

CURRICULUM VITAE

RYAN W. BAVIS

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RESEARCH INTERESTS

Respiratory physiology, particularly plasticity in the neural control of breathing.

EDUCATION

1995-2000 The University of Montana, Missoula, MT
Degree: Doctor of Philosophy
Program: Organismal Biology & Ecology

Dissertation: Physiological Consequences of Exposure to Elevated Carbon Dioxide During Development in Birds

1991-1995 St. Mary's College of Maryland, St. Mary's City, MD
Degree: Bachelor of Arts, *Summa Cum Laude* with Honors Program Distinction
Program: Biology, Honors Program

Honors Thesis: Phenolic Content and Antibacterial Activity of Marine Sponges

TEACHING AND RESEARCH EXPERIENCE

2009-present **Associate Professor**, Department of Biology, Bates College

2003-2009 **Assistant Professor**, Department of Biology, Bates College

2000-2003 **Postdoctoral fellow**, Department of Comparative Biosciences, University of Wisconsin, Madison; plasticity in the neural control of breathing

1999-2000 **Research assistant**, Div. Biological Sciences, The University of Montana; plasticity in the control of breathing, influence of CO₂ on development

1995-1999 **Teaching assistant**, Div. Biological Sciences, The University of Montana

- 1994-1995 **Research trainee**, Laboratory of Molecular Systematics, Smithsonian Institution's National Museum of Natural History Research Training Program; molecular identification of avian subspecies
- 1993-1995 **Honors Thesis and Independent Study**, Biology Department, St. Mary's College of Maryland; chemical ecology of marine sponges and plants
- 1993-1995 **Lab assistant and undergraduate teaching assistant**, Biology Department, St. Mary's College of Maryland

PROFESSIONAL MEMBERSHIPS

- 2001-present American Physiological Society
- 1995-2003 Society for Integrative and Comparative Biology
- 1996-1999 Sigma Xi; The University of Montana Chapter

PROFESSIONAL SERVICE

- 2011-present Steering Committee Member and Consortium PI (Bates College), Maine IDeA Network of Biomedical Research Excellence (INBRE) (PI: Patricia Hand, Mount Desert Island Biological Laboratory)
- 2012 Co-organizer and co-chair for mini-symposium "Developmental of Respiratory Control," Experimental Biology 2012, San Diego, CA, April 2012.
- 2010-present Editorial Board, *Frontiers in Respiratory Physiology*
- 2009-present Editorial Board, *Journal of Applied Physiology*
- 2008-present Respiration Section Programming Committee, American Physiological Society
- 2008-2012 Editorial Board, *Respiratory Physiology & Neurobiology*
- 2008 Co-organizer and co-chair for Annual Control of Breathing Mixer/Hot Topics session, Experimental Biology 2008, San Diego, CA, April 2008.
- 2007 Co-organizer and co-chair for Annual Control of Breathing Mixer/Hot Topics session, Experimental Biology 2007, Washington, DC, April 2007.
- 2006 Co-organizer and co-chair for symposium "Respiratory Plasticity after Changes in Oxygen Supply and Demand," First International Congress of Respiratory Biology, Bonn, Germany, August 2006.
- 2006 Co-organizer and co-chair for symposium "Transition from Postdoc to Faculty: Surviving the Initial Years," sponsored by American Physiological Society's Trainee Advisory Committee, Experimental Biology 2006, San Francisco, CA, April 2006.
- 2005-2007 Advisory Board, NIH/NIGMS grant "Professional Skills for Minority Students in

Biomedicine: Interactive and Online Development Tools” (PI: Marsha Matyas, American Physiological Society)

- 2004-2005 Guest editor for Special Issue of *Respiratory Physiology & Neurobiology* on “Development of Respiratory Control” (Vol. 149/1-3, November 2005)
- 2003-2006 Respiration Section Steering Committee, American Physiological Society
- 2003-2006 Trainee Advisory Committee, American Physiological Society
- 2003 Organizer and chair for mini-symposium “Developmental Plasticity of Respiratory Control,” Experimental Biology 2003, San Diego, CA, April 2003.

Ad hoc reviewer for grants:

Israel Science Foundation (2010)
National Institutes of Health, RIBT Study Section (2009)
National Institutes of Health, Special Emphasis Panel (2011)
National Science Foundation (2006, 2008)

Ad hoc reviewer for Journals / books:

American Journal of Physiology: Regulatory, Integrative and Comparative Physiology (2006-2011, 2013)
The Auk (1997)
Brain Research (2009)
Comparative Biochemistry and Physiology (2001-2003)
Frontiers in Respiratory Physiology (2011-2013)
Journal of Applied Physiology (2002, 2004, 2006, 2008-2012)
Journal of Physiology (2004, 2007, 2008, 2010)
Neuroscience Letters (2008, 2009, 2012)
Physiological and Biochemical Zoology (1999)
Respiratory Physiology & Neurobiology (2002-2013)
Sleep (2009)

Roberts & Co. Publishers (2005)

Doctoral defense committees:

Laval University (2012)

TEACHING AND MENTORING AT BATES COLLEGE

(Details on teaching and mentoring at other institutions are available upon request.)

Courses offered (regular teaching load = 5 course equivalents per year):

BIO 114 – Extreme Physiology	BIO 342 – Ecological & Evolutionary Physiology
BIO 270 – Ecology and Evolution	BIO 460 – Junior Seminar
BIO 335 – Avian Biology	BIO 472 – Seminar and Research in Physiology
BIO 337 – Animal Physiology	BIO s33 – Phenotypic Plasticity

Mentoring of undergraduate research (since 2003):

Senior thesis (Biology, Biological Chemistry, or Neuroscience): 45 students
Independent study: 3 students
Summer research assistants: 27 students (4 of these students worked two summers)
Hourly research assistants (academic year): 2 students

COMMUNITY SERVICE

2012 Guest speaker, Cub Scouts Abnaki Day Camp, Sabattus, ME
2004-2008 Science fair judge, Lewiston High School, Lewiston, ME
1999 Guest speaker, Big Fork High School, Big Fork, MT
1998 Guest speaker, Clark Fork School, Missoula, MT
1997 Guest speaker, Lowell Elementary School, Missoula, MT

EXTRAMURAL RESEARCH SUPPORT

2013-present R15 HL114001 (PI: Ryan Bavis), \$285,603 total direct costs (8/1/13-7/31/16), National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health
2009-2010 Maine INBRE 2-P20-RR016463 (PI: Patricia Hand, Mount Desert Island Biological Laboratory), Bavis's subaward: \$90,000 direct costs (5/1/09-4/30/10), National Center for Research Resources (NCRR), National Institutes of Health
2008-2011 R15 HL083972 (PI: Ryan Bavis), \$150,000 total direct costs (6/1/08-12/31/11), National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health
2006 Giles F. Filley Memorial Award, \$20,000, American Physiological Society
2005-2009 Maine INBRE 1-P20-RR016463 (PI: Patricia Hand, Mount Desert Island Biological Laboratory), Bavis's subaward: \$399,889 total direct costs (8/5/05-4/30/09), National Center for Research Resources (NCRR), National Institutes of Health
2002-2003 Individual National Research Service Award, \$44,212, National Institutes of Health
2000 Grant-in-Aid of Research, \$700, Society for Integrative and Comparative Biology
1997 Grant-in-Aid of Research, \$600, Sigma Xi

INTRAMURAL RESEARCH SUPPORT

2013 Student-Faculty Research Grant (\$15,000), Bates College, by NIH grant P20 RR-016463 from the National Center for Research Resources (Maine INBRE)
2012 Student-Faculty Research Grant (\$15,000), Bates College, by NIH grant P20 RR-016463 from the National Center for Research Resources (Maine INBRE)
2011 Student-Faculty Research Grant (\$15,000), Bates College, by NIH grant P20 RR-016463 from the National Center for Research Resources (Maine INBRE)
2011 Bates Faculty Development Fund (\$10,000), Bates College

- 2008 Student-Faculty Research Grant (\$10,268), Bates College, by NIH grant P20 RR-016463 from the National Center for Research Resources (Maine INBRE)
- 2007 Student-Faculty Research Grant (\$15,036), Bates College, by NIH grant P20 RR-016463 from the National Center for Research Resources (Maine INBRE)
- 2005 Student-Faculty Research Grant (\$14,890), Bates College, by a grant from the Howard Hughes Medical Institute
- 2004 Student-Faculty Research Grant (\$7,414), Bates College, by a grant from the Howard Hughes Medical Institute

HONORS AND AWARDS

- 2006 Giles F. Filley Memorial Award for Excellence in Respiratory Physiology and Medicine, American Physiological Society
- 2003 Caroline tum Suden / Frances Hellebrandt Professional Opportunity Award, American Physiological Society
- 2002 Travel Award, Comparative Physiology Section, American Physiological Society
- 1995 Department Award in Biology, St. Mary's College of Maryland
Biology Service Award, St. Mary's College of Maryland
Calculus Prize, St. Mary's College of Maryland
St. Mary's Scholar, St. Mary's College of Maryland
- 1993-1995 Beta Beta Beta Biological Honors Society, St. Mary's College of Maryland

SCHOLARSHIPS AND FELLOWSHIPS

- 2000-2002 NIH Postdoctoral Fellowship (Institutional Training Grant), University of Wisconsin
- 1999-2000 Honors Predoctoral Fellowship, The University of Montana
- 1992-1995 Margaret Brent - Leonard Calvert Fellowship, St. Mary's College of Maryland
- 1992-1993 SMC Academic Scholarship, St. Mary's College of Maryland
- 1991-1992 Hilda and Arthur Landers Scholarship, St. Mary's College of Maryland

INVITED RESEARCH SEMINARS

(Intramural seminars and interviews excluded.)

1. "Developmental hyperoxia attenuates hypoxic ventilatory depression in neonatal rats". In the mini-symposium "Central nervous system modulation of cardiorespiratory responses to hypoxia," Experimental Biology 2013, Boston, MA, April 2013.

2. "Hyperoxia and the developing respiratory control system," Wright State University, Dayton, OH, April 2013.
3. "Hyperoxia and the developing respiratory control system," Centre Hospitalier Universitaire de Québec, Laval University, Quebec City, Quebec, Canada, February 2012.
4. "Hyperoxia and the developing respiratory control system," Division of Neonatology, Rainbow Babies & Children's Hospital, Case Medical Center, Cleveland, OH, July 2011.
5. "Development of the hypoxic ventilatory response in hyperoxia," Dartmouth Medical School, Hanover, NH, August 2010.
6. "Chronic hyperoxia alters the early and late phases of the hypoxic ventilatory response in neonatal rats." In the mini-symposium "Time Domains of the Hypoxic Ventilatory Response," Experimental Biology 2009, New Orleans, LA, April 2009.
7. "Hypoxia, hyperoxia and the development of the hypoxic ventilatory response." In the symposium "Respiratory Plasticity after Changes in Oxygen Supply and Demand," First International Congress of Respiratory Biology, Bonn, Germany, August 2006.
8. "Living in stale air: lessons from quail and swallows," Stanton Bird Club, Lewiston, ME, May 2005.
9. "Developmental plasticity in the respiratory control system: you are what you *breathe*?" Department of Biology, University of Southern Maine, Portland, ME, April 2005.
10. "Learning to breathe," Department of Biology, Colby College, Waterville, ME, October 2004.
11. "Gender-specific developmental plasticity of the hypoxic ventilatory response in rats." In the mini-symposium "Developmental Plasticity of Respiratory Control," Experimental Biology 2003, San Diego, CA, April 2003.
12. "Developmental plasticity in ventilatory chemosensitivity: comparative aspects." In the symposium "Comparative aspects of chemoreceptors," 6th International Congress of Comparative Physiology and Biochemistry, Mt. Buller, Victoria, Australia, February 2003.
13. "Does chronic hypoxia during postnatal development elicit long-lasting changes in chemosensitivity in rats?" In the symposium "Acclimatization to hypoxia: supply vs. demand strategies," APS Intersociety Meeting: The Power of Comparative Physiology: Evolution, Integration, and Application, San Diego, CA, August 2002.
14. "Long-term facilitation of phrenic motor output following episodic hypoxia in carotid body denervated rats." In the mini-symposium "Central and peripheral mechanisms of oxygen sensing," Experimental Biology 2002, New Orleans, LA, April 2002.
15. "Duration and severity of developmental hyperoxia influence subsequent impairment of hypoxic phrenic responses." In the mini-symposium "Ontogeny of cardiorespiratory mechanisms: an evolutionary perspective," Experimental Biology 2002, New Orleans, LA, April 2002.
16. "Developmental window for hyperoxia-induced blunting of hypoxic phrenic responses in rats." Wisconsin Regulation of Respiration Symposium, University of Wisconsin, Madison, WI, July 2001.

17. "Developmental plasticity of the hypercapnic ventilatory response in quail." In the mini-symposium "The evolution and modification of the hypercapnic ventilatory response," Experimental Biology 2001, Orlando, FL, April 2001.
18. "Developmental plasticity in the hypercapnic ventilatory response: does gender matter?" Wisconsin Regulation of Respiration Symposium, Kemp Natural Resources Station, Woodruff, WI, July 2000.

PUBLICATIONS

(underlined names = undergraduate co-authors)

Manuscripts in refereed journals:

1. **Bavis RW**, DeAngelis KJ, Horowitz TC, Reedich LM, March RJ. Hyperoxia-induced developmental plasticity of the hypoxic ventilatory response in neonatal rats: contributions of glutamate-dependent and PDGF-dependent mechanisms. *Respir Physiol Neurobiol* 191: 84-94, 2014.
2. Hill CB, Grandgeorge SH, **Bavis RW**. Developmental hyperoxia alters CNS mechanisms underlying hypoxic ventilatory depression in neonatal rats. *Respir Physiol Neurobiol* 189: 498-505, 2013.
3. **Bavis RW**, Fallon SC, Dmitrieff EF. Chronic hyperoxia and the development of the carotid body. *Respir Physiol Neurobiol* 185: 94-104, 2013.
4. Dmitrieff EF, Piro SE, Broge TA Jr., Dunmire KB, **Bavis RW**. Carotid body growth during chronic postnatal hyperoxia. *Respir Physiol Neurobiol* 180: 193-203, 2012.
5. **Bavis RW**, Dmitrieff EF, Young KM, Piro SE. Hypoxic ventilatory response of adult rats and mice after developmental hyperoxia. *Respir Physiol Neurobiol* 177: 342-346, 2011.
6. **Bavis RW**, Kim I, Pradhan N, Nawreen N, Dmitrieff EF, Carroll JL, Donnelly DF. Recovery of carotid body O₂ sensitivity following chronic postnatal hyperoxia in rats. *Respir Physiol Neurobiol* 177: 47-55, 2011.
7. Dmitrieff EF, Wilson JT, Dunmire KB, **Bavis RW**. Chronic hyperoxia alters the expression of neurotrophic factors in the carotid body of neonatal rats. *Respir Physiol Neurobiol* 175: 220-227, 2011.
8. Roeser JC, Brackett DG, van Heerden ES, Young KM, **Bavis RW**. Potentiation of the hypoxic ventilatory response by one day of hyperoxia in neonatal rats. *Respir Physiol Neurobiol* 176: 50-56, 2011.
9. Watson ML, Wells JV, **Bavis RW**. First detection of night flight calls by Pine Siskins. *Wilson J Ornithol* 123: 161-164, 2011.
10. Baker-Herman TL, **Bavis RW**, Dahlberg JM, Mitchell AZ, Wilkerson JER, Golder FJ, MacFarlane PM, Watters JJ, Behan M, Mitchell GS. Differential expression of respiratory long-term facilitation among inbred rat strains. *Respir Physiol Neurobiol* 170: 260-267, 2010.

11. **Bavis RW**, Young KM, Barry KJ, Boller MR, Kim E, Klein PM, Ovrutsky AR, Rampersad DA. Chronic hyperoxia alters the early and late phases of the hypoxic ventilatory response in neonatal rats. *J Appl Physiol* 109: 796-803, 2010.
12. Carroll JL, Kim I, Dbouk H, Yang DJ, **Bavis RW**, Donnelly DF. Time-dependence of hyperoxia-induced impairment in peripheral chemoreceptor activity and glomus cell calcium response. *Adv Exper Med Biol* 648: 299-306, 2009.
13. Donnelly DF, **Bavis RW**, Kim I, Dbouk HA, Carroll JL. Time-course of alterations in pre- and post-synaptic chemoreceptor function during developmental hyperoxia. *Respir Physiol Neurobiol* 168:189-197, 2009.
14. Atchley DS, Foster JA, **Bavis RW**. Thermoregulatory and metabolic responses of Japanese quail to hypoxia. *Comp Biochem Physiol A* 151: 641-650, 2008.
15. **Bavis RW**, Mitchell GS. Long-term effects of the perinatal environment on respiratory control. *J Appl Physiol* 104: 1220-1229, 2008.
16. **Bavis RW**, Simons JC. Developmental hyperoxia attenuates the hypoxic ventilatory response in Japanese quail. *Respir Physiol Neurobiol* 164: 411-418, 2008.
17. **Bavis RW**, Wenninger JM, Miller BM, Fergusson EK, Olson EB Jr., Mitchell GS, Bisgard GE. Respiratory plasticity after perinatal hyperoxia is not prevented by antioxidant supplementation. *Respir Physiol Neurobiol* 160: 301-312, 2008.
18. Doperalski NJ, Sandhu MS, **Bavis RW**, Reier PJ, Fuller DD. Sex differences in respiratory recovery following high cervical spinal hemisection in rats. *Respir Physiol Neurobiol* 162: 160-167, 2008.
19. Kilgore DL Jr., Boggs DF, Kilgore TJ, Colby C, Williams BR Jr., **Bavis RW**. Ventilatory and metabolic responses of burrowing owls, *Athene cunicularia*, to moderate and extreme hypoxia: analysis of the hypoxic ventilatory threshold vs. hemoglobin oxygen affinity relationship in birds. *Comp Biochem Physiol A* 150: 247-257, 2008.
20. **Bavis RW**, Russell KER, Simons JC, Otis JP. Hypoxic ventilatory responses in rats after hypercapnic hyperoxia and intermittent hyperoxia. *Respir Physiol Neurobiol* 155: 193-202, 2007.
21. **Bavis RW**, Powell FL, Bradford A, Hsia CCW, Peltonen JE, Soliz J, Zeis B, Fergusson EK, Fu Z, Gassmann M, Kim CB, Maurer J, McGuire M, Miller BM, O'Halloran KD, Paul RJ, Reid SG, Rusko HK, Tikkanen HO, Wilkinson KA. Respiratory plasticity in response to changes in oxygen supply and demand. *Integr Comp Biol* 47: 532-551, 2007.
22. **Bavis RW**, Johnson RA, Ording KM, Otis JP, Mitchell GS. Respiratory plasticity after perinatal hypercapnia in rats. *Respir Physiol Neurobiol* 153: 78-91, 2006.
23. **Bavis RW**. Developmental plasticity of the hypoxic ventilatory response after perinatal hyperoxia and hypoxia. *Respir Physiol Neurobiol* 149: 287-299, 2005.
24. Bisgard GE, Olson EB Jr., **Bavis RW**, Wenninger J, Nordheim EV, Mitchell GS. Carotid chemoafferent plasticity in adult rats following developmental hyperoxia. *Respir Physiol Neurobiol* 145: 3-11, 2005.

25. Golder FJ, Zabka AG, **Bavis RW**, Baker-Herman TL, Fuller DD, Mitchell GS. Time domains of the hypoxic phrenic response differ among inbred rat strains. *J Appl Physiol* 98: 838-844, 2005.
26. Hempleman SC, Kilgore DL Jr., Colby C, **Bavis RW**, Powell FL. Spike firing allometry in avian intrapulmonary chemoreceptors: matching neural code to body size. *J Exper Biol* 208: 3065-3073, 2005.
27. Baker-Herman TL, Fuller DD, **Bavis RW**, Zabka AG, Golder FJ, Doperalski NJ, Johnson RA, Watters JJ, Mitchell GS. BDNF is necessary and sufficient for spinal respiratory plasticity following intermittent hypoxia. *Nature Neurosci* 7: 48-55, 2004.
28. **Bavis RW**, Olson EB Jr., Vidruk EH, Fuller DD, Mitchell GS. Developmental plasticity of the hypoxic ventilatory response in rats induced by neonatal hypoxia. *J Physiol* 557: 645-660, 2004.
29. **Bavis RW**, Mitchell GS. Intermittent hypoxia induces phrenic long-term facilitation in carotid-denervated rats. *J Appl Physiol* 94: 399-409, 2003.
30. **Bavis RW**, Olson EB Jr., Vidruk EH, Bisgard GE, Mitchell GS. Level and duration of developmental hyperoxia influence impairment of hypoxic phrenic responses in rats. *J Appl Physiol* 95: 1550-1559, 2003.
31. Bisgard GE, Olson EB Jr., Wang Z-Y, **Bavis RW**, Fuller DD, Mitchell GS. Adult carotid chemoafferent responses to hypoxia after 1, 2, and 4 weeks of postnatal hyperoxia. *J Appl Physiol* 95: 946-952, 2003.
32. **Bavis RW**, Olson EB Jr., Mitchell GS. Critical developmental period for hyperoxia-induced blunting of hypoxic phrenic responses in rats. *J Appl Physiol* 92: 1013-1018, 2002.
33. Fuller DD, **Bavis RW**, Vidruk EH, Wang Z-Y, Olson EB Jr., Bisgard GE, Mitchell GS. Life-long impairment of hypoxic phrenic responses in rats following 1 month of developmental hyperoxia. *J Physiol* 538: 947-955, 2002.
34. **Bavis RW**, Kilgore DL Jr. Effects of embryonic CO₂ exposure on the adult ventilatory response in quail: does gender matter? *Respir Physiol* 126: 183-199, 2001.
35. Mitchell GS, Baker TL, Nanda SA, Fuller DD, Zabka AG, Hodgeman BA, **Bavis RW**, Mack KJ, Olson EB Jr. Intermittent hypoxia and respiratory plasticity. *J Appl Physiol* 90: 2466-2475, 2001.
36. **Bavis RW**, Seveyka J, Shigeoka CA. Another strategy for teaching histology to A&P students: Classification versus memorization. *Am Biol Teach* 62: 365-369, 2000.
37. Seveyka J, Shigeoka CA, **Bavis RW**. Analysis as a means of motion exploration & inquiry. *Am Biol Teach* 62: 140-144, 2000.
38. Shigeoka CA, **Bavis RW**, Seveyka J. Teaching musculoskeletal anatomy: A technique for active learners. *Am Biol Teach* 62: 198-201, 2000.

Book chapters:

1. Fuller DD, Mitchell GS, **Bavis RW**. Respiratory neuroplasticity: respiratory gases, development, and spinal injury. In *Pharmacology and Pathophysiology of the Control of Breathing*. Editors: Ward DS, Dahan A, Teppema L. Boca Raton: Taylor & Francis, pp.155-223, 2005.

Invited editorials:

1. **Bavis RW**. Poor diets, abnormal breathing, and SIDS risk. *J Appl Physiol* 110: 303-304, 2011.
2. **Bavis RW**, Carroll JL. Foreword. *Respir Physiol Neurobiol* 149: 1-2, 2005. [Introduction to Special Issue on "Development of Respiratory Control"]

Abstracts:

1. **Bavis RW**, Logan S, Blegen HJ, Fallon SC. K252a inhibits carotid body growth but not oxygen sensitivity. *FASEB J*, in press.
2. Blegen HJ, **Bavis RW**. Caffeine does not alter the hypoxic ventilatory response of neonatal rats. *FASEB J*, in press.
3. **Bavis RW**, Grandgeorge SH, Hill CB. Developmental hyperoxia attenuates hypoxic ventilatory depression in neonatal rats. *FASEB J* 27: 1135.10, 2013.
4. **Bavis RW**, DeAngelis KJ, March RJ, Wallace JA. Developmental hyperoxia diminishes the carotid body response to hypercapnia. *FASEB J* 27: 930.24, 2013.
5. **Bavis RW**, Fallon SC, Tobin KE, Dmitrieff EF. Carotid body growth and the critical period for hyperoxia-induced developmental plasticity in rats. *FASEB J* 26: 1090.9, 2012.
6. Tobin KE, **Bavis RW**. Intermittent hyperoxia attenuates the hypoxic ventilatory response in neonatal rats. *FASEB J* 26: LB819, 2012.
7. Roeser JC, Brackett DG, van Heerden ES, Young KM, **Bavis RW**. One day of hyperoxia augments the hypoxic ventilatory response in neonatal rats. *FASEB J* 25: 1111.6, 2011.
8. van Heerden ES, **Bavis RW**. Cardiorespiratory effects of chronic hyperoxia in neonatal rats. *FASEB J* 25: LB631, 2011.
9. van Heerden ES, Brackett DG, Leso JI, Dmitrieff EF, **Bavis RW**. Chronic hyperoxia alters the hyperoxic ventilatory response and diaphragm muscle fiber composition in neonatal rats. *FASEB J* 25: 1111.5, 2011.
10. **Bavis RW**, Dmitrieff EF, Young KM, Piro SE. Hypoxic ventilatory responses of rats and mice after perinatal hyperoxia: does the level of hypoxia matter? *FASEB J* 24: 799.2, 2010.
11. **Bavis RW**, Pradhan N, Nawreen N, Donnelly DF. Carotid body O₂ sensitivity during chronic hyperoxia and after recovery in normoxia. *FASEB J* 24: 613.3, 2010.
12. **Bavis RW**, Young KM, Barry KJ, Boller MR, Kim E, Klein PM, Ovrutsky AR, Rampersad DA. Chronic

- hyperoxia alters the early and late phases of the hypoxic ventilatory response in neonatal rats. *FASEB J* 23: 621.15, 2009.
13. Broge TA Jr., Dmitrieff EF, Piro SE, **Bavis RW**. Moderate hyperoxia inhibits glomus cell proliferation in the carotid body of neonatal rats. *FASEB J* 23: 961.2, 2009.
 14. Meyers KA, Young KM, **Bavis RW**. Exercise performance in moderate hypoxia in rats with impaired carotid bodies. *FASEB J* 23: 616.4, 2009.
 15. **Bavis RW**, Donnelly DF. Time-dependent alterations in peripheral chemoreceptor activity during postnatal hyperoxia. *FASEB J* 22: 1224.7, 2008.
 16. Carroll JL, Kim I, Dbouk H, Yang DJ, **Bavis RW**, Donnelly DF. Time-dependence of hyperoxia-induced impairment in peripheral chemoreceptor activity and glomus cell calcium response. XVII International Society for Arterial Chemoreception Meeting, July 1-5, 2008.
 17. Dmitrieff EF, Dunmire KB, Piro SE, **Bavis RW**. Perinatal hyperoxia alters the expression of neurotrophic factors and their receptors in the rat carotid body. *FASEB J* 22: 1224.8, 2008.
 18. Foster JA, Broge TA Jr., Atchley DS, **Bavis RW**. Hypercapnic ventilatory response of adult quail after chronic neonatal hypercapnia. *FASEB J* 22: 955.10, 2008.
 19. **Bavis RW**, Fergusson EK, Piro SE, Dunmire KB. Hyperoxia-induced inhibition of carotid body growth in rats: potential role for neurotrophic factors? IDeA States Northeast Region Meeting, August 15-17, 2007.
 20. Simons JC, **Bavis RW**. Blunted hypoxic ventilatory response in quail after developmental hyperoxia. *FASEB J* 21: A1444, 2007.
 21. Miller BM, Fergusson EK, **Bavis RW**. Respiratory plasticity after perinatal hyperoxia is not prevented by antioxidant supplementation. *FASEB J* 21: A1444, 2007.
 22. **Bavis RW**. Hypoxia, hyperoxia and the development of the hypoxic ventilatory response. Program for First International Congress of Respiratory Biology, Bonn, Germany, p. 59, 2006.
 23. Russell KER, Simons JC, **Bavis RW**. Chronic intermittent hypercapnia does not alter ventilatory responses of newborn or adult rats. *FASEB J* 20: A377, 2006.
 24. Simons JC, Russell KER, **Bavis RW**. Hypoxic ventilatory responses in rats after hypercapnic hyperoxia and intermittent hyperoxia. *FASEB J* 20: A1213, 2006.
 25. Baker-Herman TL, Fuller DD, **Bavis RW**, Zabka A, Wilkerson J, Golder FJ, Mitchell GS. Long-term facilitation of respiratory burst frequency following intermittent hypoxia is dependent on baseline burst frequency. Society for Neuroscience Abstracts 31, Program No. 352.8, 2005.
 26. Otis JP, **Bavis RW**. Respiratory plasticity after perinatal hypercapnic hyperoxia in rats. *FASEB J* 19: A652, 2005.
 27. **Bavis RW**, Olson EB Jr., Mitchell GS, Bisgard GE. Can developmental hypoxia prevent impairment of the adult hypoxic ventilatory response after developmental hyperoxia in rats? *FASEB J* 18: A336,

2004.

28. **Bavis RW**, Johnson RA, Mitchell GS. Developmental hypercapnia decreases the hypercapnic ventilatory response in rats. *FASEB J* 18(4): A336, 2004.
29. Wenninger JM, **Bavis RW**, Olson EB Jr., Wang Z-Y, Mitchell GS, Bisgard GE. Carotid body afferent function and morphology in rats following maternal ingestion of vitamin E during two weeks of postnatal hyperoxia. *FASEB J* 18(4): A338, 2004.
30. **Bavis RW**, Olson EB Jr., Kilgore DL Jr., Bisgard GE, Mitchell GS. Developmental plasticity in ventilatory chemosensitivity: comparative aspects. *Comp Biochem Physiol* 134 (Suppl 1): S104, 2003.
31. **Bavis RW**, Olson EB Jr., Vidruk EH, Fuller DD, Mitchell GS. Gender-specific developmental plasticity of the hypoxic ventilatory response in rats. *FASEB J* 17(5): A1297, 2003.
32. **Bavis RW**, Baker-Herman TL, Zabka AG, Golder FJ, Fuller DD, Behan M, Mitchell GS. Respiratory long-term facilitation differs among inbred rat strains. *FASEB J* 17(5): A824, 2003.
33. Bisgard G, Wang Z-Y, **Bavis R**, Olson EB Jr., Mitchell G. Does sustained hypoxia induce functional plasticity in the carotid body (CB) after postnatal hyperoxia? *FASEB J* 17(5): A1297, 2003.
34. **Bavis RW**, Mitchell GS. Long-term facilitation of phrenic motor output following episodic hypoxia in carotid body denervated rats. *FASEB J* 16(4): A66, 2002.
35. **Bavis RW**, Olson EB Jr., Mitchell GS. Duration and severity of developmental hyperoxia influence subsequent impairment of hypoxic phrenic responses. *FASEB J* 16(5): A885, 2002.
36. **Bavis RW**, Olson EB Jr., Vidruk EH, Mitchell GS. Does chronic hypoxia during postnatal development elicit long-lasting changes in chemosensitivity in rats? *Physiologist* 45(4): 301, 2002.
37. Bisgard GE, Mitchell GS, Olson EB Jr., Fuller DD, **Bavis RW**, Wang Z-Y. Carotid body plasticity after post-natal hyperoxia in rats. International Society for Arterial Chemoreception Meeting, Lyon, France, 2002.
38. Baker TL, Fuller DD, Zabka AG, Johnson RA, **Bavis RW**, Mitchell GS. Increased BDNF in the ventral cervical spinal cord following intermittent hypoxia requires spinal serotonin receptor activation and protein synthesis. Society for Neuroscience Abstracts 27, Program No. 573.6, 2001.
39. **Bavis RW**, Kilgore DL Jr. Developmental plasticity of the hypercapnic ventilatory response in quail. *FASEB J* 15(4): A152, 2001.
40. **Bavis RW**, Mitchell GS. Episodic hyperoxia does not lead to long term facilitation of phrenic nerve activity in rats. *FASEB J* 15(4): A422, 2001.
41. Mitchell GS, Baker TL, Fuller DD, **Bavis RW**. Serotonin-dependent respiratory plasticity. *Respir Res* 2 (Suppl 1): S8, 2001.
42. Scalise R, **Bavis RW**, Kilgore DL Jr. Hypercapnic ventilatory response of Japanese quail before and after chronic exposure to moderate CO₂. *FASEB J* 14(4): A79, 2000.

43. **Bavis RW**, Kilgore DL Jr. Elevated CO₂ depresses growth in Japanese quail and bank swallows. *Amer Zool* 39(5): 9A, 1999.
44. **Bavis RW**, Kilgore DL Jr. Elevated CO₂ during development alters ventilation in female, but not male, Japanese quail. *Amer Zool* 38(5): 44A, 1998.
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