Curriculum Vitae **Gerald M. Herrera, Ph.D.**

Work

Work Address Department of Pharmacology
Larner College of Medicine
University of Vermont
89 Beaumont Avenue
Burlington, Vermont 05405
Phone: (802) 656-2500 Fax: (802) 656-4523

E-mail: gmherrer@uvm.edu
WWW: https://www.nelsonlaboratory.com/our-team

ORCAiD: 0000-0002-9029-0093

eRA Commons: GHMERRERA
ResearchGate: https://www.researchgate.net/profile/Gerald-Herrera-2
NIH NLM MyBibliography:
https://www.ncbi.nlm.nih.gov/myncbi/gerald.herrera.1/bibliography/public/

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

2019-present	University of Vermont Assistant Professor, Department of Pharmacology
2022-present	Med Associates, Inc., Catamount Research and Development Inc., and Living Systems Instrumentation (a division of Catamount R&D) Scientific Research Consultant* **Financial Disclosure – Med Associates, Inc. and Catamount Research and Development, Inc. are family businesses, and my wife is a co-owner of these entities*.

Past Positions

2008-2022	Living Systems Instrumentation, a division of Catamount Research and Development, Inc. President
2007-2022	Catamount Research and Development Inc. President
2004-2019	University of Vermont Adjunct Assistant Professor, Department of Pharmacology
2005-2022	Med Associates, Inc. Vice President Research and Development
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

2008-2016	Microcirculatory Society, Member
2008-2014	Molecular and Cellular Cognition Society, Member
2006-present	Vermont State Chapter of the Society for Neuroscience, Member
2005-present	Faculty for Undergraduate Neuroscience, Member
2004-present	Behavioral Pharmacology Society, Member
2004-2016	Northern Mountain Branch of the American Association for Laboratory Animal Science, Member
2004-2016	American Association for Laboratory Animal Science, National Gold Member
2003-present	Society for Neuroscience, Member
2003-2016	American Society for Pharmacology and Experimental Therapeutics, Member
1998-1999	Biophysical Society, Student Member
1996-present	American Physiological Society, Member 2012-2019 – Member, Physiologists in Industry Committee

Continuing Education& Professional Development

2024	Vermont Biomedical Research Network Introductory Software Carpentries Workshop, University of Vermont – March 2024. This two-day workshop focused on the use of Bash, the GitBash Shell, GitHub, and an introduction to using the programming language R for basic data sorting processes.
2020	Introduction to Sponsored Programs Administration, University of Vermont, September 2020
2020	Open Access: What Researchers Need to Know Now – March 2020, APS Webinar
2020	Principles of Lean Manufacturing with Live Simulation – Vermont Manufacturing Extension Center, February 2020
2016	Shipping Lithium Batteries Training 49CFR/IATA – October 2016, Webinar
2014	Application Deployment with MATLAB – August 2014, Webinar
2014	Data Analysis with Excel and MATLAB – February 2014, Webinar
2013	5th International Zebrafish Behavioral Neuroscience and Neurophenotyping Workshop ZB2N-2013, International Stress and Behavior Society, New Orleans, LA, December 13, 2013
2013	Image Processing with MATLAB – May 2013, Webinar
2013	Overactive Bladder: Current and Emerging Therapies for Optimized Individualized Treatment – May 2013, Workshop at Annual Meeting of American Urological Association, San Diego, CA
2013	Modern Alternatives to TURP: Lasers and Bipolar – May 2013, Workshop at Annual Meeting of American Urological Association, San Diego, CA; Hands-on training using four minimally invasive alternatives to traditional transurethral resection of prostate (TURP) currently available; including high power 532 nm laser photoselective laser vaporization of the prostate (PVP), holmium laser enucleation/ablation of prostate (HoLEP/HoLAP), Bipolar Electrovaporization of Prostate (Biopolar EVP/Bipolar TURP), transurethral suture stacking prostatic urethral lobes. (1 hr lecture, 2 hrs hands-on).
2013	Office Urodynamics – May 2013, Workshop at American Urological Association Annual Meeting, San Diego, CA; Focused training in basic office urodynamics testing & understanding uroflow, cystometrogram, pressure flow & leak point pressure studies, correlating these techniques with clinical conditions: neurogenic conditions, stress & urge incontinence, obstructive symptoms, incontinence after prostectomy, & pediatric incontinence. (1 hr lecture, 2 hrs hands-on).
2013	Algorithm Development in MATLAB – January 2013, Webinar
2012	LabVIEW Core 1 Online Class – February 2012
2011	The 8th Edition of the Guide for the Care & Use of Laboratory Animals: Highlights, Changes, & Implications for Animal Care & Use Programs, Webinar, March 2011
2009	Animal Facility & Design Workshop, AALAS National Meeting, Denver, CO
2008	Preparing for AALAC Site Visit, AALAS National Meeting, Indianapolis, IN
2006	Society for Neuroscience Short Course, "Using Zebrafish to Study Neuroscience", October 13, 2006, Atlanta, GA

Continuing Education & Professional Development, continued

2005	Advances in Camera Technology, Workshop at The Vision Show West, May 2005, San Jose, CA
2005	Advances in Smart Cameras and Sensors, Workshop at The Vision Show West, May 2005, San Jose, CA
2005	Machine Vision Software for Part Identification and Classification, Workshop at The Vision Show West, May 2005, San Jose, CA
2005	Software Project Management Boot Camp, Construx, Bellevue, WA
2004	Meeting cGMP and Pre-Approval Requirements Workshop, Pharmacopeial Education, York College, NY
2004	The Practice of Modern HPLC, LC Resources, Wayne, PA
2002	IACUC 101, Applied Research Ethics National Association, Boston, MA

Awards & Honors

2016	Certificate of Recognition for 20 Years of Membership in the American Physiological Society
2015- present	Ambassador Fly Tyer for Renzetti Inc.; The Renzetti Ambassadors are passionate innovators about teaching and promoting the art of fly tying and fly fishing at a regional level.
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 10th Annual Society for Basic Urological Research Fall Meeting
2001	Academic Achievement Award, ALANA Student Center, Univ. of Vermont
2001	APS Minority Travel Fellowship Award, Experimental Biology 2001
2000	3rd Place in Graduate/Medical Student Research Forum, Univ. of Vermont
2000	APS Minority Travel Fellowship Award, Experimental Biology 2000
1999	1st Place in Graduate/Medical Student Research Forum, Univ. 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 *Magna cum laude* in Biology, Department of Biology, *Summa cum laude* University of New Mexico
1997	Most Outstanding Graduating Senior, 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, Univ. 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

2024	National Institutes of Health/NIDDK Study Section Participant Special Emphasis Panel/Scientific Review Group 2024/05 KUFD (February 2024)
2023	CAIRIBU Annual Meeting, *Ad Hoc* reviewer for Trainee Abstracts (November 2023)
2023	George M. O'Brien Center (U54) Urology Opportunity Pool Early Stage Investigator Award Program, Stanford O'Brien Center, *Ad Hoc* Reviewer (January 2023)
2023-present	Animal Users Advisory Committee Member, University of Vermont
2022	Co-organizer for UVM Department of Pharmacology Annual Research Retreat (November 2022)
2022	Panel Judge for Graduate Student Research Showcase
2022	Extradepartmental Member of Tenure Track Faculty Search Committee for recruiting Assistant Professor, Department of Neurological Sciences, University of Vermont (May-July 2022)
2022	George M. O'Brien Center (U54) Urology Opportunity Pool Early Stage Investigator Award Program, Stanford O'Brien Center, *Ad Hoc* Reviewer (February-March, 2022)
2021	Panel Judge, Graduate Student Research Showcase, University of Vermont
2020-2023	Member of the University of Vermont FabLab Steering Committee
2014	National Institutes of Health/NIDDK Study Section Participant and Acting Chair: P20 Developmental Centers in Benign Urology (March 2014)
2013	National Institutes of Health/NIDDK Study Section Participant: O'Brien Urology Cooperative Research Centers Program (May 2013)
2012-2016	Institutional Animal Care and Use Committee, Institutional Official Catamount Research and Development, Inc.
2011	University of Vermont College of Medicine Grad Student Research Day Graduate Alumni Discussion Panelist "Alternatives to Academia: Career Choices in Contemporary Science"
2011	National Institutes of Health Center for Scientific Review Small Business – Urology Study Section Grant Reviewer (October 2011)
2009	National Institutes of Health/NIDDK Special Emphasis Panel Study Section Grant Discussant for SBIR Grants (April 2009)
2009-2012	Institutional Animal Care and Use Committee, Scientific Member Catamount Research and Development, Inc.
2008	New England Pharmacologists Annual Meeting Panelist Topic: Careers in Science
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

2006-2018	Organizer for Med Associates Short Courses in Neuroscience Course Presenter for workshop titled *"An Introduction to Behavioral Research Protocol Programming: Getting Started with MED-PC®"* held every year at the Society for Neuroscience Annual Meeting, each summer Med Associates' facility in Vermont, and every other year in conjunction with the Federation for European Neuroscience Meeting.
2006	Vermont Genetics Network Undergraduate Student Career Day Panelist Topic: How I Chose My Career
2005-2008	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 2022-06 – Ad hoc member of Librarian Assisted Search for Alternatives Roll Out Committee
1998-2000	University of Vermont Dept. of Molecular Physiology & Biophysics, Graduate Teaching Assistant
1993-1997	University of New Mexico Dept. of Physiology, Minority Biomedical Research Support Program

Ad Hoc Reviewer

Journals	American Journal of Physiology
	BMC Urology
	British Journal of Pharmacology
	Expert Opinion on Therapeutic Patents
	Expert Opinion on Therapeutic Targets
	Experimental Physiology
	Journal of Applied Physiology
	Journal of Integrated Medicine
	Journal of Physiology
	Journal of Urology
	Methods and Protocols
	Naunyn-Schmiedeberg's Archives of Pharmacology
	Physiological Reports

Community Service/Activities/Clubs and Organizations

2024	Demonstration Fly Tyer at Monthly Meeting of Champlain Valley Trout Unlimited – Tying the Stacked Deer Hair Diver, March 2024
2021	Judge for Saint Francis Xavier School Science Fair, Winooski, Vermont
2020 – present	Judge for annual Vermont State STEM Fair, Norwich University
2019	Master of Ceremonies for Retirement Party for Reverend Maurice Roy, Pastor of Holy Angles Catholic Church, Saint Albans, Vermont
2019	Adult Chaperone for Saint Albans Rotary Ski Ride Program
2019 - present	Member of Bonefish and Tarpon Trust
2019	Guest Speaker/Demonstration Fly Tyer for Monthly Meeting of Central Vermont Trout Unlimited, "Tying the Articulated Caribou Mouse Rat", February 5, 2019, Burlington, Vermont.
2019 – 2020	Judge for Missisquoi Valley Union Middle/High School STEM Fair
2018	Featured Fly Tyer at 2018 Renzetti Fly and Rod Building Fair, Titusville, Florida. December 2018. "The Technical Tyer"
2018	Guest Speaker - "Conversations About Natural Family Planning." All Saints Catholic Church, Richford, Vermont. October 6, 2018.
2016 – present	Board Member, STEM Challenge Initiative, Inc. Saint Albans, Vermont Committees: Web Site (2016-present); Grant Reviews (2016-present)
2016	Featured Fly Tyer, 2016 Central Vermont Trout Unlimited Fly Tying Symposium, Burlington, VT. April 25, 2016. "Spinning & Stacking Deer Hair."
2015	Featured Fly Tyer at 2015 Renzetti Fly and Rod Building Fair, Titusville, Florida. December 5th, 2015. "Fly Tying with Deer Hair"
2014-present	Maintain Weather Tracking Station consisting of Davis Vantage PRO 2 Plus with WeatherLink IP. Live weather conditions from our station at: **Weather Underground**Station ID:KVTSTALB4 http://www.wunderground.com/personal-weather-station/dashboard?ID=KVTSTALB4 **Citizen Weather ObserverProgram**Callsign: EW5034 http://www.findu.com/cgi-bin/wxpage.cgi?call=EW5034!Saint%20Albans&last=120 **Davis WeatherLink**Station ID:catrd http://www.weatherlink.com/user/catrd/index.php?view=main&headers=0
2011-2018	Catamount Kids science enrichment program for children, Director Visit: www.catamountkids.com and www.facebook.com/CatamountKids
2011-present	Member of Central Vermont Chapter of Trout Unlimited
2010-2013	Fly Tying Demonstrations, Annual Vermont Festival of Fly Fishing, Burlington, VT
2009-2019	Member of Holy Angels Parish Finance Council, St. Albans, VT
2009	Invited Speaker, St. Albans Rotary Club, St. Albans, VT
2008-2018	Member of Winooski River Fly Tyers, Burlington, VT
2008-present	Member of Fly Fishers International (formerly Federation of Fly Fishers)
2008-2010	Fly Tying and Fly Fishing Demonstrations and Seminars, St. Albans Rotary Home Expo, St. Albans, VT
2006	Invited Speaker, St. Albans Rotary Club, St. Albans, VT
2005	Master of Ceremonies for 24th Annual DeGoesbriand Council 279 Knights of Columbus Vocations Banquet
2004-2019	Presenter in Pre-Cana Marriage Preparation Workshop, Holy Angels Parish, St. Albans, VT; Roman Catholic Diocese of Burlington, Vermont.

2004-2019	Northwestern Medical Center, St. Albans, Vermont Board of Incorporators, Member
2003	Master of Ceremonies for 22nd 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	3rd Degree Member of Knights of Columbus DeGoesbriand Council 279, Burlington, VT
2000-2001	1st 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

2022-present
Department of Pharmacology, University of Vermont
PHRM297 Undergraduate Research
1-3 students; supervise students for 3 to 12 hrs per week in lab research and 1 hr per week seminar

2012-2013
Villanova University
Villanova, Pennsylvania
Invited Lecturer for Biomedical Engineering Course – Fall Semesters
15 students, 2 hrs per lecture; Lecture topics: Introduction to Cardiovascular Physiology, FDA Good Manufacturing Practices – an Industry Perspective; Teaching Format - Online

2011-2018
Catamount Kids(www.catamountkids.comwww.facebook.com/CatamountKids)
St. Albans, Vermont
Director
Grades 3-8, Science enrichment program to provide children an opportunity to learn how to apply logic and reason towards understanding the world we live in by encouraging their natural inquisitive spirit.
2 hrs/session, lab experiments plus discussion & activities; 12-25 students

2006-2018
MED Associates Short Courses in Neuroscience, Course Director
Modules:
- "Introduction to Programming with MED PC" – 6 hrs basic overview of writing code to control behavioral experiments using state notation and MED PC®; Consists of lecture and hands-on use of computer labs. 10-20 students
- "Getting Started with MED PC" – 20 hrs complete overview of writing code to control behavioral experiments using state notation and MED PC®; Consists of lecture and hands-on use of computer labs. 10-20 students
- "Introduction to Fear Conditioning" – 3 hrs overview of instrumentation and experimental protocols used in fear conditioning paradigms using Med Associates Video Freeze® system. Consists of lecture and hands-on labs. 10-20 students

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: *Cardiovascular Physiology*, 1 hr/wk, 15 wks, 30 students

1998-1999
University of Vermont
Department of Molecular Physiology & Biophysics
Teaching Assistant: *Physiology for Physical Therapy students*, 3 hours per week, 15 weeks per semester, 30 students

1997
University of Vermont
Department of Biology Helix Program
Laboratory Demonstration: *Skeletal Muscle Contractility*, 2 hours, 10 students

Trainees Past and Present

1/2024 – present	Hannah Ryan, University of Vermont Undergraduate Student, Neuroscience Major; working on performing data analysis and learning calcium imaging in urothelial sheets isolated from mouse urinary bladder.	Anticipated graduation May 2024
10/2023 – present	Jason Rengo, University of Vermont Cell and Molecular Biology graduate student. Jason is learning how to conduct physiological recordings of lower urinary tract function. He is working on his PhD qualifying exam.	Anticipated qualifying exam Summer 2024
9/2023-12/2023	Amanda Arnold, Barnard College Undergraduate Student; Amanda transferred to Barnard College after attending her first two years at University of Vermont. While at UVM, she worked in Mark Nelson's lab learning patch clamp electrophysiology. Just before moving to Barnard, she started patch clamping mouse urothelial cells, recording single channel piezo channel currents. After enrolling at Barnard, Amanda took a research seminar course, and I served as her remote faculty sponsor. She worked on analyzing all the data from her single channel recordings.	Currently an undergraduate student at Barnard College, anticipated graduation May 2025. She will be a co-author on a manuscript we are preparing.
8/2021 – 12/2023	Elleanor Beaulieu, University of Vermont Undergraduate Student, Biology Major; worked on several in vivo and ex vivo projects on lower urinary tract function. Presented research at Physiology Summit in 2023. Has a co-authored manuscript in review.	Currently finishing BS degree, working as a physical therapist assistant
1/2022 – 5/2023	Hannah Fallon, University of Vermont Undergraduate Student, performed contractility studies in mouse bladder smooth muscle strips, conducted UroVoid non-invasive bladder function tests in mice, performed calcium imaging in urothelial sheets, learned isolated pressurized ex vivo mouse bladder preparation. Presented posters at Society for Neuroscience meeting 2023 and Physiology Summit 2023.	Currently a lab technician in my laboratory. Has two manuscripts in review, including one first authorship.

Colloquia & Symposia

Role for Urothelial Adenosine in Sensing Bladder Fullness

December 2023 UVM Biomedical Engineering Research Conference
Department of Electrical and Biomedical Engineering, University of Vermont, Burlington, VT

Understanding How the Urinary Bladder Senses fullness

January 2023 UVM Biomedical Engineering Research Conference
Department of Electrical and Biomedical Engineering, University of Vermont, Burlington, VT

February 2023 Office of Animal Care Lunch and Learn Seminar
University of Vermont, Burlington, VT

Bladder Filling Rate Affects Afferent Nerve Activity But Not Voiding Behavior In Mice

June 2022 Basic Science Seminar Series
Department of Neurological Sciences, University of Vermont, Burlington, VT

Chronic Bladder Disease – Basic Science Perspective

December 2019 Collaborating for the Advancement of Interdisciplinary Research in Benign Urology (CAIRIBU) 2019, Kansas City, MO

Advances in Experimental Techniques in Animal Behavior

September 2018 Biomedical Experimental Center
Xi'an Jiaotong University, Xi'an, China

Wheel Running and Cage Climbing as Distinct Measures of Activity in Two Strains of Mice

November 2009 American Association of Laboratory Animal Science National Meeting
Platform Presenter. Denver, CO.

Novel Wireless In-Cage Running Wheels Used To Record Mouse Wheel Running Activity In Ventilated Rack Home Cages

October 2007 American Association of Laboratory Animal Science National Meeting
Platform Presenter. Charlotte, NC.

Accurate Quantitation Of Water Intake In Mice: A Rapid And Cost-Effective Approach

October 2006 American Association of Laboratory Animal Science National Meeting Platform Presenter. Salt Lake City, UT.

Mapping the Gastrointestinal Tract: Novel Imaging Techniques Reveal Patterns in Gut Motility

April 2006 Behavioral Pharmacology Society Annual Meeting, Chair: C. France. San Francisco, CA.

Preclinical drug screening: in vitro assay for assessing gastrointestinal side effects

April 2005 Behavioral Pharmacology Society Annual Meeting, Chair: C. France. San Diego, CA.

Calcium mobilization in detrusor muscle

April 2004 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.

Excitation-contraction coupling in urinary bladder smooth muscle

October 2000 John B. Pierce Laboratory, Yale University, New Haven, CT

October 2000 Cornell University, Department of Biomedical Science, Ithaca, NY

October 2000 Colorado State University, Department of Biomedical Sciences, Fort Collins, CO

Involvement of L-type calcium channels in hypoxic relaxation of vascular smooth muscle

March 1997 University of Vermont, Department of Molecular Physiology & Biophysics

December 1996 University of New Mexico, Department of Biology

Peer-Reviewed Papers

Hennig, G., Saxena, P., Broemer, E., **Herrera, G.M.**, Roccabiana, S., and Tykocki, N.R. Quantifying whole bladder biomechanics using the novel pentaplanar reflected image macroscopy system. *Biomech Model Mechanobiol.* 2023 May 30. doi: 10.1007/s10237-023-01727-0. Online ahead of print.

Saxena, P., Broemer, E., **Herrera, G.M.**, Mingin, G.C., Roccabiana, S., and Tykocki, N.R. Compound 48/80 increases murine bladder wall compliance independent of mast cells. *Sci Rep* **13,** 625 (2023). https://doi.org/10.1038/s41598-023-27897-6

Heppner, T.J., Hennig, G.W., Nelson, M.T., and **Herrera, G.M.** Afferent nerve activity in a mouse model increases with faster bladder filling rates *in vitro*, but voiding behavior remains unaltered *in vivo*. *Am. J. Physiol. Regulatory Integrative Comp. Physiol.* 2022 Sep 19. doi: 10.1152/ajpregu.00156.2022

Beča KIK, Girard BM, Heppner TJ, Hennig GW, **Herrera GM**, Nelson MT and Vizzard MA (2021) The Role of PIEZO1 in Urinary Bladder Function and Dysfunction in a Rodent Model of Cyclophosphamide-Induced Cystitis. *Front. Pain Res.* 2:748385. doi: 10.3389/fpain.2021.748385

Pantoni, M.M., **Herrera, G.M.**, Van Alstyne, K.R., and Anagnostaras, S.G. Quantifying the acoustic startle response in mice using standard digital video. *Front. Behav. Neurosci.* doi: 10.3389/fnbeh.2020.00083. 2020.

Khuon, L., Zurn, K.R., Zurn, J.B., and **Herrera, G.M.** Teaching biomedical design through a university-industry partnership. *Conf. Proc. IEEE Med Biol Soc.*Aug; 2016: 3023-3026, doi: 10.1109/EMBC.2016.7591366. 2016

White, R.S., Zemen, B.G., Khan, Z., Montgomery, J.R., **Herrera, G.M.**, and Meredith, A.L. Evaluation of mouse urinary bladder smooth muscle for diurnal differences in contractile properties. *Front. Pharmacol.* Doi: 10.3389/fphar.2014.00293. 2015

Zvarova, K., **Herrera, G.M.**, May, V., and Vizzard, M.A. Cocaine and amphetamine-regulated transcript peptide (CARTp): distribution and function in rat urinary bladder. *J. Molec. Neurosci.*54(3):351-359. 2014.

Anagnostaras, S.G., Wood, S.C., Wood, T., Cai, D.J., LeDuc, A.D., Zurn, K.R., Zurn, J.B., Sage, J.R., and **Herrera, G.M**. Automated assessment of Pavlovian conditioned freezing and shock reactivity in mice using the VideoFreeze system. *Front. Behav. Neurosci.* doi: 10.3389/fnbeh.2010.00158. 2010.

Herrera, G.M. and Meredith, A.L. Diurnal variation in urodynamics of rat. *PLoS One*5(8): pii: e12289, 2010.

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.

Peer-Reviewed Papers, continued

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. Sarcoplasmic reticulum and membrane currents. *Novartis Found. Symp.* 246:189-203, 2002.

Abstracts

Husain, J., Pace, A., Bakhareva, S., Fallon, H., **Herrera, G.M.**, Heppner, T.J., and Erdos, B. Urinary bladder dysfunction in a novel model of neuroendocrine stress. Late Breaking Abstract Presented at Physiology Summit 2024, Long Beach, California.

Fallon, H.J., Heppner, T.J., Hennig, G.W.,, Nelson, M.T., and **Herrera, G.M.** Urothelial Piezo1 channels do not alter voiding or afferent nerve sensitivity in the mouse. Presented at Physiology Summit 2024, Long Beach, California.

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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.

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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.

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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.

Research Funding

Funding Agency / Code	Funding Period	Project Title / Description	Role	Effort	Amount
		ACTIVE			
NIH NIDDK R01 DK1255453	2020-2025	*How is Fullness Sensed in the Urinary Bladder?* As the urinary bladder fills with urine, sensory nerves send signals to the brain to indicate its level of fullness. However, the mechanisms used to detect the level of urine in the bladder are poorly understood. Our overall goal in this project is to understand how the bladder senses fullness, as this is a key issue to understanding normal bladder function and will provide new insights into bladder pathology. (PIs: Herrera and Heppner)	CoPI	0.6	$2,231,174
NIH NIGMS P20 GM135007	2020-2025	*Vermont Center on Cardiovascular and Brain Health, COBRE* The major goals of this Center are to nucleate the University of Vermont's considerable research expertise in cardiovascular and neurovascular research to address the issues of cardiovascular disease and stroke from diverse, mutually reinforcing basic science, clinical science and epidemiology perspectives, as well as support the transition of early career faculty to independent scientists. (PIs: Nelson and Cushman)	Core Co-Director	0.05	$1,800,000
NIH NIDDK R01DK119615	2019-2024	*TRPV1 Mediates Progressive Stress-Induced Bladder Dysfunction* The major goal of this project is to investigate how the duration/intensity of social stress causes bladder dysfunction and determine the role TRPV1 channels play in the progression of stress-induced bladder dysfunction. Additional diversity supplement allows a URM graduate student to be funded on the award. (PIs: Tykocki and Mingen)	Collaborator	0.1	$1,740,160 +suppl. $144,813
		COMPLETED			
Vermont EPSCOR SBIR Phase (0)	2014-2015	*Developing a Reliable System for the Non-Invasive Evaluation of Bladder Function in Mice*	PI	n/a	$8,840.00
Vermont EPSCOR SBIR Phase (0)	2004-2005	*Protection of Military Working Dogs by Prophylactic Transdermal Drug Delivery*	PI	n/a	$9,905.00

Websites and Social Media Maintained

2023-present *www.herreralabs.com*

Wordpress site built on a standard theme; this site contains information about the research projects and team members that make up the Herrera Lab at The University of Vermont.

2018-present *www.technicaltyer.com*

Wordpress site built on a custom theme, this site contains my blog and hobby information about my fly tying and fly fishing pursuits. Key features include user contact form, category posts, and landing pages for posts that supplement my *Fly Tyer* Magazine columns and social media posts.

Facebook: www.facebook.com/TechnicalTyer
Instagram: TechnicalTyer

2016-present *www.scivt.org*

Wordpress site using a standard theme, this site features the information content for Northern Vermont's STEM Challenge Initiative, an all-volunteer non-profit organization whose mission is to support and develop STEM resources for educators in Franklin and Grand Isle counties of Vermont. Key features include GravityForms-based forms using conditional logic and multi-page layouts to control workflow for submitting grant applications, reviewing grants, and enrolling in SCI-sponsored events, and custom posts functioning as progress reports for current and past grant recipients.

Facebook: www.facebook.com/STEMVT

2011-present *www.catamountkids.com*

Wordpress website built using standard theme. This site contains content related to our company-sponsored kids STEM program. Key features include forms to handle workflow for student enrollment, ecommerce for purchasing CatamountKids labwear, and home page slider.

Facebook: www.facebook.com/CatamountKids

2008-2020 *www.livingsys.com*

Website for our family business, Living Systems Instrumentation. At the time the company was acquired from the previous owner, this website was maintained as an HTML site by a third-party service provider. We brought the HTML site in-house and maintained it via Adobe Dreamweaver until 2012. At that time, a custom Wordpress site was launched, which continues to the present time. Key features include e-commerce platform for purchasing laboratory instrumentation online, GravityForms multi-page conditional logic forms to handle return merchandise authorization and customer support tickets, a custom post type for maintaining our citations bibliography database, home page slider, and technical resources, such as training videos and documentation.

Facebook: www.facebook.com/LivingSys

2007-2020 *www.catamountresearch.com, www.mansfieldrd.com, www.razelscientific.com*

Various websites for divisions of our family businesses. These sites are currently maintained as WordPress sites using standard or custom themes.

2004-2020 *www.discountdisposables.com*

This site features online shopping cart for purchasing and shipping physiological electrodes, gels, pasts, electrode leads, and other electrode supplies to customers worldwide. This site started out as an HTML site maintained in-house using home-made e-commerce tools. The site is currently maintained in a proprietary third-party e-commerce hosting platform.

Facebook: www.facebook.com/DiscountDisposables

2004-2020 *www.med-associates.com*

Website for family business of Med Associates, Inc. This website has evolved from an HTML frames based site maintained in Microsoft Page Maker, to HTML/CSS maintained with Adobe Dreamweaver, to the present site, which is maintained with a custom Word Press theme. Key features of the present site include credentialed customer portal user access area, custom posts to control product catalog, semi-automated csv uploader to maintain bibliography citation database, GravityForms-based submission forms using conditional logic and multi-page layouts to handle work flow such as return merchandise authorization and customer support tickets, and Request-A-Quote shopping cart feature, and a home page slider.

Facebook: www.facebook.com/MedAssociates

Hobby Publications

2018- Present Featured Columnist in *Fly Tyer* Magazine – "The Technical Tyer"

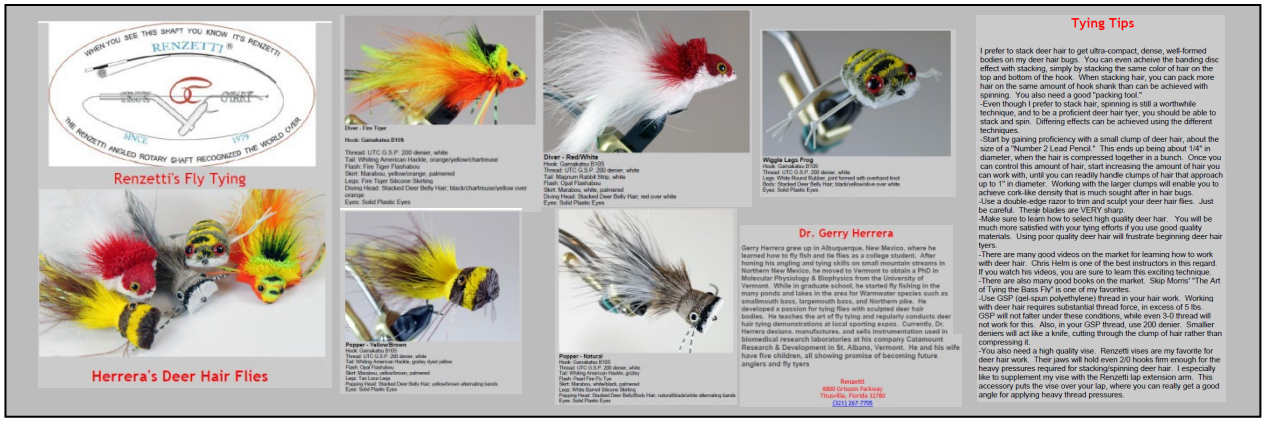
Herrera, G.M. "The Spin Doctor Is In." *Fly Tyer* 25(1): 14-19, 2019 Spring.

Herrera, G.M. "Sinking With the Fishes." *Fly Tyer* 24(3): 64-68, 2018 Autumn.

Herrera, G.M. "Let The Force Be With You – How Much Force is Required to Spin and Flare Deer Hair?" *Fly Tyer* 24(2): 71-75, 2018 Summer.

Newsletters

2013 "Renzetti's Fly Tying… Herrera's Deer Hair Flies". Published in June 2013 Issue of *Renzetti News*, the email newsletter of Renzetti Inc. www.renzetti.com



2013 Photograph of a fly fishing fly that I tied was featured on the cover of the Renzetti Inc. Fly Tying Tools Catalog.