

Scott Medler
Associate Professor – St. Bonaventure University
 Work phone: (716) 375 – 2544

Cell phone: (716) 868 - 1254

email: smedler@sbu.edu

Academic Appointments

Associate Professor June 2020 - Present

Physician Assistant Studies

St. Bonaventure University

Chair, Biology Department 2019-2020

SUNY Fredonia

Associate Professor 2016 - 2020

Biology Department

SUNY Fredonia

Assistant Professor 2011 - 2016

Biology Department

SUNY Fredonia

Research Assistant Professor 2004 – 2011

Department of Biological Sciences

University at Buffalo

Assistant Biology Professor 2003 – 2004

Center for Arts and Sciences

Community College of Denver

NIH Postdoctoral Fellow 2000 – 2003

Department of Biology

Colorado State University

Instructor 1998 – 1999

Department of Biological Sciences

Louisiana State University

Education

Louisiana State University, Department of Biological Sciences. 1998. Ph.D. Zoology

Dissertation: Structure and function of intrinsic gill muscles in freshwater bivalve molluscs.

San Diego State University, Department of Biology. 1989 - 1992. MS candidate in Biology

Thesis research: Renal contributions to water balance in Anna's hummingbird.

Texas A & M University. 1989. BS Zoology

Research Experience

St. Bonaventure University

SUNY Fredonia

2020 - present. Associate Professor

2016 – 2020. Associate Professor

2011 – 2016. Assistant Professor

University at Buffalo

2004 – 2011. Research Assistant Professor

Colorado State University

2003 - 2004. Postdoctoral Researcher

2000 – 2003. NIH Postdoctoral Fellow

Louisiana State University

1993 - May 1998. Ph.D. Student

La Jolla Pharmaceutical Company

1992 - 1993. Research Assistant

San Diego State University

1989 - 1992. M.S. Student

Texas A & M University 1988 - 1989. Laboratory Assistant

Teaching Experience

St. Bonaventure University. 2020 – present

- Basic Sciences I
- Basic Sciences II
- Basic Sciences III
- Medical Informatics

SUNY Fredonia. 2011 – 2020

- Mammalian Physiology
- Mammalian Physiology Lab
- Muscles and Movement
- Comparative Anatomy
- Comparative Anatomy Lab
- Neurobiology
- Advanced Neurophysiology Lab
- Introduction to Cell and Molecular Biology
- Human Biology
- Human Anatomy and Physiology Lab
- Health Professions Careers
- Studying for Success
- Student Ambassadors

University at Buffalo. 2004 – 2011

- Integrative Neuroscience (lectures on motor systems)
- Perspectives in Human Biology I
- Perspectives in Human Biology II
- Evolutionary Biology
- Physiology Colloquium

Community College of Denver. 2003 - 2004

- Human Anatomy and Physiology I
- Human Anatomy and Physiology II
- Introduction to Human Anatomy

Colorado State University. 2002

- Biochemical Adaptation

Louisiana State University. 1998 - 1999

- Human Physiology
- Introductory Zoology
- Vertebrate Physiology Labs (Coordinator)

Louisiana State University. 1993 - 1997

- Cellular Physiology Lab
- Vertebrate Physiology Lab
- Comparative Anatomy Lab
- Introductory Biology Lab

San Diego State University. 1989 - 1992

- Human Anatomy Lab
- Health Careers Opportunity Program
- Introductory Biology Lab

University Committees and Service

- Keenan-Martini Award Review Committee, St. Bonaventure, 2022
- Biology Department Chair, SUNY Fredonia 2019-2020
- Departmental Personnel Committee: 2016 – 2020, Chair 2018
- Institutional Animal Care and Use Committee (IACUC), Chair: 2013-2020
- CLAS Brown Bag Lunch Committee: 2015-2020
- Departmental Graduate Committee: 2016 - 2020

Health Professions Advising Committee: 2011- 2020
 First Year Experience Committee, Chair: 2014 - 2020
 Science Education Partnership: 2012- 2020
 Patrie Endowment Committee: 2012 - 2020
 Regional Science Consortium. Tom Ridge Environmental Center at Presque Isle, Erie Penn. Alternate Board Member: 2012-2020
 Faculty Senate Subcommittee-Adjunct and Contingent Faculty. Science Representative: 2012-2014

Grant Support

National Institutes of Health (NIAMS) 2007-2010.

RO3: Myosin heavy chain polymorphism in hybrid skeletal muscle fibers. \$237,000

University at Buffalo UB 2020 Interdisciplinary Research Development Fund (IRDF) 2006-2007

Scale effects on the musculoskeletal system of terrestrial crabs \$36,000

National Institutes of Health (NIAMS) NIH postdoctoral fellowship (NRSA) 2000-2003

Muscle fiber type switching in the lobster claw \$125,160

Peer Reviewed Publications (31)

Research papers (undergraduates students are underlined)

Yang, S., Douglas, T.D., Ruia, R., and **Medler, S.** (2021) Hemolymph supply to locomotor muscles of the ghost crab, *Ocypode quadrata*. *Journal of Experimental Biology* 224: 1-8.

Medler, S. (2019) Mixing it up: biological significance of hybrid skeletal muscle fibers. *Journal of Experimental Biology* 222: 1 – 15.

Larson, L., Lioy, J., Johnson, J, and **Medler, S.** (2019) Transitional hybrid skeletal muscle fibers in the development of the rat soleus. *J. Histochem Cytochem* 67: 891 – 900.

Wittemore SB, Hoglin B, Green M, **Medler, S** (2015) Stride frequency in relation to allometric growth in ghost crabs (*Ocypode quadrata*). *J. Zool.* 296: 286-294.

Denies M, Johnson, J, Maliphol, AB, Bruno, M, Kim, A, Rizvi, A, Rustici, K, and **Medler, S** (2014) Diet induced obesity alters skeletal muscle fiber types of male but not female mice. *Physiological Reports* 2: e00204.

Brummer H, Zhang MY, Piddoubny M, and **Medler S** (2013) Hybrid fibers transform into distinct fiber types in maturing mouse muscles. *Cells Tissues and Organs* 198: 227-236.

Zhang, MY, Zhang, WJ, and **Medler, S** (2010). The continuum of IIX/IIB hybrid fibers in normal mouse muscles: relative proportions and distribution of isoforms. *American Journal of Physiology Regulatory Integrative Comp Physiol* 299: R1582-R1591.

MacLea, KS, Covi, JA, Kim, HW, Chao, E, **Medler, S**, Chang, ES, and Mykles, DL (2010) Myostatin from the American lobster, *Homarus americanus*: cloning and effects of molting on expression in skeletal muscles. *Comparative Biochemistry and Physiology* 157A: 328-337.

Glaser, BW, You, G, Zhang, M, and **Medler, S.** (2010) Relative proportions of hybrid fibers are unaffected by 6 weeks of running exercise in mouse skeletal muscles. *Experimental Physiology* 95: 211-221.

Perry, MJ, Tait, J, Hu, J, White, SC, and **Medler, S.** (2009) Skeletal muscle fiber types in the ghost crab, *Ocypode quadrata*: implications for running performance. *Journal of Experimental Biology* 212: 673-683.

Medler, S and Hulme, K (2009). Power output from striated muscles performing cyclical contractions: patterns and constraints. *Comparative Biochemistry and Physiology* 152A: 407-417.

Medler, S, Chang, ES, and Mykles, DL (2007). Muscle-specific calpain is localized in regions near motor endplates in differentiating lobster claw muscles. *Comparative Biochemistry and Physiology – A* 148: 591 - 598.

Medler, S, Lilley, TR, Riehl, JH, Mulder, EP, Chang, ES, and Mykles, DL (2007).

Myofibrillar gene expression in differentiating lobster claw muscles. *Journal of Experimental Zoology* 307A: 281-295.

Medler S, Brown KJ, Chang ES, and Mykles DL (2005) Eye-stalk ablation has little effect on actin

and myosin heavy chain expression in adult lobster skeletal muscles. *Biological Bulletin* 208: 127 – 137.

- Medler S**, Lilley T, and Mykles, DL (2004) Fiber polymorphism in lobster skeletal muscles: continuum between slow phasic (S₁) and slow tonic (S₂) muscle fibers. *Journal of Experimental Biology* 207: 2755-2767
- Koenders A, Lamey TM, **Medler S**, West JM, and Mykles DL (2004) Two fast-type fibres in the claw closer and abdominal deep muscles of the Australian freshwater crustacean, *Cherax destructor*, differ in Ca²⁺-sensitivity and troponin I isoforms. *Journal of Experimental Zoology* 301A: 588-598.
- Medler S** and Mykles DL (2003) Analysis of myofibrillar proteins and transcripts in skeletal muscles of the American lobster, *Homarus americanus*: variable expression of myosins, actin, and troponins in fast, slow-twitch, and slow-tonic fibres. *Journal of Experimental Biology* 206: 3557-3567.
- Medler S** (2002) Comparative trends in shortening velocity and force production in skeletal muscles. *American Journal of Physiology Regulatory Integrative Comp Physiol* 283: R368-R378.
- Mykles D L, **Medler S**, Koenders A, and Cooper RL (2002) Myofibrillar protein isoform expression is correlated with synaptic efficacy in slow fibres of the claw and leg opener muscles of crayfish and lobster. *Journal of Experimental Biology* 205: 513-522.
- Medler S** and Silverman H (2001) Muscular alteration of gill geometry *in vitro*: implications for bivalve pumping processes. *Biological Bulletin* 200: 77-86
- Medler S**, Thompson C C, Dietz T H, and Silverman H (1999) Ionic effects on intrinsic gill muscles in the freshwater bivalve, *Dreissena polymorpha*. *Comparative Biochemistry and Physiology* 112A: 163-172.
- Medler S** and Silverman H (1998) Extracellular matrix and muscle fibers in the gills of freshwater bivalves. *Invertebrate Biology* 117: 288-298.
- Medler S** and Silverman H (1997) Functional organization of integral gill muscles in *Dreissena polymorpha* (Mollusca: Bivalvia) and response to transmitters *in vitro*. *Invertebrate Biology* 116: 200-212.
- Medler S** (1995) Physiological time and the measurement of glomerular filtration rate. *Journal of Theoretical Biology* 176: 59-65.

Physiology Education

- Medler, S.** (2022) The effects of local anesthetics on compound action potentials generated from the frog sciatic nerve. *Advances in Physiology Education*.
- Medler, S** (2022) Creatine and the case of the aging athlete. National Center for Case Study Teaching in Science. <https://www.nsta.org/ncss-case-study/creatine-and-case-aging-athlete>
- Ewing, M.D. and **Medler, S.** (2020) Differential effects of local anesthetics on nerve responses of crayfish stretch receptor organs. *Journal of Undergraduate Neuroscience Education* 18(2): A121-A128.
- Medler S** (2019) Anesthetic MS 222 eliminates nerve and muscle activity in frogs used for physiology teaching lab. *Advances in Physiology Education* 43: 69 – 75.
- Medler S**, and Harrington, F (2013) Measuring dynamic kidney function in an undergraduate physiology laboratory. *Advances in Physiology Education* 37: 384-391.

Book Chapters

- Medler S** and Mykles DL (2015) Muscle Structure, Fiber Types, and Physiology. Chapter 4 in: *The Natural History of Crustaceans*. ES Chang and M Thiel, Ed. Oxford University Press, Oxford.
- Mykles DL and **Medler S** (2015) Muscle Plasticity. Chapter 5 in: *The Natural History of Crustaceans*. ES Chang and M Thiel, Ed. Oxford University Press, Oxford.

Presentations (36) (undergraduates students are underlined)

- Medler S** (2022) How to Build an Anatomy Curriculum with the Anatomage Table. Anatomage Webinar. <https://www.youtube.com/watch?v=dSKt34Vf96M>
- Douglas T, Abrantes AA, and **Medler S** (2017) Arterial blood supply to skeletal muscles in ghost crabs. SICB Annual Meeting. New Orleans, LA. *Integrative and Comparative Biology* 57: Supplement 1:

E42-E42.

- Bunge ZD, Biber J, Ferguson SB, and Medler S (2017) Integrating research and undergraduate education: Cloning ghost crab myosins. *Integrative and Comparative Biology* 57: Supplement 1: E22-E22.
- Larson LR, Johnson J, and **Medler S** (2015) Fiber type asymmetries in growing skeletal muscles. SICB Annual Meeting. West Palm Beach, FL. *Integrative and Comparative Biology* 55: Supplement: 1: E289-E289
- Medler S** and Harrington F (2014) Measuring dynamic kidney function in an undergraduate physiology lab. American Physiological Society Institute on Teaching and Learning. Bar Harbor, ME, June 23 – 27.
- Johnson J, DeNies M, **Medler S** (2014) Diet induced obesity alters skeletal muscle fiber types of male but not female mice. 16th Annual Student Research and Creativity Expo, SUNY Fredonia, May 1.
- DeNies M., Johnson J., Bruno M., Kim A., Green M., and Medler S (2013) Diet induced obesity alters skeletal muscle fiber types of male but not female mice. 9th Annual Research Symposium. Regional Science Consortium, Tom Ridge Environmental Center at Presque Isle, Erie, PA.
- Johnson J, DeNies M, Kim A, Green M, Bruno M, and Medler S (2013) Obesity is responsible for a fundamental physiological shift to fast twitch fiber types in male mice. 15th Annual Student Research and Creativity Expo, SUNY Fredonia, May 2.
- Larson L and **Medler S** (2013) Asymmetrical hybrid fibers and myosin heavy chain isoforms in mouse soleus muscles. 15th Annual Student Research and Creativity Expo, SUNY Fredonia, May 2.
- Whittemore SB, Morris K, and Medler S (2013) Stride frequency and body size in running ghost crabs. SICB Annual Meeting, San Francisco, CA.
- Rizvi A, Rustici K, Johnson J, Denies M, and Medler S (2012) Muscle fiber types in obese mice: Does a high fat diet cause changes in skeletal muscle phenotype? 14th Annual Student Research and Creativity Expo, SUNY Fredonia, April 26.
- Piddoubny, M and Medler, S. (2010) Hybrid muscle fibers in developing mice. 6th Annual Celebration of Academic Excellence, University at Buffalo, April 1, 2010.
- Medler, S** (2009) Myosin heavy chain polymorphism in mouse hybrid muscle fibers. Workshop on Multi-Scale Muscle Mechanics. Woods Hole, MA.
- Medler, S** (2008) Muscle fiber types in ghost crabs: implications for running performance. The Integrative Biology of Exercise V. American Physiological Society Intersociety Meeting. Hilton Head, SC.
- Hu J, Tate J, and Medler, S (2007) Molecular mechanisms available to “fine-tune” muscle function in the ghost crab, *Ocypode quadrata*. Sigma Xi Research Day, University at Buffalo, April 24, 2007.
- Perry M, Feuerstein J, and Medler S (2006) Why are terrestrial crabs so fast? Characterization of Leg Muscles in the Ghost Crab, *Ocypode quadrata*. Sigma Xi Research Day, University at Buffalo, April 26, 2006.
- Lilley, TR, Medler, S., and Mykles, DL (2005) Lobster myocyte enhancing factor (Mef2): cloning and tissue expression in response to elevated ecdysteroid. SICB Annual Meeting, Orlando, FL.
- Lilley T, Medler S, Riehl J, and Mykles DL (2005) Variable expression of myofibrillar protein isoforms in juvenile lobster claw muscles. SICB Annual Meeting, San Diego, CA.
- Spencer N and Medler S (2004) Using the Visible Human Dissector in Undergraduate Education: Examination of Hip Muscles. Annual Meeting of the Southwestern and Rocky Mountain Division of AAAS. Denver, Colorado.
- Ascione M, MacQueen K, and Medler S (2004) Using the Visible Human Dissector in the Classroom: An Examination of Herniated Discs. Annual Meeting of the Southwestern and Rocky Mountain Division of AAAS. Denver, Colorado.
- Lilley T, Medler S, and Mykles DL (2004) Coordinated expression of myofibrillar protein isoforms in slow fibers of lobster superficial abdominal muscles. *Int. Comp. Biology*, New Orleans, LA.
- Medler S, Chang ES, and Mykles DL** (2003) Myofibrillar gene expression in lobster muscles. *Int. Comp. Biology* 42.
- Medler S and Mykles D L** (2002) Myosin heavy chain isoform distribution and expression in lobster

skeletal muscles. *The Physiologist* 45: 328.

Zhou JB, **Medler S**, Chang ES, and Mykles DL (2002) Cloning an expression of lobster calcineurin A. *Int. Comp. Biology* 42: 1342.

Medler S, Mulder EP, Chang E S, and Mykles DL (2001) Muscle fiber-type switching in the developing lobster claw: timing during the intermolt cycle. *Am Zool* 41: 1524.

Medler S (2001) Comparative analysis of maximum shortening velocity and maximum tetanic tension: Implications for skeletal muscle design. *Faseb J* 15: A89.

Medler S (2000) Comparative trends in maximum shortening velocity and tetanic tension: influence on skeletal muscle diversity. *Am Zool* 40: 1129.

Mykles DL, Mulder E P, **Medler SA**, and Chang ES (2000) Developmentally-regulated fiber-type switching in claw muscles of American lobster, *Homarus americanus*. *Am Zool* 40: 1143.

Medler S and Silverman H (1998) Muscles of the bivalve pump. *Am Zool* 38: A573.

Medler S and Silverman H (1997) Muscular regulation of interfilament distance and ostial dimension in three freshwater bivalves. National Shellfisheries Association 89th Annual Meeting.

Medler S, Silverman H, Dietz TH, and Thompson C (1997) The effects of elevated salinity on the gill musculature of *Dreissena polymorpha*. National Shellfisheries Association 89th Annual Meeting.

Medler S and Silverman H (1997) Comparative structure of connective tissue the gill of *D. polymorpha*. 7th International Congress on Zebra Mussels and other Nuisance Species.

Medler S, Silverman H, Lynn JW, and Dietz TH. (1996) Ion and transmitter effects on *D. polymorpha* gill musculature. 6th International Congress on Zebra Mussels and other Nuisance Species.

Medler S and Silverman H (1995) Organization of gill musculature in the zebra mussel, *Dreissena polymorpha*. *Am Zool* 33(5): 96A.

Plunkett, ML, **Medler SA**, Blackwood WC, and Coutts SM (1994) LJP 249 delays expression of anti - ds DNA antibodies and improves survival in male BXSB mice. Abstracts of Papers of the American Chemical Society 207: 114.

Medler S and Beuchat CA (1991) Measurement of glomerular filtration rate in conscious hummingbirds. *Am Zool* 31(5): A44.

Workshops Offered

November 2015. PKAL Upstate New York Conference. Workshop on engaging UG students in research. In collaboration with Scott B. Ferguson (*SUNY Fredonia*) and Adam Rich (*SUNY Brockport*).

March 2015. Fredonia Professional Development Center workshop on Engaging UG students in Research.

October 2014. Fredonia Profession Development Center workshop on Using Case Studies in Teaching.

Awards

2019 American Physiological Society Fellow

2015 William T. and Charlotte N. Hagan Young Scholar Award

2015 Profession Development Center Associate - \$750

2014 Professional Development Award for Teaching and Learning - \$600

2014 United University Professionals Individual Development Award - \$825

2014 United University Professionals Individual Development Award - \$1000

2014 Summer Research and Creativity Award - \$1500

2011 Instructional Incentive Award for Classroom Innovations - \$2000

2006 United University Professionals Individual Development Award - \$1000

2005 United University Professionals Individual Development Award - \$1000

1991 Sigma Xi Grant in Aid: Glomerular filtration rate in hummingbirds - \$500

1991 Mabel Mayers Scholarship - \$500

Student Independent Research Projects

2019 Theresa Kenney. Effects of aging and wheel running on mouse skeletal muscles. Fredonia MS Thesis.

- 2019 Siyuan Yang. Relationship Between Muscle Fiber Types and Cardiovascular System in Ghost Crabs. Fredonia MS Thesis.
- 2019 Zainab Alolaywi. Physiological Fiber Types in Crayfish. Fredonia MS Thesis
- 2018 Maha Alanzani. Physiological Fiber Types in Ghost Crabs. Fredonia MS Thesis
- 2018 Siyuan Yang. Fredonia Holmberg Summer Fellowship: The Effects of Muscular Fiber Phenotypes on Running Performance: Ghost and Fiddler Crabs
- 2017 Ryan Ruia. Fredonia Holmberg Summer Fellowship: Muscle fiber types and MHC isoform composition in *Ocypode quadrata*
- 2016 Zachary Bunge. Fredonia Holmberg Summer Fellowship: Completion of a full-length myosin heavy chain sequence in fast and slow twitch muscles of *Ocypode quadrata*
- 2016 John Biber. Fredonia Holmberg Summer Fellowship: Completion of a full-length myosin heavy chain sequence in fast and slow twitch muscles of *Ocypode quadrata*
- 2016 Tera Douglas. Fredonia Holmberg Summer Fellowship: Arterial blood supply to skeletal muscles in ghost crabs, *Ocypode quadrata*
- 2015 Jordan Johnson. Effects of Maternal Obesity on Skeletal Muscle Development in the Offspring. Fredonia MS Thesis.
- 2014 Lauren Larson. Asymmetrical Hybrid Fibers in Developing Rat Muscles. Fredonia MS Thesis.
- 2012 Jordan Johnson. Fredonia Holmberg Summer Fellowship: Correlation Between a Metabolic Fiber Type Regulator (PGC-1 α) and Myosin Heavy Chain Expression in Skeletal Muscle Fibers
- 2012 Steven Whittemore. Fredonia Holmberg Summer Fellowship: The Effects of Muscular Fiber Phenotypes on Running Performance: Ghost and Fiddler Crabs
- 2012 Rannan Kased. Effects of Running Exercise and High Fat Diet on Mouse Plantaris Muscle. University at Buffalo, Honors Thesis.
- 2009 Brian Glaser. Effects of Running Exercise on Type X/B Hybrid Fibers in the Triceps Muscle of the Mouse. University at Buffalo, MS Thesis.
- 2009 Cheng Gong You. Effects of 10 Weeks of Running Exercise on Mouse Soleus Muscle. University at Buffalo, Honors Thesis.

Professional Development

- July 2022 - Anatomage Users Group Conference. San Jose, CA.
- April 2016 – Learning Assistant Northeast Regional Workshop. Rochester Institute of Technology.
- July 2015 – Crawfly Invertebrate Neurophysiology Course, Cornell University/ADInstruments
- September 2014 – Case Study Conference. National Center for Case Studies, University at Buffalo.
- July 2014 – Project Kaleidoscope (PKAL) Leadership Institute, Pendle Hill, PA
- June 2014 – American Physiological Society Institute on Teaching and Learning. Bar Harbor, ME
- April 2014 – IACUC Conference (PRIM&R), Denver, CO
- April 2014 – PKAL Upstate Regional Conference, Rochester, NY
- October 2013 – AACU National Conference, San Diego, CA
- April 2013 – PKAL Upstate Regional Conference, Rochester, NY
- June 2012 – NIH Regional Conference, Washington DC

Service and Outreach

- 2019 – Art and Science Exhibit SUNY Fredonia – outreach to Fredonia Middle School
- 2018 – Art and Science Exhibit SUNY Fredonia
- 2015 – Physiology Phun Day (American Physiological Society) – Dunkirk Middle School
- 2014 – Physiology Phun Day (American Physiological Society) – Dunkirk Middle School
- 2009 – Physiology Phun Day (American Physiological Society) – North Collins High School
- 2007 – University at Buffalo: Review of IRDF awards

1999 – Department of Biological Sciences (LSU): Review of candidates for physiology faculty position

1997 – Department of Biological Sciences (LSU): Admissions Committee, Grad. Student Representative

Ad hoc reviewer

Aquatic Toxicology

Acta Histochemica

Acta Physiologica

American Journal of Undergraduate Research

BBA Proteins

Cells, Tissues, and Organs

Comparative Biochemistry and Physiology

Elsevier Publishing – Book Review

FEBS Letters

Freeman Publishing – Textbook Review

Invertebrate Biology

Journal of Applied Physiology

Journal of Experimental Biology

Journal of Experimental Zoology

Journal of Theoretical Biology

Marine Biotechnology

Muscle and Nerve

Physiological Reports

Professional Associations

Society for Integrative and Comparative Biology

American Physiological Society

Sigma Xi