term facilitation is present in SOD1G93A rats despite increased SOD1. Proceedings of the

- Oxford Conference for Modeling and the Control of Breathing.
334. Peters, M., S. Smith, G.S. Mitchell and J. Watters (2015). A Therapeutic Protocol of Acute Intermittent Hypoxia Does Not Promote Inflammation in the Rat CNS. Proceedings of the Critical Care Congress, Abstract ID: 3155.
335. Fields, D.P. and G.S. Mitchell (2015). 5HT7 receptor induced phrenic motor facilitation requires EPAC and mTORC1, but not PKA activity. *FASEB J*.
336. Nichols, N.L. and G.S. Mitchell (2016). Phrenic long-term facilitation (pLTF) following acute intermittent hypoxia is NADPH oxidase independent in a rat model (SOD1^{G93A}) of ALS. *FASEB J*
337. Dougherty, B.D., D.P. Fields and G.S. Mitchell (2015). Differential roles of mammalian Target of Rapamycin (mTOR) in phrenic long-term facilitation. *FASEB J*.
338. Seven, Y., N.L. Nichols and G.S. Mitchell (2015). Plasticity in Diaphragm and Intercostal Motor Control in a Rat ALS Model. *FASEB J*.
339. Gonzalez-Rothi, E.J., G.T. Armstrong, A.J. Cerreta, G.S. Mitchell, P.J. Reier and D.D. Fuller (2015). Astrocyte serotonin receptor expression near phrenic motor circuitry. *FASEB J*.
340. Weltman, J.G., A.A. Navarrete-Opazo, R.A. Johnson and G.S. Mitchell (2015). Daily acute intermittent hypoxia enhances inspiratory activity in non-diaphragm breathing muscles. *FASEB J*.
341. Agosto, I.M. and G.S. Mitchell (2015). Inflammation enhances spinal BDNF-induced phrenic motor facilitation. *FASEB J*.
342. Allen, L., K. Braegelmann, S. Fischer, L. Sullivan, S. Springborn, L. Kopp, T.L. Baker-Herman and G.S. Mitchell (2015). Cervical Spinal Contusion Injury Alters Membrane Expression of NKCC1 and KCC2 in Phrenic Motor Neurons: Impact of Repetitive Acute Intermittent Hypoxia. *FASEB J*.

MANUSCRIPTS SUBMITTED

- Seven, Y.B. N.L. Nichols, M.N. Kelly, O.R. Hobson, I. Satriotomo and G.S. Mitchell. Compensatory plasticity in diaphragm and intercostal motor control in a rat model of ALS. *Exp. Neurol.* (revision pending).
- Agosto-Marlin I.M., N.L. Nichols and G.S. Mitchell. Systemic inflammation inhibits serotonin-dependent phrenic motor facilitation upstream from BDNF/TrkB signaling. *J. Neurophys.* (revision pending).
- MacFarlane, P.M., S. Vinit, A. Roopra and G.S. Mitchell. Enhanced phrenic long-term facilitation following repetitive acute intermittent hypoxia is prevented by the glycolytic inhibitor 2-deoxyglucose. *J. Physiol (London)*.
- Nichols, N.L., A.T. Emery and G.S. Mitchell. Increased retrograde labeling of phrenic motor neurons with hypercapnia. *Neuroscience Methods*.
- Devinney, M.J. and G.S. Mitchell. Spinal activation of protein kinase C elicits phrenic motor facilitation. *Respir. Physiol. & Neurobiol.*
- Stahl V., H.B. Hayes, I. Cooke, G.S. Mitchell, S. Wolf and R.D. Trumbower. Daily acute intermittent hypoxia improves hand function in persons with cervical spinal cord trauma: a

preliminary study. *Neurology* (in revision).

MANUSCRIPTS IN PREPARATION (projects completed, authors/titles not finalized)

- Nichols, N.L. and G.S. Mitchell. Severe acute intermittent hypoxia induced phrenic long-term facilitation requires divergent, spinal signaling pathways and is constrained by NADPH oxidase.
- Lovett-Barr, M.R.L., F.J. Golder, S. Vinit, C. Murphy, J. MacAnulty and G.S. Mitchell. A mixture of trophic factors enhances crossed-spinal synaptic pathways to phrenic motor neurons following cervical hemisection.
- Agosto-Marlin I.M. and G.S. Mitchell. Systemic inflammation shifts cell signaling mechanisms of BDNF induced phrenic motor facilitation.
- Agosto-Marlin I.M. and G.S. Mitchell. BDNF/TrkB signaling elicits phrenic motor facilitation by a PKC θ -dependent mechanism.
- Dougherty, B.J., R.W. Bavis, K.Z. Lee, D.D. Fuller and G.S. Mitchell. Respiratory neuroplasticity. *Comprehensive Physiology*.
- Fields, D.P., A. Judge, D.D. Fuller and G.S. Mitchell (and others). Cancer cachexia abolishes the hypoxic, but not the hypercapnic ventilatory response in mice.
- Allen, L., K. Braegelman, T. Baker and G.S. Mitchell. Cervical spinal contusion decreases KCC2 and increases NKCC1 in phrenic motor neurons.
- Satriotomo, I., and G.S. Mitchell (and others). VEGF and VEGF receptor upregulation in spared phrenic motor neurons in SOD1^{G93A} rats.
- Perim, R., D.P. Fields and G.S. Mitchell (and others). Serotonin 2B inhibits serotonin 7 receptor induced phrenic motor facilitation in rats.
- Huxtable, A.G., E. Kopp, B.J. Dougherty, J.J. Watters and G.S. Mitchell. Cyclooxygenase 2 does not impair respiratory motor plasticity after one night of intermittent hypoxia.
- Wilkerson, J.E.R., M. Devinney and G.S. Mitchell. Intermittent but not sustained moderate hypoxia elicits long-term facilitation of hypoglossal motor output.