

Work

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Education

1997-2001 Ph.D., Molecular Physiology & Biophysics, University of Vermont
Advisor: Professor Mark T. Nelson
Dissertation: *Regulation of urinary bladder smooth muscle function by subcellular calcium signals and calcium-dependent potassium channels*
Committee: Dr. Gary M. Mawe (Chair), Dr. Mark T. Nelson (Advisor),
Dr. Christopher L. Berger, Dr. Joseph B. Patlak, Dr. David M. Warshaw

1993-1997 B.S., Biology (Animal Physiology), *Summa cum laude*, University of New Mexico
Advisors: Professor Benjimen R. Walker (Dept. of Physiology) and
Professor Eric C. Toolson (Dept. of Biology)

Current Appointments

2007-present	Catamount Research and Development, Inc. President
2005-present	Med Associates, Inc. Vice President Research and Development
2004-present	University of Vermont Adjunct Assistant Professor, Department of Pharmacology

Past Positions

2004-2005	Med Associates, Inc. Director of Operations of The Science Center
2003-2004	Med Associates, Inc. Staff Scientist
2001-2003	University of Vermont Postdoctoral Research Fellow, Department of Pharmacology Advisor: Professor Mark T. Nelson
2000-2001	University of Vermont Graduate Teaching Fellow, Department of Molecular Physiology & Biophysics Advisor: Professor Mark T. Nelson
1997-2000	University of Vermont National Science Foundation Minority Predoctoral Fellow, Department of Molecular Physiology & Biophysics Advisor: Professor Mark T. Nelson
1993-1997	University of New Mexico Research Assistant, Department of Physiology Advisor: Professor Benjimen R. Walker

Professional Affiliations

2008-present	Molecular and Cellular Cognition Society, Member
2006-present	Vermont State Chapter of the Society for Neuroscience, Member
2004-present	Behavioral Pharmacology Society, Member
2004-present	Northern Mountain Branch of the American Association for Laboratory Animal Science, Member
2004-present	American Association for Laboratory Animal Science, National Gold Member
2003-present	Society for Neuroscience, Member
2003-present	American Society for Pharmacology and Experimental Therapeutics, Member
1998-1999	Biophysical Society, Student Member
1996-present	American Physiological Society, Member

Awards & Honors

2006	Nominated for Family of the Year Award, Vermont State Council Knights of Columbus
2003	Special Award for Recognition of Devoted Service, DeGoesbriand Council 279 Knights of Columbus, Burlington, VT
2002	Travel Award to attend 10 th Annual Society for Basic Urological Research Fall Meeting
2001	Academic Achievement Award, ALANA Student Center, University of Vermont
2001	APS Minority Travel Fellowship Award, Experimental Biology 2001
2000	Third Place in Graduate/Medical Student Research Forum, University of Vermont
2000	APS Minority Travel Fellowship Award, Experimental Biology 2000
1999	First Place in Graduate/Medical Student Research Forum, University of Vermont
1999	Proctor & Gamble Professional Opportunity Award, APS Cell & Molecular Physiology Section, Experimental Biology 99
1999	APS Minority Travel Fellowship Award, Experimental Biology 99
1998	APS Minority Travel Fellowship Award, Experimental Biology 98
1997-2000	National Science Foundation Minority Graduate Fellowship
1997	Bachelor of Science <i>Magna cum laude</i> in Biology, Department of Biology, <i>Summa cum laude</i> University of New Mexico
1997	Most Outstanding Graduating Senior Award, Biological Society of New Mexico
1997	Special Award: 3 Years of Excellence in Oral Presentation, Sixth Annual Biology Research Day, Department of Biology, University of New Mexico
1997	NIDDK Minority Travel Award, Experimental Biology 97
1997	Ford Foundation Predoctoral Fellowship for Minorities, Awarded but declined
1997	Presidential Fellowship, Minority Education Division, The Graduate School, University of Washington, Awarded but declined
1996	Scholarship Recipient, IX Annual International Vascular Biology Meeting
1996	NIDDK Minority Travel Award, Experimental Biology 96
1996	Best Undergraduate Student Oral Presentation, Fifth Annual Biology Research Day, Department of Biology, University of New Mexico
1995	First place in University of New Mexico MBRS/MARC Student Presentation Day Competition
1995	1994-1995 Merck Index Award for Outstanding Undergraduate Chemistry Student, Department of Chemistry, University of New Mexico
1994	Excellence in Undergraduate French Studies, Department of Modern and Classical Languages, University of New Mexico
1994-1997	Semester Honor Roll, College of Arts and Sciences, University of New Mexico
1993-1997	Presidential Scholarship, University of New Mexico
1993-1994	Dean's List, University College, University of New Mexico

Professional/Institutional Service

2009	National Institutes of Health/NIDDK Special Emphasis Panel Study Section Grant Discussant
2008	New England Pharmacologists Annual Meeting Panelist Topic: Careers in Science
2008	Med Associates Short Courses in Neuroscience: <i>An Introduction to Behavioral Research Protocol Programming: Getting Started with MED-PC®</i> Course Presenter for Workshop held in conjunction with Society for Neuroscience Annual Meeting,
2007	University of Vermont Department of Pharmacology Annual Retreat Panelist Topic: Contemporary Careers in Biomedical Science
2006	Chair, Search Committee for Behavioral Research and Sales Support Specialist Candidate, Med Associates, Inc., St. Albans, VT
2006-present	Organizer for Med Associates Short Courses in Neuroscience
2006	Vermont Genetics Network Undergraduate Student Career Day Panelist Topic: How I Chose My Career
2005-present	Med Associates, Inc. Institutional Animal Care and Use Committee, Scientific Member
2004-2005	Med Associates, Inc. Institutional Animal Care and Use Committee, Chair
2003	Mentor for APS/NIDDK Minority Travel Award Program, Experimental Biology 2003
2002-2004	Med Associates, Inc. Institutional Animal Care and Use Committee, Scientific Member
2001-present	University of Vermont Institutional Animal Care and Use Committee, Scientific Member
1998-2000	University of Vermont Department of Molecular Physiology & Biophysics, Graduate Teaching Assistant
1993-1997	University of New Mexico Department of Physiology, Minority Biomedical Research Support Program

Ad Hoc Reviewer

Journals	American Journal of Physiology British Journal of Pharmacology Expert Opinion on Therapeutic Patents Expert Opinion on Therapeutic Targets Journal of Physiology Journal of Urology Naunyn-Schmiedeberg's Archives of Pharmacology
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Community Service/Activities

2009-present	Member of Holy Angels Parish Finance Council, St. Albans, VT
2009	Presenter in Pre-Cana Marriage Preparation Workshop, Holy Angels Parish, St. Albans, VT
2009	Invited Speaker, St. Albans Rotary Club, St. Albans, VT
2008	Presenter in Pre-Cana Marriage Preparation Workshop, Holy Angels Parish, St. Albans, VT
2007	Presenter in Pre-Cana Marriage Preparation Workshop, Holy Angels Parish, St. Albans, VT
2006	Invited Speaker, St. Albans Rotary Club, St. Albans, VT
2006	Presenter in Pre-Cana Marriage Preparation Workshop, Holy Angels Parish, St. Albans, VT
2005	Master of Ceremonies for 24 th Annual DeGoesbriand Council 279 Knights of Columbus Vocations Banquet
2004	Presenter in Pre-Cana Marriage Preparation Workshop, Holy Angels Parish, St. Albans, VT
2004-present	Northwestern Medical Center, St. Albans, Vermont Board of Incorporators, Member
2003	Master of Ceremonies for 22 nd Annual DeGoesbriand Council 279 Knights of Columbus Vocations Banquet
2002-2008	Treasurer, Knights of Columbus DeGoesbriand Council 279
2001-2004	Trustee, DC Home Association, Burlington, VT
2001-2002	Trustee, Knights of Columbus DeGoesbriand Council 279, Burlington, VT
2001-2008	Recorder for Knights of Columbus Council 279 Vocations Committee
2001-present	3 rd Degree Member of Knights of Columbus DeGoesbriand Council 279, Burlington, VT
2000-2001	1 st Degree Member of Knights of Columbus DeGoesbriand Council 279, Burlington, VT
2000-2006	Religions Education Instructor, Cathedral of the Immaculate Conception, Burlington, VT

Teaching Experience

2000-2006	Cathedral of the Immaculate Conception Burlington, Vermont Religions Education Instructor Grades 8-10, Preparation for the Sacrament of Confirmation, 1 hour per week, 10-15 students
2000	University of Vermont Department of Biology Helix Program Course Director: <i>Cardiovascular Physiology</i> , 1 hr/wk, 15 wks, 30 students
1998-1999	University of Vermont Department of Molecular Physiology & Biophysics Teaching Assistant: <i>Physiology for Physical Therapy students</i> , 3 hours per week, 15 weeks per semester, 30 students
1997	University of Vermont Department of Biology Helix Program Laboratory Demonstration: <i>Skeletal Muscle Contractility</i> , 2 hours, 10 students

Colloquia & Symposia

- October 2007** *Novel Wireless In-Cage Running Wheels Used To Record Mouse Wheel Running Activity In Ventilated Rack Home Cages*
American Association of Laboratory Animal Science National Meeting
Platform Presenter. Charlotte, NC.
- October 2006** *Accurate Quantitation Of Water Intake In Mice: A Rapid And Cost-Effective Approach*
American Association of Laboratory Animal Science National Meeting
Platform Presenter. Salt Lake City, UT.
- April 2006** *Mapping the Gastrointestinal Tract: Novel Imaging Techniques Reveal Patterns in Gut Motility*
Behavioral Pharmacology Society Annual Meeting, Chair: C. France. San Francisco, CA.
- April 2005** *Preclinical drug screening: in vitro assay for assessing gastrointestinal side effects*
Behavioral Pharmacology Society Annual Meeting, Chair: C. France. San Diego, CA.
- April 2004** *Calcium mobilization in detrusor muscle*
Experimental Biology 2004 Symposium titled: Calcium Mobilization to Calcium Sensitization: Identifying New Pharmacologic Targets in Smooth Muscle. Sponsored by ASPET, Division for Systems and Integrative Pharmacology. Chairs: G.J. Christ and C.J. Wingard. Washington, D.C.
- October 2000** *Excitation-contraction coupling in urinary bladder smooth muscle*
John B. Pierce Laboratory, Yale University, New Have, CT
- October 2000** *Excitation-contraction coupling in urinary bladder smooth muscle*
Cornell University, Department of Biomedical Science, Ithaca, NY
- October 2000** *Excitation-contraction coupling in urinary bladder smooth muscle*
Colorado State University, Department of Biomedical Sciences, Fort Collins, CO
- March 1997** *Involvement of L-type calcium channels in hypoxic relaxation of vascular smooth muscle*
University of Vermont, Department of Molecular Physiology & Biophysics
- December 1996** *Involvement of L-type calcium channels in hypoxic relaxation of vascular smooth muscle*
University of New Mexico, Department of Biology

Publications

Peer-Reviewed Papers

- Herrera, G.M.,** Braas, K.M., May, V. Nelson, M.T. and Vizzard, M.A. PACAP enhances mouse urinary bladder contractility and is upregulated in micturition reflex pathways after cystitis. *Ann. N.Y. Acad. Sci.* 1070: 330-336, 2006.
- Herrera, G.M.,** Nausch, B., Etherton, B., Nelson, M.T. Negative feedback regulation of nerve-mediated contractions by K_{Ca} channels in mouse urinary bladder smooth muscle. *Am. J. Physiol. Regulatory Integrative Comp. Physiol.* 289:402-409, 2005. First Published Online April 21, 2005; doi:10.1152/ajpregu.00488.2004, 2005.
- Herrera, G.M.,** Pozo, M.J., Zvara, P., Petkov, G.V., Bond, C.T., Adelman, J.P., and Nelson, M.T. Urinary bladder instability induced by selective suppression of the murine small conductance calcium-activated potassium (SK3) channel. *J. Physiol.* 551: 893-903, 2003. First Published Online June 17, 2003; doi:10.113/jphysiol.jphysiol.2003.045914.
- Herrera, G.M.** and Nelson, M.T. Differential regulation of SK and BK channels by Ca^{2+} signals from Ca^{2+} channels and ryanodine receptors in guinea-pig urinary bladder myocytes. *J. Physiol.* 541: 483-492, 2002.
- Petkov, G.V., T.J. Heppner, A.D. Bonev, **G.M. Herrera,** and M.T. Nelson. Low levels of K_{ATP} channel activation decrease excitability and spontaneous phasic contractions of guinea pig urinary bladder smooth muscle. *Am. J. Physiol. Regulatory Integrative Comp. Physiol.* 280: R1427-R1433, 2001.
- Herrera, G.M.,** T.J. Heppner, and M.T. Nelson. Voltage-dependence of the coupling strength of Ca^{2+} sparks to BK_{Ca} channels in urinary bladder smooth muscle. *Am. J. Physiol. Cell Physiol.* 280: C481-C490, 2001.
- Herrera, G.M.,** T.J. Heppner, and M.T. Nelson. Regulation of urinary bladder smooth muscle contractions by ryanodine receptors and BK and SK channels. *Am. J. Physiol. Regulatory Integrative Comp. Physiol.* 279: R60-R68, 2000.
- Herrera, G.M.,** B.R. Walker. Involvement of L-type calcium channels in hypoxic relaxation of vascular smooth muscle. *J. Vasc. Res.* 35: 265-273, 1998.
- Herrera, G.M.,** T.C. Resta, J.J. Candelaria, and B.R. Walker. Maintained vasodilatory response to cromakalim following inhibition of NO synthesis. *J. Cardiovasc. Pharmacol.* 31: 921-929, 1998.
- Eichinger, M.R., T.C. Resta, D.S. Balderrama, **G.M. Herrera,** L.A. Richardson, J.M. Resta, and B.R. Walker. Glibenclamide does not reverse attenuated vasoreactivity due to acute or chronic hypoxia. *J. Appl. Physiol.* 79: 1173-1180, 1995.

Invited Commentaries

- Nelson, M.T. and **Herrera, G.M.** Protecting the heart. *Nature* 416: 273-274, 2002.

Reviews

- Kotlikoff, M.I., **Herrera, G.,** and Nelson, M.T. Calcium permeant ion channels in smooth muscle. *Rev. Physiol. Biochem. Pharmacol.* 134: 147-199, 1999.

Book Chapters

- Heppner, T.J., **Herrera, G.M.,** Bonev, A.D., Hill-Eubanks, D. and Nelson, M.T. Ca^{2+} sparks and K_{Ca} channels: novel mechanisms to relax urinary bladder smooth muscle. *Adv. Exp. Med. Biol.* 539(Pt A): 347-357, 2004.
- Herrera, G.M.** and Nelson, M.T. SR and membrane currents. *Novartis Found. Symp.* 246:189-203, 2002.

Abstracts

- Hare, B.D., Kojtari, S., and **Herrera, G.M.** Y-27632 relaxation of carbachol-induced smooth muscle contraction in guinea pig trachea. *FASEB J.* 2009 23:781.2
- Herrera, G.M.**, Hare, B.D., Kojtari, SK, Zurn, KR, and Dworkin, SI. Injection Variability Observed with Syringe Pumps. *J. Am. Assoc. Lab. Animal Sci.* 47: , 2008.
- Hare, B.D., and **Herrera, G.M.** Examining parametric requirements for induction of learned helplessness in rats. Program No. 489.15. 2008 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2008. Online.
- Hare, B.D. and **Herrera, G.M.** Strain- and wheel type-dependent variations in running wheel activity in mice. *FASEB J.* 22:1235.1, 2008.
- Herrera, G.M.** and Dworkin, S.I. Geometric analysis of escape responding in rats on a progressive/regressive ratio schedule. Program No. 639.14. *2007 Neuroscience Meeting Planner.* San Diego, CA: Society for Neuroscience, 2007. Online.
- Herrera, G.M.** and Falls, W.A. Novel wireless in-cage running wheels used to record mouse wheel running activity in ventilated rack home cages. *J. Am. Assoc. Lab. Animal Sci.* 46: 91, 2007.
- Levick, M.L. and **Herrera, G.M.** Chronic urodynamic testing in conscious rats using an injection port coupled to a bladder catheter. *FASEB J.* 21:736.2, 2007.
- Levick, M.L. and **Herrera, G.M.** Circadian variations in bladder capacity and ambulatory activity studied using urodynamic measurements in conjunction with novel digital imaging techniques in conscious rats. Program No. 554.23. *2006 Neuroscience Meeting Planner.* Atlanta, GA: Society for Neuroscience, 2006. Online.
- Herrera, G.M.**, Boutin, J., and Levick, M. Accurate quantitation of water intake in mice: a rapid and cost-effective approach. *Comparative Med.* 56: 316, 2006.
- Herrera, G.M.** Effects of intraluminal perfusion on guinea pig distal colon motility. *FASEB J.* 20: A1282, 2006.
- Herrera, G.M.** and Mawe, G.M. Preclinical screening of compounds for adverse effects in the gastrointestinal tract. Program No. 48.21. *2005 Abstract Viewer/Itinerary Planner.* Washington, DC: Society for Neuroscience, 2005. Online.
- B. Nausch, B., **Herrera, G.M.**, Etherton, B., and Nelson, M.T. Negative feedback regulation of nerve-mediated contractions by K_{Ca} channels in mouse urinary bladder smooth muscle. *FASEB J.* 19: A126, 2005.
- Herrera, G.M.**, Nausch, B., Etherton, B., and Nelson, M.T. Regulation of nerve-evoked contractions in urinary bladder smooth muscle by K_{Ca} channels. *FASEB J.* 18: A1084, 2004.
- Herrera, G.M.** and Nelson, M.T. Role of urothelial SK channels in mediating the response of the bladder to distension. *FASEB J.* 17: A480-A481, 2003.
- Herrera, G.M.**, Pozo, M.J., Zvara, P., Adelman, J.P., and Nelson, M.T. SK3 channels regulate urinary bladder smooth muscle (UBSM) function *in vivo*. *FASEB J.* 16: A387, 2002.
- Herrera, G.M.** and Nelson, M.T. Remote sensing of Ca^{2+} influx through voltage-dependent Ca^{2+} channels (VDCCs) by ryanodine receptors (Ca^{2+} sparks) in the sarcoplasmic reticulum (SR) of urinary bladder smooth muscle (UBSM). *FASEB J.* 15: A1116, 2001.
- Herrera, G.M.**, T.J. Heppner, D. Hill-Eubanks, and M.T. Nelson. Role of SK channels in controlling bladder smooth muscle cell function. Oral Presentation at North East Smooth Muscle Society Meeting: Worcester, MA, 2000.
- Herrera, G.M.**, T.J. Heppner, D. Hill-Eubanks, J.P. Adelman, and M.T. Nelson. Apamin-sensitive small conductance K_{Ca} channels regulate excitability and contractility in guinea pig urinary bladder smooth muscle. FASEB Summer Meeting on Smooth Muscle: Aspen, CO, 2000.
- Herrera, G.M.**, T.J. Heppner, D. Hill-Eubanks, J.P. Adelman, and M.T. Nelson. Apamin-sensitive small conductance K_{Ca} channels (SK2) regulate excitability and contractility in guinea pig urinary bladder smooth muscle (UBSM). *FASEB J.* 14: A664, 2000.

Abstracts, continued

- Herrera, G.M.**, T.J. Heppner, A.D. Bonev, and M.T. Nelson. Local communication between ryanodine receptors (Ca^{2+} sparks) and large-conductance Ca^{2+} -dependent K^+ (BK) channels in urinary bladder smooth muscle (UBSM). *Biophys. J.* 78: 438A, 2000.
- Heppner, T.J., **G.M. Herrera**, A.D. Bonev, D. Hill-Eubanks, and M.T. Nelson. Novel mechanisms to relax urinary bladder smooth muscle. International Bladder Symposium in Washington, DC, 1999.
- Herrera, G.M.**, T.J. Heppner, and M.T. Nelson. Direct activation of calcium-sensitive potassium channels by sarcoplasmic reticulum calcium release in urinary bladder smooth muscle. Late Breaking Abstract presented at FASEB 99 in Washington, DC, 1999.
- Herrera, G.M.**, T.J. Heppner, and M.T. Nelson. Frequency and amplitude modulation of urinary bladder smooth muscle contractility by ryanodine receptors. *FASEB J.* 13: A1033, 1999.
- Herrera, G.M.**, T.J. Heppner, and M.T. Nelson. Calcium release via ryanodine receptors modulates urinary bladder contractility by opposing mechanisms. New England Smooth Muscle Society Meeting: West Roxbury, MA, 1998.
- Herrera, G.M.**, G.T. Smith, J.J. Candelaria, and B.R. Walker. Involvement of L-type calcium channels in hypoxic relaxation of vascular smooth muscle. *FASEB J.* 11: A262, 1997.
- Herrera, G.M.**, L.A. Richardson, T.C. Resta, and B.R. Walker. Nitric oxide is not involved in ATP-sensitive potassium channel-mediated vasodilation. *FASEB J.* 10: A318, 1996.
- Balderrama, D.S., **Herrera, G.M.**, Richardson, L.A., Resta, J.M., Eichinger, M.R., and Walker, B.R. ATP-sensitive K^+ channels are not involved in hypoxic attenuation of systemic vasoreactivity. *Clin. Res.* 42: A72, 1994.
- Herrera, G.M.**, L.A. Richardson, D.S. Balderrama, and B.R. Walker. Nitric oxide synthesis inhibition does not attenuate cromakalim-induced vasodilation in the conscious rat. National Minority Research Symposium: Hilton Head Island, South Carolina, 1994.
- Herrera, G.M.**, L.A. Richardson, D.S. Balderrama, M.R. Eichinger, J.M. Resta, and B.R. Walker. ATP-sensitive potassium channels are not involved in hypoxic attenuation of systemic vasoreactivity. NIGMS Minority Programs Symposium: Atlanta, Georgia, 1993.
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